

THE ELEPAIO

Journal of the
Hawaii Audubon Society



For the Better Protection
of Wildlife in Hawaii

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MAY 1965

THE HOARY BAT IN HAWAII*

By P. Quentin Tomich

Only one kind of bat occurs in Hawaii, and it is a form of the Hoary Bat (Lasiurus cinereus), found also in North, Central and South America. In general this species is strongly migratory and some individuals stray occasionally as far seaward as the Bermudas and Galapagos Islands. The Hawaiian population is derived from one or more chance arrivals that flew, perhaps with the aid of strong winds, at least 2200 miles from the Americas to colonize Hawaii. These bats were probably established tens of thousands of years ago and in their prolonged isolation they have differentiated slightly from the continental populations. Of the several subspecies, or geographic races of the Hoary Bat, ours is called Lasiurus cinereus semotus. It is smaller than the others and tends to be reddish in color rather than a grizzled pale brown.

Our bat is found principally on Hawaii Island where it is locally common, and on Kauai. Few records have been obtained from the four other main islands of Oahu, Maui, Molokai and Lanai. It is not known if this bat has lost its migratory powers or whether there is regular interchange between Hawaii and Kauai over the stepping-stone islands between.

The Hoary Bat feeds on insects found in flight, by echo location (sonar) of its own vocal pulses reflected from their bodies. It must forage often to maintain its energy, and flies mainly at dusk and into the night. Quite possibly there are nightly cycles of rest and feeding. This species is one of the few bats that is active also occasionally by day, and flight may occur at any hour. Body weight is usually about 14 grams ($\frac{1}{2}$ ounce) but sometimes fat accumulates in the fall, so weight may be as much as 22 grams. This bat is solitary, resting here and there like withered leaves in trees or shrubs. Its ability to store fat suggests hibernation, perhaps in caves, but there is no authentic record of our bat found dormant, or even in wakeful rest, in any cave.

Bats are true mammals, bearing and suckling their young much as does a cat, a shrew, or any other mammal. They are of the Order Chiroptera, and are most closely related to the Order Insectivara (shrews and moles), and are far removed from the Order Rodentia (mice and other rodents).

Adaptation for flight is a remarkable feat for mammals, and only the bats have fully achieved it. The expanded hand retains all five digits. The thumb (pollex) has a strong claw and the four fingers are all much elongated to support the thin flight membrane. The rib cage and collar bone (clavicle) are well developed to anchor the strong chest and shoulder muscles. The tail and legs are also webbed by the flight membrane. Short hind toes bear recurved claws, useful like the

pollex in climbing, and for hanging head downward when the bat rests. The slender calcar at the heel, which supports the edge of the tail membrane, is an elaborate sesamoid bone, not a sixth digit.

January 4, 1965

* A very carefully prepared and mounted skeleton of the Hawaiian bat has been presented to Bishop Museum by Dr. P. Quentin Tomich, Animal Ecologist with the Hawaii State Department of Health at Honokaa, Hawaii, and this has been put on exhibit in the Mammal case in the first gallery of Hawaiian Hall. Dr. Tomich furnished a concise account of this species of bat, to help in the preparation of a label. It is so informative that it is being reproduced here in THE ELEPAIO.

E. H. Bryan, Jr.

NATIONAL PARK FOR KAUAI

Letter to Governor Burns from W.M. Ord, President, February 9, 1965:

On behalf of the Hawaii Audubon Society, I would like to ask for your support in our efforts to gain a National Park for Kauai. We believe that the areas of Kalalau Valley, Na Pali coast, Waimea Canyon, Alakai Swamp and Kokee excluding the present State Park and any adjacent areas to be included within the State Park, can best be set aside for posterity if the management of the mentioned areas is under the jurisdiction of the U.S. National Park Service with the following stipulations:

- a. That controlled hunting be allowed within the National Park in all areas except in places of constant, high visitor activity and the wildlife preserve in the Alakai Swamp mentioned in State Regulation #2.
- b. That fruit picking etc., and fishing be allowed within the boundaries of the proposed park.

