

## NOTES ON THE YELLOW-BREADED SUNBIRD

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**B**ETWEEN February 15 and November 5, 1945, while stationed on Calicoan (a small, sparsely populated coral island at the southern tip of Samar in the Philippines), I made a few observations on the Yellow-breasted Sunbird, *Nectarinia jugularis jugularis*. Since very little has been recorded on the life history and behavior of this species, my data, although fragmentary, may be of value.

One of the most common birds of the island, whose avifauna I am describing in another paper, the Yellow-breasted Sunbird seemed to prefer palm groves that had little or no undergrowth other than scattered bushes or banana plants, but I often saw the sunbirds also at the edge of the forest and sometimes in the dense woods. During the first few months of my stay on the island, before the camp area was cleared for the construction of warehouses, and while our quarters consisted of tents, from 5 to 12 Yellow-breasted Sunbirds could be seen at any time in the very midst of the camp. They were apparently undisturbed by the presence of man and often permitted observation from a distance of only five or six feet. As the work of clearing the vegetation progressed in their preferred habitats, the birds became increasingly scarce until only one or two were seen in a week. Between November 1 and November 5, I saw them in large numbers in the palm areas that had not been cleared around the naval station at Guiuan on the southern tip of Samar about 10 miles from the center of Calicoan.

This sunbird is scarcely four and a half inches in length, short-tailed, and rather drab above (olive-green back and grayish-brown wings). Yet it is conspicuous and easily observed because of the brilliant chrome yellow of the underparts, which extends in the female over the chest, throat, and chin, though in the male these areas are glossy black, iridescent with bluish-green and dark purple. The bill is long, sharply pointed, and decurved; the legs set far back on the body. The flight is rapid and darting, with a quick wing beat.

*Voice.* The call note of the Yellow-breasted Sunbird was an undistinguished *tweet tweet*; in flight the sunbirds twittered like swallows; song, heard only from males, was a sharp clear *cheew-wee tweet tweet tweet tweet tweet*. I heard males singing during the full period that I was on the island.

*Feeding habits.* These sunbirds were particularly active in the center of the foliage of palm trees. An inspection of the yellowish flowering part of felled palms showed the presence of large numbers of diptera and hymenoptera. Small lizards were also much attracted to that

part of the trees. During the morning the sunbirds often fed quite close to the ground in leaves, vines, and low bushes; in the afternoon they were usually in the tops of palms.

*Relations between males.* On February 20, I saw two male sunbirds chattering and chasing each other in rapid darting flight; they then alighted about a foot apart, facing each other, on a low branch near a nest site. Both birds stretched their necks and pointed their bills straight upward, displaying their beautiful iridescent throats. In this position they slowly and stiffly turned their heads from side to side. During this activity, there was a female Yellow-breasted Sunbird quite near, and although the males seemed more interested in each other, they twice interrupted the display to give chase to the female. These activities lasted about 10 minutes, after which the two males flew off, leaving the female to herself. None of these three birds paid any attention to another pair of Yellow-breasted Sunbirds that were not more than 15 feet away during the whole time, nor did that pair pay any attention to them.

On one occasion a pair was in the top of a palm about 60 feet from a nest which had just been destroyed. Whenever a second male attempted to alight in the tree, he was immediately and viciously driven off by the first male.

*Courtship.* I first saw a male chasing a female on February 18. Lighting upon the ground 10 to 20 feet from where I was standing, the female lowered and spread her wings, quivering them and twittering, as juveniles do when begging for food, while the male probed her under tail coverts with his bill. An erratic darting flight followed, after which the birds returned to the same place, the female quivering her wings as the birds clasped bills and "wrestled" with each other. Then the male again began probing her under tail coverts with his bill. No attempt to copulate was apparent. The female flew off, with the male in pursuit. During this flight, which was fast, erratic in direction, and at a low height, the male appeared to be trying to grasp the female by, or under, the tail with his bill. Finally, at a height of about 40 feet, the male appeared to secure a good hold and both birds began tumbling downward, recovering about 3 feet from the ground and about 10 feet from where I was standing. They resumed flight without the male losing his grip and flew about for 6 to 8 seconds before the male let go and both birds dropped to the ground. After more bill-clasping and tail-probing, or biting, by the male, both birds flew off. All of these activities, lasting some 15 minutes, and accompanied by much twittering, took place within an area of approximately 4,000 square feet. The courting pair was apparently unnoticed by another pair which was building a nest 12 feet from where I was standing.

I again observed a sexual chase on March 4. After an exciting rapid chase around and about in a small area, the male flying from 3 to 18 inches directly behind the female, the birds perched quietly in a palm tree paying no attention to each other. Some sort of contact, possibly copulation, between a pair was observed after a similar flight on March 11, following which the male flew off singing.

*Nesting.* I discovered three nests while they were being constructed. Two were about three feet from the ground among the exposed roots of uprooted palm trees about 65 yards from the ocean in a partially cleared area, and the third was about three feet below the level of the ground, where a pit some 15 feet in depth and diameter had been dug in the sand, exposing the roots of a palm tree. This site was 15 feet from the other two nests.

