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THE HAWAIIAN HONEYCREEPERS, 1778-1974

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First of Two Installments

Captain James Cook discovered Kauai in the Hawaiian Islands on January 20, 1778. Among the articles the Hawaiians brought to him for barter were "great numbers of skins of small red birds /'I'iwi, Vestiaria coccinea/ which were often tied up in bunches of 20 or more, or had a small wooden skewer run through their nostrils" (Stresemann, 1950:78). Cook was killed at Kealakekua Bay, Hawaii, the following year but his ships returned to England with the skins of 16 different species of Hawaiian birds.

This paper describes certain characteristics of the honeycreepers and discusses historical reasons that explain why Hawaiian birds constitute half of all of the rare and endangered birds listed in the "Threatened Wildlife of the United States," a publication of the Department of the Interior. One would like to think that the passage of the Endangered Species Act (Public Law 93-205) on December 28, 1973, would lead finally to sincere and effective efforts to save what little remains of Hawaii's unique flora and fauna.

The Hawaiian Honeycreepers, the family Drepanididae of ornithologists, form Hawaii's own bird family. It is called an endemic family because none of its members are found in any other part of the world. For nearly a century now the honeycreepers have provided zoologists with a classic example of the evolutionary process on isolated oceanic islands--an example not even to be rivaled by the famous Galapagos Islands and their unique fauna of giant tortoises, lava lizards, and Darwin's Finches.

So diverse in their bill structure are the members of the honeycreeper family that the first ornithologists who studied them placed them in several different families of birds. In fact, some of the forms are so bizarre in appearance that one can easily imagine that the European ornithologists who first gazed upon the bird skins collected by Captain Cook and his successors might have suspected that someone was playing a scientific practical joke by sewing together the parts of several wholly unrelated birds.

These remarkable bill specializations were evolutionary adaptations for different diets. They enabled closely related birds to inhabit the same general areas without competing with each other for food. The general food habits of the honeycreepers are well known, and, in fact, can be predicted with reasonable accuracy by reference to the bill structure alone. Some species obviously were predominantly seed eaters; some were nectar sippers; others were insect eaters.

When one refers to the Hawaiian honeycreepers as a family of birds, one means, by definition, that all of the species of birds that taxonomists place in that family are assumed to have evolved from a single ancestral species, and that these modern species evolved by the process of adaptive radiation or evolutionary divergence.

When ornithologists studied specimens of all of the different kinds of honeycreepers, it seemed obvious that these could be separated into two groups, primarily because of plumage characteristics. R.C.L. Perkins was the first one to suggest that these two groups should be considered as subfamilies of the family Drepanididae. Perkins proposed that these be called the chlorodrepanine or green subfamily and the melanodrepanine or black subfamily.

The green subfamily (now known as the Psittirostrinae) is the largest group and contains 17 different species, ranging from the 'Amakihi and 'Anianiau to finch-billed types such as the Palila and the Grosbeak Finch. The black subfamily (known now as the Drepanidinae)contains six species: 'Apapane, Crested Honeycreeper, 'Ula-'ai-hawane, 'I'iwi, Mamo, and Black Mamo. These latter birds are notable because their wing feathers produce a peculiar and conspicuous sound when the birds are flying.

All of Hawaii's endemic land birds are nonmigratory, by which we mean they are permanent residents on the islands where they live. In fact, the available evidence suggests that many of the birds do not move more than a mile or two from the nest in which they hatched. Some of the species do wander up and down, or around, the mountain slopes at different times of the year. Normally, however, none of the land birds fly from one island to another, although some early writers suggested that birds occasionally were blown by storms to a nearby island.

Inasmuch as the honeycreepers are now nonmigratory birds, one might reasonably inquire about the origin of these birds. From whence did they come? The answer is simple: no one knows. Taxonomists have postulated that the ancestors of our modern honeycreepers were "blown in" from America, possibly Central America, but the "guestimates" of contemporary taxonomists are based on little more evidence than was available 75 years ago. In defense of the taxonomist, however, one must point out that it is exceedingly difficult to unearth suitable evidence to suggest the relationship among contemporary birds and their ancestors of 50,000 or more years ago.

There is one easily determined anatomical character that does appear to link the honeycreepers with certain American bird families: this is the number of primary flight feathers that are attached to the bones of a bird's hand. Most songbirds have 10 functional flight feathers, whereas the honeycreepers and several American bird families have only nine functional primaries (as do some Old-world birds). The possession of a single anatomical feature in common, however, rarely is proof of closeness of relationship among the more than 5,000 different species of small birds that ornithologists call songbirds, perching birds, or passerine birds (order Passeriformes). This one order contains more than half of all the world's birds, and the distinguishing features between families in the order often are small and difficult to discover. Consequently, much additional information is needed on the internal anatomy and the breeding biology and behavior of the honeycreepers before taxonomists will be able to speak with more assurance on the nature of the ancestral species and its possible relationships to contemporary, continental bird families.

In all, 23 different species of honeycreepers evolved from the presumed single ancestral species. Some of the species were confined to a single island, whereas others were found on all of the larger islands. The process of evolutionary divergence goes even further, however, and we find that 24 subspecies also evolved. The 'Amakihi (Loxops virens) provides a good example of the development of subspecies. The 'Amakihi is found on all of the main inhabited islands, and one has no difficulty in recognizing the birds on the different islands as being 'Amakihi. Nevertheless, there are differences in bill size, total length, and color of the plumage. The Kauai 'Amakihi, for example, has a much larger bill than do the 'Amakihi on the other islands. The male Hawaii 'Amakihi tends to have a much brighter yellow breast than the other 'Amakihi, and a black streak in front and behind the eye serves as a conspicuous field mark. The black tends to be limited to a small area in front of the eye in the 'Amakihi that inhabit Maui, Molokai, Lanai, and Oahu. One of the key theoretical points is that it is assumed that, if 'Amakihi from the different islands were placed together under the proper environmental circumstances, they would interbreed and produce fertile eggs. They do not do so in the wild because they are geographically isolated. Hence, the populations of 'Amakihi on the different islands are called subspecies or geographical races of the same species. With the passage of long periods of time, genetic changes might produce reproductive isolating mechanisms, at which time, by traditional definition, the populations that were incapable of mating and producing fertile eggs would then be classified as separate species. Subspecies, therefore, are potential new species.

