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NĒNĒ RESTORATION PROJECT, 1 JULY 1972 - 30 JUNE 1975

By State Department of Land & Natural Resources
Contributed by Ronald L. Walker

Introduction: ..."A Report of the Nēnē Restoration Program" was submitted in 1972 for the period July 1, 1953 through April 30, 1972 which provided background and historical information concerning the project. (THE ELEPAIO, Vol.34, No.11, May 1974, pp.123-127 & No.12, June 1974, pp.135-142)

Summary of Accomplishments: /1 May 1972-30 April 1973/--...There was a total of 26 breeding pairs at the Project this year. Four additional pairs of birds did not lay due to their young age. These birds are expected to bring the number of producing pairs up to 30 pairs next year. Each goose laid an average of 7.1 eggs, about average for the period 1968-1973. The average clutch size of 4.0 eggs at Pohakuloa was normal compared to that of the most recent five-year period.

Hatchability this year was the lowest for the most recent five-year period, although fertility was higher than any year except the 1969-1970 breeding season. There is no obvious explanation for the low hatchability. The flock contains many nēnē which have been producing for three or more years. The same feed ration used for the past ten years was fed to the nēnē. Procedures for handling and incubating the eggs were continued from previous years. In considering all factors, it is suspected that the very abnormally low temperatures experienced this season may have contributed to the low hatchability, although extended periods of low temperatures during the breeding season are not uncommon at Pohakuloa.

Propagation techniques have been refined and improved from the inception of the Restoration Project in 1949 to the present time. It is felt that greater production could not have been achieved this year through the use of new techniques or by altering present methods.

Three ganders exhibited antagonistic behavior toward their mates this year. These ganders were separated from their mates for short periods to determine whether they would be more compatible when returned to the same breeding pen. This trial separation did not help as the ganders resumed attacking and beating their mates and one goose was killed as a result. The other two antagonistic ganders and their respective mates were placed in larger breeding pens. It was felt that this would reduce the stress of close confinement, and also provide more escape room for the geese. These pairs will be observed for at least another year to determine whether larger pens can eliminate antagonistic tendencies in ganders.

A number of nēnē developed a "hiccup" or cough which was detected in March. A state veterinarian made several trips to the project to examine the afflicted nēnē. The number of nēnē exhibiting this cough ranged from a few to as many as 20. A total head count was virtually impossible because those nēnē suspected of coughing were difficult to isolate in the flock of 40 or more nēnē in the holding pens.

A thorough examination of affected nēnē was made by the veterinarian but no evidence of disease was detected. The nēnē were vigorous and in good health, and showed no weight loss. This coughing eventually disappeared from the flock.

The availability of green feed for young goslings was critical this year. There were many days of severe frost which greatly reduced the production of the green feed plantings.

They were supplemented with Kikuyu grass cut elsewhere, until frost was less severe. The zetra petra rye stock originally provided by James Ashley of the Division of Federal Aid in Portland, Oregon, was the major source of green feed. Although retarded by frost, it still produced many cuttings of succulent shoots for the goslings. It is highly palatable and grows well even when subjected to daily frost.

The other green feed plantings consisted of chickweed, turnip greens, and siberian kale. Chickweed is planted under trees, so is largely protected from frost and is used to start the goslings on green feed. Turnip greens and siberian kale are used to supplement the zetra petra rye. They are not planted in as large quantities as the rye since they are not as productive but do provide variety in the goslings' green feed diet.

...A total of 89 nēnē produced during the 1971-72 season was banded for release. Forty-four of these birds were shipped to Maui and released at Paliku in Haleakala National Park in August. The remaining 45 were released at the Keauhou 2 sanctuary on Hawaii in September. ...The problem of damaged primaries arose during the Hawaii release as 10 nēnē were unable to fly out of the release pen. In anticipation of this problem special care had been exercised in plucking the shafts of the cut primaries, and in the subsequent handling of these nēnē. It appears likely that damage to the emerging primaries was sustained in the release pen through fighting or some other mechanical injury. Feed and water containers were widely separated in the release pen to minimize congestion and fighting. The release pen is nearly an acre in size and provides ample escape room for the 45 nēnē. Notwithstanding the precautions, 10 of the 45 nēnē released at the Keauhou 2 sanctuary had to be returned to Pohakuloa. They were incapable of flight due to the improper growth of damaged primaries.

In May, sixteen nēnē from the October 1971 release which had developed damaged primaries and were still in the Keauhou release pen were returned to Pohakuloa for observation. Nine of these deemed to be suitable for re-release were placed in the Keauhou pen in August and two died shortly thereafter from unknown causes. By November only two of the remainder were capable of flight and the five still afflicted were returned to the captive rearing project.

As this problem of malformed primaries is becoming chronic, other methods of effectuating the gentle release of pen-reared birds will be reviewed. Brails, full-flighted nēnē and naturally moulting nēnē will be considered for future releases.

/1 May 1973-30 April 1974/--...There was a total of 30 breeding pairs at the Project this year, including the four pairs which were too young to breed last year. Each goose laid an average of 7.9 eggs, nearly one egg more than the previous year. The average clutch size of 4.2 eggs was slightly better than the normal 4.0 eggs for the most recent five-year period.

The hatchability rate of 75.9 percent was only slightly better than the 73 percent recorded for the previous year, the lowest for the period 1967-1972. The same feed ration and procedures for handling and incubating eggs were continued from previous years. It is felt that greater production could not have been achieved through the use of new techniques or by altering present methods.

Vicious ganders were culled from the flock and replaced with more suitable ganders. The larger breeding pens in which the ganders and mates had been placed appeared to have no beneficial effect on their pugnacious behavior. Consequently, the remaining two vicious ganders were replaced.

There was no recurrence of the mysterious "hiccup" or cough experienced last year. All of the nēnē were vigorous and in good health. No hairy down goslings were produced this year. Selective culling of the breeders appears to have successfully eliminated this undesirable characteristic from the breeding flock.

Green feed was very abundant this year. There were few days of heavy frost and some rainfall nearly every week during the breeding season. The combination of these factors produced excellent growth in plantings of chickweed and zetra petra rye. Pualele was also cut from the pastures below Waikii and from vacant lots in Kamuela. No other source of green feed was necessary this year because of the unusually good growing conditions.

...Although 45 nēnē were originally released at Keauhou 2 in Calendar Year 1972 the recurring problem of damaged primaries caused a reduction in the actual release from 45 to 35 nēnē. On another occasion, two other nēnē were successfully released at the Keauhou Sanctuary. As a result, only 37 nēnē were actually released on Hawaii in 1972, rather than 45 as reported last year.

