HAND RAISED HUMMINGBIRDS

(The author wrote the following article after working with hummingbirds as an employee of the San Francisco Zoo, during 1971-72. It was subsequently published in Aviculture Magazine in late 1972. She no longer works with hummingbirds, having left California in 1973 to take a position in the midwest; however, the activities described were rewarding and fascinating, and a degree of success was achieved – thus she hopes that it will be possible some day to obtain permits and resume research on long-term maintenance and observation of hummingbirds.)

by Beverly Rongren
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I have hand-raised several North American hummingbird chicks and maintained them through the first year; some to the threshold of adult plumage, others through the molt into the fully adult condition. There is much of interest to relate in both situations.

The "hero" of my story is a male Black-chinned hummingbird *Archilochus alexandri;* a species native to western United States. This particular bird hatched in a garden at Bakersfield, Ca. Other immatures have been maintained simultaneously–also native Californians; *Selasphorus sasin* the Allen's hummingbird, and *Calypte anna.*

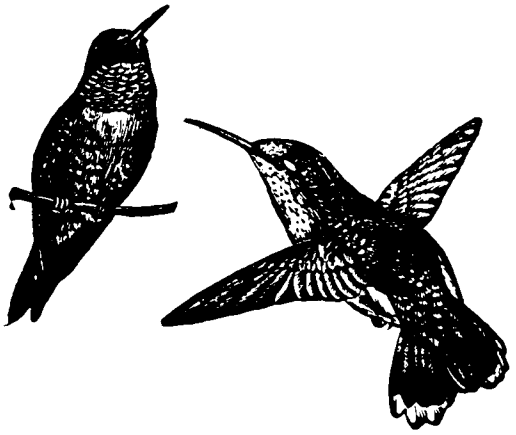
The *A. alexandri* eggs were first sighted by the resident homeowner on 25th April 1971; one hatched on 30th April 1971, the other on 2nd May 1971. Bakersfield had heavy rainstorms on the 4th, 6th and 10th of May; and the mother bird disappeared as of 14th May. The resident then began to feed, using a commercial product with 27% protein and some vitamins and minerals, which is designed as an outdoor supplement for wild birds, not as a maintenance diet. The homeowner did not contact San Francisco Zoo at this time and was unaware of more complete formulas. She did not bring the nestlings indoors, but spoonfed them in their nest in the garden from 15th through to 29th May. She believes she fed about once per hour, sometimes oftener. The elder chick began to flutter and exercise its wings on the 29th and at that point the nest was brought indoors. By 3rd June, this chick was self-feeding and flying, but the younger gaped for food for an additional 12 days and did not leave the nest for three days more thereafter. In observations on North American hummingbirds, the normal nestling stage appears to be 3–4 weeks; this male chick spent nearly six weeks in his nest. Greenwalt believes nestling stage varies with adequacy of nutrition, and this observation tends to support that view.

Five days after "Alex" had abandoned his nest, the resident brought both fledlings to the San Francisco Zoo; she feared they could not "make it" in the wild, and I'm certain she was right. Alex had, during his extended spoonfeeding days, become encrusted with syrupy slop. Once flying and perching, he had diligently preened all offending feathers completely out; thus was bare-breasted as a go-go dancer from chin to "navel" (had he one!!). Bright pink tender, irritated flesh could also be seen across his upper shoulders and on the back of his skull. Our veterinarian thought perhaps the base skin had been damaged and questioned whether feathers would ever regrow. I proceeded to feed the two on a formula with higher protein percentage, and took them home to my already thriving colony of *S. sasin* homeless chicks. Fruit flies were there, available as a dietary supplement.

On 15th July (3½ weeks later) Alex's pink flesh began to look dotted and grainy; only a few short days later, new feathers were in place and unfurled. These were iridescent violet in colour across the neck area; the adult gorget feathers of the Black-chinned hummingbird male. Within a week, he was engaged in aerial displays typical of his species. If caged, he would demonstrate in front of the adjacent bird; a short, shallow, shuttling arc, with a loud wingsnap at each direction change. When free flying in the room, he executed the same maneuvers, increasing or decreasing the arc length at his own whim. Simultaneously, he began to use territorial vocalizations. He was extremely aggressive for many weeks, demonstrating in front of all other birds, three poodles, and one human observer! He monopolized the air space and dominated three immature *sasin* males, except during periods of time when they were sprouting an iridescent gorget feather. (I saw much evidence of hormonal linkage which must exist between iridescent feather growth, vocalization, and aerial display. Dominance patterns shifted throughout the fall months as one bird, then another, grew a feather.) The Allen boys did not complete their gorget feathers then; that was to occur during April-May, and took a full two months. Alex completed his first year moult ahead of the Allen chicks–during the first two weeks of March. Transformation was rapid; within the 14 day period, his pearly grey immature head feathers were replaced by the adult male black ones. His iridescent necklace did not appear to moult–having grown in out-of-phase due to the early feather loss.

