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HAWAIIAN ISLANDS WILDERNESS PROPOSAL

HAWAIIAN ISLANDS NATIONAL WILDLIFE REFUGE
CITY AND COUNTY OF HONOLULU, HAWAII

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF SPORT FISHERIES AND WILDLIFE

YEAR UNKNOWN



This report was prepared pursuant to the Wilderness Act, Public Law 88-577. Publication of the findings and recommendations herein should not be construed as representing either the approval or disapproval of the Secretary of the Interior. The purpose of this report is to provide information and alternatives for further consideration by the Bureau of Sport Fisheries and Wildlife, Secretary of the Interior, and other Federal agencies.

preface

Eight islands, shoals and reefs totaling 303,936 acres of the Northwestern Hawaiian Islands are proposed for addition to the National Wilderness Preservation System. Included is the entire Hawaiian Islands National Wildlife Refuge except Tern Island in the French Frigate Shoals. This brochure explains the proposal and summarizes a study of the Hawaiian Islands Refuge by the Bureau of Sport Fisheries and Wildlife at the direction of the Secretary of the Interior.

The Wilderness Act of September 3, 1964 (Public Law 88-577) requires that the Secretary of the Interior review every roadless area of 5,000 contiguous acres or more and every roadless island, regardless of size, within the National Wildlife Refuge System within ten years after the effective date of the Act, and report to the President of the United States his recommendations as to the suitability or non-suitability of each such area or island for preservation as wilderness. A recommendation of the President for designation as wilderness does not become effective unless provided by an Act of Congress.

In defining wilderness, the Act also included areas of less than 5,000 acres that are of sufficient size to make preservation and use in an unimpaired condition practicable.

Sections 4(a) and (b) of the Wilderness Act provided that: (1) the Act is to be within and supplemental to the purposes for which National Wildlife Refuges are established; and (2) wilderness areas shall be administered so as to preserve their wilderness character and shall be devoted to the public purposes of recreational, scenic, scientific, educational, conservation and historical use insofar as primary refuge objectives permit. Wilderness designation does not remove or alter an area's status as a National Wildlife Refuge.



ISLAND OF NIHOA

introduction

The Hawaiian Islands is one of the world's most interesting archipelagos. Here, perhaps more than anywhere else on earth, is exemplified the role that isolation has played in the evolution of biological systems. About 95 percent of the native Hawaiian plants and animals occur nowhere else. A surprisingly varied native flora has developed from a mere handful of plant families. Many large and conspicuous plant groups, including the conifers, were unable to span the vast oceanic distances and reach the islands in prehuman times. The islands' diversity of native land birds developed from only five families that managed the crossing.

Isolation has created this unique web of life, but isolation has also set the stage for its demise. Island ecosystems are notoriously susceptible to disruption by outside influences. History is liberally sprinkled with accounts of extinctions and massive biological changes on islands following human contact. The bird life of the Hawaiian Islands is a case in point. When Captain Cook came to Hawaii in 1778, there were 69 kinds of birds found nowhere else. Today, 23 exist no more and 27 others are in danger of extinction.

The establishment of the Hawaiian Islands National Wildlife Refuge in 1909 was one of our Nation's earliest attempts to save this unique resource. Refuge establishment followed a long period of careless destruction and commercial exploitation in the Northwestern Hawaiian Islands. Three species of birds and several plants unique to them were lost to man.

Today, these tiny bits of land and large oceanic reefs and shoals are world famous as a nesting area for vast numbers of sea birds that assemble there annually from the far reaches of the Central Pacific. Most of the world's population of the Laysan and black-footed albatross nest on the refuge. It is our Nation's last major nesting site for the green sea turtle, and is home to about 95 percent of the world's rare Hawaiian monk seal. Three species of endemic land birds and the entire world's population of Laysan teal occur on its islands--all exist on the verge of extinction.

The shallow waters of the reefs and shoals are a productive source of food for the islands' wildlife, but apart from this value is their great potential as undisturbed natural laboratories. Marine life exists here as undisturbed by man as is possible in the modern world--a great opportunity to extend our knowledge of the sea.

When the refuge was created over half a century ago, the survival of the sea bird colonies was the prime consideration. In the intervening years it has become evident that perpetuation of an island's entire biological system rather than bits and pieces of that system is the proper objective of the refuge. The sea bird colonies remain a major concern but present-day management also reflects the broadened goals of the National Wildlife Refuge System. Administration of the Hawaiian Islands Refuge emphasizes preservation and, where possible, restoration of the natural environment. Management objectives include:

- (1) Assure the survival of threatened native wildlife.
- (2) Maintain all elements of the native flora and fauna in as natural a state as possible.
- (3) Allow the physical and biological processes to proceed naturally to the extent possible without loss to the native flora and fauna.
- (4) Expand man's understanding and appreciation of wildlife, wildlands and his role within this environment.
- (5) Communicate to the public an understanding of the values and benefits of the Hawaiian Islands Refuge.
- (6) Establish selected areas within the refuge for environmental reference, observation and scientific study.
- (7) Seek out, identify and preserve historic and archaeological sites and objects for appropriate scientific study.

