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A NEW SPECIES OF HUMMINGBIRD, GENUS CHAETOCERCUS, FROM EASTERN ECUADOR

WITH FRONTISPIECE AND ONE OTHER ILLUSTRATION

By ROBERT T. MOORE

The securing of specimens of a seemingly new species of hummingbird from a well-known collecting locality such as Baeza, Ecuador, which has been gone over with a fine-toothed comb by native collectors, led to unusual care in the assembling of adequate material for comparison. The first notes on the subject, expressing the belief in the validity of the new species, date from September 17, 1931. During the two years that have elapsed, the author has inspected all of the available specimens of the species of the genus *Chaetocercus* in the Field Museum of Natural History, the Museum of Comparative Zoology, the American Museum of Natural History, and the National Museum of the Smithsonian Institution, Washington. Due to a superficial resemblance of the new form to *Chaetocercus heliodori* (Bourcier), sixty specimens of *heliodori* have been examined and measured. Recently a specimen in the American Museum of Natural History, marked "Type, *Chaetocercus heliodori* (Bourcier) No. 37913" has been compared. As there seems no longer any reasonable doubt, the new species is herewith described.

My grateful thanks are offered to Dr. Wilfred H. Osgood of the Field Museum of Natural History and Dr. Harry C. Oberholser of the Bureau of Biological Survey for the loan of comparative material, and to Mr. James L. Peters for his courtesy in permitting me to examine the specimens in the Museum of Comparative Zoology. I am particularly indebted to Dr. Frank M. Chapman of the American Museum both for the loan of material and for the opportunity to examine the "type" of *Chaetocercus heliodori*. To Dr. Alexander Wetmore of the Smithsonian Institution I wish to express my deep appreciation for his kindness in checking the characters of the new species, for general advice, and for his supervision of the drawings of the rectrices.

Chaetocercus cleavesii, sp. nov.

Type.—Male adult, no. 7014, collection of Robert T. Moore; Cuyuja, northeast Ecuador; June 19, 1928; collectors, Olalla and Sons; original field no. Ec-H1688.

Specific characters.—Resembles *Chaetocercus heliodori* (Bourcier) of Colombia in coloration, but upper parts darker, more bluish green; band between gular patch and gray chest reduced to very narrow, sinuate whitish crossbar; chest below whitish

bar, darker gray; gular patch uniform in color, rhodamine purple [color terms in this paper taken from Ridgway, Color Standards and Color Nomenclature, 1912], less purplish as a rule than in *heliodori* of Colombia (the type locality) in which it is usually true purple; formula for length of rectrices different from that in *heliodori*; outer rectrix much narrower (50 percent); second rectrix even more narrow (53 per-

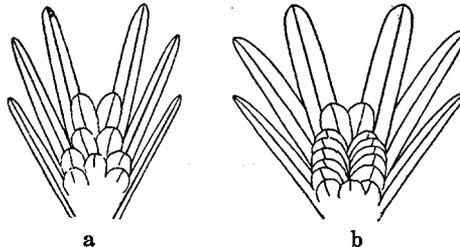


Fig. 1. Rectrices of (a) *Chaetocercus cleavesi*; (b) of *C. heliodori*. $\times 1\frac{1}{2}$

cent) and considerably shorter (17 percent); third rectrix much narrower (43 percent) and shorter; in addition, two outer pairs of rectrices differently shaped, outer rectrix being more linear and second rectrix straighter. Female resembles female of *heliodori*, but under parts darker, especially chin and throat, the latter pinkish cinnamon instead of pinkish buff.

Geographical distribution.—Northeastern Ecuador, in Humid Subtropical Zone. Most of the specimens have come from Baeza, altitude determined by Joseph H. Sinclair (Geographical Review, April, 1929, p. 207) as 6260 feet, but in view of the fact that the species has been found in other localities of eastern Ecuador (some of them at higher altitudes), namely, "Oyacachi abajo," "Cuyuga," and "Rio Tollin," it is possible that it ascends at times to the lower Humid Temperate Zone.

