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*San Isidro del General**Costa Rica*

BIRDS OBSERVED ON ESPIRITU SANTO, NEW HEBRIDES

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ON September 24, 1944, the author landed on Espiritu Santo, the New Hebrides, possibly even a stranger land than the New Caledonia he had just left some several hundred miles closer to Australia. But the birds of the two localities were considerably alike, so the knowledge gained in New Caledonia in the previous five months was of great value.

In the New Hebrides archipelago, Espiritu Santo is the largest island, with 875 square miles. It lies at approximately 15 degrees South Latitude, has a broad flat coastal plain and level plateaus several hundred feet above sea level, and a mountainous range rising to 6,195 feet in the northwestern part. According to 'Pacific World': "The climate is hot and humid throughout the year, more moderate along the coast. The wettest season is from November to May." That book also states that the forest vegetation extends to the beaches, including tropical hardwoods, fig trees, palms and tree ferns. With these facts, especially the "hot and humid," the author thoroughly agrees.

Because this one-man scientific expedition was sponsored by the U. S. Army (although without their knowledge), observations of birds were entirely restricted to the southeastern portion of the island. Likewise, time was limited and although opportunities for study presented themselves at every moment, it seemed, much too often they were neglected because of more important duties. However, work in reconnaissance and trail mapping and training in newly-opened

jungle areas took the author out among the forest birds practically all of his 51 days on the island. Except for one day when watching shorebirds, binoculars were not available for use, but fortunately several bird specimens were secured from hunters and others, all of which were sent to the Milwaukee Public Museum.

The only reference available for this report is Dr. Ernst Mayr's 'Birds of the Southwest Pacific,' published by the Macmillan Company, New York, in 1945. Therein he states: "All literature on birds of the New Hebrides is either strictly technical or refers only to a single species." As this book was not yet available during the period of these field observations, the work was done without reference material in the field. Therefore, more detailed notes on all strange birds were taken, but many valuable facts could have been secured had previous knowledge been available. Mayr's lists of needed ecological and life-history data for South Pacific birds is a valuable feature of his book. They would have inspired much more complete field recording. Besides the evident dearth of knowledge of even common species in this area, some discoveries were not impossible. The Whitney South Sea Expedition of the American Museum of Natural History as recently as 1926 had found a new species of bird, the Thicket Warbler (*Cichlornis whitneyi* Mayr, 1933), in the primeval mountain forest above 2,400 feet on Santo. Birds of new subspecies or those not previously recorded for the area are a challenge to all students in the southwest Pacific.

Of the 54 native land and fresh-water birds listed by Mayr for this region (the New Hebrides and Banks Islands), 48 have been reported from Santo. The author recorded 31 of these and, in addition, two from adjacent islands and two kinds of shorebirds. Peculiarly, neither English Sparrows nor Indian Mynas were seen, but five of a species of introduced *Estrilda*, either the Red-browed Waxbill (*Estrilda temporalis* Latham) or Astrid (*Estrilda astrild* Linnaeus), were noted near Luganville. It should be mentioned here that even with binoculars it is not always possible to distinguish in the field between the three types of swiftlets or the two species of fantail flycatchers and white-eyes. Therefore, except when I was reasonably positive of the exact species, all other observations were attributed to what seemed to be the most common species of these groups, *i. e.*, the Glossy Swiftlet (*Collocalia esculenta uropygialis* Gray), the Collared Fantail (*Rhipidura fuliginosa brenchleyi* Sharpe) and the Yellow White-eye (*Zosterops flavifrons brevicauda* Murphy and Mathews).

Throughout this paper an attempt will be made to record observations especially in regard to the ecological and life-history questions listed by Mayr. As the author lived in a coconut plantation on what might be called the lower plateau, many of the bird records are from that locality. But frequent trips were taken through plantations of cocoa, coffee and coconut palms, mixed with groups of papaya, breadfruit and bananas, and surrounded by a lowland hardwood forest with towering crowns and an understory of smaller trees crowded with hanging vines. In this plantation region it was not uncommon to see acres of dead trees purposely 'ringed' to kill them and dry out the vegetation below preparatory to clearing. Only ten days were spent in what might be called natural jungle forest at an elevation of 750 to 1,000 feet where only trails used by the natives were previously known. Here were huge banyan-like trees with hundreds of roots, clumps of bamboo so thick they were impenetrable, and a sea of vegetation forming a wall on all sides of roads and openings that could be inviting only to a bird or a naturalist. Another type of habitat was visited only occasionally—the grassland and garden openings near the sea beaches. Birds preferring certain of these areas, or restricted to them, will be so noted under four habitat groups, that I will call H1, H2, H3 and H4: (H1) coconut plantations, (H2) lowland mixed plantation and open forest, (H3) higher natural jungle forest and (H4) grassland, beach and cleared roadway.