The Audubon Society is basically against hunting. However, we do realize the need for controlling pigs and goats, as the damage that they can inflict on the native Hawaiian flora is very apparent, if one visits a place like Haleakala National Park and adjacent forests. Further, by allowing the activities outlined above, we feel that all factions of the State population would benefit and particularly the people of Kauai, since they would not be losing anything but should stand to gain materially from Federal expenditures in opening up presently inaccessible areas and also from increased revenue derived from visitors to the "Garden Isle". Kokee State Park could easily become a recognized overnight stop.

The portion of the Alakai Swamp set aside in State Regulation #2 as a wildlife preserve has to remain inviolate if the intentions of the regulation are "to bear fruit". The native Hawaiian land birds show a long history of not being flexible, when it comes to living with man. They do require virgin, unspoiled native forest if they are to survive, and since the preserve has thirteen living species of native birds in it, which incidentally is six more than any other place in the entire State that I can think of, it deserves preferential treatment. Of these native Hawaiian birds, the family of Honeycreepers is without a doubt the best living example of evolution--far surpassing Darwin's finches of the Galapagos Islands. An intensive scientific study of the Hawaiian Honeycreepers will undoubtedly be undertaken before too long by scientists in search of the answers to evolution in birds.

Until the National Park Service announces its intentions, we hope that the people in favor of a National Park for Kauai can count on your valued support, taking the above points into consideration.

Reply from Governor Burns, March 5, 1965:

Thank you for your letter of February 9, 1965, concerning the establishment of a National Park on Kauai. I appreciate receiving a statement of views from the Hawaii Audubon Society, since these views, together with those from other interested parties, will contribute meaningfully toward the right decision. A widely respected conservation organization such as yours can be of invaluable help in guiding and shaping public understanding in various phases of outdoor recreation and conservation of natural resources.

I notice that your endorsement of a National Park for Kauai contains certain stipulations concerning hunting, fruit picking and fishing. That your society has found it necessary to qualify its endorsement in this manner evidences the fact that you had insufficient information about the proposal to be able to take a position without these qualifications. You will, therefore, I know, appreciate and understand why I feel that a position by the Administration at this time is premature. To date, no proposal for the establishment of a National Park on Kauai has been received from any authoritative source. Until such a proposal is received, and uncertainties such as those which prompted your organization to stipulate conditions, are aired and clarified, I cannot express an opinion regarding the proposal.

Please be assured that at the appropriate time I shall give careful attention and full consideration to all views and all aspects of the problem.

I appreciate your interest and concern in this matter and want to be kept informed of the views and recommendations of the Hawaii Audubon Society.

Warmest personal regards. May the Almighty be with you and yours always.

The article on the proposed national park in THE HONOLULU STAR-BULLETIN, March 20, 1965, pages B1 and B4, is illustrated with a map of Kauai showing the proposed area and a picture of the Secretary of the Interior Udall standing on the rim of Kalalau Valley with a rainbow arching behind him extolling the beauty around him. It is prefaced by a statement that the beautiful Kokee area is not only being eyed for many projects but also already being used by the National Aeronautics and Space Administration for an electronic base from which to track and communicate with manned space capsules as they orbit the earth, and by the Hawaii Air Guard for communications installation. A hydroelectric project, which requires a dam in the Alakai Swamp area, is being proposed; another long-pending project is a road from Kokee down a steep mountain grade to Haena, but the most controversial project is the proposed national park. Fortunately, both pros and cons are presented.

Under the heading, "Proposed National Park's Assets Noted by Wenkam", the following points are given for the national park:

"...A botanist's paradise brightened with rare plants and bird songs heard nowhere else in the world, dramatic variations of weather, geology and plant life occur within the proposed park....It is 20 miles of wilderness bog, including species of grasses, hedges, violets, orchids and many lobelias found nowhere else in the world. Three species of birds--the Kauai creeper, Akialoa, and Nukupuu are found only in Alakai. They persist precariously in constant danger of extinction from environmental alteration and introduction of exotic plants....

"Arriving daily are the tourists, hurrying to see this vast beauty and in ever increasing numbers trampling the fragile plants and palis--now suddenly removed from the protection of inaccessibility by outboard motor, tour bus, and helicopter. Only two improved lookout tour stops provide glimpses of this vast wilderness to the current visitor. The great wilderness is little known by even local residents.

Few trails pierce its boundaries. Terrain and swamp discourage the hunter. Yet the pressure of population is slowly bringing about destructive changes that can only be resisted by a National Park Service program to create on Kauai a wilderness park to preserve this great natural land of Kokee and Napali for all to enjoy...."

