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ECOLOGICAL NOTES ON COMMON BIRDS IN FIJI

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These ecological notes were compiled at the Koronivia Research Station, Fiji, between August 1960 and June 1962. Fifteen species of common birds were studied, 6 introduced and 9 indigenous. Three other common indigenous species, the White-rumped Swiftlet, Collocalia spodiopygia assimilis Stresemann, the Swamp Harrier, Circus approximans approximans Peale, and the Barn Owl, Tyto alba lulu Peale, could not be observed closely. For distribution records and excellent descriptions of birds in Fiji, see Mayr (1945).

In this survey, habitat and food preferences were recorded, as were calls and aggregations. Particular attention was given to competition between species and to the economic importance of those species which eat either seeds or insects. However, few observations were made on diurnal rhythms, nesting behavior, seasonal movements, or mortality factors.

It is hoped that these notes will help fill some gaps in our knowledge of Fijian birds, and encourage further ecological research in Fiji.

ENVIRONMENT

The Koronivia Research Station (K.R.S.) is $10\frac{1}{2}$ miles northeast of Suva on the island of Viti Levu. It encompasses 430 acres at the edge of an alluvial plain formed by the Rewa River and its tributaries. The alluvial portions (150 acres) of the K.R.S. are used primarily for the cultivation of bananas and rice, whereas buildings, trees, lawns, and ornamental gardens are on ridges 30 to 45 feet above the plain. There are some vegetable gardens on the slopes, and pastures are maintained on certain ridges, slopes, and lowlands.

Since the K.R.S. is exposed to the south-east trade winds, rainfall is heavy, averaging 128 inches per year. The mean temperature is 76° F., with a maximum of 93° and a minimum of 59° in an average year. The warmest and wettest months are December through April.

SPECIES

INDIGENOUS

The Orange-breasted Honey-eater, Myzomela jugularis Peale (family Melphagidae), was usually solitary and strongly territorial. Its normal call was a single chirp but, at dawn and dusk during the winter months, it offered challenge cries consisting of several chirps in quick succession. Although the challenges were presented from high branches or wires, Myzomela spent most of its day visiting flowers at lower levels. Diverse blossoms attracted Myzomela, for it was observed on hibiscus, plumeria,

lantana, coconut, and passion flower, as well as various legumes and annuals. At the K.R.S., it frequented the ornamental plantings near buildings on the ridge tops.

Another meliphagid, the Wattled Honey-eater, Foulehaio carunculata procerior Finsch and Hartlaub, was observed singly and in pairs during the summer months but in flocks (10-20) during the winter. Its call, "kikau", inspired its Fijian name but its song is a complex sequence of "tweets" with an attractive thrush-like quality and it was heard to use a harsher sequence when scolding a cat. Like Myzomela, Foulehaio was active all day, although it visited a smaller range of flowers. At the K.R.S. (and elsewhere), it was most common on coconut palms, leguminous trees, and the African Tulip Tree (Spathodea campanulata).

The only parrot (Psittacidae) seen in the wild was the Collared Lory, Phigys solitarius Suckow. The Lory, named "kula" by the Fijians, utters a high-pitched squeak. Flocks of 6 to 12 were seen at the K.R.S. feeding from the flowers of the African Tulip Tree during winter months and from those of the Umbrella Tree (Brassaia actinophylla) in the summer. However, on the islands of Ovalau, Taveuni, and Vanua Levu, Phigys favored coconut blossoms.

The Polynesian Triller, Lalage maculosa pumila Neumann, is a member of the family Campephagidae. A harsh chirp was given by the Triller in flight and during its frequent fights. Pairs were commonly observed on the lower strands of fences at the edge of a field. The Trillers were less often noted in trees and vegetable gardens. They fed on the ground, apparently eating various insects.

The Gray-backed White-eye, Zosterops lateralis flaviceps Peale (Zosteropidae), was usually seen travelling along hibiscus hedges in flocks of 6 to 12. Such flocks were also observed in roadside weeds and leguminous trees. They were active all day, rain or shine, often following the same foraging sequence. More secretive than most of the other common species, the White-eye could be located by its characteristic "mewing" whistle. It ate moth eggs (Prodenia litura or Spodoptera mauritia) and caterpillars (Agonoxena argaula and Sylepta derogata), and has been reported to consume sedentary sucking insects (aphids, scales, and mealybugs), as well as fruits of the "droudrou" tree (Trema amboinensis).

