

NATIONAL PARK FEASIBILITY STUDY

AMERICAN SAMOA

July 1988

DRAFT

**Prepared by
the
National Park Service
and the
American Samoa Government**

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SUMMARY

In 1986, the U.S. Congress directed the National Park Service (Pacific Area Office), to conduct a feasibility study for the establishment of a national park in American Samoa.

In response to that directive, a National Park Service planning team determined that two large natural areas -- one on the island of Tutuila and the other on the island of Ta'u-- meet criteria for significance, suitability, and feasibility and therefore have potential for consideration by Congress as national parks. This conclusion was based on and followed several on-site evaluations of the natural and cultural landscape of American Samoa by the National Park Service. It was equally based on the feedback which the National Park Service received during meetings held in American Samoa, both formal and informal, with elected officials, government agencies, representatives, academic experts, knowledgeable individuals and others, and, most importantly, with *matai* of the villages whose lands would be affected by the potential parks. At all these meetings support was expressed for the establishment of national parks.

The National Park Service planning team concluded that approximately 2,800 acres of largely undisturbed native rainforest habitat, more than nine miles of scenic coastline plus the adjacent offshore reef area has the potential to be permanently set aside as a national park on the island of Tutuila. Similarly, on the nearby island of Ta'u in the Manu'a Group, a national park encompassing about 5,400 acres is possible. This area includes the largest extent of undisturbed rainforest habitat remaining in American Samoa. Included also are about seven miles of rugged and pristine shoreline and the adjacent offshore waters.

In addition to protection of the native rainforest and wildlife, the two national parks would make possible the preservation and interpretation of the significant cultural resources, both tangible and intangible, found within -- archeological and historical sites or features, places important in Samoan myths and legends, and the traditional Samoan way of life, *fa'asamoa*.

Except for small areas which are being used for subsistence agriculture, all of the lands are uninhabited and undeveloped. Nearly all of the lands within the potential parks are either too steep or too remote to be used for agriculture.

All of the lands within the potential parks are *matai* controlled communal lands. Those *matai* whose lands would be affected by the potential parks have agreed to allow their lands to be included within a national park and managed so as to protect for all time the resources therein.

Lands within the potential parks would be managed by the National Park Service to maintain and, where necessary and possible, re-establish the native biota. Cultural resources within would also be managed and protected by the National Park Service and, if appropriate, interpreted for visitors.

Development within the potential park would be minimal. Needed National Park Service facilities for administration and maintenance would be located outside of the potential

parks. Visitor use facilities would be modest. No overnight accommodations would be developed except for limited, primitive campsites within the potential park on Ta'u. Hiking trails would be developed and signed for visitors. Small boat tours of the scenic coastline are proposed. These tours would be run by operators from the nearby villages under National Park Service permit.

Subsistence agricultural activities which are now taking place within the potential parks may continue, provided that these activities are not expanded to new areas and that only traditional methods and tools are employed.

The hunting of land birds, seabirds and flying foxes within the potential parks would not be permitted. Commercial fishing within the offshore water portions would not be allowed. The harvesting of marine resources by residents of the nearby villages for subsistence purposes would be allowed to continue in the offshore portions. No cutting of forest trees would be permitted, except in designated areas and only for specific purposes.

Principal access to the potential national park on Tutuila would be via the existing aerial tramway. The Rainmaker Hotel would be looked upon to provide overnight accommodations for most of the visitors to the potential national parks on Tutuila. The villages located adjacent to the potential parks would have opportunities to provide lodging, food and beverage and other services for park visitors.

Long-term leasing of the *matai* controlled communal lands appears to be the most suitable method for the National Park Service to manage and operate the potential parks. The lease period should be for a minimum of 55 years. The amount of compensation paid to *matai* for the lease of their lands would be based upon a mutually agreed upon valuation of those lands.

National Park Service management and operation of the potential parks would be in consultation with the affected *matai* through a formally established advisory body.

Finally, the establishment of a national park in American Samoa appears to be viewed by residents of both Tutuila and Ta'u as a way to achieve desired economic development in a manner compatible with preserving their traditional lifestyle and culture.

BACKGROUND AND INTRODUCTION

Purpose

Determine the feasibility of establishing a national park in American Samoa. Locate and analyze significant natural and cultural resources in American Samoa to determine their suitability for potential inclusion in a national park. Consult with the traditional leaders and the Government of American Samoa to determine whether a national park is feasible. Include in any potential national park area concepts for resource protection and visitor services. Carefully analyze the social, economic, and environmental impacts of any potential park on the nearby Samoan villages.

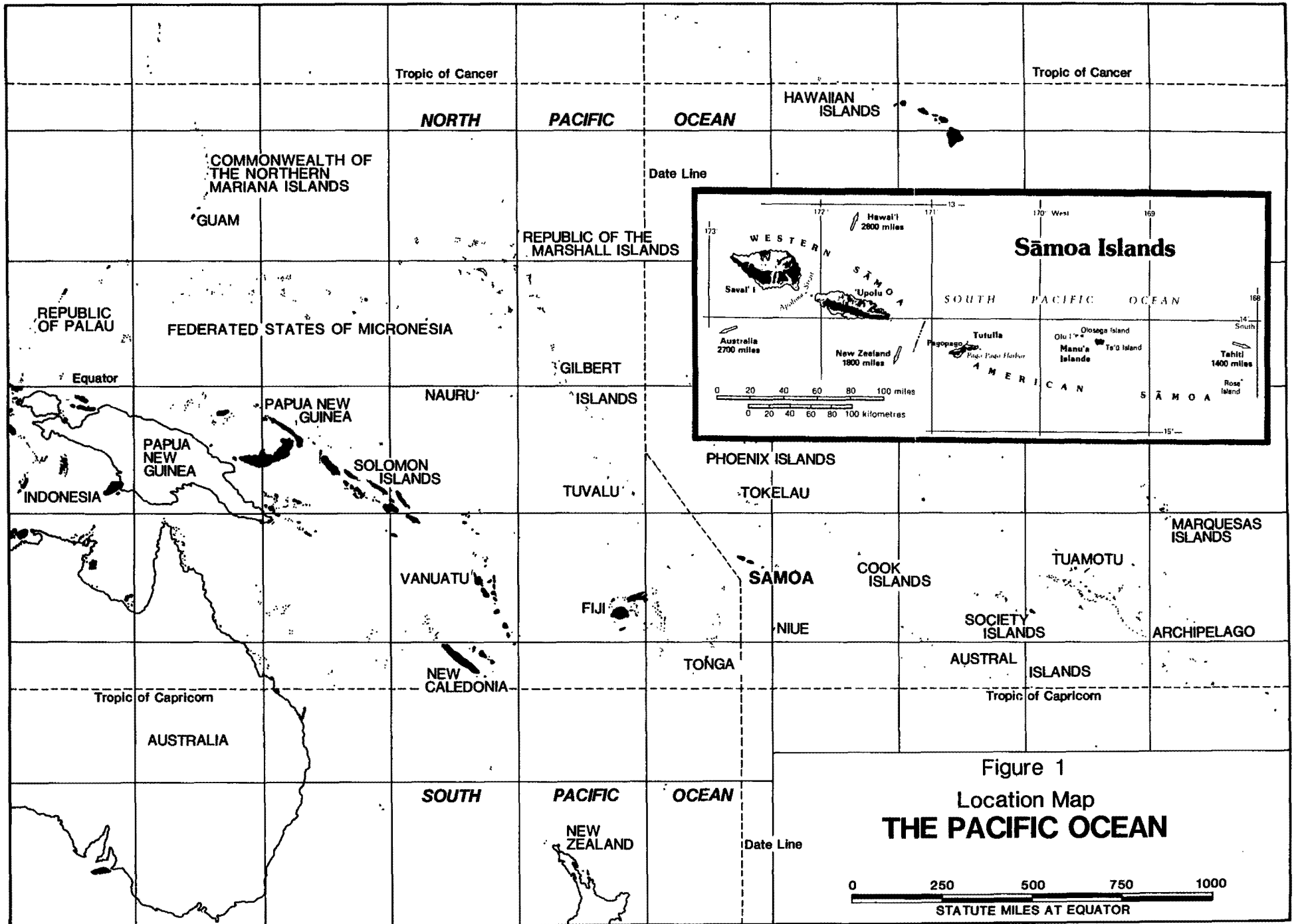
Congressional Direction

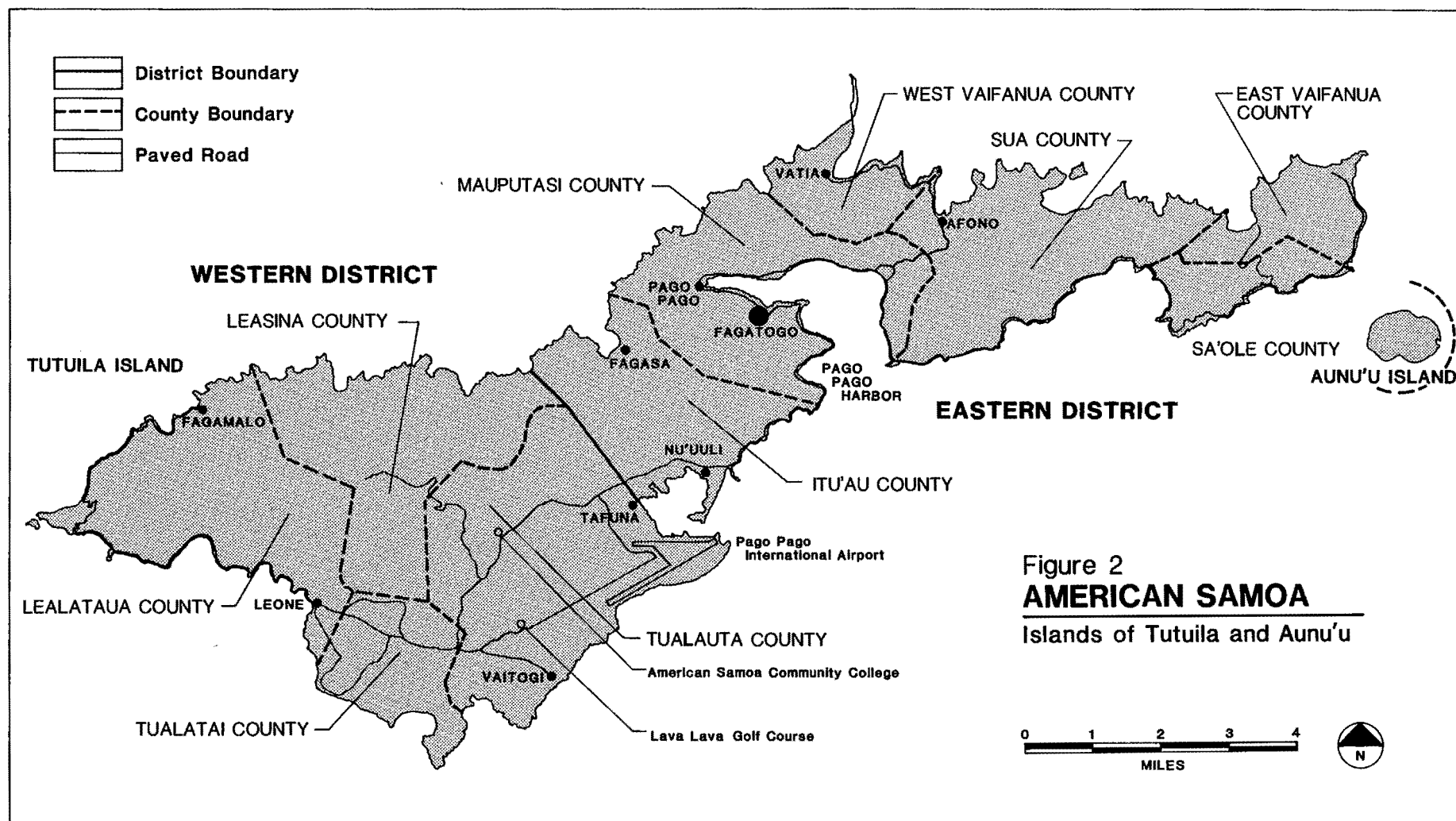
On July 24, 1986, the House of Representatives Committee on Appropriations reported H.R. 5234, the Department of the Interior and Related Agencies 1987 Appropriation Bill. House Report 99-714 included the proposed appropriation for Fiscal Year 1987 for the National Park Service. This bill was subsequently passed by the full House of Representatives with no amendments affecting the National Park Service. The House Committee Report contained the following language:

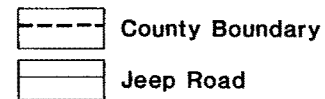
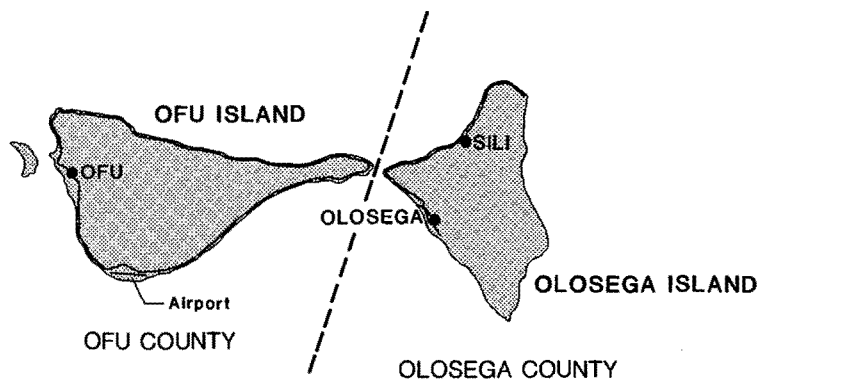
"There is \$25,000 within available funds for the study of the feasibility of the establishment of a park in American Samoa. The study is to be done by the Pacific Office of the National Park Service."

The report by the Senate Appropriations Committee contains no reference to such a study in American Samoa. The conference committee report was also silent on the study. Accordingly, the National Park Service views the House Committee report language as a directive with which the Service will comply.

Congressional interest in the establishment of a national park was further evidenced in mid-January 1987. Chairman Bruce F. Vento (Minnesota) of the House Subcommittee on National Parks and Recreation, Committee on Interior and Insular Affairs, and subcommittee member Jaime B. Fuster (Puerto Rico), accompanied by Daniel K. Akaka (Hawaii) and Fofu I. F. Sunia (American Samoa) visited American Samoa to conduct field inspections. On January 12, 1987, they held a formal hearing on Tutuila followed by less formal meetings on Ofu and Ta'u (January 13, 1987) to determine the views and concerns of the leaders and citizens of American Samoa with respect to the establishment of a national park. A summary of the result of these hearings/meetings may be found in the section on "Consultation and Coordination".

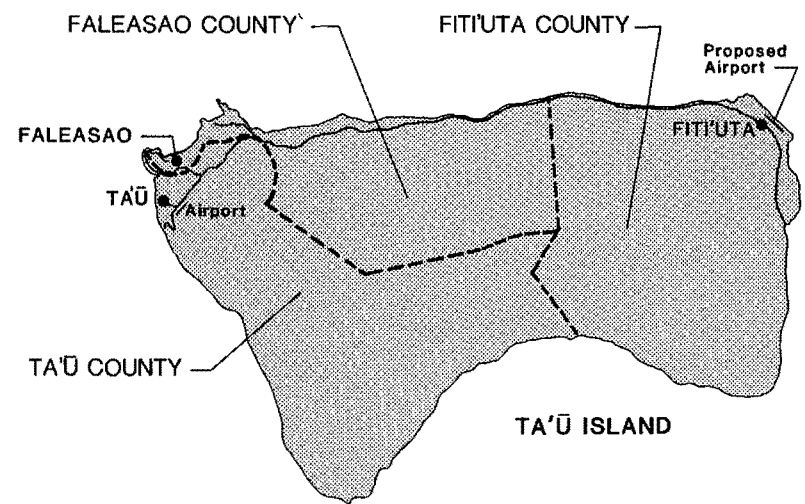






MANU'A DISTRICT

Figure 3
AMERICAN SAMOA
Manu'a Islands



The Study Area

Five volcanic islands and two coral atolls comprise the Territory of American Samoa which is the only American soil south of the equator. American Samoa lies about 2,300 miles south-southwest of Honolulu and is located in the midst of many new South Pacific nations.

The Territorial capital of American Samoa is located in Fagatogo on Pago Pago Bay, Tutuila, the main island of the group. Tutuila has a land area of 53 square miles. The total land area of all seven islands is about 76 square miles.

The islands of Ofu, Olosega, and Ta'u lie about 60 miles to the east of Tutuila. Together, these three islands are referred to as the Manu'a Group. Tutuila, Aunu'u, a small island at the eastern end of Tutuila, and the Manu'a islands comprised the study area. Swains Island, a privately owned atoll 225 miles to the north, and Rose Atoll National Wildlife Refuge, 150 miles eastsoutheast, are parts of American Samoa, but were not included in this study.

American Samoa's climate is typically tropical, with average daytime temperatures in the mid-80's (F). Nights are balmy and cooling tradewinds blow much of the time. As in most humid tropical areas, there are frequent heavy rains.

Exactly when the ancestors of the Polynesians settled in what is now American Samoa has not been firmly established, but most archeologists believe that initial colonization occurred by 600 B.C. By that time, Polynesians were living on the eastern tip of Tutuila near the village of Tula. These first inhabitants who were potters of what is now called the Lapita cultural complex, probably arrived in Tonga and the Samoas from the west. Linguistic and archeological evidence so far tends to support the traditional Samoan view that Samoa is the ancestral home of Polynesia and may have been a staging ground for early Lapita colonization of other Polynesian areas. American Samoa has been a territory of the United States since the signing of the Deed of Cession in April 1900 (the Manu'a islands continued to assert their independence until July 1904). Today, although many American Samoans have U. S. citizenship, the majority are classified as United States Nationals.

Previous Studies

There have been several National Park Service studies on American Samoa that examined cultural, natural, and recreational sites and recommended programs to assist in managing resources and providing public recreation facilities.

In 1965, a four-man team from the National Park Service spent several weeks on Samoa on a study in response to a request from the Governor. The report resulting from this effort recommended a complex of parks, recreation areas, and historical parks on Tutuila and on islands in the Manu'a Group.

In October 1969, the Governor requested the National Park Service to assist in several site-specific studies and in developing a museum. The four-man team assigned in July 1970 consisted of a historian, an archeologist, an ecologist, and a museum specialist. The archeologist and ecologist inspected Olovalu (Pago Crater), a reported fortified village area. The museum specialist reviewed the existing museum on the first floor of Government House and assisted in plans for the continued development. The historian did field research on historic structures.

Consultation and Coordination

On September 16, 1986, the Lieutenant Governor of American Samoa, Mr. Eni Hunkin, met with the Director and staff of the Pacific Area Office in Honolulu to discuss the proposed study of a national park. Mr. Hunkin indicated that Governor A. P. Lutali supported the concept and that the Government of American Samoa was ready and willing to participate in this effort. The Lieutenant Governor suggested that the Mount Alava area of north-central Tutuila Island should be evaluated; however, other areas worthy of resource preservation and which could enhance recreation and tourism also should be addressed.

During the week of December 14-19, 1986, in conjunction with a field survey of Tutuila, Ofu, Olosega, and Ta'u, Pacific Area staff members conferred with the Lieutenant Governor and other officials including those in charge of parks, recreation, historic preservation, and natural resources. This reconnaissance level survey was to acquaint members of the NPS planning team with the resource base.

During the week of January 11 - 16, 1987, Pacific Area Office park planner, Gary Barbano, accompanied the Congressional subcommittee to American Samoa to provide information and assistance to the members and staff when needed during field inspections of Tutuila, Ofu, Olosega and Ta'u, as well as to answer questions from subcommittee members at the hearing. Following the departure of the subcommittee, Barbano joined botanist Dr. Paul Cox for inspections of the Samoan rainforest.

The hearing and meetings on Tutuila and the Manu'a islands conducted by the House Subcommittee on National Parks and Recreation on January 12-13, 1987 were well attended by both elected and traditional Samoan leaders. Considerable interest and support were expressed for the concept of a national park in American Samoa. Although the National Park Service had not as yet proposed any specific park sites, Samoan leaders expressed their support for protecting areas on both Tutuila and Manu'a. Considerable discussion centered around the need to protect a broad spectrum of resources, including tropical rainforest, mangrove swamps, shorelines, coral reefs, forest and seabirds, historic sites, archeology, and especially flying foxes. Expert testimony was offered by Dr. Paul Cox and Dr. Merlin Tuttle on the importance of protecting the endangered tropical rainforest and the importance of flying foxes to the survival of those forests, and also the strong relationship of Samoan forests and Samoan culture.

A number of speakers focused on the communal land tenure (*matai*) system which has enabled the Samoan people to preserve both their culture and their resources. Although most of those in attendance supported the establishment of a national park in principal, they emphasized that the existing land tenure system must not be endangered. The option of long-term leases was mentioned as a possible approach.

A few days after the Congressional party left Samoa, Hurricane Tusi hit the Manu'a Group (January 17) with winds of over 170 miles per hour. Virtually all of the houses, churches, and other buildings, crops, and utilities in the villages of Ofu, Olosega, Ta'u and Fiti'uta were destroyed. The forests appeared to be seriously damaged. However, follow-up surveys indicated that substantial recovery of the forest could be expected within about 9 to 12 months. In view of the devastation, it seemed miraculous that no one was killed.

The emergency work required as a result of Hurricane Tusi forced the NPS planning team to postpone in-depth field study scheduled for February until mid-March. During the period from March 15-26, 1987, the NPS planning team visited American Samoa to locate

and identify significant natural and important cultural sites. On March 16, a meeting was held in the Office of Samoan Affairs at which the NPS planning team explained the basic resource protection/visitor use concepts which exist in national parks and solicited comments. This meeting was facilitated by the Deputy Secretary of Samoan Affairs and attended by district governors and *pulenu'u* (mayors) from the villages of Tutuila and Manu'a. Again, there was conceptual support for the establishment of a national park, with reservations regarding any alienation of communal lands.



Meetings, such as this one in Vatia, provided matai of each affected village an opportunity to discuss potential park areas with NPS.

During the two-week period in March, there were several meetings and discussions between the NPS planning team, the Governor, Lieutenant Governor, members of the *Fono* (the legislature of American Samoa), agency heads, and one evening meeting with an environmental group on Tutuila. Field studies included a closer look at the more inaccessible areas along the north shore of Tutuila and the south shore of Ta'u via watercraft.

Based on knowledge of resources gained during the initial reconnaissance survey and the follow up in depth field study, the NPS planning team was able to identify several areas of national significance in American Samoa, including two areas with potential for inclusion in the national park system. During the period from July 5 - 15, 1987, the planning team returned to American Samoa to meet with the high chiefs whose lands would be affected by the potential parks to learn of their reactions. Formal meetings, arranged through the Office of Samoan Affairs, were held with the high chiefs of the villages of Afono (July 9),

Vatia (July 10), Fagasa and Pago Pago (July 13), and Fiti'uta (July 14 and 15). Discussions were also held with some of the chiefs from the village of Ta'u (see Appendix for the names of the *matai* present from each of the villages and a summary of each meeting).

At the meetings, after discussion and deliberation, the high chiefs gave their support and endorsement to the concept of a national park on their lands. A minor boundary adjustment was called for by the chiefs of Pago Pago: they opposed the southern slope of Mt. Alava ridge being included in the park; instead, preferring that the boundary line be moved up toward the top of the ridge.

Meetings and discussions on the potential parks were also held in July with the Lieutenant Governor, officials of the Department of Parks and Recreation, and the Office of Marine and Wildlife Resources. Favorable reactions to the potential parks were obtained from these offices.

By the end of August 1987, a preliminary review draft report was completed by the planning team and sent to American Samoa in early September to be distributed for public review. At this time, copies of the preliminary draft were also sent to Western Region for review and for transmittal to the Washington Office.

The planning team returned to American Samoa on September 27 to receive comments on the preliminary draft report. Meetings were held with the Governor and his staff, with members of the *Fono*, the Department of Parks and Recreation, the Office of Marine and Wildlife Resources, members of a local environmental group and others to listen to their comments on the draft report. On September 30, a public meeting was held in Pago Pago to hear comments from all interested parties. (See Appendix for a summary of that meeting.) On October 1, meetings were held with the high chiefs of Ofu and Olosega to discuss with them the potential national parks.

At all these meetings there once again appeared to be support and general endorsement for the establishment of national parks. Important comments received at these meetings included the following: like to see the potential park on Tutuila expanded to take in the coast and rainforest area from Fagasa to Pa Cove; and the addition of the beach and adjacent coral reef along the south coast of Ofu (Office of Marine and Wildlife Resources); concern was expressed at the public meeting by some *matai* from Vatia and Fiti'uta about the potential national parks restricting the future expansion of those two villages.

RESOURCES OF AMERICAN SAMOA (Tutuila, Aunu'u, Ta'u, Ofu, and Olosega Islands)

Natural Resources

Tutuila, with an area of about 33,920 acres, is the largest island of American Samoa. It extends 20 miles along an east-west axis and is 6 miles across at the widest point, but only 3/4 mile across where Pago Pago Harbor cuts into the south central shoreline. The highest elevation is 2,142 feet at Matafao Peak. Except for the 5,000-acre Tafuna Plain in the southwestern part, most of the island consists of steep slopes from ridge top to a narrow level strip along the ocean.

Aunu'u, the smallest of the inhabited islands, is three-quarters of a mile southeast of the eastern tip of Tutuila. It is slightly over one mile long east to west and 0.8 mile north to south with a surface area of about 400 acres. The highest point is 290 feet above sea level. Aunu'u contains the most extensive wetlands left in American Samoa.

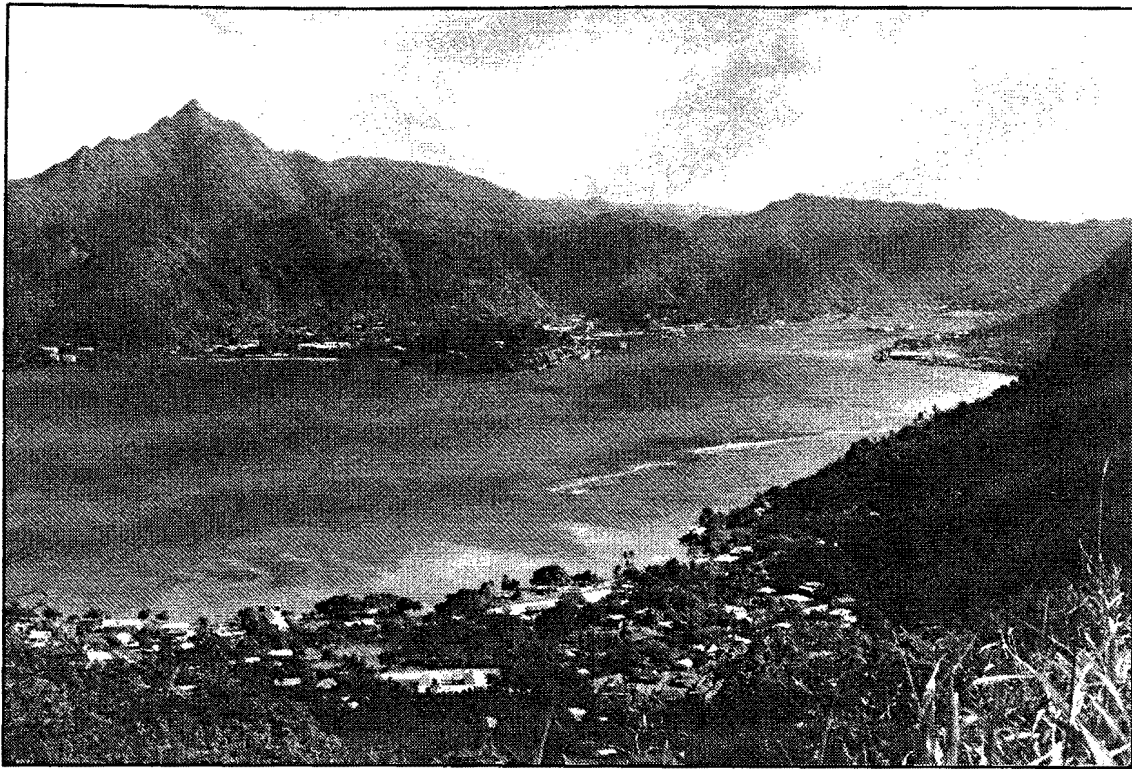
Ta'u, the second largest island, is roughly six miles long and three miles wide covering about 11,328 acres. The highest point is the top of Lata Mountain at an elevation of 3,056 feet. Sea cliffs form much of the perimeter and the interior terrain is steep.

Ofu (about 1,790 acres) and Olosega (about 1,340 acres) are separated by a narrow channel which has been spanned by a highway bridge. The highest points are 1,621 feet on Ofu and 2,095 feet above sea level on Olosega. Precipitous cliffs surround both of these small, mountain islands.

Geology. A diversity of striking formations displays the geological history of the islands of American Samoa. The mountains of Tutuila are the eroded remnants of four shield volcanoes -- Taputapu, which formed the western end of the island; Pago, Olomoana, and Alofau, which formed the eastern end of the island. Following the eruptions of gently flowing pahoehoe lava that built these four volcanoes, they were deeply eroded by closely spaced streams which left a mere skeletal backbone of mountain peaks and ridges running the length of the island.

There are few remnants of craters and calderas of the four original volcanoes on Tutuila; there are, however, extensive dike complexes, many cinder cones, and the famous peaks, Pioa (Rainmaker) and Matafao, which are erosion-resistant trachyte plugs. The effects of erosion by streams and waves are shown in the steep ridges, the narrow valleys, and the sea cliffs of the northern shore. A period of rising sea levels and slow subsidence, perhaps in the late Pleistocene, drowned a number of valleys, including Pago Pago, forming one of the best deep-draft harbors in the Pacific.

Although Tutuila is an old, highly dissected island, there is also evidence of recent volcanic activity. The low bulge on the south side of the western half of the island, the Tafuna Plain, was the result of the eruption of a fifth volcano. The plain is young, there are no streams and the surface is little altered by erosion. Two of the tuff cones formed by that volcano were breached by the sea, forming the semicircular bays of Fagatele and Fagalua.



Afono Pass affords spectacular views of Pago Pago harbor and the famous peak, Matafao, shown here.

Aunu'u Island also is a tuff cone formed by geologically recent volcanic activity. The prevailing southeast trade winds and waves have built a broad flat of calcareous sand a few feet above tide level on the western side of the island. The interior contains several ponds.

The Manu'a Group are also of volcanic origin. Ofu and Olosega were formed by a complex of at least six volcanic cones, of which two developed as shields and buried the older cones. Summit collapse of both shields produced calderas on northern Ofu and northwest off Olosega. Erosion by streams and sea reduced the shields to two small, steep islands.

Ta'u is the remnant of a single volcanic shield. The summit caldera collapsed and partially refilled. Two rift zones along the northeast and northwest flanks contain smaller shield volcanoes. High cliffs are the result of marine erosion. Calcareous beach deposits and coral reefs surround each of the three islands.

In 1868 a submarine eruption was reported between Olosega and Ta'u. Therefore, it is possible that the period of active volcanism in American Samoa may not be over.

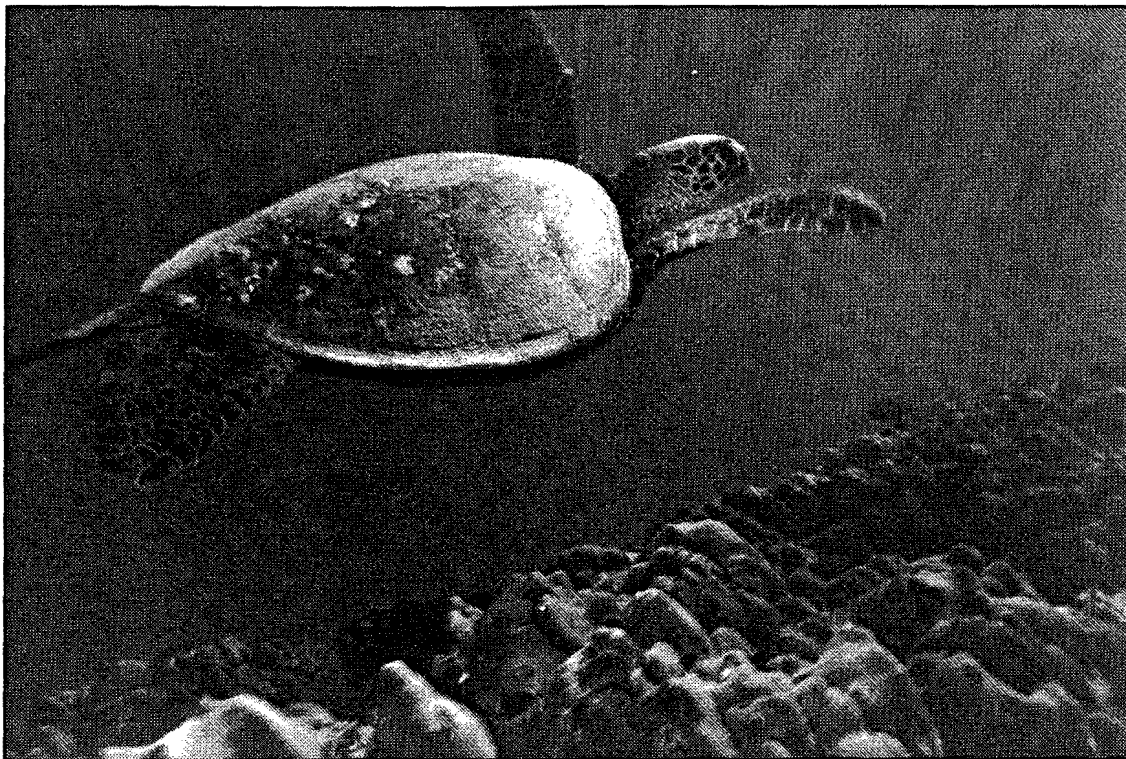
Several geological features in American Samoa have been found to possess national significance and have been designated national natural landmarks by the Secretary of the Interior. These features are summarized in Table 1.

Table 1. United States National Natural Landmarks.

Name	Location	Size (Acres)	Designated	Significance
Vaiava Strait	Tutuila/ N. Cent.	350	Dec 1972	Geologic-Scenic- Seabirds
Leala Shoreline	Tutuila/ S.W.	35	Dec 1972	Geologic-Scenic- Marine Life
Rainmaker Mtn (Mt. Pioa)	Tutuila/ E. Cent.	170	Dec 1972	Geologic-Scenic- Native Forest
Matafao Peak	Tutuila/ W. Cent.	175	Dec 1972	Geologic-Scenic- Native Forest
Fogama'a Crater	Tutuila/ S.W.	485	Dec 1972	Geologic-Scenic
Cape Taputapu	Tutuila/ W. End	170	Dec 1972	Geologic-Scenic
Aunu'u Island	1-1/4 mile E. of Tutuila	305	Dec 1972	Geologic-Ecologic

Soils and Hydrology. The major factors affecting soils are parent material, climate, living organisms, relief, and time. Most soils on these volcanic islands were formed from disintegrated, slightly weathered igneous rocks, mainly basalt. Some originated from volcanic ash, cinders, organic material, or coral sand. Those of intrusive igneous origin are clayey, while extrusive ash and cinders produce more loamy soils. Most are shallow and stony. All soils developed and exist under tropical conditions of high temperatures, humidity, rainfall of 150-250 inches per year, lush vegetation, and many soil organisms. On all four of the islands, slopes of 40 percent to 70 percent or more are the rule rather than the exception. All soils are relatively young, especially on the more nearly level Tafuna Plain.

The islands are drained by a large number of streams radiating from the summits and flanks of the volcanic ridges, peaks, and domes. All of the watersheds are small, less than two square miles, and stream length is less than three miles. The streams are steep, prone to flash floods, often with waterfalls in the upper reaches and terminating in small wetlands at the lower flat-mouthed valleys. Although most soils have a high organic matter content, abundant rainfall and rapid runoff lead to excessive leaching of nutrients. Agriculture is limited to mostly subsistence farming. Taro (*talo*), bananas (*fa'i*), breadfruit (*ulu*), and coconuts (*niu*) are the important crops, but the bulk of agricultural commodities are imported from the U. S., New Zealand, Australia, Tonga, and Western Samoa.



Sea turtles can be seen in the waters surrounding the islands and may nest on remote beaches.

Coastal and Marine Resources. Fringing coral reefs occur along much of the southern coast of Tutuila and in the bays of the northern coast and around most coastlines of Aunu'u and the Manu'a islands. These reefs are important resources and are considered as part of the adjacent villages. Subsistence fishing and gathering on and adjacent to the reef flats are the predominant uses. Many species are harvested, including surgeonfish (*ume*), mackerel scad (*'atule*), jacks (*lupota*), parrotfish (*fuga*), mullet (*'anae*), octopus (*fe'e*), snails (*alili*, *aliao*), and clams (*faisua*, *tugane*). The annual harvest of palolo worms which swarm over the reef flats seven days after the full moon between October and November is a significant and fascinating event. This much-prized food is caught at night with scoops, baskets, and nets.

Beginning in the mid-1970's a rapid buildup in the population of the crown-of-thorns starfish (*alamea*) occurred throughout the central Pacific. This starfish feeds on living coral tissue and often kills the coral head. Although there are almost no starfish left, the damage is still widespread and continues to affect reef productivity in waters around American Samoa. Exceptions are the coral communities offshore of Ofu and Olosega which were not affected by the starfish.

The vast majority of American Samoa's population lives along the perimeter of the major islands. Much damage to shoreline and reef environments is directly related to pollution, dredging, filling to gain additional level land and sedimentation, especially from upland agriculture and road construction. There are few good swimming beaches in American Samoa except along the southern coasts of Ofu and Olosega.

A group of endangered humpback whales (*tutu*) use the waters around American Samoa for breeding and calving from July through October. Endangered sperm whales are occasionally seen. Pacific bottlenose and spinner dolphins are fairly common. Hawksbill and green sea turtles (*laumei*) frequent the waters and may nest on some of the more remote beaches of the main islands.

In April 1985, the 163 acres of Fagatele Bay on the southwest coast of Tutuila was established as a National Marine Sanctuary by the U. S. Department of Commerce. A coordinated management program is being implemented by federal and territorial agencies to protect and preserve the bay's resources. American Samoa's inaccessible shoreline areas are especially important to breeding seabirds. Of particular value is the north coast of Tutuila and the eastern and southern coasts of Ta'u. Also, the Anape'ape'a caves along the shore near the village of Afono are vital to the survival of sheath-tailed bats (*pe'ape'a'vai*) and white-rumped swiftlets (*pe'ape'a*).

Plant Life. American Samoa's vegetation is typical of tropical, wet, island environments which support many endemic species. Nearly all plants found in undisturbed habitats, such as steep mountain slopes and inaccessible ridges and valleys, are native species. However, almost two-thirds of the vegetation of American Samoa has at one time or another been modified by man. The most comprehensive study of Samoan vegetative types was done by Whistler (1980) and is summarized below.

Littoral Vegetation -- includes several types of natural vegetation occurring on the shore. Most plants are dispersed by the ocean.

Rock strand is herbaceous vegetation growing on exposed, rocky shores and composed mostly of grasses, sedges, and succulent herbs.

Sand strand is limited to the few narrow, sandy beaches and is dominated by creeping vines, grasses, and prostrate shrubs.

Littoral shrubland occurs on steep, wind-swept slopes and is often characterized by wedelia.

Pandanus scrub grows up to 20 feet high on more recent lava flows.

Littoral forest is often dominated by the single tree, *Barringtonia*, but can also be a combination of many species. The north coast of Tutuila supports extensive areas of *littoral forest*.

Wetland Vegetation -- includes two communities, one associated with fresh water, the other with salt water.

Coastal marsh supporting native ferns and sedges on soils saturated with fresh water. This community is quite rare since most of these areas have been used for the cultivation of taro.

Mangrove forest likewise has become rare in American Samoa. None occurs in Manu'a and of the few remaining on Tutuila and Aunu'u, the largest is in the Pala Lagoon.

Tropical Rainforest -- includes several climax types extending from near sea level to 3,000 feet and probably covered more than 95 percent of the surface of American Samoa before modification by man.

Coastal forest consists of several species attaining heights of up to 60 feet growing on steep rocky slopes just behind the littoral forest.

Ridge forest occurs on well-drained lowland ridges mostly on Tutuila.

Lowland forest was once the dominant and most species diverse type in American Samoa covering most sloping lowlands below 1,000 feet elevation.

Montane forest is the typical rainforest of the foothills and mountains between 1,000 and 2,300 feet. It is a rich forest of high diversity.

Cloud forest occurs only on Ta'u and Olosega at the highest elevations (above 2,000 feet) where it is constantly wet. Trees are less than 45 feet tall, festooned with moss and there is dense ground cover.

Montane Scrub -- This type is restricted to the three mountain peaks of Tutuila (Tau, Matafao, and Pioa) and consists of several species of small trees. Ground cover includes ferns, grasses, and sedges.

