final environmental statement

master plan

HAWAII VOLCANOES

NATIONAL PARK / HAWAII

DEPARTMENT OF THE INTERIOR

FINAL
ENVIRONMENTAL STATEMENT

PROPOSED MASTER PLAN
HAWAII VOLCANOES NATIONAL PARK
HAWAII

Prepared by
Western Region
National Park Service
Department of the Interior

Director

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SUMMARY

( ) Draft Statement (X) Final Environmental Statement
Department of the Interior, National Park Service, Western Region

1. Type of Action: (X) Administrative (X) Legislative

2. Description of Action: The National Park Service proposes a plan to conserve and protect the unique resources of Hawaii Volcanoes National Park for expanded public use and for continued volcanic research by the U.S. Geological Survey. This includes authorization of new lands in the vicinity of the Volcano of Hualalai and along parks coastline (total of about 120,800 acres of land and water area), control of exotic plant and animal species to protect native populations, and expansion of opportunities for visitor use of resources. The latter will be provided mainly in the new Hualalai addition and in the coastal backcountry.

3. Summary of Environmental Impact and Adverse Environmental Effects: As a result of the proposed action, approximately 120,800 acres of new land will be preserved under national park status, both in and outside the authorized boundary. This land, along with the existing park, will remain in an ecological state resembling, as nearly as possible, those environmental conditions that existed before Europeans introduced competing flora and fauna. Expanded public use opportunities will give the visitor a greater variety of experience, from concentrated use around Kilauea Volcano to a wilderness experience in the remote backcountry areas. Also as a result of the proposal, there will be increased costs, particularly with regard to land acquisition and management of endemic Hawaiian ecosystems. Direct impact on the land will result mainly from construction of new roads and campgrounds.

4. Alternatives to the Proposed Action: A. No expansion of authorized boundaries. B. June 1970 Master Plan proposal. C. Add Hualalai and saddle area with minimum development. D. Acquire all authorized land. E. Add sections of Kilauea Forest Reserve. F. Add land in the area of Kapapala Forest Reserve and Kapapala Ranch. G. Remove control measures for feral goats and pigs. H. No reconstruction of Chain of Craters Road. I. Expand overnight facilities. J. Remove U.S.G.S facility from Kilauea's rim. K. Remove Kilauea Military Camp from the park. L. Provide for Hawaiian homesites by designating a specific parcel of land for that use. M. Add various parcels of land containing unique biologic values.

5. Comments Have Been Requested from the Following:

(See listing on the following page)

6. Date Made Available to CEQ and the Public:

Draft Statement: October 26, 1973

Final Statement:

*Advisory Council on Historic Preservation
Department of Agriculture
Soil Conservation Service
Department of Defense
*U.S. Army
*Department of the Interior
Bureau of Indian Affairs
*Bureau of Mines
*Bureau of Land Management
*Bureau of Outdoor Recreation
*Bureau of Reclamation
Bureau of Sport Fisheries and Wildlife
*Geological Survey
*Department of Transportation
*Environmental Protection Agency
State of Hawaii Clearinghouse
*State Historic Preservation Officer
Metropolitan Clearinghouse
Audubon Society
Bishop Museum
Congress of the Hawaii People
Life of the Land
Sierra Club
*Society of American Foresters
The Hawaiians
The Nature Conservancy
University of Hawaii
Wilderness

*Comments Received and Attached

DESCRIPTION OF THE PROPOSAL

Hawaii Volcanoes National Park contains within its boundaries two of the most active volcanoes in the world, Mauna Loa and Kilauea. These along with the numerous historic, archeological and biological resources, some in serious danger of deterioration, require particular care in management and planning to guarantee that they will continue to be available as part of the Nation's cultural heritage for the benefit and enjoyment of its citizens.

Unique to this particular park is volcanic research, for it is equal in importance to the conservation-public use aspect common to other units in the system.

The master plan proposal identifies what the future of Hawaii Volcanoes National Park shall be: its appropriate public uses; what additional lands might be needed to further the purposes of the park; how research, both by the National Park Service and U.S. Geological Survey, shall augment the information already available; how the park's fragile biologic resources can best be protected; and what type of development is necessary to support these programs.

Visitor use at Hawaii Volcanoes has, over the years, developed a somewhat specific structured pattern. A large percentage of visitors, 400,000 of the 1,400,000 in 1972, tour the park in buses or stretch-out limosines, briefly visit Kilauea Caldera and its vicinity, and then proceed on to the Kona Coast or to Hilo. The bulk of off-island visitors who rent cars generally follow the same use pattern, as do many of the local Hawaii residents. Some visitors remain in the park overnight in the Volcano House or in campgrounds to enjoy the park's attractions in greater detail and to see more remote and less visited resources. The master plan proposes that this use pattern continue in generally the same manner. There are, however, some proposed changes.

> It is proposed to acquire about 19,000 acres of land already authorized, add about 102,800 acres to the authorized boundary and delete about 4,900 acres from the authorized boundary.
>
> Continue and augment the research program, giving special attention to exotic plant and animal control and protection of native populations.
>
> Upgrade development and construct a limited number of new facilities, particularly on new park lands, to expand the opportunities for visitor use.

LAND ACQUISITION

Several land parcels adjacent to the present park boundary were authorized for inclusion by Secretarial Order. However, these lands can be acquired only by donation, as no funds are to be expended by the Federal Government for purchase. It is proposed to authorize, through legislation, the purchase of or deletion of the following lands. A map showing these changes is on page 3.

Olaa Forest Tract (9,654.00 acres), now owned by and under the administration of the National Park Service, is a unique fern and ohia forest. It has never been an official part of the park, since the previous legislation required that all land added to the park must be adjacent to existing lands. It is proposed that legislation clarify this by declaring that Olaa Forest is a part of the park.

Tract 20 (1,405.83 acres), involves the intervening lands between the Olaa Forest Tract and Kilauea where there is extensive subdivision, agriculture, and golf course development. It is proposed that this parcel be deleted.

Tract 22 (5,794.88 acres), is an excellent example of extensive virgin ohia and fern forest. It is also an excellent habitat of native honeycreepers including the endangered ou.

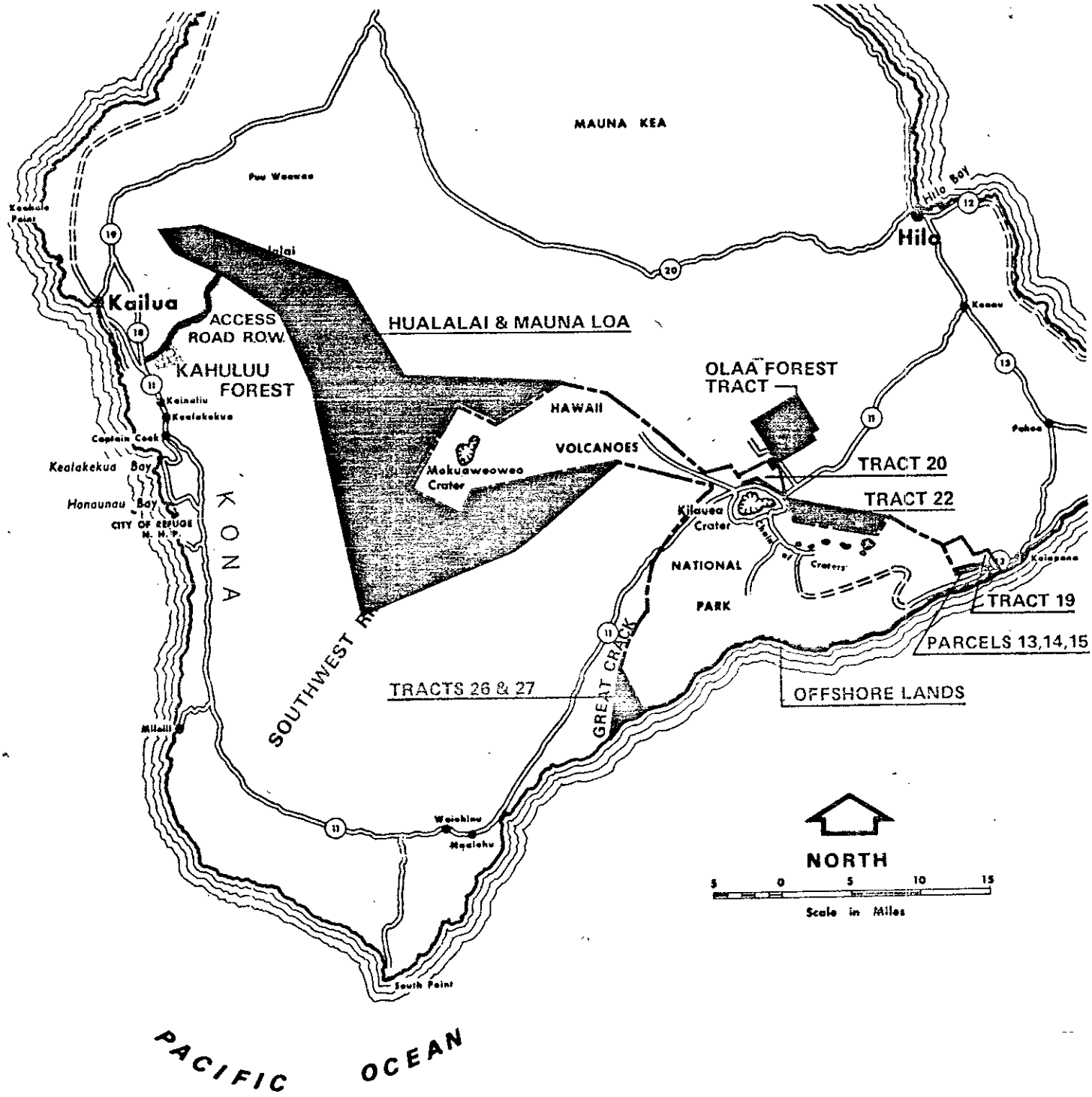
Tract 19 (3,078.76 acres), is at the eastern end of the park near the village of Kalapana. A portion of it was acquired in 1961 to extend the road right-of-way an additional 3 miles toward Kalapana.

To protect the historic complex at Wahaula and to provide a buffer zone for the Kalapana Road, three parcels are proposed for acquisition--Parcel 12 (159.44 acres), Parcel 13 (113.17 acres), and Parcel 15 (Portion) (146.16 acres). The remaining portion of this tract, 2,659.99 acres, is proposed for deletion.

Tracts 26 and 27 are at the southwest corner of the park and makai (seaward) of the Great Crack, a major geologic feature lying along the park's western boundary. Acquisition of these parcels is proposed-but will be deferred until it is determined that any potential geothermal energy extraction there is proven not feasible.

There are also lands outside the current authorized boundary that are proposed for addition to the park.

Offshore lands (1/8 mile wide and about 2,700 acres) are recommended for addition to protect the intertidal zone, the small island of Keaoi and the intervening coral reef between there and Halape, and to provide opportunities for interpretation of the park's associated marine life. Tidelands in Hawaii are now owned by the State.



BOUNDARIES
HAWAII VOLCANOES NATIONAL PARK

The summit of Hualalai Volcano and the upper slopes of Mauna Loa (about 100,000 acres), are proposed additions that will include the southwest rift of Mauna Loa down to approximately the 8,000-foot elevation and to the same elevation of Mauna Loa's north side. Proposed addition on Hualalai goes to about the 6,000-foot elevation and also includes a corridor between that volcano and Mauna Loa. To provide an access route to Hualalai a road right-of-way (60 acres maximum) is proposed. Location is only approximate and authorizing legislation should provide for a detailed alignment study, within the following guidelines. The lower terminus will be along State Route 11, and the upper terminus inside the proposed Hualalai addition at an elevation of about 6,500 feet. The right-of-way will be purchased in fee. It will be approximately 15 miles long, a maximum of 300 feet wide, avoid significant archeological, historic and natural areas, but will necessarily be routed in the vicinity of Kahuluu Forest. Appropriate access points for private development will be provided, based on discussions with landowners.

If the State of Hawaii constructs a direct Hilo-Kona road across the Hualalai-Mauna Loa Saddle, such a road would become an access road to the park's Hulalai extension; the proposed access corridor by the Park Service near Kahuluu Forest would then be unnecessary.

RESEARCH AND RESOURCE MANAGEMENT

Resources management and attendant research at Hawaii Volcanoes is perhaps the most important part of the master plan proposal. And it is even more important in Hawaii because endemic populations are so sensitive to invasion by exotic species. Research should include the following:

Vegetation mapping of ecosystem boundaries or zones.

Degree of environmental stability and guidelines for manipulating environmental factors for restoration of historic communities.

Evaluate the historic, scientific, and scenic resources in the Kalapana Extension to determine their relative value with regard to the Secretarial authorization to grant homesites to native Hawaiians.

Evaluation of the use of herbicides and other techinques in controling exotic plants.

Evaluation of effects of fire upon Hawaiian vegetation communities.

Present impact of the goat and pig populations on plant and animal communities, and the comparative impact when control programs drastically reduce population of these animals.

Ecological investigation of the Mauna Loa silversword, its past and present distribution, and method of restoration.

Oceanographic investigation, including vanishing species, and possibilities for restoration and interpretation.

A complete study of bird population, including the effect of the numerous exotic birds on the native bird populations, and the effect of exotic rat and mongoose on nesting birds.

Investigation of the nene and its habitat in cooperation with the State of Hawaii Fish and Game program.

Study of the legend of Pele and religious ceremonies connected with Kilauea.

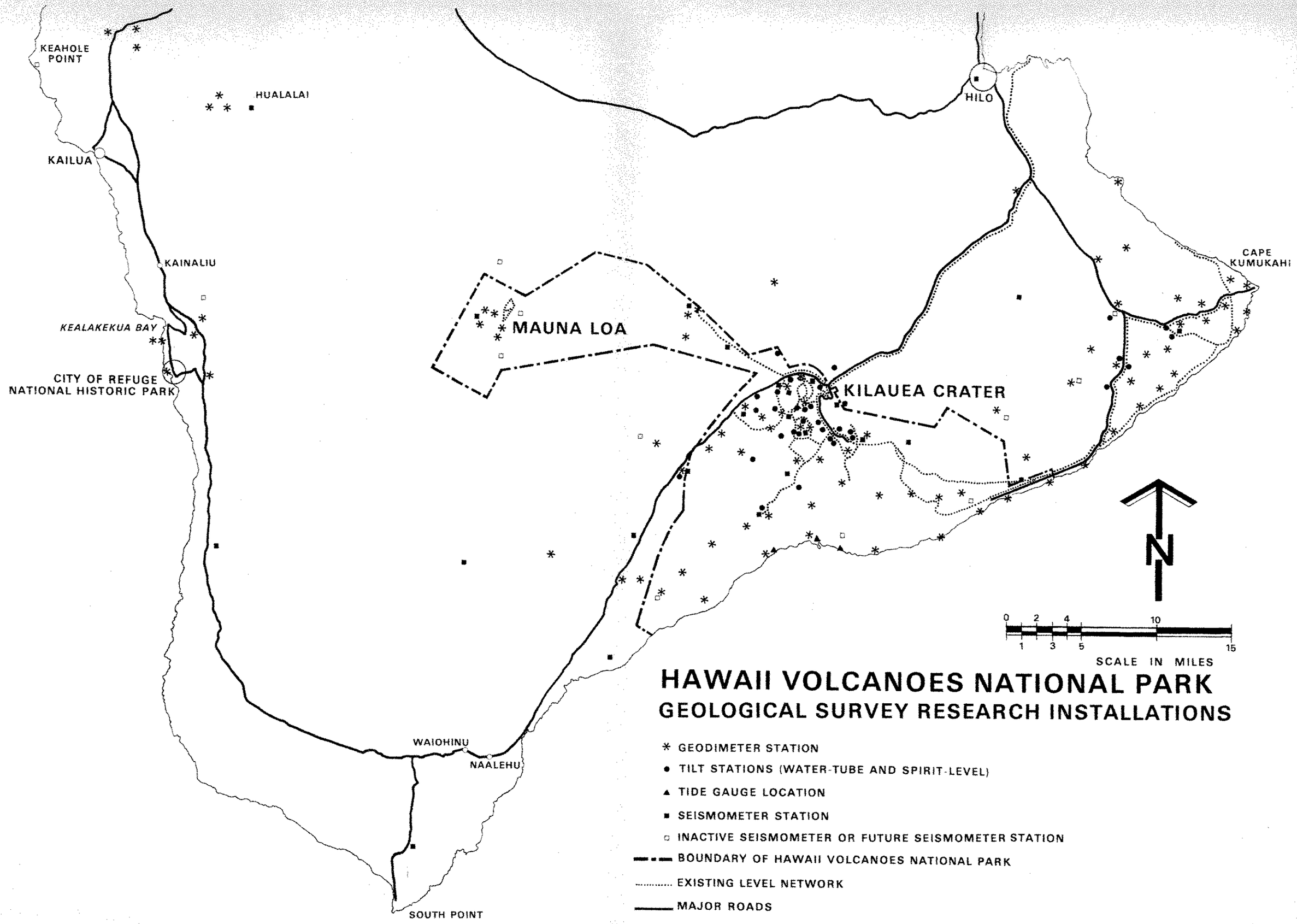
Further historical and archeological investigation of coastal villages.

Examine the capacity of the park's resources to accommodate visitor use with no appreciable damage.

Volcanic research by the U.S. Geological Survey is equal in importance to the environmental research projects mentioned above, and predates establishment of the park. Facilities are located throughout the Island of Hawaii and shown on the accompanying map. These facilities consist of either small installations below ground disturbing less than 10 square feet of area or antennae-like structures 5 to 10 feet high above ground. No major change in the program is contemplated, although new electronic developments may allow removal of many of the aboveground wires.

Atmospheric research into background levels of trace contaminants will continue on the north side of Mauna Loa at the Mauna Loa Observatory, utilizing the special environment of upper Mauna Loa.

As a logical follow-up to research, particularly that conducted by the National Park Service, will be a dynamic program of management aimed at restoration of the park's Hawaiian ecosystems. The key to this is control of feral and exotic plants and animals. For example, it would be useless to reintroduce endemic plant species into former range--if they will be eaten immediately. And efforts to restore endangered bird populations are futile without restoration of the plant habitat that supports them.


KEAHOLE POINT
HUALALAI
KAILUA
KAINALIU
KEALAKEKUA BAY
CITY OF REFUGE NATIONAL HISTORIC PARK
WAIOHINU
NAALEHU
SOUTH POINT
MAUNA LOA
KILAUEA CRATER
HILO
CAPE KUMUKAHI
N
0 2 4 10
1 3 5 15
SCALE IN MILES
HAWAII VOLCANOES NATIONAL PARK
GEOLOGICAL SURVEY RESEARCH INSTALLATIONS
GEODIMETER STATION
TILT STATIONS (WATER-TUBE AND SPIRIT-LEVEL)
TIDE GAUGE LOCATION
SEISMOMETER STATION
INACTIVE SEISMOMETER OR FUTURE SEISMOMETER STATION
BOUNDARY OF HAWAII VOLCANOES NATIONAL PARK
EXISTING LEVEL NETWORK
MAJOR ROADS

Complete elimination of the goat from the park using known methods appears impractical and costly, if not impossible. Even if accomplished, goats from adjacent lands would likely reinfect park lands. Thus, this is proposed as a continuing control program for the foreseeable future, or as long as goat populations exist on the Big Island. Control programs started about 10 years ago have substantially reduced the goat populations using a combination of fences, drives, and local citizen participation. There are presently about 2,000 goats on park lands. It is proposed to continue these control measures and to construct drift fences generally as shown on the accompanying map.

Reduction of the feral pig population will be set by a detailed action plan based on research. Current known methods include direct shooting and trapping. Animals can be sold as food to public bidders. This, too, would be a continuing program and is scheduled to be expanded in 1974, if funds are available.

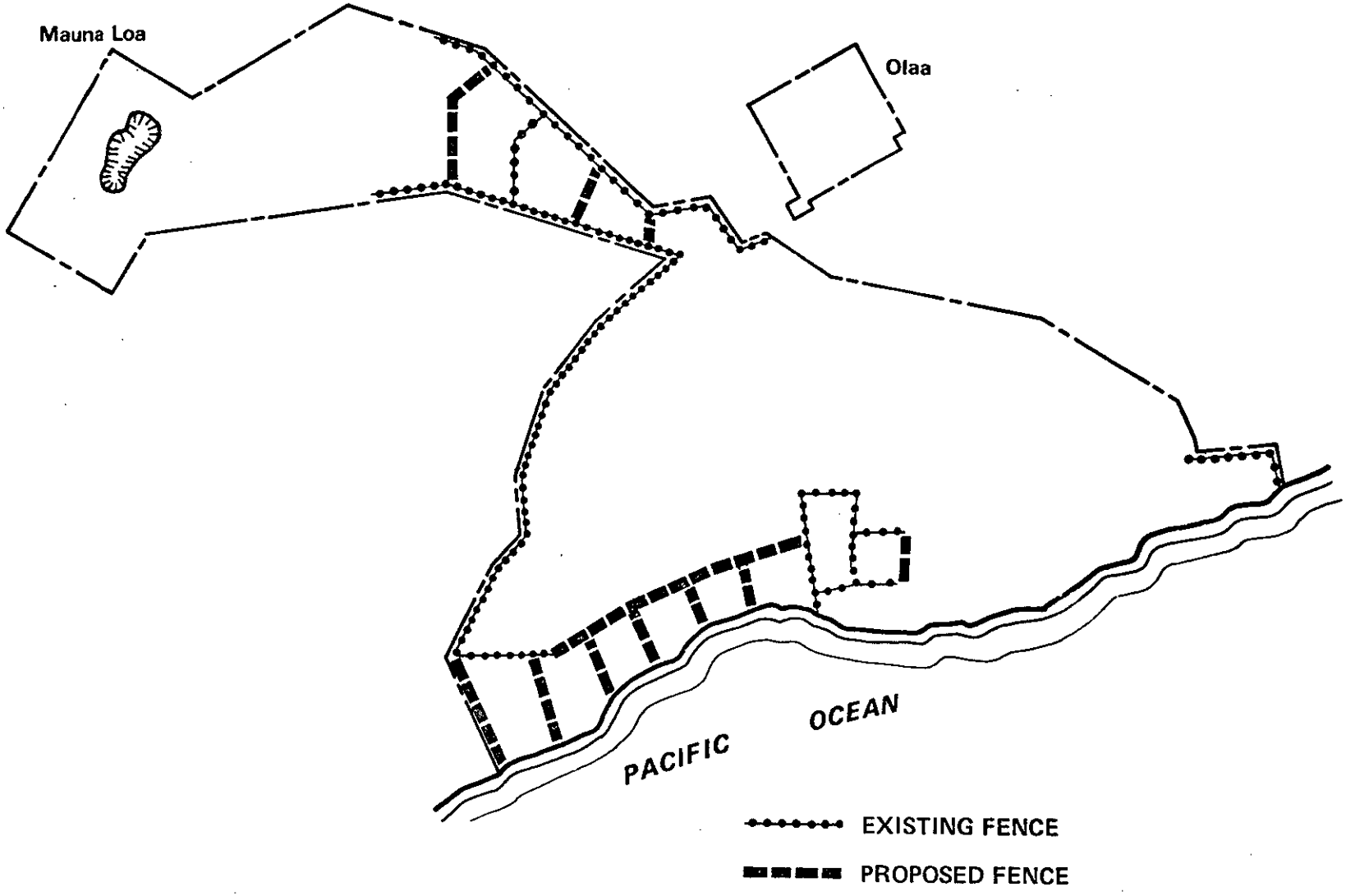
Research is needed to provide effective measures to actually reduce mongoose populations. For the foreseeable future, programs will be limited to developed areas, backcountry cabins and campsites, and nene goose nesting areas. Control measures around nene nesting areas were begun in 1972.

Control of exotic plant species has in the past concentrated on a few plants such as the blackberry and they only in specific areas such as roadsides and in developed areas.

For the foreseeable future, control will concentrate on lowland forests, Bird Park (see map on page 14 for location), the setting of Wahaula Heiau (see map on page 13 for location), and areas of heavy visitor use around Kilauea Caldera. Eventually, research may identify other areas as well as develop improved control methods so that this program may be expanded. The resource management plan and environmental impact statement have a more detailed discussion of exotic plant control methods and target species.

Reduction of feral goat and pig populations will do much to encourage the return of native plant species. Other methods will include establishment of a nursery for growing such plants and replanting them in their original range. This is already being done in the Bird Park area.

One particular ecosystem, Olaa Fern Forest, merits special attention. The bulk of this land parcel (about 9,000 acres) is proposed as a research natural area. There will be no permanent trails and the predominant purpose of the area will be for scientific research, allowed only by permission of the park superintendent. Public use will be provided for in the small parcel on the Kilauea side of the road paralleling the forest (see map on page 13).



GOAT FENCES

8

VISITOR FACILITIES

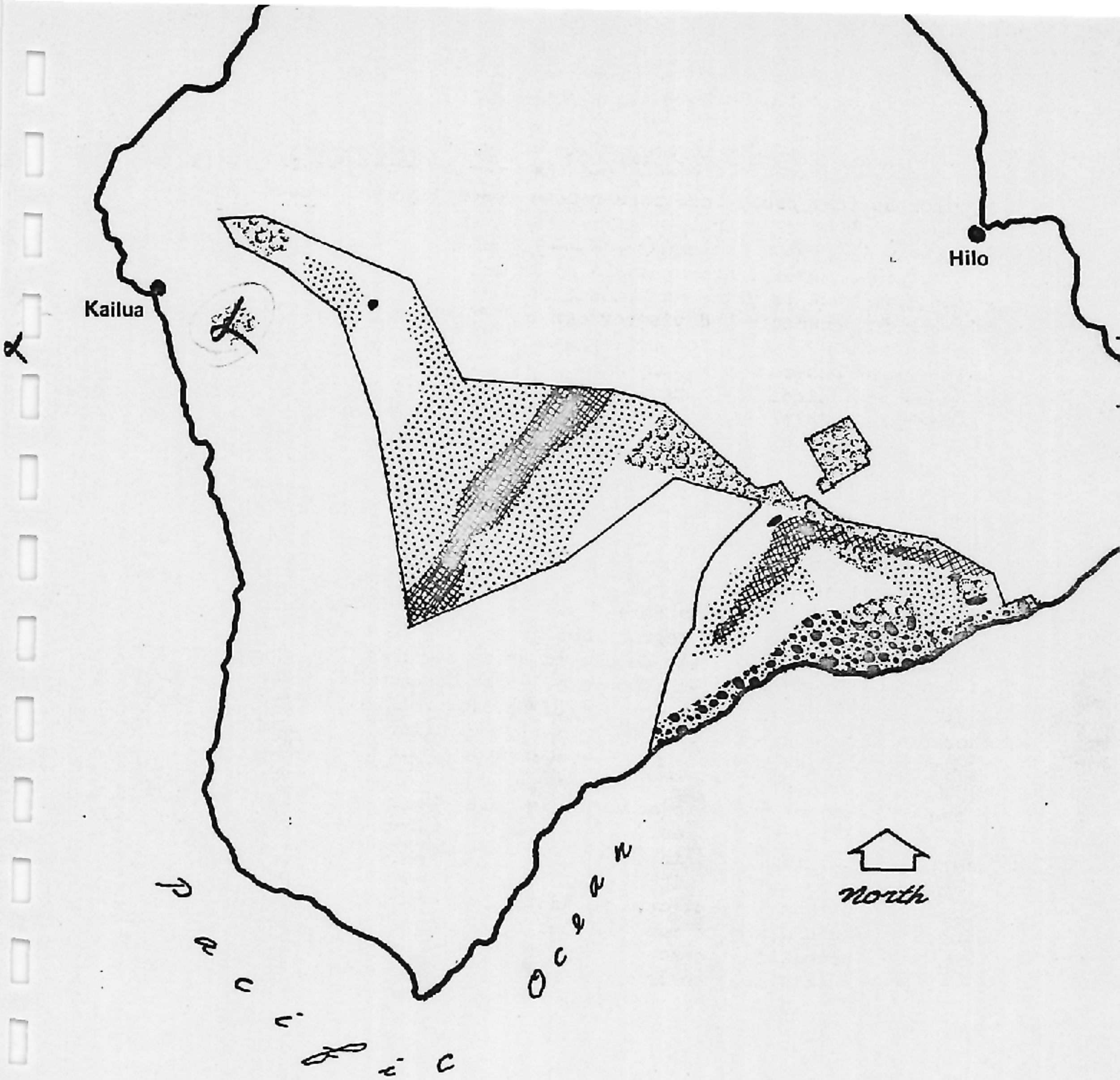
For the existing park lands, the current structured visitor-use pattern is expected to continue. This involves arriving by car or bus in the Kilauea vicinity, a short visit to the interpretive center, a tour of Kilauea Caldera and any active eruption site easily accessible, and finally an exit to coastal resort areas. There is, nonetheless, an increasing number of visitors who use rental cars, plus the continuing visitation by Big Island residents in their own cars. The latter groups are more adventurous persons who spend more time in the park and engage in a greater variety of activities. And they require more development and services as they probe into more remote resources little used or never visited by the tour groups.

The resource classification map (page 9) is an important part of the master plan proposal in that it gives an indication of those lands that are most suitable for concentrated visitor use and development. It shows what lands should not be developed due to significant unique resources or other special physical or climatic conditions, and it gives an indication as to what lands should not be utilized for concentrated visitor use.

Those lands shown as barren and high elevation are frequently cold. This together with the accompanying rare atmosphere makes them unsuitable for other than backcountry use since most visitors travel in Hawaii clad in very light clothing. Further, any development on these lands would be apparent from many points in the park and outside due to the lack of forest cover.

Significant plant communities vary in their response to public use and development. The rain forest types such as Olaa Forest have retained much of their integrity and particular care must be taken to maintain it. The currently developed areas around Kilauea, koa forests on the Mauna Loa Strip, and the more isolated communities nearer the coast can sustain a varying amount of development and use so long as there is a continuing recognition of the importance of individual species and the integrity of their immediate environment.

Those areas where volcanic activity is most likely to take place, are the calderas and rift zones. Development of interpretive devices will continue to be important in the vicinity of these features since they are the focus of visitor interest. Investment is major facilities such as overnight lodges, campgrounds, or administrative offices will, however, be avoided. It must be recognized that almost the entire park is under a potential threat of being covered by lava flows. Major facilities must simply be located in areas where judgment and historic precedent indicate that there is the least chance of inundation by lava.



RESOURCE CLASSIFICATION

BARREN AND HIGH ELEVATION LAND

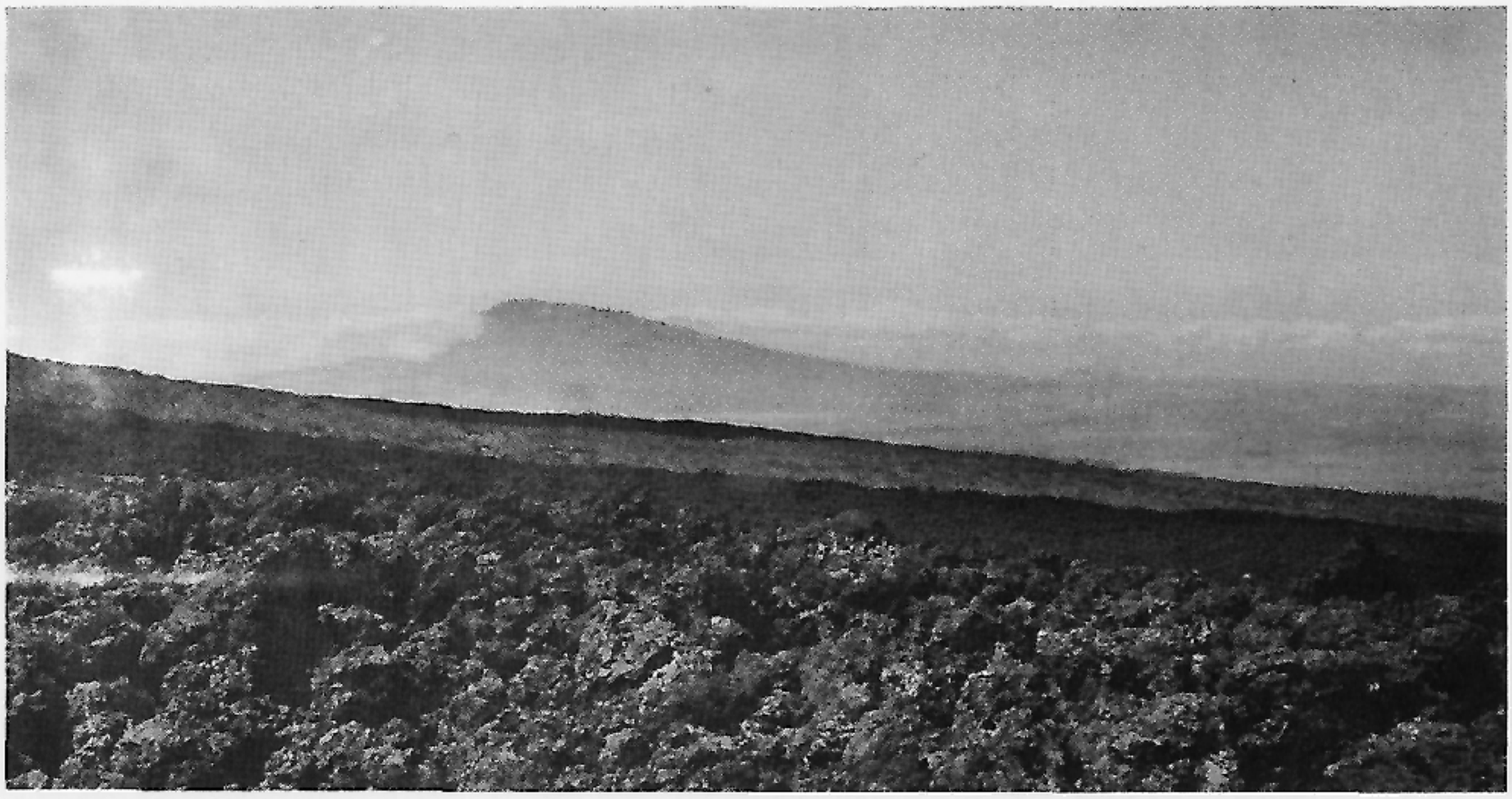
SIGNIFICANT FRAGILE PLANT COMMUNITIES

AREAS OF PROBABLE VOLCANIC ACTIVITY

AREAS OF SIGNIFICANT HISTORIC VALUE

Typical concentrated visitor use area on the rim of Kilauea Caldera but where there is little chance of volcanic activity.

Typical Barren High Elevation Lava Flows on Mauna Loa not suitable for visitor facilities. Hualalai Volcano is in the background.



Historic and archeological resources are scattered throughout the park at lower elevations. As in the case of significant plant communities, development and use programs will consider specific historic sites and their relative importance in determining location of facilities.

Except for proposed development and use of new park lands in the Hualalai area, little change in the overall use of park resources is anticipated as a result of the proposals outlined here. Sections of the Chain of Craters-Kalapana Road will, however, be reconstructed on a new alignment as shown on the map on page 13, relocated because of recent volcanic activity.

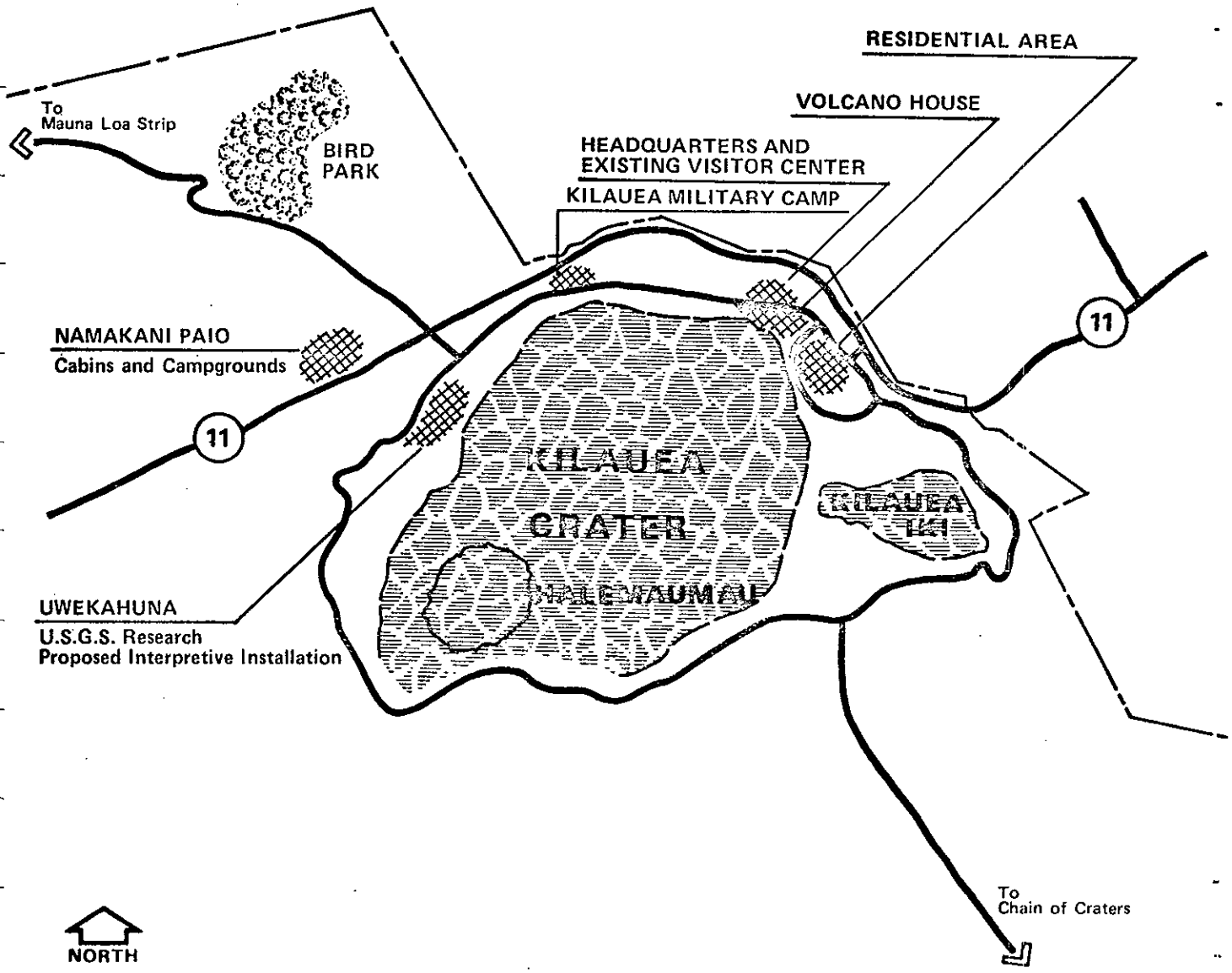
The total number of visitors to be accommodated at Hawaii Volcanoes is discussed under Mitigating Measures on page 81. These will be considered as interim capacity figures pending further monitoring and research.

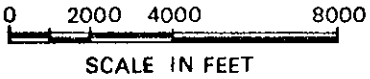
To accommodate the increasing latitude in visitor desires, the master plan proposes three use zones, each with a different level of development appropriate to the proposed uses and resulting facility requirements.

The Primary Use Zone encompasses those attractions that have been the most popular with visitors, namely Kilauea Volcano, the Kalapana coast, and the Chain of Craters Road corridor that joins them. These are the destinations for nearly all park visitors, particularly those in tour groups. Time is limited, and the visit is carefully and strictly structured to give the group the greatest opportunity to see the park's attractions while still adhering to a tour schedule.

The new main project will be reconstruction of about 10 miles of the Chain of Craters Road now covered by lava. The road is considered a successful interpretive route, and one that should be re-established when the current active eruption phase subsides. It will, however, follow a new alignment-since the original road is covered with up to 300 feet of new lava. Moreover, its location was such that lava flows tended to follow a path parallel to or on the road itself. The new road will be constructed so that, where possible, it is at right angles to the direction of the lava flow pattern. This will minimize the extent of road to be reconstructed when future eruptions occur. At least 50% of the alignment will be across fresh lava flows. The remaining area is generally open Ohia forest and grassland with an occasional occurrence of rare endemic plants.

Kilauea Caldera and its associated facilities will continue to be the center of visitor and management activities, the park's most concentrated development and use area. Facilities will provide the visitor with a brief glimpse of the park's attractions, make detailed information available for those who wish to spend longer periods of time, and provide a variety of overnight accommodations. Changes in development are few. Access roads are adequate and at most would require minor realignment. As new eruption activity occurs, however, the use of shuttle buses will be considered as a





KILAUEA VICINITY

 OK

method of transporting visitors from existing parking areas to the eruption site, particularly when that site is remote from any parking area or on a dead-end road. This increased flexibility will enable the park to handle large crowds and to provide greater safety for the visitor. The development concept plan, to be prepared later, will propose any specific changes. Most important is the proposal to move the visitor center function from the existing administration building complex to the Kilauea Caldera rim in the vicinity of Uwekahuna. This will involve a new parking area for 200 to 300 cars, a new building, and associated trails, walks and utilities. Approximately 5 to 10 acres will be needed for the development site. The administration-management function for the National Park Service will remain in the exising administrative building. The U.S. Geological Survey will continue to operate their existing research facility in the Uwekahuna area, and the Volcano House and the cabins at Namakanipaio will remain at their present capacity. Use of Kilauea Military Camp is exclusively for active and retired members of the Armed Forces and their families. As such, it is a non-conforming use within the park boundaries, but is proposed for continuation at its current level of operation and development. Residential area for the National Park Service and U.S. Geological Survey already exists in the Kilauea area, and it is not expected that it will be appreciably expanded beyond its current capacity about 30-35 residential units.

The reconstructed Chain of Craters Road will be provided with overlooks, parking facilities, and interpretive features to give the visitor greater insight into the processes of volcanism and the evolution of Hawaiian biota. The precise extent of these developments is unknown at this time but they will be closely associated with the road itself in what can be termed an interpretive corridor.

The Kalapana Coast development will change little from its current status. The existing 10-site campground at Kamoamoa will be expanded to a maximum of 25 sites plus a picnic area. Interpretation of the intertidal and inshore waters will be part of the existing coastal road corridor development. Again the precise nature of the interpretive facility is unknown but it will be immediately adjacent to the road.

Concerning historic preservation, Wahaula Heiau will be restored as nearly as possible to its original form, based on research findings. Other historic sites such as Kailiili and Kamoamoa will be stabilized and interpreted. (See the map on page 46 for these locations.)

The present water collection system for the Kilauea vicinity is inadequate. The addition of more rainsheds and increased storage capacity is proposed although this would entail use of additional lands.

There is an escape road east of Kilauea Caldera that is reserved for emergency use only in the event an eruption cuts the existing Crater Rim road. It is proposed that this road remain unimproved for emergency use only.

One or more development concept plans will be prepared dealing with specific details on any changes in facilities within the Primary Use Zone. These concept plans will be accompanied by an impact statement.

The Wilderness Threshold Zone will stimulate the visitors interest in the more intimate details of the park environment. Interpretation here will be low-key and mainly self-guiding. Visitors to this zone will be comprised almost entirely of local island residents and off-island visitors who rent automobiles.

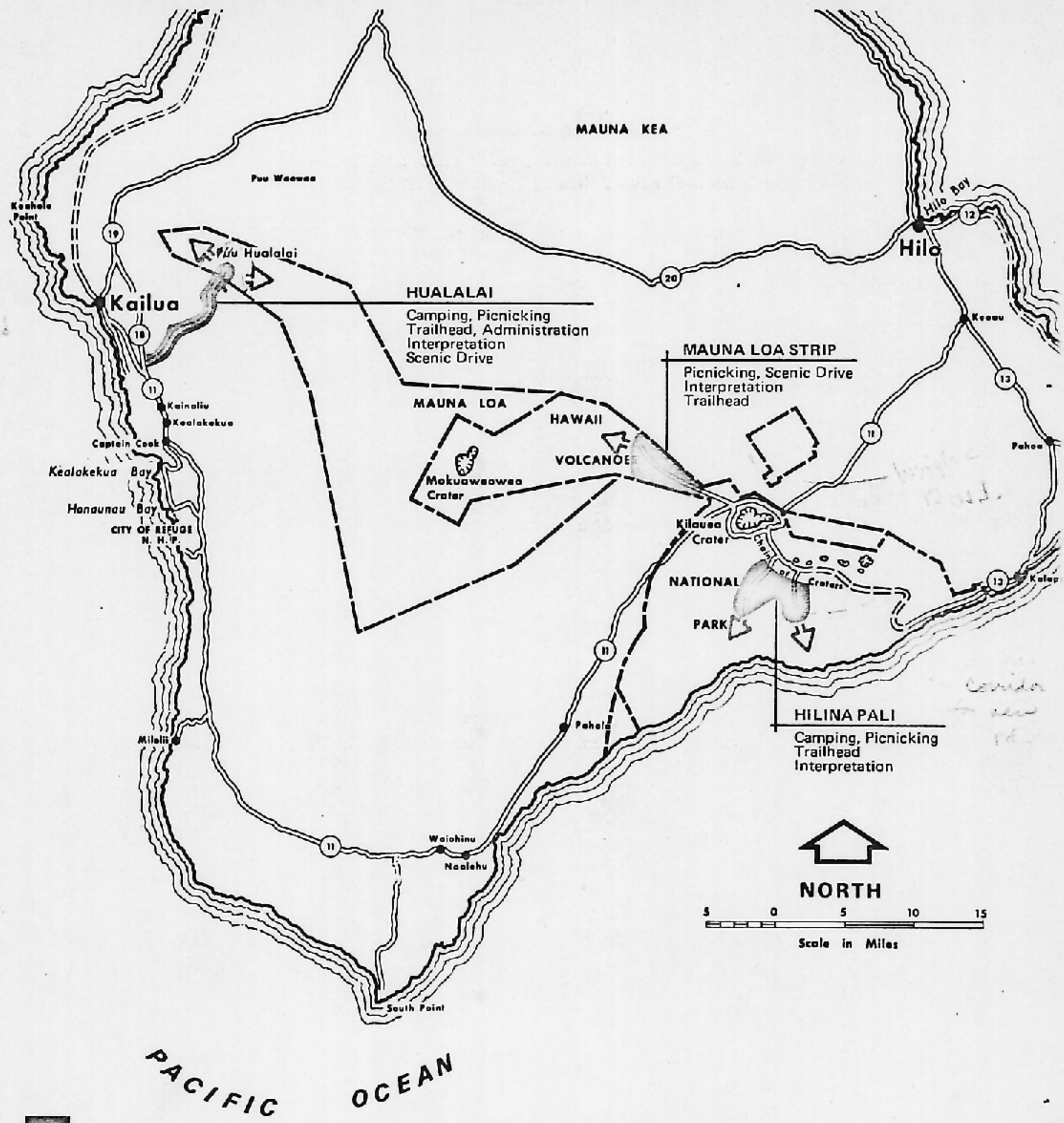
Access will be on low standard roads. They will be designed not merely to provide access but also to retain an intimate association with the environment. All facilities, like the road, will be low key and for small groups of visitors. For example, campgrounds will not exceed 25 sites. Ainahou Ranch, only recently acquired, contains excellent potential for a new campground. Access to this vicinity is via the right hand road shown in the Hilina Pali section of the threshold zone. The soil depth is good, much of the area has already been disturbed and rainshed water is available. Road upgrading may be required here, but no heavy cuts and fills will be necessary and pavement width should not exceed 20 feet. No change in road alignment or standard is proposed on the Hilina Pali road or along the Mauna Loa strip.

New construction will be required in the vicinity of Hualalai Volcano on land proposed for addition to the park. This includes approximately 15 miles of new road from the Kona Belt road at about the 1,000-foot elevation to approximately 6,500 feet in elevation on Hualalai. In the vicinity of the upper road terminus there will be a campground (maximum 25 sites), picnic area, small visitor center and a trailhead. The total development will occupy a maximum of 10-15 acres.

The new road will be minimum standard 20-foot pavement width with grades to 10%. It will pass through coffee populations near the belt road, then into the dense vegetation of Kahuluu Forest, and finally through open Koa-Ohia forest to the somewhat barren cinder fields at the base of Hualalai's summit where the road will terminate.

Development concept plans and accompanying impact statements will also be prepared for new facilities within the Wilderness Threshold Zone. These documents will discuss development and impact in greater detail. This includes precise location size and type of campgrounds, interpretive facilities, and road type, purpose and general standards.

The Backcountry Zone is the largest zone and as with other major national parks will continue to receive the lightest use with regard to visitors per acre. Again, visitors to this zone have considerable time and energy to enjoy long hikes, to see and appreciate the park's unique resources, or to fish along the coast.

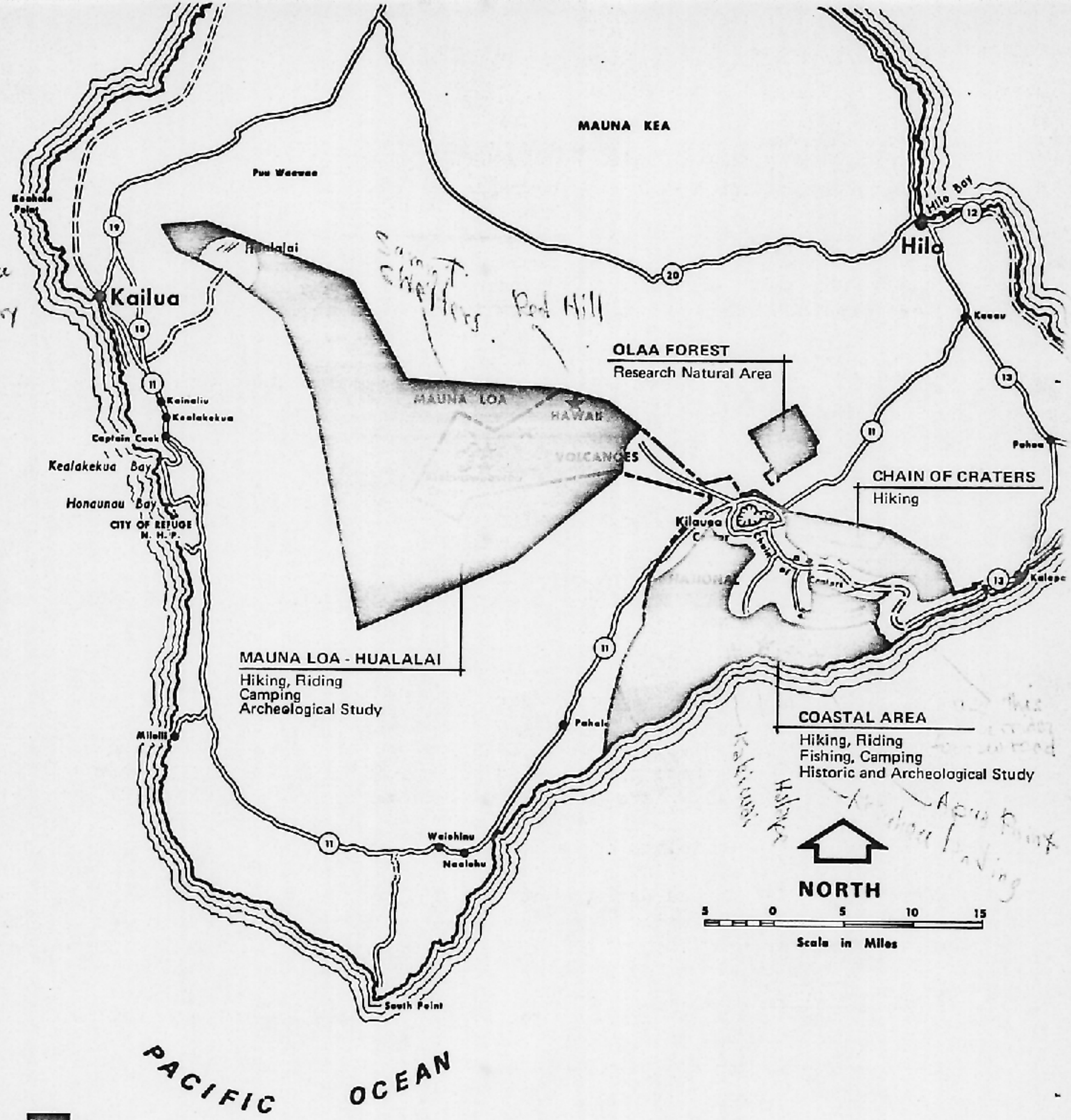


WILDERNESS THRESHOLD ZONE

HAWAII VOLCANOES NATIONAL PARK

LEGEND

- EXISTING PARK LAND
- LANDS TO BE ADDED
- BACKCOUNTRY ACCESS



BACKCOUNTRY ZONE

HAWAII VOLCANOES NATIONAL PARK

LEGEND

- EXISTING PARK LAND
- LANDS TO BE ADDED
- ★ BACKCOUNTRY SHELTERS

In the past, the backcountry has received very limited use, partially because there is no fresh ground water available, even along the coast. As a device to encourage and facilitate backcountry use, it is proposed that minimal shelters be constructed at sites along the coast that will serve both for water collection and as camp shelters. Proposed sites include Apua Point and Kakiwai. There are already shelters existing at Halape and Keauhou Landing. The existing cabins on Mauna Loa (at Red Hill and on the summit) will be retained for management and visitor use. Major new trails are proposed in the Hualalai-Mauna Loa area to afford access to Hualalai's summit, Ahuaumi Heiau and the Judd Trail, as well as trail connections between these areas and the summit of Mauna Loa, for a total of about 50 miles of new trail. Light rainfall on this part of the island may make the use of shelters similar to those proposed on the coast impractical. More detailed planning will be needed to investigate this problem and offer an appropriate solution.