The only common flycatcher (Muscicapidae) at the K.R.S. was the Vanikoro Broadbill, Myiagra vanikorensis dorsalis Mayr, always seen in pairs. They usually caught small insects but one was observed eating a dragonfly. Their sorties were made from low wires and branches, and they rarely returned to the same perch. Their calls were a chirp and a loud whistle, the former apparently being given as a challenge by the male. Like the White-eye, the Broadbill seemed to be a year-round resident and was undiscouraged by rain.

A species in the family Artamidae, the White-breasted Wood-Swallow, Artamus leucorhynchus mentalis Jardine, was seen singly and in pairs on high wires along the main road. It swooped down gracefully from its perch, catching an insect with a loud snap and returning whence it came. The most common prey were dragonflies and bees. Its call could be described as a muted twitter.

The White-collared Kingfisher, Halcyon chloris vitiensis Peale, of the Alcedinidae was the least common of the species under consideration. Usually, a solitary Kingfisher was seen on the same stretch of power line along an entry road every day during the winter months. It presumably spent the early summer months in areas where suitable hollow tree nesting sites were available. Its call has been described (Ward 1940) as "sa sa". Like most tree kingfishers (subfamily Daceloninae), it is reported to eat insects, lizards (Martin 1939) and young birds, including chicks (Parham 1954). One was seen killing a 6" green tree-lizard by bashing it against a branch.

The Red-headed Parrot-Finch, Erythrura cyanovirens pealii Hartlaub, is one of 3 common weaver-finches (family Ploceidae; subfamily Estrildinae) in Fiji. Its song is

a high-pitched trill. Pairs or flocks of 10 to 30 were seen in trees and on lawns, feeding on buds and grass seeds. They often ventured into paddy fields when the rice was at the "milky" stage and have been noted eating sprouting rice in seedbeds. Rats have been recorded (Ward 1940) raiding the nest of the Parrot-Finch.

INTRODUCED

During winter months, the Strawberry Finch, Estrilda amandava L. (confused with other species of Estrilda by Mayr 1945), often occurred in flocks of 25 to 50 in roads, fields, and lawns, feeding on seeds. They apparently roosted in the hills, flying down by 5:30 each morning. Then in the evening, around 5:30 p.m., they returned to the hills, sometimes (September 1961) forming spiralling swarms of several hundred before the return flight. During the summer months, smaller flocks and pairs were seen. The song and calls of the Strawberry Finch are sparrow-like, and, in common with the Parrot-Finch, it eats "milky" rice. It may sometimes be attacked by the mongoose.

The Java Rice Sparrow, Padda oryzivora oryzivora L., occurred in flocks of 5 to 50 during the summer. The flocks frequented lawns and fields, and were apt to raid rice seedbeds in November and December. In the early winter, pairs were seen building nests in various cavities or feeding in dirt roads. This "sparrow" is larger than the other 2 weaver-finches and has a lower twitter.

Another pest of rice was the Malay Turtle Dove, Streptopelia chinensis tigrina Temminck (Columbidae), seen in fields, roads, and seedbeds, usually in pairs or small flocks (5-10). Their calls, "co" repeated up to 3 times followed by a lower "coo", were most frequent between 6 and 7 a.m., at which time the doves were still roosting in trees along the ridges. They were the only common columbid species in the K.R.S. area.

An all too common species at the K.R.S. was the Red-vented Bulbul, Pycnonotus cafer bengalensis Blyth (Pycnonotidae), which has a thrush-like song and various other calls. This bird is considered a major pest on fruit trees and in vegetable gardens, since it eats flowers and ripe fruits, but once it was seen catching a moth (Spodoptera mauritia). It occurred in pairs and flocks of 5 to 50, and apparently nested during December, January, and February. A nest in the lower branches of an avocado tree was destroyed by a cat. The Bulbul, unlike the 4 seed-eating species above, was active during rain.

There are two mynahs (Sturnidae) in Fiji: The House (or Brown) Mynah, Acridotheres tristis L., and the Field (or Gray) Mynah, Aethiopsar fuscus Wagler (long misidentified in Fiji as Acridotheres ginginianus Latham). Although the former is more common near houses, roosting on trees or scavenging in garbage, the species are quite similar. Both have a wide range of whistles and squawks, feed on insects in plowed fields, are suspected of spreading weed seeds, perch on the backs of cows, and attempt to nest in drain pipes during October and November. Flocks usually ranged from 5 to 15, although pairs of Field Mynahs were common and 40 Field Mynahs were seen feeding on a Rice Armyworm (Pseudaletia separata) infestation at the K.R.S. in November 1961. Incidentally, the House Mynah was the only mynah seen in coconut plantations on Vanua Levu and Taveuni, although the Field Mynah was the more common species in similar situations on Ovalau.