A few words about the names of Hawaiian birds are in order. Only a few of the Hawaiian honeycreepers have English names. Most are identified only by their Hawaiian name or by their Latin scientific name. The scientific name consists of either two or three parts. The Hawaiian word kihi means curved, and refers to the curved beak of the

'Amakihi. The 'Amakihi is placed in the genus (or general kind) Loxops (meaning "twisted face") along with other birds (such as the 'Anianiau and 'Akepa) that are believed to be closely related to it. The species, or specific, name of the 'Amakihi is virens (meaning green), which distinguishes it from the species name parva (small) for the 'Anianiau and coccinea (scarlet) for the 'Akepa.

Each subspecies or geographical race is given a third Latin name to identify more precisely that geographical race. Thus, Loxops virens stejnegeri is the complete trinomial name for the Kauai 'Amakihi; Loxops virens chloris is the name for the Oahu 'Amakihi; Loxops virens wilsoni, for the 'Amakihi that inhabit Maui, Molokai, and Lanai; and Loxops virens virens for the 'Amakihi that live on the island of Hawaii.

Unfortunately, of the 23 species and 24 subspecies of the remarkable Hawaiian honeycreepers, seven full species and seven subspecies are thought surely to be extinct.

Extinct Hawaiian Honeycreepers

Full Species	Subspecies
Black Mamo (Molokai)	Laysan Honeycreeper
Greater 'Amakihi (Hawaii)	Oahu 'Akepa
Greater Koa Finch (Hawaii)	Oahu 'Akialoa
Lesser Koa Finch (Hawaii)	Oahu Nuku-pu'u
Grosbeak Finch (Hawaii)	Lanai Creeper
'Ula-'ai-hawane (Hawaii)	Lanai 'Akialoa
Mamo (Hawaii)	Hawaii 'Akialoa

Moreover, some species that had not evolved subspecies but once inhabited two or more islands are now extinct in part of their former range. These extinct populations include the Molokai Crested Honeycreeper; the 'O'u on Oahu, Molokai, Lanai, and, possibly, Maui; and the 'I'iwi on Lanai.

The picture is even worse than this, however, because the following honeycreepers are rare and are in danger of becoming extinct.

Rare and Endangered Honeycreepers

Kauai Nuku-pu'u	Maui 'Akepa
Kauai 'Akialoa	Maui Crested Honeycreeper
Kauai 'O'u	Maui Parrotbill
Oahu Creeper	Maui 'O'u
Oahu 'I'iwi	Maui "Black-faced" Honeycreeper /Po'o uli/
Molokai Creeper	Hawaii 'O'u
Molokai 'I'iwi	Hawaii Creeper
Lanai 'Apapane	Hawaii 'Akepa
Lanai 'Amakihi	'Akiapola'au (Hawaii)
Maui Nuku-pu'u	Palila (Hawaii)

In addition, the Laysan Finch and the Nihoa Finch are classified as rare and endangered because of their restricted distribution on those small islands of Laysan and Nihoa, respectively.

What all of this means is that only the following honeycreepers are not in immediate danger of extinction; and these species are to be found in relatively large numbers only on Kauai, Maui, or Hawaii: 'Amakihi, 'Anianiau (Kauai only), Creeper (on Kauai and Maui), 'Akepa (Kauai), 'Apapane, and 'I'iwi.

In view of the lists presented above, it is easy to understand that more birds have become extinct--and are threatened with extinction--in Hawaii than on the entire North American continent and, in fact, more have become extinct than in any other area of the world with the possible exception of the Mascarene Islands in the Indian Ocean.

The Implications of Extinction

The fact is that the extinction of so many Hawaiian birds (as well as other animals and plants) has far greater implications than the scientific, aesthetic, and economic losses that resulted. In a sense, these implications are philosophical in nature, but they are economic in the last analysis because they deal with the continuance of modern civilization and with the very survival of man as an animal species.

In simplest terms, the plants of the world provide man's life support system. Man is completely dependent for the oxygen he must breathe upon the green plants on the land and the algae in the oceans which release that oxygen. The forests not only provide essential oxygen, but they also prevent the rapid runoff of water, which produces erosion and the loss of valuable top soil. For example, it has been reported that as much as

15 feet of soil have been lost from certain areas in Hawaii, and in most areas this has been lost since Captain Cook discovered the islands.

Moreover, on tropical oceanic islands such as Hawaii, we are still completely dependent on rain for our drinking water. Rapid runoff of water to the ocean is water lost for our use. Because of draught conditions, drinking water had to be hauled in trucks to people living in certain areas of Hawaii during 1970, 1972, and 1973, and widespread draught occurred in 1974.

The forests with all of their plants and animals form ecosystems. The life cycles of all of the members of the ecosystem are in some way interrelated or interdependent. Birds, therefore, are essential parts of those ecosystems. They may pollinate plants or they may eat the insects that attack the plants. If man will leave the ecosystems alone, the birds will take care of themselves.

In his less civilized state, man also was an integral part of those ecosystems. With urbanization, man, in a sense, escaped the ecosystems, but he was in error when he believed that he no longer needed them; that he could destroy them indefinitely with impunity; that he was above nature and was master of it. Any man who still believes that is a fool. We must agree with Rabindranath Tagore when he wrote that "we read the world wrong and say that it deceives us."

To be continued

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ORIGIN OF THE NENE

By Jerome J. Pratt

If a theory is repeated often enough it is accepted as fact by some people. Because Darwin (1859) said, "I have conclusive evidence that the breeds of the pigeon are descended from a single wild pigeon," it was credence enough for early scholars to consider it fact. Later, Darwin went on to say, "The rock pigeon (Columbia livia), may be confidently viewed as the common parent form."

Likewise the junglefowl (Gallus bankava) is said to be the progenitor of all races of domestic chickens. I do not share the opinion that any of our domestic fowl evolved from a single source, except the turkey and possibly the duck.

It is not difficult to believe some chickens descended from the junglefowl we know today, but it is more likely others came from an extinct species or even a pheasant-junglefowl hybrid. The Hawaiian Moa is apparently a domesticated red junglefowl, as is the black Sumatra, but the wild ancestor of the latter is extinct.

In the case of the feral pigeon, many ornithologists call it a rock dove, when it is nothing more than a mongrel of questionable ancestry. The rock dove should never be listed in a bird guide as a species; it should be called a feral pigeon.

By using domestic birds we are familiar with as an analogy as a prelude to discussing the origin of the Hawaiian goose or nene (Branta sandvicensis), it should illustrate the need for a great deal more knowledge before conclusions can be reached.