Most roadways on Santo pass through coconut plantations for miles on end except in inhabited beach areas where there are some grassland clearings. Many roads built recently now pass through native jungle giving the impression of a canyon wall on either side. Out of these dark interiors birds dash to cover on the other side before passing vehicles. These new roads should prove inviting to future scientific expeditions wishing to study the ecology and habits of little-known species of this and other South Pacific islands.

Although the above description of the island of Espiritu Santo and the areas in which these birds were seen seems inadequate, further details will have to be mentioned when necessary in regard to the individual species. I append the more important records for September 24 to November 13, 1944, inclusive, for the southeastern portion of the island and within a radius of twenty-five miles of Luganville, the principal settlement. The two shorebirds observed are listed at the end so as not to interrupt the order of land and fresh-water species. Specific dates will be given only when deemed advisable as on migratory birds or more important observations.

REEF HERON (*Demigretta sacra* Gmelin).—Birds in the gray phase were observed on several occasions. A single bird was seen over the Sarakata River, and at other times in November one or more were noted over high trees near Surundu Bay where it seemed that a rookery could have been located at a point where a stream entered the sea. There was no opportunity to investigate further. No white-phase individuals were noted.

TANNA FRUIT DOVE (*Ptilinopus tannensis* Latham).—Records of this bird could be confused with the similar but smaller Red-bellied Fruit Dove (*Ptilinopus greyii* Bonaparte) which is also found on Santo, but of five birds seen on four different days from October 12 to 17, three certainly were of the larger Tanna Fruit Dove. On October 12, two took off from treetops in a lowland wooded area near the plantations in such a hurry that they broke branches as they flew, giving several loud, piercing call notes at the same time. As they usually flush from treetops in H2 and seem quite wary, they never could be inspected carefully.

PACIFIC PIGEON (*Ducula p. pacifica* Gmelin).—Throughout the period of these field observations, this bird was seen five times in H2 and four times in H3. Seldom were single birds observed, but usually two or three and once four together, and always on the wing, flying above treetop level or through forest openings. Going in a straight line with constant wing beat, they looked sleek in their contrasting gray-black color. Most noticeable in flight was the gray head and neck, while the rest of the body looked darker throughout. A pair of wings believed to have been from this or the White-throated Pigeon (*Columba vitiensis leopoldi* Tristram) were found on the edge of a coconut plantation. Allowing for a body width of six inches, the bird would have a 24-inch wingspread.

RUFOUS-BROWN PHEASANT DOVE (*Macropygia m. mackinlayi* Ramsay).—Seen only three times as single birds flew across the road, startled by passing trucks, but it is impossible to forget their long tail and thrasher-like appearance. In all cases the situation was a roadway through impenetrable substage of thick forest, but somehow this bird would dash across the road at a low level, swoop up into the tangle of vines and branches on the other side, and disappear.

GREEN-WINGED GROUND PIGEON (*Chalcophaps indica sandwichensis* Ramsay).—This was one of the most common birds on the island, evidently favoring native gardens, plantations and open forest habitat. None were seen in H3, even in recently created openings. As this observation period was supposedly during nesting season, it is surprising that no nests were found. The birds were almost always observed as singles and most frequently in H2. They were the favorite prey of hunters and easily taken. In gardens and camp areas where they were not molested, the birds could be approached to within 20 feet. A group of four were seen feeding together on September 25 and a group of three on October 27. A female secured from a hunter on October 12 had six tomato-like seeds and a hard pea-like seed in its stomach.

SANTA CRUZ GROUND DOVE (*Gallucolumba sanctaecrucis* Mayr).—Only one bird was seen that must be attributed to this rare species. It flew across the road in front of a truck in lowland forest and was recognized at once as a new bird, "dark chocolate brown" in color.

COCONUT LORY (*Trichoglossus haematodus massena* Bonaparte).—This was one of the most common birds and was found in every habitat visited. However, in the jungle forest of H3, it was noted only three days of a possible eight. It was most common in coconut plantations and slightly less common in adjacent open

lowland forest. From September 25 to October 29, five flocks were noted averaging five birds to a flock. Birds in twos as if paired were observed about twenty times between September 25 and October 18, and frequently, especially near mid-October, they were chasing each other over the coconut trees amid screams that accentuated their often-repeated piercing cry.