Disturbed Vegetation -- Almost two thirds of American Samoa's vegetation has been disturbed by man. About half of this area is being used for villages, roads, farms, airports, light industry, a golf course, and, until relatively recently, coconut plantations. The other half is land which was former coconut plantations, farms, and even villages which have been abandoned in the recent past and are, in most instances, slowly reverting through successional stages to natural vegetation types. Over many decades these formerly disturbed areas, if protected, will become hard to distinguish from native undisturbed forest.

Tutuila, due to population pressure has had much of its vegetation disturbed, but due to the steep topography relatively large areas of undisturbed (primary) forest still remain. Most of the remaining primary forest is on the central portion of the north coast. The vegetation of Ofu is the most disturbed of the islands and Olosega is quite similar. Ta'u, the highest island, has been the least disturbed by man.

Because of its low elevation, Aunu'u has no montane plant communities. Little of the original coastal forest remains except on ridges and steep slopes on the eastern half of the island. Except for the coastal marsh within the crater, other marshy areas are under taro cultivation.

The forests of all of the high islands of American Samoa have been repeatedly disturbed by hurricanes. The damage done to the forests of the Manu'a islands by Hurricane Tusi on January 17, 1987 and the degree of recovery observed after only a few months illustrates the resiliency of the native Samoan vegetation. Of more concern was the impact on the native forest birds and especially the flying foxes which both pollinate the flowers and distribute the seeds of the native trees. Without a healthy population of these animals, it is doubtful that the native forests of American Samoa could perpetuate themselves.

At present, there are no species of plants in American Samoa which have been determined by the U. S. Fish and Wildlife Service to be endangered or threatened.

Animal Life. A survey of the status of the terrestrial vertebrate wildlife and wildlife habitat of American Samoa was undertaken in 1975 and 1976 for the U. S. Fish and Wildlife Service by Environmental Consultants, Inc. of Dallas, Texas. Data were collected from 42 study plots in 16 vegetation communities and habitat types. Much of the following information resulted from that study with some additions and corrections based on more recent studies and observations.

AMPHIBIANS AND REPTILES. The species list and distribution of the amphibians and reptiles on the major, high islands of American Samoa are shown on Tables 2 and 3.

Tutuila Island. Thirteen species of amphibians and reptiles have been recorded from Tutuila Island; two are introduced. Only one species of sea turtle, the hawksbill, is known to breed on Tutuila. The introduced marine toad is found in all habitats except montane scrub; it is more prevalent in lowland areas than in the highlands. The introduced house gecko is known only from Tutuila. The turtles have recently been recorded in very small numbers in the waters surrounding Tutuila.

Aunu'u Island. Eight species of amphibians and reptiles have been recorded. All are native except the marine toad. Sea turtles have been reported laying eggs on the sand beaches along the north side of the island.

Ofu Island. Nine species of reptiles have been recorded from Ofu Island. Local inhabitants reported that turtles previously nested in small numbers on the sand beaches along the southeast shore, and turtles have been reported offshore in recent years.

Olosega Island. Of the ten species of reptiles recorded from Olosega Island, turtles which reportedly nested in small numbers on the sand beaches have not been recorded in recent years.

Ta'u Island. Thirteen species of reptiles have been recorded from Ta'u Island. In the past turtles are reported to have bred on the isolated sand beaches, especially along the east, south, and west beach areas. In all of American Samoa, the Pacific boa is found only on Ta'u; it inhabits primarily the littoral forest along the south shore and secondarily the plantation land along the west coast.

Table 2. Species List of the Amphibians and Reptiles of Tutuila, Aunu'u, Ta'u, Ofu, and Olosega Islands

Class			
Order			
Family			
Genus and species	English	Samoan	
<i>Amphibia</i>			
<i>Anura</i>			
<i>Bufonidae</i>			
<i>Bufo marinus</i>	Marine toad	lage	
<i>Reptilia</i>			
<i>Chelonia</i>			
<i>Chelonidae</i>			
<i>Chelonia mydas</i>	Green sea turtle	laumei	
<i>Eretmochelys imbricata</i>	Hawksbill turtle	laumei	
<i>Sauria</i>			
<i>Gekkonidae</i>			
<i>Cyrtodactylus pelagicus</i>	Pelagic gecko	mo'o	
<i>Gehyra oceanica</i>	Polynesian gecko	mo'o	
<i>Hemidactylus frenatus</i>	House gecko	mo'o	
<i>Lepidodactylus lugubris</i>	Mourning gecko	mo'o	
<i>Peropus mutilatus</i>	Stump-toed gecko	mo'o	
<i>Scincidae</i>			
<i>Ablepharus boutonii</i>	Snake-eyed skink	pili	
<i>Emoia cyanura</i>	Azure-tailed skink	pili	
<i>Emoia lawesii</i>	Lawes skink	pili oua'	
<i>Emoia nigra</i>	Black skink	pili uli	
<i>Emoia samoense</i>	Samoan skink	pili lape	
<i>Lipinia noctua</i>	Moth skink	pili	
<i>Serpentes</i>			
<i>Boidae</i>			
<i>Candoia bibroni</i>	Pacific boa	gata	

Table 3. Summary of Distribution of Amphibians and Reptiles on the Islands of Tutuila, Aunu'u, Ta'u, Ofu, and Olosega Islands.

Species	Island				
	Tutuila	Aunu'u	Ta'u	Ofu	Olosega
<i>Bufo marinus</i>	X	X			
<i>Chelonia mydas</i>	X	X	X	X	X
<i>Eretmochelys imbricata</i>	X		X	X	X
<i>Cyrtodactylus pelagicus</i>	X		X		
<i>Gehyra oceanica</i>	X	X	X	X	X
<i>Hemidactylus frenatus</i>	X				
<i>Lepidodactylus lugubris</i>	X	X	X	X	X
<i>Peropus mutilatus</i>	X	X	X	X	X
<i>Ablepharis boutonii</i>	X		X		X
<i>Emoia cyanura</i>	X	X	X	X	X
<i>Emoia lawesii</i>			X	X	X
<i>Emoia nigra</i>	X	X	X	X	X
<i>Emoia samoense</i>	X		X		
<i>Lipinia noctua</i>	X	X	X	X	X
<i>Candoia bibroni</i>			X		

BIRDS. The diversity of species makes birds the richest segment of terrestrial wildlife in American Samoa. More species of birds are found than all reptiles, amphibians, and mammals combined.

On arriving in Samoa, however, there appears to be a dearth of bird life. This is, however, not true, but is because nearly all the native birds belong to the bush or swamp, while the seabirds are of the timid type that frequent the lonely sand beaches or rocky islets at the edge of the reef, away from human habitation.

A status list of the birds found in and around the islands of American Samoa is presented in Table 4. For purposes of discussion, these bird species are considered in two general categories: 24 are classed as seabirds, and 31 are waterfowl, marsh, and land birds. The 24 seabird species can be grouped into resident breeders (19 species), migrants (2), and visitors (3). The 31 species of waterfowl, marsh, and land birds in American Samoa are grouped into resident breeders (20), migrants (7), visitors (1), and introductions (3).

Table 4. Status of Birds On and Around the High Islands of American Samoa.

B = breeder; R = recorded; ? = status questionable

Capital letters indicate status during the early 1970's study.

Lower case letters indicate status prior to June 1975, if different.

Species	Islands					
	Tutuila	Aunu'u	Ta'u	Ofu	Olosega	At Sea
Seabirds						
<u>Resident Breeders</u>						
Tahiti petrel (<i>ta'i'o</i>)	B		B		B	R
Collared petrel (<i>ta'i'o</i>)			B?			R
Wedge-tailed shearwater (<i>ta'i'o</i>)	B?		B?			R
Christmas shearwater (<i>ta'i'o</i>)						R
Audubon's shearwater (<i>ta'i'o</i>)	B		B			R
White-throated storm petrel (<i>ta'i'o</i>)	B	B	B?			
Red-tailed tropicbird (<i>tava'e'ula</i>)						
White-tailed tropicbird (<i>tava'e</i>)	B		B	B	B	R
Blue-faced booby (<i>fua'o</i>)	R				R	R
Brown booby (<i>fua'o</i>)	B	B	R	B	B	R
Red-footed booby (<i>fua'o</i>)	B	R	R	R,b	R	R
Great frigatebird (<i>'atafa</i>)	B?	R	R	R	R	R
Lesser frigatebird (<i>'atafa</i>)	B?	R	R	R	R	R
Gray-backed tern (<i>gogosina</i>)	B	B				R
Sooty tern (<i>gogo'uli</i>)	R					R
Blue-gray noddy (<i>laia</i>)	B	B	B	B	B	R
Brown noddy (<i>gogo</i>)	B	B	B	B	B	R
Black noddy (<i>gogo</i>)	B	R	B	R	R	R
White tern (<i>manusina</i>)	B	B	B	B	B	R
<u>Migrants</u>						
White-necked petrel (<i>ta'i'o</i>)						R
Slender-billed shearwater (<i>ta'i'o</i>)					R	
<u>Visitors</u>						
Black-naped tern (<i>gogosina</i>)						R
Brown-winged tern (<i>gogo'uli</i>)	R					R
Crested tern (<i>gogo</i>)	R					R
Waterfowl, Marsh, and Land Birds						
<u>Resident Breeders</u>						
Reef heron (<i>matu'u</i>)	B	B	B	B	B	
Australian gray duck (<i>toloa</i>)	B	R,b	r	r	r	
Banded rail (<i>ve'a</i>)	B	B	B	B	B	

Species	Islands					
	Tutuila	Aunu'u	Ta'u	Ofu	Olosega	At Sea
Sooty rail			B			
Purple swampphen (<i>manualii</i>)	B	B	B	B	B	
Many-colored fruit dove (<i>manumā</i>)	B	b	B	B	B	
Purple-capped fruit dove (<i>manutagi</i>)	B	B	B	B	B	
Pacific pigeon (<i>lupe</i>)	B	b	B	B	B	
Friendly ground dove (<i>tu'aimeo</i>)				B		
Blue-crowned lory (<i>sega'ula</i>)			B	B	B	
Barn owl (<i>lulu</i>)	B	B	B	B	B	
White-rumped swiftlet (<i>pe'ape'a</i>)	B	B?	B	B	B	
White-collared kingfisher (<i>ti'otala</i>)	B	B	B	B	B	
Fiji shrikebill (<i>sega'olevau</i>)			B	B	B	
Mao (<i>ma'oma'o</i>)	b? (probably extinct)					
Wattled honey-eater (<i>iao</i>)	B	B	B	B	B	
Cardinal honey-eater (<i>segasegamau'u</i>)	B					
Polynesian starling (<i>miti vao</i>)	B	B	B	B	B	
Samoa starling (<i>fuiā</i>)	B	B	B	B	B	
<u>Migrants</u>						
Golden plover (<i>tulī</i>)	R	R	R	R	R	
Ruddy turnstone (<i>tulī alomalala</i>)	R	R	R	R	R	
Bristle-thighed curlew (<i>tulīolovalu</i>)	R		R			
Bar-tailed godwit (<i>tulī</i>)	R					
Wandering tattler (<i>tulī</i>)	R	R	R	R	R	
Sanderling (<i>tulī</i>)	R					
Long-tailed cuckoo (<i>'aleva</i>)	R	R	R	R	R	
<u>Visitors/Vagrants</u>						
Cattle egret	R?					
White-faced heron				R	R	
<u>Introductions</u>						
Rock dove (<i>lupe palagi</i>)	B?					
Red-vented bulbul (<i>manu papalagi</i>)	B					
Common Myna	B					
Resident Breeders	28	19	25	20	20	
Potential Breeders	2	4	5	4	5	
Migrants and Visitors/Vagrants	10	4	5	5	5	
Introductions	3	0	0	0	0	
Total Species	43	27	35	29	30	24

Tutuila Island. Forty-three species of birds have been recorded from Tutuila; 28 are native resident breeders, 2 are potential resident breeders, 10 are migrants and visitors, and 3 are introductions. Of the 28 resident breeding species, 13 are seabirds and 15 are waterfowl, marsh, and land birds. Of the resident species of seabirds, ten are known breeders. Prominent seabird colonies are located on the north shore at Pola Island and the adjacent Polauta Ridge, and on the south shore along the steep sea cliffs at Fagatele Bay and Larsen Bay near Steps Point. The breeding status of three species is not known.

The sooty tern breeds on Rose Atoll and occasionally visits Tutuila. It is a potential breeding species, perhaps at the seabird colony on the top of Pola Island. The brown-winged tern has also been recorded and is a potential breeding species on Pola Island.

Fifteen marsh and land bird species are known to breed or to have bred on Tutuila; 13 presently breed. The cardinal honey-eater is restricted, in American Samoa, to Tutuila. Two former breeding species may have been extirpated; the mao has not been seen or heard on Tutuila in recent years, and the Samoan wood rail supposedly bred on Tutuila in the past. The Australian gray duck may now be extirpated.

Six migrant shorebirds frequent the shoreline and grassy inland areas of Tutuila. In addition, a migrant land bird, the long-tailed cuckoo, regularly frequents the forested areas of the island. The cattle egret has been recorded as a vagrant. Of the introduced species, the red-vented bulbul, perhaps introduced as a caged bird about 1958, now breeds throughout the inhabited and disturbed areas of Tutuila. The rock dove population was once quite large on Tutuila but was extirpated; individuals may now exist from recent introductions. The common myna recently found its way to Tutuila and now breeds in the Pago Pago area.

Aunu'u Island. Twenty-seven species of birds have been recorded from Aunu'u Island. Of these, 19 are native resident breeders, 4 are potential resident breeders, and 4 are migrants. Of the resident breeding species, 6 are seabirds and 13 are waterfowl, marsh, and land birds.

Six seabird species now nest on Aunu'u. White-tailed tropicbirds nest in the holes in bird's-nest ferns and the larger trees on the north and south ridges of the island. Brown boobies, gray-backed terns, blue-gray noddies, brown noddies, and white terns nest on the sheer rock cliffs located on the north, east, and south coasts. Four additional seabird species are potential breeders.

Only ten waterfowl, marsh, and land birds now nest on the island. The Australian gray duck, many-colored fruit dove, and Pacific pigeon are thought to have nested on Aunu'u previously, but do not do so presently because of destruction of habitat, hunting pressures, and possibly predation by rats.

The four migrants on Aunu'u are three shorebirds and the cuckoo. The shorebirds frequent the coastline and Pala (Mud) Lake, whereas the cuckoo prefers mangrove swamp, plantation land, and secondary forests.

Ofu Island. Twenty-nine bird species are known from Ofu Island. Of these, 20 are native resident breeders, 4 are potential breeders, and 5 are migrants. Of the resident breeding species, 5 are seabirds and 15 are marsh and land birds.

Nu'utele Islet, located just west of Ofu Village, is the breeding place for many of the seabirds known to nest on Ofu. Brown boobies, blue-gray noddies, brown noddies, and white terns nest on the sheer rock cliffs. Red-footed boobies previously nested in trees on the isolated north tip of the islet. White-tailed tropic birds, brown noddies, and white terns nest inland on trees.

Of the 15 marsh and land birds that are known to breed on Ofu, all are thought to be breeding now. Blue-crowned lories are found in American Samoa only in Manu'a. The Australian gray duck was reported in the past, but no recent records exist.

Three of the four migrant species are shorebirds which frequent the coastline and airport runway areas. The fourth, the long-tailed cuckoo, prefers the forested portion of the island.

Olosega Island. Of the 30 species of birds recorded from Olosega Island, 20 are native resident breeders, 5 are potential breeders, and 5 are migrants. The 20 resident breeders include 5 seabirds and 15 marsh and land birds.

Maga Point, at the southeastern tip of Olosega, is the major breeding area for seabirds on the island. Brown noddies and brown boobies nest on the sheer rock cliffs and white terns nest inland on trees. Petrels and shearwaters probably nest in the cloud forest. No seabirds were found in the cloud forest. Four additional seabird species are potential breeders.

Fifteen marsh and land birds have been known to breed on Olosega, but only 13 presently breed there. The Australian gray duck was recorded in the past, but no recent records exist. Shorebirds make up three of the four migrant species and frequent the shoreline. The long-tailed cuckoo inhabits the forested areas.

Ta'u Island. In all, 35 species of birds have been recorded from Ta'u Island. Of these, 25 are native resident breeders, 5 are potential breeders, and 5 are migrants. The resident breeders consist of 10 seabirds and 15 marsh and land birds.

The ten breeding seabirds include two species of gadfly petrels two shearwaters, and the white-throated storm-petrel. These birds nest in burrows and, in Samoa, they require cloud forest, dense montane rainforest, or montane scrub for nesting. In addition, they require undisturbed conditions for successful breeding. Ta'u is the only island of American Samoa where these conditions are present.

Five other breeding seabird species also are found on Ta'u. White-tailed tropic birds nest in tree holes in the forest. Brown noddies have scattered colonies throughout the forest, but they, as well as black noddies and white terns, predominately nest in the littoral and coastal forests along the isolated south and east sides of the island. In addition, blue-gray noddies nest in small numbers on the rock cliffs of the southwest tip. Four seabird species are potential breeders; a

fifth potential breeder, the wedge-tailed shearwater, has not been recorded from the island but has been seen offshore.

Although 15 resident marsh and land birds are known to have bred on Ta'u Island, only 14 nest there now. The Australian gray duck, a potential breeder, has not been recorded in recent years. Ta'u has breeding land birds that do not live on Tutuila -- the blue-crowned lory, and Fiji shrikebill. In addition, two breeding species, the white-collared kingfisher and the Polynesian starling, are subspecies of their counterparts on Tutuila.

Four regular migrant shorebirds have been recorded from the coastline and grassy areas of Ta'u. The long-tailed cuckoo prefers the forested areas.



White or Fairy Terns are but one of over twenty species of seabirds which visit or nest in Samoa.

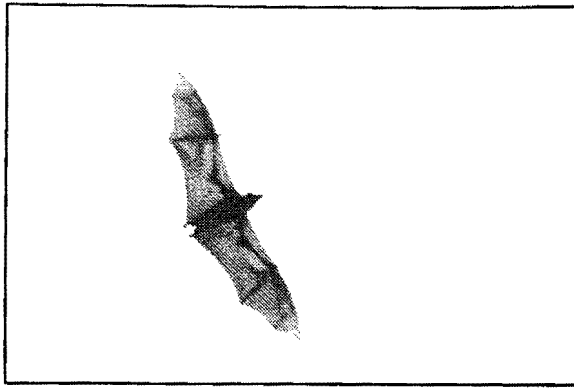
Anne Maben

MAMMALS. The sparsity of native mammals in American Samoa is typical of Pacific islands located great distances from continental land masses. Because mammals have few natural means of dispersal across wide expanses of water, their diversity on islands decreases with distance from their points of origin. The only terrestrial mammals native to American Samoa are bats.

Domestic mammals in American Samoa include the dog, cat, horse, cow, and pig. There may be a few feral dogs and cats on some islands, but only the pig has established feral populations that are significant to the native wildlife.

Two species of flying foxes occur in American Samoa, *Pteropus tonganus* and *Pteropus samoensis*. They are about the same size, having a wing span of up to four feet. There are differences in neck color and behavior by which the two species can be identified. *Pteropus samoensis* appears to be the most diurnal of the species, although *Pteropus tonganus* has also been seen to be active in the day. *Pteropus samoensis* remain in or near the native forest, and is not colonial, while the *Pteropus tonganus* roost in large colonies by day and feed at night in agricultural forests. There is also one species of insectivorous bat, the sheath-tailed.

It is thought that bats reached Samoa by way of southern Melanesia and islands in between. Flying foxes are an Old World group; their easternmost extent in the Pacific



Flying foxes, readily seen on all the islands, are essential to a healthy tropical forest.

John Engbring

are the Cook Islands. The sheath-tailed bat reaches its easternmost distribution in American Samoa.

The distribution of flying foxes may be seasonally influenced by ripening fruits. All three bat species are present on each of the volcanic islands.

Human disturbance of bat population is significant due to hunting pressure and habitat destruction. Although subsistence hunting by Samoans has existed for thousands of years, the introduction of commercial hunting during the last two decades has had a deleterious effect on the flying fox populations. Most of these bats were shipped to Guam, where they are considered a delicacy. However, territorial legislation banning commercial hunting in American Samoa was recently passed by the *Fono*, and a petition requesting the listing of *Pteropus samoensis* on the endangered species list is currently under review by the U. S. Fish and Wildlife Service. Destruction of forest trees reduces food sources and roosting sites. Human disturbance in caves also influences the breeding success of the insectivorous bats.

The Polynesian rat and the pig presumably were carried to Samoa from the East Indies by early human migrants. The roof rat and Norway rat were transported by the vessels of traders and explorers and might have been introduced at any time, but their limited distribution suggests that they, along with the house mouse, are relatively recent introductions.

The Polynesian rat is found on all the islands, but the house mouse, roof rat and Norway rat are found only on islands that have a seaport. Mammal distribution in American Samoa by habitat type is shown on Table 5.

Tutuila Island. All species of mammals known in American Samoa have been recorded from Tutuila. Both species of flying foxes are found throughout the island. A large roost of the *Pteropus tonganus* is at Fagatele Point and small roosts are scattered elsewhere. Sheath-tailed bats were found roosting in shallow caves along the south shore, especially at Sail Rock Point and Anape'ape'a Point. A major roost is in the two large caves on the north shore at Anape'ape'a Cove in Afono Bay.

The Polynesian rat, although present throughout the island, is more prevalent around village and plantation lands. The roof rat and house mouse live in the village land and surrounding areas. The Norway rat occurs in the Pago Pago Harbor area.

Table 5. Checklist of Mammals in American Samoa.
(Tutuila, Aunu'u, Ofu, Olosega, and Ta'u)

Order	Family	Genus and species	English	Samoan	Distribution
<i>Chiroptera</i>					
<i>Pteropidae</i>					
		<i>Pteropus samoensis</i>	flying fox	pe'a vao	all islands
		<i>Pteropus tonganus</i>	flying fox	pe'a	all islands
<i>Emballonuridae</i>					
		<i>Emballonura semicaudata</i>	sheath-tailed bat	pe'ape'a'vai	all islands
<i>Rodentia</i>					
<i>Muridae</i>					
		<i>Mus musculus</i>	house mouse	'isumu	Tutuila only
		<i>Rattus rattus</i>	roof rat	'isumu	Tutuila, Aunu'u & Ofu
		<i>Rattus exulans</i>	Polynesian rat	'isumu	all islands
<i>Artiodactyla</i>					
<i>Suidae</i>					
		<i>Sus scrofa</i>	pig	pua'a	all islands

Aunu'u Island. Both species of flying foxes range throughout the island. There is a large roosting colony of *Pteropus tonganus* on the southeast slope of Fogatia Hill. Sheath-tailed bats visit from nearby Tutuila and may roost in caverns on the north rocky cliffs of Pofala Hill. Polynesian and roof rats are found throughout the island and are prevalent in village and plantation lands and around coastal marshes.

Ofu Island. Both species of flying foxes range throughout the island; roosts of *Pteropus tonganus* are found on Nu'utele Islet and on the cliffs along the south coast. Sheath-tailed bats roost in caves along the Sinapoto Point area on the north coast and in the caves on Nu'utele Islet. The Polynesian rat and the roof rat are the only rodents on Ofu. The Polynesian rat is found throughout the island, and the roof rat is found around Ofu village and the airport.



The north shore of Tutuila has many scenic bays and coves such as Anape'ape'a, named for its bat caves.

Olosega Island. Both species of flying foxes are found throughout Olosega Island; roosts of *Pteropus tonganus* are located in the trees along the rock cliffs above Olosega and Sili villages and along the east coast, north of Leala Point. Small numbers of sheath-tailed bats roost in a cave located on the rock cliff above Sili village. The Polynesian rat is especially prevalent in the village and plantation lands. A dense population of feral pigs is found in the cloud forest near the top of the island.

Ta'u Island. Both species of flying foxes are found throughout the island. *Pteropus tonganus* roosts are found in several localities, most notably in the plantation land above Fagamalo Cove and in the lowland rainforest above Papaotoma Point. The sheath-tailed bats apparently roost in caves along the south coast somewhere above Lavania Cove. The Polynesian rat is found throughout the island except for the upper portions of the montane rainforest, cloud forest, and montane scrub. Feral cats and pigs live on Ta'u; pigs are especially prevalent in the secondary forest along Faleulu Stream and along the mid to lower slopes of the west side of the island.

Two species of sea turtles, the hawksbill, *Eretomochelys imbricata*, and the green, *Chelonia mydas*, found in the waters off American Samoa have been listed by the U. S. Fish and Wildlife Service, the hawksbill as endangered and the green as threatened. One species of flying fox, *Pteropus samoensis*, has been petitioned for

listing. The U. S. Fish and Wildlife Service at this time has recommended that it remain a Category 2 species (i.e., not enough data presently exists to warrant listing).

Cultural Resources

The Samoan culture and lifestyle (*fa'asamoa*), which emphasize the dignity and achievements of the extended family (*aiga*) and village units, add much to the island ambience. Management of each *aiga's* lands by its chief (*matai*) for the common good has preserved not only the natural resources of land and sea, but also archeological and historical resources, including the legends and traditions. American Samoa is characterized by a very friendly and hospitable people and environment. This is fortunate because viewing the various sites and learning the legends requires a local guide and a hike through the gentle rainforest. Few sites are marked and little has been written, but many topographic or geologic features have important cultural and legendary associations. Of particular interest are the ancient and mysterious star mounds, fortified mountain villages, and schools built by the early Christian missionaries to name only a few.

Pre-history. Proto-Polynesians were probably living in Western Samoa by 1300 B. C., having migrated from Southeast Asia. A second wave known as the "Lapita people," who made a type of decorated pottery, arrived in Samoa and Tonga between 1300 and 1100 B. C. These parties brought with them chickens, dogs, pigs, bananas, taro, coconut, breadfruit, long-leafed pandanus, paper mulberry, and other ingredients to form a new culture. Over the next 2,000 years, although pottery-making disappeared, the Samoan language and culture evolved. After 500 A. D., rituals, ceremonial seating plans, currency of the fine mats, the kava ceremony, hereditary titles, and political tension between Samoans and Tongans developed. It is believed that some Samoans sailed eastward, peopled other island groups and are the ultimate ancestors of Polynesians now found in the Marquesas Islands, Easter Island, the Society Islands, Cook Islands, Hawaii, New Zealand, and other Pacific isles.

Those Polynesians who remained in Samoa retained and developed their own distinctive brand of Polynesian culture. Ethnolinguistic analysis indicates, for example, that Samoa and other Polynesian languages retain more similarities with the Proto Polynesian languages than other more derived Eastern Polynesian languages. Around 950 A. D., Tongans came to power in Samoa except for Manu'a. The Tongan reign in Samoa continued until 1250 A. D. when a cruel Tongan leader was thrown out of Western Samoa; however, his brother remained in power on Tutuila. Later, Fua'autoa, a great Samoan warrior who lived in the mountains above Pago Pago led the final battle near Leone which drove the Tongans out of Tutuila. The trenches from these battles can still be seen at Tafuna, Leone, and on the Alava Ridge.

After the Tongan wars, districts and titles grew in importance. Through a series of district wars, arranged marriages, and alliances, power became consolidated in a few families/titles, including the Malietoas. Finally, a young girl, Salamasina, who was the direct descendant of Tuia'ana, Tuisamoa, Tuimanu'a, and Malietoa, was awarded the four highest titles of Samoa. She became ruler of all Samoa except Manu'a by the age of 15. Although warfare had been common for many years, there were no wars during her 50-year reign due to her mana, wisdom, and tact in settling all disputes. Several generations later, her line ended and the title passed outside her family to Malietoa who welcomed the first white missionary, John Williams. While Savai'i, 'Upolo, and Tutuila were invaded and ruled by Tongans, the Manu'a islands remained independent, with no political subservency to the

rest of Samoa. Manu'a also held special status in tradition and in Samoan society. Its king, the Tui Manu'a, was considered equal in rank to the king of Tonga. Even today the inhabitants of Ta'u, Ofu, and Olosega regard Manu'a as the cradle of Samoa.

History. Dutch discoverer, Jacob Roggeveen, stumbled upon the islands in 1722 in one of his voyages across the Pacific but did not land. Moreover, he made an error in positioning the location of the islands in the wide Pacific. Yet, this did not close the door to Samoa for the outside world. Odd shipwrecked sailors and whaling schooners probably came upon the islands every now and then, but almost all contact was by accident.

To the Samoans who regarded themselves as the only people, these strange people with fair skins and strange tongues must have come from heaven. What made it convincing was the way the ships would materialize out of the horizon, the connection of the sea and the sky. From then on, *papalagi*, or *palagi* as they are referred to today (literally translated as "burst from heaven"), was given to anyone with fair skin from beyond the horizon.

On May 3, 1768, the French explorer, Louis Antoine de Bougainville, sighted the Samoan islands and, in admiration for the skill which the Samoans used in navigating their sea-going canoes, named the group *L'Archipel des Navigateurs*, or the Navigator Archipelago. In 1787 the French ships, *L'Astrolabe* and *La Boussole*, visited the Samoan Islands under the command of Jean Francois de Galaup de la Perouse, who became the first European of record to land on Tutuila. However, in a fight caused by a misunderstanding, twelve of the French sailors and an undetermined number of Samoans were killed at A'asu, on the rugged north shore. This incident caused many of the early explorers to avoid landing on Tutuila for many years.

Nevertheless, in 1791, Captain Edward Edwards, in command of the British man-of-war *Pandora*, visited Tutuila and Pago Pago Harbor, becoming the first to point out the natural virtues of the harbor.

Otto von Kotzebue, the Russian explorer, visited the Samoan Islands in 1824 and in 1838 the French explorer, Dumont d'Urville, made a number of charts of the Samoan Islands, but it remained for the United States to make the first detailed investigation of the islands. In 1836 the United States Congress voted to send an exploring expedition, commanded by Captain John Wilkes, into the Pacific.

Arriving at Tutuila in October 1839, Wilkes and his party made a detailed survey of Pago Pago Harbor, the first such chart done by an American. Wilkes called Tutuila "one of the most singular in all the Polynesian isles," with special reference to Pago Pago Harbor.

In 1832, John Williams, the first *palagi* missionary, sailed into American Samoa (Tongan missionaries arrived in Tutuila as early as 1828). Christianity arrived at a time when there was a lull in civil wars among the Western Samoans. All the Samoan people rapidly adopted Christianity.

At the missionaries' heels were the European powers. And suddenly, Samoa became engulfed in a wave of colonial expansion and influence. European powers and the United States began a tug of war.

In 1870, William H. Webb, a New York shipbuilder, became interested in using Pago Pago Harbor as a coaling station for his shipping company, which ran ships between San Francisco and Australia, by way of Honolulu. Webb sent Captain E. Wakeman to Tutuila to inspect Pago Pago Harbor. On August 9, 1871, Wakeman entered Pago Pago Harbor and

called it "the most perfectly land-locked harbor that exists in the Pacific Ocean." Describing the islands as the "garden spot of the Pacific," Wakeman's report to Webb was sent on to the Secretary of the Navy.

Wakeman's report aroused the Navy Department and Rear Admiral John A. Winslow, commander of the Pacific Fleet, instructed Captain Richard W. Meade, captain of the *Narragansett*, to visit and survey the Pago Pago Harbor and "locate a coal depot for American steamers."

Captain Meade left Honolulu in January 1872 and arrived off Tutuila in early February. He stayed for about one month, during which time he made a detailed chart of Pago Pago Harbor. He also made a treaty with Mauga, one of the principal chiefs of Pago Pago. This treaty granted the United States "exclusive privileges of establishing in the said harbor of Pago Pago, island of Tutuila, a naval station, for the use and convenience of the vessels of the United States." The treaty also provided that every vessel entering Pago Pago Harbor would pay a port fee to the principal chief of Pago Pago.

The Meade treaty marked the beginning of formal relations between the United States and the people of Tutuila and the beginnings of a policy of friendship and support of the people who were to become the American Samoans.

A second treaty of commerce and friendship was negotiated in 1878 with the chiefs of the villages adjacent to Pago Pago. This treaty remained in force for the next twenty years or so. By 1900, the Samoa Islands were being claimed by both Germany and the United States. Germany annexed several islands which now comprise Western Samoa; the U. S. took Tutuila to use Pago Pago Bay as a coaling station for naval ships.

Since the Americans had no colonial machinery, President McKinley declared the islands (Eastern Samoa) the responsibility of the Department of the Navy. Commander B. F. Tilley formally accepted the Deed of Cession from the principal chiefs of Tutuila. However, the Tui Manu'a, one of the most powerful chiefs in all Samoa, did not sign for the Manu'a islands until four years later, and only so that his people could share the privileges of Eastern Samoa's new association with the United States.

When the Japanese Empire flexed its muscles in the Pacific in the late 1930's, the quiet naval station in Pago Pago suddenly acquired a new strategic importance. In the early 1940's, the port of Pago Pago and the Samoan islands became an advanced training and staging area for the United States Marine Corps prior to the major advance against Japan in World War II. It was during the war years that Samoa became fully exposed to American life. Roads, airstrips, docks, and medical facilities were built. Samoans enlisted in the military and established a home-guard unit that instilled an immense amount of pride among the island people.

In 1945, the marines left as suddenly as they had arrived. The presence of the marines for four years and the enlistment of many Samoans in the military gave the people a new insight into American life. What followed eventually led to a major out-migration by the American Samoans to live in the United States and to make careers in the U. S. military.

The end of World War II initiated a major administrative change in the territory. In 1951, President Truman declared that the Department of the Interior was to replace the Navy as the agency responsible for the administration of American Samoa.

National Register of Historic Places. The National Register of Historic Places is the official schedule of the Nation's cultural property that is worth saving and is published periodically with pertinent information about each property. Properties are nominated for inclusion on the National Register and may be accepted if they meet criteria related to significance in American history, architecture, archeology, and culture present in districts, sites, buildings, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, association, or other non-tangible evidence.

The properties in American Samoa, which are listed on Table 6, are now included on the National Register of Historic Places.

Table 6. Properties on National Register of Historic Places.

Name	Location on Tutuila	Date Entered	Present Use
Government House	Fagatogo	3-16-72	Governor's Residence
Navy Building 38	Fagatogo	3-16-72	Amerika Samoa Bank
Navy Building 43	Fagatogo	3-16-72	Jean P. Haydon Museum
Fagalele Boys' School	Sogi	3-16-72	Youth With a Mission
Atauloma Girls' School	Afao	3-16-72	Residence for ASG Employees
Massacre Bay	A'asu	4-13-73	Historic Site
Blunt's Point Naval Gun	Matautu Ridge	4-26-73	Historic Site
Courthouse of American Samoa	Fagatogo	2-12-74	High Court of American Samoa

In June 1987 the Blunt's Point Naval Gun was declared a National Historical Landmark by the Secretary of the Interior. In addition to the eight historic properties currently entered on the National Register of Historic Places, there are a number of other structures and sites from the historic period which have pending National Register nominations. These include the following:

Tutuila Island

1. U. S. Naval Station Jail, Fagatogo
2. U. S. Naval Station Bakery, Fagatogo
3. Gagamoe, Pago Pago:

The first American-Samoan treaty was signed here by Paramount Chief Mauga Manuma and Commander Richard Meade, USN, on March 2, 1872.

4. B. F. Kneubuhl Building, Fagatogo
5. Max Haleck Building, Fagatogo
6. Pago Pago Congregation Church, Pago Pago
7. Fagatogo Congregational Church, Fagatogo
8. Breaker's Point Naval Gun Site, Lau'i'i
9. Church of the Immaculate Conception, Lepua

Built in 1929, this is one of the two oldest Catholic churches in American Samoa. It contains stained glass windows and statuary imported from France.

10. Fitafita Barracks, Fagatogo

This structure formerly housed the "Fitafita Guard" (a local militia) during World Wars I and II. It currently serves as police headquarters.

11. Sogelau Ridge, Fagatogo

The U. S. flag was raised here on April 17, 1900, when the chiefs of Tutuila ceded the island to the U. S. Navy.

12. Catholic Church, Aua

Built in the 1930's, this chapel is constructed of rock-faced concrete blocks, imitating the pseudo-Polynesian style used in some U. S. naval buildings built during World War I.

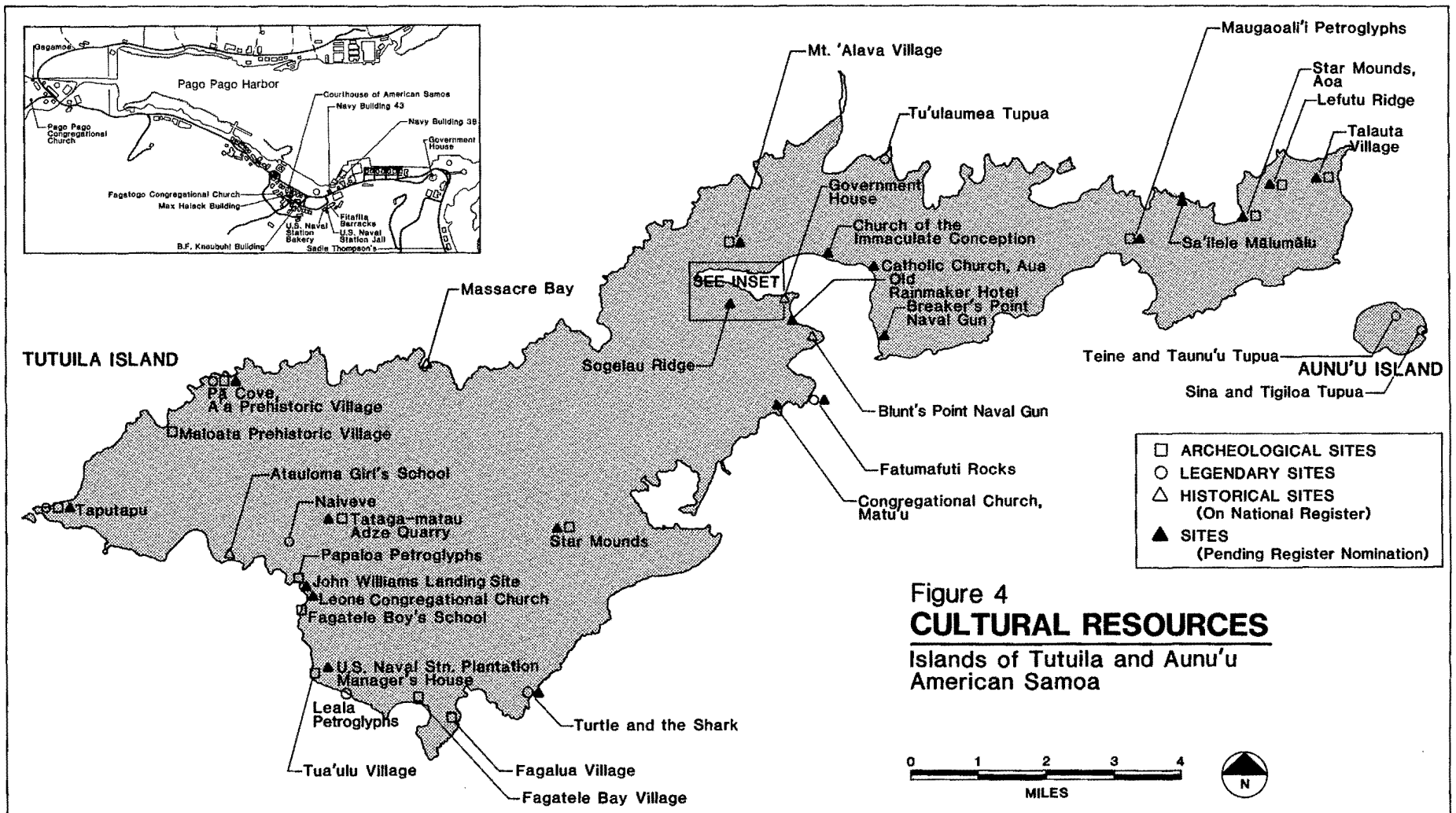
13. The Old Rainmaker Hotel, Utulei

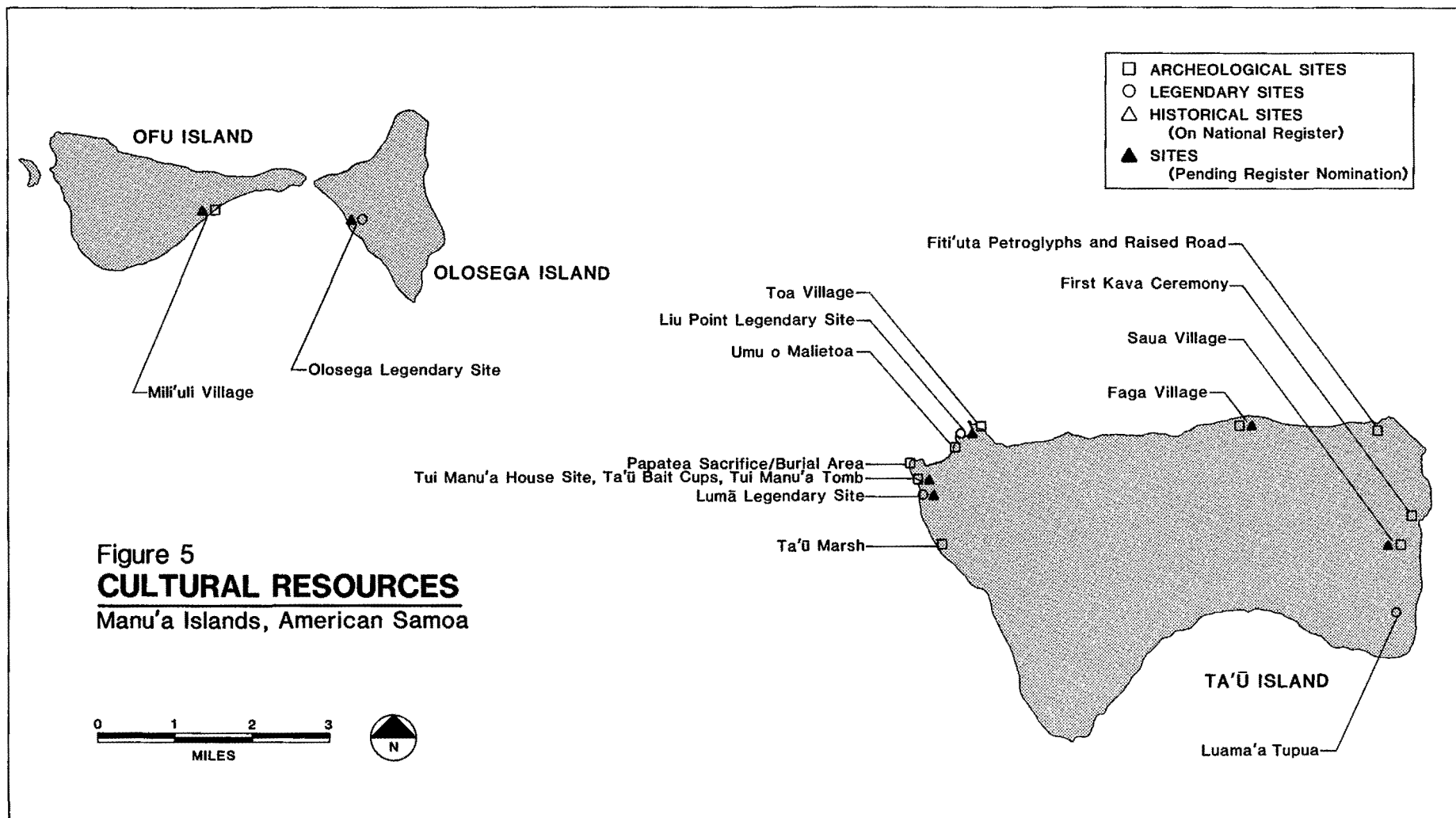
This building, which dates from the late 1930's, was once the premier hotel in American Samoa.