Nearly every descriptive account of the nene states, "They are believed to have descended from a single flock of migrating Canada geese (Branta canadensis) which were blown off course and remained in Hawaii." In my judgement there is too much information lacking to speculate on the progenitor of the nene.

The nene is an example of evolutionary phenomenon where a member of a genus of an aquatic nature has adapted to thrive on lava flows with little or no free water. Among the nene's other individual differences is that they lay relatively large eggs--about seven per cent of the female's body weight. This is about twice as big as the compared weights of the Canadian species. Also the nene and the Cape Barren goose (Cereopsis) of Australia are the only geese that begin their breeding season as the hours of daylight grow less.

With the discovery of remnants of a fossil goose on the Big Island in 1926 and on Molokai in 1972, and the fact that the incubation period for the Hawaiian species of the Branta is longer than it is for the North American races, we must take another look at the origin of the nene.

The study of qualitative genes may lead to discovery of the original progenitors of domestic fowl and such wild creatures believed to have evolved from another race. Dr. W. H. Stone of the Wisconsin Agricultural Experiment Station has been constructing evolutionary trees of cattle by studying blood types. This seems to be a promising technique that may be applied to birds as well as mammals.

Hybridization of the nene and Canada goose should shed light on common ancestry of

both. I do not know if they would cross easily and if the hybrids would be fertile. Fertile offspring would be evidence for common ancestry. Hybridization also would permit study of the mode of inheritance of qualitative genes including blood group genes.

Tracing the ancestry of the nene would be a worthwhile project for the Hawaii Audubon Society to encourage. A study of qualitative genes of hybrids would be a good start.

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HAWAII TOURIST NEWS, 9-15 January 1975: More Rare Nene Goslings Hatched at Haleakala

Small in number and unique to the islands, Hawaii's State bird--the nene--is staging a comeback. The nene...is still on the endangered species list, but thanks to efforts on the islands of Hawaii and Maui, have shown a slight increase in number.

For the third year in a row, there has been a "Christmas miracle" on the slopes of Haleakala on Maui. Two days before Christmas, two nene hatched into the world to add to the Hawaiian goose population which, in 1923, numbered only between 20 and 30. Four eggs had been laid, but two did not hatch.

In the other of two enclosures which make up Haleakala National Park's "Nene Park" another mother goose is sitting on five more eggs, but hope for successful hatching is waning--they are now long overdue.

The term "Christmas miracle" came about on Christmas Day, 1972, when a nene hatched an unprecedented five nene goslings at Haleakala, all of which lived. On Christmas Day, 1973, three more nene were hatched and lived. On January 29, 1974, three more hatched.

At the time of the coming of the first Europeans to Hawaii, in the late 1700s, it was estimated that the nene population was around 25,000. Now probably about 225 nene call Haleakala home while the Big Island can count possibly 350 to 400.

A few years ago the nene was feared nearing extinction and through private and US government efforts, they have made a slow return. Raised in pens some of the geese, upon reaching maturity, are turned loose to roam the wilds and adapt to their natural setting.

The Haleakala Park Headquarters has two pairs of geese for breeding and once a year, each pair produces from three to five eggs which hatch around the holidays.

The public may view the goslings at the enclosure behind Park Headquarters at the 7,000 foot level of Haleakala.

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HONOLULU STAR-BULLETIN, 1 February 1975, page A-11: Endangered Plants by Harry Whitten

Hawaii, which has the dubious distinction of furnishing 27 species, or half the species on the U.S. list of endangered birds, has another dubious distinction. It has more endangered species of native plants than any other region in the United States, according to the Endangered Plant Project of the Smithsonian Institution. The Smithsonian was directed by Congress to take a census of endangered plants under the Endangered Species Act of 1973 which is also concerned with endangered mammals, birds and reptiles.

The results of the year-long study are described in an article by Dale W. Jenkins in the January issue of National Parks and Conservation Magazine and also by Jenkins and Edward S. Ayensu in the January Smithsonian magazine. Jenkins directed the Endangered Plant Project. The Smithsonian report is being sent to Congress.

The information on the report from Hawaii was furnished by F. Raymond Fosberg and Derral Herbst, authorities on Hawaiian flora, who received information from other scientists.

"Of the 2,200 kinds of vascular plants in Hawaii, about 80 per cent are considered rare and threatened," Jenkins writes.

Fosberg has been working on the Hawaiian list for more than 10 years and Herbst helped revise and update it. Fosberg, curator of botany at the Smithsonian, has made many trips here and has been studying Hawaiian plants since the 1930s. He obtained his master's degree at the University of Hawaii under Harold St. John, for many years professor of botany there. Herbst is assistant researcher at the Harold L. Lyon Arboretum of the University. Their paper on Hawaii's endangered plants will be published near the end of this month or in early March as an Occasional Paper of the Pacific Tropical Botanical Garden, Kauai.

The Smithsonian's national census finds more than 2,000 species, subspecies and varieties of native flora as endangered, threatened or recently extinct. About 100 of the plants on the proposed "critical" list are extinct, Jenkins said, while another 750 are in danger of extinction and some 1,200 others threatened or likely to become endangered within the foreseeable future.

The project so far encompasses only the first phase of the Smithsonian study; the proposed lists cover endangered and threatened vascular plants (that is, flowering plants, pines and their relatives, and ferns). A second phase will be undertaken later to identify endangered nonvascular plants such as algae, fungi, lichens, and mosses and also to locate habitats of both vascular and nonvascular plants that should be preserved.

The Smithsonian's major recommendation is that the only way to protect endangered plants is to preserve their habitats.

Jenkins says: "Plant habitats are continuously eliminated by strip mining, timber harvesting, flooding, irrigation, overgrazing, stream channelization, drainage of bogs, swamps and marshes, destructive fires, and prevention of natural fires. Plans for more dams, power plants, and strip mining; shale oil recovery; increased irrigation and agriculture; development of more cities, roads, factories and dumps; as well as the pollution that will result when these activities are carried out--all these developments threaten to destroy or modify even more natural plant habitats."

He says that man has accidentally introduced more than 1,800 species of foreign vascular plants into the continental United States and more than 3,000 species into Hawaii, some of which have become naturalized or cultivated.

"Foreign species, when freed of the native diseases and pests that held them in balance in their native country, often win out in competition with our native species and contribute to the increased rarity of native plants," he says in the National Parks magazine.

What damage is done if plants do become extinct? Jenkins says, "Extinction of any species of plant or animal is an irretrievable loss of unique genetic material that can never be duplicated--which narrows our future options. Finally, plants should be protected because of their importance in maintaining healthy and diverse natural ecosystems--and because of the intrinsic value of all life."

