

ALTERNATE CARE OF TWO NESTS IN THE BLACK-CHINNED HUMMINGBIRD

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The report by Nickell (Wilson Bull., 60, 1948:242) of a Ruby-throated Hummingbird (*Archilochus colubris*) taking alternate care of two nests, one with eggs and the other with young, recalls to mind similar activity which I observed on the part of two females of the Black-chinned Hummingbird (*Archilochus alexandri*) in 1943.

The area where these observations were made was one of suburban homes and gardens in Pasadena, Los Angeles County, California, at the edge of the mesa oak-grassland association at an altitude of 670 feet on the alluvial fan about two miles from the base of the San Gabriel Mountains. A 60 by 100-foot lot, on which our home was located, had two medium-sized mesa oaks (*Quercus engelmannii*) on it, as did the lot next to the west and the two lots next to the east (see fig. 30). Flowers grown about the houses on all four lots were visited by either or both of the nesting female hummingbirds observed. Although it was not determined precisely where the defended boundary, if any, lay between the territories of the two females, it seemed that the sphere of activity of one of them was from our lot westward and of the other from our lot eastward. These two females are referred to subsequently as W and E, respectively, and their various nests and broods by the same letters followed by numbers.

Identification of both W and E as distinct from the Anna Hummingbird (*Calypte anna*) was made by close observation of plumage and size differences, and as distinct from both the Anna and the Costa Hummingbird (*Calypte costae*) by the type of nests built. All nests of the Black-chinned Hummingbirds were composed only of plant down and spider web and lacked the external decoration with bits of lichen or dried leaves which seems to be characteristic of the two California species of *Calypte*. Anna Hummingbirds are scarce in summer in the area studied, and I recorded Costas no closer than the foothills two miles away.

In 1943 the first male Black-chinned Hummingbird was seen near this area on April 2, and nuptial flights were noted occasionally from then until at least May 20. Females were in the general area by late April, but were not definitely identified in the immediate vicinity of our yard until May 5, when the first nest was located. No male Black-chins were seen in our yard or those of our neighbors at any time during the subsequent nesting period, although one was seen in the oak area of northwestern Arcadia about one-fourth mile east of our house on May 31 and June 16.

The first nest (W1), discovered on May 5 by watching W go to it, was in a small avocado tree (see fig. 30). Incubation was apparently in progress. On May 28 the nest held small young. This brood probably came off successfully, although the young were not seen or heard in the vicinity afterward as would be expected. At any rate, also on June 6, our neighbors at 3801 reported a newly occupied hummingbird nest (W2) in vines on their front porch about 40 feet from the location of W1. I examined W2 on several subsequent dates and found it to be a typical Black-chin's nest and presumed that it was built by W since the female occupying it fed over the same area.

On July 7, W was feeding young in W2 and alternately building a new nest (W3) in the oak over the fence between 3801 and 3807. She performed building, foraging and feeding of young intermittently and in irregular sequence. The two young in W2 flew on July 14 according to an occupant at 3801, and on July 16 I found W incubating two eggs in W3. Two young birds (presumably those from W2) were in the oak tree above

W3 giving the high squeaky food call and being fed by W during irregular periods off of the nest. This process went on until at least July 27 or 28, some 13 or 14 days after the young had left the nest.

The eggs in W3 hatched about July 29 or 30 and the young were seen being fed until they left the nest on August 19 and 20 (one each day), after about 20 to 22 days in the nest. The one smaller young sat on the dilapidated nest all night on the 19th. Once when the female came to feed them, she went first to the one in the tree above the nest as it squeaked loudly, fed it for about 15 seconds and then came slowly down to the nest and fed the young on the edge. As she approached, the latter gave only one short squeak and dropped feces at the same time. Young hummingbirds, probably the same ones, were still heard occasionally at the end of August and once on September 11.

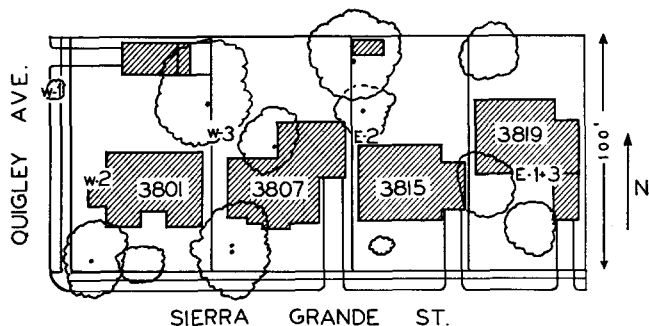


Fig. 30. Map of four suburban lots in Pasadena with locations of nests of Black-chinned Hummingbirds.

On May 28, the same date that W had young in her nest W1, the first nest was found in the other territory which I have designated as E's. It was on a slender stem of an ivy growing over the front door and under the canopy of a narrow porch at 3819. This nest (E1) held one well-grown young and another was in the tree nearby, both of them being fed by E according to occupants at 3819. The second young bird flew on May 31.

