

THE ELEPAIO

Journal of the
Hawaii Audubon Society



For the Better Protection
of Wildlife in Hawaii

VOLUME 34, NUMBER 8

FEBRUARY 1974

NEW SPECIES OF BIRD DISCOVERED ON MAUI, HAWAII

By James D. Jacobi and Tonnie Casey

A distinctly new genus and species of bird in the Hawaiian Honeycreeper family (Drepanididae) has been discovered by members of the Hana Rain Forest Project, a group of eight students associated with the University of Hawaii under the Student Originated Studies Program funded by the National Science Foundation. The Project is conducting basic ecological research in the upper reaches of the rain forest on Haleakala Volcano on the island of Maui, the second largest in the Hawaiian chain. Project members include: Tonnie Casey--ornithology, James Jacobi--biology, John Kjargaard--Project Director and meteorology, Grant Merritt--photographer, Betsy Harrison--botany, Heather Fortner--soils, Charles Whittle--entomology, and Alvin Yoshinaga--vegetation ecology.

Previous biological research in the area has been hampered by difficult access and inclement weather. With the aid of the NSF grant the project was able to establish a basecamp in the study area by helicopter facilitating exploration deep into the unexplored forest areas. The project found a relatively intact native ecosystem which has been disturbed only minimally by exotic plants and animals. The plant species there are 99% native and are complemented by an equally rich native fauna.

Several new species of plants and many new species of insects were also found. Descriptions of these are presently being prepared for publication in scientific journals. The native forest bird fauna was most remarkable in that all but one of the native forest birds ever recorded on Maui were sighted. Two rare species in particular, the Maui Parrotbill and the Maui Nuku-pu'u (also in the Honeycreeper family), which had been sighted not more than five times since the turn of the century, were resighted several times during the project--the parrotbill in surprisingly high numbers.

Undoubtedly one of the most striking achievements of the project was the discovery of the new bird. When the students first contacted professional ornithologists and presented drawings of the unidentified bird, it seemed incredible that in 1973 a totally unknown species existed. Collections and reference books on Asian and African birds were studied by State and University wildlife officials to no avail. The most astonishing aspect is that prior to this discovery, no new bird had been found in Hawaii since 1923, and this had been classified as only a subspecies. Even in the jungles of New Guinea and South America, exceedingly few bird species new to science have been reported within the last decade. A technical description of the new bird is being prepared for publication by Tonnie Casey and James Jacobi with the assistance of Dr. Dean Amadon of the American Museum of Natural History, the recognized authority on the taxonomy of Hawaiian Honeycreepers. The bird will be the only known member of a new genus of the family Drepanididae which is restricted to the Hawaiian Islands.

The bird was found in limited upper reaches of the semi-closed 'ohi'a-lehua (Metrosideros collina) rain forest between the elevations of 5300 ft. and 6800 ft. on the north east slope of Haleakala. The bird measures $5\frac{1}{4}$ inches (135 mm.) long, approximately the size of an English Sparrow. Its back is brownish-olive changing to light buff on the underside. The most striking feature is a black mask which extends from the forehead to below the lower bill and back in a wedge behind the eye. The bill is also black and is conical which from observation, is used for picking and prying at

the bark of trees in search of insects. The bird frequents the understory to midcanopy of the 'ohi'a forest, the height of which averages 45 ft. On nearly every occasion in which the new species has been seen it has been in close association with the Maui creeper, 'amakihi, and/or parrotbill, all related members of the Honeycreeper family.

The disharmonic nature of the Hawaiian fauna and flora, resulting from the islands' volcanic origin and great isolation (the closest large land mass being greater than 2000 miles distant), has fostered rapid speciation and adaptive radiation of many of the life groups which were able to reach the islands and become established. The Honeycreepers are an excellent example of this in that due to an apparent lack of competition from other birds in similiar ecological niches (as was undoubtedly present in the continental ecosystems from which they originated), the original colonizing ancestor has evolved into at least 24 species in 10 genera. These include nectar, insect, and fruit feeders, as well as the thick-billed seed eaters. Behaviorly and morphologically the new species appears to be between the insect and seed eaters.

The significance of the discovery of a new species of Honeycreeper in Hawaii cannot be overlooked in this time of need for preservation of what is left of the native environment of the Hawaiian islands. It demonstrates that everything has not been discovered and documented; in fact, relatively little is known as to how all the units work together on an ecosystem level. The value of understanding the evolution of Hawaiian flora and fauna is becoming widely accepted, but many opportunities to study and understand Hawaiian island evolution are being lost. Currently, many rich native habitats are being needlessly destroyed by land speculation, whim, and poor land management, a step which is irreversible.

++++

Editors' Note: This discovery was reported, each with a drawing of the new genus, in the HONOLULU ADVERTISER, 29 December 1973:A14, and in the HONOLULU STAR-BULLETIN, 28 December 1973:A2.

HONOLULU CHRISTMAS COUNT

16 December 1973

A R E A S

	1	2a	2b	2c	3	4a	4b
Mallard	.	1	.	.	.	.	.
Duck (sp?)	.	1	.	.	.	.	.
Hawaiian Coot	.	4	12	.	.	.	.
Pacific Golden Plover	.	17	5	27	20	18	4
Ruddy Turnstone	.	.	.	8	.	.	.
Wandering Tattler	.	.	5	1	.	.	.
Hawaiian Stilt	.	.	7	.	.	.	.
Rock Dove	.	.	.	1	4	1	1
Spotted Dove	7	41	2	11	31	80	4
Barred Dove	19	18	29	17	45	381	14
Red-vented Bulbul	.	5	.	.	2	.	.
Mockingbird	.	.	2	.	2	.	.
Shama Thrush	9	12	.	.	27	12	.
Japanese Bush Warbler	9	1	.	.	.	.	.
'Elepaio	8	.	.	.	4	.	.
Common Mynah	16	115	1	130	49	221	51
Japanese White-eye	42	41	2	2	101	42	.
'Amakihi	13	.	.	.	6	3	.
'Apapane	9	.	.	.	10	5	.
Ricebird	12	.	.	.	9	29	.
House Sparrow	.	12	9	42	24	90	.
Cardinal	10	3	2	.	12	11	.
Brazilian Cardinal *	2	13	.	.	2	17	2
House Finch	12	14	13	6	9	63	.
No. of Individual Birds:	168	298	89	245	357	973	76
No. of Species:	13	15	12	10	17	14	6

