

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII



TIMOTHY E. JOHNS
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

JANET E. KAWELO
DEPUTY

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF FORESTRY AND WILDLIFE
1151 PUNCHBOWL STREET
HONOLULU, HAWAII 96813

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OFFICE OF ENVIRONMENTAL
QUALITY CONTROL

March 9, 2001

AQUACULTURE DEVELOPMENT
PROGRAM
AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
CONSERVATION AND
ENVIRONMENTAL AFFAIRS
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT
WATER RESOURCE MANAGEMENT

Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control
State Office Tower, Sixth Floor
235 South Beretania Street
Honolulu, Hawai'i, 96813

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wmaui mountains Summary upd*

Dear Ms. Salmonson,

Subject: Final Environmental Assessment for the West Maui Mountains Watershed Protection Project, under the West Maui Watershed Partnership (WMWP) whose members include: the Hawaii State Department of Land and Natural Resources (DLNR) TMK: 31-02-04, 3-1-03-01, 3-1-06-01, 3-2-13-14, 3-2-14-02, 3-3-03-04, 3-6-01-14, 4-4-04-10, 4-4-07-02, 4-4-07-04, 4-4-07-05, 4-4-07-06, 4-4-07-10, 4-4-07-11, 4-4-07-12, 4-5-22-02, 4-5-22-03, 4-5-22-05, 4-6-22-07, 4-6-25-02, 4-7-01-04, 4-8-01-02, 4-8-01-08, 4-8-01-09, 4-8-01-10, 3-1-06-01, 4-4-07-04, 4-6-25-02, 4-8-01-02; Maui County Board of Water Supply TMK: 3-2-14-01; Amfac/JMB Hawai'i TMK: 4-4-07-01, 4-4-07-03, 4-4-07-07, 4-4-07-08; Kahoma Land L.L.C. TMK: 4-5-22-2, 4-5-22-4, 4-5-22-6; Makila Land Co., L.L.C. TMK: 4-6-25, 4-7-01-2; Kamehameha Schools TMK: 4-5-22-1, 4-6-18-3; Maui Land and Pineapple Company, Inc. TMK: 4-1-1-17, 4-2-1-1, 4-1-4-23, 4-1-5-10, 4-1-5-13, 4-1-5-16, 4-1-5-17, 4-3-1-1, 4-3-1-17; C. Brewer & Company, Ltd. TMK: 3-1-01-01, 3-2-01-02, 3-2-012-02, 3-2-13-15, 3-2-14-01, 3-2-14-04, 3-2-14-05, 3-3-02-01, 3-3-03-03, 3-5-02-05, 3-5-03-01, 3-5-03-18, 3-6-01-15, 3-6-03-01; and The Nature Conservancy of Hawai'i (Land-Managing Partner), Districts of Lahaina and Wailuku, County of Maui, State of Hawai'i.

The Department of Land and Natural Resources has reviewed the Final Environmental Assessment for the subject project and anticipates a Finding of No Significant Impact (FONSI). Please publish notice of availability for public review of this project March 23, 2001 issue of **Environmental Notice**.

25

We have enclosed a completed publication form, project summary for publication on disk, and four hard copies of each of the Final EA with this cover letter. Please contact Betsy Gagne at 587-0063 if you have any questions.

Sincerely,



MICHAEL G. BUCK,
Administrator

encl.

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2001-03-23-MA-FEA

FINAL ENVIRONMENTAL ASSESSMENT
FOR THE
(WEST MAUI MOUNTAINS WATERSHED PROTECTION)
PROJECT

in accordance with
CHAPTER 343, HAWAII REVISED STATUTES

Proposed by
The West Maui Mountains Watershed Partnership

Amfac/JMB Hawaii, L.L.C.
C. Brewer and Company, Limited
County of Maui
Kahoma Land, L.L.C.
Kamehameha Schools
Makila Land Company, L.L.C.
Maui County Department of Water Supply
Maui Land & Pineapple, Inc.
State Division of Forestry and Wildlife
The Nature Conservancy

February, 2001

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MAR 23 2001

FILE COPY

2001-03-23-MA-PEA

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Maui County Department of Water Supply
Maui Land & Pineapple, Inc.
State Division of Forestry and Wildlife
The Nature Conservancy

OFFICE OF ENVIRONMENTAL
QUALITY CONTROL

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February, 2001

I. Summary

Project Name

West Maui Mountains Watershed Protection Project

Proposing Agency/Applicant

Amfac/JMB Hawai'i, L.L.C.
Pioneer Mill Company and Ka'anapali Estate Coffee
P. O. Box 727
Lahaina, Hawaii. 96761

C. Brewer and Company, Limited
Wailuku Agribusiness Company
255 East Waiko Road
Wailuku, Hawaii. 96793

County of Maui
250 South High Street
Wailuku, Hawaii. 96793

State of Hawai'i
Department of Land and Natural Resources
Division of Forestry and Wildlife
1151 Punchbowl Street
Honolulu, Hawaii 96817

Kahoma Land L.L.C.
173 Ho'ohana Street, Suite 201
Kahului, Hawaii. 96732

Kamehameha Schools
P.O. Box 3466
Honolulu, Hawaii. 96801

Makila Land Co., L.L.C.
173 Ho'ohana Street, Suite 201
Kahului, Hawaii. 96732

Maui County Department of Water Supply
P. O. Box 1109
Wailuku, Hawaii. 96793

Maui Land & Pineapple Company, Inc.
P.O. Box 187
Kahului, Hawaii. 96733

The Nature Conservancy
Maui Field Office
P. O. Box 1716
Makawao, Hawaii. 96768

Approving Agency

State of Hawaii
Department of Land and Natural Resources
Division of Forestry and Wildlife

Project Location

52,940 acres in the Districts of Lahaina and Wailuku, County of Maui, State of Hawai'i

Tax Map Key	Ownership	Acres	Comments
4-1-1-17	Maui Land & Pineapple	5,780.00	
4-2-1-1	Maui Land & Pineapple	2,450.38	
4-1-4-23	Maui Land & Pineapple	0.40	
4-1-5-10	Maui Land & Pineapple	1.75	
4-1-5-13	Maui Land & Pineapple	2.48	
4-1-5-16	Maui Land & Pineapple	0.01	
4-1-5-17	Maui Land & Pineapple	0.01	
4-3-1-1	Maui Land & Pineapple	92	Portion
4-3-1-17	Maui Land & Pineapple	334	
4-4-07-01	Amfac/JMB-Hawaii	1,014	Conservation easement to TNCH
4-4-07-03	Amfac/JMB-Hawaii	74	Conservation easement to TNCH
4-4-07-07	Amfac/JMB-Hawaii	175	Conservation easement to TNCH
4-4-07-08	Amfac/JMB-Hawaii	0.21	Conservation easement to TNCH
4-5-22-2	Kahoma Land L.L.C.	469	Recent purchase
4-5-22-4	Kahoma Land L.L.C.	181	Recent purchase
4-5-22-6	Kahoma Land L.L.C.	53	Portion, Recent purchase
4-6-25-1	Makila Land Co., L.L.C.	445.71	Recent purchase
4-7-01-2	Makila Land Co., L.L.C.	2,700	Portion Launiupoko mauka, Recent purchase
3-1-02-04	State of Hawaii/DLNR	484	Waihali
3-1-03-01	State of Hawaii/DLNR	719	Poelu, Hononana
3-1-06-01	State of Hawaii/DLNR	2,493.6	Portion, Kahakuloa
3-2-13-14	State of Hawaii/DLNR	42	Polipoli
3-2-14-02	State of Hawaii/DLNR	285	Kou
3-3-03-04	State of Hawaii/DLNR	138.9	Black Gorge

Tax Map Key	Ownership	Acres	Comments
3-6-01-14	State of Hawaii/DLNR	41.4	Portion Manawainui Plant Sanctuary
4-4-04-10	State of Hawaii/DLNR	39.26	Nahinahina
4-4-07-02	State of Hawaii/DLNR	23.4	Hoenanui
4-4-07-04	State of Hawaii/DLNR	267	Portion, Honokowai
4-4-07-05	State of Hawaii/DLNR	30	South Honokowai
4-4-07-06	State of Hawaii/DLNR	164	Honokowai
4-4-07-10	State of Hawaii/DLNR	0.96	Honokowai (Tunnel easement)
4-4-07-11	State of Hawaii/DLNR	5	Honokowai (Stream junction)
4-4-07-12	State of Hawaii/DLNR	12	Haenanui
4-5-22-02	State of Hawaii/DLNR	83	Portion, Puuiki
4-5-22-03	State of Hawaii/DLNR	480	Wahikuli
4-5-22-05	State of Hawaii/DLNR	83	Puuiki
4-6-22-07	State of Hawaii/DLNR	0.07	Kauauala
4-6-25-02	State of Hawaii/DLNR	3	Portion
4-7-01-04	State of Hawaii/DLNR	433.58	Puehuehunui
4-8-01-02	State of Hawaii/DLNR	8,250.2	Olowalu, Ukumehame
4-8-01-08	State of Hawaii/DLNR	1.71	Olowalu (ditch row)
4-8-01-09	State of Hawaii/DLNR	0.089	Hanaula reflector site
4-8-01-10	State of Hawaii/DLNR	14.6	Manawainui Plant Sanctuary
3-1-06-01	State of Hawaii/DLNR	3,275	Portion, Kohakulo Section WMNAR
4-4-07-04	State of Hawaii/DLNR	750	Honokowai Section WMNAR
4-6-25-02	State of Hawaii/DLNR	2,009.5	Panaewa Section WMNAR
4-8-01-02	State of Hawaii/DLNR	960	Lihau Section WMNAR
3-1-01-01	C. Brewer & Comp. L.	474	Portion within Cons. District
3-2-01-02	C. Brewer & Comp. L.	53	
3-2-012-02	C. Brewer & Comp. L.	1.89	
3-2-13-15	C. Brewer & Comp. L.	298	
3-2-14-01	C. Brewer & Comp. L.	3,183.6	
3-2-14-04	C. Brewer & Comp. L.	0.11	
3-2-14-05	C. Brewer & Comp. L.	.03	
3-3-02-01	C. Brewer & Comp. L.	497.4	
3-3-03-03	C. Brewer & Comp. L.	2,909.4	
3-5-02-05	C. Brewer & Comp. L.	0.98	
3-5-03-01	C. Brewer & Comp. L.	3,648.7	
3-5-03-18	C. Brewer & Comp. L.	4.17	
3-6-01-15	C. Brewer & Comp. L.	375	
3-6-03-01	C. Brewer & Comp. L.	3,425	
4-5-22-1	Kamehameha Schools	1,158.72	
4-6-18-3	Kamehameha Schools	46.15	Portion
3-2-14-01	Maui County BWS	2,001	Purchased from Wailuku Agribusiness
	Total	52,939.369	

Agencies and Individuals Consulted During EA Preparation

* Asterisks indicate entities receiving consultation letters and draft EA, all others receiving draft EA.

Federal

Environmental Protection Agency
US Army Corps of Engineers
US Department of Agriculture/National Wildlife Research Center
US Department of Agriculture/Forest Service, Institute of Pacific Islands Forestry
US Department of Agriculture/Natural Resources Conservation Service, Maui District*
US Department of Interior/Fish & Wildlife Service, Pacific Islands Ecoregion
US Department of Interior/National Biological Service
US Department of Interior/National Park Service/Haleakala National Park

State

Alu Like, Inc.
Department of Agriculture/ Pesticide Branch
Department of Hawaiian Home Lands
Department of Health/ Clean Water Branch
DLNR/ Division of Forestry & Wildlife
DLNR/ Aquatic Resources Division
Office of Hawaiian Affairs
Office of State Planning
Research Corporation University of Hawaii/Pacific Cooperative Studies Unit
University of Hawaii, Secretariat for Conservation Biology
University of Hawaii, Department of Botany

Maui County

Planning Department, Maui County*

Private

Lloyd Akiona
Conservation Council for Hawai'i
Mary Evanson*
Isaac Hall & Dana Naone Hall*
Hawai'i Audubon Society
Hawai'ian Botanical Society*
Honokohau Valley Community Association*
Lahaina Restoration Foundation*
Lahaina Town Action Committee*
Ed Lindsey*
Mahealani Kaiaokamalie*
Maui Humane Society*
Maui Tomorrow*
Charles K. Maxwell Sr. *
Native Hawai'ian Plant Society
Outdoor Circle, Maui
Glenn Shepherd*
Sierra Club Legal Defense Fund
Sierra Club/ Maui Group

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- III. Prevention of Alien Species Introduction**
- IV. Comment Letters on the Draft EA with WMMWP Response**

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Tri-Isle RC & D
Rene Sylva*
Ken Wood*
The Wildlife Society, Hawai'i Chapter
West Maui Watershed Advisory Committee*
West Maui Taxpayers Association*

Project Action Summary

On November 20, 1998, the West Maui Mountains Watershed Partnership (WMMWP) was officially formed when a Memorandum Of Understanding (MOU) to collectively support the protection of the watershed, was signed by all the major landowners and land managers, responsible for lands within the Conservation District of the West Maui Mountains. Signatories to the MOU included representatives of the: Hawaii State Department of Land and Natural Resources (DLNR), Maui County Department of Water Supply, Amfac/JMB Hawai'i, L.L.C., Kamehameha Schools, Maui Land & Pineapple Company, Inc., C. Brewer and Company Limited, the County of Maui, and The Nature Conservancy of Hawai'i. Although the members of the partnership have different priorities, mandates, and constituencies, all share a common commitment – the long-term protection and preservation of the West Maui Mountains Watershed. As the preamble to their case statement indicates:

"The purpose of forming and maintaining a WMMWP is to protect the West Maui watershed and prevent further degradation. Water has long been recognized as the most important resource of the forests of the West Maui Mountains. These tropical forests are the essential recharge area for west, central, and south Maui's urban, industrial, and agricultural water needs as well as for sustaining the island's ecological resources."