Under another heading, "State Supervision Called Best for Lush Kauai Area", Hans W. Hansen vigorously dissents by pointing out the marked differences between state and national park operation.

He agrees with Wenkam that the beauty must be preserved, but he differs as to the best approach to preserve this beauty and the native flora and fauna.

He states that "it is not true that these rare plants and native birds are becoming extinct through the inroads of man's depredation....Prior to 1923, the area was cattle ranch. The forest was despoiled--there was depredation by cattle and goats, not by man. Areas which were then open forest or grassland, or bare hillsides, are now again in native forest. Native birds are far more numerous today than they were in 1923. They have increased since 1935, when I returned to Kauai to live.

"Native birds do have enemies, but man is not one of them. These birds are attacked by rats, especially the Norway....The blackberry is endangering the native forest and thus limiting their food supply. The National Park is making no attempt to control the blackberry at Kilauea or Haleakala, nor will they at Kokee. The only areas where the blackberry is being controlled is in the areas developed by the State Parks System and around the vacation cabins....The State is also experimenting with biological control, the only logical means.

"After the Territory took over, goats were soon under control. Are they under control at Haleakala or Kilauea? They are not!...I object to the manner the National Park Service tries to attain control--through slaughter by Rangers....Dead and wounded goats are left to rot and who know what happens to the maimed? The National Park Service lacks a 'reverence for life.' It is well documented that, in 1963, some 4,000 elk were slaughtered in Yellowstone Park and some 2,300 were maimed and left to fend for themselves. Do we want this in Hawaii? The State controls hunting so that there is no waste. There is now no damage by goats and the hunters enjoy the privilege of testing their stamina and skill with the wily animals.

"Mr. Wenkam says that there are no trails in Kokee and that the National Park Service will make the area more accessible by building them....True, some of the trails, prior to 1963 were overgrown but now the State Forestry Service and Park Service have, with limited funds, opened the trails for hikers. Last summer they were in excellent shape....He infers that the outboard motor and the helicopter are causing depredation and would stop them. He would deprive vacationists the pleasure of visiting the Napali area where, on weekends in summer, hundreds go camping, fishing or hunting. The State provides facilities in Milolii and Nualolo. There is no depredation. The helicopter is performing a wonderful service to the public and also aiding the Island's economy. In a few minutes, the helicopter opens up spectacular canyons, vistas of beauty almost beyond description, to anyone, young or old, and to tourists who have a limited time.

"He says that 'the pressure of population is slowly bringing about destructive changes that can only be resisted by the National Park Service.' What can the National Park Service do that the State cannot do?

"The State has the even greater interest in conservation than the National Park Service who are, in fact, remiss in what is normally considered conservation. They are severely criticized by their associated services, the U.S. Forestry and U.S. Conservation. What the National Park Service wants is a wilderness area where nature takes its course....

"It has also been said publicly that 'hunting would, or could, be permitted.' Again, not 100 per cent true. It would be a violation of National Park policy as set up in their manual. It has been stated that hunting is permitted in Volcano National Park at Kilauea. Yes, it is true but only by those selected by the Service. Hunting and control of hunting is most satisfactory under control of the State.

"Does the public realize that fishing from the shore is prohibited in the Volcano National Park at Kilauea, except to those who, at the time the area was turned over to the Service, had fishing rights? Thus fishing would be prohibited on the Napali Coast.

"Incidentally, I had a quick glimpse of the area proposed for the National Park. It comprises between two-fifths and three-fifths of Kauai, practically all of the non-arable land now owned by the State. Should we give away this heritage to a bureaucratic administrator in Washington?

"I want to preserve Kokee for our people to enjoy without Rangers breathing down their necks. I want to preserve the native flora and fauna.

"In closing, the State has done an excellent job in the Kokee area....Kokee State Park is our park; we participate in its operations. Let us keep it so."

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We welcome comments on this issue. Please forward your notes to Unoyo Kojima, 725-A 8th Avenue, Honolulu, Hawaii, 96816.

