'ELEPAIO

Journal of the Hawaii Audubon Society



For the Protection of Hawaii's Native Wildlife

VOLUME 39, NUMBER 3

SEPTEMBER 1978

HAWAII FISHING INDUSTRY'S FUTURE

by John F. Walters

A classic confrontation between economic development and conservation is taking shape as the state of Hawaii prepares to battle the U.S. Fish and Wildlife Service over the future of the Northwestern Hawaiian Islands and wetlands on the neighbor islands. A series of articles by Helen Altonn in the Honolulu Star-Bulletin, May 23-27, 1978, entitled "Hawaii Fishing Industry's Future?" explored the plans of the state government to develop fishing into a major industry worth at least \$160 million a year to the islands' economy.

"The economic potential of a state fisheries development has long been discussed. But despite the efforts of various agencies, the industry's growth has been retarded by lack of money, bait, adequate vessels, crewmen and a host of other problems," Altonn reported.

EXPANDING THE AKU FISHERY

The fishery for aku, or skipjack tuna, has been an important part of the islands' fishing industry. But although major unfished stocks of tuna have been discovered north and west of here, the aku fishery has remained localized and oriented toward the fresh-fish, sashimi market. The aku require live bait, a local anchovy called nehu that is becoming scarce. The nehu live only a few days in the bait wells of the aku boats, so the new tuna fishing grounds remain out of reach for nearly all the boats in the aku fleet.

The state government, trying to broaden Hawaii's economic base, is moving vigorously to help the local fishing industry. Altonn quoted Stanley N. Swerdloff, deputy state marine affairs coordinator, "Just about everybody in the fishing industry was involved..." in drafting a legislative pack-

age of one bill and ten resolutions, generally aimed at resolving problems in developing the industry and expanding fishing to Hawaii's Leeward Islands. The Legislature adopted the entire program. "It's an exciting step for the industry," he said. The state Division of Fish and Game has been given \$150,000 to draft a fisheries development master plan over the next 18 months, with a progress report due before the 1980 legislative session. Working with the state Department of Planning and Economic Development, Fish and Game will address such problems as developing new sources of bait, financing new boats, planning new harbor facilities, and working out new marketing strategies.

EYEING THE LEEWARD ISLANDS

A vital element in all these plans is the Leeward, or Northwestern Hawaiian Islands. A conventional map shows these as a 1200mile chain of tiny islets from Nihoa to Kure, with a combined area of less than 2,000 acres. But a chart of the ocean floor reveals that these specks of land are surrounded by enormous reefs and shallows with a total area of over 300,000 acres. The reefs teem with valuable resources: reef fishes like 'opakapaka and ulua, invertebrates like spiny lobster and kona crab, and black and pink coral. In addition, the islands provide potential bases for fishermen to rest and refuel. Unfished stocks of tuna in the North Pacific that are presently inaccessible from Oahu would be within reach of boats operating out of Midway. Altonn reported that "Gov. George R. Ariyoshi announced that the Navy has agreed to let tuna fishermen from Hawaii use Midway Island's facilities so that they can extend their range to lucrative fishing grounds northwest of the Islands."

airstrip on Tern Island would remain as an emergency facility for small aircraft, but large aircraft would be banned because of the many birds over the island).

Kenji Ego, director of the state Division of Fish and Game, wants to keep the fuel tanks and use Tern Island as a refueling base for fishing in the Leeward Islands. He would also like to see the Hawaiian Islands National Wildlife Refuge opened to the public. "No one can visit except scientists, and few of them...It's a beautiful area...and our people should be able to visit it...In this day and age, many people are ready for this type of excursion. It would be under strictly controlled conditions. We could crank in recreational aspects, such as sport fishing, again controlling it to maintain quality."