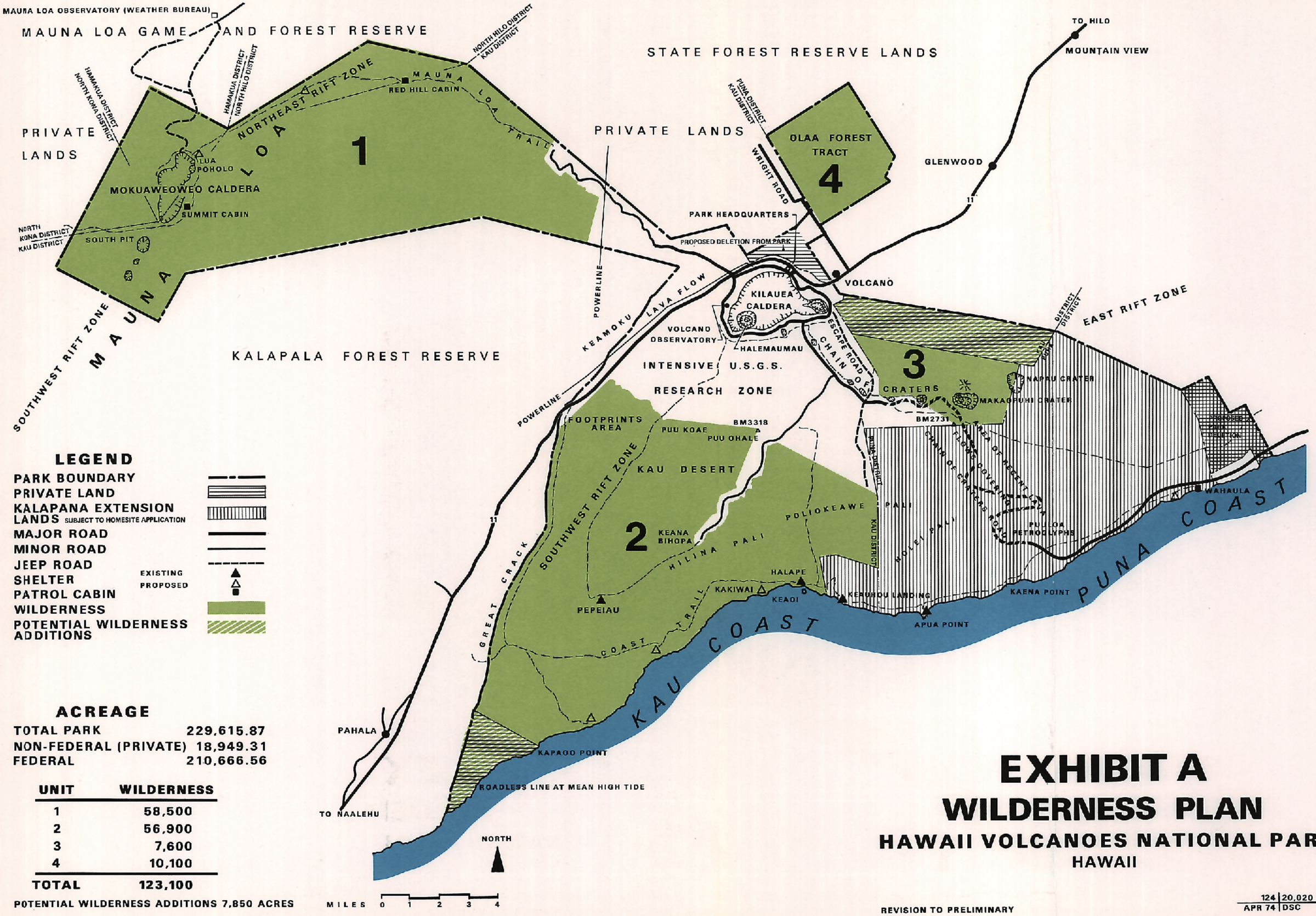
The existing administrative jeep road to the summit of Mauna Loa, hardly more than a track, will be restricted to use by U.S. Geological Survey personnel. Vehicular use of the road by visitors is not proposed. This involves no change from the current status nor will any construction be necessary unless a lava flow from Mauna Loa should cover the existing route.

RELATED PROPOSALS

A wilderness proposal for the existing park has been prepared in conjunction with the master plan. (See the map on page 20) This proposal provides permanent non-development status for about one-half the coastal area below Kilauea Caldera, the Olaa Forest, and the summit area of Mauna Loa. An environmental impact statement accompanies the proposal. If the proposed Hualalai addition to the park is authorized, a special study will be required to determine what portion of those lands should be proposed for wilderness. The map on page 21 indicates the lands that would be included in such a study.

There are also preliminary proposals for construction of a new cross-island road that might be routed through the saddle between Hualalai and Mauna Loa. Such a road would primarily be an access route between Hilo and Kona. No specific alignment has been designated and no construction funds have been allocated at this time.

The State of Hawaii is engaged in upgrading State Route 11, which passes through the park in the Kilauea vicinity. The higher road standards of any improvement within the park would have an effect upon the environment. A separate environmental impact statement for Route 11 reconstruction within the park would be required.



LEGEND

- PARK BOUNDARY
- PRIVATE LAND
- KALAPANA EXTENSION LANDS SUBJECT TO HOMESITE APPLICATION
- MAJOR ROAD
- MINOR ROAD
- JEEP ROAD
- SHELTER — EXISTING / PROPOSED
- PATROL CABIN
- WILDERNESS
- POTENTIAL WILDERNESS ADDITIONS

ACREAGE

TOTAL PARK	229,615.87
NON-FEDERAL (PRIVATE)	18,949.31
FEDERAL	210,666.56

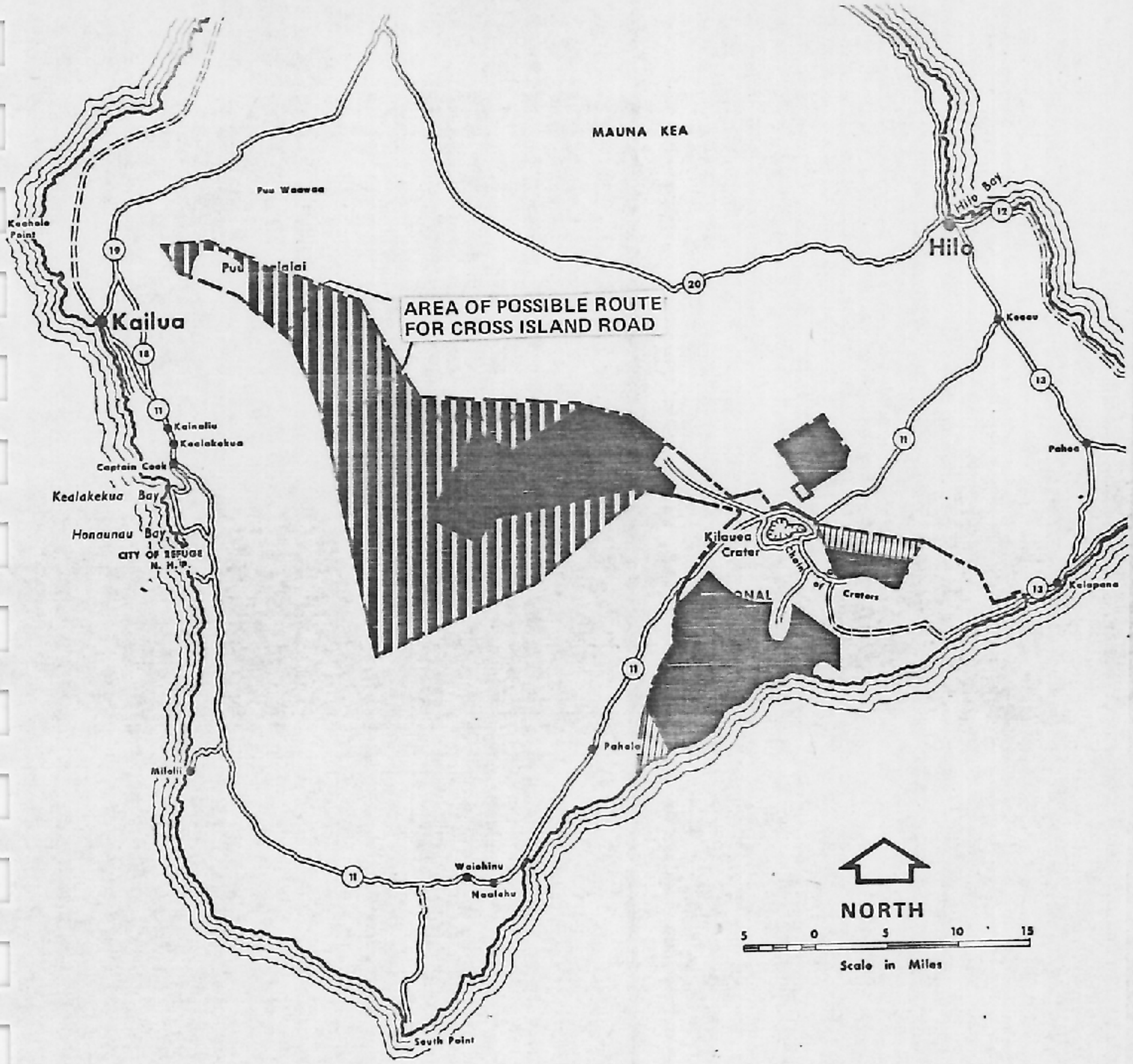
UNIT	WILDERNESS
1	58,500
2	56,900
3	7,600
4	10,100
TOTAL	123,100

POTENTIAL WILDERNESS ADDITIONS 7,850 ACRES

EXHIBIT A
WILDERNESS PLAN
HAWAII VOLCANOES NATIONAL PARK
HAWAII

REVISION TO PRELIMINARY

124 | 20,020
APR 74 | DSC



PROPOSED WILDERNESS AREAS

HAWAII VOLCANOES NATIONAL PARK

Recommended wilderness

Potential wilderness additions on privately owned land within the authorized boundary

Area suitable for future wilderness considerations on land proposed for addition to the authorized boundary

DESCRIPTION OF THE ENVIRONMENT

THE REGION

The Island of Hawaii--sometimes called the Big Island--lies at the southeast end of a chain of islands extending nearly 2,000 miles across the north-central Pacific. These islands, 124 including islets and atolls, are the emerged peaks of a tremendous volcanic mountain range rising from the ocean floor. There are only 8 main islands, and these, located at the southeast end of the chain, form the group commonly known as the Hawaiian Islands.

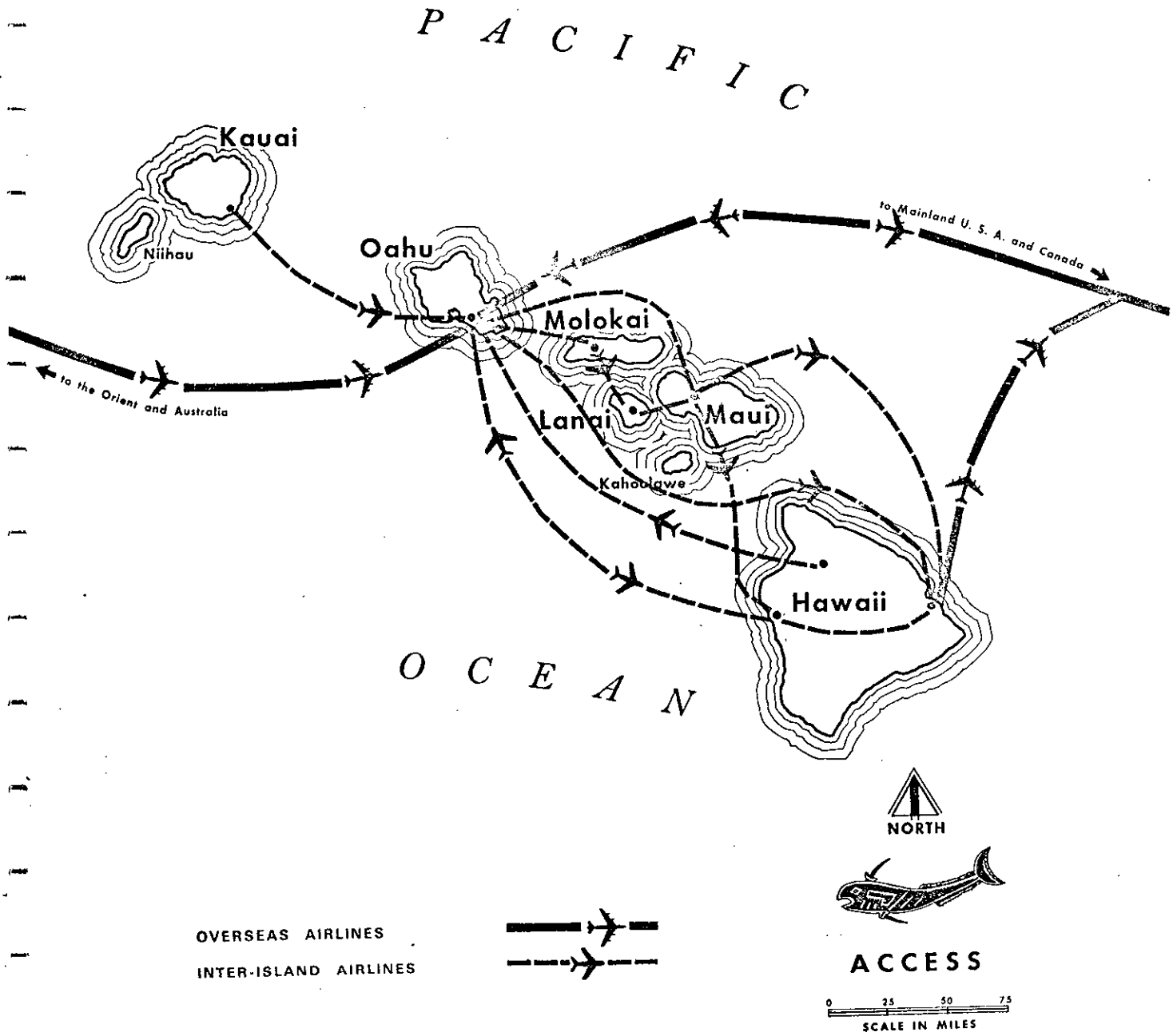
Long extolled in tourist promotional programs for their pleasant climate, romantic history, exotic peoples, unusual scenery, and recreation opportunities, the Hawaiian Islands have become a vacation dream for many "Mainlanders." As air fares decrease and personal incomes rise, visitation to the islands has increased dramatically. From less than half a million in 1960, the 1972 visitation rose to over 2.2 million. The Big Island has also shared in this increase, less than quarter of a million in 1960, to 630,000 in 1972. Ths primary tourist destination is the Island of Oahu which possesses the State's major urban complex centered around Honolulu, Waikiki Beach, the bulk of hotel accommodations, and the only international air terminal. From Oahu, Hawaii and the other neighbor islands are only a short flight.

Access

Access to the State is almost entirely by air. Jetliners arriving from North America, Australia, New Zealand and the Orient make Honolulu one of the world's busiest airports. Use of the Big Island's airport at Hilo by scheduled airlines operating from West Coast cities commenced in 1967. Boat travel, previously an important means of access, has dropped to near zero as compared to the faster air travel, particularly as newer jet aircraft carrying up to 370 first- and economy-class passengers began operation a few years ago.

Inter-island airlines make about 30 scheduled flights daily to the Big Island terminals of Hilo, Waimea, and Kona. Visitors with limited time may arrive and leave the same day--from a different airport if they desire. The Big Island is included on one-day air tours originating in Honolulu which permit short stops and provide excellent aerial coverage with in-flight informational talks. An inter-island auto ferry system is planned but is not yet in operation.

Intra-island circulation is by ground and air transportation centered around Hilo, Waimea, and Kona. Cars and pickup campers may be rented. Commercial tours are available by bus and tour car. Air taxis fly visitors to other airstrips.


PACIFIC
OCEAN
Kauai
Niihau
Oahu
Molokai
Lanai
Maui
Kahoolawe
Hawaii
to Mainland U. S. A. and Canada
to the Orient and Australia
NORTH
OVERSEAS AIRLINES
INTER-ISLAND AIRLINES
ACCESS
0 25 50 75
SCALE IN MILES

Current access to Hawaii Volcanoes National Park is generally satisfactory, except for the fact that much of the Chain of Craters Road has been covered with new lava in the past few years. Previous to this, the Golden Triangle was a popular loop trip from Hilo to Kalapana and Kilauea Volcano. The "Belt Road," consisting of State Highways 11 and 19, makes a general loop around the island and provides the main surface route between towns and communities for commercial and visitor use. It passes through Hawaii Volcanoes National Park near park headquarters and is connected to City of Refuge National Historical Park by an excellent secondary highway. The State plans to upgrade the entire belt road system to a high-speed standard.

Population

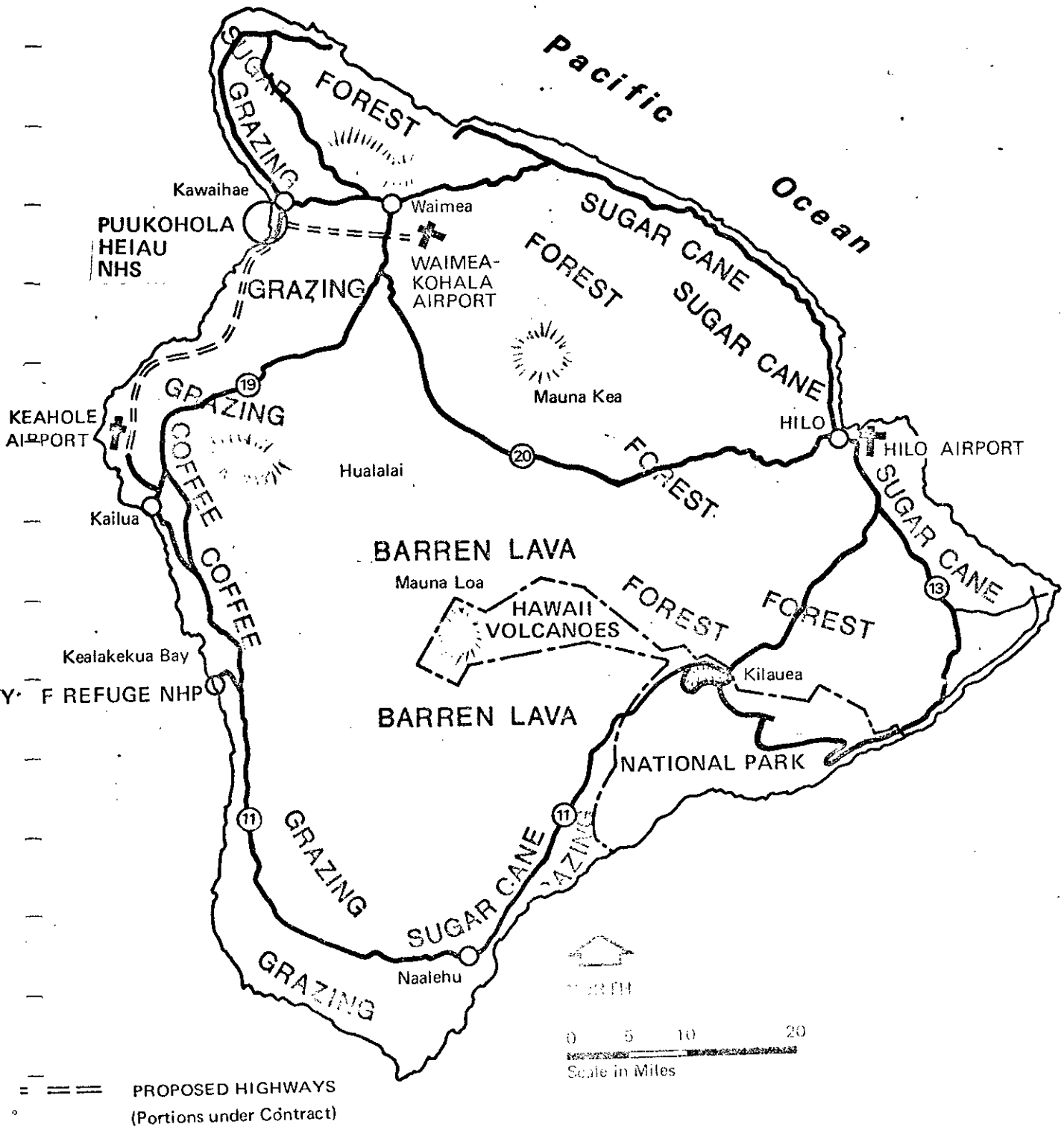
Although the State of Hawaii ranks 15th among the 50 states in population density (approximately 100 persons per square mile), the Island of Hawaii is still sparsely populated with only 15 persons per square mile. The State population has continually increased, while the Big Island population decreased for a number of years because of the mechanization of agriculture and the loss of some industry. This decline is over, however, and a period of growth has apparently started. Most of this growth will take place in the resort regions on Hawaii's dry west coastline, where a new road along the coast between Keahole airport and Kawaihae will open up additional land for homes and resorts. Most of the islands residents already live near the coast, about half being concentrated in and around Hilo.

County	1950 Census	1960 Census	1970 Census	1980 Prediction
Hawaii	68,350	61,332	63,468	69,486
Honolulu	353,020	500,409	630,528	930,000
Kauai	29,905	28,176	29,761	32,242
Maui	48,519	42,855	46,156	54,798
STATE TOTAL	499,794	632,172	769,913	1,086,526

Land Character and Use

Land use, both existing and potential, is closely related to the island environment, which varies widely in desirability. The generally smooth and gently sloping topography is related to the lava flows originating from the five volcanoes which created the island. Because Hawaii is a young island with many fresh lava flows, much of the land is still barren.

Climate is largely the product of the prevailing trade winds, high mountain masses, and elevation. The annual temperature averages a



EXISTING LAND USE

Island of Hawaii

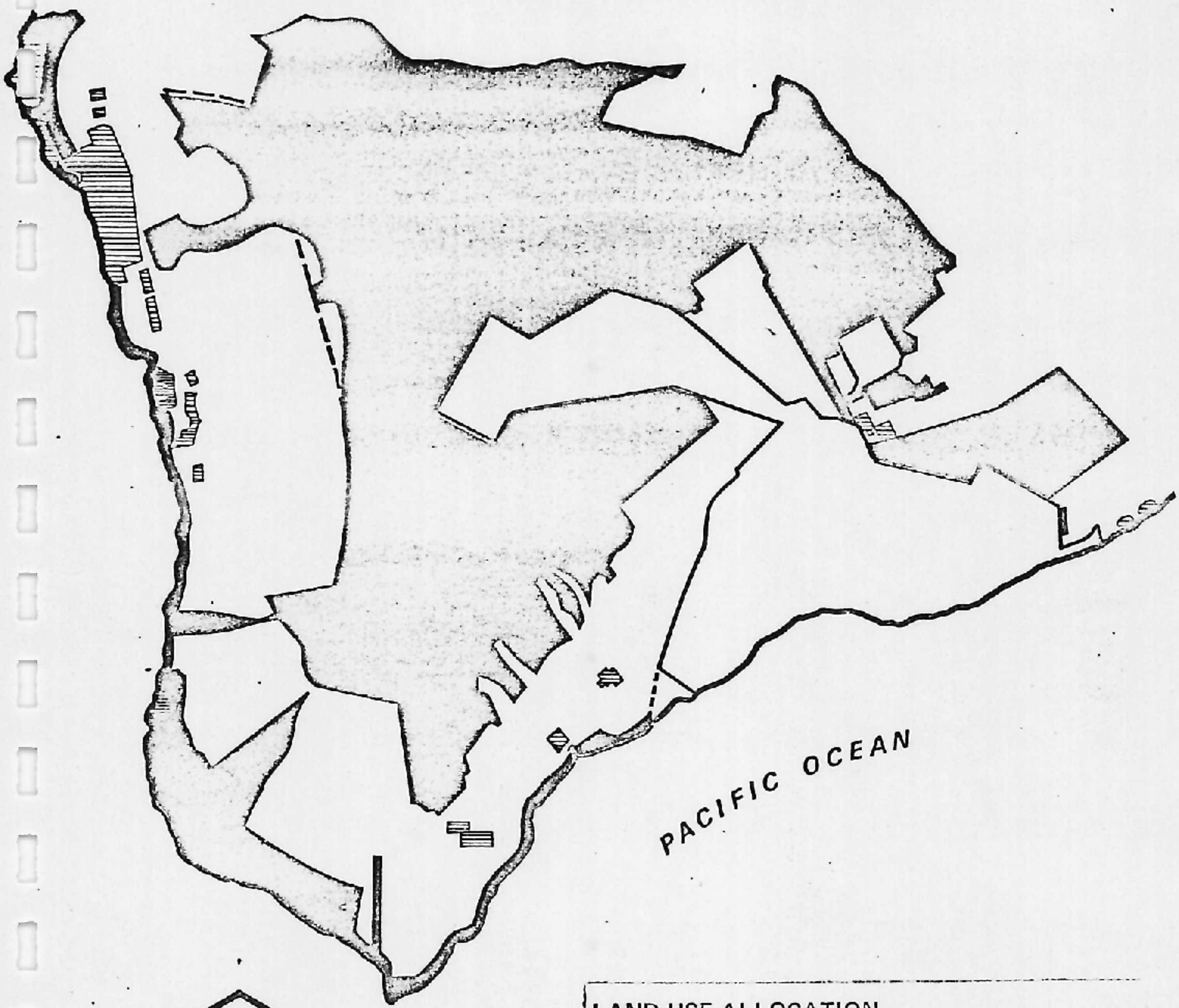
balmy 75 degrees Fahrenheit at sea level, but freezing winter weather is to be expected on the snowy summits of Mauna Loa and Mauna Kea where elevations exceed 13,000 feet above sea level. The eastern side of Hawaii intercepts the moisture-laden trade winds that encourage lush humid rain forests and commercial sugarcane production, the chief industry of the island. Hawaii also has the only coffee industry in the United States, the world's largest commercial orchid-growing center, and produces papayas, macadamia nuts, and tropical flowers for local use and export. In addition, there are extensive grass and scrub areas used for grazing livestock. Even so, large areas of the island still contain undeveloped forests and barren lava fields.

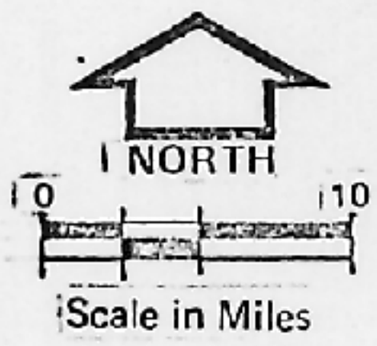
Under the State's "Greenbelt" Law, all land in Hawaii is classified into four major land-use districts: urban, rural, agriculture, and conservation, as determined by the State Land-Use Commission. This law provides some assurance that land will be used for its best purpose and that development will be compatible with the uses permitted within the four categories. The counties regulate internal zoning in the urban, agricultural, and rural districts; the State Department of Land and Natural Resources regulates use in the conservation districts. Outdoor recreation and the preservation of natural resources and cultural values are considered in administering the State Land-Use Law. The law states that, "Conservation districts shall include areas necessary for protecting watershed and water resources; preserving scenic areas; providing park lands, wilderness and beach reserves; conserving endemic plants, fish, and wildlife; preventing floods and soil erosion; forestry and other related activities; and other permitted uses not detrimental to a multiple use conservation concept."

Hawaii's abundant recreational opportunities are largely undeveloped. The island's 266 miles of coastline, its varied topography, and vast areas of wild lands comprise a raw resource adaptable for swimming, surfing, fishing, boating, hiking, horseback riding, hunting, camping, and picnicking. Coastal-oriented recreation holds the greatest appeal for visitors, but island residents are interested also in other activities. Some even seek Mauna Kea's snowy summit for skiing.

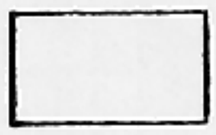
Paradoxically, Hawaii has relatively few swimming beaches. Most are on the west coast between Kailua and Kawaihae where there are about six small sandy coves. Sand, however, is not essential for swimming. Rocky coves and bays offer excellent possibilities for snorkeling or scuba-diving to view tropical fish and coral.

Hawaii is also rich in the sites and events which led to the founding of the historic kingdom of Hawaii, the political ancestor of the modern State.





LAND USE ALLOCATION
of lands adjacent to Hawaii Volcanoes National Park



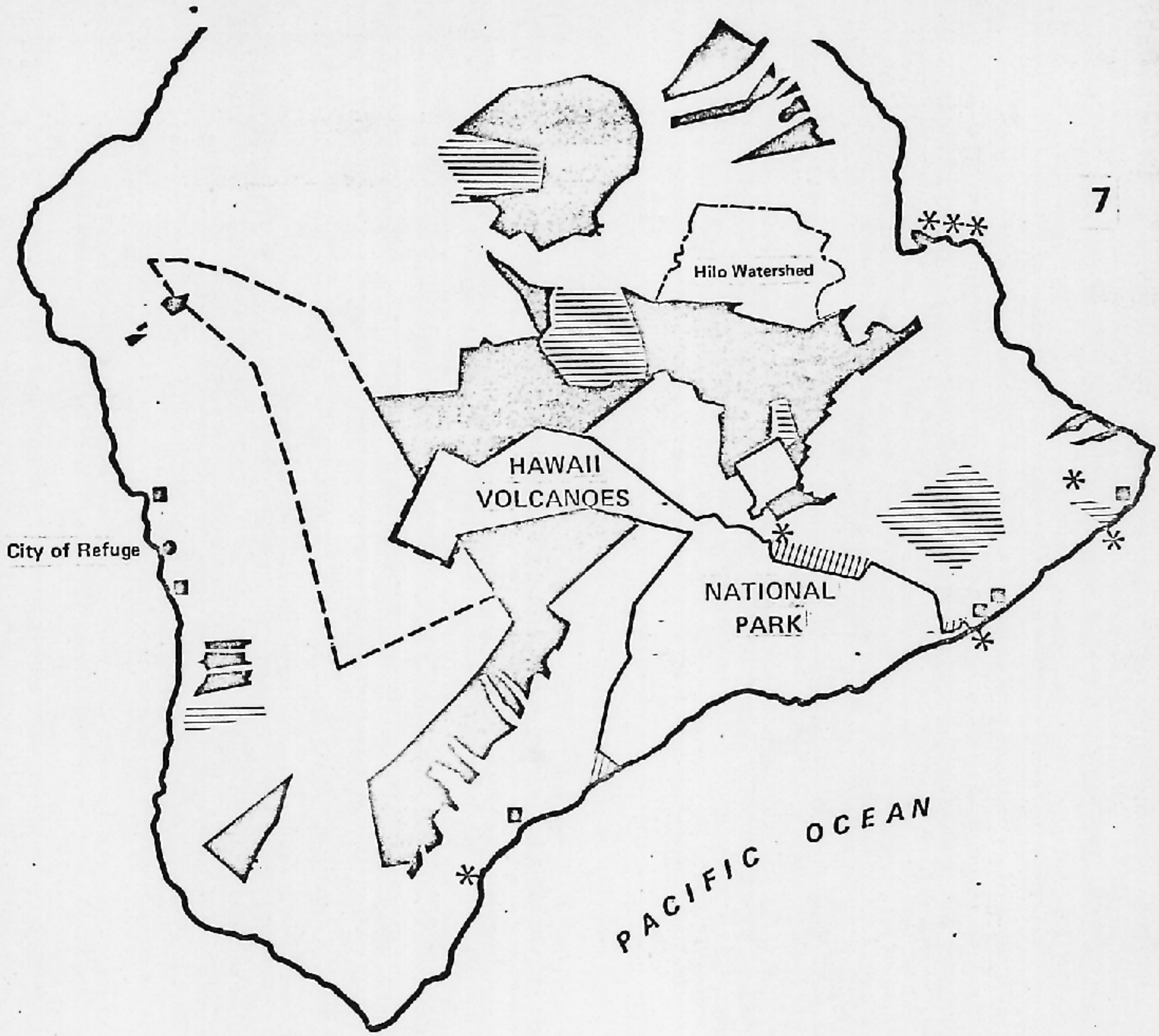
AGRICULTURAL

Includes intensive, extensive agricultural and orchards

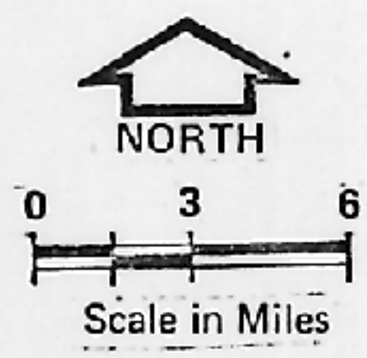
URBAN

Includes industrial, medium and low density urban and resort

CONSERVATION



NATURAL AREAS, PARKS, and FOREST RESERVES adjacent to HAWAII VOLCANOES NATIONAL PARK



- State owned Forest Reserves
- Proposed State Natural Areas
- County Parks
- State Parks
- Proposed Hualalai extension to Hawaii Volcanoes National Park
- Privately-owned land authorized and proposed for addition to Hawaii Volcanoes National Park

State and county parks have been established for a variety of historic, scenic, scientific, and recreational sites, but private enterprise is also making indispensable contributions toward the recreational use of Hawaii. Without accommodations, there could be little nonresidents use of the recreational resources. Spectacular resort hotels have been built where they provide access to beaches or scenic views of the coast. Some of the more isolated resorts are complete recreation complexes including golf courses, swimming pools, tennis courts, and equestrian trails. The number of such accommodations continues to increase. There were 2,188 hotel rooms on the Big Island in 1968. This increased to 4,701 in 1972. The major concentration is in Kailua, Kona (about 2,487 rooms) but future expansion will likely spread along the coast from a little south of Kailua to the Kawaihae/Waimea area.

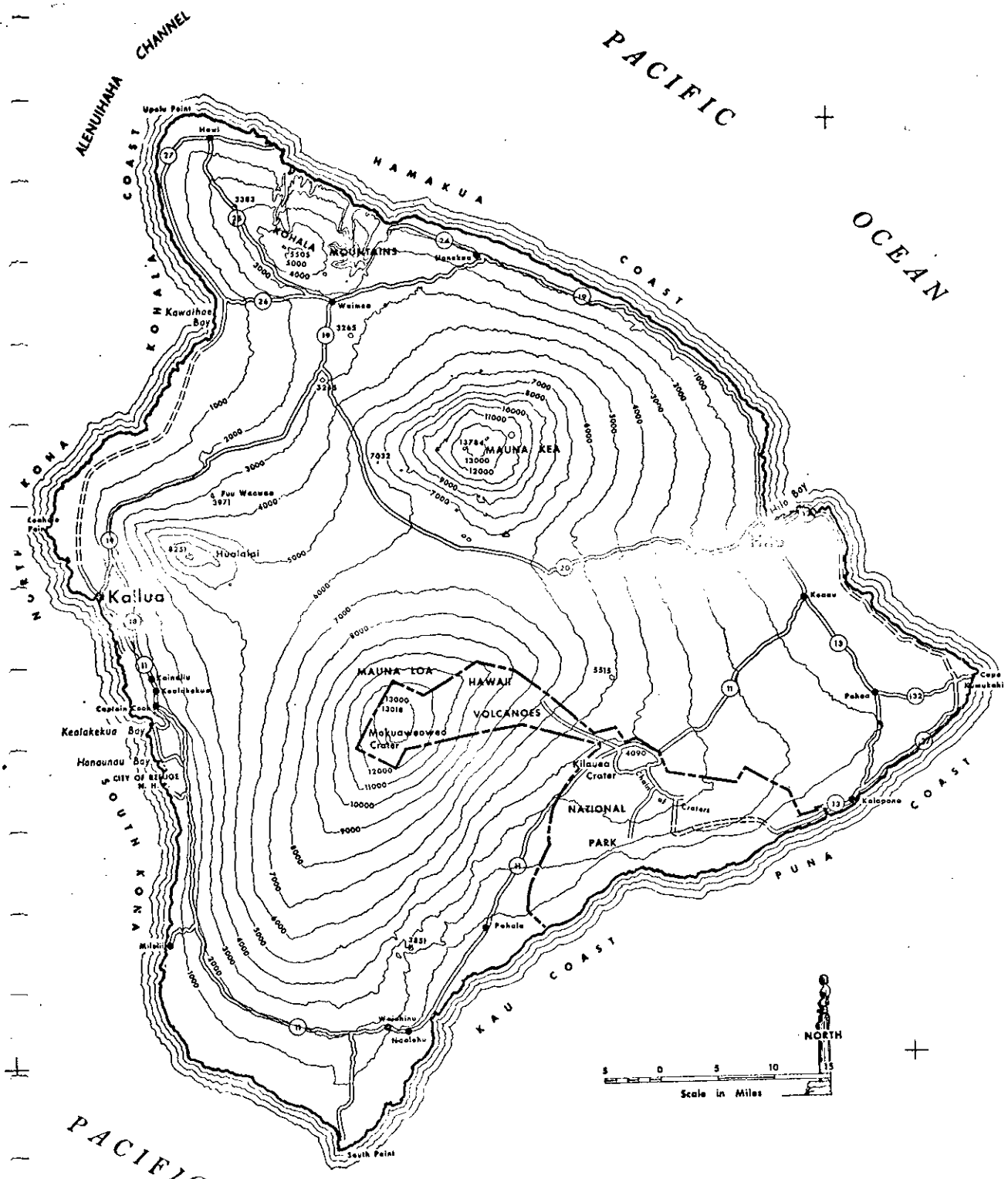
There is little resort development adjacent to Hawaii Volcanoes National Park, except along the coast, and even this is not likely to reach the proportions of the Kona development. On the adjacent mauka or upland areas land type and use varies. Near the park's Mauna Loa strip there are barren lava flows at high elevations and scrub forest below. Grazing is the only current use. Grass and scrub grazing lands also lie west of the park's Kilauea section. The more humid forests are contiguous with most of the eastern boundary. Adjacent lands are primarily owned by trust estate or the State of Hawaii. Between the Kilauea section and the Olaa Forest Tract are estate lands leased for small homesites, agriculture, and a golf course. The balance of the tract is surrounded by forest and grazing lands. There is considerable subdivision activity close to the boundary in the Kalapana section.

At Punaluu, a few miles southwest of the park, C. Brewer is developing a major resort area with golf course, restaurant, hotel, condominiums, and house lots. This development, called Seamountain Ninole, compliments their concession facilities within the park and provides an alternative to substantial expansion of the Volcano House within the park.

THE PARK AND ITS RESOURCES

Kilauea and Mauna Loa volcanoes are the dominant features of the park. Surrounded by recent lava flow materials and unique endemic plant communities, these are dynamic land forms where new lava flows can drastically change the landscape. Indeed, recent eruptions in the Mauna Ulu vicinity have covered many acres with lava up to 300 feet deep, created new land where flows enter the ocean and built up a new mountain where none existed before.

Mauna Loa and Kilauea are the most studied and best understood volcanoes in the world. The favorable opportunities afforded by Hawaii volcanoes for fundamental and detailed research are not duplicated or even approached in any other part of the world. Ths program of study is under the



ISLAND OF HAWAII

direction of the U.S. Geological Survey scientists. And Kilauea is perhaps the most safe and accessible active volcano for people to see. This dual role makes the park of extreme value for both research and sightseeing.

Mauna Loa, above the temperature inversion level, has unusually clean air offering an exceptional opportunity for studies related to contamination trends of the earth's upper air envelope.

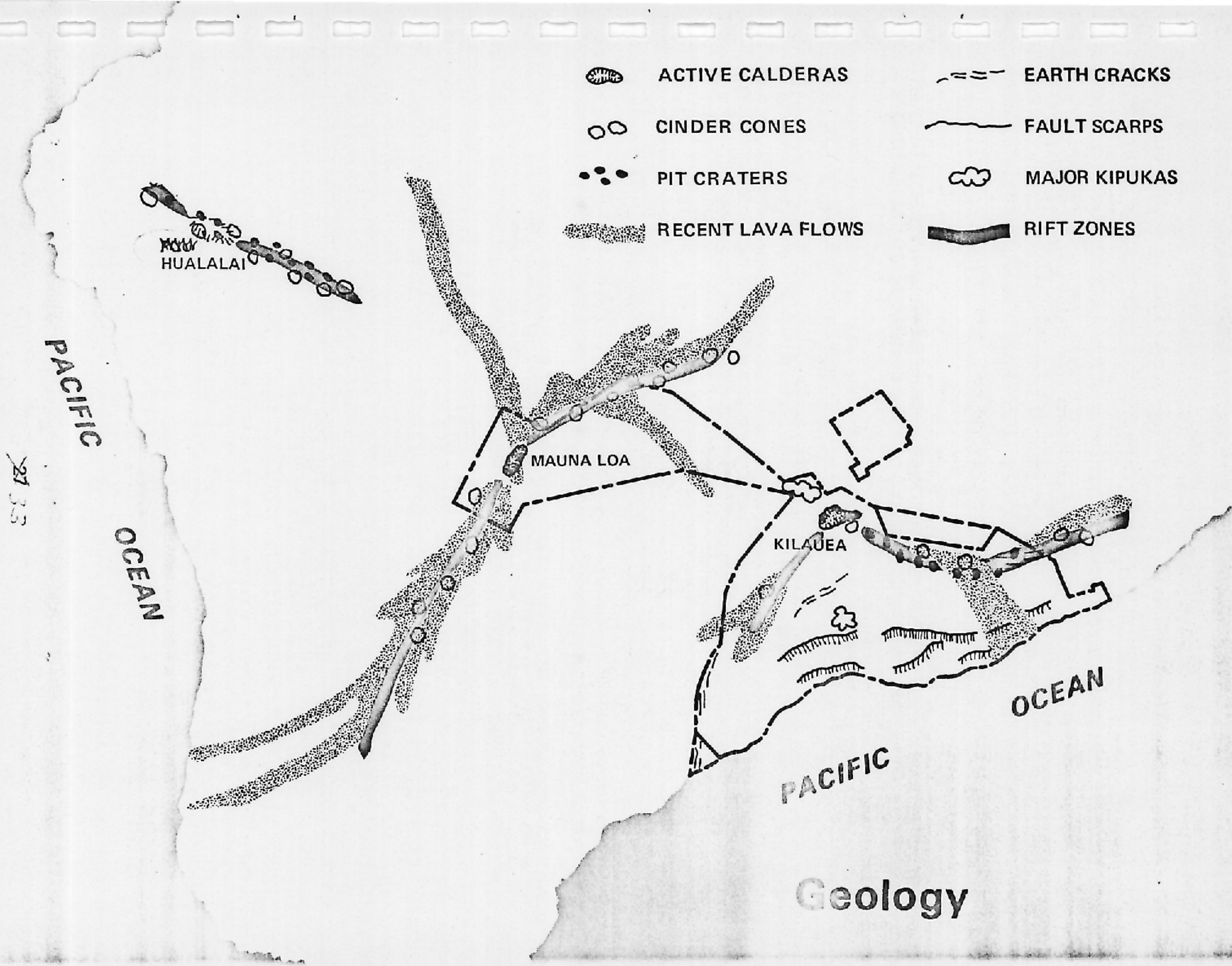
With the arrival of European civilization to the Island of Hawaii two hundred years ago, the fragile native biota of the islands was disturbed. Some of these changes have been almost catastrophic with regard to certain plant and animal species, but to the unitiated visitor these changes are not readily apparent, so that to them the park appears to be much the same today as it did when the first man saw the magnificant displays of volcanism, the great fern forests, and the superb views along the seacoast and up the palis.

Geology

Park lands encompass the summit and part of the southeast flank of Mauna Loa Volcano and almost a third of Kilauea Volcano. Those broad, flat volcanic domes rarely explode, but do send up fountains of molten rock hundreds of feet into the air. Eruptions generally occur in calderas (huge collapsed depressions in the summit) or along the rift zones on the flanks of the volcanoes. Kilauea is the most active volcano in the world; it achieved fame because of an almost continuously active lake of liquid lava in Halemaumau during the 19th century and the early part of the 20th century. From 1952 to 1974 Kilauea has had 25 different eruptions originating from Halemaumau, the caldera floor, the east rift, and the southwest rift. All but two of these eruptions have been within Hawaii Volcanoes National Park. In recent years most of the activity has been on the upper east rift; and since 1969 Mauna Ulu, a newly formed shield, has been almost continuously active.

Throughout history, however, Halemaumau has been the principal place of volcanic activity. Kilauea's two main rift zones are defined by large pit craters, cracks, and cinder cones, and its seaward side is bounded by great fault scarps contrasting with its other gentler slopes. Lava flow, devastated areas, and steam cracks show old and new activity. Steam issues from the ground at many places in and around Kilauea caldera and along the Chain of Craters.

Mauna Loa is a massive, flat-domed shield volcano built by layer upon layer of lava and is recognized as the best example of its type in the world. Extending from about 20,000 feet below sea level to 13,677 feet above, it is one of the world's greatest mountains, Its upper slopes, along its two principal rift zones, contain extensive,


ACTIVE CALDERAS
CINDER CONES
PIT CRATERS
RECENT LAVA FLOWS
EARTH CRACKS
FAULT SCARPS
MAJOR KIPUKAS
RIFT ZONES
HUALALAI
MAUNA LOA
KILAUEA
PACIFIC
OCEAN
PACIFIC
OCEAN

Geology

recent flows that are stark, picturesque, bare, and forbidding. Since man has watched it, Mauna Loa has been intermittently active, with periods of quiet ranging from a few months to more than 20 years. Many of its eruptions are confined to the caldera of Mokuaweoweo; others burst forth from fissures along one of the rift zones on the flanks of the mountain and feed lava flows that may reach the sea.

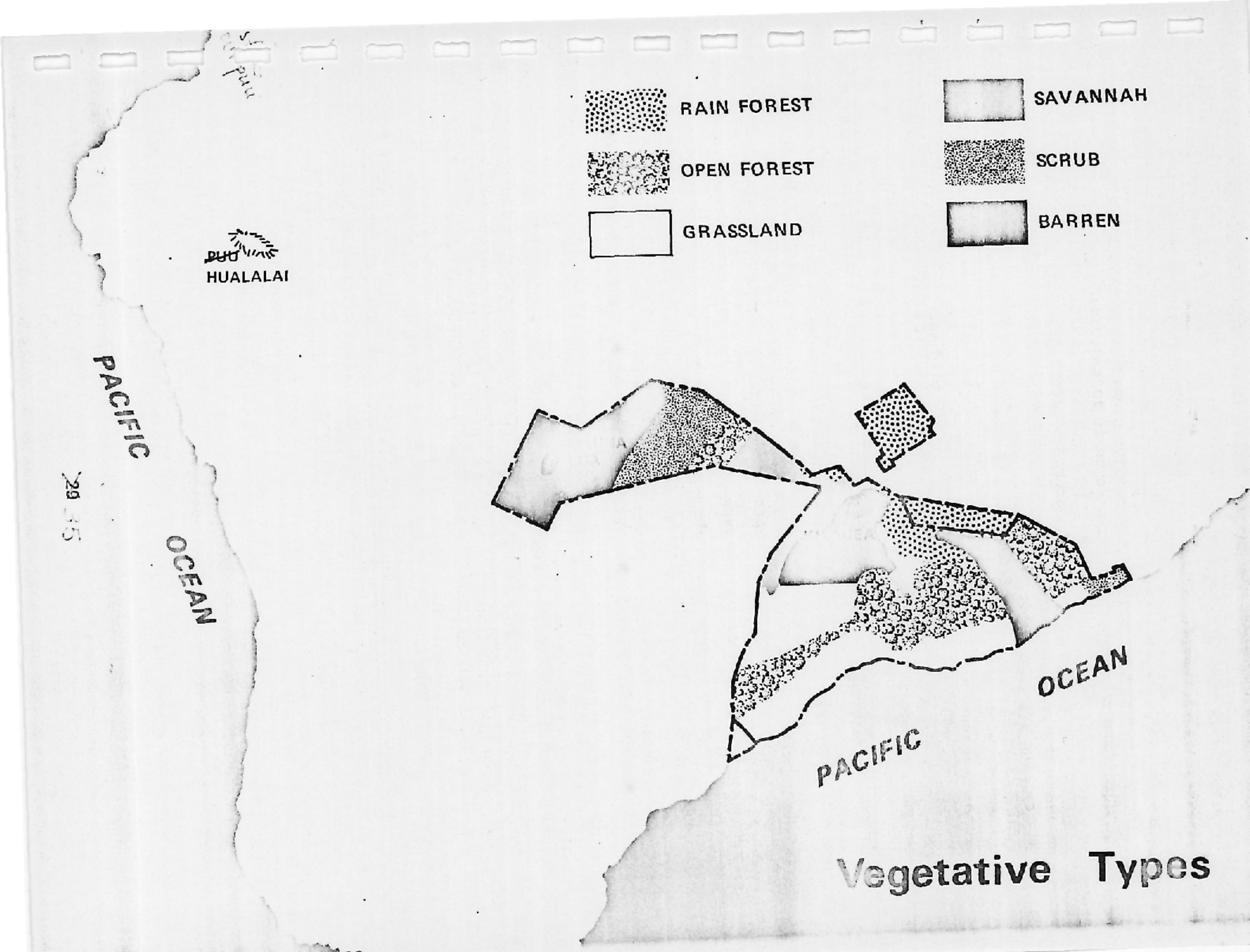
Both Kilauea and Mauna Loa are young volcanoes, for their growth keeps well ahead of erosion. Geologists calculate from its present growth that Mauna Loa could have been formed within the last million years.