A total of 124 nēnē was released in Calendar Year 1973. Thirteen were nēnē which had suffered damaged primaries during earlier release attempts and which were released for the second time at the Keauhou Sanctuary. The sixty-one nēnē released in the proposed Kipuka Ainahou Nēnē Sanctuary was composed of young nēnē and adults culled from the breeding flock at Pohakuloa. The adults were nēnē that had lost a mate or were replaced by young breeders. Fifty nēnē were shipped to Maui for release at Paliku, in Haleakala National Park.

A total of 123 nēnē produced during the 1973-1974 breeding season was released in the newly established Kipuka Ainahou Nēnē Sanctuary in 1974. These young goslings were placed in the gentle release pen when they were 8 to 10 weeks old or before they were able to fly to eliminate the problem of damaged primaries. This technique appears to be effective as all of the released nēnē were able to leave the pen. Two other nēnē which were to have been released were sacrificed: one had an incurable slipped tenden and the other had its leg broken shortly after being banded. Neither one was fit for release and survival in the wild. Their carcasses were kept for skeletons.

The releasing of nēnē at a younger age also reduced the work load at the propagation facility. It was not necessary to hold the nēnē for several months before release, as had been done previously. It is believed that/this year, compared to previous releases of nēnē 4 months or older at release. (there will be no differential survival rates for the young nēnē released) Until this premise is proven to be false, future releases will be patterned after this year's release. The mere elimination of the damaged primary problem would make this procedure worthy of consideration.

/1 May 1974-30 June 1975/--...There was a total of 26 breeding pairs at the Project this year. (Although 3 geese culled from the flock produced an additional 7 goslings, this production was not included in these data. These culled nēnē are awaiting shipment to zoos or other facilities for exhibit. They are not suitable for release or propagation stock.) Each goose laid an average of 8.3 eggs compared to 7.9 eggs last year. The average clutch size of 4.3 eggs was practically identical with that of the previous year.

The problem of "vicious" ganders or the mysterious "hiccup" or cough was not evident this year. However, the first incidence of cannibalism was experienced. One gosling from a brood of 5 young about 3½ weeks old was persistently pecked on a slightly damaged wing. It was believed that the redness of the wound attracted the attention and attack from the other goslings. This injury was treated with antibiotic with good results. These goslings were transferred to a larger outdoor brooder which seemed to solve the problem. Eight goslings also died mysteriously within the first week. All of them appeared healthy one day, only to be found dead the next day. An entire brood of 4 goslings was found dead in this manner. A thorough examination of the indoor brooder and the goslings failed to reveal the cause of death.

Green feed plantings were abundant again this year. Pualele was also available during the latter part of the brooding season.

...As was done last year, nēnē produced were placed in the release pen before their primaries had fully developed to avoid the problem of damaged primaries. A total of 135 young nēnē was released in this manner in the Kipuka Ainahou Nēnē Sanctuary. There were no problems related to the releases for calendar year 1975, and this technique will be continued in the future.

Assistance was provided to the staff of the Volcanoes National Park in sexing young nēnē. The bands to be used and the combinations of colors was discussed at length to ensure that there would be no duplication of band combinations between the Federal-State release program and the National Park program. They will affix an aluminum U.S. Fish and Wildlife Service band in combination with colored plastic bands on all nēnē that are banded for release in the Park.

Recommendations: 1.This project be continued for the period July 1, 1975 through June 30, 1976, to furnish nēnē for release in South Kona. 2.The propagation effort be reduced to 24 breeders and the production of only 1 brood per pair for the period 1976-1979 for release in South Kona. 3.That the methods and techniques of propagation and rearing employed during 1974-1975 be continued. 4.That nēnē be released without having their primaries plucked. 5.That the propagation of other endangered species be considered with emphasis on the crow and palila subject to the recommendations of the respective recovery teams.

NĒNĒ RESTORATION PROJECT RECORD - 1949 through June 30, 1975

Nēnē Reared at Pohakuloa		Nēnē Released Island of Hawaii* SANCTUARIES				
Year	Number	Year Released	Keauhou	Keauhou 2	Kahuku	Kipuka Ainahou	Total
1949-50	2						
1950-51	3						
1951-52	2						
1952-53	1						
1953-54	4						
1954-55	4						
1955-56	8						
1956-57	12						
1957-58	3						
1958-59	15						
1959-60	17	1960	20	-	-		20
1960-61	32	1961	11	20	-		31
1961-62	45	1962	-	35	-		35
1962-63	54	1963	-	42	-		42
1963-64	38	1964	-	-	-		-
1964-65	41	1965	30	19	-		49
1965-66	69	1966	-	-	-		-
1966-67	84	1967	-	-	75		75
1967-68	123	1968	-	-	85		85
1968-69	156	1969	-	33	122		155
1969-70	114	1970	106	-	-		106
1970-71	131	1971	94	-	-		94
1971-72	104	1972	2	35	-		37
1972-73	109	1973	13	-	-	61	74
1973-74	134	1974	-	-	-	123	123
1974-75	141	1975	-	-	-	135	135
TOTALS	1446		276	184	282	319	1061

* All of the nēnē released on Hawaii were reared at Pohakuloa.

Nēnē Released Island of Maui

Year Released	From England	From Pohakuloa	From Connecticut	Total	Hawaii* Total	Grand Total
1960	-	-	-	-	20	20
1961	-	-	-	-	31	31
1962	30	5	-	35	35	70
1963	19	5	5	29	42	71
1964	19	8	-	27	-	27
1965	24	8	2	34	49	83
1966	-	25	-	25	-	25
1967	-	-	-	-	75	75
1968	-	20	-	20	85	105
1969	50	22	-	72	155	227
1970	55	-	-	55	106	161
1971	-	-	-	-	94	94
1972	-	44	-	44	37	81
1973	-	50	-	50	74	124
1974	-	-	-	-	123	123
1975	-	-	-	-	135	135
TOTALS	197	187	7	391	1061	1452

Note: Discrepancies between this table and previous tabulations are a result of revisions to more accurately reflect numbers of birds successfully released. Nēnē which were placed in the release pens but did not actually leave the pen due to mortality or malformed

primaries are not shown as having been released.