*Red-crested (Brazilian) Cardinal

Honolulu Christmas Count, 16 December 1973 - Continued

	AREAS					TOTAL
	5	6	7	8	9	
Brown Booby	.	.	.	.	6	6
Red-footed Booby	.	.	.	.	1475	1475
Great Frigatebird	.	.	.	.	297	297
Cattle Egret	.	.	6	129	733	868
Black-crowned Night Heron	.	5	2	7	16	30
Mallard	.	.	.	.	.	1
Pintail	.	.	.	7	.	7
Shoveler	.	.	14	.	.	14
Scaup (sp?)	.	.	2	.	.	2
Duck (sp?)	.	.	.	.	.	1
Ring-necked Pheasant	.	.	.	1	.	1
Hawaiian Gallinule	.	.	.	3	.	3
Hawaiian Coot	.	.	9	6	.	31
Pacific Golden Plover	21	197	27	65	6	407
Ruddy Turnstone	.	21	10	.	.	39
Wandering Tattler	.	1	7	.	.	14
Sanderling	.	9	.	.	.	9
Hawaiian Stilt	.	2	5	.	.	14
Gull (sp?)	.	.	.	.	2	2
Rock Dove	.	.	.	1	.	8
Spotted Dove	263	103	2	17	17	578
Barred Dove	389	430	14	72	10	1438
Green-cheeked Amazon	9	.	.	.	.	9
Indian Ring-necked Parakeet	2	.	.	.	.	2
Shell Parakeet	2	.	.	.	.	2
Red-vented Bulbul	.	.	.	7	.	14
Mockingbird	3	3	.	.	.	10
Chinese Thrush	.	.	.	4	.	4
Shama Thrush	.	.	.	6	.	66
Japanese Bush Warbler	.	.	.	.	.	10
'Elepaio	.	.	.	.	.	12
Common Mynah	940	423	.	332	17	2295
Japanese White-eye	22	92	.	66	9	419
'Amakihi	.	.	.	.	.	22
'Apapane	.	.	.	.	.	24
Ricebird	.	32	.	68	22	172
Orange Weaver (Bishop)	1	.	.	.	.	1
House Sparrow	96	471	2	25	7	778
Java Sparrow	38	.	.	.	.	38
Cardinal	2	39	.	21	8	108
Brazilian Cardinal	43	45	.	9	6	139
House Finch	7	39	.	.	21	184
Green Singing Finch	2	.	.	.	.	2
Orange-cheeked Waxbill	5	.	.	.	.	5
Red-eared Waxbill	7	.	.	.	.	7
Cordon Bleu	1	.	.	.	.	1
Lavender Finch	1	.	.	.	.	1
Nanday Conure	3	.	.	.	.	3
Pintailed Whydah	1	.	.	.	.	1
No. of Individual Birds:	1858	1912	100	846	2652	9574
No. of Species:	22	16	12	19	16	48*

* Duck (sp?) excluded

Total hours on foot: 32.75
 Total miles on foot: 32.00

Total hours by car: 16.50
 Total miles by car: 92.00

Count taken in a circle, 15 miles in diameter, centered 2/5 mile ENE of Nuuanu Pali (21°22'N, 157°48'W) as in past years since 1954, to include Ulupau Head, Paiko Lagoon, and Sand Island. Habitat coverage: residential 49%, ocean/lagoons/ponds/swamp 21%, forests 17%, parkland 9%, scrubland 4%. Date: 16 December 1973 from 0655 to 1815 hours. Weather: clear all day with temperatures ranging from 68° to 78°F. and winds mostly from the North at 0-10 m.p.h.

Areas covered:

- 1 Aiea Trail
- 2a Moanalua Gardens, Nuuanu Valley
- 2b Salt Lake
- 2c Sand Island, Keehi Lagoon (offshore and bay through telescope)
- 3 Tantalus (Manoa Cliff Trail), Makiki Trail, Punchbowl
- 4a Manoa Valley, Woodlawn Trail, Lyon Arboretum Trail
- 4b Ala Moana Park
- 5 Kapiolani Park, Ewa slope of Diamond Head
- 6 Diamond Head Crater, Kaimuki to Paiko Lagoon
- 7 Kaelepulu Pond, Bellows Field
- 8 Kawainui Swamp, Quarry Road, Kailua
- 9 Kaneohe Marine Corps Air Station, Moku Manu (through telescope)

Twenty observers in eight parties:

Patricia L. Bloedon	Frank Howarth	William Prange
Omer Bussen	Nancy Howarth	Eddie Smith
Kathryn Davis	Donald Huddleston	Jack Throp
Marvin Devereux	Doris Huddleston	Ronald L. Walker
Wayne Gagne	Jean Jacobi	Erika Wilson
Sandra Guest	Carl Johnson	David Woodside
Lawrence Hirai	Unoyo Kojima	

++++

HONOLULU CHRISTMAS COUNTS

1964 - 1973

	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973
Arctic Loon	.	.	.	.	.	.	.	.	1	.
Black-footed Albatross	5	7	7	4	.	.	.	.	.	.
Wedge-tailed Shearwater	.	.	.	.	.	.	2	.	.	.
Red-tailed Tropicbird	.	.	.	2	.	.	.	.	.	.
White-tailed Tropicbird	.	.	3	.	.	.	.	1	.	.
Blue-faced Booby	.	5	1	.	2	13	2	3	.	.
Brown Booby	51	68	46	51	132	60	20	73	33	6
Red-footed Booby	580	240	430	1750	1700	2380	1438	1850	1615	1475
Great Frigatebird	408	117	164	952	270	377	333	1156	984	297
Cattle Egret	.	15	.	34	87	151	158	1127	1208	868
Black-crowned Night Heron	51	31	19	18	23	49	9	38	29	30
Canada Goose	.	.	.	.	.	1	.	.	.	.
Mallard	.	.	.	.	.	.	.	.	.	1
Hawaiian Duck (Koloa)	.	.	.	.	5	15	11	3	2	.
Pintail	.	38	29	77	.	54	111	18	71	7
American Widgeon	.	.	.	4	.	.	.	.	5	.
Shoveler	62	3	30	13	15	18	7	8	89	14
Ring-necked Duck	.	.	1	.	.	.	.	.	.	.
Lesser Scaup	.	.	1	.	.	3	2	12	2	.
Scaup (sp?)	2	2	.	1	7	2	.	.	.	2
Bufflehead	.	.	1	.	.	.	.	.	.	.
Duck (sp?)	.	.	.	.	.	10	.	.	.	1
Ring-necked Pheasant	.	1	.	.	.	.	.	.	.	1
Hawaiian Gallinule	14	8	5	1	7	2	6	5	6	3
Hawaiian Coot	61	33	47	19	31	151	92	73	116	31
Semipalmated Plover	.	.	.	.	.	1	.	.	.	.
Pacific Golden Plover	225	591	590	1093	574	637	599	483	683	407

