

HAWAIIAN AND PACIFIC ISLANDS
NATIONAL WILDLIFE REFUGE COMPLEX

FY 1975

PERMANENT PERSONNEL

Palmer C. Sekora	Refuge Manager (In Charge)	Oahu
C. Fred Zeillemaker	Refuge Manager (Assistant)	Kauai
Florence A. Pruss	Administrative Clerk	Oahu

TEMPORARY PERSONNEL

Tokumatsu Gushiken	Maintenanceworker	Kauai
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BAKER ISLAND, HOWLAND ISLAND, AND
JARVIS ISLAND NATIONAL WILDLIFE REFUGES

NARRATIVE REPORT

FY 1975

(July 1974 - June 1975)

DEPARTMENT OF THE INTERIOR
U.S. FISH AND WILDLIFE SERVICE
KAILUA, HAWAII 96734

I. GENERAL

These three islands were formerly administered by Interior's Office of Territorial Affairs, but were turned over to the Refuge System for restoration and preservation of the island ecosystems at the beginning of this fiscal year.

A. Weather Conditions:

The nearest weather station to these equatorial Central Pacific Refuges is at Canton Island about 400 miles southeast of Baker and Howland Islands and over 700 miles west-southwest of Jarvis Island. The U.S. Air Force station there recorded 15.87 inches of rainfall during the year. The average Canton Island daily temperatures ranged from 80.4°F (June) to 83.3°F (October and April). Temperature extremes there range from 70° to 95°F.

B. Habitat Conditions:

1. Water: The refuges were not visited during the year. A 0.2 acre - deep pool (manmade) has previously been reported on Baker Island and a 25-acre saline flat has previously been reported on Jarvis Island.

2. Food and Cover: The 340-acre Baker Island, 400-acre Howland Island, and 1,100-acre Jarvis Island are 90 percent covered by grasses, prostrate vines, and low shrubs due to the scant rainfall, constant wind and sun. Resting and nesting habitat is provided for millions of seabirds and shorebirds. Exact conditions during FY 1975 are unknown.

II. WILDLIFE

A. Migratory Birds: Recolonization of Baker Island by seabirds is now occurring after a feral cat population was eliminated in 1964. The cats were remnants of World War II occupation by American troops. Species known to visit the islands include the wedge-tailed shearwater, red-tailed tropicbird, Phoenix petrel, white-throated storm petrel, blue-faced booby, red-footed booby, brown booby, American golden plover, great frigatebird, lesser frigatebird, bristle-thighed curlew, wandering tattler, ruddy turnstone, gray-backed tern, sooty tern, blue-gray noddy, brown noddy, black noddy, and white tern. No waterfowl are known to regularly visit the islands, although the pintail is considered a rare vagrant to Jarvis Island.

B. Upland Game Birds: None.

C. Big Game Animals: None.

D. Fur Animals, Predators, Rodents, and Other Mammals:
Some cats and rats are believed to remain on Jarvis Island.

E. Raptors and Other Predatory Birds: None.

F. Other Birds: None known.

G. Fish: The reef fauna of the three refuges is undoubtedly rich but little is known about the various species.

H. Reptiles and Amphibians: The green sea turtle and the hawksbill turtle are mentioned in the threatened and endangered species section.

I. Disease: Undeterminable.

J. Banding: None.

K. Threatened and Endangered Species:

Green Sea Turtle: The threatened green sea turtle has been previously observed hauling onto the islands but it is not known if they nest there.

Hawksbill Turtle: The endangered hawksbill turtle occurs in the area. It is possible this species nests on the islands.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development: None.

B. Plantings: None.

C. Collections and Receipts: None.

D. Control of Vegetation: None.

E. Planned Burning: None.

F. Fires: None known.

IV. RESOURCE MANAGEMENT

A. Grazing: None.

B. Haying: None.

- C. Fur Harvest: None.
- D. Timber Removal: None.
- E. Commercial Fishing: None authorized.
- F. Other Uses: None authorized.

V. FIELD INVESTIGATION OR APPLIED RESEARCH

None.

VI. PUBLIC RELATIONS

- A. Recreational Uses: None authorized.
- B. Refuge Visitors: None known.
- C. Refuge Participation: None.
- D. Hunting: None.
- E. Violations: None known.
- F. Safety: Nothing to report.

VII. OTHER ITEMS

A. Items of Interest: A request for transportation to Baker, Howland, and Jarvis Islands was made to the U.S. Coast Guard in February. The newly-acquired refuges require posting, patrol, and wildlife surveying. We were informed that no trip to the South Pacific was planned for the entire calendar year.

This report was prepared by Manager Sekora and Assistant Manager Zeillemaker.

Submitted by:

Falmer C. Sekora
(Signature)

1/3/77
(Date)

Refuge Manager
(Title)

APPROVED, Regional Office

Edward J Smith
(Signature)

Senior Staff Specialist Ops + Int
(Title)

2-3-77
(Date)

HANALEI NATIONAL WILDLIFE REFUGE

(Island of Kauai)

NARRATIVE REPORT

FY 1975

(July 1974 - June 1975)

DEPARTMENT OF THE INTERIOR

U.S. FISH AND WILDLIFE SERVICE

KILAUEA, HAWAII 96754

I. GENERAL

A. Weather Conditions:

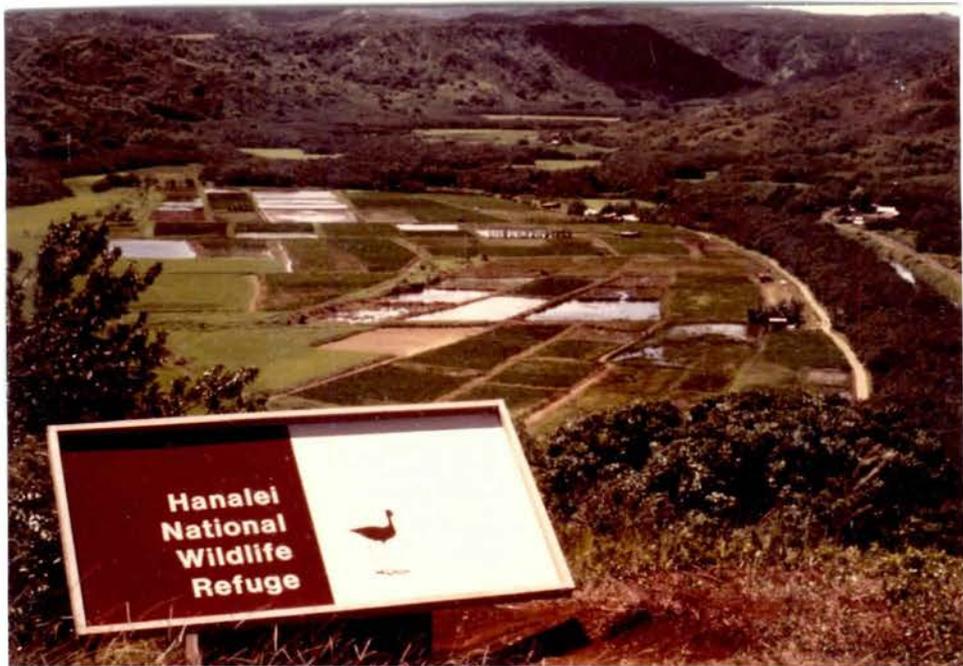
Rainfall during the first two-thirds of FY 1975 was near normal with major flooding of the valley occurring only in late November (14.19 inches precipitation for the month) and on January 31 (over 10 inches of rain). Due to its shape and large drainage, valley floods rise and recede rapidly. The January flood began mid-morning, peaked at near 11 feet at noon, and vanished by late afternoon. From March through June, increasing dryness occurred, resulting in drought conditions as the year ended and an annual precipitation total of 71.19 inches. Normal annual rainfall at Princeville Ranch adjacent to the refuge is 97.67 inches.

Temperatures remained typically mild throughout the year. Lows of 60°F and highs of 70°F were recorded during the winter months with lows of 70°F and highs of 80°F being recorded during the summer months.

B. Habitat Conditions:

1. Water: Water remained plentiful throughout the year due to the large size of the Hanalei River basin. Water levels in the refuge taro paddies is carefully maintained by the 14 lessee farmers. One period of crisis occurred when a section of one irrigation supply ditch slid into the river during the November flooding. It was restored by the farmers within 48 hours. The flooding was so deep in January that very little damage occurred to the water systems or the taro paddies although one farmer had to retrieve his plants from 4-foot high tree branches and replant them. Boulders and rocks forming the two diversion dams across the river had to be moved by hand back into place after both floods.

2. Food and Cover: Both conditions remained favorable throughout the year with possible exceptions during periods of deep flooding. How the taro plants and paddy fauna can rapidly recover following inundation by fast moving water is an interesting phenomenon. Even the birds resume their normal ways within 24 hours. About 100 acres of the 910-acre refuge is farmed for taro. Approximately 350 additional acres are considered potential endangered waterbird habitat. That land presently provides a low-grade pasture composed of exotic grasses and forbs that would convert to exotic brush and woodlands in a matter of 2 or 3 years if left idle. Plans call for wetland development throughout the refuge lowlands.