What will happen to Tern Island? It has been omitted from the area proposed for wilderness designation in the proposed expansion of the Hawaiian Islands National Wildlife Refuge because of environmental changes due to the Navy and Coast Guard occupation. Giezentanner of F&WS says, "Our legal people feel we're on very solid ground /In claiming the island. Until we're proven wrong in court, we will maintain jurisdiction and prosecute wildlife refuge violations."

WHAT TO DO WITH THE WETLANDS?

The Fish and Wildlife Service also operates refuges on the main islands and wants to acquire more. These activities have also drawn fire from state officials, state Rep. Richard A. Kawakami (D-27th District, Kauai-Niihau) branding them "a flagrant and arrogant disregard of state and local policies ... They are empire-building." Again, there is a conflict between state and federal plans for Hawaiian wetlands, the state wanting them used for aquaculture, the Fish and Wildlife Service wanting them saved for Hawaii's endangered waterbirds. Kawakami, who is chairman of the House Committee on Water, Land Use Development and Hawaiian Homes, noted that the F&WS refuges, totaling about 1500 acres, are nearly all "among the approximately 30,000 acres that have been identified as prime locations for brackish and salt-water aquaculture activities by the state Department of Planning and Economic Development... If aquaculture didn't mean so much as far as Hawaii's future economy is concerned, then it's quite another story ... but it's long been the state's policy to promote new industries such as aquaculture



Catching baitfish for skipjack fishing.

Photo by National Marine Fisheries Service.

in order to diversify the economy and provide more jobs."

Kealia Pond on Maui is a current battleground in the dispute. About 25 acres of the pond is currently being used for aquaculture. The Fish and Wildlife Service is negotiating with the landowners to purchase about 500 acres around Kealia Pond for a refuge. action prompted Gov. Ariyoshi to write in a letter to F&WS director Lynn A. Greenwalt, "I believe that our state Department of Lanu and Natural Resources is in a better position to evaluate (from a biological, sociological, and economic standpoint) how, where, and when Kealia Pond should be set aside as a state wildlife sanctuary." Kawakami is also opposed to turning Kealia Pond into a national wildlife refuge. "I'm all for the establishment of wildlife refuges, but I am opposed to the attempt to create wildlife refuges on non-urban acreage which is already being put to constructive use... If we can stop Kealia, that will be a big step."

THE F&WS SIDE

The federal officials naturally feel they are being unfairly cast as the villain in this drama. The state government is neglecting its duties in conserving endangered Hawaiian birds, then objecting when the federal government takes a hand. Opacula, a 35-acre pond on the Big Island that F&WS is also acquiring, was identified five years ago by the state as a critical waterbird area that should be acquired as a refuge. "We said, 'Fine, go do it,' but it wasn't done...We feel endangered waterbirds should be protected, and if no one else does it,

we'll do it," said H. A. Hansen, Honolulu administrator of F&WS. Although the state protects Maui waterbirds at Kanaha Pond, conditions there are not ideal, and the birds often shift to Kealia Pond. If both areas are not saved, many birds will probably be lost. Hansen pointed out that F&WS expedited a permit for an experimental bait fishing project at Kealia and that the aquaculture operation will remain there. "We not only feel Hawaii aquaculture efforts can be compatible with endangered species, but can enhance them. They are a buffer to people coming in," he said. The service plans to spend \$1.5 million over the next two years to improve the Hanalei Valley refuge on Kauai. They are preserving the taro farming in the valley. "We're spending a lot of money to preserve the traditional Hawaiian lifestyle over there," Giezentanner said. "I'm not sure the state has the willingness or the capability for such a program," Hansen added. National wildlife refuges on the mainland often permit multiple uses, such as grazing, timber operations, and recreational activities. But some of them are as large as 10,000 acres. "We can't allow a lot on 35 acres /such as Opaeula7. The mere presence /of people/ would be detrimental," Hansen said. Giezentanner summarized F&WS feelings about the state's attacks: "We are unreasonable to people who feel there ought to be a condominium on every square foot of ground, and to people who feel other animals don't have a right to exist. But in our view, those people are a little unreasonable."