There are no mineral values in the park. The sulphur deposits are too small to be of any commercial interest. None of the olivine is of gem quality; furthermore, it is too tightly locked within the basaltic rock to permit economical extraction. Building stone could be taken from the park in certain areas, but it is also readily available throughout the island. Though energy has yet never been tapped from basaltic lavas, many predict that heat from active and recent volcanoes on the Big Island could be converted into usable geothermal energy. Obvious areas of enormous heat lie at the summit and along the rift zones of Kilauea. The northwest rift of Hualalai and the southwest rift of Mauna Loa are potential sites, and because of their greater stability may be somewhat more feasible at this time. Recent infra-red surveys show high ground temperatures southeast of the Great Crack and west of Kapaoo Point (within the park's authorized boundary). Warm water has been known here for many years at Waiwelawela (Hawaiian for hot water). This may be a possible prospect for development of geothermal energy.

Vegetation

Hawaiian flora is quite young in comparison to continental systems. And it is believed that endemics evolved with little competition, particularly since most plant communities possess numerous niches that were never filled by native species. The result is that Hawaiian vegetation is especially vulnerable to structural and composition change when highly competitive species were introduced.

With an elevation range from sea level to 13,677 feet and a precipitation spread from 15 to 100 inches of rain annually, there is within the park a wide range of 23 distinct vegetative types--from lush rain forest jungle to the sparse vegetation of the Kau Desert, a few miles to the southwest. Some native species are endemic only to a single valley or mountain slope.


RAIN FOREST
OPEN FOREST
GRASSLAND
SAVANNAH
SCRUB
BARREN
HUALALAI
PACIFIC
OCEAN
PACIFIC
OCEAN
Vegetative Types

Dense ohia and fern "rain forests" exist in areas of heavy rainfall. In drier areas, the forest opens into savannah containing mixtures of ohia and koa trees, and in the other areas there is only low scrub and open grasslands. The Kau Desert is nearly barren, as is much of the coast.

Some rarer plants, such as varieties of hibiscus (Hibiscadelphus), are found in kipukas (older areas that have been surrounded by more recent lava flows). They can be readily recognized as islands of denser vegetation in sparsely vegetated areas. Kipukas represent somewhat simplified ecosystems suitable for studying integral ecological relationships. Here isolation of small populations provides opportunities for evolutionary study. The park's two best known kipukas, Kipuka Puaulu, popularly known as "Bird Park", and nearby Kipuka Ki, contain unique and complex compositions of plant species and are judged to be of "great age".

During the Polynesian colonization period, several nonnative plants were released into the native vegetation. In a relatively short period, some of these became securely established. The appearance of western man, near the close of the 18th century, marks the beginning of mass introduction of highly competitive and aggressive species (guava, tibouchina, lantana, haole koa, and kiawe). Further, there was direct removal or alteration of the native forest for sugarcane, pineapple, and ranching activities, plus the introduction of feral goats, mongoose, and pigs. Exotic plants, particularly grasses, have invaded all disturbed areas and ecological niches within the park. Sections of the Mauna Loa Strip were most obviously affected by domestic stock. This activity has stopped and the vegetation is now recovering. Even the completely natural phenomenon of volcanic activity has destroyed some native vegetation. Recent flows have almost completely wiped out Naulu Forest, a small enclave of rare native species along the Chain of Craters Road. Fortunately, significant large areas of original vegetation still remain intact and many individual rare native plants still exist within the park. The most important forest type is in the Olaa Forest tract, an area of almost 10,000 acres, which is probably the largest remaining tract of virgin ohia and fern forest in the Hawaiian Islands. This tract has been recognized by the Society of American Foresters as a "natural area," the best example of its type.

At Bird Park, many rare native plants have been replanted in an effort to keep them from extinction, including one of the world's rarest trees, the "hula Kuahiwi," or Hibiscadelphus Giffardianus. At the Naulu Forest there were other species of rare native plants clustered in a small area.

Animal Life

Birds are the most important aspect of the park's wildlife. Unfortunately, several endemic species have become extinct within the park and elsewhere on the Island because of many practices which disturb native habitats. Further, introduced birds are especially detrimental to the highly specialized Hawaiian honeycreeper family (Drepaniidae), which are of special interest to ornithologists and evolutionists. Included in this group are the apapane and iiwi (common); amakihi (scarce); and creeper, akepa, ou, and akiapolaau (all recognized as rare and endangered species). Besides the honeycreepers, other endemic birds which range throughout the park are pueo (owl), amao (thrush), and elepaio (flycatcher). Io (hawk) and nene (goose) are found within the park, and are also listed by U.S.D.I. as "endangered".

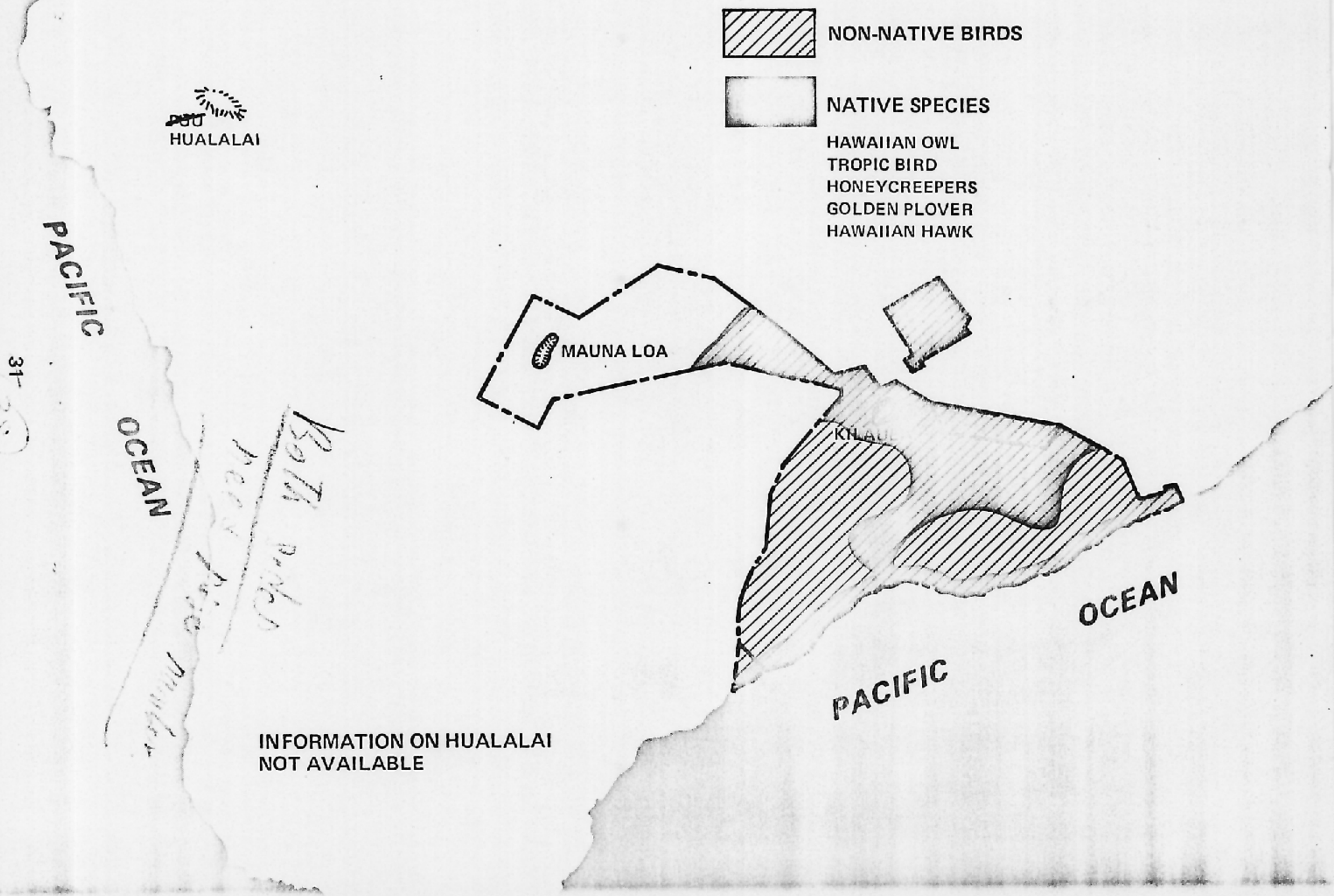
The nene was once close to extinction but now appears to be out of immediate danger as the result of the efforts of many interested agencies and individuals. They once inhabited the lower coastal section of the park during their nesting period, but man's hunting and ranching activities, the heavy predations of mongooses, cats, and dogs, and the disturbances of goats and pigs, have eliminated nene populations below 5,000 feet elevation.

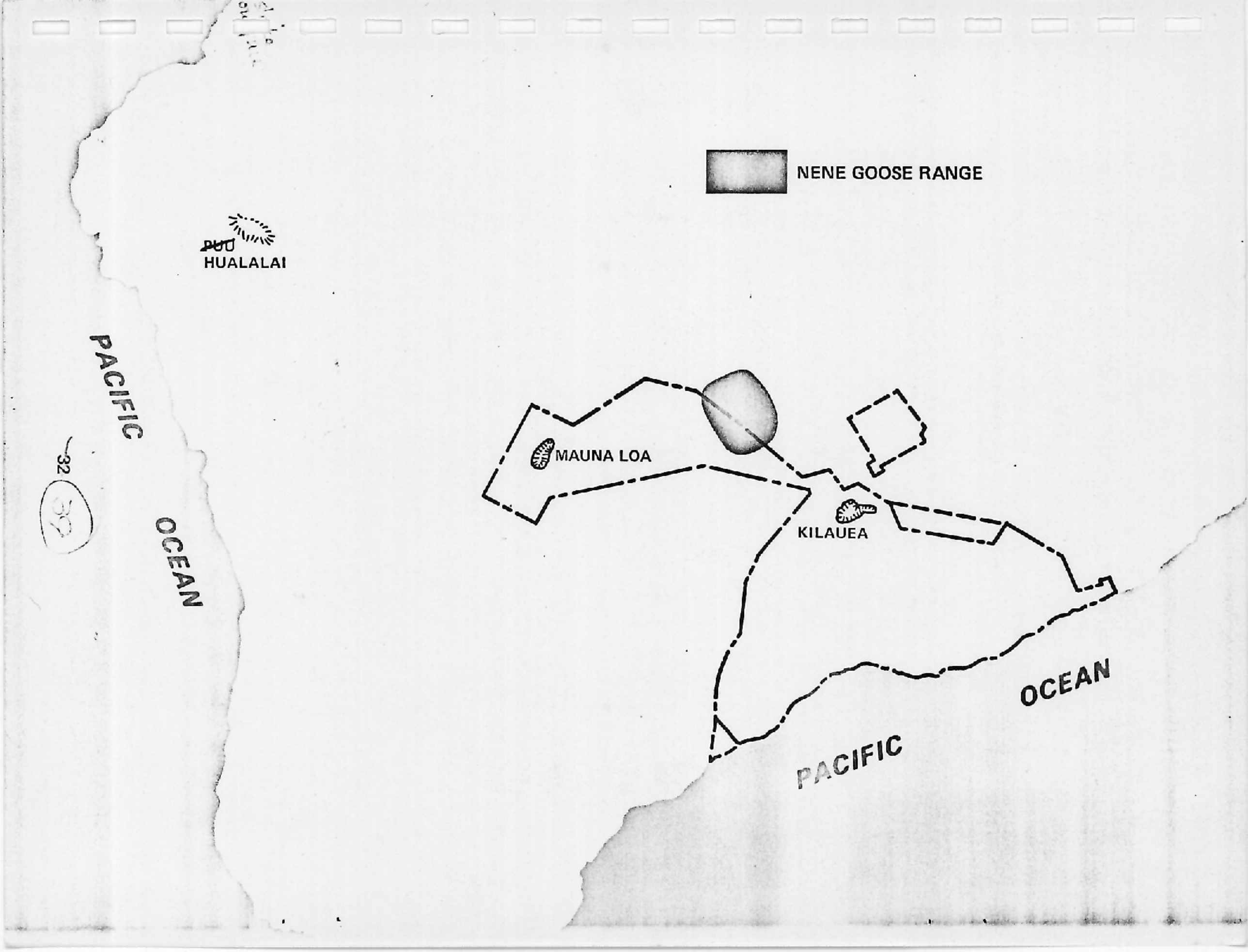
There are six species of migrant sea birds including the endangered dark-rumped petrel, white-tailed tropic bird, American golden plover, ruddy turnstone, wandering tattler, and white-capped noddy. Exotic bird species are the California quail, chukar, ring-necked pheasant, Japanese blue pheasant, spotted dove, barred dove, skylark, Chinese thrush, red-billed leiothrix, mynah, white-eye, ricebird, house sparrow, cardinal, and house finch. The Hawaiian bat is the only native land mammal.

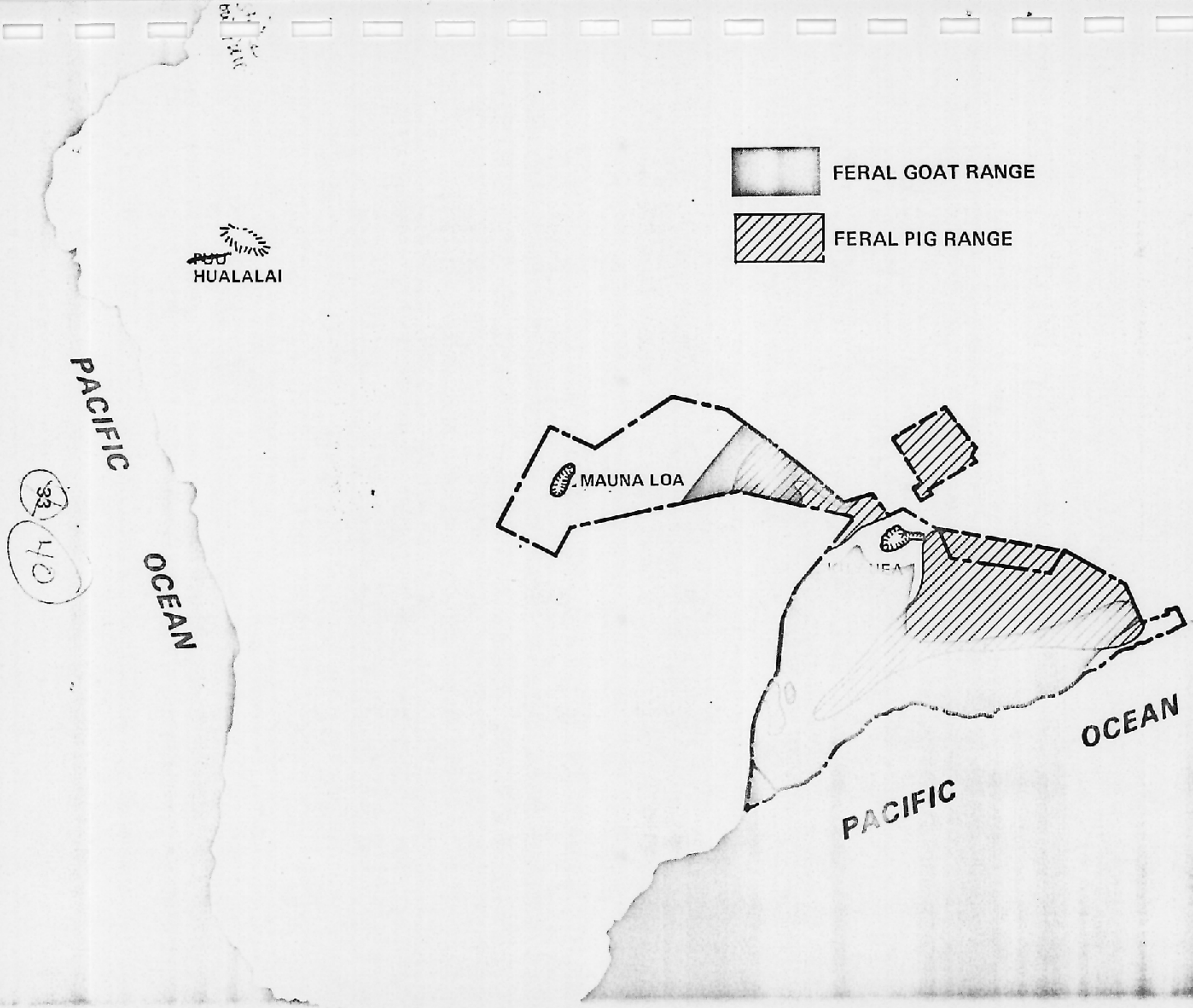
Feral goats have in the past built up high populations in the open, drier coastal and high mountain sections of the park despite long-term reduction efforts. Recent feral goat populations in the 10,000 to 20,000 range have been greatly reduced through vigorous annual reduction programs which have removed some 4,000 animals each year.

The pig was brought to the Hawaiian Island by the Polynesians during their early migrations. These mixed with later European varieties, producing the strain of pigs that now inhabit the wetter forests and savannahs.

Feral goats, mongooses, and pigs have done great damage to the park vegetation and birdlife to an extent that cannot be accurately assessed without a continuing and extensive research program. Pigs have engendered the spread of exotic plants by carrying seed and scarifying the ground. Heavy goat browsing denudes the landscape of shrubs and prevents the regeneration of many native plant species.


NON-NATIVE BIRDS
NATIVE SPECIES
HAWAIIAN OWL
TROPIC BIRD
HONEYCREEPERS
GOLDEN PLOVER
HAWAIIAN HAWK
HUALALAI
MAUNA LOA
PACIFIC
OCEAN
PACIFIC
OCEAN
INFORMATION ON HUALALAI
NOT AVAILABLE


NENE GOOSE RANGE
PUU
HUALALAI
PACIFIC
OCEAN
MAUNA LOA
KILAUEA
PACIFIC
OCEAN


FERAL GOAT RANGE
FERAL PIG RANGE
HUALALAI
MAUNA LOA
PACIFIC
OCEAN
PACIFIC
OCEAN

Pig-rooted area with the start of sucker growth by guava, an exotic. It is felt that pig activity may stimulate the spread of guava.

No fish are found within the park, but there are excellent opportunities to view and study the colorful fish populations along the park's 30-mile coastline. Coral reefs are limited to a small area near Halapa where common reef fishes include the squirrel fish, butterfly fish, Moorish Idol, surgeonfish, trigger fish, and several kinds of eel. Opihi, a species of limpet found on the surf-washed lava cliffs, is an important local delicacy.

History and Archeology

Land within the national park, especially the coastal region, is rich in remains left by the ancient Hawaiians--heiau ruins, house platforms, stone walls of canoe sheds, pens and corrals, graves, shelter caves, petroglyphs, paved trails, and agricultural areas. Many are within easy reach of the former Kalapana/Chain of Craters Road. Others are scattered along that section of coast accessible only by trail and to a lesser extent inland.

The people who lived here were mainly fishermen and farmers, and in the uplands some were bird hunters. Habitation required special adaptation to severe environmental conditions and reveals the versitility and ingenuity of the Hawaiians. Archeological surveys were undertaken in 1959 when the Bishop Museum, under the direction of Dr. Kenneth P. Emory, made the first extensive field survey. A second survey was made between 1963 and 1965, which continued the assessment of the park's archeological resources and suggested avenues along which more detailed investigations might proceed. These surveys recorded 380 sites. Between 1962 and 1968, several small sites were salvaged as part of the Chain of Craters Road project.

There are within the park a variety of archeological resources, unique in several ways. Furthermore, there is evidence that many aspects of Hawaiian history can best be investigated in this particular complex of sites. Several deserving of special mention are discussed below.

Wahaula Heiau--Red Mouth Temple--is reported to have been established and constructed in 1275. Kailiili village, nearby, probably supported the temple. These are the most important archeological sites in the park. The heiau is one of the most significant in the Hawaiian Islands, as it is important in the story of Paao and the introduction of the heiau luakini and the ritual worship of the major gods that characterized Hawaiian ceremonial worship. It is in remarkably fine condition and has an impressive appearance.

Site 911 is a small cave shelter west of Kailiili village near the coast which was used by the ancient Hawaiians as a shelter and an occasional overnight campsite.

Kamoamoa Village site represents an area where two periods of occupation appear to be superimposed. The ancient village appears to be farther back from the shore and the later (historic) development toward the ocean.

The Puu Loa petroglyph field, about 1/2 acre in extent, is the largest concentration of "rock carvings" in the park. It is one of the three largest in the Hawaiian Islands. Many of the petroglyphs are ancient, as they have been almost completely obliterated by successive drawings and erosion. The forms are mainly dots with rings, human figures, sails, and circles with attached lines.

Kealakomo was perhaps the largest village on the Puna Coast in ancient times. It was also the hub of a number of trails: coastal and inland, ancient and post-European. Unfortunately, this site was covered by fresh lava in 1972.

The aforementioned and numerous additional sites are a rich source of research material dealing with ancient Polynesian culture and the transition to modern times. Many scattered sites are located along the coast within the proposed wilderness Unit 2. Occasional sites also exist in other units.

Captain James Cook, R.N., discovered Hawaii for the Western World in 1778 and died at Kealakekua Bay in 1779. His ship navigated offshore from what is now Hawaii Volcanoes National Park, trading with the Hawaiians of Puna and Kau, exchanging nails, beads, and cloth for pigs, fruit, and salt.

The historic events that occurred within the park area after Captain Cook first viewed the Puna/Kau Coast are of value chiefly in their association with events that occurred elsewhere, and in the descriptions of the volcano and the coastal Hawaiian habitation recorded in accounts of early travelers. An explosive eruption of Kilauea was a historic factor in the eventual rise of Kamehameha as ruler of all Hawaii. In 1790, while enroute through the Kau Desert to battle the forces of Kamehameha, a portion of Keoua's army was destroyed by the volcano. Fossil footprints of some of the Hawaiian warriors remain today in the Kau Desert.

Vancouver's naturalist, Archibald Menzies, was the first Westerner to penetrate inland to what is now the park. He ascended Mauna Loa in the winter of 1794, a climb not duplicated until Lt. Charles Wilkes, U.S.N. and aides made the climb again in 1841.

In 1823, a band of Christian missionaries visited Kilauea and wrote such vivid and widely read descriptions that thereafter Kilauea was of prime scientific interest as well as a desired visitor destination.

Kamoamoa--An old Hawaiian village site on the Kalapana Coast. Some of the rock structures are ancient house platform and heiau remains. Others are historic cattle, goat, and house lot walls. The scene is typical of the park's coastline.

By the 1840's, before Yosemite Valley had even been discovered, Kilauea Volcano had become a regular stop for tourists to Hawaii. They stayed in native-style huts until 1866, when the Volcano House was established on the caldera rim.

The records of Menzies and the Rev. William Ellis in 1823, and the officers of HMS Blonde in 1824 started a long list of amateur and professional observations of Hawaii's volcanoes, which formed the basis of volcanic study which was formalized in 1912 with the founding of the Hawaiian Volcano Observatory.

Hawaiians held the Kilauea summit sacred, and made offerings to the Goddess of Volcanoes--Pele; and it was at Halemaumau, the principal vent of Kilauea, that the image of Pele was weakened in 1824 by High Chieftess Kapiolani, a convert to Christianity, who ate ohelo berries without the traditional offering. Her action did much to weaken belief in the old gods and paved the way for a wider acceptance of Christianity.

Christian missionaries based in Hilo built churches and schools in the mid-1800's along what is now the park's seacoast. Cattle, goat, pulu (a fern product), and tourist enterprises changed the Hawaiian way of life as well as the structures of the villages. The now abandoned villages represent Western influences grafted onto the traditional Hawaiian culture. Only tourist activity and scientific investigation on Kilauea's rim have survived.

Two relatively recent historic sites have been identified. One is the "Old Volcano House" of 1877, which still stands. The second is the Keauhou Landing Site which for a time in the middle 1800's was a landing for tourists coming to the Kilauea volcano. The landing and village were virtually destroyed by the 1868 tsunami (tidal wave) that destroyed whole villages along the Puna/Kau Coast. A few coconut trees and remains of the old wharf are all that is left of what was once a fairly large village and steamship port.

A third historic site of some significance, a pulu factory ruin, is located on the trail between Makaopuhi and Napau Craters.

Several properties within Hawaii Volcanoes National Park are now on the National Register of Historic Places: the Wilkes Campsite and the old Ainapo Trail; the Puna/Kau Historic District; the footprints area; Kilauea Crater; Whitney Seismograph Vault, and the Old Volcano House. The Mauna Loa Trail is nominated and declared eligible for the National Register. These sites are noted on the map on page 46. The Puna/Kau Historic District includes previously described Wahaula Heiau, Kailiili Village, Site 911, Kamoamoa Village, Puu Loa petroglyph field, Kealakomo, pulu factory ruins, and Keauhou Landing Site.

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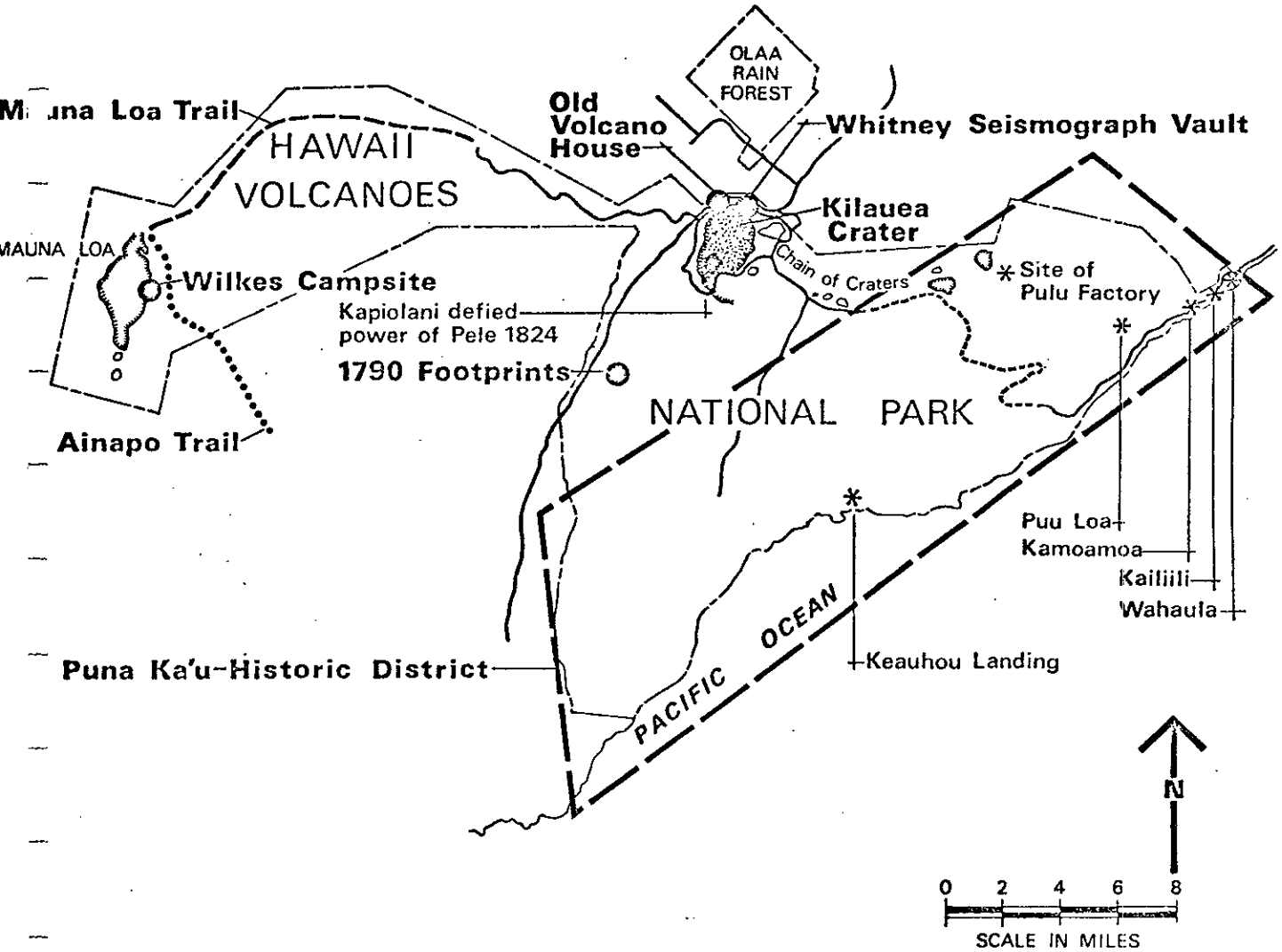


History and Archeology

SITES ON THE NATIONAL REGISTER OF HISTORIC PLACES OR DECLARED ELIGIBLE

Recreation

The park encompasses a variety of terrain between sea level and 13,680 feet, with a wide range of climatic conditions. The resources, however, afford only limited use opportunities such as hiking, riding, nature study, and appreciation of geologic features. Lava flows and other volcanic features cover a major part of the park and there is no natural water source. The 30 miles of seacoast within the park are extremely rough with shore cliffs up to 100 feet, sparse vegetation, and a dry,windy climate. There are a half-dozen trail access points to the ocean along the entire park coast. The areas of heaviest rainfall are covered with dense rain forest, difficult of access and contain important ecological values that are sensitive to the disturbance caused by development and use.

LANDS PROPOSED FOR ADDITION TO THE PARK

Large expanses of primitive land surround much of the park, particularly at higher elevations. Access has in the past been very limited by the rough character of the land, great distances involved, defense activities, high elevation, lack of water, and the fact that nearly all major development has historically been concentrated along the seashore or at least on lower elevations. Moreover, use of the land for grazing or for production of timber has proved to be a marginal economic venture at best. As land becomes more valuable, however, many such areas are being scrutinized in more detail to determine what their appropriate use should be.

The land described below encompasses generally that area around Hualalai Volcano, the intervening lands between that mountain and Mauna Loa, and the upper slopes of Mauna Loa.

Geology

Hawaii Volcanoes National Park contains only a small portion of Mauna Loa Volcano. The Mauna Loa strip is 1 mile wide near Kilauea, flaring out to 6 miles at the summit. Major geologic features lying within the park are the Mokuaweoweo Caldera and the upper portions of Mauna Loa's two rift zones. But about two-thirds of the major geologic features are outside the park. This includes the greater part of the dramatic southwest rift and the lower portions of major historic lava flows.

Hualalai rises 8,271 feet above sea level over the resort town of Kailua. It rests in the rain shadow of its lofty neighbor, Mauna Kea, and has thus suffered very little erosion. The last eruptions on Hualalai occurred in 1800 and 1801 when two voluminous flows poured from the northwest rift at the 5,500- to 6,000-foot level. Several lava rivers flowed seaward to form the Kaupalehu flow and overwhelmed Hawaiian villages on the shore.

About 120 cinder, spatter, and lava cones, more abundant than on Mauna Loa, dot the upper slopes of Hualalai. Some reach a height of 300 feet, but most are 100 to 200 feet high. Hualalai's summit is pockmarked by numerous pit craters and some of the larger summit cones contain crater depressions up to 500 feet deep. Eruptions from these cones have covered much of the summit area and the adjacent slopes with loose cinders and pumice.

An additional geologic feature of Hualalai is the abundance of xenolithic nodules, coarse crystal aggregates composed of olivine, pyroxene, and feldspar, that were brought to the surface during the 1800 eruption. Because of their significance in deducing the genesis of basaltic magmas, they have received worldwide attention by earth scientists. Hualalai has progressed further in its "life cycle" than have Mauna Loa and Kilauea, making it attractive for cooperative study and interpretation.

Vegetation

The upper slopes of Mauna Loa from its summit to 11,000 feet are classified as unvegetated stone desert. Precipitation is light and there is year-round ground frost. Mosses appear at 11,000 feet on northfacing cracks of lava and in sheltered blister-holes. From the summit down to 8,000 feet is scattered low,gnarled pukeawe, ohelo berry, bunchgrass, and small ferns. At 8,500 feet on Mauna Loa and also on Hualalai, shrubs begin suddenly to grow taller and to be more densely distributed. Other shrubs and berries, such as pilo and kukainene appear. The ground frost disappears, precipitation increases, and clouds frequent the ground. Timberline is from 7,500 to 8,000 feet. Here, the ohia is a full-grown tree. An open ohia and mamani forest is established on the 'a'a flows at 7,500 feet down to 6,600 feet and below the ohia-mamani forest there is koa and an occasional sandalwood.

At lower elevations to 4,000 feet, where rainfall greatly increases, the forest changes to a dense mix of koa and soapberry with tree ferns. Tall and well-formed ohia and koa are present in the "rain forest " belt between 3,000 and 5,000 feet. Unaltered Hawaiian rain forest is becoming rare, and only 23,000 acres are afforded full protection in Hawaii Volcanoes National Park. Most of the remainder is subject to range and commercial forest development.

Moreover, at one time most of the interior plateau country was covered by fine stands of koa and sandalwood. Sandalwood stands were destroyed during the China trade period of the early 19th century. Other interior forests were further depleted by extensive cattle grazing and some were cleared for pasture. On Hawaii's Kona slope, only Honaunau Forest and another smaller section, Kahuluu Forest to the north, remain. Near

Kilauea Volcano, the Kilauea Forest Reserve also contains considerable botanical integrity. In recent years, ranchers have been fencing the lower lands up to 6,000 feet, so some recovery of sandalwood, mamani, and koa has occurred in the interior plateau. But the long-term effects of heavy cattle grazing are still noticeable in the Hualalai-Mauna Loa interior lands.

Rare and endangered plant species found within this area include various species of Bidens, Santalum pilgeri and/or paniculatum, Cyanea carlsonii, Delissea undulata.

Animal Life

The native Hawaiian Goose, the nene, may be seen occasionally on Hualalai's eastern slopes. The State Division of Fish and Game, in cooperation with the Bishop Estate, has established sanctuaries on the slopes of Hualalai and Mauna Loa (Keauhou Ranch) where nene are released and given protection. A third sanctuary and release site was established in 1967 on the Kahuku Ranch on the southwest slope of Mauna Loa between 6,500 and 8,500 feet, through a cooperative agreement with the Damon Estate. Birds reared at the State Nene Project have been released at these sites.

There are a number of other endemic Hawaiian birds on Hualalai and the interior plateau. Among these are four honeycreepers: apapane, iiwi, amakihi, and creeper. Small numbers of the Hawaiian crow have also been reported in the Honaunau Forest and on Hualalai in recent years. They are among the very last in existence, and are on the United States Department of Interior list of endangered species. The palila, also an endangered bird species, inhabited the saddle between Hualalai and Mauna Loa before the native mamani forests were depleted by feral goats and sheep.

In 1967, small breeding populations of another endangered species, the Hawaiian dark-rumped petrel, were discovered in the vicinity of Puu Keokeo, a 6,800-foot cinder cone on Mauna Loa's southwest rift. No other populations of this extremely rare and threatened seabird are presently known on the Island of Hawaii.

Exotic birds, including chukar, ring-necked pheasant, and dove, reside on the interior plateau and slopes of Hualalai, and feral goats, pigs and sheep are also present. They receive relatively light hunting pressure, as access to this region is limited.

Archeology and History

There are two sites worthy of mention in the Hualalai vicinity, Ahuaumi Heiau and the Judd Trail.

Ahuaumi Heiau, on the National Register of Historic Places, is an ancient Hawaiian rock feature on the barren interior plateau between

Judd Trail in the saddle area between Hualalai and Mauna Loa.

Hualalai and Mauna Loa. The first known drawing of the heiau was made by Lieutenant Charles Wilkes in 1841, and surprisingly, this site represents the type of dry masonry construction usually found in the major Hawaiian temples close to the coastline. Wilkes wrote of the heiau:

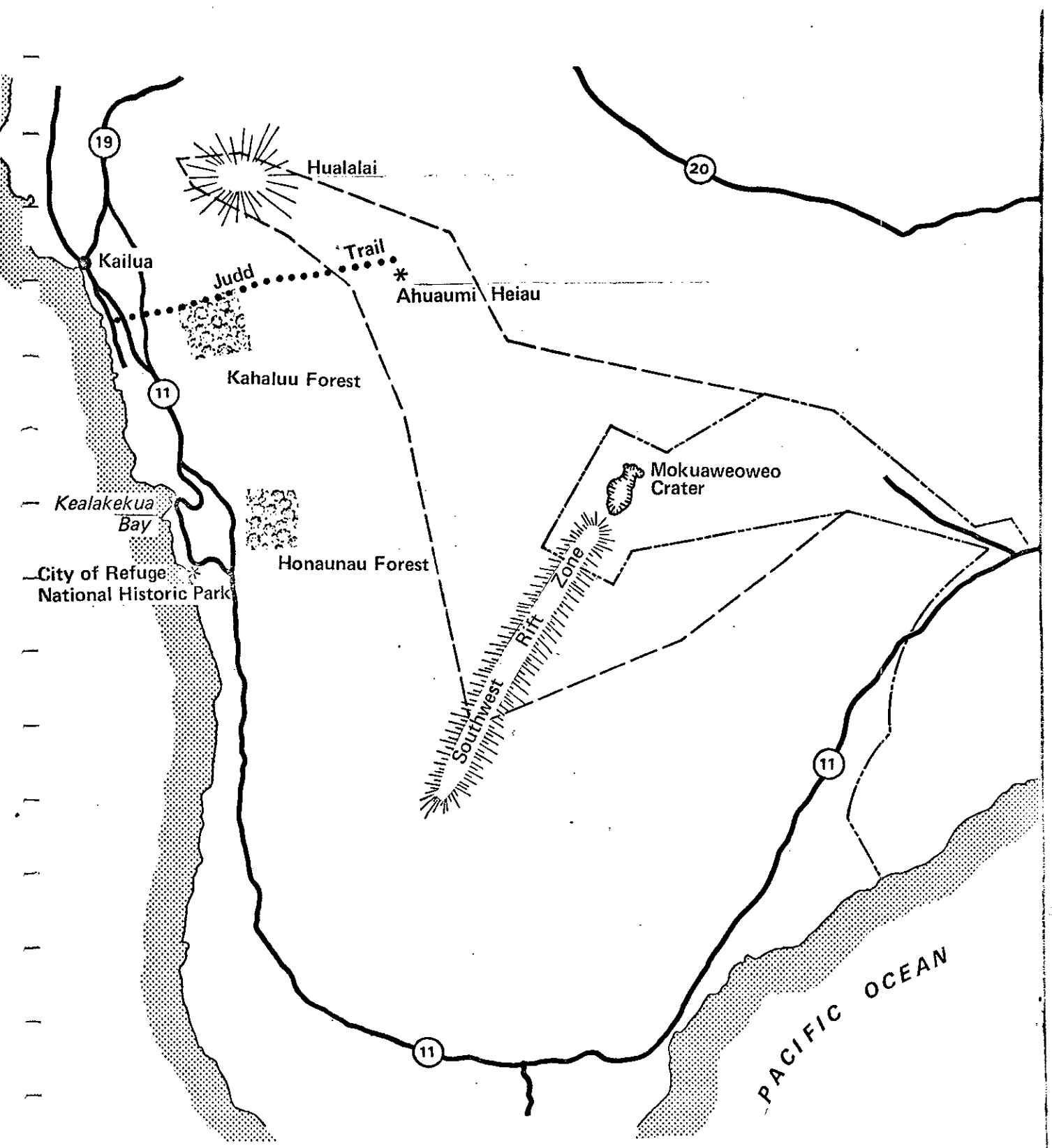
> After a day's travel they (his men) reached the site of the ancient temple of Kaili. These ruins lie equally distant from three mountains, Mauna Kea, Mauna Loa, and Hualalai. This temple is said to have been built by Umi, who with his wife, Papa, is supposed to have inhabited it when he was king of the island. The northern pyramids forming the front were originally erected by Umi, to represent the districts of the land he then governed; and as he conquered other districts, he obliged each of them to build a pyramid on the side of the temple. All these are built of compact blocks of lava, laid without cement. The building is said to have formerly been covered with idols, and offerings were required to be brought from a great distance, consisting generally of provisions. There are now no traces of these idols. The situation of the temple is at an elevation of 5,000 feet above the sea.

Other stories present the feature as ancient Hawaii's first census, with each district contributing a stone for each man, woman, and child, with the largest pile indicating the most populous district. In addition, the Kaili title may refer to the family war god, Kukailimoku, held by Umi and passed down to Kamehameha the Great in historic times. This title, with a plan of the structure drawn by Wilkes, lends credence to the structure being a major ancient temple. Research now underway on ancient Hawaiian temples may shed greater light on its significance.

The Judd Trail, a typical two-horse Hawaiian trail of the mid-1800's was an attempt to connect Kona with Hilo in a more-or-less direct line. Built by taxpayers and prisoners who worked side by side under the direction of Gerritt P. Judd, M.D. (missionary turned into His Majesty's Minister of the Interior), trail construction was aborted through two major causes: the 1859 lava flow from Mauna Loa which crossed in front of it and left new land surface too hot to handle, let alone walk over; and the logistics of supply for a work gang getting farther and farther from food and water. Remnants of the trail are will preserved and its story is an interesting sidelight on the transportation history of Hawaii.

Special Considerations

The Hualalai summit area, the upper slopes of Mauna Loa, and the interior plateau lands are in large blocks of private, State, and Federal ownership,



SIGNIFICANT RESOURCES
HUALALAI VICINITY

PROPOSED BOUNDARY

EXISTING BOUNDARY

lying above productive farm and ranchlands. The only significant development is the Mauna Loa Observatory, a research installation occupying a 4.05-acre tract of State land at the 11,150-foot elevation. The location is important because the unique, uncontaminated, clean air qualities offer unparalleled opportunities to monitor world-wide changes in the earth's upper air atmosphere.

There are three prinicpal landowners--the B.P. Bishop Trust Estate, the Samuel M. Damon Trust Estate, and the State of Hawaii. Almost all the lands are within State Conservation Districts.

The B.P. Bishop Estate manages the lands of the late Princess Bernice Pauahi Bishop for the support of the Kamehameha schools. They include most of the Hualalai summit, forest lands between Hualalai and the Kona Coast, the saddle area between Hualalai and Mauna Loa, and lands above the City of Refuge.

The Samual M. Damon Trust Estate owns Kahuku Ranch, which extends from the park boundary at 12,500 feet on the southwest rift of Mauna Loa to the ocean. Their holdings contain the greater portion of the upper southwest rift slopes. State of Hawaii lands, essentially barren, are above the 8,500-foot level of Mauna Loa and in a small tract on Hualalai.

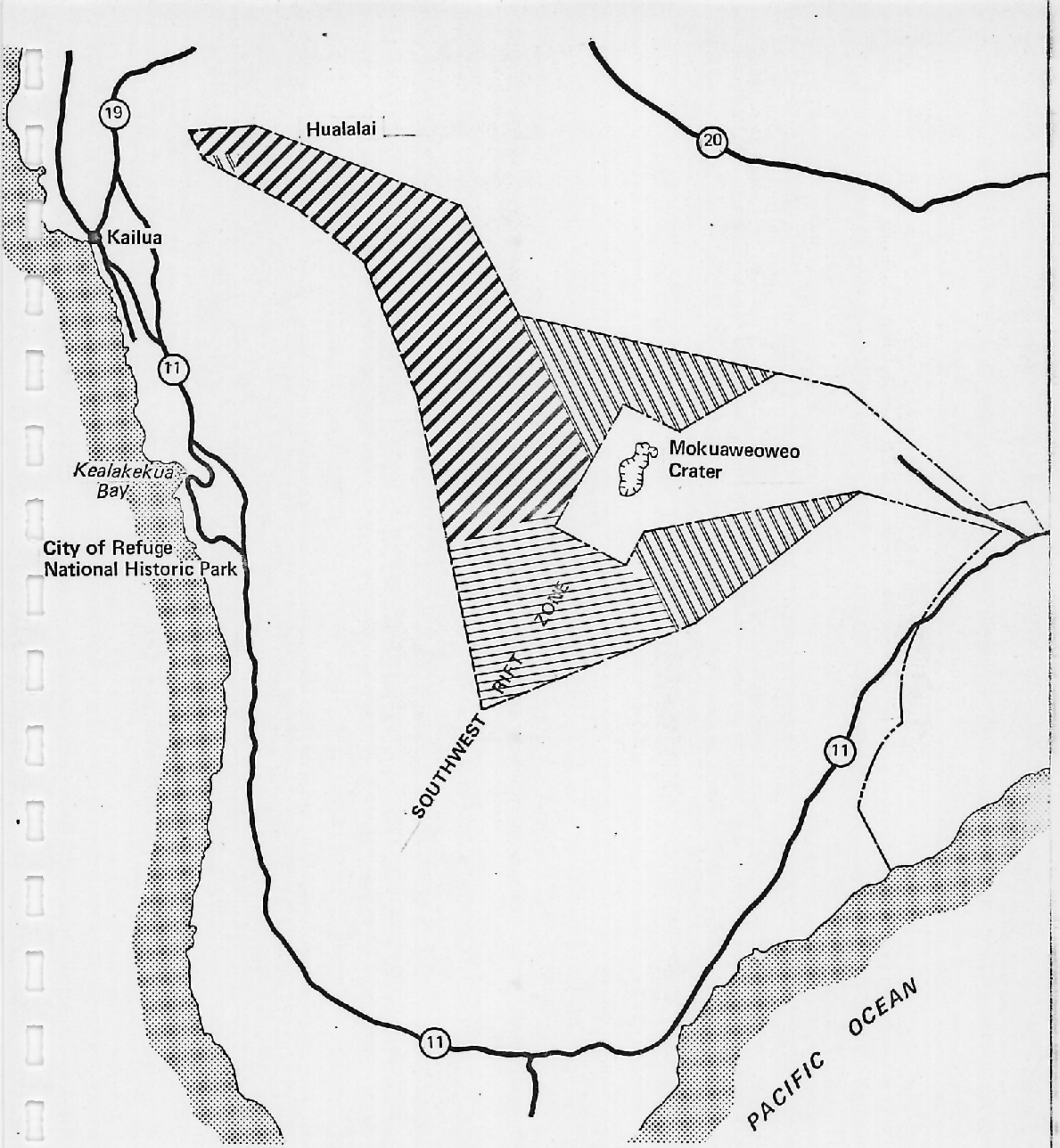
Current recreational use of these lands has been limited to a minor amount of pig and goat hunting up to the 8,000-foot level and some game bird shooting on the lower slopes of Hualalai and Mauna Loa. The best hunting is at 6,000 to 7,500 feet. Nearly all hunters are local residents who obtain permission from ranchers or landowners. There is some snowplay activity at the Mauna Loa Observatory, during the winter. Mainly, however, such use is limited to the summit of Mauna Kea.

Weather conditions are vastly different from those on the nearby sunny Kona Coast. At the higher elevations on Mauna Loa and Hualalai there is almost daily occurrence of dense fog, the band of greatest concentration being from 6,000 to 10,000 feet. This condition usually starts developing in midmorning and persists until early evening. In the winter months there is often snow on Mauna Loa down to 9,000 feet. Depths range from a few inches to a foot during any one storm.

PLANNING CONSIDERATIONS

Legal

The Congressional Act of August 1, 1916 (39 Stat. 432) authorized Hawaii National Park on the Islands of Hawaii and Maui in what was then the Territory of Hawaii. The act gave the Secretary of the Interior authorization to permit the erection and maintenance of buildings in the park



LAND OWNERSHIP

—— PROPOSED BOUNDARY

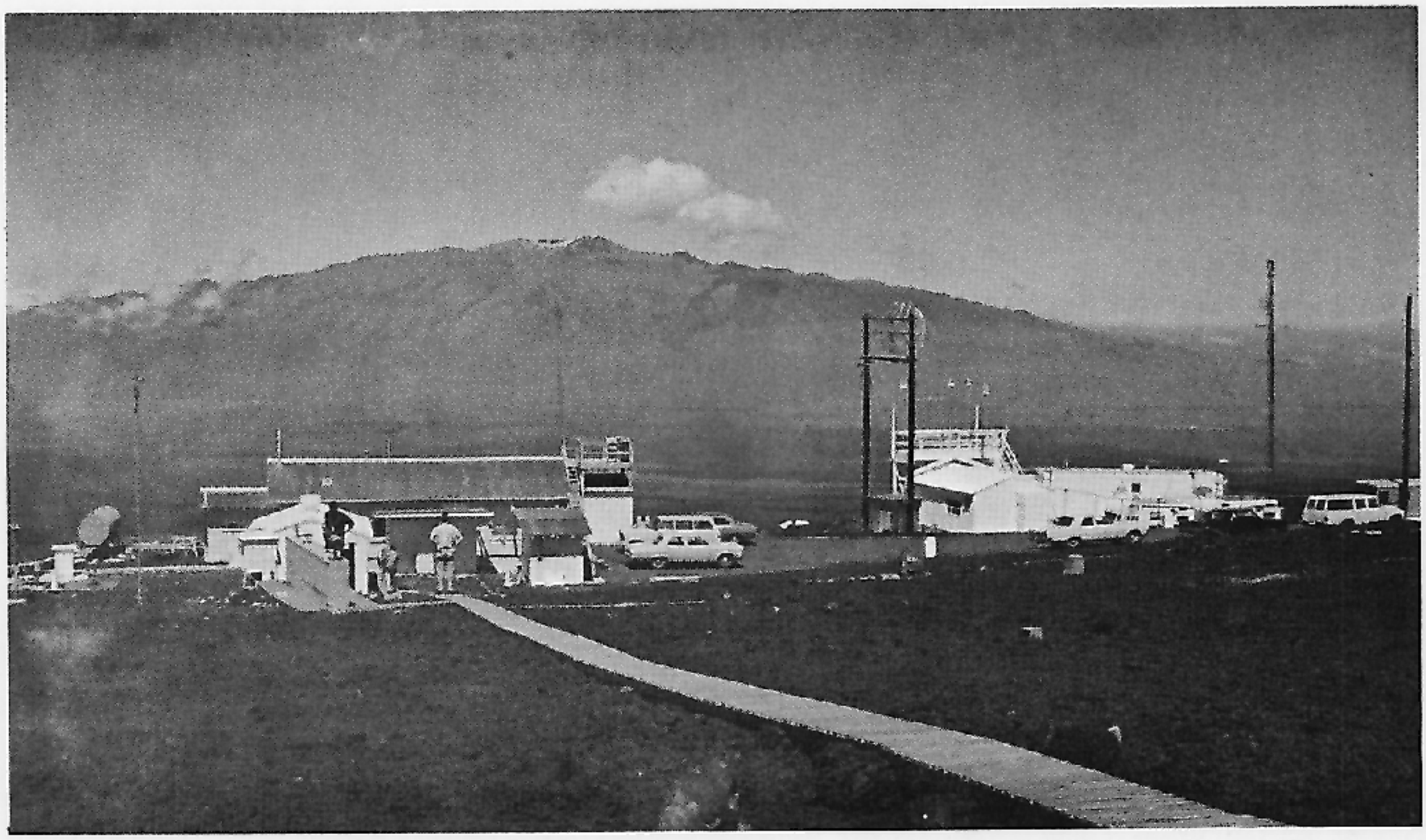
---- EXISTING BOUNDARY

STATE OF HAWAII

BISHOP ESTATE

DAMON TRUST ESTATE

Mauna Loa Observatory on the northwest flank of Mauna Loa.
This facility will be within the proposed park boundary.



for scientific purposes. Subsequent acts extended the boundaries of the park: Act of May 1, 1922 (42 Stat. 503); Act of February 12, 1927 (44 Stat. 1087); Act of April 11, 1928 (45 Stat. 424); and the Act of June 20, 1938 (52 Stat. 781).

The park was created from federally-owned lands and donation from the the Territory of Hawaii (later the State). The Act of February 27, 1920 (41 Stat. 452), authorized the Governor of the Territory to acquire privately owned lands and rights-of-way within the boundaries of the park.