To be continued

MOKU MANU

Wednesday, May 2, 1962, was one of the most rewarding days that a person could have. It was on this day that we made a memorable trip to Moku Manu. The trip was organized by Dr. Nixon Wilson, a parasitologist with the Bishop Museum, to collect ectoparasites from sea birds and their nests. The authors went along to photograph birds and to make some notes about their present status.

Moku Manu is actually made up of two separate islands, one about 18 acres in area and the other about 3 acres. It is located about $\frac{3}{4}$ of a mile from Ulupau Head, Oahu. The sea was calm so the Coconut Island boat, Salpa, skippered by Lester Zukeran, let us off about 15 yards from the low, wave-cut ledge along the southwest part of the bigger island. The short swim was remarkably easy as the sea was so calm. Dr. Wilson and several assistants spent the time collecting ectoparasites while others on the expedition swam about observing the many colorful reef fishes. We walked around to the southeast part of the island and climbed up the loose dirt bank. It was in this area, and on the relatively flat top that most of the birds could be seen nesting or roosting. There were a total of 10 species of sea birds on the island with evidence of 9 species breeding. There were also two species of shore birds present in small numbers. These were the Ruddy Turnstone (Arenaria interpres) and the Wandering Tattler (Heteroscelus incanus). The following is a brief discussion of the observations made on the sea birds.

Wedge-tailed Shearwater (Puffinus pacificus): This species is far less numerous here than in comparison to other small islands off Oahu, but they were paired and in their burrows. These burrows were pretty much confined to the southern and eastern slopes. There was no sign that any birds had laid eggs. It thus appears that their breeding cycle is slightly later than was found by Richardson and Fisher (Birds of Moku Manu and Manana Islands off Oahu, Hawaii, Auk, Vol 67, July, 1950). During their studies the egg laying began toward the end of April.

Bulwer's Petrel (Bulweria bulweri): This petrel is present on the island in small numbers and is limited to rocky outcroppings where it is found in deep holes. For this reason it is hard to find. Only one pair was noted. These were together in a crevice on the eastern part of the island but had not laid an egg.

Sooty Tern (Sterna fuscata): This was by far the most numerous bird on Moku Manu. It was present by the thousands. There were quite a few nesting along the southern and eastern slopes, but the largest mass was on the island's top. There were many unhatched eggs, some obviously abandoned, and many young birds--from newly hatched to about four weeks old. It appears that the breeding season seems slightly different than that found by Richardson and Fisher. At the time they were working, they found that the incubating period was generally from November to March, with May being rather late.

Noddy Tern (Anous stolidus): These terns were present in fairly large numbers and primarily on the southeast slope. They seemed to be nesting among the Sooty Terns and boobies in this area. There were also a few on the northern part of the island on the high point, with the Christmas Island Shearwater. There were quite a few young that were several weeks old and many unhatched eggs. According to Richardson and Fisher there were only a few noddies nesting from January through May with the largest numbers starting in the early summer (maximum numbers at this time being 200-300). There seemed to be close to this number during our visit; and many nests were also noted. It would thus appear that the breeding season was started a little earlier than previously noted.

Hawaiian Tern (Anous minutus): There were very few birds of this species present on the island. Their activity seemed confined to the sea cave on the north side of the island and to a few cliff areas nearby. No effort was made to reach the nests to see if young were present, but birds could be seen carrying nesting material in their

bills.

Christmas Island Shearwater (Puffinus nativitatus): About twelve birds were seen along the rocky outcrops toward the north end of the island. Only one bird was found with an egg, and several others were paired. Richardson and Fisher found about fourteen birds, each with an egg in mid-April, 1947. It would appear that in this case the season is slightly later than in previous years.

Red-footed Booby (Sula sula): The nesting cycle was well along with all stages present from egg through small to almost fully fledged young. These birds were nesting primarily on the southeast slope but were found also in other low areas. This species was quite numerous and the breeding cycle seems to correspond with that found in previous years.