So who is being unreasonable? Altonn's articles concerned themselves primarily with the Hawaiian fishing industry and the state's efforts to expand fishing in Hawaii. A natural but perhaps unfortunate result of this viewpoint was that Altonn explained the state's motives more clearly than those of the U.S. Fish and Wildlife Service. It was clear enough, for example, why the state is pushing so vigorously for fishing rights in the Northwestern Hawaiian Islands. It was not at all clear why F&WS is pushing equally vigorously to claim jurisdiction over the entire area. Certainly the islands are ecologically vulnerable to introduced exotic vegetation, rats, human disturbance, and pollution. A thoughtful reader would have appreciated a more thorough appraisal of F&WS concerns over the future of the Leeward Islands. However, Altonn does emphasize that both sides have clearly defined their stands. It will undoubtedly require much legal warfare to decide the issue.

FISH AND BIRDS

How much compromise is possible? Possibly quite a bit, in the opinion of this reviewer. The Navy currently maintains a modest-sized human population on Midway, with considerable concern for its effects on the native fauna. The seabirds are still there, in reduced numbers to be sure, but in no immediate danger of extinction. It may be possible to allow enough additional human occupation of the Leeward Islands (Tern Island, for example) to support a sizeable fishing effort while still maintaining the wonderful seabird colonies. Other inhabitants of the islands will require more care. The Hawaiian monk seal appears to be intolerant of human disturbance during pupping, and past experience has shown the islands' land birds to be terribly vulnerable to rats and other introduced mammals. Some islands, such as Nihoa and Laysan, will probably have to remain closed to all human activities if these species are to survive.

Compromise also appears possible on the main islands. State officials are upset over federal appropriations of wetlands, but the 2000 acres or so acquired or proposed for national wildlife refuges are less than ten percent of the 30,000 acres wanted by the state for aquaculture. Further, the taro patches of Hanalei Refuge on Kauai demonstrate that economically productive use of the land is not totally incompatible with conservation. The state might investigate other equally compatible uses for refuge lands. There appears to be no reason why Hawaii cannot support a thriving aquaculture industry and a thriving population of native waterbirds.

In the end, the collision between economic development and conservation in Hawaii is a result of complex historical forces acting over a thousand years that have dumped 900,000 people onto four thousand square miles of the most ecologically fragile country on earth. It requires much thought to plan an economically healthy future for so many people while still hanging on to the remnants of Hawaii's natural biota. Dogmatism, whether in growth or conservation, whether from the state or the federal government, is liable to leave us all poorer. But as we plan, we all need to remember that once we decide to destroy the monk seal or the koloa, all the money in the world will not bring them back should we change our minds.

TWO HAWAIIAN CAVE ANIMALS PROPOSED FOR ENDANGERED OR THREATENED LISTS

Two eyeless Kauai cave animals, a wolf spider and a shrimp-like amphipod, have been proposed as endangered or threatened species by the Interior Department's U.S. Fish and Wildlife Service. The proposal, published in the June 16, 1978, Federal Register, also lists the caves near Koloa, Kauai, in which the species live as critical habitat. The populations of the Kauai cave wolf spider (endangered), and the Kauai cave amphipod (threatened), have declined because human activities have affected their fragile habitats.

"Endangered" means that a species is in danger of extinction throughout all or a significant portion of its range. "Threatened," not nearly so dire a status, means that a species is likely to become endangered within the foreseeable future throughout all or a portion of its range.

The amphipod exists in two lava tubes, Koloa Caves #1 and #2 underneath a sugarcane field on the southeast coast of Kauai and in a small cave (Limestone Quarry Cave) about 7 km away. The spider occurs in Koloa Cave #2.

Littering, trampling, vandalism, and destruction of cave tree roots have been primarily responsible for the decline of these species. In addition, the limestone cave in which the amphipod lives is being destroyed by quarrying activities. Tree roots, both living and dead, are the main energy sources in the caves. Some organic material percolates into the cave through cracks associated with with the roots. they also provide living areas for other animals which become the food of the wolf spider.

