'ELEPAIO

Journal of the Hawaii Audubon Society

VOLUME 41, NUMBER 4

For the Protection of Hawaii's Native Wildlife

OCTOBER 1980

POPULATION INCREASES OF CATTLE EGRETS ON KAUAI

by G. Vernon Byrd, C. Fred Zeillemaker and Thomas C. Telfer

The Cattle Egret (Bubulcus ibis) was introduced to Hawaii from Florida in 1959 to control flies (Breese 1959). In July and August of that year 105 birds were released: 25 on Kauai; 40 on Oahu; 12 on Molokai; 12 on Maui and 32 on Hawaii. From this original stock, and smaller releases in 1960 and 1961 (M. Takata, pers. commun.), egret populations grew rapidly on Oahu, but started -more slowl, on the other main islands.

On Kauai, fewer than 25 birds were counted during semi-annual waterbird censuses up to the winter of 1975, when 296 were observed (Table 1). Even though the semiannual censuses do not include all egret habitats, they suggest a rapid increase in egret numbers on Kauai after 1975. Estimates of the total egret populations are not available for any of the main Hawaiian Islands, but on Kauai a roost at Crater Hill near Kilauea Point has been censused periodically since it was discovered in 1974, and other roosts have been located since then (Fig 1). Herein, we summarize the existing information about Cattle Egrets on Kauai (Table 2) to establish a base from which future workers may assess changes in egret populations.

STUDY AREAS AND METHODS

Kauai is composed of a mountainous interior with a narrow coastal fringe which becomes wide on the south and eastern portions of the island. In the past 20 years many lowland areas have been converted from sugar cane to pasture land and other types of agriculture. Pastures are favored feeding areas for egrets where they consume the insects associated with livestock. Flocks of egrets also feed opportunistically in freshly mown fields, along roadsides and particularly in recently harvested cane fields. Sugar harvesting personnel have observed cattle egrets consuming small rats and mice as well as insects escaping the heavy machinery during harvesting operations. One road-killed egret collected by Telfer near Kilauea on June 19, 1979 had consumed 36 large roaches (*Periplaneta americana*) and one Metallic Skink (*Leiolopisma metallicum*).

After feeding at widely dispersed locations, egrets return to communal roosts during the two-hour period preceeding evening darkness, usually in discrete flocks containing fewer than 15 birds, but occassionally up to 100 birds. This behavior made it possible for observers to tally birds in



Mixed colony of Cattle Egrets and Redfooted Boobies at Crater Hill, Kauai. Photo by Fred Zeillemaker

flocks as they arrived at the roost. Generally, all birds returned to the roost before total darkness.

At Kilauea Crater, simultaneous counts were made from two observation points: just east of the summit of Crater Hill; and near Kilauea Lighthouse to the west. At Omao Reservoir, four observers counted returning flocks from one vantage point, dividing up compass coordinates among the observers. At Kapaa, birds were counted from the cane road opposite the roost. The procedure was to arrive at a roost at least two hours prior to darkness, count the birds already at the roost, and then count arriving flocks continuously until dark.



Fig. 1. Map of Kauai showing locations of Cattle Egret roosts.

RESULTS

Crater Hill

This roost contained 100 birds in 1974, when Zeillemaker found it. After a notable increase, the population apparently stabilized at about 4,000 birds in 1979 and 1980 (Fig 2). The roost was situated about midway up the seaward face of a 167m high volcanic crater (Fig. 2). In 1974, the birds roosted on a dense growth of koa haole (*Leucaena glauca*) and ironwood trees (*Casuarina* spp.). By 1979 only a few dead ironwood remained and the koa haole was stunted. *Chenopodium* (sp.) had become widespread.

Egrets nested at Crater Hill at least as early as 1975. Unfortunately, observations were too infrequent to determine nesting phenology or monitor productivity. On February 18, 1980, approximately 100 nests were seen. In a sample of 25 nests, 15 contained single large chicks, and 10 had two chicks each, averaging 1.4 chicks per nest. On April 15, 1980, only 3 of 50 nests contained large chicks. Clutches in 5 nests contained 1, 2, 3, 3, and 4 eggs.