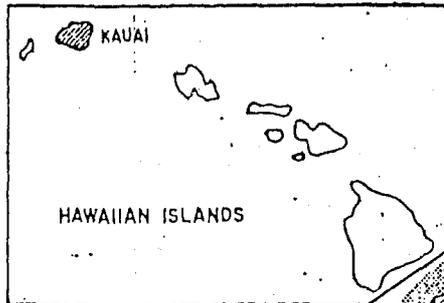
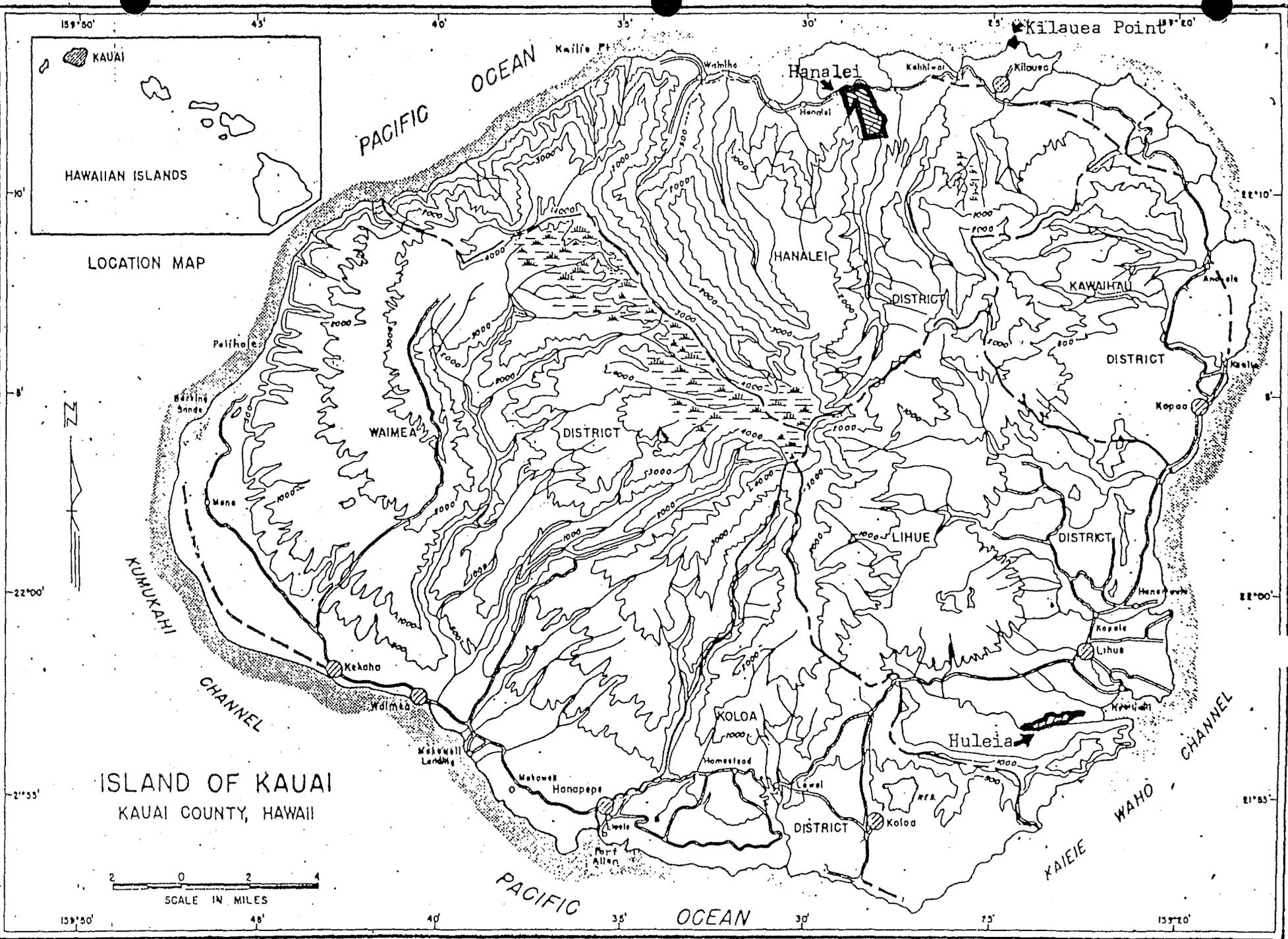


A portion of Hanalei Refuge as viewed from roadside observation point. Notice taro paddies in various stages of growth and preparation. The crop is produced throughout the year, providing endangered waterbird habitat.



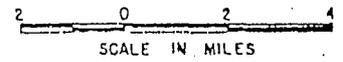
A view of deep flooding that occurred January 31, 1975. Although depths up to 11 feet were recorded, only minor damage occurred.