FAN-TAILED CUCKOO (*Cacomantis pyrrhophanus schistaceigularis* Sharpe).—Only twice, October 20 and 29, was this resident cuckoo observed in H2. The first time, it was watched while it sat on the top of a medium-sized tree; rather, it was doing most of the watching for, as with cuckoos elsewhere, it was peering from behind various branches, wary and inquisitive of the nature of the intrusion. In the field it was compared with a thrasher, with "browner underparts," while the white pattern on the tail clearly identified the bird. As was so often the case, other work had to be done and the bird could not be followed or studied.

BARN OWL (*Tyto alba interposita* Mayr).—On September 27, a hunter killed one of these owls near camp in lowland forest, H2, at 3:30 P. M. Later, after much searching among the huge buttresses of what was probably the tall tree, *Elaeocarpus hortensis*, the specimen was found and the skin saved. The bird proved to be a male and had a rat four inches long in its stomach, of which the head was partly digested, while the tip of the tail still protruded from the owl's mouth. One other owl was seen in this same area at twilight on October 12, but this species is undoubtedly more common than the records indicate.

VANIKORO SWIFTLET (*Collocalia v. vanikorensis* Quoy and Gaimard).—Swiftlets all gray or dark with no indication of a white rump or under parts, were so noted and later attributed to this species. They were found hawking for insects in open places of all habitats except the recently created openings in the jungle forest, and proved to be most common near the sea or in lowland forest areas. Often this bird was seen in mixed groups with the Glossy Swiftlet (*Collocalia esculenta uropygialis* Gray), but it was observed to be the highest flyer of all swiftlets here. Mixed groups of as many as forty birds were not uncommon in openings of H2. They are among the most common birds on Santo.

GLOSSY SWIFTLET (*Collocalia esculenta uropygialis* Gray).—This bird was probably the most common in numbers seen on Santo. In H2 it was regularly found mixed with *vanikorensis* as previously stated. In loose groups these birds would swoop down to the tops of bushes to catch insects and then swing higher to miss the tree border of the forest opening. Their numbers would vary from several birds to the usual twenty or more. However, in H3, the newly created openings of the true jungle forest, where huge banyan trees were occasionally left because their roots discouraged even the engineers, was the home of the Glossy Swiftlet. Notes taken October 2 describe them as follows: "Also the common swiftlet—all today were white-bellied and white-rumped and had glossy backs." Other days, however, their color was not as clearly seen, but it is probable that this was the only swiftlet found in that area. Throughout the day, especially in the morning and evening, the air seemed to be full of these birds swooping and gliding over the forest opening, and usual numbers here would exceed fifty birds to twenty acres while hundreds could be counted in a day. This report on the swiftlets would not be complete without the following observation: "On October 12 saw a medium-sized butterfly actually chase, or follow, all the intricate movements of a swiftlet for about 30 yards!"

WHITE-COLLARED KINGFISHER (*Halcyon chloris santoensis* Mayr).—Only 16 of these birds were found on eight different days and always in H2—the lowland forest. None were observed in the true jungle at a higher elevation. These birds were not too common even in their favorite haunts (possibly because of an artificially heavy and indiscriminate hunting pressure), for on October 16, a full day was spent in such habitat without seeing a single one.

MELANESIAN GRAYBIRD (*Coracina caledonica thilenii* Neumann).—This crow-like cuckoo-shrike was seen frequently enough to be called common, and most often in H3 of higher elevation jungle forest. However, singles and twos were observed several times in H2. On four occasions the birds were seen in pairs, and their undulating direct flight was noted. Their whistled call note was very loud and much like the sound of a sergeant's whistle. It was heard throughout the day, even shattering the high-noon silence of the steaming-hot jungle. One was observed while it sat on the very top branches of a high tree in lowland forest while it gave its piercing, whistled call. On October 5 and 6, two birds attributed to this species were seen at fairly close range but without binoculars. On both occasions a white eye-ring was noted in contrast to the otherwise all-dark plumage. This characteristic cannot be accounted for by any description of the bird and must refer to another species or a local attribute.

