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REPORT ON THE NENE

Dr. William H. Elder, Professor of Zoology at the University of Missouri and an expert on wildlife management, addressed the meeting of the Hawaii Audubon Society on the nene or Hawaiian goose, its biology and problems, giving management suggestions and showing an excellent series of colored slides on August 19, 1957.

In introducing Dr. Elder, Dr. Alexander Spoehr, director of Bishop Museum, complimented Vernon E. Brock, director of Fish and Game with the Territorial Board of Agriculture and Forestry, and Paul L. Breese, director of the Honolulu Zoo, for their practical approach to the study of the nene, especially in urging the employment of a competent expert, such as Dr. Elder, which had led to obtaining a grant from the Guggenheim Foundation, under Bishop Museum auspices.

Dr. Elder stated that he had received a lot of help from a lot of persons. It is strange, he said, that persons, in general, are not concerned about a declining species until it is nearly too late -- witness the Whooping Crane. Values seem to vary inversely with abundance in material things, such as gold and gems, as well as in living and aesthetic things. This holds for things beautiful as well as valuable. If scarcity is the criterion of value, then the nene certainly can qualify.

This species is unique to Hawaii and now to the Big Island alone. It is the official bird of Hawaii, another obligation for its perpetuation. The largest Hawaiian land bird, it is a part of Hawaii and should remain a Hawaiian tradition, not just a memory.

Where has the nene been seen? To answer this question Dr. Elder called attention to a large map of the island of Hawaii on which he had plotted all the localities he had been able to learn about where the nene had been seen. There are over 200 dots.

Although observers were vague concerning exact dates, the records and his own observations indicated that the nesting season is from October to December, and the rearing season from January to April. During the summer they seemed to gather into flocks and make short flights, a parallel to the migration period among mainland birds. He had discovered no new areas for the birds; the localities in which he had observed them corresponding to past sightings. The principal concentration seemed to be between Kilauea and Puu Oo, on the eastern slope of Mauna Loa, and in upland Kona. They seemed to have disappeared from the Puu Waawaa area, where they were formerly numerous, except for a possible remnant on Hualalai.

Reviewing the biology of the nene, Dr. Elder discussed the three seasons just noted. It is curious, he said, that they should nest in winter when days are shortest, if they came to Hawaii from the mainland of North America, where birds nest in the spring when days are increasing in length. It might almost appear that they had come to Hawaii

from the southern hemisphere, where seasons are the reverse. The nearest relatives of the nene seem to be the various varieties of Canada Goose. Later discussion brought out the fact that the smaller Canada geese weigh about the same as the nene (four to five pounds), although larger Canada geese may weigh as much as ten pounds.

In September, Dr. Elder said, the nene return to ancestral breeding grounds, most of them in isolated "kipukas" in rough aa flows. He had seen only one nest, hidden under a fallen koa trunk in a small kipuka, a place where it was least likely to be disturbed. Nene, he said, are vulnerable to pigs, dogs, cats and the mongoose.

The nene do not have to visit ponds or other open water, for they frequent foggy parts of the island. The fog drip can serve as drinking water, and he had seen nene swallow water off their own backs. They seem to have lost most of their interest in open water. This shows itself also in their structure, for half of the web is gone from their feet; an adaptation to walking over rough lava.

The nene is monogamous, only one male and one female making up the family and rearing the young. The female takes care of the nest. The recorded efforts of Mr. McCandless to put one gander with two geese simply wasted the extra females. Usually an egg is laid every other day, until five eggs have been laid in nine days. Then the nest is cared for as long as five weeks, although the incubation period is about 30 days. The female sits on the nest all day long, except for brief periods of feeding. During this time she makes certain stereotyped movements, standing, turning the eggs, and rotating on the nest (comfort movements), very much like those made by the female Canada Goose. Immediately after hatching, the young become mobile, even able to traverse rough aa lava. This makes them even more vulnerable to their enemies.