The National Parks magazine article includes a picture of a scarlet hibiscus (Hibiscus kahili forbes), one of nearly 900 Hawaiian species listed as endangered or extinct.

Knowledge that Hawaii's plants are endangered is not new; a Star-Bulletin editorial May 31, 1954 discussed the trend. The editorial quoted Joseph F. Rock, eminent botanist, who said, "On my recent trips on the various islands I learned to my regret the passing of many rare trees which formerly were plentiful." He discussed destruction of forests on Haleakala, Hualalai and the Kohala Mountain summit.

Rock's book, INDIGENOUS TREES OF THE HAWAIIAN ISLANDS, first printed in 1913, has long been out of print. It has recently been reprinted by Pacific Tropical Botanical Gardens, through the Charles F. Tuttle Co. The reprinting is described by Derral Herbst as "a great service to the scientific community."

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FOR JUNIOR MEMBERS: Barred Dove's Nesting at 725-A 8th Avenue, Honolulu, 11 December 1974 to 11 January 1975, in a mango tree branch 9 feet from the ground.

11 Dec 1974--Discovered barred dove's nest. Very flimsy made of grass and twigs.
13 Found half an egg shell on ground. What happened to the other half?
14 Saw adult dove in nest.
16 Bird off nest for about 10 minutes; saw two eggs.
23 Found half an egg shell on ground.
25 Bird off nest for about 5 minutes; saw one newly hatched nestling. What happened to the other egg?
26-28 No movement of the nestling. No feeding observed.
29 Observed movement of the nestling, but no feeding. Adult only broods. Is it possible that for the first few days the nestling is not fed?
3 Jan 1975--Saw feeding. Fledgling took food from the side of the adult's bill; not the usual method of adult dropping food into the fledgling's mouth. Why? Are the seeds regurgitated or merely kept in the mouth? Do all seed-eating birds feed their young in this method?

4 Jan 1975--Heard begging.
5 Fledgling responded to my whistling.
6 Forced food and responded to call from parent.
7 Fledgling very active--preened, moved to edge of nest, responded to call and aggressively begged and forced food from parent.
9 Left nest. Unable to fly-up to a branch off the ground. Restored fledgling to nest at night (only interference by man). Stormed.
10 Stormed, but happy to find parent brooding the fledgling.
11 At 1430 hour the nest was empty.
18 Heard and saw both birds roosting.

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Same address, 18 January 1975, at 0830: Saw a red-vented bulbul calling from a Christmas berry tree. Has anyone seen this bird in Kaimuki or Kapahulu?

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These are very casual observations, but because I recorded my findings, I have many questions. Now, the fun begins to find the answers. You too can do the same. Maybe flowers, trees, insects, or birds interest you. Why not find out all about the things around you and share your experiences with other members by writing to Kojima, 725-A 8th Avenue, Honolulu, Hawaii 96816.

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HONOLULU STAR-BULLETIN, 27 March 1974, page C-4 had the following article by Kathy Titchen about Alan Goya who was a junior member: Wallaby Watchers Are Sought

For 58 years a colony of wallabies has lived quietly in Kalihi Valley, receiving only sporadic interest from scientists involved in more controversial wildlife. But two local youths who made the wallabies a weekend hobby five years ago have a more than passing interest in the Australian marsupials and wish someone would make a scientific study of them.

Henry Ishibashi and Alan Goya, both 19, got interested in the wallabies while in high school. Now that Goya is a student at Whitman College in Washington and Ishibashi is preparing to leave on an extended trip to Europe, they'd like to turn over their information to the right person--a scientist or zoology student who could bring to the study some scientific background.

"We have no scientific training," Ishibashi said. "It's been a casual study."

Goya, who has taken numerous color slides of the kangaroo-like creatures...said, "When we started,it just seemed like something interesting to do. It became kind of a pet project. We've read everything we could find about them."

"We heard they were up there about five years ago," Ishibashi said. "We'd go up there and camp--it's a nice place to camp--and we'd watch the wallabies. We'd go down to the cliffs and sit around not moving. You have to wait patiently until they move, then you can spot them. They're well-camouflaged."

The Kalihi Valley specimens are brush tailed rock wallabies which grow to about 30 inches in height. They are descendants of a pair brought here in 1916 from Australia and bought by Richard E. Trent, who kept a private zoo at his Alewa Heights home.

According to Raymond J. Kramer, whose book, HAWAII LAND MAMMALS, the youths have used for reference, the wallabies were chased by dogs from the tent in which they were kept the day they arrived in Hawaii. A baby, or "joey" carried in the female's pouch apparently fell prey to the dogs but the two adults fled into the woods in Alewa Heights and finally to Kalihi Valley, where they found the kind of rocky cliffs they inhabited at home.

No one knows for sure how many wallabies now live there. "I'd say there were about 30," Ishibashi said. "Just from seeing how many wallaby runs there are and the amount of territory. It couldn't support many. The area is boxed in by civilization on three sides and on the other by rain forest where they can't live." The fact that they are contained by environmental barriers is probably the reason they haven't spread, he said. "They have their own little highway system of runs there," Ishibashi said. A wallaby run, he explained, is a tunnel cut through the underbrush so the animals can travel around.

The youths believe a fascinating study of adaptive behavior could be made on the creatures. They suspect the wallabies may have developed new coloration,habits and physical characteristics over several generations to adapt to their Hawaii environment.

The youths keep up to date on the latest information about wallabies. They are concerned about a 1972 study of Hawaii's wildlife done by a Mainland environmental and wildlife management planning firm, Jones and Stokes Associates, Inc., which referred to the rock wallaby as an endangered species and recommended relocating members of the colony

to other areas of the Islands to encourage them to flourish. "This species is not endangered," Ishibashi said. "Even if it were endangered in Australia it's an introduced species here and you'd wreck the ecosystem by starting new colonies." Where the wallabies are, he said, they haven't caused any ecological damage because that area was previously stripped of vegetation by cattle and there aren't many indigenous plants there.

The youths have a stack of literature to prove their points, including a current evaluation of the status of Australian marsupials published in the "Australian Zoologist" which maintains that the rock wallaby is not endangered.

Alan Ziegler, Bishop Museum zoologist, said that not much has been done on the wallabies because scientists here have been more involved with species that present critical problems. Contained in a small area from about 300 to 1,400 feet in elevation, the wallabies haven't had much impact on the environment. Ziegler also said the 1972 study that concerned the boys has been submitted to the U.S. Bureau of Sports Fisheries and Wildlife by the States Department of Fish and Game but was rejected for federal aid.