NATIONAL WILDLIFE REFUGES OF KAUAI



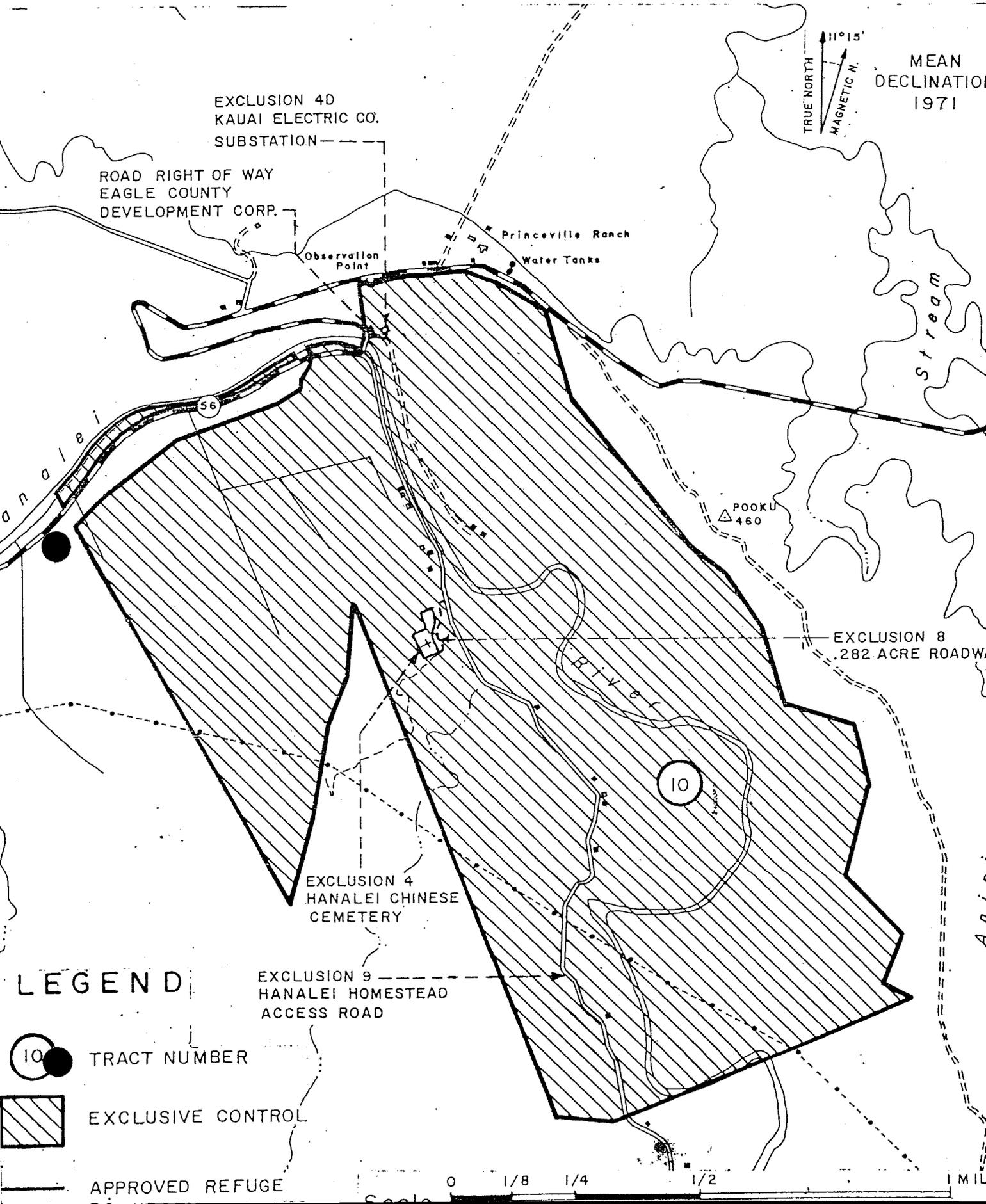
LOCATION MAP

ISLAND OF KAUAI
KAUAI COUNTY, HAWAII



HANALEI NATIONAL WILDLIFE REFUG

KAUAI COUNTY, HAWAII



LEGEND

10 ● TRACT NUMBER

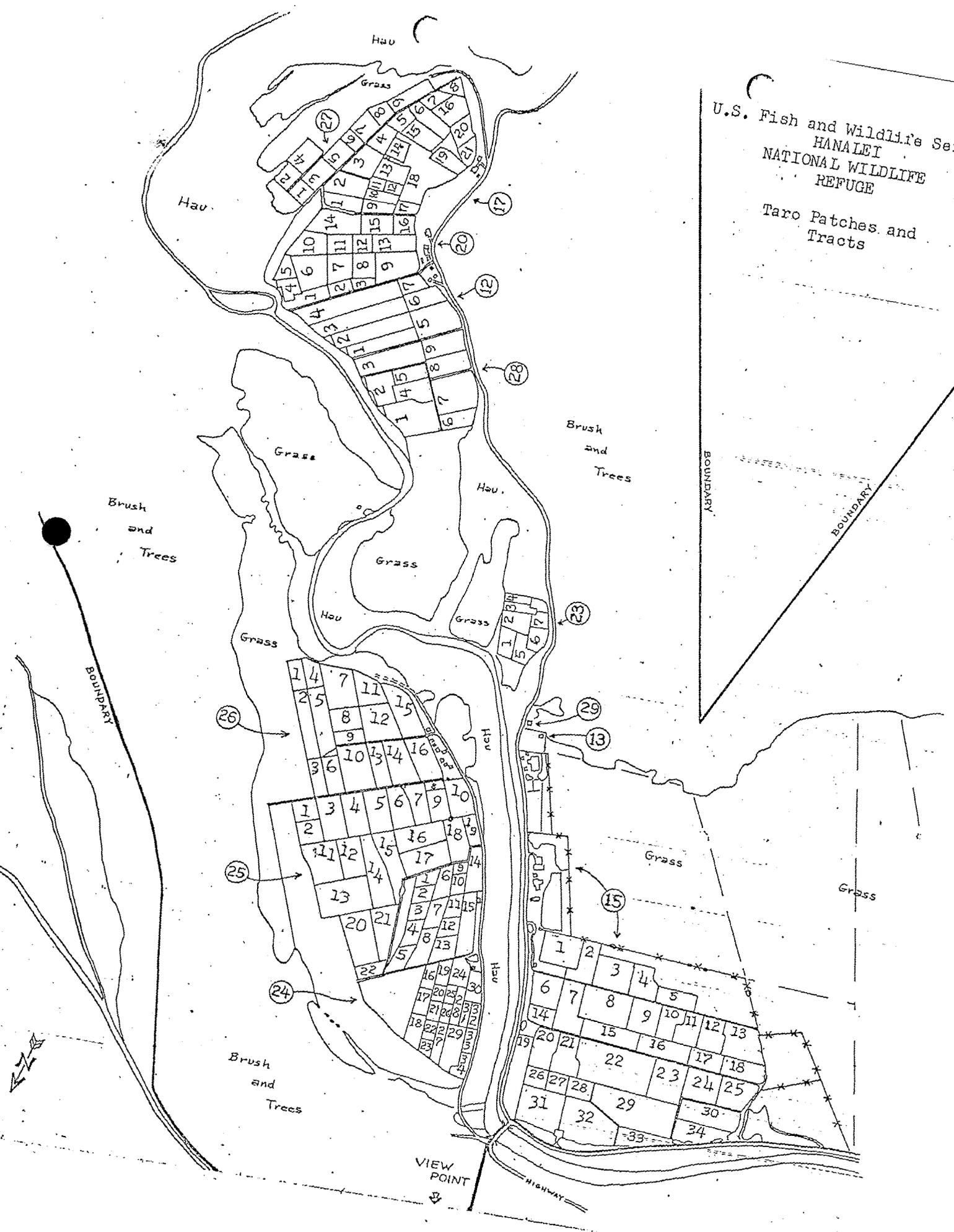
▨ EXCLUSIVE CONTROL

— APPROVED REFUGE

0 1/8 1/4 1/2 1 MIL

U.S. Fish and Wildlife Service
HANALET
NATIONAL WILDLIFE
REFUGE

Taro Patches and Tracts



II. WILDLIFE

A. Migratory Birds: Annual wildlife utilization was recorded for the first time this year. Migratory species consisted of ducks and shorebirds from Alaska that winter on what remains of Hawaii's wetlands (including the "agricultural" marsh taro farming provides). The indigenous black-crowned night heron and the introduced cattle egret are common refuge residents.

Ducks: Thirty-two pintails appeared during the second week of September. The population gradually increased to 164 birds in the second week of December. The last three departed at the end of March. A Northern shoveler appeared briefly the first week of November. A drake American wigeon spent the middle two weeks of November in the taro paddies, and a drake cinnamon teal representing the third record of the species for the State spent February through the third week of April on the refuge. A female bufflehead visited the last week of November and the first week of December.

Shorebirds: One to three golden plovers summered over at the refuge. The population increased to 30 birds in August and averaged 80 to 90 birds in December and February. The population dipped below 30 the first week of May and achieved the summer level of one to three birds by mid-May. Two common snipe, representing the ninth record of the species for Hawaii, arrived on the refuge the second week of December. The last observation of a single bird occurred in mid-March. One of the strangest events here for "mainlanders" is the use of the taro paddies (equal to mud flats or shallow shoreline) by wandering tattlers. Birds began arriving in early September. The population peaked at 13 in early January and 14 in early May before the summer level of one or two birds was reached in mid-May. A single long-billed dowitcher remained on the refuge from mid-October to early December.

B. Upland Game Birds: Moderate population of the introduced ring-necked pheasant, Chinese spotted dove, and zebra or barred dove (Malaysia) occur on the refuge. Japanese quail are occasionally observed.

C. Big Game Animals: None.

D. Fur Animals, Predators, Rodents, and Other Mammals: The only mammals known to frequent the refuge are the introduced feral pig, brown rat, black rat, house mouse, feral cat, and feral dog. Live trapping efforts initiated in October resulted in the removal of 15 cats and 2 dogs in FY 1975.

E. Raptors and Other Predatory Birds: The endemic pueo (short-eared owl) and the introduced barn owl frequent the refuge. Due

to the absence of hawks on Kauai, the pueo has assumed the role of a diurnal as well as nocturnal hunter.

F. Other Birds: All song birds in the Kauai lowlands are exotic introductions from around the world. The ten species recorded to date on the refuge are the greater necklaced laughing thrush (Southeast Asia), melodious laughing thrush (China), white-rumped shama (Southeast Asia), common mynah (Southeast Asia), Japanese white-eye, Western meadowlark, house sparrow, scaly-breasted munia or ricebird (Southeast Asia), cardinal, and house finch.

G. Fish: The only endemic or indigenous fresh water fish on Kauai are the diadromous gobioid fish (o'opus), kuhliid fish, aholehole, and grey mullet ('ama 'ama). O'opu nakea, o'opu nanika, o'opu nopili, o'opu okuhe, aholehole, and 'ama 'ama have been found in the Hanalei River. Introduced fish found in the river and the taro paddies are the tilapia (Africa via Southeast Asia), swordtail (Central America), and mosquitofish or gambusia (North America).

H. Reptiles and Amphibians: The only native Hawaiian reptiles are the sea turtles. Introduced species recorded on the refuge are the morning geckos, skinks, Chinese soft-shelled turtles, Asiatic toads, and bullfrogs.

I. Disease: None observed on the refuge.

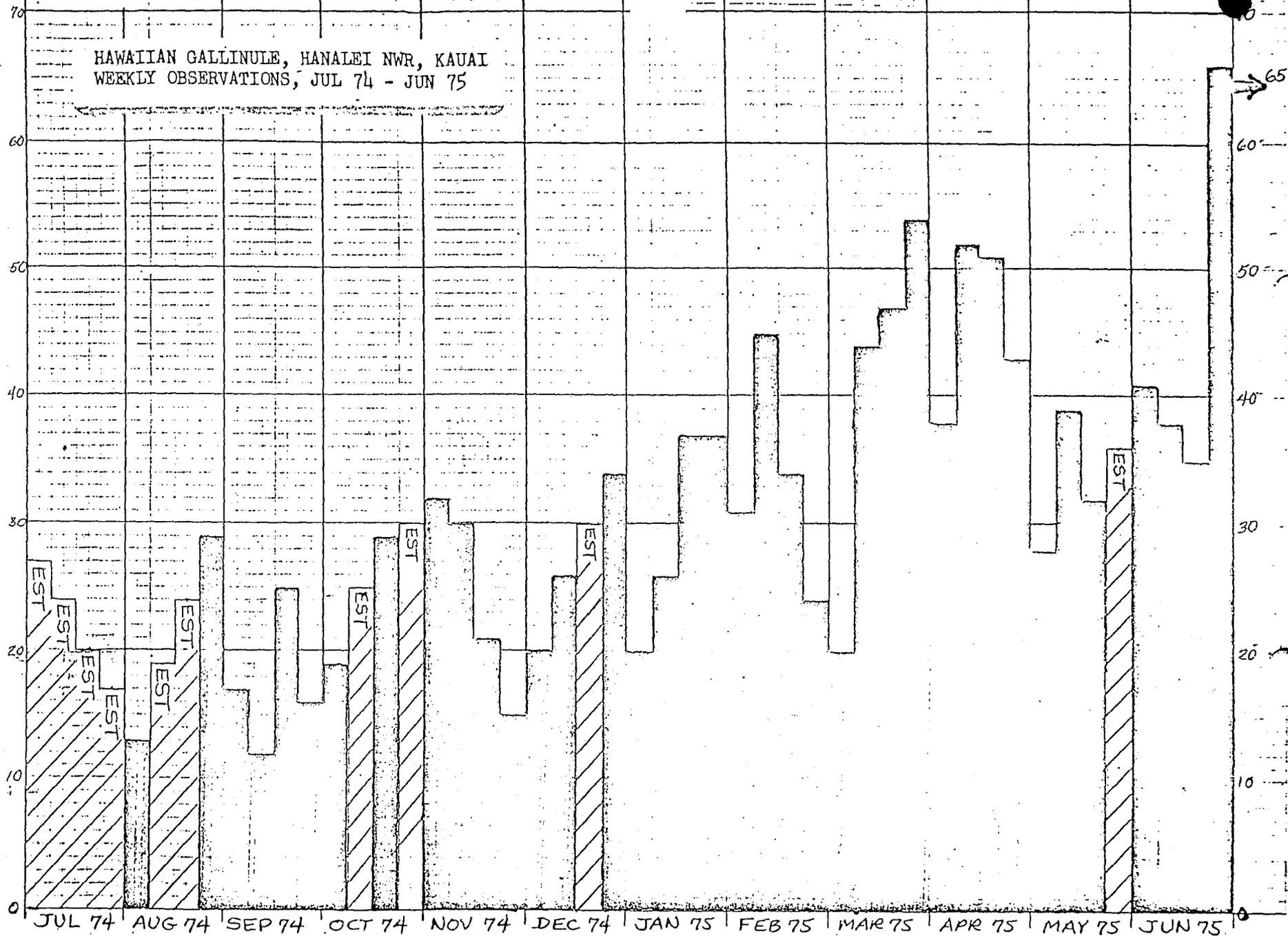
J. Banding: None.

K. Threatened and Endangered Species: The 910-acre refuge was acquired in November 1972 to provide habitat for Kauai's four endangered waterbirds; the Koloa (Hawaiian duck), the 'alae 'ula (Hawaiian gallinule), the 'alae ke'oke'o (Hawaiian coot), and the ae'o (Hawaiian stilt). The gallinule, coot, and the stilt are subspecies of their North American counterparts.

Koloa: Although refuge usage is year-round, population levels are difficult to determine due to the mobility of the birds and the dense taro leaf canopy. Observed populations ranged from 15 birds (in June) to 47 birds (in September). Usage was believed highest (35-45 birds) September through December and March through May. Low populations (10-25) were indicated during all other months. Broods were found in April, May, and June.

'Alae 'ula: The very sedentary gallinule is easily observable in open taro paddies, but again the dense taro leaf canopy reduces accuracy in estimating its numbers. It is estimated that the population was between 40 and 70 birds throughout the year. Broods were observed in November, April, May, and June.

HAWAIIAN GALLINULE, HANAIEI NWR, KAUAI
WEEKLY OBSERVATIONS, JUL 74 - JUN 75





An endangered Hawaiian gallinule in a Hanalei Refuge taro paddy.