Honolulu Christmas Counts, 1964 - 1973 (continued)

	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973
Ruddy Turnstone	97	226	93	347	215	160	125	60	139	39
Common Snipe (Wilson)	.	.	1	.	.	1	.	.	.	.
Wandering Tattler	18	39	11	26	18	23	23	20	18	14
Bar-tailed Godwit	.	.	.	1	.	.	.	.	.	.
Sanderling	150	85	132	35	43	39	35	83	33	9
Hawaiian Stilt	123	115	189	90	25	101	128	177	141	14
Pomarine Jaeger	12	6	31	37	5	.	24	8	10	.
Glaucous Gull	.	.	.	.	.	.	2	.	.	.
Glaucous-winged Gull	.	.	.	2	2	.	.	.	.	.
Herring Gull	.	.	.	.	1	.	.	.	.	.
Ring-billed Gull	.	.	2	.	.	.	.	4	.	.
Laughing Gull	.	.	1	.	.	.	.	.	.	.
Gull (sp?)	.	.	.	.	1	.	.	.	.	2
Sooty Tern	1600	4500+	.	6000	.	2	.	200	.	.
Brown Noddy (Common)	1	2	.	.	6	26	.	.	56	.
Black Noddy (Hawaiian)	2	.	.	27	5	.	1	.	.	.
White Tern (Fairy)	.	.	.	.	.	.	1	.	.	.
Rock Dove	.	.	.	.	.	.	.	.	.	8
Spotted Dove	259	245	477	506	636	678	534	619	627	578
Barred Dove	1371	1028	1802	2184	1207	1694	1298	1275	1809	1438
Short-eared Owl	1	2	2	3	.	.	.	.	.	.
Salmon-crested Cockatoo	.	.	.	.	.	.	.	.	1	.
Green-cheeked Amazon	.	.	.	.	.	.	.	4	2	9
Eclectus Parrot	.	.	.	.	.	.	.	.	1	.
Indian Ring-neck Parakeet.	.	.	.	.	.	.	.	.	1	2
Shell Parakeet	.	.	.	.	.	.	3	.	.	2
Red-whiskered Bulbul	.	.	.	2	7	.	.	4	.	.
Red-vented Bulbul	.	.	.	.	9	7	7	26	56	14
Mockingbird	11	22	7	9	12	4	2	7	13	10
Chinese Thrush	.	2	.	1	.	3	.	.	1	4
Red-billed Leiothrix	91	98	98	130	18	.	.	1	1	.
Shama Thrush	7	5	12	22	18	7	9	55	36	66
Japanese Bush Warbler	.	.	.	.	.	.	.	8	4	10
'Elepaio	27	24	39	36	20	22	4	27	21	12
Common Mynah	2871	2449	5825	6447	4265	4267	2981	2659	2427	2295
Indian Hill Mynah	.	.	2	7	2	1	.	.	.	.
Japanese White-eye	298	222	235	260	300	227	287	487	561	419
'Amakihi	35	43	29	46	40	44	22	98	34	22
Hawaiian Creeper (Oahu)	.	.	.	.	2	.	.	.	.	.
'Apapane	57	32	42	26	19	17	9	59	11	24
Ricebird	289	333	551	647	196	238	451	438	369	172
Orange Weaver (Bishop)	.	.	3	2	.	9	6	4	3	1
Yellow Weaver (Napoleon)	.	.	1	.	.	2	1	.	1	.
Weaver(Orange or Yellow)	.	1	.	.	2	.	.	.	.	.
House Sparrow	1089	670	1111	1128	592	1294	1222	1459	2538	778
Java Sparrow	.	.	.	.	.	4	11	4	24	38
Cardinal	59	100	96	79	128	94	74	152	204	108
Red-crested Cardinal (Brazilian)	85	210	246	274	122	158	202	186	298	139
House Finch	127	107	89	152	140	110	107	187	156	184
Strawberry Finch	.	.	4	.	.	.	.	.	.	.
Diamond Firetail Finch	.	.	1	.	.	.	.	.	.	.
Gray Singing Finch	.	5	22	37	18	6	9	3	.	.
Green Singing Finch	.	17	6	2	2	1	5	4	3	2
Saffron Finch	.	.	.	1	1	3	13	5	24	.
Orange-cheeked Waxbill	.	30	6	23	32	24	27	14	15	5

Honolulu Christmas Counts, 1964 - 1973 (continued)

	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973
Red-eared Waxbill (Common)	.	6	2	7	29	12	13	13	19	7
Cordon Bleu	.	3	7	4	2	4	6	3	17	1
Blue-headed Cordon Bleu	12	8	.	.	.
African Firefinch	.	30	6	5	8	4	2	.	.	.
Lavender Finch	.	4	2	17	23	6	7	14	40	1
Nanday Conure	3
Pintailed Whydah	7	5	1	1	1
Senegal Combassou	1	.	.	.	.
No. of Individual Birds:	10,139	11,820	12,557	22,641	11,024	13,236	10,454	13,218	14,559	9,574
No. of Species:	34	46	51	51	49*	53*	51	50	52	48

Excluded: Unidentified *Gull, *Scaup and duck, ~~♂~~Duck

++++

1973 Christmas Bird Count--Perfect Weather

By Erika Wilson, Compiler

Perfect weather conditions prevailed on December 16, 1973, during Honolulu's annual Christmas Bird Count. Twenty members and guests of the Hawaii Audubon Society, in eight groups, conducted a census of the nine established sections of the Honolulu Count. The entire area is a circle fifteen miles in diameter, centered near the Nuuanu Pali, and bounded by Aiea, Salt Lake, Diamond Head, Paiko Lagoon, Waimanalo, Mokapu Peninsula, and Kahaluu. This area was established in 1955 when the staff of Audubon Field Notes included the Honolulu Count in its Christmas Counts. Although it was intermittently included in earlier issues of AFN, prior to 1955 the Honolulu Count was considered a "foreign" count. At present AMERICAN BIRDS (formerly AFN) accepts counts from Canada, the United States, Mexico, and Central America.

The birdwatchers began counting each bird seen and/or heard at 06:55 just as the sun was appearing and finished, in gathering darkness, at 18:15. Gentle winds, clear skies, and warm temperatures made birdwatching a pleasure. The groups put in 49 party-hours and traveled approximately 124 miles in the count circle. They tallied 9,574 birds of forty-eight species, including two species new to the Honolulu Count. It is interesting to note that the 1955 count found only thirty-four species within the same area.

