

SEASONAL BEHAVIOR OF SOME BANDED
GOLDEN-CROWNED SPARROWS

By E. L. SUMNER, Sr.

One of the frequent questions addressed to bird-banders is "do you ever catch the same bird twice?" In the two years and eight months during which I have been trapping in Strawberry Canyon, Berkeley, I have banded 788 Golden-crowned Sparrows (*Zonotrichia coronata*). Of these 788, 406 have been trapped more than once, and the total number of times the 406 have been trapped is 3104. Mr. Michener, in Pasadena, trapped the same mockingbird 299 times in about two years and, while none of my repeats approaches that figure, one of my Golden-crowned sparrows was trapped 82 times in less than sixteen months, and the bird must have been in British Columbia or Alaska, where Golden-crowns spend the breeding season, at least half of that time. My traps are visited three times daily, but were in operation only 252 days during 1931, and 169 days in 1932.

One hundred and forty-three Golden-crowns were banded during the season of 1930-31. Twenty-two of these were recaptured in the season of 1931-32, a little more than 15%. Three hundred and thirty-one were banded during the season of 1931-32. Fourteen returned in the season of 1932-33, a little more than 4%. I do not know why the percentage of returns from the birds banded the first season should have been so much greater than from those banded the second season. The total for the two seasons is 474 banded and 36 recaptured the following season—a percentage of 7.6.

The number of "returns" reported to the Biological Survey is, of course, much greater, as all birds recaptured after an interval of not less than three months are classed as "returns." And large numbers of Golden-crowns which are banded in the fall and early winter do not appear again in my traps until spring. Such birds, possibly, spend the winter months in southern California, and stop for a day or two, or even for a few weeks, in Strawberry Canyon before resuming their trip south. One of them certainly did that, for a bird which I banded on October 21, 1931, and which repeated on November 18, was killed in San Luis Obispo on February 2, 1932. In a few instances birds which were trapped early in the fall or winter were not recaptured until about the same time the following year. Of eighteen Golden-crowns which I banded last October, none has yet been recaptured, with the exception of one which was caught four days after being banded, and which then disappeared. Some of these eighteen may turn up in my traps this fall.

Of the 788 Golden-crowns trapped in Strawberry Canyon, my records show that at least 69 spent all of one or both winters there, and it is probable that many more did, for if they had shifted their winter territory only a few hundred feet, I should not have been likely to trap them; and although the birds appear to spend the winter in the same general location, I frequently catch the same bird in traps as far as 300 yards from each other.

One reason for shifting their territory a short distance appears to be that Golden-crowns desert hills with a southern exposure when warm weather comes, even when cotoneasters and other shrubs are planted there. For this reason, apparently, I have been unable to trap any Golden-crowns at the University poultry research laboratory grounds later than early April, either this year or last. Some of the birds that leave the poultry laboratory grounds are caught a few hundred feet away, among the trees and shrubs at the bottom of the canyon, but I have no record of trapping any of them at a greater distance.

The birds may desert the dry hillsides for the bottom of the canyon because in the latter location more green food is to be had; or they may leave because they do not like hot weather. That heat appears to have an adverse influence upon these sparrows, is shown by some observations made by Dr. Linsdale and myself a year ago. We kept four Golden-crowns in captivity and weighed them three times daily for sixty days. We found that there was a marked correlation between the daily mean temperature and the weights of the birds. Whenever there was a sharp rise in the mean temperature, the weights of all four birds would drop sharply about twenty-four hours later; a decided fall in the mean temperature would be followed by a marked increase in the weights of all four. Two of these birds were males and two were females.

I have frequently taken Golden-crowns trapped on the poultry laboratory grounds and released them at the University botanical gardens, about half a mile up the canyon; and I have brought those trapped at the botanical gardens to the poultry grounds and released them there. In most cases the birds returned promptly to the place where first trapped, but a few remained for some weeks in their new location. One bird which I trapped at 5 p.m. at the poultry grounds, I carried in a cage in the bottom of my closed car, and released shortly before sunset at the botanical gardens. The next morning at eight o'clock I found it back in a trap at the poultry grounds. Did this bird return to the poultry grounds that evening, or did it spend the night at the botanical gardens? And when it left the botanical gardens did it fly high into the air, circle around until it recognized its former territory, or did it fly straight back, guided by some instinct or sense unknown to us?

My son, E. L. Sumner, Jr., has at various times released near my traps in Strawberry Canyon, a total of 65 Golden-crowns which he banded near Menlo Park, about 25 miles south of Berkeley, on the other side of San Francisco Bay. Only three of these have been recaptured by him, and all three were recaptured during the next southward migration. Of these 65, I trapped several a few days after their release in Strawberry Canyon, but only two that remained more than four days. One which he released at the botanical gardens on February 2 of this year, was recaptured by me eight times during the next thirty days, after which it disappeared. Another, which he let go in the canyon in April, 1932, was one of the three which he trapped again near Menlo Park; this one was retaken on October 16 last year, and was released next day in Strawberry Canyon. I recaptured it in November and December, but not since then.

In 1932 I kept 53 Golden-crowns in cages in the Life Sciences Building on the University campus. These birds were trapped from March 1 to April 12. Three escaped on unknown dates and were not trapped again. Twenty-five were released on June 12 and twenty-five on July 22. Both dates are long past the usual time of departure in the spring exodus—the latest date on record for Golden-crowns in California being May 12. Twelve of these birds were released on the University campus, and the remainder in Strawberry Canyon. One of the birds released was trapped the next day close to where it was liberated and has not been trapped since. One, released on July 22, was recaptured in October and has not been trapped since. Five were recaptured in November and then disappeared. One repeated six times in November and once in February. Six repeated at intervals from November to March or April. One, released in June, repeated 47 times in November and ten times in December; it has not been trapped since. One was recaptured only in March and April of this year. Disregarding the bird

which was recaptured the day after being set free, fifteen birds of the fifty, or 30%, repeated. This contrasts favorably with a repeat percentage of 7.6 for the 474 birds banded in 1930-31 and 1931-32.

All of these birds apparently left this part of the country promptly; where did they go? Fifteen repeated at times when Golden-crowns might be expected to repeat. Where did *they* go?—with the others which did not repeat, or elsewhere?

On the afternoon of April 5 of this year, I trapped ten Golden-crowns at the botanical gardens, all of which had been persistent repeaters, and took them next day in my car to southern California. They were released at 5 p.m. in a small wooded canyon near Hollywood. It will be interesting to learn when and where these birds will be recaptured, if they ever are.

It is difficult to estimate the number of Golden-crowned Sparrows inhabiting a given area, but I have made an attempt. During March of this year, I had fifteen traps in operation at the University botanical gardens, which occupy about thirteen acres. In that month I trapped 144 of these birds in the gardens, 54 of them for the first time. Apparently most of these 54 were merely passing through, as only ten of them repeated more than once. From my records it appears likely that on the entire thirteen acres the average number of Golden-crowns present during March was about 60.

Regarding the determination of the age of Golden-crowned Sparrows by their plumage, which was formerly considered a simple matter, my records confirm the conclusions reached by Mailliard (CONDOR, xxx, 1932, p. 69), that "the Golden-crowned Sparrow does not attain fully adult head markings until its third post-juvenal molt." I have trapped several birds of this species in one winter, which I had trapped the previous winter, and which were still in the so-called "immature" plumage, so that they must have been at least eighteen months old at the time they were trapped the second winter.

Berkeley, California, May 1, 1933.