Please read David R. Zimmerman's TO SAVE A BIRD IN PERIL, Chapter 5--Reintroducing the Nēnē Goose, pages 113-129 for an informative detailed account of the Nēnē Project, e.g., on page 118 he tells how Ah Fat Lee handled a mutant trait carried by a recessive gene. "Normal goslings are born with fluffy down, which puffs up and presumably helps the bird retain its body heat. The down of the mutant is hairy, not fluffy, and...tends to cling to the bird's body."

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Some observations from Erika Wilson, 5 November 1975: I have moved from one island group, the Hawaiian Islands, to another island group, the British Isles, and I would like to share some observations about birds in these two places. Hawaii and Great Britain have several things in common, among which is an interest in Nēnē. One of my first birding trips was to the Wildfowl Trust at Slimbridge. Here I walked over acres devoted to housing 125 species of the world's swans, geese, and ducks, as well as most of the flamingo species. On one wall of the reception hall there is a large, striking painting of Nēnē in flight against a Big Island background. Adjacent picture windows disclose the genuine article, Nēnē grazing outside with other Anatidae. Further on I found a meadow in which a large flock of over 50 Nēnē were feeding. I must admit that their soft calls reminded me of warmer, gentler times quite unlike the cold of that blustery autumn day. It is reassuring to know that there will always be a reservoir of breeding Nēnē at the Wildfowl Trust, but I hope Hawaii won't have to draw on it again.

Hawaii and Great Britain both provide wintering grounds for large numbers of waterfowl and shorebirds which breed further north in the Arctic. When I joined the Royal Society for the Protection of Birds (a group comparable to the National Audubon Society), I soon found that one of its major concerns is the preservation of a dwindling acreage of wetland habitat. One area belonging to the RSPB is Minsmere, a 1560 acre reserve on the eastern coast of England. When I visited Minsmere in October, most of the summer breeders had departed, and in their place winter visitors were busily feeding. They included a flock of Bewick Swans, 8 species of duck, 6 species of shorebirds, and 2 species of gull. Yet a third similarity between Great Britain and Hawaii is the occurrence of seabird colonies on coastal headlands and on offshore islands. Like seabirds all over the world, British seabirds face the twin hazards of human encroachment and oceanic pollution. One famous colony, on Skokholm in Wales, is quite close to one of the world's largest oil refining complexes, at Milford Haven.

The British, however, do not face the monumental task of protecting an endemic bird family like our Hawaiian Honeycreepers. In this respect Hawaii's avifauna is in far greater danger than is Britain's. It seems imperative that HAS expand its activities in every way to involve more people in the fight to protect our birds. I would like to put forward a few suggestions which I hope will be discussed by all the members. 1.Increase membership, especially among people on the outer islands, Hawaii's winter residents, and junior members. 2.Give greater publicity to the general meetings through public service spots on radio and television, as well as posters on local bulletin boards. 3.Vigorously push sales of the field guide when it is available, and use the photographs from the guide for a series of postcards. 4.Sponsor an art contest for next year's National Wildlife Week. 5.Give publicity to the work of the Endangered Species Committee in Hawaii.

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HONOLULU STAR-BULLETIN, 13 December 1975, page A-12: Official Who Aided Nēnē is Honored

A wildlife official who walked up to 12 miles a day in rugged mountains to restore the nēnē...on Maui yesterday received the Shikar-Safari Club International's Outstanding Wildlife Officer of the Year Award for 1975.

Edwin G. Andrade, wildlife management assistant on Maui for the State Division of Fish and Game, was presented the award at a State Board of Land and Natural Resources meeting.

The Shikar-Safari Club International is dedicated to preservation of nature's resources around the world through conservation practices. The club annually honors the outstanding wildlife officers in each state to focus on the work and dedication of fish and wildlife personnel and increase public interest in conservation practices.

Michio Takata, director of Hawaii's Fish and Game Division, said Andrade was recognized particularly for his contributions to the nēnē restoration program on Maui.

"The nēnē field work required Mr. Andrade to walk up to 12 miles a day over rough mountainous terrain at high elevations and work under extremely harsh and inclement weather conditions and spend periods of up to a week in Haleakala Crater," Takata said.

"What success we've achieved in re-establishing the nēnē on Maui is attributable in great measure to Mr. Andrade's personal sacrifices and devotion to duty." ...

Takata said Andrade takes nēnē into the Haleakala crater where they are placed in feeding pens. After they become acclimatized to the new environement, they are released. Then Andrade tracks down their new feeding and nesting areas and keeps them under surveillance.

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14 December 1975, page A-7: 19 Nēnē a Winner for Zoo--(Washington Post Service) The Annual Achievement Award for Geese did not go to a goose this year. The National Zoo won it for producing 19 goslings. The achievement lies in the fact these are not just any old goslings, but nēnē.... The International Wild Waterfowl Association, which presented the award to the zoo, credited it with "helping to restore" the nēnē....

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Following poems about the Nēnē by Dr. John Unterecker of the University of Hawaii English Department were read by him at our 17 February 1975 general meeting:

State Symbol - I

I mourn the nēnē goose, that trivial bird, whose pattern of retreat tracks clouds.
He is the past.
Clumsy aristocrat, gourmet of white strawberry fields, islander, he lorded it when he could.
(For the waddler in need of home, winded, lava would do: 'ohi'a breaking lava toward earth.) Vagrant, he had luck of the vagrants: ancestral ur-geese driven on doom's timetable, tiring; then plumes of steam-driven lava, and on a crumpled field 'ohi'a's evolved glade: white strawberries. It was all nick of time, an island evolving that precisions of broken flight land. So settlers stumble ashore, already royal, applause of the gods louder than storm, though voted (anywhere, everywhere) bad stock: "We name you, let this be recorded, least likely (applause) to succeed." ...to succeed (least likely).

II

Hawaii's state bird, incompatible, struts off toward clouds, trying, deposed royalty, to die. He is, of course, protected. The curious state hatches him out in Honolulu zoo, imports breeding stock from English breeding farms. "Goodbye, goodbye," as off to the wilds go dumb tame chicks, used to peanuts and popcorn and noise.

A Lament: Goose

Translator, set this: The unique die quick, quicker than Model A Fords. Goodbye, good climb as you go!
I comb volcanoes for birds. But what can I do, hot-footing it through fresh lava flows toward strawberry islands patched mint? "Good luck to you all!" I call. Now they are lost in steam: "Good luck, good luck!"
Statistician, keep track: Add ten to the hundred-ten; count silverswords; nudge counted eggs from counted captive geese.
Oh, translator lend me your skill; teach me quick accurate quacks that at snowline clouds they might rise.
"Take flight in great storms," I would call, calling again and again, like prayer.
"Luck give you strawberries whiter than snow, luck of that other storm, or a lucky quick death, wings failed, geese spattering the sea, huge hailstones dropped from the dense violence of God."