As in previous years the introduced birds far out-numbered those birds which occur here naturally--of the forty-eight species sighted, only nineteen arrived in Hawaii by their own efforts. The area with the greatest variety is Kapiolani Park and the ewa side of Diamond Head where exotic cagebirds have been released over the years. By contrast, Ala Moana Park hosts only a few species, most of which are unspecialized feeders such as the Rock Dove (Pigeon, a species not previously counted, but which is as feral as the other two introduced doves.), the Barred Dove, and the Common Mynah. The Golden Plover seems to have adapted to the man-made environment of Ala Moana Park and Punchbowl, but doesn't occur in large groups as it does in more suitable habitats.

The most disheartening result of the count was the drastic reduction in the number of Hawaiian Stilts reported. The destruction of Salt Lake and the "improvements" at Paiko Lagoon contributed to an apparent ninety percent reduction in the numbers of this unique native species since the 1972 Christmas Bird Count. The filling of Salt Lake also reduced the numbers of ducks which birders usually find wintering there. Last year Bill and Mae Mull saw an Arctic Loon at Salt Lake (a most unusual sighting), but now this habitat for migrating waterfowl and shorebirds is being replaced by a golf course. Three groups reported Hawaiian Coots but in reduced numbers, evidently another casualty of Honolulu's expansion.

The seabird counts were lower this year. As Ronald Walker notes in his report, the fine weather allowed the birds to stay at sea rather than seek the shelter of Oahu. Motor boat races on count day near Sand Island and Keehi Lagoon reduced the chances of seeing seabirds there.

New highs in the numbers of Shama Thrushes, Java Sparrows, Japanese Bush Warblers, Green-cheeked Amazons, and Indian Ring-neck Parakeets were recorded for the Honolulu Count. The Shama Thrush has spread along the watercourses in the mountains behind Honolulu; its

clear melodious call is now a common sound to hikers in the Koolau Range. The Java Sparrow now seems to be well-established in the Kapiolani Park/Diamond Head area, and is seen in other areas of Honolulu as well.

Jack Throp (director of the Honolulu Zoo) reported three Nanday Conures, a new species for the count. During count week he also observed a few Hawaiian Ducks (Koloa) as well as two other new species--a Peach-faced Lovebird and a Savannah Hawk (an escapee from the Zoo).

I think the Hawaii Audubon Society suffered a disappointment in that only thirteen of Oahu's 150 members and seven of their guests were able to take part in this interesting and important event. I am grateful to them for their time and generous help in counting the birds of Honolulu.

Aiea Loop Trail:

A beautiful day for birding! The only white spot in the sky was the moon, and just enough breeze to gently stir the branches.

The first and the last bird on the list was a rooster. Yes, a rooster. His crowing was very clear and insistent. By noon many of the birds were quiet, but when I returned to the car after seven hours on the trail, the rooster was still crowing; so though I can't include him in the count, he must be noted.

Maybe the recent rain added some potent elements into the air, because the birds were very vociferous. The shama was calling and defending its territory. Three in particular were chasing each other handsomely flitting from branch to branch of the eucalyptus trees. The cardinal was melodiously competing with the shama. The gentle cooing of both doves was very clear and sounded urgent. Even the mynah added to the beauty of the lower picnic area. Usually, only one or two are counted, but today sixteen of them were feeding, then suddenly in unison they flew into the Norfolk pine. The flash of white and brown into the green against the blue sky is beyond description. Come out and experience this wonderful feeling for yourself. MAHALO.

Of the nine 'apapane counted, five were feeding on the eucalyptus blossoms. If more trees were in bloom, I am sure the 'apapane and the 'amakihi counts would have been larger. Many of the trees showed signs of damage from the recent drought.

The 'elepaio was not as numerous as usual, but two were curious enough to respond to my squeaking and came flying by. The white-eye is still the most numerous, and the house finch count was the same as that of the last two years, but the bush warbler was calling from everywhere. On the other hand, no tit nor leiiothrix. What happened? If anyone knows anything about the ecology of the bush warbler, leiiothrix and tit, please share your experiences with the other members.

Kojima

Nuuanu Reservoirs:

Arrived 7:45 am at the lower small reservoir on old Nuuanu Drive and observed water and bank areas. Observed female Mallard and another unidentified duck which appeared to have been seriously injured or mauled in some way; the latter was not present when the reservoir was revisited at 4:45 pm. Went the short distance to the upper small reservoir both morning and afternoon and observed the same number of Coots. In the afternoon heard a "tsh-tsh" note from the dense papyrus thicket at the east end. After considerable calling and squeaking, one of us (C.J.) caught a glimpse of a small greenish-brown passerine with a lighter eye stripe which matched the description of the Japanese Bush Warbler.

Sand Island:

Arrived 9:00 am, entered the dirt road at the southeast end of the dirt road that runs along the makai side on the west end. Observed the water areas of lagoon and shore areas of inlet and the interior areas in clear, cloudless, windless conditions at medium tide. Very little activity of birdlife. Preparations for a motor boat race in progress. Drove counter clockwise around the periphery of the island stopping periodically, then back through the interior of the island. Left the area at 10:45 am.

Salt Lake:

Arrived 11:00 am, entered dirt road at north end of housing area, and drove out onto dirt-fill area projecting into lake. Security guard with heavy equipment parked nearby

denied access and told us to proceed to school area near the west end of the lake. Drove there and proceeded on foot to edge of lake on new fill to set up spotting scope. Security guard came over and again requested that we leave the area. Not undaunted, drove to another point on the west end of the lake after taking a quick count of shore and water birds. Observed kiawe thickets on south side of lake and lawn areas of school. Proceeded again to lake shore not filled in. Lake is now over half-filled in and several toes of fill projecting into lake make observations of bird life on lake quite difficult. It is evident that not much, if any, of Salt Lake will remain by Christmas, 1974. Low counts of Stilt, Coot and other water-dependent species. Large numbers of dead fish washed up along shore. Salt Lake is shortly to suffer a fate worse than that of Kuapa Pond--total obliteration! The developer claims the new golf course will be attractive to birdlife. We don't share his "enthusiasm." Left at 11:50 pm.

Moanalua Gardens:

Arrived at 12:00 pm to find that "progress" had struck again. A portion of the west end of the gardens has disappeared under a new freeway interchange. Entered from parking lot at west end and walked counter clockwise around periphery of gardens, stopping frequently to listen and observe through binoculars over the roar of the freeway. Weather still clear and windless; much movement of Mynahs made count of these difficult. Heard, then viewed 3 Red-vented Bulbuls in kiawe trees at east end, then saw 2 more in a banyan near the lily pond. White-eyes observed in upper portions of monkeypod trees. Left at 12:45 pm and didn't revisit the area.