Kapaa

Situated adjacent to swampy pasture near Waianuenue Stream, the Kapaa roost contained 800 egrets on April 14, 1980. No nesting was evident in the dying hau (*Hibiscus tiliacus*) branches the birds used. The Kapaa roost has existed since at least the fall of 1978 (D. Moriarty, pers. commun.).

Omao Reservoir

In the spring of 1979 a population of several hundred Cattle Egrets was first noted in the hau thicket at the northeastern edge of Omao Reservoir (R.W. Foster, pers. commun.). On January 21, 1980, 1,797 egrets were counted there. No nesting was evident.

Lumahai

Approximately 100 egrets landed in hau at the southermost bend of Lumahai River visible from the paved highway prior to dark on April 13, 1980. Interestingly, about 50 of those birds left the roost soon after arriving and flew in the direction of Kilauea Crater. The other 50 birds remained. This may have been a new or temporary roost. It was not used in 1978 or 1979.



Fig. 2. Changes in the Cattle Egret population at Crater Hill from 1974 to 1980. Solid dots indicate regular censuses. Clear dots indicate Christmas Bird Counts. Date of

Census		Niihau	Kauai	Oahu	Molokai	Maui	Hawaii	Totals
Jan.	1961	0	1	0	0	0	0	۹ 1
Jan.	1962	0	0	37	0	0	. 0	37
Jan.	1963	- no	t censused	-	-	-	-	
Jan.	1964	0	0	26	0	0	0	26
Jan.	1965	0	0	245	0	0	0	245
Jan.	1966	0	0	77	0	0	1	78
Jan.	1967	0	0	115	0	4	0	119
Jan.	1968	0	0	154	0	2	5	161
Jan.	1969	0	7	749	0	0	1	757
Jan.	1970	0	0	366	0	3	0	369
Aug.	1970	0	0	455	0	0	0	455
Jan.	1971	0	0	307	0	1	0	308
Jul.	1971	0	0	782	0	0	0	782
Jan.	1972	0	11	824	0	0	28	863
Aug.	1972	0	0	389	0	1	0	390
Jan.	1973	0	0	924	0	0	62	986
Aug.	1973	0	0	439	0	0	0	439
Jan.	1974	0	0	407	0	0	13	420
Aug.	1974	0	0	598	0	0	13	611
Jan.	1975	0	296	959	0	0	10	1,265
Aug.	1975	0	207	747	0	1	32	987
Jan.	1976	.0	177	470	0	0	2	549
Aug.	1976	0	802	328	0	0	3	1,133
Jan.	1977	0	672	277	9	22	1	981
Jul,	1977	0	476	287	0	0	0	763
Jan.	1978	0	378	221	1	1	14	615
Jul.	1978	0	612	394	3	0	0	1,007
Jan.	1979	9	618	238	0	17	81	963
Aug.	1979	0	376	339	30	0	3	748
Jan.	1980	0	263	199	10	67	80	619

			Tar	ble I			
CATTLE	EGRETS (COUNTED	DURING	ANNUAL	AND	SEMI-ANNUAL	WATERBIRD
	CENSUS	S IN HAV	VAII BET	WEEN 19	961	and 19801	

¹Information compiled from Pittman-Robertson Federal Aid to Fish and Wildlife Restoration Projects between 1961 and 1980 conducted by the Hawaii Division of Fish and Game, Department of Land and Natural Resources, Projects W-5-R-5 thru 21, W-15-1 thru 5, and W-18-R-1 thru 5. Census information includes Cattle Egrets counted at waterbird habitats only and does not represent total populations.