From the case statement of the West Maui Mountains Watershed Partnership -- November, 1998

The WMMWP proposes two native forest protection projects as part of an ongoing effort to preserve the watershed: 1) control measures for axis deer, feral pigs, goats, and cattle. 2) invasive weed control.

II Project Description

A. Summary Description of the Affected Environment

Location

For purposes of this project, the "West Maui Mountains Watershed Protection Project" includes all slopes of West Maui Mountains from the beginning of the Conservation District boundary to the mountain's summit. The lands designated for watershed protection by the WMMWP extends from the summit of Puu Kukui to the lower coast on the southern side and near to the coast on the North side of the mountain. The project area covers approximately 52,940 acres within the Lahaina and Wailuku Districts of Maui and comprises the summit and nearly all of the mountainous slopes of West Maui that are within the Conservation District (Figure 1). The areas designated for habitat protection range in elevations from near sea level on the southern coast to 5,788 feet on the wet rainforest summit of Puu Kukui. Rainfall varies from about 40 inches per year on the lower leeward slopes, to over 400 inches per year on the summit. The eastern half of the West Maui watershed includes the conservation zoned lands of C. Brewer and Company Limited, and the Maui County Department of Water Supply, while the northern and western portions of the watershed are variously held by the state-owned West Maui Natural Area Reserves, with its four sections (Kahakuloa, Honokowai, Panaewa, and Lihau), the nine sections of the West Maui State Forest Reserve, recently sold lands by Amfac/JMB Hawaii, L.L.C. to Kahoma Land L.L.C., which includes Kealii, and to Makila Land Co. L.L.C. which includes: Kaua'ula, Launiupoko, and Helu. Other western portions in the partnership includes the Kapunakea Preserve, a conservation easement to The Nature Conservancy of Hawaii, lands of Kamehameha School in the Kahoma stream drainage, and the Puu Kukui Watershed Management Area, owned by Maui Land & Pineapple Company, Inc.

Water Resources

Water is the primary resource behind the creation of WMMWP. The West Maui Mountains watershed is the second largest harvested source of surface water in Hawaii, providing an estimated 29 billion gallons of water per year to meet residential, commercial, and agricultural needs of Wailuku, Lahaina, Kahului, Paia, and Kihei-Makena. The West Maui Mountain watershed is a high rainfall area. Twenty streams originate from the watershed. Ten of these are considered continuous-perennial (flowing yearlong) and the rest are intermittent, flowing yearlong at upper elevations only, and intermittently at lower elevations (Hawaii Stream Assessment, 1991). In addition to surface waters, the West Maui Mountains includes rich groundwater aquifers, such as the large Iao aquifer. The 1992 Maui County water use and development plan projects that the total domestic use of water for Department of Water Supply Central Maui and Lahaina systems will increase from 21.6 millions of gallons per day (mgd) in 1990-91 to 41 mgd by the year 2010. The plan suggests that the potential available inventory of sustainable water from the West Maui watershed is in excess of 80 mgd or over 30 billion gallons per year.

Forested watersheds provide several basic and crucial functions. The first is that of an umbrella. Tree leaves, branches, and understory plants intercept rain before it reaches the ground. The kinetic energy of falling rain is absorbed by the foliage, which reduces the rain's erosive capacity and increases the infiltration of the rainwater into the ground. Increased percolation (downward movement of the water through the soil) in forest soils

recharges underground aquifers, providing the supply of artesian and other ground water. Stream flows from intact, forested watersheds are more consistent and cleaner, benefiting surface water collection.

Another major function of forested watershed is that of a soil anchor. The roots of trees, shrubs, and associated understory plants grip the steep mountain soils tenaciously, preventing soil from washing into our streams and into the ocean. This helps maintain clear surface waters for water systems dependent on surface flow, and also protects our ocean reefs and marine life from siltation.

Watershed forest also acts as a sponge, soaking up rainfall into its soil, leaf litter, mosses, ferns, and foliage, and slowing evaporation by shading the water-holding soil layers. Not only rainfall is absorbed in this way, but forest vegetation can also pull moisture from clouds that are not raining. Cloud and fog condensation on trees and other vegetation is an important source component of the water resource. Cloud/fog interception in Hawaii can increase total precipitation by as much as 30% of the total annual rainfall. When foliage, litter and soil are fully saturated, they buffer the release of stored water, delivering a more consistent and dependable source of water for eventual use, long after the rain has ceased falling. In contrast, denuded watersheds are "flashy," sending floods of muddy water into streams during rain, and drying up rapidly when the rain stops.

Another function of a forest watershed is that of an entry valve into the groundwater cycle. Plants use water, which is released as water vapor back into the atmosphere through evaporation and transpiration (this combination of processes is called "evapotranspiration"). Evapotranspiration is increased in warm and sunny conditions. Open grasslands lose far more water to evapotranspiration than closed forest or shrubland. The cool ground-level shade provided by intact forest and dense shrubland greatly suppresses evapotranspirative loss of water. This allows much of the rainfall and condensed fog drip to infiltrate into the ground, percolate through the soil, and enter ground water or stream systems as clean water. Once through the vegetation and soil layers and infiltrated into the ground, the water is no longer available to plants and has entered our groundwater supply.

Native Species and Ecosystems

The watershed vegetation of the West Maui Mountains is home to thousands of native plants, birds, snails, insects and other invertebrates. There are species and forms found only in the West Maui Mountains, and scientists estimate that the watershed area is home to an untold number of undescribed species. Each of these Hawaiian species has value as a source of unique genetic information, with possible medical or other practical value to our society. Studies in the West Maui Watershed have already contributed to an improved understanding of evolution and other central biological concepts.

Emerging above these values, perhaps the greatest value of the thousands of native species in the West Maui watershed is the function they perform together, as parts of a complex, natural ecosystem. The balance achieved among these species over the

millennia has produced forests that can best weather the typical cycles of drought and flood in the region, and are uniquely adapted to the climate and soils of the mountain. Native species and ecosystems provide the best chance for a stable and beautiful watershed, and it would be impossible to replace them at any price if they were destroyed.

Native Flora and Fauna

The watershed has generally well defined vegetation communities arranged in elevation zones. From the summit at 5,788 ft, a diversity of native wet forest communities dominated by ohia (*Metrosideros polymorpha*), montane bogs, and wet, windswept shrublands extend downward to more mesic forests and shrublands. Other vegetation types include koa (*Acacia koa*) forest, lama (*Diospyros sandwicensis*) forest, diverse mesic forest (with several native tree species dominant), and a variety of native shrubland types. Below 3000 feet elevation, there begins a transition from native-dominated into more alien-dominated vegetation types, with non-native trees such as strawberry guava (*Psidium cattleianum*), ironwood (*Casuarina* spp.), and others increasingly prominent in a mixed native and alien canopy. Below 2000 feet, naturalized alien vegetation such as guava forest (*Psidium guajava* and *P. cattleianum*) and Java plum (*Syzygium cumini*) dominate, with the exception of small native forest and shrubland stands. At the bottom edge of the watershed, plantings of introduced trees such as *Eucalyptus*, Cook and Norfolk pines (*Araucaria* spp.), silk oak (*Grevillea robusta*), and naturalized alien vegetation occupy the lowest slopes.

Natural Communities

The West Maui Mountains are draped with mostly native plants assembled in at least 27 types of natural communities. These communities range from wet ohia forests and bogs to dry pili grasslands and ilima shrub lands. Ten continuous perennial streams are also documented. Several rain forest communities occur around the mountain although their extension down slope may be more limited on the drier leeward sides as compared to the wetter windward sides. The ratio of native plants to weedy non-native plants in any location around the mountain varies depending on such factors as elevation, rainfall, slope, aspect, and prior disturbances. Around the mountain, native plants typically constitute more than 90% of the vegetation from about the 2000 ft elevation to the summit of West Maui.

Rare Communities

Five natural communities in the project area are considered rare by the Hawaii Natural Heritage Program: 1) Kookoolau Lowland Dry Shrubland, 2) Alahee Lowland Dry Shrubland, 3) Ohia Mixed Montane Bog, 4) Mixed Sedge and Grass Montane Bog, and 5) Hawaiian Continuous Perennial Stream (Appendix I).

Rare Plants

Found within the native plant communities on West Maui are at least ninety-one species that are considered rare (Appendix II). Thirty-seven of these are on the federal list of endangered species, one is officially listed as threatened, and another two are candidates for listing. Several of the rare plants found in the project area are of exquisite beauty,

including the metallic looking Eke silversword, red-flowered hibiscuses, purple flowered mints, and tubular flowered lobeliads. Eighteen of the rare species are found only on West Maui and nowhere else in the world. New discoveries of rare plants are likely as large portions of West Maui have yet to be adequately explored by botanists.

Rare Animals

The project area contains important habitat for at least three species of endangered birds (Appendix II): ua'u (Hawaiian dark-rumped petrel), nene, and the koloa (Hawaiian Duck). The ou is a forest bird once known in the area but is probably extinct. The U.S. Fish and Wildlife Service has proposed reintroducing the endangered forest bird akohekohe to West Maui. Also reported from the project area is the ope'ape'a (Hawaiian hoary bat).

Historical/Archaeological And Cultural Sites

The WMMWP is concerned about the protection of historic and cultural sites on the West Maui Mountains and will strive to conduct fence building in a sensitive manner. (see Fence Construction below). The watershed protection project will actually be a first step to the protection of yet to be discovered archeological sites in the high elevations of the West Maui Mountains. Ungulates, particularly feral pigs, cattle and goats are known to disturb archeological sites because they knock over stone walls, turn over soil, spread noxious weeds, and initiate accelerated erosion and landslides. Waiawi or Strawberry guava is a weedy tree spreading rapidly on the West Maui Mountains, in part, because of the foraging of feral pigs. Waiawi forms impenetrable thickets and develops strong roots systems that can destroy the integrity of an archeological site. One of the long-term goals of the WMMWP is to stop the spread of invasive weeds such as Waiawi and restore native forest cover.

To assess the project's potential effect on archaeological sites and cultural practices, the WMMWP conducted individual and group interviews with kapuna on Maui. Information gathered from these interviews, and that provided in the book "Sites of Maui" (Sterling 1998) suggest that few if any historical sites are known in the project area. Charles Keau, a cultural expert associated with the Maui Historical Society and the Bailey House Museum, was not aware of any archeological sites in the high mountainous areas on West Maui. Hokulani Holt-Padilla, a respected cultural expert and kumu hula, was also not aware of archeological sites mauka of the conservation district in the West Maui Mountains. She also informed us that there are cultural sites in the West Maui Mountains such as Eleile Spring above Waihee that may not contain physical archeological remains, but are considered traditional cultural property because of their importance in story and song.

To further ascertain the potential of encountering archaeological site, and traditional cultural property in the project area, the WMMWP will initiate with the cooperation of the staff of the State Historical Preservation Division (SHPD), an ethnohistoric investigation of the upper elevations of the West Maui Mountains. The WMMWP will also review with SHPD the proposed fence sites to determine the necessity of a site visit

by a qualified archaeologist. All project fences will be placed to avoid historic sites that may be found.

Cultural Practices

The project will focus on protecting native forest cover by constructing strategic fences and removing non-native animals and weeds. Neither of these activities will impede human access or cultural practices. Any person physically capable of hiking to any of the proposed fences should have no problem crossing over them. Project fences across trails frequented by hikers will have climb-over bars installed to make for easier crossings.

Admission of visitors to the watershed is controlled by the individual landowners and is not within the purview of the proposed project, as liability and insurance concerns remain the responsibilities of the landowners. Every landowner within the WMMWP, however, has indicated that they honor native Hawaiian gathering rights. According to the cultural experts we interviewed, the lower reaches of the project site are visited periodically by hula practitioners for adornments, i.e., palapalai (*Microlepia strigosa*), liko, the reddish leave buds of ohia, (*Metrosideros polymorpha*), and maile leaves (*Alyxia oliviformis*). No problems were reported regarding access from the landowner for traditional gathering practices.

During the aforementioned interviews with cultural experts, no specific objections were raised regarding the potential curtailment of cultural practices as a result of project activities. The general consensus was that current gathering for cultural practices does not occur in the high elevations where the project fences are proposed. It was surmised during one of the interviews that some hikers might be offended upon encountering a fence in a wilderness setting. It was suggested that further outreach to inform the community about the purpose of the fences will help alleviate negative perceptions. In this vein, the WMMWP will expand its outreach activities to local communities around the mountain highlighting the need for watershed protection.

The watershed protection efforts proposed for West Maui will help protect and maintain populations of native and Polynesian introduced plants important to Native Hawaiian cultural practices. Examples of Polynesian plant introductions that occur in the project site include: ki (*Cordyline terminalis*) with a multitude of uses, including food preparation and hula costuming, kukui (*Aleurites moluccana*) used for its oil and as a food product, awapui-kuahiwi (*Zingiber zerumbet*) used medicinally and for scenting kapa. The project area also represents refugia for rare endemic plants that historically had great cultural or economic significance to native people, examples include: kauila (*Alphitonia ponderosa*) used for spear making, olana (*Touchardia latifolia*) used for cordage for fishnets, a base for feather capes, and heavy rope, and papala kepau, (*Pisonia sandwicensis*) whose sticky fruits were used to catch forest birds used in feather work. By protecting ethnobotanical plants, the project will enhance the renaissance of Hawaiian culture.