Territorial vocalizations and aerial displays diminished greatly in the period December-February, although these did not disappear entirely. I believe the intense activity of September-October relates to hormonal activity in the first year male, which has been documented in other species, as for example in Rufous-sided Towhees, where the number of Leydig cells in the testes corresponds to singing behavior and an increase in number of cells and in fall singing has been found in immature males (Davis 1958). A further interesting observation is that during the winter (and at present) the most dominant, aggressive bird has been the *alexandri* female.

Turning to the problem of distinguishing between females and immature males; in all the three species under my observation, behavior and vocalization can be valuable clues. The *alexandri* nestmates proved to be male-female, though I had no absolute proof until after the Spring



72 moult. Although Alex was identified as male during July 71, normally his violet necklace would not have been completed until spring. However, his nestmate was never observed performing a "shuttle-arc", although she does give an identical territorial call. After completing her moult, she looks just as she did during the first year, substantiating my belief of her femininity based on behavior observation. With *S. sasin* (four chicks from three nests raised to free flying stage); three were male as evidenced by (a) occasional sprouting of an iridescent gorget feather (orange in this species) during their first summer-fall, and (b) territorial acrobatics and vocalizations. The one *S. sasin* chick believed to be female did not display, and unlike the female *alexandri,* she did not utilize a territorial "song", only a "chip-chip-chip" warning sound. Another indicator of sex may have been the aggressive Alex's persistent attempts to court her, which unsought attentions may have hastened her death from exhaustion at six months of age.

How does one distinguish between female or immature *A. alexandri* and *Calypte anna* individuals? Both are pearly-grey with slightly iridescent backs and shoulders (green). If size is not a sufficient clue *(C. anna* tends to be larger and stockier) voice is. Tonal quality and rhythm of both territorial calls and in-flight chipperings are easily distinguishable to those attuned to hummingbird voice. Similarity of territorial vocalizations point to common background and close recent relationships between these genera, while distinguishable differences in rhythm and tone are suggestive of species recognition releasers in sympatric species. *C. anna* has a sweeter, more bell like tone in its "chip-chip-chip"; and the territorial challenge has a ringing, chortling quality.

Tail wagging in flight is equally pronounced in *alexandri* and *anna;* less noticeable in *sasin* which appears to have a faster wing beat and less fluttery flight style. Tail action varies with speed, however.

The "wine" when disturbed at night is common to all three species; it can be a most piteous, alarming sound—when first I picked up a bird from its perch in the dark I nearly dropped it at the sudden and unexpected heart-stopping wail. But the chick clung to my hand (no attempt to fly in the dark) and allowed itself to be placed in a cage for safe keeping. Within a short time, each Blackchin had learned to expect my finger lightly touching its chest in the dark, and would dutifully climb aboard to be carried away to a cage perch —locked in for the hours I was at work; thus assured an ample and unchallenged food supply each day. The Allen chicks never became that tame. All my chicks when in good health would be instantly alert whenever a light was turned on. Exceptions to this were rare and explainable. One, a flightless invalid, as he began to fail, spent longer and longer periods in torpor; once a healthy chick, found in torpor when I came home at night, was found to have somehow been shorted in food supply that day—with insufficient fuel, he was conserving his energy.

At this date, I no longer cage the two remaining in my care (male and female *alexandri)*—their "aviary" consists of my bedroom-bath, with perching branches supplied in vases; sometimes fuchsias from the garden; always open-doored cages with several containers of food; fruit flies.

Bathing varies on an individual basis. The female *alexandri* bathes at least once daily; the male rarely. First bathtub; my cupped hands in the sink. Later they took to using the dogs' water bowl—I hastily bought them a parrakeet bathtub, which seems to suit them admirably. I have raised only one *C. anna* chick, and it did not bathe during the few weeks I kept it. Had I retained the bird longer, perhaps it would have developed the habit. The Allen's chicks varied in their use of water. One would wash continually in a tiny food cup filled with water, others used my hands and/or the bathtub mentioned.

At present, I am wondering if the male-female *alexandri* will breed in my bedroom, or if space is sufficiently cramped that his modified aerial displays will fail to trigger her recognition and acceptance. It seems as if I shall have to wait another year, however, since these birds were separated during the crucial spring breeding months and currently appear to be disinterested in mating. Both are adamantly territorial regarding food supplies.

REFERENCES

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