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Following Resolution was sent to Kuliouou Association; Honolulu Advertiser; Honolulu Star-Bulletin; Outdoor Circle; Sierra Club, Hawaii Chapter; Governor George Ariyoshi; Hawaii Land & Natural Resources (Christopher Cobb & David Woodside); Senators Jean King, Donald Nishimura, Dennis O'Connor, Patricia Saiki, Buddy Soares; Representatives Donna Ikeda, Tennyson Lum; Dr. C. Robert Eddinger.

Whereas, the Hawaii Audubon Society has supported the creation of Paiko Wildlife Sanctuary for nearly two decades, and

Whereas, it is increasingly important that this natural refuge for native Hawaiian and migratory waterbirds be maintained so as to preserve one of the few lowland feeding areas left on Oahu, to insure that recently constructed stilt nesting sites are protected

from disturbance, to guard the birds for their educational, aesthetic and scientific value, and for the pleasure of all citizens,

Whereas, Paiko Peninsula is open space that remains as one of the few undeveloped shorelines on southeast Oahu for the aesthetic enjoyment of visitors to the refuge,

Therefore, be it resolved that the Hawaii Audubon Society urge the Legislature to take effective action as soon as possible to acquire the parcel of land now under discussion (Tax Map Key 3-8-01-69) in order to secure complete control of the peninsula and thus the waters of the lagoon.

This resolution was passed by a unanimous vote of the membership at the January 19, 1976 general meeting of the Hawaii Audubon Society.

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Volcano, Hawaii, Christmas Count
3 January 1976

Areas:	1	2	3	4	5	6	7	8	9	TOTAL
Hawaiian Hawk	.	.	.	3	.	.	.	.	1	4
California Quail	10	.	.	18	1	.	.	.	.	29
Japanese Quail	2	.	.	.	.	.	.	.	.	2
Blue Pheasant	3	.	1	1	8	.	.	.	.	13
Pacific Golden Plover	226	.	.	80	4	31	.	.	5	346
Spotted Dove	6	.	.	.	.	18	.	.	.	24
Barred Dove	.	.	.	1	.	.	.	.	.	1
European Skylark	30	.	.	10	2	1	.	.	.	43
Melodious Laughing-thrush	.	.	.	1	.	.	.	.	.	1
Red-billed Leiothrix	.	.	.	40	.	2	3	2	2	49
Hawaii Thrush	.	2	2	237	.	14	226	42	48	571
Hawaii 'Elepaio	3	2	2	126	18	3	30	10	3	197
Common Mynah	75	.	.	12	.	70	.	.	.	157
Japanese White-eye	69	12	23	87	18	105	47	15	15	391
Hawaii 'Amakihi	.	1	33	92	78	2	20	9	5	240
Hawaii Creeper	.	.	.	17	.	.	.	.	.	17
Hawaii 'Akepa	.	.	.	39	.	.	.	6	.	45
'Akiapola'au	.	.	.	30	.	.	2	2	.	34
'Apapane	177	66	25	322	216	347	724	20	140	2037
'I'iwi	2	1	14	46	20	12	57	9	2	163
House Finch	2	.	.	35	4	.	.	.	.	41
Spotted Munia	17	.	.	1	11	65	.	.	13	107
House Sparrow	16	.	.	.	.	15	.	.	.	31
Cardinal	8	.	.	30	4	6	.	.	.	48
No. of Individual Birds:	646	84	100	1228	384	691	1109	115	234	4591
No. of Species:	15	6	7	21	12	14	8	9	10	24

Areas Covered:

1 Bird Park and adjacent areas (Keith Hoofnagle, Glen Kaye, Margaret Thompson)
2 Rim of Kilauea Crater (Keith Hoofnagle, Glen Kaye, Marti Lockwood)
3 Mauna Loa Trail, 6600-8200 feet (Larry Katahira, Gary Nishimoto, Don Reeser)
4 Keauhou Ranch (Sheila Conant, Peter & Robert Pyle, Mike Scott, Armand & Catherine Unabia)
5 Mauna Loa Strip Road, 4000-6600 feet (Larry Katahira, Gary Nishimoto, Don Reeser)
6 Volcano Community (Lionel Carvalho, Clifton Davis, John Macdonald)
7 Kulani Prison Road and Puu Makaala (Bill & Mae Mull)
8 Kilauea Forest Reserve (Sheila Conant, Armand & Catherine Unabia)
9 Olaa Forest Tract (Paul Banko, Joyce Davis, Erwin McPherson)

Count taken within 15-mile diameter circle centered on Kulani Cone summit (19°31'N, 155°18'W). Date: 3 January 1976 from 0600 to 1930 hours. Weather: A.M.--variable clouds, intermittent light rain, heavy at times; P.M.--clear to heavy clouds with intermittent light rain. Temperature 52-64°F; wind E-NE, 1-15 mph.

Twenty-one observers in 8 parties: Total party-hours, 56 (50 on foot, 6 by car)
Total party-miles, 76 (46 on foot, 30 by car)

Highlights of the 1975 Volcano, Hawaii, Christmas Count by J. Michael Scott, Compiler

The same nine areas were covered this year. We had one less person, however (21 vs 22 last year), spent more time in the field (56 party hours vs 51 last year), traveled fewer miles (76 vs 103 last year) but spent more of them on foot (46 vs 34 miles last year). Fewer birds were seen (4591) than were recorded in last years record high of 6272. The decline was due primarily to a decrease in the number of 'Apapane seen, which in turn was probably the result of a low 'ohi'a bloom and perhaps a temporary movement of birds out of the count area. Two new species were added to the count list: Japanese Quail (Coturnix coturnix) and the Melodious Laughing-thrush (Garrulax canorus). However, the failure to locate the White-tailed Tropicbird or the Nene on count day left the species count at 24, the same as last year.

The Volcano count is only in its fourth year and trends have not yet been established for any species, so it is difficult to assess the importance of high and low counts. High counts were recorded for the following non-endangered species: California Quail (29 vs previous high of 1), Pacific Golden Plover (346 vs previous high of 157 in 1973), Spotted Dove (24 vs previous high of 16 in 1974), European Skylark (43 vs previous high of 23 in 1973), Hawaii 'Elepaio (197 vs previous high of 169 in 1974), Common Mynah (157 vs previous high of 92 in 1974), Japanese White-eye (391 vs previous high of 330 in 1974), Hawaii 'Amakihi (240 vs previous high of 207 in 1973), Spotted Munia (107 vs previous high of 93 in 1974), and Cardinal (48 vs previous high of 42 in 1974).