The project will also benefit traditional native Hawaiian gathering of freshwater animals

including mountain opae, o'opu, and hihiwai. These aquatic organisms thrive with abundant clean, cool stream flow and are dependant on healthy watersheds for their survival.

Sensitive Habitats

The habitats and possible cultural sites addressed above and in the appendix are regarded as sensitive. The intent of the proposed action is to provide long-term protection to these habitats and resources. Potential negative effects such as introduction of new weeds are recognized, and standard precautions will be taken to minimize the risks (Appendix III).

B. General Description of the Action's Technical, Socio-economic and Environmental Characteristics

The West Maui Mountains Watershed Partnership is a voluntary effort between ten public and private landowners and managers in the County of Maui who are working together to protect the 52,940 acre watershed. The WMMWP's primary purpose is to ensure that this watershed remains a viable resource for this and future generations.

Technical

Non-native Animal and Weed Control

The WMMWP is taking several steps to protect the watershed against destructive alien species. Efforts are now underway for improving the protection of the upland, most pristine regions of the watershed from damage by axis deer, feral pigs, goats and cattle. These non-native animals, all classified as ungulates (hoofed animals), have spread into the forest, where they have become the chief cause of forest destruction by rooting up plant cover, accelerating erosion and the spread of weeds, and aiding the spread of disease-carrying mosquitoes into the habitat of native birds. In Hawaii, feral pigs and goats are known to have seriously disturbed cultural sites. Earlier efforts on East Maui by the National Park Service, The Nature Conservancy Hawai'i, and the state Division of Forestry and Wildlife, have demonstrated that ungulates can be effectively removed from remote forests. With similar effort, the forested lands within the WMMWP can recover from previous ungulate damage.

One of the WMMWP's long-range goals is to stop ungulate damage in native forests and other habitats in the upland areas and to limit ungulate activity in lowland native forests to levels that prevent loss of forest cover. Fences are needed to prevent ungulates from moving up slope into the more sensitive, pristine forests. These upper forests are the primary habitat for West Maui's rare plants and animals. Removal of ungulates from the upper areas above the fences will be carried out by contracted animal control specialists, the field staff of the partner organizations (especially Maui Land & Pineapple Company's Puu Kukui Watershed, The Nature Conservancy of Hawaii, and the State Division of

Forestry and Wildlife), or the field staff of the WMMWP. Trained volunteers may also be involved in some aspects of this work. By utilizing experienced field technicians, the risks of damage to the more pristine upland forest and injury to volunteers will be reduced.

The ungulate control program will use a combination of fencing, hunting and snaring to bring pig populations down as rapidly as possible to prevent reproduction and prevent them from re-establishing. Pigs in particular reproduce at very high rates. Scientific research tells us that 70% of the population must be removed annually to reduce pig numbers over the long term. Snaring and fencing reduces the number of animals that must be controlled and is expected to reduce coliform bacteria, *Giardia*, and *Leptospira* in surface waters. The use of snares in remote areas reduces impact on fragile watershed vegetation by minimizing human presence, and greatly reduces human exposure to injury in this extremely rugged, wet terrain. All snare groups will be conspicuously marked in the field with bright flagging tape and will be checked semiannually. These methods have proven effective within the existing preserves in the West Maui Mountains and other nature reserves in Hawaii. Snaring is still the most effective and feasible method for controlling ungulates in areas too remote, steep, and/or fragile for frequent hunting, and where hunting cannot remove the low-density ungulate populations from sensitive areas. There are relatively few ungulates in the upper forest area at this time, and the goal for this upper area is to keep ungulate numbers as close to zero as possible to protect the native forest from further damage. Snares will continue to be used until an equally effective alternative can be found.

Hunting in lower areas that are not designated state game management areas will be carried out by volunteer hunting or contract hunting. The proposed strategic fence locations are on steep slopes and isolated from areas used regularly by hunters. No existing trails will be blocked by the proposed fences. Ladders or gates will be installed in the fences wherever needed to ensure appropriate human access.

Potential degrading effects to the watershed caused by non-native small mammals (rats [*Rattus spp.*], mongooses [*Herpestes auropunctatus*], feral cats [*Felis catus*], etc. are poorly understood, however it is generally agreed by local biologists that they represent threats to native species and to water quality. All three of these mammals are particularly destructive to several species of native birds (especially ground nesters), and rats are known to prey on native land snails and eat the seeds of rare plants. Along with ungulates, small mammals can serve as vectors of water-borne diseases such as Leptospirosis, Cryptosporidiosis and Giardiasis. Although the partnership has no specific plan to remove small mammals, there could occur in the future, the emergency need to remove small mammals from a portion of the watershed. For example, there is the potential discovery of a population of rare native plants or animals that are in need of protection from non-native small mammals. The anti-coagulant diaphacinone has been approved in natural areas in Hawaii under a section 24c special local use registration and is particularly effective against rats. Any small mammal trapping or use of toxicants like diaphacinone used by WMMWP will be in accordance with state Department of

Agriculture regulations to include a special local use registration, or an experimental use permit.

A number of serious weeds have also invaded the native watersheds of the West Maui Mountains and threaten their stability. Weeds are a serious problem because they displace native plants, reduce the structural complexity and therefore the effectiveness of vegetation to serve watershed functions, and diminish habitat for native animals that rely on native vegetation. The invasive plant, *Miconia* is of particular concern, because this shallow rooted species is capable of displacing nearly all of the native plants on West Maui. Currently, there are no known populations of *Miconia* on West Maui, and intensive efforts are underway on East Maui to eliminate this pest plant from the island.

Feral animal control is a necessary starting point for an effective weed control program. Control methods for weeds will also include manual pulling, chemical treatment, and biological control (the use of insects or diseases that are particularly effective at damaging the target weed). For several important weeds, no effective control method exists for large infestations. It is important to invest in measures to prevent additional noxious weeds from becoming established in the first place, and to support long-term research programs to improve control methods.

To this end, the Maui Invasive Species Committee (MISC) has been created to deal with very serious threats to native ecosystems posed by invasive alien species, including weeds, especially in the family Melastomataceae (species such as *Miconia*, *Clidemia*, and *Tibouchina*). The activities of MISC have included public education, providing information to the Hawaii legislature and Maui County, and planning, coordinating, and facilitating cooperative chemical, mechanical and biological control programs. The WMMWP will work closely with MISC in developing weed control protocols for West Maui while strictly adhering to the state Department of Agriculture herbicide application regulations.

The partnership will take an aggressive approach to preventing the introduction of new weed species into the watershed (Appendix III). Strict procedures will be followed to insure that all equipment and clothing utilized in the watershed be inspected and cleaned. Helicopter flights will originate from areas free of aggressive weeds.

Fence Construction

Approximately 58 "strategic fences" may be needed to protect the watershed (see Figure 2). Strategic fences are short sections of fence, tied to natural barriers that rely on the steepness of the terrain to block ungulate movements towards the higher unfenced sections. In the West Maui Mountains, strategic fences will be typically placed in areas across the narrowest sections of steep sided ridges that run mauka and makai. Determination of the exact location and number of strategic fences required to protect the upland areas will require helicopter and on the ground surveys to accurately locate the areas of possible ungulate ingress. The WMMWP may also construct small fenced

enclosures to protect critically endangered plants that cannot be adequately protected by the strategic fences.

The fencing will take place as monies become available. The WMMWP is currently contracting to have built a 0.7-mile fence on the Conservation District border of the Kapunakea Preserve north of Kapunakea gulch to the stream bottom Hahakea gulch to the South. The funding for this project has been arranged through several sources within the partnership (The Nature Conservancy, Department of Water Supply, Kamehameha Schools). This fence project is already covered by an existing Environmental Assessment prepared for Kapunakea Preserve, and has undergone public and agency review. A licensed fence contractor, selected through competitive bidding is installing this fence. Licensed fence contractors may also be employed to build the proposed strategic fences.

Construction of fences is expected to proceed as follows: First, the fence corridor will be surveyed by knowledgeable staff or contractor to locate any rare species or archaeological sites. Once surveyed, the exact fence route will be cut with hand tools and small power tools. Every effort will be made to choose routes that will require the least amount of clearing possible. This cutting of vegetation will be done in a strip no more than six feet wide and will not require grubbing of the soil. Felling of large trees will be avoided wherever possible. The second phase is actual installation of the fence. Materials and workers will be flown in by helicopter, and all construction work will be done with hand and small power tools. This construction involves driving galvanized steel fence posts into the ground 10 feet apart, and stretching 37-inch-high, galvanized hog wire along the posts. Higher fences up to 96 inches may be utilized to prevent axis deer ingress as needed. Where necessary: reinforced corner posts will be used to add strength at critical points, two strands of barbed wire will be strung above the hog wire, and additional hog wire aprons will be anchored along the bottom of the fence to prevent feral pigs from digging under it. In stream bottoms, metal grates or durable fabric curtains specially designed to be self-cleaning and withstand flash floods, will be utilized to stop ungulate ingress up stream. These stream bottom devices will be checked, for cleaning and possible repairs within two weeks of a major storm flow in the gulches.

Helicopter landing zones, and equipment drop zones will be utilized in the vicinity (usually within 100m) of the proposed strategic fences (figure 2.). The establishment of helicopter landing zones may require trimming of native vegetation, to make clearance for the rotor and blades, but will not involve permanent structures or the grubbing of native vegetation. Every effort will be made to minimize the number of landing zones needed and each site will be carefully selected for negligible impact on vegetation. For example, open areas already suitable as landing sites often occur nearby to proposed strategic fence locations and require minimal cutting of vegetation.

This work will be carried out by trained crews of two to five people who will live in temporary field camps (used for no more than 10 days within a six month period) along the fence line for 2-5 days per work session. These "spike" camps will consist of one or more tents for up to five workers. Tent sites may involve trimming of native vegetation, but no grubbing of the soil. For many of the shorter strategic fences, camps may not be

needed at all as the work will be completed in one day. All field camp items packed in will be packed out, and solid human wastes will be individually buried and mixed with soil in a 8-12 inch deep "cat" hole, more than 200 feet from surface water and the camp. The fence crews will be ferried to and from the work site by helicopter and will communicate with the outside via two-way radios. The crews may consist of field technicians employed by the WMMWP member organizations or contracted out to licensed fencing contractors. All work will be closely overseen by experienced forest managers employed by WMMWP member organizations. Strict procedures will be followed to prevent weed introduction and the campsites will be monitored for weeds once their use is discontinued. Following construction, field crews employed or contracted by the partnership will inspect and maintain the fences a minimum of every six months to check for and repair damage.

Socio-economic

The proposed fences are needed to protect a stable water source for Maui's residents and businesses. Native vegetation is an essential component of this watershed system. Forest cover protects fragile mountain soils from erosion, and acts like an immense sponge that absorbs heavy rains. Water is gradually released into streams and groundwater aquifers, rather than running off the surface in torrents to the sea. Fence construction and the reduction in feral pig numbers will help ensure a stable water regime both within and below the project area by reducing the potential for rapid runoff from disturbed or degraded areas. The project will bring more money into the local economy through federal, state, and private conservation grant awards. This in turn will create jobs on Maui.

Regarding public access to the West Maui Mountains, every landowner within the partnership sets the access policy on their property as they ultimately bear the liability for visitors on their land. Nevertheless, the WMMWP is concerned about unlawful entry onto watershed lands and is also aware of the growing demand for hiking trails on Maui. The WMMWP is exploring the means to provide more responsible access to the lower elevations of the West Maui Mountains.

Environmental

This project will benefit the environment by improving water quality and supply through the maintenance and restoration of the native watershed. Non-point source pollution and soil erosion will be reduced. In addition to improving aquifer recharge, this project will help protect and preserve some of the best remaining habitat for rare native plants and tree snails in Hawaii. These benefits far outweigh the expected and potential impacts described below.

The clearing of the fence line and initial construction will cause some disturbance to plants along a 4-6 foot wide corridor, around field camps, and on temporary trails used by the crew. Based on similar work in East Maui forests, this damage will be temporary and will heal naturally within a period of months. The fence line will be surveyed by knowledgeable staff to ensure that no rare or endangered plants and tree snails are harmed. Temporary field camps will be set up in the forest, and a small number of

helicopter landing zones (the number will be determined by the terrain) will require the minimal trimming of native vegetation to clear the blades and rotor.

Periodic increases in the noise level (due to helicopters and the use of small power tools) could disturb birds in the immediate vicinity of the fence construction. The disturbances will be short term and minimal. At present there are no known populations of federally listed forest birds in the West Maui Mountains, however the 'ua'u, an endangered sea bird occurs in localized areas in the mountains and the endangered nene sometimes land in the upper watershed. We do not anticipate any significant adverse effects on these endangered bird populations. Furthermore, we do not anticipate that rare insects, snails, or other native fauna are to be harmed from the proposed management activities. Soil disturbance is expected to be temporary and confined to the fence line, campsites, and temporary trails. No adverse changes in normal rainwater runoff or percolation are expected, and special care will be taken to avoid such problems. Construction of these fences will interrupt any existing travel routes used by ungulates moving between upland and lowland areas. It is critical, therefore, that ungulate control work get underway in coordination with fence construction to be sure that ungulates do not cause severe forest damage as they attempt to cross the new fence lines.