The 1938 Act also had special restrictions regarding land acquisition. It stated:

> That the United States shall not purchase, by appropriation of public moneys, any land within the aforesaid area but such lands shall be secured by the United States only by public and private donations.

The Territory, and later, the State of Hawaii, acquired most of these lands for the United States through donation, exchange, and condemnation with purchase.

Further, section 3 of the 1938 Act gave the Secretary of the Interior the discretionary authority to allow homesite leases within the Kalapana Extension to Hawaiians. It also restricted fishing along the coast to native Hawaiians of the Kalapana area and persons guided by them. The term "native Hawaiian" is defined an any descendant of not less than one-half part of the blood of the races inhabiting the Hawaiian Islands previous to 1778. The Kalapana Extension boundaries are shown on the Wilderness plan on page 20.

Exclusive jurisdiction for park lands was assumed by the Federal Government by an Act of Congress on April 19, 1930 (46 Stat. 227). There were also later amendments to this act.

The Olaa Forest Tract of 9,654.00 acres was obtained by donation of ceded Territorial lands in 1951 and 1953 (Executive Order No. 1640 by Territorial Governor Long, November 28, 1952). The National Park Service owns and has protective custody of the Olaa Forest Tract even though the land is not contiguous to the park. Under terms of the 1938 extension act, all lands must be adjacent or contiguous to the existing park before actually becoming part of Hawaii Volcanoes National Park. Governor Long's executive order, donating the Olaa Forest to the National Park Service, specified that the Olaa lands were ". . .for a national wilderness area to be under the control and management of the National Park Service. . ."

In 1961, Congress changed the designation of the park on the Island of Hawaii to "Hawaii Volcanoes National Park," (75 Stat. 577), approved September 22, 1961, and created a separate national park, "Haleakala National Park," on the Island of Maui.

Current gross park acreage is 229,640 acres not including new lands added by the recent Mauna Ulu eruptions. Of this, 217,030 is federally owned and 12,606 is privately owned, and 4 State owned. The Olaa Forest Tract, mentioned above, is included in this acreage figure. The most recent land acquisitions, in 1972, were Ainahou Ranch of about 6,324 acres and a small 30-acre parcel near Thurston Lava Tube.

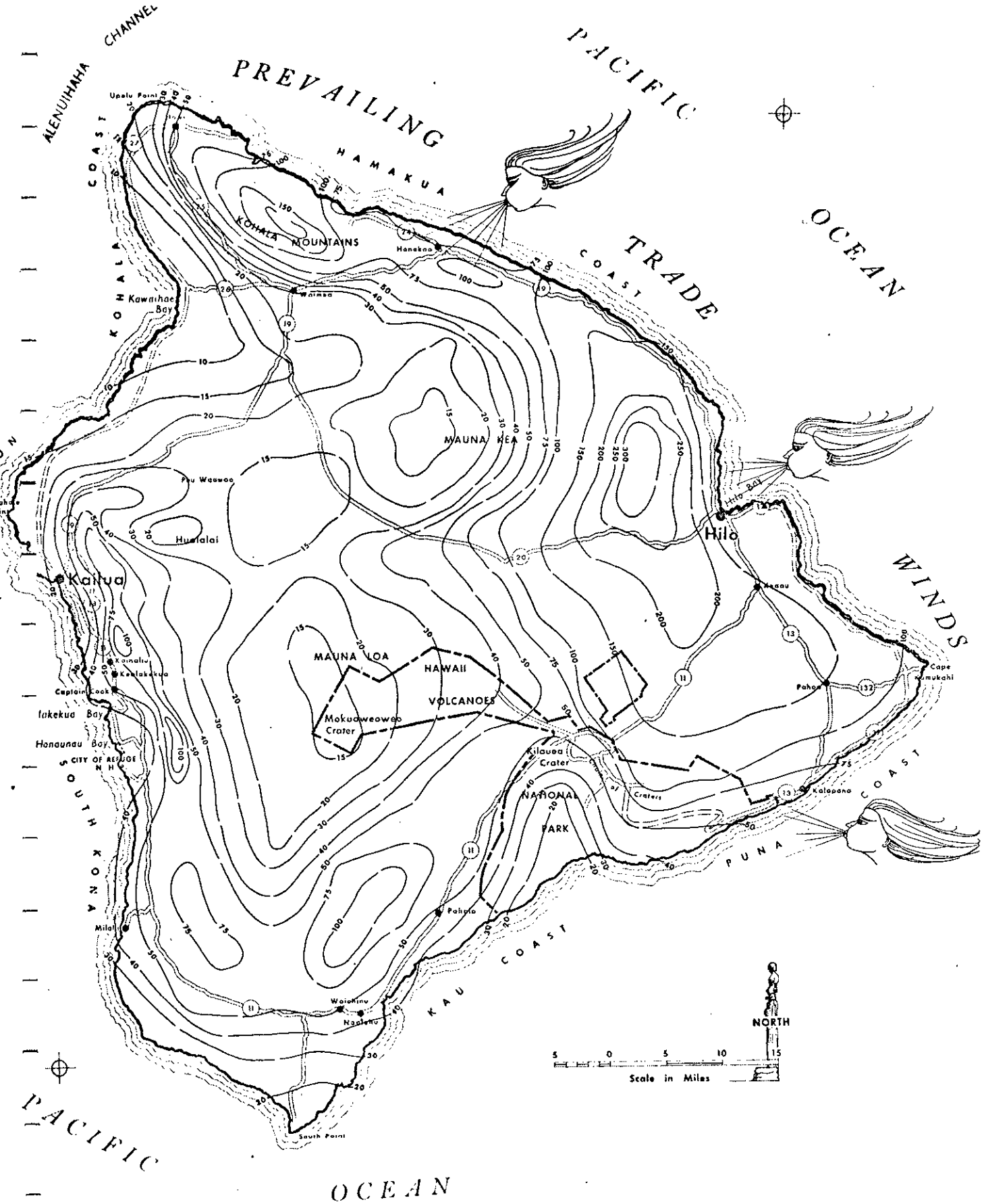
Climate

Weather is an important influence in determining the current and future visitor-use pattern. The climate at the 4,000-foot elevation around Kilauea is too cool and damp to be conducive to pleasurable overnight use, particularly when compared to the warm coastal areas where resorts are located. In 1951, there were only 15 days when no rain fell on the Kilauea area, and mean temperatures range from 50 degrees to 70 degrees Fahrenheit. The accompanying graph indicates the great range in temperatures in different sections of the park.

Rainfall varies greatly throughout the park and from year to year. One particular year may have 2 to 3 times as much precipitation as another year. The wettest parts of the park are on the northeast or trade wind side of Kilauea. At park headquarters the average annual precipitation is 99.9 inches while 2 miles from headquarters on the Kau side of Kilauea, near the proposed location of the major interpretive center, the average is 48 inches.

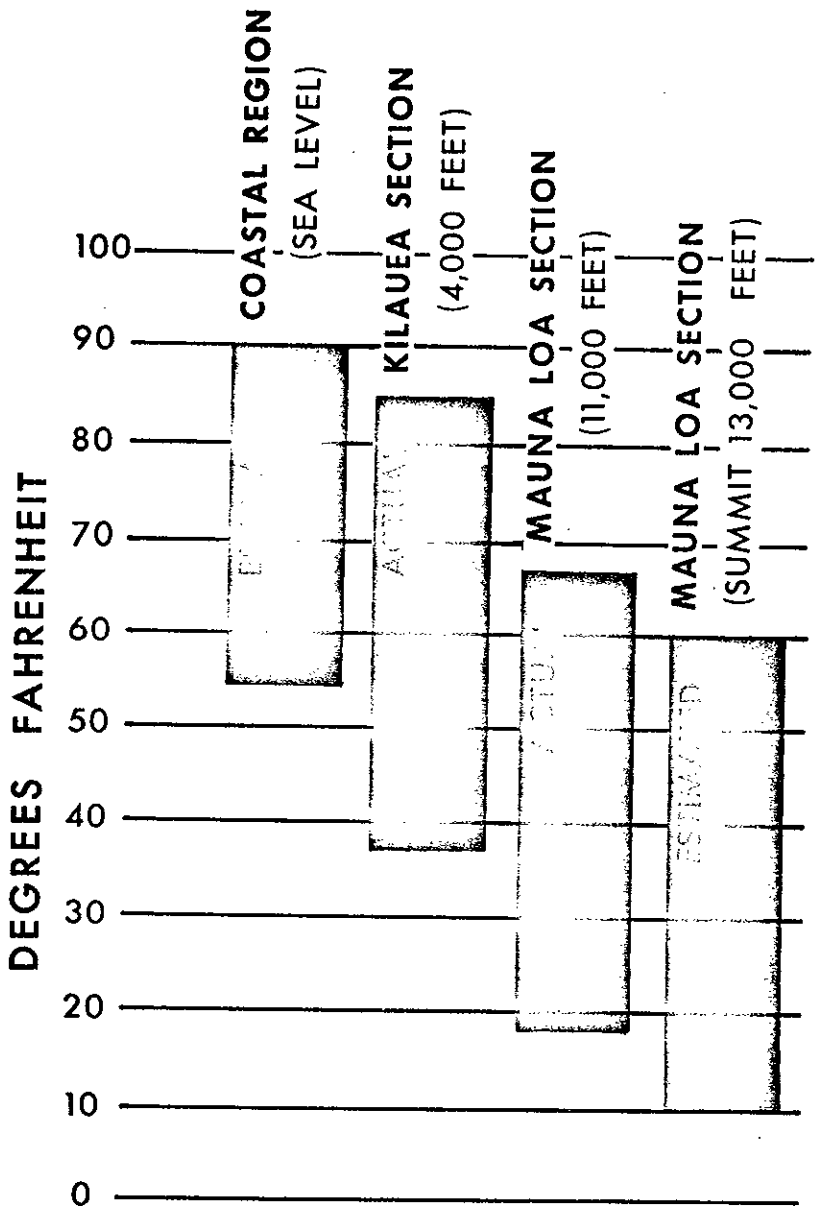
Along the ocean the rainfall varies from 15 to 60 inches annually. At the summit of Mauna Loa the average annual rainfall is 15 inches. Snowfall occurs at times above 9,000 feet where depths up to a foot have been noted. There generally is a mantle of snow on Mauna Loa for several months during the winter. Frostline is at about 5,000 feet.

Several special conditions are also worthy of mention. Heavy rainstorms over periods of several days occur with rainfall in amounts from 15 to 20 inches. Electrical storms are infrequent and mild, but may occur any month. Strong tropical winds (Kona winds) blow once or twice a year, inflicting damage on buildings and vegetation and causing minor flooding to the pali sections of the park. The entire park lies within the storm track of Pacific hurricanes. The northeasterly trades prevail from March to November. Their velocity is generally 10 to 20 miles per hour, with higher gusts in exposed areas. There is also a tsunami (tidal wave) danger along the low sections of the park coastline. Points above the 50-foot contour are considered safe.



AVERAGE ANNUAL RAINFALL

AREAS OF 100 OR MORE INCHES OF RAINFALL



TEMPERATURE EXTREMES

The Civil Defense Agency warns backcountry users of potential tsunami danger as part of the Statewide warning network.

Special Conditions

The most obvious condition unique to Hawaii Volcanoes is the frequent volcanic eruption. Since 1969 activity has been almost constant and has covered about 30 square miles of the park with new lava including about 10 miles of road, created some new land where previously there was ocean, covered many acres of vegetation, and completely changed the face of the land in many locations. Each new eruption or change in eruption pattern stimulates new and heavier visitation and creates the obvious problem of safety, often in areas inaccessible by road or previously not frequently by visitors. Moreover, since 1969, eruptions have caused 50 to 100 fires per year.

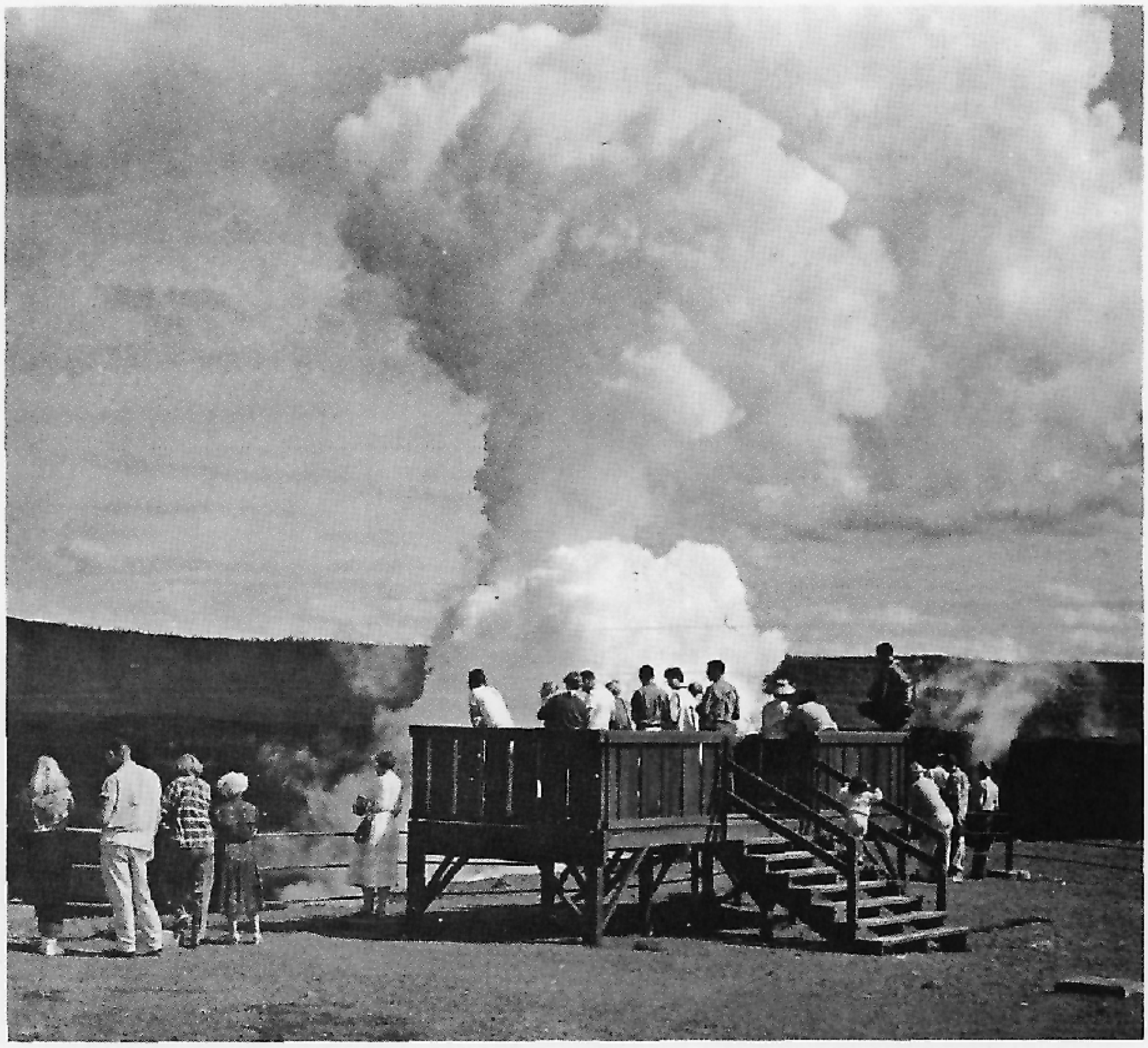
Since much of the park is covered by unweathered lava, there is little soil depth and permeability is excellent. There is soil consisting of weathered ash deposits up to several feet in depth at Kipuka Puaulu, Kipuka Ki, and elsewhere on the lower slopes of Mauna Loa.

Water availability is especially significant. Even with heavy rainfall the water table is very deep. Due to the extremely porous fresh lavas, there are no running streams in the park and few on the island. Water for domestic use in the Kilauea area is collected from extensive rain sheds. Current storage capacity is about 8 1/2 million gallons, and is inadequate.

Other dangers are also present in the park. High surf dashes against the base of the cliffs, presenting a danger to shore fishermen and shellfish gatherers. Volcanic cracks throughout the Kilauea area make building-site selection difficult and are a hazard, especially in heavily vegetated areas. Water mains must be placed above ground to prevent ruptures from quake activity. This same activity also causes road damage along the park roads.

Finally, there are special cultural considerations unique to Hawaii. The existence of numerous historic and archeological sites must be protected in any development and use program, even though many of these may not be suitable for interpretation. More important, even where it is determined to stabilize and interpret specific ruins, special care must be taken since most living Hawaiians have considerable reverence for their cultural past and insensitive treatment of physical remains may further diminish a culture that has already been greatly affected by European and Asian influence.

Halemaumau Overlook--A facility similar to this was closed to visitor use only hours before it fell into the active crater below.



Visitor Use

Visitor use at Hawaii Volcanoes National Park is year-round, 90 percent day use, and increases greatly during periods of volcanic activity. It is usually more than 100,000 a month year-round. Total yearly visitation has gone from a little over 300,000 in 1950 to 1,400,000 in 1972. Particularly heavy visitation occurs during eruptions at which time the concessioner's overnight facilities are nearly always full.

Park visitation is essentially from three basic sources. Over 50% are off-island visitors, both on commercial tours and those driving rental cars. Other visitors come from Kilauea Military Camp or are local island residents.

The majority of off-island visitors see the park in organized tours. Kilauea is a major stop on the Hilo-Kona (and reverse) tours. Seven companies serve the park, using 11-passenger limousines and larger conventional buses. They carried almost 400,000 visitors through the park in 1972. In the summer, 1,200 to 1,500 persons tour the park each day; the "off-season" average is about 800 to 1,000. The tours are usually in the park between mid-morning and mid-afternoon and almost all make a lunch stop at the Volcano House, where from 800 to 1,500 are served each day.

The balance of off-island visitors see the park in rental automobiles. There are presently about 500 rental cars available on the island and on the average, 75 percent of the cars rented each day are driven to the park.

Residents use the park somewhat less than off-island tourists, but make up a greater portion of eruption-viewers. They also come to picnic, sightsee, hike, and, to a limited extent, to camp and fish. The farthest islander resides within a 2 1/2-hour bus drive of the park and more than half the 62,000 residents live within an hour's drive. Their use is almost entirely during the day.

Park visitation increases greatly during period of volcanic activity. Thousands of people flock to the park, mostly between dusk and midnight, to see the vivid eruption displays wherever they occur. Crowds of 20,000 a night have witnessed the more dramatic eruptions.

The continuing rise in park visitation noted earlier is the result of the tremendous increase in tourist travel to the Hawaiian Islands and the increased popularity of the "Outer Islands." The completion of the Chain of Craters Road in 1965 further stimulated use by opening a one-day loop trip through the park from Hilo. And even when the road was subsequently closed by an eruption in 1969 and still remains closed, visitation continues to increase. The predominant effect of the road closure is the limited use of the Kalapana Coastal area.

Limited recreational resources such as beaches or small bodies of water, plus the damp cool climate of the Kilauea area greatly limit the usual overnight camping use associated with most large mainland parks. Local residents tend to prefer this activity to be associated with the island's warm beaches and shoreline where they will be near opportunities for fishing and swimming.

There are, however, three small campgrounds with a total of 22 sites at Kamoamoa (along the coast near Kalapana), Hilini Pali (at the 2,200-foot elevation), and near Namakani Paio near Kilauea. In 1972, these accommodated about 2,500 overnight visits, more than double what was recorded in 1967. The map on page 64 shows the location of campgrounds and other existing overnight accommodations.

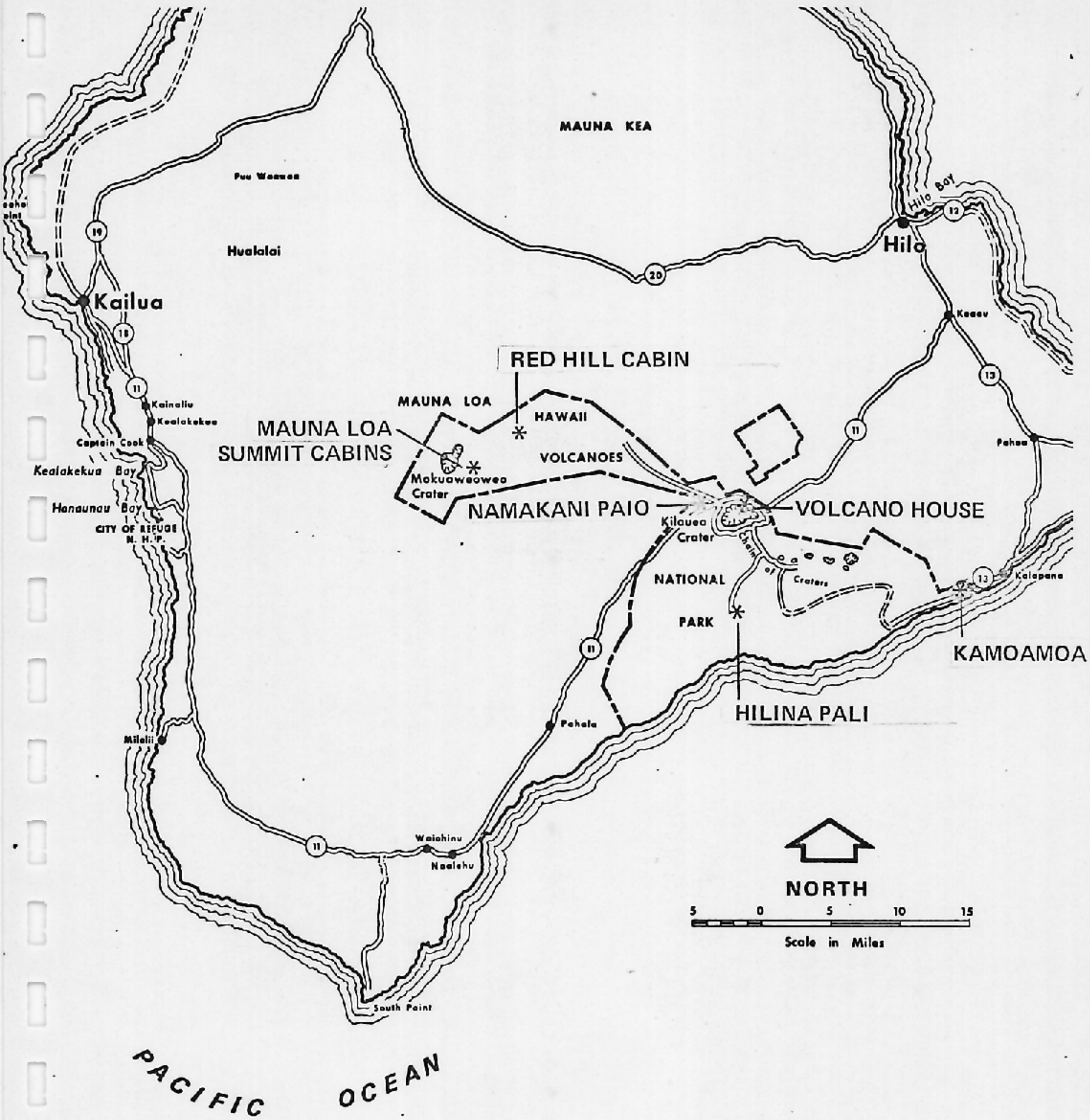
Three types of visitor overnight accommodations are located on or near the Kilauea caldera rim. The original Volcano House and its successors have been used by visitors from all over ght world since 1866. The presenr structure is an 83-guest-capacity lodge directly on the Kilauea caldera rim, and is operated by the park's concessioner, C. Brewer Corporation. The return of almost constant eruption activity and a recent upgrading of that facility have been at least partially responsible for the greatly increased use at this facility. The occupancy rate during the park month of August 1972 was 100%.

Namakani Paio Campground includes a 10-unit camper cabin facility operated by the park concessioner. It was constructed by the National Park Service in 1965 to provide low-cost overnight accommodations. Each unit sleeps four and has an outside picnic table, grill, and lights.

Use of this facility was initially very light, but has been growing. Heaviest use is in the summer and during eruption periods when the average occupancy approaches 100%.

Kilauea Military Camp provides a complete, year-round, recreational vacation program within its 50 acres for active and retired members of the Armed Forces and their families. The camp is on the Kilauea rim and provides overnight accommodations for 300 people. Its program includes guided tours of the park and surrounding points of interest. The camp operates under a National Park Service special-use permit and has been in existence since 1916. It is administered by an Army officer who has a 57-man complement of Army, Navy, Air Force, and Marine Corps personnel, and 24 civilian employees. It operates at capacity during the summer and at 55 percent capacity during off-season, but off-season use is increasing.

Day-use activities are varied both in scope and in popularity. Automobile and bus sightseeing is the most popular activity and enjoyed by virtually all visitors as many points of interest are made available by over 40 miles of good park roads and can be readily seen in one day.



EXISTING OVERNIGHT ACCOMMODATIONS

HAWAII VOLCANOES NATIONAL PARK

EXISTING PARK LAND

PROPOSED PARK

Two air-tour companies run daily flights which include the park and use of these is steadily increasing. During periods of exceptional eruption activity, the island airlines and charter services make numerous flights over the eruption site sometimes resulting in air congestion.

Audio-visual programs throughout the year as well as exhibits at the Kilauea Visitor Center are a major part of the interpretive program. Daily programs include a talk and a color film presentation of recent eruptions. This program is geared to the tour pattern, but is suspended during periods of unusual eruption activity when interpretive contact is shifted to the eruption site.

Hundreds of persons daily hike the three short interpretive trails in the park: Devastation, Bird Park, and Thurston Lava Tube. Halemaumau Trail across the floor of Kilauea is a long, 3-mile nature trail that receives much less use and the Footprints Trail in the Kau Desert has only light use. Rough trails to eruption overlooks are built as needed; and as many as 100,000 persons are estimated to have used the trail to Mauna Ulu Crater rim in 1972 while the eruption was continuous there.

Fishing from the park shoreline is done by hook and line, throw net, and spear. The coast from the Puna/Kau District line west to Kapaoo Point (15 miles) is open to public fishing. Access to this area is by trail. The remaining 15 miles of coastline, known as the Kalapana Extension, is limited by law to sport and commercial fishing by native Hawaiian Kalapana residents and persons under their guidance. The rough ocean waters greatly limit activities such as boating, swimming, scuba diving, and skin diving.

There are three small picnic locations around the Kilauea area, two along the pali section, and one at Kamoamoa on the coast. Use is light due to frequent wind and rain, particularly at higher elevations.

Backcountry use, especially overnight camping, is also increasing. In the 1960's, only about 1,000 to 1,200 persons per year stayed overnight in the backcountry. In 1972, the number was about 2,500. This increase has occurred despite the rough terrain and lack of fresh water. Most use is along the coast below Hilina Pali where there is access to good fishing at Halape, Kakiwai, and Apua Point. There is also some use of the trail to Mauna Loa's summit, where two cabins open to visitor use provide minimum shelter in this cold climate. One is at Red Hill at the 10,000-foot level and the other is at the eastern edge of the summit caldera. The existing backcountry cabins are shown on the wilderness map on page 20.

FUTURE OF THE ENVIRONMENT WITHOUT THE PROPOSAL

Without the proposal, general use patterns in Hawaii Volcanoes National Park would change little. The predominant Kona-Hilo package tour would continue. Only the use of the triangle tour (Kilauea to Hilo to Kalapana) would be impossible without replacement of the Chain of Craters Road. The Hualalai area would also remain as it is now - inaccessible except by 4-wheel drive vehicle over private lands.

Backcountry use along the coast would continue at about its current level with likely continued increase but with no increase in facilities such as trails or shelters.

Concerning the inherent natural resources, current control programs would continue but only at the same level and with existing techniques and programs and with nearly the entire concentration on goat control.

Land proposed for acquisition would generally be retained in its current use. There are no known plans for development of Hualalai, the saddle between that area and Mauna Loa, and the upper slopes of Mauna Loa would thus remain unused except for occasional grazing, infrequent hunting and continuation of the scientific installation at the Mauna Loa Observatory. The same continuation of current light use would be the case on Tract 22 within the authorized boundary and proposed for acquisition. On parcels 13, 14, and 15 mauka of the Kalapana road, subdivision occurring on land further mauka in Tract 19 would likely expand onto these lands, and Tract 19 itself would continue to be subdivided. The residential uses in Tract 20 would remain and likely expand.

ENVIRONMENTAL IMPACT OF THE PROPOSED ACTION

The general impact and goal of the master plan proposals is essentially threefold. First, the visitor will be provided with the opportunity for a great variety of park experience, from visiting the rim of Kilauea Crater or new eruption sites such as Mauna Ulu to view the spectacle of volcanic activity, to the wilderness experience of hiking along the coast or to the top of Mauna Loa. Second, the complex of Hawaiian ecosystems will be managed to maintain it as nearly as possible in its natural state and protected from further invasion by exotics as well as attempt to return disappearing native species to their former range. Third, the active volcanic features and their environs will be managed in such a way as to provide optimum conditions for continuing volcanic research.

To accomplish this goal, specific actions will be necessary. There are boundary proposals, new developments, new management practices, and research. Each has its own specific impact but all have the overall effect of helping to insure that this complex geologic, biologic, and cultural resource will retain its integrity but at the same time continue to be available for the enjoyment of visitors now and in the future.

IMPACT ON LAND USE AND OWNERSHIP PATTERNS

Impact results from the proposal to add approximately 102,800 acres to the authorized boundary, purchase some 18,000 acres within the boundary and delete about 4,900 acres from the park. The overall impact of this action will be to add a major new related geologic feature (Hualalai Volcano) to the park and retain within the park only those resources whose integrity can reasonably be maintained. It is not anticipated that displacement of any persons will be required as a result of acquisition since there is no human habitation on any of the land except at the lower end of the Hualalai road right-of-way. The impact of specific parcels to be acquired or deleted follows. See the map on page 3 for location of individual parcels.

Land Parcels Within the Authorized Boundary

Since the Olaa Forest Tract is already Government owned and administered by the National Park Service, the only action proposed is to make it officially a part of Hawaii Volcanoes National Park. Thus no change in ownership or use will result.

Deletion of Tract 20, northeast of Kilauea, will result in no change in the existing land use pattern, since the Federal Government has heretofore had no real involvement in how the land was utilized.

The impact of adding Tract 22 is that an additional 6,000 acres of virgin ohia and fern forest will be placed under the permanent protection of Federal ownership. Alternative uses of this parcel are few--subdivision and harvesting fern trunks--as a media for orchid culture and for carvings or kihis. The former is a lucrative business on the Big Island, and many areas are still available for such harvesting. Use for residential purposes must be considered marginal because of heavy rainfall, cool temperatures, and it lies directly adjacent to an active portion of Kilauea's southeast rift. Because of these facts and since there is little use made of the land now, the impact on the present landowner and on the land use pattern is minimal.

Only about 420 acres of Tract 19, near Kalapana Visitor Center, is proposed for acquisition. The impact of this action is associated with use of the adjacent Kalapana road, the visitor center, and the heiau and its surroundings. The land proposed for deletion includes the Punaluu Heiau, the Queen's Bath, and other archeological ruins. From time to time the State has considered Queen's Bath a potential State Park. Other than this possibility, this proposed deletion will likely become more heavily residential, similar to Tract 19. Roads and utilities are already provided for most of the mauka land.

Tracts 26 and 27, near Kapaoo Point, are part of the geological phenomenon called the Great Crack. Acquisition of these lands will complete the inclusion of this major physical feature within the park boundaries. Possible alternative land use is grazing, but is considered marginal. Resort development of this coastal area is generally sub-marginal because of wind, remote location, lack of beaches, and rough lava shoreline. Therefore, the impact on the present landowner is minimal. Dr. Gordon Macdonald considers the hot water area at Waiwelawela a possible prospect for development of geothermal energy. It is proposed, however, that if late research finds it practical to develop this potential resource, it will not be acquired for park purposes. Therefore, the impact of the proposal on development of energy sources will be negligible.

Proposed Boundary Additions

Addition of 2,700 acres of tideland and water will extend the protection of national park status to 1/8 mile from high tide line. There will be negligible change in existing use patterns as a result of acquisition, since existing use is fishing and that very light.

This larger addition to the park is the Hualalai-Mauna Loa complex consisting of about 100,000 acres. The impact on the land use pattern, and therefore on the present owners, will be minimal. The upper slopes of Mauna Loa, being unvegetated lava fields, are unused except for the Mauna Loa Observatory, a research installation which will remain. The saddle area between Mauna Loa and Hualalai likewise supports no existing or potential use except for occasional hunting for pigs, goats,

or sheep. Grass cover on the extensive cinder fields is sparse to non-existent so that grazing would be, at best, marginal. Hualalai's summit area is more heavily vegetated, especially on the west slopes, and grazing could take place here. Again hunting use is very light because of difficult access and the necessity to obtain permission from landowners.

Acquisition of the road right-of-way from State Route 11 to the proposed boundary is the only such action involving residences and an active agricultural industry--mainly coffee plantations. Depending upon the specific right-of-way location, it is estimated that a maximum of 5 residences would be disturbed and not more than 2 acres of agricultural land would be removed from production. The remaining right-of-way acreage is predominately forest cover with grazing as the only existing use that would be terminated by acquisition.

The northwest rift of Hualalai and the southwest rift of Mauna Loa are considered potential geothermal energy prospects, and the upper portions of these rifts are proposed for addition to the parks. The larger portions of these rifts, however, will remain outside the park.

IMPACT ON GEOLOGICAL RESOURCES

As a result of the acquisition of the Hualalai-Mauna Loa complex, consisting of about 100,000 acres, two major land forms will be added to the national park--the summit of Hualalai Volcano and the upper flanks of Mauna Loa Volcano. Thus a more complete representation of the geologic phenomenon of active Hawaiian volcanoes will be available for continuing research and interpretation to visitors.

Management and development programs will have negligible impact on the vast and complex resources of relatively stable areas such as Hualalai and the lower elevations of the existing park. The periodically active volcanoes of Mauna Loa and Kilauea have their own singularly effective way of maintaining their integrity despite any human endeavors to the contrary. The only direct impact on these resources involves drilling into the hard surfaces of congealed lava lakes to continue to provide information on cooling rates or on special projects associated with the earth's thermal activity. This usually results only in a hole in the surface of the lava a few inches across. The visual disturbance of the drilling rig during the actual operation is the most adverse effect of these actions.

IMPACT ON VEGETATION

There are specific proposed practices aimed at controlling or removing competing exotic species that are a continuing threat to endemics. Each has its specific impact on vegetation. The proposed goat control operation

probably has the greatest potential for protection of endemic plants. The total impact of the National Park Service management and research program is that endemic plant populations will have a much greater opportunity for survival than would be possible without these programs. Moreover, species that have disappeared from major portions of their original habitat will be, to the extent possible, reintroduced. The cumulative effect of such a program, if successful, will be that by reestablishment of certain plant communities, which will then have a greater chance of survival.

Another significant impact of the specific research projects noted in the description of the proposal will be the proliferation of knowledge that will be the basis for further refinement of resource management practices. Some studies such as location of ecosystem boundaries have park-wide effects, and others, such as research on life histories of endangered plants, directly affect only single species in or on portions of the park environment. All will have ramifications reaching far beyond park boundaries.

The deletion of Tract 20, northeast of Kilauea and portions of Tract 19, near the village of Kalapana, will result in some potential danger to adjacent plant communities within the park. In the case of Tract 20, probable increased development is adjacent to concentrated park development around Kilauea, except at Kipuka Puaulu or Bird Park, where several rare, endemic species of plants and birds are found. In Tract 19, there will be a continuing danger that exotic plant species will invade park land directly to the west as residential development brings with it a great variety of these plants for landscape use.

Because direct control of exotic plants is proposed for specific areas and limited to particular species its impact will be limited. Roadsides; trails, such as the Devastation and lava tube trails; historic settings; and developed areas will retain, as nearly as possible, an environment of endemic plant species. Particular plants to be removed include blackberry and fayabush. The details and relative success of possible future control programs that reach more of the park's acreage is dependent upon research, therefore impact cannot be adequately assessed at this time.

Olaa Fern Forest is perhaps the most intact ecosystem within the boundaries of the park. The proposal to designate it as a research natural area will help ensure the continuation of its integrity. The only known potential for major change is that introduced by scientific research and by management personnel entering the area. Here there is the ever-present danger of introducing exotic plants by disturbance of the soil and transportation of seeds on clothing. Visitors will be allowed only in the small detached portion of the forest in the southwest corner. Thus designation as a research natural area will deprive visitors of a wilderness experience in the main forest.

Olaa Forest--The bulk of this ecosystem is proposed as a research natural area to protect it from invasion by exotics.

A more detailed discussion of research and management programs is included in the resources management plan and its accompanying impact statement. There will also be some direct impact on the land, and thus the vegetative cover, resulting from construction of new park facilities. The primary use zone and its facilities, discussed under description of the proposal, will encourage the heaviest use and thus the greatest resource impact. The only major new facility, the Chain of Craters Road, will disturb about 50 to 75 acres of land, and about 50 percent of this could be returned to natural condition. Included in this same project will be the necessary parking areas, overlooks, and interpretive facilities. In addition, construction of a new visitor center on the caldera rim at Uwekahuna will include building, parking, and utilities. This will disturb a maximum of 10 acres, for paving, utility lines, and building construction itself. Over half of this area can be returned to natural conditions after construction is completed. In the Kalapana coastal area the expansion of campgrounds is expected to affect about 3 to 5 acres of land for roads, walks, utilities and comfort stations.

The master plan proposal does not specify the exact nature of the expansion of the water collection system for Kilauea's development. It is expected, however, that it will remain within or near the confines of the existing collection area. Generally, it will involve covering additional land with a rainshed. Details will be spelled out in the development concept plan and accompanying impact statement.

The Wilderness Threshold Zone contains one major new facility, the access road from State Route 11 to the base of Hualalai's summit, all within the area to be added to the park boundary. Here, the impact on the land is direct and will remove a maximum of 100 acres of what is mainly native plant cover. The land thus disturbed will provide that area necessary for roads, parking, overlooks, campground, picnic area, and management facilities. Some of the impact will be within a fragile Hawaiian ecosystem, Kahuluu Forest. Use of this new park land, encouraged by the construction of an access road, will increase the danger of introduction of exotic species on this heretofore inaccessible resource. And the near wilderness atmosphere that now exists will be diminished by more intensive use, mainly within the 100 acres disturbed by construction and, to a lesser degree, in the immediately surrounding roadless area, including the summit of Hualalai. The latter area also contains several species of rare plants such as sandalwood. Perhaps even more important is the proximity of nesting area for nene and Hawaiian crow.

There will also be some impact on lands adjacent to the proposed road. Provision of access to this heretofore roadless area will stumulate uses such as residential development and agricultural use. The extent of this impact is unknown at this time and will depend to a great degree on local zoning controls.

Threshold zones in the existing park are proposed to remain at their present state of development, except for minor road improvement and campground development in the Ainahou vicinity. Impact of the minor road improvement and campground will be covered in greater detail in the development concept plan and impact statement. The extent of impact, however, will involve a maximum of 15 to 20 acres adjacent to the road and 5 acres for campground development. More than half of this is within the recently purchased Ainahou Ranch, an area that has sustained grazing activity for many years.

Information provided to the visitor about wilderness threshold areas will stimulate increased use, and this will probably have the greatest impact. Additional compaction of soil, trampling of vegetation, and increased fire danger will result.

The Backcountry Zone will be able to sustain considerable additional use and under more desirable conditions. New trails, backcountry shelters and expanded interpretation will encourage this use. The coastal area will have conveniently located shelters and water supply. Thus, a much greater variety of park experience will be available to more visitors. As a result the entire backcountry will experience minimal impact from additional use. But, there will be greater pressure on coastal resources. The land around the new shelters will receive heavier use and endanger plant materials in the vicinity.

Impact from backcountry development will result from construction of new trails and backcountry shelters in the coastal area. Najor new trails will be built around the Hualalai summit and a connection across the saddle area to Mauna Loa. The maximum amount of new trails will be about 50 miles. Little or no impact on plant cover will result from construction since nearly all trails will pass over barren lava, cinder fields or sparsely vegetated areas.

New backcountry shelters will disturb a total of not more than 1 to 3 acres for construction. Their major impact will be visual--a formal structure along an undeveloped coastline.

The proposed goat control program includes construction of new fences, as shown on the map on page 8. There will be some adverse impact on vegetation as a result of workmen installing fences. This, however, will be in limited areas at the fence line themselves and total long-term impact will be minimal.

IMPACT ON WILDLIFE AND MARINE RESOURCES

As is the case with vegetation, the impact of the proposals on wildlife will generally offer native populations a greater opportunity for survival through control of exotic species that compete for use of the environment. Specific species of native animals affected include rare and endangered birds such as the Hawaiian crow (still present in the Hualalai area), the nene goose (present on Hualalai and in the existing park), the dark-rumped petrel, and other species of Hawaiian birds that reside in the ohia-fern forests and particularly at Bird Park near Kilauea. Deletion of Tract 20, near Bird Park, will result in a continuing potential threat to bird populations there because of proximity.

Proposed goat control programs directly effect vegetative cover and thereby the native birds that depend on that cover for survival. The fencing program will disect the park in such a way that the goat control program can be handled on a unit by unit basis. This system will help protect and restore the park environment on this same basis. Moreover, as specific fenced areas are cleared of goats there will be an excellent opportunity to reintroduce native populations in a more controlled environment. Most important is the overall impact of the goat control program on endangered endemic species. Success of the program gives them their best opportunity for survival.

Impact resulting from the pig control program is similar to the goat program except that it is currently less definitive. Since pigs tend to frequent the cool rain forest areas, the species affected by control programs are also different and include tree ferns, aiea, ae hoawa, pelea, and native grasses, all part of the native bird environment. Further, pigs inflict a different type of damage on native biota. Goats browse and pigs tend to dig into the soil itself for roots. Since details of the future control program are not known at this time, the impact of the specific measures cannot be adequately assessed.

Control of other feral animals (i.e. cats, dogs, mongooses) will also improve chances for survival of native species particularly birds such as the nene and dark-rumped petrel.

Acquisition of the offshore waters adjacent to the existing park will result in more intensive management by the National Park Service. Such management will mean that species of sea life harvested elsewhere, such as opihi, might be more carefully controlled here, thus helping to insure their continuation. An increase in visitor use throughout the park, stimulated by new facilities and increased information about

the park, will also constitute an added threat to wildlife. This will be especially true in backcountry areas where there are new shelters and trails proposed and in wilderness threshold areas where use has previously been quite light. This impact, however, is almost impossible to quantify at this time.

IMPACT ON VISITOR USE

The general use pattern at Hawaii Volcanoes will change little as a result of the master plan proposals except where new facilities are proposed. The proposal to replace the section of the Chain of Craters Road now covered by lava will expand the opportunities for viewing and appreciating recent lava flows and the adjacent biotic communities. Specifically, the visitor will be able to go from the 7,000-foot elevation of the Mauna Loa strip to the coast, experiencing many changes in climate and biota, dramatic examples of recent volcanic activity, and a variety of historic and archeological features. The new road to Hualalai and its attendant facilities will open this heretofore unaccessible area to visitor use and provide a new dimension for interpretation of geologic, biologic and historic features.

Changes in the facilities in the Kilauea area will be largely minor changes in road alignment and circulation and construction or relocation of trails. There will be some impact resulting from the use of a shuttle bus, mainly an increase in flexibility for handling large numbers of visitors during eruptions. Such activity can occur far from existing parking areas. The shuttle bus offers a method of visitor transportation that does not require new parking areas for each new eruption, and therefore reduces impact from the changing visitor-use pattern that is unique to Hawaii Volcanoes.

Proposed management programs to control exotic species will have some adverse effect on visitor use. Goat drives currently necessitate overflights with helicopters, and extensive use of horses over much of the park's backcountry; thus, periodically destroying the wilderness atmosphere. Direct shooting, possibly, is a potential safety hazard to backcountry users. Fencing will have the greatest impact on the environment, particularly the backcountry at lower elevations. Hikers in the coastal and Mauna Loa strip areas of the park could encounter up to 5 or more fences during an extensive backcountry trip. Current known methods of shooting and trapping for control of feral pigs create the same potential safety hazard for visitors.

Trails on the Mauna Loa strip will sustain some increased use but with little or no impact on the resource since the land is almost all barren lava. The main impact will be social in that resulting crowded conditions at the Red Hill and Summit Cabins will diminish the visitor's backcountry experience. The same potential impact will exist along trails and shelter locations along the coast as use increases there.

Finally, as a result of the master plan proposals there will be a greater opportunity for a more unstructured visit. A greater percentage of visitors will be coming to the park in rental cars. This is not so much a direct result of this master plan proposal as it is an outgrowth of increased interest in park resources stimulated by education efforts throughout the system. But it will also be the result of the few changes in facilities proposed in the master plan.

The impact of the U.S. Geological Survey volcanic research program on the environment is direct, since specific installations are located throughout the park and will be occasionally seen by visitors. Existing facilities are noted on a map, page 6 of this report. They include a variety of electronic devices for measuring earth tremors, swelling of the volcanic dome, and tides. All are small, and even in the backcountry are not apparent to the visitor unless he is in the immediate vicinity. As noted in the Description of the Proposal, they disturb less than ten square feet and may be entirely below ground or 5 to 10 feet above. There are also numerous wires on the ground to some installations, particularly in the upper Kau Desert. Future research will likely require some new installations particularly in areas of new volcanic eruptions. The impact of these installations will be very similar to those existing except that as new information on electronics becomes available, there may be less need for ground wires.

IMPACT ON CULTURAL RESOURCES

Proposals included in the master plan are designed to give archeological and historic sites the greatest possible protection, while still providing for their appreciation by visitors. There are, however, some potential adverse impacts. There are no known historic features to be affected by construction of the new section of the Chain of Craters Road or the new road and attendant facilities in the Hualalai area. Moreover, more than half of the Chain of Craters Road will be constructed over fresh lava flows where there are no historic sites, and the new Hualalai Road is well above the concentrated areas of historic sites near the coast. However, a site survey will be completed to identify any such resources before construction begins.

Preservation and restoration of historic structures along the Kalapana coast will require some disturbance of the sites themselves, particularly those involving ruins stabilization. This type of operation carries with it the possibility of destruction of associated historic features, especially those not yet excavated.

The effect of historic and archeological research is largely cultural. This will improve the accuracy and effectiveness of park interpretive programs. But its impact will also reach far beyond park boundaries and interpretive programs. Greater knowledge about Hawaii's past will be of great cultural benefit to Hawaiians and add to the accumulation of knowledge about the varied and interesting mosaic of cultures that are part of heritage of the United States. Moreover, additional knowledge on location and importance of historic and archeological features will give valuable guidance in location of new park facilities to help insure that no sites are unnecessarily disturbed by construction.

For many centuries prior to introduction of European culture to Hawaii, a complex native culture flourished in the area now designated as Hawaii Volcanoes National Park. And even though no Hawaiians now live on these lands, many cultural remnants remain, particularly along the coast.

As a result of new facilities and the increased visitation thus encouraged, there will be increasing impact on Hawaiian culture as a whole and specifically on those cultural sites in the park that the visitor is invited to see and appreciate. Unless interpretation and use of cultural resources are sensitively handled, there is danger of adverse cultural impact. These are predominantly intangible but have the overall effect of presenting a distorted or superficial picture of early Hawaiians, a loss of cultural integrity, and a lessening of the dignity inherent in this very important aspect of present day Hawaiian life and an integral part of the Nation's heritage.

The physical impact on historic and archeological resources will be slight as a result of the proposal. Major potential impact will be associated with intangible cultural values and the feelings Hawaiians have toward their culture being exhibited for visitors.

IMPACT ON MANAGEMENT AND RESEARCH

Acquisition of new park land and water acreage will complicate the management programs for Hawaii Volcanoes. This will be especially true in the Hualalai area, which is remote (about 2 hours drive) from park headquarters.

In adding Olaa Forest Tract, the only impact is that management and development of this parcel will become less complicated. The amount of money or manpower thus saved is unknown, but minimal if not negligible.

For those parcels to be deleted from the park, the impact is also negligible because the land involved is very small in comparison to total park acreage.

The State of Hawaii owns and manages all other tidelands, and transfer of a portion of these to the Federal Government will mean some increase in cost since two managing agencies will be involved in a single resource type. The added cost will accrue to the Federal Government, probably a maximum of $15,000.00 per year. It should be noted also that acquisition by the National Park Service will result in more intensive management than is feasible by the State of Hawaii due to difference in intent and to limited available funds.

Impact on research both by the NPS and Geological Survey is minimal except that there will be a greater opportunity for all types of research because of the expanded boundaries and addition of offshore areas. This impact has the potential of increasing research costs.

The total impact on research and management is considered minor and generally restricted to an increase in cost.

IMPACT ON ECONOMICS

Concerning park operations, costs will be increased by addition of new park land, new facilities and added visitation. The amount is almost impossible to estimate since it involves projects and management programs now in a very preliminary stage. Added management costs, however, are not expected to exceed $150,000 per year, and the one time cost of new facilities is not expected to be over $5,000,000.

Concerning the local economy, the above mentioned costs will have a positive impact. In addition new facilities and the expanded park will likely increase visitation, mainly in the Hualalai area. These are not necessarily new visitors who would not otherwise come to Hawaii, but those already on the island who might remain a half day longer to visit the expanded park. Assuming an average of 500 visitors a day to the Hualalai (approximately 50% of the current City of Refuge visitation), an average of $41.00 per day spent by each visitors (figures from the Hawaii Visitors Bureau), and assuming these visitors remain an average of one half day, economic benefit to Hawaii resulting from new park attractions would total about $3.7 million per year.

Removal of about acres from the county tax rolls will lessen land taxes by about , in accordance with information received from the county tax office. This represents about % of the total land tax base.

Considering both the probable income to the Island of Hawaii and the effect on the tax base the total impact on the economy of the Island and State of Hawaii will be positive.

IMPACT ON AIR QUALITY

More visitors and more cars will mean additional air pollution. In addition the added emphasis on use of wild lands and wilderness threshold areas will mean that a greater percentage of visitors will be using private cars rather than tour buses. This in turn will create more atmospheric pollution per visitor than there is now.

Any action, such as new trails and encouraging additional use around the summit and upper slopes of Mauna Loa will increase the possibility of adding contaminants to the clean air environment necessary for Mauna Loa Observatory's studies.

The total impact on air quality resulting from the proposals is minimal and will not increase pollution to a point where State or Federal pollution standards for air quality are exceeded.

IMPACT ON WATER QUALITY

As a result of the proposals the impact on water quality is minimal and pollutants will not alter resources to a point where they exceed State or Federal standards. Improvements to the existing water system will involve additional rain catchment of about square feet and additional storage. The impact of this action on the environment and on water quality is minimal.

IMPACT ON SURROUNDING LAND USE

As can be noted on the land use maps of the Island of Hawaii on page 28, and the description of these uses, the only locations where development is zoned for or even likely to develop will be in the areas of Kalapana, the village of Volcano and possibly some very limited development near the southwest corner of the park. Impact at these locations will manifest itself in some added development for overnight facilities mainly in the Kalapana area. It should be noted that the vicinity of the village of Volcano contains about 1400 acres proposed for deletion from the authorized boundary. Although already partly developed for residential purposes, these lands will likely experience more concentrated residential use. None of these potential development sites is expected to approach the level of urbanization experienced at Kona or Hilo, but remain small communities of 1,000 or less residents.

Impact on the remaining surrounding lands will be even less as access is difficult and current use mainly limited to grazing and hunting. Moreover elevations above 6,000 to 8,000 feet are nearly all unvegetated stone desert. Hunting use on some lands may increase slightly as new trails are constructed on new lands to be added to the park.

