THE ELEPAIO

Journal of the
Hawaii Audubon Society

For the Better Protection
of Wildlife in Hawaii

VOLUME 21, NUMBER 4 OCTOBER 1960

# MOVEMENTS AND CONCENTRATIONS OF THE HAWAIIAN COOT ON THE ISLAND OF OAHU[1, 2]

By Miklos D. F. Udvardy

Very little is known about the present status and seasonal movements of the Hawaiian coot (Alae Keokeo), Fulica americana alai Peale, still a common breeding bird of the freshwater marshes, ponds and canals of the main Hawaiian islands. Schwartz and Schwartz, in a publication of 1952 (Schwartz, C.W. & E.R., Auk 69:446), stated that the species is non-migratory and has no obvious seasonal movements. They made no census or estimate of the breeding population on any one of the islands.

Such a census would be difficult to accomplish, since the breeding places of the coot are quite scattered on small ponds, reservoirs and irrigation ditches. There are, however, a few larger pond and marsh areas on Oahu where the coot population shows marked fluctuations; by regular and simultaneous census, the nature of their seasonal and annual movements and fluctuations could easily be revealed.

There were three principal areas of coot concentration on Oahu in 1958/59 [3], as follows: The Kahuku marsh near the northern point of the island; the Kaelepulu marsh, on the west, drastically reduced in size by draining and filling operations during early 1959; and Salt Lake in the south, between Honolulu and Pearl Harbor. Smaller areas of concentration, apparently not equally utilized every year, are Kahana bay and Nuupia ponds on the windward side, Kuapa pond and the Waipahu tidal marshes in the south, and some bigger reservoirs in the interior of the island.

At Kahuku, the reservoir of the irrigation system and the marsh slough near the abandoned airfield had no coots on Oct. 21, Nov. 4,20,27, Dec. 4, 1958 (MDFU) and Jan. 25 (MacClellan, M.W., Elepaio 19:57,1959) and Feb. 20, 1959. On April 21, 1959, there were 80 coots on the reservoir and several adults as well as two broods of downy chicks on the neighbouring irrigation ditches. On May 1, 1959, the reservoir had about 60 coots. The water level of this reservoir is regulated according to the need of the sugar industry and during the winter it contained little or no water. It is significant for the other areas under consideration that the coot left the Kahuku area entirely for the winter, and returned for the spring nesting season, at which time both the ditches and the pond were utilized.

The 300 acre Kaelepulu marsh was almost dry, with water only on some 50 acres, during the early fall of 1958. On August 3 (Pyle, R.L., Elepaio 19:17, 1958), Oct. 7

---

1/ Contribution #138 of the University of Hawaii Marine Laboratory.

2/ These studies were also aided by a grant of the National Research Council of Canada.

3/ All observations, unless a reference is quoted, were made by the present author (MDFU).

and 28, 1958, no coots were in this area. After the pond gradually filled up, coots concentrated here (Oct. 30, 80 birds; Nov. 20 and 27, 350 birds estimated). On Dec. 11 no coots were seen, on Dec. 21, however, A. Stoops (Elepaio 19:48, 1959) recorded 200 birds again, and on January 8, 1959, I counted 155 coots. On April 30, 1959, and consecutive visits I found that the nesting habitat of the coots was mostly destroyed and no birds were seen though possibly some nested in the shelter of the remaining marshy vegetation.

In the past records of this marsh, a sudden increase of coots is shown by the estimation of 200 birds on Dec. 29, 1946 (Delamere, C. et al., Elepaio 7:49, 1947) and over a thousand a few days later (Jan. 4, 1947: Donaghho, W.R., Elepaio 7:55, 1947) and on Feb. 15, 1947 (Kleen, R., Elepaio 7:59, 1947). On April 7, 1947, Schwartz & Schwartz (l.c.) still found the same number of coots.

Salt Lake, a water body with no emergent vegetation, filling a sunken crater of over 200 acres in size, shows the greatest recent concentrations of coots during the winter half of the year. Three series of observations from the literature complement my field notes of 1958/59, and all of these are found in Table I.