One of five Hawaiian gallinule nests observed in refuge taro paddies during FY 1975.

Courtship was observed in January and copulation was observed in March. The peak nesting season occurred in May and June. Through a refuge educational program complete with bird and egg diagrams, taro farmers were encouraged to avoid nests, to avoid altering water levels in paddies containing nests, and to report nests for observation. North American Nest-Record Cards were kept on three successful and two unsuccessful nests April through June. One nest was flooded and another was moved by a taro farmer while harvesting (before he was properly indoctrinated). Nests were located beneath dense taro canopies or in clumps of weeds inside the paddies. It was found that the birds would remain with their nests in a patch of taro not more than 2 feet in diameter. After harvesting, taro paddies are nearly devoid of vegetation. Farmers were informed, when the nest was no longer being used so normal farming activities could resume in the paddy.

'Alae ke'oke'o: The coot population of north Kauai is seasonally mobile. It is suspected that a large portion of the entire island population moves to Niihau Island 15 miles southwest of Kauai during the wettest winter and spring months. Very little, if any, nesting occurs on Kauai. None was observed on the refuge. Yet, great numbers of fledglings began appearing on the refuge and elsewhere on the island in mid-June. The summer population ranged from 60 to 120 birds. The decline began in September, reached a low of 35 in late October, surged to 80 in late November and slacked a final time to less than 10 by late February. Less than 10 birds remained through early June when adults began returning with young. The population reached 70 the last week of June.

Ae'o: As with the coot, the stilt population appears to fluctuate seasonally. From summer highs of 50 to 75 birds, the population declined in November to less than 15 birds. An increase began in late December, resulting in winter peaks of 38 birds in January and 41 birds in March. A second decline occurred in late March, resulting in early May counts of two nesting pairs. The population increased again throughout June and exceeded 50 birds by the end of the report period. Thanks again to farmer cooperation, five nests were located and observed in April, May, and June. Information was kept on nest-record cards. One of the five nests was destroyed due to an inexperienced farmhand operating a rotor-tiller in the paddy. The others were successful. Nesting platforms were constructed by the birds between young taro plants. Stilts did not nest in dense leaf canopies. As with the gallinule nests, farmers refrained from altering the immediate nest site until the chicks had departed.

ENDANGERED WATERBIRDS FACT SHEET

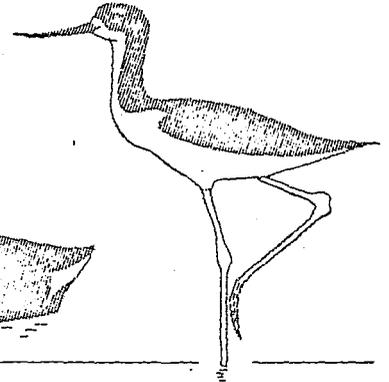
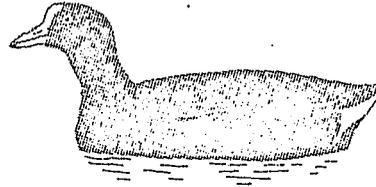
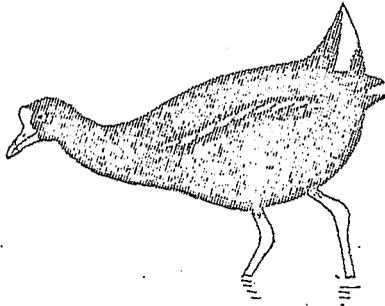
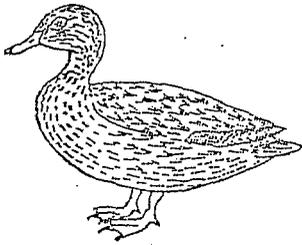
ADULTS:

KOLOA
(duck)

ALAE UIA
(gallinule)

ALAE KEOKEO
(coot)

AEO
(stilt)



NESTS:

(duck)

(gallinule)

(coot)

(stilt)

when: all year

April-October

April-September

April-June

where: on ground

edge of water/float

floating

on ground

site: Honohono or
grasses

a heap in water plants
in some water

a heap in water plants
in deeper water

a scrape where very
little vegetation

size: '12-18" across
4" deep

15-20" across
2" deep

2 1/2" across
2" deep

just large enough
to hold 4 eggs

EGGS:

(duck)

(gallinule)

(coot)

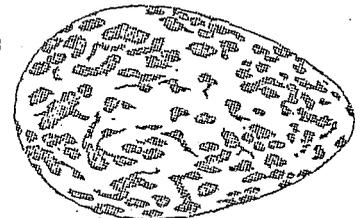
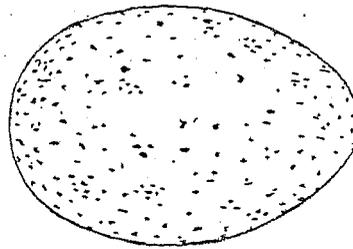
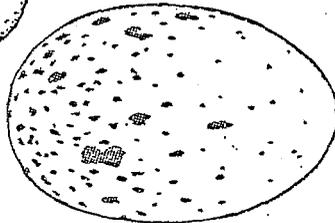
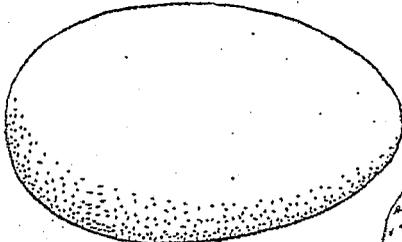
(stilt)

white buff or light
tan

light brown covered
with small dark
spots, more at
large end

light buffy tan
speckled with tiny
flecks of dark
brown or tan

smoke gray with
heavy black-brown
spots, & lines,
not concentrated
at large end



2-10 per nest
(eggs shown are
actual size)

6-13 per nest

4-10 per nest

usually 4 per nest

YOUNG:

(duck)

(gallinule)

(coot)

(stilt)

yellow & brown

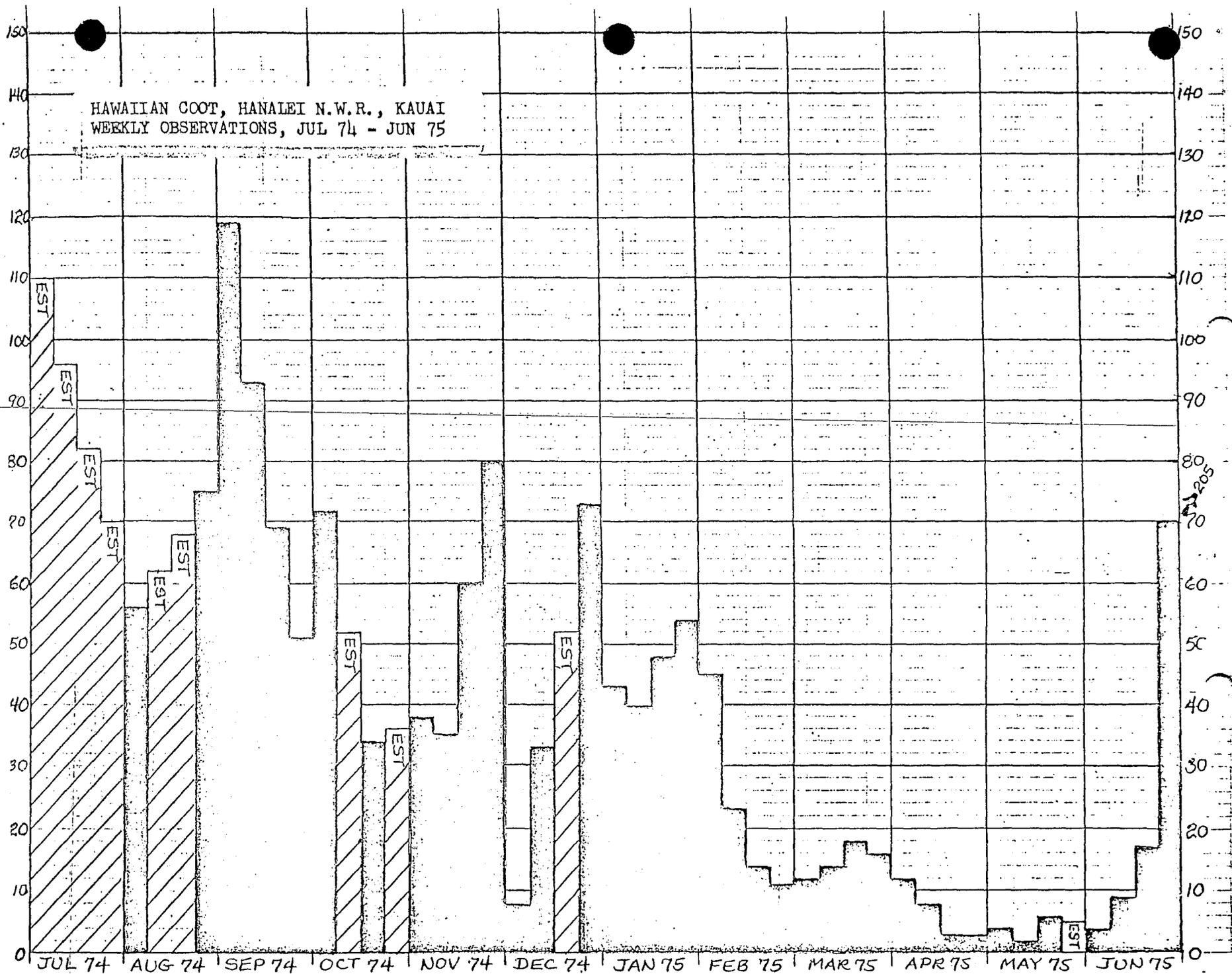
all black, white
tips on throat
down (fuzz)
beak is red

all black except
head, neck and
throat red-brown
beak is red or red
with black tip