14. John Williams Landing Site

15. Leone Congregational Church, Leone

This church was begun in 1912, finished in 1929, and restored in 1950 and 1985.





16. U. S. Naval Station Sugar Cane Plantation Manager's House, Vailoatai

This residence, built in 1933, is associated with one of the U. S. Navy's few ventures into tropical agriculture.

17. Congregational Church, Matu'u

This chapel, built in the 1930's, is an interesting combination of Byzantine and Romanesque styles.

18. World War II Machine Gun Emplacements ("Pillboxes"), Various Locations

These concrete fortifications (50 in number) were surveyed by Joseph Kennedy for the U. S. Army Corps of Engineers in November, 1984.

Ta'u Island

19. Tui Manu'a House, Ta'u

This is the site at which Tui Manu'a Elisara ceded the Manu'a Islands to the United States on July 14, 1904.

Legendary and Archeological Sites. American Samoa's cultural resources also include sites of legendary and archeological importance.

Legendary sites are places, often sacred to Samoans, associated with myth, legend, or tradition. Many legends exist about the origin of the islands, the first people, topographic features, birds, fish, plants, and even the name Samoa. These legends, each often with several versions, have been handed down through the generations and are fascinating. Those related to specific features or sites are especially interesting and worthy of preservation and interpretation as part of the cultural heritage of Samoa.

The following legendary sites are considered eligible for the National Register of Historic Places and have pending nominations:

Fatu ma Futi (Tutuila)
The Turtle and the Shark (Tutuila)
Taputapu (Tutuila)
Pa Cove (Tutuila)
Olosega Legendary Site (Olosega)
Li'u Point (Ta'u)
Luma Site (Ta'u)

Knowledge of the pre-Euro-American contact history of American Samoa is quite limited due to the lack of archeological research. Much of what is known is based on surveys and excavations carried on in Western Samoa, but exciting new archeological finds in Tutuila and Manu'a are being analyzed as this report is being written.

Beginning in the early 1960's, sites known to the local inhabitants have been surveyed by several archeologists, including William Kikuchi, Yosihiko Sinoto, Edmund Ladd, Janet Frost, Jeffrey Clark, and others. For the most part, sites were looked for in coastal areas and near existing villages. Inland areas have received little attention. Excavations have

been even more limited. Additional research has been underway since the mid-1980's by several archeologists as shown in the chronology appearing in Appendix 2; however, results have not yet been published. Early results indicate a considerably richer archeological resource at inland locations than previously suspected. Recent finds include pottery-bearing sites, many more star mounds, ridge-top villages, and an additional basalt quarry/adze manufacturing site.

These studies along with expanded archeological research will be needed to more accurately define the important role of American Samoa in Polynesian prehistory.

Currently, no American Samoan archeological sites are on the National Register of Historic Places. Based on the limited investigation of the past few years, the following sites are being evaluated by the historic preservation officer for nomination to the Register. Further archeological surveys will undoubtedly identify additional sites worthy of nomination.

1. Mount Alava Village (Tutuila)

This fortified mountain village dates from the Tongan wars and Samoan civil wars. Radiocarbon dates of 1450 A.D. plus or minus 80 years and 1869 A.D. plus or minus 80 years have been obtained.



Over 2,000 years ago adzes were sharpened along Leafu Stream near the Tataga-matau quarry.

2. The Sa'ilele Malumalu (Tutuila)

This is the only surviving example of a pre-Christian temple (malumalu or fale aitu) in American Samoa.

3. Tulauta Village (Tutuila)

Tulauta is one of the few sites in American Samoa which has been archeologically tested. The oldest level produced a radiocarbon date of 840 B.C. plus or minus 150 years. It appears to be a special purpose site -- for either wood-working or adze finishing. Most intriguing is the fact that no pottery was found here, although Tulauta is of Lapita age.

4. Lefutu Ridge, Onenoa (Tutuila)

One of the few inland sites thus far investigated, Lefutu Ridge dates from at least the 12th century A.D., and may go back as early as the 8th century. A single radiocarbon date of 1100 A.D. plus or minus 210 years (corrected) has been obtained. Lefutu is a fortified mountain village.

5. Star Mounds, Aoa (Tutuila)

The 16 mounds in this thematic group were investigated by team from North Dakota State University in 1986.

6. Star Mounds, Tafuna (Tutuila)

Star mounds (also called "cog mounds") are star-shaped stone mounds as yet found only on 'Upolu (Western Samoa) and Tutuila islands. Their purpose is unknown, and no ethnographic accounts are considered reliable by archeologists. This group of 9 mounds is located in an area where future development is likely to occur. They are significant prehistoric structures and should be protected.

7. A'a Prehistoric Village, Pa Cove (Tutuila)

This site, rich in lithic materials, has been investigated by a University of Oregon team. It will be nominated to the National Register in FY 1987.

8. Maloata Prehistoric Village, Pa Cove (Tutuila).

This archeological site has been investigated by a University of Oregon team. It is associated with a lithic industry; the upper reaches of the valley may contain an adze quarry.

9. Tataga-matau Adze Quarry, Leone (Tutuila)

This is the oldest and largest basalt adze quarry in Western Polynesia. It is probably between 2,000 and 3,000 years old. Adzes from this quarry have been found as far west as the Solomon Islands.

10. Mauga'oali'i Petroglyphs, Sua County (Tutuila)

Petroglyphs are a rare art form in Samoa. This series depicts turtles.

11. Muli'ulu Village, Fa'ala'ago-To'aga (Ofu)

Muli'ulu extends along the south coast of Ofu Island for almost two miles. Its age is prehistoric and early historic; little disturbance has occurred. This village should yield valuable ethno-archeological data.

12. Tui Manu'a Tomb (Ta'u)

Four graves of Tui Manu'a (the highest chiefs in the Samoan islands) are grouped together here under a large platform of basalt rocks.



Four Tui Manu'a are entombed at this site on Ta'u.

13. Saua Village, Fiti'uta County (Ta'u)

This large prehistoric village extends for some two miles along the east coast of Ta'u. It is relatively undisturbed and is reputed to be the site of the first kava ceremony.

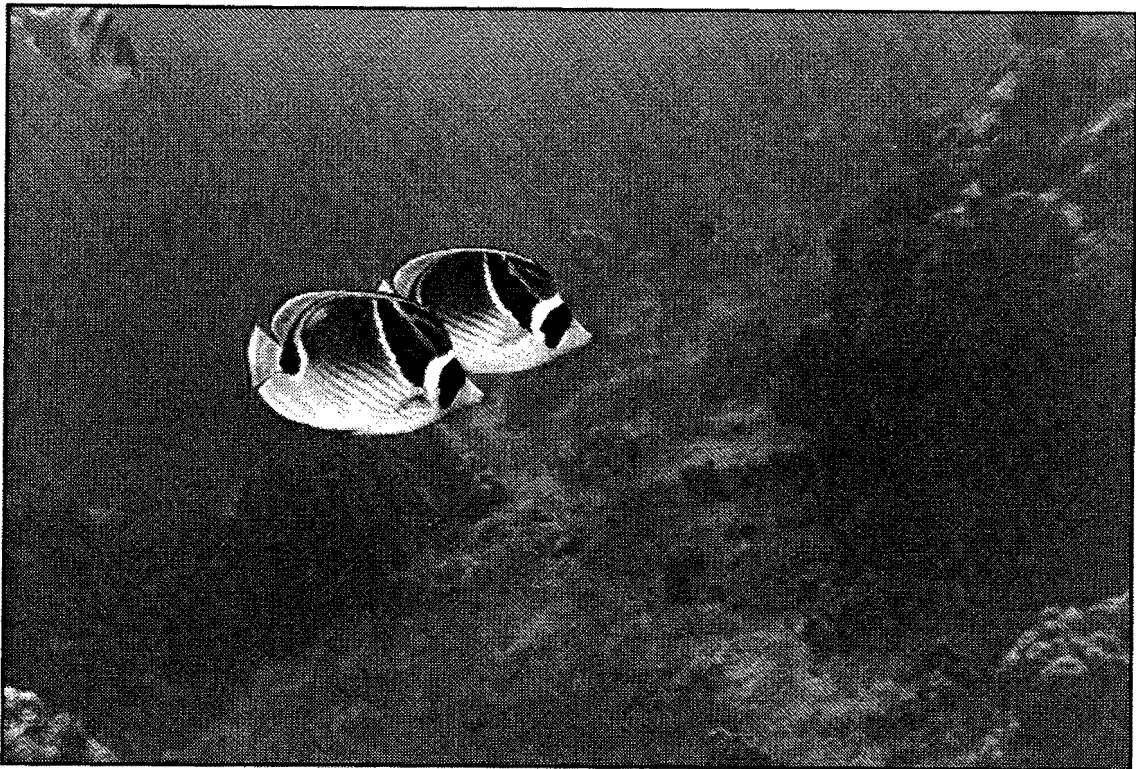
14. Faga Village, Fiti'uta County (Ta'u)

This village extends for nearly one mile along the northwest coast of Ta'u. Traditionally and mythologically, it is considered to be the oldest village in American Samoa and is undisturbed.

Scenic Resources

The resources of American Samoa, natural, cultural, and physical, combine to produce a setting that is extremely attractive. The name Pago Pago conjures up a vision of south sea island paradise which is more nearly fulfilled in the relatively unspoiled Manu'a Group. The jagged peaks of the volcanic islands cut with deep ravines and grown over with giant ferns, vines, and high trees contrast with sand beaches and coral reefs in small coves, many of which harbor well-kept villages.

Scenic beauty and spectacular viewpoints abound. At the top of the aerial tramway 2,000 feet above Pago Pago Bay, one can see the Manu'a islands to the east and the nation of Western Samoa to the west. Here, as elsewhere in these tropical rainforests, the air is filled with the songs of native birds. Even more easily observed is the remarkable flying fox, which glides over the tree top on four-foot wings in broad daylight searching for flowers and fruit in the forest canopy.



Clear waters over coral reefs teem with colorful fish to the delight of snorkelers and divers.

Added appreciation of the scenic beauty of American Samoa can be gained by viewing the islands from the sea. The rugged and inaccessible coastline, together with the variety of seabirds, are most impressive. This discussion would not be complete without mentioning the opportunities offered to snorkelers and scuba divers by the crystal clear waters over coral reefs teeming with brightly colored fish.

PLANNING CONSIDERATIONS

Government

American Samoa is a semi-autonomous territory of the United States and operates under its own constitution, adopted in 1960. This important document contains a bill of rights, creates legislative, executive and judicial branches of government, grants law-making authority to the legislature, and states that it shall be government policy "to protect persons of Samoan ancestry against alienation of their lands and the destruction of the Samoan way of life and language . . ."

American Samoa's executive branch of government is headed by an elected Governor. The legislative branch, the *Fono*, is bi-cameral, with members of the House being elected by popular vote for two-year terms and members of the Senate, who must be registered chiefs, being selected by county councils for four-year terms.

The U. S. Government authority in American Samoa resides with the Secretary of the Interior. American Samoa is represented in the U. S. Congress by a non-voting delegate, established in 1980.

At the local level, for administrative purposes, the American Samoa Government (ASG) operates through a network of districts, counties, and villages. This system is administered by a Secretary for Samoan Affairs, one of the traditional chiefs, through the Department of Local Government and serves as the link between the traditional leaders of American Samoa and ASG. The Secretary for Samoan Affairs provides administrative direction to the three district governors, the 14 county chiefs, and 53 village mayors (*pulenu'u*).

The district governors are appointed by the Governor for four-year terms, based on recommendations received from the respective district councils. The district governments are not separate entities, but were set up to serve as liaison between the Governor and the traditional leaders. Tutuila is divided into two districts, the Western and the Eastern, which includes 'Aunu'u Island. The three islands of the Manu'a group constitute the third district.

The Governor appoints a county chief for a four-year term from each of the 14 counties. These appointments are based on the recommendations forwarded to the Governor by the appropriate district governor and county council. County councils are chosen in accordance with Samoan custom.

At the village level, the Governor appoints a *pulenu'u* from the ranks of the chiefs in each village to serve for two years. Again, the Governor bases his appointments on the recommendations received from the district governor and county chief. The village council, in turn, makes nominations to the district governor and county chief.

The above is a brief description of the official territorial government. In effect, however, there are two systems of government at work in American Samoa; separate, but complementary. The other is the traditional form of government, the *matai* system, made up primarily of the high chiefs. Usually, appointed government officials such as district

governors, county chiefs, and *pulenu'u* also hold *matai* titles, including high chief. In matters involving the use of land in American Samoa, the traditional system plays the pivotal role -- i.e., decisions regarding lands are still controlled by the *matai*.

Population and Economy

More than 95 percent of American Samoa's population, estimated at close to 36,000, lives on the main island of Tutuila, mostly in the principal urban center around the Pago Pago Harbor. The trend has been for more and more people to move from the outlying villages and from Western Samoa to the Pago Pago area, where most of the employment is located. During the past decade, the Tafuna plain in the vicinity of the airport has experienced the most rapid population growth and development. This movement to Tutuila has particularly affected the population of the Manu'a islands. Back in 1930, the people of Manu'a accounted for about 22 percent of the total population of American Samoa; by 1950 that figure had shrunk to 16 percent, and by 1970 to 8 percent. The population of the Manu'a islands today accounts for about four percent of the total population (not counting the effects of Hurricane Tusi, which caused more people to leave).

Compared with other Pacific island nations, American Samoa's population growth rate has been slow. This is due in great part to out-migration, primarily to the United States. There are, in fact, more Samoans living abroad than in Samoa. For example, it is estimated that about 65,000 Samoans live on the west coast of the U. S. and more than 20,000 live in Hawaii.

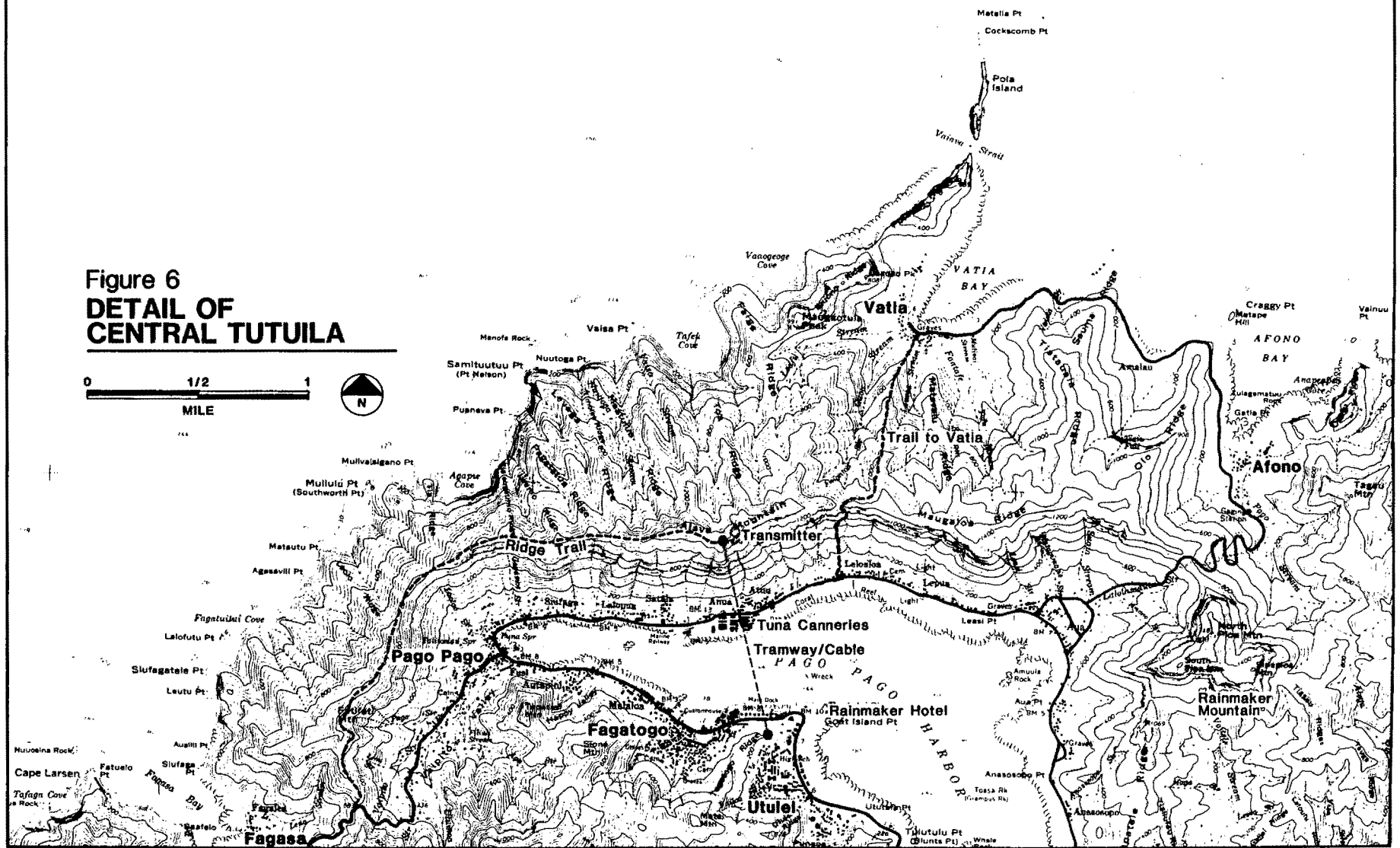
The 1980 census showed a population figure of 32,395 for American Samoa. After weighing migration, employment, and natural increase factors, a growth rate averaging approximately 1.6 percent per year has been predicted for American Samoa. Such a rate would give American Samoa a population of about 37,750 by 1990, about 44,250 by 2000, and 51,850 by 2010.

More than half of the population of American Samoa is under the age of 19. The proportion of male and female to the total population is about 50-50.

The largest employer in American Samoa today is government. In 1985, 37 percent of the employed work force of 16,000 worked for the ASG. The next largest employers are the tuna canneries. The canneries employ many of the Western Samoans who reside in American Samoa and make up a sizable share of the population. In 1985 the two companies, Van Camp Sea Food and Star-Kist Tuna Samoa, together provided jobs for 31 percent of the employed labor force. This was a record high for the tuna processing industry. There are also a sizeable number of other businesses which service the tuna industry and depend on it for their existence. Next in importance are the various retail and wholesale establishments and service outlets. There are approximately 1,100 such businesses in American Samoa, altogether accounting for about 3,500 jobs. There appears to be an expanding number of jobs associated with small boat domestic commercial fishing. In addition, there is a growing, though still small, visitor industry. It is estimated that approximately 800 individuals engage in subsistence activities as their means of livelihood. The unemployment rate in 1985 was 12.5 percent.

Figure 6
DETAIL OF
CENTRAL TUTUILA

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MILE



In 1985, the ASG contributed about \$88 million in revenue to the local economy, through salaries and purchases to vendors. Government services and capital improvements are financed in part by annual appropriations and grants from the Federal government. These amounted to about \$43 million in 1985. The remainder of the ASG 1985 revenues, about \$45 million, were derived from local taxes and public enterprise earnings. Recently, after considerable controversy, a two percent sales tax was enacted by the ASG. This increase in revenue, however, was offset by cuts in Federal funding during 1986. (About \$25 million was earmarked for ASG in the Interior Department budget for FY87.)

The ASG has embarked on a privatization program. As part of this program, the marine railway, the sale of alcoholic beverages and the collection of solid waste have been transferred to the private sector. There are efforts underway to privatize the LBJ Medical Center's housekeeping and maintenance activities.

American Samoa's fishing industry and its by-products, consisting almost entirely of the two tuna canneries, is the territory's major industry. Tuna comprises nearly all of American Samoa's exports. In 1985 approximately \$200 million worth of tuna went for export.

Another topic of controversy was the minimum wage increase ordered by the Federal Government in May 1986. The ordered increase was considerable and the feeling in American Samoa was that such an increase would be detrimental to future economic development. The resulting loss of jobs, due to the withdrawing of off-island investors in joint business ventures with local firms, prompted the ASG to seek a repeal. The order was subsequently overturned by Congress. In June 1987, after more discussion of the matter, a Department of Labor Committee was unable to reach agreement on the setting of a minimum wage in American Samoa.

In order to obtain financing for ASG economic development projects, the *Fono* last year passed a measure which provides for the creation of a bonding authority. The measure will also assist in obtaining funding for development from the private sector. The authority applies to public and freehold land and, under certain circumstances, to communal lands.

The Pago Pago Harbor area is the center of American Samoa's commerce, industry, and government. Agriculture employs only about two to three percent of the employable work force. However, on the Manu'a islands, agriculture is still important, accounting for about 40 percent of the work force. The Manu'a islands' share of the total economy has been decreasing for several years. This is due apparently to the emigration of its work force, a low population, and the fact that many Manu'ans rely on the income of relatives who have emigrated.

On January 17, 1987, Hurricane Tusi, with winds estimated at up to 170 miles per hour, struck the Manu'a islands. The hurricane devastated the islands: on Ta'u Island, two of the three villages, Ta'u and Fiti'uta, had more than 90 percent of their structures destroyed, and nearly all of the tropical forest vegetation on all three islands was denuded or blown over. About 100 people were injured and nearly the entire population of these islands was left homeless. More than 600 people left Manu'a to come to Tutuila, most of them school children.

The hurricane and its aftermath served to exacerbate the economic problems facing the Manu'a islands. The islands of Ofu, Olosega, and Ta'u possess great natural beauty and a rich and distinct cultural heritage. Their economies are almost entirely subsistence,

agriculture, and fishing, with small portions taken by government and education. Despite their physical and cultural attractions, the Manu'a islands have been steadily losing their population. In 1950, the population of the three islands totaled about 3,000. In 1960, there were 2,800 people living there; by 1970 the population had dwindled to 1,800. The 1980 census showed 1,732 residents. Before the hurricane the population of the three islands was estimated to be about 1,450.

The trend is more than just fewer people living in Manu'a; it is that those who do live there tend to be either young or old. It is estimated that nine out of every ten high school graduates do not choose to live in Manu'a five years after graduation. With the sudden departure of about 600 in the aftermath of the hurricane, the concern is now how many of these will choose not to return.

Growing concern by Manu'a's traditional leaders over the decline of the population led to the development of the *Manu'a Economic Development and Environmental Management Plan*, as part of American Samoa's Coastal Management Program. Completed in December 1986, the plan's objective was to recommend a course of action that would allow for economic development to take place there without harming the important natural and cultural values which are so much a part of the Manu'a Islands.

The plan recommended that economic development be undertaken in three areas: agriculture, fisheries, and tourism. The first two were recommended because they are both natural resource-based activities; they are favored by the community and a high percentage of the earnings derived would stay on Manu'a. The development of tourism would also be resource-based -- in fact, less consumptive than either agriculture or fisheries -- and a high percentage of the earnings would be retained. Tourism could also be a way to encourage the preservation of Samoan culture. The plan recommended that this development be undertaken gradually to ensure the likelihood of success.

Tourism

In 1985, with the setting up of an independent Office of Tourism, the ASG embarked on a program to facilitate the development of the tourist industry in American Samoa. It is well recognized that tourism and economic development are tied together. Since 1981, there has been a severe decline in tourism. This decline has been attributed largely to the inadequate and irregular air service. The major airlines with service to places like Australia and New Zealand converted to direct flights to those locations from the mainland U. S. and Honolulu, thereby bypassing American Samoa. Also, in 1982, Continental Airlines ceased its service to American Samoa. In 1985, South Pacific Island Airways and Samoa Air were grounded, leaving only Hawaiian Airlines to fly the route between American Samoa and Hawaii. In June 1987 Hawaiian began flights into American Samoa on a daily basis. However, travelers to American Samoa experience problems with Hawaiian's service and reliability--late departures, loss of luggage, etc. Other contributors to the decline in tourism are thought to be inadequate tourist related facilities and on-island activities.

The Rainmaker Hotel is by far the largest hotel in American Samoa, accounting for nearly 90 percent of all the available rooms. The hotel is owned by the American Samoan Development Corporation (more than 70 percent of the ASDC is owned by the ASG through the American Samoa Development Bank). Despite a superb location, good layout and design, the hotel has been faced with management problems for several years.

Table 7. Tourist Arrivals, 1978 - 1986.

1978	1979	1980	1981	1982	1983	1984	1985	1986
11,157	14,819	13,478	8,505	7,480	5,270	4,438	5,875	5,666

Statistics for 1986 show that most of the tourists who come to American Samoa continue to be from the U. S. -- 3,261 out of 5,666. The next largest group came from New Zealand (855), then Europe (431), Australia (380), and the Pacific (379), with more than 60 percent of that number from Western Samoa.

Table 8. Tourist Arrivals by Month, 1982 - 1986.

Month	1982	1983	1984	1985	1986
January	700	723	478	297	613
February	435	618	454	373	362
March	481	330	293	289	352
April	553	284	315	359	402
May	667	379	351	391	425
June	745	413	354	659	529
July	661	429	447	685	570
August	877	464	440	696	583
September	467	534	347	504	428
October	413	422	295	528	457
November	603	302	293	461	359
December	878	372	371	633	586

In September 1987, the management of the Rainmaker was taken over by the Travel Development Corporation. Under an agreement between the TDC and the ASDC, management by TDC will be for two years, with an option for five years thereafter. TDC plans to carry out a complete renovation of the hotel and steps are now being taken to improve its operation.

Land Use

Today, American Samoans, as they have for countless centuries, continue to guard and treasure their traditional way of life -- *fa'asamoa*. The most tangible evidence of this is reflected in the manner in which they use their lands.

The traditional pattern of land use in American Samoa centered around the villages which were sited along the coast. The residential portions of the village, containing the dwelling, guest and ceremonial *fale* along with a *malae* (an open commons area), were located nearest the sea. Coconut palms usually lined the village shoreline and sometimes were interspersed among the *fale*. Agricultural plots for growing vegetables and yams were usually located behind the village. Further inland were the areas where taro, bananas, breadfruit, and papayas were grown. These agricultural areas were located in isolated small clearings in the native forest. The nearby forested areas were utilized for firewood and building materials. The intensity of land use generally diminished the further one went inland, with the interior being undisturbed native forest. Today, there are parts of American Samoa, notably in the Manu'a islands, where this pattern of land use still exists.

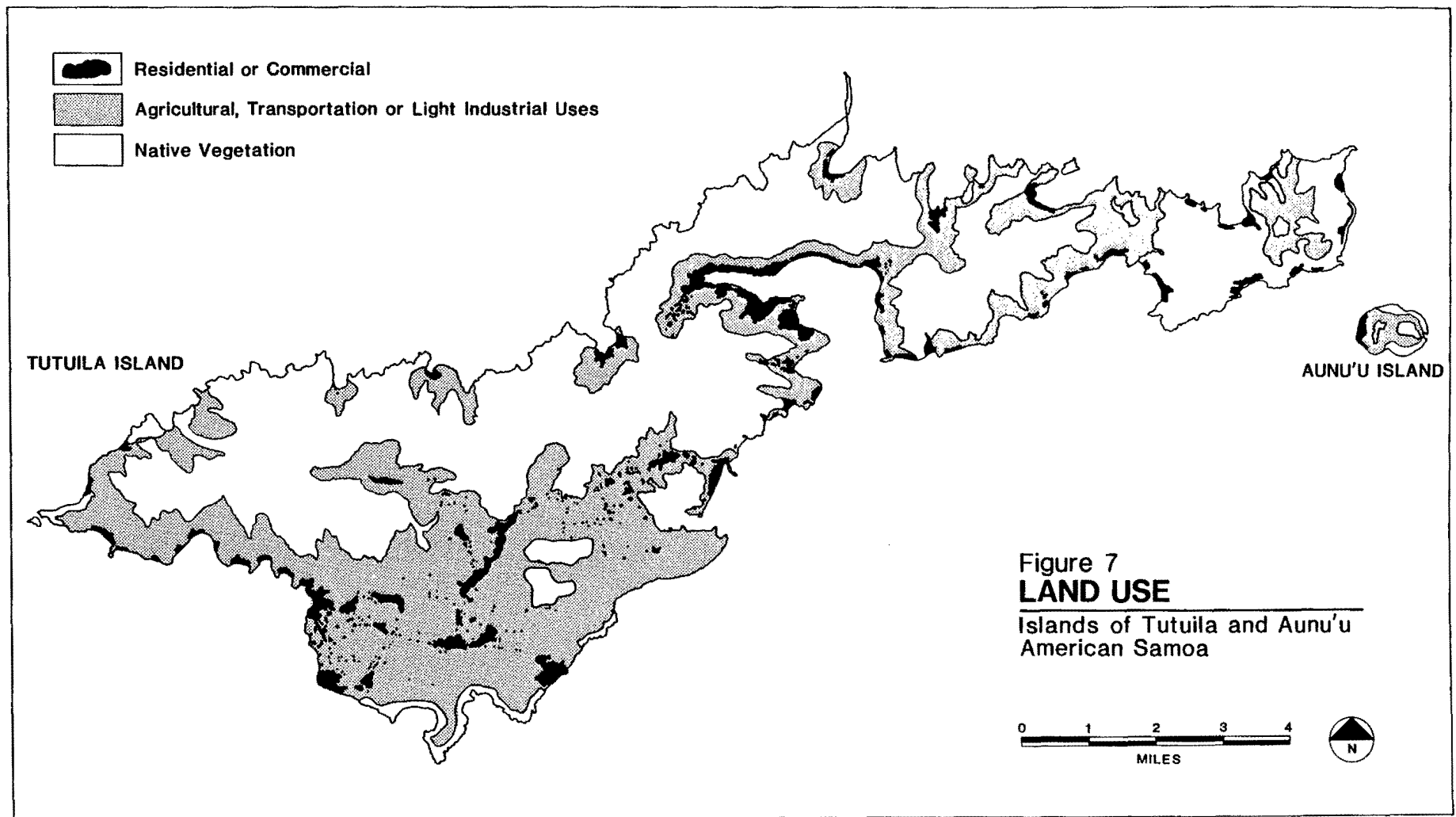
It is estimated that about two-thirds of the total land area in American Samoa has been altered from the original, natural condition, that of primary tropical rainforest, and utilized for agricultural (farms, pastures, or plantations) or other uses. Nearly one-half of these altered areas, however, having been left alone for several decades, are now in secondary forest. These disturbed forest areas eventually become visually indistinguishable from the undisturbed primary forest.

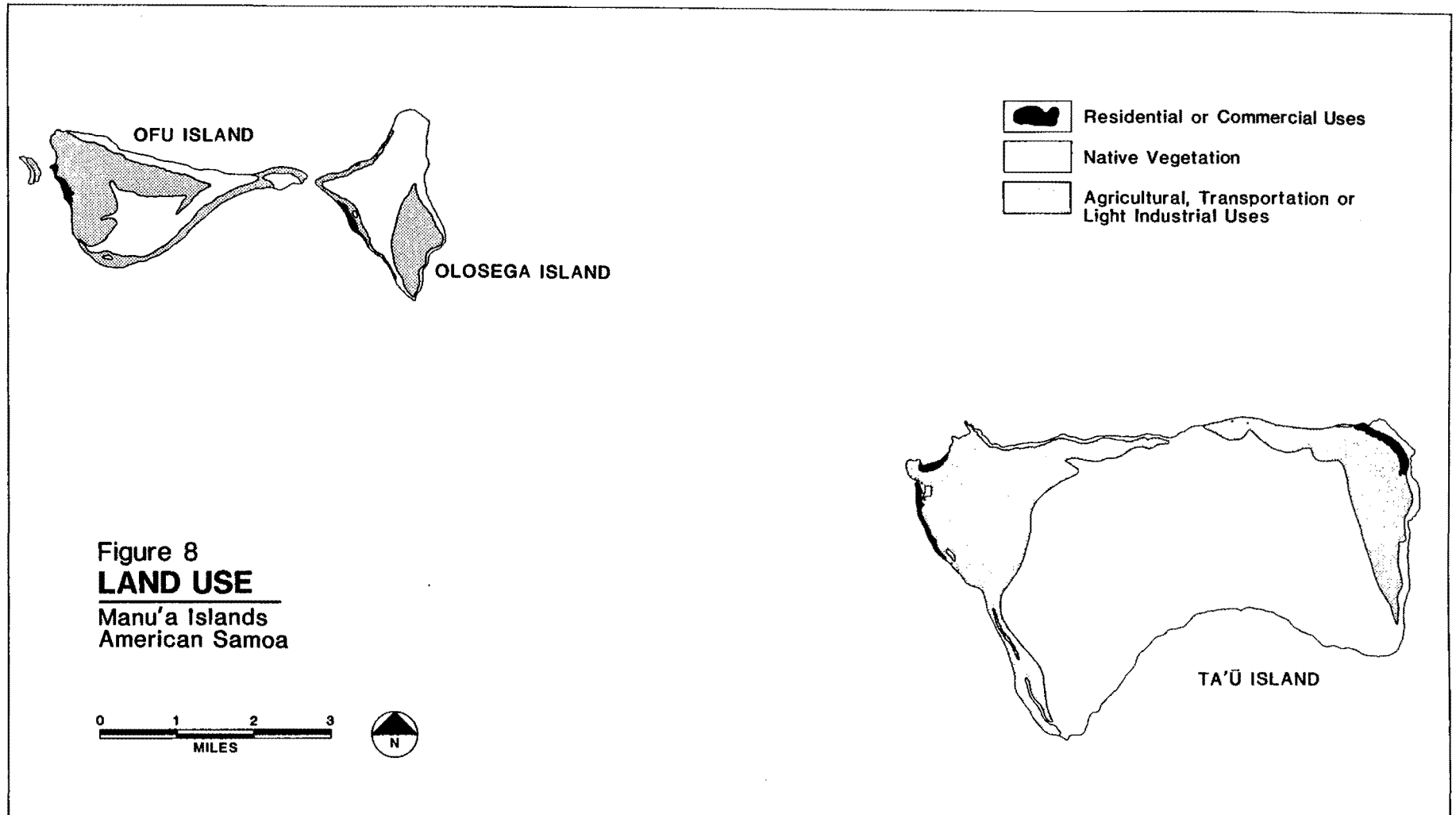
The island of Tutuila, particularly in and around the Tafuna-Pago Pago harbor area, has undergone significant changes in land use over the past several decades. Within the Tafuna-Pago Pago area, where nearly all of American Samoa's economic and service activities take place, the changes from the traditional pattern have been dramatic.

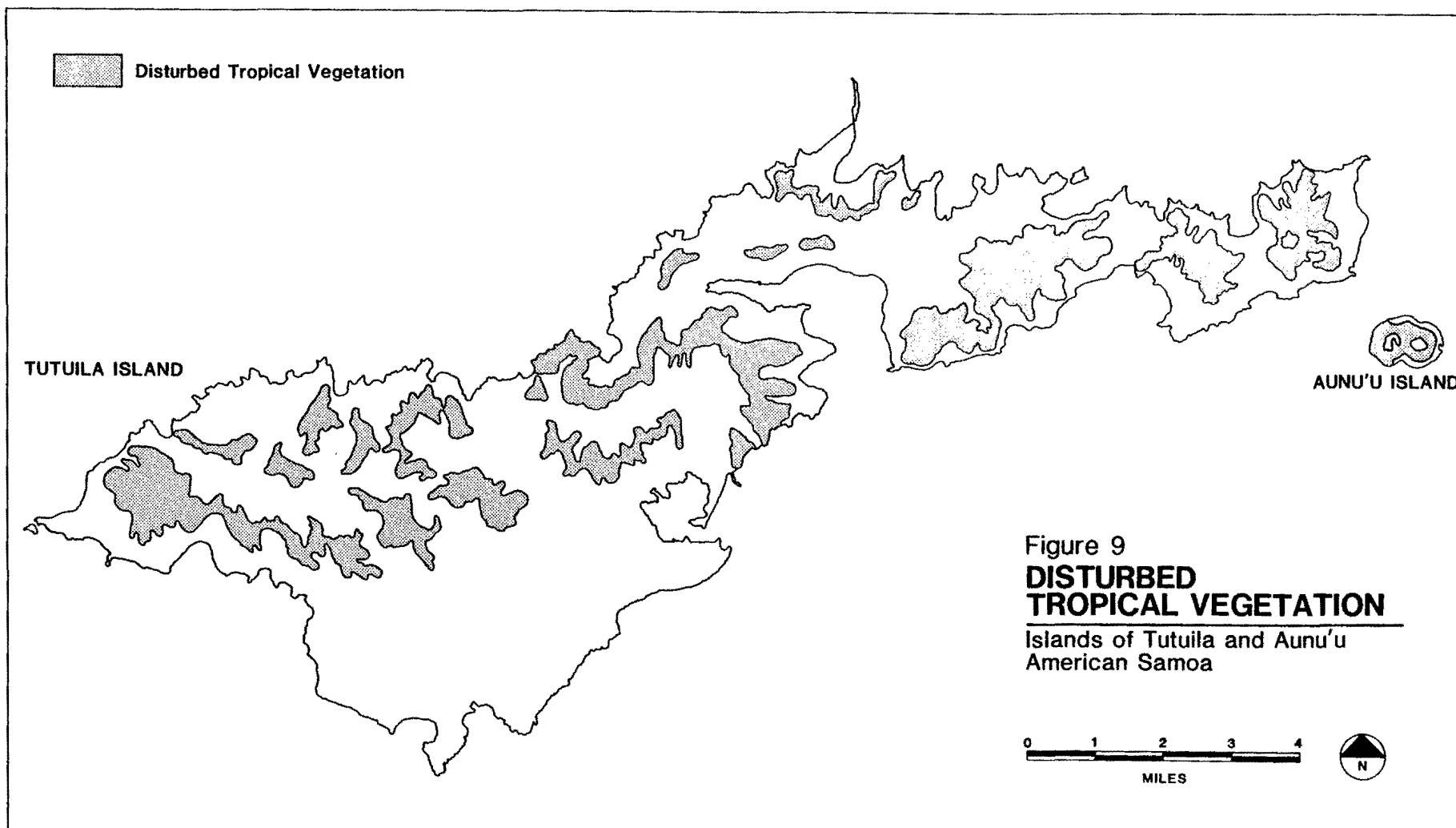
The Tafuna area comprises the largest extent of flat land on Tutuila, most of the island being steep and rugged terrain. Most of the recent major changes in land use have been taking place on the Tafuna Plain. The international airport is here with an industrial park area just to the north, along with the community college campus, a golf course, scattered light industry, wholesale outlets, and residential (villages) development.

