

UNIVERSITY OF MICHIGAN
MUSEUM OF ZOOLOGY
MISCELLANEOUS PUBLICATIONS NO. 33

THE DISCOVERY OF THE NEST
OF THE COLIMA WARBLER
(*VERMIVORA CRISSALIS*)

BY
JOSSELYN VAN TYNE

ANN ARBOR
UNIVERSITY OF MICHIGAN PRESS
August 7, 1936

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FREDERICK M. GAIGE
Director of the Museum of Zoology



COLIMA WARBLER

From a Painting by George Miksch Sutton

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On July 20, 1928 Frederick M. Gaige collected an adult male *Vermivora crissalis* near Boot Spring, high in the Chisos Mountains of west Texas. It was the twelfth known specimen of this warbler and the first ever found in the United States. With the hope of learning more about this very rare bird and perhaps finding its undiscovered nest and eggs, William G. Fargo, who had supported the expedition of 1928 generously offered to send me to the Chisos Mountains again in 1932. As companions I was fortunate in securing Edouard C. Jacot of Prescott, Arizona, and Dr. Max M. Peet of Ann Arbor, Michigan. Both are exceptional field ornithologists, and they helped immeasurably in assuring the success of the undertaking.

Arriving in Marathon on April 26, 1932 we secured the necessary supplies and on April 28 drove south eighty-six miles to San Vicente on the Rio Grande, where we made our base with our friend Thomas J. Miller. With the assistance of Mr. Miller we soon engaged a reliable Mexican with a string of eight sturdy burros to pack the equipment and supplies up to Boot Spring, the highest good camp site in the Chisos Mountains, and the very place at which the Colima Warbler had been collected. At the end of a hard day of pulling by automobile and burro we reached the end of the last vestige of road and established camp at Upper Juniper Spring at the lower edge of the Chisos forest. During the next day and a half the hard-worked burros relayed the baggage 2000 feet up the winding precipitous trail to our Boot Spring camp.

On May 2 Peet began observations in the Boot Spring Valley, and by the next day we were all free to devote ourselves to the study of the birds of the mountain range and especially to the search for the nest of the Colima Warbler. We were delighted to find the species quite common in Boot Spring Valley. It frequented especially the young maples and deciduous oaks along the banks of the dry, boulder-strewn stream bed, and elsewhere on the steep mountain slopes we noted its preference for the clumps of small oaks. We saw no Colima Warblers below 6000 feet, but from there on up to the last good stand of oak at 7500 feet on Emory Peak nearly every large thicket of oak seemed to harbor one or two warblers.

On May 4 Peet noted pursuit behavior which may have had some courtship significance, but we had no further evidence of nesting until May 7 when, as I was crossing the dry stream bed about a hundred yards below Boot Spring, I suddenly saw within twenty-five feet of me a female warbler with nest material in her bill. I stopped instantly and, remaining motionless, was greatly relieved to see the warbler continue undisturbed by my

presence. In a moment she dropped to the ground and entered the nest which was on the sloping right bank of the stream about six feet back from the margin of the rocky stream bed. After working for about twenty seconds the warbler left the nest and flew down the stream bed a hundred and fifty feet. In twelve minutes she was back with more nest material to repeat the performance. Subsequent excursions for building material during the ensuing hour were of three, twelve, six, and twenty-two minutes' duration. Each time she worked at the nest only fifteen to twenty seconds, until the last trip (at 11:43 A.M.) when she worked about two minutes and then departed, probably to feed, for she did not return again while I watched. Each trip to the nest had been made undeviatingly, without any hesitation, from the stream bed or from the forest to the west. Alighting almost directly above the nest, without a pause she dropped through the branches by three or four stages and promptly entered the nest, placed the material, and snuggled down working it into place. After a few moments she seemed to have completed this to her satisfaction, and, leaving the nest, she flew up to the branches ten or twelve feet above, fed for a few moments on the insects among the fresh green leaves of the little oaks and maples, and went away for more material.