Description of type.—Above drab green faintly mottled with chromium green, including upper tail coverts, rump and middle back; anteriorly chromium green becomes more prominent, brightest on nape; crown, forehead and lores deep dull yellow-green finely barred with black; narrow line from eye to gape black; small postocular spot white; chin, throat and lateral, elongated feathers of gular patch glittering iridescent rhodamine purple; lateral gular feathers extending over and largely concealing a white patch on side of neck; lower throat (chest) dusky drab, the feathers edged with pale mouse gray; narrow line between drab area and gular patch whitish pallid mouse gray; remainder of under parts, including under tail coverts, flanks, sides under wings, and axillars dark cinnabar green; entire wing blackish brown, except lesser wing coverts which are metallic empire green, and inner edge of wing from bend to insertion of primaries which is dark russian green; rectrices, except median pair, black, the outer webs of fourth pair (counting from the outside) metallic deep dull yellow green touched with copper near shaft; median rectrices metallic deep dull yellow green with touches of buffy near bases; large white tufts at bases of flanks between under tail coverts and legs, but not attached to latter; other white tufts under wings above junction of leg with body; thighs chaetura drab sprinkled with gray; toes hair brown; bill black in dried specimens.

Description of adult female.—No. 7019, collection of Robert T. Moore; Cuyuja, northeast Ecuador; June 19, 1928; Olalla and Sons. Middle of back and wing coverts iridescent cosse green, feathers toward rump finely margined with darker green; rump hazel, a few feathers in center of rump cosse green, very finely tipped with hazel; upper tail coverts hazel; hind neck and nape metallic ecru-olive, each feather with fine border of black, creating a tessellated appearance, concealed base of each feather possessing a broad shaft-line of white; crown and forehead, when viewed from behind, same as nape, but seen from in front, darker; comparatively broad line from eye to gape velvety black, narrower anteriorly; this line continues posteriorly below eye to ear coverts, becoming wider posteriorly and extending to side of neck, creating a more or less triangular black patch; large postocular spot white; chin,

throat and upper chest dark vinaceous cinnamon, becoming orange-cinnamon on chest and dark hazel on flanks, sides under wings, axillars, abdomen and under tail coverts; somewhat lighter on center of abdomen; wings, except lesser wing coverts, dusky brown; edge of wing both above and below dark olivaceous black; two white tufts as in male; rectrices chestnut, crossed in middle by wide bar of black; thighs light vinaceous cinnamon mixed with black; toes and bill as in male.

Specimens examined.—Eight males and 11 females of *C. cleavesi*; 40 males and 21 females of *C. heliodori*.

Chaetocercus cleavesi, although resembling *C. heliodori* in general coloration, has rectrices of different sizes, shapes and proportions, so that it challenges comparison with *C. astreans* Bangs of the Santa Marta region of eastern Colombia. In addition to the specific characters mentioned above, *cleavesi* differs on the average from related species in other ways. I possess six males and eight females of the new species. One adult female is in the collection of the Smithsonian Institution (no. 174563) and one adult male, one immature male and two adult females in the collection of the American Museum of Natural History. These eight males and eleven females show very little variation. On the other hand, specimens of *heliodori* from Colombia exhibit considerable color variation, some of them being fairly dark and others much lighter yellowish green both above and below, but the rectrices do not vary. Specimens from Venezuela are almost uniformly lighter green in color and the gular patch is more purplish. The specimens I have examined of adult male *heliodori* from Ecuador have precisely the same tail characteristics as the birds from Colombia, which characteristics are accentuated in the Venezuelan birds. *Chaetocercus cleavesi* in the adult male has a distinct bluish cast on the lower under parts which is approximated in only a few specimens of *heliodori* from Colombia. In the females of *cleavesi* the rump is almost unrelieved chestnut (hazel), instead of green like the back.

