HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF FORESTRY AND WILDLIFE
KAUA DISTRICT
3060 E WA STREET, ROOM 306
LIHUE KAUA HAWAII 96766 [illegible]

IN REPLY REFER TO

November 25, 1998

Kevin Foster
U.S. Fish & Wildlife Service
Pacific Islands Office
Rm 3-122 Box 50088
Honolulu, HI 96850

Dear Kevin:

Thanks for your input on the Ka'ula Survey Report. I incorporated all of your suggestions, except your last suggested sentence on page 2 paragraph 3, where you said "However, we were unable to determine whether the birds had previously become weakened by exposure to or ingesting oil." I presumed that you were referring to the possibility of oil being a contributory factor to their being preyed upon. To me, this would really be stretching it. I felt that it would appear to extend oil contamination as a possible causative factor of predation. We have known barn owls to be on Ka'ula for many years. They are predators, and will take birds whether oiled or not.

I used your suggested language for the recommendation on page 6, but left in the part about establishing an M.O.U., because otherwise it would not have been a recommendation at all. I think it would be useful to get some prior understanding in some document before it comes up again.

Please forward Ron Walker's copy to him.

Sincerely,

Tom Telfer

Tom C. Telfer
District Wildlife Biologist

KA'ULA ROCK SURVEY TRIP REPORT
November 16-17, 1998

Introduction:

The purpose of this trip was twofold: 1) A survey of the Ka'ula seabird population for possible impacts resulting from the "Tesoro Oil Spill" that occurred in early August 24, 1998, 2) To monitor the status of the Ka'ula seabird population as part of D.L.N.R.'s ongoing seabird sanctuary management program.

This was the ninth seabird survey trip made to Ka'ula Rock since the early 1970's Former survey trips were made through the cooperation of the U.S. Navy which provided transportation via U.S. Navy or Marine Corps helicopters. Preparations for this trip and provision of transportation to Ka'ula Rock were delayed for two months after the Tesoro oil spill, because clearance from the U.S. Navy to land on the island, and arrangement for transportation was much more difficult than in the past. However, we gratefully acknowledge the efforts and assistance of Rebecca K. Hommon, Regional Counsel, U.S.N. COMNAVBASE, and Lt. Bob Spaulding, of the U.S. Coast Guard for obtaining permission to conduct the survey and provide the necessary transportation to do the job. The trip was scheduled for and conducted on November 16-17, 1998. The U.S. Coast Guard provided transportation to and from Ka'ula Rock via their Dolphin search and rescue helicopter.

Participating personnel on the survey were:

1. Ronald L. Walker, Wildlife Biologist, Ecological Services Branch, U.S. Fish and Wildlife Service
2. Thomas C. Telfer, Kauai Branch Wildlife Manager, Division of Forestry and Wildlife, D.L.N.R.
3. David Smith, Oahu Branch Wildlife Manager, Division of Forestry and Wildlife, D.L.N.R.
4. Alan Silva, Wildlife Management Assistant, Division of Forestry and Wildlife, D.L.N.R.
5. Chief Petty Officer Sean Cole, E.O.D. Specialist, U.S. Navy

Methods:

All survey personnel were transported in two separate helicopter flights from Pacific Missile Range Facility, Barking Sands on Kauai to Ka'ula Rock between 08:50 and 11:30 on November 16, 1998. Upon arrival on Ka'ula Rock, C.P.O. Cole tested the adequacy of emergency communications with a commercial cellular telephone and portable VHF radio. He provided survey personnel with a thorough briefing on the hazards of unexploded ordinance while surveying the island. He accompanied all personnel across the crest of the island, and specifically remained with survey personnel while in the impact zone.

A camp was set up in a cave located just over the southeastern crest of the

northern part of the island, approximately 100 feet from the helicopter L.Z.