Huleia National Wildlife Refuge

In early 1977, Zeillemaker noted a roost in dense mangrove (*Rhizophora mangle*) on the dike of Menehune Fish Pond near Huleia N.W.R. The roost was still active in July 1978, but in March 1979 no birds were present.

Other Possible Roosts

Security guards at Pacific Missile Range Facility. Barking Sands, told us they had seen egrets flying north past the base at dark, but in March 1980, Telfer attempted to find a roost in that area, and observed birds flying only eastward, presumably towards Omao Reservoir. Fewer than 20 egrets were frequently seen between January and March, 1980, lingering until dusk in hau trees just downstream from the Kalihiwai River Bridge, but as of April 1980 they were gone by nightfall.

DISCUSSION

Cattle Egrets on Kauai have increased from 25 in 1959 to at least 6,800 in 1980 (Table 2). There was a noticeable lack of reproduction between 1959 and 1975, after which the population increased dramatically.

It is possible that some of the increase resulted from immigration from other islands. Cattle Egrets are known to disperse widely after breeding (Palmer 1962). Extralimital records of egrets in the Northwestern Hawaiian Islands at French Frigate Shoals (Amerson 1971, and Eyrd, pers. obser.) Midway (Byrd et al., pers. obser.) and at Niihau Island

Table 2.

Number of Cattle Egrets at different roosts on Kauai.

			Total	
	Date of	Total	Active Nestsl	
Location	Count	Birds		
Crater Hill	8/ 8/74	100	0	
Crater Hill	12/14/74	215	0	
Crater Hill	6/15/75	750	20	
Crater Hill	11/ 1/75	1000	0	
Crater Hill	12/27/75	754	0	
Crater Hill	8/21/76	1500	0	
Crater Hill	12/18/76	974	0	
Crater Hill	3/21/79	4093	50	
Crater Hill	2/18/80	4150	100	
Omao	1/21/80	1797	0	
Караа	4/14/80	800	0	
Lumahai	4/13/80	50	0	
1 Approximate to	tals		1	

(Telfer and Byrd, pers. observ.), indicate inter-island movement occurs in Hawaii. Some unknown factor worked against egret reproduction during their initial 15 years on Kauai. It is possible that the sex ratio was skewed one way or the other in the original 25 birds released. It may have been immigrants from the Oahu population, already well established, that initiated the onset of population growth on Kauai. On Oahu, Rockafellow (1960) found breeding egrets near the release site on the north side of Oahu on September 25, 1960, just over a year after their release. On southern Oahu, Ord (1963) found approximately 60 nests in late February 1963 which he considered accounted for nearly the entire nesting population.

Perhaps the population growth is slowing on Kauai if the Kilauea Crater counts are representative of the island-wide situation, but it is also possible that the roost has reached its capacity and new roosts will be formed. The disappearance of the Huleia roosting population in 1978, and appearance of a new one at Omao in 1979, certainly suggests that this can occur.

Like any rapidly increasing introduced species, the Cattle Egret bears watching in Hawaii to determine whether or not there is undesirable competition with native species. One possible example is the displacement of nesting Red-Footed Boobies (*Sula sula*) at Kilauea Crater by the roosting and nesting Cattle Egrets.

ACKNOWLEDGEMENTS

We were aided in the field by Melly Zeillemaker, Valarie Byrd, Heidi Russell, Robert P. and Susan D. Schulmeister, Mr. and Mrs. Gil Parfitt and Mr. and Mrs. Nolan ', Garrison.

Dan Moriarty and R.W. Foster provided information on the locations of roosts. Noreen Bautista and Mayleen Sheldon typed various drafts.

LITERATURE CITED

- Allen, R.P. 1962. Cattle Egret. Pp. 438-448 in Palmer, R. 1962 Handbook of North American Birds. Vol. 1. 567.
- Amerson, A.B. 1971. The Natural History of French Frigate Shoals, Northwestern Hawaiian Islands. Atoll Research Bull. 150:1-383.
- Breese, P. 1959. Information on Cattle Egret, A Bird New to Hawaii. 'Elepaio 20:33-34.
- Ord, W.M. 1963. Field Notes. 'Elepaio 23:58-59.
- Palmer, R.S. (Ed.). 1962. Handbook of North American Birds. New Haven: Yale University Press.
- Rockafellow, R.R. 1960. Report on Cattle Egrets. 'Elepaio 21:39-40.