In addition to the things mentioned above, the structure of the rectrices of the males reveals some interesting features which prove to be subject to surprisingly little variation. Compared with *heliodori* the outer rectrix is invariably a shorter and narrower feather, more linear in outline, with the sides for most of their length parallel instead of narrowing gradually to a point. The second rectrix is not only shorter than in *heliodori* but is also considerably shorter than the third rectrix (of *cleavesi*), whereas in *heliodori* the two are almost the same length. Furthermore, in *cleavesi* the second rectrix is perfectly straight, whereas in *heliodori* it bends slightly outward near the tip. The first rectrix of *cleavesi* is almost identically the same in length as the fourth rectrix, but in twenty-one adult male *heliodori* from Colombia it is twelve percent longer, and in fifteen adult males from Venezuela it averages fifteen percent longer. This results in a slightly different rectrix formula from that in any other species of *Chaetocercus* except *rosae*, that I have examined. These tail characters are not due to immaturity; all the immature males of *heliodori* that have incomplete gular patches possess fully developed male rectrices characteristic of *heliodori*. *Chaetocercus heliodori*, *astreans*, *bombus*, *mulsanti* and *berlepschi* have the same rectrix formula for length, as follows: Beginning with the outer rectrix and giving the shortest rectrix the lowest number, the formula reads, 3, 4, 5, 2, 1. In the case of *C. burmeisteri* we have the formula, 4, 5, 3, 2, 1, with the median and fourth pairs almost the same length and the first and second pairs almost the same. In the case of *C. rosae* it is 2, 4, 5, 3, 1, with the first, fourth and median pairs of almost equal length. In *cleavesi* it is the same, but the first pair is only very slightly less than the fourth pair on the average, and in three individuals the

fourth rectrix is a trifle the longest. The wings of Colombian specimens of *heliodori* average about six percent longer than in *cleavesii*, but Venezuelan birds are practically the same.

The extremely short tail renders *Chaetocercus cleavesii* one of the very smallest of hummingbirds, almost rivaling in this respect *Calypte helenae* (Lembeye) of Cuba. It will require measurements of freshly killed specimens in the field to settle the question.

AVERAGE MEASUREMENTS IN MILLIMETERS OF *Chaetocercus cleavesii* AND *C. heliodori*

	MALES											
	Wing	Exposed culmen	Length of rectrices					Width of rectrices				
			Outer	Second	Third	Fourth	Median	Outer	Second	Third	Fourth	Median
Seven adult males, northeast Ecuador (<i>cleavesii</i>)	27.2	12.5	10.2	14.5	16.4	10.3	8.0	.5	.7	1.2	2.0	3.2
One adult male, Ecuador (<i>heliodori</i>)	27.9	12.2	11.1	18.1	18.3	10.3	7.5	.7	1.5	2.2	3.0	3.5
Twenty-one adult males, Colombia (<i>heliodori</i>)	28.3	12.5	12.1	17.5	18.4	10.8	7.7	1.0	1.8	2.2	3.0	3.7
		(18)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(19)	(18)	(16)
Fifteen adult males, Venezuela (<i>heliodori</i>)	27.5	12.8	12.0	17.5	18.4	10.4	7.7	.9	1.7	2.3	3.2	3.6
		(14)										(12)
FEMALES												
Ten adult females, northeast Ecuador (<i>cleavesii</i>)						Wing		Exposed culmen				Tail
						32.4		13.5				14.0
								(9)				
Five adult females, Ecuador (<i>heliodori</i>)						32.1		12.9				13.1
Eight adult females, Colombia (<i>heliodori</i>)						31.5		13.0				13.7
								(7)				
Six adult females, Venezuela (<i>heliodori</i>)						32.8		13.8				14.4

Numbers in parentheses indicate numbers of specimens represented in averages.

Note.—The original painting, from which the color plate of the frontispiece was taken, was larger and revealed a second male specimen in flight with rectrices spread. This figure shows with remarkable faithfulness the characters of the tail feathers. In justice to the artist's excellent composition it is unfortunate that the entire painting could not have been reduced and used; however, had this been done, the birds would have been so small that the characters could not have been discerned.

California Institute of Technology, Pasadena, California, November 12, 1933.

FIELD OBSERVATIONS FROM ECHO LAKE, CALIFORNIA

By DUDLEY S. DEGROOT

For the past two summers I have been charged with the responsibility of conducting nature study in a boys' camp located at the extreme upper end of Upper Echo Lake, Eldorado County, California. In the field almost daily from the middle of June till the middle of August, I have been able to draw upon the combined field observations of some sixty boys, with the net result that many interesting and some unusual records have been made. The most important of these follow.

The Sierra Grouse (*Dendragapus fuliginosus sierrae*), a rather retiring bird, has been observed many times on the steep mountain sides above the lake. This year it seemed to be unusually abundant. In 1932, on July 7, after an hour's strenuous hunt by twelve boys and the writer, a hen was located with seven little ones that evidently had been hatched not more than a few hours; for some of them were still damp and hardly able to move. The hen was covering her brood tightly and when discovered flew at us with great viciousness and abandon. When this failed to frighten