The following was presented by W.M. Ord on March 5, 1965, at the joint hearing of the Legislative Committee for Agriculture, Forestry, and Conservation; Committee chairman was Senator Taylor A. Pryor and the other members were Senator Toshio Ansai, Representatives Eureka B. Forbes, John W. Goemans, John C. Lanham, and Akira Sakima:

1. The Audubon Society understands that a total of \$100,000 has been appropriated during the past two years for the improvement of Kanaha Ponds at Kahului, Maui. To date, none of this money has been spent on this project. As it is the last remaining stronghold of the vanishing Hawaiian Stilt, the Audubon Society urges that immediate steps be taken to improve the ponds. It is further our firm belief that the multiple use idea is completely incompatible for the area, since it would provoke the resident birds into flight, and they may then become a hazard.

2. The Audubon Society urges that the necessary funds be appropriated to the Division of Fish and Game, so that a non-game bird biologist can be acquired to study the need for possible bird control, the effects that large populations have in certain areas, and to estimate possible damage and loss caused to fruit growers and farmers by same.

3. The Audubon Society stresses the need for continued control being carried out on the firebush, lantana and blackberry bushes which are growing, rampant in many cases, in the forests of Kauai. Funds utilized on this project could only serve to stimulate the economy on the Garden Isle.

4. The Audubon Society asks that the State of Hawaii appropriate funds to keep the Nene (our official State bird) Propagation program operational at Pohakaloa. An appropriation by the State of Hawaii may help our Congressmen in Washington to get a Federal bill passed. The passage of this bill would then keep the program going for an additional five-year period, after which, the Nene should be able to maintain their position by natural reproduction.

Private citizen groups have been responsible for raising the funds to bring the last three annual air shipments of Nene from England. The birds were then released in Haleakala Crater, Maui.

The mynah was introduced from India by Dr. William Hillebrand in 1865, exactly 100 years ago. Let us celebrate the centennial by devoting the entire August or September issue of THE ELEPAIO to the mynah. We need your help to make this a worthwhile undertaking, so please send in any suggestions or articles on the mynah to the editors.

FOR JUNIOR MEMBERS:

Though this month's bird is commonly called Laysan teal, it is a duck. Peterson's A FIELD GUIDE TO WESTERN BIRDS says that it is regarded by some authorities as an isolated race of mallard.

Munro's BIRDS OF HAWAII describes this bird as follows: It is evidently a descendent of the koloa (Hawaiian duck) but is smaller, being about 16 inches in length; about the same color, differing by having an irregular white ring around the eye. The female is smaller than the male and has less white about the eye. Some of the males have the central feathers of the tail curled up like some of the males of the Hawaiian duck. The downy chicks are darker in color than the chicks of the latter. This duck though strong on its feet is weak on the wing and swims but little. It has difficulty in rising and generally flies only a short distance.

Anne Powlison's article in the ADVERTISER, Sept. 13, 1959, describes the bird as follows: In appearance they look like pretty little duck about 16 inches long with brown bodies streaked with light tan and flecks of black. The heads of the males are of bluish-green color, and their feet are bright orange. Irregular white rings accents the eyes of both of the sexes. At nesting time they make a depression in the wild morning glory vines or on the low beach grass, and line it with down. The eggs number four to a nest and are buff in color. Teal-sized.

Peterson's descriptions are as follows: Male: Dusky with blackish face, white patch around eye. Female: Similar, browner. Nest: A shallow bowl under bush. Eggs (6) pale greenish.

In 1957, two Hawaiian scientists, David Woodside and Richard E. Warner, spent eight days on Laysan Island in a mission aimed at saving the duck from possible annihilation. By special permit from the U.S. Fish and Wildlife Service, they were authorized to take three pairs from the national bird refuge to be propagated in Hawaii. The Service granted the request, because of the possibility of the island being destroyed by a tidal wave or shifting of sand that would wipe out the bird population. This was the first time the birds were taken into captivity from Laysan--the only place in the world where they are found. They estimated there were about 500 to 600 of the ducks on the island, although they were almost extinct in the 1920's. Rabbits devastated the island, and it was estimated that the duck was nearly exterminated. A member of an expedition in 1936 reported finding only 11. THE WORLD OF BIRDS by Fisher and Peterson on page 268 states, "reduced to c.200 after gale in 1963."

The scientists said the birds are quite tame and they had no difficulty approaching them and studying their feeding habits. Unlike other ducks, they feed entirely on insects--moths, caterpillars, and maggots--because of the abundance of bugs in their Laysan habitat. The bird is no bigger than the largest pigeons, brownish with white around the sides of the eye, and the male has a greenish beak.

