THE NOMENCLATURE AND HABITS OF THE BLACK-THROATED COPPER-TAILED HUMMINGBIRD

WITH ONE ILLUSTRATION

By ROBERT T. MOORE

The finding of the first nest of the Black-throated Copper-tailed Hummingbird was mentioned briefly by the author in a previous article (Auk, vol. 51, 1934, p. 145). The collecting on Mt. Chimborazo in central Ecuador of a series of intergrades between true *Metallura primolina* and this form (hitherto usually recognized as a full species, *Metallura atrigularis*) makes it necessary to assert their conspecific relationship. Hartert has suggested this relationship but did not have material to prove it. Since the publication of the above-mentioned paper a search of the literature indicates that practically nothing is known of the habits of *atrigularis*. It is deemed desirable, therefore, to give now, in connection with the discussion of the proposed change in the nomenclature, a full account of our experiences with this hummingbird during the reconnaissance of the Sangay region of southeastern Ecuador in 1929.

The recorded history of the Black-throated Copper-tail seems to be confined to a few brief references in technical papers. It was discovered by O. T. Baron in the hills about Sigsig, near Cuenca, in southern Ecuador in or before 1893, and described as *Metallura atrigularis* by Salvin (Bull. Brit. Orn. Club, vol. 1, 1893, p. 49). The topotypical series was deposited in the Rothschild Museum at Tring, England, and with the type came to the American Museum of Natural History at the time of the transfer of the Rothschild Collection. In 1918 Cory (Field Mus. Nat. Hist. Publ. 197, Zool. Ser. 8, Pt. II, p. 268) gave the range as "Southern Ecuador" and that of its congener, true *primolina* as "Northern Ecuador." The next important record of *atrigularis* seems to be the taking of three males by the expeditions of the American Museum in August, 1920 (Chapman, Bull. Amer. Mus. Nat. Hist., vol. 55, 1926, pp. 20, 317) all secured at Taraguacocha, about fifty miles from the type locality. Chapman confirms the geographical range as given by Cory, and restricts the habitat to the Temperate Zone. No other representatives of this form seem to have been obtained until our expedition of 1929 secured them in Temperate-Zone valleys at an elevation from 10,000 to 13,000 feet on the northern margin of the ash canyons of Mt. Sangay, Ecuador, not more than fifty miles east of the type locality.

In July and August of that year we found Black-throated Copper-tails locally common in two mountain basins just below the Paramo Zone, one known as Culebrillas Valley and the other without a name, which we called El Dorado Valley from the name "El Dorado," employed by Carlos Olalla, our Quichau collector, for this hummingbird. This was six miles from Culebrillas Valley across an intervening mountain. Many specimens were secured at Culebrillas, but no nest, although I am confident mating had begun. Subsequently, in El Dorado Valley, on July 25, 1929, my son, Terris Moore, discovered two nests, which appear to be the first ever found of *atrigularis*.

The first nest was placed about six feet above the stream, couched on a few roots which projected from a wall of earth to the right of a large clump of hanging *paja* grass. The entire valley was dotted with great clumps of this giant sword-edged grass, three to four feet high. Few other forms of plant life existed. On July 27th, I visited the nest with my son and found it nearly complete. While we watched, the parent bird went to it several times. Occasionally she sat perfectly still on the limb of a small bush, which projected over the stream several feet to the left. The nest structure was composed of yellowish-green moss and had no special lining, in fact one or two of the small roots