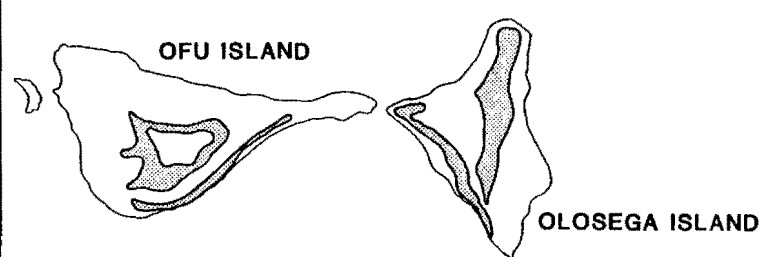
The Pago Pago harbor area contains a major port facility, two tuna canneries, nearly all of the government offices, including the legislative, judicial and executive branches, a large hotel, and retail stores. A large hospital is located nearby and extensive residential development is interspersed. However, in the Pago Pago area, nearly all of the relatively flat, developable land has been taken up and little or no room is left for expansion.

On the remaining portions of Tutuila, paved roads have now been built to almost all of the coastal villages. These new roads have encouraged land use changes in the form of new residential development and the opening up of new agricultural areas. Also, an entire village (A'oloaufou) has been relocated to an interior plateau from its coastal location. But these remaining portions of Tutuila still continue to reflect much of the traditional character of American Samoa.










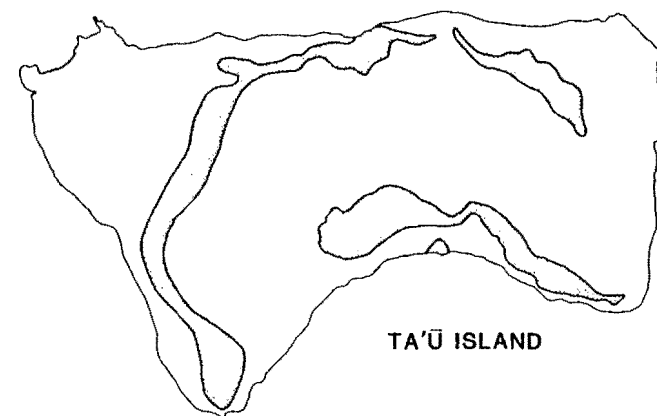
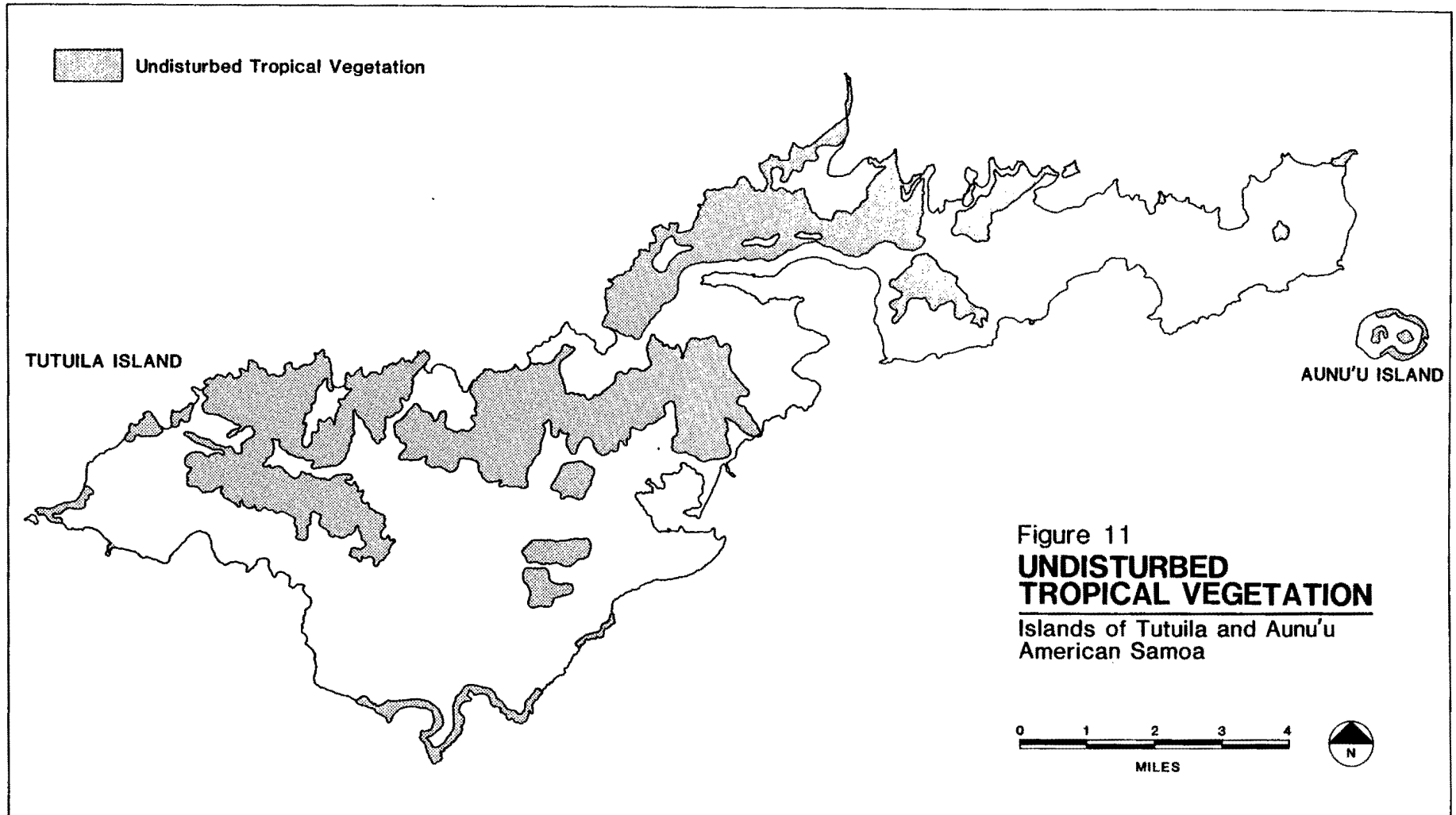
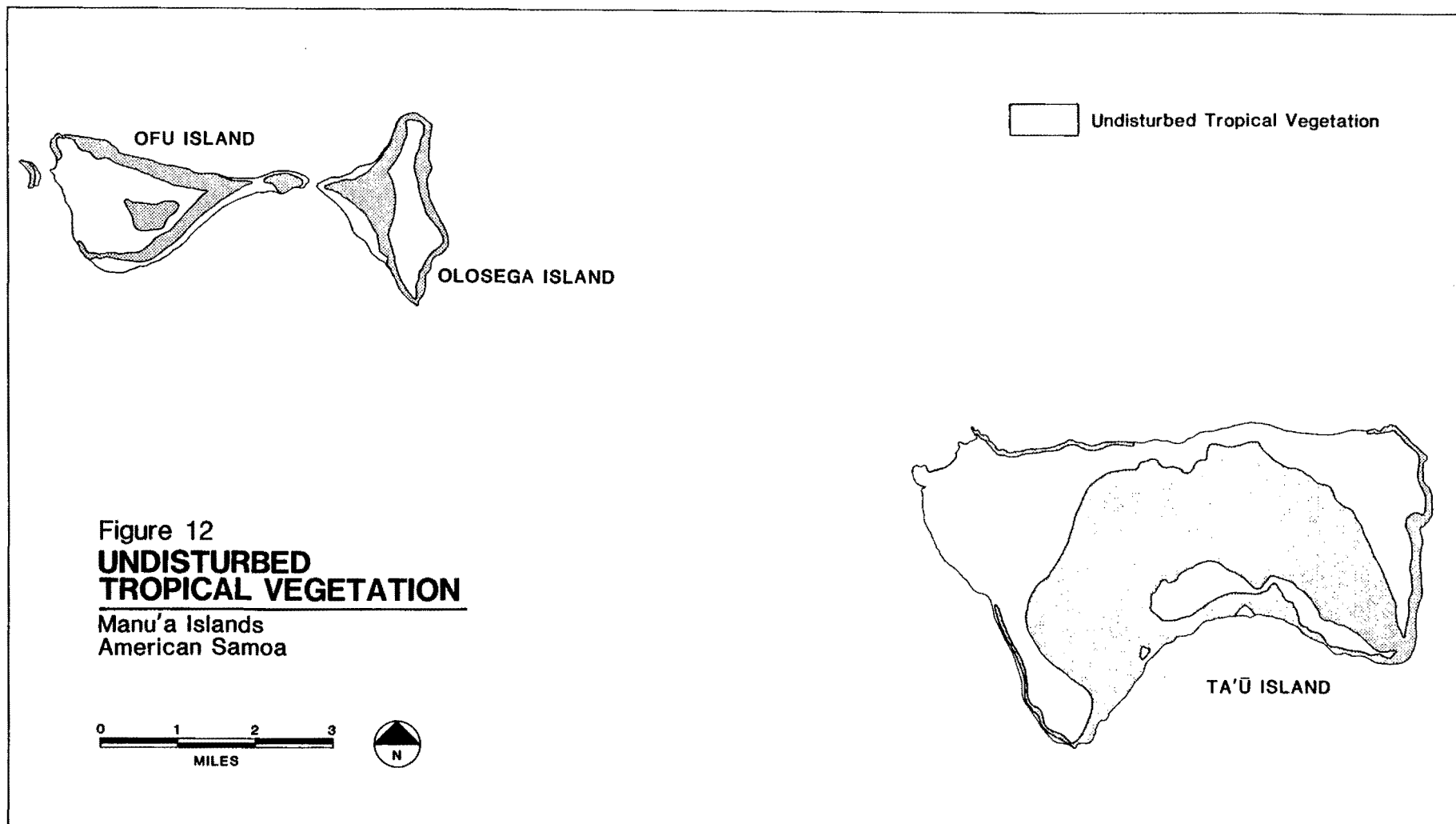
 Disturbed Tropical Vegetation

Figure 10
**DISTURBED
TROPICAL VEGETATION**
Manu'a Islands
American Samoa







There are new proposals presently being discussed which would result in additional major land use changes taking place on Tutuila. Two of these have generated controversy. One calls for the construction of an incineration plant to process 32,000 to 45,000 tons of hazardous waste each month. The processing plant and wharf would be located at Fagafu'e Bay along the undeveloped north coast of Tutuila. The other proposal calls for the construction of a new docking facility at Leone Bay on Tutuila's southwest shoreline to accommodate the interisland ferry service between American Samoa and Western Samoa. The ferry terminal is now located in the Fagatogo area.

Despite these and other proposed land use changes, much of Tutuila's nearly 34,000 acres remains undeveloped. It is estimated that nearly two-thirds of the island is still covered by rainforest, significant portions of which remain undisturbed. An additional 15 percent is taken up by agricultural activities, leaving the remaining 15 to 20 percent for residential (villages), commercial, transportation, and educational uses.

As noted, land use on the Manu'a islands of Ofu, Olosega, and Ta'u has remained essentially unchanged. *Fa'asamoa*, the traditional way of life, is evident everywhere, particularly in the manner in which land is used. The villages still exhibit the traditional pattern. Estimates show that out of a total of 14,450 acres, only about 200 acres are developed for residential, educational, religious, commercial, or governmental purposes. About 2,800 acres of the total area are being used for subsistence agriculture. The rest, about 80 percent of Ta'u and more than two-thirds of Ofu and Olosega, are undeveloped and unused. Most of the central portion of Ta'u and nearly all of the coastal portion is undisturbed tropical vegetation.

Land Tenure

Land tenure has been defined as a system of behavior patterns that are specifically geared to control a society's use of its environmental resources. In American Samoa, communal tenure exists; i.e., the rights to these environmental resources, the lands and waters, are held in common. The basic principles upon which the communal land tenure system in American Samoa operates today are basically unchanged from what they were centuries ago. The context within which these principles operate, however, has undergone change.

The Samoan land tenure system is derived from the system of family organization--usually referred to as the *matai* system. The most important social unit is the *aiga*, a large extended family headed by the *matai*, or chief, who holds the traditional title of that family. Each village in American Samoa has many *matai* titles. Samoans usually can trace a kinship relationship to several *matai* in their own or other villages.

Land rights belong in perpetuity to the *aiga*, although land may be given as a gift to members of the *aiga* who may have distinguished themselves in some way. Land can also be passed from one family to another as in instances when a new *matai* title is created. Here a portion of the lands belonging to a family with a surplus would be allotted to the new *matai* title.

A particular *matai* title belongs to the *aiga* and to the village. A *matai*'s authority is thus based on both kinship and territory. So, while land may be controlled by a *matai*, the land itself actually "belongs" to the title.

Samoans regard themselves as "landowners" in the sense that the holdings of each *aiga* are regarded as the common property of all members. No decisions concerning these holdings can be made without the unanimous consent of all those who claim active membership in the *aiga*. This recognition of the indigenous family system as the dominant force in land control has insured that land in American Samoa remains in the hands of Samoans.

The *matai*-controlled communal lands, comprising more than 90 percent of all lands in American Samoa, can be divided into several categories:

(1) village houselots -- these are small parcels which have been assigned by the *matai* to an individual family for the purpose of building a home or *fale* and where family members are buried. These lots usually face along the sea.

(2) plantation lots -- these are parcels, usually larger than house lots, used by several families in the village to grow food. They normally lie around or behind the village house lots. Rights to plantation lots, like house lots, are clearly defined by the *matai*.

(3) family reserve sections -- these are located higher up, above the plantation lots, are larger in size, and used to grow taro. Normally only portions are cultivated at any one time; the rest remains in secondary forest until put to use and the previously used portion allowed to recover.

(4) village lands -- the areas not currently used by any particular families. These are unused lands with agricultural potential. This category may also include reef or sea frontage adjacent to the village.

(5) the high, rugged, and inaccessible lands judged not suitable for agriculture; not used except for hunting of pigs or pigeons, or for the collecting of forest products. Boundaries to these lands are not as clearly defined as those in the other categories. These lands are usually jointly claimed by the county councils. Lands which fall into this category, the largest, altogether comprise more than 20,000 acres.

The boundaries of these communal lands which separate the holdings of each *matai* are often vague. No land registration maps exist to show boundary lines or ownership of these lands. However, the holdings of each *matai* title are well-known throughout a village, as are established limits of the village. A *matai* title holdings, however, often are noncontiguous and irregularly shaped. In 1986, legislation was introduced in the *Fono* to put communal as well as other lands on a plat system.

Under the laws of American Samoa, a *matai* is prohibited from selling, giving, exchanging, or in any way disposing of communal lands to a non-Samoan (less than one-half native blood) without the written approval of the Governor.

The *matai*-controlled communal lands may be leased for up to 55 years. These leases are reviewed by the Land Commission and must be approved by the Governor. The lands may be leased to any person for any purpose, except for the working of minerals and the cutting of timber.

While American Samoa's constitution protects Samoans against alienation of their land, communal land may be conveyed or transferred for public purposes to the U. S. government or to the government of American Samoa (but this has never been done on a scale necessary to establish a "park" from communal lands).

Those lands in American Samoa other than those controlled by the *matai* comprise less than 10 percent of all land and fall into the following categories:

(1) individually owned lands -- lands occupied and claimed by an individual without objection by others and lacking any evidence of being communally owned. Restricted to Samoans (at least one-half Samoan blood) only; i.e., no non-Samoans may own these lands.

(2) government, school, or church lands -- lands transferred to either the Government of American Samoa or to the United States Government and, with the approval of the Governor, to a recognized religious organization or to a school for educational purposes. Some of the church lands were acquired by religious organizations through court grants.

(3) freehold land -- lands acquired by individuals and created by court grants prior to 1900. Ownership of these lands is comparable to fee title; i.e., there are no restrictions on transfer of title. Most limited category.

In recent years, due to the social and economic changes which have taken place in American Samoa, there have been instances where the *matai* control over land has been questioned. Significant increases in the number of disputes involving land and over the *matai* titles which control it have taken place. This may be due largely to attempts to formalize the flexible, customary principles of a communal land system into the rigid rules of law.

Notwithstanding these changes, Samoans continue to place a high value on the retention of their traditional *matai* system of land tenure. In American Samoa, land and social organization remain closely linked. Most Samoans continue to feel that land belongs to the family as a group and represents a source of both security and prestige. There is a reluctance to sanction any change that might lead to the alienation of land. The long-standing concern still exists that if lands could be bought and sold, American Samoa could end up in the hands of non-Samoans. So, despite the increase in recent years in individual freedom regarding the use of land, it is likely that the *matai* system with its associated land tenure will remain in American Samoa. This has also continued to be the United States Government posture in dealing with land matters in American Samoa.

SIGNIFICANCE, SUITABILITY, AND FEASIBILITY

Criteria for Park Lands

The National Park Service has established a process to identify areas for study as potential additions to the national park system. In seeking out these new areas, the National Park Service is primarily looking for those landscapes which would help in ultimately producing a system which would include a broad spectrum of geographic locations possessing specific and certain natural and/or cultural values that are in need of protection.

In "Part Two of the National Park System Plan -- Natural History," a framework was developed for the evolution of natural areas in the national park system. The plan identifies and evaluates the significance of the natural (physiographic, biological, or climatological) features, called themes, of a particular area to determine if they are adequately represented in the national park system. To make this determination, the entire country, including the Pacific area, was divided into relatively homogeneous natural regions.

In the plan, American Samoa is shown as a separate natural region possessing the following themes: (1) coral islands, reefs, atolls; (2) tropical ecosystems; and (3) marine environments -- all of which were judged to be of prime significance. These three themes presently are all inadequately represented in the national park system.

A companion framework, "Part One of the National Park Service Plan -- History," was developed to identify cultural area inadequacies in the system, as represented by historic themes and subthemes. American Samoa falls into the subtheme entitled, "native cultures of the Pacific." This particular subtheme presently is poorly represented in the national park system. No units presently exist which deal with the prehistory, social, and economic development, religion, and art of the people of American Samoa.

Areas being considered as potential additions to the national park system are also measured against criteria dealing with significance, suitability, and feasibility.

To meet the test of significance, natural areas should possess exceptional value or quality in illustrating or interpreting the natural history of our Nation. To possess national significance, an area should reflect integrity; that is, it should present a true, accurate, and essentially unspoiled landscape.

The test of suitability can be met if the area is (1) of outstanding natural beauty, quality, and diversity; (2) of sufficient size to permit effective management of a continuing representation of its flora and fauna; and (3) adaptable to park management for a level of visitor use that is consistent with the preservation of its resource values.

In order for cultural areas to be added to the national park system, they should also be measured against criteria dealing with significance, suitability, and feasibility.

Basically, significance for cultural areas is met if a site (or object, building, or district) possesses (a) exceptional value or quality in illustrating or interpreting our Nation's

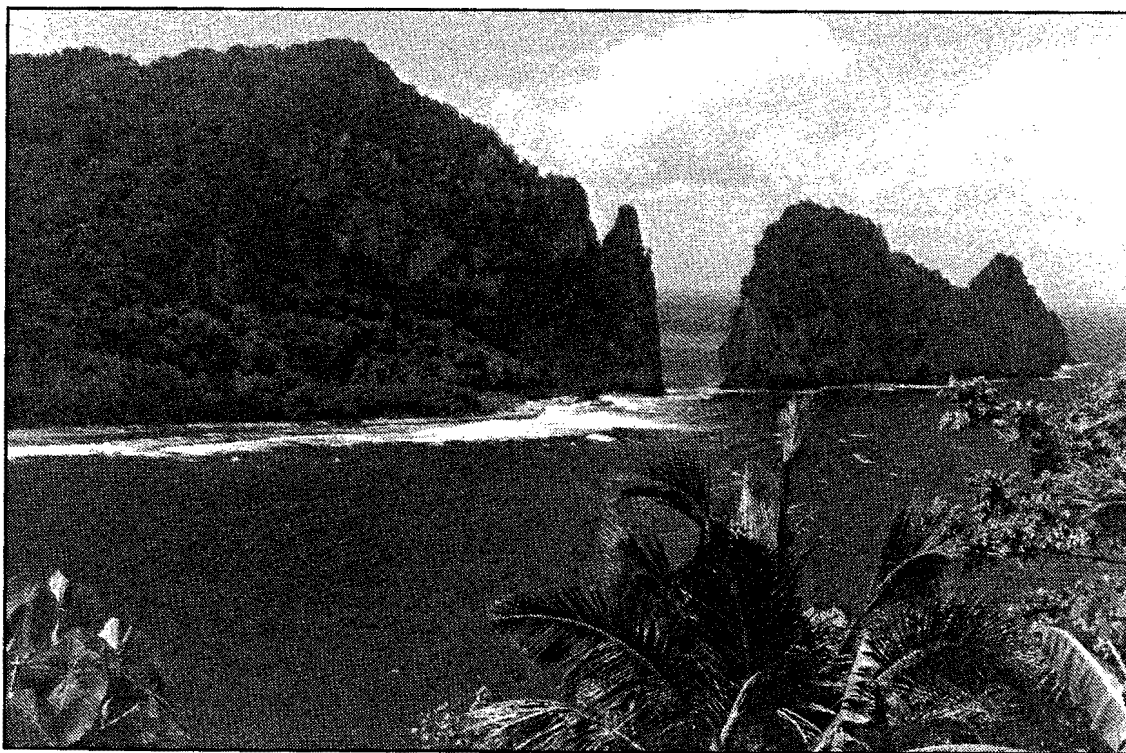
heritage, and (b) integrity -- i.e., original location and intangible elements of feeling and association.

For suitability, each cultural area should contain sufficient land to allow for the preservation of all features associated with the site, plus any additional land needed to protect the entire scene. Additionally, the site should lend itself to effective preservation and interpretation.

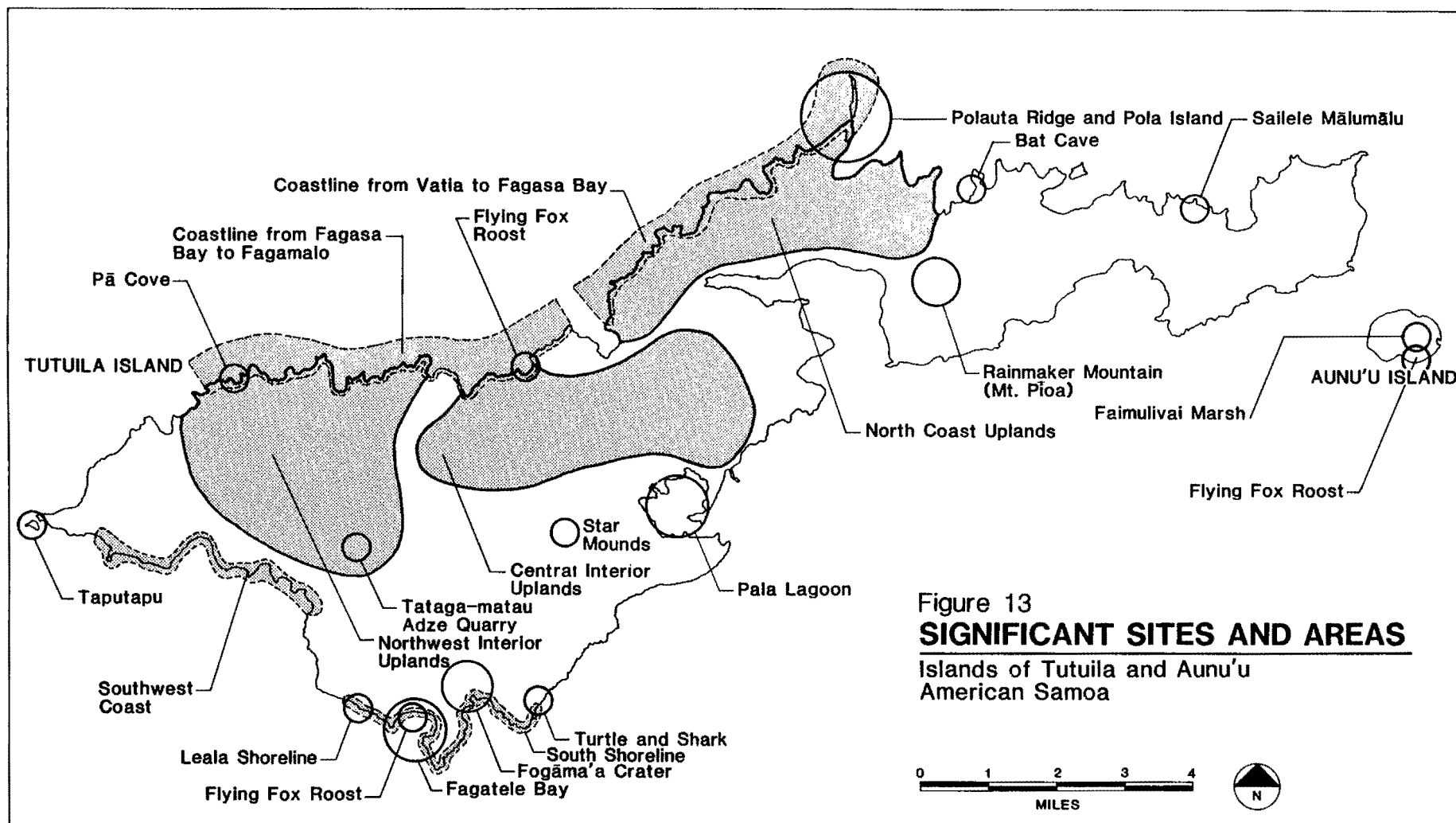
Lastly, the test of feasibility, in some ways the most important, involves the weighing of all values -- social, economic, and political -- and the public needs which would be served by the establishment of a unit of the national park system in a particular area.

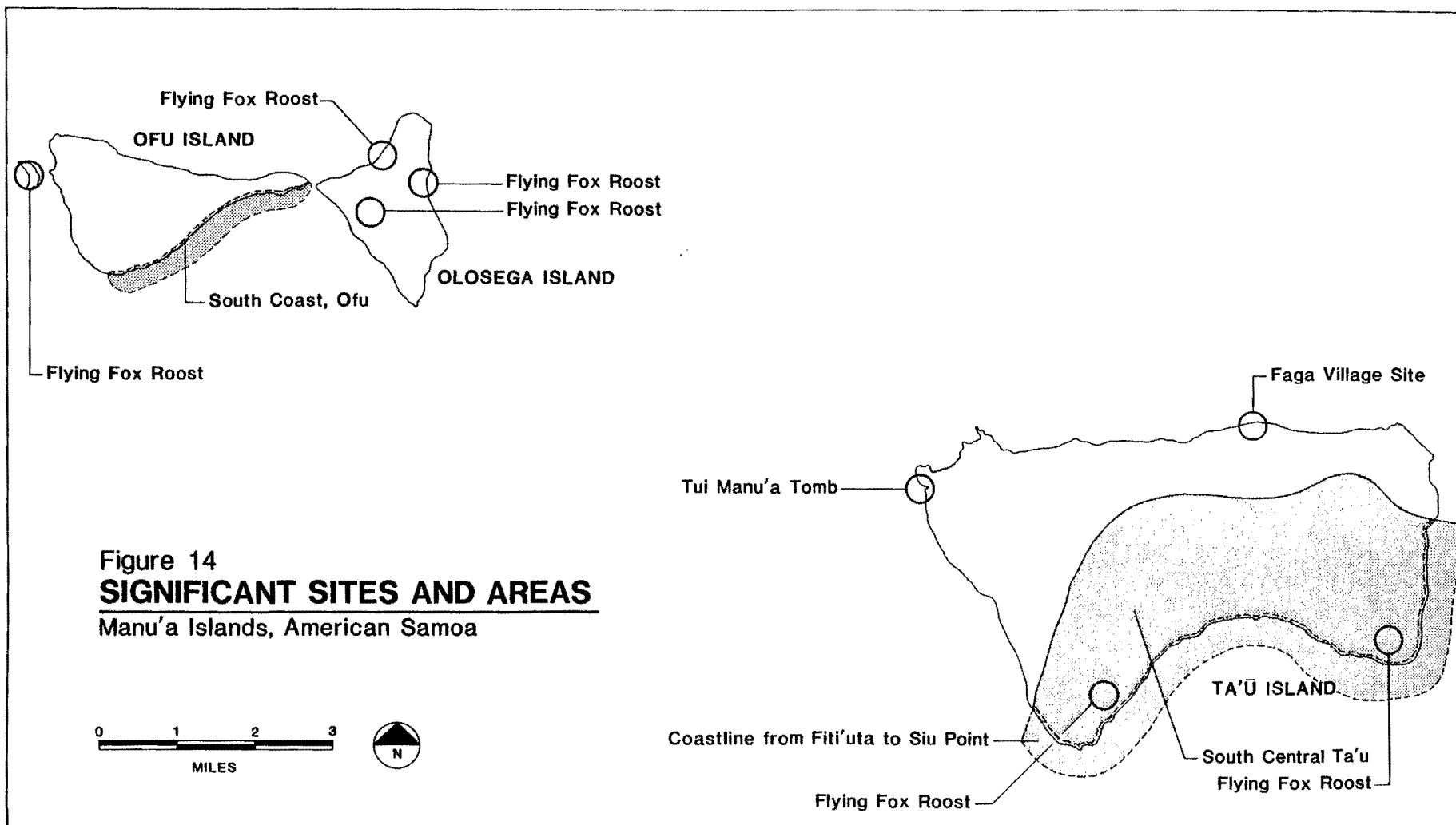
Significant Areas and Sites Survey

The National Park Service planning team visited American Samoa in December 1986, January 1987, and March 1987 for the purpose of locating and determining the significance of natural and cultural resources and their potential suitability for inclusion in a national park. To accomplish this objective, on-site reconnaissance surveys were made on the islands of Tutuila, Ofu, Olosega, and Ta'u to identify the nature, condition, and extent of the undisturbed native plant communities, unique wildlife habitats, scenic vistas, geologic formations, archeological and historical sites, Samoan sacred places, marine resources, and traditional Samoan villages at these locations, and whether or not these resources appeared to lend themselves to park management.



Polauta Ridge and Pola Island provide nesting sites for many seabirds and these areas have been designated parts of a national natural landmark.





As a result of the reconnaissance survey and through discussions with knowledgeable individuals, a number of sites and areas were identified which were judged to possess either natural, biologic, scenic, or cultural significance, or a combination of the above. These sites and areas, in no particular order, are:

Polauta Ridge and Pola Island -- Prominent and spectacular basalt sea stack with steep cliffs; scenic forest covered headlands, blowholes; geologically significant. Also, an important nesting area for at least eight species of seabirds, notably noddies and frigate birds. All of Pola Island and the eastern side of Polauta Ridge are undisturbed forest. Many land birds use this area, including the rare many-colored fruit dove. It is a national natural landmark.

Fagatele Bay -- Scenic and geologically significant (volcanic crater breached by the ocean). The strip of undisturbed forest along the rim of the bay contains one of the largest colonies of flying foxes on Tutuila. It is a national natural landmark.

Coastline from Vatia Bay to Fagasa Bay -- The longest stretch of undisturbed and uninhabited coast on Tutuila. The forest along this stretch of coast has never been disturbed. Steep cliffs interspersed with scenic coves (particularly Tafeu), plunging streams, waterfalls, and forest covered ridge tops, combined with its importance as flying fox habitat, make this coastline one of the most scenic on Tutuila.

Leala Shoreline -- Rugged and spectacular exposure of basaltic rock and a rich marine environment in the adjacent intertidal zone. It is a national natural landmark.

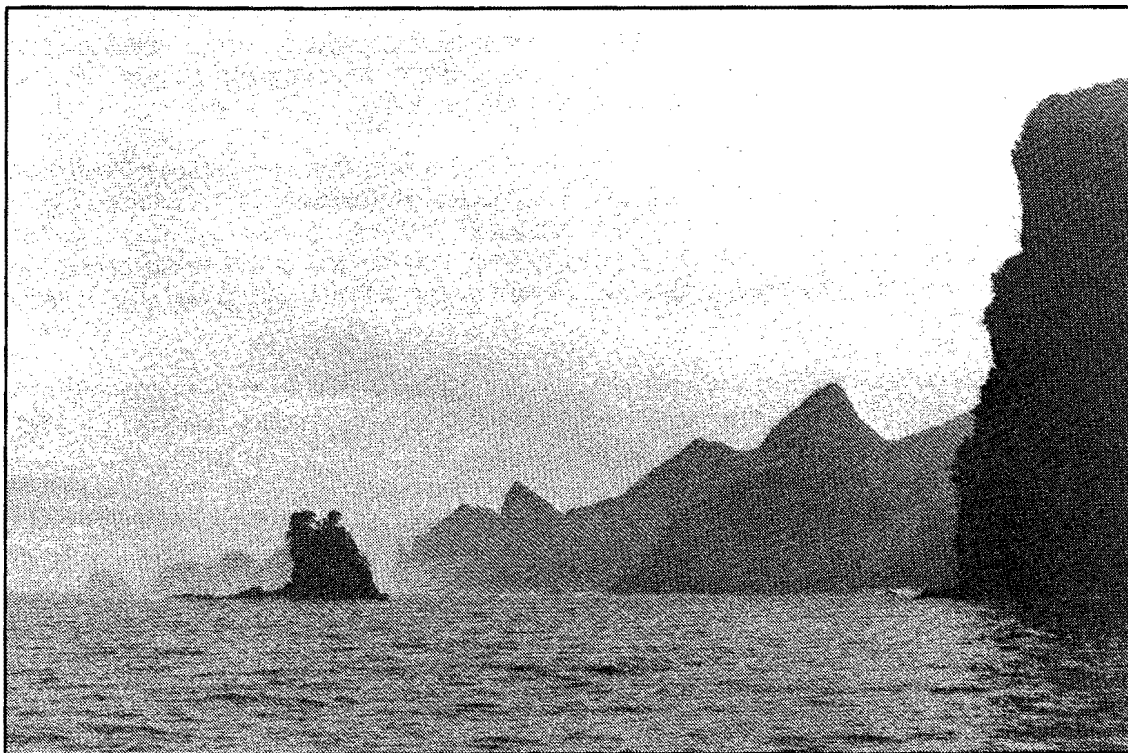
South Coast -- The most extensive example of coastal rainforest and littoral vegetation remaining on the south coast of Tutuila. Includes Fogama's Crater, a national natural landmark.

Fa'imulivai Marsh -- Located on Aunu'u Island, a national natural landmark. Within the remnants of a volcanic tuff cone; it is an important habitat for waterfowl (notably the Australian gray duck, which now may be gone), and seabirds; scenic and fairly undisturbed. It is the only remaining coastal marsh area left in American Samoa; the rest are under taro cultivation.

Coastline from Fagasa Bay to Fagamalo -- Also a rugged and scenic stretch of Tutuila's coastline, though not as undisturbed as the portion from Fagasa to Vatia (this stretch of coast contains the coastal villages of Fagasa and A'asu). Sita Bay, a scenic cove, was until recently home to a large colony of flying foxes. The western side of Sita Bay contains a shelf that represents a unique coral community. Massacre Bay, a National Register property, is the site where French sailors and Samoans were killed in 1787 and is located along this coastline.

Central Interior Uplands -- The area extending from Milomilo Mountain on the west to Matafao Peak (a national natural landmark) on the east comprises one of the largest natural areas left on Tutuila. The undisturbed rainforest here is almost entirely lowland and montane (a small section of montane scrub is found atop Matafao Peak). This peak, the highest on Tutuila, is also geologically significant (a trachyte plug).

Northwest Interior Uplands -- Located to the west of the above described area. It is another large expanse of lowland and montane rainforest in a natural and undisturbed condition.



Between Vatia and Fagasa lies the longest stretch of undeveloped coastline and undisturbed forest on Tutuila.

North Coast Uplands -- This is the third area on Tutuila where a large expanse of undisturbed rainforest exists. The area extends from the outskirts of the village of Fagasa on the west, along the ridges behind Pago Pago Harbor, to the western outskirts of the village of Afono on the east. There are sections of this lowland and montane rainforest, however, that have been disturbed. One of the disturbed sections is the site of a television transmission station on the top of Alava Mountain. North of the transmission station is the site of an important ancient Samoan fortified village dating from the wars with Tonga and the Samoan civil wars. The lovely village of Vatia is located just to the north of this area.

Mt. Pioa (Rainmaker Mountain) -- A prominent topographical feature and a national natural landmark located in the Pago Pago Harbor area. It is geologically significant as a key example of a volcanic plug (quartz trachyte). The upper two-thirds of the mountain are still undisturbed, the upper slopes are montane rainforest and the crest is montane scrub. The mountain is also important in Samoan lore and legends.

Pala Lagoon -- Located next to the airport runway, the lagoon, which is the only large semi-enclosed estuarine body of water on Tutuila, is an important nursery and feeding area for fish and invertebrates. The lagoon also contains the largest and best preserved mangrove system remaining on Tutuila.

South Coast of Ofu -- Contains the longest stretch of white sand beach in American Samoa, culminating in Sunu'itao Peak, a scenic, steep sided and undisturbed ridge at the

eastern end of the island. The adjacent coral reef community between the airstrip and the eastern end of the island is both beautiful and biologically diverse (the crown-of-thorns starfish did not affect this stretch of coastal waters).

South-central Ta'u -- This area, comprising about two-thirds of the entire island, is the largest extent of both undisturbed lowland and montane rainforest and cloud forest left in American Samoa. The coast from Si'ufa'alele Point, along all of the southern coast and up the east coast to Fiti'uta Point, a distance of more than nine miles, is undisturbed littoral vegetation, except for about a 1,500-foot stretch of disturbed rainforest along the Liu Bench midway between the two points. This forest, the adjacent coast and offshore water provide important habitat for seabirds, shorebirds, flying foxes, and forest birds, as well as for the Pacific Boa, the only species of snake found in American Samoa. The upper portions of the area are geologically significant, containing examples of two small shield volcanoes and Lata Mountain, the summit of a shield volcano which has collapsed and formed a caldera. Lata Mountain is also the highest point in American Samoa. Views from the cloud forest of the rugged and unspoiled southern coast below are spectacular. The area also contains Laufuti Stream, with more than a 975-foot drop. The central portion of the east coast (Saua) was the site of a large prehistoric village. It remains relatively undisturbed and is regarded by some as the site of the first kava ceremony in Samoa.



The pristine native rainforest as seen from the Alava trail extends from ridgetop to the north coast.



The southern two-thirds of Ta'u Island supports one of the largest extent of native rainforests in all of Polynesia.

Faga Village Site -- Located along the northern coast of Ta'u. According to Samoan myths and tradition, this site is where the oldest village in American Samoa was located.

Tui Manu'a Tomb -- Located at the northern end of the village of Ta'u, these are the four graves of the highest chiefs of Manu'a. They are all grouped together under a large basalt platform.

Star Mounds -- These are unique and significant prehistoric structures found only in Samoa (near Tafuna and in the village of Aoa, on Tutuila and on Upolu in Western Samoa). Their intended purpose remains a mystery, but possibly involved the snaring of pigeons.

Turtle and the Shark -- This site is one of the most important in the legends and myths of Samoa. Although not distinguished by any particular physical feature, it is known throughout all of Samoa. It is located along the south coast of Tutuila in the village of Vaitogi.

Tataga-matau Adze Quarry -- Located in the uplands behind Leone on Tutuila, this is the oldest (probably between 2,000 and 3,000 years old) and largest basalt adze quarry in Western Polynesia. Adzes from this quarry have been found as far away as the Solomon Islands.

Sa'ilele Malumalu -- Located in the village of Sa'ilele on Tutuila, this is the only surviving example of a pre-Christian temple (*malumalu* or *fale aitu*) in American Samoa.

Pa Cove -- Located along the northeast coast of Tutuila near the village of Fagamalo. The site is noted in Samoan legends and is the location of a prehistoric village.

Southwest Coast -- Along the southwestern shoreline of Tutuila, there are several important archeological and historical sites located between Leone and Amanave. These include the Solitary Coconut, Puhaloa and Puhavai streams, and Leone Falls -- all sites associated with Samoan myths and legends; petroglyphs and adze grinding pits; the Atauloma Girls' School and the Fagalele Boys' School, both examples of western-style structures dating back to the 19th century.

Fogama'a Crater -- Scenic and geologically significant (most recent illustration of volcanism in American Samoa); includes Steps Point. Next to Fagatele Bay on southwest coast of Tutuila. It is a national natural landmark.

Taputapu -- The cape and islet located at the western tip of Tutuila, this is the site of a well-known and important Samoan legend. A fruit bat colony is located here too. The shoreline and offshore area represents an outstanding complex of geologic features as well as important habitat for intertidal plants and animals. It is designated a national natural landmark.

Table 9 compares the significant areas and sites in terms of the number and diversity of resource values, natural, and/or cultural.

Areas of National Significance

The comprehensive survey of natural and cultural resources of the islands of Tutuila, Aunu'u, Ofu, Olosega, and Ta'u revealed that the Samoan rainforest is without question the most significant resource in American Samoa. After more than 2,500 years of man's presence on these islands, the existence of relatively large expanses of undisturbed forest on the islands of Tutuila and Ta'u is tangible testimony to the cultural bond that continues to exist between Samoans and their forests. This bond is evidenced in the many Samoan legends which are tied to the rainforest and shows up also in the speeches given by *matai* during the *kava* ceremony.