As if the amphipod didn't have enough trouble, it is sometimes preyed upon by the spider. But this does not appear to be a factor in the population decline of the amphipod.

The amphipod, nearly one half inch long, is whitish in color and completely eyeless. It has long, transparent legs and is distantly related to shrimp. The wolf spider, also eyeless, is nearly 1" long with bristly legs. It is unusual in that it does not construct a web. Rather it stalks, pursues, and overpowers its prey. Both species are uniquely adapted to cave ecosystems and depend upon water seeping through the ground to sustain life in the caves.

It should be pointed out that the areas delineated do not necessarily include the en-

tire critical habitat of these species and modifications of their critical habitat designations may be proposed in the future.

In accordance with section 7 of the Endangered Species Act all Federal departments and agencies would be required to insure that actions authorized, funded or carried out by them would not result in the destruction or adverse modification of the critical habitat of the Kauai cave wolf spider and the Kauai cave amphipod.

COMMENTS BY FRANK HOWARTH

Dr. Francis Howarth, HAS member and Bishop Museum entomologist who helped discover and describe these cave animals, had this to say about the proposed listings:

Both of these proposals are good condensations of the proposals I submitted to the Fish and Wildlife Service last year, and I am in favor of them. However, the following points may need clarification.

- (1) Another major threat to the populations in the two lava caves is that posed by the development of a proposed large tourist destination center and associated amenities adjacent to and seaward of the caves. The increasing demand for the limited water resources of the Koloa area for this domestic and tourist industry use threatens the future availability of the irrigation water now percolating into the caves. Further, unless the caves are protected, they will be threatened by greater visitation and by altered land use.
- (2) Critical habitat for both species should include a statement on the continued availability of water in the caves and also should include at least some buffer zone on the surface over and around the caves. (To attempt to protect the cave environment without any protection of the surface and surrounding rock is ecologically untenable).
- (3) Critical habitat for the amphipod should include Koloa Cave #1.

SPECIAL PROGRAM ON MARQUESAS

Wayne and Betsy Gagne, here on leave from Papua New Guinea, and Steve Montgomery will present a very special program about the Marquesas Islands on Monday, September 11, 1978, at 7:30 p.m. at the B. P. Bishop Museum. Wayne was President of Hawaii Audubon Society in 1974 and 1975. The program will be in the Museum Conference Room, 4th floor, Pauahi Bldg.(Kalihi St. side).

AN 'O'U OBSERVATION AT HAWAII VOLCANOES NATIONAL PARK

by Charles van Riper III

In the past 25 years 'O'u (Psittirostra psittacea) have been only infrequently observed on Hawaii. During 1971 W. Banko (in Berger 1972) saw one bird in the Olaa Forest, while Smith and Jacobi (1974) reported sighting two individuals in the same area. However, U.S. Fish and Wildlife Service survey teams observed 61 in the Hilo, Waiakea, and Olaa forests during 1977 (J.M. Scott pers. comm.). There has been only one recent published report from Hawaii Volcanoes National Park. Smith and Smith (1971) thought they might have observed one individual a few feet below the rim of Kilauea Crater, but "inexperienced with Hawaii's birds," they left the question open.

At 1530 hours on 4 September 1977 I observed an 'O'u at 1190 m elevation, 0.8 km southeast of Hawaii Volcanoes National Park Headquarters (Fig. 1). The single individual flew across the road, landed high in a kawa'u (Ilex anomala), paused briefly, and then swooped down into the forest in a southwesterly direction. The bird did not vocalize during the observation period, but it was

obviously an 'Ō'u; it was larger than the majority of other passerines found in this forest, and furthermore, the flight pattern and silhouette were similar to that of the Palila (Psittirostra bailleui), a bird with which I am quite familiar (van Riper 1978). I returned to this area on the next five days but did_not again encounter this species.