Table I: Serial Observations of Coot on Salt Lake, Oahu

| Date | No. of Coots | Reference |
|---|---|---|
| Nov. 13, 1955 | 225 | Wilson, E., Elepaio 16:37, 1956 |
| Dec. 26, 1955 | 108 | Rockafellow, R. et al, Elepaio 16:38, 1956 |
| Jan. 29, 1956 | 42 | Gossard, G., Elepaio 16:52, 1956 |
| Feb. 12, 1956 | 0 | Anon., Elepaio 16:53, 1956 |
| Dec. 22, 1957 | 600 | Hanson, C., Elepaio 18:48, 1958 |
| Jan. 26, 1958 | 1000 | Labrecque, A., Alepaio 18:62, 1958 |
| Nov. 4, 1958 | 200 | MDFU |
| Nov. 15, 1958 | 800+ | " |
| Dec. 9, 1958 | 500+ | " |
| Dec. 21, 1958 | 2002+ | " (Cf. Rockafellow, R., Elepaio 19:47, 1959) |
| Dec. 27, 1959 | 806 | Hanson, C., Elepaio 20:52, 1960 |
| Jan. 10, 1960 | 400+ | Stephenson, F.L., Elepaio 20:66, 1960 |
| May 22, 1960 | 1000 | Mench, M., Elepaio 21:6, 1960 |

The Christmas censuses of the Hawaii Audubon Society (all published in tabulated form in the volumes of Elepaio, therefore no further reference will be given) also indicate substantial annual fluctuation of coots on the two discussed areas as Tables II and III will show.

Table II: Estimated Number of Coots on Kaelepulu, Christmas Counts

| Year | No. | Year | No. | Year | No. |
|---|---|---|---|---|---|
| 1944 | 421 * | 1949 | 486 | 1955 | 91 |
| 1945 | 231 * | 1950 | 628 ** | 1956 | 0 |
| 1946 | 200 * | 1952 | 653 | 1957 | 538 *** |
| 1947 | 105 | 1953 | 0 | 1958 | 200 |
| 1948 | 883 | 1954 | 120 | 1959 | 327 |

*Kalihi and Kauainui areas included
**Kuapa pond included
***Kailua area included

Table III: Estimated Number of Coots on Salt Lake, Christmas Counts

| Year | No. | Year | No. |
|---|---|---|---|
| 1954 | 303 | 1957 | 600 |
| 1955 | 108 | 1958 | 2002 |
| 1956 | 208 | 1959 | 806 |

We see from these tabulations that the 15 annual Christmas censuses at Kaelepulu, and those of six consecutive years at Salt Lake, show violent fluctuations, with an all time peak at Salt Lake in 1958. Where the observations are simultaneous, i.e. from 1954 to 1959, the annual fluctuations are neither coincident, nor complementary. Thus these two winter habitats do not seem to have a common denominator.

Serial observations and the range of the Christmas census results indicate that coot numbers at Kahuku and Kaelepulu fluctuate partly under the influence of the availability of the habitat. This is not the case at Salt Lake which is not a substantial breeding area for the coot to my knowledge, and in which no habitat changes were noted during my period of observations. Salt Lake may have an especially attractive source of food for coots during certain periods of the winter, or else it draws flocks of coots from nesting areas that during the winter are temporarily unsuitable for the birds (such as, e.g. the Kahuku area was during 1958/59).

I have considered the possibility of population exchange between Kaelepulu and Salt Lake. However, the coot population at Kaelepulu had two peaks and three lows during 1958/59, and these coincided with the two peaks and two lows observed at Salt Lake. Therefore an exchange is not likely. My observations at the latter locality were unfortunately not maintained after December 1958, since I did not realize at once the significance of the remarkable build up of the population during the fall.

Summing up, the large winter concentrations seem to mean fairly regular seasonal movements of the Hawaiian coot. They could be brought about by aggregation from scattered habitats, by influx from other islands, or by influx from outside sources.