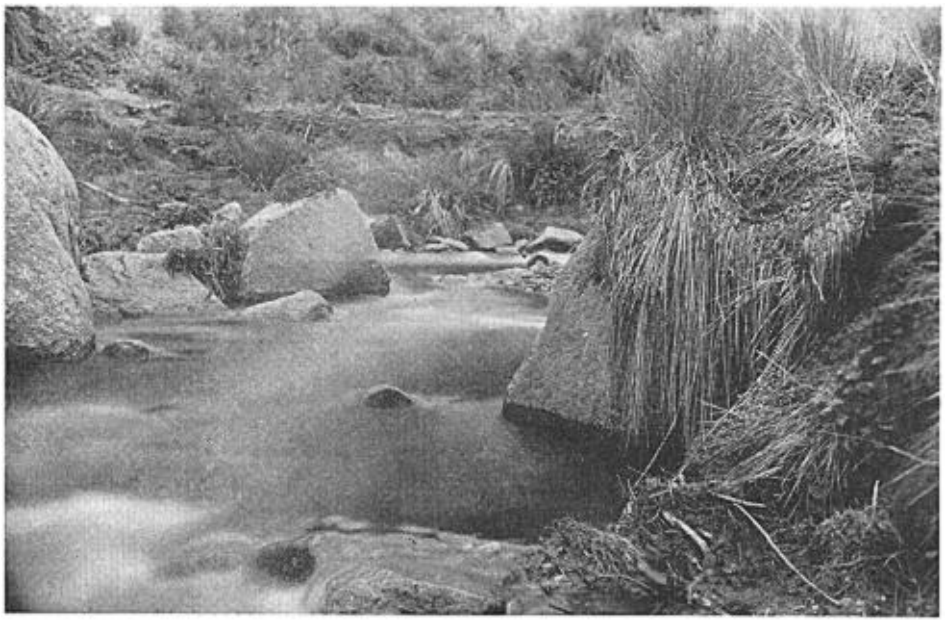

Fig. 74. Nest site of Black-throated Copper-tailed Hummingbird, El Dorado Valley, southeastern Ecuador. Nest number 3 was hidden under the grasses hanging on the right of the rock.

projected through the nest bottom and supported it. Subsequently, on August 7, after ten days of rain, the nest appeared much the same, but it then contained one egg, which was cold; it and the nest were collected. On this date, we watched for an hour, but saw no bird approach.

Nest number two was about a quarter of a mile farther up the same stream. This one was placed in a moss-covered rocky niche half way up a perfectly vertical cliff that was twenty-five feet high. The face of this cliff was covered with numerous ferns, moss, vines and small plants and the whole surface was dripping with water. For twenty-eight days, while we were on the Sangay expedition, rain fell every day and each time we visited this cliff the whole surface was oozing rivulets. It was impossible to reach this nest without a rope, but as the bird was seen repeatedly carrying moss, it is assumed that she was building. It do not believe she was carrying food, because all of the other five nests of this species were either in the process of being built, or contained eggs, even as late as August 7. When approaching the structure, the bird flew directly to a point about three feet in front of it, hovered there a moment, and then darted on to it.

Four other nests were discovered in the same valley in rather similar situations, and all within a mile of each other. Nowhere else in Ecuador did we find any other nests of this subspecies. A nest, attributed to the northern race, *M. p. primolina,* has been reported by me previously (Condor, vol. 36, 1934, p. 103) from Baños de Papallacta in northeastern Ecuador, where *atrigularis* does not occur.

The third nest was discovered by the author on July 27. It was placed about three feet above the main stream of the valley, under the dependent long blades of the *paja* grass and situated on one side of a huge rock, which projected into the stream. As I watched, a parent bird darted to it several times. The nest was almost completed and consisted of the same kind of moss, this time brownish-tan in color, and placed directly

on the earth against the wall of the rock. On August 7, ten days later, it contained two white eggs. I collected the female parent, as well as the eggs and nest. Like many other hummingbirds, the parent bird continued to line the interior even after she was incubating, the material consisting of a cottony white vegetable down. Small feathers were also employed. Incubation had begun, but the eggs seemed fairly fresh when they were blown.

Of the three nests found on July 27 all were deserted ten days later on August 7, with the exception of one in a difficult situation on the wall of a cliff which was a half mile from the site of nest number two. It could not be examined. Whether the constant rains had anything to do with the desertions, I do not know, but the birds must meet with the same conditions every year, because it rains practically every day during the summer months, according to the reports of the Alao Indians. One of these nests was placed on the brink of a cliff near a large clump of *paja* just to the right of where the main body of water tumbled twenty-five feet precipitously down the rock wall. Another nest was in a crevice of the same cliff, but about five feet below the top and twenty feet to the right of the waterfall. In both cases the parent birds were observed flying back and forth to the nest. Like those of nest number one, they almost invariably poised a few feet in front of the rock cleft before darting into it.