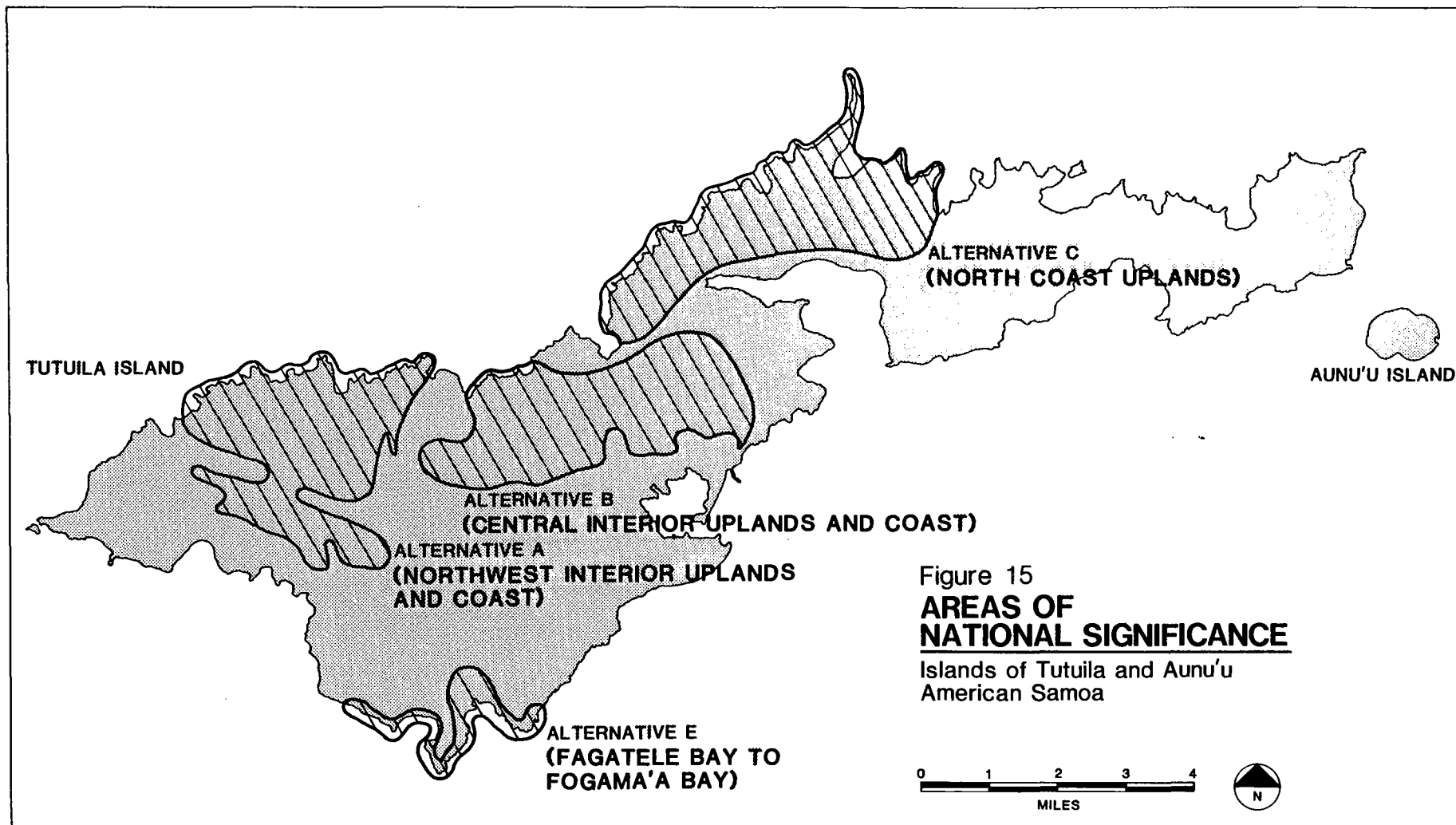
Opportunities for the United States to be involved in setting aside and preserving a humid tropical rainforest system are extremely limited. Tropical forests in the U. S. and its territories account for less than one-half of one percent of the world's total. These forests are found only in Puerto Rico, the Virgin Islands, Hawaii, Guam, and American Samoa. The forests of Guam and Puerto Rico have been heavily encroached upon and are largely remnants. To some extent, this has also happened to the forests in Hawaii and the U. S. Virgin Islands. But, in any case, these forests are utterly different from the Samoan forests.

The rainforests of American Samoa are unique in that they are the only truly paleotropical lowland rainforest on American soil. The flying fox/rainforest association here also makes it different. For in American Samoa flying foxes act as pollinators and are an important element in the dynamics of the forest. Perhaps nowhere else can one watch diurnal flying foxes feed on forest fruits and flowers and soar on the afternoon thermals.

Table 9. Significant Resource Areas and Sites.

Areas/ Sites	Undisturbed Native Forest Systems	Native Wildlife	Scenic Vistas	Geologic Formations or Features	Archeologic and/or Historic Sites	Samoan Sacred Places	Reef and Marine Environments	Traditional Samoan Villages
<u>Tutuila Island</u>								
Fogama'a Crater	No	No	Yes	Yes	Yes	No	Yes	No
Turtle and Shark	No	No	Yes	No	Yes	Yes	Yes	No
Fagatele Bay	Yes	Yes	Yes	Yes	Yes	No	Yes	No
Coast, Fagasa Bay to Fagamalo	Yes	Yes	Yes	No	? but likely	Yes	Yes	No
NW Interior Upland	Yes	Yes	Yes	No	Yes	No	No	No
Tagamatau Adze Quarry	No	No	No	No	Yes	Yes	No	No
Pa Cove	No	No	Yes	No	Yes	Yes	Yes	No
North Coast Upland	Yes	Yes	Yes	Yes	Yes	No	No	No
Coast, Vatia Bay to Fagasa	Yes	Yes	Yes	No	? but likely	No	Yes	Yes
Polauta Ridge, Pola Island	Yes	Yes	Yes	Yes	No	No	Yes	No
Leala Shoreline	No	No	Yes	Yes	Yes	No	Yes	No
Rainmaker Mountain	Yes	Yes	Yes	Yes	No	Yes	No	No
Central Interior Upland	Yes	Yes	Yes	Yes	? but likely	No	No	No

Areas/ Sites	Undisturbed Native Forest Systems	Native Wildlife	Scenic Vistas	Geologic Formations or Features	Archeologic and/or Historic Sites	Samoan Sacred Places	Reef and Marine Environments	Traditional Samoan Villages
<u>Tutuila Island</u>								
South Coast	Yes	Yes	Yes	No	No	No	No	No
Star Mounds	No	No	No	No	Yes	Yes	No	No
SW Coast	No	No	Yes	No	Yes	Yes	Yes	No
Taputapu	No	No	Yes	Yes	Yes	Yes	Yes	No
Pala Lagoon	Yes	Yes	No	No	No	No	Yes	No
Sa'ieie	No	No	No	No	Yes	Yes	No	No
<u>Aunu'u Island</u>								
Fa'imulivai Marsh	Yes	Yes	Yes	Yes	No	No	No	No
<u>Ofu Island</u>								
South Coast, Ofu	No	No	Yes	Yes	No	No	Yes	No
<u>Ta'u Island</u>								
South Central, Ta'u	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Faga Village	No	No	No	No	Yes	Yes	No	No
Tui Manu'a Tomb Site	No	No	No	No	Yes	Yes	No	No



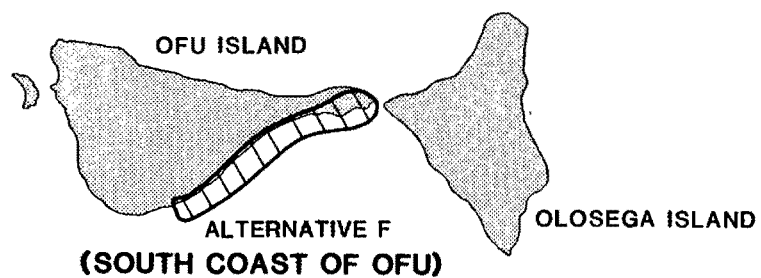
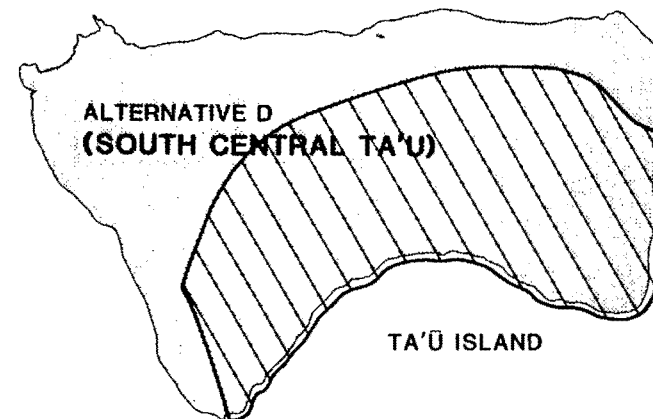


Figure 16
**AREAS OF
 NATIONAL SIGNIFICANCE**
 Manu'a Islands
 American Samoa



Based on the information arrayed in Table 9, six distinct alternatives emerged, each of which contain outstanding, diverse, and essentially unspoiled resource values and extend over an area large enough to allow protection of these resources. Moreover, the resources contained in these areas represent themes of prime significance which are not now adequately represented in the national park system -- tropical ecosystems and coral reefs.

These areas are also very important because they contain Samoan cultural values which are also not represented in the national park system; important not only because of the archeological sites and sacred places, but because of the intimate ties which Samoans have with the forest. These areas are expected to contain many additional, though "undiscovered," significant archeological sites and features. Archeological work in American Samoa, although limited, has confirmed what linguists and Samoan legends have long held--that Samoa is the ancestral home of Polynesia.

The six areas consist of: Alternative A, the coastline and offshore area from the outskirts of Fagamalo to Massacre Bay, plus the adjacent tropical forest uplands; Alternative B, the coastline and offshore areas from the outskirts of Fagasa to Fagafue Bay, in association with the adjacent interior uplands of tropical forest; Alternative C, the coastline and offshore waters on both sides of Vatia Bay to the outskirts of Fagasa, in combination with the adjacent extent of tropical rainforest extending up to and including the ridge line above Pago Pago Harbor; Alternative D, the south central portion of the island of Ta'u, including all of the southern and most of the eastern coastlines and the adjacent offshore waters; Alternative E, the southernmost coastline of Tutuila, including Fagatele Bay; and Alternative F, the beach along the south coast of Ofu plus the adjacent coral reef.

Four of the alternatives shown on Figures 15 and 16 (A, B, C, and D) contain extensive amounts of undisturbed native rainforest, each also contains a stretch of scenic and unspoiled coastline, as well as marine resources including coral reefs. Three of these areas (B, C, and E) contain features which have been designated national natural landmarks, attesting to their geological and ecological significance. Pola Island and Polauta Ridge, contained within Alternative C, are particularly important nesting sites for many species of seabirds. Within this same area are the remains of an ancient fortified village. Alternative D, the area on Ta'u, contains the most extensive assemblage of resource values -- biotic (terrestrial and marine), geologic, cultural, and scenic -- remaining in American Samoa. Alternative F, on the island of Ofu, contains what is regarded by many as the loveliest white sand beach in all of American Samoa.

Table 10 compares each of the six areas based on criteria for national parks.

Suitability and Feasibility

Each of the six areas of national significance was compared in relation to resource significance and diversity -- the single, most important resource being the quality and extent of the native rainforest system each contained. Next, suitability criteria were applied to determine which of these areas were of sufficient size and cohesive enough to permit management for effective protection of their resources. The criterion of accessibility was then applied to identify those areas which could be made accessible to visitors without impacting resources or developing new access. Two areas emerged which appeared to best meet the overall criteria for both resource significance and park suitability.

Table 10. Areas of National Significance.

Criteria for Parklands	Alternative A NW Interior Uplands and Coast - Tutuila	Alternative B Central Interior Uplands and Coast - Tutuila	Alternative C North Coast Uplands - Tutuila	Alternative D South-Central Ta'u	Alternative E Fagatele Bay-Fogamo'a Crater-Tutuila	Alternative F South Coast, Ofu
Undisturbed Native Forest Systems	Contains an extensive stretch of undisturbed montane, lowland and coastal tropical rainforest communities. The forest within this area has been encroached upon and is found mostly in the higher, steeper parts. The mature forest along the ridge tops is particularly impressive. There are scattered areas in secondary forest and also some areas which are now under cultivation. This has resulted in a somewhat disjointed configuration to the rainforest. The coastal rainforest and littoral communities within this area are superlative and, except for the former site of the village of A'olomutua, extend in an unbroken line all along the shoreline.	This area also contains an impressive extent of undisturbed tropical rainforest. Primarily a montane community along the ridges, this area also contains two of the three montane scrub communities found on Tutuila -- one on Tau Mountain and the other on Matafao Peak. Matafao Peak contains several plant species which are endemic to the mountain. The rainforest within this area has a more cohesive configuration than that in the previous alternative but also contains areas in secondary forest and small sections which are under cultivation. The undisturbed coastal forest and littoral communities associated with this area, though impressive, are not nearly as extensive as those found in the previous alternative.	This area, as with the previous two, contains a major expanse of undisturbed tropical rainforest. As with the others, the forest here is composed primarily of montane and lowland communities, but contains an additional community -- ridge forest -- found along the top of Mount Alava. The unbroken belt of coastal rainforest and littoral communities from Vatia to Fagasa comprises the longest undisturbed stretch of this kind of vegetation on the island of Tutuila. As with the other two major blocks of native forest remaining on Tutuila, this one has portions which have been disturbed and are now in secondary forest. The major disturbed section is located above the village of Vatia. The montane and lowland forest here possesses cohesiveness. The montane rainforest community along the ridge line above Pago Pago remains intact from Fagasa to Afono.	This area contains the greatest extent of undisturbed montane and lowland rainforest communities left in American Samoa. The undisturbed cloud forest community, occupying the top one-quarter of the island is, except for a very small area atop Piumefua Mountain on Olosega, found nowhere else in American Samoa. Along the east coast of Ta'u is a beautiful stretch of undisturbed coastal and lowland rainforest which merges into a relatively undisturbed belt of littoral vegetation. These communities extend around Tufu Point and continue all along the southern coast in an unbroken belt except for a small section below the Liu Bench. The area contains practically all of the native plant communities found in American Samoa -- littoral strand, littoral forest, littoral scrub, coastal forest, lowland and montane rainforest, montane scrub and cloud forest. There are also sections of mature secondary forest. Small portions of this area are under cultivation for subsistence agriculture.	Within this area from Fagatele Point to the outskirts of the village of Vaitogi is an impressive belt of coastal rainforest and littoral vegetation which has remained undisturbed. The lowland rainforest community which naturally would be found growing above this coastal strip, however, has been largely removed. These lands are now either actively or passively being used by the nearby villages for the other purposes; mainly farms, pastures, or plantations. Most of the old coconut plantations were abandoned some time ago, but this area has not returned to its natural state. The lands above the coastal rainforest are thus unsuitable as park lands.	The lands above the entire length of the beach are being actively used by the residents of Ofu for agriculture and are unsuitable as parklands. Sunu'itao Peak, at the far end of this area, remains undisturbed and covered with coastal forest and littoral vegetation down to the ocean.

Criteria for Parklands	Alternative A NW Interior Uplands and Coast - Tutuila	Alternative B Central Interior Uplands and Coast - Tutuila	Alternative C North Coast Uplands - Tutuila	Alternative D South-Central Ta'u	Alternative E Fagatele Bay-Fogamo'a Crater-Tutuila	Alternative F South Coast, Ofu
Important Native Wildlife Habitat	The native forests of this area provide important habitat for the two species of flying foxes and several species of native birds. This is particularly true of the coastal forest. Several species of seabirds nest along this coast.	As with the previous alternative, the forests provide native habitat for flying foxes and birds. Faleoteine Point, on the eastern side of Sita Bay, is the site of a very large and important colony of flying foxes.	As with the previous alternatives, the forests here provide habitat for flying foxes and native birds. This area also contains the most significant seabird nesting site on Tutuila -- Pola Island and the top and west portions of Pola'tuta Ridge. The seabirds, some dozen species, including at least eight nesters, number in the thousands at this site.	This area has been described as having the most extensive and desirable characteristics for the establishment of a wildlife preservation area in all of American Samoa. The area contains an unspoiled, unique avifauna -- the Tahiti petrel, Christmas shearwater, Audubon's shearwater, collared petrel, white-throated storm-petrel, and the Fiji shrikebill, as well as the only species of snake found in American Samoa, the Pacific boa. Within the area, 35 bird species have been identified, of which 25 are native resident breeders. The entire area provides habitat for both species of flying foxes and the sheath-tailed bat. There are flying fox roosts located in the lowland rainforest. The isolated and rarely visited sand beaches along the east and south coasts provide nesting areas for sea turtles.	The native lowland rainforest here has largely disappeared; consequently, this area can no longer be considered as important wildlife habitat. The strip of undisturbed coastal forest, however, continues to provide habitat for flying foxes and seabirds. An extremely important flying fox colony is located in the cliffs along the rim of Fagatele Bay.	They are modest.

Criteria for Parklands	Alternative A NW Interior Uplands and Coast - Tutuila	Alternative B Central Interior Uplands and Coast - Tutuila	Alternative C North Coast Uplands - Tutuila	Alternative D South-Central Ta'u	Alternative E Fagatele Bay-Fogamo'a Crater-Tutuila	Alternative F South Coast, Ofu
Cultural Resources (Historic and Archeologic Sites and Samoa Sacred Places and Legend Sites)	This area contains Pa Cove, a site famous in Samoan legends. Pa Cove is also the location of A'a, a prehistoric village recently investigated by archeologists and found to be rich in lithic materials. Pa Cove is being studied for future nomination to the National Register. At the southern edge of this area is the fataga-matau adze quarry, the oldest and largest basalt adze quarry in Western Polynesia. Contains also the site, consisting of several building ruins, of the abandoned village of A'oloautua located at the head of A'oloau Bay. Abandoned less than 50 years ago, the village site may not be historically significant.	No significant cultural resources are presently known to exist within this area. This is likely due to the lack of archeological survey work in the area rather than the absence of cultural resources.	The village of Vatia is located at the head of Vatia Bay. This picturesque community is laid out in the classic Samoan pattern along the shoreline of Vatia Bay. The highly scenic natural setting for the village gives this area a park-like atmosphere. In the uplands of this area is the site of the Mount Alava village, a fortified mountain village dating from the Tongan wars and the Samoan civil wars.	The eastern coast of Ta'u is well-known in Samoan myths and legends. The Saua village site is located here. The site of this large prehistoric village extends for about two miles along the east coast. It is relatively undisturbed and reputed to be the site of the first kava ceremony. Just below the Saua village site is the site of an important Samoan legend, Luana'a Tupua.	A legendary site of great importance, "the turtle and the shark," is located in this area. Although known throughout Samoa, the site is not distinguished by any physical characteristics. Prehistoric fishing village site is located on the shoreline of Fagatele Bay. Petroglyphs are found near the Leala shoreline.	The area contains the site of the ancient village of Toaga which is now uninhabited.

Criteria for Parklands	Alternative A NW Interior Uplands and Coast - Tutuila	Alternative B Central Interior Uplands and Coast - Tutuila	Alternative C North Coast Uplands - Tutuila	Alternative D South-Central Ta'u	Alternative E Fagatele Bay-Fogano'a Crater-Tutuila	Alternative F South Coast, Ofu
Outstanding Geologic Features	The long shoreline, almost entirely uninhabited, contains a variety of scenic coves, beaches, cliffs, waterfalls, and small sea stacks.	This area contains Tau Mountain and Matafao Peak, the latter being the highest point on Tutuila. Both are trachyte plugs and are regarded as significant geologic features. Matafao Peak is one of the most impressive topographic features on Tutuila and provides a prime example of a mass of volcanic rock which has extruded as molten magma. It has been designed a national natural landmark.	This area contains Vaiva Strait, a designated national natural landmark, consisting of Pola Island, Polauta Ridge, and Cockscomb Point. The landmark's significance lies in its classic illustration of shoreline sculpturing by the sea which has produced spectacularly sheer cliffs, erosion-resistant outliers, sea arches, and small picturesque beaches.	This area contains Lata Mountain, the main shield volcano which formed Ta'u Island, at 3,170 feet the highest point in American Samoa. The volcano has collapsed, forming a caldera exposing the lava flows in a spectacular 1,400-foot high escarpment along the southern side of the mountain. Below Liu Bench the seacliffs in places reach heights of nearly 1,200 feet. Other important geologic features include Olomanu Crater, Olomatimu Crater, Olotania Crater, and Judds Crater.	This area contains several features of outstanding geologic significance. Fagatele Bay is a magnificent example of a crater which has been breached on its ocean side and in which a coral reef has developed. The bay is a national natural landmark. West of Fagatele Bay is an area called the Leala Shoreline, a rugged and spectacular exposure of basaltic rock. Also designated a national natural landmark because of its geological significance due to the special nature of the basaltic flow here. On the other side of Fagatele Bay and inland is Fogamaa Crater, the third designated national natural landmark in the area. Possessing a remarkable crater-like appearance, it is one of the very few illustrations of the most recent episode of volcanism in American Samoa.	The south coast of Ofu is the loveliest beach expanse in Samoa.

Criteria for Parklands	Alternative A NW Interior Uplands and Coast - Tutuila	Alternative B Central Interior Uplands and Coast - Tutuila	Alternative C North Coast Uplands - Tutuila	Alternative D South-Central Ta'u	Alternative E Fagatele Bay-Fogamo'a Crater-Tutuila	Alternative F South Coast, Ofu
Coastal, Marine, and Reef Environments	<p>The ocean waters along this coast are clear and blue and usually calm. The thick vegetation, coming down to the ocean, rugged basalt cliffs, and calm embayments combine to make this stretch of undeveloped coastline highly scenic.</p> <p>The coastline along this area is composed mostly of basalt cliffs. Coral reefs have developed only within A'ololau Bay. A small, sandy beach backs the reef at A'ololau.</p>	<p>Although not nearly as extensive as the coastline within the previous alternative, it is every bit as scenic. The ocean waters along the coast, as with the previous area, are clear and blue.</p> <p>The west side of Sita Bay contains a striking coral shelf that represents a fine example of the "classic" table coral community. The coastline here is composed of basalt cliffs. Coral reefs have developed around Fagafue Bay and Sita Bay. Small sand beaches are found at the heads of both these bays.</p>	<p>The stretch from Vatia to Fagasa is the longest uninhabited and undisturbed coastline on Tutuila. It contains some of the most spectacular scenery in all of American Samoa. The cliffs and coves are beautiful and the section of coast composed of Pola Island and Polautia Ridge is especially dramatic -- sheer cliffs, knifelike ridges and thousands of wheeling seabirds.</p> <p>As with the previous alternatives, the coastline here is composed of basalt cliffs. Coral reefs have developed along the coast south and west of Pola Island and less extensively above Si'ufagatele Point and at Tafu Cove. Again, the ocean waters along this coast are clear and blue. However, the road cut along the Mount Alava ridge tends to wash out during heavy rains, depositing sediment in Fagasa Bay, turning the normally clear waters here turbid and damaging the reef.</p>	<p>The ocean waters along this coast are clear and blue. During the winter season, the ocean becomes somewhat rough along this south shore.</p> <p>The eastern coastline from Papasoo Point south to Tufu Point is fringed by a coral reef backed by a rubble fore shore. The southern shore is composed of basalt fringing coral reef for the portion which runs from Lavana Cove to Papaotama Point.</p>	<p>The portion of the coast here known as Leala shoreline contains a remarkably rich ecological environment. The marine life in the pools within the inter-tidal zone is constantly being replenished by breaking waves and rising tides. Next to this shoreline is Fagatele Bay which has been designated as a national marine sanctuary. Up to about a decade ago the bay supported a high diversity and abundance of corals, reef fish, and mollusks. In late 1978 the marine life here was decimated by an infestation of the crown-of-thorns starfish. Over the past ten years the corals have come back, sea turtles have been sighted, and the bay remains a pristine environment.</p>	<p>This area contains an exceptionally diverse and unique coral and reef fish community. The reef flat here contains hundreds of species of brightly colored reef coral and fish. The reef also contains unique and beautiful coral species. This reef area was nominated for national marine sanctuary designation. Adjacent to the reef is the well-known white sand beach of Toaga, the longest and most scenic sand beach in American Samoa.</p>

These two areas consist of (1) the coastline and offshore waters from Vatia Bay to Fagasa Bay, in combination with the adjacent extent of undisturbed tropical rainforest in the interior uplands extending over the ridge to above Pago Pago Harbor; and (2) the south-central portion of the island of Ta'u, including all of the southern and most of the eastern coastlines and the adjacent offshore waters.

These two areas contained the most extensive and diverse assemblage of resources, both natural and cultural, and are of sufficient size and cohesiveness so as to lend themselves to park management. Moreover, due to their proximity to existing transportation systems (aerial tramway and a planned airstrip), they could be made accessible to visitors without adversely impacting park resources by the development of roads, parking areas, and other facilities. In addition to the significance of their resources, these two areas are highly scenic and remain in a largely natural condition. Both offer outstanding examples of undisturbed rainforest, unquestionably Samoa's most important and precious resource.

There is another, perhaps more urgent, reason for the establishment of a national park in American Samoa's rainforest. The rapid and alarming destruction of the world's tropical forests from intense pressure by people seeking food, energy, wood, and shelter threatens to eliminate thousands of unique habitats and biotic species. This is an issue of global and international concern. In 1978, the U. S. Interagency Task Force on Tropical Forests called for the development of a policy, strategy, and program to protect the tropical forests of the world.

Although the tropical forests of the United States account for less than one percent of the world's total, the establishment of a national park in American Samoa would be a most appropriate way for the United States to show its commitment to the protection of this most important biomass. A national park in American Samoa would be in accord with the Task Force's conclusion that "the community of nations must quickly launch an accelerated and coordinated attack on the ...loss of forest and vegetative cover...within or near the tropical latitudes...if these greatly undervalued and probably irreplaceable resources are to be protected from virtual destruction by the early part of the next century."

According to botanist Dr. Paul Cox of Brigham Young University, the indigenous forests of Samoa are of particular scientific interest due to the dependence of many plants on flying foxes for pollination or seed dispersal. Flying foxes may play a crucial role in perpetuation of these forests, and studies quantifying their relationships with the forest plants are underway. The relationship between plants and flying foxes has been recently studied in the case of the indigenous 'ie'ie vine, *Freycinetia reineckeii* which is maintained in a dioecious condition by *Pteropus samoensis*. Given the lack of venomous snakes, crocodiles, or other dangerous animals, a national park in American Samoa would be an ideal place to train students and increase American capabilities in tropical ecology

According to Dr. Cox

the forests are also intimately intertwined with the Samoan culture. Many a crucial part of their culture will vanish if the forests are ever cut. Many Samoan legends concern the forest plants and animals, and today Samoans still depend on the forest as a source of pharmaceuticals. *Taulasea*, or indigenous healers use nearly 150 different species of plants in their medical treatments. Many of these medicinal plants are currently being studied as possible sources of new drugs.

Finally, in order to determine national park feasibility of the two areas identified by the NPS as being both nationally significant and suitable for park management, the planning team visited American Samoa in July 1987. As a result of the meetings held during that time (see section, "Consultation and Coordination") with those high chiefs whose lands, in varying amounts, were included within the potential parks, it was ascertained that these two areas were indeed feasible to the extent that public support existed for their establishment as national parks. Moreover, national parks were perceived as a potential source of economic benefit to the adjacent villages and to American Samoa in general.

Management Alternatives

Table 11 shows management alternatives for protecting, interpreting, and providing access to Samoa's rainforest, as well as benefiting the economy of American Samoa. The alternatives compare whether the two potential national park areas are or will be assured of being adequately protected through other alternatives outside of the national park system and whether, under such protection, they would be available for public appreciation and use.

Table 11. Alternate Management Schemes to Preserve Sample Samoan Rainforest Landscapes.

Goals Alternatives	Have extensive Samoan rainforest system represented in the national park system as per the National Park System Plan. ^{1/}	Preserves an outstanding sample of Samoan rainforest ecosystem of prime national significance.	Protects outstanding scenic vistas.	Can be used to interpret a complex island rainforest ecosystem.	Will allow people to experience and understand a pristine but easily damaged rainforest ecosystem.	Increase tourism as a financial aid to Samoa (less destructive to fa'a Samoa than logging forests, land development, or large plantations).
No action. Leave things alone. They've stayed OK this long.	None would be represented in the NPS system.	Inroads will continue to be made into what remains of the Samoan rainforest system. In a long view, none will remain.	None will be preserved, except by chance.	Not being done.	No. Not being done.	No. Not being done.
Establish National Parks on Tutuila and Ta'u.	Assures representation of two areas identified as possessing national significance as tropical rainforest and marine ecosystems.	Yes, would preserve best, most extensive Samoan forests.	Would protect more of the outstanding scenic vistas than any other alternative.	Has highest potential to accomplish this.	Has the highest potential to accomplish this.	Would have a large positive effect on tourism by increasing people's length of stay and by letting more people know of Samoa's unspoiled, natural landscape.
The matai establish local natural reserves on their village lands.	None would be represented in the NPS system.	Probably not. Result in some protection, but would be piecemeal. Rainforest will continue to diminish.	Maybe	Maybe	Local village people are very kind and allow entry, but one would have to learn these places on their own.	No effect.
American Samoa Government Dept of Parks and Recreation establish Territorial Parks on Tutuila and Ta'u.	None would be represented in the NPS system.	Unlikely to result in any protection of rainforest. Parks and Rec has limited funds; their priorities stress small, widely scattered parks.	Unlikely, Parks and Rec with few funds and staff would be unable to protect large, scenic areas.	Unlikely	Maybe	Maybe
Private groups secure these lands as some kind of nature reserves.	None would be represented in the NPS system.	Impossible, a private group would have no way to get a usable "equity" in the land to do this.	Impossible, a private group would have no way to get a usable "equity" in the land to do this.	Unlikely	Unlikely	Unlikely

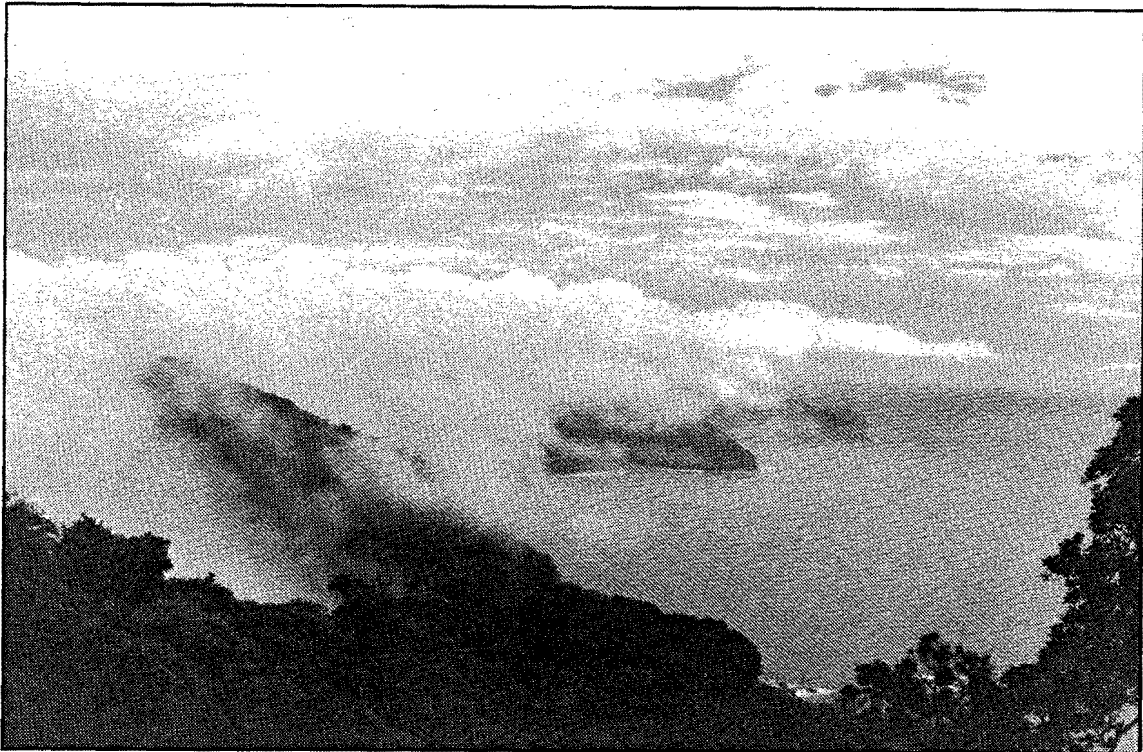
^{1/} At present this theme has no representation in the national park system.

POTENTIAL NATIONAL PARKS

Description

Potential National Park, Tutuila. The potential park on Tutuila encompasses approximately 2,770 acres, plus about 550 acres of offshore waters along the coastline. The offshore portion extends out to include all of the reef area.

The perimeter of the land area extends from Siufaga Point at the western end east following along the coast to take in the peninsula composed of Polauta Ridge and includes all of Pola Island. Around the village of Vatia, the potential park is confined to above the 200-foot contour line. The intent is to exclude those village lands being utilized for subsistence agriculture. There are, however, some lands included within the potential park which are presently under cultivation. There are a few small plots located in the upper ends of the adjacent stream valleys.



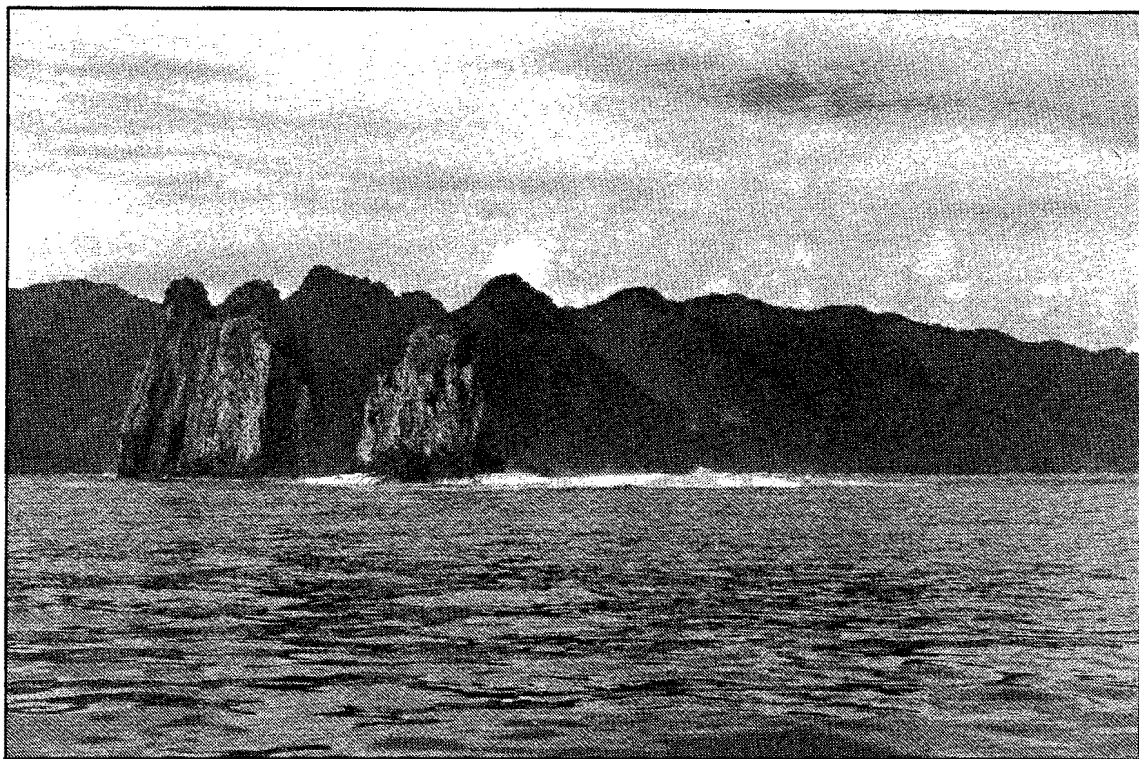
The potential park on Tutuila includes some 2,770 acres of largely unused communal lands plus offshore waters.

On the east side of Vatia Bay, the potential park runs from the 200-foot contour down to the coast along the lower end of the Tiatauala Ridge and then along the coast to the tip of Craggy Point and includes that portion of the road to Vatia. From Craggy Point, the

potential park runs south over Matape Hill and then follows along the 200-foot contour line skirting the agricultural lands of the village of Afono to where the 200-foot contour line intersects the Afono Road. The potential park then follows up along the upper side of the road right-of-way to Afono Pass. From there it follows along the south (Pago Pago) side of the Alava-Maugaloa ridges from Afono Pass all the way to Fagasa Pass, staying approximately 50 to 100 feet below the crest to ensure the protection of the native forest along the ridge line and to provide the necessary space for the deployment of scenic overlooks on this side of the ridge. From Fagasa Pass, the potential park follows the 600 foot contour line to where it intersects the ridge line leading back down to Siufaga Point.

The potential park falls within the boundaries of four counties: West Vaifanua, Ma'uputasi, Sua, and Itu'au. Except for those lands within and above the village of Vatia, all of Vaifanua County is included in the potential park. The potential park takes in the northwestern one-third of Ma'uputasi County. The proposal takes in only the northeastern corner of Itu'au County and the western edge of Sua County.

All of the lands within the potential park are communal. According to Samoan custom, these lands belong to the village as a whole. Their future use as parklands would be decided by the appropriate village council of *matai*. Generally they comprise the higher, steeper lands unsuitable for agriculture. They are presently used only for occasional hunting or the collecting of forest products. There are small portions of the potential park which are either village lands or family reserve sections that are presently under cultivation.



A national park along the north-central coast of Tutuila would guarantee forever a safe haven for thousands of seabirds.

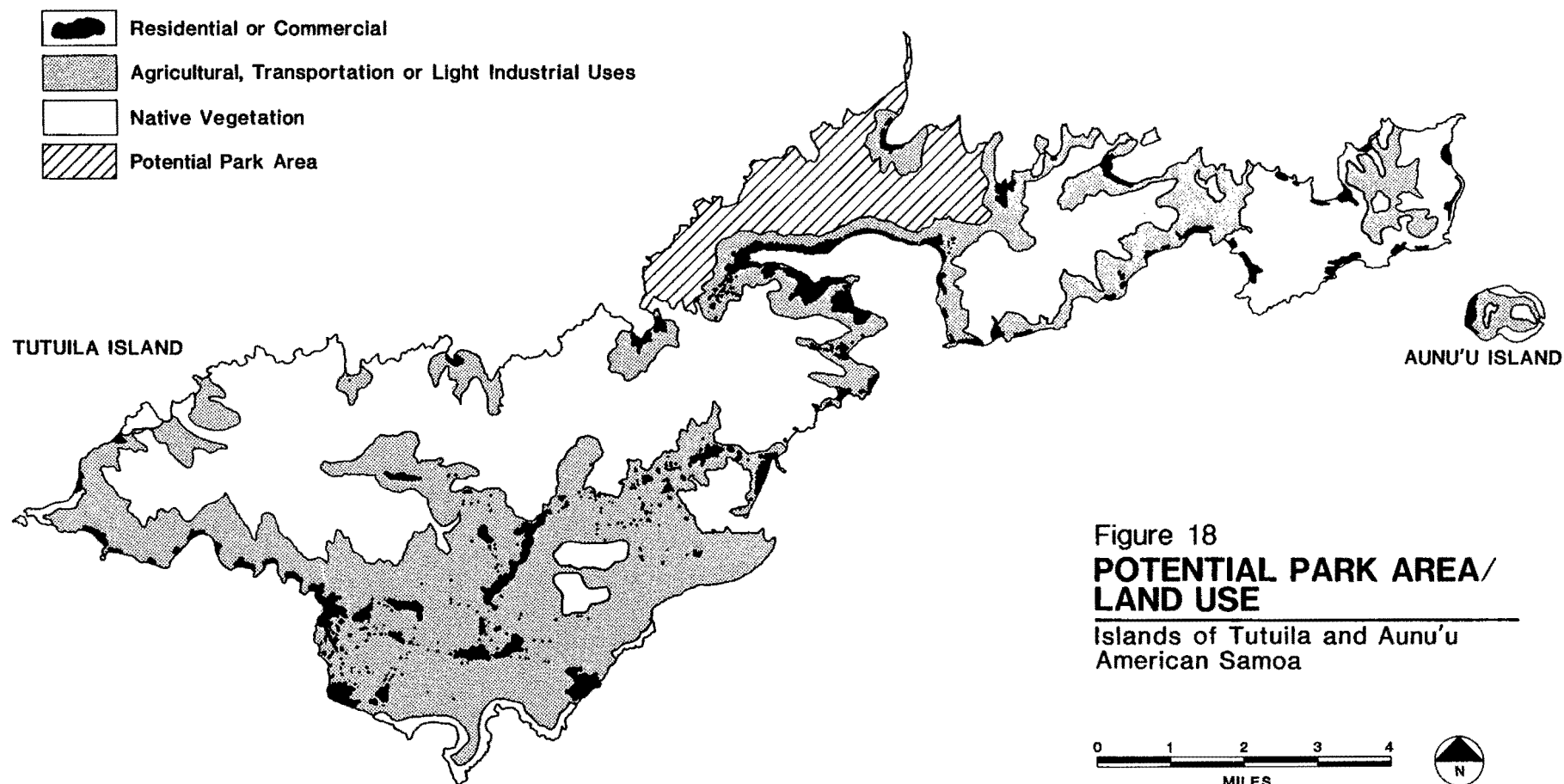


Figure 18
**POTENTIAL PARK AREA/
LAND USE**
Islands of Tutuila and Aunu'u
American Samoa

The village councils of *matai* from Afono, Vatia, Fagasa and Pago Pago, among others, control varying portions of the lands located within the potential park. Decisions regarding the future use of these lands would be made primarily by the *matai* of these villages.