BROAD-BILLED FLYCATCHER (*Myiagra caledonica marina* Salomonsen).—Although records of this bird indicate that it was recorded only five times, almost always in coconut plantations or open lowland forest near such plantations, it was observed more often and could be considered common locally in this habitat. The male which dominated the coconut trees near camp was frequently seen in early morning on what seemed to be a favorite perch. These birds dart out after insects like a true flycatcher, but more often they were seen nervously investigating the thick crowns of coconut trees about 25 feet up, as if seeking insects. Because of the female's reddish upper breast and throat in contrast to the male's entirely white and black colors, it was always possible to identify the sex. Four males and two females were recorded. One of their calls was a sharp, low note followed by a high note, while the song, although undescribed, was sweet.

BUFF-BELLIED FLYCATCHER (*Neolalage banksiana* Gray).—One adult and an immature of this species were seen on October 18 in the substage of lowland forest near coconut plantations. The birds responded to 'squeaking' and seemed fairly inquisitive. Another bird, which answered this form of invitation in the substage of heavy jungle in H3, met the description of an adult of this species.

GOLDEN WHISTLER (*Pachycephala pectoralis intacta* Sharpe).—About fifteen of these beautiful songsters were heard and seen on ten different days. They were found most commonly in H3, but also frequently in open lowland forest where they favored the substage but also stayed in the higher parts of trees. According to the location of songs in H3, it seemed that they had definite territories. They responded to an imitation of their song with great interest and actually seemed to try to outsing their new rival. The winner was given credit in the record as "a wonderful tireless singer."

SILVER-EARED HONEY-EATER (*Lichmera incana flavotincta* Gray).—This bird is, according to Mayr, common in coconut plantations and garden areas in the central New Hebrides as far north as the island Malekula, which is not far south of Santo, but evidently it had not as yet been reported from here. The writer was very familiar with the song and habits of the subspecies *incana* on New Caledonia, and

therefore the following records of this bird on Santo were not discarded. On September 26 and various other days this bird was the first to sing its beautiful flute-like song at the camp in a coconut plantation. The day before, a fleeting glance at a bird was attributed to this species. The song, however, is so distinctive it could hardly be mistaken. On October 18, in a plantation garden area, the following record was taken: "One larger olive and yellowish bird, larger by far than the white-eyes." Although these data are not positive without a specimen, the writer believes that this honey-eater was at least heard on Santo several times.

YELLOW WHITE-EYE (*Zosterops flavifrons brevicauda* Murphy and Mathews).—All white-eyes observed were assigned to this kind unless clearly of the next species. They were found in all habitats, although not as commonly in the jungle of H3 as in other areas and especially in lowland open forest and plantations. That this is the most numerous bird on Santo is undoubtedly true, for sizeable groups were often seen, and on October 16 they were even listed as numerous. However, unlike experience on New Caledonia, here it was not found that other birds moved with the white-eyes on their feeding expeditions, but the season or other factors may have been responsible for this observation.

GRAY-BACKED WHITE-EYE (*Zosterops lateralis vatensis* Tristram).—On only three days, and always in H2, a total of six of these birds were seen and definitely identified. No doubt others were recorded as Yellow White-eyes because of the difficulty of distinguishing them without binoculars.

PACIFIC GOLDEN PLOVER (*Pluvialis dominica fulva* Gmelin).—This and the following species were found on the same large crop field of several hundred acres in H2. Much of the field had been recently ploughed and planted and there were numerous small wet spots. But although these birds were feeding and resting on the same field, they did not necessarily associate in feeding or in flight when flushed. On October 17, a few were seen, but on the next day, when a count and study was made with binoculars, about fifty birds were recorded. Those birds that seemed in fullest breeding plumage, with black under parts and most golden on the back, were about one to eight others that were much lighter throughout. The largest group consisted of thirty birds which stayed together, but they scattered widely in feeding. When startled, they gave their characteristic cry and flew low to the ground as a loose group for about 100 yards, to alight and feed again. Those in the darkest plumage seemed to stay pretty much to themselves. The last time a few of these birds were seen here was on October 19.

TURNSTONE (*Arenaria interpres* Linnaeus).—A single one was first seen at the crop field described above, on October 16. On the next day about fifty were observed in groups feeding on the ploughed field. When flushed, they gave their usual call note as they quickly organized into a tight group taking off quite high and circling and landing much farther away than did the plovers. On October 18, the last day they were seen, a small flock was watched with binoculars at close range as the birds evidently captured insects between rows of radish plants! All of these birds were in the winter plumage. It should be understood that both this and the foregoing species may have frequented this area both before and after the recorded dates which were limited by circumstances.

Oahu

Hawaii

July 12, 1945