Judd Trail:

Walked the trail in a clockwise direction, starting at 4 pm. Spotted Doves calling from tops of Norfolk Island Pines and most were not visible from the ground. Counts of these and Shama Thrush mostly based on individual singing birds. Mature, exotic pines with sparse undergrowth probably make this generally poor habitat for much variety in birdlife and may account for the lack of native forest birds here. Left at 4:45 pm.

Keehi Lagoon:

Arrived at 5:15 pm to take advantage of low tide. Lawns alive at entrance to Keehi Lagoon Park with Mynahs and lesser numbers of House Sparrows and Golden Plover. Weather still clear with a 5 mph onshore breeze. Aircraft now directly overhead for Honolulu International Airport. Walked across lawn areas to shoreline at east end and walked westward along the shoreline stopping frequently to scope the shoreline, lagoon and off-shore islands with the spotting scope. Very little aquatic birdlife; same situation that prevailed that morning at Sand Island. In failing light, spotted a couple of birds among the flotsam near the offshore islands but at a distance so great and in such poor light that could not even guess which group of birds they might be. No activity on distant mud flats either. This latter habitat is shortly to suffer the pangs of progress--to be filled in for the reef runway now abuilding at the Pearl Harbor entrance end. Plans are also afoot to fill in the Lagoon itself. Shore bird habitat in urban Honolulu is being rapidly obliterated with little compensation other than Paiko Lagoon and "replacement habitat" in Pearl Harbor. Left the Lagoon at 6:15 pm in gathering darkness corresponding to our mood.

Wayne Gagne

Manoa Cliff Trail, Tantalus, Punchbowl, Makiki Trail, and Ala Moana Park:

The car chugged up Round Top Drive in the cool dawn; all of us were still shaking off our sleepiness. At 6:55 am we started walking the Manoa Cliff Trail; the sun was just beginning to rise over the mountains in the east. The perfect weather made birding conditions ideal: we saw and heard birds all around. The White-eyes twittered happily, the Shama Thrushes sang melodiously, the Cardinals added their clear notes, and the Spotted Doves cooed. Out of this orchestra of sounds we heard the whirring of honey-creepers! The bright red of the 'Apapane flitting close by in the koa and 'ohi'a along the trail was really a treat; we saw 10 of them as they watched us walk along. Soon afterwards we began seeing the 'Amakihi wiping its bill on tree branches, ruffling its feathers, and giving its call note. An 'Elepaio came out to watch us trying to make up our minds at a fork in the trail. We climbed to the top of Mt. Tantalus for an early lunch, saw a few more 'Elepaio near the top, and then walked down to the car.

At Punchbowl we added 2 Mockingbirds, 20 Golden Plovers, some Ricebirds, House

Sparrows, Brazilian Cardinals, and Common Mynahs to our tally. Frank Howarth counted birds in his yard during the afternoon break, thereby adding Red-vented Bulbuls to the list. Later we walked the Makiki Trail loop above the State Arboretum hoping to draw more 'Elepaio into view with whistles and chirps. We didn't succeed, but we did see House Finches and, to my delight, 2 'Amakihi. I am so pleased that at least three of the native Hawaiian birds have survived in relatively close proximity to people. Just before supper and sundown, we made a quick survey by car of Ala Moana Park, but didn't see anything unusual for that area.

I kept hoping to see a Red-whiskered Bulbul but didn't see one until December 20th. A fine individual of this species was singing loudly from a treetop along Makiki Heights Drive--no doubt laughing at me for not finding him on December 16th!

Erika Wilson

Manoa:

The area surveyed was from the University of Hawaii campus to upper Manoa, including Woodlawn (till the eucalyptus stand) and Lyon Arboretum trails. Well over 75% of the area is residential, the trails being the only forest habitats surveyed. Even the trails are composed largely of introduced plants, some stands of Kukui being the main endemic flora. 'Amakihi, 'Apapane, and Shama Thrush were only counted in upper Manoa along the trails.

Larry Hirai

Kapiolani Park and Diamond Head:

I wasn't able to get as accurate a count on the Diamond Head finches as in the previous eight years. Mrs. Harold Erdman has let me into her yard where the birds come in to feed, but this year she is upset with the Hawaii Audubon Society. I know that there are a number of Saffron finches in the area, but I missed them completely. They are not uncommon in Kapiolani Park, even as far as the Zoo, but they weren't seen during the count period. Birds seen prior to or after count day were 1 Peach-faced Lovebird, 2 Grey Singing Finch, 4 Koloa Duck, and 1 Savannah Hawk (escapee from Zoo).

Jack Throp

Inside Diamond Head Crater:

About $\frac{1}{4}$ of the crater is open area with a few buildings. The rest is covered with shrubs, Haole koa being the dominant vegetation. The area was turning green but was very dry, up to several weeks ago. This probably accounts for the few birds seen. No species of escaped cage birds were observed; last year several were very common. Cardinals, House Finches, and White-eyes were singing their primary song. A mixed flock of White-eyes and House Finches were feeding in an African tulip tree--House Finches drinking nectar?

Sandra Guest

Kaimuki to Paiko Lagoon:

This area is primarily residential with some park lands; the two major exceptions are Diamond Head and Paiko Lagoon (which is being designated as a shorebird sanctuary). Apart from these exceptions, the route is almost entirely traveled by car and consists of a roadside count of birds readily seen in parks, school yards, and residential yards.

Counts this year appear to be lower for two reasons. (1) The excellent weather appeared to be a disadvantage as numerous people were active in parks and in yards, thereby flushing birds to areas where they could not be observed. Additionally, toward mid-morning the weather became quite bright and warm; it is believed that most birds retired to trees where they could not be observed. (2) Only two observers participated instead of three as in past years.

No new or unusual sightings were recorded. The waxbills and Java Sparrows previously observed in the Waiialae-Kahala and Ruger areas, were not seen. However, a Ruger resident mentioned that both have been seen regularly in recent months.

Of particular concern was the dramatic decline in Hawaiian Stilt in Paiko Lagoon. Only two were sighted, by far the lowest count in my memory. As in previous years, tides were low at the time of observation and viewing conditions were ideal. This is the first Christmas count since the State of Hawaii attempted to improve the mudflat habitat by dredging and bulldozing. Numerous other shorebirds (mostly Golden Plover) were observed in sections of the lagoon normally frequented by the Stilts.

William Prange

Winward Oahu:

Excellent field conditions all day--little wind and clear skies. Frigatebird counts were lower than last year when storms brought this species in from sea. Dry field conditions, lack of temporary water areas, etc. affected distribution of birds, thus numbers as compared with previous wet years. Unidentified gulls were seen at the eastern pond at the Kaneohe Marine Corps Air Station--immatures are difficult to verify as to species.