When it was evident that the nest building was over for the time I went over to the nest and, examining it more closely, found that it was nearly built. The following day, May 8, it seemed to be finished. From May 12 an egg was laid each morning until the set of four was completed on May 15. After May 8 the female was not seen at or near the nest until the afternoon of May 15; the following day incubation had begun. On May 17 we regretfully collected the female with the nest and eggs.

The eggs are creamy white, speckled, and blotched with Light Vinaceous-Fawn,¹ Light Brownish Drab, and Cinnamon Drab. These markings form a wreath about the large end of each egg. The eggs are much more heavily marked than are those of the most nearly related species, *Vermivora virginiae*, as figured by Frank M. Chapman.² The eggs of *Vermivora crissalis* measure 18 × 13.3 mm., 18 × 13.5 mm., 18 × 13.5 mm., and 18.5 × 14 mm.

Lodged between small rocks the nest was deeply imbedded in dead oak leaves, and the dense ground cover of vines and other herbaceous plants which completely arched over it left an entrance only on the north-west side toward the stream bed. The nest was loosely woven of fine

¹ Color names in this paper, when capitalized, are from Robert Ridgway's *Color Standards and Color Nomenclature*. Washington, D. C., published by the author, 1912. Pp. 1-44, 53 color plates.

² *The Warblers of North America*. New York: D. Appleton, 1907. Figs. 21 and 22, opposite p. 44.

grasses, the outer portion on all sides containing many pieces of green moss. The rim included a large proportion of fine red strips of cedar bark. The nest cavity, which was five centimeters across the rim and four centimeters deep, was lined with fine grasses, a little white fur (apparently of a rabbit), and a few larger hairs of a fox or badger.

The call note of the Colima Warbler is a very sharp, almost explosive "psit." It is quite distinctive, and we frequently recognized individuals by their call note alone. The common song of the Colima Warbler is a simple trill, much like that of the Chipping Sparrow (*Spizella passerina*) but rather shorter and more musical and ending in two lower notes. There is also another, more varied song which was much less frequently given. The males are persistent singers, even when the sky is overcast. Once we even noted several singing steadily in a dense fog which had silenced most other species. The song can be easily heard three or four hundred feet through the woods, although it does not seem loud when heard near-by. The males usually sing from the bushes and small trees, feeding and moving about between songs. Sometimes, however, an individual will maintain his post on some isolated perch as much as twenty feet from the ground and there sing at frequent intervals. The males were still singing rather commonly when we left the mountains on May 27.

Fortunately Mr. Jacot was already familiar with the Virginia Warbler (*Vermivora virginiae*) from extensive field work in the Huachuca and Prescott Mountains of Arizona and immediately after assisting in our study of the Colima Warbler he returned to the Huachuca Mountains and again encountered the Virginia Warbler, the nearest relative of the Colima Warbler. At my request he has contributed the following notes on his impressions of the two species:

In comparing the habits of the Virginia and Colima warblers the difference between the environments must be considered. In the Huachuca Mountains short dense growths of live oak cover entire mountain slopes. This thick covering, above 6000 feet altitude, comprises the greater part of the Virginia Warbler's nesting range. Thickets of deciduous oak also serve as habitat for this species, but for lack of moisture these thickets are comparatively small. The habits of the Virginia Warbler conform to the conditions in its principal habitat. A bird living in such dense cover is apt to be elusive and retiring although it may not be very timid. A short flight of a few feet or a drop from the top of a bush places this warbler almost instantly out of sight, and it is useless to go into the brush to find it. Even in the less dense deciduous oak thickets these birds are not easily seen. They are at times found in open pine and fir forests but almost always near thickets of oak. The juveniles are more apt to be in the open than are adults. In singing the male Virginia Warbler usually chooses a low, rather sheltered perch. There are, of course, exceptions, and one singing bird was taken from the top of a tall fir. A Virginia Warbler in the Prescott Mountains of Arizona at 6000 feet showed considerable wariness; it was followed for at least a half hour through rather open deciduous oak

thickets before it could be taken. This bird was in very much the same kind of environment as that frequented by the Colima Warbler in the Chisos Mountains. Another Virginia Warbler in the Prescott Mountains at 5300 feet flew to a perch within a few feet of me in a thicket of second growth pine and showed no wariness. A female Virginia Warbler nesting in open pine forest at 5500 feet in the Prescott Mountains was very wary and, although the nest contained young, it was located only after I waited for a long time at a considerable distance.