Anticipated Start Date

It is anticipated that the initial start date for the fence construction and animal control efforts will be November 15th, 2000. The Watershed protection efforts proposed here by the WMMWP will be ongoing with no projected end date.

Funding Disclosure

There are several sources of private and county, state, and federal funds for this project.

County of Maui

A grant for \$15,000 for Fiscal Year 2000 from the Department of Water Supply. Additional grant awards in the coming years are also expected from the County.

State of Hawaii

A grant for \$50,000 from the Division of Forestry and Wildlife, January 2000-2001. Additional funds from the DLNR Natural Area Reserve Fund have been applied for. A portion of the WMMWP grant awards including some private are administered by the Pacific Cooperative Studies Unit of the Research Corporation University Of Hawaii

Federal

A grant for \$110,000 is expected from the U. S. Fish & Wildlife Service
A grant for \$200,000 is expected from the Environmental Protection Service through the State Department of Health, Clean Water Branch.

Private

A grant for \$25,000 from the Hawaii Community Foundation, March 2000, administered by the Research Corporation of the University of Hawaii.

III Summary of Major Impacts

Major Impacts - Positive

- Reduction of ungulate activity in the watershed leading to increased native forest cover and native species populations.
- Reduction of habitat modifying weeds currently in the watershed, and the long-term exclusion of weeds that could threaten the watershed's native ecosystems.
- Promotion of a more stable water regime through reductions in accelerated erosion, surface water runoff and evapotranspiration, with concomitant increases in fog drip and rainwater percolation.
- Reduction in ungulates and habitat modifying weeds will be a first step in protecting as yet undiscovered archeological sites.

Major Impacts - Negative

No major negative impacts are expected to result from this plan. However the WMMWP has identified three potential negative impacts:

- Introduction of non-native weeds to fence lines, trails, and monitoring transects.
- Very limited localized herbicide contamination.
- Disturbance of archaeological sites

IV Proposed Mitigation Measures

Weed Introductions

In all of the sites disturbed by the fence construction and maintenance, strict protocols will be used to: 1) clean all gear carried into the forest to prevent the introduction of new weeds or other pests, 2) monitor for and remove as necessary any weeds that become established or expand as a result of the disturbance, 3) prevent local increases in rats around field camps, and 4) remove all rubbish, and food wastes.

Herbicide Contamination

Herbicide contamination will be avoided by using small volumes at minimized concentrations applied in limited areas.

Archaeological Disturbance

Fence construction could cause minor damage to cultural or archaeological sites because of the driving of T posts excavation required to set fence poles. To reduce the possibility of building a fence over an archaeological site, the WMMWP with the State Historical Preservation District will conduct an ethnohistoric investigation to determine if sites are

known near the proposed fences. The most likely sites in the project area will be agricultural sites along streambeds, however there is little potential that a project fence line will cross a site of human habitation or agriculture because the strategic fences will be placed in most cases where the streambed narrows. In these narrow stretches, human habitation would not have been possible because of flash flooding. In all cases, if evidence indicating the possibility of archaeological sites is found in the vicinity of a fence under construction, work on the project will halt immediately until proper authorities can be notified and mitigation actions planned.

V Alternatives Considered

Alternative: No action

This alternative would limit watershed protection activities only to those lands on West Maui that are currently funded for habitat protection through the Natural Area Partnership Program (NAPP): Pu'u Kukui Watershed Preserve and the Kapunakea Preserve, or the State's Natural Areas Reserve System (NARS): West Maui Natural Area Reserves that includes the Kahakuloa, Honokowai, Panaewa, Lihau sections. The habitat protection measures would not extend to other adjacent lands managed or owned by the WMMWP members. This alternative does not take into account that invasive plants and animals do not recognize reserve borders and they will continue to impact the existing preserves. Weeds would have more opportunity to spread to the existing protected areas the more they are allowed to build population density around the perimeter of the existing preserves. Also, if lands adjacent to existing nature preserves are allowed to continually build up high densities of ungulates, the protected status of the preserve lands will be compromised. This is because the steep terrain of the West Maui Mountains do not allow for the complete enclosure of the existing preserves using hog wire fences. Feral animals on West Maui are known to migrate into new areas by crossing gulches and ridges from one area to another. In many cases, the existing NAPP and NARS in West Maui extend to one side of a stream drainage, but not to the other. It makes little sense to protect the watershed on one side of a gulch, if the water quality is to be spoiled from disturbances coming from the unprotected side.

In conclusion, the no action alternative allows for the continued degradation of the watershed through erosion, loss of native forest cover, and declines in rare native plant and animal populations. Without physical barriers to prevent the movement of ungulates to higher slopes, it is likely that ungulates, particularly feral pigs, will continue their expansion towards the summit destroying habitats that prior to 1999 had remained pig-free. Furthermore, this no action alternative goes against the West Maui Mountains Watershed Partnership's goals as stated in their Memorandum Of Understanding.

VI Anticipated Determination

No significant negative impacts to the environment are expected to result from the implementation of the proposed activities and a finding of No Significant Impact (FONSI) is anticipated.

VII Findings, And Reasons Supporting Anticipated Determination

In summary, all activities proposed are expected to be beneficial, or to have no long-term negative effect. The proposed activities are expected to benefit the quantity and quality of harvested water and concomitantly will benefit native species (including rare plants and animals), and native natural communities. For example, by increasing forest cover through ungulate control, the destruction of native forest cover will be reduced. This in turn will reduce the accelerated erosion and rapid runoff that is especially prevalent on steep slopes of the West Maui Mountains.

The risks of significant negative impact from the proposed activities are low. The potential for the introduction of new weeds or spread of existing weeds will be minimized through the strict adherence to field trip protocols that address cleaning of gear and clothing (Appendix III). The risk of herbicide soil or rodenticide contamination used in controlling small mammals and weed spread will be minimized because the WMMWP staff or contractors will be in compliance with the state Department of Agriculture Pesticide Branch and will be well trained in rodenticide and herbicide application, using the smallest amount required. Potential damage to historical sites will be minimized because the fence sites will be determined working cooperatively with the State Historical Preservation Division.

Significance Criteria

- (1) Involves an irrevocable commitment to loss or destruction of any natural or cultural resources;**

The WMMWP is committed to reverse the current degradation of the natural resources of the West Maui Mountains caused by the damaging effects of non-native plants and animals. Reduced populations of ungulates and aggressive weeds will also help to protect the integrity of cultural sites.

None of the proposed fences will impede legitimate public access on established trails, nor is it anticipated that the WMMWP management activities will curtail any existing, legal public use of the watershed. Any person who is in good enough physical condition to hike to a strategic fence will have no problem crossing over the fence. Historically, very few people visited the upper elevations of the West Maui Mountains, so it is less likely, compared to lower elevations, that an archeological site will be affected. However,

field workers will be instructed to halt work and report to proper authorities should they encounter evidence of an archaeological site.

(2) Curtails the range of beneficial uses of the environment;

The most beneficial use of lands within the project area is preservation for watershed. The goal of the project is to protect the watershed by removing the threats from non-native plants and animals.

(3) Conflicts with the State's long-term environmental policies established in Chapter 344, HRS; and any revisions thereof and amendments thereto, court decisions, or executive orders;

The proposed watershed management activities are in compliance with the state's long term environmental policies and goals that promotes the protection of Hawaii's unique natural resources.

(4) Substantially affects the economic or social welfare of the community or state;

The 52,940 acres of Conservation District Lands that are owned and managed by the members of the WMMWP provides the second largest harvested source of surface water in Hawaii, providing an estimated 29 billion gallons of water per year to meet residential, commercial, and agricultural needs of Wailuku, Lahaina, Kahului, Paia, and Kihei-Makena. By protecting forest cover, the recharge of the watershed's ten aquifers (Iao, Waihee, Kahakuloa, Honokohau, Honolua, Honokowai, Launiupoko, Olowau, Ukumehame and Waikapu) will improve, thereby increasing the supply of potable water for Maui County.

(5) Substantially affects public health;

Public health benefits from the management of the West Maui Mountains will include the reduction of non-native mammals that are known vectors for water born diseases, such as Leptospirosis, Giardiasis and Cryptosporidiosis.

(6) Involves substantial secondary impacts, such as population changes or effects on public facilities;

The remoteness and steep terrain of the project area would preclude any direct affect on population changes nor effect public facilities. The anticipated increases in watershed's ability to capture rain, recharge the aquifers, and increase the supply of potable water may have an effect on limits to population growth on Maui.

(7) Involves a substantial degradation of environmental quality;

The proposed management activity will improve the native forest cover of the watershed thereby reversing the current degradation of the watershed.

- (8) Is individually limited but cumulatively has considerable effect on the environment, or involves a commitment for larger actions;**

The disturbance to the watershed caused by construction of fences will be short lived, and the long-term increase of forest cover will substantially improve the overall quality of the environment. Once strategic fences are in place, the immigration of ungulates to areas mauka will be substantially reduced, thereby decreasing the overall effort required to keep the higher elevations on West Maui free of ungulates.

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

Native plants, particularly rare and endangered species cannot withstand the rooting and grazing activities of non-native ungulates. Native plants typically supply the habitat requirements of native animals. The proposed reduction of ungulate populations in the native forest of West Maui represents the greatest potential of any management option to increase the populations of rare and endangered plants and animals.

- (10) Detrimentally affect air or water quality or ambient noise levels;**

The management activities proposed will decrease accelerated erosion, especially prevalent on the steep slopes of the West Maui Mountains, there by improving water quality by reducing rapid runoff and siltation.

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

Without the management activities proposed, the West Maui Mountain's verdant slopes will continue to experience accelerated erosion, loss of forest cover and degradation of fresh water. The management activities of the WMMWP will not negatively affect an environmentally sensitive area, or damage a flood plan, tsunami zone, beach, geologically hazardous land, estuary, or coastal water.

- (12) Substantially affect scenic vistas and view planes identified in county or state plans or studies;**

The short lengths and low visibility of the proposed strategic fences will have minimal affects on the scenic vistas and viewplanes.

- (13) Requires substantial energy consumption**

There are no structures planned for this project, and the management activities will require only a modest amount energy to support the intermittent use of project vehicles and chartered helicopters.

Approvals

This project requires a Conservation District Use Permit from the Board of Land and Natural Resources.

VIII. EA Preparation Information

This document was prepared by the West Maui Mountains Watershed Partnership, in consultation with staff members in The Nature Conservancy Hawaii and in the Department of Land and Natural Resources, Division of Forestry and Wildlife. The primary EA preparer is:

Mark S. Collins
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Maps prepared by the Hawaii Natural Heritage Program.

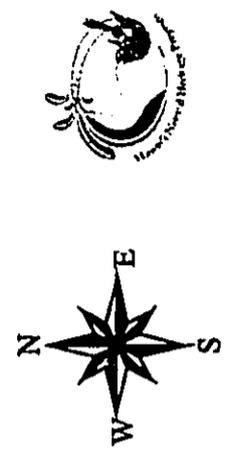
Figure 1 West Maui Mountains Watershed Partnership

Participating Landowners

- Land Owner:**
-  Amfac/JMB Hawaii, Co./TNC
 -  Kahehameha Schools
 -  Board of Water Supply
 -  C. Brewer & Co.
 -  C. Brewer & Co./Board of Water Supply
 -  Kahoma Land L.L.C.
 -  Makila Land Co. L.L.C.
 -  Maui Land & Pineapple Co.
 -  State of Hawaii (Natural Area Reserve)
 -  State of Hawaii (Other)