With David Woodside, Dr. Elder found a nesting area in a tiny kipuka (area not covered by lava in an aa lava flow) in the Bishop Estate land of Keauhou, now leased to C. Brewer and Company. This appeared to be a regular breeding ground. Six pairs of nene with a total of twelve young were found, the pairs having 0, 1, 2, 2, 3 and 4 young. Two groups, one with two, the other three young, were banded, and these later were seen moving about the area. Nesting pairs may not produce a second clutch of eggs in the wild; but in captivity, taking away the first eggs has induced a second laying. This reneesting has much increased the stock in captivity.

Groups of nene were seen to travel together in May. They leave the nesting area and depart for other feeding grounds, just as mainland birds migrate. Watching them cross the belt road has been one way of estimating their numbers. A total of 35 were seen near Puu Oo. Between 25 and 35 use the Keauhou area as a nesting place. There are accounts of remnants of the old Puu Waawaa flocks being seen on Hualalai.

What then are the chief problems of the nene? Why has it declined in number?

In the first place the species is monogamous, as noted above. In the second, it does not breed the first year, and eggs are seldom fertile the second. It may not even produce fertile eggs until the fourth year. Comparisons made with mainland ducks show that one pair of the latter in six years can increase the total number to 1458, whereas one pair of nene, in the same time may result in only twelve, including the original pair.

There are many mortality factors: hunters, dogs, cats, pigs, and mongooses. The nene is not a very "sporting" bird; it is too curious and slow to move. Hunting regulations used to permit their being shot in winter, which now is known to be the breeding season. They are very vulnerable to their enemies, especially during the breeding season.

There is need for a nene "park," such as Peter Scott has provided in England. The Board of Agriculture and Forestry has been fairly successful in breeding the nene at

Pohakuloa, but they have no facilities for their release in the wild. A section of the upper Hilo forest reserve has been set aside for their protection during the summer. The ancient breeding area in the Bishop Estate's land of Keauhou should be set aside as a breeding sanctuary. Here enemies could be kept out by poisoning meat materials, not eaten by the birds.

Protection could be achieved best Dr. Elder thought, by developing the proper public opinion, until persons wouldn't dream of harming a nene any more than people on the mainland would wish to kill a bald eagle. The efforts of Wayne L. Collins to give publicity to the nene through radio and television were highly commended. We must make the people of Hawaii want to keep the nene alive, Dr. Elder said.

The series of pictures which were shown included some of fruits which are eaten by the nene: ohelo berries (Vaccinium), wild strawberries, the fruit of the pilo (Coprosma), the kukaenene (Coprosma ernodeoides), and the pukiawe (Styphelia tameiameia). More generally eaten at mating time are a Cosmos-like composite and the sow thistle or pualele. At this period the droppings of the nene are green.

The nene will pay little attention to intruders in the wild except to be curious about them, but in captivity will fight anyone approaching the nest. In captivity the eggs taken from the nene are given to a Muscovy duck to raise, and later the young follow her around. Instinct, said Dr. Elder, makes them follow the first moving object they see after hatching.

Changes in juvenile plumage were described and illustrated. Young birds get a second covering of down before producing their feathers. This second down develops into the shaft of the feathers, the downy part breaking off. The plumage develops after seven weeks to two months. The bird is able to fly at ten to twelve weeks, but the adult plumage, recognized by a dark ring around the neck, comes much later.

(The foregoing notes by a member of the Audubon Society were read and approved by Dr. Elder.)

Editor's note: We are indebted to Mr. Bryan for these notes.

BIRD OBSERVATIONS IN FIJI AND SAMOA

As furnished to E. H. Bryan, Jr. by Allan R. Keith

Toward the end of June, a young man with a great interest in birds and a considerable knowledge about them, dropped into my office at Bishop Museum. He said his name was Allan R. Keith, of Brockton, Massachusetts, and that he was on his way to spend a few days each on Viti Levu, Fiji; Tutuila, American Samoa; and Upolu, Western Samoa. Did I have any data concerning the birds of these three islands, which he could take with him, to help him identify the birds he saw? I loaned him my copy of Ernst Mayr's "Birds of the Southwest Pacific," (the only comprehensive information readily available) and he went on his way.