In addition, new highs were recorded for three of the four endangered forest birds found in the count area. Perhaps the most notable high count was for the Hawaii 'Akepa (45 vs the previous high of 15 in 1974). Many of these birds were bright adult males. New highs were also recorded for the 'Akiapola'au (34 vs previous high of 30 in 1972) and the Hawaii Creeper (17 vs previous high of 13 in 1974).

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Lihue, Kauai, Christmas Count
4 January 1976

Areas:	1	2	3	4	TOTAL
Great Frigatebird	.	1	.	.	1
Cattle Egret	.	.	15	.	15
Black-crowned Night Heron	4	2	.	1	7
Koloa (Hawaiian Duck)	10	.	.	.	10
Pintail	.	10	.	.	10
Red Junglefowl	12	1	.	.	13
Ring-necked Pheasant	2	5	.	.	7
(Hawaiian) Common Gallinule	4	15	.	2	21
(Hawaiian) American Coot	10	187	.	7	204
(Pacific) Golden Plover	28	143	8	34	213
Ruddy Turnstone	2	15	.	2	19
Wandering Tattler	.	9	.	.	9
Lesser Yellowlegs	.	1	.	.	1
Sanderling	.	4	.	.	4
(Hawaiian)Black-necked Stilt	.	2	.	.	2
Spotted Dove	26	26	12	1	65
Barred Dove	22	272	70	15	379
Short-eared Owl	.	.	.	1	1
Greater Necklaced Laughing-th	19	.	.	.	19
Melodious Laughing-thrush	43	4	7	3	57
Mockingbird	.	6	6	.	12
Shama Thrush	16	11	13	2	42
Common Mynah	33	273	56	4	366
Japanese White-eye	180	44	51	13	288
Western Meadowlark	2	17	5	9	33
House Finch	32	20	55	.	107
Spotted Munia	21	266	21	4	312
House Sparrow	.	28	11	3	42
Cardinal	26	30	14	7	77
Red-crested Cardinal	2	4	2	.	8

AREAS COVERED:

1 Menehune Pond & Huleia Stream (Fred Zeillemaker)

2 Wailua River to Knudsen Gap, makai of Belt Road omitting Area #1, mauka from Halfway Bridge to Wailua River (did not include Wailua Falls nor Paradise Pacifica)(Sophie Cluff, David & Winona Sears, Virginia Siewertsen)

3 Omao Road to Knudsen Gap, including Koloa town and Poipu (Jessie Bierman, Myrna Campbell)

4 Lawai to Kahili Mt. Park omitting Area #3 (Paul Buratti, John Neff, Nick & Eric Vera Cruz)

HABITAT COVERAGE: Valleys & ridges 35%, cane fields 40%, pasture 5%, ocean front, streams, holding ponds & irrigation ditches 15%, towns 5%. Date: 4 January 1976 from 0700 to 1700 hours. Weather: A.M.--mostly clear; P.M.--partly cloudy. Temperature 68° to 80°F. Wind ENE, 2-15 mph.

	1	2	3	4	TOTAL
No. of Individual Birds:	494	1396	346	108	2344
No. of Species	20	26	15	16	30

Eleven observers in four parties: Total party-hours, 24 (12 on foot, 12 by car)
Total party-miles, 185 (20 on foot, 165 by car)

Comments by Winona Sears, Compiler: Omitted this year were area from Lawai to edge of circle near Eleele and Paradise Pacifica area along Wailua River, south side. Added was Kahili Mt. Park area. The wild food crop had suffered from last summer's drought and was not as plentiful as other years. Also from the drought, the holding ponds behind (mauka) of Lihue were completely dry, so no stilts or other waterbirds as we have usually found there.

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Comments from Hector G. Munro, 19 November 1975: Ke Kua'aina

In the November issue of THE ELEPAIO (page 57) was a copy of the letter you had written to Mr. Joseph Souza...as to what had happened to Ke Kua'aina.... I was interested in his reply. It being self explanatory; only that I did not give up my work there because of lack of help from his department but due to circumstances beyond my control.

I worked along with my uncle George C. Munro in getting Ke Kua'aina established. The Garden Club was a great help to us in our work--providing a watering system, a tool storage box and a seat to rest on.

I put in many hours...maintaining the plantings we had there with the help of my cousin Ruby C. Munro. I also spread...wiliwili seeds over the whole area--takes in Na La'au Hawaii Arboretum and Ke Kua'aina. Many of which germinated and are now full grown trees. I submitted a report to THE ELEPAIO, Vol.24, No.1, July 1963, pp. 1-2, of the endemic plants growing in Ke Kua'aina at that time, but am afraid not many of them are growing there now with nobody to care for them in the area.

It was a sad day for me when I had to give up my work there. I hope some day it can be restored to its original state, but question if that is possible as many of the plants listed in my report that grew there would be hard to come by at this time.

"May Ke Kua'aina bloom again some day and be worthy of the dream of its originator."

From Ruby C. Munro, 14 January 1976: Yes it is sad that no one is carrying on the work on Diamond Head started by my father, George Campbell Munro, especially too, since much effort and money was also put into it by the Garden Club and the State Parks Administration. Any project cannot thrive without the inspiration of its creator. However it would be madness to try without sufficient funds to provide a botanist, part-time help and a proper policing of the area.

Father's dream was to establish a permanent area to preserve the native dry-land plants of Hawaii, not as a formal garden but in a natural environment. "These plants will become extinct if they are not saved from destruction by wild life." (GCM)

One visiting Diamond Head in the summer will find her dry and brown. In the dry season various species of plants die down but show up again when the rains come in the fall. Others disappear and lie dormant reappearing in later years. Seed germinates in the wet season and young plants depend on these months to see them through the dry ones.