The building maneuvers of the owner of the sixth nest, which was discovered on a cliff about seventy-five feet away from the first one and fifteen feet above the main stream, afforded an unusual opportunity to observe hummingbird technique. On July 27 the structure was half completed. Ensconced in a bunch of grass only fifteen feet away, I was able with my powerful binocular to watch every movement of the bird. Her chief concern was to attach securely the dead moss of the nest to the live moss growing on the wall of the cliff. She would catch her feet into the base of the nest and spread out her tail and wings fan shape, so that she completely covered it. The wings were arched out around the outside of the nest. Holding her wings and tail in this position, she picked vigorously at various points, using her bill like an awl or needle and sticking stray threads of moss in behind the live tendrils of moss on the cliff. Usually her movements were exceedingly rapid. At times the wings and tail did not move and at other times they vibrated at great speed without causing the body to move away from the structure. She seemed to be molding the nest into the shape she desired. I have watched a somewhat similar maneuver performed by the Arizona Broad-billed Hummer of Sinaloa (Auk, vol. 56, 1939, p. 316). The Black-throated Copper-tail continued this performance over a period of at least fifteen minutes. During the two or three days when the nests were under observation by different members of our party no one actually saw building operations in the rain, except this one just described. However, there were only very short periods when it did not rain, and it does not seem conceivable that the birds could have completed their nests unless they built during the almost continuous downpours.

Between August 24 and August 31, 1929, my companion and I secured eight specimens of *Metallura primolina* from the eastern side of Mt. Chimborazo at an elevation of about 13,000 feet near our camp-site, called Quillo Turo by the Indians. The place was just at the tree line and the conditions did not differ materially from those in El Dorado Valley in the Mt. Sangay region, except that due to the long extinct condition of Chimborazo, the plant life is somewhat more varied and the areas of ash are much less extensive. A careful examination of these birds proves that four of the five males show at least traces of the black throat-patch of *atrigularis*, one of them (no. 2505 Moore Collection) being indistinguishable from true *atrigularis*, whereas others reveal

smaller black throat-blotches or dots. The fifth male has only two tiny black feathers remaining as a vestige of this character. None of the three females reveals any black throat marks and they are exactly like females of both *atrigularis* and true *primolina*. Simon (Histoire Naturelle des Trochilidae, Paris, 1921, p. 201) indicates some differences in the coloration of the lateral rectrices of the females of *atrigularis* and *primolina*, but my specimens do not show this. Nine males and three females of *M. p. primolina* in the Moore Collection were taken at Papallacta at an elevation of about 10,000 feet in northeastern Ecuador, on the Amazonian side of the Andes, and are probably as near to topotypes as any that can be obtained. According to Simon (*op. cit.*, p. 381), the type was taken by Osculati at "Laguano sur le Rio Napo." I doubt very much if this could have been the type locality, for the Rio Napo is in the Tropical Zone of the Amazon Basin, whereas *Metallura primolina* is a Temperate-Zone bird. In my large collections from the Amazon basin not a single specimen of *primolina* occurs. Probably the type came from a higher altitude in the mountains of northern Ecuador.

Mount Chimborazo is situated about fifty miles to the northwest of the Mt. Sangay region and between it and Papallacta. Mount Chimborazo probably represents an intergrading area, where most of the individuals are closer to *atrigularis*, but some of them have all the characters of *M. p. primolina*. Furthermore, two specimens out of twelve from Papallacta in northeastern Ecuador, nos. 2046 and 2048, which are unquestionably true *primolina*, show tiny spots of black on one or two feathers of the throat. Even if the Chimborazo birds are considered as representatives of *atrigularis*, the ranges of the two forms have been brought within eighty miles of each other, both localities being at high altitude in the Temperate Zone. The fact that *atrigularis* differs chiefly from *primolina* in the presence of the black throat, convinces me that they are conspecific. The southern form should, therefore, be known as *Metallura primolina atrigularis* Salvin and the northern as *Metallura primolina primolina* Bourcier.

California Institute of Technology, Pasadena, California, April 5, 1940.