Over 304,200 acres of islands and submerged lands in the Northwestern Hawaiian Islands are administered as the Hawaiian Islands National Wildlife Refuge. About 1,800 acres are lands above the line of mean high tide. The remaining 302,400 acres are submerged lands on the associated shallow reefs and shoals of the refuge.

All but 267 acres of the refuge are considered suitable for inclusion in the National Wilderness Preservation System. Suitable lands are distributed throughout all eight units of the refuge as follows: Laysan Island, 7,104 acres; Lisianski Island, 47,383 acres; Nihoa Island, 800 acres; Pearl and Hermes Reef, 95,581 acres; French Frigate Shoals, 107,505 acres; Necker Island, 580 acres, Gardner Island, 90 acres; and Maro Reef, 44,893 acres.



LAYSAN IS THE LARGEST REFUGE ISLAND.

The wilderness proposal includes all refuge lands both above and below the ocean's surface except Tern Island and adjacent waters in the French Frigate Shoals. Tern Island contains Coast Guard and refuge facilities as well as a dredged ship channel and seaplane landing area.

Although the submerged refuge lands are included in the proposal, the overlying waters are navigable and not within the refuge's sole jurisdiction.



ONE OF THE ELEVEN SMALL ISLETS OF FRENCH FRIGATE SHOALS

history

The coming of Captain James Cook in 1778 marked the beginning of western contact with the Polynesian civilization of the Hawaiian archipelago--a civilization perhaps as old as the birth of Christ. Where the Hawaiian people originated is not known. The best evidence would suggest they came from southern Asia by way of the Malay Peninsula and Java, island hopping in huge sailing canoes. Cultures of Tahiti or the Marquesas seem to bear the closest resemblance.

The early Hawaiians left their mark on Nihoa and Necker Islands. The remains of garden terraces, house sites, crude shelters and primitive temples closely resembling the "Maraes" of Tahiti are numerous. A small population, probably less than 150 souls, may have existed on Nihoa as long ago as 700 years. A lack of water was probably the chief cause of abandonment. Evidence, including several unusual stone images, suggests that Necker Island may have been a sacred island visited only periodically, perhaps by Polynesians from Nihoa.

Discovery of the islands of the refuge by European explorers spanned about 50 years in the late 18th and early 19th centuries. Nihoa was first reported by Captain Douglas of the ship, *Iphigenia*, in 1789, during the reign of King Kamehameha the Great. A party of 200 led by Princess Liliuokalani--later Queen and last of the Hawaiian monarchs--landed there in 1885. Their stay was brief because someone carelessly set fire to the island and all had to leave in a hurry.

Necker Island and French Frigate Shoals were discovered by the French explorer La Perouse in 1786. French Frigate Shoals has been more or less occupied by various branches of the military since 1942, with installations established first on East Island and later on Tern Island. ¹⁹³⁶

Maro Reef and Gardner Pinnacles were first reported by Captain Allen of the whaler, *Maro*, in 1820. Pearl and Hermes Reef was discovered in 1822 when the British whalers *Pearl* and *Hermes* wrecked on the reef on the same night within 10 miles of each other. The crews subsequently built a small vessel out of the wreckage and sailed it back to Honolulu.

Lisianski Island, discovered by Captain Lisiansky of the Russian ship *Neva* in 1805 and Laysan Island, reported by Captain Stanikowitch of the *Moller* in 1828, have similar histories. Both were leased in 1890 for guano fertilizer exploitation. About 1903, the guano diggers introduced rabbits to Lisianski and both rabbits and guinea pigs to Laysan. In a few short years, both islands were virtually denuded of vegetation. In 1891 an observer described Lisianski as ". . . a little paradise . . .", by 1915 it was ". . . dreary and desolate." The Tanager Expedition of 1923 and 1924 found all rabbits on Lisianski dead--apparently from starvation. They also managed to eradicate those remaining on Laysan.



TERN ISLAND IN FRENCH FRIGATE SHOALS

In 1902 the bird population on Laysan was estimated at 10 million. By 1911 bird numbers had dropped to a tenth of that. Innumerable sea birds perished on both islands from the sandstorms that occurred once the protective vegetation was gone. Three land birds found only on Laysan became extinct by 1923 along with several plants unique to the island.