The island was divided into four sectors. Each biologist was assigned one sector to survey as follows: 1) A. Silva, 2) D. Smith, 3) T. Telfer, and 4) R. Walker. (See Figure 1). Species were to be enumerated by age class where possible. The larger colonies were to be mapped as to their location. All seabirds, but particularly boobies, were to be examined for possible oil contamination. Any dead carcasses found were to be inspected for possible traces of oil. Samples of oil contaminated feathers were to be preserved and brought back for analysis if they were found. Notes were to be taken on mammals such as rats or mice, unusual plant life, lizards, or atypical birds seen, including Barn owls that have previously been seen there.

Weather during the survey was generally good. During the daytime, it was sunny with partly cloudy skies. Winds were ocasionally brisk and ranged between five and 25 mph., depending upon time and location on the island. In the early evening, we were struck by several localized rain squalls, one in particular was rather heavy and lasted about a half an hour. Despite the size of the camp cave, considerable runoff from the squall poured down the face of the cave and was blown in upon us and our gear. Fortunately, we had only minimal showers thereafter, and were spared a really miserable night. C.P.O. Cole reported having seen a small waterspout offshore prior to the squall.

Findings:

This survey was conducted two months later than would have been ideal for the assessment of oil contaminated birds, and at a time when bird activity is minimal because it is the off season for breeding. We did not find any oil contaminated birds. All of the dead carcasses that we did observe appeared to be preyed upon by owls. No visible tar balls or evidence of oil was seen on the rocky ledges surrounding the island. Table 1 enumerates the species observed in each sector, and lists population estimates for those species that we saw. Table 2 shows the results of the previous nine Ka'ula surveys, along with this year's survey.

This survey was conducted during the time of year when several species of seabirds were in their non-nesting cycle. Some species were noticeably absent from the island: Particularly the terns. Brown noddies and sooty terns in previous surveys have numbered in the tens of thousands. Grey-backed terns, blue-grey noddies, fairy terns and Hawaiian terns are usually fewer in number than the brown noddies and sooties. Only one blue grey noddy was seen during this year's survey. An undetermined number of Sooty terns was heard over the Northwestern cliffs of the island apparently resting on a ledge north of the helicopter L.Z. in the afternoon of November 16. A few were seen flying over the island at dusk. Many were heard all night long, but they disappeared again at daybreak. Even though this survey was conducted during a quiet period for seabirds, it did enable us to make an assessment during the late-autumn, a time for which we have not surveyed before.

Vegetation was very sparse and desiccated, owing to the effects of the past El Nino, and sub-normal autumn rainfall. Grasses were almost nonexistent. Morning glory, koko, alaweo, ilima, and portulaca were the most abundant, but not in the best of vigor. Although a botanical survey was not conducted, Table 3 lists those plant species formerly found on Ka'ula that were casually observed during this trip. One new plant species was observed and collected from a gulch on the western slope of the island that appeared to be in the Hibiscus family. A specimen was collected and referred to the Pacific National Tropical Botanical Garden botanist Timothy Flynn for identification. It was determined to be milo, *Thespesia populnea*. The shrub was about five feet tall and had a woody trunk about 2 inches in diameter. It was located at approximately 200 feet elevation in the lower end of a rill in the sloping volcanic tuff that runs due west of the island's summit. Just how this large seeded plant became established in this locality is an interesting question, unless it is a remanant of early Hawaiian visitation.

Species Comments:

Laysan Albatross: Albatrosses had just returned to Ka'ula to breed and were seen courting, and copulating. Only one nest was observed with an egg under incubation. This species was widely dispersed over the island. Several Individual birds utilized some of the larger holes and caves on the interior of the island's crescent to roost and will presumably nest there.

Black-footed Albatross: Only nine of this species was observed. These have always been fewer in number than the Laysan albatrosses. They were more prone to associate in nesting in groups that were the Laysan albatrosses. Most of the black-foots were roosting on the upper Northwestern part of the island. None were incubating.

Red-footed Booby: This was the most common booby seen during the daylight hours of the survey. There were several rookeries on the interior slope of the crescent. The largest appeared to be near the Northwestern edge of the impact zone within sector four, probably because they prefer to nest and roost on vegetation which was lacking elsewhere. Many of them were immature birds. Only one active nest was seen.