Thousands of wiliwili and other seeds were broadcast over the mountain by Father, cousin Hector Munro, Westley Thomas and others. Later my Saturday mornings were devoted to driving Father, my stepmother, Jessie, and Hector to Makalei and from there we hiked up the trail to water young plants....Father, in his nineties, used two canes, one shorter than the other, to take the hilly terrain....Dry-land plants should survive the dry season. But this area, though very similar to the environment where these plants grew, is so very dry at this time that watering seemed necessary. However, watering even once a week may have been insufficient to keep them alive until they were able to take hold themselves. According to Father a number of years ago heavy winter rains over Diamond Head created a small lake in the crater and water seeped into the mountain. This moisture helped to keep plants alive through the dry season. This has not happened for a long time and it is evident that some means must be found to avoid losing plants when a dry season is too long. Possibly the planned-for State Park in the crater will be the answer if a sprinkling system is installed.

After Father died my stepmother left the islands and circumstances prevented Hector from working with us. My niece, Ruth Munro, and I continued the Saturday trek up the mountain to water and weed. As time went on vandals became more and more destructive. When they ripped the six-foot Kokia rockii to bits branch by branch and destroyed the trunk we despaired. This tree was surviving without watering and was about ready to flower. Vandals destroyed only the good plants.

State Parks workers under the supervision of Richard Yoshimura replanted many wiliwili trees and continued watering for many months thereafter, but Mr. Joseph Souza, Jr., State Parks Administrator, reports that they finally had to turn off the water and discontinue the work due to vandalism. The drinking fountain installed by the Garden Club would have been such a benefit to hikers!

However, all is not lost. Father, the Garden Club and State Parks Administration have laid the ground work; an area has been set aside on Diamond Head for the arboretum; the pipeline is in; Mr. Souza's budgeted request for a naturalist position should be granted soon; and Dr. Charles Lamoureux who has followed the project from the beginning and who has spent many hours on the mountain states that plants and seed lie dormant just waiting for the right conditions. Too, the native wiliwili is replanting itself.

The native wiliwili blooms in the summer. During July and August they are void of leaf and a tree's blossoms are its only glory against the barren landscape. The blossoms range from chartreuse to yellow and deep orange. The wiliwili is the first to come out in new leaf after the first rains. Those that have survived should be presently in full leaf and young wiliwili, the mountain's pretty grasses and other plants appearing. The many varieties of native hibiscus may need to be reintroduced.

After our long dry season we are due a very wet one - We will then see the mountain covered in her other yellow flowers, the wild ilima the nohu, yellow milkweed, wild yellow daisy and the miniature snapdragon...Also some wild oats and wheat planted by Father for his other friends and hobby, the birds of Hawaii.

Mr. Souza will get his naturalist position and sooner or later someone will come along with a knowledge of the Hawaiian flora, Father's interest and enthusiasm - and sufficient drive to muster financial help. It would be nice if Dr. Lamoureux or possibly Mr. Weissich could add this to their busy program - to be carried on later upon retirement. ...Diamond Head, the Garden Club, Mr. Souza and Richard Yoshimura of our State Parks are waiting!

Note: 1. May I suggest that if the $80,000,000 surplus in state funds is not given back to the people some of this money be secured and put away in a high earning savings account to grow until needed.

2. Retirees who formerly maintained the parks for the Board of Water Supply might welcome and enjoy part-time work on this beautiful mountain.

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Letter from Kauai member Fred Zeillemaker to the National Fish and Wildlife Laboratories, National Museum of Natural History, Washington, D.C. on 14 June 1975:

The enclosed slides are of a specimen of a laughing-thrush (Garrulax sp.?) that is established on the island of Kauai, Hawaii. I have been stationed here as Assistant Refuge Manager of the Hanalei NWR and Huleia NWR since August 1974. I have observed the species on both areas. The (poor) mounted specimen has been in the local office of the Hawaii Division of Fish and Game for at least three years. It is unidentified. I have sent the slides to Dr. Andrew J. Berger of the University of Hawaii. He is unable to identify the bird. I am hopeful that you or someone else at the National Museum can assist us. If not, could you suggest how one might go about it? The bird appears to me to be close to the greater necklaced laughing-thrush (Garrulax pectoralis) illustrated in Smythies' The Birds of Burma. The literature here refers to the white-throated or collared laughing-thrush (Garrulax albogularis) which was introduced to Kauai in 1919, but no illustration of the bird was available to local bird enthusiasts until Dr. Berger's Hawaiian Birdlife in 1972. A good question now is what happened to the white-throated laughing-thrush? Another is when did this bird become established? I believe that at least in recent years birds observed on Kauai were misidentified due at least partially to the fact that both species have white throats.

I might add that the mounted specimen is about 13½ inches in length and that the bird prefers lowland exotic species woods along water courses. It is secretive.

The following reply was received from Roger B. Clapp of the National Museum on 22 Sep 1975:

After considerable study of your pictures, specimens, and the literature I am of the

opinion that your bird is without doubt Garrulax and have virtually no doubt that it is pectoralis (greater necklaced laughing-thrush). Precisely which race of pectoralis it is I cannot determine since I would need your specimen in hand for direct comparison and measurement.

I think it most likely G. p. picticollis. None of our five specimens of this race has a complete collar and in one bird there is virtually no collar. Further, picticollis appears to be generally gray below the facial area much as it appears to be in your bird and like your bird has heavy black and white facial striping, the degree of which varies widely in this species. In addition, the degree of lightness of the bill of your bird, while anomalous compared to our series, is approached most closely by picticollis.

Conceivably the bird might be G. p. robini which we lack in our collection, but Delacour's very poor description suggests that robini has a much narrower or less bright rufous nuchal collar than picticollis (in which character your bird would appear to agree better with picticollis). Robini is also supposedly more olive on the back than picticollis, but our specimens show some range of variability in this character and at least several appear to match your specimen quite adequately.

We have three specimens of one other possibility G. p. semitorquatus, but all are uniformly black below the facial area and have much better developed neck collars than does the picticollis.

Finally, the sometimes recognized Burmese "meridionalis" can be eliminated if Ali and Ripley are correct on the color of the primary coverts.

In any case, lacking further data, I think it most likely that your bird came from southeastern China and reached this country via shipment from Hong Kong, although it is definitely possibly that it may have been shipped from Bangkok.

Your photographs were excellent, far better than most we receive, but examination of the specimen itself is really necessary. I very strongly recommend that you send the specimen to us or to the American Museum of Natural History so that you can obtain a completely adequate identification of the bird. Of course, additional specimens of this or G. albogularis, if it still exists on Kauai, would be quite valuable.

P.S.: In passing, both my ex-boss, Dr. Richard C. Banks, and I are quite interested in determining the racial origin of various introduced species in Hawaii (particularly so for those that are established). I myself have a specimen of red-billed blue magpie that I collected in Hawaii and wonder if you know of other specimens of this or other species which should receive a critical taxonomic examination.