 Watershed Partnership Boundary

-  Perennial Stream
-  Contour (1000-ft. interval)
-  Major Roads

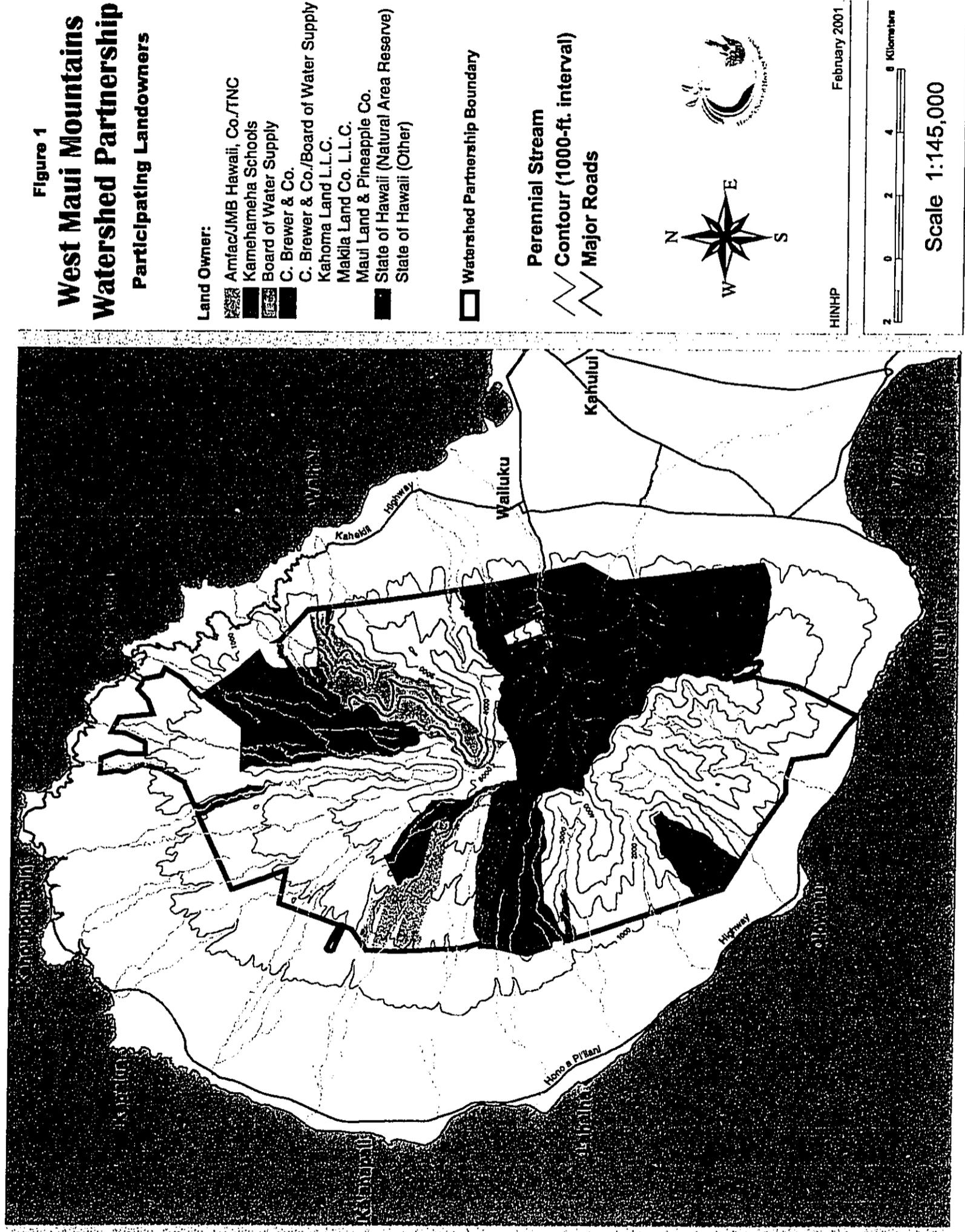


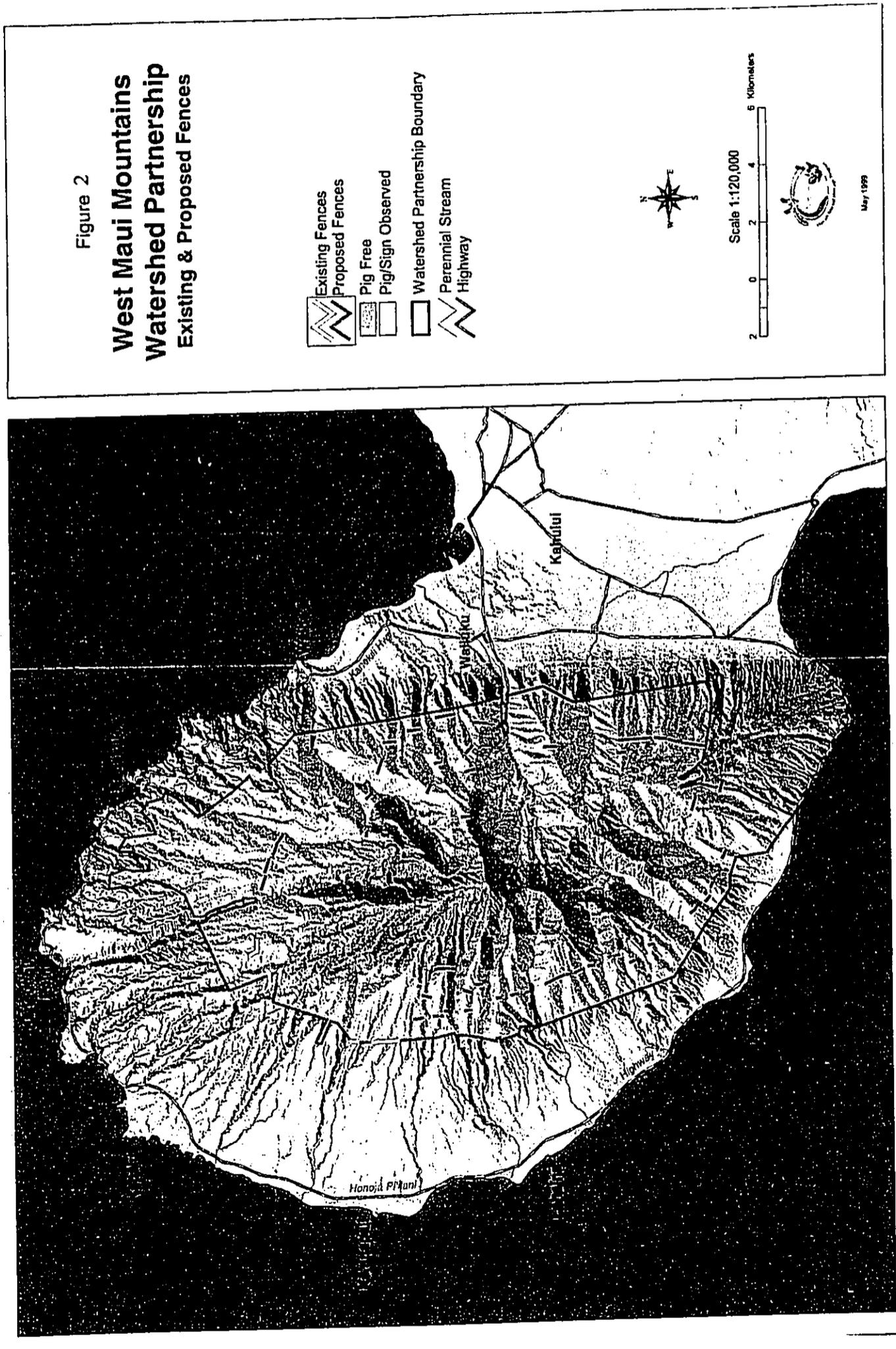
HINHP February 2001



Scale 1:145,000







**APPENDIX I
RARE NATURAL COMMUNITIES OF THE WEST MAUI MOUNTAINS**

NATURAL COMMUNITY	HERITAGE RANK (a)
KO'OKO'OLAU (<i>Bidens menziesii</i>) LOWLAND SHRUBLAND	G2
ALAHE'E (<i>Canthium odoratum</i>) LOWLAND DRY SHRUBLAND	G2
'ŌHI'A (<i>Metrosideros polymorpha</i>) MIXED MONTANE BOG	G2
MIXED SEDGE AND GRASS MONTANE BOG	G2
HAWAIIAN CONTINUOUS PERENNIAL STREAM	G1

(a) Heritage Rank:

G1= Species critically imperiled globally (typically 1 to 5 current occurrences).

G2= Imperiled globally (typically 6 to 20 occurrences).

G3= Restricted range (typically 21 to 100 occurrences)

**APPENDIX II
RARE SPECIES OF THE WEST MAUI MOUNTAINS**

Classi- fication	Scientific Name	Common Name	Federal Status
VERT.	<i>Anas wyvilliana</i>	KOLOA, Hawaiian Duck	E.
VERT.	<i>Asio flammeus sandwicensis</i>	PUEO Hawaiian Short-eared Owl	S.O.C.
VERT.	<i>Branta sandwicensis</i>	NENE, Hawaiian Goose	E.
VERT.	<i>Lasiurus cinereus sem.</i>	'OPE' APE' A, Haw. Hoary Bat	E.
VERT.	<i>Lentipes concolor</i>	'O'OPU	S.O.C.
VERT.	<i>Pterodroma phaeopygia sand.</i>	'UA 'U, HAW. Dk-rumped Petrel	E.
VERT.	<i>Puffinus auricularis</i>	'A'O, Newell's Shearwater	T.
INVERT	<i>Coleotichus blackurniae</i>		S.O.C.
INVERT	<i>Drosophila neoclavisetae</i>	Pomace Fly	C.
INVERT	<i>Manduca Blackburni</i>	Blackburn's Sphinx Moth	C.
INVERT	<i>Megalagrion pacificum</i>	PINAO 'ULA, Haw. Damselfly	C.
INVERT	<i>Megalagrion xanthomelas</i>	PINAO 'ULA, Haw. Damselfly	C.
INVERT	<i>Nesotocus giffardii</i>		S.O.C.
INVERT	<i>Newcombia cumingi</i>		S.O.C.
INVERT	<i>Partulina crocea</i>	Achatenellid Land Snail	S.O.C.**
INVERT	<i>Partulina crocea</i>	Achatenellid Land Snail	S.O.C.*

Classification	Scientific Name	Common Name	Federal Status
INVERT	<i>Partulina fusioidea</i>	Achatenellid Land Snail	S.O.C.**
INVERT	<i>Partulina gouldii</i>	Achatenellid Land Snail	S.O.C.*
INVERT	<i>Partulina perdix</i>	Achatenellid Land Snail	S.O.C.**
INVERT	<i>Partulina splendida</i>	Achatenellid Land Snail	S.O.C.*
INVERT	<i>Partulinat appaniana</i>	Achatenellid Land Snail	S.O.C.*
INVERT	<i>Partulina terebra</i>	Achatenellid Land Snail	S.O.C.*
INVERT	<i>Perdicella kuhnsi</i>	Achatenellid Land Snail	S.O.C.**
INVERT	<i>Philonesia sp.</i>		S.O.C.
INVERT	<i>Plagithmysus alani</i>		S.O.C.**
INVERT	<i>Plagithmysus near longicollis</i>		S.O.C.*
INVERT	<i>Rhyncogonus lahainae</i>		S.O.C.*
INVERT	<i>Succinea sp.</i>		S.O.C.
PLANT	<i>Acacea koaia</i>	KOAI	S.O.C.
PLANT	<i>Acaena exigua</i>	LILIWAI	E.
PLANT	<i>Achyranthes splendens splendens</i>		S.O.C.
PLANT	<i>Alectryon Macrocooccus macro.</i>	'ALA'ALAHUA, MAHOE	E.
PLANT	<i>Alphitonia ponderosa</i>	KAUILA	S.O.C.
PLANT	<i>Anoetochilus sandwicensis</i>		S.O.C.
PLANT	<i>Argyroxiphium caliginis</i>	Eke Silversword	S.O.C.*
PLANT	<i>Asplenium schizophyllum</i>		S.O.C.
PLANT	<i>Bidens campylotheca pentamera</i>	KO'OKO'OLAU, KOKO'OLAU	S.O.C.**
PLANT	<i>Bidens conjuncta</i>	KO'OKO'OLAU, KOKO'OLAU	S.O.C.*
PLANT	<i>Bobea sandwicensis</i>	'AHAKEA	S.O.C.
PLANT	<i>Bonamia menziesii</i>		E.
PLANT	<i>Calamagrostis expansa</i>		S.O.C.
PLANT	<i>Calamagrostis hillebrandii</i>		S.O.C.
PLANT	<i>Capparis sandwichiana</i>	PUAKALA	S.O.C.
PLANT	<i>Chamaesyce olowaluana</i>	AKOKO	S.O.C.
PLANT	<i>Clermontia arborescens arbor.</i>	'OHA 'OHA WAI	S.O.C.*

Classification	Scientific Name	Common Name	Federal Status
PLANT	<i>Centaurium sebaeoides</i>	'AWIWWI	E.
PLANT	<i>Clermontia oblongifolia mauiensis</i>	'OHA 'OHA WAI	E.
PLANT	<i>Colubrina oppositifolia</i>	KAUILA	E.
PLANT	<i>Ctenitis squamigera</i>	PAUOA	E.
PLANT	<i>Cyanea glabra</i>	'OHA, HAHA, 'OHA WAI	P.E.**
PLANT	<i>Cyanea kunthiana</i>	OHA, HAHA, 'OHA WAI	S.O.C.**
PLANT	<i>Cyanea lobata</i>	'OHA, HAHA, 'OHA WAI	E.*
PLANT	<i>Cyanea magnicalyx</i>	OHA, HAHA, 'OHA WAI	E.*
PLANT	<i>Cyanea obtuse</i>	OHA, HAHA, 'OHA WAI	C.**
PLANT	<i>Cyanea lydgatei</i>	OHA, HAHA, 'OHA WAI	S.O.C.
PLANT	<i>Cyperus neokunthianus</i>	OHA, HAHA, 'OHA WAI	S.O.C.*
PLANT	<i>Cyrtandra filipes</i>	HA'IWALE, KANAWAO KE'OKE'O	C.
PLANT	<i>Cyrtandra lydgatei</i>	HA'IWALE, KANAWAO KE'OKE'O	S.O.C.
PLANT	<i>Cyrtandra munroi</i>	HA'IWALE, KANAWAO KE'OKE'O	E.
PLANT	<i>Cyrtandra oxybapha</i>	HA'IWALE, KANAWAO KE'OKE'O	C.**
PLANT	<i>Cystopteris douglasi</i>		S.O.C.
PLANT	<i>Dicanthelium koolauense</i>		S.O.C.
PLANT	<i>Diellia erecta</i>		E.
PLANT	<i>Doodia lyonii</i>		S.O.C.
PLANT	<i>Dubautia plantaginea humilis</i>	NA'ENA'E	P. E.
PLANT	<i>Doodia lyonii</i>		S.O.C.
PLANT	<i>Eragrostis deflexa</i>		S.O.C.
PLANT	<i>Eurya sandwicensis</i>		S.O.C.
PLANT	<i>Exocarpus gaudichaudii</i>		S.O.C.
PLANT	<i>Gardenia remyi</i>	NANU, NA'U	S.O.C.
PLANT	<i>Geranium hillebrandii</i>	HINAHINA, NOHOANU	S.O.C.*
PLANT	<i>Gossypium tomentosum</i>		S.O.C.
PLANT	<i>Gouanta hillebrandii</i>		E.
PLANT	<i>Hedyotis coriacea</i>		E.