If you are interested in seeing the duck, go to the Honolulu Zoo, where it is displayed in the marsh bird enclosure.

Letter from Steve West, New Mexico, February 25, 1965:

...I'm interested in all forms of plant and animal life but mostly birds and mammals. I'm going to start trying to get photographs of birds and mammals to make slides. I'm going to set up a blind in our yard where I could get pictures of House Finch, Cedar Waxwing, Myrtle and Audubon Warblers, and Slate-colored, Oregon, and Gray-headed Juncos. This summer I would like to get slides of buteos and their eggs and young....

I collect feathers from birds that have molted them....I have feathers from about 50 species of birds.

I have about 207 birds on my New Mexico list, and about 30 more for birds that I have seen in other states. The last new bird I saw was the Cedar Waxwing. I first saw about 30 of them here in Loving (25 were in our backyard) and I have seen at least one, each day since. There are 8 here today. I have a copy of the bird songs by Roger Tory Peterson here. I played the calls of the accipiters to see if

they flew away when they heard it. They didn't, but an Oregon Junco sure left quickly! I played the warbler songs next and saw both Audubon and Myrtle Warblers, plus one I couldn't identify. It looked like a Pine Warbler, but I want to make sure before I add it, because they are accidental in the west.

Here in Southern New Mexico we have many species that have most of their range in Mexico. When I was in Boy Scouts, I went up before a board of review for my Star rank....They asked me how many species I had found around here. I told them nearly 200. They were really surprised, they had thought only 20 or 30 kinds. Many of those had most of their range in Mexico....A friend of mine in Florida has seen all of the herons, egrets, and bitterns, that have been recorded in the United States. Where he lives Bald Eagles are not too rare....They have been seen here although not too often....

FIELD NOTES:

In February I saw plover with a few black feathers on their breasts, but on March 19, these same birds were about ready to head for Alaska. They were in their breeding plumage. Their breasts were almost completely black; there were few areas of white feathers--around the legs and bills, but they were plump and their backs were gorgeously golden.

Next month's bird is the Bald Eagle, our national bird. Please study about this bird and write to me, so that you can share your experiences with other members.

Unoyo Kojima
725-A 8th Ave, Honolulu, 96816

Field Trip, Palikea Trail,* March 14, 1965.

Eleven members and three visitors participated in the trip along the Palikea Trail, Sunday, March 14.

Pausing at the watercress farm near Pearl Harbor, the group counted 20 ricebirds, 5 mynahs, 3 sparrows and 3 plover and 1 each cattle egret, cardinal and barred dove.

On the road up to Pa Lehua we counted 6 mockingbirds, 5 white-eyes, and 12 Brazilian cardinals.

Once out on the spectacular trail along the ridge, the group spotted some 50 amakihi, 30 bush warblers, 25 leiothrix, 17 apapane, 12 elepaio, 5 cardinals, 1 Chinese thrush and 1 ring-necked pheasant plus numerous white-eyes and linnets.

A member of the group taped birdcalls, as they rose clearly and beautifully from the wooded valleys.

After lunch on a sunny perch with the warm wind bathing one, all returned to the cars for the early afternoon trip back to town.

Louise Hinkley

* Editor's note: Ernest G. Holt called our attention to the fact that Pa Lehua is the name of the residential area and Palikea Trail is the correct name for the trail from Maunakapu to Palikea peak.

READERS' NOTES:

THE SUNDAY STAR-BULLETIN & ADVERTISER, September 13, 1964, page A-19, Voracious Predators may be Feeding on Tantalus Natives--Snails, That is

Yoshio Kondo, Bishop Museum malacologist, said that he would not take a scientific stand on why the native snails, which were plentiful in 1940's, have disappeared from the Tantalus area, but that there is circumstantial evidence that the predatory snails brought here to wipe out the African snails may have included the native snails in their diet.

Clifton J. Davis, State entomologist, said that the predators might eat a collectors item after exhausting their major preference in food. He also states that Tantalus and Makiki were considered two areas most densely populated by the Africans, so starting in 1952 predators were released to concentrate control work on the Tantalus forests.