The house fly now so extremely abundant on Laysan and Lisianski was also introduced--probably by the guano diggers. Swarms of this persistent insect concentrate about the head and face of human visitors and the Hawaiian monk seal during daylight hours of the summer months.

Feather collectors began operating in the area early in the 20th century. They slaughtered hundreds of thousands of Laysan albatross and other birds for their plumage. Reports of these activities stimulated public interest in bird protection, and ultimately led to establishment of the refuge in 1909. Thus, when a party of 23 "plume hunters" were discovered on Laysan and Lisianski in 1910, they were promptly arrested and taken to Honolulu for trial--along with 259,000 bird wings and other plumage seized at the time.

Laysan
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ON Laysan
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March 1965
plate on Nihoa
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The Second World War took its toll. A military radio station and a Loran station were established on East Island and later moved to nearby Tern Island of the French Frigate Shoals. Tern Island was intensively developed, complete with airfield. Today, Tern Island is a grossly and permanently disfigured casualty of war. Dud bombs and spent machine gun bullets testify to the use of Necker Island as a practice target. Bomb craters have been found in the middle of several of the centuries-old Polynesian temples. Kure Island was originally part of the refuge, but was placed under jurisdiction of the Navy in 1936. It was never restored to the refuge.

slugs
in Kridlers
desk

Following its establishment, the refuge underwent a long period of neglect during which it received a minimum of administrative attention or scientific scrutiny. In 1951, the U. S. Fish and Wildlife Service through an agreement granted the Territory of Hawaii authority to administer and manage the refuge. The Territory and later the State continued its assistance until 1968 when the Bureau of Sport Fisheries and Wildlife assumed full-time administration. Preservation of the islands and their resources during this period is due in very large part to the efforts of the State of // Hawaii.

Bull
shit

THIS SPECIES OF LOULU PALM IS FOUND ONLY ON NIHOA.



physical description

The Hawaiian Islands National Wildlife Refuge encompasses a series of eight islands, reefs and shoals in the Hawaiian archipelago of the Central Pacific Ocean--almost 3,000 miles southwest of San Francisco. The refuge extends over 800 miles between the main Hawaiian Islands and Midway. The refuge islands are part of the chain known as the "Leewards" or Northwestern Hawaiian Islands.

The islands of the Hawaiian archipelago can be divided into three major groups according to the type of island found in each. The southeast group includes large volcanic islands and associated islets. This segment includes all of the inhabited main Hawaiian islands. Hawaii is the largest and southeasternmost island of the group and has the only active volcanoes. None of the refuge islands are in this segment. The middle group includes several shoals, in addition to small islands, on which volcanic rock is exposed. All of the islands and major shoals of this segment are within the refuge. The northwest group extends over a greater distance than the other two and includes a dozen or more shoals and reefs. No volcanic rocks are exposed in this segment.

Geologically, the islands are part of a chain of huge underwater peaks, marking the summits of submarine volcanoes and extend over 1,900 miles in a southeasterly direction. Geologists believe that throughout the ages successive flows of molten lava flowed out of a long fissure in the earth's mantle and formed the peaks. The ocean floor on both sides of the chain averages about 3 miles in depth. The chain is very old, beginning its history at sea level over 20 million years ago, and has nearly every stage of volcanic development represented within it. The direction of volcanic activity is progressing from northwest to southeast, with the island of Hawaii typifying the younger volcanic stage, and atolls, like Midway, the ancient eroded stage at the opposite end of the spectrum. The various islands and reefs of the Refuge are remnants of this past and some were perhaps once as large or larger than today's inhabited islands of Hawaii.

Rising almost 900 feet above the sea, Nihoa is the ^{collected} ~~largest~~ and presumably youngest of the refuge islands. The most striking feature of its ~~174~~ ¹⁹⁶ acres is a series of irregular, vertical cliffs forming the northern, western and eastern edges. Like its neighboring volcanic islands--Necker and Gardner Pinnacles--it lacks beaches and fringing reefs. The island's submerged lands drop rapidly into the ocean's depths. Of the refuge islands, Nihoa is rivaled only by Laysan in animal and plant variety.