Classification	Scientific Name	Common Name	Federal Status
PLANT	<i>Hedyotis formosa</i>		S.O.C.*
PLANT	<i>Hedyotis mannii</i>		E.
PLANT	<i>Hesperomantnia arborescens</i>		E.
PLANT	<i>Hesperomantnia arbuscula</i>		E.
PLANT	<i>Hibiscus brackenridgei bracken.</i>	MA'O HAU HELE	E.
PLANT	<i>Hibiscus kokio kokio</i>	KOKI'O'ULA'ULA	S.O.C.
PLANT	<i>Hillebrandia sandwicensis</i>		S.O.C.
PLANT	<i>Isoetes hawaiiensis</i>		S.O.C.
PLANT	<i>Joinvillea ascendens ascendens</i>		S.O.C.
PLANT	<i>Lagenifera maviensis</i>		S.O.C.
PLANT	<i>Liparis hawaiiensis</i>		S.O.C.
PLANT	<i>Lysimachia lydgatei</i>		E.*
PLANT	<i>Melicope hawaiiensis</i>	ALANI	S.O.C.
PLANT	<i>Microlepia mauiensis</i>	PALAPALAI	C.
PLANT	<i>Myrsine vaccinioides</i>	KOLEA	S.O.C.*
PLANT	<i>Neraudia sericea</i>	MA'ALOA, MA'OLOA, 'OLOA	E.
PLANT	<i>Nesoluma polynesticum</i>	KEAHI	S.O.C.
PLANT	<i>Nothocestrum latifolium</i>	'AIEA	S.O.C.
PLANT	<i>Phlegmariurus mannii</i>		E.
PLANT	<i>Phyllostegia brevidens</i>		S.O.C.
PLANT	<i>Phyllostegia stachyoides</i>		S.O.C.
PLANT	<i>Pittosporum argentifolium</i>		S.O.C.
PLANT	<i>Plantago princeps laxiflora</i>	ALE	E
PLANT	<i>Platanthera holochila</i>		E.
PLANT	<i>Portulaca villosa</i>	'IHI	S.O.C.
PLANT	<i>Pritchardia forbesiana</i>	LOULU	S.O.C.*
PLANT	<i>Pritchardia glabrata</i>	LOULU	S.O.C.*
PLANT	<i>Pteris lidatei</i>		E.
PLANT	<i>Ranunculus mauiensis</i>	MAKOU	C.

Classification	Scientific Name	Common Name	Federal Status
PLANT	<i>Remya maiensis</i>		E.*
PLANT	<i>Reynoldsia sandwicensis</i>		S.O.C.
PLANT	<i>Sanicula purpurea</i>		E.
PLANT	<i>Santalum freycinetianum lanaaiense</i>	'ILIAHI	E.
PLANT	<i>Scaevola hobbii</i>	NAUPAKA	S.O.C.*
PLANT	<i>Schiedea diffusa diffusa</i>		S.O.C.
PLANT	<i>Schiedea menziesii</i>		S.O.C.
PLANT	<i>Schiedea pubescens pubescens</i>		C.
PLANT	<i>Schiedea saliaris</i>		C.*
PLANT	<i>Sesbania tomentosa</i>	'OHAI	E.
PLANT	<i>Sicyos cucumerinos</i>	'ANUNU, KUPALA	S.O.C.
PLANT	<i>Spermolepis hawaiiensis</i>		E.
PLANT	<i>Stenogyne calycosa</i>		S.O.C.**
PLANT	<i>Strongylodon ruber</i>	NUKUPU'U, I'IWI	S.O.C.
PLANT	<i>Tetramolopium capillare</i>		E.*
PLANT	<i>Wikstroemia bicornuta</i>	'AKIA	S.O.C.

S.O.C. = Species of Concern

C = Candidate for Listing

T = Threatened

E = Endangered

* = Endemic to Maui

** = Endemic to West Maui

Appendix III
Prevention of Alien Species Introduction
Protocol adapted from The Nature Conservancy of Hawaii, author Pat Biley

Control of introduced plants and animals is one of the main focal points of resource management groups in Hawaii. As new accidental entries to the islands continue yearly, adding to the long list of alien species, resource management workers need to be concerned with a degree of urgency to prevent these introductions from ingress into natural areas. Such personnel, including researchers, volunteers, and other visitors must view themselves as possible vectors of these alien species. The realm of these pests can be other islands, even other parts of a fairly pristine preserve or natural area, as well as one's own home or the field operations baseyard. This paper covers the likely routes of accidental introductions and outlines procedures to be taken by staff to prevent or minimize these threats. Enforcing this protocol may not always be practical, but it should become second nature to WMMWP or contracted field staff.

1) Inspect field gear and equipment before going into the field. This is best done at the baseyard under the supervision of an assigned staff person. Two categories of pests to be especially aware of are weed seeds and insects. Clods of dirt or mud can mask these hitchhikers. The array of items to inspect can include footwear, socks, pant legs, jackets, raingear, food-stuffs, tools, packs and other containers. Cleaning of gear can be performed by use of a hose, brush, rags, or knife edge, and should be done in a designated area with a receptacle for proper disposal nearby.

2) Keep the field vehicle clean. The inside should be kept vacuumed of debris (in corners, seats, dash, and floorboards) and the pickup bed swept on a regular basis. Avoid carrying seeds on the tires by hosing off any mud before departing the baseyard. Maintaining clean field equipment will only be compromised by a dirty truck.

3) Become acquainted with invasive species in Hawaii and their varying status regarding particular localities. Learn which of these is localized to your area and which to be on the alert for that are established on other islands or natural areas. Take inventory of weeds that occur along watershed trails and byways and pay attention to any unusual changes or additions to these. There is much literature that aids in identification and provides current status throughout the various islands.

4) Avoid carrying weed seeds from an infested part of the watersheds to pristine areas. If routes of transit go through invasive weed belts, be conscious of the potential for spread. A safeguard could be having a brush on hand to clean shoe soles at the boundary of such a site. This is especially a concern when performing priority weed work where there is a large seed bank.

5) Prepare a checklist of items to be inspected before any extended field operations or camping trips. Note all materials that will accompany staff during these maneuvers. During the baseyard prep day, an assigned person will inspect the supplies, concentrating

on those most susceptible in aiding accidental introductions. A quick "once-over" should be performed the morning of departure as the gear is loaded into the vehicle. Items having the potential for carrying unwanted plants and insects into the field include: helicopter sling nets, wood, building materials, fencing material, bottoms of plastic buckets, boxes, any open food or water containers (beware of roaches and ants!), tool bags, and tents. Methods for cleaning such articles range from using brushes, bleached rags, or insecticides. Upon the worst possible scenario of contamination supplies, simply dispose of the item at the baseyard.

6) Keep localized infestations from becoming established on other islands or watersheds. When working on a different watersheds or other island, be very careful to avoid spreading pests that your destination may not have, and vice versa, by inspecting and cleaning gear before each departure. In some cases it may be wise to have completely different gear for other watersheds work.

7) Pack out you trash and unused foodstuffs. Avoid taking any fruit (in your food or digestive tract) whose seeds have strong potential to naturalize, i.e. guava, cherry tomatoes, chili peppers, berries, etc.. Also be aware of the possibility of spreading unseen insects, bacteria, blights, and other plant pathogens. Organic trash (orange and banana skins, apple or pear cores, peach and avocado pits, etc.) should be treated as other garbage and packed out the way it was packed into the watershed.

8) Keep helicopter landing zones and camps free of significant weed species. These helicopters not only land in our watersheds but go to other islands' natural areas as well. Although it may be impractical to keep the skids of the chopper clean, a well used landing area can be managed. Potentially threatening weed species dominating these strategic places should be cut back periodically, if not completely eradicated. Camp sites are also a good indicator of weed and insect species brought into the watershed. Time should be set aside for any control efforts to eliminate these invaders when arriving at the camp.

9) Educate watersheds visitors to follow this protocol. This includes membership or other organized hikes, volunteer groups, and researchers. It will be the responsibility of the WMMWP hike leader or liaison to relate this information, as relevant, to the group prior to entering the watershed. A shoebrush and bag for disposing any unwanted debris should be made available for use at the watersheds entrance. Concerning independent researchers, the WMMWP coordinator contacted for permission is responsible for informing them of these precautions. Since it is likely that researchers will be visiting pristine parts of the watershed, this procedure cannot be stressed enough. A very high probability exists that much of their gear, primarily packs and footwear, has seen other natural areas in Hawaii that may or may not have related infestations of alien species, but it is presumptuous to expect that they could not act as agents for dispersal. Persons who share in common an appreciation of Hawaii's native forests will not be insulted by these procedures if related firmly yet politely, but rather will be impressed with the diligence by which they are executed.

APPENDIX IV

Comment Letters on the Draft EA with the WMMWP Response



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

September 5, 2000

Mr. Mark S. Collins
West Maui Mountains Watershed Partnership
225-B East Waiko Road
Wailuku, Maui, Hawai'i 96793

EIS# 420

Subject: Draft Environmental Assessment for the West Maui Mountains Watershed Protection Project

Dear Mr. Collins,

Thank you for the opportunity to review and respond to the above-referenced document. As with any project, the Office of Hawaiian Affairs is concerned that subsurface archaeological, historical, and cultural remains may be impacted as well as the cultural integrity of the land.

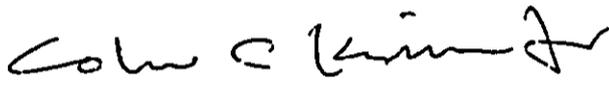
The Office of Hawaiian Affairs has the following comments to offer:

- Effective April 26, 2000, Governor Cayetano signed into law Act 50 (HB 2895, HD1) requiring a cultural impact statement as part of all environmental assessments. Please include one in the Final EA.
- The cultural impact statement should address the impact of the proposed project on Native Hawaiian traditional and customary practices as well as access rights.
- Please provide the opportunity for the Maui community to respond to this proposed project.
- To mitigate inadvertent subsurface discoveries please have an archaeological monitor present during construction.

If you have any questions, please contact Ken R. Salva Cruz, Policy Analyst, at 594-1847.

Mr. Mark S. Collins
September 5, 2000
Page 2

Sincerely,



Colin C. Kippen, Jr.
Deputy Administrator

cc: Board of Trustees
Maui CRS
OEQC
DLNR
File

West Maui Mountains
Watershed Partnership
255B East Waiko Road
Wailuku, Hawaii 96793
Phone (808) 243-5073
Facsimile (808) 243-5074

Watershed Partners
Amfac/JMB Hawaii, LLC

C. Brewer and Co. LTD

County of Maui

Dept. of Land & Natural
Resources

Kahoma Land, LLC

Kamchameha Schools

Makila Land Co., LLC

Maui County Department
of Water Supply

Maui Land & Pineapple
Company Inc

The Nature Conservancy

West Maui Mountains Watershed Partnership

Mr. Colin C. Kippen, Jr.
Deputy Administrator
State of Hawaii
Office of Hawaiian Affairs
711 Kapiolani Boulevard, Suite 500
Honolulu, Hawaii 96813

February 21, 2001

RE: Draft Environmental Assessment for the West Maui Mountains Watershed
Protection Project

Dear Mr. Kippen,

The West Maui Mountains Watershed Partnership (WMMWP) greatly appreciates receiving your letter of September 5th reviewing our watershed protection project. Regarding your four concerns, we offer the following comments:

- We have reviewed Act 50 (HB 2895, HD1) and have conducted interviews with cultural experts living in West Maui and have incorporated the findings regarding cultural practices in a new section in the final environmental assessment.
- The results of our investigation suggest that the proposed project will not significantly impact Native Hawaiian traditional practices or access rights. The project will focus on protecting native forest cover by constructing strategic fences and removing non-native animals and weeds. None of the project activities will impede human access. Any person physically capable of hiking to any of the proposed fences should have no problem crossing over them. Fences across trails frequented by hikers will have climb-over bars to make for easier crossings.
- Admission of visitors to the watershed is controlled by the individual landowners and is not within the purview of the proposed project, as liability and insurance remain the responsibility of the landowners. Every landowner within the WMMWP, however, has indicated that they will honor native Hawaiian gathering rights.
- The WMMWP has provided the Maui community several opportunities to respond to the proposed project. We sent out 45 consultation letters and received 8 responses that are included in the draft EA. We have made four presentations at meetings to which the general public was invited:
 - 1) Recreation subcommittee of the Kaanapali 2020 planning group in Lahaina, March 22, 2000.
 - 2) Maui Watershed Advisory Committee, May 12, 2000, in Lahaina.
 - 3) Clean Drinking Water Workshop, May 15, 2000, in Kahalui.
 - 4) Lahaina Water Allocation Committee meeting, June 30, 2000, in Lahaina.