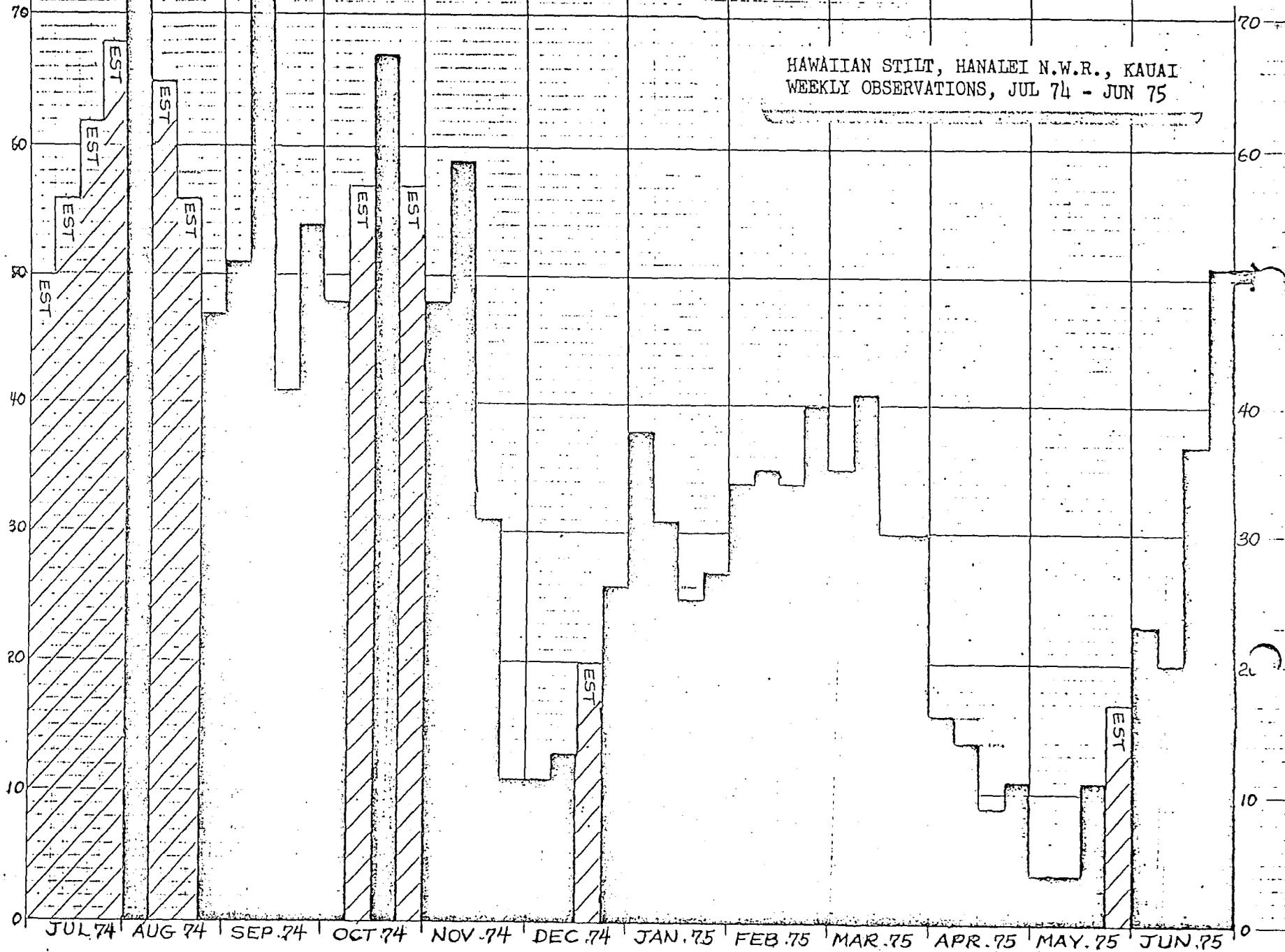
hard to see because
of brown-buff &
black colors

PLEASE report all nests and eggs or young to Fred at 828-1431 or in person. Please try not to disturb any nests, young or their parents. We must help these birds survive.

HAWAIIAN COOT, HANAIEI N.W.R., KAUAI
WEEKLY OBSERVATIONS, JUL 74 - JUN 75



HAWAIIAN STILT, HANALEI N.W.R., KAUAI
WEEKLY OBSERVATIONS, JUL 74 - JUN 75





An endangered Hawaiian stilt in a Hanalei Refuge taro paddy.



One of five Hawaiian stilt nests observed in refuge taro paddies during FY 1975.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development: A 48-foot flume on the west side taro irrigation supply ditch required modification in July. The problem arose when more water came down the ditch than the flume could carry and water overtopped the inlet end which is 13-1/2 inches lower than the outlet. Through Regional engineering assessment and Youth Conservation Corps manpower, a concrete retaining wall abutment was constructed under the inlet.

A smaller flume near the last taro farm on the same ditch required replacement following the January 31 flood. The work was accomplished by the taro lessee using plans provided by Engineering and redrawn by the Assistant Refuge Manager.

About 45 feet of the east side supply ditch slipped into the river during the November flood. Verbal authority was given to the farmers to effect emergency repairs. A new section of ditch was completed and water flowing to the farms again within 48 hours.

B. Plantings: None.

C. Collections and Receipts: None..

D. Control of Vegetation: Taro lessees control weeds and grasses on their farms through the use of approved pre-emergent temporary ground sterilants and post-emergent contact herbicides.

E. Planned Burning: None.

F. Fires: None.

IV. RESOURCE MANAGEMENT

A. Grazing: Two permittees used 240 acres of refuge pasture for 2,513 AUMs.

B. Haying: None.

C. Fur Harvest: None.

D. Timber Removal: None.

E. Commercial Fishing: None.

F. Other Uses: Fourteen taro lessees farm approximately 97 acres of refuge bottomlands, producing 1,212 tons of crop per year. The net value of their crop is estimated to be over \$200,000.

V. FIELD INVESTIGATION OR APPLIED RESEARCH

None.

VI. PUBLIC RELATIONS

A. Recreational Uses: Public use is restricted to a highway overlook, a paved county road through the refuge, and fishing access along the Hanalei River and estuary. An estimated 299,820 visitors spent about 182 A/H for interpretation, 803 A/H for environmental education, and 26,886 A/H for wildlife/wildlands-oriented recreation.

B. Refuge Visitors: The refuge was visited by the Director, Regional Directors, Washington and Regional Office staff members, and a member of the Secretary's Office during the year.

C. Refuge Participation: Tours and off-refuge programs were conducted for local high schools, elementary schools, and YMCA camp instructors during the year. San Diego State University classes visited in January and May.

D. Hunting: None.

E. Violations: None known.

F. Safety: An inspection was conducted by Regional Office Safety Officer Lewis in January.

VII. OTHER ITEMS

A. Items of Interest: An assistant refuge manager position for the Kauai refuges was established and filled in August. Quarters and an office are provided about 7 linear miles northeast of the refuge at Kilauea Point. Kilauea Point is under license from the U.S. Coast Guard. A lighthouse with the largest clamshell-shaped lens in the world is located there also. The lens structure is said to be 12-1/2 feet tall and weighs 2-1/2 tons.

An 8-week nonresidential YCC camp was completed in August before the arrival of the Assistant Manager. A second camp began in late June. A schedule of nearly 40 projects was initiated by the four-person staff and 20 youths.

Thirteen residences were occupied on the refuge at the beginning of the year. Three elderly gentlemen vacated their run-down shacks during the year. None of the buildings had electricity or running water. At least one other single taro farmer still lives in substandard housing on the refuge.

A temporary maintenanceworker was hired from the local community in the year. Mr. Gushiken provides assistance 10 hours per week.

B. Photographs: Photographs elsewhere in this report were taken by Assistant Manager Zeillemaker.

This report was prepared by Assistant Refuge Manager Zeillemaker.

Submitted by:

Palmer C. Adora
(Signature)

1/3/77
(Date)

Refuge Manager
(Title)

APPROVED, Regional Office

Edward J. Smith
(Signature)

Senior Staff Specialist Ops & I&R
(Title)

2-3-77
(Date)

HAWAIIAN ISLANDS NATIONAL WILDLIFE REFUGE

NARRATIVE REPORT

FY 1975

(July 1974 - June 1975)

DEPARTMENT OF THE INTERIOR

U.S. FISH AND WILDLIFE SERVICE

KAILUA, HAWAII 96734

I. GENERAL

A. Weather Conditions:

A weather station is maintained near the center of the refuge at Tern Island, French Frigate Shoals, by the U.S. Coast Guard. Other stations are maintained by the U.S. Navy in the Midway Islands about 100 miles northwest of Pearl and Hermes Reef and by a private individual at Kilauea Point, Kauai, about 175 miles southeast of Nihoa Island. Precipitation throughout the year was very near the 39 inch normal at French Frigate Shoals, the 59 inch normal at Midway Islands, and the 50 inch normal at Kilauea Point, Kauai.

Temperatures generally ranged from 70° to 85°F during the summer months and 50° to 80°F during the winter months.

B. Habitat Conditions:

1. Water: The only significant wetland habitat within the refuge is the brackish water lagoon on Laysan Island. Conditions on Laysan during the July 1974 visit were much improved from the July 1973 conditions. The lagoon site is particularly important to the endangered Laysan duck.

2. Food and Cover: Extensive growth of Iponea sp. covered much of the area between the shoreline and the lagoon water edge. This provided needed cover for the Laysan duck on its feeding forays.

II. WILDLIFE

A. Migratory Birds: The refuge has been visited at least once each year to inventory wildlife and monitor conditions. Such a visit requires approximately two weeks. Surface transportation has been provided by the U.S. Coast Guard. This year's inventory occurred July 11-21.

Waterfowl: The only waterfowl present during the 1974 visit was the endangered Laysan duck which is discussed elsewhere. Migratory ducks utilize the refuge briefly during the fall and spring months. Species believed to occur regularly include mallards, pintails, green-winged teal, American wigeon, and Northern shoveler.

Seabirds: Up to 188,000 Laysan albatross, 55,000 black-footed albatross, 10,000 Christmas shearwaters, 144,000 wedge-tailed shearwaters, 500,000 Bonin petrels, 150,000 Bulwer petrels, 800 sooty storm petrels, 2,000 red-tailed tropicbirds, 2,000

blue-faced boobies, 10,000 red-footed boobies, 450 brown boobies, and 6,000 great frigatebirds used the refuge during the year. Peak populations occur during the spring/summer nesting season.