In summary, impact on surrounding land use will be minimal and on most wild lands negligible. Even where some new construction may be stimulated in adjacent villages it, too, will be small since all are far removed from major shoreline resort areas expected to absorb most new construction.

MITIGATING MEASURES INCLUDED IN THE PROPOSED ACTION

Many of the adverse impacts resulting from the master plan proposals can be tied directly to increased visitor-use pressure on park land. Others are a physical change in the face of the land as a result of new development. Each of these can be mitigated to some degree by more intensive management, interpretation, and special care in the more detailed planning that follows the master plan.

Specifically, interpretation and orientation can instill in the visitor an understanding of the unique character of the insular Hawaiian environment, the dangers of its general deterioration, and particular species of plants and birds that are in danger of becoming extinct. Further, increased management and research staff can discover new methods of control that will help mitigate the effect of increased use.

Perhaps most important of all is the recognition that the number of visitors the resource can accommodate without unacceptable damage is finite and the setting of capacities, even interim ones, will provide a measure for the amount and extent of damage resulting from visitor use. Further research will act as a monitor to determine if and when capacities should be raised or lowered. Therefore, the capacities indicated in the following table should be considered as a point of beginning.

Although the use of a daily carrying capacity as shown becomes the mitigating measure to minimize damage from visitor use, the controlling factors (also noted below) vary depending on the type of attraction. At overlooks such as Halemaumau, Uwekahuna and most Chain of Craters overlooks, the controlling factor is visitor safety. This is because there is little plant cover and the lava surface can support heavy use with negligible damage. Therefore the major donsideration is safety of the visitor in constricted areas at or near volcanic craters, cracks, or other possible danger points. A similar situation exists in areas such as the Devastation Trail, Kamoamoa and Wahaula Heiau. Here, however, the capacity is controlled largely by the experience considered desirable. Too many visitors at these locations diminishes the experience for others. Special areas such as Thurston Lava Tube and Bird Park are fragile environments that require a visitor limit to protect specific native biota. The backcountry areas, including coastal zones require a combination of factors in arriving at a capacity, among them fragile historic resources, native biota, and the visitor experience. In the final analysis the major controlling factor becomes the facilities provided, be it miles of trail or the capacity of backcountry shelters to accommodate overnight visitors. All of the figures noted below were determined through a combination of observation, analysis of physical space available and the judgement of park managers and planners based on experience in this and other similar areas.

Sec. of the Park	Controlling Factors	Duration of Stay	Number at One Time	Persons Per Hour	Daily Carrying Capacity	Hours of Use
Halemaumau Overlook	Safety	30 min.	250	500	5,000	10*
Uwekahuna Overlook	Safety	30 min.	250	500	5,000	10*
Thurston Lava Tube	Park Exp. Ecol. Impact	15 min.	200	800	6,400	8
Devastation Trail	Park exp.	30 min.	100	200	2,000	10
Bird Park	Ecol. Impact	1 hour	100	200	1,000	10
Wahaula Heiau	Park exp.	30 min.	100	200	2,000	10
Chain of Craters Overlooks	Safety	1 hour	200	200	2,000	10*
Kamoamoa	Park exp.	1 hour	200	200	2,000	10
Backcountry coastal	Facilities	day or more	200-300	N.A.	200-300	24

*Except during eruption periods

As indicated in the chart, separate groups of visitors can view and utilize the farflung park resources at the same time. Almost all, however, will seek the Kilauea Caldera area sometime during their visit. Therefore, the carrying capacity for the park can be based on the number of persons that the Caldera's overlooks and trails can handle during a visitor day (approximately 10,000). During heavy eruption periods, however, this capacity will probably be greatly exceeded by special control measures that can route traffic to other special view points. Crowds up to 20,000 per day have been handled in the park during major eruptions.

Fragile resources such as Kipuka Puaulu, Thurston Lava Tube, and Olaa Forest should have a more specific limitation, since overcrowding would drive out the bird population or trample irreplaceable native plants.

Steps have been taken to initiate a 106 action in compliance with the Historic Preservation Act of 1966. It notifies the Advisory Council on Historic Preservation and the Hawaii State Historic Preservation Officer, that as a result of actions proposed in the master plan, there will be some effect on cultural sites within the park.

BOUNDARIES AND LAND ACQUISITION

With the deletion of Tracts 19 and 20 on the east boundary of the park, the resultant increasing encroachment of exotic plants will be a danger to rare plant communities on adjacent park lands. As these competing species threaten the integrity of park resources, they will be physically removed when possible.

Continuing liaison with the State of Hawaii will help mitigate the multiple management impact resulting from Federal ownership of the offshore waters.

A proposed road alignment study for the Hualalai access road will be effective in minimizing the impact on agricultural lands and on the number of residents that will need to be moved. This will be accomplished by detailed surveys and study of alternative rights-of-way to find the one most appropriate for convenience and minimum impact on local land use.

Acquisition of tracts 26 and 27, which include hot water areas at Waiwelawela, will be deferred until studies show that these tracts do not have potential to develop geothermal energy. If it is determined that energy would be developed there--these lands will not be acquired.

RESEARCH AND MANAGEMENT

U.S. Geological Survey installations will continue to be a fact of life in Hawaii Volcanoes. Continued liaison between that agency and the National Park Service will minimize the adverse affect of new installations by their location away from areas of concentrated visitor use. Moreover, providing information to the visitor on the purpose and importance of this program will minimize damage to those located where they may be easily encountered or seen by visitors.

Continued liaison between the Mauna Loa Observatory and the National Park Service staffs in coordinating and regulating public access to Mauna Loa's upper slopes will reduce the potential of pollutants from backcountry visits affecting the observatory's studies.

The resource classification map (page 10 of this statement) identified those features within the park that are important to protect. Continuing reanalysis and reference to this data helps to mitigate damage that could occur through overuse or location of facilities on historic sites or fragile natural areas. This along with other research on flora and fauna will augment the resource data presently available and point out areas where development and use could cause adverse impact.

The problem of goat fences, another fact of life to be recognized and and an inconvenience to backcountry visitors, can be mitigated by locating trails where fewer fences will be encountered by backcountry users and by construction of a stile or other means to climb over the fence.

Direct shooting of goats and pigs and trapping of these and other feral animals can be done in light use backcountry areas and by scheduling to avoid heavy use periods.

Even though there will be no provision for the visitor to see the bulk of Olaa Forest, other similar areas will continue to be available to him. The popular Thurston Lava Tube Trail is largely through a mixed fern-ohia forest. And a proposed trail will lead the visitor through a sample of the Olaa Forest on the small detached section. Finally, photographs and interpretation can expand the visitors' knowledge and understanding of this unique ecosystem with no physical impact of use on the land.

DEVELOPMENT

Much of the relocated Chain of Craters Road will pass over land recently covered with lava flows. In other areas, however, it will be necessary to study alternative routes and choose one that provides a scenic drive with good overlook sites and avoids concentrations of important endemic plant communities. Also, in accordance with Executive Order 11593, concerning preservation of cultural features, a site survey of the alignment will be completed before construction begins. If historic or archeological values exist, the road alignment will be altered.

As visitation increases both day and overnight use, so will demand for water in the Kilauea area, and so will the demand for a larger collection system. To minimize impact from this expansion, the master plan proposes to maintain overnight facilities at their current level. Moreover, one of the considerations for setting final park capacities will be the amount of water required and the impact on the environment resulting from its development.

The proposed Hualalai access road will pass through many Hawaiian plant communities as it ascends to the 6,500-foot elevation. Particularly significant is the Kahuluu Forest between 2,000 and 3,500 feet, an excellent example of Hawaiian rain forest. The road will be located at the edge of the forest or some other location to best protect the integrity of this resource. Impact on other important endemic plants such as might exist near the road terminus and its development will be minimized by a survey of the sites to determine the type and extent of these endemic populations. Such a survey will also include consideration for the native bird habitat. Preliminary studies have been conducted as a part of the preparation of this impact statement.

The current atmosphere on Hualalai is one of wilderness or near wilderness. Retaining a low-key development and low-standard access road will preserve much of this atmosphere, as will the location of development at the edge of rather than the center of this park addition.

In the small portion of Olaa Forest proposed to be open to public use, the danger of resource damage in this native environment will be mitigated to a great degree by construction of an elevated trail, which will minimize physical contact between the visitor and the resource.

As hiking use on the coastal region increases, so will fishing use. Impact on fragile intertidal and offshore marine values can be partially mitigated by setting capacities for use and limiting the amount of fish and shellfish harvested. This will require additional management personnel and cooperation with the State Fish and Game Department.

ADVERSE EFFECTS WHICH CANNOT BE AVOIDED SHOULD THE PROPOSAL BE IMPLEMENTED

Regardless of the mitigating measures discussed previously, there will be some adverse impacts resulting from the implementation of the master plan proposals. As use increases and facilities expand to accommodate it, there will be added impact on resources as more visitors utilize trails and trample vegetation. Further, more cars will increase the possibility of air pollution and the total cost of park management will increase. The latter is particularly significant. Added visitation and development increases management problems, but even more important, the addition of Hualalai's summit and the saddle area will probably double the cost and extent of the resources management program, assuming the planning concepts are adhered to. There are general impacts that involve the park as a entity. Others apply to specific proposals.

Even with the special care taken to protect endemic plant populations along the park's boundary, the deletion of tracts 19 and 20, and their probable development for residential use, will always have exotic plant species that may spread onto nearby park land.

Deletion of the remainder of Tract 19 from authorized park lands would foreclose the possibility of adding Queen's Bath and Punaluu Heiau to the National Park, both along the coast and historic resources in an area that could be developed for recreation and resort uses.

Inclusion of tract 22, a mixed ohia-fern forest will remove this land from possible use for residential use or for consumptive uses such as harvesting fern logs.

The Hualalai addition and proposed access right-of-way will remove land from potential agricultural use. While most of this use if considered marginal or sub-marginal, the impact is nonetheless real. At lower elevations, the right-of-way acquisition will remove a maximum of two acres from coffee production, and depending on alignment some residences. On the upper right-of-way land and Hualalai grazing will be precluded.

Acquisition of Hualalai and the southwest rift of Mauna Loa would remove these areas from consideration for extraction of geothermal energy-if such potential exists. However, the largest portion of this possible rift energy sources will remain outside of the boundaries of the park.

As new eruptions occur, future research projects by the U.S. Geological Survey will continue to include new locations for seismometers, geodimeters, drill holes, and tilt stations. Specific impact is discussed in this report under Environmental Impact of the Proposed Action.

The park's research and management programs will also have their impact. Goat fences will remain as a significant impact in the backcountry, and as long as direct shooting is used as a control measure, there will be a potential visitor safety problem, however slight.

Some degradation of upper Mauna Loa's clean air environment will occur. If, however, proposed roads are kept below 6,500 feet elevation such impact will be small.

Keeping the major part of Olaa Fern Forest in a pristine state means no visitor use and this will deprive the public of the opportunity to see and enjoy this unique ecosystem by experiencing it first hand.

All new facilities proposed to serve increased visitation will have their adverse impact, not only from construction but also from the increased visitation thus stimulated. The new Chain of Craters road, visitor center, water collection system, Hualalai access road and expanded campgrounds encroach upon resource values and increase the possibility of diminishing endemic populations. This is particularly true for Hualalai and its access road where the change in land use is most profound, and since it traverses land previously inaccessible by other than hiking or four-wheel drive vehicle. Specific examples are the Kahuluu forest where any change is a new threat to the Hawaiian ecosystem and the Hualalai summit area which is particularly important habitat for native bird species.

Finally, the backcountry shelters, particularly in the coastal area, will produce an impact on the backcountry that can only be partially mitigated. These will always be a magnet for hikers as they will be the only available sources of fresh water. Moreover, coastal and marine resources in the vicinity will receive more use, and therefore, the potential for damage remains.

There are limited resources in the park's forested areas that could be harvested. The dense rain forests, about 20,000 to 25,000 acres, contain a predominant native cover of ohia and ferns with an occasional Koa, also native to Hawaii. Koa is coming back along the Mauna Loa Strip where the potential is for about 4,000 acres of open stands of Koa forest in the future. Koa has been used for finished wood and novelty items. Ohia wood is used in somewhat the same manner and it is the most common tree in the islands. Fern logs, as previously mentioned, are used for carving kihis (Hawaiian idols) and an adequate supply is thus far available on other parts of the island. The above-mentioned resources although present throughout Hawaii, are and may

continue to diminish. An unavoidable impact of retaining these resources in park status and managed as proposed is that they will be unavailable for commercial uses such as timber harvesting.

Finally, there will be an unavoidable minor adverse impact on the county tax base as private land will be removed from the tax rolls. This is discussed in greater detail on page 78.

THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The greatest benefits to be derived from an adequately managed Hawaii Volcanoes National Park are scientific and cultural in that if these disappearing endemic plant and animal communities plus the remains of early Hawaiian occupation can maintain even a semblance of their original integrity, the information thus available can help indicate how other portions of man's environment can be similarly maintained. This is especially significant in Hawaii because of the vulnerable nature of these ecosystems--complex insular biotic communities that developed somewhat independently of continental lifeforms but sensitive to competition with those same lifeforms. Similarly, a continuing study of the early Hawaiian's life patterns, and the manner in which they used the land, can be helpful in determining how man will use his environment in the future.

As a result of these resources being maintained, the inspirational and educational opportunities for the public will be legion. The dramatic displays of volcanism and their myriad opportunities for interpretation and research will continue despite man's operations. Many of the native birds and some rare plants, however, simply will not continue to exist without some positive management program that seeks to protect them. Thus the short-term proposals for fencing and other control measures to reduce exotic populations will have the long-term effect of returning the park environment to a state more nearly resembling that existing before European contact.

Park resources available for direct economic benefit are few. There are no known mineral resources, and the rough coastline with its frequent strong wind is essentially unsuitable for resort development or even for an economic agricultural operation.

Roads, trails, buildings, and other developments designed to make the park accessible constitute a commitment to visitor convenience. This, however, will not overshadow the productivity of the park as an outstanding scientific, educational and recreational resource and one that needs certain man-made improvements to maintain it, interpret it, protect it and further utilize it in order to realize these long-term gains.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES WHICH WOULD BE INVOLVED IN THE PROPOSED ACTION

The proposals in the master plan result in few irrevocable uses of resources except where new park facilities are proposed. New roads, buildings and campgrounds will disturb the native plant cover and, with the prevalance of exotic species, the possibility of returning the land to its original condition is remote. Most proposals, however, will in fact help to insure preservation of the environment. This includes research, resource management, and control of visitor-use patterns. There is, however, no commitment of nonrenewable resources such as archeological or historical sites, rare plant communities, animal habitats, or minerals.

Those lands proposed for acquisition would be permanently unavailable for development for extractive economic benefit. And this is an irreversible commitment of resources unless Congress determined it desirable to reverse its earlier action and make all or part of the park available for private investment.

ALTERNATIVES TO THE PROPOSED ACTION

During the master plan study, numerous alternatives were investigated and analyzed, relative to all aspects of the master plan proposal--boundaries, resources management, development and special land-use problems unique to Hawaii Volcanoes. The following discussion deals with these alternatives as separate subjects.

ALTERNATIVE A - NO ACTION, MANAGE AND DEVELOP WITHIN AUTHORIZED BOUNDARIES EXCEPT FOR MINOR ADJUSTMENTS

Park Boundaries: Add the authorized land on the Hilo side of the Chain of Craters (approximately 5,800 acres), Olaa Forest (approximately 9,600 acres, land southwest of Kapaoo Point (approximately 2,000 acres), and a strip of land mauka of the Kalapana Road (approximately 520 acres). Delete the intervening land between Olaa Forest Tract and Kilauea (approximately 1,400 acres), and land mauka of the above-mentioned Kalapana addition(approximately 2,975 acres).

Development and Use: Present use patterns would continue, with little change. The Chain of Craters Road could be reconstructed, with changes in location prompted by the recent volcanic activity. Day use would continue to predominate, but there could be some additional provision for overnight camping. The only new area opened up for public use would be a portion of Olaa Forest. Overnight lodge facilities would remain at their present level, but new facilities could be encouraged in gateway areas such as Punaluu, Volcano, Hilo, and Kalapana.

Impact: This is essentially a status quo plan. Existing management and interpretive programs would continue. Thus, that acreage of land now within the National Park would be protected from development that could disturb or destroy Hawaiian ecosystems and important cultural sites. Only these lands already authorized for acquisition would be acquired. This would bring additional Hawaiian upland forests (over 15,000 acres containing rapidly disappearing ecosystems) under permanent protection.

The deterioration of native flora and fauna on land adjacent to the park would likely continue, probably at an increasing rate, because of the presence of uncontrolled populations of feral goats, sheep, rats, and pigs, as well as exotic plant species. Much of the land would likely be open to recreational hunting on a special permit basis. As little of the surrounding high elevation land is suitable for resort use, subdivision or even concentrated agricultural use, no major change in land use would be expected. The exception to this is the coastal land at Kalapana and on tracts 26 and 27 at the southwest corner of the park, where there could be some resort development. There are no known major historic sites on lands now proposed for addition to the park except for Ahuaumi Heiau and the Judd Trail (in the saddle between Hualalai and Mauna Loa).

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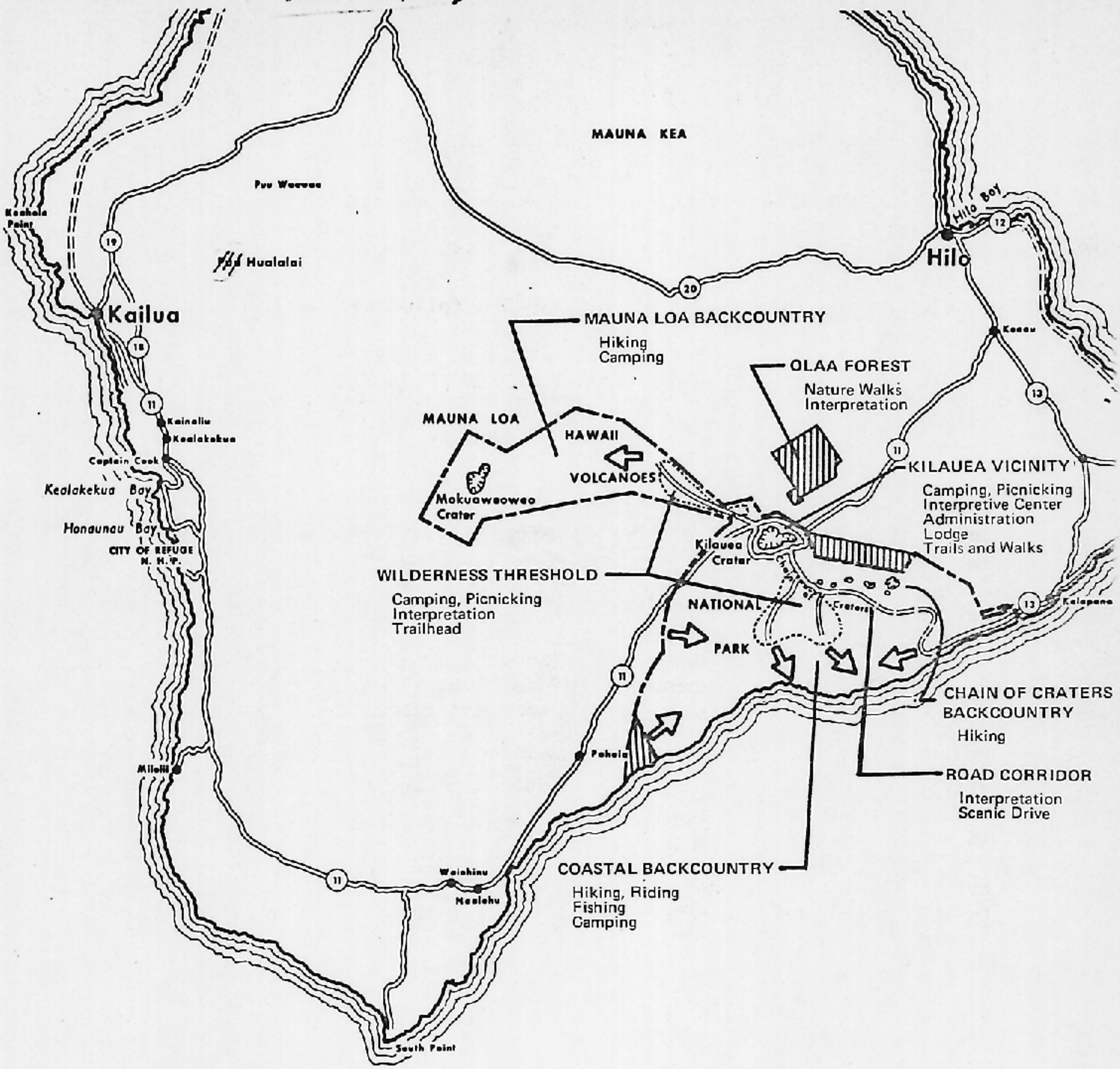

ALTERNATIVE A

HAWAII VOLCANOES NATIONAL PARK

NORTH

5 0 5 10 15

Scale in Miles

LEGEND

EXISTING PARK LAND

AUTHORIZED PARK LANDS TO BE ADDED

MAJOR ACCESS TO BACKCOUNTRY

Management and development costs would be the least of all alternatives since no new major resources would be added to the park. This is especially significant considering the continuing costs of protection of native populations and the programs to reintroduce certain species that are in danger of extinction ($170,000 in fiscal year 1973 and $275,000 programmed for 1974). Addition of presently authorized rain-forest lands do add new acreage to be managed but cost increases would be negligible. Olaa Forest is already managed by the park, and the land east of the Chain of Craters does not add any new type of forest or change the basic dimension of the management program. Land to be acquired at the southwest corner of the park (Tracts 26 and 27) contains resources very similar to adjacent park land so no appreciable new management costs would be incurred here.

Deletion of the authorized land, as mentioned above, would simply remove it from consideration for acquisition. Since there is considerable residential and agricultural development currently underway, non-acquisition would incur no loss of inherent resources here. The only known impact on park land would be as a result of increased introduction of exotic plants and animals directly adjacent to the park. And this would be identical along any portion of the park boundary.

ALTERNATIVE B - JUNE 1970 MASTER PLAN PROPOSAL

Boundaries: Addition and deletion of authorized land as in Alternative A. Authorize addition of the summit of Hualalai, the saddle area between Hualalai and Mauna Loa, Southwest rift zone of Mauna Loa down to about the 8,500-foot elevation, 5,000 acres of Honaunau Forest, such land as needed for scenic road right-of-way, and offshore lands to 1/4 mile from high tide. The total acreage to be authorized is about 193,000 acres of land and 5,400 of water.

Development and Use: For the existing park lands, the use and development pattern would remain the same as in Alternative A, For those lands to be added, a scenic parkway would be constructed to connect Kilauea, the north flank of Mauna Loa, the saddle area, Honaunau Forest and City of Refuge. There would also be a spur road to the vicinity of the Hualalai summit. Other facilities to be developed in connection with the parkway would include scenic overlooks, about 50 miles of new trails, campgrounds (50 sites maximum), picnic areas and interpretive facilities dealing with the geology of Mauna Loa and Hualalai, historic features, plus the unique native plant and animal communities on Hualalai and in Honaunau Forest.

The latter is located on the leeside of Mauna Loa and is a part of the main watershed for the coastal areas of Kealakekua and Honaunau on the Kona Coast. Since it is a part of the only rain forest on the leeward side of the Hawaiian volcanoes and has suffered the least from intrusion of exotics, it is of major ecological significance. This particular section starts at 2,200 feet in elevation and rises to 4,750. It has an area of about 10,500 acres in a somewhat rectangular shape of 3-1/2 by 5-1/2 miles. Preliminary examination of the forest indicates that the greater part is still intact, and except where roads, trails, and clearings have been made, the native species still dominate. Rare plant species include various species of Bidens, Santalum pilgeri and/or paniculatum, Cyanea carlsonii, Delissea undulata, Hawaiian strawberry, and Hawaiian rubber tree. Small numbers of the Hawaiian crow have also been reported in the Honaunau Forest and on Hualalai in recent years. They are among the very last in existence and are on the United States Department of Interior list of endangered species.

The dominant feature of this alternative is the scenic road or parkway, 90 miles long, that would provide opportunity to drive from the Kalapana Coast to the 9,000-foot level of Mauna Loa and back to the Kona Coast all within Federally owned land. The only major historic features added would be Ahuaumi Heiau and a portion of the Judd Trail.

Management programs aimed at protection of rare species such as the nene goose and other native bird species, sandalwood, and rain forest ecosystems would be greatly expanded beyond the existing programs, both in scope and amount.

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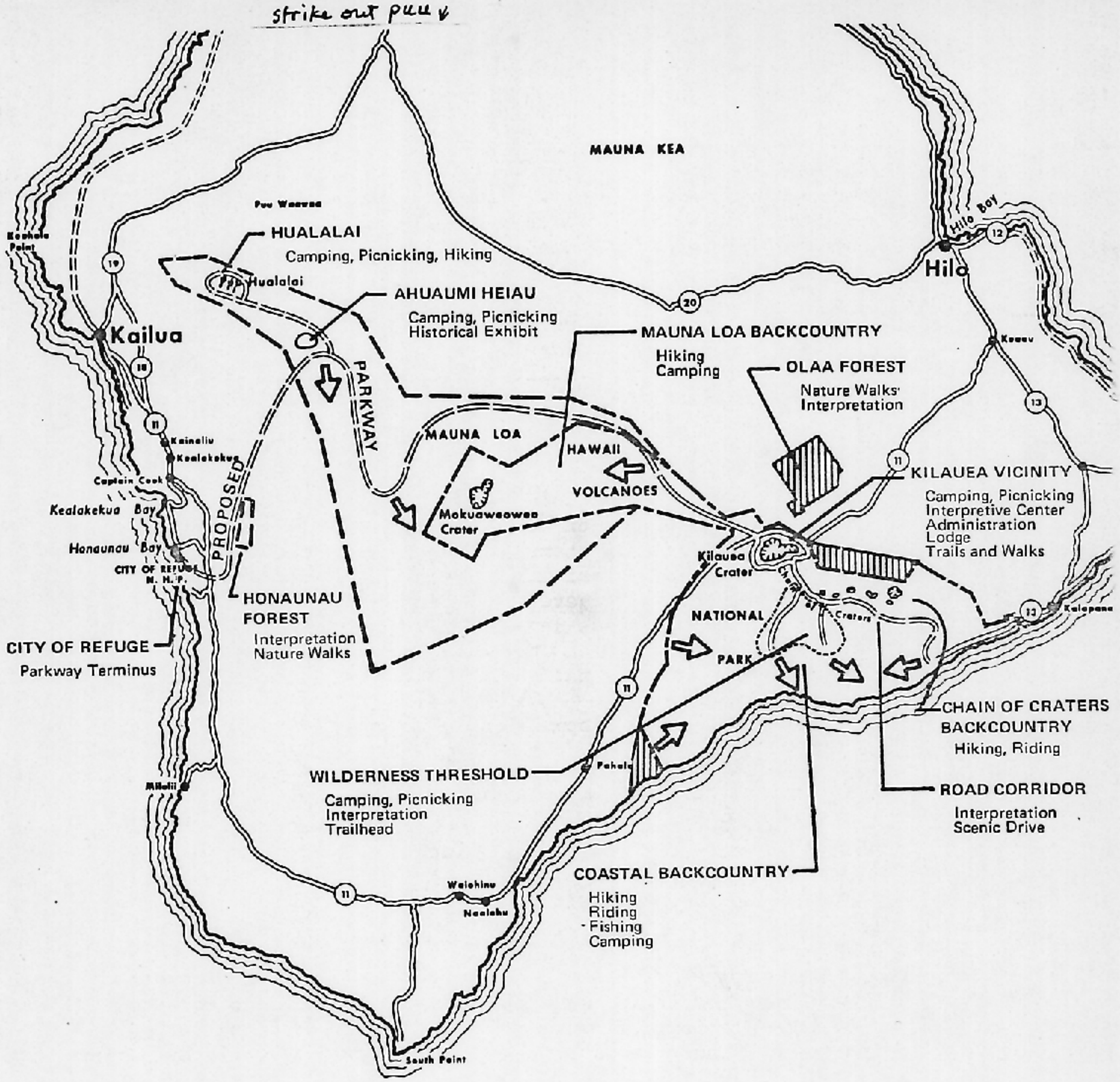

ALTERNATIVE B
HAWAII VOLCANOES NATIONAL PARK

NORTH

5 0 5 10 15
Scale in Miles

LEGEND

EXISTING PARK LAND

AUTHORIZED PARK LANDS TO BE ADDED

MAJOR ACCESS TO BACKCOUNTRY

PROPOSED PARK ADDITIONS

Impact: The greatest impact would be that nearly 200,000 acres of new land would be placed under national park management--land unlikely to be afforded any similar protection under any State or local program, given the competing priorities and great costs involved. The impact of the proposed parkway is also considerable since it would entail approximately 70 miles of new road over country that is now essentially de facto wilderness. Approximately 300 to 400 acres of land would be disturbed by construction, although 15 to 20 miles of this would be on bare lava or adjacent to and not through native Hawaiian ecosystems. Also, this acreage would include those lands disturbed by construction of roads, walks, buildings, and utilities in connection with development in the Hualalai Saddle. No specific location for these developments has been determined, but it is anticipated that sites can be selected that would avoid disturbance of rare and endangered native populations.

Costs of management and development would be greatly increased. New road construction would likely be over 10 million dollars and management costs would probably double over those in the existing park. Particularly important is the already recognized problem of maintaining native populations within the existing park. Although there is measurable improvement in the park environment, the success of these programs is only partially known at this time, and the resource management problems entailed with nearly doubling the park's acreage are legion.

Moreover, much of the new road construction would be on the upper shoulder of Mauna Loa. Although this major volcano has not erupted since 1950, the long-term pattern indicates some eruption activity every two years. Thus, 15 to 20 miles of the new road would be subject to occasional, if not frequent, inundation by lava flows similar to that recently experienced on the existing Chain of Craters Road. This would mean temporary curtailment of parkway use until a new section of the road could be constructed.

This alternative would place a road within 2 or 3 miles of Mauna Loa Observatory. This would destroy the clean air environment, terminate the only long-term global monitoring record, and prevent future use of this unique locality for research on weather and climate changes. All measurement programs would be adversely affected, including those for carbon dioxide, solar radiation, carbon monoxide, particulates and ozone, sulphur dioxide, oxides of nitrogen and fluorocarbons--all vital components for this research.

Impact on the island's economy would be minimal since alternatives uses of the land involved are few. Most are at high elevations offering little opportunity for the usual investment in resort uses or agriculture. Even past attempts at creating a commercial timber resource have been largely unsuccessful.

The tourist industry would be provided with an alternative route between Hilo and Kona as a result of parkway construction. Tours now follow the existing State Route 11 around the south end of the island. Travel time on the new road would be longer, about 2-1/2 to 3 hours, but would afford much greater variation in land forms and biological communities than now exists. Total capacity for numbers of visitors would not be increased greatly because the same controls would still exist as now, namely the capacity of facilities such as the Chain of Craters Road and the developments at Kilauea. Overnight camping use would probably be doubled over what it is now with the addition of campgrounds around Hualalai. Potential backcountry use could also be increased by at least 50% with the addition of the new acreage and provision of trails in the Mauna Loa-Hualalai vicinity.

ALTERNATIVE C - ADD HUALALAI AND SADDLE AREA WITH MINIMUM DEVELOPMENT

Boundaries: Addition and deletion of authorized land as in Alternative A. Authorize addition of the summit of Hualalai, the saddle area between Hualalai and Mauna Loa, and minimum land surrounding the summit of Mauna Loa. The total acreage thus authorized to be determined by the specific boundary, but could be 120,000 acres or less.

Development and Use: This alternative provides essentially for a scientific preserve for the added lands. The only access would be by trail and the major purpose of the added acreage would be preservation of biologic, geologic and historic features, with minimum development. Visitor uses would include hiking, backcountry camping, and riding. Trail access would be provided to Hualalai, the saddle area, and the summit of Mauna Loa.

Management programs would be similar to Alternatives A and B, but would be more difficult since there would be no motorized access.

Impact: This is the purest preservation approach to resources management. The impact on the physical environment would be the least of all the alternatives. Development would consist of new trails, probably 50 miles maximum. Increase in visitor capacity would be minimal, probably less than 10%, because of very difficult access and limited facilities.

Management would direct its efforts toward reintroduction of native populations and control of exotics, resulting in a positive impact on Hawaii's environment, but management costs would be similar to those in Alternative B, due to limited access. This same limited access would give the greatest protection to the rare and endangered species such as the nene goose and Hawaiian crow, as well as the plants unique to that area, such as sandalwood.

This alternative would preserve the clean air environment and continue long-term operation of NOAA's Mauna Loa Observatory.

Impact on the island's economy would be similar to other alternatives, except that here little additional visitation to the park would result, nor would a large amount of development funds be available to stimulate the local economy. Only wages paid to the additional personnel needed for resources management would be added to the economic base.

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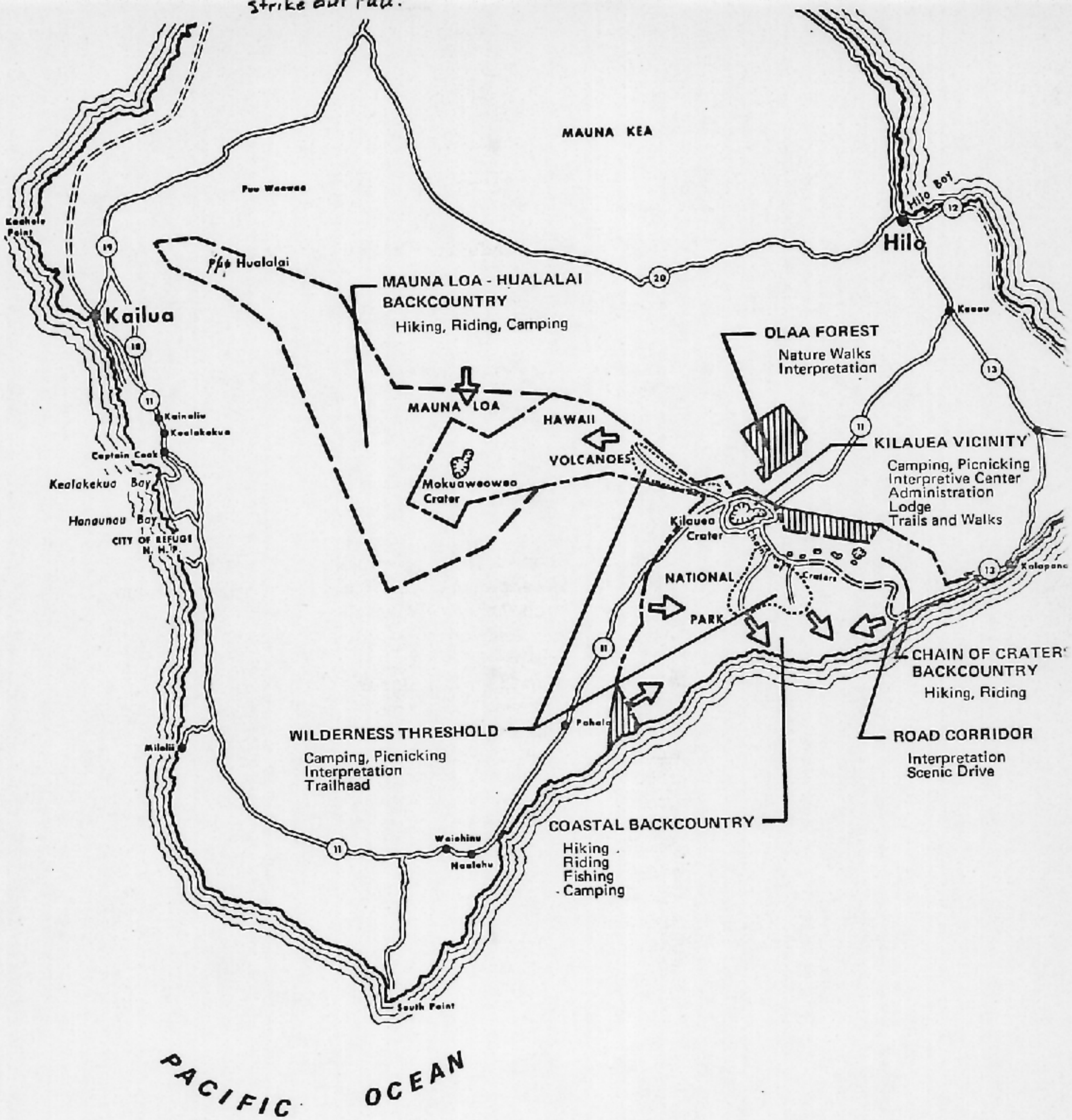


ALTERNATIVE C

HAWAII VOLCANOES NATIONAL PARK

83 (19)

ALTERNATIVE D - ACQUIRE ALL AUTHORIZED LAND

Boundaries: Acquisition of all lands authorized for addition to the park, including those indicated in Alternative A plus the intervening land between Olaa Forest and Kilauea and land mauka of the Kalapana Road, this would be a total of 23,000 acres to be acquired.

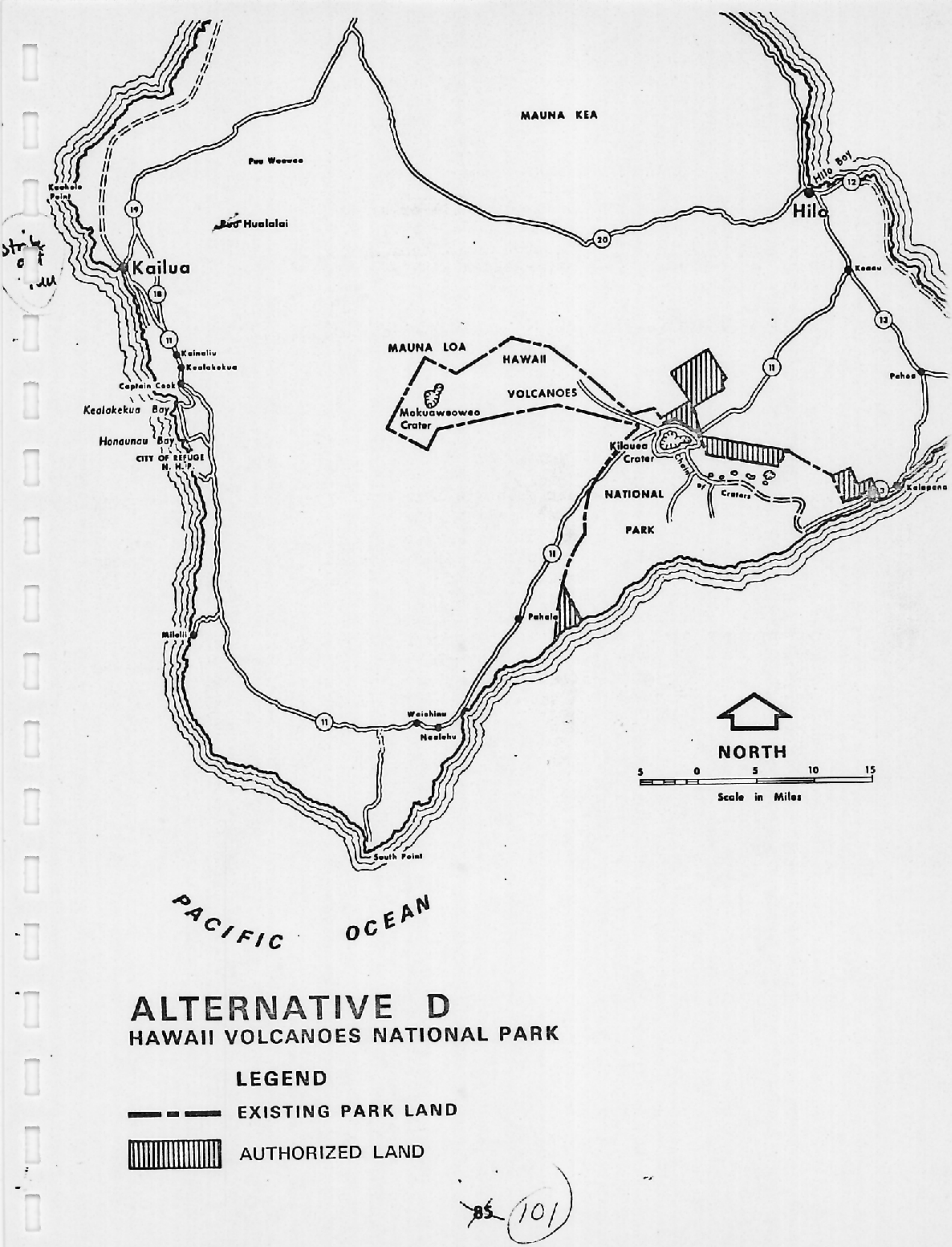
Management and Use: Public use would change little from the current pattern, since no lands of significant resource value would be added except Olaa Forest and the rain forest section east of the Chain of Craters. The only known feasible use of these lands is for development of overnight facilities, particularly since they contain little undisturbed native plant and animal communities.

Management would encounter new and greater problems because the two parcels now proposed for deletion contain considerable residential and agricultural development incompatible with national park status. The possibility of returning such land to something approaching native vegetation is remote, given the current knowledge and techniques.

Impact: This alternative would make Olaa Forest contiguous to the remainder of the park and thus provide a single uninterrupted park unit for management and development. And it would provide a much larger buffer for the Kalapana coastal area and its resources. This is particularly significant along the boundary directly mauka (inland from the Kalapana visitor center where rare plants such as ohe makai, illiahi, hoawa, and ahakea still exist.)

Impact on the economy would entail removal of subdivision covering 1,700 acres on the Kalapana parcel and the curtailment of golf courses, agricultural, and residential use on about 3/4 of the land between Kilauea and Olaa Forest.

Impact on management and development would vary depending on how the land was used. No information is available on the cost of returning the land to a natural state, even if that were proposed and were feasible. And costs entailed in development would depend on the type of use and facilities proposed. This could vary from campgrounds and picnic sites to a more ambituous hotel or lodge facility. There are also the direct costs entailed in land acquisition. In the Kalapana area, cost of land might vary from $1,500 to $3,000 per acre for mauka lands. Lands in the Kilauea area could cost from $2,500 to $5,000 per acre.


MAUNA KEA
Pua Waawaa
Hualalai
Kaelele Point
Kailua
Kainaliu
Kealakekua
Captain Cook
Kealakekua Bay
Honaunau Bay
CITY OF REFUGE N. H. P.
Milolii
Hilo Bay
Hilo
Keaau
Pahoa
MAUNA LOA
HAWAII
VOLCANOES
Makuaweowao Crater
Kilauea Crater
Chain of Craters
NATIONAL
PARK
Kalapana
Pahala
Waiohinu
Naalehu
South Point
PACIFIC OCEAN
NORTH
5 0 5 10 15
Scale in Miles
ALTERNATIVE D
HAWAII VOLCANOES NATIONAL PARK
LEGEND
EXISTING PARK LAND
AUTHORIZED LAND

85 101

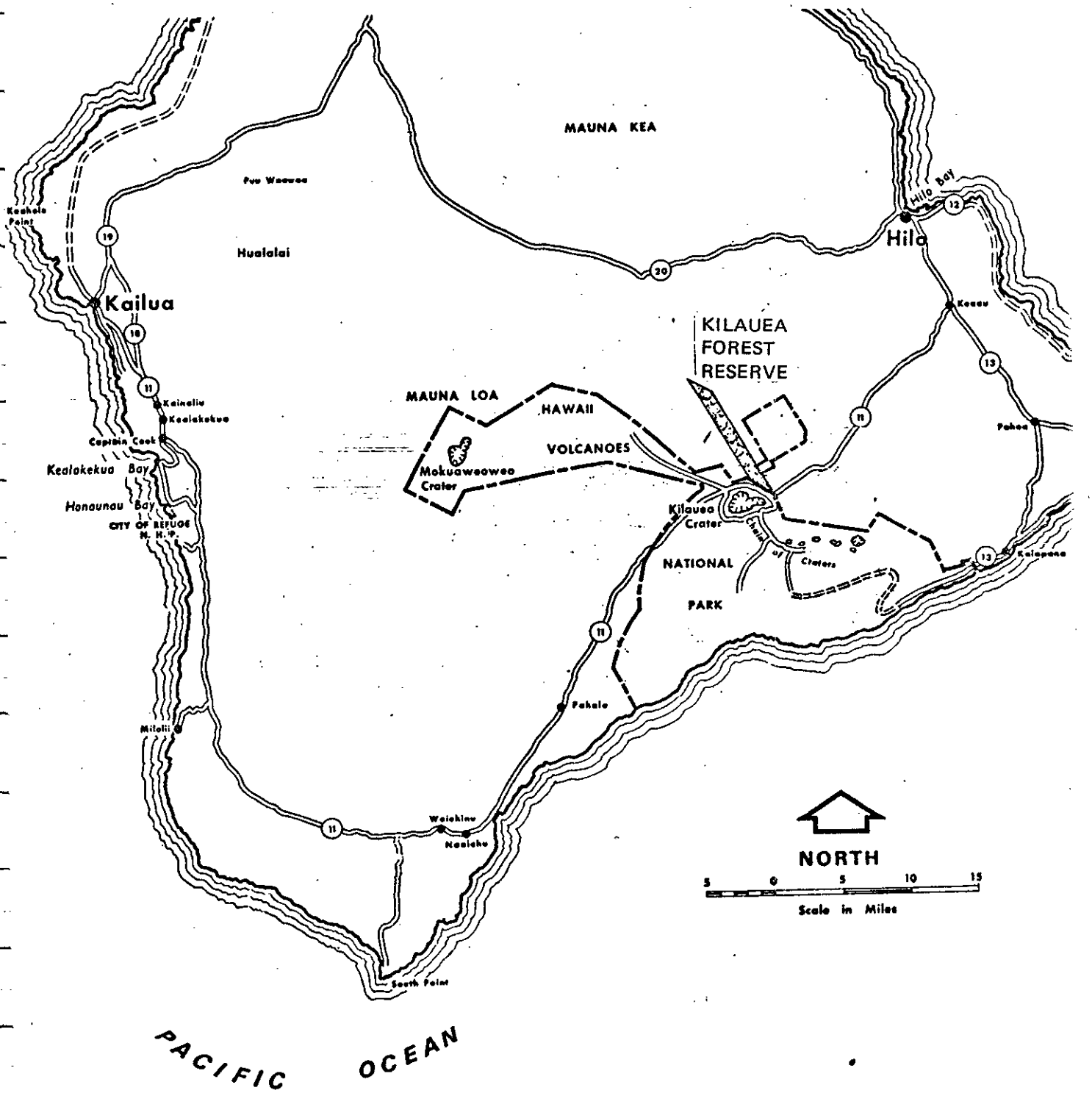
ALTERNATIVE E - ADD SECTIONS OF THE KILAUEA FOREST RESERVE

Boundaries and Resources: Include all or selected parts of Kilauea Forest Reserve, a maximum of 9,000 acres. This is a parcel of native Hawaiian forest of considerable significance, and is the only remaining place in the world inhabited by all three of the endangered Hawaiian birds, the akepa, creeper, and akiapulaau.

Management and Use: Appropriate management would be similar to Olaa Forest. The bulk of the land would become a research natural area with a small sample available for the visitor to walk into as an another example of a native Hawaiian ecosystem. Development would be limited to a short trail system (about 1 mile), a small parking area (10 to 15 cars), and an interpretive exhibit. This short trail could connect to the proposed Olaa Forest Trail, instead of having access and parking on Wright Road. The Olaa Tract would be contiguous to the main portion of the park.

Impact: The most important point is that this alternative would place an additional 9,000 acres of land containing predominantly endemic plants and animals under permanent protection, thereby expanding the park's research and interpretive capabilities. It would also remove this same acreage from use for commercial timber production. The Bishop Estate, owner of the forest reserve, is considering logging of koa on these lands.

Impact from development would result in disturbance of a maximum of one acre for formal development which would significantly alter the existing plant cover by removal of top soil and paving for parking, walks, and interpretive exhibits. A short trail would disturb additional land to the extent that it would become a corridor about 5 feet wide--a corridor that would encourage the growth of exotic plant species. The total area thus directly affected would be between 1/2 and 1 acre. At this time, it is likely that the Bishop Estate would not agree to the sale of these lands.



ALTERNATIVE E
HAWAII VOLCANOES NATIONAL PARK

ALTERNATIVE F - ADD KAPAPALA RANCH AND KAPAPALA FOREST RESERVE LAND TO THE PARK

Boundaries and Resources: This is a large parcel of land (about 50,000 acres), lying between Kilauea's southwest rift zone and the upper slopes of Mauna Loa, and much of it is within the view of persons standing on the rim of Kilauea Caldera. Much of the land is currently used for grazing so that little of the original native vegetation remains except scattered ohia. There are no known archeological or historical resources of note.

Management and Use: Predominant use of this parcel would be as open space as its elevation (3,500 to 7,000 feet) makes it unsuitable for camping or other overnight facilities, but hiking and riding would be appropriate uses.

Impact: The predominate effect would be to preserve in open space a large area that is a major part of the view of the Kilauea area. State zoning exercises control over land use and for the near future, it appears that this area will remain in the agricultural zone. Federal acquisition would, however, give the land greater protection as use controls would be more stringent under national park status. Such status would also remove the land from its current productive grazing use. Moreover, even if some structures were permitted on the land, the scale is so great that it would take a large development to create any serious visual impact. Location, climate, and limitation on water supply all argue against such a development.