The 'O'u might have been drawn to this region by a high density of 'ohi'a (Metrosideros collina) flowering. Although the 'O'u

Table 1. 'Ohi'a flowering at 1190 m in Hawaii Volcanoes National Park during September 1977.

Site No.*	Location	Percentage Flowering	
		x	2 s.d.
0	Site of 'Ō'ū Observation	17.7	22.8
1	Volcano House Overlook	2.0	6.5
2	Hawaii Field Res. Center	1.0	4.5
3	Kilauea Iki Overlook-Mauka	5.5	9.8
4	Thurston Lava Tube	6.0	11.5

*See Figure 1.

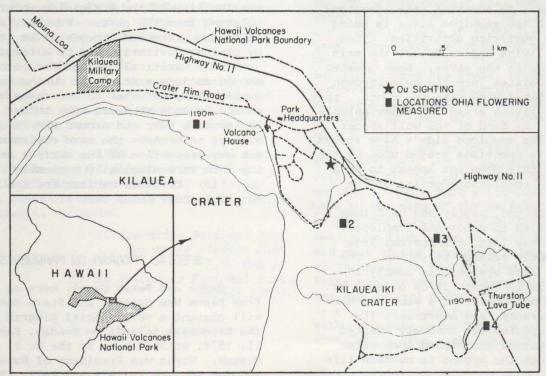


Figure 1. Location of '0'u sighting and sites of 'Ohi'a flowering.

is principally a fruit eater, Perkins (1903: 434) commented on its utilization of 'ohi'a nectar. I measured percentage of 'ohi'a bloom (after van Riper 1975) in this and four similar, forested locations at the same elevation within the Park (Fig. 1). Greatest flowering occurred where the bird was observed (Table 1). The 'ohi'a nectar, complemented by the numerous native fuit-bearing trees in this area of the National Park, may provide suitable habitat for this rare bird species.

ACKNOWLEDGMENTS

I thank W. Banko and S.G. van Riper for their comments on the manuscript, J.M. Scott for unpublished information, and T. Nakata for preparing the figure. I also appreciate logistical support from R. Barbee, D. Reeser, and C.W. Smith. The author was supported by a National Park Service Contract No. CX 8000 7 009 to the Cooperateve National Park Resources Studies Unit at the University of Hawaii.

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> Cooperative National Park Resources Studies Unit P.O. Box 54 Hawaii Volcanoes National Park Hawaii 96718

FIELD TRIP TO MANANA TRAIL

Fourteen hikers assembled on July 9 for the monthly Hawaii Audubon Society hike. With a choice of Aiea or Manana trail, it was decided to go on Manana.

We started on the trail shortly before 8:00 under occasionally rainy skies. Walking on the road to the beginning of the trail we saw and heard some House Finches, a few white-eyes, and two Northern Cardinals.

On the beginning part of the trail, before the area which was burned in 1972, we saw and heard one Shama Thrush, a few whiteeyes, and heard one Japanese Bush Warbler. At the beginning of the burned area, which is now largely covered with grasses, Bob Pyle showed us a picture of what we were looking for -- the Yellow-faced Grassquit. Native to Mexico and Central America, this bird showed up in the burned areas on the Manana trail in 1974. It is not known how it got there. Shortly afterwards I heard the call, which sounds like an insect, but no one else did. Further along the trail everybody heard several grassquits calling.

Here the highlight of the hike occured-the sighting of the Vanikoro (Guam Ediblenest) Swiftlet. A small dark bird flew over the group, and Mike Ord, who saw it first, pointed it out and immediately identified it as the swiftlet. It flew across a little valley, joined another one, and flew back and forth on the other side. We had the two birds continuously in sight for twenty minutes. They were not very far away and everyone had a good look. At one point one swiftlet flew across the trail, passing within 8 m overhead. Very shortly afterward, two swiftlets were again together at the original location, so there may have been three swiftlets present.