Aladdin Route Box 160E Colville, WA. 99114

Crescent Lake NWR Star Route 60368 Ellsworth, NE. 69340

Hawaii Div. of Forestry & Wildlife P.O. Box 1671 Lihue, HI. 96766



Cattle Egrets associated with cattle on Kauai. Photo by Fred Zeillemaker

A FEEDING BEHAVIOR OBSERVATION OF THE RED-VENTED BULBUL ON NAIO

by John Obata

The noxious capabilities of the Redvented Bulbul (*Pyconotus cafer*) are well known. I have observed that home owners on Oahu bemoan the fruit eating activities of the bulbuls, especially when their plants are involved. Orchid growers complain about orchid buds being nipped off by the bulbuls, especially *Dendrobium*. Orchid petals and sepals also are known to have been stripped off. Bulbuls certainly deserve the "prohibitive entry" to Hawaii classification.

Of interest to those who want to preserve the endemic Hawaiian flora is the following observation. I have observed Red-vented Bulbuls eating fruits of cultivated Naio or Bastard Sandalwood (Myoporum sandwicense) during the late winter and spring months of 1979 and 1980 in lower Moanalua Valley.

The Naio bears its fruits in a clustered mass similar to that of a Sea Grape (Coccoloba barbadensis) just below its leaves and towards the tips of each branch. Its fruits are small (about 0.5 cm in diameter), fleshy, white, somewhat oval in shape and very profuse. When matured, the fleshy portion turns brown, then shrivels and becomes dry. During the winter months, flower and fruit production is at its maximum.

The Red-vented Bulbul was observed rapidly and systematically plucking fruits individually. The direction the birds fed on the mass of fruit was usually from the lower drier end, proceeding upward to the fleshy portion while perched on another firmer branch. However, the direction of the plucing, at times, was determined by the angle of the bird's perch. Feeding terminated at the lowering end. The entire process lasted but a few minutes. A daily fare in our garden for each bird seemed to be two to three branches of fruit. When all the fruits were consumed, the bulbuls reverted to other food sources. They returned as the next set of fruit matured in a few weeks and resumed the stripping process. Their eating behavior is rather systematic. All the fruits were stripped from three trees in about a week by a "family" of bulbuls. Even the juveniles were encouraged to come to the trees and taught to consume the fruit. This behavior generally followed this pattern: a foraging bird makes the discovery. It proceeds to feed on the fruits. The next day a procession of other bulbuls appears to

strip the plants of thier fruit. An entire "family" appears to be involved in the feeding process. Adults feed singly, but juveniles (told by their plumage) may follow adults to the fruits. Even within this apparent family group, non-feeders watch at a distance and wait their turn while a single, apparently dominant bird feeds. I noted a hierarchial behavior in feeding, first the dominant, then the sub-dominant, and finally the juveniles fed at the trees.

This feeding behavior on the Naio seems tempofary, and secondary to other foods. When other exotic, fleshy edible fruits are available, I did not observe bulbuls feeding on the Naio fruits.

I am concerned about the possible depletion of endemic Hawaiian plants as the bulbul's range and density increases in the future. A breakdown in the regeneration of Hawaiian flora may be a possibility. It is also possible, however, that the bulbuls act as dispersal agents for the seeds of the fruits they consume. I suggest monitoring the frugivorous behavior of all the bulbuls in areas containing endemic Hawaiian flora. This action is imperative as I have observed that fruit production among many of the endemic Hawaiian flora is minimal in pany species.

> 1337 Ala Aulani Honolulu, Havaii 96819



Juvenile Red-vented Bulbul.