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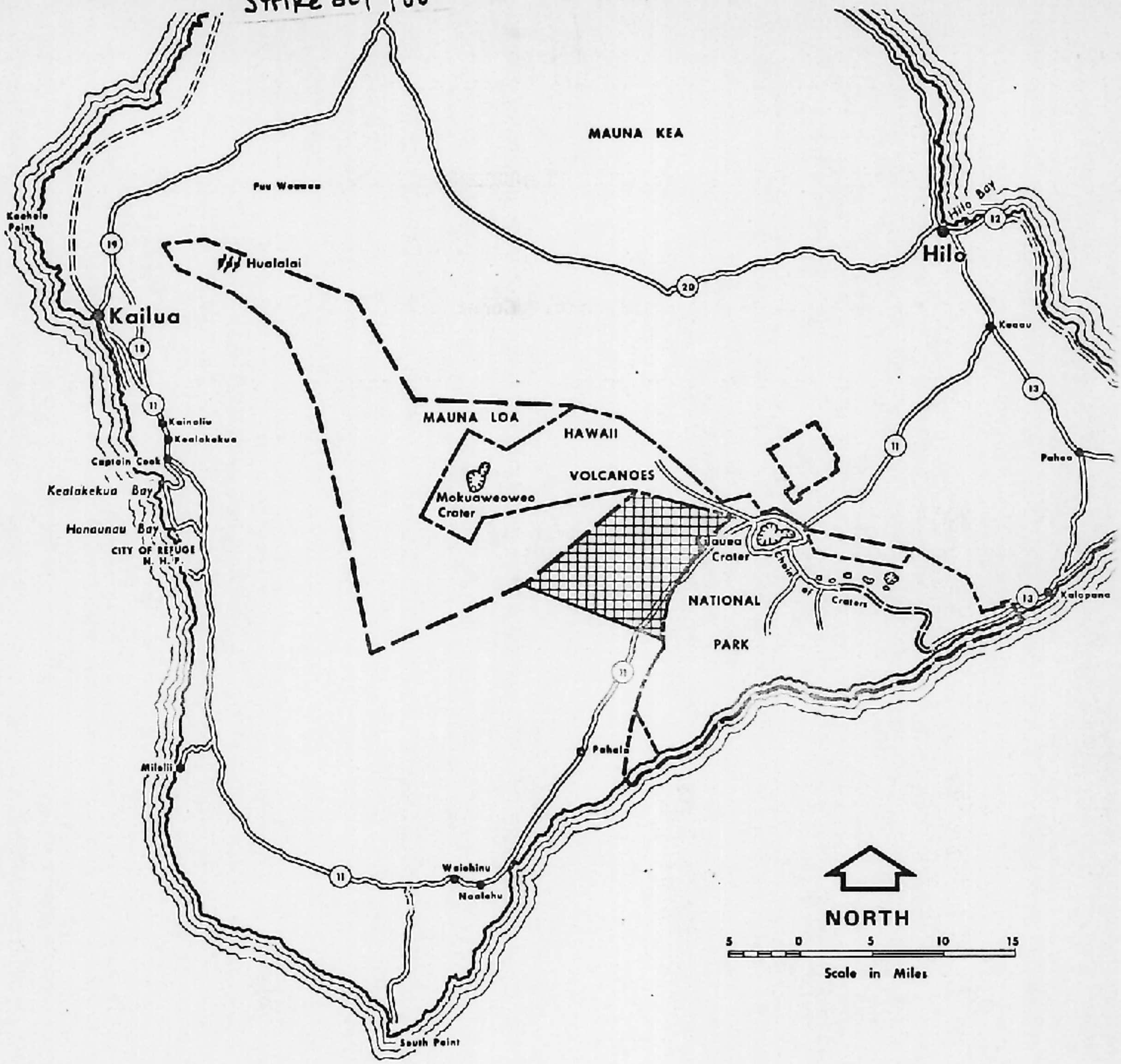


ALTERNATIVE F

HAWAII VOLCANOES NATIONAL PARK

LEGEND

EXISTING PARK LAND

CURRENT PROPOSAL

ALTERNATIVE ADDITION

105

ALTERNATIVE G - REMOVE CONTROL MEASURES FOR FERAL GOATS AND PIGS

This is a current resources management program whose goal is removal of exotic species of animals to protect endangered native populations. Two impacts are most significant. Considerable funds would be saved that are now spent on a program whose outsome is still somewhat in doubt and whose techniques are sometimes the subject of criticism by local citizens. The average cost of this program in the last ten years has been $40,000, and it is expected to increase in the future. Moreover, removal of fences would create a greater sense of wilderness in the park's backcountry.

Cessation of control measures would also mean almost certain destruction of endemic plants and animals that have shown signs of recovery as a direct result of the feral animal control program. Such action would assure the extinction of at least 3 dozen species of rare endemic plants and 9 endangered birds as well as the shift or loss of several entire endemic ecosystems.

ALTERNATIVE H - NO RECONSTRUCTION OF CHAIN OF CRATERS ROAD

This alternative involves the 10 miles of road recently covered by lava flows from the vicinity of Mauna Ulu. By not reconstructing the road connection, a greater section of the park would be preserved in an undeveloped state as wilderness or near wilderness. The area retained as roadless would be about 1,500 acres and would create one uninterrupted backcountry unit from the Chain of Craters to and including the park's entire coast.

The dominant visitor use pattern--Hilo through Kilauea and Kona, or reverse--would not be affected, thus the total capacity of the park to accommodate visitors would not be reduced appreciably. The exception to this is the Golden Triangle Tour that provides a circle trip from Hilo to Kilauea, Kalapana and return to Hilo during a single day. This tour would become impractical because of the backtrack travel required were the Chain of Craters Road not reconstructed. Before lava flows closed the road, this tour averaged about 12,000 per month and was increasing in popularity. Road access to all proposed and existing park facilities except a short section of the Chain of Craters would still remain under this alternative.

ALTERNATIVE I - EXPAND OVERNIGHT FACILITIES

This could involve Volcano House Lodge, Namakanipaio cabins, and campgrounds. It would increase the capacity of the park to accommodate overnight visitors in this cool, high-altitude environment, a complete contrast to the coastal climate where all other resort development is located. Thus, there would be increased opportunity for a variety of recreation experiences for park visitors. The same impact would apply for expansion of campgrounds and the Namakanipaio cabins, except that here the expanded opportunity for overnight use would extend to visitors with lower incomes.

Impact on the resources of the park is varied. Construction of facilities would likely disturb not more than a total of 20 to 25 acres for roads, parking, utilities, and structures. Most of this area would not be returnable to native cover. Assuming that lodge expansion were to be in the immediate vicinity of the Volcano House, the dominant impact would be visual. Any expansion would increase the visual impact on this most important feature in the park and in an area of already concentrated use.

Water supplies are already inadequate to meet demand; any addition to overnight facilities will require substantial expansion of rainshed catchments (and destruction of rain-forest habitats) to supply the additional water required for these facilities.

ALTERNATIVE J - REMOVE U.S.G.S FACILITY FROM KILAUEA'S RIM

Accomplishment of this alternative would remove a structure and its associated parking lot (about 2 to 3 acres) that has considerable visual impact, particularly as seen on the skyline from the Volcano House and the adjacent Caldera rim. It would also remove the function from the most effective location from which the survey can conduct research. It is an ideal vantage point to observe volcanic activity in Halemaumau, nearly all of Hilauea Caldera and both rift zones. Further, the visitor would no longer be afforded the opportunity to view the many facets of the volcanic research operation in this location.

ALTERNATIVE K - REMOVE KILAUEA MILITARY CAMP FROM THE PARK

This recreation resort complex, near the rim of Kilauea, occupies about 50 acres and is for the exclusive use of the armed forces, active and retired, and their families. Removal of the facility would provide additional open space in the most concentrated use area in the park. Further, it would remove an operation which is, in accordance with park policy, a non-conforming use since it is not open to the general public.

This alternative would also, in effect, prohibit members of the armed forces from experiencing the relaxed atmosphere and unique recreation experience now available to them at a nominal cost. Such a facility is not available elsewhere on the island, although alternative sites could be found, and Fort De Russy does offer a similar recreation opportunity in a concentrated urban environment.

ALTERNATIVE L - PROVIDE FOR HAWAIIAN HOMESITES BY DESIGNATING A SPECIFIC PARCEL OF LAND FOR THIS USE

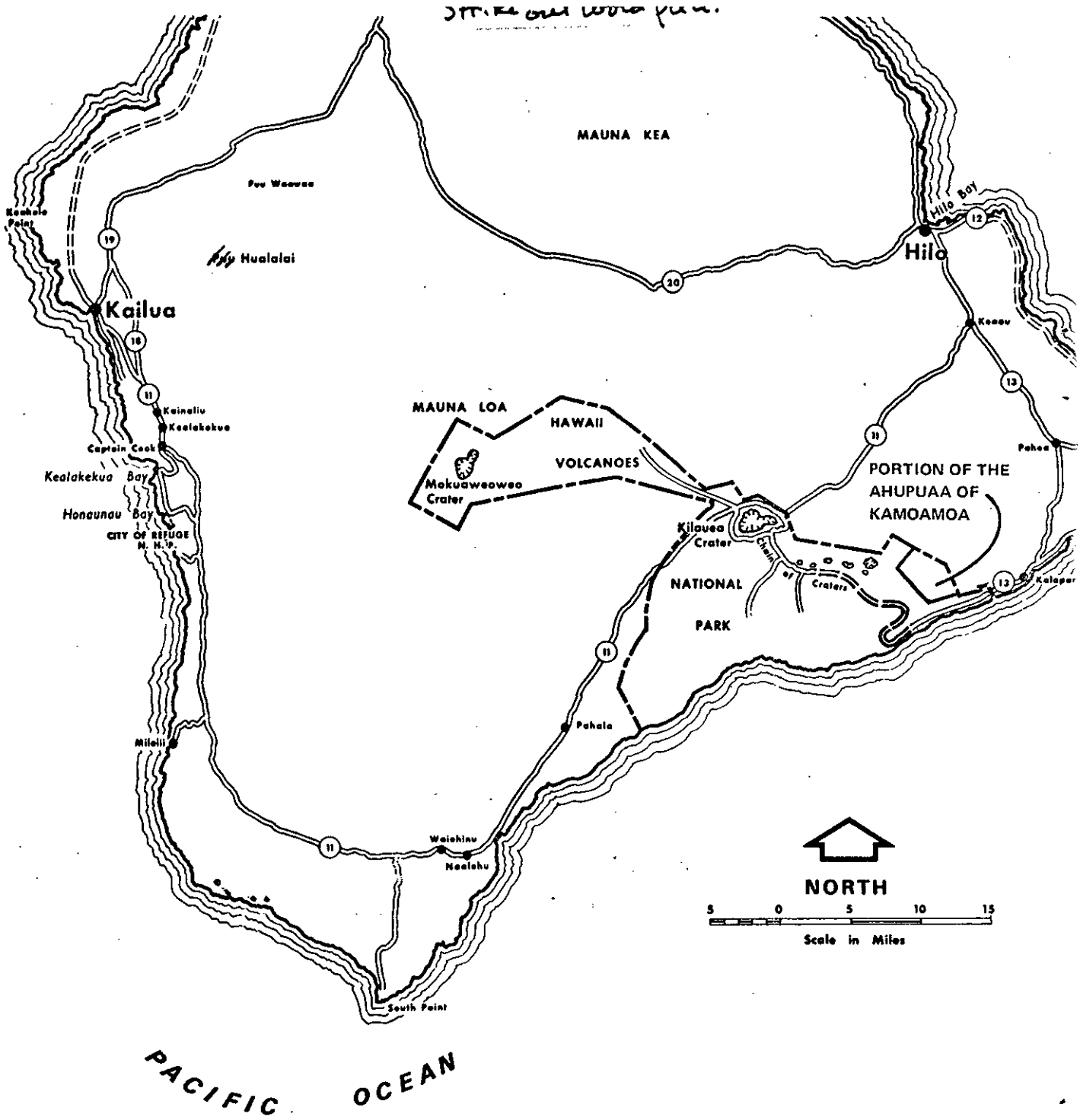
There are two possible methods of accomplishing the stated objective of this alternative and each has its own impact.

To meet the implied obligations to Hawaiians for homesites, as stated in the 1938 legislation adding the Kalapana Extension to the park, a parcel of land, probably within the ahupua'a of Kamoamoa, could be excluded from the park and given to a different public agency whose mission is related to public housing needs for administration. This would require Congressional action.

This would provide Hawaiians an opportunity for private use of land directly adjacent to a developing area and one with comparatively easy access, and distribution of these lands would be managed by an agency with the appropriate capability. It would result in a potential saving to the park's management program, the specific sum involved being indefinite because of the unknown number of applicants who might be involved.

Impact on the land involved would be considerable since roads, walks, buildings, and utilities might be constructed throughout the area. Moreover, much of the land could be altered to make it suitable for agriculture. As is the case with much of the park, this parcel contains numerous endemic Hawaiian plants. Some of these, such as ohe makai, hoawa, and ahakea are very rare but locally abundant in this particular location and development would endanger their existence, if not destroy them completely. Hawaiian honeycreepers are found at lower elevations in this area in great abundance also, and additional development would further endanger their existence. Most of the lands within the Kalapana Extension are listed on the National Register of Historic Places.

The second method would be to retain this same land area within the park, but, in accordance with the same legislation, zone it for homesite use. Applications and any regulations on land use would be administered by the National Park Service. Management costs for such an operation would be considerable, probably in excess of $50,000 to $100,000 per year depending on the degree that utilities, roads, fire protection, and law enforcement activities are required. Cultural impact would be similar to that connected with the first method. Impact on the physical environment would also be similar except that in this circumstance there would be greater opportunity for the National Park Service to control use and development so as to minimize the effects on endemic plant populations and bird populations.



ALTERNATIVE L

HAWAII VOLCANOES NATIONAL PARK

A more detailed study and assessment of park values affected and homesite alternatives is underway that will lead to decisions regarding the question of homesites. A separate environmental impact statement will be written for any proposed actions that affect these lands.

ALTERNATIVE M - ADD VARIOUS PARCELS OF LAND CONTAINING UNIQUE BIOLOGICAL VALUES

This could be one or more of a number of land parcels of various sizes that contain Kau Kilversword, nene nesting areas, petrel nesting areas, and other native birds or plant communities. Some of these are immediately adjacent to the park boundary while others would be detached areas.

Addition of such lands would expand considerably the scope of resources protected by the park and would give additional species of plants and animals some greater chance of survival. It would also increase the cost of park management and expand it into areas where the appropriateness of Federal involvement is dubious. Moreover, it would remove these resources from possible preservation action by the State of Hawaii at a time when interest in preservation of native species is greatly increasing.

CONSULTATION AND COORDINATION

Consultation and Coordination in Development of the Proposal and in the Preparaion of the Draft Environmental Statement

The master plan proposals for Hawaii Volcanoes have been under consideration and preparation for about 5 years. During that period, Federal agencies, State governmental bodies, local agencies, and individuals were contacted and gave advice on the proposals as they were developed. The following is a list indicative of the sources contacted and their general contribution to the planning effort.

Department of the Interior

Bureau of Outdoor Recreation - general review of proposals, particularly those involving boundary changes

U.S. Geological Survey - volcanic research, its impact on resources, on public use, and on park management

Department of Defense

U. S. Army - Kilauea Military Camp and its place in the park's future use patterns

State of Hawaii

Office of the Governor and Lieutenant Governor - general review of entire proposals and impact on State programs

Department of Land and Natural Resources - general review and discussion of specific State programs as they apply to or are affected by Federal programs. (Examples - management of wildlife, construction of use facilities and administration)

County of Hawaii - effect of proposals on county plans for park and recreation, access patterns and land use

University of Hawaii - student participation in obtaining detailed data on possible impact resulting from master plan proposals

Bishop Museum - use of previous studies on archeological resources

COORDINATION IN THE REVIEW OF THE DRAFT ENVIRONMENTAL STATEMENT

On October 26, 1973, copies of the draft master plan and its draft environmental impact statement were made available for review by other Federal agencies and interested organizations and individuals. Copies were distributed by the Western Region, National Park Service and by Hawaii Volcanoes National Park to the following for comment:

- Advisory Council on Historic Preservation
- Department of Agriculture
  - Soil Conservation Service
- Department of Defense
  - U.S. Army
- Department of the Interior
  - Bureau of Indian Affairs
  - Bureau of Land Management
  - Bureau of Mines
  - Bureau of Outdoor Recreation
  - Bureau of Reclamation
  - Fish and Wildlife Service
  - Geological Survey
- Department of Transportation
- Environmental Protection Agency
- State of Hawaii Clearinghouse
  - State Historic Preservation Officer
- Metropolitan Clearinghouse
- Audubon Society
- Bishop Museum
- Congress of the Hawaiian People
- Life of the Land
- Sierra Club
- Society of American Foresters
- The Hawaiians
- The Nature Conservancy
- University of Hawaii
- Wilderness Society

Public Meetings on the Master Plan - following the release of the draft documents, three public review meetings were held at Hilo February 19, at Kona February 22, and at Honolulu February 25, 1974. At these meetings organizations and individuals had the opportunity to make oral and/or written comments.

At the Hilo meeting 18 people made statement; at the Kona meeting, 4; at the Honolulu meeting, 5. There were 60 written responses to the master plan and accompanying draft environmental impact statement. The following is an analysis of these public meetings and written responses.

Boundary Change Proposals

A. Hualalai-Upper Mauna Loa Expansion

23 endorsed or favored the master plan or favored specifically park expansion to include Hualalai including:

5 Federal agencies:	KMC, NOAA, BOR, Reclamation, HUD
1 State agency:	Department of Planning and Economic Development
3 Organizations:	Hawaii Conservation Council, Hawaii Chamber of Commerce, and Kona Outdoor Circle
14 Individuals	

6 opposed portions of master plan related to Hualalai:

1 State agency:	Department of Land and Natural Resources
1 County agency:	Planning Department
2 Organizations:	Congress of Hawaiian People and Society of American Foresters
2 Individuals	

B. Offshore Expansion

21 endorsed or favored master plan and proposals or specifically favored adding offshore waters

5 Federal agencies:	KMC, NOAA, BOR, Reclamation, HUD
1 State agency:	Department of Planning and Economic Development
1 County agency:	Department of Planning
4 Organizations:	Hawaii Conservation Council, Hawaii Chamber of Commerce, Kona Outdoor Circle, Girl Scouts
10 Individuals	

4 opposed portions of master plan related to adding offshore waters.

1 State agency:	Department of Land and Natural Resources
1 Organization:	Congress of Hawaiian People
2 Individuals	

Mauna Loa Parkway--Alternate B

No one favored Alternate B.

25 favored the master plan proposal without Alternate B or specifically opposed Alternate B, including:

6 Federal agencies:	KMC, Department of Commerce, NOAA, BOR, Reclamation, HUD
1 State agency:	Planning and Economic Development
1 County agency:	County planning
5 Organizations:	Conservation Council, Hawaii Fish and Game Association, Chamber of Commerce, Kona Outdoor Circle, Girl Scouts
12 Individuals	

GENERAL SUMMARY OF PUBLIC MEETING AND WRITTEN RESPONSE

Recommendation Recommendation	Public Agencies	Private Organizations	Individuals	Total
Support National Park Service Proposals	6	4	14	24
Enlarge National Park Service Proposals for Expansion	2	1	2	5
Reduce National Park Service Proposal for Enlargement	2	2	2	6
Specifically Favor Hualalai/ Mauna Loa Expansion	1	3	4	8
Specifically Oppose Hualalai/ Mauna Loa Expansion	2	1	0	3
Specifically Favor Offshore Addition	0	2	3	5
Specifically Oppose Offshore Addition	1	1	2	4

(con't)

Recommendation	Public Agencies	Private Organizations	Individuals	Total
Specifically Favor Alternate B Mauna Loa Parkway	0	0	0	0
Favor Hawaiian Homesites Alternate L	1	0	1	2
Oppose Hawaiian Homesites Alternate L	0	0	0	0

The following is a list of agencies, organizations, and individuals who submitted comments specifically on the draft environmental statement. A copy of each is included in the Appendix of this statement, and the comments and responses dealing with specific issues in each written statement follow the listing.

Advisory Council on Historic Preservation
Department of Agriculture: U.S. Forest Service
Department of Defense: U.S. Army Corps of Engineers

Department of Commerce: General Counsel
National Oceanic and Atmospheric Administration
Environmental Protection Agency
Federal Power Commission
U.S. Department of the Interior: Office of the Secretary
Bureau of Land Management
Bureau of Mines
Bureau of Outdoor Recreation
Bureau of Reclamation
Geological Survey
U.S. Senate: Honorable Hiram Fong
Department of Housing and Urban Development
Department of Transportation
State of Hawaii: Acting Governor Ariyoshi
Highway Department, Charles Schuster
Department of Planning and Economic Development
Department of Natural Resources, State Historic Preservation Officer
Department of Natural Resources
County of Hawaii: Planning Department
Mayor Kimura
Aloha Association
Conservation Council for Hawaii, Stephen-Hassard
Flora and Fauna Committee, Conservation Council for Hawaii, Helen Baldwin
Hawaii Island Fish and Game Association, Earl Pacheco
Hawaii Island Chamber of Commerce
Kona Outdoor Circle, Kimberly
Society of American Foresters
Anonymous
Barber, E.W.
Byrne, Scott
Erdman, D. Kimball
Hodgins, Stanley; Hawaiian Telephone Company
Horobik, Thomas E.
Jacobsen, Bruce A.
Lotz, David
Macdonald, Dr. Gordon A.
Mossman, Malcomb; Anschutz Corporation
Wood, Harold
Wolbrink, Donald

ADVISORY COUNCIL ON HISTORIC PRESERVATION

Comment: Draft environmental statement appears adequate regarding our area of expertise and we have no further comment to make.

U. S. DEPARTMENT OF AGRICULTURE, FOREST SERVICE

Comment: We have no comments on the master plan statement.

DEPARTMENT OF THE ARMY, CORPS OF ENGINEERS

Comment: A discussion of the proposed plan's relationship to other Federal, State, and county land-use ordinances and Coastal Zone Management could be provided.

Response: Maps showing the zoning classification under the State's "Greenbelt" law, other recreation lands, and nature reserves have been added to the plan on page 28 and on page 29 of the final impact statement.

DEPARTMENT OF COMMERCE, GENERAL COUNCIL

Comment: Reference to the unique clean air environment above the temperature inversion on Mauna Loa should appear in the description of the park and its resources.

Response: This addition has been made on page 32.

Comment: Park roads should be located exclusively along the coast and below 6,500 feet above sea level to insure that the temperature inversion could continue to act as a barrier or filter for vehicle-producing pollution and minimize the effect on air sampling at the NOAA Observatory on Mauna Loa.

Response: This mauka end of the existing Mauna Loa Road from Bird Park to the trailhead for Mauna Loa summit is at 6,662 feet. It will not be extended beyond its present terminus.

The proposed access road to the saddle of Hualalai is planned to lead to an elevation slightly less than 6,500 feet elevation.

The public terminus for the Mauna Loa Road access to the trail on the saddle side of the mountain will continue to be determined by NOAA at Mauna Loa Observatory.

Comment: We recommend inclusion of the following comment: "The operation of NOAA Mauna Loa Observatory constitutes a unique utilization of the special environment of the upper reaches of Mauna Loa. This 4.05-acre site located 11,150 feet above sea level permits access to one of the area's resources. Preservation of its clean air qualities will be empahsized."

Response: This has been added on pages 53 and 79.

Comment: Operation of petroleum fueled stoves or heating devices on Mauna Loa trails or shelters may create significant interferences with the clean air mass. It is suggested that use of the petroleum-fueled devices be prohibited.

Response: Through the voluntary registration system for people hiking Mauna Loa, the park will encourage and request that people use alcohol rather than petroleum fueled stoves and heaters. Location of proposed shelters has been modified to place all shelters on the Kilauea side of Mauna Loa--away from the NOAA Observatory side of the mountain.

U.S. DEPARTMENT OF COMMERCE, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Comment: The proposed Master Plan, with the extension of the northern boundary to 8,500 feet would permit continuation of NOAA's long-term clean air research. Under this alternative we request:

A. The Hualalai access road elevations be kept below 6,500 feet.

B. No additional trails to the summit of Mauna Loa be constructed.

C. The unique research needs and activities of NOAA at the Mauna Loa Observatory be explicitly recognized.

Response: A. The proposed access road to the Hualalai Saddle is planned to terminate at an elevation of about 6,500 feet.

B. Hiking, camping, nature study and research have long been a recognized public use of Mauna Loa summit. The National Park Service proposes that this use continue, that trails and recreational opportunities will be identified and publicized. Plans have been modified, however, to place all shelters and the most extensive trail system on the Kilauea side of the summit away from NOAA's

Observatory. Campers will be encouraged to use alcohol, rather than petroleum, based fuels to reduce pollution to NOAA's studies. In the long view, this plan to designate Mauna Loa summit as wilderness should allow greater public use of a type that has the minimum pollution on the summit areas. This use of Mauna Loa summit seems the most compatible in protecting the clean air environment required by the Mauna Loa Observatory--short of closing the summit to all public access.

C. A statement to this effect has been incorporated as one of the park objectives and will be incorporated in the final park master plan.

Comment: Alternative B of the draft environmental statement is unacceptable to the Department. Construction of a road at the location and altitude proposed would essentially destroy Mauna Loa's clean air environment and prevent the continuation of clean air research.

Response: Alternative B with high altitude parkway has been carefully considered and rejected.

ENVIRONMENTAL PROTECTION AGENCY

Comment: Comments have been classified as "LO-1," specifically lack of objections to the proposed action.

FEDERAL POWER COMMISSION

Comment: The Master Plan would not affect any existing electric power or natural gas facilities under the jurisdiction of the Federal Power Commission and would not appear to have any effect on the future development of supplies and transmission of electric power or natural gas.

U.S. DEPARTMENT OF THE INTERIOR, OFFICE OF THE SECRETARY

Comment: The environmental statement for the Master Plan does not consider the potential for geothermal energy that should exist in the area of the park. According to the Center for Engineering Research of the University of Hawaii, the County of Hawaii, outside of present national park boundaries, contains several regions with possible geothermal potential. These sites include the Puna rift, Kapoho, the northwest rift of Hualalai, the southwest rift of Mauna Loa, and the east rift of Mauna Kea.

Response: This plan would propose boundary changes that affect portions of two of these places: (1) the upper 2 miles of the 13 mile long northwest rift of Hualalai, and (2) 7 miles of the 40 mile southwest rift of Mauna Loa would be in the park addition. These lands, if added to the park, would be unavailable for geothermal energy production without special enabling legislation; this is not proposed.

BUREAU OF LAND MANAGEMENT

Document reviewed and no comment offered.

BUREAU OF MINES

Comment: One resource the statement neglects to discuss is geothermal potential. Although no sites in Hawaii are included in the Geological Survey's list of known Geothermal Resources Areas, there is a substantial potential in the Hawaiian Islands.

Response: A section dealing with geothermal potential has been added to the Description of the Environment on page 34.

Comment: According to the Center for Engineering Research of the University of Hawaii, the County of Hawaii, outside of present national park boundaries, contains several regions with possible geothermal potential. These sites include the Puna rift, Kapoho, the northwest rift of Hualalai, the southwest rift of Mauna Loa, and the east rift of Mauna Kea.

Response: This comment is the same as made by the U.S. Department of Interior. The response to this comment is on this same page.

BUREAU OF OUTDOOR RECREATION

Comment: Are in accord with the Master Plan; have no comments on the EIS.

BUREAU OF RECLAMATION

Comment: Concur with aims and methods set forth.

GEOLOGIC SURVEY

Comments are related to wilderness proposals and are discussed in that environmental statement.

U.S. SENATOR HIRAM L. FONG

Comment: Acknowledges receipt of planning documents.

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

Comment: Since the Federal Government is precluded from purchasing the land with its own funds, how will private lands be acquired for addition to the park?

Response: It will require new legislation.

Comment: Alternative L, designation of a parcel of land for Hawaiian homesteads could be accommodated within the plan.

Response: No proposals in this master plan or in the accompanying wilderness proposal will adversely affect the Secretary of Interior's authority to grant homesites to Hawaiians as authorized by the 1938 Hawaii National Park Act.

Studies are underway to identify lands where extensive homesite development would least intrude upon the park's historic, scientific or scenic values as is required by the 1938 Act. A separate environmental impact statement defining lands which may be suitable for homesites and that do not intrude on historic, scientific, or scenic values is under preliminary review now.

Comment: Neither text nor maps refer to existing County of Hawaii parks in the Kalapana area. Does the proposed plan include any of these area?

Response: No.

U.S. DEPARTMENT OF TRANSPORTATION

Comment: Reconstruction of the Chain of Craters Road is presently programmed in Stage 1 for emergency relief funds under Hawaii Project ERFO-2(1). However, the corridor location, extent of reconstruction, and scheduling of this project are indeterminate at this time, due to highly unstable volcanic activity within the project area.

Response: This is consistent with the proposed plan; reconstruction of the Chain of Craters Road is proposed when Mauna Ulu volcanic activity is more stable.

Comment: Terminus of the proposed parkway, Alternate B, should be coordinated with Hawaii County Federal-aid Secondary Project 5-0160(5) which is presently in design.

Response: Alternate B, parkway along Mauna Loa flanks, has been considered but abandoned.

Comment: Should Alternate H, no reconstruction of Chain of Craters Road, be adopted, the currently programmed project ERFO-2(1) should be withdrawn.

Response: Alternate H was considered, but was not adopted. We propose to keep project ERFO-2(1) active.

STATE OF HAWAII, ACTING GOVERNOR GEORGE R. ARIYOSHI

Comment: Acknowledge receipt of documents.

STATE OF HAWAII, DEPARTMENT OF TRANSPORTATION

Comment: Recognize the importance of State Route 11 through the park as a vital corridor serving the southern end of the island.

Response: Such a statement has been added to the park's management objectives in the master plan.

Comment: Identify the proposed "improvements in road standards" and specifically include among those the channelization of the park entrance road with State Road 11, particularly to provide a left-turn storage lane for traffic entering the park from the Hilo direction.

Response: Detail such as this is normally included in specific project plans or design concept plans rather than in the park's more general master plan. However, such a storage lane is in planning stages as a portion of a project to install new directional and entrance signs in the park.

Comment: Recognize the possibility of the need to expand the highway to a 4-lane divided facility.

Response: The master plan objectives are revised to include an objective to cooperate with the State in planning improvements in road design standards which meet the Islander's transportation requirements and the park visitor's needs for a scenic parkway with minimum visual damage to the park landscape.

A specific recommendation of a 4-lane divided highway to meet these needs should be based upon adequate engineering studies and an environmental impact statement that explores several alternatives of solving future highway needs through the park.

STATE OF HAWAII, DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT

Comment: Find that the Master Plan is in accord with the goals of the State General Plan.

STATE OF HAWAII, STATE HISTORIC PRESERVATION OFFICER

Comment: There will be no adverse effect upon known historical sites by the projects proposed by the National Park Service. Ahu a Umi Heiau on the slopes of Hualalai is on the Hawaii Register of Historic Places. It has also been nominated to the National Register by the Review Board on April 9, 1973.

Response: This nomination has been noted on page 45 of this statement.

STATE OF HAWAII, DEPARTMENT OF LAND AND NATURAL RESOURCES

Comment: The report does not fully explain the extent of public use that will be made of the proposed park expansion.

Response: Public use of the upper Hualalai and Mauna Loa would include hiking, riding, camping, sightseeing, citizen deputy-ranger shooting of feral goats and sheep, nature and archeology study.

Comment: Nearly all of the programs of the National Park are primarily for research rather than for visitors' enjoyment.

Response: Though this park conducts and encourages extensive research in geology, archeology, and biology--the park is primarily established for public use and enjoyment. To this end major visitor centers, scenic drives, campgrounds, a hotel, 150 miles of hiking trails, scenic viewpoints and nature trails exist primarily to help the 1-1/3 million people who visit the park annually to use and enjoy Hawaii Volcanoes National Park.

Comment: Any loss of public hunting and fishing opportunities resulting from the proposed park will have an impact on the local population and should merit further investigation.

Response: Public use of the proposed expansion will be similar to the type of public use now enjoyed in the present Hawaii Volcanoes and Haleakala National Parks. These activities would include sightseeing, nature study, camping, picnicking, hiking, riding, photography, and fishing. Control of feral animal populations would include citizen deputy ranger programs.

Comment: The recent policy of letting fires run their course rather than containment could have serious adverse effects on both water and timber resources.

Response: A revised wildlife management plan is forthcoming, to be based upon further research of plant responses after release from goat browsing. There is little data now available on how Hawaiian ecosystems react to varying intensities or seasons--or the absence--of fire. Certainly Hawaiian plants here have been subjected to volcano-caused fire since the birth of the island. This seems reflected in the sprouting and reseeding ability of many endemic plants as well as the vigor with which some grow following fire. National Park Service policy regarding natural fires in natural areas such as Hawaii Volcanoes National Park is:

> The presence or absence of natural fire within a given habitat is recognized as one of the ecological factors contributing to the perpetuation of plants and animals native to that habitat.
>
> Fires in vegetation resulting from natural causes are recognized as natural phenomena and may be allowed to run their course when such burning can be contained within predetermined fire management units and when such burning will contribute to the accomplishment of approved vegetation and/or wildlife management objectives.

Until continuing research develops detailed knowledge of responses of Hawaiian plant systems to fire, park action is to suppress most fires. But some natural fires set by advancing lava flows are allowed to run their course. The percent of park area affected by such fires is small--it has never been more than 2 percent of the park acreage. In the 58-year history of the park, no wildfire has been allowed to spread to adjacent lands.

Comment: Consideration should be given to placing the Olaa Fern Forest into the State Natural Areas System.

Response: This has been considered. However, its present status (and proposed wilderness designation) accomplish the same purpose--with perhaps greater legal assurance that its designation will remain unchanged. Management of the Olaa Fern Forest will be compatible to and compliment any State Natural Areas that are established adjacent.

Comment: The Hualalai-Mauna Loa Area should also be considered for the State Natural Areas System.

Response: If the State acquired and placed the Hualalai-Mauna Loa lands (proposed here for addition to the park) into the State Natural Areas System with provisions for public use and enjoyment of such type that would not impair the historic, native biologic, geologic, and scenic resources--the National Park Service would withdraw this proposed expansion of the Hawaii Volcanoes National Park.

Comment: The State already has the legal machinery for partial, and total preservation of our marine resources and habitat, through either the establishment of Marine Life Conservation Districts or the Natural Area Reserve System.

Response: Establishment of the 1/8-mile strip adjacent to the park to include Keoai Island at Halape lagoon as a State Marine Reserve with objectives and regulations similar to the State Reserves at Kealakekua or Hanauma Bays satisfy park needs to also preserve marine environments as representative samples of native Hawaiian ecosystems. If the State establishes such a reserve, the Park Service will withdraw its proposal to add the marine strip to the park.

Comment: A possible suggestion would be for the National Park to limit itself to research of the volcano and let other local organizations such as the Bishop Museum, State Historic Site Branch, and others do research in areas of fauna and flora species, historic sites, etc.

Response: Various Acts of Congress related to National Parks and in establishing Hawaii Volcanoes National Park have established a purpose and objectives that include historical, archeological, and biological interpretation and preservation for the public's use and enjoyment. Accomplishment of these objectives

while at the same time assuring that these resources will remain unimpaired for the enjoyment of future generations requires a knowledge and understanding which obviously must be based upon sound research. Though the Park Service engages in considerable research of this type, other organizations such as Bishop Museum and the State Historic Site Branch can engage in research within the park.

Comment: This department is concerned over the impact of placing large areas under a strict National Park System will have on the local populations who presently enjoy their use under less restructive rules.

Response: It is contemplated that the impact of placing the upper Hualalai and Mauna Loa lands under the National Park System would greatly increase local public use and enjoyment of these lands. At present, access to even the State-owned portions of these lands is largely blocked by gated private roads closed to the general public.

COUNTY OF HAWAII, MAYOR SHUNICHI KIMURA

Comment: Acknowledge receipt of planning documents.

COUNTY OF HAWAII, PLANNING DEPARTMENT

Comment: There needs to be expanded justification for the acquisition of coastal offshore lands, especially as it relates to park goals and development including a discussion of whether fishing from shore or spear fishing will be permitted.

Response: The purpose, or goal, of the park (page 40 of the master plan) is to conserve the volcanic features, endemic Hawaiian ecosystems, historical Hawaiian cultural remains, and inherent scenic values for visitor use and appreciation and for their scientific and historic values with minimum impairment to the resources.

The park preserves for public enjoyment and scientific research significant features of Hawaii's natural history and cultural background, enabling people to understand the powerful volcanic forces, fragile biota, and way of life which characterizes the Hawaiian Islands.

Tideland and near shore aquatic ecosystems along the park are equally as important to be conserved as are the park's terrestrial communities.

Too, the sea was an integral part of the ancient Hawaiian cultures whose ruins are now preserved, interpreted, and studied in the lowland areas of the park.

Exact measures to manage these near-shore ocean resources must be based upon future research, but the intent would be to perpetuate the native ecosystems including resources that were important to early Hawaiian cultures. Generally, the pattern of restrictions would be similar to those now in effect at Kealakekua Bay by the Department of Land and Natural Resources.

Comment: Rather than expose the Olaa Forest to infiltration of exotic plants by placing a nature trail there, consider other areas with similar environment such as Thurston Lava Tube area for display and education purposes.

Response: The nature trail will be in the small 356-acre parcel across Wright Road from the main 9,298-acre Olaa Forest. Thus it will not be an avenue for exotic plant infiltration into the main block of the unimpaired Olaa rain forest.

Comment: There are reports that Olaa Forest has been affected by ohia dieback. If this is the case, how does it affect the pristine character of the forest.

Response: "Ohia decline" has been a problem in Hawaii since it was first noted in 1909. Recently the problem has become more severe, as the area of severe decline has tripled in recent years (Burgan, R.E. and R.E. Nelson 1972. Decline of ohia lehua forests in Hawaii. USDA Forest Service Gen. Tech. Rpt. PSW-3. Pacific SW Forest and Range Expt. Stn., Berkeley, CA 4 p.) Contributing to the problem is shoestring root rot (Armillaria mellea) as well as moisture stresses, insects, and other ecological factors. Until the cause of the decline is more thoroughly documented and feasible control measures can be developed, no action is proposed at this time. Research now underway by the State Department of Land and Natural Resources, the Forest Service, and the University of Hawaii will help determine management alternatives to deal with the problem.

Comment: There is no discussion of the relationship of the master Plan's acquisition program to others in the area. What are alternatives of placing some of these proposed acquisitions into the Natural Area Reserve System.

Response: The National Park Service endorses the State's proposed Natural Area Reserve System. We will attempt to manage (in consultation with the State) all park lands that adjoin State Natural Areas in a manner that will complement and protect the biotic character of these State areas. Should the State acquire the lands (proposed by us to be added to the National Park) on Hualalai and Mauna Loa, the National Park Service will withdraw this expansion proposal.

Similarly, if the State would use its authority to establish a marine reserve similar to that at Kealakekua Bay of the ocean waters adjoining the Volcanoes Park, the National Park Service would withdraw this expansion proposal.

Comment: What is the cost estimate of land acquisition?

Response: Funding estimates to implement proposed actions in this plan are on park files for public review.

Comment: There should be a clear listing of activities and facilities permitted in the various land classification zones.

Response: Where missing, proposed activities and facilities permitted have been added to description and maps of the land classification zones.

Comment: What is the justification for moving the interpretive center to Uwekahuna Bluff?

Response: Uwekahuna offers a location where the park's principal volcano interpretation can not only be linked with the actual caldera and rift zone scene, but also to real seismic, tilt, and magnetic instruments that are recording the pulse of Kilauea. There, volcano interpretation can be of the live, dynamic volcano--rather than static exhibits on a museum wall.

Comment: How will the carrying capacity of each of the visitor destinations be determined and how will they be controlled?

Response: Carrying capacities for individual visitor destination are based upon extensive experience here and in other national parks, on special studies (such as the one now in progress at Haleakala National Park), on studies of vulnerability of biotic communities and archeological features, and, in some cases, upon trial and error.

COUNTY OF HAWAII, PLANNING DEPARTMENT

Comment: The proposed access road to Hualalai will pass through the Kahuluu Forest and indirectly destroy part of it.

Response: The proposed road through the Kahuluu Forest is planned to be of a minimum standard for 2-way roads--similar to the existing park road through the fern forest near Thurston Lava Tube. It is proposed to lie on the same alignment as an existing dirt road through the Kahuluu; thus, it breaks through no new forest land.

Comment: Suggest the master plan be written as a zonal plan, using the six land designation categories of the Administrative Policies of the National Park Service.

Response: We've not found this zonal system to be a good planning base in Hawaii Volcanoes National Park. When use of the six land zone designations is attempted here, one encounters substantial problems of overlaps in the various land values. Unique natural features (volcanoes, rare birds and plants) are commonplace on sites with extensive historic features (stone ruins and petroglyphs) in areas of wilderness. Too, the volcano is dynamic and seldom respects our planner's land zone designations--frequently changing location so that trails, and even roads, must be quickly placed in new areas (perhaps unzoned for such use) to enable visitors to witness volcanic eruptions.

Comment: We request that hunting in limited areas be permitted (on lands proposed for acquisition).

Response: If the Hualalai lands were added to the national park, control of the feral goats, pigs, and sheep on those lands would be largely by citizen deputy rangers--similar to the system now being used in the existing Hawaii Volcanoes and Haleakala National Parks.

Comment: Hualalai may be a viable geothermal energy grounds which could eventually be developed; we ask that a legislative exception be made to permit such a development in the event it becomes feasible. If the exception cannot be provided, we suggest the area be withheld from the acquisition program.

Response: Geothermal power plants are not compatible use of natural area national park lands; the National Park Service would

withdraw its Hualalai extension proposal if it seems that any potential geothermal power extraction facilities would have to be located within the proposed park.

The park proposal, however, includes only the extreme summit and saddle of Hualalai. Nearly the whole rift zone systems lie outside the park proposal; it would seem that if a substantial energy source does exist on Hualalai, it can be as readily be tapped outside and adjacent to the proposed park area.

THE ALOHA ASSOCIATION

Comment: Wish to be kept informed as to all actions regarding any land in which the Federal Government and State of Hawaii are to be involved.

CONSERVATION COUNCIL FOR HAWAII, WINDWARD HAWAII CHAPTER

Comment: Our chapter of the Conservation Council wholeheartedly endorses the proposal.

CONSERVATION COUNCIL FOR HAWAII, FLORA AND FAUNA COMMITTEE

Comment: Are in agreement with the master plan. Especially approve of the Hualalai Extension, the Olaa Forest proposal, the inclusion of additional Thurston Lava Tube-Chain of Craters land, and the tide land shore waters area.

HAWAII ISLE FISH AND GAME ASSOCIATION

Comment: At this point, we are in general agreement and do support you in these (plans).

HAWAII ISLAND CHAMBER OF COMMERCE

Comment: Strongly favor both the Master Plan and Wilderness Proposal with the following amendments:

A. That provision be made for access by vehicle for volcanic research purposes in Wilderness Units 1, 2, and 3.

B. In one area where recent studies show a potential for geothermal power (tracts 26 and 27) the expansion of the park boundary be deferred.

C. Solar collector fields be made a permitted use on the western slopes of Mauna Loa below some aesthetically acceptable elevation.

D. The Master Plan follow the recommendations made by the Hawaii Department of Highways.

Response: A. The wilderness recommendation sent to Congress included this special provision.

B. These tracts lie within the park's authorized boundary, but all attempts to acquire this land will be deferred until it is determined that geothermal energy extraction there is not feasible.

C. Likely solar collection fields would be a non-compatible use of a National Park. Areas essential for use as solar collector fields probably should not be included as lands proposed for addition to the park.

D. Responses to the Hawaii Department of Transportation recommendations are given on page 126.

SOCIETY OF AMERICAN FORESTERS

Comment: There is no adequate justification for adding parcels 12 to 15 to the National Park.

Response: These parcels are portions of the 3,000+ acre Tract 19 that is within the authorized boundary of the park. Parcels 12, 15 and 13 (419 acres in all) lie only a hundred feet from the Wahaula Visitor Center and heiau area. Extension of nearby subdivisions into these parcels would seriously compromise the integrity of this important historic area. They are on the National Register of Historic Places. Only the 419 acres are proposed for acquisition.

Comment: We are opposed to the expenditure of large sums of public funds to acquire the Hualalai unit and access road. This area is not needed as a national park, we already have more than adequate volcanism within out present parks.

Response: This proposal, like others to expand existing parks, will go through extensive review during the Congressional action required to authorize the additions proposed. The concerns expressed will be given further consideration at that time.

ANONYMOUS

Comment: We agree.

MRS. E. W. BARBER

Comment: I truly hope the proposals will be carried out.

SCOTT BYRNE

Comment: I endorse the adding on to the park the new land.

DR. K. S. ERDMAN

Comment: Favor adding Kilauea Forest Reserve, Honaunau Forest, Olaa Forest, and Tract 22 to the park.

J. S. HODGINS, MANAGER, HAWAIIAN TELEPHONE

Comment: Notes location of microwave reflector sites that are near the Hualalai proposal.

THOMAS E. HOROBIK

Comment: Does not support road extension or other developments within the national park.

BRUCE A. JACOBSEN

Comment: Support Alternatives C, D, E, F, H, K, first method of L, and M. Do not support Alternatives B, G, J, and A.

DR. GORDON MACDONALD, PROFESSOR GEOLOGY, UNIVERSITY OF HAWAII

Comment: Inclusion of the Olaa Forest Tract appears highly desirable. Its quality as a remnant of relatively little disturbed native Hawaiian forest is well recognized.

Addition of offshore lands appears highly desirable. The adverse effects of human pressure on near-shore fishes and other marine life have been obvious during the time I have known the shorelines.

I would particularly like to see addition of the summit area of Hualalai to the park. Hawaii's volcanoes have gone through a regular evolutionary pattern. Examples of the early-stage "Hawaiian-type" eruptions are well displayed and protected in

Hawaii Volcanoes National Park. The products and structures of the late stage of volcanism are similarly well displayed in Haleakala National Park. But nowhere is the intermediate stage protected and available to students and visitors. Hualalai is an excellent example of the intermediate stage, with young and well-preserved flows and cinder and spatter cones. As a volcanologist I would like to see the summit of Hualalai protected as an example of the intermediate stage of Hawaiian volcanism.

I urge that the park (proposal) be extended to take in the area of the unique olivine nodule locality at about 3,500 feet.

Response: Though the olivine nodule locality is a significant geological feature of Hualalai, the inclusion of this site within the proposed park is not feasible because Hawaiian Telephone's existing sizeable microwave relay station is located precisely on the nodule site.

Comment: Connection of the summit of Hualalai and the Hualalai-Mauna Loa saddle to the present Mauna Loa section to take in the southwest rift zone to a level below Sulphur Cone also seems desirable.

Tracts 26 and 27 southeast of the Great Crack show in infra-red surveys to have unusually high ground temperatures. Warm water has been known for many years at nearby Waiwelawela. These facts make it one of the most likely areas for possible development of geothermal energy. Until exploration for possible geothermal energy there can be carried out, and unless the exploration demonstrates that development of geothermal power in the area is impossible or infeasible, inclusion of the area in the park would be undesirable.

Response: Though these tracts lie within the park's authorized boundary, all attempts to acquire them will be deferred until it is determined that any potential geothermal energy extraction there is proven not feasible.

HAROLD WOOD

Comment: I support the proposed additions to the park to include a 1/4-mile strip along the coast, and extensions on Mauna Loa and Hualalai.

DONALD WOLBRINK AND ASSOCIATES, INC.

Comment: I fully endorse the proposed master plan and proposed wilderness areas.

APPENDIX

ADVISORY COUNCIL
ON
HISTORIC PRESERVATION

WASHINGTON, D.C. 20240

Mr. Howard H. Chapman
Regional Director
Western Regional Office
National Park Service
450 Golden Gate Avenue, Box 36063
San Francisco, California 94102

Dear Mr. Chapman:

This is in response to your request of December 12, 1973 for comments on the draft environmental statement for the proposed Master Plan for Hawaii Volcanoes National Park. Pursuant to its responsibilities under Section 102(2)(C) of the National Environmental Policy Act of 1969, the Advisory Council on Historic Preservation has determined that your draft environmental statement appears adequate regarding our area of expertise and we have no further comment to make.

Thank you for your cooperation.

Sincerely yours,

Ann Webster Smith

Ann Webster Smith
Director, Office of Compliance

THE COUNCIL, *an independent agency of the Executive Branch of the Federal Government, is charged by the Act of October 15, 1966 with advising the President and Congress in the field of Historic Preservation, commenting on Federal, federally assisted, and federally licensed undertakings having an effect upon properties listed in the National Register of Historic Places, recommending measures to coordinate governmental with private activities, advising on the dissemination of information, encouraging public interest and participation, recommending the conduct of special studies, advising in the preparation of legislation, and encouraging specialized training and education, and guiding the United States membership in the International Centre for the Study of the Preservation and the Restoration of Cultural Property in Rome, Italy.*

ADVISORY COUNCIL
ON
HISTORIC PRESERVATION

WASHINGTON, D.C. 20240

October 16, 1973

Mr. John E. Cook
Acting Regional Director
National Park Service
Western Regional Office
450 Golden Gate Avenue
P.O. Box 36036
San Francisco, California 94102

Dear Mr. Cook:

The Advisory Council is pleased to inform you that the Memorandum of Agreement for the Hawaii Volcanoes National Park on the Island of Hawaii, has been approved by the Chairman of the Advisory Council. This completes the Section 106 process and the National Park Service may proceed with the Master Plan. A copy of the Agreement is enclosed.

The Council appreciates your cooperation in the resolution of this matter and commends your contribution to the preservation of our national heritage.

Sincerely yours,

Ken Tapman
Director, Office of Compliance

Enclosure

THE COUNCIL, an independent agency of the Executive Branch of the Federal Government, is charged by the Act of October 15, 1966, with advising the President and Congress in the field of Historic Preservation, commenting on Federal, federally assisted, and federally licensed undertakings having an effect upon properties listed in the National Register of Historic Places, recommending measures to coordinate governmental with private activities, advising on the dissemination of information, encouraging public interest and participation, recommending the conduct of special studies, advising in the preparation of legislation, and encouraging specialized training and education, and guiding the United States membership in the International Centre for the Study of the Preservation and the Restoration of Cultural Property in Rome, Italy.

ADVISORY COUNCIL
ON
HISTORIC PRESERVATION

WASHINGTON, D.C. 20240

MEMORANDUM OF AGREEMENT

WHEREAS, the National Park Service, Department of the Interior, proposes to approve a Master Plan for Hawaii Volcanoes National Park on the Island of Hawaii, Hawaii; and,

WHEREAS, the National Park Service, Department of the Interior, has determined that this proposal will affect archeological and historical resources which appear to qualify for listing on the National Register of Historic Places and pursuant to the National Historic Preservation Act of 1966, has requested the comments of the Advisory Council on Historic Preservation; and,

WHEREAS, pursuant to the procedures of the Advisory Council on Historic Preservation (Federal Register, November 14, 1972, pp. 24146-24148) representatives of the Advisory Council on Historic Preservation, the Hawaii Historic Preservation Officer and the National Park Service have consulted and reviewed the proposed undertaking to determine the nature of the effect; now,

THEREFORE:

It is mutually agreed that implementation of the proposed undertaking, as indicated in the attached letter from John E. Cook, Acting Regional Director, Western Region, National Park Service, dated July 30, 1973, with specific conditions to insure preservation of the historic integrity of the cultural resources of Hawaii Volcanoes National Park, will not have an adverse effect.

Robert R. Garvey, Jr. 8/28/73 (date)
Executive Director
Advisory Council on Historic Preservation

[signature] 8/31/73 (date)
National Park Service
Department of the Interior

Sunao Kido 9/24/73 (date)
Hawaii Historic Preservation Officer

[signature] 10/[illegible]/73 (date)
Chairman,
Advisory Council on Historic Preservation

THE COUNCIL, an independent agency of the Executive Branch of the Federal Government, is charged by the Act of October 15, 1966, [illegible] advising the President and Congress in the field of Historic Preservation, commenting on Federal, federally assisted, and federally licen[illegible] undertakings having an effect upon properties listed in the National Register of Historic Places, recommending measures to coordi[illegible] governmental with private activities, advising on the dis[illegible]on of information, encouraging public interest and participation, re[illegible] mending the conduct of special studies, advising in the p[illegible]on of legislation, and encouraging specialized training and education, [illegible]

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
Washington, D.C. 20250

MAR 8 1974

Mr. Fred J. Novak
Acting Regional Director
Western Region
NATIONAL PARK SERVICE, USDI
450 Golden Gate Ave., Box 36063
San Francisco, California 94102

Dear Mr. Novak:

The draft environmental impact statements for the preliminary wilderness study and draft master plan for Hawaii Volcanoes National Park have been referred by the Office of the Secretary to the Forest Service for review.

We have no comments on the master plan statement. In the Wilderness proposal environmental statement it is stated that the National Park Service intends to use existing or proposed shelters for visitor use and to provide related water sources in two general areas of the park within areas proposed for wilderness.

Several of the cabins exist today, and are used by ranger patrols. The intention is to permit visitor use of the facilities. The justification is given that the shelters are needed for protection. While freezing weather does occur on the Mauna Loa Summit, it does not occur along the coastline below Hilina Pali. Even if it did, the intent of the Wilderness Act would be violated by providing the facilities for the visitor.

Section 4(c) of the Wilderness Act of 1964 prohibits such facilities for visitor use. That Section permits certain activities needed in emergencies relating to health and safety of the visitor; however, an important element of the definition of "emergency," at least according to Webster, is that it is an unforeseen combination of circumstances. To provide water for the visitor and to provide shelter against the elements in this day of ultra-light backpacking gear in the name of "emergency" is not supportable.