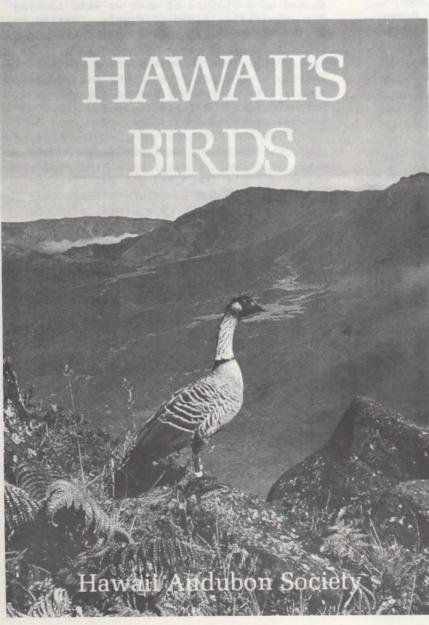
We continued on up the trail, but the rain continued, and we turned back at about 9:45. On the way up we heard more grassquits and saw a couple more white-eyes. We went back to the site of the swiftlet observation to look for birds. Four hikers had turned back some time after the swiftlet sighting, and most of the remaining climbed down the slope hoping to see the elusive grassquits. Peter Luscomb went farthest down the slope and had several glimpses of a grassquit. We were on that slope for at least half an hour without seeing any. Finally one flew into a lone 'ohi'a tree where everyone got a good

look at it. Most of us saw a second one flying. The ten of us remaining finished the hike at 11:30.

Eight of us decided to go to Waipio
Peninsula to look at the water birds. We
counted: l Wandering_Tattler, or 'Ulili;
4 Golden Plover, or Kolea; ll Ruddy Turnstones, or 'Akekeke; l Green-winged Teal;
l immature Black-crowned Night Heron, or
'Auku'u; 2 Koloa; 8 Hawaiian Coots, or 'Alae
Ke'oke'o; and 150 Hawaiian Stilts, or Ae'd.
We counted at least 175 Ae'o but put down 150
because we're unsure of duplications. We saw
one Ae'o with an almost completely black neck,
and counted 105 Ae'o in one basin. Mike Ord

found the Koloa and Green-winged Teal at a pond on the western side of the dry south pond complex. The teal was well camouflaged, and difficult to see with binoculars. Later it was seen in flight. Also seen at Waipio were several flocks of Spotted and Blackheaded Munias, some Barred and Spotted Doves, a Red-crested Cardinal, and a large number of Cattle Egrets. We left Waipio at about 1:00. The sighting of the Guam Edible-nest Swiftlet and Yellow-faced Grassquit made this an especially memorable and exciting hike.

Jaan Lepson



"HAWAII'S BIRDS" - NEW EDITION

The new second edition of our best-selling field guide to the birds in Hawaii is now available. Members and others may obtain copies from the Society for \$3.25 each plus postage (48¢ book rate by ship, or 67¢ first class by air). Hawaii residents add 13¢ sales tax. Order from Hawaii Audubon Society, P.O.Box 22832, Honolulu, HI 96822.

The new front cover (shown to the right) features a Nene on the rim of Haleakala, photographed by Sheila Conant. The back cover has a striking portrait of an 'Apapane taken by Robert Western.

Some of the photographs have been changed and many species accounts have been updated with new information on the abundance, distribution and field characters of the birds. Dr. Robert Shallenberger, the Society's Conservation Vice-President, volunteered his expertise and many hours of his time to overseeing the editing, make-up, and printing of the guide. The Society is very grateful for his help, which saved many thousands of dollars in production costs.

Star-Bulletin Printers, who printed the previous edition, did an excellent job on the color printing.

ALOHA TO NEW MEMBERS

We welcome the following new members and encourage them to join in our activities.