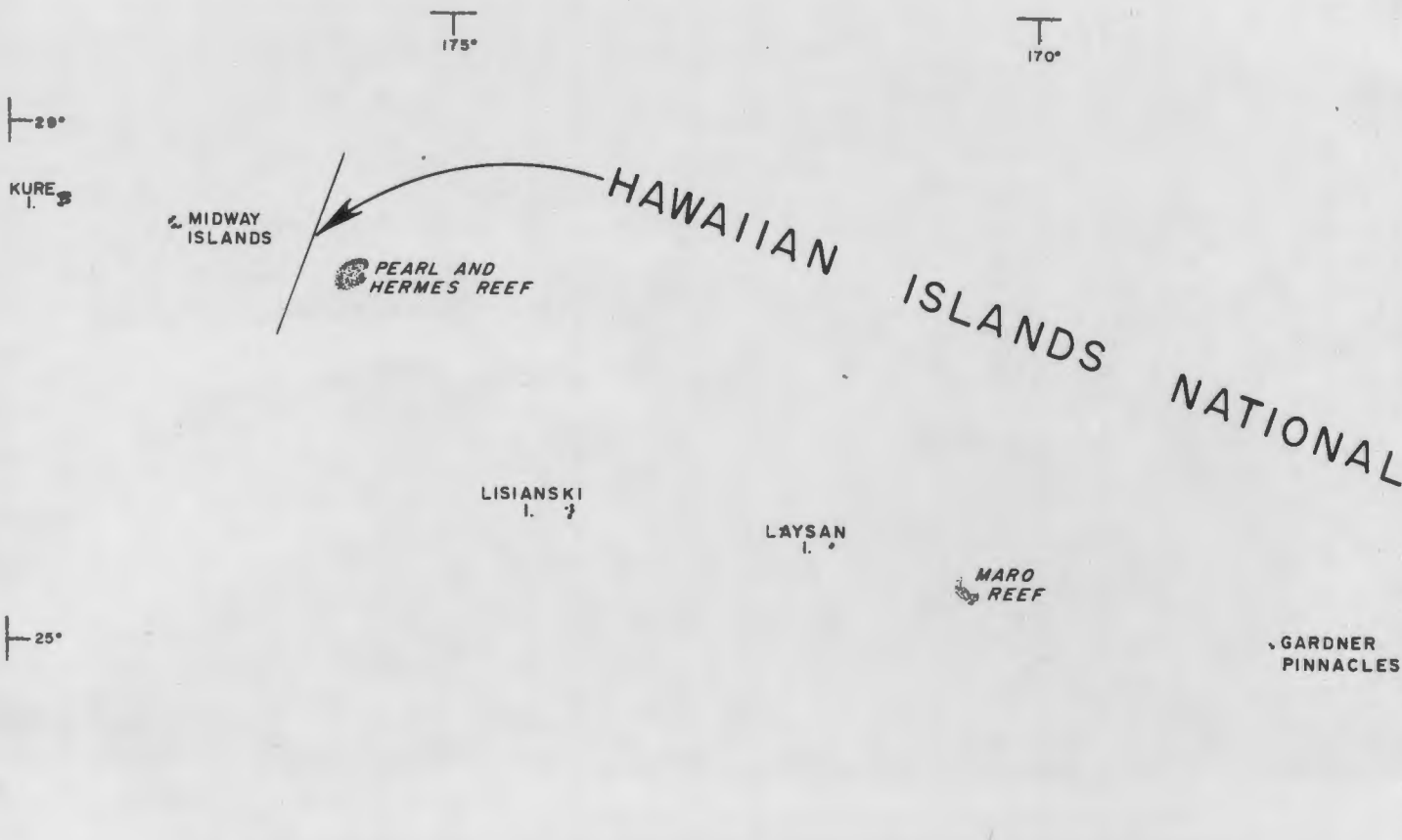
CORAL REEFS ARE LITERALLY LIVING ROCK.

Necker Island at 47 acres is shaped like a giant fishhook--narrow and about 1,300 yards long. The island is predominantly exposed rock, with low-growing vegetation limited to the upper portions. Shark Bay, formed by the island's curve, is appropriately named. Over 40 sharks have been observed in the bay at one time, apparently attracted by the hundreds of immature sea birds which perish in the sea during the nesting seasons.

Gardner Pinnacles is the westernmost lava island. It may well be the oldest piece of lava remaining above the ocean surface in the Hawaiian chain. The main island and satellite rocks total about 5 acres and are almost completely devoid of vegetation. Only one species of plant, a succulent, has been able to retain a foothold.

French Frigate Shoals lies between Necker Island and Gardner Pinnacles. La Perouse Pinnacle in the shoals resembles Gardner Pinnacles, but apart from this exception the shoals are similar to the remaining refuge units--Maro Reef, Laysan Island, Lisianski Island and Pearl and Hermes Reef. All are emerged coral atolls or near atolls, composed principally of coralline algae.