Three predator snails used were the following: *Gonaxis kibweziensis* and *Gonaxis quadrilateralis* whose taste preferences are the African snail eggs, small Africans, then the common garden snails. They are strictly terrestrial and do not penetrate into forest areas where the native snails live, so these predators are innocent.

Euglandina rosea whose taste preferences are the African snails, others of their own kind, then the garden snails. Davis said that he has seen this predator eat slugs. He noted that the *Euglandina* now are becoming scarce.

Is the native snails' population large enough to overcome this onslaught? Or is Tantalus to be recorded as another "had been" because of men's lack of ecological concern? If you have any information on this subject, please share it with us.

THE SUNDAY STAR-BULLETIN AND ADVERTISER, September 27, 1964, page C-7, Birds Help Anglers Spot Fish Schools by Bruce Carter

"...perhaps you may be interested in the tremendous impact which the bird population of Hawaii has upon the fishermen of Hawaii.

He says that because "...our fish are pelagic surface-feeders for the most part, rarely found in the same area of the open sea twice in succession as they ceaselessly search out the ever-moving bait on which they feed,...in Island waters, virtually all deep-sea fishermen utilize the artificial-lure, fast-trolling, surface-fishing technique, in which we rely upon our ability to cover a wide area to find our fish....As a result, we troll fast, covering as wide an area as possible....There is another advantage to this method...that is that we have allies in the flocks of birds which follow the schools, feeding upon the bait which the predatory fish scare to the surface in their feeding frenzy. By ranging far and wide we have more opportunity of finding the birds and hence the fish.

"A good deep-sea angler makes full use of this situation and is continually searching the sky for telltale bird sign. On many boats, particularly commercial sampans, spotters with powerful glasses will be posted, scanning the horizon.*

"As a matter of fact, a veteran skipper can tell you with almost 100 per cent accuracy what kind of fish will be found beneath a particular type of bird and from the way it is working. The big white gannets with sharp, blue beaks that wheel and dive into the water or grab flying fish out of the air indicate a mahimahi school; small black terns, wheeling and pecking at the surface in huge flocks generally indicate aku; the big, black, slim-winged, fork-tailed frigate birds, which seem to hang motionless in the sky while slowly circling an area, may have either mahimahi or marlin beneath them.

"The ability to search out and read such bird sign is the margin between the successful and unsuccessful fishermen....

"What brought this subject to mind is an unusual phenomenon that has veteran waterfront observers talking to themselves up and down the Waianae coast....There has been a tremendous concentration of bait in waters off Kaena Point in recent weeks, and, as would be expected, bird action in the area has been terrific. But Pokai Bay residents called me Thursday evening that everyone was standing outside their homes in amazement during the late evening as hundreds of thousands of birds flew past, apparently returning to their roosts....

"As I gathered from the reports, thousands of frigate birds were heading inland, apparently going over Kolekole Pass, probably back to nesting grounds on Islands along Oahu's windward coast. On the other hand, smaller birds were flying up the coast towards Barber's Point...as another man termed it, like an army on parade, ten birds in a line, formation after formation for hours on end, for all the world like an endless army on the march. No one could remember ever having seen anything like it before.

"It was an awe-inspiring sight...."

*Editor's Note: "A Trip on a Sampan" by Joseph E. King, THE ELEPAIO, Vol.17, No. 1, July, 1956, page 4: "...the size of the school, the size of fish in the school, and the depth at which they are moving can be pretty accurately judged from the number and behavior of the birds....Certain species of birds behaving in a certain manner spell out a mahi-mahi (Dolphin) school to the experienced fisherman; other behavior may indicate a school of large yellowfin tuna.

"The flocks working over the tuna schools varied in size from 10 to 100 birds and were mainly composed of the Common Noddy and Wedge-tailed Shearwater. In addition there were sometimes a few Hawaiian Noddy, Red-footed Booby and Bulwer's Petrel. Several of the flocks contained 2 or 3 shearwaters which I could not identify with certainty...I felt sure they were one of the Audubon's - Newell's - Dusky complex, I could not pin them down.

"Some of the flocks were accompanied by frigate birds. The albatross usually occurred singly and not directly associated with the other birds...."