Ronald L. Walker

CONSERVATION STATUS OF BIRDS OF CENTRAL PACIFIC ISLANDS

By Warren B. King

Third and Final Installment

Howland

Howland (0.64 square miles) is administered by the U.S. Department of Interior. It was colonized between 1935 and 1942, and an airstrip and a lighthouse were built, intended for use by Amelia Earhart. Howland was used extensively during World War II by U.S. troops.

The airstrip is now obscured by vegetation. The lighthouse and a few low stone walls remain to tell of human occupancy. Cats, introduced by the colonists, eliminated the once abundant Polynesian rats and then were extirpated in 1964 by POBSP personnel. Cats reappeared in 1966 after a visit to the island by the U.S. Military, and are evidently still present.

Howland has a large Blue-faced Booby population (3,000 birds) and a Sooty Tern population of up to 200,000 birds. Wedge-tailed Shearwaters nest in small numbers in spite of the cats. This island would quickly become among the most significant seabird colonies in the central Pacific if the cats were removed and the island were given protection from disturbance (POBSP unpubl. reports; R.B. Clapp, pers. comm.).

Baker

Baker (0.53 square miles) is administered by the U.S. Department of Interior. It is uninhabited but was heavily utilized by U.S. troops during World War II. The island was nearly scraped clean of vegetation at that time. Signs of former activities are still evident. The ruins of buildings, trenches, oil drums, metal airstrip matting and a lighthouse still remain. The small lagoon has an islet, on which nest a few Brown Noddies, the only breeding species in 1963. In 1964 the last of a small cat population was removed by POBSP personnel. Within months three species of seabirds previously absent were breeding on Baker, having emigrated from Howland. In 1966 after a visit by the U.S. military at least two cats reappeared on the island, and they are presumably still present (POBSP unpubl. reports; R.B. Clapp, pers. comm.).

Baker has excellent potential as a seabird colony, but it is kept nearly devoid of birds by the presence of at least two cats.

Marshall Islands

The Marshall Islands (70.09 square miles) are U.S. Trust Territory administered by the Department of Interior. Land area of the 34 islands ranges from 0.07 square miles (Jemo) to 6.15 square miles (Mili). Eight of the islands are uninhabited. Two of the uninhabited islands, Taongi and Bikar, are too dry to sustain the harvest of coconuts. These are both important seaboard islands. The remainder of the uninhabited and several of the inhabited islands have cats, dogs, pigs, chickens, Polynesian rats and some have black rats as well. Almost all uninhabited islands are devoted to coconut culture. The Marshallese utilize seabirds and their eggs for food. They recognize the importance of affording protection to seabirds to preserve their populations as a renewable resource. They have traditionally considered Taongi, Bikar, Jemo, and islets of Taka and Jaluit as bird sanctuaries, on which the taking of birds and eggs for food is restricted but not prohibited. Taongi and Bikar have at least three species breeding which do not breed on any other island in the Marshalls, and two more that breed only on one other island. Taongi, Bikar, and Jaluit have 11 or more breeding seabird species.

The U.S. Government has conducted nuclear tests on Eniwetok and Bikini. In the long run seabird populations of these islands seem not to have been affected by the explosions. The relative isolation of some islets around the circumference of these large atolls permits the continuance of seabird populations; for example Eniwetok has breeding Sooty Terns and Red-tailed Tropicbirds in spite of a large human population and the presence of

cats and two species of rats on some islets (Amerson, 1969).

Wake

Wake Island (2.5 square miles) is a U.S. Territory administered by the Federal Aviation Agency. It was occupied by the Japanese during World War II. There are presently about 1,400 U.S. civilian and military personnel on Wake. The island has a long jet strip, radio transmitter and receiver towers, Pacific Missile Range facilities, and a U.S. Coast Guard LORAN Station. The three islets of this atoll are connected by bridges. Feral cats, black and Polynesian rats occur on all three islets. An endemic rail (Rallus wakensis) became extinct during World War II. There are eight breeding seabird species; seven more bred in the recent past but have been extirpated. Sooty Terns are the most abundant (1,750,000 birds). Rats prey heavily on the Sooty Terns. Following Typhoon Sarah on 15 September 1967 rat populations exploded. "All fresh eggs disappeared within 24 hours and on two occasions I actually saw rats dragging eggs away while the adult bird stood 'helplessly' watching. We watched several rats chewing on young birds." (R.Schreiber, POBSP unpubl. field notes). By September 1968, after an active rat control project, rats were neither seen nor trapped by POBSP personnel (POBSP unpubl. reports).

Conclusions and Recommendations

Most of the islands covered by this survey have been materially altered by man. Isolation is no longer a sufficient deterrent to alteration; in some instances, e.g. military operations, it appears to be a desirable asset. Seabird faunas have experienced wholesale depletion, but have demonstrated remarkable resiliency. Future utilization of these islands is bound to take place, for which reason it is essential to identify and protect those islands with relatively intact avifaunas, and to insist that users pick up after themselves when they have finished with an island, so that its value as a bird habitat is undiminished or improved. The status of fish, invertebrates or plants on some islands is unknown. Special care should be taken to prevent the extirpation of species from islands before they are investigated. Nonscientific visits to such islands should be stringently controlled.

The following islands are considered to be of outstanding value in terms of the diversity or abundance of their avifauna, or because they are in a relatively unaltered or recovered state: Nihoa, Laysan, Lisianski (and the other islands of the Hawaiian Islands National Wildlife Refuge), Christmas, Jarvis, Vostok, Rose, Phoenix, McKean, Birnie, Taongi, and Bikar.

The following are potentially important as bird habitats, but are kept from attaining that importance by one or more factors capable of correction: Kaula, Malden, Starbuck, Enderbury, Howland, and Baker.