While movements of coots from island to island were known in the past (G.C. Munro, /Birds of Hawaii, Honolulu, 1944. p. 54/ reports that Niihau coots migrate away when the ponds there dry up), no evidence has as yet been found that the winter concentrations of Oahu result from the influx of birds from the other islands of the Hawaiian archipelago.

The North American coot is a migratory bird in the northern part of its breeding range, and ocean crossings up to 700 miles of distance are known (A.O.U. Check-list of North American Birds, Baltimore, 1957. p. 162). The existence of its Hawaiian subspecies is itself an evidence that coots were able to cross the Pacific between the North American continent and Hawaii. The slight taxonomic differences between the two forms indicate that this crossing happened relatively recently.

It could also be thought that subsequent influx of immigrant coots reinforced the genetic relationships (Cf. also Munro, G.C., Elepaio 3:37, 1943).

A theory of North American influx of coots lacks any evidence for the time being. It should be positively excluded as an explanation of winter concentrations until the more probable alternatives of habitat change or interisland migration have been thoroughly studied and documented.

+++++

LETTER FROM DR. UDVARDY (Excerpt)

"I am now working on the shorebird data of 1958/1959, and awaiting with expectation every Elepaio that brings news about the Kahuku and other marshes. It would also be

interesting to know how the coots on Salt Lake accumulate this year, and when does the coot movement start. Probably when my coot article is read by the Audubon group, enough interest may be raised to get a "coot year" with counts of every 2-3 weeks?"

*****

SOME EFFECTS OF INSECTICIDES ON BIRDS
By Deirdre Webb

(Reprinted from "Victoria Naturalist", May, 1960)

An editorial in a recent issue of the Federation of Ontario Naturalists' "Bulletin" gives a graphic account of exactly how insecticides affect bird life.

Since 1955, Dr. George Wallace of the University of Michigan has headed an investigation to study the change in the bird population in a part of the campus where trees have been sprayed with DDT for Dutch Elm disease. Over the four year period (1955-59), tree-top feeders -- orioles, yellow warblers, and vireos - have disappeared entirely, while chickadees and nuthatches have become very scarce. Also, numerous birds have been picked up either dead or in a dying condition including: robins, blue jays, flickers, grackles, and cowbirds.

Dr. Wallace was particularly interested in the "robin-earthworm" story, although, the poisoning process is similar in other species' food cycles. Briefly, what happens is this: in autumn earthworms eat sprayed leaves which have fallen to the ground; during digestion and assimilation DDT is deposited in the worm's body tissues; robins eat infected worms the following spring, and the DDT is transferred to the bird's tissues where it gradually accumulates, eventually reaching the brain; then convulsions and death invariably follow in a short time. It has been stated that a minimum of eleven worms can kill a healthy robin. But even if they do not absorb a lethal dose, birds usually get enough DDT to render them sterile, for the poison tends to concentrate in the reproductive organs. Of six nests under observation on the sprayed campus, five produced no young at all. Similar reports come from other sprayed areas. With the very great yearly "turnover" of the small passerines, it requires little imagination to visualize what devastation could be wrought, in a very few years, by nesting failure due to this sterility.

Bald eagles are also suffering from the effects of spraying, as revealed by an account in an Ontario newspaper from the town of Brockville on the St. Lawrence River in the region of the Thousand Islands this year: "There is strong evidence to indicate that indiscriminate spraying of insecticides is causing sterility and death in eagles. The late C.L. Broley, known as "the Eagle Man", noted this condition particularly in Florida. The eagles there live almost entirely on fish -- and the fish eat insects which have fallen into the water from the insecticide spraying.

"Mr. Broley discovered that, in the past 20 years the fertility of eagles has dropped to 20% from 75%."

But this is not the whole story. What of the many beneficial insects that are destroyed along with the injurious? And what of the insectivorous amphibians, reptiles, and mammals that may be living in a sprayed area? Insecticides are becoming more potent and more widespread in application every year. Indiscriminately used they will defeat their very purpose; they will reap only a harvest of desolation.