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Field Notes from Robert B. Hansen, 10 September 1974: ...I lived near Ewa Beach from 1960 to 1964 with my Navy family. I was just an elementary school kid but even then I must have had an eye for birds. The Hawaiian birds I remember as a nine-year-old aren't too jazzy but mynahs, cardinals, doves, and frigatebirds are some I remember. Before I had ever heard of an eye ring I noticed the white around the eye of a mejiro feeding among banana blossoms in our yard. I began birding in Maryland after our family was transferred there from Hawaii. Now I live in Fresno where my parents grew up and I have begun to love this valley and its birds. I returned to Hawaii after graduating from high school. With a friend I visited Oahu for 11 days, Kauai for 5 days, Maui for 9 days, and Hawaii for 10 days.

As field trip chairman and record-keeper for the Fresno Audubon Society I wish I had been more scientific in 1971 when I took notes in Hawaii. I listed numbers only a few times when I should have done it every day. Since I was new to Island briding I list only those species whose identification I was certain of. I used HAWAII'S BIRDS to good advantage along with Peterson's book but most Hawaiian birds (barring some honeycreepers) seemed fairly easy to identify. The unusual birds in my lists are explained in more detail. I tried to use place names which are descriptive enough to explain where I was each day. ...I walked, mostly bicycled, and hitched around on Oahu, Kauai, Maui, and Hawaii in that order. August 4 through September 7, 1971.

August 4: Honolulu--Rock Dove, Barred Dove, Mynah, House Sparrow.

5 Honolulu to Ewa Beach--Frigatebirds (along Waikiki), Cattle Egrets (West Loch area), Fairy Tern (Fort DeRussy area), Spotted Dove, Barred Dove, Mynah, White-eye, House Sparrow, Brazilian Cardinal.

6 Ewa Beach to Barber's Point--Cattle Egret, Rock Dove, Spotted Dove, Barred Dove, Mynah, White-eye, Black-headed Mannikin, House Sparrow, Cardinal, Brazilian Cardinal.

7 Ewa Beach to Barber's Point to Pearl Harbor to Honolulu--Cattle Egrets (Barber's Point, Main Gate), Rock Dove, Spotted Dove, Barred Dove, Mynah, White-eye, Black-headed Mannikin, House Sparrow, Brazilian Cardinal.

8 Honolulu to Hanauma Bay--Frigatebird, Fairy Tern, Rock Dove, Spotted Dove, Barred Dove, Mynah, White-eye, House Sparrow, Brazilian Cardinal.

9 Hanauma Bay to Waimanalo--Red-footed Booby (Manana Is.), Frigatebird, Black-crowned Night Heron, Sooty Tern (as with most of these seabirds, I was using 20x scope from Makapuu to watch them), Noddy Tern, Rock Dove, Spotted Dove, Barred Dove, Barn Owl (Waimanalo), Mynah, White-eye, Ricebird, House Sparrow, Cardinal, Brazilian Cardinal.

10 Waimanalo to Bellow's AFB to Hanauma Bay--White-tailed Tropicbird (near Waimanalo), Red-footed Booby, Frigatebird, Cattle Egret, Sooty Tern, Noddy Tern, Fairy Tern (near Makapuu), Rock Dove, Spotted Dove, Barred Dove, Mynah, White-eye, Ricebird, House Sparrow, Cardinal, Brazilian Cardinal, House Finch (Bellow's AFB) Note: Red-vented Bulbul (5 or 6 were at Bellow's AFB, noisy).

11 & 12 Hanauma Bay--Wedge-tailed Shearwater, Red-footed Booby, Frigatebird, Sooty Tern, Noddy Tern, Spotted Dove, Barred Dove, Mynah, White-eye, House Sparrow, Cardinal, Brazilian Cardinal.

13 Hanauma Bay to Honolulu--Frigatebird, Rock Dove, Spotted Dove, Barred Dove,

Mynah, White-eye, House Sparrow, Cardinal, Brazilian Cardinal.

August 14: Honolulu to Honolulu Airport--Cattle Egret, Fairy Tern (Fort DeRussy area), Rock Dove, Spotted Dove, Barred Dove, Mynah, White-eye, House Sparrow, Brazilian Cardinal. End Oahu; Begin Kauai

15 Honolulu Airport to Lihue Airport to Niumalu--White-tailed Tropicbird (Niumalu Park, Kauai), Spotted Dove, Barred Dove, Chinese Thrush (3 birds hassling each other--territorial dispute?--at Niumalu Park), Mynah, White-eye, Ricebird, House Sparrow, Cardinal, Brazilian Cardinal (only on Oahu), House Finch.

16 Niumalu to Lihue to Koke'e State Park--White-tailed Tropicbird (Waimea Canyon), Jungle Fowl (tame birds near visitor center at Koke'e as well as other birds calling from within the forest), Spotted Dove, Barred Dove, 'Elepaio (Koke'e), Mynah, White-eye, 'Anianiau (Koke'e), 'Apapane (Koke'e), Ricebird, House Sparrow, House Finch.

17 Koke'e to Waimea to Lihue to Hanalei and Wainiha Valley--White-tailed Tropicbird, Jungle Fowl (Koke'e), Golden Plover (on a field near the Lodge; a man in the visitors center said it was the earliest fall record he had for the park.), Spotted Dove, Barred Dove, 'Elepaio (Koke'e), Mynah, White-eye, Ricebird, House Sparrow, Cardinal, House Finch.

18 Wainiha Valley to Hanalei, Kilauea Lighthouse, Lihue, & Niumalu--Wedge-tailed Shearwater, Newell Shearwater (A single bird was flying as if struggling along the face of the sea cliff south of the lighthouse. This was at midday.), Red-tailed Tropicbird*in the area where many of the White-tailed birds flew. My first impression was that the bird was a glaucous-winged gull since it looked so white and I could see no red. It finally got closer to the lighthouse and sailed off toward the south.)*(This was the only Red-tailed Tropicbird * White-tailed Tropicbird, Red-footed Booby, Frigatebird (All of the above 6 species were seen at or near the lighthouse.), Black-crowned Night Heron (Hanalei), Gallinule (1), Hawaiian Stilt (2) (Gallinule and stilts were in a paddy near Hanalei.), Spotted Dove, Barred Dove, Mynah, White-eye, House Sparrow, Western Meadowlark (Couple were seen in the company of cattle near Hanalei.), Cardinal, House Finch. End Kauai; Begin Maui

19 Lihue, Kauai to Kahului, Maui, then to Baldwin Park--Black-crowned Night Heron (Kanaha Pond), Hawaiian Coot (near Lihue Airport and at Kanaha Pond), Golden Plover, Ruddy Turnstone, Sanderling, Hawaiian Stilt (All of the above four species were at Kanaha Pond), Rock Dove, Spotted Dove, Barred Dove, Mynah, White-eye, Ricebird, House Sparrow, House Finch.