To materially improve the bird habitats of the central Pacific, it is recommended:

1. That the U.S. Navy discontinue bombing of Kaula, and surrender jurisdiction of it to the Department of Interior for inclusion in the Hawaiian Islands National Wildlife Refuge.
2. That the U.S. Coast Guard LORAN A Station on French Frigate Shoals be abandoned as soon as other navigational systems render LORAN A obsolete or redundant.
3. That the U.S. Department of Interior remove introduced populations of Nihoa and Laysan Finches from French Frigate Shoals and Pearl and Hermes Reef respectively since neither of these populations is in "last resort" status on its native island, and their egg-eating habits may exert undesirable effects on the indigenous birds of the islands to which they were brought.
4. That Eastern Island, Midway, be made a strict bird sanctuary by the U.S. Navy, or, preferably, that it be turned over for inclusion in the Hawaiian Islands National Wildlife Refuge.
5. That the U.S. Department of Interior declare Jarvis, Howland, and Baker as National Natural Monuments, and that the Department of Interior seek the cooperation of the Department of Defense in removing the cats placed on Howland and Baker by the latter.
6. That a joint U.S.-British expedition visit islands in the Line and Phoenix Group to remove cats, and, where pertinent, dogs from presently uninhabited islands where they occur. These include Jarvis, Malden, Starbuck, Hull, Gardner, Sydney, and Enderbury. The last four could best be visited through the cooperation of the Air Force, which is currently leasing them. Associated with this recommendation, and of greater importance, is the removal of rabbits from Phoenix Island.
7. That the U.S. Department of Interior take an active hand in the preservation of

Taongi and Bikar as bird sanctuaries by legal recognition and by regulation of the taking of birds and eggs by Marshallese commensurate with the principle of sustained yield. ...

Literature Cited

- Amerson, A.B., Jr. 1969. Ornithology of the Marshall and Gilbert Islands. Atoll Research Bulletin, No. 127.
- Amerson, A.B., Jr. 1971. The natural history of French Frigate Shoals, Northwestern Hawaiian Islands. Atoll Research Bulletin, No. 150.
- Amerson, A.B., Jr., R.B. Clapp, and W.O. Wirtz, II. In prep. The natural history of Pearl and Hermes Reef, Northwestern Hawaiian Islands. Atoll Research Bulletin.
- Berger, A.J. 1972. Hawaiian birds 1972. Wilson Bull., 84:212-222.
- Caum, E.L. 1936. Notes on the flora and fauna of Lehua and Kaula Islands. B.P. Bishop Mus. Occas. Papers, 11(21).
- Clapp, R.B. 1968. The birds of Swain's Island, south-central Pacific. Notornis, 15:198-206.
- Clapp, R.B. In press. The natural history of Gardner Pinnacles, Northwestern Hawaiian Islands. Atoll Research Bulletin, No. 163.
- Clapp, R.B. In prep. Present status of the birds of Canton Island, Phoenix Islands.
- Clapp, R.B. and E. Kridler. In prep. The natural history of Necker Island, Northwestern Hawaiian Islands. Atoll Research Bulletin.
- Clapp, R.B., E. Kridler, and R.R. Fleet. In prep. The natural history of Nihoa Island, Northwestern Hawaiian Islands. Atoll Research Bulletin.
- Clapp, R.B. and F.C. Sibley. 1966. Notes on the birds of Tutuila, American Samoa. Notornis, 13:157-164.
- Clapp, R.B. and F.C. Sibley. 1971a. Notes on the vascular flora and terrestrial vertebrates of Caroline Atoll, Southern Line Islands. Atoll Research Bull., No. 145.
- Clapp, R.B. and F.C. Sibley. 1971b. The vascular flora and terrestrial vertebrates of Vostok Island, south-central Pacific. Atoll Research Bull., No. 144.
- Clapp, R.B. and W.O. Wirtz, II. In prep. The natural history of Lisianski Island, Northwestern Hawaiian Islands. Atoll Research Bulletin.
- Clapp, R.B. and P.W. Woodward. In prep. a. The vascular flora and terrestrial vertebrates of Sydney Island, Phoenix Islands.
- Clapp, R.B. and P.W. Woodward. In prep. b. The vascular flora and terrestrial vertebrates of Gardner Island, Phoenix Islands.
- Ely, C.A. and R.B. Clapp. In prep. The natural history of Laysan Island, Northwestern Hawaiian Islands. Atoll Research Bulletin.
- Fisher, H.I. 1966. Midway's deadly antennas. Audubon, 68:220-223.
- Fisher, H.I. 1970. The death of Midway's antennas. Audubon, 72:62-63.
- Kepler, C.B. 1967. Polynesian rat predation on nesting Laysan Albatrosses and other Pacific seabirds. Auk, 84:426-430.
- King, W.B. 1967. Preliminary Smithsonian identification manual: Seabirds of the tropical Pacific Ocean. Washington, D.C., Smithsonian Institution.
- Kirkpatrick, R.D. 1966a. Mammals of Johnston Atoll. J. Mammal., 47:728-729.
- Kirkpatrick, R.D. 1966b. Mammals of the Tokelau Islands. J. Mammal., 47:701-704.
- Laycock, G. 1970. Haunted sands of Laysan. Audubon, 72:42-49.
- Robbins, C.S. 1966. Birds and aircraft on Midway Islands. U.S. Bureau Sport Fish. and Wildl., Spec. Sci. Rept.—Wildlife, No. 85.
- Schreiber, R.W. and N.P. Ashmole. 1970. Seabird breeding seasons on Christmas Island, Pacific Ocean. Ibis, 112:363-394.
- Shelton, P.C. In prep. The natural history of Johnston Atoll, central Pacific Ocean. Atoll Research Bulletin.
- Thompson, M.C. and C.D. Hackman. 1968. Birds of the Tokelau Islands. Notornis, 15:109-117.
- U.S. Department of Interior. 1966. Rare and endangered Wildlife of the United States. U.S. Bureau of Sport Fisheries and Wildlife, Resource Publication 34.
- Wodzicki, K. and M. Laird. 1970. Birds and bird lore in the Tokelau Islands. Notornis, 17:247-276.
- Woodward, P. In press. The natural history of Kure Island, Northwestern Hawaii Chain. Atoll Research Bulletin, No. 164.

+++++

The International Council for Bird Preservation, Smithsonian Institution, Washington, D.C. 20560, 13 October 1972.

Plover Watching from Erika Wilson, 19 December 1973, 6:00 pm, George Hall-Univ. of Hawaii

A single Golden Plover which has often been seen on the grassy areas around George Hall, was seen to fly up and land on the NE corner of George Hall. The sun had just set; the day was clear with a slight breeze.

The plover landed, made bobbing motions accompanied by short cries, then preened a little between bobbing motions while silent. In the fading light, the silhouette of the bird stood out clearly against the pale sky.

This is the first time I have seen a plover anywhere but on the ground; I am sure that this bird can be seen there regularly, but I am rarely on campus at this time of the evening.