+++++

Excerpt from NATIONAL AUDUBON SOCIETY NEWS AND VIEWS AND LEADER'S CONSERVATION GUIDE
Volume 1, Number 5, June 15, 1960.

THE PESTICIDES COORDINATION BILL, moving forward in strengthened form as H.R.12419, was reported favorably June 9 by the House Committee on Merchant Marine and Fisheries. It is now ready for action on the floor, which means all members of the House may soon

have an opportunity to vote yes or no on this important conservation measure.

Meanwhile there are signs the Senate Committee on Interstate and Foreign Commerce may soon take up similar S.3473. There are also reports of sudden and frantic opposition by Department of Agriculture lobbyists, who probably didn't take this measure seriously at first but who definitely don't want a law requiring them to check with wildlife agencies before starting a chemical spraying program.

If H.R.12419 (or S.3473) becomes law in this Congress -- and it has a good chance -- it will be because expressions of public opinion in favor of the bill outweigh the activity of opposition lobbyists.

*****

## DINNER WITH FRANK RICHARDSON AND JOHN BOWLES

On August 31st members of the Hawaii Audubon Society had the pleasure of entertaining at dinner the two men who have been enduring the wet and cold of Alakai Swamp and other localities in the interior of Kauai this summer to make a survey of the birds living there.

Dr. Frank Richardson, our friend and fellow Audubon Society member, gave us a brief resume of his observations on the native birds of Kauai. With the announcement that he had found the Kauai 'o'o, made some days ago, we were prepared for other good news, and got it. All of the native species which previously had been recorded were there. Some were few in number, but their presence in any number is joyous news.

John Bowles, who made the survey with Dr. Richardson, reported on the introduced birds seen. We will look forward to a full account of their survey soon.

Questions were many, and all of us were keenly interested to learn that native birds were most numerous in an isolated area northeast of Kokee, seldom visited by people and where the native vegetation was least disturbed. Immediately we began to hope that this area could be set aside as a botanical and faunal sanctuary.

There was sad news, too. Feral dogs are becoming more and more of a menace. In one area near Kilauea lighthouse, it is believed that they were responsible for tearing from their nests "a thousand or more" shearwaters. Is it not possible to put them out of their starving misery?

The evening was a happy one in spite of such bad news. Mrs. Richardson and Mrs. Bowles were with us, as were also some new members and a few guests. It was a pleasure to have this chance to renew our old friendship with Frank Richardson. We hope that he can return from the University of Washington, at Seattle, another summer to survey the forest bird life of another Hawaiian island.

Margaret Titcomb

*****

## CALIFORNIA SONGSTERS

What a wonderful opportunity to watch and get acquainted with California's feathered friends a three months' vacation afforded us! The first to greet us upon our arrival in Glendale was the mockingbird with an hour long serenade from 5:30 to 6:30 a.m. each morning, followed by bursts of such exuberant song throughout the day that the performer, enthralled by his vocal accomplishments, would hurl himself several feet into the air and then return to his perch for some more concertizing. He would alight on his frail, slender legs with his long, constantly moving tail high up in the air, on the feeding station defending his rights there against a flock of blue jays, who screamed defiance at him. What personalities these scrub jays have! Contrary to the choosey mockingbird who ate seedless grapes only, they ate whatever was put before

them, and one had the ingenuity to dip a graham cracker, that had dried in the hot southern California sun to a crispness not to his liking, into the bowl of water provided for them. This particular jay also hung bunches of grapes into the branches of the shrub that shaded the station where they fed, to return to it later after he had eaten his fill and fly off with it to parts unknown. Salted peanuts were picked up 1-5 and held in the beak lined up like peas in a pod. It truly was a comical sight. A meek California brown bird, with a patch of rust red on his throat and under his tail, was tolerated by them, and sparrows, of which there were very few compared to our flocks, were permitted to eat the crumbs that fell under the table. Linnets came rarely, but delighted us daily with their sweet songs.

One day a swarm of cedar waxwings alighted on a tall eucalyptus tree causing outcries and consternation among woodpeckers who had prior claim.

