

FURTHER OBSERVATIONS ON THE COSTA HUMMINGBIRD

(WITH THREE PHOTOS)

By ROBERT S. WOODS

THE COSTA Hummingbirds (*Calypte costae*) arrived very early in the San Gabriel Valley this year and seemed more numerous than usual, so an opportunity was afforded to add a few more facts to those set down in these columns last year.

The first adult male was noted at Azusa, California, on March 16, 1923. On March 29, I found a nest being built, of which only the bottom had



Fig. 55. COSTA HUMMINGBIRD ON NEST; AZUSA, APRIL 20, 1923.

been completed. By April 6 one egg had been laid. On April 12 three more nests were discovered, each containing two eggs. All of these nests were in bushes of the *Feijoa sellowiana*, or Paraguay Guava, at heights ranging from two to four feet, the height in every case being approximately one-half of the total height of the bush. The method of placing the nest varied considerably, however. The first one mentioned was rather precariously situated on a nearly vertical branch and tied to a leaf on the other side. After the young had been hatched the nest disappeared, from what cause I do not know. The nest shown in the first illustration was on a small horizontal limb, without bracing, and was tilted and appeared rather insecure before the young had left it. The other nests were firmly placed, especially that shown in figure 56. This hummingbird, contrary to the general rule,

would allow one to approach almost within arm's length before leaving her nest. The exterior of the remaining nest was almost covered with small scraps of paper.

The dense foliage of the orange trees, so much favored for nesting purposes by many other birds, is not to the liking of the Costa Hummingbird, although it obtains most of its food from the orange blossoms at the time the first nests are being built.

As to the period of incubation for hummingbirds in general, I find the following in *The Hummingbirds*, by Robert Ridgway (Report of National Museum, 1890, p. 284): "According to Mr. Gould two broods are produced in a season, the period of incubation occupying 12 to 14, or according to Captain Lyon, 18 days." The last figure seems to be the correct one, at least for the Costa Hummingbird. The hummingbird, then, is a decided ex-



Fig. 56. A WELL-PLACED NEST OF THE COSTA HUMMINGBIRD; AZUSA, APRIL 19, 1923.

ception to the rule that the time of incubation is proportional to the size of the egg.

The egg found on April 6 hatched on April 24. The eggs in the nest of figure 55 hatched six days earlier, and the young left on May 10 and 12. On May 7 I saw a young hummingbird, apparently a Costa, already able to fly well; so it would follow from this that eggs must have been laid well before April first.

The last egg in the four nests was hatched on April 26 or 27. The time spent in the nests by the three sets of young which were successfully raised was in each case 22 or 23 days. In one of these cases (fig. 56) only

one egg was hatched, but as the time required for development was the same, it is evident that the relatively greater supply of nourishment which might be expected to be available for this young bird had no effect in hastening its growth.

The unusually early nesting this year gave time for a second brood, but whether full advantage of this was taken is doubtful, as only two more nests were found, and one of these may have been built by the bird whose family met with disaster.

On May 18 a partly finished nest was noted. The location was rather unusual and apparently ill-considered, being near the end of a slender, drooping branch of an avocado tree, which would be whipped about severe-



Fig. 57. NEST AND EGGS OF COSTA HUMMINGBIRD; AZUSA, MAY 24, 1923.

ly by the wind. The set of two eggs was completed on May 23 (fig. 57), but a few days later only one egg remained, and the nest had been abandoned.

The situation of the remaining nest was much the same except that the branch on which it rested was more rigid, and the nest was more closely surrounded by foliage than any other that I have seen. When first discovered on May 24, it contained two eggs, which were hatched on June 2 and 3. Allowing 18 days for incubation, it may be seen that the only bird which could have been through with her first brood in time to build this nest would be that one whose young was noted on May 7. The owner of the nest also agreed with the mother of the aforementioned young in the exceptionally dark color of the underparts. When the young were half-

grown, the nest gave way on one side, probably having been tilted by further drooping of the branch, allowing one of the young to fall to the ground and perish. First aid in the shape of a string to hold up the end of the twig saved the survivor from danger of meeting a similar fate.

These instances seem to indicate that instinct is not a sufficient guide, but that some individual judgment is required to insure a safe nest. The long time that a Hummingbird's nest is used, as well as its frail construction, of course makes it especially subject to decay and to damage by the elements.

The young bird last mentioned occupied the nest no less than thirty days from time of hatching, and when finally large enough to leave, it was unable to fly, evidently being undernourished or defective in some way. As no other young birds were in evidence during the latter part of the season, I am inclined to believe that a second brood is not normal for the Costa Hummingbird in this locality.

After the orange blossoms were gone, the male Costa Hummingbirds for the most part retired to the adjacent brush land, where the white sage (*Ramona polystachya*), stone-crops (*Dudleya*), Pentstemon (*P. spectabilis*) and scarlet larkspur (*Delphinium cardinale*) provided an abundance of food until July owing to the continued cool weather of the early summer. While most of the adult males left during the month of June, as has been their habit, one remained as late as July 12.

It may be of interest in this connection to compare the two local species of the genus *Calypte* in respect to their so-called "nuptial flight", which as a matter of fact is as often as not directed toward birds of some other sort which they wish to drive away. The nuptial flight of the Anna Hummingbird (*C. anna*) has been well described by Mr. Richard Hunt (Condor, xxii, 1920, p. 109). I have several times this year seen this identical performance enacted. In this case the abrupt utterance at the lowest point of the circuit resembled the sharp bark or chirp of the Ground Squirrel so closely that I was at first deceived by it. The path of the Costa Hummingbird's nuptial flight is nearly circular though irregular at the top, or sometimes U-shaped. The only vocal sound accompanying it is a sustained shrill whistle starting when a considerable velocity has been attained on the downward course and ceasing when the momentum acquired has been expended after sweeping through the wide arc at the bottom.

The flight of the Costa, like that of the Anna Hummingbird, lacks the pronounced metallic or rattling sound which in some degree characterizes the flight of male hummingbirds of the other Californian genera. In localities where the Anna and Costa are the common hummingbirds, the presence of another species may often be first detected by the sound of its flight, while the Costa Hummingbird is announced by the shrill whistling notes of the male, and the Anna by its squeaky song.

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