French Frigate Shoals is an atoll with low sandy islets within a fringing reef. It is double crescent-shaped, about 18 miles from tip to tip and 10 miles wide. Coral heads are scattered throughout the lagoon, many rising abruptly to within a few feet of the surface. There are currently 11 coral-sand islets within the lagoon. The largest is Tern Island at 27 acres. Islets such as Disappearing Island are formed from light material and are subject to more or less constant changing shape. French Frigate Shoals is the largest unit of the refuge, but only 65 of its 108,000 acres rise above mean high tide.



PACIFIC OCEAN

REFUGE BOUNDARY: THE EIGHT REFUGE UNITS INCLUDE THE LAND MASSES RISING ABOVE THE OCEAN AND SUBMERGED LANDS ASSOCIATED WITH THESE ISLANDS. ON PEARL AND HERMES REEF AND FRENCH FRIGATE SHOALS THE REFUGE BOUNDARY FOLLOWS THE BARRIER REEF SURROUNDING THE LAGOON WATERS. THE BOUNDARY OF NIHOA ISLAND COINCIDES WITH THE 15 FATHOM CONTOUR. ON THE REMAINING UNITS THE 10 FATHOM CONTOUR IS THE REFUGE BOUNDARY.

NOTE: THE ENTIRE HAWAIIAN ISLANDS NATIONAL WILDLIFE REFUGE EXCEPT TERN ISLAND AND ADJACENT SUBMERGED LANDS ARE PROPOSED FOR WILDERNESS.

JOHNSTON ATOLL
(JOHNSTON ISLAND NATIONAL WILDLIFE REFUGE)

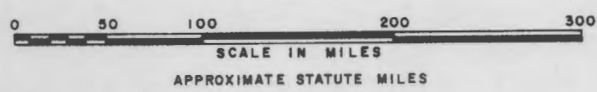
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25°

WILDLIFE REFUGE

FRENCH FRIGATE SHOALS
NECKER I.

NIHOA



20°

HAWAIIAN ISLANDS WILDERNESS PROPOSAL

HAWAIIAN ISLANDS NATIONAL WILDLIFE REFUGE
City and County of Honolulu, Hawaii

165°

160°

155°

16°

Pearl and Hermes Reef, the westernmost refuge unit, is a typical atoll. It is roughly elliptical in outline, and about 19 miles long by 10 miles wide. The atoll contains seven islets which lie close to the well-defined part of the barrier reef. Southeast Island, the largest, is 31 acres. The reef is literally alive and while the sea is constantly battering off pieces, the reef is continually renewed by the vigorous coral growth.

Maro Reef is a vast network of coral reefs covering over 70 square miles. It is entirely submerged except for a single rock extending about 2 feet above high water. At extreme low tides reefs are exposed throughout the area and are interspersed with deep water channels up to 60 feet in depth. The reef is an excellent example of a marine ecosystem not associated with an island and is, therefore, unlike any other refuge unit. The reef is rich in biological resources and is an important feeding area for sea birds. It may also play a role in the life cycle of seals and turtles.

Laysan and Lisianski are low, elongated islands associated with an extensive network of reefs and shallow waters. Laysan at 1,020 acres is the largest refuge island. It is about a mile wide and 2 miles long, rising about 35 feet above sea level. Fringing reefs around Laysan cover only about 6,000 acres, quite small in comparison to the other atoll units. Lisianski Island is similar to Laysan but only about half as large. However, the shallow submerged lands cover about 47,000 acres. The islands are remarkably similar. A shallow, highly saline closed lagoon about a mile long and half-mile wide exists within Laysan. A lagoon also once existed on Lisianski but it filled in prehistoric times.

BLUE-FACED BOOBY AND BOOBLET





LAYSAN ALBATROSS COLONY AT PEARL AND HERMES REEF

The gradual addition of organic materials to the parent soil on Laysan and Lisianski has resulted in a highly fertile soil supporting a dense, low vegetative cover over most of the two islands. Plant and animal life on both islands is abundant, but Lisianski cannot rival Laysan in variety. Rabbits reduced both islands literally to sandy wastes in the early 1900's. In appearance they have recovered, but this recovery is probably still occurring.

Temperatures in the Leewards are mild and vary little from day to night and season to season. Sunny days and moderate but steady northeast trade winds are the rule, but sudden squalls can quickly generate churning seas. Violent winter storms batter the islands and tremendous surf can inundate the low islands or completely sweep over the small islets.

resources



FAIRY TERN

Some of the most remarkable sea bird nesting colonies on earth occur on the refuge. For eons such birds have converged on the islands from the vast Pacific to renew their kind. Since all cannot find space to nest at the same time, each species secures room at its appointed time.

