

ANNA'S HUMMINGBIRD IN ADULT MALE PLUMAGE FEEDS NESTLING

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Little is known concerning the role of male hummingbirds in nest building, incubation, and rearing of the young. Many ornithological writings state that males fail to engage in any of these activities. However, in Ecuador R. T. Moore (Wilson Bull. 59:21, 1947) collected a male Sparkling Violetear (*Colibri coruscans*) that had settled on the nest immediately after the incubating female had been flushed and collected. As I can find no reference to such behavior in North American species of hummingbirds, the following observations of feeding of young by an Anna's Hummingbird (*Calypte anna*) in adult male plumage seem worthy of attention.

My husband and I have a summer home located in Napa County, California, 3 mi. W of Oakville and situated at an elevation of 1100 ft in Douglas fir-oak-madrone forest. At the edge of the patio are two hummingbird feeders which are visited throughout most of the year by resident Anna's Hummingbirds. During the period of observation, the feeders were frequented by at least two birds in adult male plumage, two in adult female plumage, and several immatures.

On 6 June 1970 I discovered an Anna's nest 25-30 ft above the patio in the crotch of a branch of an oak (*Quercus wislizenii*). Using 10 × 40 and 7 × 35 binoculars, I observed the nest and birds sporadically from then until 22 June.

I was first able to see that there were two nestlings on 18 June when two beaks were raised for the food the female brought at intervals. During the following few days the activity of the young became more vigorous, until finally, at 17:00 on 21 June, one left the nest. I watched it flutter on short flights, exercise its wings, and utter a loud constant "peeping" until

19:30, when it took off strongly and disappeared for good. At no time after fledging was this young bird approached by either adult.

On 19 June I had become aware of an Anna's Hummingbird in adult male plumage perched about 12 inches from the nest. The bird's brilliant red crown and gorget were conspicuous. Since the bird was not collected, there remains the remote possibility that it was a female in full male plumage, or perhaps male hormonal drive decreased this late in the Anna's nesting period. In any event, it was a different bird from the one which fed the young throughout most of the nestling time. Mrs. Albert Vollmer, Mrs. Painter Douglass, my husband, and I intermittently noted this bird, on the same perch or within a few feet of it, from then until the first young fledged on 21 June. The tolerance of the female, which left the "male" undisturbed so near the nest, struck us as unusual behavior for a hummingbird.

During the 2.5 hr period between the initial flight and final disappearance of the first fledgling, we watched the male-plumaged bird visit the nest on four occasions, each time feeding the remaining nestling with the typical jabbing technique. I saw the "male" again feeding the nestling the next morning at 05:00, 05:45, and 07:00. There may have been other feedings later that I did not notice. At 11:30 we found the second fledgling, fully feathered, "peeping," but obviously weak and unable to fly, on the brick patio. (With human help it flew off on 26 June.)

The female hummingbird was last seen during the midafternoon of 21 June, shortly before the first young left the nest. Normally the female Anna's continues to feed the young for some time after they have left the nest (Kelly, Condor 57:351, 1955), and the fact that she did not suggests that she had been killed. Her absence might have induced the unusual behavior of the male-plumaged bird, as could have been the case with Moore's observation.

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INFLUENCE OF DISTURBANCES IN THE EARTH'S MAGNETIC FIELD ON RING-BILLED GULL ORIENTATION

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During 1964 I used 60 juvenile Ring-billed Gulls (*Larus delawarensis*) from a colony near Rogers City, Presque Isle County, Michigan, in homing trials (Southern 1967, 1969). These birds were inexperienced in the sense that they had not previously flown beyond the limits of the colony, which is located on a peninsula extending into Lake Huron. The young gulls were considered to be desirable experimental subjects because they had not accumulated experiences associated with landmark recognition during migration and, as a result, their responses during homing trials could be more indicative of their ability to use other types of environmental cues, e.g., the sun. One of the most interesting observations made during these

trials was that young Ring-billed Gulls seemed to possess a significant tendency to head ESE (mean angle, 112°) when released in unfamiliar territory. Such responses were often preceded by prolonged periods of circling or somewhat erratic flight. Selection of these headings was not correlated with direct visibility of solar cues (Southern 1969).

In an attempt during 1964 to investigate further the possible existence of an unlearned directional preference in this species, I conducted a series of orientation cage trials with 294 Ring-billed Gull chicks 2-20 days old. Results from these trials (1969) substantiated both the existence of a southeast preference (mean angle, 163°), and the persistence of the statistically significant tendency during clear, partly cloudy, and overcast skies (mean angles of 169°, 160°, and 160°, respectively).

Since the primary winter range for this population, as determined by band recoveries (Southern 1968), is located in the southeastern United States, this apparently unlearned directional preference is considered to be associated with the location of, and orientation toward, the winter range by young gulls. During 1964 an attempt was made to determine which, if any, environmental stimuli altered the birds' ability