The November, 1964, issue of BIOSCIENCE (Hubert Frings' contribution) is specially devoted to pesticide problems. Of all the problems the most serious one is communication. Frank E. Egler in his article, Pesticides in Our Ecosystem: Communication II, states on page 34, "that the major social problem is not to be resolved solely by further efforts to facilitate the communication of sound scientific knowledge. The problem lies in the fact that unsound scientific knowledge has already been communicated, and that certain Social Units, already "saturated" with this unsound knowledge, are not "open" to receiving any further knowledge....The gravity of the Pesticide Problem is not yet fully realized. We get worked up about bird kills, but not enough fighting people care about birds, and song birds have no immediate economic value. We got worked up about the Lower Mississippi fish kills, not because of the fish themselves or the effects on the ecosystem, but because the situation put men out of work. Some day we will have a bang-up good People Kill, not by an "accident", but by following the instructions on the label. Then and only then, I predict, will the general public and the specialist scientists suddenly demand an ecosystem science.

If any of you are aware of the practices of ecosystem science in Hawaii, please share your knowledge with other members by writing to the editors, P.O. Box 5032.

Uncyo Kojima

BIRD FEEDERS IN HAWAII

By W. M. Ord

Probably the best kind of bird feeder to use in Hawaii is the open tray as the feeding can be regulated as to the amount of food the birds can consume each day. Since food is never really difficult to obtain throughout the year, over-feeding artificially tends to deter the birds from living a normal life, such as can be seen in Waikiki restaurants. When this happens, the birds become prone to predation in one form or another.

The feeder should be placed on either a pole or suspended from a branch of a tree. In both cases, it should allow the birds to have a clear view on all sides and not be too close to a building. Otherwise the birds will tend to feed in an overly alert manner and fly off at the least sign of danger.

If there are birds in your area, enticing them into the garden requires little effort, since the seeds alone will soon attract large flocks. There are some areas on Oahu that are very barren when it comes to birds, and if you live in such an area there is very little that can be done to entice them, since the locality is incompatible to their normal needs.

The mixed wild bird seed that can be bought in most stores usually attracts

Barred Doves, Chinese Doves, House Sparrows, House Finches, Brazilian Cardinals and North American Cardinals. Straight sun flower generally eliminates House Sparrows, which tend to gorge themselves on the regular wild bird seed. Half an orange or papaya will occasionally attract White-eyes. In the higher sections of town, the upper valleys and forested ridges, Red-billed Leiothrix, Shama and Chinese Thrush can be induced to come to the fruit. A bird bath can also encourage most species to a garden.

There is very little likelihood of enticing the native birds to a feeder, and of the remaining introduced species they may visit a feeder infrequently.

A note from Mrs. Olga M. Myers, 2958 Pacific Heights, Honolulu, Hawaii, March 29, 1965:

"...On our porch we have a little basket in which we put papaya and papaya seeds for the finches, a grain feeder for finches, sparrows, and cardinals, and a sugar water holder for the mejiros. We would like to know ways of attracting other types. Of course, we also have mynahs and doves...."

If any of you have information on feeders, please write to Kojima, 725-A 8th Ave, Hon.

AUDUBON MAGAZINE, May-June 1964, page 186, Songbird Secrets--II by Ann M. Rockefeller

"Many of us who have been feeding hummingbirds with sugar and water in glass vials must now change our method. Studies have shown that a continuous oversupply of carbohydrates cause a liver ailment in these little birds which may prove fatal. Fill your feeder with one part honey to three parts boiled water (to keep it from fermenting) and your hummingbirds will thrive."

In order to reduce the cost of publication the annual and five-year indexes will be mailed to the members only upon request. If you are interested in receiving either one of the indexes, please send in your request before July to Kojima, 725-A 8th Ave, Hon.

MAY ACTIVITIES:

- May 9 - Field trip to Poamoho if the weather permits. Bring lunch, water, and if possible, your own car. Transportation cost (75¢) to be paid to the drivers. Meet at the Library of Hawaii at 8:00 a.m. Leader: W.M. Ord, telephone: 587-328.
- May 10 - Board meeting at the Honolulu Aquarium Auditorium at 7:30 p.m. Members are always welcome.
- May 17 - General meeting at the Honolulu Aquarium Auditorium at 7:30 p.m. Mr. Jack Thropp, new Director of the Honolulu Zoo, will address the meeting.

HAWAII AUDUBON SOCIETY EXECUTIVE BOARD:

President: W. Michael Ord
 Vice Presidents: Dr. Hubert Frings
 Eugene Kridler
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