Each evening a swarm of clack-clicking blackbirds alighted on the lawn across my sister's home and picked the lawn clean of whatever worms attracted them there. We counted 64 of them one evening.

Beautiful and elusive was the yellow and black oriole that churr-churred in the Carob tree but never stayed long. Every day the precious ruby throated humming bird came to pierce the Hibiscus flowers at the base outside, never inside, of the flower in order to drink the nectar,while swifts sailed through the air, and near the mountains red-tailed hawks permitted the air currents to carry them far afield. The mourning doves, with clearly marked circular spots on the wingtips, hooted their melancholy call, and at Lake Sherwood we saw many coots in the diminishing water of this popular vacation spot.

At the Descanso Gardens we were treated to an amusing sight as a lovely rustbrown and black grosbeak shoved dry leaves aside as a hen does, when scratching for food, churr-churring all the while. As we threaded our way through heavy foliage closer to him, he took alarm and flew into the network of branches of the lovely old oak trees that shaded the walks.

At the Biltmore in Santa Barbara we were delighted in our early morning walks through the lovely grounds by swarms of swallows that sailed exuberantly above us, clinging momentarily to the walls of the buildings only to start off again on their joyful flight. Here also an oriole tried to hide from us in a heavy-leafed tree but his churr-churr and glorious yellow coloring gave him away. Little snowbirds (juncos) refused to pose on the junipers for a photograph; nuthatches climbed trunks of old and beautiful oak trees; red-breasted linnets delighted with song and warning cry; brown-birds kept close to shrubbery for quick escapes; and, of course, sea gulls flew in vast formations, or single file over the high breakers that pounded the shore.

On our train trip up to Salinas we saw snipes, sanderlings, pelicans and sea gulls, and in the fields and hills yellow with wild mustard, red wings were sharply outlined by their shiny black bodies and red shoulder epaulets. On the Seventeen Mile Drive from Monterey to Carmel long strings of cormorants sailed over the waves.

Crested blue jays, noisy woodpeckers, worm-hunting robins, redbreasted linnets filled the woods around the Ahwahnee at Yosemite. Here, too, we were delighted to see a water ouzel perform his amazing antics of fishing for his food by diving into the cool mountain streams.

In our walks in the woods we were charmed again and again by a song so pure and hauntingly sweet that we were determined to find the mysterious performer. It took patience and perseverence, for these elusive songbirds chose the leafy trees rather than the pines and firs. But then we finally detected their slender, delicately tinted light yellow bodies with grey and black markings about their heads. The Ranger told us that we were hearing goldenbreasted or blackheaded grosbeaks. Audubon warblers

also frequent these woods. No matter which of the three they were, we were agreed that this was the loveliest singer of them all.

San Francisco had only gulls, sparrows, pigeons and the Gamble's sparrow with his precious little song to offer, but one lone robin had chosen Union Square in this interesting city to raise a family.

Mary Roberts

++++

## NEWS FROM MAUI
(Abstract)

The rediscovery of the Kauai o'o bird is of great interest. On Maui we are all in hopes of finding some of the supposedly extinct endemic birds. Robert Bruce ... here today, said that a bird he had seen on the slopes of Haleakala about five or six years ago was probably Perkins' Mamo, with its long curved beak. He saw it for some time at the head waters of the Piinaau stream, east of Puu Luau, at about 5000 feet elevation, in one of the most prolific areas of lobelias of the rain forest. He plans another trip at the end of this month with Mr. Bob Carpenter of the Park Service, and again in September, when I hope to go along. I see no reason why Perkins' Mamo should not be on Maui as Molokai and Maui have in the past been so closely interconnected (in fauna).

On July 31st, 1960, while hiking up the trail at about the 3300 ft. level to Puu Kukui on West Maui, I saw for several minutes in the top of an ohia tree (in silhouette, due to the position of the sun) what I am sure must have been an Elepaio. It was about the size of an English Sparrow, or a little smaller, and I had him in the field of my binoculars for some time. The bird had a persistent habit of cocking up its tail like a wren. I didn't think much of it at the time, because I was looking for other birds, but I notice in the Audubon Society's book that it is not supposed to be on Maui, and yet no other bird is mentioned or pictured therein having this habit of cocking it tail. I hope to go into the area again this fall and with others spread ourselves along the trail. I did at this time see my second Leiothrix.