20 Baldwin Park to Kahului to Baldwin Park--Black-crowned Night Heron, Coot, Golden Plover, Ruddy Turnstone, Sanderling, Stilt, Spotted Dove, Barred Dove, Mynah, White-eye, House Sparrow, House Finch.

21 Baldwin Park--Frigatebird, Ruddy Turnstone, Wandering Tattler, Sanderling, Spotted Dove, Barred Dove, Mynah, White-eye, House Sparrow, House Finch.

22 Baldwin Park to Kahului to Hookipa Park--Coot, Golden Plover, Ruddy Turnstone, Wandering Tattler, Sanderling, Stilt, Rock Dove, Spotted Dove, Barred Dove, Mynah, White-eye, House Sparrow.

23 Hookipa Park to Haleakala (Paliku Cabin)--Wedge-tailed Shearwater (hundreds skimming east over waters off Hookipa), Nene (about 20 of them at Haleakala), Ring-necked Pheasant (near Hosmer Grove), Chukar (nearly 30 in one covey in the crater), Golden Plover (at approx. 8000' on the side of Haleakala), Ruddy Turnstone (Hookipa), Wandering Tattler (Hookipa), White-capped Noddy (2 of them at Hookipa; the different tail was noticed at close range), Spotted Dove, Barred Dove, Skylark (seen on the slopes of Haleakala; one bird in the crater), Mynah, White-eye.

24 Haleakala (Paliku Cabin) to Kaupo Village to 7 Sacred Pools--White-tailed Tropicbird (Kaupo Gap), Great Frigatebird (near Kaupo Village), Nene (Haleakala), Ring-necked Pheasant (Kaupo Gap), Golden Plover, Wandering Tattler, Ruddy Turnstone (All of the above 3 species were along the shore near Kaupo Village), Spotted Dove, Barred Dove, Red-billed Leiothrix (Kaupo Gap), Mynah, White-eye, 'Amakihi, 'I'iwi (The two honeycreepers were in Haleakala near the start of the downhill section of the Kaupo Gap trail.), Cardinal, House Finch.

25 Seven Sacred Pools to Kahului to Kihei--Great Frigatebird, Coot, Golden Plover,

Ruddy Turnstone, Stilt (All of the above 4 species were at Kanaha Pond), Spotted Dove, Barred Dove, Mynah, White-eye, Ricebird.

August 26: Kihei to Lahaina--Black-crowned Night Heron (at Kihei in a Waterfowl Refuge), Ruddy Turnstone, Wandering Tattler, Spotted Dove, Barred Dove, Mynah, White-eye, House Sparrow.

27 Lahaina to Kahului to Baldwin Park--Coot (Kanaha Pond), Ruddy Turnstone(Baldwin), Wandering Tattler (Baldwin), Stilt (Kanaha), Rock Dove, Spotted Dove, Barred Dove, Mynah, White-eye, House Sparrow. End Maui; Begin Hawaii

28 Baldwin Park to Kahului to Hilo Airport to Onekahakaha Park--Golden Plover, Wandering Tattler (Both seen at Onekahakaha.), Rock Dove, Barred Dove, Mynah, White-eye, House Sparrow.

29 Onekahakaha Park to Volcanoes National Park--White-tailed Tropicbird (Halemaumau Crater), Golden Plover (Kilauea Military Camp), Rock Dove, Barred Dove, Skylark (Volcanoes National Park), Red-billed Leiothrix (Bird Park), Mynah, White-eye, 'Amakihi, 'Apapane (Honeycreepers were in Bird Park and near Volcano House Restaurant.), House Sparrow, Cardinal.

30 Volcanoes National Park to Hilo to Spencer Beach Park--Hawaiian Hawk (Single bird seen only for a brief time; flew about 120 feet above the Highway, 5.5 miles from Hilo. It crossed the Highway which goes from Hilo to the National Park.), Rock Dove, Spotted Dove, Barred Dove, 'Oma'o (One of these thrushes was seen and heard just outside the entrance to Volcanoes National Park.), 'Elepaio (Volcanoes National Park), Mynah, White-eye, 'Amakihi, 'Apapane (Both honeycreepers were seen in the National Park.), House Sparrow.

31 Spencer Beach Park--Ruddy Turnstone, Wandering Tattler, Barred Dove, Mynah, White-eye, House Sparrow, Cardinal.

Sept. 1: Spencer Beach Park--Spotted Dove, Barred Dove, Mynah, White-eye, House Sparrow, Cardinal, House Finch. NOTE: Indian Gray Francolins (Francolinus pondicerianus) were seen in kiawe thickets today and on following days. I saw 2 today.

2 - 4 Spencer Beach Park--Same species as on September 1 except no Francolin on 3rd.

5 Spencer Beach Park--Cattle Egret (Only Cattle Egret I saw on the Big Island. It flew toward the beach at Spencer from over the ocean. As it neared the shore, it turned and headed north toward Kawaihae.), Sanderling, Spotted Dove, Barred Dove, Mynah, White-eye, House Sparrow, Cardinal, House Finch.

6 Spencer Beach Park to Waimea to Hilo to Onekahakaha Park--Coot (Hilo), Golden Plover (Hilo), Rock Dove, Spotted Dove, Barred Dove, Barn Owl (One flew at dusk near an old building adjacent to Onekahakaha Park.), Mynah, White-eye, Ricebird, House Sparrow, Cardinal, House Finch.

7 Onekahakaha Park to Hilo Airport--Coot, Golden Plover, Barred Dove, Rock Dove, Spotted Dove, Mynah, White-eye, Ricebird, House Sparrow. End of Trip

At Kanaha Pond on August 20 (only day I recorded numbers of birds) I took the following count: Black-crowned Night Heron 2, Coot 3, Golden Plover 8, Ruddy Turnstone 37, Sanderling 2, and Stilt 150.