Joint (National and Hawaii): Margaret Arnold, Honolulu; J. P. Back, FPO San Francisco; Patricia Bourke, Kaneohe; Phillip Bruner, Laie; Helen Des Canavarro, Kaneohe; Dave Duckett, FPO San Francisco; L. Eichel, APO San Francisco; G. M. Feeney, Honolulu; W. R. Hackett, Kula; Diane Henderson, Kailua; Diana Hollinger, Wahiawa; Paul Horn, FPO San Francisco; Richard Hubbard, Honolulu; P. E. Jornlin, Washington, DC; Joene Jublou, Princeville; Kristi Larson, FPO San Francisco; Y. Maeda, Hilo; Patricia Maruo, Honolulu; Neal Mazer, Honolulu; Douglas Meller, Honolulu; Mrs. K. C. Mogray, Kailua; Mary Motobu, Hilo; John O'Rourke, Honolulu; Elizabeth Pegram, Kailua-Kona; Samuel Rhoads, Agana, Guam; R. K. Scholz, FPO San Francisco; Claude Sheldon, Honolulu; Mr. & Mrs. Peter Stacker, Washington, DC; William Stryker, Honolulu; John Williams, FPO San Francisco; Loren Wilson, Kailua; Donald Worster, Honolulu; Ron Yanagi, Honolulu; Marvin Yoshinaga, Honolulu.

Local Regular: Steven Parabicoli, Kihei.

Subscriber: Robert Barnes, Porterville, CA; Sara Baughman, Silver Spring, MD; Richard Cunningham(reinstatement), Novato, CA; Stephen Gast, London, England; Laboratoire des Mammiferes et Oiseaux (reinstatement), Paris, France; Julia Yoshida (reinstatement), Worcester, MA.

Complimentary: Hawaii State Board of Land
and Natural Resources(W.Y.Thompson,Chm.).

A special MAHALO to new <u>Life Member</u> Thane K. Pratt, of Friday Harbor, WA and Wau, New Guinea.

JOHN WALTERS TO MAUI

John Walters, our Corresponding Secretary, has accepted a temporary (we hope) job at Maui Community College. John will carry on his duties as Corresponding Secretary while on Maui, but will be sorely missed in the production of the 'Elepaio. John has put in long hours as a typist, proofreader, paste-up person, and most importantly, has been in charge of mailing and distribution of each issue. This was an especially hard job during the transition to National Audubon chapter status, when many members were added or changed status.

Mahalo for all your work, good humor in the face of a demanding editor, and constant dependability!!

C.J. Ralph

DONATIONS

MAHALO NUI LOA to Sara Baughman and Steven Parabicoli who have generously sent donations to the Society.

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PRELIMINARY LIST OF THE BIRDS OF HAWAII by R. L. Pyle (1977). An authoritative compilation of all species naturally occurring in Hawaii as well as those introduced by man which are currently established as viable populations. Gives each species' status. (Postpaid)......\$1.00

HAWAII AUDUBON EXECUTIVE BOARD

HAWAII AUDUBON SCHEDULE OF EVENTS

September 10. Field trip to James Campbell NWR (Kii and Punamano Units) at Kahuku, then on to Pearl Harbor NWR (Honouliuli and Waiawa Units). Endangered waterbirds and early returning shorebirds and ducks. Meet at the Hawaii State Library on Punchbowl St. at 6 a.m. (note early time) for prompt departure, or at 6:30 a.m. at Kahekili Hwy and Haiku Rd., Kaneohe. Leader: Tim Burr 235-4046.

September 11. Special program at Bishop Museum on Marquesas Is. (see page 31).

September 13 - Wednesday. Board meeting at the home of Sheila Conant, 3663 Alani Dr., in Manoa, at 7 p.m. Phone 988-6522.

September 18. General Meeting. Peter Galloway will present "WILDLIFE TOUR OF SOUTHEAST ASIA" featuring slides of animals observed on a trip through Borneo, Indonesia, Malaysia and Thailand. 7:30 p.m. at Waikiki Aquarium. Refreshments.

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