1 January 1974, 10:50 am: Sunny, light clouds, Kona winds approx. 25 mph after a rain storm

I was visiting relatives on the 12th floor of an apartment building at Kaiulani Avenue when I noticed some activity on the flat roofs of 3 apartment buildings on the corner of Kaiulani and Kuhio Avenues below me. A pair of binoculars was found for me, through which I watched a group of 10 Golden Plovers. There were 9 birds on one roof all gathered in a bunch around 1 individual who was defending some item from the other 8 individuals. First one, and then another would make a dash at the individual with the unidentified item. He would crouch down and make return dashes in a hunched position with his head thrust out in a horizontal position in line with his body. Occasionally a bird would rise briefly off the roof top. After a few minutes the birds scattered, one joined the 10th individual on an adjacent roof, five others flew over to a third roof, and the remaining five spaced themselves on the roof. There were pools of standing water from the early morning rain storm; I saw a few birds take drinks from these pools. One bird preened his back feathers, but most of the birds stood quietly, while the possessor of the unknown object continually picked up the item, shook it briefly, dropped it, and picked it up again. There were also House Sparrows, Rock Doves, and Spotted Doves on the roofs.

Letter from Robin C.A. Rise, 26 September 1973: Argasid (Bird) Ticks

...I would like to visit as many seabird rookeries as possible for the purpose of obtaining argasid ticks. The idea here is to elucidate systematic problems with these ticks, which in Hawaii belong to the capensis group of Ornithodoros. A second objective is the recovery and characterization of viruses and other pathogens possibly vectored by these ticks. So far virus strains have been isolated from capensis-group ticks taken on Johnston Atoll, Kure, and Midway. None has yet been recovered from main island ticks, because no one has looked. Earlier this week I sent a vial of live ticks from the Kilauea Lighthouse, Kauai, seabird rookery to NAMRU-3* /Cairo, Egypt/ for the above mentioned purposes. I would like to obtain lots from other bird colonies. ...The only ones I know of are the Lighthouse rookery and a small, scattered Wedge-tailed Shearwater colony at Kaweliko Point on Kauai, Moku Manu off Oahu, and a possible colony on a small islet off the eastern end of Maui. If you know of others please let me know.

Secondly, I...would like to visit Moku Manu and any other bird colonies on Oahu that may exist. ...I would hope that you could accompany me. There are no monetary rewards, but there is the satisfaction of participating in an extensive program by Naval Medical Research Unit No. 3* the Rocky Mountain Lab, and a number of eminent virologists and other specialists.

There have been no serious studies as yet on the impact of tick-borne viruses on Central Pacific seabird populations. Presumably this will come in time, but the basic groundwork--the recovery and characterization of pertinent disease organisms and their vectors--can and should be done as soon as possible. Anyone concerned with the terns, shearwaters, boobies, etc. of Hawaii should be interested in this work. ...

+++++

Letter from Brian A. Pelley, Kailua-Kona, Hawaii, 24 November 1973: Yellow-billed Cardinal

This morning I observed a bird somewhat smaller than a mynah in flight near Kailua-Kona. I caught only a quick look at the animal, but it had a bright red head, a gray back and strikingly white below. I have looked through your publication HAWAII'S BIRDS, but found only the Brazilian cardinal to match what I saw, your book indicates it is found on Oahu, Kauai, and Maui. Is there another bird I may have mistaken for it, or has the Brazilian cardinal's range extended to the Island of Hawaii since the second printing of

HAWAII'S BIRDS?

Reply from Mae E. Mull, 8 January 1974:

...I have not seen nor have I heard of reports of the Red-crested (Brazilian) Cardinal on the island of Hawaii. I can find no references in the literature available to me of the Brazilian Cardinal having been released or observed on this island. However, the possibility of that species' (Paroaria coronata, formerly cucullata) presence here is not excluded, because past authorized release data are incomplete, unauthorized releases of caged birds do occur from time to time, and there is the remote chance of movement from the other islands where this exotic is established.

I spoke to Winston Banko, Biologist-in-charge, Mauna Loa Field Station, U.S. Bureau of Sport Fisheries and Wildlife, at Hawaii Volcanoes National Park, about your sighting. Mr. Banko commented that you may have seen a Yellow-billed Cardinal (Paroaria capitata) which has been reported several times on this island. This slender-billed South American cardinal is used in the cage-bird trade, has a red head, black throat, white underparts, grayish-black upperparts, and is less than six inches in length. There is a color illustration and description of the Yellow-billed Cardinal in FINCHES AND SOFT-BILLED BIRDS by Henry Bates and Robert Busenbark (T.F.H. Publications, 1970). ...

In HAWAIIAN BIRDLIFE (University Press of Hawaii, 1972) Dr. Andrew J. Berger gives accounts of the two Cardinal species that are established on one or more of the main islands and lists three additional species in the appendix, "Introduced and Escaped Birds Not Known to be Established." ...

ALOHA to new members:

Junior - Terry Ferguson, 1205 Dawn St, Bakersfield, California 93307
 Regular: Walter E. Benning, R.D. #2, Clyde, New York 14433
 John J. Feuer, Limepost Farm, Champayne, New York 12919
 William E. Jacobi, 2884 Komaia Place, Honolulu, Hawaii 96822
 Martha B. Merk, 171 Brookside Drive, Portola Valley, California 94025
 Brian A. Pelley, PO Box 2130, Kailua-Kona, Hawaii 96740
 Mrs. Barbara Stejskal, 2957 Kalakaua Ave, # 309, Honolulu, Hawaii 96815

What are you doing about the energy crisis? Any good ideas?

HAWAII'S BIRDS, a field guide, is available for \$2.50 postpaid, Airmail 50¢ extra. Send in orders to: Book Order Committee, Hawaii Audubon Society, PO Box 5032, Hon., HI 96814.

Reprint permitted if credited as follows: from THE ELEPAIO, Journal of the Hawaii Audubon Society.

FEBRUARY ACTIVITIES:

10 February - NO FIELD TRIP
 11 February - Board meeting at McCully-Moiliili Library, 6:45 p.m. Members welcome.
 18 February - General meeting at Waikiki Aquarium Auditorium at 7:30 p.m.
 Program: Manana, Island of Birds (color film) by Robert Shallenberger
 Also, if available, rerun of the color film, Guided by the Nene

HAWAII AUDUBON SOCIETY EXECUTIVE BOARD:

President: Wayne G. Gagne
 Vice Presidents: H. Eddie Smith (program)
 George-Ann Davis (education)
 Secretaries: Patricia Bloedon (recording)
 Erika Wilson (corresponding)
 Treasurer: C. Florence Hendrycy
 Board Members: Steven L. Montgomery (conservation)
 Mae E. Mull (Big Island representative)

THE ELEPAIO: Editors-Charlotta Hoskins & Unoyo Kojima

MAILING ADDRESS: P.O. Box 5032, Honolulu, Hawaii 96814

DUES for 1974 are now payable: Regular - \$3.00 per annum
 Junior (18 years and under) - \$1.00 per annum
 Life - \$100.00