I was busy with lots of birding activities this summer.... I recently got a banding permit, so those days spent with birds and nets took some of the time. I made up a checklist for a local nature trail, one for a State Waterfowl Management Area, and another for the Mineral King area in the Sequoia National Forest. I'm currently working on a complete checklist for the birds of Fresno County and a separate list which will include bar graphs illustrating yearly distribution for the species found in the San Joaquin Valley part of our country. Our first Audubon meeting for the 1974-5 year is tonight. By mid month I hope to have all 18 trips for the next year planned. ...

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COMMENTS from Ruth R. Rockafellow, 29 January 1975

The February 1975 "ELEPAIO" has just been delivered to me and I must compliment the members for the intensive and comprehensive report of the Yearly Count as reported in the magazine--it is truly good reading and heart warming for this old birder who has traveled the trails and areas mentioned.

True, it is to the past I must refer--war time--when training areas occupied our favorite spots; when land fills took away our favorite water holes and with heavy hearts we saw our feathered friends find other homes; nevertheless, it was a gallant group that gathered--always with high hopes, congeniality and confidence that the next trip would be

better.

Only 18 'Elepaio sighted on the Aiea Trail. That cheery fellow always met us and would follow us up and down the trail chatting all of the time; no Tit and no Pueo. This trail was always a "sure thing" to show visitors the five native Hawaiian birds they wished to add to their Life List--I myself have made two trips up there in one day with visitors and they were never disappointed. I am glad the Shama returned, but where is the 'Amakihi and the Oahu Creeper?

I shall not commiserate because you all have completed a wonderful "count" of old timers and have added Oh!! so many, many visitors to our shores and also many illegal entrants.

I had a great thrill to see a flock of some 25 Pacific Golden Plover arrive on August 5, 1974. I live on the 16th floor and there was absolutely no doubt as to what I saw. I occasionally see some Frigatebirds up here and when out in the garden I even have a chat with Brazilian Cardinals. ... *****

Field Notes by Erika Wilson

Kapiolani Park: Early Sunday morning, January 19, 1975, my husband and I began a birding trip via TheBUS. We took a No. 4 University bus to its end point in Kapiolani Park. We walked around the park for ¾ of an hour during which time we saw lots of Rock Doves, Spotted Doves, and Barred Doves, as well as small flocks of Spotted Munia and House Sparrows. Scattered over the dew-covered lawns were Golden Plover, occasional Java Sparrows, Saffron Finches, Pin-tailed Whydahs, and Red-crested Cardinals. In a tree we spotted several Yellow-fronted Canaries, in another tree a Cardinal sang, and in the ironwoods the House Finches were busy feeding. Near the golf driving range we flushed a group of Orange-cheeked Waxbills. Throughout our walk we saw Japanese White-eyes and Common Mynahs.

Waahila Ridge: After our tour of Kapiolani Park we boarded a No. 14 St. Louis Heights bus and slowly wound up the hill to the top, just one block from the entrance to Waahila Ridge State Recreational Area. As we walked through the Norfolk pines we heard Spotted Doves, Cardinals, House Finches, and Shama Thrushes. At the upper end of the park we took the ridge trail; along the way we heard many Japanese White-eyes and Cardinals. The weather was perfect for hiking--sunny with absolutely clear skies overhead. Soon I heard the call note of 'Amakihi and then its song in koa trees ahead of us. We finally spotted one in an introduced silk tree! The higher we climbed the more native plants we saw and the more 'Amakihi we heard. I only saw one male 'Amakihi with his bright plumage, the others we saw were the drabber females and/or juveniles, but we heard the male's song all along the ridge.

On the upper part of the ridge we watched a Japanese Bush Warbler puff its throat out with great effect each time it sang its loud clear song from an 'ohi'a tree. We turned downhill on the Woodlawn Trail, dropping rapidly into Manoa Valley. In the kukui and guava groves we heard the melodius Shama Thrushes all around us; I finally spotted one of these colorful songsters in a guava tree.

At the bottom of the trail we waited for a No. 6 Ala Moana bus on Woodlawn Drive which took us to the University campus where we transferred to a No. 4 Nuuanu bus, and so returned home. This delightful birding trip cost us 50 cents each in bus fare; during our five hour outing we saw nineteen species of birds and walked through a variety of habitat.

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From Peggy Hickok Hodge, 21 January 1975

Red-vented bulbuls are being fed in my bird feeders on the high deck in Lanikai beneath the cliffs. The babies are almost as large as the mothers and can peck a large group of moist papaya seeds and eat them, but play babies again, drop the gooey mess and beg to be fed. And the mothers give in and feed them!

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Plover Watching: A photograph of a plover by John Titchen made the front page of the HONOLULU STAR-BULLETIN, 31 January 1975, with the following explanation: "A sandpiper strides along the first fairway of Waialae Golf Course, following the Hawaiian Open golfers in yesterday's rain."

The next day, 1 February, on page A-4 another article titled, "A Plover by Any Other Name" delighted me no end. This article stated, "...A member of the Waialae crowd told photographer John Titchen it was a sandpiper. Instead, it was an American golden plover,

who probably traveled further to be at the Hawaiian Open than most of the humans. It is a migratory bird, here for the winter from Siberia or Alaska. A bird fancier said golden plovers 'love golf courses.' However, the unidentified identifier may have the last laugh: Encyclopedia Brittanica states that the sandpiper is of the same family and order as the plover and that the plover is sometimes called a sandpiper."

How fortunate to have a paper, despite the economic unrest, willing to devote space for not only a plover but also a lesson in ornithology. MAHALO!

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Review by Kojima: PANALA'AU MEMOIRS by E.H. Bryan, Jr., copyright 1974, 249 pages, soft cover.

From the Preface: The Hawaiian word PANALA'AU meant a colonist or colonizer.... What is written here is an intimate story of events on five coral islands /Jarvis, Holland, Baker, Canton, & Enderbury/ in the equatorial Pacific ocean during...1935 to 1941, and of the colonizing of these islands for the United States.... Young men who participated in these activities were, at the time, in their early twenties. So great was the impact of these experiences on their lives that they have organized a group known as the HUI PANALA'AU. ...

Some of the chapter headings are as follows: The challenge, The islands, Ships and trips, Jarvis and the AMARANTH, Howland and its airstrip, Baker, the hostile island, A trip to the South Seas, The Swains adventure, Two special cruises of the ROGER B. TANEY, Scientific details about the islands, Who went where and when?

The book is historical and scientific and yet so human; a delightful story of events. For information write to Pacific Scientific Information Center, Bernice P. Bishop Museum, Honolulu, Hawaii 96818. Reference copy available at the general meeting.