The offshore marine portion extends out to include all of the reef from Siufaga Point, around Pola Island, ending offshore of the eastern side of Polauta Ridge. Vatia Bay is excluded. On the east side of the bay, the offshore portion again extends out to include the reef from the lower end of Tiatauala Ridge to Craggy Point.

The potential park is composed of ridges and mountainsides with side slopes ranging from steep to nearly vertical. The only moderately level areas are found along the interior ridge tops and at Amalau on the coast. The rugged topography has served to place limits on the accessibility and potential use of the entire area. Consequently, it remains covered mostly by undisturbed rainforest.

The soils are well-drained and range from shallow to moderately deep. Most have been formed from parent materials of volcanic ash and igneous rock. Parts of the surface area are composed of exposed bedrock which limits the growth of vegetation. These areas are subject to landslides.

The surface runoff in the potential park is rapid and the water erosion hazard is severe, particularly in those areas where the vegetation has been disturbed. Nearly all of the potential park is poorly suited to the cultivation of subsistence crops because of the steep slopes and the high hazard of erosion.

Nearly all of the lands within the potential park are covered by a native climax vegetation which remains largely undisturbed by man. Two basic categories of vegetation are present. A band of littoral vegetation runs along the coast from the ocean edge up to about the 200-foot contour line. Pola Island and the Polauta Ridge peninsula, both covered mostly by littoral vegetation, are particularly significant as habitat for resident breeding seabirds. The entire island and the western side of the ridge are vitally important for thousands of seabirds and provide nesting sites for at least eight different species: the blue-gray noddy, brown noddy, black noddy, brown booby, red-footed booby, white tern, gray-backed tern, and white tern. The great frigate bird, lesser frigate bird, wedge-tailed shearwater, and white-throated storm-petrel also frequent this area and may also be nesters.

The island and the peninsula are also used by many species of land birds. The peninsula is the only locality in American Samoa known for *Manilkara dissecta*, a native tree. The many-colored fruit dove is also found in the small section of littoral vegetation from Afono Bay to Vatia Bay. This is one of only a few locations in American Samoa where this species of land bird is found regularly.

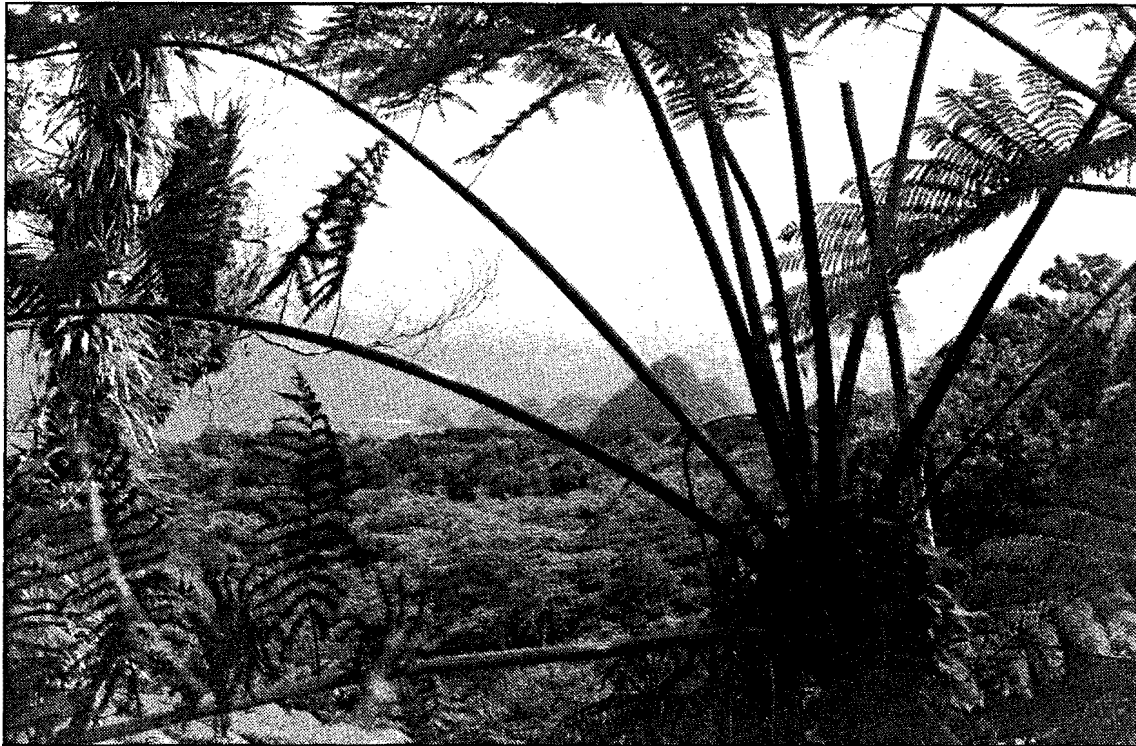
The other category, covering the remainder of the potential park is rainforest vegetation composed largely of two communities, lowland and montane. A particular type of rainforest, called ridge forest, is found along the crest of Mt. Alava. These two communities gradually merge as rainfall increases with the change in elevation.

In the montane rainforest, vines, climbers, and epiphytes are common and the ground cover is lush. The montane rainforest provides primary habitat for numerous species of birds and the two species of native fruit bat. A large colony of fruit bats is found along Pagatatua Ridge.

During the summer of 1986, avifauna surveys were conducted by the U. S. Fish and Wildlife Service to determine status and distribution. Two of the several transects set up occurred within the montane rainforest portions of the potential park on Tutuila. The first of these transects extended for about one and three-quarters miles along the ridge road from Fagasa Pass to Ti'ale'ogaumu Ridge on the west side of the potential park. The following native species were identified: the wattled honey-eater, cardinal honey-eater, purple-capped fruit dove, Samoan starling, banded rail, red-footed booby, brown booby, white-tailed tropicbird, white-rumped swiftlet, Polynesian starling, white tern, Pacific pigeon, collared kingfisher, many-colored fruit dove, brown noddy, lesser frigate bird, purple swamphen, and *Pteropus tonganus*.

The second transect, which ran from Afono Pass up and along Tiatauala Ridge and down to the road to Vatia for a distance of about one and one-half miles, resulted in the above 15 species being observed, plus the following: the great frigate bird, blue-gray noddy, and the purple swamphen. In addition, *Pteropus samoensis* was observed.

The rainforest along the top of Mount Alava differs slightly from the forest at lower elevations. Termed ridge forest, the trees here are denser and the canopy is lower. The vines, climbers, and epiphytes are not as common and the ground cover is not as thick. The rainforest along Mount Alava is dominated by three species: *Dysoxylum huntii* (maota mea), *Crossostylis biflora*, and *Syzygium samoense* (fena vao). All three of these species are indigenous to Samoa. The difference in the ridge forest is likely due to higher runoff here and less moisture in the soil.



The Samoan rainforest habitat with its many species of mature forest birds and two species of flying foxes would be a unique component of the national park system.

Figure 19

POTENTIAL NATIONAL PARK

Tutuila Island, American Samoa

SLOPE ANALYSIS

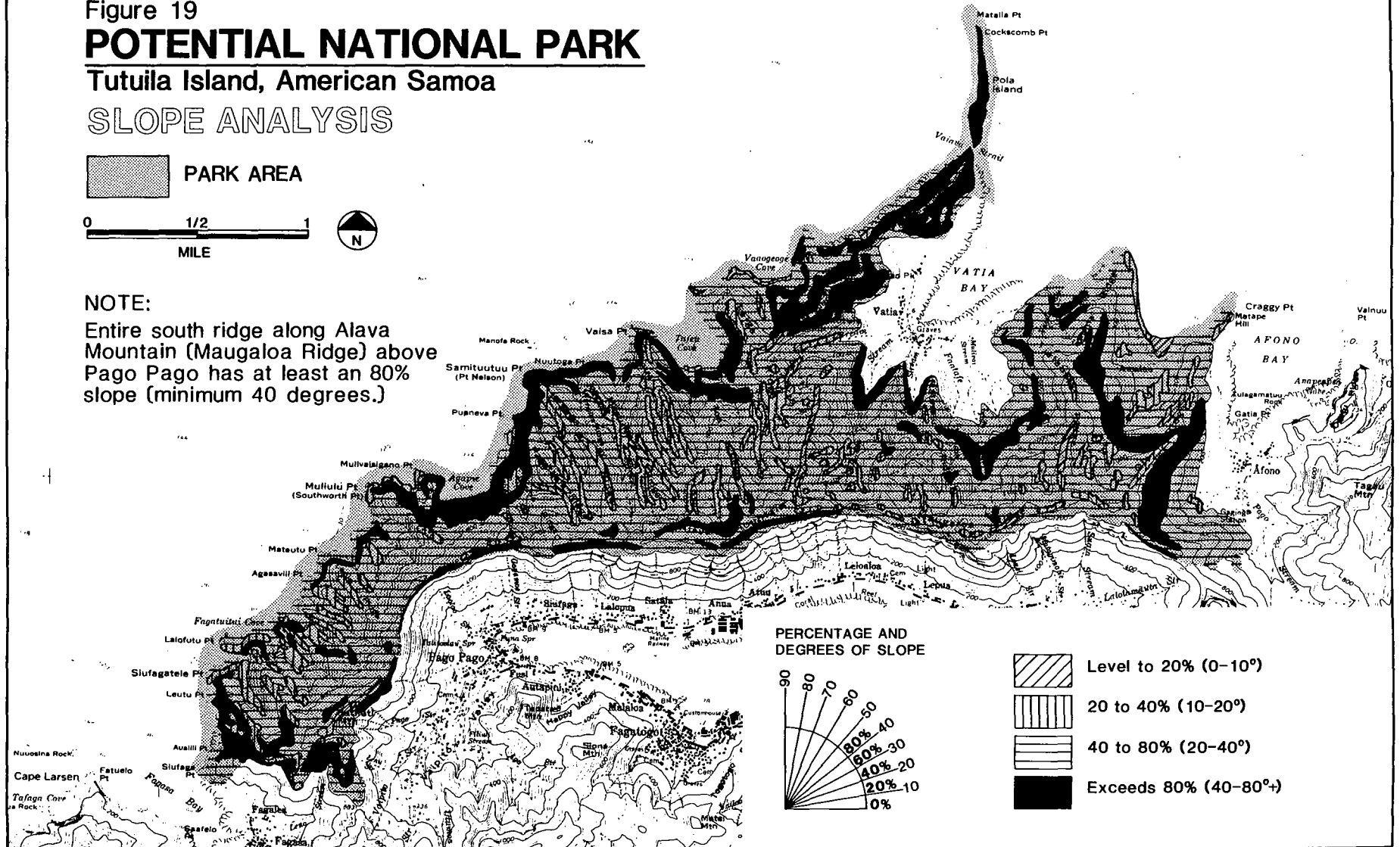
 PARK AREA

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MILE



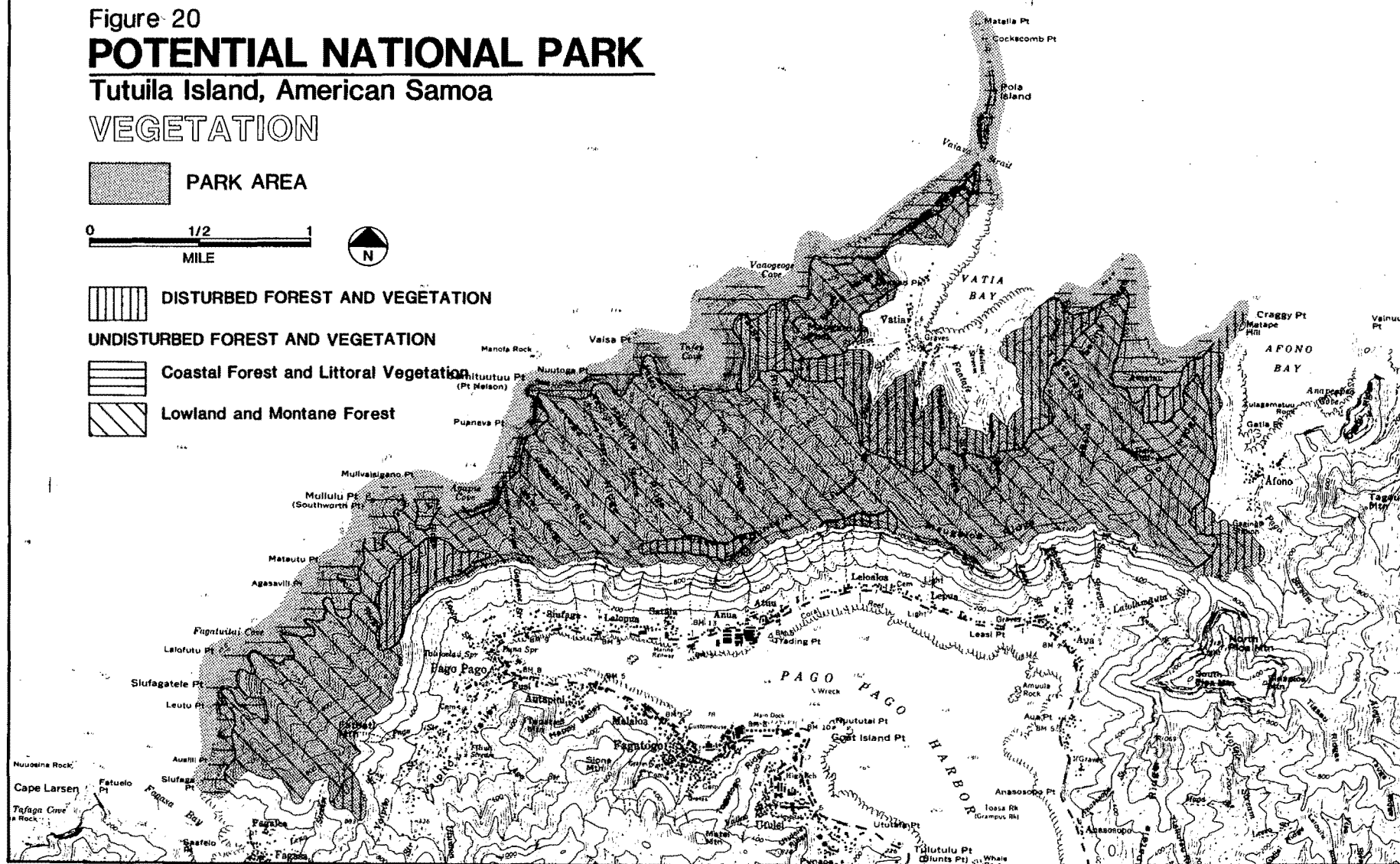
NOTE:

Entire south ridge along Alava Mountain (Maugaloa Ridge) above Pago Pago has at least an 80% slope (minimum 40 degrees.)



POTENTIAL NATIONAL PARK

VEGETATION

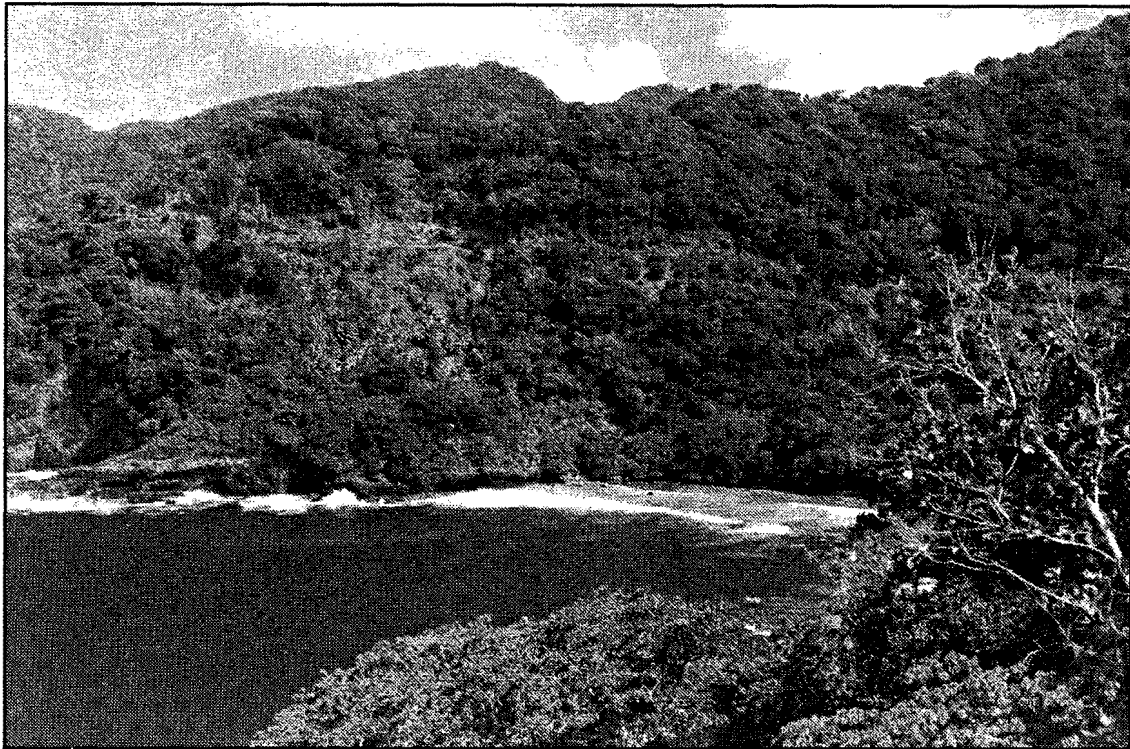


The rainforest along this ridge has been disturbed by the cutting and grading of the road which goes from Fagasa Pass to the television transmitter located atop Mount Alava. The rainforest on either side, however, appears to be relatively undisturbed despite the presence of the road. A rare plant, *Geanthus vignai*, has been found growing along Alava Ridge. This species apparently meets the criteria for threatened or endangered status.

Other portions of this rainforest have been disturbed in the past. Nearly all of these disturbed areas are now covered by a mature secondary rainforest and visually are indistinguishable from the surrounding primary rainforest. The two disturbed areas in the vicinity of Fagasa Pass and near Afono Pass at either end of the potential park, however, have not reverted to secondary forest and are presently covered by grass and scrub.

The right-of-way for the road to the village of Vatia and the adjacent uplands around the village represent the greatest extent of disturbed lands existing within the potential park. Although the construction for the road destroyed vegetation all along the right-of-way, the vegetation adjacent to the road does not appear to be severely impacted. There are areas of subsistence agriculture, mostly taro and bananas, along the slopes on the sides of the road.

The potential park contains the site of an ancient Samoan fortified village located on Alava Ridge above Pago Pago Harbor. This site contains evidence of terracing and house foundations. Carbon samples taken from the site were dated to 1570 A.D. and 1860 A.D.



Construction of the new road to Vatia destroyed a limited amount of native vegetation.



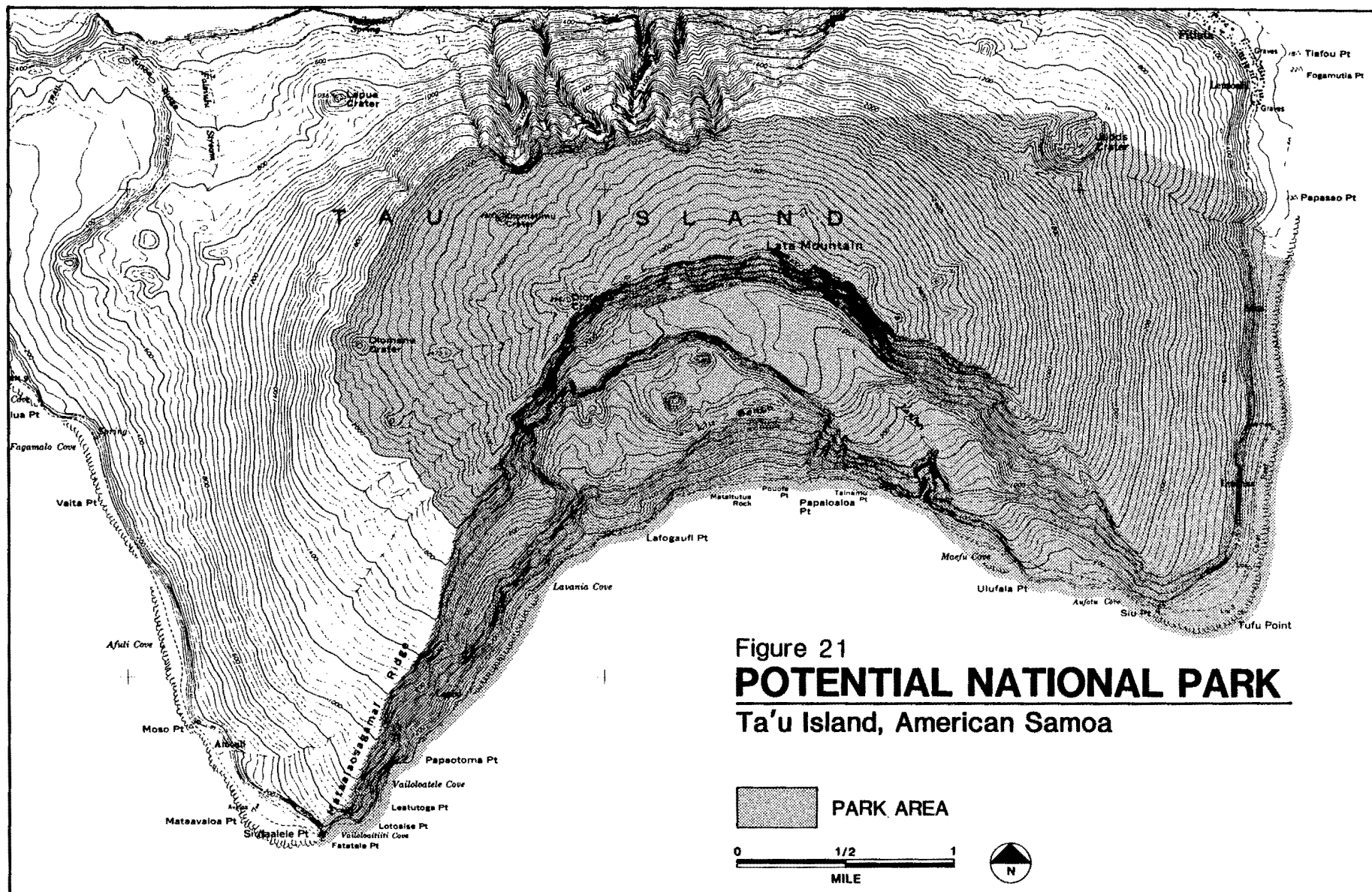
The potential park on Ta'u would preserve about 5,400 acres of undeveloped lands and offshore waters including the most extensive cloud forest in American Samoa.

Potential National Park, Ta'u. The potential park on the island of Ta'u takes in approximately 5,400 acres of land and about 250 acres of offshore waters along the adjacent coastline. Again, the offshore portion extends out to include the reef area.

The perimeter of the potential park takes in Si'ufa'alele Point on the southwest tip of Ta'u, runs inland in a northerly direction along the crest of Mata'alaosegamai Ridge and then follows along the 2,000-foot contour line to include the western slopes of Olomanu Crater. The northern perimeter takes in all of the cloud forest community and extends out to Judd's Crater and then down toward the eastern coast to about the 200-foot contour line, then following that line south for approximately one-quarter mile before turning again toward the coast. The intent is to exclude as much as possible those lands adjacent to the village of Fiti'uta with development potential. The perimeter then extends down along the east coast past Saua, around Tufu Point, and all along the southern coast back to Si'ufa'alele Point.

The potential park on Ta'u takes in the southern one-third of Fiti'uta County, the eastern portion of Ta'u County and the southeast corner of Faleasao County.

Figure 22 shows the location and relative size of the potential park area on Ta'u and the adjacent land uses. Those portions of the park shown on the map as being in agricultural, transportation, or light industrial uses are presently nearly all in secondary forest.



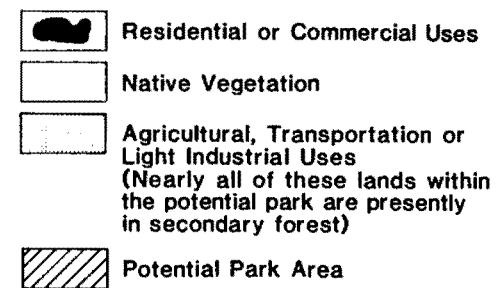
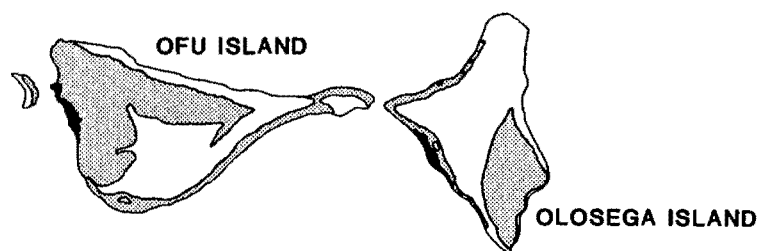
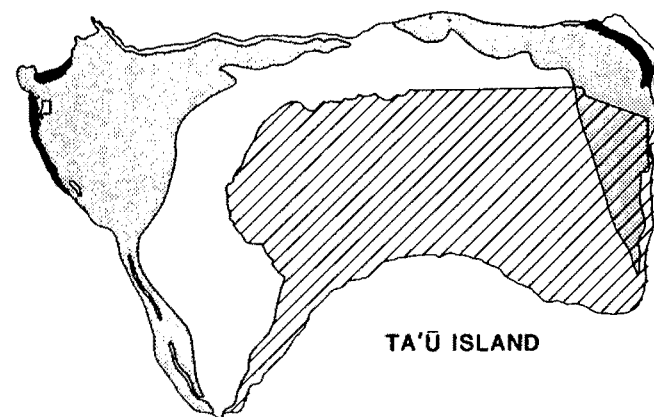


Figure 22
**POTENTIAL PARK AREA/
 LAND USE**

Manu'a Islands
 American Samoa



As with the potential park on Tutuila, all of the lands included within the Ta'u park are communal. Nearly all of these lands are presently unused, utilized only occasionally for pig hunting or for the collection of forest products. Small portions are under cultivation for dry-land taro and bananas. All of the land within the potential park belong to and are controlled by the village councils of *matai* on Ta'u Island. Decisions regarding their future use as parklands would be made by the appropriate village council of *matai*.

Nearly all of the proposed park area has limited accessibility and use due to its rugged topography, thick vegetation, and the absence of roads. The natural vegetation of this area is rainforest which is exceedingly dense at the higher elevations, with an understory of tree ferns, ground ferns, and shrubs.

All of the upland portion of the potential park plus the Liu Bench area are on mountainsides with moderate slopes. The runoff here is medium to rapid and the hazard of water erosion is moderate to severe. The soils were formed from volcanic ash and cinders under heavy rainfall (the mean annual rainfall here ranges from 200 to 300 inches). They are well drained but lack strength. This low soil strength limits development potential and uses of these lands. Within this upland portion, there are small areas of rock outcrop and steep slopes. These areas occur along drainways, on ridges, cinder cones, and volcanic craters.

The lower and coastal portions of the potential park are on steep slopes and cliffs. Substantial portions of this lower elevation area are composed of rock outcrops; i.e., exposed bedrock where little or no soil material exists. There are smaller areas of colluvium consisting of boulders, stones, and soil material deposited at the base of cliffs. Included here also are areas where landslides have occurred. Because of the steepness of slopes and the high hazard of water erosion, this entire area is unsuitable for development and use; the rainforest here should be carefully managed.

The remainder of the potential park, encompassing about ten percent of the total area, takes in the upper watershed of the Laufuti Stream and a connecting strip down to Aufoto Cove plus a narrow strip along the east coast between 400 and 600 feet in elevation. The soils here are moderately deep and well drained on moderate slopes. In many areas the surface is stony. Runoff here is medium to rapid and the hazard of water erosion is moderate to severe.

Substantial portions of this part of the potential park, at one time or another in the past, have been under cultivation for subsistence crops. At the present time, only small portions are being cultivated; nearly all of this area is now mature secondary growth forest. Although moderately suited to the production of subsistence crops, this area has limitations due to rocks and stones in the soil and the hazard of water erosion. Moreover, the fertility of the soil here can be maintained only by rotating the areas under cultivation and adding organic material to the soil.

The potential park on Ta'u is undeveloped, uninhabited, and infrequently visited. The entire area, except for a band of secondary rainforest along the Liu Bench east to above Si'u Point, is covered with a native vegetation which has remained essentially undisturbed by man. The secondary rainforest is mature and, except to the trained botanist, cannot be distinguished from the primary climax rainforest. The undisturbed lowland and montane rainforest and cloud forest found here are the most extensive in American Samoa. The area is excellent wildlife habitat. It contains a wide variety of vegetation types. The

littoral strand, littoral scrub, and littoral forest communities are probably the finest example of mixed littoral vegetation found in American Samoa.

The cloud forest is particularly important for watershed protection as it acts as an enormous sponge to soak up the heavy and continuous rainfall. Severe erosion would take place if the cloud forest were severely damaged or destroyed.

The avifauna is unique here and the area contains the only species of snake, the Pacific boa, found in American Samoa. The snake's habitat is within the littoral vegetation along the south shore. The snake is present only in very small numbers.

The sea cliffs along the south central coast rise to nearly 1,200 feet. The lower 975 feet of Laufuti Stream, the only perennial drainage on Ta'u, is a spectacular fall. On the rare day when there is no cloud cover present, the view from the forest down to the south coast provides a panorama of rugged natural beauty.

Within the potential park area, 35 bird species have been identified. Of these, 25 are native resident breeders. The resident breeders consist of 10 seabirds and 15 land birds. Lata Mountain has the only conditions in American Samoa -- undisturbed cloud forest, a dense montane rainforest, and montane scrub -- which allow the successful breeding of five of the ten species of seabirds -- the Christmas and Audubon's shearwater, the Tahiti and collared petrel, and the white-throated storm petrel. All of these species nest in burrows. There is a possibility that other petrel and shearwater species breed here too.

The five other breeding seabirds found within the potential park are the white-tailed tropicbird, which nests in tree holes in the lowland rainforest, the brown, black, and blue-gray noddies, and the white tern. The terns and the black and brown noddies nest in the littoral vegetation along the south side of the island. The brown noddy also has scattered colonies throughout the lowland rainforest. The blue-gray noddy nests in small numbers along the rocky cliffs near Si'ufa'alele Point.

Native flying foxes are found throughout the lowland and montane rainforest portions of the park. There are flying fox colonies located in the lowland rainforest above Papaotoma and Si'u points. It is believed that the sheath-tailed bat roosts in caves along the south coast. Also, sea turtles, including the endangered hawksbill and the threatened green, may nest on the isolated sand beaches found along the east and south coasts.

The offshore portions of the potential park provide habitat for the endangered hawksbill and threatened green sea turtles, both of which have been sited there in recent years.

The 1986 avifauna survey by the U. S. Fish and Wildlife Service included five separate transects which fell within the potential park area on Ta'u. The transects consisted of an east to west line from below Saua on the east coast up to about the 1,800-foot level; a northeasterly line from Ulufala Point crossing Laufuti Stream up to about the 1,600-foot elevation; a northerly line from Lafogaufi Point up to about the 1,200-foot level, then turning east running along the Liu Bench; and the last two running in an east-west direction across the entire park area from Olomanu Crater to Lata Mountain and from Lata Mountain to just below Judds Crater.

The following native forest bird species were observed on all of the transects: the brown noddy, collared kingfisher, Pacific pigeon, Polynesian starling, white-rumped swiftlet, white-tailed tropicbird, Samoan starling, purple-capped fruit dove, wattled honey-eater,

Fiji shrikebill, and the blue-crowned lory. The Liu Bench area was considered to be prime habitat for the white-tailed tropicbird, the Pacific pigeon, the Fiji shrikebill, and the brown noddy. The purple-capped fruit dove was more common at lower elevations, while the Samoan starling, the blue-crowned lory, and the collared kingfisher appeared to be evenly distributed throughout the five transects.

The banded rail and the purple swampphen were observed only along the east coast and the white tern on both the east and south coasts as well as along the Liu Bench. The black noddy was observed along the Liu Bench and along the south coast near Lavana Cove, where the largest colonies in American Samoa are found.

In 1975 and 1976, the U. S. Fish and Wildlife Service established a series of study plots in American Samoa to gather information on vegetation and wildlife. Six of the 42 study plots were located within the potential park on Ta'u. The vegetation found within each of the plots is described below:

Saua Littoral Forest -- Located 50 to 100 feet inland on the east coast of the island about one mile above Tufu Point. Vegetation here was mixed littoral forest, with a canopy up to about 60 feet high and dominated by *Barringtonia asiatica* (futu), *Pisonia grandis* (pu'avai), and *Hernandia sonora* (pua) with no understory; the trees well spaced, giving an open aspect to the forest. Saplings scarce and the ground cover light.

Saua Rainforest -- Located inland from the above site (approximately 150 feet). Vegetation here was an open lowland rainforest dominated by *Dysoxylum samoense* (mamala), 70 to 85 feet high with an understory of the same species up to 70 feet high. Low sapling density and light ground cover dominated by *Dysoxylum* seedlings.

Laufuti Secondary Forest -- Located near Laufuti Stream at about the 1,100-foot level. Vegetation here was a mature secondary montane rainforest, dominated by *Rhus taiensis* (tavai) forming a canopy approximately 80 to 100 feet high. Understory dominated by *Astronidium pickeringii*. Ground cover was light, dominated by ferns.

Lavana Rainforest -- Located above Lavana Cove at about the 400-foot level. Vegetation here was dominated by *Dysoxylum samoense* (mamala) and *Neonauclea forsteri* (afa) forming a canopy from 50 to 70 feet high. The understory was dominated by *Myristica fatua* (atone), *Pisonia umbellifera*, and *Ficus tinctoria* (mati). Ground cover was light and dominated by *Asplenium nidus* (laugapapa).

Lata Cloud Forest -- Located along the ridge at about the 2,500-foot level from Olotania Crater to the top of Lata Mountain at 3,170 feet. Vegetation here was disturbed cloud forest (thought to be caused by a hurricane) dominated by tree ferns, *Syzygium samoense* (fena vao) and *Weinmannia affinis*. The trees here were heavily covered with mosses and epiphytes; climber *Freycinetia storckii* ('ie'ie) and formed a dense tangle. Ground cover was moderate to heavy.

Olotania Montane Scrub -- Located along the southeast side of Olotania Crater. Vegetation here was dense montane scrub thicket up to six feet high. Understory dominated by shrubs, vines, and ferns; dominant species were *Blechnum vulcanicum* and *Dicksonia brackenridgei*.

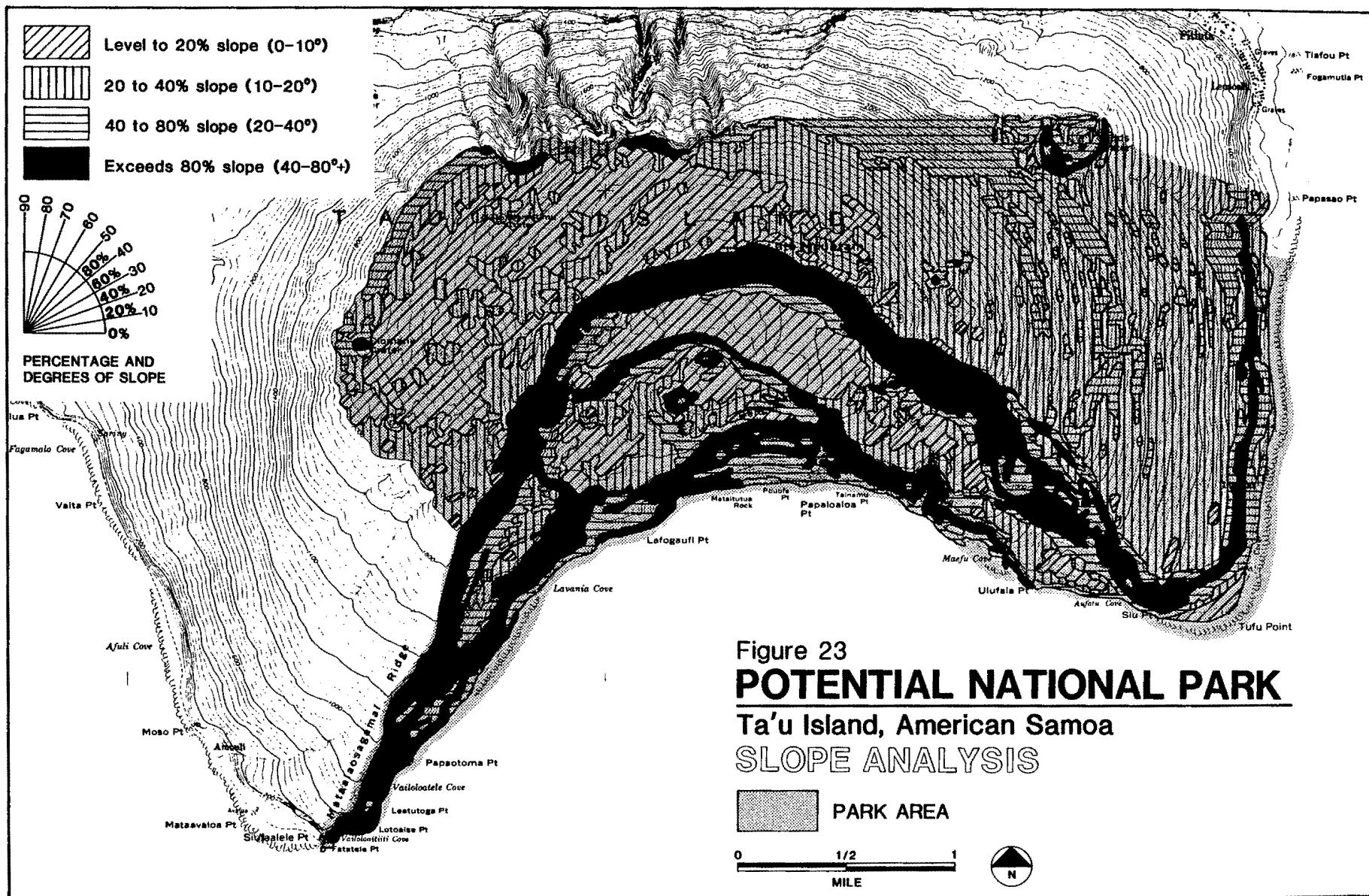
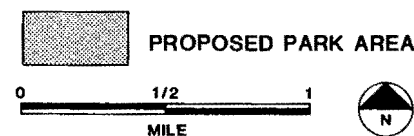


Figure 24

POTENTIAL NATIONAL PARK

Ta'u Island, American Samoa

VEGETATION



All of the dominant plant species noted above are indigenous to Samoa, except for the *Astronidium pickeringii* which is an endemic.

Near Saua on the east coast is the site of a large Samoan village, dating back to prehistoric times. The site remains relatively undisturbed.

The previous description of the wildlife and vegetation contained within the potential park is based on observations, surveys, and data collected prior to January 17, 1987, the date when Hurricane Tusi struck the Manu'a islands. The hurricane caused severe damage to the vegetation of the Manu'a islands, including Ta'u. When the Park Service planning team returned in March and July 1987, the biota of the entire island, including the potential park area, was still in a state of transition and will remain so for some time. But the vegetation and ultimately the wildlife will return to pre-hurricane conditions. Hurricanes have come to Ta'u before and they will surely come again.

The effect of the natural disaster on the resources of the potential park in no way diminishes their significance or the area's suitability as a potential national park. Hurricanes are a natural phenomena here and can be treated in the same way as volcanic eruptions in Hawaii Volcanoes National Park or lightning caused wildfires in Glacier, Yellowstone, or Yosemite national parks.

The previous narrative is meant to provide a picture and understanding of the natural resource values associated with this particular area -- what makes it special -- and is not a description of the existing condition.