Photo by R.J.

Shallen-

berger.

RECORDS OF MUMMIFIED LEIOTHRIX FROM THE SUMMITS OF MAUNA LOA AND MAUNA KEA

by Steven L. Montgomery and Francis G. Howarth

While searching for native insect life at the base of Pu'u Wekiu on Mauna Kea at 4180 m on 2 September 1979, we found the weathered remains of three birds among 25-cm diameter rocks forming a small cairn. The fragmentary material (Bishop Museum Vertebrate Zoology catalog nos. BBM-X 157080 - 157082, mixed in one lot) was provisionally identified as the Red-billed Leiothrix (Leiothrix lutea) by Dr. Alan C. Ziegler. Dr. Ziegler pointed out that several other high elevation leiothrix specimens, all found as mummified remains, deserve to be reported (Table 1). Our Pu'u Wekiu birds possibly had originally crawled in among the rocks of the cairn seeking shel-

ter, and froze at night. We have also collected two mummified specimens from a lava tube at 12,400 ft. (3780 m) on Mauna Loa that were in much better condition, although one was partially frozen in the ice on the cave floor.

Fisher and Baldwin (1947) wrote that in the fall and winter, Red-billed Leiothrix band together and wander all over the Island of Hawai'i. These wanderings are chiefly below 7500 ft. (2290 m), but A.C. Ziegler, (pers. comm.) has noted that they are common in the fall, at least, at Hale Pohaku, ca. 9600 ft. (2930 m) on Mauna Ke'a. Our records substantiate the possibility that they may extend to essentially the highest points on the island.

Table 1. High elevation specimens of *Leiothrix lutea* from the Island of Hawaii. All represent birds found dead; the periods of time since death are unknown, but apparently various.

Locality	Collection Date	Collector	B.P. Bishop Museur Catalogue Number
MAUNA KE'A			
Gap E. of Poliahu 13,250' (4040 m)	Aug. 1935 '	C.K. Wentworth	BBM 6119
Summit	Aug. 1935	W.T. Wilson	BBM 6118
Immature male? 13007' (3967 m) "Found near the pond" (= Lake Waiau?). (See Munro 1945)	March 1945	V.G. Clark	BBM 10014
12,150' (3706 m), South slope adz quarry area	July 1976	P.C. McCoy et alia	BBM-X 148420
13,000' (3965 m), 1 km NNW Summit, in shelter cave	19 Oct. 1976	R.P. Papp	BBM-X 179917 BBM-X 149918
Saddle between Pu'u Wekiu and Observatory Cone, 4180 m	2 Sept. 1979	S.L. Montgomery	BBM-X 157080 BBM-X 157081 BBM-X 157082
MAUNA LOA			
Drowned in rain barrel at summit cabin (number not stated, but more than one).	29 July 1939	W. Donaghho (1951)	Not collected
From waterhole in summit crater	Received at Bishop Museum 18 Nov. 1943	G.C. Munro (collector possibly V.G. Clark - see to	BBM 10015 7 ext)
Weather Observatory Trail, 3.2 km N Summit, 12,400' (3780 m), both found on floor in twilight zone	24 July 1976	F.G. Howarth	Not deposited in Bishop Museum
of lava tube. The 1976 specimen frozen in ice.	8 Sept. 1979	S.L. Montgomery	BBM-X 157083

Munro (1945; 1960:110; repeated by Richards and Baldwin 1953) reported receiving a dessicated specimen of the Hawaiian 'Akepa (Loxops coccinea) from Dr. V.G. Clark, who found it along with six other dead birds of unspecified species, beside a frozen pool of water on a ledge within the crater at 13,010 ft. (3968 m) on Mauna Loa. Munro's original label on the Leiothrix specimen (BBM 10015 of Table 1) states: "(Accn.) 3298. Bird coll. by G.C. Munro. Adult female Loxops identified by its cross bill from a waterhole in the crater of Mauna Loa." The mandibles of this specimen have dried slightly askew. With the exception of the identity of the collector, these label data, including the reference to the "cross bill," are essentially identical to Munro's published information for the purported 'Akepa specimen. Further, Munro (1945) strongly implied that, as of 1945, he knew of only one bird (Clark's 'Akepa specimen) that had been collected from near the summit of Mauna Loa. Dr. Ziegler (pers. comm., Jan. 1980) believes it almost certain that this high-elevation 'Akepa record is erroneous, and refers to the Leiothrix specimen BBM 10015.