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Announcement: 26 April to 12 December 1975 Point Reyes Bird Observatory Natural Excursions

Point Reyes Bird Observatory, a nonprofit research, conservation and educational institution since 1965 offers the following natural excursions to California, Arizona, and Mexico: Birds of the Bay Area, Plants of Point Reyes, Landbirds of the Point Reyes Peninsula, Birds of Southeast Arizona, Natural History of Point Reyes, Transect of California, East of the Sierra, Stanislaus River--Flow of Life, Birds of San Blas, Mexico, and Birds of Durango Highway, Mexico.

For detailed information write to Meryl Stewart, Point Reyes Bird Observatory, P.O. Box 442, Bolinas, California 94924.

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Wildlife Week: "WE CARE ABOUT WILDLIFE HABITAT" is the urgent theme of this year's Wildlife Week from March 16 to 22. Originated and sponsored each year since 1938 by the National Wildlife Federation, an environmental nonprofit organization. Its overall aim is to work for solutions to problems confronting man, wildlife and the environment. From its beginnings, the Federation was founded on the belief that we cannot separate the welfare of wildlife from that of other living things. Through ecology we have learned that having a quality natural environment depends upon maintaining the natural interrelationship existing among all forms of life. In some cases this interrelationship is actually an interdependence. What is good for wildlife is good for man. Wildlife is an indicator of environmental quality. Wildlife cannot remain where soils are washed away, rivers are polluted and forests are destroyed. So long as wildlife remains, man is safe. Wildlife and human life are inseparable. It is necessary to conserve the one to save the other.

Today many wildlife species are not thriving. Man has had a tragic, disproportionate impact on many populations. He has been, and continues to be, terribly destructive.

The Federation also strongly believes that wildlife is valuable as more than just as an indicator of a healthy, natural world. Wildlife is valuable for its own sake. In fact, the Federation believes wildlife is essential to man's well-being. Communing with nature and associating with wild creatures can heighten man's inner spirit. It may be that in observing the freedom of a wild animal, man recognizes his own need for freedom. In this recognition, most humans come to realize their kinship with the wild animals of the earth. Some, too, many come to appreciate that each living thing is dependent on others for survival--that all are part of the same ecological system on this closed spaceship called earth.

Thomas L. Kimball, executive vice president of the Federation said, "All of us who are concerned about the future of wildlife in this country must spread the word that protection of habitat is the key to healthy, abundant wildlife populations. Many wildlife habitats are now trampled by the march of unplanned growth and development."

Hawaii is greatly concerned about wildlife habitats. We need your help. Please KOKUA. For information please call Steve Montgomery, 941-4974. MAHALO

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Help Wanted: A legislative bill, HB 489, has been introduced by Rep. Oliver Lunasco in an attempt to change the duties of the Animal Species Advisory Commission (ASAC). This Commission was appointed in 1970 to advise the State on any proposal for spreading exotic or non-native animals to additional areas in Hawaii. Members are urged to attend the public hearing tentatively scheduled for Saturday March 8 by Rep. Russell Blair, Chairman of the Environmental Protection Committee or send your comments to him at Room 305, State Capitol, Hon.,HI 96813. Call 548-7553 to verify date and time.

The proposed changes would reduce the scope of ASAC's responsibilities and also remove the present requirement for public hearings before animal introductions, such as taking axis deer to the Big Island, are made. Being knowledgeable in fishing, hunting, and wildlife conservation, the scientists and hunters serving on this Advisory Commission are, in the final balance, performing a valuable service to the public; especially, with their studies of the green turtle status, Forestry's exotic tree planting plan, and endangered species management. For legislative information call Ms Hilde Cherry, 949-8349 (afternoon).

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Request for Nesting Information: Audubon members can add a great deal to our records of the nesting activities of both introduced and native species if they will call when they find a nest. Dr. Berger has agreed to coordinate the nest-record program. If you find a nest, please call him at the Department of Zoology, University of Hawaii, telephone 948-8655 or 948-8617. MAHALO NUI LOA for your interest and KOKUA.

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Following members have generously donated to help pay the ever-increasing expenses to achieve our objective to make this a better world: Mrs. Helen L. Morris-$2.00; Dr. & Mrs. William A. Myers-$4.00 and noted, "I think you ought to raise your dues and use the money for educational projects." MAHALO NUI LOA!

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ALOHA to new members:

A. M. Christian, 3211 Loulu St, Honolulu, Hawaii 96822
Mrs. Bertrand Fox, 18 Edgewood Road, Lexington, Mass. 02173 (Reinstated)
Lon Clay Hill, Jr., 1910 Aleo Place, Honolulu, Hawaii 96822
O. P. Ladd, 46-464 Haiku Plantation Drive, Kaneohe, Oahu 96744
Mrs. Maria E. Tseu, 201-B Paiko Drive, Honolulu, Hawaii 96821

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The annual and five-year indexes will be mailed to the members only upon request. If you are interested in receiving either one or both copies of the indexes, please send in your request indicating (1) annual, (2) five-year, or (3) both, before June to Kojima, 725-A 8th Avenue, Honolulu, Hawaii 96816.

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HAWAII'S BIRDS, a field guide, is available for $2.50 postpaid. AIRMAIL 65¢ extra. Send in orders to: Book Order Committee, Hawaii Audubon Society, P.O. Box 5032,Hon.,HI 96814.

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MARCH ACTIVITIES:

9 March - Field trip to St. Louis Heights to study the forest birds. Bring lunch, water, and if possible, your car. Transportation cost ($1.00) to be paid to the drivers. Meet at the State Library on Punchbowl Street at 8:00 a.m. Leader--Mrs. Erika Wilson, telephone 523-1843.

10 March - Board meeting at Kaimuki Library (PLEASE NOTE), 6:45 p.m. Members welcome.

17 March - General meeting at the Waikiki Aquarium Auditorium at 7:30 p.m.
Program: A Naturalist at Large: Whales, Whiptails and Wallabies by Dr. Robert Shallenberger (color slides)

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HAWAII AUDUBON SOCIETY EXECUTIVE BOARD:

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MAILING ADDRESS: P.O. Box 5032, Honolulu, Hawaii 96814 $100.00

DUES FOR 1975 ARE NOW PAYABLE: Regular-$3.00 p.a.,Junior(18 yrs.&under)-$1.00p.a.,Life-/ Members whose dues have not been paid by March 31st will be dropped from the membership roll and THE ELEPAIO mailing list.