Comments and Corrigendum from C. Fred Zeillemaker, 24 January 1976: The greater necklaced laughing-thrush is now regularly encountered in the Huleia Valley (including the Huleia National Wildlife Refuge) and the Wailua Valley (including the Wailua House Lots area) of Kauai. I can usually locate a good sized flock (19 birds for the Lihue Christmas Bird Count January 4, 1976) on the Huleia Refuge. The birds tend to be very vocal during their passage from tree or bush to bush, but they can become very secretive when alarmed. Dr. David and Winona Sears of the Wailua House Lots have recorded the species in their yard since at least last May. Their records indicate almost daily movements through their area.

I have also observed a single bird at the Hanalei National Wildlife Refuge in March 1975.

The two biggest questions remain when did the white-throated laughing-thrush disappear from Kauai and when did the greater necklaced laughing-thrush become established? One of my concerns is that visiting observers might continue to refer to the bird as the "white-throated" laughing-thrush.

CORRIGENDUM: Vol.36, No.2, August 1975, page 22 Corrigendum: change "unidentified" laughing-thrush to greater necklaced laughing-thrush. Vol.35, No.10, April 1975, page 121 Field Notes: change "white-throated" laughing-thrush to greater necklaced laughing-thrush.

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Field Trip to Kahuku and Kaneohe, 11 January 1976 by Omer Bussen: About a dozen birders took one look at the rain over the Koolau Range and abandoned Poamoho Trail for the Kahuku Settling Pond and Kaneohe's Nuupia Pond.

At Kahuku, we were greeted by a dozen house finches in a kiawe tree, and several cardinals in the koa haole brush. About seventy-five ducks flew from the pond on our approach. More than one hundred ducks were seen on the pond, mostly shovelers and pintails. Twenty-seven coots were counted; also four ruddy turnstones among numerous golden plovers.

Seven stilts, four sanderlings, and one wandering tattler were seen.

At Kaneohe we watched three white-capped noddies fluttering and dipping over the pond. Ten stilts, thirty sanderlings, four ruddy turnstones, one mature black-crowned night heron, one wandering tattler, and many golden plovers were seen. Twenty-five frigatebirds soared overhead.

One participant reported seeing a hill mynah on a Pearl City golf course the previous week.

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Field Trip to Ponds in the Hilo Area by Mae E. Mull: Blue skies, a few high clouds and the snow-covered summits of Mauna Kea and Mauna Loa were an auspicious beginning on the morning of January 17, 1976 as ten participants, including two children, met at the Wailoa Visitor Center to survey ponds in the Hilo area. As we walked south along the edge of Waiakea Pond, the first native bird observed was a Wandering Tattler standing on a rock near the embankment. The sun shining on the bird's legs made them a brighter-than-usual yellow. Surprisingly, when the Tattler flew it didn't make the characteristic 'Ulili call. We passed a second Tattler 100 feet beyond, sunning with closed eyes and resting on one foot. Five Pacific Golden Plover were counted in the large grassy areas between Waiakea Pond and the structures in the distance on our right--the County and State buildings and Hilo Lagoon Hotel.

Three Hawaiian Coots were on the Waiakea Pond side of the dredged channel opening to Mohouli Pond. Six more Coots were counted inside Mohouli Pond. This is where a sizeable gathering of migratory ducks delighted our eyes. We sat on the embankment propping elbows on knees to hold binoculars steady as we sorted out the field marks of the ducks 50-100 yards across the pond. Counts had to be made several times as the ducks shifted positions grazing on the flats and feeding in the water. Finally we arrived at 35 Pintail (16 male and 19 female), 32 American Wigeon and 5 Shoveler. None of the Shovelers were in drake plumage. The sexual dimorphism of the Pintails was clearly evident. None of the Wigeon were in full male plumage, but a few could be distinguished as coming into male dress with light-grayish crowns and rear flanks. Many of the Wigeon were in drab moulting plumage, although the ruddy brown sides of some indicated emerging females. Because of the observation distance, the Wigeon and female Pintails had to be scrutinized carefully through 10-power binoculars and Mike Scott's spotting scope mounted on a gunstock--to get accurate species separation.

Just before we left Mohouli Pond a flock of 17 ducks was spotted above us. They quickly circled once and then, deciding not to land, flew north. Trying to keep them in focus and catch the field marks wasn't easy. Mike Scott and Bill Mull agreed they probably were Lesser Scaup. Mike Scott had observed 16 Lesser Scaup on that pond earlier, in November 1975. Bill Mull and I had surveyed Mohouli Pond a few days earlier on January 14 from a different direction--looking from the iron railing bounding the embankment at the lower edge of the parking lot of the closed restaurant on Kilauea Avenue. With a cloud cover and faint drizzle in early afternoon light, we counted 9 Hawaiian Coot, 27-30 Pintail, 37-40 Wigeon and 5 Shoveler. The large Chinese Banyan tree at the bend of Kilauea Avenue is a good signpost for the turn into the paved driveway leading to the observation site.

The rest of Waiakea Pond, all of Hoakimau Pond and Wailoa River have been so altered through dredging, filling and building up the banks that this former waterbird habitat has been lost to the urban "improvements" of what is now Wailoa State Park.

Carefully landscaped and manicured Liliuokalani Gardens surrounds Waihonu Pond. It's a picture postcard site with arched bridges and stone lanterns from Japan. Two Wandering Tattlers and 8 Golden Plover were counted as we walked around the pond. Across the highway one Ruddy Turnstone flew along the rocky shore of Hilo Bay and a Tattler held his ground. Taking the man-made walkway out to Coconut Island we saw 2 more Tattlers and 2 Plover. At Kanakea Pond inland of Reed's Bay we came across 2 Tattlers and 3 Plover.

Driving east on Kalanianaole Highway we stopped to scan two privately-owned ponds in pastures. At Kionakepahu Pond 17 Cattle Egret were resting on a land spit in ironwood trees and on the ground. Another Tattler was nearby. At the much-larger Lokoaka Pond we searched for the 5 Black-crowned Night Heron that had been there three days earlier. Finally an immature 'Auku'u emerged from the grass and a second Heron slowly flapped its wings in a lazy flight low over the pond. At James Kealoha Beach Park across the highway 3 House Finch and a lone Japanese White-eye were in the ironwood trees. Other expected urban birds were seen at different stops: Spotted Munia, Barred and Spotted Doves, House Sparrow, Common Mynah.