On July 17, Mr. Keith returned, with my copy of Mayr, and for good measure handed me a page of notes concerning the birds he had seen. When I suggested that he publish the list, he replied that they were only "off hand" observations; that he had not had time to get into many types of habitat, nor to make detailed studies of the birds in the localities he visited. However, he seemed so sure of the identity of the birds he had observed, and his notes on the relative abundance were so good, that I prevailed upon him to let me summarize his observations for the "Elepaio." The following are the common and scientific names (as given by Mayr) and a brief note concerning each species, arranged under the localities visited by Mr. Keith.

1. VITI LEVU, Fiji, chiefly between Nandi and Korolevu, the southwestern curve of this largest island of Fiji, on June 27, 1957, and again on July 13, 1957.
 - Reef Heron (Demigretta sacra sacra Gmelin), four in the white phase and six in the dark.
 - Fiji Goshawk (Accipiter rufitorques Peale), two specimens only.
 - Malay Turtle Dove (Streptopelia chinensis tigrina Temminck), common. Mr. Keith prefers to call this introduced species the "Chinese Spotted Dove."
 - White-rumped Swiftlet (Collocalia spodiopygia assimilis Stresemann), common.
 - White-collared Kingfisher (Halcyon chloris vitiensis Peale), five seen.
 - Pacific Swallow (Hirundo tahitica subfusca Gould), common.
 - Polynesian Triller (Lalage maculosa pumila Neumann), three of these cuckoo-shrikes.
 - Red-vented Bulbul (Pycnonotus cafer bengalensis Blyth), common.
 - Fiji Warbler (Vitia ruficapilla badiceps Finsch), one seen.
 - Vanikoro Broadbill (Myiagra vanikorensis dorsalis Mayr), five seen in three days.
 - White-breasted Wood-swallow (Artamus leucorhynchus mentalis Jardin), common.
 - Indian Myna (or Mynah) (Acridotheres tristis Linnaeus), common. (Introduced)
 - Orange-breasted Honey-eater (Myzomela jugularis Peale), common.
 - Wattled Honey-eater (Foulehaio carunculata procerior Finsch & Hartlaub), common.
 - Red-headed Parrot-finch (Erythrura cyanovirens pealii Hartlaub), three, many probables.
 - Astrild (Estrilda astrild), about twenty specimens of what may have been this little finch were seen at Korolevu, July 13, 1957. Mr. Keith examined a specimen of the Red-browed Waxbill (Estrilda temporalis) in the Bishop Museum collection, and stated that he did not think this was what he saw. Mayr was not sure which of these two species had been introduced to Viti Levu.
2. TUTUILA Island, American Samoa, June 28 to July 1, 1957 and July 8 to 11, 1957. Mr. Keith said he tramped over much of this island, including climbing to the summit of Mt. Pico ("the Rainmaker") 1717 feet above sea level.
 - Reef Heron (Demigretta sacra sacra Gmelin), five or more.
 - Australian Gray Duck (Anas superciliosa pelewensis Hartlaub & Finsch), three at Aunuu.
 - Banded Rail (Rallus philippensis goodsoni Mathews), one only.
 - Purple Swampphen (Porphyrio porphyrio samoensis Peale), three.
 - White-throated Pigeon (Columba vitiensis castaneiceps Peale), three.
 - Long-tailed New Zealand Cuckoo (Eudynamis taitensis Sparrman), one at Aunuu.
 - Barn Owl (Tyto alba lulu Peale), two at Tafuna.
 - White-rumped Swiftlet (Collocalia spodiopygia spodiopygia Peale), common.
 - White-collared Kingfisher (Halcyon chloris pealei Finsch & Hartlaub), common.
 - Samoan Starling (Aplonis atrifuscus Peale), common.
 - Wattled Honey-eater (Foulehaio carunculata carunculata Gmelin), very common.
 - Cardinal Honey-eater (Myzomela cardinalis nigriventris Peale), common in the
3. At sea between Tutuila and Upolu and offshore from Upolu Island, July 1957.
 - Samoan Storm-petrel (Nesofregetta moestissima Salvin), although Mayr says that it is known "only from a single individual in Samoa," some 30 to 40 birds, all sooty black, seen at close range in a good light, are referable to this species.
 - White-tailed Tropic-bird (Phaethon lepturus Daudin), common.
 - Brown Booby (Sula leucogaster plotus Forster), common. Mr. Keith called it the White-bellied Booby.
 - Masked or Blue-faced Booby (Sula dactylatra personata Gould), thirty or more immature birds; identified on basis of a whitish patch on the back and white upper tail coverts.