RECEIVED
JUL 30 1974

We appreciate the opportunity to review these environmental statements.

Sincerely,

Gene S. Berg

Acting Deputy Chief
Programs and Legislation

DEPARTMENT OF THE ARMY
PACIFIC OCEAN DIVISION, CORPS OF ENGINEERS
BUILDING 96, FORT ARMSTRONG
HONOLULU, HAWAII 96813

PODED-P

26 February 1974

Mr. Fred J. Novak, Acting Regional Director
National Park Service, Western Region
U.S. Department of the Interior
450 Golden Gate Avenue, Box 36063
San Francisco, California 94102

Dear Mr. Novak:

Your letter L48 (WR) DWC of 7 December 1973 to the Chief of Engineers was referred to us for reply. We have reviewed the Draft Environmental Statement - Proposed Wilderness Areas Master and Management Plans, Hawaii Volcanoes National Park, Hawaii, and offer the following comments:

a. An explanation of terms would be helpful to understand the concept of wilderness area and its intended state of preservation.

b. Measures to mitigate construction damage within the wilderness boundaries and to preserve native animal and plant communities and individual species could be discussed.

c. Discussion could be provided in the text which illustrates Federal costs to relocate campsites, to construct roads, water catchment systems and tanks, or to acquire land for the wilderness area.

d. Discussion could be expanded to provide information on whose authority the wilderness area will be created, and what steps must be taken to have the decision approved.

e. Recreational potential of the wilderness area is discussed, but no data is provided which would give an indication of how many persons will be using the park or how recreational benefits were computed. An explanation of how recreational benefits relate to the decision-making process would be helpful in illustrating the type of park utilization being considered, and how wilderness management will be organized to control recreational activities within wilderness boundaries.

RECEIVED
JUL 29 1974
Hawaii Volcanoes National Park

PODED-P
Mr. Fred J. Novak

26 February 1974

(add maps)

f. A discussion on the proposed plan's relationship to other Federal, State, and County land use ordinances and Coastal Zone Management programs could be provided.

Sincerely yours,

LEONARD EDELSTEIN
Colonel, Corps of Engineers
Deputy Division Engineer

Copies furnished:
Superintendent, Hawaii Volcanoes National Park, NPS, Hawaii 96718
Office of Environmental Quality Control, State of Hawaii

GENERAL COUNSEL OF THE
DEPARTMENT OF COMMERCE
Washington, D.C. 20230

Supt. . . . . .
Chief, I&RM . . . .
Engineer . . . . .
Proc. & Prop. Off.
Clerk . . . . . .
Secretary . . . .
District Ranger . . .
Coastal [illegible]
Park Ranger
Wildlife Biologist
Interp. Specialist
Research Biologist . .
. . . . . .
Other action to be taken

MAR 11 1974

Mr. Fred J. Novak
Acting Regional Director
Western Region
National Park Service
Department of the Interior
450 Golden Gate Avenue, Box 36063
San Francisco, California 94102

Dear Mr. Novak:

The Department of Commerce has received your letter regarding the Master Plan for Hawaii Volcanoes National Park and the study proposing to designate a portion of Hawaii Volcanoes National Park as a wilderness pursuant to the Wilderness Act of September 3, 1974, (78 Statement 890 et. seq). Our comments all focus on the unique observatory maintained by the Department's National Oceanic and Atmospheric Administration (NOAA) Mauna Loa and the unique air environment on Mauna Loa.

A. <u>The Master Plan</u>

page 9. Due to a unique air environment on Mauna Loa above the temperature inversion, this area enjoys unusually clean air. Reference to this phenomenon should appear in the section entitled "The Park and its Resources"

page 55. Reference is made to inclusion of "low standard roads" and later that these roads "...will be located predominately at the coast or at lower elevations..." We suggest that these roads be located <u>exclusively</u> along the coast and below 6500 feet above sea level. Such locations would insure that the temperature inversion could continue to act as a "barrier" or "filter" for the vehicle-produced pollution and minimize the effect on air sampling at the NOAA Observatory on Mauna Loa.

how high is Pu

page 57. We recommend inclusion of the following statement:

> "The operation of National Oceanic and Atmospheric Administration Mauna Loa Observatory constitutes a unique utilization of the special environment of the upper reaches of Mauna Loa. This 4.05 acre site located 11,150 feet above sea level permits access to one of the area's resources. Preservation of its clean air qualities will be emphasized."

page 57. The plan indicates that an additional trail connection will be made to the summit of Mauna Loa and the shelters thereon. Since the nighttime downslope flow to the NOAA Observatory is an extraordinarily clean air mass, the operation of petroleum fueled stoves or heating devices on the trail or in these shelters might create significant interferences. It is suggested therefore that the use of any petroleum-fueled device be prohibited at the back country shelters.

B. <u>The Wilderness Study</u>

page 7. The use of petroleum fuels at the Red Hill and Mauna Loa summit cabins should be prohibited.

page 11. Vehicular access to the upper slopes, specifically the summit of Mauna Loa, for research activity is properly recommended in the study; however, we suggest that measures be designed for controlling the road access. This would assist in preventing man-made pollution from interfering with the Observatory's function.

We also recommend that a "Special Provision" be made for the Observatory at page 11 of the Wilderness Study similar to the special provision for the Geological Survey weather research activities listed in the study.

Page 22. Provisions for structures, an access road and utility lines together with the necessary instruments, instrument platforms, and sampling masts required for the operation of the Observatory should be exempted from the

restriction of these sections. These requirements should be limited to those necessary to the NOAA scientific programs.

page 36. We suggest that the Mauna Loa Observatory be recognized in a manner similar to that done for Kilauea Military Camp.

page 36. We recommend inclusion in the protection of the park ecosystems the recognition of the unique air environment of the upper slopes of Mauna Loa and a statement of the intent to protect this resource.

page 37. It is stated that there will be encouragement of the use of remote areas "including the summit and slopes of Mauna Loa." We suggest that such "encouragement" particularly at elevations above about 6000 to 8000 feet mean sea level is not compatible with the preservation of the air environment. Furthermore, construction of trails not only interferes during construction but the subsequent use can be damaging. Significant numbers of hikers represent a threat to the Observatory's functions. We strongly recommend that no new hiking trails be constructed and that access to the "slopes and summit" of Mauna Loa be possible but restricted so that the area will be allowed to stay as it is as long as possible.

page 43. Any additional road areas represent some deterioration of the "clean" air environment. However, the proposed road's effect would be minimal if the "Upper Terminus" is kept to the lowest elevation possible. In no event should this road rise above 6500 feet mean sea level.

Thank you for the opportunity to review and comment. Please advise this Department of the final disposition.

Sincerely,

WILLIAM O. ROUNTREE

Assistant General Counsel
for Legislation

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Rockville, Md. 20852

Date : February 8, 1974

Reply to Attn. of:

To : Hearings Officer
% Superintendent, Hawaii Volcanoes National Park
Hawaii 96718

From : William Aron, Director R. L. Lehman for
Office of Ecology and Environmental Conservation

Subject: Hawaii Volcanoes National Park Wilderness Study and Draft Master Plan

We are pleased to transmit the attached copy of the Department of Commerce reply to Mr. Novak's letter of December 7, 1973, requesting review and comments on subject documents.

Attachment

cc: Bruce Blanchard, DOI

United States Department of the Interior

NATIONAL PARK SERVICE
WESTERN REGION
450 GOLDEN GATE AVENUE, BOX 36063
SAN FRANCISCO, CALIFORNIA 94102

IN REPLY REFER TO:
L48
(WR)DWC

December 7, 1973

Honorable Frederick B. Dent
Secretary of Commerce
Washington, D. C. 20230

Dear Mr. Secretary:

We are pleased to enclose a packet containing the preliminary wilderness study and draft master plan for Hawaii Volcanoes National Park and a draft environmental impact statement for each of the documents. We invite your review of, and comments on this material.

In accordance with the Wilderness Act of 1964, public hearings on the wilderness proposal will be held February 20, Aloha Room, Hilo Lagoon Hotel, 101 Aupuni Street, Hilo, Hawaii, from 1 to 5 p.m. and from 7 p.m. until conclusion; February 23, Yano Memorial Hall, Captain Cook, Kona, Hawaii, from 9 a.m. to noon and from 1 to 5 p.m.; and, February 26, second floor conference room, Gold Bond Building, 677 Ala Moana Boulevard, Honolulu, from 1 to 5 p.m. and from 7 p.m. until everyone who wishes to speak has been given an opportunity to do so. We would be pleased to receive your views on the proposal to establish four wilderness areas within Hawaii Volcanoes National Park in person at any of these public hearings, or, if you prefer, you may send written comments to the Hearings Officer, c/o Superintendent, Hawaii Volcanoes National Park, Hawaii 96718. Written comments will be accepted until March 28, 1974.

Public meetings on the draft master plan for the park will be held on alternate days at the same sites. They will be held February 19, at the Hilo location, 1 to 5 p.m. and from 7 p.m. to conclusion; February 22 at the Kona location, 1 to 5 p.m. and from 7 p.m. to conclusion; and February 25, at the Honolulu location, 1 to 5 p.m. and 7 p.m. until all who wish to speak have been heard.

If you wish to appear, or to have someone represent you in person at a wilderness hearing or master plan meeting, please notify the Hearings Officer, c/o Superintendent, Hawaii Volcanoes National Park, Hawaii.

With kindest regards.

Sincerely yours,

Fred J. Novak
Acting Regional Director
Western Region

Enclosure

135393

JOHNNY HORIZON
76

OFFICE OF THE ASSISTANT SECRETARY OF COMMERCE
Washington, D.C. 20230

February 5, 1974

Mr. Fred J. Novak
Acting Regional Director
Western Region
National Park Service
Department of the Interior
450 Golden Gate Avenue, Box 36063
San Francisco, California 94102

Dear Mr. Novak:

Thank you for your letter of December 7, 1973, and the accompanying material for the Hawaii Volcanoes National Park. We appreciate your recognition of our vital interest in preserving the environment, especially and specifically the air environment, of Mauna Loa.

You are undoubtedly aware that the Mauna Loa Observatory of NOAA has the only long-term measurements of background man-made and natural trace contaminants on the planet Earth. These data have shown, unequivocally, the global increase in carbon dioxide due to the burning of fossil fuels. They also have been sufficiently free of local interference due to man's activity to identify variations in the year-to-year increase that require explanation through continued research.

There has been steadily increasing recognition of our lack of knowledge of the amount and fate of contaminants in our atmosphere and their effect on climate and man. The 1972 United Nations Conference on the Human Environment in Stockholm singled out the need for a global monitoring program for the atmosphere and ocean as one of its highest priority recommendations. The follow-on action of the United Nations Environmental Program has selected this activity as its first priority program.

The National Oceanic and Atmospheric Administration has responded to this global need by creating the Geophysical Monitoring for Climatic Change Program, a program to establish the U.S. share of the monitoring observatories required to document our air environment and must be located in "clean" environments protected from the works and activities of man. Mauna Loa Observatory with its history of completely unique data is the keystone of this Program. The Observatory location and its air environment is protected by meteorological and topographical factors including the persistent temperature inversion, the rugged and inhospitable terrain, and the designed absence of public roads.

Thus, we vigorously support your efforts to preserve the character and longevity of the Mauna Loa ecology and environment.

We have attached detailed comments on each of the four documents you provided.

To summarize we find that:

I. Alternative F. of the draft environmental statement, with extension of the boundary, northwest, north and northeast, of the Mauna Loa summit to a line running along the 8500 foot mean sea level contour would best protect the unique clean air environment.

II. The proposed Master Plan, again with the extension of the northern boundary to 8500 feet MSL, would permit continuation of NOAA's long-term clean air research. Under this alternative we request;

A. The Hualalai access road elevations be kept below 6500 feet mean sea level.

B. That no additional trails to the summit of Mauna Loa be constructed.

C. The unique research needs and activities of NOAA at the Mauna Loa Observatory be explicitly recognized (as for the U.S. Geological Survey).

D. That the required access to and logistics (power lines, etc.) for the Mauna Loa Observatory be exempted from the restrictions normally applied to Wilderness areas.

III. Alternative B. of the draft environmental statement is unacceptable to the Department. The construction of a road at the location and altitude proposed would essentially destroy Mauna Loa clean air environment and prevent the continuation of clean air research.

We are attaching detailed comments on both the proposed Master Plan, Hawaii Volcanoes National Park, Environmental Impact Statement and on the proposed Wilderness Areas, Environmental Impact Statement. We hope these comments will be of assistance to you.

Finally, we will ask the Director of Mauna Loa Observatory, Dr. R. Fegley to discuss our needs with your Hearings Officer and to attend the Hilo hearings.

Sincerely,

Sidney R. Galler
Deputy Assistant Secretary
for Environmental Affairs

Attachments

O'Brien

2/7/74

JLSullivan/SRGaller/ns 2-6-74

Comments on

Draft Environmental Statement
Proposed Wilderness Areas

p. 1, par. 1 - We request lines 11-12 be changed to read: Further volcanic research with facilities necessary throughout the park, and atmospheric research in the unique environment of the Mauna Loa summit area, are equal in importance to the conservation public/use aspects. (Additions underlined.)

p. 3 - We request insertion of a specific statement recognizing the atmospheric research conducted by NOAA's Mauna Loa Observatory. The following is the suggested text:

"Atmospheric research to determine global background levels of trace contaminants is also equal in importance to visitor use. It is proposed to continue NOAA's Mauna Loa Observatory (4.05 acres at 11,200 feet MSL). Included in this provision will be permission for continued road access, utility services and operation of physical/chemical measuring systems."

p. 3, Unit 1 - We suggest that the boundaries of the area be extended from the proposed (approximate) 10,000 foot MSL altitude downslope to the 8,500 foot MSL contour. This would better protect the clean air environment.

p.6, 1st paragraph - We note in the last sentence the provision of a parking area "outside the current park boundaries and below the Mauna Loa weather observatory".

Since automobiles produce very large amounts of most of the trace materials NOAA is attempting to measure at very low concentrations, the close approach of vehicles can vitiate the clean air program. In recognition of this the Superintendent, Hawaii Volcanoes Park and the Director, Mauna Loa Observatory have provided for automobile access and parking as follows:

Week days - Mauna Loa Observatory access road is closed 300 meters upslope from the communications site ("Kulani Mauka) approximately 9 road miles from the Observatory.

Weekends - Mauna Loa Observatory access road is opened at the communication site but closed at a point 0.8 road miles below the Observatory (at approximately 10,000 feet MSL).

All parking is at or below the closed points on the road.

This arrangement provides an acceptable compromise between access to the grandeur of Mauna Loa and the need to preserve the clean air environment.

We request that this arrangement be continued and explicitly recognized in the Environmental Statement.

p. 29-32 - Research Programs - There is no mention of the unique atmospheric sciences research carried out at NOAA's Mauna Loa Observatory by and for Federal, state, university and other organizations. We have commented on this omission in each of the other three documents relating to this proposal and in a transmittal letter.

We believe this unique activity should be specifically mentioned and its capability to function in a continued clean air environment preserved. We will, if desired, provide additional information and photographs of our activities. (We note the photograph on p. 46 of the Proposed Master Plan is outdated. Additional measurement facilities have been added together with more control on automobile traffic.)

p. 37 - Mitigating Measures . . . - We repeat our comment regarding the requirement to recognize the ongoing NOAA Observatory program and to make special provisions for continued road access and the utility services required for the modern physical/chemical measurement systems.

p. 40 - Adverse Impacts . . . , par. 4 - the statement made regarding the U.S. Geological Survey's research facilities also applies, but to a more restricted area, to the NOAA Observatory research program. NOAA's intrusion will, however, be limited to the amount necessary to accomplish its research mission.

p. 44-57 - Alternatives

Alternative A - This "status quo" alternative would require NOAA to seek other alternative administrative action through local, state or Federal agencies (zoning, etc.) to provide a means for the

long term preservation of the clean air environment. Elimination of the access road to Hualalai would remove a potential source of pollution.

Alternative B.- No significant impact on NOAA different from proposed plan.

Alternative C - Same as Alternative B.

Alternative D - Same as Alternative B.

Alternative E - They only difference from the NOAA viewpoint would be the reduction of developments in the remaining wilderness areas.

Alternative F - We believe the establishment of a jeep road corridor would seriously pollute the Mauna Loa clean air environment. We would find this alternative unacceptable.

Alternative G - No significant impact different from proposed plan.

DRAFT

Comments on Draft Environmental Statement,
Proposed Master Plan, Hawaii
Volcanoes National Park

Summary

p.i 2. Description of action - We request the modification of the paragraph with the addition of the following:

"...public use; for continued volcanic research by the U.S. Geological Survey, and for continuing the background air monitoring activity of the NOAA Mauna Loa Observatory. This includes..."

p.1, paragraph 2 - Add:

"Another unique activity is the long term clean air monitoring program of NOAA's Mauna Loa Observatory, the only such set of measurements in the world."

p.1, paragraph 3 - Add:

"...; how research by the National Park Service, U.S. Geological Survey and NOAA shall augment the information already available."

Land Acquisition

p.3 - Map and p.4 - We request that the proposed new boundaries north, northwest, and northeast of the Mauna Loa summit (now at approximately 10,000 feet MSL) be enlarged and follow the 8500 foot contour. This additional area would ensure further protection of Mauna Loa air environment and, by confining man's activities to below 8500 feet, reduce the contamination of the air above the temperature inversion.

Research and Resource Management

p.5 Add to the list of research needs the following paragraph:

"Atmospheric research into background levels of trace contaminants is also required. This activity at NOAA's Mauna Loa Observatory constitutes a unique utilization of the special environment of the upper reaches of Mauna Loa. This research dating back to 1956 is

the world's only long term clean air monitoring program."

The Back Country Zone

p.19 The proposed expansion of trail facilities, specifically "...Hualalai's summit, Ahuaumi Heiau, and the Judd Trail as well as trail connections between these areas and the summit of Mauna Loa,..." may not be compatible with the preservation of the clean air environment. Since the nighttime downslope flow to the NOAA Observatory represents the cleanest of all air masses the operation of petroleum fueled stoves or heating devices would create significant interferences. It is suggested that the use of any petroleum fueled device be prohibited at the back country shelters. If such devices must be operated to prevent injury from cold, then the Observatory should be notified of the hours of operation.

Construction of trails not only interferes during construction but the subsequent utilization can be damaging. For example, we measure Freon-11 (CCL_3F), the propellant used in aerosol cans, as a measure of the spread of industrial effluents. This gas can be measured to concentrations as low as 1 part in a trillion. Discard of a single aerosol can along a trail near the Observatory could conceivably contaminate these measurements. People themselves give off ammonia, small particles, etc. Thus significant numbers of hikers would eventually represent a significant interference with the Observatory's functions.

However, most of us are also wilderness lovers and denial of any opportunity to go into the wild areas is also to deny a unique experience. We suggest therefore that access to the "slopes and

summit" of Mauna Loa be possible but not "encouraged". Experience shows that there are a few hardy individuals that make their way across the terrain without benefit of trails or other aids. We suggest the trail situation to the summit of Mauna Loa remain unchanged.

The Park and Its Resources

pages 25-40

Addition of a section describing the unique air resource of the upper elevations of the Mauna Loa area would complete the listing of the area's valuable assets. The following material could be used for this purpose:

"The atmosphere of the upper slopes of Mauna Loa is uniquely suitable for measurements of "clean" air."

A. For the first time in history man's technological activities have reached a level where his airborne effluents can compete with nature to change the concentration of trace materials. Some, if not all of these materials, can alter weather or climate through changes in solar radiative transfer processes (e.g. carbon dioxide, aerosols) or through modification of cloud physics processes (additional particles or gases).

B. Since weather and climate is intrinsically highly variable, it is necessary to know the concentration of the important species of trace materials and to document the changes with time if their influence is to be quantified.

C. A general criterion is the expectation of 30-50 years without signigicant intrusion. NOAA now has in operation Observatories established under these guidelines (Mauna Loa, Pt. Barrow, Tutuila, American Samoa and South Pole, Antarctica).

D. Mauna Loa is the first and oldest of these locations.

E. The location of 11,200 feet is protected by the semi-permanent temperature inversion from the upward transport of technological effluents from the Hawaiian Islands. The wind patterns at this height transit the entire Pacific without significant pollution input. In addition, the bare lava reduces interference from biota and the absence of public roads and the rugged nature of the footing minimizes the presence of man and his works which could destroy the unique character of this site. Further, the existence of monitoring data extending back 18 years represents a unique and invaluable global resource since it is the only such record in the world.

Environmental Impact of the Proposed Action - The Back Country

pages 64-65

This analysis omits the impact of the increased use of trails on the air environment of the upper slopes of Mauna Loa.

This use would introduce more and varied pollutants than now exist including effluents generated by the mere presence of man (e.g., ammonia, small particulates). Since the air now contains primarily only background levels of trace materials, these local increases could interfere with clean air monitoring.

Research and Management

p. 68 (see also p. 44 "Special Considerations")

It is desirable to include in this section recognition of the continuing atmospheric sciences research and the presence of the 4.05 acre Mauna Loa Observatory of NOAA as another "fact of life".

Adverse Effects Which Cannot be Avoided...

Some degradation of the clean air environment of Mauna Loa's upper slopes will occur. If, however, the proposed roads are kept below 6500 feet mean sea level and back country use is not encouraged by trail development, the impact will be small.

Alternatives to the Proposed Action

Alternative A - This "status quo" alternative would require NOAA to seek other alternative administrative action through local, state or Federal agenices (zoning, etc.) to provide a means for the long term preservation of the clean air environment. Elimination of the access road to Hualalai would remove a potential source of pollution.

Alternative B - This alternative would place a major new road within 2-3 miles of NOAA's Mauna Loa Observatory and above the protective temperature inverstion at this its closest approach to the Observatory. This action would effectively destroy the clean air environment, terminate the only long term global monitoring record and prevent future use of this unique locality for research on weather and climate change. All measurement programs would be adversely affected, including those for carbon dioxide, solar radiation, carbon monoxide, particulates and ozone, sulphur oxides, oxides of nitrogen and fluorocarbons, all vital components to this research.

Alternative C - This alternative is most in keeping with the preservation of the clean air environment and the continued long term operation of the NOAA Mauna Loa Observatory.

Alternative D - Impact on NOAA's Observatory the same as Alternative A.

Alternative E - Impact on NOAA's Observatory the same as Alternative A.

Alternative F - Adding these additional lands southeast of the observations would further reduce the pollution potential possibilities on the upper slopes. We would, however, request that the boundaries of the land acquisition to the northwest, north, northeast be extended and follow the 8500 foot (MSL) contour to provide an additional barrier to prevent pollution.

Alternatives G,H,I,J,K,L,M - No significant impact on NOAA's activity.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
100 CALIFORNIA STREET
SAN FRANCISCO, CALIFORNIA 94111

Fred J. Novak, Acting Regional Director
National Park Service - Western Region
450 Golden Gate Avenue
Box 36063
San Francisco, CA 94102

JAN 11 1974

Dear Mr. Novak:

The Environmental Protection Agency has reviewed the draft environmental impact statement for the Proposed Master Plan for the Hawaii Volcanoes National Park. The statement was dated October 26, 1973, and reviewed by EPA on December 13, 1973.

Our comments on the draft statement have been classified as "LO-1", specifically lack of objections to the proposed action. The classification and the date of EPA's comments will be published in the Federal Register in accordance with our responsibility to inform the public of our views on proposed Federal actions under Section 309 of the Clean Air Act.

Definitions of the categories are provided on the enclosure. Our procedure is to categorize our comments on both the environmental consequences of the proposed action and the adequacy of the impact statement at the draft stage.

If you have any questions concerning our categorization procedures, please let us know.

Sincerely,

Paul De Falco, Jr.
Regional Administrator

Enclosure

cc: Council on Environmental Quality, Wash., D.C. 20460
Attn: Editor, 102 Monitor

Environmental Impact of the Action

LO--Lack of Objections

EPA has no objections to the proposed action as described in the draft impact statement; or suggests only minor changes in the proposed action.

ER--Environmental Reservations

EPA has reservations concerning the environmental effects of certain aspects of the proposed action. EPA believes that further study of suggested alternatives or modifications is required and has asked the originating Federal agency to reassess these aspects.

EU--Environmentally Unsatisfactory

EPA believes that the proposed action is unsatisfactory because of its potentially harmful effect on the environment. Furthermore, the Agency believes that the potential safeguards which might be utilized may not adequately protect the environment from hazards arising from this action. The Agency recommends that alternatives to the action be analyzed further (including the possibility of no action at all).

Adequacy of the Impact Statement

Category 1--Adequate

The draft impact statement adequately sets forth the environmental impact of the proposed project or action as well as alternatives reasonably available to the project or action.

Category 2--Insufficient Information

EPA believes that the draft impact statement does not contain sufficient information to assess fully the environmental impact of the proposed project or action. However, from the information submitted, the Agency is able to make a preliminary determination of the impact on the environment. EPA has requested that the originator provide the information that was not included in the draft statement.

Category 3--Inadequate

EPA believes that the draft impact statement does not adequately assess the environmental impact of the proposed project or action, or that the statement inadequately analyzes reasonably available alternatives. The Agency has requested more information and analysis concerning the potential environmental hazards and has asked that substantial revision be made to the impact statement.

If a draft impact statement is assigned a Category 3, no rating will be made of the project or action, since a basis does not generally exist on which to make such a determination.

FEDERAL POWER COMMISSION
WASHINGTON 20426

Supt.
Chief, I&RM
Engineer
Proc. & Prop. Off.
Clerk
Secretary
District Ranger
Coastal Area
Park Rangers
Wildlife Biologist
Interp. Specialist
Research Biologist
Other action to be taken

JAN 31 1974

Mr. Fred J. Novak
Acting Regional Director
National Park Service
450 Golden Gate Avenue
Box 36063
San Francisco, California 94102

Reference: L48
(WR) DWC

Dear Mr. Novak:

This is in response to your letter of December 7, 1973, addressed to Chairman Nassikas, furnishing information and draft environmental statements on the master plan and wilderness proposals for Hawaii Volcanoes National Park.

As described in the material furnished, the proposed master plan would develop concepts and actions to guide further development and management of the existing 220,345-acre national park. The proposed master plan would also preserve about 124,000 acres of additional land under national park status. The areas proposed to be established as wilderness consist of four units, totaling 123,100 acres, within the existing park boundaries.

The staff of the Commission's Bureau of Power has reviewed the master plan and wilderness proposals to determine their effects on matters affecting the Commission's responsibilities. Such responsibilities relate to the development of hydroelectric power and assurance of the reliability and adequacy of electric service under the Federal Power Act, and the construction and operation of natural gas pipelines under the Natural Gas Act.

The staff review indicates that the master plan and wilderness proposals would not affect any existing electric power or natural gas facilities under the jurisdiction of the Federal Power Commission and would not appear to have any

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JUL 29 1974
Hawaii Volcanoes National Park

effect on the future development of supplies and transmission of electric power or natural gas.

Very truly yours,

T. A. Phillips
Chief, Bureau of Power

United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

In Reply Refer To:
EBM-MRED-MS
D-580

MAR 27 1974

Chief, I&RM
Engineer
Proc. & Prop. Off.
Clerk
Secretary
District Ranger
Coastal Area
Park Rangers
Wildlife Biologist
Interp. Specialist
Research Biologist
Other action to be taken

Dear Mr. Novak:

Thank you for the packet containing the draft master plan, the preliminary wilderness study and the accompanying draft environmental statements for Hawaii Volcanoes National Park.

Your studies are comprehensive and thorough in analyzing future use, care, and betterment of the park. Long range plans propose acquisition of more than 100,000 acres of new lands, control of exotic animal and plant species, and expansion of visitor opportunities. To accomplish your plans, both legislative and administrative actions will be required. We are pleased to see that the master plan provides under proposed wilderness the special use of helicopters and motor vehicles that would permit the Geological Survey to carry on its important research.

We noted that the environmental statement for the master plan does not consider the potential for geothermal energy that should exist in the area of the park. According to the Center for Engineering Research of the University of Hawaii, the County of Hawaii, outside of present national park boundaries, contains several regions with possible geothermal potential. These sites include the Puna rift, Kapoho, the northwest rift of Hualalai, the southwest rift of Mauna Loa, and the east rift of Mauna Kea. The development of the Hualalai site seems to be the most feasible at the present time since it is relatively quiet. The proposed expansion of the park may include some of these sites, particularly the Hualalai site.

Currently, Hawaii depends almost exclusively on the combustion of fossil fuels for its electrical energy. Because these fuels must be imported and in some cases refined locally, Hawaii's electric rates are among the highest in

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JUL 29 1974
Hawaii Volcanoes National Park

Ltr. to Mr. Fred J. Novak, Acting Regional Director, National Park Service, San Francisco, California, Subj: Hawaii Volcanoes National Park

the Nation. The studies and the environmental statements should consider this important natural resource and how its possible utilization and your proposed planning might each affect the other.

Sincerely yours,

(Sgd) John B. Rigg

Deputy Assistant Secretary of the Interior

Mr. Fred J. Novak
Acting Regional Director
Western Region
National Park Service
450 Golden Gate Avenue
Box 36063
San Francisco, California 94102

370

United States Department of the Interior

NATIONAL PARK SERVICE
WESTERN REGION
450 GOLDEN GATE AVENUE, BOX 36063
SAN FRANCISCO, CALIFORNIA 94102

IN REPLY REFER TO:
L48
(WR)DWC

December 7, 1973

Mr. Burton W. Silcock
Director, Bureau of Land Management
Department of the Interior
Washington, D. C. 20240

Dear Mr. Silcock:

We are pleased to enclose a packet containing the preliminary wilderness study and draft master plan for Hawaii Volcanoes National Park and a draft environmental impact statement for each of the documents. We invite your review of, and comments on this material.

In accordance with the Wilderness Act of 1964, public hearings on the wilderness proposal will be held February 20, Aloha Room, Hilo Lagoon Hotel, 101 Aupuni Street, Hilo, Hawaii, from 1 to 5 p.m. and from 7 p.m. until conclusion; February 23, Yano Memorial Hall, Captain Cook, Kona, Hawaii, from 9 a.m. to noon and from 1 to 5 p.m.; and, February 26, second floor conference room, Gold Bond Building, 677 Ala Moana Boulevard, Honolulu, from 1 to 5 p.m. and from 7 p.m. until everyone who wishes to speak has been given an opportunity to do so. We would be pleased to receive your views on the proposal to establish four wilderness areas within Hawaii Volcanoes National Park in person at any of these public hearings, or, if you prefer, you may send written comments to the Hearings Officer, c/o Superintendent, Hawaii Volcanoes National Park, Hawaii 96718. Written comments will be accepted until March 28, 1974.

Public meetings on the draft master plan for the park will be held on alternate days at the same sites. They will be held February 19, at the Hilo location, 1 to 5 p.m. and from 7 p.m. to conclusion; February 22 at the Kona location, 1 to 5 p.m. and from 7 p.m. to conclusion; and February 25, at the Honolulu location, 1 to 5 p.m. and 7 p.m. until all who wish to speak have been heard.

If you wish to appear, or to have someone represent you in person at a wilderness hearing or master plan meeting, please notify the Hearings Officer, c/o Superintendent, Hawaii Volcanoes National Park, Hawaii.

With kindest regards.

Sincerely yours,

Fred J. Novak

Fred J. Novak
Acting Regional Director
Western Region

Enclosure

12/12/73

We have no comments.

DAN

JOHNNY HORIZON 76

Let's Clean Up America For Our 200th Birthday

United States Department of the Interior

BUREAU OF MINES
WASHINGTON, D.C. 20240

Supt.
Chief, I&RM
Engineer
Proc. & Prop. Off.
Secretary
Park Rangers
Wildlife Biologist
Interp. Specialist
Research Biologist
Other action to be taken

February 19, 1974

In Reply Refer To:
EBM-MRED-MS
D-523

Mr. Fred J. Novak
Acting Regional Director
National Park Service
Western Region
450 Golden Gate Avenue, Box 36063
San Francisco, California 94102

Dear Mr. Novak:

We have reviewed the proposed Master Plan, Wilderness Study, and the accompaning draft environmental statements for Hawaii Volcanoes National Park. We believe your studies and their draft statements to be comprehensive and thorough in analyzing the future use, care, and betterment of the park. Your long-range plan proposes acquisition of more than 100,000 acres of new lands, control of exotic animal and plant species, and expansion of visitor opportunities. Both legislative and administrative actions are required to accomplish parts of your plan.

Your wilderness proposal would classify 123,000 acres as wilderness under provisions that would permit special use of helicopters and limited use of motor vehicles to carry on the research of the U.S. Geological Survey. We can see reason in the need for these special provisions.

The environmental statement for the Master Plan states that the only mineral resource in the park is building stone and that it is readily available throughout the island. However, one resource that the statement neglects to discuss is geothermal potential. Although no sites in Hawaii are included in the Geological Survey's list of Known Geothermal Resources Areas, there is a substantial potential in the Hawaiian Islands.

According to the Center for Engineering Research of the University of Hawaii, the County of Hawaii, outside of present national park boundaries, contains several regions with possible geothermal potential. These sites include the Puna rift, Kapoho, the northwest rift of Hualalai, the southwest rift of Mauna Loa, and the east rift of Mauna Kea. The development of the Hualalai site seems to be the most feasible at the present time since it is relatively quiet. The proposed expansion of the park may include some of these sites, particularly the Hualalai site.

JUL

Ltr. to Mr. Fred J. Novak, Acting Regional Director, National Park Service, Western Region, 450 Golden Gate Avenue, Box 36063, San Francisco, California, Subj: Hawaii Volcanoes National Park

Currently, Hawaii depends almost exclusively on the combustion of fossil fuels for its electrical energy. Because these fuels must be imported and in some cases refined locally, Hawaii's electric rates are among the highest in the Nation. The studies and their environmental statements should consider this important natural resource and how its possible utilization and your proposed planning might each affect the other.

Sincerely yours,

J. D. Morgan

Assistant Director

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF OUTDOOR RECREATION
PACIFIC SOUTHWEST REGIONAL OFFICE
BOX 36062
450 GOLDEN GATE AVENUE
SAN FRANCISCO, CALIFORNIA 94102

IREPLY REFER TO:
D72

March 11, 1974

Supt.
Chief, I&RM
Engineer
Proc. & Prop. Off.
Clerk
Secretary
District Ranger
Coastal Area
Park Rangers
Wildlife Biologist
Interp. Specialist
Research Biologist
Other action to be taken

Memorandum

To: Superintendent, Hawaii Volcanoes National Park
Attention: Hearings Officer

From: Regional Director

Subject: Review of Master Plan and Wilderness Study, and the October 26, 1973 draft Environmental Impact Statements for the Master Plan (DES 73-66) and the Wilderness Study (DES 73-68), Hawaii Volcanoes National Park, State of Hawaii

We have reviewed the four subject documents transmitted by Acting Regional Director Fred J. Novak's December 7, 1973 letter.

We have no comments on the EIS's. We are in accord with the Master Plan and Wilderness Study and appreciate the opportunity to review and comment on them.

Frank E. Sylvester

RECEIVED
JUL 23 1974
Hawaii Volcanoes National Park

JOHNNY HORIZON
76

Let's Clean Up America For Our 200th Birthday

United States Department of the Interior

BUREAU OF RECLAMATION
WASHINGTON, D. C. 20240

125. 739

FEB 25 1974

Memorandum

To: Regional Director, Western Region
National Park Service, San Francisco, California

From: Commissioner of Reclamation

Subject: Review of Draft Environmental Statement for the Wilderness Study and the Proposed Resources Management Plan at Hawaii Volcanoes National Park, Hawaii (DES 73-66, 67, and 68)

This responds to your December 7, 1973, letter and the January 4, 1974, letter from the Superintendent, Hawaii Volcanoes National Park, Hawaii, requesting a review of subject environmental statements.

Although we have no specific comments, we concur with the aims and methods set forth by the National Park Service to attain its goals.

G. G. STAMM

cc:
Superintendent, Hawaii Volcanoes National Park
Director, National Park Service

MAY 28 1974

DES 73-68

Memorandum

To: Regional Director, Western Region, National Park Service, San Francisco, California

Through: Assistant Secretary--Energy and Minerals

From: Director, Geological Survey

Subject: Review of draft environmental statement, preliminary wilderness study, and draft master plan for Hawaii Volcanoes National Park

We appreciate the opportunity to comment upon these documents because much of the land being proposed for wilderness includes areas where research on volcanic processes is underway by the Geological Survey. The importance of this research must be stressed and, if the wilderness proposal is approved, the safety and welfare of the island must be safeguarded by the special provisions allowing motorized access for research and for the installation of instruments that might otherwise be incompatible with wilderness status. Both of the subject documents do recognize this through the inclusion of a special provision that volcano research be allowed to continue, that helicopter access for transportation and servicing of instruments be permitted, and that the existing jeep road to the summit of Mauna Loa be permitted to remain for vehicular access. We wholeheartedly endorse this special provision.

We have learned that The Wilderness Society is opposed to this and other special provisions, as briefly outlined on their flyer. We must take vigorous exception to their opposition, because without special provision, the language of the Wilderness Act could not only be interpreted to require reduction or elimination of the existing research program, but would almost certainly be interpreted in a way that would prevent improvement or expansion of the program. The following discussion briefly recounts the development of the research program, the necessity of its continuation, and the importance of its ability to be modified to meet changing conditions of volcanic activity.

JUL 3 1974

Occasional recorded observations of Hawaiian volcanoes began in the 1820's and sporadic scientific studies began in the 1840's, but it was not until 1912, when the Hawaiian Volcano Observatory was established, that systematic scientific studies were carried out. The impact that the studies by the observatory have had on the understanding of volcanoes has been enormous. More than 280 papers have been published by scientists associated with the observatory, and these papers comprise a substantial fraction of existing worldwide knowledge on volcanoes in general. Scientists generally recognize the Hawaiian Volcano Observatory as the leading facility of its type anywhere in the world. Many different factors have contributed to the achievement of this status, but among the most important have been the frequent and often continuous eruptions and the relatively easy access to the eruptions, wherever they occurred, for scientific study. As technology advanced, new tools for study became available, and the frequent eruptions from widely different sites enabled the most advanced techniques to be used in learning more about the behavior of the volcanoes and mechanisms underlying their activity. While much has been learned, much more remains to be learned, and the Geological Survey places a high priority on continuing its program of scientific research at the volcano observatory.

New techniques for study are constantly being developed and improved, and the program of study today is vastly improved over what it was even fifteen years ago. With little doubt, the next fifteen years will see equivalent improvements, and some of the potential improvements may not even be visualized at present. To enable the accomplishments of the past to be made, it has been essential for studies to be carried out at whatever sites were deemed appropriate. For future studies to be effective, this same access to appropriate sites is vital. The localities of eruptive vents, wherever they might be, must be included as essential sites for study. Many eruptions within historic times, including several within the past few years, have originated within the proposed Wilderness Units 1, 2, and 3 of Hawaii Volcanoes National Park, and without doubt additional eruptions will occur within these areas in the future. We therefore urge that provisions for access to all appropriate areas for research purposes be an essential part of any wilderness legislation.

Because of constantly changing volcanic conditions, it is not possible to anticipate what particular areas might be involved in future activity, and therefore the provisions for access must be general enough to include any eruptive site whatsoever.

We must point out that the volcano research is essential, not merely for its own sake, but more importantly for the welfare and safety of the residents and visitors on the island. The direct, practical application of the research program is a continual monitor of the existing state of the volcanoes and a constant evaluation of the possibility of any immediate drastic changes in behavior. Happily, most recent activity has been mild and has been confined to uninhabitated areas. It is important to realize, however, that every square foot of land on Hawaii is the product of volcanic activity, that Kilauea, Mauna Loa and Hualalai are active volcanoes and are still growing, and that much of the land area of the island will inevitably be covered by future lava flows. It is vital for the population of the island to know as much as possible about changing trends of volcanic activity. For example, four times within recorded history the city of Hilo has been threatened by advancing lava flows. Every one of these flows originated within proposed Wilderness Unit 1. If wilderness designation denies modern types of access and installation of instruments required for scientific study, the human consequences could be dire.

It has already been mentioned that most Hawaiian volcanic activity is mild. Twice within the past 200 years, however, violent explosive eruptions have occurred, and the geologic record of the island shows that many other explosive eruptions have occurred in the geologic past. In 1790, prior to the time of scientific study, the explosive eruptions killed many people. In 1924, after systematic surveillance had been established, warnings protected the population. The only person killed in the 1924 eruption deliberately ignored specific personal warnings. In the future, if conditions again develop that indicate possible explosive conditions are developing, it will be vital to employ every possible method of study at whatever localities are deemed necessary. It could be disastrous if access or installations were denied because of wilderness restructions.

We think these matters are of sufficient importance to the general welfare that their continuance must be very specifically recognized in any legislation establishing a Hawaiian Wilderness. Helicopter access and judicious use of surface vehicles should be allowed, and modifications and expansion of research facilities should be specifically permitted. These kinds of activities are not serious intrusions into the wilderness environment, and present and future installations are and would be relatively small and inconspicuous. Nonetheless the equipment itself and periodic access to stations, by some interpretations, would be contrary to wilderness conditions. The Wilderness Society's flyer states, "The Wilderness Act is sufficiently broad and flexible to allow them without special language." Unfortunately, this very broadness and flexibility

might also be interpreted to prohibit nonconforming activities. Therefore we urge the retention of the special provisions, and would be willing to make further recommendations on factors to be included in the special provisions.

In light of all these factors, we would favor Alternative A--no wilderness designation--if this were deemed a suitable decision. We would vigorously oppose Alternatives B, C, D, F, and G. Adoption of any of the latter alternatives would place intolerable restrictions on research already in progress.

We do not wish to be regarded as opponents to the legal establishment of a wilderness in Hawaii. Our scientists who have lived and worked in that region appreciate more fully than most people the splendid qualities of the Hawaiian back country, and they conduct their work in such a way as to preserve these qualities as nearly as possible. Through the years they have maintained a close working liaison with the Park Service to assure that the scientific work would cause a minimum of intrusion on the natural scene. We recognize that the Park Service is already doing a truly admirable job of protecting the wild state of these areas. Therefore, if in consideration of our research activities, the provisions specifically permitting our research cannot be included in legislation for Hawaii Wilderness, then we would recommend that the Wilderness not be established. Exclusion of the region from wilderness would not mean a change in its present qualities. It would merely mean that decisions and actions regarding the effect of the volcanoes on public safety can continue to be made promptly and efficiently, and that growth of knowledge on the causes and mechanism of Hawaiian volcanoes will not be impeded by self-constructed barriers.

We are sure that a suitable course for the future of the lands in question can be selected that will include both preservation of their wilderness qualities and progress of vital research on volcanoes.

With respect to water resources of the proposed wilderness area, we offer the following comments.

As pointed out in all the documents, even with heavy rainfall in parts of the area, there are no running streams within the park and the water table is only a few feet above mean sea level. Large pumping lifts would be required to make the water available at desired locations. Water for domestic use is generally collected from extensive rain sheds, and is presently inadequate during periods of extended below-normal rainfall.

The only feasible method to meet further increases in demand for water seems to be an expansion of the present method of water catchments and storage systems. The effects of the expansion upon the environment should be considered in the environmental statement.

We thank you for the opportunity to review and comment on the proposal and draft environmental statement for Hawaii Volcanoes National Park.

Henry W. Coulter

Acting Director

cc:
AS-EM (2)
Director, PEP
NPS, HHWH San Francisco (telefaxed 5/24/74)
Gen. Files
Dir. Chron.
Mr. Baltz, GD
Mr. Davis, WRD
Mr. Hull, CD

src:5/24/74

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THOMAS J. SCOTT, CHIEF CLERK
JAMES R. CALLOWAY, COUNSEL

United States Senate

COMMITTEE ON APPROPRIATIONS
WASHINGTON, D.C. 20510

RECEIVED
26

December 18, 1973

Mr. Howard H. Chapman
Regional Director
National Park Service
450 Golden Gate Avenue, Box 36063
San Francisco, California 94102

Dear Mr. Chapman:

I appreciate very much your sending me a packet containing the preliminary wilderness study and draft master plan for Hawaii Volcanoes National Park and an environmental impact statement for each of the documents.

I appreciate also being invited to participate in the public meetings and to submit written comments.

Please be assured that I shall follow these matters with a great deal of interest, and shall welcome any additional information which may be forthcoming.

With aloha,

Sincerely yours,

Hiram L. Fong

Hiram L. Fong

HLF:lnk

RECEIVED
JUL 30 1974
Hawaii Volcanoes National Park

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
Bishop Trust Building, 10th Floor
1000 Bishop Street
Honolulu, Hawaii 96813

February 22, 1974

Hearings Officer
c/o Superintendent
Hawaii Volcanoes National Park
Hawaii National Park, Hawaii 96718

Gentlemen:

Subject: Draft Environmental Statements
Proposed Master Plan & Proposed Wilderness Areas
Hawaii Volcanoes National Park, Hawaii

The proposed action covered by the captioned documents involves modifications to an existing national park plan to accommodate the addition of a large wilderness area and several smaller modifications. The presentation also discusses a number of alternatives.

The comments set forth in the succeeding paragraphs reflect the Department of Housing and Urban Development's interest and involvement in community development planning and programming.

The concept of a multi-purpose facility providing opportunities for environmental preservation, various research activities and both passive and active recreation is an eminently desirable element of a community development plan. The proposed master plan exhibits these characteristics to a notable degree. Further, the proposed additions do not appear to have any significantly adverse impact on the surrouding environment. Rather, the opposite would seem to be the case, particularly with respect to the proppsed release of tracts 19 and 20 to potential urban development.

The Statements are well presented and appear to cover most of the important points. However, there are some areas I believe can be clarified.

1. Since the Federal Government is precluded from purchasing the land with its own funds, how will private lands be acquired for addition to the Park? If this is to be accomplished by donations, have the private land owners indicated a willingness to do so? If by State or local government through condemnation, has either so indicated?

2. The manner in which the alternatives are presented indicate varying degress of viability. Since the proposed Master Plan is the thing sought, the alternatives could be compared more directly with the Plan to show why the Plan is more desirable. It is also conceivable that some of the alternatives could be comfortably accommodated within the Plan, e.g., alternative L, designation of a parcel of land for Hawaiian homesteads but with controls designed to minimize impaction. Similar concepts are being discussed in connection with the Kahana Valley Park on Oahu.

3. Neither the text nor the maps refer to existing County of Hawaii parks in the Kalapana area. One is the Harry K. Brown park and the other is the Kaimu Beach Park in which HUD has participated. Does the proposed Plan include any of these areas? If so, will the Plan control the uses to which those areas can be put? What would the social impact be?

We have benefitted from the opportunity to review these documents. The existing Hawaii Volcanoes National Park is an asset not only to the State, but to the national community. Its preservation and enhancement is eminently desirable.

Sincerely,

Robert A. Nui
Program Manager

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION - REGION ~~SEVEN~~ Nine

450 Golden Gate Avenue, Box 36096, San Francisco, Calif. 94102

Supt.
Chief, I&RM
Engineer
Proc. & Prop. Off.
Clerk
Secretary
Park Rangers
Wildlife Biologist
Interp. Specialist
Research Biologist
Other action to be taken

ARIZONA
CALIFORNIA
HAWAII
NEVADA

March 27, 1974

IN REPLY REFER TO:
9ED

Hearings Officer
c/o Superintendent
Hawaii Volcanoes National Park
Hawaii 96718

Dear Sir:

We have reviewed the Draft Environmental Impact Statements for the proposed Master Plan (DES 73-66) and the proposed Wilderness Areas (DES 73-68), Hawaii Volcanoes National Park, Hawaii, and offer the following comments for your consideration.

1. Proposed Master Plan

a. Page 15, paragraph 2. Reconstruction of the Chain of Craters Road is presently programmed in Stage 1 for emergency relief funds under Hawaii Project ERFO-2(1). However, the corridor location, extent of reconstruction, and scheduling of this project are indeterminate at this time, due to the highly unstable volcanic activity within the project area.

b. Page 19, last paragraph. The Hawaii Highways Division recently completed safety improvements consisting of curve and shoulder widening on certain sections of State Route 11 within Hawaii Volcanoes National Park boundaries. At present, the State of Hawaii has no future plans to upgrade other portions of SR 11 within the Park; however, during November 1972, FHWA completed an engineering estimate for the National Park Service Development/Study Package Proposal No. 106 for the reconstruction of approximately 6.4 miles of existing Mamalahoa Highway in the vicinity of Kilauea.

c. Page 23, first paragraph. The Chain of Craters Road was first damaged in the vicinity of the Muna Ulu Summit during February 1969. Subsequently, numerous volcanic eruptions have resulted in additional miles of the Chain of Craters Road being inundated with new lava. At the present time, the Chain of Craters Road, between the Muna Ulu Summit and the foot of Holei Pali, has been destroyed.

JUL 29 1974
Hawaii Volcanoes National Park

d. Page 79, Alternate B. The western terminus of the proposed parkway appears to join Federal-aid Secondary Route 160 in the vicinity of the City of Refuge entrance. This terminus should be coordinated with Hawaii County Federal-aid Secondary Project S-0160(5) which is presently in design.

e. Page 91, Alternate H - No Reconstruction of Chain of Craters Road. Should this alternate be selected in the approved Master Plan for Hawaii Volcanoes National Park, the currently programmed project ERFO-2(1) should be withdrawn.

2. Proposed Wilderness Areas

Page 50, Alternate D - Designation of the Entire Chain of Craters and Adjacent Palis Mauka as Wilderness. Should this alternative be selected in the approved Wilderness Area designation, the programmed project ERFO-2(1) for the reconstruction of the Chain of Craters Road should be withdrawn.

We appreciate this opportunity to review the subject Draft EIS and would like to receive two copies of the Final Statement when it becomes available.

Sincerely yours,

For
F. E. Hawley
Regional Administrator

EXECUTIVE CHAMBERS
HONOLULU

JOHN A. BURNS
GOVERNOR

December 31, 1973

Mr. Howard H. Chapman, Director
Western Region National Park Service
450 Golden Gate Avenue
P. O. Box 36063
San Francisco, California 94102

Dear Mr. Chapman:

I would like to thank you on behalf of Governor Burns who is recuperating from surgery, for providing copies of the wilderness study and master plan for Hawaii Volcanoes National Park.

I have asked the Department of Land and Natural Resources to review the materials and to provide a response when the public hearings are held in February.

With warm personal regards, I remain,

Yours very truly,

George R. Ariyoshi
Acting Governor

RECEIVED
JUL 29 1974
Hawaii Volcanoes National Park

ATP 8.2314

March 6, 1974

Hearings Officer
c/o State Director
National Park Service
677 Ala Moana Blvd., Suite 512
Honolulu, Hawaii 96813

Dear Sir:

Subject: Hawaii Volcano National Park

We have reviewed your draft master plan and make the following comments:

The Hawaii Belt Road, State Route 11, traverses the Volcanoes National Park for some 12 miles. The highway serves not merely as an access to the park, but as the very lifeline for the southern area of Hawaii Island over which commercial, agricultural, industrial, and visitor traffic must pass on its way to and from the city of Hilo.

We find no reference in the master plan to this important highway which is so vital to the island's economy other than the brief paragraph on page 51: "ACCESS: Approach roads to existing park lands are expected to remain in approximately the same location, although some improvement in road standards as proposed." This statement fails to recognize the importance of the highway as a through traffic artery, not merely an approach road to the park; the proposed improvements in road standards are not detailed; any future expansion of highway capacity is precluded by the statement.