After lunch we scanned Lokoaka Pond again and found 12 American Wigeon on the far side. While trying to distinguish these male-female plumages, 4 more Wigeon in flight caught our eyes as they cautiously circled the back of the pond several times before settling down on the water. What a fine way to end the field trip!

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Field Notes from C. Fred Zeillemaker, Kauai, September-November 1975:

Pied-billed Grebe--A single bird is on Kauai for the second winter in a row. This year a bird appeared on the Lumahai River estuary November 17.

Laysan Albatross--Two birds were observed at the Kilauea Point Wildlife Admin. Site (WAS) November 16 (Dr. Jurgen Schrenk) and a single bird was spotted the following day (Melly Zeillemaker).

Wedge-tailed Shearwater--Kilauea Point WAS chicks began fledging November 14. The bird raised above ground fledged November 23!

Sooty Shearwater--A closely grouped flock of 30 birds migrating toward the southeast passed Kilauea Point WAS November 14.

Newell Shearwater--Fledglings began appearing along Kauai highways October 11. The last

road kill reported was on December 2.
Red-tailed Tropicbird--One or two pairs remained at Kilauea Point WAS throughout September. The last pair was observed for the final time on October 12. The chick was never observed.
Blue-faced Booby--A single adult bird paused on Mokuaeae Island off Kilauea Point on Nov.15.
Brown Booby--Up to 28 birds roosted on Mokuaeae Island during September, as many as 7 were found there in October and up to 15 were observed in November.
Cattle Egret--Nearly 1000 birds (possibly the entire Kauai population) were counted at the roost among Red-footed Boobies at Crater Hill just east of Kilauea Point on November 1.
Mallard--A pair was at Hanalei National Wildlife Refuge September 2.
Pintail--A flock of 28 birds arrived at Hanalei Refuge September 28. The population increased to 142 by late October and to 203 by November 26.
Green-winged Teal--A single bird appeared at Hanalei Refuge October 8 and two birds were found there November 10.
American Wigeon--A pair arrived at Hanalei Refuge November 26.
Northern Shoveler--A single bird appeared at Hanalei Refuge September 25. There were eight by October 8 and 10 by November 16.
Peregrine Falcon--A female or immature bird appeared at Kilauea Point WAS November 1 (it has appeared again in December).
Black-bellied Plover--A single bird accompanied a flock of 14 golden plovers in a plowed field at Hanalei Refuge November 17.
Bristle-thighed Curlew--Two birds landed briefly in a taro paddy at Hanalei Refuge September 12 before proceeding on toward the south.
Actitis sandpiper--A single spotted sandpiper (Actitis macularia) or common sandpiper (Actitis hypoleucos) was photographed at Hanalei Refuge on September 26. I believe the bird was a common sandpiper, but the photographs have been sent to the National Museum at Washington,D.C., for further study. Either way, I believe the bird represented a first for the Hawaiian Islands.
Lesser Yellowlegs--A single bird accompanied the sandpiper above in a drying taro paddy at Hanalei Refuge on September 26.
Pectoral Sandpiper--Two birds arrived at Hanalei Refuge September 2. Five were there September 18, seven on September 26, four on October 2, six on October 8, seven on October 15, 1 on November 5, and the last observation of a single bird was November 10.
Dunlin--A single bird was at Hanalei Refuge on October 15.
Long-billed Dowitcher--Two birds arrived at Hanalei Refuge October 15. Three birds frequented the refuge throughout November.
Bar-tailed Godwit--A single bird spent the month of November at Hanalei Refuge. It was photographed on November 12.
In the event that red-vented bulbuls haven't been reported from the Honolulu International Airport yet, I observed two there in the palms near the overseas terminal December 1.

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"SAVE OUR WETLANDS" will be the theme for the 39th annual National Wildlife Week, 14-20 March 1976. Year after year, ponds, marshes and mudflats are drained, filled, paved or polluted. When Kuapa Pond was developed into the Hawaii Kai subdivision, too little marshland was left for wildlife. As Kaelepulu Pond was changed into Enchanted Lake there was little accommodation for the native waterbirds. Positive efforts to preserve or restore habitat and to create new waterbird areas have not kept up with the downward trend. What have you done to spread the message of the importance of the wetlands and the necessary actions to be taken to save them?

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HAWAII'S BIRDS, a field guide, is now available. Price per copy: $3.00 + postage & tax (sorry we can't continue to absorb). Postage: U.S. 21¢ book rate, 57¢ first class(airmail); foreign--variable, weight 5 ozs; sales & mailing in Hawaii--add 12¢ sales tax. Send in orders to: Book Order Committee, Hawaii Audubon Society, PO Box 5032, Honolulu, HI 96814.

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In Memoriam: Retired Rear Admiral John G. Moyer, who often had sent in field notes on the fairy terns from Kahala, died 21 January 1976. We'll miss him, and we extend our deepest sympathy to his family.

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Donations: MAHALO! Following members have generously included donations with their membership renewals: John J. Allen-$4.00 and Mrs. Helen L. Morris-$2.00. Founder and honorary member Charles M. Dunn has again contributed $10.00 and noted, "Keep up the good work. I don't go out nights anymore. March 17, 1976 the Society will be 37 years old. Calls for a celebration with the Bicentennial year." MAHALO NUI LOA for your generosity.

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MARCH ACTIVITIES:

8 March - Board meeting at Waikiki Aquarium Auditorium, 7:00 p.m. Members welcome.
14 March - Field trip to study waterbirds. Meet at the State Library on Punchbowl Street at 7:00 a.m. Bring lunch, water and if possible, your car. Transportation cost ($1.00) to be paid to the drivers. For information please call (evenings) one of the leaders: Tim Burr 235-4036, Bull Burke 955-4319, and Dr. Sheila Conant 988-6522.
15 March - General meeting at Waikiki Aquarium Auditorium at 7:30 p.m. Program: Hawaiian Coral by Robert Kinzie (color slides)

HAWAII AUDUBON SOCIETY EXECUTIVE BOARD: President-Dr.Sheila Conant, Vice Presidents-Charles van Riper III & William Burke, Secretaries-Catherine R.C. Unabia & Lani Stemmermann, Treasurer-Timothy A. Burr, Board Members-Dr. F.G. Howarth & Dr. R.L. Pyle Representatives: Mae E.Mull,Big Island; James M.Bradley, Midway; Dr.Warren B.King,Wash.,D.C.
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