A report, "The Effects of Hurricane Tusi on Rainforest Vegetation in Ta'u, American Samoa," by Paul Cox and Wesley Teraoka, describes the condition of the vegetation following the hurricane. The report was based on a field investigation made within one month of the hurricane (February 14-17) to determine the effects on the rainforest and wildlife. It contained the following findings:

- one-half of the trees in the three study plots showed new leaf production;
- slopes generally were found to be very stable;
- no signs of soil erosion were found;
- ground cover plants were rapidly regenerating;
- tree ferns were found to be regenerating;
- wildlife species appeared to have experienced high mortality; and
- all frugivorous and nectarivorous animals were found to be in a weakened condition, with population sizes, particularly of the flying foxes (fruit bats), drastically reduced.

The report's conclusions, based on the field investigation plus studies of previous hurricane disturbances of tropical forests, were that the forest on Ta'u "will rapidly regenerate itself with canopy closure within the year." The report further stated that the forest would, however, be vulnerable to invasion by introduced exotic plant and animal pests. The report contained the following recommendations: (1) no exotic plant materials be introduced to

Ta'u, (2) no attempts be made to revegetate the forest, and (3) an emergency feeding program be immediately introduced for nectarivorous birds and frugivorous birds and bats.

Concepts for Management, Development, and Visitor Use

The concepts discussed in the following section are intended to illustrate basic management principles used by the National Park Service in operating large natural areas in the national park system, and how such an area might be managed in American Samoa.

Large natural areas in the national park system are managed essentially to maintain and perpetuate their inherent integrity. Natural resource management is aimed at providing visitors with the opportunity to enjoy and benefit from observing natural systems evolve, with minimal influence by human actions. The natural resources and values that are protected by the Park Service include plants, animals, water, soils, topographic features, geologic features, air quality, and scenic vistas.

The National Park Service, in managing large natural areas, seeks to perpetuate native plant and animal life as part of natural ecosystems. Landscapes and plants may be manipulated only when necessary to achieve park management objectives. In natural areas, altered conditions caused by phenomena such as hurricanes, tornadoes, or natural fires are normally left alone under National Park Service management, unless required for public safety or reconstruction of dispersed-use facilities, such as trails. On lands altered by human activity, management may include some manipulation to restore natural conditions.

Those natural areas in the national park system which contain cultural resources and values as well are managed to preserve and foster the appreciation of those resources and values through the programming of research, treatment, and, if appropriate, interpretation. The National Park Service manages cultural resources in a manner that reflects an informed and knowledgeable concern for the traditional values associated with these resources.

Physical development within large natural areas is limited to those that are judged to be necessary and appropriate and are provided only under carefully controlled safeguards, so that the minimum damage to park values would be caused. The location, design, and material used in any development is to be consistent with the preservation of the natural and cultural setting of that particular park.

Management Goals. Within the potential parks on Tutuila and Ta'u, resource management should be directed toward maintaining and, where necessary and possible, re-establish the native biota. Appropriate use and enjoyment by visitors should be accommodated to the extent that they do not impair the natural and cultural values found within the potential parks. Development within the potential parks should be limited to that which is appropriate and needed for park management and visitor use. To the extent possible, those facilities connected with park administration and maintenance operations should be located outside of the potential parks. The location and design of any facilities within should be consistent with the preservation of the natural and cultural landscape. All visitor use facilities constructed within the potential parks should be in harmony with the aesthetics and culture of the setting.

The preservation of the natural landscape -- the primary climax tropical vegetation-- should be a fundamental requirement and require active management. These natural areas should be managed so as to protect and perpetuate the native biota, terrestrial and marine, and the scenic land and seascapes. Non-park uses, such as public hunting or shooting of

land birds, seabirds, and flying foxes, should not be permitted within the potential parks. Likewise, the offshore areas would be closed to commercial fishing. Residents of the nearby villages, however, should be allowed to continue the harvesting of marine resources for subsistence purposes within the offshore areas.

No cutting of trees should be permitted, except in designated areas and only for specific purposes. For example, the clearing of small areas to allow subsistence agriculture to take place (assuming that adjacent areas of similar size would be returned to forest) and the limited collection of firewood by local residents.

Park management should provide control and direction to any changes in the native biota resulting from man-caused influences on natural processes of ecological succession. Non-native (alien) species should not be introduced into natural areas. Where they threaten invasion of a natural area, park management should seek to eradicate or control them.

Notwithstanding the above, certain types of agricultural uses may be permitted in specific locations within both of the potential parks. These agricultural uses, however, should be associated directly with traditional Samoan subsistence farming -- as to the type of crops grown, the methods and tools used, and the extent and location of the area under cultivation. (For example, the growing of taro and bananas may be permitted, but not a coconut plantation). Moreover, these subsistence agriculture activities should be regulated by the National Park Service to minimize soil erosion so as not to adversely affect marine resources in the offshore portions.

In those locations within the park where cultural features are present -- archeological or historical sites -- they should be protected and, if judged appropriate, interpreted for visitor understanding, appreciation, and enjoyment.

Interpretive programs should be developed to help promote visitor understanding of the policies and programs of national park management; and to provide visitors with an understanding and appreciation of the significant natural, cultural, and scenic values found with the potential parks, including the traditional way of life -- *fa'asamoa*.

If a national park were to be established by Congress, the National Park Service would be responsible for maintaining an inventory of the endangered and threatened species of wildlife within, as well as considering the potential impact of any park project or program on those species.

National Park Service management and operation of lands within the potential parks should be carried out in consultation and coordination with the *matai* of the affected villages. A formal advisory body should be set up to assist the National Park Service in the planning and operation of each of the parks. The advisory bodies would be made up primarily of *matai*.

The interpretive programs and the parks themselves are intended for the benefit and enjoyment of the people of American Samoa as well as the outside visitor. It is anticipated that residents would be very interested not only in visiting the parks, but also contributing their special knowledge or expertise to the interpretive programs. It is anticipated that the parks would be of particular value and interest to the youth of American Samoa and that environmental education programs could be set up through the Department of Education and the American Samoa Community College. This would involve

on-site experiences in such things as nature walks, visits to archeological sites or wildlife photography.

The park development and visitor services described below are generally applicable to those usually found within natural areas of the national park system; in this particular instance, where preservation of the native rainforest is the primary management goal. The type, extent, and location of the developments discussed in this feasibility study are conceptual and intended as preliminary, subject to modification. The exact location, size, capacity, and function of park developments would be described in a general management plan, if and when a national park were to be legislatively established, and would be based on input by the affected communities, as well as prior decisions by the Park Service to address issues concerning resource management, visitor use, and park operations.

Development and Visitor Use, Tutuila. This potential park would be developed for day-use only. No overnight facilities would be developed within. Primary visitor access would be via the Mt. Alava aerial tramway, originally constructed to bring building materials up to the ridge top to construct a television transmitter station. Up until about a year ago, the tramway was used to bring visitors up to the ridge top, then a short walk to the covered pavilion nearby to view Pago Pago Harbor below. The tramway, operated by the Department of Port Administration, was shut down for repairs. In 1986 the *Fono* approved a special appropriation of \$235,000 to fund the repairs needed to allow the tramway to resume operations. The work to replace the main cable of the tramway has now been completed and it is now operating.

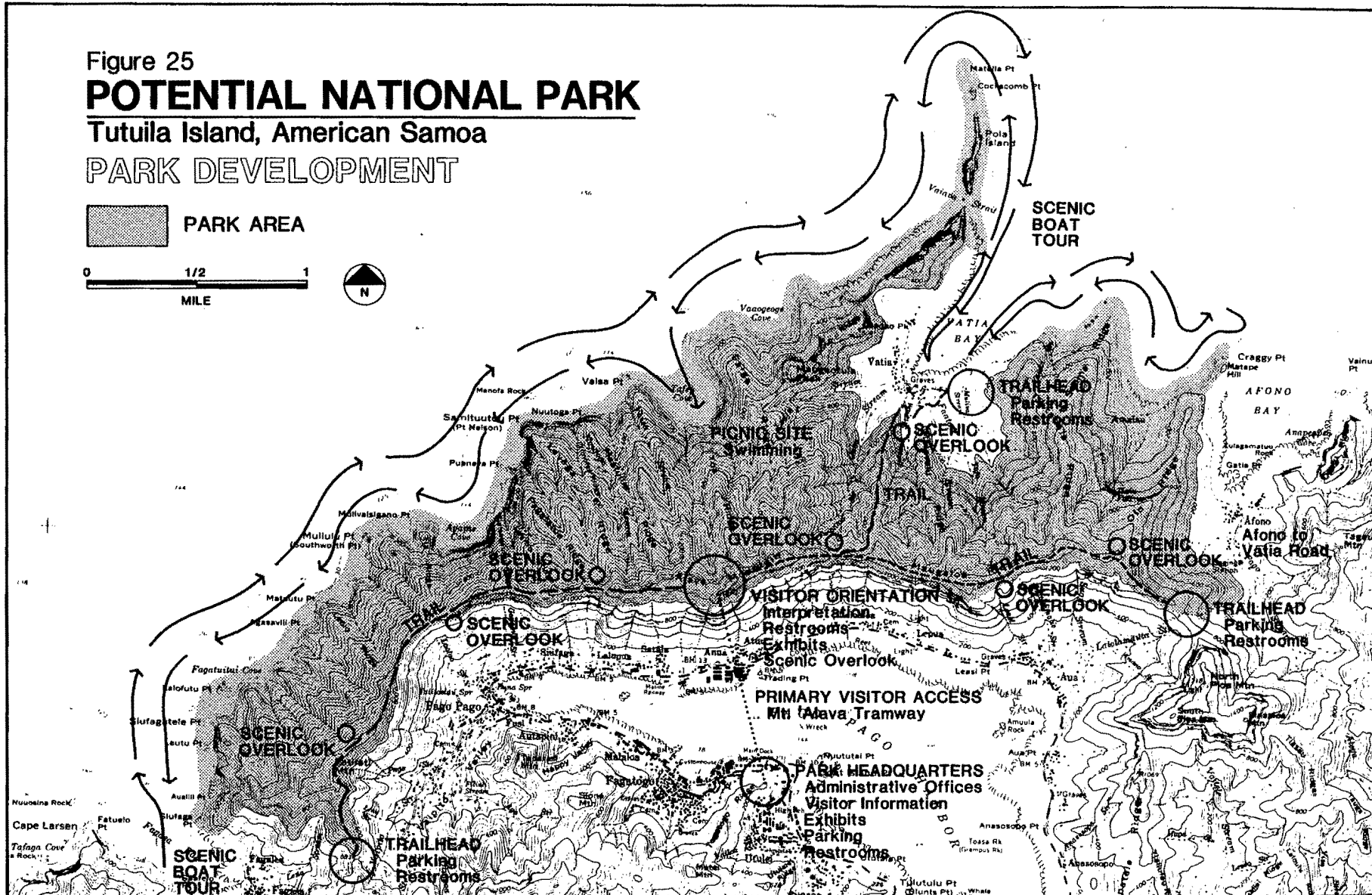
The tramway would provide an ideal transportation system for bringing park visitors up to Alava Ridge and into the park. The tramway could be made safe for public use and is judged to be a cost-effective alternative to improving and/or constructing access roads to the park, developing parking areas, and other support facilities. Most important, use of the aerial tramway would reduce adverse impacts on park resources resulting from the development of the above facilities. Use of the tramway would also enhance the visitor experience, by providing otherwise unavailable interpretive opportunities.

The National Park Service, before learning that work on the tramway by ASG was funded and underway, proposed to undertake that responsibility, with routine operation and maintenance to be by private concessioner. That involvement by the Park Service may no longer be necessary.

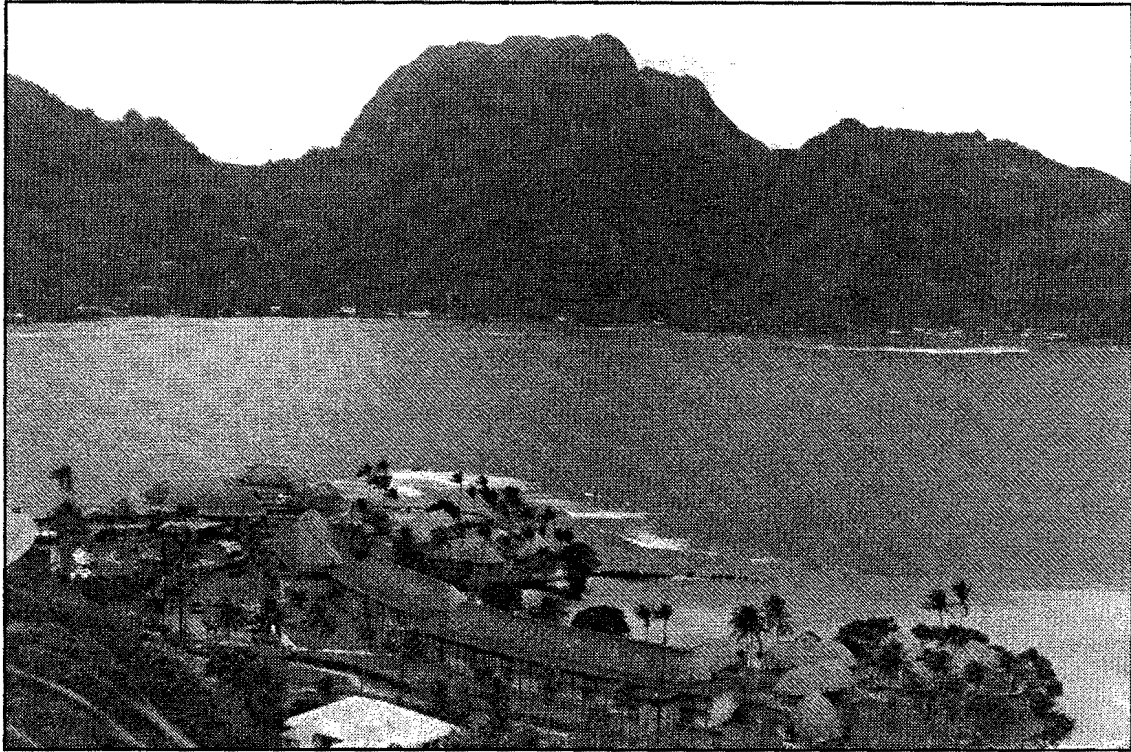
It is anticipated that most visitors to the potential national park would stay at the Rainmaker. The proximity of the Rainmaker Hotel, American Samoa's largest, to the lower terminal of the aerial tramway makes it ideal to serve as the major provider of overnight accommodations to park visitors. The hotel's location also provides views of the park--the crest of Alava Ridge. The 200-room hotel is presently operating at about 50 percent capacity. With the anticipated improvements in management efficiency and with major renovation, needed repairs and maintenance now underway, this facility should be able to handle overnight accommodations for park visitors for at least the foreseeable future.

Since most visitors would be entering the park via the aerial tramway, an information center with exhibits and displays, parking, and restrooms should be developed at a site near the tramway terminal at Solo Hill. Park headquarters containing administrative offices and maintenance facilities should be located here also.

PARK DEVELOPMENT



With minor improvements -- trails and overlooks -- scenic views of the spectacular coastline of the north shore of Tutuila, the Manu'a islands, and even Western Samoa would be possible from several points along the top of Alava Ridge. The existing covered pavilion could be modified to contain wayside exhibits for visitor orientation and interpretation of tropical forests.



Primary visitor access to the park would be by aerial tram from Solo Hill which overlooks the nearby Rainmaker Hotel. Mt. Pioa can be seen across Pago Pago Harbor.

The existing dirt road which runs from Fagasa Pass up to the transmitter tower is an excellent hiking route for visitors to enjoy and learn about the rainforest ecosystem and observe forest birds and flying foxes. This road should be kept closed to vehicular traffic, except for emergencies (the tramway would be used to service the television transmitter station). No improvements should be made to the road and, in fact, the forest should be allowed to grow back along the edges of the road so as to close the canopy. Scenic overlooks should be developed at several key locations along the route. This would involve some clearing of vegetation to open up the viewshed. Wayside exhibits would be provided at these overlooks.

The old hiking trail which runs from the other side of the television transmitter station, should be upgraded and extended as a hiking trail along the ridge top and beyond, all the way to Afono Pass. The trail which then would run along the ridge top from Fagasa to Afono passes would provide visitors with the opportunity to experience Samoa's rainforest

ecosystem firsthand. Trailheads would be established at either end, with visitor parking, portable restrooms, and orientation/interpretative signing.

The ridge top trail extension would intersect the existing trail coming over the ridge from the village of Vatia and down the other side to the Pago Pago area. This route, no longer in use due to the opening of the road to Vatia, would provide visitors with the opportunity to hike down to the scenic north coast. The trail ends at Vatia, one of the most picturesque villages in all of American Samoa. The trail, where it encounters the outskirts of Vatia, should be re-routed around the outskirts of the village to keep visitors from disrupting residents. At the terminus, a trailhead should be established with parking and restrooms.

Though excluded from the potential park, the village can and should be regarded as an integral part of the park experience. It is a visual representation of *fa'asamoa*. Visitor access to Vatia and the north coast is also possible via the road from Afono.



The existing Alava Ridge road would make an excellent route for visitors to hike through the rainforest with its many birds, flying foxes, and scenic views.

Depending on the extent to which the people of Vatia, Fagasa and Afono are willing to participate, there are many economic opportunities which the potential park would create. Examples are overnight accommodation rentals, food and beverage sales, sale of convenience goods, boat rental fees, guide fees, and sales of Samoan handicrafts. A most important aspect of these opportunities is that they are not resource depletive and they are

consistent with, and would even encourage, the maintaining of *fa'asamoa*. One way to provide park visitors with the opportunity to experience *fa'asamoa* firsthand would be to spend the night in the village. A way to do this would be by instituting a "bed and breakfast" program similar to the one now being promoted by the Office of Tourism. After spending the night in a *fale*, visitors could then explore more of the north coast on foot via trail or hike back up the ridge or take a boat ride along the coast.

Boat rentals and tour guide services are other opportunities which could be provided by the residents of Vatia, Fagasa and Afono. Departing from Vatia, Fagasa, or Afono bays, the boat trips would go along the scenic coast and around the spectacular point off Pola Island to observe the many seabirds. Tafeu Cove offers many attractions to visitors. The sheltered inlet contains a boulder beach accessible by boat during most of the year. Nearby is a freshwater pool fed by a waterfall. Small boats, such as inflatable Zodiac-types, are most suitable for this sort of trip. Numerous opportunities exist along this coastline for snorkling in the clear waters.

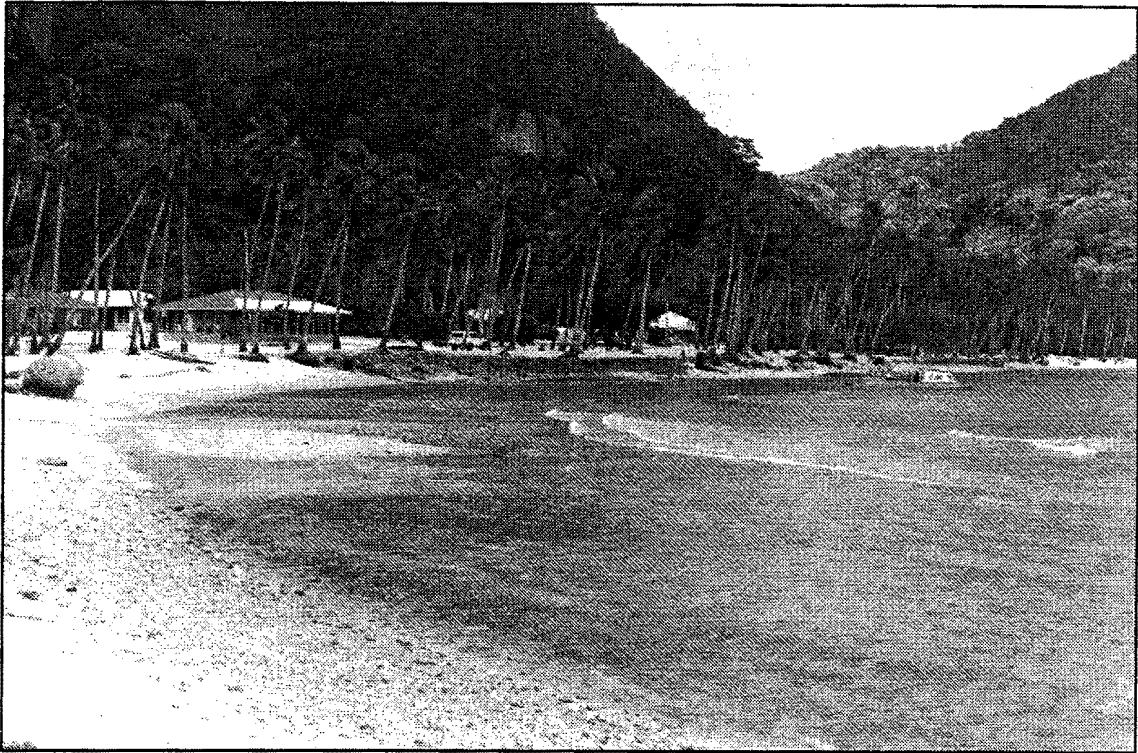
Potential staffing levels needed for fully developed park operations are shown by position in Appendix 3.

Development and Visitor Use, Ta'u. This potential park should be developed primarily for day use, with only limited facilities for overnight use. Visitors would enter the park via the village of Fiti'uta. Park headquarters, containing the administrative offices and maintenance facilities, should be located outside of the potential park within the village of Fiti'uta (the exact site would have to be selected by the village). Near the village is the proposed location for a new airport to serve the island of Ta'u. The existing airstrip, near Ta'u village, on the other side of the island, is considered unsafe and scheduled to be closed. The new airport facility planned at Fiti'uta would provide visitors with easy access to the potential park.

The majority of development for the potential park should take place below Saua near the historic well site. Visitor orientation and interpretation, consisting of ranger talks and exhibits would take place here. A modest park information center would be constructed, along with restrooms. A site for overnight camping would be provided nearby. The facilities for camping would be minimal, limited to tent sites and fire rings. Picnicking tables would be constructed nearby.

Visitors would be shuttled regularly from Fiti'uta to the park staging area below Saua via a small bus or covered tram. No vehicles should be allowed beyond the staging area. The only exceptions would be those vehicles needed to maintain the existing subsistence agriculture activities now taking place within the potential park near Laufuti Stream and at other sites.

The trail which runs from Saua down the east coast and along portions of the southern coast should be maintained, signed, and, where needed, improved for park visitors. The spring located at the lower end of the Laufuti Stream should be developed as a rest stop for hikers along the coast trail. Development here should be minimal -- limited to a small shaded shelter, wayside exhibits, and portable restrooms. During certain times of the year, Laufuti is accessible by boat. Boat rental opportunities are possible in the village of Ta'u. Boat trips would depart from the small boat harbor south of Ta'u village.



One way for visitors to experience fa'asamoa firsthand would be to spend a night in the picturesque village of Vatia.

Additional trails should be developed to give visitors access to the uplands to experience the montane rainforest and cloud forest environments. Possibilities for this route exist along the ridge beginning above Si'u Point. A scenic overlook could be constructed at about the 2,000-foot level to provide visitors with panoramic views of the scenic and rugged coast below. This trail could be extended all the way to the top of Lata Mountain, at 3,170 feet the highest point in American Samoa, to bring visitors fully into the cloud forest environment.

Visitors could also enter the potential park from the western side, below the village of Ta'u. A trail exists along the west coast. Near Si'ufa'alele Point, a trailhead could be developed with a small shelter, portable restrooms, and signing.

Opportunities for boat rentals exist at the small boat harbor just south of the village of Ta'u. Here visitors could take scenic boat tours of the rugged and untouched south coast, with possibilities for landing at Laufuti Spring during certain times of the year.

Potential staffing levels required for fully developed park operations are in Appendix 3.



Visitor orientation, interpretation and modest camping facilities would be developed at this site near Saua on the east coast of Ta'u.

The village of Fiti'uta is regarded as part of the overall park experience. Similarly, the park can be regarded as offering great potential for the future economic development of Fiti'uta, and probably for the rest of Ta'u. Construction for the landing strip at Fiti'uta is expected to begin in a few months. With interisland flights being able to land at Fiti'uta, potential visitors would arrive virtually at the entrance to the park.

The economic opportunities created by the potential park on Tutuila -- overnight accommodation rentals, food and beverage sales, boat rental fees, guide fees, sale of convenience goods, and sale of Samoan handicrafts -- would also be created by the potential park on Ta'u. The village of Fiti'uta, by virtue of its location, would be in a favorable position to take advantage of these opportunities. In addition, there would, of course, be the economic benefits derived from the creation of a national park program.

The village of Fiti'uta could provide facilities for overnight lodging. These could range from multi-unit motel-like operations which provide meals, to bed and breakfast arrangements in homes, to overnight stays in guest *fale*. The opportunities for visitors to learn and appreciate the traditional Samoan lifestyle and culture are perhaps nowhere greater than in Fiti'uta, where both are adhered to in normal day-to-day living.

The previously mentioned *Manu'a Economic Development and Environmental Management Plan*, in its discussion of tourism, describes the characteristics that the industry should have to be successful in Manu'a. These are:

- it is compatible with the lifestyle and culture of Manu'a;
- it can be developed at a modest scale, one self-financing step at a time (gradual growth);
- it provides high levels of locally retained earnings (low leakage);
- it provides direct and widespread economic benefits to a large group of local residents;
- it can be controlled by the people of Manu'a without over-reliance on outside money or personnel;
- it can go forward without causing major environment harm;
- it promotes formation of personal relationships between visitor and host; and
- it will benefit and complement Tutuila.

The potential park on Ta'u would appear to meet most, if not all, of the above characteristics and consequently would likely go a long way to provide the island with needed economic development.

PARK PROTECTION ALTERNATIVES

The National Park Service, in seeking to ensure that lands included within units of the national park system are adequately protected, usually attempts to acquire an interest in those lands. Normally, these interests are acquired by purchase. The interest needed may be acquired in fee or less-than-fee; i.e., as an easement. Other ways of acquiring the needed interest are by donation, exchange, or dedication. The National Park Service may also acquire park lands through condemnation, the exercise of the power of eminent domain. This method, however, is rarely used by the Park Service. Normally, every effort is made to seek and obtain a negotiated settlement.

There are methods other than acquisition available to the National Park Service to protect park lands. These other methods reflect the National Park Service's recognition that it is sometimes not necessary to acquire all of the lands within a park in order to ensure their protection and appropriate use. These methods include: cooperative agreement, zoning, and leasing.

The above methods have been used, some more than others, by the Park Service in areas where the affected lands are either privately or publicly owned. The lands involved in the previously described potential national parks in American Samoa, however, do not fit into such precise categories. They are communal lands which, except for small sections used for subsistence farming, remain unused and undeveloped forest land. These high, steep, and unused (with minor exception) forest lands, according to Samoan custom, belong to the village as a whole and not to any particular *matai*; i.e., collective rather than individual rights exist on these lands. Their future use as park lands would therefore be decided by the appropriate village council of *matai*.

Although there are specific prohibitions regarding the alienation of land in American Samoa (Article 1, Section 3, of the Revised Constitution of American Samoa), the laws do allow the conveyance or transfer of communal lands to the American Samoa Government or to the U. S. Government. In 1972, the ASG enacted legislation intended as a vehicle for compliance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970. The acquisition of interests in land by the National Park Service is conducted in accordance with the provisions of that Act.

There are at least three alternative ways in which the lands and waters within the two potential national parks could be managed and protected by the National Park Service.

One alternative would be for the National Park Service to acquire by purchase some or all of the lands within the potential parks. In order to implement this alternative, a procedure would have to be developed and mutually agreed upon by all parties, to determine the value of the communal lands included within the potential parks. Then a value would have to be set on the affected lands, again mutually agreed upon, so that just and fair compensation could be made to the appropriate *matai*. Compensation would be based on the predetermined extent of each *matai's* land within the potential park. On major portions of the potential park, it is possible that only a less-than-fee interest would be needed. These are the lands which the National Park Service would manage to protect and preserve the natural or cultural resources found within, but not where park

development or visitor use is proposed to take place. These less-than-fee lands would essentially be the undisturbed littoral areas, the rainforest, and the cloud forest. The remaining areas, those where park development and visitor use are proposed to take place, would have to be purchased in fee. Under this alternative, those lands which the National Park Service would purchase in fee would become government lands, and no longer would be controlled by the *matai*.

Acquisition of park land by the U. S. Government through purchase, although technically legal, would not be feasible in American Samoa. At none of the meetings did *matai* express any interest or desire to sell village lands. Even if they had, the purchase of communal lands at such a scale would be clearly in violation of both the spirit and intent of Article I, Section 3, of the Constitution of American Samoa to protect all Samoans against loss of their lands. It would be a grave error for the U. S. Government to be involved in matters which would essentially be undermining the traditional communal land system of American Samoa.

Another alternative would be for the National Park Service to manage the communal lands within the potential parks by entering into a long-term cooperative agreement whereby the affected county councils and *matai* would agree to dedicate the lands within the potential to the parks. That is, these lands would be set aside for park purposes and management by the National Park Service. The National Park Service, by terms of the agreement, would have access to the lands within the potential parks to protect and preserve the natural and cultural resources. The agreement would also give the National Park Service the authority to develop facilities for management and visitor use. These improvements would be the property of the U. S. Government.

This alternative would not affect the traditional communal land system in American Samoa, nor would it alienate Samoans from the land. However, it is highly unlikely that any of the villages would be willing to allow use of their lands without some sort of compensation. At the village meetings, *matai* spoke of compensation -- more as a way of showing respect rather than as a desire to receive the maximum amount of financial compensation for use of their lands. This alternative has the added disadvantage of not adequately guaranteeing that park lands would be protected in the long term.

A third alternative would be for the National Park Service to lease the *matai*-controlled lands; that is, the National Park Service would not seek to acquire any interest in the lands. This alternative appears to be well suited to the land tenure system which exists in American Samoa. Under this alternative, no lands would be taken out of Samoan hands. To carry out this option, specific authority would have to be granted to the National Park Service by Congress to permit them to lease the affected lands. The lease period would be for the maximum 55 year period allowed by Samoan law and be subject to negotiation to renew after that time period had elapsed. Under this alternative then, the lands within the potential parks would remain communal and controlled by the *matai*, but subject to the specific provisions of the lease agreement. As with the previous alternative, a value for each of the *matai* land areas within the potential parks would have to be mutually agreed upon so that their respective lease amounts could be fairly established. This alternative is the one preferred by the ASG.

Long-term leasing appears to be the most feasible alternative. Leasing has several advantages: allows the affected villages to bring their lands under protection as national parks without relinquishing the power and authority derived from the land and provides

them with financial compensation; the duration of the lease, 55 years, provides a reasonable guarantee of protecting park resources.

There are other alternatives -- imposing local land use regulations on the affected lands and purchase, by either a private nonprofit or by the ASG -- none of which are regarded as having any feasibility whatsoever. For the *Fono* to undertake passage of legislation which would take authority to control land use away from the *matai* would be akin to the U. S. Congress enacting legislation to abridge private property rights. In addition, land use regulation would not provide adequate long-term protection to park resources. Purchase by a non-profit is both illegal and unconstitutional in American Samoa; and requiring ASG to purchase park land as a condition to establishment by Congress would have a more harmful effect on the communal land system in American Samoa than if the U. S. Government were to purchase the lands.

At the various meetings held during the course of the national park feasibility study, a sense was obtained that many of those who have land or rights to land under the communal land system in American Samoa desire to ensure that their land be protected against destructive uses so that it may be conserved for future generations to enjoy. At the same time, it was made clear that traditional use rights to these lands must not be abrogated.

Table 12 shows a full range of alternatives for land protection by the National Park Service within the potential parks and compares each alternatives in relation to its compatibility with *fa'asamoa*. Essentially, those alternatives which are perceived as alienating Samoans from their land are unfeasible. Moreover, it is absolutely vital that the prior permission of all of the affected villages be obtained in order for the National Park Service, or any other land managing agency, to be able to protect lands within the potential parks. Without this permission, a national park or any natural area reserve in American Samoa would be viewed as an imposition on traditional authority. In this sense, fee simple, zoning, easements would be utterly unfeasible for they would remove Samoans from having any say in the future use of their lands.

It is very important that whatever protection method is utilized on lands within the potential parks, it should not compromise, or be perceived as compromising, the integrity of the traditional Samoan communal land system. During the development of the feasibility study, at the Congressional field hearing in January 1987, and at the meetings with the high chiefs of Vatia, Afono, Fagasa, Pago Pago, and Fiti'uta in July, the National Park representatives established an understanding with regard to a number of key concerns. These understandings should be regarded as "givens".

They are: (1) Whatever lands are ultimately included within any national park area, the high chiefs of the affected villages will be fairly compensated for agreeing to allow their lands to be included; (2) these lands would be set aside as national parks for all time; and (3) no lands would be taken - i.e., all land negotiations for the park would be on a willing buyer (or lessee), willing seller (or lessor) basis.

As noted, the method to be used to determine the value of the lands included within the potential parks has yet to be developed. Once that method is developed, the value should be based on the past and present use of the lands and not their future or potential use.

Table 12. Alternatives for United States Government to Obtain Lands, or Equity in Lands, for a National Park or Natural Preserve in American Samoa.

Alternatives	Effects	Preserves a suitable area with very high natural significance in perpetuity.	Retains the Samoan matai land tenure system.	Does not alienate Samoans from their land.	Will this alternative be an asset to Samoa?	Will this alternative be an asset to the U.S.?	Is this alternative feasible? What must be done for this alternative to work?
U.S. buy the land in fee simple, from willing sellers where they exist, or by condemnation otherwise.	Since this alternative is utterly unfeasible it has no potential to preserve natural areas in Samoa. 1/	This would destroy the matai land basis in at least every village whose land is involved. 1/	This will adversely affect every village whose lands lie within the park. 1/	No.	No. Doing this would brand the U.S. as a treaty breaker and as grossly insensitive to U. S. Pacific island peoples.	No. Acquisition of land here in such manner is against both Samoan law and culture. Simply this will not work in Samoa.	
Private, non-profit organizations buy land or easements for a National Park.	No, this alternative is not feasible in Samoa. 1/	This would destroy the matai land basis in every village whose land is involved. 1/	This will adversely affect every village whose lands lie within the park. 1/	No.	No.	No. Land acquisition by private companies is illegal in Samoa.	
Use lands on the basis of cooperative agreements with the owners without financial compensation.	Most villages would not do this. Even if possible, this would be unfairly discriminatory not to offer reasonable compensation to native peoples.	Matai land basis would be unaffected if this were carefully done.	No it would not.	Even without payment to landowners, a National Park would be a net asset to Samoa.	Yes.	No. Even if some villages agreed to do this, many would not leaving the park an unmanageable mosaic.	
Lease lands from villages with 55-year leases as Samoan law and custom allow.	Yes, this is feasible and has precedence.	The traditional matai system would not be affected if this were carefully done.	This is a standard practice in Samoa; it does not alienate the people from their land.	Yes.	Yes.	Yes, but this will require precise authorizing legislation by the U.S. Congress.	
Use lands from villages with perpetual easements from the villages.	This is so improbable it has no potential to preserve significant natural landscapes.	The traditional matai system would not be affected if this were carefully done.	No, it would not if done carefully.	Probably not. 1/	Unlikely, it would cause much upheaval to change Samoan law and Constitution. 1/	Unlikely, would require massive changes in Samoan law and in their Constitution. 1/	
Require the Fono to establish land use regulation for park zoning as prerequisite for Congress to establish a National Park.	This is so improbable it has no potential to preserve significant natural landscapes.	Would undermine the traditional matai system.	This would alienate Samoans from their land.	No, this has no potential whatever to succeed.	No, this has no potential whatever to succeed.	No, this has no potential whatever to succeed.	
Require American Samoa gov't to acquire land in fee simple for parks as pre-requisite for their establishment.	This is utterly improbable.	Would undermine the traditional matai system.	This would alienate Samoans from their land.	No, this has no potential whatever to succeed.	No, this has no potential whatever to succeed.	No, this has no potential whatever to succeed.	

1/ Article 1, Section 3, of the Revised Constitution of American Samoa, "It shall be the policy of the Government of American Samoa to protect persons of Samoan ancestry against alienation of their lands . . . No change in the law respecting the alienation or transfer of land or any interest therein, shall be effective unless the same be approved by two successive legislatures by a two-thirds vote of the entire membership of each house and by the Governor." Case notes uphold the Samoan Constitution this issue when in conflict with U. S. law.

ECONOMIC AND SOCIAL IMPACTS AND ENVIRONMENTAL CONSEQUENCES

The potential national parks discussed in the previous sections would, if Congress were to establish such a park, cause economic, social, and environmental impacts. A few of these impacts would be felt throughout American Samoa. Most, however, would affect those villages and communities located nearest to the potential parks.

The economic impacts generated by the potential parks would be beneficial. These beneficial economic impacts would be derived primarily from the additional revenues generated by providing services to park visitors. There would also be economic benefits produced by the creation of new jobs to staff the potential national parks.

Like national parks elsewhere, it is anticipated that the presence of a national park in American Samoa would, in the long term, bring more tourists to enjoy its attractions. These additional tourists would bring in new dollars to the economy of American Samoa. It would be impossible at this time to estimate the amount, but, according to a recent (May 1987) edition of the *Samoa News*, if 20,000 tourists (about four times the number in 1986 and about one and one-half the number in 1980) came to American Samoa and stayed for three and a half days, 500 jobs would be created and each year five million in new dollars would be generated.

The revenues produced by providing services to park visitors would be generated mostly in the Fagatogo-Utulei area and the villages and communities nearest the potential parks. Similarly, the new jobs created by the establishment of a national park would economically benefit the villages closest to the park. However, since these job opportunities would be available to all native American Samoans, they could have a more widespread economic impact.

Each of the potential national parks would generate additional revenues. The types of revenue producing services and products which could be provided are overnight accommodations, food and beverage sales, boat rentals, tour guides, Samoan handicrafts, and convenience items associated with visiting a national park.

The types of overnight accommodations could range from rooms at the Rainmaker Hotel, Herb and Sia's Hotel, or the Apiolefaga Inn, or they might be in the form of a "bed and breakfast" arrangement at a Samoan home in one of the nearby villages, or an overnight stay in a guest *fale*.

The Pago Pago-Fagatogo-Utulei area, where most of the overnight accommodations and restaurants are located and where many visitors would enter the park (via the aerial tramway located nearby), would be greatly affected economically by the potential park on Tutuila. The villages of Vatia, Fagasa, and Afono would also be affected economically, though likely at a lower level. The economic impact of the potential national park on these villages would depend a great deal on the level of interest shown by each. Economic benefits here would be derived primarily from boat rentals, tour guide fees, sales of Samoan handicrafts, or perhaps overnight stays by visitors in guest *fale*. The village of

Vatia, due to its location and its idyllic setting, has the potential to be most impacted economically.

The potential national park on Ta'u would have a significant economic impact on the nearby village of Fiti'uta. Nearly all of the visitors to the park would enter via Fiti'uta, where the new airstrip is to be located. Though the visitation level here would probably not be as high as that of the park on Tutuila, the economic impact on the small community of Fiti'uta would proportionally be much greater.

There are presently no operational visitor service facilities in Fiti'uta. This is due to the destruction of nearly all of the structures in the village by the winds of Hurricane Tusi in January 1987. Prior to the hurricane, there were limited overnight accommodations available: an eight-room guest house (i.e., common bathroom and kitchen facilities shared by guests) plus the guest *fale* belonging to families and *matai*. Rebuilding is proceeding at a rapid rate (during the July visit to Ta'u, it was noted that the rebuilding of the guest house was nearly completed). Establishment of a national park nearby would create a demand for this sort of service. As with the potential park on Tutuila, there would also be opportunities for sales of food and beverages, convenience goods, Samoan handicrafts, and guide fees. The jobs that would be created by the introduction of these services would have a significant economic impact on Fiti'uta.

The presence of the small boat harbor just south of the village of Ta'u would provide a suitable location to keep tour boats which could be rented to take park visitors on scenic rides along the rugged south coast. This would provide the village of Ta'u with some additional economic benefits by creating new jobs.

The social impacts produced by the establishment of national parks on Tutuila and Ta'u are intangible and thus difficult to measure. Nonetheless, they are real and would be in the form of changes in the lifestyles of the residents of the villages of Vatia and Afono on Tutuila and, to an even greater degree, the residents of the village of Fiti'uta on Ta'u. There would also be a change in the lifestyles of the residents of the Fagatogo-Utulei-Pago Pago area, but probably not as much.

The source of this social change would be the influx of visitors to the nearby national park areas. Many would be coming to the potential parks not only to enjoy its natural and scenic attractions but to observe and perhaps even partake for a short time in the traditional Samoan way of life.

In the case of the park on Tutuila, a small number of visitors would pass through the village of Afono and a few of these may choose to stop. These visitors would likely be going on to the village of Vatia. Due to its picturesque, park-like setting, Vatia itself would be an attraction and many of these visitors would choose to stroll through the village before or maybe in lieu of hiking along the park shoreline or taking the trail up to the top of Alava Ridge.

In the case of the proposed park on Ta'u, visitors would pass through the village of Fiti'uta, where the airstrip is to be located. Though the numbers of visitors to the park would initially be few, their potential social impact on the residents would be great.