White-capped Noddy (Anous tenuirostris minutus Boie), common.
 Fairy or White Tern (Gygis alba candida Gmelin), common.

4. UPOLU Island, Western Samoa, three days, July 2 to 5, 1957. He visited areas immediately east and west of Apia (on the north shore), and crossed the central mountain ridge on the road from Apia to Lefaga Bay.

Banded Rail (Rallus philippensis goodsoni Mathews), four.
 Purple Swamphen (Porphyrio porphyrio samoensis Peale), one only.
 White-throated Pigeon (Columba vitiensis castaneiceps Peale), two.
 Blue-crowned Lory (Vini australis Gmelin), not rare, nine seen.
 White-rumped Swiftlet (Collocalia spodiopygia spodiopygia Peale), common.
 Polynesian Triller (Lalage maculosa maculosa Peale), common.
 Red-vented Bulbul (Pycnonotus cafer bengalensis Blyth), common.
 Samoan Fantail (Rhipidura nebulosa nebulosa Peale), three.
 Samoan Whistler (Pachycephala flavifrons Peale), one only.
 Samoan Starling (Aplonis atrifusca Peale), common.
 Cardinal Honey-eater (Myzomela cardinalis nigriventris Peale), common.

FIELD NOTES:

Field Trip -- First shore bird trip of the season, August 25, 1957.

Led by Charles Hanson, a group of eight members and two visitors from the mainland, Mr. & Mrs. Jim Moody of Carmel, California Audubon Society, made the shore bird trip despite intermittent showers. The first stop was at East Loch, Pearl Harbor where were sighted:

Hawaiian Stilt	1
Pacific Golden Plover ..	3
Wandering Tattler	1
Ruddy Turnstone	1
Kentucky Cardinal	1
Barred Dove	3

At West Loch birding was at its peak and we could only estimate due to the large number of birds. Here is an approximate count:

Hawaiian Coot	250 - 300
Black-crowned Night Heron	12
Hawaiian Stilt	300
Shoveller Duck	2
Pacific Golden Plover ..	250 - 300
Ruddy Turnstone	5 or 6

At the Haleiwa Duck Pond an Hawaiian Gallinule quite close to the road afforded fine viewing for all. There were also another Gallinule and two Hawaiian Coots.

We had again to estimate roughly at the Kahuku Pond as the birds were plentiful in number:

Hawaiian Coot	300 - 400	Pintail Ducks	12
Black-crowned Night Heron	5	Pacific Golden Plover	50
Hawaiian Stilts	15	Wandering Tattler	15
		Ruddy Turnstones	50 or 60
Barred Doves	40		
Ricebirds	Flocks		

One of the Night Herons "posed" obligingly for us, as it looked us over with neck outstretched, while we studied it through the telescope.

After lunching on the beach near the Kahuku Pond the group continued on around the island to Kahana Bay, the last stop made for counting. Here were seen:

Hawaiian Coot 20
Hawaiian Gallinule .. 2

Elizabeth Stephenson

OCTOBER ACTIVITIES:

FIELD TRIPS: October 13 - To Aiea Heights trail. This is one of the few trails near town where the creeper and the Japanese tit were reported for the last Christmas count.

October 27 - To Puuloa Rifle Range, for shore birds. On November 25, 1956, white-fronted goose and greater yellow legs were the rare migrants, and the skylarks were reported seen for the first time from this area.

STARTING POINT FOR EACH TRIP:

Punchbowl Street side of the Library of
Hawaii, at 8:00 a. m.

MEETING: October 21 - At the Aquarium Auditorium at 7:30 p.m. Dr. Harold St. John will talk on "Hawaiian Vegetation and Birds." Slides will be shown.

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