Shorebirds: Up to 8,000 American golden plovers, 1,500 bristle-thighed curlews, 400 wandering tattlers, 3,400 ruddy turnstones, 2,000 sanderlings, 20 pectoral sandpipers, 10 sharp-tailed sandpipers used the refuge during fall and spring migrations and the winter season.

Terns: Up to 30,000 gray-backed terns, 2,000,000 sooty terns, 1,500 blue-gray noddies, 35,000 brown noddies, 12,000 black noddies, and 4,000 white terns used the refuge during the year.

B. Upland Game Birds: None.

C. Big Game Animals: None.

D. Fur Animals, Predators, Rodents, and Other Mammals: The Hawaiian monk seal is discussed in the section on threatened and endangered species.

E. Raptors and Other Predatory Birds: None.

F. Other Birds: The Nihoa millerbird, Nihoa finch, and Laysan finch are discussed in the threatened and endangered species section.

G. Fish: The reef fauna of the refuge is rich but no studies or inventories were conducted during the year.

H. Reptiles and Amphibians: The green sea turtle is discussed in the threatened and endangered species section and in Section V.

I. Disease: None known.

J. Banding: None.

K. Threatened and Endangered Species:

Laysan Duck: The July 18-19, 1974 lagoon counts indicated a population of 32 adult birds and 37 young birds for this endangered species. The total population of 69 birds was good news following the 1973 count of just 24 birds; the lowest count since the census was initiated in 1967. The highest count was 239 birds that year. The Laysan Duck Recovery Plan Team, with Manager Sekora as leader, held its initial gathering to assign tasks on June 23.

Hawaiian Monk Seal: The total refuge population of this threatened species is thought to be about 1,000 animals. The following figures were obtained between July 13 and July 18:

	<u>Adult</u>			<u>Sub-adult</u>			<u>Pups</u>	<u>Juv</u>	<u>Total</u>
	<u>M</u>	<u>F</u>	<u>U</u>	<u>M</u>	<u>F</u>	<u>U</u>			
Lisianski	10	10	26	3	2	27	18	7	103
Laysan Island	12	11	74	11	9	31	38	0	186

French Frigate Shoals (not counted) - estimated 136.

Nihoa Millerbird: The July 23, 1974 transect calculations indicate this endangered Old World warbler to number about 507 birds. The highest population estimate was 625 birds in 1967. The lowest estimation was 198 birds in 1973. Transects were established in 1967.

Nihoa Finch: The July 23, 1974 transect calculations indicate this threatened Hawaiian honeycreeper to number about 4,953 birds. The highest population estimate was 6,686 birds in 1968. The lowest estimation was 1,318 birds in 1973. Transects were established in 1967.

Laysan Finch: The July 18-19, 1974 transect results indicate this threatened Hawaiian honeycreeper to number about 7,478 birds. The highest population estimate was 12,350 birds in 1973. The lowest estimation was 6,764 birds in 1970. Transects were established in 1966.

Green Sea Turtle: Up to 575 threatened green sea turtles were estimated to use the refuge, primarily French Frigate Shoals, during the year. During the July visit, nine turtles and 94 pits were counted at Lisianski Island and a single turtle and two pits were counted at Laysan Island. A long-term study on green turtles is being conducted on the refuge. Additional information can be found in Section V.

Short-tailed Albatross: Although not occurring on the refuge, the third consecutive winter appearance of a single endangered short-tailed albatross at Midway Island is noteworthy. The bird's band was read by Manager Sekora in November. The bird departed once again in mid-March. A banding report indicated that the bird was banded on March 10, 1964 as a fledgling near Tori Island, Japan, by the Yamashima Institute of Ornithology.

III. REFUGE DEVELOPMENT AND MAINTENANCE

- A. Physical Development: None.
- B. Plantings: None.
- C. Collections and Receipts: None.
- D. Control of Vegetation: None.
- E. Planned Burning: None.
- F. Fires: None.

IV. RESOURCE MANAGEMENT

- A. Grazing: None.
- B. Haying: None.
- C. Fur Harvest: None.
- D. Timber Removal: None.
- E. Commercial Fishing: The Hawaii Division of Fish and Game notified us in May that a permit had been issued to the skipper of the "Seahawk." Manager Sekora and Special Agent Dillon met with Peter Norneff of the "Seahawk" on May 19. The permit had been issued for the harvest of lobster around the shoal areas of the refuge. Mr. Norneff was not aware of the refuge boundaries prior to the meeting.
- F. Other Uses: The U.S. Coast Guard maintains a manned Loran Station on Tern Island, French Frigate Shoals, by refuge permit. The agency proposed needed runway and bulkhead repairs to be conducted in FY 1976. Refuge personnel agreed to identify natural resources affected and to suggest methods and a time-frame to minimize impact.

V. FIELD INVESTIGATION OR APPLIED RESEARCH

- A. Progress Report: A long-term study of the Pacific green sea turtle continued at French Frigate Shoals. Mr. Balazs returned 25 green turtles to French Frigate Shoals aboard the U.S. Coast Guard Buoytender BUTTONWOOD in May. The animals had originally been transported to Hawaii as hatchlings for his study.
- B. Preliminary Plan: Initial discussions were held with Dr. George Harry, Director of the Marine Mammal Laboratory, Seattle,

in February, to promote the need for Hawaiian monk seal investigations on the refuge.

VI. PUBLIC RELATIONS

- A. Recreational Uses: None authorized.
- B. Refuge Visitors: Mr. Bruno Vailati and film crew visited the refuge in the first half of 1974 to gather footage for a film on Hawaii. He was accompanied to Pearl and Hermes Reef by Captain Roger Kersch, Commanding Officer at Midway Island.
- C. Refuge Participation: Manager Sekora presented a program on refuge resources to 25 University of Hawaii Marine Biology students in November.
- D. Hunting: None.
- E. Violations: None known.
- F. Safety: Nothing to report.

VII. OTHER ITEMS

A. Items of Interest: In late July Manager Sekora met with Hawaii Department of Land and Natural Resources Director Kito, Hawaii Division of Fish and Game Director Takata, Hawaii Deputy Attorney General Akita and Regional Solicitor Renda to discuss the refuge wilderness proposal in relation to disagreement over use of refuge waters by commercial fishermen.

Various activities in relation to the Sikes Act in and outside Hawaii were performed during the year including visits to Guam (Andersen Air Force Base) in October and March. Midway Atoll was visited in November. A report was received shortly after the visit that mass albatross killings were occurring there. Manager Sekora returned to the island in February to conduct an investigation into the killings. A total of 220 birds had been killed by that time. Suspects had been identified and were under investigation by Navy Security. A television appearance was made as well as numerous individual contacts to inform everyone about the birds' protection under the Migratory Bird Treaty Act and the possible consequences of violating the Act. Communications in April indicated no additional bird kills. A \$500 reward and Manager Sekora's February visit lead to the apprehension and conviction of the violators. The reward was collected by island residents.

Considerable attention throughout the year was given to the Hawaii Endangered Waterbird Refuge program on the main Hawaiian Islands. Specific project areas are the Pearl Harbor and Kahuku units on Oahu, the Kakahaia Pond unit on Molokai, the Kealia Pond unit on Maui and the Opaeula Pond unit on Hawaii.

The new U.S. Coast Guard Commander at French Frigate Shoals Loran Station was briefed on the refuge in April. Manager Sekora visited Tern Island, French Frigate Shoals, in May to review former sooty tern problems and subsequent solutions.

Manager Sekora presented a paper on the status of marine birds in the Aleutian Islands to the Seabird Symposium at Seattle, Washington, in May. The symposium was jointly sponsored by the U.S. Fish and Wildlife Service and the National Audubon Society.

The Manager attended a public hearing regarding the proposed National Fisheries Plan and answered questions on islands and waters within the refuge.

This report was prepared by Manager Sekora and Assistant Manager Zeillemaker.

Submitted by:

Palmer C. Sekora
(Signature)

1/3/77
(Date)

Refuge Manager
(Title)

APPROVED, Regional Office

Edward J. Smith
(Signature)

Senior Staff Specialist Ops + IR
(Title)

2-3-77
(Date)

HULEIA NATIONAL WILDLIFE REFUGE

(Island of Kauai)

NARRATIVE REPORT

FY 1975

(July 1974 - June 1975)

DEPARTMENT OF THE INTERIOR

U.S. FISH AND WILDLIFE SERVICE

KILAUEA, HAWAII 96754

I. GENERAL

A. Weather Conditions:

Heavy island-wide rains January 31 caused Huleia Stream to reach levels it hadn't attained since prior to 1920 according to local residents. The estimated water depth across the undeveloped lowlands of the refuge was 8 feet. The only known damage was the stretching of fence wire by toppled banana trees. Rainfall the last 5 months of the year was below normal resulting in an annual total of 33.6 inches, 25 percent below the Puhi normal of 43.2 inches.

Warm and humid daytime weather prevailed throughout the year. Winter highs average near 75°F. Summer highs average about 80°F. Winter lows average near 60°F and summer lows average near 70°F.

B. Habitat Conditions:

1. Water: Water is plentiful most of the year with the possible exception of the dry summer months. Huleia Stream is estuarine throughout nearly all of its length through the refuge. An old ditch enters the western end of the refuge from the stream above the refuge and irrigation stream enters the eastern portion of the refuge. No water studies have been performed.

2. Food and Cover: Waterbird cover consists of dense introduced grasses (Panicum sp), bulrushes (Scirpus californicus), brush and hau trees (Hibiscus tiliaceus). Until marshes, ponds, taro units, or other management programs are developed or initiated, vegetation will most likely remain rank. Permittee cattle have difficulty utilizing all the vegetation, particularly during wet months when the poorly-drained ground is softened by standing water. Food conditions appear to be good for Koloa (Hawaiian duck). A few gallinules and coots forage along streambanks all but the driest parts of the year.

II. WILDLIFE

A. Migratory Birds: Migratory birds recorded on the refuge include an occasional mallard, a few golden plovers, and a few wandering tattlers. A few resident black-crowned night herons forage along the water courses through the refuge.