On June 6, the same date as the discovery of the change from nest W1 to W2 on the part of W, still another Black-chin's nest, newly constructed, was found among the leaves of a low branch of an oak in the rear of 3815. This nest (E2) was later found to have been most likely constructed by E at about the time her first brood was taking wing. Incubation was begun about June 7 or 8 in E2. Then, for several days, about June 10 to 12, E was feeding at least one young in the tree top and intermittently incubating the new clutch of eggs in E2. Several times I saw her leave the nest, feed about the flowers in the yard and then, without having been out of my sight, fly up into the other oak about 20 feet away and proceed to regurgitate food into the young hummingbird which was sitting there. After this she returned to incubate the eggs in E2 either with or without again feeding at the flowers. This process was repeated many times. The periods on the nest, as noted in the course of scattered observations from June 10 to 12, were about 2 minutes in duration and those off the nest somewhat shorter. No further feeding of the young bird in the tree was noticed after June 12, this being some 13 days after the last young one had left nest E1.

The assumption that nests E1 and E2 were actually constructed by the same female is admittedly based on circumstantial evidence, as indeed is likewise the case regarding W1 and W2. Evidence additional to the mere timing and location within the same territory of the successive nests was afforded by the actions of E. While feeding the young in the trees near nest E2 she foraged over the same flower beds in the front yard of 3819

as she had while feeding the young in E1 on May 28. She also frequented the same perching spot on the same wire along the east boundary of lot 3819. Further, and still circumstantial, evidence is provided by the events which followed.

Incubation continued at E2 after the disappearance of the young from the trees overhead. The eggs in E2 apparently hatched about June 21 or 22. E was seen feeding two small young (then several days old) in nest E2 on June 26. Then on June 28 or 29 the occupant at 3819 noted a female hummingbird back at nest E1 in vines over the doorway; and on July 2 this bird had laid two eggs and was incubating! On this date, not seeing any activity around nest E2, the occupant at 3815 investigated and found the two young dead. We deduced that the female had deserted, although for what reason and whether before or after the death of the young is unknown. The one resuming operations at nest E1 (now E3) was undoubtedly the same individual, as she used the same perches for bill wiping and fed in the same area as when she was feeding young in this nest from May 28 to 31. Two young later left the third nest successfully.

Other observations of alternate nest care by female Black-chinned Hummingbirds in the foothills at Monrovia, California, are reported by J. J. Parsons (News from the Bird Banders, 9, 1934:45; 10, 1935:3-4, 10). One female was observed to care for two broods at once, her own first brood out of the nest and a younger foster brood placed in the same nest by the observer, and also to incubate eggs in another nest during the same period. Although the eggs of the later nest did not hatch in the first instance of such "triple-brood" care, they did in a similar instance in July, 1935 (Parsons, *op. cit.*).

Still another instance of a female hummingbird (presumably *Archilochus alexandri*) incubating eggs in one nest and feeding young in another is described in a newspaper article accompanied by a photograph in the Los Angeles Times of June 5, 1945. The factual content of that article was confirmed in a letter from Mr. Howard Rath, Jr., San Marino, California, sent to Dr. F. A. Pitelka. Mr. Rath states, in addition, that the two nests were located three feet apart in an oak tree and that only one of the two eggs in the second nest hatched.

In Pasadena in 1943 one of the hummingbirds observed was seen actually building the later nest in one instance (W3) during the last week her previous brood was in the nest. Building apparently took place at about this time in the other instances I observed also, with the laying and beginning of the incubation of the eggs in the new nests taking place 2 to 7 days after the earlier brood flew (except for the deserted nest E2). Timing of the overlapped nestings reported by Parsons corresponds closely with this schedule except for the foster young interposed by him.

The desertion of the Pasadena brood E2 by E could be supposed to have been due to a new series of stimuli bringing about responses of egg-laying and incubation before the young in E2 were ready to fly. However, in the report on *Archilochus colubris* by Nickell (*loc. cit.*) the overlap in timing of the two nests was about as great as in this case (E2 to E3), but desertion did not occur. Neither did desertion take place in the case reported by Rath nor in the two instances reported by Parsons where foster young were fed in one nest and eggs incubated during the same period in another. The distance between nests E2 and E3 was about 75 feet, far greater than in the other instances cited, and it may have been a factor leading to the desertion.

It is apparent, then, that alternate care of two nests with young in one and eggs in the other, or of young out of an earlier nest plus incubation of eggs in a later nest, may occur fairly frequently in the Black-chinned Hummingbird and that the timing of such overlapped nestings varies. If the overlap is great, the survival of both broods involved is apparently jeopardized by the redoubled activity necessary on the part of the female parent, but some of these nestings at least are successful.

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