Brown Booby: Fewer than fifty of this species was seen during the daylight hours. Several were flighted, immature birds, or very close to it. They were dispersed over a wide portion of the island's crest. A few were seen in cavities along the rock hewn rills on the central western slope of the island.

Masked Booby: Only a hundred or so masked boobies were seen during the daylight hours on Ka'ula, but several hundred others returned to the island to roost at dusk. Most of them seem to prefer the crest of the island over the lower slopes.

Wedge-tailed shearwaters were close to the end of their nesting season. Only a few young birds remained on the island and appeared to be within a week or two of

fledging. This species is difficult to census on Ka'ula, because most of the nesting habitat is located within the steep interior crescent where there is some soil for burrows, but it is also unsafe to traverse on foot. Rock crevices are the only other sites available to them. The vegetation necessary to shore up burrow entrances was lacking this year due to the exceptionally dry weather. Young birds were observed leaving their burrows for the shelter of the large cave in which we were camped when a heavy downpour drenched their nest sites.

Red-tailed and White-tailed Tropic birds were very uncommon. It was early for their nesting season.

Noddies and Terns: All species of noddies and terns were gone from the island, except for a sizeable flock of sooty terns that congregated on a ledge on the northwestern side of the island. They could only be confirmed during daylight by their vocalizations, but appeared in the air above the island at dusk and could be heard flying overhead all night. Brown noddies, Hawaiian noddies, grey-backed terns and fairy terns were not seen at all, as this is the time of year when no nesting takes place. One blue grey noddy was observed during the daytime.

Great Frigatebird: Frigatebirds were quite numerous during the survey. The larger concentrations of them roosted in colonies on protected outcrops on the interior slope of the crescent. Several immature birds were observed on their platform nests where remains of some vegetation could be found. Huge flocks of several hundred frigates congregated over the island in the morning and evening.

Shorebirds: A dozen or so Pacific golden plover, and another dozen ruddy turnstones were seen on the island during the survey. There did not appear to be much suitable habitat for them.

Passerines: Up to eight house finches were seen on the island. Some were reportedly "yellowish" in color, causing speculation that they could be Nihoa Finches, but no confirmation of that was made. Again, the dry habitat probably limited these passerines to very low numbers.

Barn Owls: At least three separate barn owls were flushed from crevices in the rocky outcrops of the upper island. When they were flushed from their caves during daylight, the owls were mobbed by resident seabirds. They quickly sought refuge in other caves. No young owls or eggs were found in nests during this survey. Roosting caves contained hundreds of carcasses of terns. Remains of a sooty tern, and a nestling wedge-tailed shearwater were the only fresh prey items identified.

Rats: A very few Polynesian rats were seen while we were on the island. Being rather small and non-aggressive, they are probably more scavengers than serious predators, except perhaps when smaller prey such as terns and their eggs are present.

Lizards: The only reptile seen was the Snake-eyed skink, which was fairly common over most of the island.

Marine Mammals: No hump-backed whales or Hawaiian monk seals were observed during the two days of survey. Spinner dolphins were the only species seen..

Estimated Seabird Census Totals: Because this survey was conducted during the time of year when most of the seabirds are not nesting, and several species were gone from the island all together, it was difficult to compare with survey results made at other times of the year. Daytime census information was insufficient to obtain real population numbers, because many of the birds return to the island only after dusk having been feeding at sea. E.O.D. Specialist Cole would not allow us to survey the island at night with headlamps for safety reasons, but did permit us to survey up until dark, which enabled us to gauge the relative numbers of birds returning to the island in the evening. An estimated total number for each species on the island is found in table 1. The estimates took into account the perceived evening increases in bird numbers.

Comments:

The effects of weather seem to be one of the most noticeable variables on Ka'ula Rock biota. Long periods without rainfall cause much of the vegetation to desiccate and virtually disappear. Only the heartier woody vegetation survives long periods of drought. Without this vegetation, loose soil becomes more subject to wind and water erosion. In comparison to some of the earlier surveys, when the Navy still conducted bombing exercises on Ka'ula, there was more rubble on the bare western slope of the island. But because of the steep gradient and weathering, most of the loose material has washed off that part of the island. Several rills have been scoured more deeply during the past twenty-five years in sector three, and have accumulated the heavy ordinance that was once on the surface. The interior crescent of the island appeared subject to potential erosion because of the desiccation of the vegetation. However, annual grasses and weeds will likely re-vegetate quickly when rains come. The southeastern portion of the island (including the impact zone) contained the greatest amount of vegetation, probably because the decomposition of the tuff caused by previous bombardment.