B. Upland Game Birds: A moderate population of ring-necked pheasants, zebra or barred doves, and Chinese spotted doves occur on the refuge.

C. Big Game Animals: None.

D. Fur Animals, Predators, Rodents, and Other Mammals: None observed.

E. Raptors and Other Predatory Birds: The pueo (short-eared owl) and introduced barn owl occur on the refuge.

F. Other Birds: All song birds occurring on the refuge are introduced. Species recorded during the year were the greater necklaced laughing thrush (Southeast Asia), melodious laughing thrush (China), common mynah (Southeast Asia), Japanese white-eye, white-rumped shama (Southeast Asia), western meadowlark, house sparrow, scaly-breasted munia or ricebird (Southeast Asia), red-crested cardinal (South America), cardinal, and house finch.

G. Fish: Species found in the estuary include 'ama 'ama (grey mullet), awa (milkfish), awa 'aua (Hawaiian tarpon), Ulua or papio (jack), aholehole, and o'opu naniha (goby).

H. Reptiles and Amphibians: Introduced geckos and skinks are found on the refuge.

I. Disease: None observed.

J. Banding: None.

K. Threatened and Endangered Species: Refuge acquisition was initiated with the purchase of about 215 acres in June 1973. An additional 15 acres was acquired during this fiscal year. Ultimate wetland development would include about 100 acres. The valley once supported rice and taro agriculture. It has been about 40 years since taro farming ceased. Only remnant diking and ditch systems remain, but due to the level floodplain the dikes still contain some shallow marshy areas during all but the driest months. Those marshy areas are particularly attractive to the Koloa (Hawaiian duck). Observed populations, considered minimal, ranged from 10 to 20 birds during the year. The adjacent Menehune Fish Pond is considered very important in supplementing refuge habitat.

A few Hawaiian gallinule were observed during the year and Hawaiian coots frequent the Huleia Stream estuary and the Menehune Fish Pond that adjoins the east end of the refuge. The peak fish pond coot population during the year was 26 birds on August 3.

III. REFUGE DEVELOPMENT AND MAINTENANCE

- A. Physical Development: Fencing to allow cattle grazing as a tool in retarding habitat succession (from grass to brush and trees) was constructed by YCC youths and the refuge grazing permittee in July and August.
- B. Plantings: None.
- C. Collections and Receipts: None.
- D. Control of Vegetation: The grazing permittee cut brush and small trees throughout the year. YCC youths cut nearly two acres of hau trees in the lowlands in June.
- E. Planned Burning: None.
- F. Fires: None.

IV. RESOURCE MANAGEMENT

- A. Grazing: A single permittee utilized 158 acres for 749 AUMs.
- B. Haying: None.
- C. Fur Harvest: None.
- D. Timber Removal: None.
- E. Commercial Fishing: None.
- F. Other Uses: Three long-time residents of the valley reside in a single dwelling within the refuge boundaries on a "lifelong" basis. The three Halemanu brothers, a garden and yard, cover nearly three acres. A small cabin within the refuge is rented to Henry Kanoho. It is hoped that an exchange of lands with Mr. Kanoho may eventually be consummated resulting in the upland cabin site being exchanged for potential waterbird habitat in the lowlands.

V. FIELD INVESTIGATION OR APPLIED RESEARCH

None.

VI. PUBLIC RELATIONS

- A. Recreational Uses: Public use is restricted to a county road overlook at the Menehune Fish Pond adjacent to the refuge

and fishing along the Huleia Stream estuary. An estimated 29,830 visitors spent about 1110 A/H enjoying wildlife-oriented recreation (mainly fishing) on the refuge during the year.

B. Refuge Visitors: Various Washington and Regional Office personnel visited the refuge during the year.

C. Refuge Participation: Covered in the Hanalei Refuge narrative.

D. Hunting: None.

E. Violations: None known.

F. Safety: Nothing to report

VII. OTHER ITEMS

A. Items of Interest: An assistant refuge manager position for the Kauai refuges was filled in August. A subheadquarters was established at Kilauea about 25 miles north of the refuge.

This report was prepared by Assistant Refuge Manager Zeillemaker.

Submitted by:

Palmer C. Sekora
(Signature)

1/3/77
(Date)

Refuge Manager
(Title)

APPROVED, Regional Office

Edward J. Smith
(Signature)

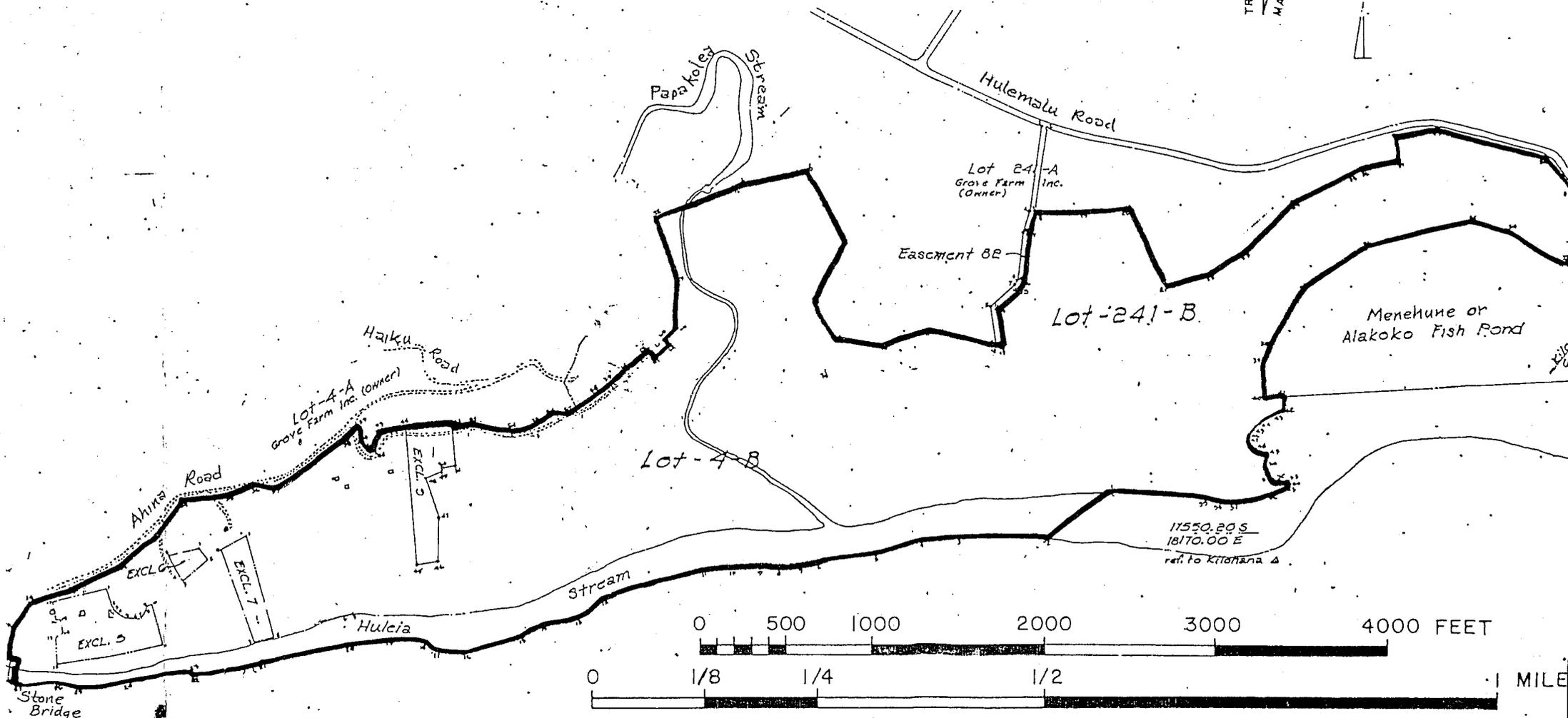
Senior Staff Specialist Ops & Inv
(Title)

2-3-77
(Date)

HULEIA NATIONAL WILDLIFE REFUGE

KAUAI COUNTY, HAWAII
LIHUE DISTRICT

TRUE NORTH
MAGNETIC N
11°15'
MEAN DECLINATION
1974





This portion of the Huleia Valley now in the refuge
once produced rice and taro.



A view of the Huleia Refuge north boundary from
Ahina Road.

JOHNSTON ATOLL NATIONAL WILDLIFE REFUGE

NARRATIVE REPORT

FY 1975

(July 1974 - June 1975)

DEPARTMENT OF THE INTERIOR
U.S. FISH AND WILDLIFE SERVICE
KAILUA, HAWAII 96734

I. GENERAL

A. Weather Conditions:

The National Weather Service maintains a weather station on Johnston Island at Johnston Atoll. Precipitation recorded during FY 1975 totaled 14.94 inches. Normal annual precipitation is 28.06 inches.

Average daily temperature ranged from 76.0° to 81.2°F during the year. Temperature extremes ranged from 67° to 86°F.

B. Habitat Conditions:

1. Water: No fresh water occurs on the refuge.

2. Food and Cover: Habitat conditions were extremely dry this period. Fimbristylis sp. is the dominant plant and provides limited nesting habitat. Growth was not vigorous and the plant was eliminated in areas on Sand Island due to intensive sooty tern use.

II. WILDLIFE

A. Migratory Birds: The refuge was visited once during the year to inventory wildlife. Air transportation was provided by the U.S. Air Force. The inventory occurred in January.

Seabirds: Up to 25 Christmas shearwaters, 2,000 wedge-tailed shearwaters, 30 red-tailed tropicbirds, 130 blue-faced boobies, 1,600 red-footed boobies, 75 brown boobies, and 1,500 great frigatebirds used the refuge during the year. Peak populations occurred during the spring and summer months.

Shorebirds: Up to 100 American golden plovers, 2 bristle-thighed curlews, 8 wandering tattlers, 75 ruddy turnstones, and 3 sandelings used the refuge during the fall and spring migrations and the winter season.