ACKNOWLEDGEMENTS

We thank Dr. A.C. Ziegler of the B.P. Bishop Musuem for the bird identifications, for the use of the collections, for checking the records in Table 1, and for reviewing the manuscript. Dr. W.C. Gagné also reviewed the manuscript. William and Mae Mull of Volcano, Hawaii, enthusiastically provided assistance in the field. Dr. C. van Riper and Dr. C.J. Ralph alerted us to critical references.

LITERATURE CITED

- Donaghho, W. 1951. Journal of ornithological work. 'Elepaio 12:6-8,
- Fisher, H.I. and P.H. Baldwin. 1947. Notes on the Red-billed Leiothrix in Hawai'i. Pac. Science 1:45-51.
- Munro, G.C. 1960. Birds of Hawai'i. revised ed., Charles E. Tuttle Co., Rutland, Vermont.
- Munro, G.C. 1945. Pekin Nightingale on mountain top. 'Elepaio 6:19-20.
- Richards, L.P. and P.H. Baldwin, 1953. Recent records of some Hawaiian honeycreepers. Condor 55:221-222.

B.P. Bishop Museum P.O. Box 19000-A Honolulu, Hawaii 96819

AUGUST FIELD TRIP TO AIEA LOOP AND RIDGE TRAILS

In ideal weather, nine persons met at the base of the Aiea Loop Trail in Keaiwa Heiau State Park parking lot on 10 August. We concentrated on identifying native plants and insects, but were surprised to find extensive feral pig rooting under the strawberry guava thickets near the beginning of the trail. One would think that there would be considerable hunting pressure on a population so close to this heavily utilized area, but this is apparently not the case.

Unfortunately, all but three persons turned back at the ridge portion of the trail which is overgrown by Koster's curse (*Clidemia hirta*) since this weed was not nearly so thick just a couple of hundred yards further up. There the trail becomes quite easily passable, at least to about the half-way point where we also turned back. Apart from the *Clidemia* which is concentrated along the trail edge, the vegetation is predominantly native along the Ridge Trail.

No unusual birds were seen, but entomological discoveries were made. Mr. Paul Kores, a botany graduate student at University of Hawaii at Manoa, was obtaining some chromosome material of hulu-moa or Hawaiian mistletoe (Korthalsella complanata) which was quite abundant on koa and in doing so, brought my attention to some immature bugs (Heteroptera) on it. These I recognized as a new species of the endemic plant bug genus Sarona and after some effort, we managed to collect a few of the elusive adults to confirm my initial determination from the immatures. This is the second species of this genus restricted to hulu-moa; the other species (also undescribed) feeds on a Korthalsella species parasitic on koai'a (Acacia koaia) on the Big Island. On the way back, we observed a native bee Nesoprosopis sp.) feeding on exudate on the stigma of an 'oha (Clermontia sp.) and speculated on its possible role in the pollination of this endemic plant genus. Pollination biology, especially the role of native insects, is a sadly neglected area of study, so much so that most observations may have significance. These observations are only a small indication of the great unknowns remaining in most facets of Hawaiian natural history.