Acknowledgments:

The survey participants their agencies acknowledge the valuable assistance from Ms. Rebecca K. Hommon, Regional Counsel COMNAVBASE(NOOL) for obtaining the necessary permission to conduct the survey of Ka'Ula Rock, Chief Petty Officer Sean Cole, who saw to our safety concerning the ordinance on the island, and Lt. Bob Spaulding of the U.S. Coast Guard, who coordinated the trip, and arranged our transportation.

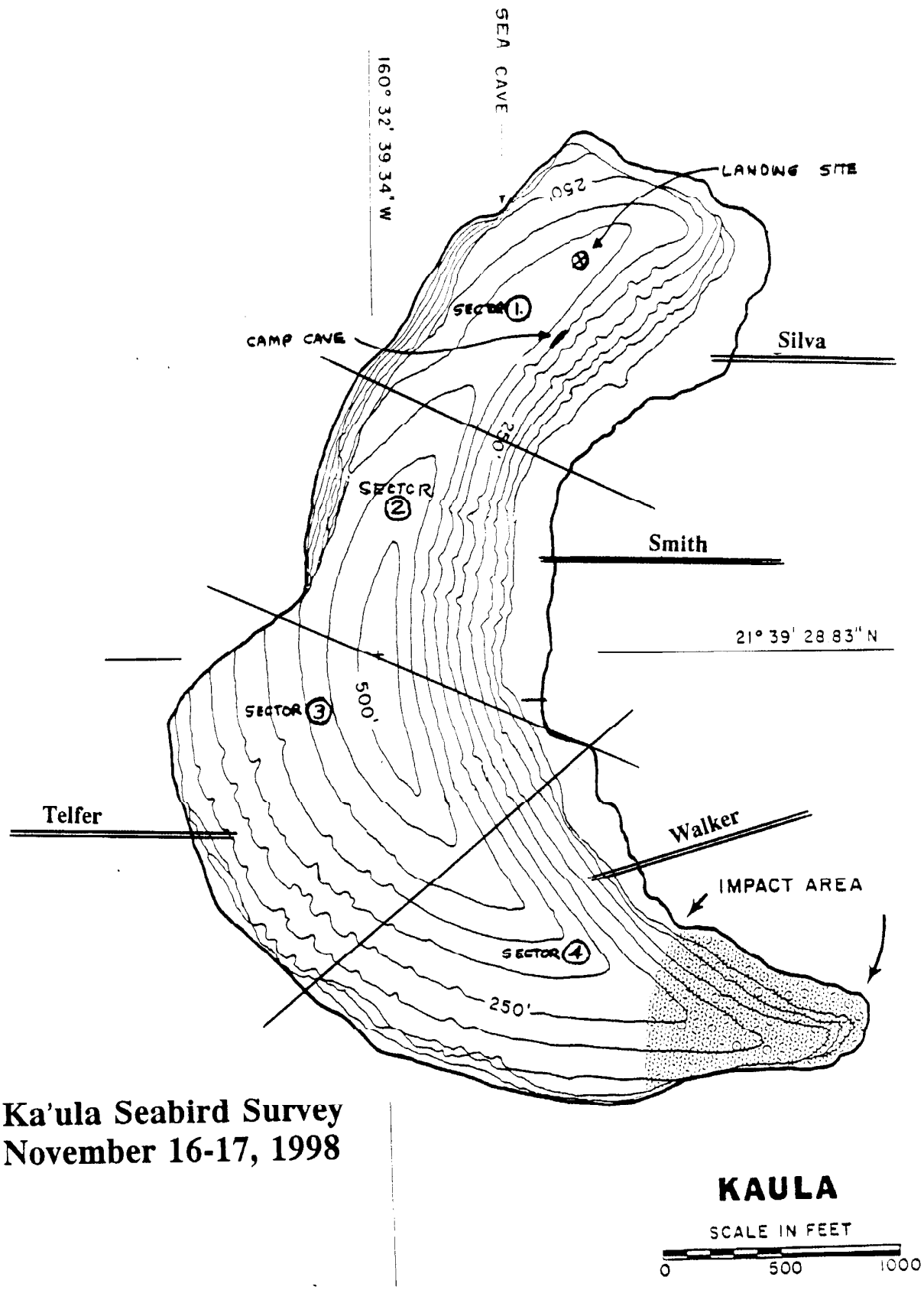
Recommendations:

1. The State of Hawaii and U.S. Fish and Wildlife Service were unable to promptly assess the impacts to the wildlife resources of Ka'ula Rock because of the difficulty in obtaining timely access to the island, even after it was determined that the Tesoro oil spill had impacted several dozen seabirds on Kauai. It is therefore recommended that an M.O.U. be entered into with the U.S. Navy, the U.S. Coast Guard, U.S. Fish and Wildlife Service, and the Hawaii D.L.N.R. to formalize a natural resource management plan that would allow for more timely access should it ever be needed in the future, as well as to regularly monitor this resource.

2. Although the main purpose for this survey was to assess the possible impacts of the Tesoro oil spill on colonial seabirds using Ka'ula, our regular seabird survey was overdue. It is recommended that a similar survey be conducted at least every two to three years, to monitor the seabird populations there. Ka'ula supports one of the largest seabird populations near the main islands, and represents a significant natural resource that deserves adequate protection.

Reported by: Thomas C. Telfer
Kauai District Wildlife Manager November 23, 1998

cc: U.S. Navy - Regional Counsel B. Hommon
U.S. Coast Guard - Lt. Bob Spaulding
U.S. Fish and Wildlife Service - K. Foster
Hawaii D.L.N.R./D.O.F.A.W. Administrator M. Buck



Ka'ula Seabird Survey
November 16-17, 1998

Table 1
ESTIMATED NUMBERS AND BREEDING STATUS OF BIRDS
KA'ULA ROCK NOVEMBER 16-17, 1998

SPECIES	Sector 1	2	3	4	Total Counted	Total Estimated	Breeding Status
Laysan Albatross	26	7	11	5	49	60	Pre-breeding (1 egg)
Black-footed Albatross	8	0	1	0	9	10	Pre-breeding
Wedge-tailed Shearwater	37	60	13	16	126	200	Post breeding
Red-tailed Tropicbird	3	4	0	0	6	15	Post breeding
White-tailed Tropicbird	0	0	1	0	1	1	Post breeding
Masked Booby	59	37	15	2	113	350	Post breeding
Brown Booby	27	10	8	2	47	60	Post breeding
Red-footed Booby	249	139	39	444	871	1,200	Pre-breeding
Great Frigate Bird	208	121	99	110	538	650	Post breeding
Sooty Tern	200*	0	0	0	0	200*	Pre-breeding
Grey-backed Tern	0	0	0	0	0	0	Not present
Brown Noddy	0	0	0	0	0	0	Not present
Hawaiian Noddy	0	0	0	0	0	0	Not present
Blue-grey Noddy	0	1	0	0	0	1	Not breeding
Fairy Tern	0	0	0	0	0	0	Not present
Pacific Golden Plover	6	8	0	1	15	15	Wintering
Ruddy Turnstone	4	6	2	0	12	12	Wintering
Barn Owl	0	0	1	2	3	3	Non-breeding
House Finch	6	0	0	2	8	8	Non-breeding

* Sooty Terns were not counted, but heard (a few were seen at dusk in air) This is an estimate only.