Terns: Up to 100 gray-backed terns, 200,000 sooty terns, 1,500 brown noddies, 20 black noddies, and 10 white terns used the refuge during the year. A herring gull was present on January 9, 1975.

B. Upland Game Birds: None.

C. Big Game Animals: None.

D. Fur Animals, Predators, Rodents, and Other Mammals: The house mouse and roof rat populations were quite low and presented minimal threat to nesting species.

- E. Raptors and Other Predatory Birds: None,
- F. Other Birds: None known.
- G. Fish: Marine water fishing is a popular recreational outlet. It is regulated by Base instructions.
- H. Reptiles and Amphibians: Green sea turtles are present and up to 25 were observed this period. Harvest was stopped in April per our request due to the limited number.
- I. Disease: None known.
- J. Banding: None.
- K. Threatened and Endangered Species: The green sea turtle was proposed for the Endangered Species List. We requested that the Defense Nuclear Agency completely eliminate any harvesting. They complied with our request.

III. REFUGE DEVELOPMENT AND MAINTENANCE

- A. Physical Development: None.
- B. Plantings: None.
- C. Collections and Receipts: None.
- D. Control of Vegetation: None.
- E. Planned Burning: None.
- F. Fires: None.

IV. RESOURCE MANAGEMENT

- A. Grazing: None.
- B. Haying: None.
- C. Fur Harvest: None.
- D. Timber Removal: None.
- E. Commercial Fishing: None authorized.
- F. Other Uses: Nothing to report.

V. FIELD INVESTIGATION OR APPLIED RESEARCH

None.

VI. PUBLIC RELATIONS

- A. Recreational Uses: Military personnel stationed at Johnston Atoll visit the refuge during scuba diving and fishing activities.
- B. Refuge Visitors: Refuge Supervisor Edward J. Smith and Regional Solicitor Charles Renda visited the refuge.
- C. Refuge Participation: Negotiations for a Memorandum of Understanding with the Department of Defense regarding our responsibilities at Johnston were continued.
- D. Hunting: None.
- E. Violations: None known.
- F. Safety: Nothing to report

VII. OTHER ITEMS

A. Items of Interest: Manager Sekora met with U.S. Air Force personnel in February to discuss proposed disposal of Herbicide Orange at Johnston Atoll. He also attended a public hearing in April concerning the incineration of the defoliant at Johnston Island. The Environmental Protection Agency presented a statement that a 6-month moratorium would be held on further incineration pending further investigations by commercial companies in an effort to eliminate the dioxin toxin from the chemical so it could be used as a commercial fertilizer.

The new U.S. Coast Guard Loran Station Commander was briefed on the refuge in April.

This report was prepared by Manager Sekora and Assistant Manager Zeillemaker.

Submitted by:

Palmer C. Dekora
(Signature)

1/3/77
(Date)

Refuge Manager
(Title)

APPROVED, Regional Office

Edward J. Smith
(Signature)

Senior Staff Specialist Jr. - I & R
(Title)

2-3-77
(Date)

ROSE ATOLL NATIONAL WILDLIFE REFUGE

NARRATIVE REPORT

FY 1975

(July 1974 - June 1975)

DEPARTMENT OF THE INTERIOR

U.S. FISH AND WILDLIFE SERVICE

KAILUA, HAWAII 96734

I. GENERAL

The refuge contains one of the smallest atolls known. The total land surface is about 18 acres. The nearly square, two statute mile-wide atoll, is 78 miles east-southeast from the nearest American Samoan island of Tau and 150 miles east-southeast of Pago Pago Harbor on Tutuila Island.

A. Weather Conditions:

The National Weather Service maintains a weather station at Pago Pago (island of Tutuila) over 150 miles west-northwest of the refuge. Several consecutive dry years have been experienced in American Samoa. The FY 1975 precipitation at Pago Pago measured 106.46 inches. Normal annual precipitation is 128.54 inches.

Average daily temperatures ranged from 78.1° to 81.1°F during the year at Pago Pago. Temperature extremes there ranged from 70° to 95°F.

B. Habitat Conditions:

1. Water: No fresh water occurs on the refuge.

2. Food and Cover: Most food for wildlife using the refuge is found outside the refuge. The one tree occurring on Rose Island has recently suffered a massive dieoff for unknown reasons. The continuing loss of the buka (Pisonia grandis) trees is forcing arboreal roosting and resting seabirds to concentrate in the remaining live trees. The treeless center of the island appears as a devastation area with tree trunks and branches strewn everywhere. Continued drought conditions may be a factor in the dieoff. Only five species of plants are known to inhabit Rose Atoll. Included in the flora is the coconut palm, a bush, two low-growing forbs, and the buka tree.

II. WILDLIFE

A. Migratory Birds: The refuge has been visited once or twice each year to inventory wildlife and monitor conditions. Such a visit requires 4 or 5 days. Transportation has been provided by the Government of American Samoa. This year's inventory aboard the ALOFAGA occurred in November.

Seabirds: Up to 3 reef herons, 250 red-tailed tropicbirds, 60 blue-faced boobies, 800 red-footed boobies, 3,300 brown boobies, 200 great frigatebirds, and 50 lesser frigatebirds

used the refuge during the year. Peak populations tend to occur during the southern hemisphere spring, summer, and fall (October through May).

Shorebirds: Up to 10 American golden plovers, 2 bristle-thighed curlews, 2 wandering tattlers, and 10 ruddy turnstones used the refuge during the year. As these birds are wintering away from northern hemisphere nesting grounds, their peak numbers also occur during the Samoan spring, summer, and fall.

Terns: Up to 400,000 sooty terns, 3,700 black noddies, 25 brown noddies, and 900 white terns used the refuge during the year. Peak populations tend to occur during the October-May nesting season.

B. Upland Game Birds: None.

C. Big Game Animals: None.

D. Fur Animals, Predators, Rodents, and Other Mammals: The only mammal inhabiting the atoll is the Polynesian rat. It is possible that the animal is a relatively recent introduction to Rose Island. It is suspected that the rat is responsible for substantial bird egg, chick, and turtle hatchling predation. During the November visit, rats were observed attacking two hatchlings. Both attacks were interrupted before the hatchlings were killed. One had only part of the shell chewed away, while the other had a large part of the head including the eyes missing. An in-depth study is definitely required.

E. Raptors and Other Predatory Birds: None.

F. Other Birds: None known.

G. Fish: The variety of fish in the refuge lagoon may number over 1,000 species. No thorough studies have been conducted.

H. Reptiles and Amphibians: The green sea turtle and hawksbill turtle are discussed in the section on threatened and endangered species.

I. Disease: None known.

J. Banding: None

K. Threatened and Endangered Species:

Green Sea Turtle: The refuge is a very important nesting ground for the threatened green sea turtle in the South Pacific. During the November visit 135 recently dug pits were found on Sand Island and 173 recently dug pits were counted on Rose Island. Another 124 old pits were also tallied on Rose Island. The total

pits compare favorably with the 301 pits counted in 1970. During the night of November 22, 11 large animals landed on Rose Island. One female was observed while laying eggs. That observation was the first for the refuge. Equally significant was the first observation of six hatchlings emerging from a nest. Government of American Samoa biologists reported 200 turtles in the refuge lagoon during an August overflight.

Hawksbill Turtle: A flight over the refuge was conducted on June 11 to census endangered hawksbill turtles. The animals have been only rarely detected during October-November visits when green turtles are present in good numbers. Government of American Samoa biologists reported several hawksbill turtles to be present during an aerial survey in May 1974. The biologists state that the species nests on the refuge May through July. During the 1975 flight three animals were observed. Two animals were observed during the November surface visit.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development: An 8 foot by 4 foot refuge recognition sign was placed on the western shore of Rose Island facing the lagoon. Two metal boundary signs on 4 by 4 posts were also placed on Rose Island and one was placed on Sand Island near the entrance to the lagoon.

The large redwood sign has "no trespassing" in English, Japanese, Chinese, and Korean. It is hoped that foreign fishing crews will avoid landing on the island simply out of curiosity.

- B. Plantings: None.
- C. Collections and Receipts: None.
- D. Control of Vegetation: None.
- E. Planned Burning: None.
- F. Fires: None.

IV. RESOURCE MANAGEMENT

- A. Grazing: None.
- B. Haying: None.
- C. Fur Harvest: None.
- D. Timber Removal: None.

E. Commercial Fishing: None authorized.

F. Other Uses: None authorized.

V. FIELD INVESTIGATION OR APPLIED RESEARCH

A. Program Initiation: Late in the year a Federal Aid study to be conducted by Environment Consultants, Inc., was being negotiated and drafted to include two spring and two fall visits to the refuge over a period of 2 years beginning next fiscal year. The study will include all islands of American Samoa and will be called "A Survey and Inventory of Wildlife and Wildlife Habitat of the Islands of American Samoa." A formal request from ECI was received in late June. A refuge Special Use Permit will be issued to allow the scientists to accompany refuge personnel to the refuge.

VI. PUBLIC RELATIONS

A. Recreational Uses: None authorized.

B. Refuge Visitors: Refuge Supervisor Edward Smith along with American Samoan Governor Hayden and staff attempted to visit Rose Atoll. However high winds and seas prevented it. A small boat was destroyed in the attempt.

C. Refuge Participation: See paragraph A under VI. Other Items.

D. Hunting: None.

E. Violations: None known.

F. Safety: Nothing to report.

VI. OTHER ITEMS

A. Items of Interest: Manager Sekora met with newly appointed American Samoa Governor Ruth in February. The Governor was briefed on the refuge, our activities, and the cooperative agreement with the Government of American Samoa.

Manager Sekora accompanied Special Agent Dillon to American Samoa in early June. Mr. Dillon was oriented to American Samoa and the refuge (during a June 11 overflight to census hawksbill turtles).

Surveillance flights over the refuge were initiated in December. Two flights per month were conducted through February. After that, monthly flights were authorized. Government of American Samoa, Office of Marine Resources personnel accompanied the crew of the local airline.

This report was prepared by Manager Sekora and Assistant Manager Zeillemaker.

Submitted by:

Palmer C. Sekora
(Signature)

1/3/77
(Date)

Refuge Manager
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APPROVED, Regional Office

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