Because most visitors would be non-Samoan, the establishment of national parks in American Samoa, would in the long term cause social changes to occur, particularly in the above noted villages. These changes could result in the disruption and altering of the

traditional Samoan way of life. Of particular concern would be the creation of a "fishbowl" atmosphere, with the residents of the villages of Fiti'uta and Vatia becoming a part of the attraction to park visitors. This would have to be regarded as an adverse social impact. The irony, of course, is that the very thing that visitors would be coming to see and enjoy, *fa'asamoa*, would be subject to change due to an increase in outside influences. To be sure, these social changes are, to some degree, inevitable. The establishment of a national park in American Samoa would tend to accelerate them.

These adverse social impacts would be mitigated by the Samoan strength of character and their belief in maintaining and preserving their traditional way of life. Also, it is anticipated that if a national park were to be established, visitation would increase gradually, thereby allowing it to be more easily absorbed into the traditional lifestyle.

Environmental Consequences

If Congress were to legislatively establish a national park on Tutuila, that action would place an area encompassing about 3,320 acres of land and offshore waters within the boundaries of a national park.

The total land area would consist of about 2,700 acres. Some 70 percent of this area is native rainforest, composed of lowland, montane or ridge plant communities undisturbed by man. Another 18 percent of the land area is undisturbed coastal forest and littoral vegetation.

The remaining 12 percent, about 330 acres, is forest that sometime in the past has been disturbed by man. These disturbed areas are found primarily in the uplands adjacent to the village of Vatia, where subsistence agriculture activities have previously taken place. The other disturbed areas are located along the top of Alava Ridge and further west along the ridge and down the north slope (see Figure 20). Except for a few existing agricultural plots and recently disturbed areas in locations above the village of Vatia and along the Vatia-Afono road, these disturbed areas are now mostly mature second growth rainforest. They are largely indistinguishable from the primary forest.

The offshore area would take in about 550 acres, extending out and parallel to the coastline so as to include the entire reef. The marine environment here is composed of clear, blue waters and includes a coral reef community at the eastern end of the potential park.

Development concepts within the park area would consist of (1) construction of visitor parking areas and portable restrooms at the trailheads proposed near Afono and Fagasa passes and on the outskirts of the village of Vatia; (2) the improvements, possible expansion and construction associated with the park headquarters facility proposed on top of Solo Hill; (3) the improvements, construction and possible landscaping at the proposed visitor orientation center located on top of Mt. Alava; (4) the construction of seven scenic overlook platforms along the ridge line above Pago Pago Harbor; and (5) the construction, improvement and enhancement of hiking trails.

Similarly, if Congress were to establish a national park on Ta'u, this would place an area encompassing about 5,650 acres of land and offshore waters within the boundaries of a national park.

The total land area included on Ta'u consists of about 5,400 acres. More than 80 percent of this area, is native forest which remains undisturbed by the activities of man. This forest is composed of littoral vegetation and coastal forest; and lowland, montane and cloud rainforest communities. The cloud forest community here is the largest of this type found in American Samoa.

The remainder of the lands, about 1,000 acres, is composed mostly of native forest which in the past has been disturbed by man, usually for subsistence agriculture. Nearly all of these disturbed areas are now covered by a mature second growth forest (see Figure 24). There are, however, small areas within the potential park which are now being used for subsistence agriculture. These are located along the east coast and near Laufuti Stream.

The offshore marine area encompasses about 250 acres in a band along the entire shoreline. The eastern portion contains a coral reef community.

Development concepts within the park area on Ta'u would consist a visitor orientation area near the site of the historic well near Saua. The scale of development would be modest. Although presently undeveloped except for a small temporary shelter near the well, the site is mostly coral sand and has been kept clear of vegetation by a caretaker from the nearby village of Fiti'uta.

In summary, the action by Congress to establish national parks would set aside the above described areas of native forest for management by the National Park Service. The two areas would be protected against loss of habitat for land birds, seabirds, and flying foxes, as well as protection against loss or degradation of the native rainforest due to the invasion of non-native (alien) plants. The area would also be managed to maintain the biological diversity of the native rainforest and to protect its value as watershed. The long-term environmental effects of such management activities should be regarded as beneficial, since they are aimed at maintaining the stable, natural condition of the native forest.

The other environmental effects would be two types: (1) physical change on the face of the land due to new development and (2) increased visitor use pressure on the land. As can be seen in the previous discussion on park development concepts, major adverse environmental impacts are not expected. In any case, prior to undertaking park development, appropriate planning and environmental compliance would be completed.

The action would have no known adverse effect on any Federal listed or candidate threatened or endangered species of animals or plants.

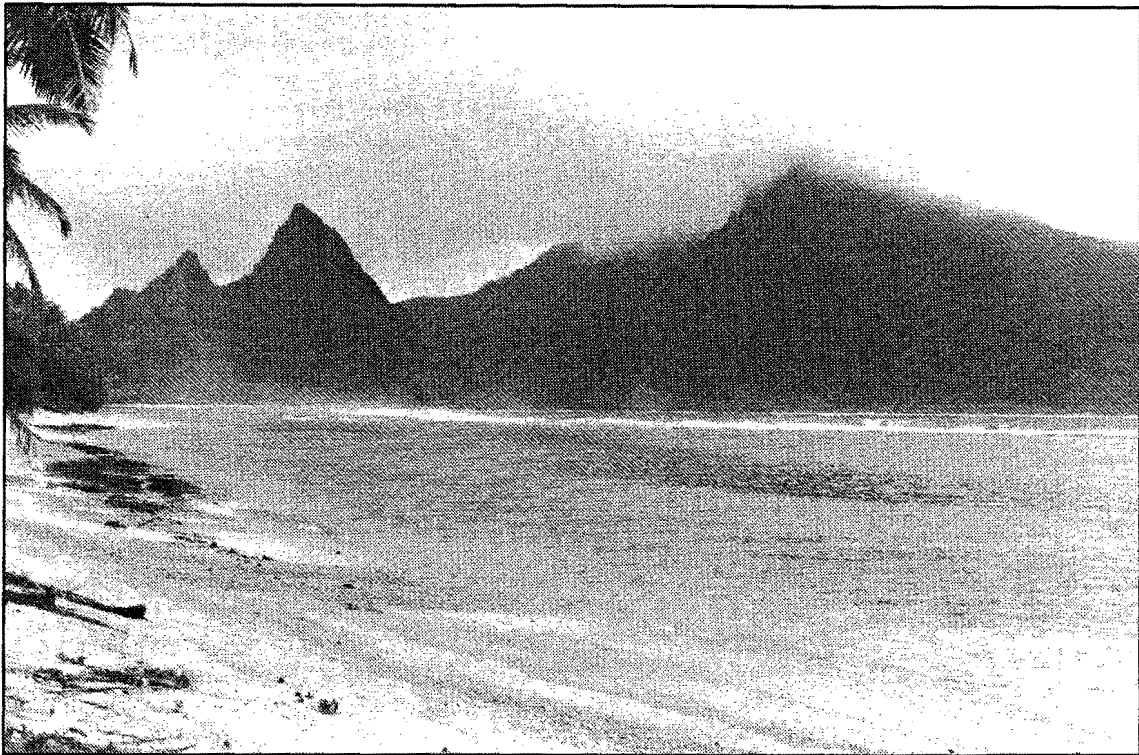
Alternatives would consist of no action or alternative areas. The alternative areas considered are identified in the chapter, **Significance, Suitability, and Feasibility**.

Although the American Samoans have been and will continue to be good stewards of the land, there is little doubt that there will be major alteration and degradation of the native rainforest brought on by more and more human activity as the population continues to grow. The setting aside of a significant portion of American Samoa rainforest within national parks would ensure the long-term protection of this most important biomass and would also serve to encourage the setting aside of significant remaining natural and cultural areas to be similarly protected by other means.

POSSIBLE ADDITIONS

There are additional areas which are highly significant in terms of their resource values and scenic qualities, but which for a variety of reasons were not identified in the potential national parks. Two of these are of particular importance: (1) the coastline from Fagasa west to Pa Cove, including Fagamalo and the adjacent interior rainforest and (2) the south coast of Ofu, from east of the airstrip to Asagatai Point.

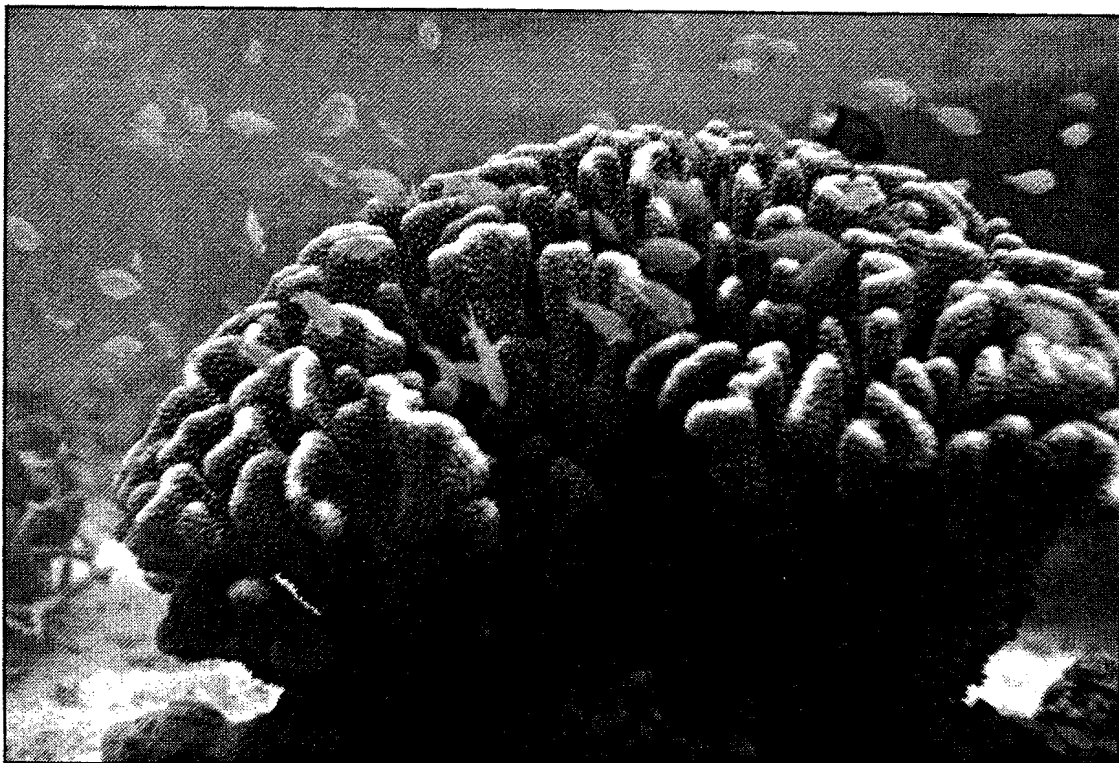
The coastline along the northwest portion of Tutuila, although not as undisturbed as the portion included within the potential park, is highly scenic and contains important cultural sites. More important, however, are the natural values. The littoral forest here, which is becoming rare in American Samoa, provides prime habitat for the many-colored fruit dove and habitat and roosting areas for flying foxes. The adjacent rainforest in the uplands along the ridge line, though not as extensive and lacking the easy access of the potential park (road construction would be needed), is one of the important remnants of that type left in American Samoa. The highly significant Tataga-matau adze quarry is located along the lower edge of the rainforest.



This beautiful white sand beach together with the adjacent coral reefs along the south coast of Ofu Island could qualify as a future park unit.

Along the south coast of Ofu is the finest, most extensive strip of white sand beach in all of Samoa. The adjacent reef flat has been recognized for its exceptionally diverse reef fish and coral communities, including a unique coral species, *Heliopora coerulea*. This area has been considered for designation as a national marine sanctuary. The reef is very accessible, safe (due to the absence of a reef channel), and its waters are remarkably clear making it ideal for snorkeling and underwater photography. At the far end of that beach, Sunuitao Peak rises sharply and dramatically, providing a scenic backdrop. The area inland along the beach, however, is being used for agricultural purposes and should not be included.

Although these two areas were not included in the potential national parks, they contain significant resources worthy of additional protection. They can be regarded as future additions. Adding the coastal area would allow the protection of a major portion of the scenic north coast of Tutuila and would greatly increase the amount of flying fox habitat included within the potential park. The addition of the coastal area on Ofu not only would ensure the protection of the beach and reef community offshore, but would likely generate economic opportunities from visitors for the nearby villages on Ofu and Olosega. These would be similar to those identified for Fiti'uta.



David Itano

The reef along the south coast of Ofu was not damaged by the Crown-of-Thorns outbreaks and its clear waters are outstanding for observers, whether with snorkle or scuba. Here a cloud of blue-green chromis use a coral-head of the uncommon, blue colored Heliopora coerulea as refuge.

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APPENDICES

Appendix 1. Summary of Village Meetings on Potential National Park with the *Matai* of Afono, Vatia, Fagasa, Pago Pago, and Fiti'uta.

Meetings were all arranged by the Office of Samoan Affairs; Galea'i P. Poumele, Secretary and F. M. Tua, Deputy Secretary.

The following NPS persons were present at the meetings:

Bryan Harry, Director, Pacific Area (Afono only)
Albert Baldwin, Assistant Director, Pacific Area
Gary Barbano, Park Planner, Pacific Area
Melia Lane-Hamasaki, Cartographer, Pacific Area

Dr. Paul Cox of Brigham Young University attended the meetings, acting as translator as all meetings were conducted in the Samoan language.

Deputy Secretary of Samoan Affairs, F. M. Tua attended the Afono, Vatia, Fagasa and Pago Pago meetings. Secretary of Samoan Affairs, Galea'i P. Puomele attended the Fiti'uta meetings.

The purpose of the meetings was to receive the comments, concerns, questions, etc. from the high chiefs of those villages whose lands would be affected by the potential national park. After briefing the high chiefs on the planning process, the NPS planning team listened to the comments and concerns of the high chiefs with regard to the national park and attempted to provide them with responses.

Summary of comments received from the *matai* of the village of Afono on the potential national park for Tutuila.

July 9, 1987 4:00 - 6:00 p.m.

The following high chiefs, orators and chiefs were present at the meeting: Tela, P.; Laupola, T.I.; Moimoi Matagaono; I'aulualo M. Siofaga; Aoelua, M.; Fa'atafunu, Matautia; Manutui; Vaimaga, T.; Tilimai, T.; Fio'o; Lotomoana; Tulima; Matapae; Mataese; Galueituva'a G. Tuafono; and Matagi.

After hearing the NPS describe the potential park, the high chiefs agreed to support it, but indicated that they needed to carefully consider the park idea with all members of the village. The high chief stated that his personal opinion was that the national park was a good idea, but that the chiefs needed to discuss it among themselves and with the village; the phrase used in the meeting was that "the crab needs to meet with its legs". He concluded that they would get back to the NPS.

Each *matai* in turn was then given an opportunity to express his opinion or contribute to group consensus. The feeling was that the potential national park was a good idea, but its establishment was a very important, complicated decision since it involved village lands. The potential national park would have long-term effects on the well-being and future of the village, and it needed further discussion.

The meeting concluded on a positive note with the understanding that when the village had reached its decision it would notify the Office of Samoan Affairs.

Summary of comments received from the *matai* of the village of Vatia on the potential national park for Tutuila.

July 10, 1987 3:30 - 5:30 p.m.

The following high chiefs, orators and chiefs were present at the meeting: Afuola, K.S.; Gaoteote, Taumaoe; Tagoilelagi, Elia; Tagovailoa; Gaoteote, Tofau; Patea Siafono; Alafua Telona; Olomanu, Paulo; Masaniai, T.A.; Alofaitul, Pulou; Tapuaina M. Masanaiai; Fono Mapu; Mauga; Lauti; Uelese F. Lauti; Maugao'o; Malae, F.; Siugogo, L.; and Filimalae, F.

After the presentation by the NPS, there were several points brought up for consideration. The chiefs expressed concerns about the length of time for construction of the park if the village agreed; there was the feeling that they did not want to end up bogged down in paperwork and didn't want to wait indefinitely for the park to actually happen. Another question raised involved the possibility of Vatia building a golf course or tennis courts in the village. This appeared to have been a question to determine the commitment by the Park Service to landscape preservation. The Park Service response was that the presence of the national park nearby would in no way prevent the village from building recreation facilities on their lands, but that lands within a national park would not be suitable for that kind of development. The purpose of the national park would be primarily to protect natural landscape from development. Another point of concern was whether the cost of the park and limited improvements would have to be borne by the village. It was explained that if a park were established by Congress, an operating budget for the park would be determined and federal funds appropriated to cover the expenses associated with the operation and maintenance of such a facility.

The issue of compensation for the village in exchange for their lands came up also -- it was explained that the NPS planning team was not qualified to set dollar figures for compensation. The chiefs also asked whether the Secretary of the Interior would condemn their lands for the national park, and brought up the issue of compensation again. Although again stating they were not in a position to state price, the NPS did assure the chiefs that fair and just compensation would be made, for their land. The NPS made it clear that no condemnation of land would take place.

The chiefs concluded the meeting by saying that they understood the presentation and needed to discuss the proposal among themselves and would get back to the NPS planning team through the Office of Samoan Affairs.

The village of Vatia contacted the Office of Samoan Affairs on Monday, July 13, saying that they had accepted the park proposal and had agreed to the use of the Vatia lands. To this end, the chiefs requested a memorandum of understanding be drawn up to be signed by all the *matai* of Vatia indicating their agreement to the potential national park.

Summary of comments received from the *matai* of the village of Fagasa on the potential national park for Tutuila.

July 13, 1987 9:00 - 10:30 a.m.

The following high chiefs, orators and chiefs were present at the meeting: Faiumu, M.Elisara; Atuatasi, Talosaga; Salanoa, T.; Tasi, Alo; Tago, Loi; Malaepulu, M.A.G.; and T.M. Tua.

After a presentation by the NPS on the potential park, the chiefs first question concerned whether their agreement to the park meant that their lands would be used; further discussion clarified to the chiefs that they would lose some control over the land if it were dedicated to the park.

The issue of compensation for lands was brought up, and there was interest in the form and payment schedule this compensation would take: lump sum, monthly, annually or weekly payments. The chiefs were assured that fair and just compensation would be provided, but that the NPS was unable at that point to specify amounts, form of compensation or extent.

Another point concerning lands for the park was whether or not the chiefs would be able to determine the extent of their lands that would be put into park use. They were assured that any lands which they did not want in the park would not be included and that the NPS planning team was meeting with them to get their input to help determine what areas should be included and which excluded.

Finally, the chiefs wanted to know that if they agreed to the park whether there would be barbed wire fences built around the park and if agricultural use would be permitted. The response was that no barbed wire fencing would be erected around the park and that subsistence agriculture, in certain areas, would not necessarily be incompatible with the potential national park.

At the conclusion of the meeting the chiefs stated that there was an understanding of the park, the explanations and discussion of the maps, and the way in which the area would be managed and used. The potential national park was identified as a good opportunity for the village and it was the chiefs' desire to table the subject until they had a chance to discuss it thoroughly, planning to meet again in two to three weeks.

Summary of comments received from the *matai* of Pago Pago village on the potential national park for Tutuila.

July 13, 1987 4:00 - 6:30 p.m.

The following high chiefs, orators and chiefs were present at the meeting: Mauga; Asuega; Pulu; Gi; Fanene; Leota; and Tua'olo.

Following the park proposal presentation by NPS, High Chief Mauga stated that he personally liked the idea of a national park and fully supported it. He also did not want the establishment of a national park to be put off and wanted a decision right away. He wanted thorough clarification on the issues of compensation for lands used for the park and employment of villagers. The response from NPS on those questions was that the compensation would be fair and just, and that the employment of people from Pago Pago in

the park could not be guaranteed, but that they would have the same opportunities to apply for employment as those from other villages.

The question of government condemnation of the land was raised, as well as a query about the continued use of lands presently being used for subsistence agriculture with traditional farming methods. Response was that the NPS was not going to condemn any lands, and that the potential park include provisions for the continuation of subsistence agriculture using traditional methods, as a means to preserve and interpret Samoan culture.

There was discussion concerning the process by which lands would be acquired for the park. Lease and outright fee were discussed as possibilities. The lease option was suggested as a better plan because long-term arrangements could be made that were similar to the existing structure in the Samoan Constitution which provides for 55-year leases.

Another question that came up concerned the reclamation of village lands if the village decided that they no longer wanted to participate in the park. The response was that if Congress designated an area on Tutuila as a national park, arrangements and agreements would be made which meant that the village would still have a voice in the operation of the park, but that ultimate control of the area, would rest with NPS. The point was also made that a national park would be for all time.

The employment of villagers as park staff brought out another point: whether the number of positions available would be proportional to the percentage of lands each village gave to the park. The NPS again indicated that job opportunities in the park should be open to all villagers. This issue, however, was not resolved.

The idea of a council made up of *matai* to assist the park in planning and deciding optimal land use was raised along with a discussion of possible salary rates for members. The response was that an advisory council similar to the one in Hawaii for Kalaupapa National Historical Park would be a good idea, but as with Kalaupapa members they would be unsalaried.

The presentation of the park was well received, but after discussion related to land use and needed resources for the village of Pago Pago, it was Mauga's wish that the southern park boundary be shifted up the mountain, towards the top of Alava Ridge. The response was that the NPS would change the proposal boundary to accommodate Mauga's wish.

The topic of park development on Alava Ridge involved an exchange about roadway access, foot trails and the tramway system running between Solo Hill and the transmitter station. It was agreed at the conclusion of the meeting that Mauga and the chiefs of Pago Pago would have a decision in two or three weeks, and Mauga expressed his desire that the NPS get the completed draft report to him before October.

Summary of comments received from the *matai* of Fiti'uta village on the potential national park for Ta'u.

July 14, 1987 7:30 - 9:30 a.m. on Island of Ta'u

July 15, 1987 9:00 - 10:00 a.m. Office of Samoan Affairs

The following high chiefs and chiefs were present at the meetings: Laie; Galea'i Poumele; and Moali'itele Tu'ufuli.

The Park Service planning team met with High Talking Chief Laie who represented the village of Fiti'uta. He stated at the outset that as the representative for the village of Fiti'uta, he wanted to confirm their strong support for a national park as discussed during the Congressional visits in the earlier part of the year.

The planning team then briefed Laie on the extent of the area on Ta'u which the NPS had identified as a potential national park and the type of development envisioned. There was also discussion about the economic opportunities which the potential national park would bring to Fiti'uta. Following that there was brief discussion about the availability of funds for the park development, salaries and employment opportunities for young people in the village.

Laie concluded by stating that it was the sincere desire of all the high chiefs, orators, chiefs and people of Fiti'uta that the park be developed as planned, and that the village wanted the park to be established as soon as possible. Laie then reaffirmed the villages' support for a national park, thanking the NPS planning team for returning to Ta'u and stating confidence in the park planning process. The decision was that the Fiti'uta *matai* completely support the park for the island of Ta'u.

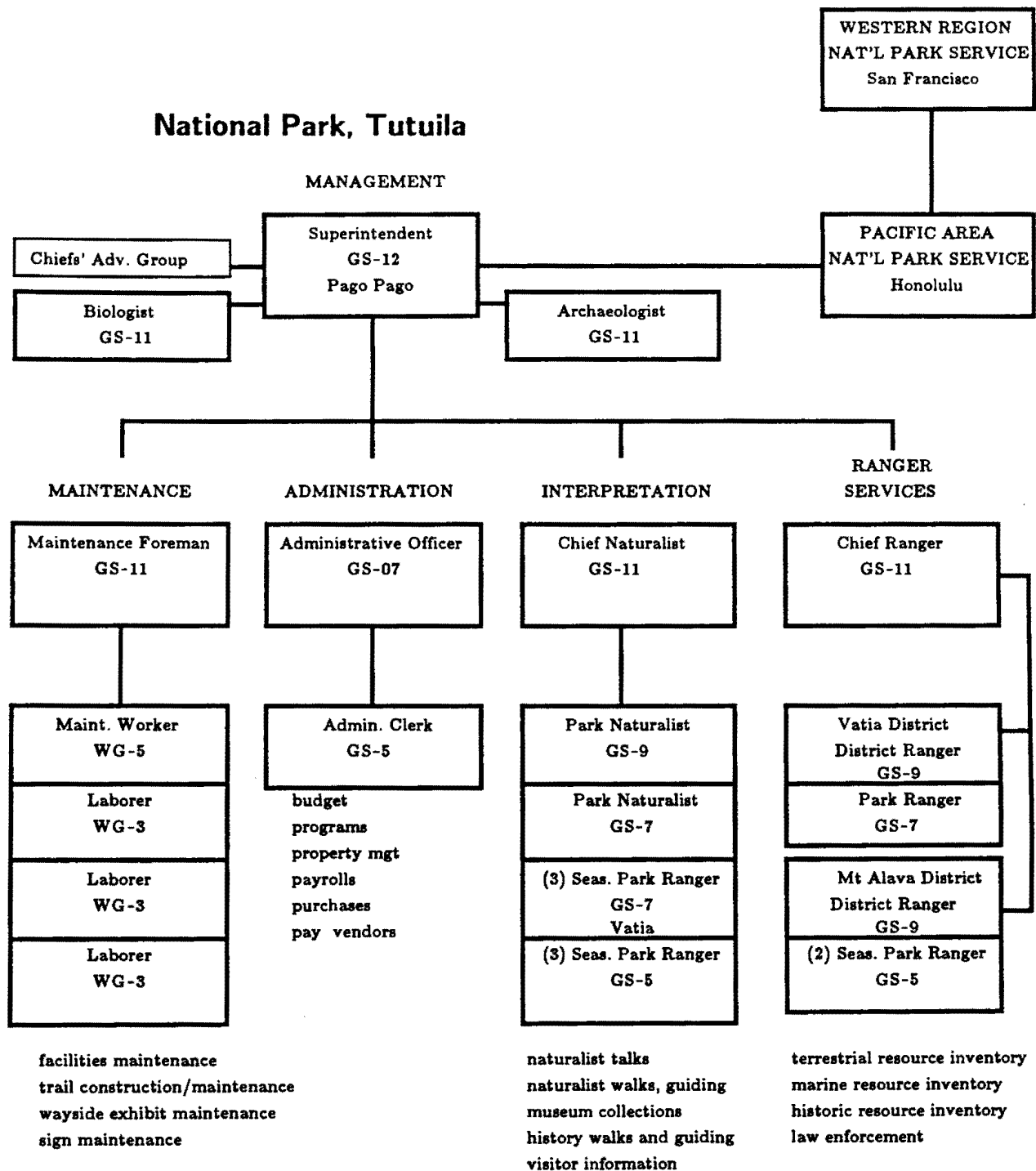
On July 15, the planning team met with High Chief Moali'itele Tu'ufuli in the office of Samoan Affairs on Tutuila, the high chief also gave the potential park for the island of Ta'u his full endorsement, support and approval.

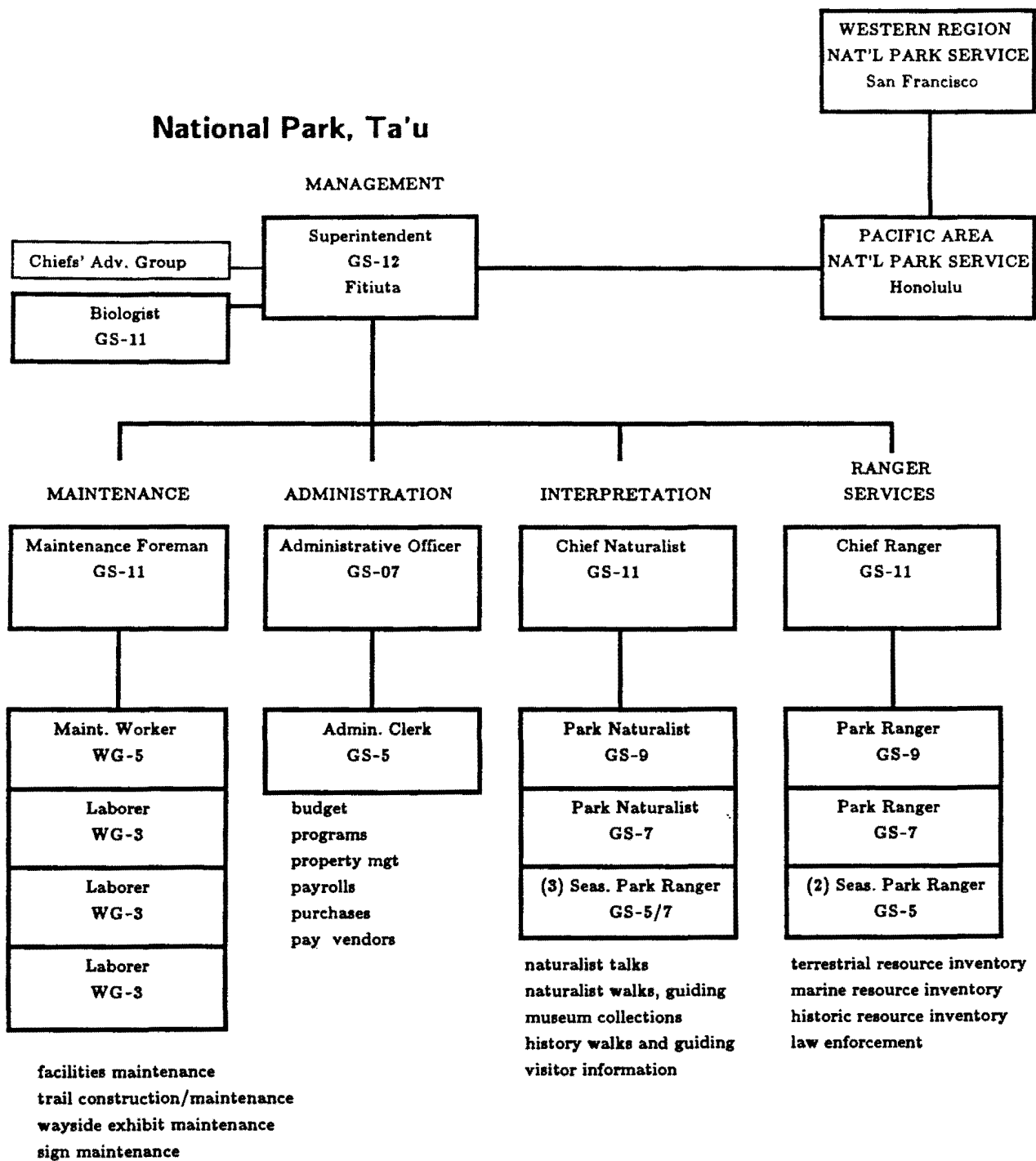
Appendix 2. Chronology of Archeological Survey Work in American Samoa.

- 1930 Peter Buck - References to archeological sites in American Samoa, as part of ethnographic studies.
- 1961 William Kikuchi - Site surveys of Tutuila and Anunu'u. Information from
1962 informants regarding presence and location of sites in their respective area.
- 1962 Kikuchi and Sinoto - Expanded the 1961 survey to include Manu'a, using the same investigation techniques. They also conducted limited test excavations from nine sites on Tutuila and three on Ta'u, consisting of 13 borings and 7 1-square meter pits.
Tutuila sites: 5 in Leone Village
2 in Vailoa Village
1 at 'Anape'ape'a cave
1 five-sided platform on Sine Ridge (east of Leone)
Ta'u sites: 2 cook houses in Faleasao
Mataana Cave
- 1965 Emory and Sinoto - brief test excavations for the Bishop Museum.
- 1970 Ladd, Edmund J. and Morris, David K. - (Prepared for NPS, July) "Archeological and Ecological Survey of 'Olovalu Crater, Tutuila". Intensive pedestrian survey only; no excavations.
- 1972 Janet Frost - Excavations on Tutuila
2 house foundations at Leone
Star mound at Pa'vai'ai
Refuge village on Mt. 'Alava Ridge
Refuge village on Lefutu Ridge
Village of Tulotutu (Tulauta)
Village @ Fagatele Bay
All seven sites yielded cultural deposits that extended into the prehistoric period.
- 1975 Kikuchi w/Thomas Silva and Stephen Palama -
(January) Archeological reconnaissance of Ta'u boat harbor at Fusi, as well as associated quarry construction zone between Fusi and Fagamalo. No excavations.
- 1975 Thomas Silva and Stephen Palama -
(August) Returned to Tutuila to conduct surveys for:
(1) proposed shoreline and beach improvements from Nu'uo'osegi Cove to Mulinu'u Point
(2) proposed beach improvements on sections from Mu'u'uli to Faga'alu
(3) proposed boat harbor on Aunu'u Island at Aunu'u Village
- 1977 Patrick McCoy - Intensive survey of a narrow strip of beach at the location of the proposed Au'asi Boat Harbor at Au'asi Village on south coast of Tutuila; no sites were located.

- 1980 Jeff Clark - Cultural resources survey of Tutuila done for ASG to set up historic preservation program (170 sites).
- 1985 Jeff Clark and David Herdrich - Island of Tutuila, Aoa Valley. Survey of 16 star mounds; reconnaissance of major settlement high on ridges above Vatia.
- 1985 Terry Hunt and Pat Kirch - Work on Manu'a Group - (pottery sites on Ta'u and Ofu.)
- 1985 Helen Leach - University of Otago
Dan Witter - National Parks N.S.W., Australia.
 Adze quarry at Tataga-matau, Leone. Oldest and largest in Polynesia, 2,000-3,000 years old. Adzes from this quarry found as far west as Solomons; oldest 8000 BC \pm 140; absence of pottery.
- 1985 Richard Gould, Kim Honor, Kirsten Reinhardt - Brown University surveys of Tulautia and Fagatele Bay prehistoric villages and Leone Bay petroglyphs

Appendix 3. Organization Chart of Fully Staffed National Parks.





Appendix 4. Summary of Public Meeting, Fono Guest House, Pago Pago.

September 30, 1987 4:00 - 6:30 p.m.

The following individuals attended the meeting:

Harris Hale (Tui Tufu), Vatia
A. U. Fuimaono, A'oloaufou
T. Masaniai, Vatia
T. A. Masaniai, Vatia
P. L. Hurst
Lannie Hurst
Doug Foster, Vailoa
P. Tua'auli, Aeao
Gaoteote Tofau, Vatia
Moali'itele Tu'ufuli, Fiti'uta
Governor A. P. Lutali
Ioane Mauga, Pago Pago
Edith McCoy, Pago Pago
S. N. Fanene Stevens, Pago Pago
Fa'aotaota Olo, Fagatogo
Tauese, Sunia
Ray Tulafono
William T. Emmsley, Jr.
Sili Atuatasi
Jim McGuire, Ililili
Lewis Wolman, Pago Pago
Lee Vaouli
Epi Suatoa, Leone
Fuifui T. Kulberg, Fagasa
Mickey Rooney Salauoa, Fagasa

N. A. Kulberg, Pago Pago
Muipati Aalauoa
Rick Davis, Utulei
Logoleo Falealii
Matt T. Le'i, Utulei
To'alima Tua'olo, Mapasaga
Leo'o V. Ma'o, Utulei
Greg Stevens, Pago Pago
Laloulu Tagoileiagi, Vatia
Sala Samiu, Fagasa
F. M. Tua, Fagasa
Leroy Ledoux, Pago Pago
Atuatasi Talosaga, Fagasa
T. Salauoa, Fagasa
Soli Aolaolagi
Mike Evans, Pago Pago
David Itano
William Reid Risnig, Vaitogi
Judy Simon, Utelei
John Naughton
Robert Morrow
John Enright, Atauloma
Stan Sorenson, Tafuna
Brad Grimm, Atauloma
P. Portoisauo, Jr., Tula

The following questions and concerns were raised at the meeting. Pacific Area Director Bryan Harry and Park Planner Gary Barbano provided responses. Dr. Paul Cox translated both the questions and concerns and the responses into Samoan.

Question/Concern: Why is the NPS having this meeting? The chiefs of Pago Pago and the other villages have already given their approval for the national park.

Response: The purpose of this public meeting is to give everyone a chance to comment on the draft study report and give NPS the chance to catch mistakes.

Concern: The proposed national park would cut through the plantation lands of the village of Vatia and the park would take away about 80 percent of Vatia's lands. The NPS should assist with the survey of all lands in Vatia.

Response: The NPS does not intend to upset the traditional land tenure system in American Samoa. Lands that the village of Vatia does not want to see within the boundaries of a national park would not be included. If a national park were to be established, boundary lines would be set on relevant ground and then surveyed.

Question: Would NPS maintain the road from Afono to Vatia?

Response: It would probably be a joint maintenance program between NPS and the ASG.

Question: Can the NPS regulate business ventures which the village of Vatia may want to engage in -- can Vatia village put in a yacht club or a boat repair shop if they want?

Response: The village lands and the waters of Vatia Bay are excluded from the park boundary so any such development would be the village's decision.

Concern: There are some historical errors and errors in the spelling of Samoan place names in the study report.

Question: Would there be any provision for NPS to help small businesses get started-- any type of program similar to the Small Business Administration?

Response: NPS has no authority to help finance small businesses; we can and do provide direct aid to park concessioners and we work with SBA to provide for contract work in connection with a national park.

Question: Is not the preservation of the natural condition of the land -- the trees, birds, and animals the prime goal of the national park?

Response: Yes.

Concern: Apologize to the Governor and the chiefs present, but I am opposed to the proposed national park because it would take away our traditional land rights.

Question: If we succeed in getting a national park, are there provisions for hiring local people to staff and maintain it?

Response: If a national park were to be established, we would wish to do that as much as possible.

Concern: The national park idea is a good one: the park on Tutuila has hiking trails and scenic vistas; Ta'u park has cloud forest and cultural sites, but the ocean is missing. Need a coral reef that is accessible and safe. You should consider adding Ofu beach and reef as this area would complement the other two.

Concern: Our ancestors are buried up behind Pago Pago. Land is the Samoan people's life; NPS thinks it's only jungle.

Concern: The Samoan concept of land and cultural preservation is *fa'asao*, which means "for use later," while the NPS concept is preservation forever for all time.

Question: For how long would the national park leases last -- 100 years, 200 years?

Response: Samoa law limits the lease term to 55 years.

Concern: The village of Fitiuta may not have enough room to grow in the future -- the park boundary is too close to the village.

Response: We will take a closer look at the proposed boundary there and consider moving it further away from the village.

Question: After signing the lease for the land, does that mean that a person can't build a house there?

Response: Lands that people want to build houses on should not be included within the Congressionally authorized boundaries of a national park.

Concern: The national parks are too large; 8,000 acres of overall land area is much too big. Nationwide, national parks take up only three percent of available lands; in American Samoa, the parks would take up approximately 16 percent of available lands.

Concern: Represent *matai* on the island of Ta'u, own one-quarter of the acreage involved and don't see any problem with the park proposal -- support it completely and don't see why there is so much confusion here today.

Question: Are park boundaries fixed yet?

Response: Congress will establish park boundaries based on informatoin and input from NPS and the local people: social concerns from the people and resource values from NPS.

Question: If a senior *matai* agrees to lease lands for the national park and then family members return to Samoa and want to use the leased land, what happens?

Response: The lease would have to be renegotiated.

Concern: Confused about renegotiating the lease.

Response: Lands could be renegotiated without having to go all the way back to Congress; could be done on an individual basis.

Question: Is the park boundary above Pago Pago up to the 1,200-foot contour line or down to the 600-foot contour line?

Response: At High Chief Mauga's request, the proposed park boundary was moved up to follow along the ridgeline on Mount Alava.

Question: All along the ridgeline even at the lowest elevations?

Response: Yes.

Question: Nervous that you are building only trails, not roads; how would someone walk all the way from Afono to Fagasa? What about overnight camping facilities?

Response: NPS is not proposing to build any roads or overnight facilities within the park, but visitors who are hiking from Afono to Fagasa could camp overnight along the way.

Question: If after 55 years the village chooses not to renew the lease, then what?

Response: Both parties must agree to renew.

Question: If *matai* agree to lease their lands, then die, does the money for the lease go to the *matai's* family or does it follow the *matai* title?

Response: Be careful about how you write the lease conditions.

Question: Lands to be leased are assigned to families; sometimes it is not known which family owns the land -- how will the revenues from leases be assigned to families?

Response: Will be difficult; on some lands it will be difficult to determine ownership. This should be resolved internally among the concerned families; money could be placed in an escrow account. Those areas where land issues can be more easily resolved should go ahead and not wait for those areas which are complicated and not so easily resolved.

Concern: Support the village decision to have a national park but Vatia should understand that they are the only village completely surrounded by proposed park lands.

Question: How many jobs will the national park bring to American Samoa?

Response: We believe that there would be jobs in the parks for young people of the community.

Question: Would the national parks create jobs and increase revenues from tourism?

Response: NPS does not plan parks based on the revenues, jobs, and potential business they would generate. However, national parks usually do provide an indirect benefit to a local economy.

Question: Have you considered the possibility of establishing a marine aquarium in American Samoa as part of the national park?

Response: You already have a large natural aquarium in the waters offshore. The marine life there is ideally presented to park visitors, in a natural habitat doing natural things.

Question: Will there be boat tours; would they be operated by NPS or concessioners?

Response: They would be run by local operators that would be encouraged to be permittees or concessioners.