TABLE 2
ATES) KAULA ISLAND, U.S.NAVY/D.L.N.R./U.S.F.W.S.

ept. 14-15 1976	Aug. 21-22 1978	Mar. 7 1979	Jun. 19-20 1980	Apr. 16-18 1984	Jun. 1-2 1993	Nov. 16-17 1998
--	--	75	--	2	4	10
--	--	100	9	33	44	60
4,000	800	--	1,415	980	400	200
250	100	25	20	60	18	--
--	--	--	--	--	--	--
100	50	--	100	580	100	--
450	100	40	276	209	146	15
1	1	2	--	--	--	1
1,200	200	400	236	202	567	350
1,000	60	200	212	169	397	60
150	200	400	344	222	1,375	1,200
800	250	250	134	155	701	650
14	1	2	--	21	--	15
20	4	24	1	7	1	12
1	1	1	--	--	--	--
250	50	300	4,110	1,467	35	--
1,000	2,500	50,000	28,850	83,680	27,255	200 /1
200	--	--	--	--	--	1
7,000	10,000	1,000	10,560	3,950	5,778	--
100	200	--	--	207	6	--
200	10	--	9	12	9	--
3	1	6	4	2	7	3
3	--	--	--	--	3	--
40	20	6	--	1	1	8
7	--	--	--	--	--	--
2	--	--	--	--	--	--
20	--	--	--	--	--	--
16,811	14,548	52,831	46,280	91,959	36,847	2,785
24	19	19	15	19	19	14

te number only)

Table 3

PLANTS OBSERVED ON KA'ULA ROCK DURING SEABIRD SURVEY
November 16-17, 1998*

Note: Plants not seen were probably desiccated due to severe dry weather but may still exist. No formal botanical survey was conducted, but observed specimens were recorded as follows:

1.	*Amaranthus viridis* L.	Slender Amaranth	Introd.	Occasional
2.	*Chenopodium oahuense*	Alaweo	Indig.	Common
3.	*Ipomoea congesta*	Morning glory	Indig.	Common
4.	*Ipomoea carica*	Morning glory	Indig.	Common
5.	*Chloris inflata*	Swollen finger grass	Introd.	Uncommon
6.	*Setaria verticillata*	Bristly foxtail grass	Introd.	Uncommon
7.	*Panicum torridum*	Kakonakona grass	Inidig.	Uncommon
8.	*Digitaria setigera*	Kukaipua'a grass	Indig.	Very uncommon
9.	*Cenchrus echinatus*	Sandburr	Indig.	Not seen
10.	*Sida fallax*	Ilima	Indig.	Common
11.	*Tribulus cistoides*	Nohu	Indig.	Not seen
12.	*Solanum nigrum*	Nightshade (Popolo)	Indig.	Not seen
13.	*Plumbago zeylanica*	Plumbago (Ilieo)	Indig.	Not seen
14.	*Sonchus oleraceus*	Pualele	Indig.	Not seen
15.	*Chamaesyce celastroides*	Koko	End.	Common
16.	*Lycium sandwichense*	Ohelo kai	End.	Not seen
17.	*Portulaca oloracea*	Purslane 'Ihi	Introd.	Occasional
18.	*Portulaca villosa*	Purslai . 'Ihi	En .	Occasional
19.	*Heliotropium curassavicum*	Nena	Indig.	Not seen
20.	*Echinochloa colonum*	Jungle rice grass	Introd.	Not seen
21.	*Atriplex semibaccata*	Australian saltbush	Introd.	Very uncommon
22.	*Leucana leucocephala*	Koa Haole	Introd.	Very uncommon
23.	*Capparis sandwichiana*	Maiapilo	End.	Not seen
24.	*Erigeron canadensis*	Horseweed	Introd.	Not seen
25.	*Thespesia populnea*	Milo	Indig.	New Plant**

* Plant list originally made by Ralph E. Daehler, confirmed by Dr. Harold St. John (Jan. 1976)

** 11/16/98 One new plant species in the Hibiscus family (Milo) was found as a 5 foot high woody stemmed shrub. Unopened petals were light pinkish salmon colored. Fruit body was ovoid. Leaves shiny moderate green, untoothed, with smooth margins. Plant was growing in lower half of a rill west of the summit. A poor quality specimen was taken to botanist Timothy Flynn of the National Tropical Botanical Garden for positive identification.