BENJAMIN J. CAYetano
GOVERNOR OF HAWAII



TIMOTHY E. JOHNS, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DEPUTIES
JANET E. KAWELO
LINNEL NISHIOKA

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
Kakuhikewa Building, Room 555
601 Kamokila Boulevard
Kapolei, Hawaii 96707

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

November 3, 2000

Mr. Mark S. Collins
The West Maui Mountains Watershed Partnership
255-B Waiko Road
Wailuku, Hawaii 96793

LOG NO: 26312 ✓
DOC NO: 0010CD08

Dear Mr. Collins,

**SUBJECT: National Historic Preservation Act Section 106 Review, Chapter 6E-8, and Chapter 6E-42 Historic Preservation Review of the Draft Environmental Assessment for West Maui Mountains Watershed Protection Project Various Ahupua`a, Lahaina and Wailuku District, Island of Maui
TMK: 3-1, 3-2, 3-3, 3-5, 3-6, 4-1, 4-2, 4-3, 4-4, 4-5, 4-6, and 4-7**

Thank you for the opportunity to review the Draft Environmental Assessment (Draft EA) for the West Maui Mountains Watershed Protection Project (WMMWP). Our review is based on reports, maps, and aerial photographs maintained at the State Historic Preservation Division; no field inspection was made of the subject property.

From the submitted Draft EA, we understand the proposed watershed land includes all of the slopes of the West Maui Mountains from the beginning of the Conservation District boundary to the mountain's summit. These lands extend from the summit of Pu`u Kukui to the lower coast on the southern side and to the near coast on the north side of the mountain, covering approximately 52, 940 acres.

The project proposes to construct approximately 58 fences, to be placed throughout the watershed lands, as necessary to control access to these areas by axis deer, feral pigs, goats, and cattle. Ground disturbance will include clearing the corridor (which is not to exceed six feet wide) with hand tools and small power tools and temporary field camps which will be located along the fence line corridors for the construction crew. The materials for constructing the fences will be brought in by helicopter and the fence line construction involves installing steel post at ten-foot intervals and attaching hog wire, and barbed wire as necessary, along the posts. These fence lines will be placed across the narrowest sections of steep sided ridges, which extend mauka/makai.

A review of our records indicates the proposed project areas have not been subject to an archaeological inventory survey. We do not concur with the statement on page 9 of the Draft EA that asserts the WMMWP does not anticipate finding historic or cultural sites because of the high elevation and remoteness of the fence line sites. We believe significant historic sites may be present at the higher elevations including, trails, temporary habitation, burials (especially in caves and lava tubes), and possibly ceremonial sites, as well. A previously unrecorded heiau was recently identified at a high elevation at Ukumehame Ahupua`a. Sites at the lower elevations may include agricultural sites and possibly associated habitation. Because the areas of impact are remote, it is even more likely that significant historic sites will be present.

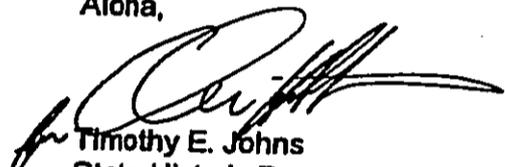
Mr. Mark S. Collins
Page 2

Given the above information, we believe it is likely that significant cultural or historic sites may be present in the proposed fence line construction areas.

Therefore, we recommend the proposed undertaking will be postponed until arrangements have been made by the West Maui Mountains Watershed Partnership to have an archaeological inventory survey conducted, including a preliminary ethnohistoric study, of the fence line construction areas to determine the presence of significant historic sites and areas of cultural importance. Select areas to undergo archaeological inventory survey will be determined in consultation with this office and will be based on the findings of the preliminary ethnohistoric study. An acceptable report documenting the findings of the inventory survey and the ethnohistoric study needs to be submitted to this office for review.

Please call Cathleen Dagher at 692-8023 if you have any questions.

Aloha,


Timothy E. Johns
State Historic Preservation Officer

CD:jen

West Maui Mountains
Watershed Partnership
255B East Waiko Road
Wailuku, Hawai'i 96793
Phone (808) 243-5073
Facsimile (808) 243-5074

Watershed Partners
Amfac/JMB Hawaii, LLC
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Kahoma Land, LLC

Kamehameha Schools

Makila Land Co., LLC

Maui County Department
of Water Supply

Maui Land & Pineapple
Company Inc

The Nature Conservancy

West Maui Mountains Watershed Partnership

February 21, 2001

Don Hibbard Ph.D.
State Historical Preservation Division
Department of Land and Natural Resources
601 Kamoikila Blvd. Suite 555
Kapolei, Hawaii 96707

Dear Dr. Hibbard,

We appreciate receiving your Division's letter of November 3rd regarding our Draft Environmental Assessment for the West Maui Mountains Watershed Protection Project. Our partnership shares your concern for the protection of historic and cultural sites on the West Maui Mountains and will strive to conduct our fence building activities in a sensitive manner.

We believe that our watershed protection efforts will actually be a first step to the protection of yet to be discovered archeological sites in the high elevations of the West Maui Mountains. Ungulates, particularly feral pigs, cattle and goats are known to disturb archeological sites because they knock over stone walls, turn over soil, spread noxious weeds, and initiate accelerated erosion and landslides. Waiawi or Strawberry guava is a weedy tree spreading rapidly on the West Maui Mountains, in part, because of the foraging of feral pigs. Waiawi forms impenetrable thickets and develops strong roots systems that can destroy the integrity of an archeological site. One of the long-term goals of our partnership is to stop the spread of invasive weeds such as Waiawi and restore native forest cover.

Once the Final EA is approved, and as agreed upon during our December 21 meeting with you and other DLNR officials, we will initiate with the cooperation of your staff, an ethnohistoric investigation of the upper West Maui Mountains to determine possible archeological sites in the vicinity of our proposed fences. Concurrently, we will meet with your staff archeologist on Maui to ascertain which of our high priority fence sites can be approved for construction while the ethnohistoric investigation is in progress

Once again we thank you for your support for our watershed protection project, and look forward to working with your staff to bring this important watershed protection project to its completion.

Sincerely,



Mark S. Collins
Coordinator

For the protection of Hawaii's Native Wildlife

HAWAII AUDUBON SOCIETY

850 RICHARDS ST., SUITE 305 HONOLULU, HI 96813-4709
TELEPHONE (808) 528-1432 FAX (808) 537-5294

October 7, 2000

Dear Mr. Collins,

The following comments are in regards to the Draft Environmental Assessment (DEA) prepared for the West Maui Mountains Watershed Protection Project.

GENERAL

The Hawaii Audubon Society (HAS) strongly supports the project's proposed effort to fence native forest areas, remove feral ungulates and control other non-native species within the watershed's partnership boundary. We look forward to the completion of the proposed fences for the protection of Hawaii's native biota and water resources. We offer the following specific comments to further the protection of those native resources.

FERAL UNGULATE CONTROL

HAS strongly supports the use of snaring, hunting, and fencing to control ungulates in lieu of other more effective means of ungulate control. The DEA states that snare groups will be checked semi-annually. If funds and labor become available, we recommend checking snare groups much more frequently, particularly in areas previously unsnared with higher ungulate densities. More frequent checks at least initially might bring the numbers of pigs and other ungulates down faster in the long-term than semi-annual checks.

The DEA states that the desired number of ungulates in the upper areas will be as close to zero as possible. What will be the target level(s) of ungulate activity in the lower areas? Defining which lower areas can tolerate lower or higher pig densities may assist in the prioritization and placement of the strategic fences.

FENCING

The DEA states that a maximum six-foot fence corridor will be constructed for all fences. We recommend additional statements that a wider corridor in certain areas may be needed in some areas in order to roll out taller (96") hogwire or to accommodate changes in terrain or vegetation. These qualifying statements may help prevent any violations of conditions written into the Conservation District Use Permit for the project.

West Maui Mountains
Watershed Partnership
255B East Waiko Road
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Phone (808) 243-5073
Facsimile (808) 243-5074

Watershed Partners
Amfac/JMB Hawaii, LLC

C. Brewer and Co. LTD
County of Maui

Dept. of Land & Natural
Resources

Kahoma Land, LLC

Kamchameha Schools

Makila Land Co., LLC

Maui County Department
of Water Supply

Maui Land & Pineapple
Company Inc

The Nature Conservancy

West Maui Mountains Watershed Partnership

Mr. Dan Sailer
Conservation Chair
Hawaii Audubon Society
850 Richards Street, Suite 505
Honolulu, Hawaii 96813-4709

February 21, 2001

RE: Draft Environmental Assessment for the West Maui Mountains Watershed
Protection Project.

Dear Mr. Sailer,

The West Maui Mountains Watershed Partnership was pleased to receive your letter of October 7, 2000, supporting the projects proposed goals. Regarding your specific concerns, we offer the following responses.

FERAL ANIMAL CONTROL

We agree with your comments regarding the efficacy of checking snares more frequently when initiating the control effort. We will make every effort to do so as resources allow. The setting of target levels for ungulate populations below the strategic fences will be based on local field conditions. Factors to be considered include rate and direction of ungulate immigration to the area and the relative importance of the area in terms of erosion potential and native biota.

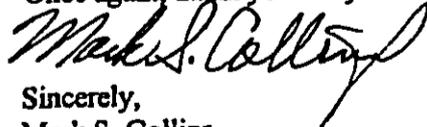
FENCING

We believe that we can respond to the need for taller (96") deer-proof fences without increasing the width of the corridor clearing as described in the DEA. We share your concerns about the Hawaiian Hoary Bat and will seasonally suspend fence line construction in areas where bats have been recently observed. We concur with your recommendation to include provisions in the final EA for small enclosure fences to protect critically endangered plant populations that might lie outside the proposed strategic fence areas. The partnership has contacted the Army Corps of Engineers and will comply with all regulations pertaining to building fences across streams. The draped fabric curtains we propose have been used for over five years at Haleakala National Park and there have been no reported impediments to the movement of native organisms.

DROP ZONES AND LANDING ZONES

We understand your concerns regarding possible negative effects of downwash from helicopter blades on native snails and bats at landing sites. We will discontinue the use of a remote landing zone if we detect disturbance of any rare species.

Once again, thank you for your support and your informed comments.



Sincerely,
Mark S. Collins
Partnership Coordinator

BENJAMIN J. CAYETANO
GOVERNOR



GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4186
FACSIMILE (808) 586-4186

October 6, 2000

Mr. Mark S. Collins
West Maui Mountains Watershed Partnership
255-B Waiko Road
Wailuku, Hawai'i 96793

Dear Mr. Collins:

We have reviewed the Draft Environmental Assessment for the West Maui Mountains Watershed Partnership, Tax Map Key, various, in Lahaina and Wailuku. We submit the following comments for your response and consideration.

1. **CULTURAL IMPACT ASSESSMENT GUIDELINES:** The DEA briefly speaks about historical and cultural sites. Please find enclosed a copy of Act 50, Session Laws of Hawai'i 2000, which requires that actions need to assess cultural impacts. Also enclosed is a copy of the Cultural Impact Assessment Guidelines issued by the environmental council to assist you in your analysis.
2. **ANALYSIS OF SIGNIFICANCE:** We have been asking all applicants both private and government, to provide an objective and non-self-serving analysis of the the 13 significance criteria (see Section 11-200-12, Hawai'i Administrative Rules) in relation to their proposed actions. Please provide an analysis of significance under the section entitled "Findings and Reasons Supporting Expected Determination." An example analysis is attached for your use.
3. **OFFICE OF HAWAIIAN AFFAIRS:** Please consult the Office of Hawaiian Affairs.
4. **FUNDING/RESOURCES:** Please discuss project funding and resources.
5. **CONSULTATION LETTER OF JULY 21, 2000:** Please find enclosed a copy of a July 21, 2000, consultation memorandum sent to the Deputy Director for Environmental Health Administration which apparently was not forwarded to you. Please respond to the concerns raised in this memorandum.

Again we thank you for the opportunity to comment. If there are any questions, please call me or Leslie Segundo at (808) 586-4185.

Sincerely,


GENEVIEVE SALMONSON
Director

c: Betsy Gagné, DLNR-DOFAW

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Maui Land & Pineapple
Company Inc

The Nature Conservancy

West Maui Mountains Watershed Partnership

February 21, 2001

Ms. Genevieve Salmonson
Director
State of Hawaii
Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, HI 96814

RE: Draft Environmental Assessment for the West Maui Mountains Watershed
Protection Project.

Dear Ms. Salmonson,

The West Maui Mountains Watershed Partnership appreciates your letter of October 6, 2000, regarding our watershed protection project and has carefully considered your comments.

1. In response to your first point concerning cultural impact assessment, we have reviewed Act 50 (HB 2895, HD1) and have added a section to the final environmental assessment that reviews the project's possible effects on cultural practices. To assess cultural practices we interviewed cultural experts living on Maui.
2. Reasons supporting determination of the significant criteria were presented on pages 17-18 of the Draft Environmental Assessment (DEA). In the Final EA we will change the format and list each significant criterion with a response.
3. We provided the Office of Hawaiian Affairs two copies of our DEA and drafted a response to their letter of September 5th regarding our proposed project. We will also provide them with copies of our Final EA.
4. We included funding disclosure for this project on pages 14-15 of the DEA and will provide an updated version in the Final EA.
5. We received a copy of the July 21, 2000, letter from your office to Gary Gill, Deputy Director, Environmental Health Administration, Department of Health, regarding an early draft of our DEA. We did not include this letter in the list of consultation letters because it was not addressed to us, but we addressed those concerns in the submitted DEA:
 - The ungulate trapping methodology was presented on page 9-10 of the DEA and we will include this information in the Final EA.
 - The precautions intended to minimize impacts on sensitive habitats and sites are presented on pages 12-13 and in Appendix III of the DEA. We will include this information in the Final EA.
 - The location of helicopter landing zones is discussed on page 12 and indicated in Figure 2 in the DEA. We will include this information in the Final EA.