In the fall, hundreds of thousands of albatross which have been roaming the North Pacific from North America to Asia begin returning to these tiny islands. Over 125,000 nesting pairs may be present on Laysan, and Southeast Island at Pearl and Hermes Reef may have over 50,000 crowded into its 32 acres.

In early spring hordes of terns, petrels, shearwaters and other species begin arriving and the islands become a bedlam of shrieking, swirling birds. Almost a million sooty terns may nest on Laysan and many hundreds of thousands more on the other islands.

Several species of shearwaters and petrels dig nesting burrows on sandy islands or use cavities under rocks on such islands as Nihoa. Conservative estimates place peak daytime populations on Nihoa alone at half a million birds. Since most of the birds spend daylight hours fishing at sea, the numbers present on the island at night are beyond guess.

Some 18 different sea birds nest on the refuge. The more notable include: Laysan and black-footed albatrosses; gray-backed and sooty terns; wedge-tailed and Christmas Island shearwaters; Bulwers and Bonin Island petrels; common and Hawaiian noddies; various kinds of boobies; frigate birds and tropic birds; and the small white fairy tern often considered the most beautiful sea bird of the Pacific.

Special interest centers on the remaining endemic birds. The entire world population of Laysan teal--about 175 birds--maintains a tenuous hold on existence on Laysan Island. The Laysan finch is somewhat better off with a population of about 10,500 on Laysan and Southeast Island in Pearl and Hermes Reef. The Nihoa finch and Nihoa millerbird are confined to Nihoa. About 600 millerbirds and about 3,500 finches survive today. Three other land birds were not so fortunate. All three were found only on Laysan and became extinct as a result of man's activities in the early 1900's. The Laysan millerbird was lost between 1911 and 1923 and the last of the flightless rails and beautiful red honeycreepers perished in a sandstorm in 1923.

Almost the entire world population of Hawaiian monk seal--about 1,000--is found on the refuge. This rare mammal breeds only on Laysan, Lisianski, Kure, Midway, Pearl and Hermes Reef and French Frigate Shoals. Porpoises are occasionally seen in refuge waters.

The green sea turtle was once common in waters off the main Hawaiian Islands. Exploitation drastically reduced their numbers both on the main islands and on the refuge. Today, French Frigate Shoals is the most important nesting area remaining in the North Central Pacific for this animal.

The shallow waters of the refuge are quite productive. However, marine life is apparently less diversified than around the Main Islands. Fishes such as the wrasses, ulua, moi and parrotfishes are abundant. Parts of the refuge support bait-fish populations of some size, but investigations have not been sufficient to adequately assess either the composition or extent of marine resources of refuge waters.

Apart from the role of rocks, reefs and soils in supporting the biological productivity of the area there are no significant mineral resources. Phosphate in the form of guano deposits on Laysan and Lisianski is largely depleted. Sand, rapidly becoming an important commodity for resort beaches, is present in unknown quantities but removal would be detrimental to refuge objectives and probably not economically feasible. There is interest in marine specimens and curiosities for the tourist trade but the relative scarcity of sea shells and the isolation of the refuge islands makes collection infeasible.



THE REFUGE OFFERS GREAT OPPORTUNITIES FOR SCIENTIFIC RESEARCH.

public use

Opportunities for recreation are very limited. The islands are remote and access difficult. Numerous reefs and coral heads at some of the refuge units make near approaches by boat very hazardous. Surf, pounding against the steeper islands, such as Nihoa, make landings dangerous.

Once on the island care must be exercised to avoid stepping on nests and young birds or breaking through the roofs of underground burrows. Accidental introductions of pest plants or insects in clothing, shoes or equipment is a definite threat.

Public use will continue to be limited to scientific investigators engaged in authorized and carefully regulated research. The islands' unique biological systems and the undisturbed nature of the reefs and shoals offer great opportunities in this field. Interpretive and educational goals of the refuge will be met at a future administrative complex planned for the Honolulu area.

All islands of the refuge are designated as Federal Research Natural Areas, as part of our Nation's contribution to the International Biological Program.

Research natural areas on national wildlife refuges are created by administrative action of the Director of the Bureau of Sport Fisheries and Wildlife. They are areas where natural processes are allowed to predominate and are reserved for the primary purposes of research and education.

management and development

Management of the Hawaiian Islands Refuge emphasizes protection and restoration of natural environmental qualities and the extension of man's knowledge of the unique island ecosystems.