I note also that the Pueo is stated in 1959 as being common only on Kauai. During the past year I have seen this little owl at least four times in daylight, the last time only a month ago near Makawao.

Gerard Wood
Makawao, Maui

---

NOTE: We are grateful for this report of birds seen on Maui, and hope for more such contributions from Maui and other islands. Let us record your finds. We shall always be glad to hear from you.

Margaret Titcomb

+++++

On Sunday, July 31st, Ruth Rockafellow and I had the pleasure of taking F.C. Kinsky, Dominion Museum, Wellington, New Zealand, to see the red-footed booby colony on Ulupau Head. We did not take a count but the colony seemed to us to be as large as in past years and there was no evidence that the birds are being molested in any way at the present time. There were a number of immature and baby birds but we saw no eggs.

Moku Manu was covered with birds, as usual. Through the scope we could see four or five white birds along the shore which we could not identify but thought might be fairy terns.

Near the entrance of the Air Base we saw several Hawaiian terns and one stilt.

Blanche A. Pedley

+++++

Return of the wandering tattler noted at Pearl Harbor middle of August; plover at two spots, on August 24th.

F. L. Stephenson

*****

CATTLE EGRETS: In Natural History for August-September, 1960, there is a fine article about the cattle egret, its progress in America, its behavior, especially during courtship, and surmises as to what will happen when the cattle egret moves into the central plains area. Will they go south "through Mexico, or will they cross the Gulf of Mexico in order to reach a winter habitat?" Numerous beautiful pictures.

Margaret Titcomb

+++++

INFORMATION NEEDED ON CATTLE EGRETS: Your Elepaio editor, Margaret Newman, will appreciate any information as to where Cattle Egrets were seen recently; how many; if nesting or with young. Please send information to P.O. Box 5032, Honolulu 14.

*****

NEW MEMBERS: A hearty welcome to our Society.

Mrs. Mabel R.Becker,614 Kaha St.,Kailua,Oahu,Hawaii
Mr. Milton Manhoff, Kamehameha School for Boys,Kapalama Heights,Honolulu 17,Hawaii
Mr. Charles A. McWayne, Sr.,P.O.Box 122,Honolulu,Hawaii

*****

OCTOBER ACTIVITIES:

FIELD TRIP: UNOYO KOJIMA WILL LEAD THE TRIP.
Oct. 9 - To Poamoho Trail if the weather permits. Meet at the Library of Hawaii at 7:00 a.m.

---

MEETING: Board - - Oct. 10, at 3653 Tantalus Drive at 7:30 p.m. Members are always welcome.

General - Oct. 17, at the Honolulu Aquarium Auditorium at 7:30 p.m. Courtship of the Gooney Bird at Midway*; a movie taken by Stephen Briggs.

* This title does not cover the subject completely. Mr. Briggs, accompanied by Mr. Charles A. McWayne, Sr. made two trips to Midway. The second visit captured the life of the young birds.

Mr. Briggs is an experienced photographer, having done some work for Walt Disney. We look forward to the birds and the opportunity to observe their not very private lives.

*****

HAWAII AUDUBON SOCIETY OFFICERS:

| | | |
|---|---|---|
| President: | Miss Margaret Titcomb | The ELEPAIO: Editors |
| Vice-President: | Mrs. Mary Riggs | Miss Margaret Newman, Editor in Chief |
| Secretary: | Miss Ann Halsted | |
| Treasurer: | Mrs. Blanche A. Pedley | Miss Charlotta Hoskins |
| | | Miss Euphie G.M. Shields |

MAILING ADDRESS: P.O. Box 5032, Honolulu 14, Hawaii

DUES: Regular - $2.00 per annum
Junior (18 years and under) - $1.00 per annum
Life - $50.00