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Pacific Islands Ecoregion
300 Ala Moana Boulevard, Room 3122
Box 50088
Honolulu, Hawai'i 96850

OCT 13 2000

In Reply Refer To: BKP

Mark S. Collins
The West Maui Mountains Watershed Partnership
255-B East Waikō Road
Wailuku, Hawai'i 96793

Re: Draft Environmental Assessment for the West Maui Mountains Watershed Protection Project, Maui, Hawai'i

Dear Mr. Collins:

The U.S. Fish and Wildlife Service (Service) has received the Draft Environmental Assessment (DEA) for the West Maui Mountains Watershed Protection Project. The project is sponsored by the West Maui Mountains Watershed Partnership (WMMWP), which is a coalition of major landowners and land managers responsible for the Forest Reserve lands of West Maui Mountains. The purpose of the project is to improve the West Maui Mountains watershed and increase native forest cover through the reduction of ungulates and weed removal. This letter has been prepared under the authority of and in accordance with provisions of the National Environmental Policy Act of 1969 [42 U.S.C. 4321 *et seq.* 83 Stat. 852], as amended; the Endangered Species Act of 1973 [16 U.S.C. 1531 *et seq.*; 87 Stat. 884], as amended (ESA); and other authorities mandating Service concerns for environmental values. Based on these authorities, the Service offers the following comments for your consideration.

General Comments

The Service supports the efforts of the WMMWP to protect and restore native plants and animals as well as the ecosystems upon which they rely in the West Maui Mountains.

In Appendix II: Rare Species of the West Maui Mountains, a thorough listing of species known to occur within the project area is provided. However, many of the federal ESA status designations for these species have been revised since the appendix was developed. Notably, Blackburn's Sphinx Moth (*Manduca blackburni*) is now a listed species and *Isoetes hawaiiensis* is now a candidate species. Enclosed for your information are the latest species lists for plants and animals in the Hawaiian Islands. Please use this list to update your appendix for the final environmental assessment.

The DEA adequately describes the fish and wildlife and other federal trust resources within the project location and adequately describes the impacts to these natural resources. Furthermore, the DEA describes adequate mitigation measures to minimize unavoidable impacts. Therefore, the Service would concur with your determination and support a "Finding of No Significant Impact."

We appreciate your interest in protecting endangered and threatened species and promoting the conservation and restoration of native habitats. We look forward to reviewing the final environmental assessment when it becomes available. The Service has a number of coast-share programs for voluntary native habitat restoration projects similar to those proposed in the DEA. If you have any questions or comments, please contact Fish and Wildlife Biologist Benton Pang by telephone at (808) 541-3441 or by facsimile transmission at (808) 541-3470.

Sincerely,



Paul Henson
Field Supervisor-Ecological Services

enclosures

cc: OEQC w/ enclosures
DOFAW, Maui w/enclosures
DOFAW, Honolulu w/enclosures

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C. Brewer and Co. LTD
County of Maui

Dept. of Land & Natural
Resources

Kahona Land, LLC

Kamchameha Schools

Makila Land Co., LLC

Maui County Department
of Water Supply

Maui Land & Pineapple
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The Nature Conservancy

West Maui Mountains Watershed Partnership

February 21, 2001

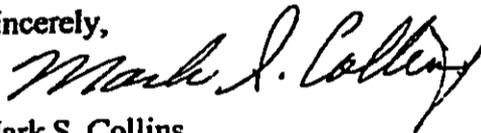
Paul Henson
Field Supervisor-Ecological Services
U. S. Fish and Wildlife Service
Pacific Islands Ecoregion
300 Ala Moana Boulevard, Room 3122
Box 50088
Honolulu, Hawaii 96850

RE: Draft Environmental Assessment for the West Maui Mountains Watershed Protection Project.

Dear Mr. Henson:

The West Maui Mountains Watershed Partnership has received your letter of October 13th and greatly appreciates the Service's support of our watershed protection project. In response to your suggestions for updating Appendix II: Rare Species of the West Maui Mountains, we have revised the species list in accordance with the information you provided.

Sincerely,



Mark S. Collins
Partnership Coordinator

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII



TIMOTHY E. JOHNS
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTY DIRECTOR
JANET E. KAWELO

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF AQUATIC RESOURCES
130 MAHALANI STREET
WAILUKU, HAWAII 96793

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

September 27, 2000

To: Mark S. Collins, Partnership Coordinator
From: *Sh* Skippy Hau, Aquatic Biologist
Subject: Comments to Draft Environmental Assessment
For The West Maui Mountains Watershed Protection Project

(P.6) The document states that ten streams are continuous-perennial. Please identify them. I am not aware of that many streams flow to the ocean. Every stream appears to have been diverted or is partially impacted. In my current study of 'Iao Stream, I estimate the stream flows to the ocean between one and seven days per month. The health of the watershed must continue to the ocean and involve stream corridors. It should also include wetland areas and flood plains. I strongly support the importance of infiltration and water recharge. In many environmental reports, these important processes are often neglected.

(P.8) Natural Communities

The aquatic community consisting of insects, fish ('o'opu), and shrimp (opae) should also be identified. Many native endemic species (*Lentipes concolor* and *Atyoida bisulcata* for example) are greatly impacted by discontinuous streams. Their survival and recruitment depends on regular stream flows. They have consistently been found in the upper elevations of streams such as Honokowai, Makamaka'ole, 'Iao, and Kahakuloa. Their integral presence in maintaining streams are often overlooked. They could also be biological indicators of stream water quality and quantity.

Bishop Museum (Dan Polhemus) made invertebrate collections to determine which species were still present compared with earlier surveys.

Opae is very important in native gathering. Maintaining healthy populations should be addressed in current environmental reviews.

(P.18) th'e" (spelling) watershed

A1. APPENDIX II

"*Lentipes concolor*" is impacted by the lack of quality stream habitat and continuous stream flows which have been significantly reduced in the past 100 years. Restoration of habitat will improve endemic aquatic species survival and increase population numbers. Other aquatic species should be added to this list. The absence of aquatic organisms shows a continued emphasis on land organisms.

c: Office of Environmental Quality Control
DOFAW - Oahu

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Maui County Department
of Water Supply
Maui Land & Pineapple
Company Inc
The Nature Conservancy

West Maui Mountains Watershed Partnership

February 21, 2001

Mr. Skippy Hau
Aquatic Biologist
State of Hawaii
Department of Land and Natural Resources
Division of Aquatic Resources
130 Mahalani Street
Wailuku, Hawaii 96793

RE: Draft Environmental Assessment for the West Maui Mountains Watershed
Protection Project.

Dear Mr. Hau:

The West Maui Mountains Watershed Partnership appreciates your comments on
our proposed watershed protection project.

- Regarding the existence of ten continuous-perennial streams in West Maui, you are probably correct in stating that "every stream appears to be diverted or partially impacted." The reference we used was the Hawaii Stream Assessment of 1990. We have also learned from speaking with you directly that the designation for continuous-perennial streams may be correct for the mauka sections, but at lower elevations these streams may be diverted and may not flow continuously to the sea. We assume the ten streams were designated continuous-perennial because at the time of the assessment they contained native aquatic communities, with species that require ocean access.

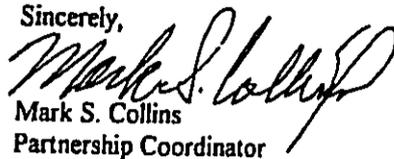
Keep in mind that our project is limited to protecting the watershed by constructing strategic fences and removing ungulates and non-native weeds. We anticipate improvements to water quality that will benefit native aquatic species. Water allocation, however, is not within the purview of the project.

- Your point regarding the importance of 'opae in native gathering is well taken and we will include this in our discussion of cultural assessments.
- We have looked into your request to consider aquatic species and have added the following rare species to APPENDIX II.

Classification	Scientific Name	Common Name	Federal Status
INVERT	<i>Lymnaea aulacospira</i>	Hawaiian Freshwater snail	S.O.C.
INVERT	<i>Lymnaea rubella</i>	Hawaiian Freshwater snail	S.O.C.
INVERT	<i>Neritina vespertina</i>	Hawaiian Freshwater snail HIHIWAI	S.O.C.
INVERT	<i>Neritina granosa</i>	Hawaiian Freshwater snail HAPAWAI	S.O.C.
INVERT	<i>Neomachjillis heteropus</i>	Bristletail, Hawaiian Long-palp	S.O.C.

Once again, we appreciate your comments and look forward to working together to improve water quality in the West Maui Mountains.

Sincerely,


Mark S. Collins
Partnership Coordinator



WEST MAUI TAXPAYERS ASSOCIATION

October 4, 2000

**Attn: Mark Collins
The West Maui Mountains Watershed Partnership
255-B East Waiko Road
Wailuku, HI 96793**

Re: Draft Environmental Assessment

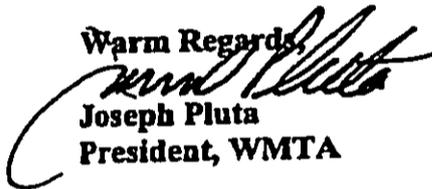
Aloha Mark:

Thank you for providing us with a copy of the EA Draft. We are very pleased to see some momentum to bring this project forward to fruition. We believe the document should be moved on without delay as time is of the essence.

At some point, we would hope that a plan of water retention and storage could be included as a supplement to the project. There is far too much of this water lost to non-retrievable sources and spill out to the ocean.

Please consider this letter as our favorable endorsement to the Draft EA. Thank you for your fine report.

Warm Regards,


**Joseph Pluta
President, WMTA**

Copies to:

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

**Division of Forestry and Wildlife
Dept. of Land and Natural Resources
P.O. Box 621
Honolulu, HI 96809**

DOCUMENT CAPTURED AS RECEIVED

West Maui Mountains
Watershed Partnership
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- Watershed Partners
- Amlac/JMB Hawaii, LLC
- C. Brewer and Co. LTD
- County of Maui
- Dept. of Land & Natural Resources
- Kahoma Land, LLC
- Kamohameha Schools
- Makila Land Co., LLC
- Maui County Department of Water Supply
- Maui Land & Pineapple Company Inc
- The Nature Conservancy

West Maui Mountains Watershed Partnership

February 21, 2001

Joseph Pluta
President
West Maui Taxpayers Association
P.O. Box 10338
Lahaina, Hawaii 96761

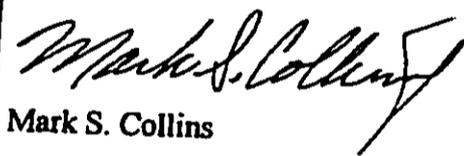
RE: Draft Environmental Assessment for the West Maui Mountains Watershed Protection Project.

Aloha Mr. Pluta,

The West Maui Mountains Watershed Partnership gratefully appreciates your favorable endorsement of our Draft Environmental Assessment.

Regarding your concerns about water storage, please be aware that water retention structures are beyond the scope of our watershed protection project. We focus on protecting the forest cover and improving rain recharge of the aquifers within the project area.

Sincerely Yours,


Mark S. Collins



DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, HONOLULU
FT. SHAFTER, HAWAII 96858-5440

REPLY TO
ATTENTION OF

September 13, 2000

Civil Works Technical Branch

Mr. Mark S. Collins
The West Maui Mountains Watershed Partnership
255-B East Waiko Road
Wailuku, Maui 96793

Dear Mr. Collins:

Thank you for the opportunity to review and comment on the Draft Environmental Assessment (DEA) for the West Maui Mountains Watershed Protection Project, Maui (TMKs 3-1 to 3-6, and 4-1 to 4-7). The following comments are provided in accordance with Corps of Engineers authorities to provide flood hazard information and to issue Department of the Army (DA) permits.

a. The information contained in the DEA identifies activities which will involve work in waters of the U.S. (i.e., stream crossings of fence line and placement of structures within streams); therefore, the applicant will need to consult with our Regulatory Branch prior to construction. For further information regarding DA permit requirements, please contact Mr. Farley Watanabe of our Regulatory Branch staff at 438-7701 and refer to file number 200000344.

b. According to the enclosed Federal Emergency Management Agency's Flood Insurance Rate Map Index for panels 150003 0160B, 0170B, 0227B, and 0235B (all dated 1 June 1981), the watershed area is located in Zone C (areas of minimal flooding). There are no panels for *15003 0152B, 0154B, 0162B, and 0164B (all areas are in Zone C). For further information regarding the flood zone designation, please contact Ms. Jessie Dobinchick of my Civil Works Technical Branch staff at 438-8876.

Sincerely,

James Pennaz
James Pennaz, P.E.
Chief, Civil Works
Technical Branch

Enclosure

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West Maui Mountains Watershed Partnership

Mr. James Pennaz P.E.
Chief, Civil Works
Technical Branch
U.S. Army Engineer District, Honolulu
FT. Shafter, Hawaii 96858-5440

February 21, 2001

Dear Mr. Pennaz,

The West Maui Mountains Watershed Partnership is in receipt of your letter of September 13, 2000 regarding our proposed watershed protection project. As requested, we have contacted Mr. Farley Watanabe and have discussed regulatory requirements for placing structures in streams. Before initiating the work of constructing a fence across a stream, we will provide your office with specifications for your review.

We have also contacted Ms. Jessie Dobinchick as requested regarding flood zone designations within the project area and have confirmed that the watershed areas are located in Zone C - areas of minimal flooding.

Sincerely,


Mark S. Collins