Wayne C. Gagne

ILLEGAL TURTLE ON SALE HERE

In spite of existing federal and state laws, several restaurants located both on Oahu and the neighbor islands have continued to sell turtle steak and soup. These items do not always appear on the regular menu, but rather may be offered as the "special of the day," either verbally or with a clip-on card. There are really only three explanations that can account for the meat products being offered by these establishments. That is:

1) The meat was illegally imported into Hawaii directly from a foreign country after May 1979, or illegally transported to Hawaii from another state after September 1979, the dates when the shipment bans went into effect;

 The meat was obtained from our Hawaiian turtles which were illegally killed;

3) The meat was brought to Hawaii prior to the shipment bans, and therefore has been stored in a freezer for a minimum of 12 months before being thawed and served.



An adult olive ridley, ripe with eggs, being gutted at the factory in Oaxaca, Mexico (in September 1979). Much illegal meat comes from this source.

None of these possibilities are palatable. If turtle meat older than 12 months is indeed being served, certainly it would have degraded to the point of being unwholesome, and possibly even unhealthy. If the restaurants in question are selling illegally imported meat, or are somehow involved in the killing of Hawaiian turtles, then wildlife officers need to vigorously pursue the offenders. Regardless of which is the case, conservation ethics and good sense make it advisable for the public to avoid restaurants still serving turtle. Furthermore, when suspect restaurants are encountered, it would be worthwhile to notify the Enforcement Division of the U.S. Fish and Wildlife Service by telephoning 546-5602 or writing to P. O. Box 50223, Honolulu, HI 96850.

Recent investigations in Florida and Texas have resulted in federal indictments against six individuals and eight corporations for illegal activities involving 106,000 pounds of sea turtle meat. The indictments include conspiracy, transportating turtle meat with fraudulent documents, and importing in violation of the U.S. Endangered Species Act and the Convention on International Trade in Endangered Species. In a separate case earlier this year, the crewman of a shrimp trawler that had intentionally killed a sea turtle was assessed a \$5,000 fine and one year's prison sentence, suspended for three years.

> George H. Balazs Hawaii Institute of Marine Biology P.O. Box 1346 Kaneohe, Hawaii 96744

TYPISTS NEEDED FOR 'ELEPAIO

The production of the '*Elepaio* depends in large part upon our talented and dedicated typists. Over the next few months, due to childbearing, overseas travel and other very worthwhile events, we are going to be very short on typing help. If you can devote even 3-4 hours per month to this project, please contact Carol Ralph at 988-6921. The machine is an IBM Selectric II Correcting typewriter. Mahalo!

ALOHA TO NEW MEMBERS

Welcome to the following new members. The Society hopes that they will share our activities and help further the protection of Hawaii's wildlife.

Local: Robert Bright, Kailua; Gale Buhlert, Aiea; Morris Comer, Honolulu; Brooke Dawson, FPO San Francisco; Charles Ellett, Honolulu; Mary Heenan, Waianae; Edward E. Henry, Jr., Honolulu; Jean C. Hindman, Kaneohe; Elizabeth B. Holmes, Honolulu; CDR Don Hunter, FPO San Francisco; Veronica Kang, Aiea; Jack Leishman, Honolulu; Lorraine Madsen, Hauula; Mary Nobrega, Hawi; Mrs. A.H. Rowan, Honolulu; Ruth Leilani Stemmermann, Volcano.

Joint with National: Peter S. Adler, Honolulu; Sandra R. Baniaga, Honolulu; Larry Bethoney, Kapaau; Jessie Blake, Wahiawa; D.L. Burlingame, Makakilo; Wm. W. Bustard, Kailua; James H. Cagle, Honolulu; C. Stuart Callison, APO San Francisco; Xan Chamberlain, Hilo; Joan F. Choo, Captain Cook; Kiyoshi Fujitake, Papaikou; Michael Gillett, Makawao; Dooley Kam, Honolulu; S-A Curt Kessler, FPO San Francisco; Benjamin L. Marx, Jr., Honolulu; John Wells, Anahola.