The refuge is administered from an office in Kailua on the island of Oahu. Periodic visits are made to the refuge islands for wildlife population inventories, special scientific studies and general surveillance. Travel is by ship and aircraft provided through the courtesy of the various military agencies operating in this part of the Pacific. In recent years only about three trips to the refuge have been made each year. These have occurred on an opportunistic, irregularly-scheduled basis as transportation has become available. More frequent visits and more flexibility in timing is desirable.

Small boats or helicopters are used for landing on the islands proper. All supplies required to support a field party are landed at this time and removed when field work is completed.

Currently, there are eight formal refuge studies in progress. They deal with the islands' rare and endangered wildlife, diseases and parasites, and habitat. These studies are in addition to routine inventories, monitoring activities and informal investigations. Research by qualified individuals and institutions both inside and outside government is encouraged. Present research is severely limited by the availability of transport to the islands.

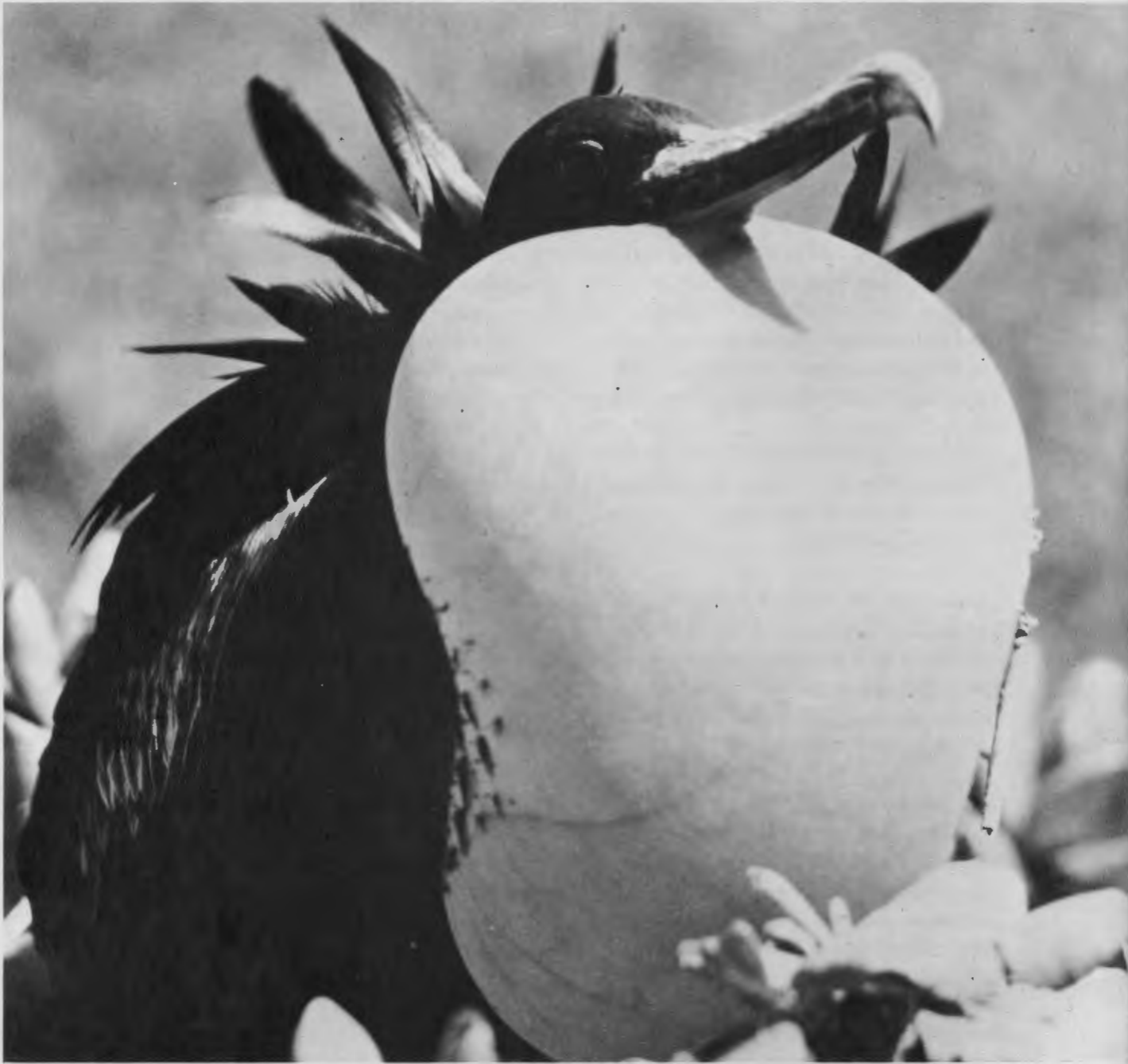
Existing development is confined to East and Tern Islands in French Frigate Shoals. The remains of the abandoned Loran station on East Island are currently being removed by the Coast Guard. Removal of this debris will restore much of the island's original character.