I discovered the first nest about 8:00 a.m. on February 18 while the female was building. During a half hour of observation, the female made four trips to the nest, carrying palm fibers and grasses, as well as what looked like spiderweb strands. Before adding material to the nest she appeared to roll the substance in her bill as though putting saliva on it. At this time the general appearance of the nest was that of a few wind-blown grasses or fibers that had caught in the tangled roots of the tree. The bird approached the nest site from various directions but always lit on the branches of a bush or among the roots some three feet away before going to the nest. During this time the male followed the female very closely, but I did not see him carry any nesting material. After the female had added material to the nest, the male once or twice seemed to inspect the work closely before following her. No construction was in progress when I visited the site during the noon hour, but when I returned at about 4.00 p.m. the female was again at work, making about four trips with material during a half hour's observation. All this time the male was still in attendance. By February 24 the nest still appeared no more than a small clump of wind-blown grasses. On February 25 the nest had begun to take form, and an entrance hole was evident near the center of the side away from the sea. Work was still continuing on February 27, and by March 3 the nest was well-formed and quite similar in construction to that of the Baltimore Oriole (*Icterus galbula*) but was about three times as long and much wispiest near the base, so that in general appearance it was still very like a clump of wind-blown grasses caught in the tree roots. The main structure of the nest was about 6 inches in diameter and about a foot in length. During this time neither bird had a favorite perch; both spent much time in the palms, bushes, tree roots, and on the ground, the male singing intermittently. There were usually other pairs of these sunbirds in the immediate vicinity, paying little attention to each other except when a single male would alight in a tree near a pair, and then the intruder would be driven off by the male of the pair.

On March 3 the nest was dislodged by a bulldozer pushing stumps into a pile around the nest site. I found the nest little damaged on the ground. I hung it in the same place it was before, but although it hung there for several days and a pair of sunbirds frequented the immediate vicinity, I never saw one visit the nest again, and no further work on the nest was ever evident. On March 11 I saw a female carrying nesting material in the vicinity, and on March 18 I discovered the new nest among the roots of the pile of stumps about 12 feet from the location of the former nest. It was nearly complete, with the entrance hole on the opposite side from that of the first nest. This nest was later abandoned, probably because it was adjacent to a truck-parking area, and throughout the day and night trucks were being parked within two feet of the nest.

On February 24 I discovered a nest in the sandy pit. It was nearly completed, and both birds were behaving as those described above. The pair in the pit and the pair found February 18 that built a nest in the stumps were working on their respective nests at the same time. I collected the female of the pair building in the pit about 7:30 a.m. on February 24 while she was working on the nest. Sticky strands of what appeared to be spiderweb about an inch and a half long hung from her bill. (The specimen is in the University of Michigan Museum of Zoology Collection. Eyes, bill, and feet black; ovary much enlarged.) At 12:30 p.m. on February 24 a pair was working on the nest in the pit, the female carrying nesting material to the nest and working on it. At the same time I saw the other pair at the nest in the stumps, so that the new female could not have been the one of that pair. A pair continued to work on the nest in the pit until it was destroyed by filling in the pit on March 3, after which, due to clearing activities, few birds were seen, and none carrying nest material.

Ogilvie Grant and Whitehead (1898. "On the Nests and Eggs of some rare Philippine Birds," *Ibis*, 1898:243) describe the nest of this species as a "neatly-woven pocket-shaped structure, with a roofed entrance at the side. It is composed of fibre, dead grasses, and other forest debris, bound together with spiders' webs, and lined with cotton and fine grass."

*Perches and roosting behavior.* Palm leaves and dead branches of trees or bushes varying from 5 to 40 feet in height from the ground were used as singing perches. Roosting perches were under the leaves of trees or bushes some 15 feet above the ground. As many as 12 or 15 Yellow-breasted Sunbirds would roost in an area of roughly 10,000 square feet. At the approach of evening there was a constant calling and twittering before the birds began to settle down. When it began to get dark, single birds and pairs would drop out of the general activity and alight on a branch within a foot or two of their perch, which they finally reached in two or three hops. After leaving the others to go

to their roost, the birds at first seemed tense and nervous, each spending a full minute or more before finally settling at their chosen spot for the night. The protecting leaves under which they hid motionless were three to five inches above the roosting branch, forming a horizontal roof. The birds usually roosted singly, but a pair was once seen roosting within a foot of each other. Members of a pair would occasionally roost about three feet apart; the male and female of one pair selected different trees, their perches about six feet apart and eight feet from the ground. On March 11 three or four pairs were roosting together, as pairs, in a dense growth of trees or bushes, perching 6 to 15 feet above the ground.

Although on March 16 and 17 I saw flocks of males and females roosting (the individuals fairly close to each other), almost all sunbirds roosting in the same area on March 24 were males. On this later date one male viciously attacked and drove away any bird that came within 20 feet of its perch, and attacked dragonflies and flying bugs that came within 3 to 5 feet. He did not molest a female sunbird only 6 feet away; when it was almost completely dark, the male quickly perched on a twig directly above and only 6 or 8 inches from the female: both birds being directly under leaves, as usual, and perched at a height of 18 to 20 feet from the ground in one of the larger trees in the area and just a few feet above the tops of most of the bushes. On March 26, a pair, presumably the same birds, were roosting on the same perches, with two other male birds roosting alone within 10 feet of them.

The same perches seemed to be used night after night: I saw male or female birds perched in the same place time after time, never a bird of one sex on a perch where I had previously seen a bird of the opposite sex. When the birds had once settled on their roosting perch, they became more reluctant to leave it as darkness increased. I could shoot at them three or four times with gravel in a sling-shot before they would leave; and they would return shortly afterward, dropping very quickly to their former perch or flying directly to it when it was very dark.

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