The Department of Transportation therefore recommends that the master plan statement on access be revised and expanded to:

1) recognize the importance of State Route 11 through the park as a vital transportation corridor serving the southern end of the island;

2) identify the proposed "improvement in road standards" and specifically include among these the channelization of the intersection of the park entrance road with State Route 11, particularly to provide a left turn storage lane for traffic entering the park from the Hilo direction;

3) recognize the possibility of the need to expand the highway to a four-lane divided facility to accommodate increased traffic as the southern end of the island develops.

We further recommend that the proposed access road from the Kona Belt Road to the summit of Puu Hualalai be extended northwards along the westerly boundary of the Pohakuloa Training Area to a connection with the Saddle Road, State Route 200, in the vicinity of the 42 mile post. Such an extension of the access road would make the Hualalai summit area much more accessible to residents from the Hilo area and the eastern side of the island and increase the number of residents able to visit and enjoy the experience of this unique area.

Sincerely,

E. ALVEY WRIGHT
Director

ALK:gm

cc: HWY-P
HWY-H

MP&W.

DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT

P. O. BOX 2359 • HONOLULU, HAWAII 96804

STATE OF HAWAII

JOHN A. BURNS
Governor

SHELLEY M. MARK
Director

EDWARD J. GREANEY, JR.
Deputy Director

December 26, 1973

Ref. No. 0171

Mr. Robert Barrel
State Director
National Park Service
677 Ala Moana Boulevard
Honolulu, Hawaii 96813

Dear Mr. Barrel:

We have reviewed the draft Master Plan and the preliminary Wilderness Proposal for Hawaii Volcanoes National Park, and the Environmental Impact Statement for each of the proposals.

We find that the Master Plan and the Wilderness Proposal are in accord with the goals of the State General Plan.

The draft Environmental Impact Statement for each of the proposals is generally adequate in its coverage of environmental issues. The evaluation of alternatives appears to be well considered.

The appropriate State and County agencies have been contacted and they have acknowledged receipt of the proposals from your office. These agencies have indicated that they will send their review comments directly to you and a copy to us. It is our understanding that the record of the hearings and meetings on the proposals will be kept open until March 28, 1974, and written comments will be accepted until that date. Accordingly, our final clearinghouse review comments will be transmitted to your office prior to this date.

Thank you for allowing us the opportunity to review the documents.

Sincerely,

E J Greaney Jr.

SHELLEY M. MARK

JOHN A. BURNS
GOVERNOR OF HAWAII

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

DIVISIONS:
CONVEYANCES
FISH AND GAME
FORESTRY
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

October 16, 1973

Robert L. Barrel, State Director
National Park Service
U. S. Department of the Interior
677 Ala Moana Boulevard, Suite 512
Honolulu, HI 96813

Dear Mr. Barrel:

A review has been made of the Hawaii Volcanoes Master Plan and its Draft Environmental Impact Statement, as well as the Draft Environmental Impact Statement for the proposed wilderness areas.

The only historical place known to be affected by these plans that is not within the present Park boundaries is Ahu A Umi heiau on the slopes of Hualalai. Ahu A Umi heiau was processed under the statewide inventory program and has been placed on the Hawaii Register of Historic Places as a valuable site. It was also nominated to the National Register by the Review Board on April 9, 1973, but the paperwork has not been forwarded to the National Register as yet.

The major known historical places within existing Park boundaries have been processed by the National Park Service under PEO 11593, and have been submitted to the Hawaii Historic Places Review Board for their consideration before I review them as State Historic Preservation Officer.

This plan and the Impact Statements adequately consider the requirements of historic preservation for those sitesknown to be of National Register quality, as well as those which are of lesser value. Pending review of the final plans for projects in the various site areas, in my opinion there will be no adverse effect upon known historical sites by the projects proposed by the National Park Service.

RECEIVED
OCT 26 1973
HONOLULU FIELD OFFICE

The historical staff indicates that problems of clarity and accuracy exist ith the descriptive sections on archaeology and history, particularly with the ..aster Plan and its Impact Statement. The descriptive material in the Wilderness Areas Environmental Impact Statement is much clearer and accurate. t is suggested that consideration be given to rewriting these sections of he Master Plan and its Impact Statement, or instead, substitute the material in the Wilderness Areas Statement before releasing them for public review.

Very truly yours,

BOARD OF LAND AND NATURAL RESOURCES

SUNAO KIDO
Chairman and Member

JOHN A. BURNS
GOVERNOR OF HAWAII

DIVISIONS
CONVEYANCES
FISH AND GAME
FORESTRY
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELO

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

February 21, 1974

Mr. Robert L. Barrel, Director
National Park Service
U. S. Dept. of Interior
Hawaii Group
677 Ala Moana Blvd., Suite 512
Honolulu, Hawaii 96813

Dear Sir:

Comments on Draft Master Plan and Draft EIS
for Hawaii Volcanoes National Park

In response to your request, and in the capacity of State Historic Preservation Officer, I am presenting a consolidation of the comments of the Divisions of Fish and Game, Forestry and State Parks of the Department of Land and Natural Resources on the subject Master Plan report.

The report does not fully explain the extent of public use that will be made of the proposed Park expansion. The implied impression is that "preservation of something" over-rides all other uses, and the solution proposed is to include the areas in a National Park.

Nearly all of the programs of the National Park are primaril for research rather than for visitors' enjoyment.

Any loss of public hunting and fishing opportunities resulting from the proposed park, will have an impact on the local population and should merit further investigation.

In the area of fire protection policies of the National Park Services, the protection of our valuable watershed areas, both in the National Park and on adjacent forest lands, is important. The recent policy of letting fires run their course rather than containment could have serious adverse effects on both water and timber resources.

The Olaa Fern Forest is proposed to become a research study area, and not be open to the public. Consideration shoul be given to placing this 9,654 acres in the Natural Areas Syste since the section is not presently part of the Park. The Hualalai-Mauna Loa area should also be considered for the State Natural Area System, since the primary purpose for the inclusio of these parcels in the National Park is preservation.

We fail to see the real Park's objective in the addition of 5,400 acres of tideland and water. The State already has the legal machinery for partial and total preservation of our marine resources and habitat, through either the establishm of Marine Life Conservation Districts or the Natural Area Reser System. It is essential that our department retain control of the area in question as well as the marine resources. We sugge that the Park Service consider coordinating their activities through cooperative endeavors with the State.

A possible suggestion would be for the National Park to limit itself to reseaRch of the Volcano and let other local organizations such as the Bishop Museum, State Historic Site Branch and others do research in the areas of fauna and flora species, historic sites, etc.

This department is concerned over the impact that the placing of these large areas, presently controlled by the State, under a strict National Park system, will have on the local population who presently enjoy their use under less restrictive rules.

Thank you for giving us the opportunity to comment on your proposed Master Plan.

Very truly yours,

BOARD OF LAND AND NATURAL RESOURCES

SUNAO KIDO
Chairman and Member

PLANNING DEPARTMENT

25 AUPUNI STREET • HILO, HAWAII 96720

SHUNICHI KIMURA
Mayor

RAYMOND H. SUEFUJI
Director

COUNTY OF
HAWAII

March 14, 1974

Hawaii Volcanoes National Park
Hawaii National Park
Hawaii 96718

Re: Environmental Impact Statement - Hawaii Volcanoes National Park

Thank you for the opportunity to review and comment on the subject EIS. We have addressed ourselves here to the impact statement itself as it relates to EPA guidelines. We are further limiting our comments two those to aspects of the plan which are not covered by seperate EIS.

Land Acquisition Program:

1) There needs to be an expanded justification for the acquisition of the coastal off-shore lands, especially as it relates to park goals and development. Here, a discussion of whether fishing from shore, or spear fishing will be permitted or if the entire coast is to be maintained as a preserve. If on the other hand fishing rights are granted, what are the limitations?

2) The Olaa forest acquisition is based largely on the grounds that it is an extremely fragile, pristine native rain forest. Also, that the area is in need of protection against encroaching exotic species. It is proposed as a scientific reserve. However, the park proposes an elevated nature walk with self-interpreted facilities adjacent to it. Rather than expose the area to possible infiltration of exotic species, may we ask that you consider other areas with a similar environment such as the Thurston Lava Tube area for display and Educational Purposes. This area is already accessible to the public and is within your visitor use zone.

3) There are reports that the Olaa Forest Reserve has been affected by the Ohia dieback problem. If this is the case, how does it affect the pristine character of the forest.

4) There is no discussion of the relationship of the Master Plan's acquisition program to others in the area as is required by impact statement guidelines. For example, what is the relationship of the Olaa forest to the proposed Puu Makaala natural area reserve. What are the alternatives of placing some of these proposed acquisitions into the Natural Area Reserve System.

5) If the land acquisition is to be accomplished through purchase, what is the cost estimate to the Federal Government.

Visitor Facility Expansion Program:

1) In the use of the three zonal land designations (i.e. primary zone, wilderness threshhold zone, back country zone) There should be a clear listing of the activities and/or facilities which are permissible for each of these areas.

2) What is the justification for moving the interperative center to Uwekahana Bluff? Might not research needs conflict with visitor/recreational needs?

3) How will the carrying capacities of each of the visitor destinations be determined and how will they be controlled?

Sidney Fuke

RAYMOND H. SUEFUJI
Director

VG:RN:LR:1st

cc: Parks and Recreation
Research and Development

APPROVED:

Mayor

PLANNING DEPARTMENT

25 AUPUNI STREET • HILO, HAWAII 96720

SHUNICHI KIMURA
Mayor

RAYMOND H. SUEFUJI
Director

COUNTY OF
HAWAII

March 8, 1974

Hawaii Volcanoes National Park
Hawaii National Park
Hawaii 96718

Re: Hawaii Volcanoes Master Plan

Thank you for the opportunity to review and comment on the subject master plan. We have incorporated here concerns which were expressed by the departments of Parks and Recreation, Research and Development, and Planning. Our comments are limited to the conceptual level of the master plan itself. We will be addressing comments on the related environmental impact statement in a separate document.

We support the overall park goals and are fully cognizant that the acquisition by the National Park will in effect maintain open space over large areas for the general public. Nevertheless, there is evident, a conflict between preservation goals and recreational/visitor use goals. The master plan advocates the need for the preservation of pristine environments and the unique, endemic resources of the park. It has justified the expansion beyond the authorized boundaries on these grounds. Yet, the plan also proposes action which encourages the destruction of these values. For example, the Kahaluu forest is described as a pristine example of a native rain forest. It contains many rare, endemic species. Yet, the proposed access road to Hualalai will pass through the forest, directly destroying part of it. It shall indirectly destroy part of it. It shall indirectly expose the surrounding forest to destruction by increased introduction of exotic species. Perhaps an alternative road corridor with less damaging effects should be considered.

We would not deny that recreation has its place in the National Park system as does the preservation of unique resources. However, within the area encompassed by the National Park master plan are areas which should be preserved at all cost. There are also like areas which could withstand multiple use. In order to resolve this sort of basic conflict and to delineate different areal use, may we suggest the master plan be written along the lines of the Haleakala master

plan; that is, as a zonal plan, using the six land designation categories of the administrative policies of the National Park services. This, and a listing of permitted uses for each of the categories, would elucidate the presentation of the park plan. This should apply to those lands being proposed for acquisition as well as existing park lands. Here we would request that hunting in limited areas be also permitted.

There is also a distinct possibility that the Hualalai area may be viable geothermal energy grounds which could eventually be developed While research for such a development is permitted under National Parks guidelines, it is not clear what the status of such a commercial and/or public utilities facilities would be. If, under present National Parks policies, the development of a geothermal plant shall not be permitted, we would ask that in view of the growing problem with non-renewable energy sources, that a legislative exception be made, or that legal assurance be given the state to permit such a development in the event that it becomes feasible. If the exception cannot be provided, may we suggest that the area be withheld from the acquisition program.

Sincerely,

RAYMOND H. SUEFUJI
Director

VG:mn

cc: Parks and Recreation
Research and Development

APPROVED:

Mayor

OFFICE OF THE MAYOR — county of hawaii, hilo, hawaii 96720

SHUNICHI KIMURA
MAYOR

February 19, 1974

Hearing Officer
c/o Superintendent
Hawaii Volcanoes National Park
Hawaii National Park, HI 96718

RE: HAWAII VOLCANOES MASTER PLAN/WILDERNESS STUDY

We are presently reviewing the above mentioned proposals in light of the County's economic/conservation/recreation/scientific policies and will shortly submit our position statement on the issues at hand.

We appreciate the opportunity to review the proposals and will keep you informed on our review.

Shunichi Kimura
MAYOR

SK:fy

the aloha association

Suite 572 / Alexander Young Building / Honolulu, Hawaii 96813
Phone 524-4660/524-4661/524-4662

February 11, 1974

Hearing Officer
c/o Superintendent
Hawaii Volcanoes National Park
Pacific International Building
677 Ala Moana Boulevard, Suite 512
Honolulu, Hi 96813

Dear Sir:

The purposes of the ALOHA ASSOCIATION are "to protect all existing land, water, and mineral rights of persons of Hawaiian descent, and to support the presentation of claims to the United States Congress and the State of Hawaii for the settlement of all native Hawaiian claims for land and water rights and the restoration of as much land as possible to the ownership and control of persons of Hawaiian descent."

Because of the purposes of our organization, and because legislation is still in the process of being drafted, it is possible that the land areas under consideration may become subject to question. For this reason, we hope to keep informed as to all proposed actions, testimony, and decisions regarding any land in which the Federal government and the State of Hawaii are to be involved. The Board of Directors of ALOHA, through its officers and attorneys, will be following these proceedings and any other similar hearings with keen interest.

Sincerely,

Charles K. Maxwell
President
ALOHA ASSOCIATION, INC.

CKM/cb

Star Route Box C-18-V
Keaau, Hawaii 96749
29 January 1974

Mr. Bryan Harry, Superintendent
Hawaii Volcanoes National Park
Hawaii 96718

Dear Bryan:

I have written Norman Carlson to thank him for all he did last weekend for making our trip to the summit of Hualalai a spectacular reality, but were it not for your personal effort, the whole trip probably never would have materialized. Thank you and Don Reeser for assisting us so much in making not only the transport of our group successful, but for the informative commentary from both of you as the trip went along. Your emphasis on access to the park, management of the goats, and reintroduction of endemic and native species is most encouraging.

The point Mr. Carlson made about control of banana poka is indeed a salient one, and I would hope that when (and if) Congress acts to develop the Hualalai extension specific provision is made to include sizable sums for both goat control and banana poka.

I for one and other outdoorsmen will, I know, benefit from the extension of Hawaii Volcanoes National Park to include the summit and "saddle area" of Hualalai. It certainly is in the best interests of the people of Hawaii to do so and to do it soon because of the urgent need for your enlightened park management plans. You were right about how different Hualalai is from the other major volcano systems on this island.

Once again thank you and Don Reeser so much for your assistance in making our trip possible. We will give positive testimony at the February hearings and include our own now first-hand observations. For the record, this letter may be included in the hearing record for February of 1974 pertaining to the park expansion. Our chapter of the Conservation Council for Hawaii wholeheartedly endorses your efforts.

Enclosed are some items of possible interest including Menzies' trip in January of 1794 -- 180 years ago! Please return them when you are finished with them. No hurry.

Very truly yours,

Q. D. Stephen-Hassard, President
Windward Hawaii Island Chapter
Conservation Council for Hawaii

QDS-H/ms-h

Enclosures

cc: Oahu Chapter, CCH

STATEMENT OF THE FLORA AND FAUNA COMMITTEE OF THE EAST HAWAII CHAPTER OF THE CONSERVATION COUNCIL FOR HAWAII ON THE MASTER PLAN FOR HAWAII VOLCANOES NATIONAL PARK, DRAFT OF Oct. 26, 1973

First, we, the members of the Flora and Fauna Committee of the East Hawaii chapter of the Conservation Council for Hawaii, are in general agreement with the Master Plan for Hawaii Volcanoes National Park, draft of Oct. 26, 1973

We especially approve the proposed inclusion of the Mauna Loa Summit-Hualalai Extension, the legislation giving Hawaii Volcanoes National Park administrative powers over the Olaa Forest Tract, the inclusion of the additional Thurston Lava Tube-Chain of Craters Extension, and the Tide land-Shore waters area; all of which contain rare as well as more common native species of plant and animal life.

The Mauna Loa Summit-Hualalai Extension has a considerable number of special areas where rare species exist that need more protection than they have been receiving from present owners of the land. The National Park Service is certainly better equipped to protect these; for this is one of the main functions of national parks. Also the less fragile ecosystems can be made more available for the public to enjoy, thus spreading visitors to more areas in the Park and reducing visitor pressure on the more familiar areas.

The inclusion of the Olaa Forest Tract and the Thurston Lave Tube-Chain of Craters Extension as integral parts of the Park will be a boon to the preservation of native rain-forest habitats. Unfortunately elsewhere too many of these have been or still are being altered or destroyed by feral animals, exotic plants, or man's use.

These rain-forest areas are especially necessary to the Park to complete the native wildlife habitats and preserve some of their rarer species. When the Hawaii Volcanoes National Park was set up, volcanic rather than forest features were sought for inclusion. So little forest land was included. Even the subsequent additions have added little of the rain-forest habitats, the Olaa Forest Tract being in limbo administratively. Also, unfortunately large parts of the wet country forest in the Chain of Craters area already part of the Park have been overrun by volcanic eruptions since 1968.

Under existing statutes Hawaii Volcanoes National Park has limited control over shore areas and the protection of marine flora and fauna there. The inclusion of the ¼mile shore water and tide land area into the Wilderness Area will be a big step forward for the protection of Hawaii's strand and coastal marine life, some of which is as rare and worthy of preservation as land species. Other species, once plentiful, are now diminishing. The State of Hawaii does not have enough nor large enough marine life sanctuaries. The inclusion of the small shore tracts at the eastern and southwestern borders of the Park will help in this matter as well as include interesting historical and geological features.

Therefore we feel that all areas chosen for additions to Hawaii Volcanoes National Park should be incorporated into it.

However, we would like to see included in the management part of the Master Plan definite emphasis upon the immediate destruction of individuals or colonies of invading exotic plants or animals of known potential danger to native flora or fauna and not now extensive in the Park. Species such as banana poka (Passiflora vitafolia), fountain grass (Pennisetum setaceum), melastoma (Melastoma malabathricum), stinkbug (Nezara viridula), do not need more research to determine their danger to native environments. They should be eradicated at once before they spread and become a major problem should they invade the Park.

We would also like to see more emphasis placed on control of wild pigs, cats, and non-native rats all of which seriously disturb native wildlife.

Respectfully submitted,

453-C Waianuenue Ave.
Hilo, Hawaii, 96720
Feb. 17, 1974

Helen S. Baldwin

Helen S. Baldwin, Chairman
Flora and Fauna Committee
East Hawaii chapter Conservation Council for Hawaii

Hawaii Isle Fish and Game Association
29 Akea Street
Hilo, Hawaii 96720

February 7, 1974

Mr. Bryan Harry
Superintendent
Hawaii Volcanoes National Park
Volcano, Hawaii 96785

RE: Proposed Master Plan and Wilderness Areas

Dear Mr. Harry:

Thank you for inviting our association to make comments and recommendations to your captioned proposed plans. Also for coming down to meet with our Ad Hoc committee to study these plans.

At this point, we are in general agreement and do support you in these areas. Under separate letter, we do have recommendations to your "Natural Resources Management Plan".

With best regards.

Sincerely,

Earl Pacheco
President

Earl Pacheco

cc: Mr. Lloyd Koffman
Secretary

HAWAII ISLAND
CHAMBER OF COMMERCE

ESTABLISHED 1897 180 KINOOLE STREET ROOM 203 HILO, HAWAII 96720

March 21, 1974

Mr. Bryan Harry
Superintendent
Hawaii Volcanoes National Park
HI 96718

Thank you for your invitation to testify on the proposed Hawaii Volcanoes National Park Master Plan and Wilderness Proposal.

Summary

The Hawaii Island Chamber of Commerce is strongly in favor of both the National Park Master Plan and Wilderness Proposal but with certain amendments. We recommend the following changes:

1) That provision be made for access by vehicle for Volcanic Research purposes in Wilderness Units 1, 2, and 3.
2) That in one area where recent studies show a potential for geothermal power (Tracts 26 and 27) the expansion of the Park boundary be deferred.
3) That solar collector fields be made a Permitted Use on the western slopes of Mauna Loa below some aesthetically acceptable elevation.
4) That the Master Plan follow the recommendations made by the Hawaii Department of Highways in their letter of March 6, 1974. (Copy attached.)

Reasons for Endorsement of Plan

The Volcanoes National Park now draws close to one million off-island visitors each year. As other areas of the Hawaiian Islands become increasingly crowded, this preserve will become increasingly important as a tourist destination.

Just as an enlarged park can cause more tourists to come to the Big Island, the economic consequences of the improvement of park facilities as outlined in the Master Plan will provide added encouragement for visitors to remain on the Big Island an extra day.

Because, 1) the long range job of salvage, preservation and presentation of Hawaiian lands is economically desirable and 2) the Hawaii Volcanoes National Park appears to be the agency best able to do it, the Hawaii Island Chamber of Commerce is in favor of the proposed Volcanoes Park Master Plan and the Wilderness Plan, subject to resolution of the three problems discussed below.

Wilderness Plan Special Provision #2

We believe that the Wilderness Plan access restrictions on Volcanic Research are not sufficiently alleviated by Special Provision #2 (top of page 2, Wilderness E.I.S.).

Aside from the employment it provides, Volcanic Research has at least two economic impacts on this island.

1) Hilo and many other areas on the Big Island are subject to volcanic destruction. The volcanic research activities of the United States Geological Survey and others are perhaps the most important single factor in minimizing damage to property and loss of life.

The Adverse Impact Statement on page 40, Wilderness E.I.S., says "There will...be an unavoidable increase in cost of...research programs for the

...U. S. Geological Survey." Budgetary constraints translate "an unavoidable increase in cost" to mean "an unavoidable decrease in services."

The activities of the U. S. Geological Survey Volcanic Observatory are essential to the safety of life and property on the Big Island. We do not want restrictions that will hamper Volcanic Research.

2) There is probably no other place in the world so uniquely situated for basic research into use of the earth's magma as an energy resource as is the area within Hawaii Volcanoes National Park. Successful research in this field may result in future generations' best hope for low cost, non-polluting energy. It also may provide the theoretical basis for energy extraction throughout the Hawaiian Islands and from the adjacent sea floor, which could provide Hawaii with exportable energy in the form of hydrogen fuel.

Although Mauna Ulu is active today outside the proposed Wilderness area, it could stop tomorrow and the volcanic activity move only a short distance across the line into that designated for Wilderness Unit 3. At the present state of the art it is not possible to tell where in proposed Wilderness Units 1, 2, and 3 volcanic research will be necessary. The molten lava lakes required for some areas of research occur at unpredictable times and places within the Park. Volcanic researchers have a legitimate need to get their equipment to the site of activity as economically as possible. The money to

pay for helicopters must be paid by reducing research activities. After an eruption has finished it is not particularly difficult to obliterate the rough trails used for vehicle access.

In conclusion, we believe Special Provision #2, as written, ultimately can be detrimental to the safety of life and property on the Island of Hawaii and can be a serious impediment in the basic research leading to long range, low-polluting energy from the earth's magma and development of Hawaii as an energy exporter. We urge the revision of Special Provision #2 so that it grants Volcanic Research all the rights and privileges in the Wilderness Areas that it now enjoys elsewhere in the park and specifically grants the right to have ground vehicle access to eruption sites.

Master Plan Acquisition of Tracts 26 and 27

Recent infrared aerial sensing surveys have revealed a large geothermal hot spot near Tracts 26 and 27 in the southwest corner of the present Volcanoes National Park. Inclusion of that site in the Park would put major obstacles in the path of its development for geothermal energy.

The cost of this island's oil-fueled electricity is among the highest in the world. We can ill afford to pass up any opportunity to use alternative energy sources.

Although Tracts 26 and 27 would make a natural geological addition to the park, and are already within the Authorized Park Boundary, their purchase

should be delayed a sufficient length of time to permit further prospecting and development of geothermal energy, if such is feasible. If the site proves unsuitable for development of geothermal energy it could be purchased at a later date.

Master Plan Acquisition of Hualalai-Mauna Loa Complex

The solar radiation received on the high, cloudless western slopes of Mauna Loa is among the highest per unit area found in the United States.

These slopes may prove a prive area for the first major installation of solar collectors to convert sunlight directly into electricity for use in an electrical power network.

Suitably designed black collectors might have little visual impact. If their upper limit were kept at 11,000 feet they should remain invisible from the summit. Whether they were visible from the Hualalai area and elsewhere would depend a great deal on their design.

The Big Island should not give up this potential source of energy without careful study. Until that study is completed we recommend that solar collectors be included as a Permitted Use on the western slopes of Mauna Loa.

Thank you for the opportunity to comment on the proposed Volcanoes National Park Master Plan and Wilderness Plan.

Very truly yours,

HAWAII ISLAND CHAMBER OF COMMERCE

E. H. ARAUJO
PRESIDENT

EHA:dld

ATTACHMENT (1)

cc: Governor John A. Burns
Mayor Shunichi Kimura
Chairman Robert Yamada &
Members of the County Council

KONA OUTDOOR CIRCLE STATEMENT ON THE PROPOSED MASTER PLAN FOR HAWAII VOLCANOES NATIONAL PARK

We of the Kona Outdoor Circle feel that the proposed site acquisition and deletion of Hawaii Volcanoes National Park in general would be of benefit to both the local community and visitors to the island, who have heretofore not had access to the upper Hawaii slopes.

It would also provide an expanded program for control of feral species and plants in an effort to preserve the Hawaiian ecosystems. This valuable conservation effort is greatly needed for continuance of endangered plant species and, in particular, the ohia trees.

Extra camping in these areas would increase those facilities already in short supply.

We feel that this project is a worthy one; however, we reserve our total support until such time as complete information is available as to exact location of proposed roads and accesses.

Respectfully submitted,

C.J. Kimberly

C.J. Kimberly
1st Vice President
in charge of Public Affairs
On behalf of the Kona Outdoor Circle
2/22/74

SOCIETY OF AMERICAN FORESTERS

Hawaii Section
1179 Punchbowl Street
Honolulu, Hawaii 96813

January 25, 1974

Mr. Stanley W. Hulett
Associate Director
National Park Service
Hawaii Volcanoes National Park
Volcano, Hawaii 96785

Dear Mr. Hulett:

We have reviewed your report, Wilderness Study, Hawaii Volcanoes National Park.

We support your proposal, except for areas that you indicate as "Potential Wilderness Additions." We see no need for expanding the boundaries of the National Park in the Kau Desert or into "Tract 22" as outlined in your Master Plan.

We oppose this expansion because of (1) the excessively high costs to the taxpayers of acquiring land in Hawaii. The reduction of the private land base resulting from this expansion will raise land costs to residents. (2) Acquisition by the Park Service would make many of the multiple resources of these areas unavailable to the people of Hawaii. There are valid potentials for intensive beneficial use of these areas for recreation and other activities managed by private enterprise. There is no valid reason to forego such uses and your reports provide no justification in terms of needs, costs, or benefits.

We note that you hope to attain National Park status for the Olaa Forest tract which the Society of American Foresters has long recognized as prime rain forest area. We hope you attain this status. Justification was provided many years ago and there is no additional cost involved.

We note that your Master Plan calls for other significant additions to the Park, such as parcels 12 to 15, and the Hualalai-Upper Mauna Loa unit of 100,000 acres.

There is no adequate justification for adding parcels 12 to 15 to the National Park. Certainly the reasons are not adequate to (1) cover the high cost of acquisition and (2) justify the taking out of its present much broader use status an additional 420 acres, and the placing of these acres into a category of very limited use. This land is not of National Park quality or significance.

We are also opposed to the expenditure of large sums of public funds to acquire the Hualalai unit and access road. This area is not needed as a National Park, we already have more than adequate representations of Hawaiian volcanism within our present parks. We do not favor the idea of expenditure of vast sums of public monies to acquire the land and build roads through the largest and most remote remaining wilderness area in Hawaii. What you are proposing here is just the opposite of what you should be supporting--i.e., the maintenance of this area in a remote status. This can be done without expenditure of public funds. Just leave it alone, in its present ownership status. As it is, it offers remote recreation, hunting, some grazing, and other benefits to the people of Hawaii and the Nation. Acquisition by the Park Service would deny the bulk of this use and, in addition, require continuous large expenditure of public funds to "manage" the area for lesser benefits. This cannot be justified because there is no National importance or significance to this large area, such as is required for National Park status. Small area, such as Ahuaumi Heiau and the Judd Trail, and some others of special floral or faunal significance, can most likely be reserved through the State Natural Area Reserve System, or the State Park System.

On page 19 of your Draft Environmental Statement for the Proposed Wilderness Areas, you specifically state that "Several endemic species of birds and insects have become extinct within the park and elsewhere on the Island of Hawaii because of agricultural and forestry practices which disturb native habitats and introduce competitive animals." This statement is pure conjecture. There has never been any documentation that any forestry practices in Hawaii have caused the extinction of any fauna in the Islands. You do not mention the main reason for loss of bird life: avian diseases.

The Park Service's policy of excluding hunters has allowed build-up of goat and sheep population which have done serious damage to the vegetation. Such a management policy is in serious need of questioning. We wonder what will happen when Wilderness Area management policies further restrict the prospects of controlling feral animals. This topic is treated much too lightly in your EIS.

Your statement on page 74 of your draft environmental statement of the Proposed Master Plan that "Those lands proposed for acquisition would be permanently unavailable for development for strictly economic benefit" is quite correct. The lands would also not be available for at least one kind of use that isn't "strictly" economic, to use your phrase. This use is hunting.

The main economic impact on the citizens of Hawaii would be the further escalation of land prices because of such purchases against a dwindling available land base.

Sincerely,

DAVID K. RINELL
Chairman

copy

HEARING OFFICER/NATIONAL PARK SERVICE
667 ALA MOANA BOULEVARD
HONOLULU HAWAII 96813

Sir:

RE MASTER PLAN AND WILDERNESS AREA PROPOSAL FOR HAWAII VOLCANOES NATIONAL PARK

"...A major objective is the preservation of the park's finest natural and scenic values for present and future generations to enjoy.

"We are concerned with the great potential in the park in such areas as historic and archeological study and volcanology. We are concerned with the preservation of native flora and fauna.

"One of the purposes of the Wilderness Area proposal is to protect designated land from development and to insure that the unique resources present are kept undisturbed and in as natural a state as possible while still providing public use.

"Proposed Wilderness areas will be used primarily for hiking, riding, camping and archeological study. Another objective is to plan public use in ways that would not disrupt the beauty and tranquility of the area..."

--Excerpt from editorial, HAWAII TRIBUNE HERALD (2-19-74)

We agree! GOD BLESS!

Big Island of Hawaii
3-19-74

MANY IN FAVOR OF NPS MASTER PLAN AND WILDERNESS AREA PROPOSAL FOR HVNP

cc to:

HEARING OFFICER/NPS HONOLULU HI

SUPERINTENDENT HVNP HAWAII 96718

EDITOR/HAWAII TRIBUNE-HERALD HILO HI

March 17, 1974

Hearing Officer c/o Superintendent
Hawaii Volcanoes National Park
Pacific International Bldg.
Honolulu, HI 96813

Dear Sir:

Having recently visited Hawaii Volcanoes National Park and having enjoyed its unique beauty to the utmost, I truly hope that the National Park Service proposals will be carried out.

Yours truly

Mrs. E. W. Barber

Mrs. E. W. Barber
714 S. Lakeshore Dr.
Lake City, Minnesota 55041

COPY COPY COPY

7541 N.W. 7th St.
Plantation, Florida 33317

Dear Sir,

I *** endorse the adding on to the park the new land.

Here in Florida so much land and coastline has been ruined by tourism and new people moving in that tho wild animal populations are already showing signs of decline.

It would be awful if the same thing happens in Hawaii since you can learn from the mistakes that we have made down here.

Many so called parks are mainly full of roads and picnic benches with no place for the wildlife to go. Surely they are nice but certainly they are not parks.

We need to preserve the remaining wilderness while we can. Leaving areas untraveled have a sense of mystery and excitement. Those that are spoiled naturally lose their charm. What many people long to see in your state will be lost and your state may get a bad name. Such as parts of California are getting.

It would be a helpful boost in the long run to the State of Hawaii.

Sincerely,

Scott Byrne

March 17, 1974
Titusville, Fla.

Dear Sue,

I enjoyed reading the article on the park the new land.

There is Florida as much land & certainly has been ruined by Tourists & new people moving in that the wild animal populations are already showing signs of decline.

It would be awful if the same thing happens in

(over)

Hawaii since you can learn from the mistakes that we have made down here.

Many so called parks are mainly full of roads & picnic benches with no place for the wildlife to go. Surely they are nice but certainly they are not parks.

We need to preserve the remaining wilderness while we can. Leaving areas untouched have a sense of mystery & excitement. Those that are spoiled naturally

(P.2)

love their charm. Asked many people long to see in your state will be lost and your state may get a bad name. Such as parts of California are getting.

It would be a helpful boost in the long run to the state of Hawaii.

Sincerely,

Scott Byrne (Pa-3)

MP & W.

s..ppery rock state college

DEPARTMENT OF BIOLOGY

22 Jan. 1974

Hearings Officer
c/o the Superintendent
Hawaii Volcanoes National Park
Pacific International Building
677 Ala Moana Boulevard Suite 512
Honolulul, Hawaii 96813

Dear Sir:

Would you please include the following statement in the hearing record on the master plan for Hawaii Volcanoes National Park.

I am most concerned about the proposed park boundaries. Here is an opportunity an outstanding opportunity to create a more meaningful biological park already noted as a geological landmark. By all means enact the necessary legislation regarding the Olaa Forest Tract. The acquistion of Tract 22 is of such critical importance that it should receive highest priority. I also support the other proposed additions and deletionsin the park but with the following additional considerations.

1. Addition of the 9,000 acre Kilauea Forest Reserve. It is astonishing to me that considering the past rape of Hawaiian forests, that a tract of this quality in the immediatelyicinity of a national park would not be a key potential addition. Granted th state must agree to transfer the land, but this should be a high priority item...much more significant than the large addition proposed to the northwest.

2. Addition of portions of the Honaunau Forest, even as disjunct units... for the same reason.

Sincerely

Kimball S. Erdman

Dr. Kimball S. Erdman
Professor of Biology

HAWAIIAN TELEPHONE COMPANY

P.O. BOX 425 • HILO, HAWAII 96720 • TELEPHONE 935-8166 • CABLE: TELHAWAII

J. S. HODGINS
ISLAND-MANAGER

January 25, 1974

	Supt.
	Chief, I&RM
	Engineer
	Proc. & Prop. Off.
	Clerk
	Secretary
	District Ranger
	Coastal Area
	Park Rangers
	Wildlife Biologist
	Interp. Specialist
	Research Biologist
Other action to be taken	

Mr. G. Bryan Harry, Superintendent
Hawaii Volcanoes National Park
Hawaii National Park, Hi 96718

Dear Mr. Harry:

As we previously discussed, and as shown on the U. S. Geological maps which I provided you, the reflector site for our Huehue Kona microwave link is located approximately one fourth (1/4) mile outside the proposed National Park boundary.

There appears to be no conflict between our site and the proposed park and, as such, we are asking that should any changes occur to the proposed boundaries in this area, we be notified so that we may consider their impact.

Sincerely,

J. S. Hodgins, Island Manager

RECEIVED
JAN 29 1974
Hawaii Volcanoes National Park

4000 4th Ave., North
Great Falls, Montana
59401

Hearings Officer
c/o Superintendent
Hawaii Volcanoes National Park
Hawaii
96718

March 26, 1974

Dear Sir,

It is my opinion that increased development within the Hawaii Volcanoes National Park will decrease the value of the Park and, therefore, I do not support the road extension or other developments. Instead I support that the maximum possible acreage be given Wilderness designation. Also I would like to encourage that feral animals and plants continue to be eliminated whenever encountered and that increased effort be made in this area.

Sincerely,

Thomas E. Horobik

Thomas E. Horobik

6. Alternative "M".

I do not support the following:

1. Alternative "B".

2. Alternative "G".

3. Alternative "J".

January 3, 1974
313 Briarwood Trace, Rt. #2
Carbondale, Illinois 62901

Hearings Officer
c/o Superintendent
Hawaii Volcanoes National Park
Hawaii 96718

Dear Sir:

Would you please include this letter as a part of the official public record concerning the proposed draft master plan for Hawaii Volcanoes National Park.

I would like to support the following concepts as they appear in full or in part as alternatives in the "Proposed Master Plan".:

1. Alternative "C" with the exception that the maximum amount of land be acquired rather than the minimum amount, thus giving alternative "C" the same amount of acreage as alternative "B", but, at the same time retaining the 193,000 acres of land, and 5,400 acres of water with minimum development.

2. Alternative "D". If this land was, in fact, originally part of the National Park there is no excuse for the 'free' 'give-a-way' that has taken place to private concerns. Return the land to the people of the United States and keep the Park intact.

3. Alternative "E". Include all parts of Kilauea Forest Reserve, delete any development plans and add any contiguous lands which would make for a more easily defined boundary situated on natural topographic features.

4. Alternative "F".

5. Alternative "H".

6. Alternative "K".

7. Alternative "L". First method. Keep the Park just that and not a housing development.

8. Alternative "M"..

I do not support the following concepts or alternatives.:

1. Alternative "B".

2. Alternative "G".

3. Alternative "J".

4. Alternative "A".

In general, I would like to support any further acquisition of adjacent and isolated lands that would inhance the wilderness quality of the Park. Also, I favor aquisition and condemnation of any lands, private, state and public owned, which would furth-protect the native Hawaiian ecosystems by placing them under national park management, e.g., Honaunau Forest.

In final, I would support a future draft to place all Park boundaries on naturally defined topographic features provided that the resultant change in boundaries does not delete any acreage from the Park as such.

Thank you for letting me comment on the, "Proposed Master Plan", for Hawaii Volcanoes National Park.

Respectively,

Bruce A. Jacobsen

Bruce A. Jacobsen

:j

March 4, 1974

Dear Sir

I request that the enclosed statements be included as a part of the records for the Master Plan meeting and Wilderness Hearing for Hawaii Volcanoes National Park.

Sincerely

David T. Lotz

Enclosures

MP.

326 Lanipo Dr.
Kailua, HI 96734

February 25, 1974

National Park Service
c/o State Director
677 Ala Moana Blvd., Suite 512
Honolulu, HI 96813

Dear Sirs:

I wish to express my general approval of the Master Plan for Hawaii Volcanoes National Park, and for some parts of it in particular. I wish also to suggest one addition to it, and to advocate the temporary or permanent omission of one tract of land suggested for acquisition.

To identify myself: I am Senior Professor of Geology and Geophysics at the University of Hawaii, Manoa Campus, in Honolulu. I have been closely familiar with Hawaii Volcanoes National Park and its operations since 1940, and have mapped the geology of nearly all of it, for the U. S. Geological Survey. From 1948 to 1956 I was stationed at the Hawaiian Volcano Observatory, in the Park, as geologist for the Geological Survey, and from 1951 to 1956 I was in charge of the Observatory. I have also mapped and studied the geology of much of the rest of the Island of Hawaii, and of large parts of the other Hawaiian Islands, including Haleakala. I am a recognized authority on volcanoes and volcanic rocks, and the author of more than 100 published technical reports on Hawaiian geology. I am also joint author (with A. T. Abbott) of a book on the geology of the Hawaiian Islands (VOLCANOES IN THE SEA: THE GEOLOGY OF HAWAII, University of Hawaii Press, 1970), and author of the most recent general text on volcanoes (VOLCANOES, Prentice-Hall, Inc., 1972).

Over the last third of a century I have been very much impressed with the beauties and scientific values of Hawaii Volcanoes National Park. I am no better qualified than many others to testify as to its scenic values. Indeed, they must be obvious to all! But I have had the opportunity to observe them and any changes in them over a long period of time. As compared with its condition when I first knew it, the Park has suffered relatively little deterioration as compared with many neighboring areas, and in some respects it has made noteworthy recovery toward a natural condition that had already been upset before the Park was established. And this is in spite of constantly increasing numbers of visitors!

The National Park Service is to be highly commended for its stewardship! I am convinced that, without its protection, the area would have been much invaded by habitation (the invasion was well under way before the Park was created), with its concommitant destruction of natural flora and fauna and geological formations. And to this would be added the depradations of visitors. We would have little left of the natural scene without the protection given by the Park.

National Park Service, Feb. 25, 1974, continued:

The National Park service has also done a good job of making the area available for the enjoyment of the public, both in making it accessible with reasonable ease by good roads and excellent trails, and in interpreting the scene. As to the geological part, I can say with authority that the job done has been excellent. As to the botany and zoology, many comments from persons expert in those fields indicate to me that the job there too has been good. In anthropology and archeology I am no expert, but I have read extensively about things Hawaiian for more than three decades, and have talked with many of the older Hawaiian people, and in spite of some criticism from limited groups that I have heard in recent years, I am strongly of the opinion that in those fields also the interpretations and presentation are good.

Over the years there have been occasional periods when policy as to allowing the public access to some areas, especially those near the sites of eruptions, has appeared to me unduly restrictive. On the other hand, there have been times when I urged the Park Superintendent to keep people away, because of excessive danger! On the whole, I think the Park's record has been excellent; and especially in recent years there has obviously been a very sizeable effort to make these areas available, while at the same time exercising reasonable safeguards for public safety. The hundreds of thousands of people who have thus been enabled to view sights that will be unique in their lives, without a single serious casualty that I know of, is truly remarkable. I hope the Park Service will continue this superb work, and I am confident it will.

The foregoing is intended to establish my conviction that the National Park Service is a competent and effective guardian and interpreter of our scenic and scientifically important areas. Turning now to specific items in the Master Plan:

Inclusion of the Olaa Forest Tract in the Park appears to me to be highly desirable. Its quality as a remnant of relatively little disturbed native Hawaiian forest is well recognized. Of many such tracts I have traveled through during the geologic mapping of the islands, I know of none that appears less disturbed, even the upper reaches of Kipahulu Valley on Maui. Although the area is already administered by the National Park Service, formal inclusion in the Park is unquestionably desirable to guarantee a greater degree of permanence to its protection against the increasing pressure of land development.

The addition of the offshore lands, as defined in the Master Plan, also appears to me highly desirable. The adverse effects of human pressure on near-shore fishes and other marine life have been obvious during the time I have known the shoreline. For instance, fish were much more abundant at Halape, and opihi much more abundant along the whole shoreline, twenty years ago than they are now.

National Park Service, Feb. 25, 1974, continued:

I would particularly like to see the addition of the summit area of Hualalai to the Park. Hawaii's volcanoes have gone through a regular evolutionary pattern. Examples of the early-stage shield volcanoes, with their calderas and the products of "Hawaiian-type" eruptions are well displayed and protected for future visitors and students of volcanology in Hawaii Volcanoes National Park. The products and structures of the late stage of volcanism, with its "Strombolian-type" eruptions, are similarly well displayed and protected in Haleakala National Park. But nowhere is the intermediate stage protected and made available to students and interested visitors. Hualalai is an excellent example of the intermediate stage, with young and well-preserved flows and cinder-and-spatter cones. As a volcanologist, and speaking, I am sure, for many other students of volcanism, as well as very many interested laymen, I would like to see the summit of Hualalai protected, as an example of the intermediate stage of Hawaiian volcanism. The summit area is in urgent need of protection. Cones such as those in the summit area are very sensitive to disturbance. Once the surface is broken, and plant cover disturbed, erosion cuts into them very rapidly. The area changed very little for many years; but in the last decade vehicles have made tracks over many of the cones, and destroyed vegetation, and consequent erosion by rain wash is leading to much gullying. In addition to the geological interest, the saddle area between Hualalai and Mauna Loa is of great interest archeologically and historically. It is the site of the Umi Heiau, with its remarkable stone pyramids, and it is traversed by the Judd Trail, a remnant of the era of the 1850's. Stones along the border of the Judd Trail are being displaced by cattle and by jeeps and other wheeled vehicles, and the trail itself will soon be obliterated under present circumstances. On my last visit, wheel tracks ran into the heiau itself, and a recent campsite was marked by a stone fire circle and a heap of rusting cans.

If the area is taken into the Park, the access road from central Kona is almost a necessity, if the area is to be made properly accessible and also properly protected.

On the northwest rift zone of Hualalai there is a geological occurrence that has attracted world-wide attention. The rising lava of the 1801 Kaupulehu lava flow brought up, from the mantle of the earth, below the crust, vast numbers of solid chunks of olivine-rich rock. As the flow moved down slope it spread over an area of gentler slope, and its velocity temporarily was checked. Thousands of the heavy olivine-rich chunks were dropped, like cobbles along a stream bed. The occurrence has already been studied by volcanologists, and by petrologists interested in the nature of the earth's interior, from all over the world, and it certainly will be studied by many more. So far as I am aware, it is unique in the world. But unless the area is protected, it will soon be defaced and despoiled by amateur collectors with sledge hammers, and it may be made inaccessible to serious students and visitors alike by subdivision or other development. It has even been suggested that the olivine-rich nodules be mined, with bulldozers, as a source of magnesium for fertilizer.

The olivine-rich nodule locality is in the immediate vicinity of the telephone relay station, at about 3,500 feet altitude. I urge that the Park be extended to take in this area of world-wide interest and uniqueness.

Connection of the summit of Hualalai and the Hualalai-Mauna Loa saddle to the present Mauna Loa section of the Park , and southward extension of the Mauna Loa section to take in the southwest rift zone to a level below Sulphur Cone, also seem desirable. Both areas are lava barrens, worthless for other purposes, but containing many land forms of geologic interest. The sulfur lava flow at Sulphur Cone is one of only a very few known on earth. Also, addition of these areas would greatly increase the area of primitive wilderness that is available to persons of present and future generations seeking to escape the increasingly overwhelming pressures of modern civilization.

Finally, there is one area proposed for inclusion in the Park that I would like to see omitted, at least for the time being. That is the area of tracts 26 and 27, southeast of the Great Crack and west of Kapaoo Point, along the southwest rift zone of Kilauea. The area is one in which recent infrared surveys have shown unusually high ground temperatures. Warm water has been known for many years at nearby Waiwelawela. (The name means "hot water".) These facts make it one of the most likely areas in Hawaii for possible development of geothermal energy. Particularly in consideration of the present energy shortage, the development of geothermal energy would be of tremendous importance to the Island of Hawaii and to the State as a whole. Until exploration for possible geothermal energy sources in it can be carried out, and unless the exploration demonstrates that the development of geothermal power in the area is impossible or infeasible, inclusion of the area in the Park would be undesirable and against the best interests of the Park Service itself. Not only might it deprive the community of a possible source of energy and an important boost to its economy, but it might have highly adverse effects on public opinion and the relationship between the Park and the otherwise friendly majority of the public. Neither would it be desirable to incorporate the area into the Park with the proviso that exploration and development of geothermal resources in it would be permitted, because this would set precedents that might adversely affect other parts of the Park.

With best wishes for the future of Hawaii Volcanoes National Park, and the National Park Service as a whole,

Sincerely yours,

Gordon A. Macdonald

Gordon A. Macdonald

cc: Mr. Brian Harry, Superintendent,
Hawaii Volcanoes National Park

THE ANSCHUTZ CORPORATION

1110 DENVER CLUB BUILDING
518 SEVENTEENTH STREET
DENVER, COLORADO 80202
TELEPHONE 303—573-5665

November 14, 1973

Superintendent
Hawaii Volcanoes National Park
Hawaii 96718

Dear Sir:

In reference to the following:

1. Proposed Master Plan For Hawaii Volcanoes National Park, Hawaii - Draft Environmental Statement

2. Proposed Natrual Resources Management Plan, Hawaii Volcanoes National Park, Hawaii - Draft Environmental Statement

3. Proposed Wilderness Areas, Hawaii Volcanoes National Park, Hawaii - Draft Environmental Statement

I would appreciate it if you would consider the following comments.

Although the energy requirements for the State of Hawaii appear to be less demanding than those of the continental United States, Hawaii is now very dependant upon imported energy in the form of oil and gas. This source is rapidly dwindling and forecasts a severe inflation and potential depression of your local economy.

The major hope for a viable energy source in Hawaii is the development of geothermal energy.

I would strongly urge you to consider the human needs as part of your evaluation. Much of the land you are proposing as wilderness area has geothermal potential. It is possible to devise a plan that provides for the development of the geothermal potential along with: the development and control of exotic plant and animal species; the propagation of rare and endangered plant species, reintroducing rare plants into former range, protecting rare edemic biota from depredation from feral goats and pigs, and re-establishing and nurturing remnants of edemic Hawaiian ecosystems.

May I commend to you a course of action that considers both the human needs and the biota needs and puts them both in gear with each other. The establishment of wilderness areas does not accomplish this.

Sincerely yours,

THE ANSCHUTZ CORPORATION

Malcolm H. Mossman

MHM/sp

cc: John A. Love
Assistant to the President
for Energy Policy

Sen. Daniel K. Inouye
Senator for Hawaii

Congressman Don Brotzman
Second District, Colorado

March 15, 1974

Harold Wm. Wood, Jr.
4046 Larwin Ave.
Cypress, Calif. 90630

Hearing Officer
c/o Superintendent
Hawaii Volcanoes National Park
Hawaii 96718

Dear Sir:

I would like to make a comment for the hearing record on the master plan and Wilderness proposal for Hawaii Volcanoes National Park.

I support the excellent proposal for wilderness designation proposed by the Park Service. This protection will further the purposes for which the Park was established, while not preventing other important research and visitor-use activities. I hope that Congress will waste no time in implementing this proposal.

I also support the proposed additions to the National Park as recommended by the Master Plan, to include a 1/4 mile strip along the coast, and extensions on Mauna Loa and Hualalai. This will benefit the Hawaiian Islands by protecting a valuable scenic resource, and will make a valuable contribution to the National Park System.

I support the continuation of special management procedures, such as primitive water collection systems, instruments for volcano research, and especially control of feral animals. However, it is my understanding of the Wilderness Act of 1964 that such management can continue under wilderness designation without the need for special provisions in the bill designating this wilderness. The Wilderness Act specifically permits use of aircraft where uses have become established, and research activities are clearly permitted under its terms. Section 4 (c) of the Act states that the prohibited uses are excepted "as necessary to meet minimum requirements for the administration of the area for the purpose of this Act". Primitive shelters and water systems are a form of wilderness management, which serve to protect the wilderness resource in this case. Control of feral animals is clearly consistent with wilderness preservation, since such control is necessary to keep the area within its natural state. I hope that the Park Service will eliminate feral goats and pigs from the Park at the earliest possible time.

For the above reasons, I see no reason to add special provisions to create the wilderness for Hawaii Volcanoes National Park, including the established research and feral animal control.

Sincerely,

Harold Wm. Wood, Jr.

Harold Wm. Wood, Jr.

DONALD WOLBRINK & ASSOCIATES, INC. PLANNERS ENGINEERS LANDSCAPE ARCHITECTS

March 25, 1974

State Director
National Park Service
677 Ala Moana Boulevard
Suite 512
Honolulu, Hawaii 96813

Dear Sir:

Reference is made to the proposed master plan, proposed wilderness areas, and the draft environmental statements to accompany these two documents which were the subject of a series of meetings and hearings in the month of February. I have reviewed both the proposed master plan and proposed wilderness areas study and I consider them excellent documents. I fully endorse both of them.

It is realized that these are "framework" documents and that many detailed studies will follow in order to implement them.

Very truly yours,

Donald Wolbrink

Donald Wolbrink

DW:jd