Development on Tern Island during the Second World War permanently altered the island's character. A 12,000-foot channel, 200 feet wide and 20 feet deep was dredged to the island and a seaplane runway 8,000 feet long and 1,000 feet wide was cleared adjacent to the island. Dredged coral was dumped on the island to construct a 3,100-foot landing field. Today, the island looks much like a giant aircraft carrier.

Through a cooperative agreement, the U. S. Coast Guard operates a Loran station on Tern Island. The runway and facilities remaining from World War II are used to maintain the manned station. Also, under agreement, the U. S. Atomic Energy Commission used Tern Island as a monitoring station from 1969 to 1972. This agreement has now expired. These facilities are carefully regulated to prevent disruption of the other islands or lagoon waters of the shoals.

With the exception of Tern Island, no future developments are planned on the refuge. On Tern Island a simple but permanent research facility is under construction for extended research by Bureau and cooperating scientists.

Maintenance of necessary signs and management of the islands for their primary objectives can be accomplished by methods completely compatible with wilderness. Landings by motorized boats and by helicopter must continue. Helicopters significantly reduce the landing hazards on some of the islands and their use should continue in the interest of safety.



THE GREAT FRIGATE BIRD, ONE OF THE MORE SPECTACULAR SEA BIRDS

social
and
economic considerations

There can be little doubt that the refuge's chief value to man lies in its great bird rookeries and its unique and undisturbed biological systems. These are the resources we must pass on to future generations.

The main Hawaiian Islands have lost much of their original uniqueness. Many elements of the native flora and fauna have given way to exotics and civilized man. More losses will undoubtedly occur as population continues to increase and intensify demands on the islands' resources.

The lands and waters of the refuge will become increasingly important simply because they retain relatively undisturbed conditions--conditions necessary to unravel nature's mysteries and to detect and arrest undesirable changes in the human environment.

Apart from their biological resources, the islands themselves have no other resources of significance. A few of the islands could provide location for technological installations, if the need were great enough and alternative locations unsuitable. Underwater lands may be a possible source of sand to replenish resort beaches of the inhabited islands. The economic feasibility of mining this sand is unknown and its removal could seriously disrupt marine life and perhaps the stability of islets in the atoll units.

The marine resources of refuge waters are significant. They are an important link in the food chain supporting life on the islands. They may also represent a potentially exploitable fishery resource. Shortly after World War II commercial fishermen began operating in French Frigate Shoals. Fishery continued intermittently through 1959, but profits were small. Interest in the fishing potential, especially around Midway and French Frigate Shoals, continues.

Unfortunately, information is insufficient to adequately evaluate the marine resources of the refuge. Our knowledge is particularly deficient in assessing the possible consequences of exploiting this resource. Extreme caution must be exercised to avoid losing more than would be gained.



THE REFUGE IS HOME FOR MOST OF THE WORLD'S HAWAIIAN MONK SEAL.

conclusions

About 303,936 acres of the Hawaiian Islands National Wildlife Refuge are suitable for inclusion in the National Wilderness Preservation System. The proposed Hawaiian Islands Wilderness would include the land masses of the islands as well as associated submerged lands.

The wilderness would encompass the entire refuge except 267 acres on Tern Island and adjacent submerged lands in the French Frigate Shoals. The island and its submerged lands have been grossly disturbed by man.

Waters overlying the submerged lands are navigable and not within the sole jurisdiction of the refuge. These waters will not be part of the wilderness.

Wilderness designation will extend legislative recognition to both the islands and surrounding submerged lands--recognition that will aid the continued survival of the island's unique ecosystems. This is appropriate since the islands do not exist in isolation from their surrounding waters and the well being of the refuge's wildlife is greatly dependent on man's future care of the submerged lands.

LAYSAN TEAL



Persons desiring additional information on the Hawaiian Islands Wilderness Proposal are encouraged to contact the Wildlife Administrator, Hawaiian Islands National Wildlife Refuge, 337 Uluniu Street, Kailua, Hawaii 96734, or the Regional Director, Bureau of Sport Fisheries and Wildlife, P. O. Box 3737, Portland, Oregon 97208.



As the Nation's principal conservation agency, the Department of the Interior has basic responsibilities for water, fish, wildlife, mineral, land, park, and recreational resources. Indian and Territorial affairs are other major concerns of America's "Department of Natural Resources."

The Department works to assure the wisest choice in managing all our resources so each will make its full contribution to a better United States—now and in the future.