BOOK ON HAWAIIAN GOOSE AT DISCOUNT PRICE

The publisher of "The Hawaiian Goose," by J. Kear and A.J. Berger, is offering it to Hawaii Audubon members at a special price of \$27.00 (the regular price is \$30.00). This excellent, well-illustrated book (see August '*Elepaio* for more details) can be ordered at this price until the end of the year from Buteo Books, P.O. Box 481, Vermillion, South Dakota 57069.

NOMINATING COMMITTEE NAMED

The Nominating Committee for Hawaii Audubon officers for 1981 has been appointed by Rob Shallenberger at the September board meeting. Members wishing to volunteer for office, or to suggest other appropriate persons, should contact a member of the committee: Peter Galloway (947-4045), Wayne Gagne (941-5659) or C.J. Ralph (988-6921).

OCTOBER TALK: SEEKING A SETTLEMENT 10 SHIFTING CULTIVATION

At the October 20 general meeting, Wayne Gagne will discuss a problem of global importance and will outline some possible remedies to the age-old problem of agricultural intensification. The world's remaining tropical rainforests are under great pressure from many quarters. Indications are that major portions of that remaining will be destroyed within the next generation. This will result in the extinction of hundreds of thousands of plant and animal species. About half of the acreage lost per year can be attributed to the activities of shifting cultivators whose numbers worldwide now approach 400 million.

The speaker will describe these problems as they apply to the newly independent South Pacific nation of Papua New Guinea where he and his wife Betsy recently spent $3\frac{1}{2}$ years as ecologists with the International Voluntary Services. Much of their time was spent developing techniques to help trasform and stabilize shifting cultivation among Melanesian subsistence gardeners. The development of the technique of agro-forestry and its application to help alleviate environmental problems associated with shifting cultivation will also be discussed. The talk will be at the McCully-Moiliili Library on South King at 7:30 p.m.

FIELD TRIP TO FIND

MIGRANT SHOREBIRDS AT WAIPIO

The Society field trip on October 12 will visit the Waipio Peninsula, where water effluent from the Oahu Sugar Mill at Waipahu is collected in catchment basins to form the best habitat on Oahu for shorebirds and waterfowl. Some new ponds established this summer have added more excellent habitat for the throngs of migrating shorebirds already arriving. This is also the prime area for Black-headed and Red Munias, and occasionally a Pueo is seen. We may stop briefly at Sand Island on the way out.

Meet on Punchbowl Street by the Hawaii State Library at 7:00 a.m. We will finish at Waipio by noon. Bring water and if needed, a hat for sun protection, Leader: Bob Pyle (262-4046). HAWAII AUDUBON SCHEDULE OF EVENTS (for details, see inside back page) October 12(Sunday). Field trip to Waipio Peninsula, Oahu. Meet at 7:00 a.m. on Punchbowl St. at the State Library. Leader: Bob Pyle (262-4046).

Leader: Bob Pyle (262-4046). October 13(Monday). HAS Board Meeting at home of Wayne Gagné, 2310 Ferdinand Ave., Manoa. Ph: 941-5659. October 20 (Monday). Regular meeting at the McCully-Moiliili Library, 7:30 p.m. Wayne Gagné will speak on Seeking a Settlement to Shifting Cultivation.

TABLE OF CONTENTS

Vol. 41, No. 4, October 1980

Population Increases of Cattle Egrets
on Kauai.
G. Vernon Byrd, C. Fred Zeillemaker and
Thomas C. Telfer25
A Feeding Behavior Observation of the
Red-vented Bulbul on Naio.
John Obata
Records of Mummified Leiothrix from the
Summits of Mauna Loa and Mauna Kea.
Steven L. Montgomery and Francis G.
Howarth
Illegal Turtle on Sale Here
George H. Balazs

HAWAII AUDUBON SOCIETY P. O. Box 22832 HONOLULU, HAWAII 96822

ADDRESS CORRECTION REQUESTED

Non Profit Organization U. S. POSTAGE PAID Honolulu, Hawaii Permit No. 1156