Brown Booby (Sula leucogaster): The season was also well along for the Brown Booby, with eggs, small young and almost fully fledged birds present. There were many nests next to the Red-footed booby and also along the northeast slope. The Brown Booby on this island builds much more of a nest than those observed on Lehua Island during a trip in 1960. On the latter island the birds simply laid their eggs in depressions in rocky outcroppings on the high areas of the island.

Gray-backed Tern (Sterna lunata): Only about thirty adults and three young of this species were seen by Richardson and Fisher on May 10, 1947. During the present visit there were enough adult birds flying around and young birds several weeks old to make an estimate of their numbers difficult. The nests seemed to be only on the southeast slopes where some boobies, noddies and sooties were also nesting. No nests of this species were found on the top of the island.

Frigate Bird (Fregata minor): There were large numbers present, both soaring and roosting. Both adults and immature birds were present, but no nests could be found. On one occasion a male was seen to puff out his pouch but only for a few minutes. On several occasions, sitting birds were approached to within a few feet and one male sat resting with his head tucked under a wing. Upon seeing us, he showed little sign of disturbance. These observations correlated very closely with those of other years.

As a final note it might be mentioned that neither the Laysan Albatross (Diomedea immutabilis) that was reported to be nesting in 1947 nor the Blue-faced Booby (Sula dactylatra) that was reported by Hanson to be nesting in June, 1958 (Elepaio, 19:10-11) was observed during the present visit.

John Bowles and Michael Ord

OCCURRENCE OF THE PIN-TAILED WIDOW BIRD

Since the end of June, 1962, two male Pin-tailed Widow Birds, Vidua macroura (Pallas), have consistently been seen on the lawn on the Diamondhead side of the Waikiki Aquarium. They were first brought to my attention by Karl Frogner, a University of Hawaii student who works at the Aquarium. These birds are extremely aggressive to the other birds that are using the same area to feed in. This includes the English Sparrows, Ricebirds, Chinese Doves, Barred Doves and the considerably larger pigeons. Often one of the Widow Birds will fly several yards to attack another bird.

This species of Widow Bird is a native of Africa and is common as a cage bird. Presumably these two have escaped from either a pet store or someone's home. The bird is black above with a white throat and breast and with a white collar. The bill is bright red. The body is about the size of a small sparrow and the long black tail is about 8 inches in length.

For more information see The Parasitic Weaverbirds by Herbert Friedmann, Smithsonian Institute Bulletin 223, 1960.

John Bowles

LETTER FROM NORMAN B. PILLING, 3 Cherry Lane, Westfield, N.J., July 15, 1962.

At the suggestion of Roger Peterson I am sending you this note for possible publication.

An Asiatic Laughing Thrush on Kauai. During a stay of several weeks in Kauai last autumn a young acquaintance, Miss Dorothy Alexander, whose cottage was in a deep shady grove of deciduous trees at an elevation of about 500 feet, reported the continued presence of some unknown birds in the grove.

On October 17, 1961, when we visited her, she was able to whistle them into view and three appeared. They were rather large thrush-like birds which kept well to the top of a large mango tree, but peered down with quiet curiosity. I was able to view them with binoculars from 20 feet below for nearly a minute. They were larger than the Chinese Thrush (*Garrulax canorus*) which was rather common in the vicinity; dark grayish brown above, white tail spots, light below with no apparent spotting or streaking, and with a very conspicuous brown belt across the chest.

After our return Charles Vaurie at the American Museum of Natural History, New York went through the *Garrulax* skins with me and I feel quite sure that *G. pectoralis* was the fellow; nothing else seemed anything like it. It was definitely not *G. albugularis*, which is mentioned by Peterson in the 1961 Hawaiian Section of his Western Field Guide, as occasionally being seen on Kauai.

Mr. Peterson has informed me that he has had no previous report of *G. pectoralis* on any of the Hawaiian Islands. Since this was a sight identification, perhaps others in the Islands would care to attempt a verification. The grove is known as Alexander's Nursery and is located on the north side of Road #58 running inland from Wailua, about $1\frac{1}{2}$ miles east of the Wailua Ranch.

OCTOBER ACTIVITIES:

- October 9 - Board meeting at the Auditorium of the Honolulu Aquarium at 7:30 p.m. Members are always welcome.
- October 14 - Field trip along a mountain trail, led by Mike Ord. Meet at the Library of Hawaii at 8:00 a.m.
- October 15 - General meeting at the Auditorium of the Honolulu Aquarium, 7:30 p.m. Mr. Paul Breese will give an illustrated talk on the "Birds of the Zoo".

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