The Virginia Warbler is more shy and retiring than the Colima Warbler. It feeds closer to the ground and does not appear in the tops of large trees to feed and to sing as much as does the Colima Warbler. The song of the Virginia Warbler has greater volume. In their respective habitats during the nesting season *Vermivora crissalis* in the Chisos Mountains is about four times as abundant as *Vermivora virginiae* in the Huachuca Mountains. This estimate is based on the careful counting of singing males of both species.

An adequate series of specimens of this species being now available for the first time, it seems desirable to present a revised description of *Vermivora crissalis*.

Adult male in spring.—Forehead and sides of head Mouse Gray. Eye ring whitish. Crown Hazel to Ochraceous-Tawny, usually about Cinnamon-Rufous; color of the crown somewhat, or even largely, obscured by the gray tips of the crown feathers. Back and upper surfaces of wings and tail, between Deep Olive and Olive-Brown; in some specimens the back is much grayer, about Deep Grayish Olive. Rump Pyrite Yellow to Olive Lake. Upper tail coverts about Sulphine Yellow. Throat and breast Smoke-Gray (strongly washed with Olive-Yellow in 1.7 per cent of the males examined). Sides Light Brownish Olive. Middle of belly whitish (belly of one specimen about Deep Olive-Buff). Crissum Light Cadmium to Apricot Yellow. Under wing coverts and axillars white (occasionally slightly yellowish). Anterior edge of wing usually white (Strontian Yellow in one specimen).

Adult female.—Similar but slightly darker and more brown below. Never yellow on the breast.

Adults in fall plumage.—In his excellent paper on the Colima Warbler, Outram Bangs described the fall plumage:

[It differs] from that of spring in being darker and browner throughout, the gray of the head a good deal obscured by deep olive or light brownish olive; crown patch orange rufous; under parts darker with whitish area in middle of belly more distinct and under tail coverts duller, more nearly aniline yellow.³

Juvenal plumage.⁴—Differs from the adult plumage in lacking the crown spot and in having two buffy wing bars. The rump is also much

³ "The History and Characters of *Vermivora crissalis* (Salvin and Godman)," *Auk*, 42, 1925: 253.

⁴ Description based on the only known juvenile specimen (Mus. Comp. Zool. No. 97045), "♀ ♀," collected by W. W. Brown at Miquihuana, Tamaulipas, on July 20, 1924.

more yellow (less green), and the crissum is more yellow (less orange). From the juvenile *V. virginiae* it differs in having a larger bill, darker plumage, and less ochraceous rump.

Measurements of adults (in mm.).—Males: wing 60.5 to 68.5 (64.99), tail 51 to 61 (55.69), females: wing 60 to 63 (61.32), tail 50.5 to 56.5 (53.36). The above measurements and description of spring adults are based entirely on Brewster County specimens.

Wishing to clear up any possible doubt in regard to the identity of the Brewster County specimens, I sent two of our female specimens to the British Museum to be compared with the type of *Vermivora crissalis*. Mr. N. B. Kinnear kindly made the comparison and wrote:

I have compared your two specimens with our two specimens and find that the only difference is that the male from Sierra Nevada [de Colima] is very slightly browner on the breast; while in the female from Sierra Nevada (the type) there is no difference on the under side, but above it is very slightly grayer. As, however, our two specimens do not agree exactly on the upper side I think you can take this to be nothing but individual variation.

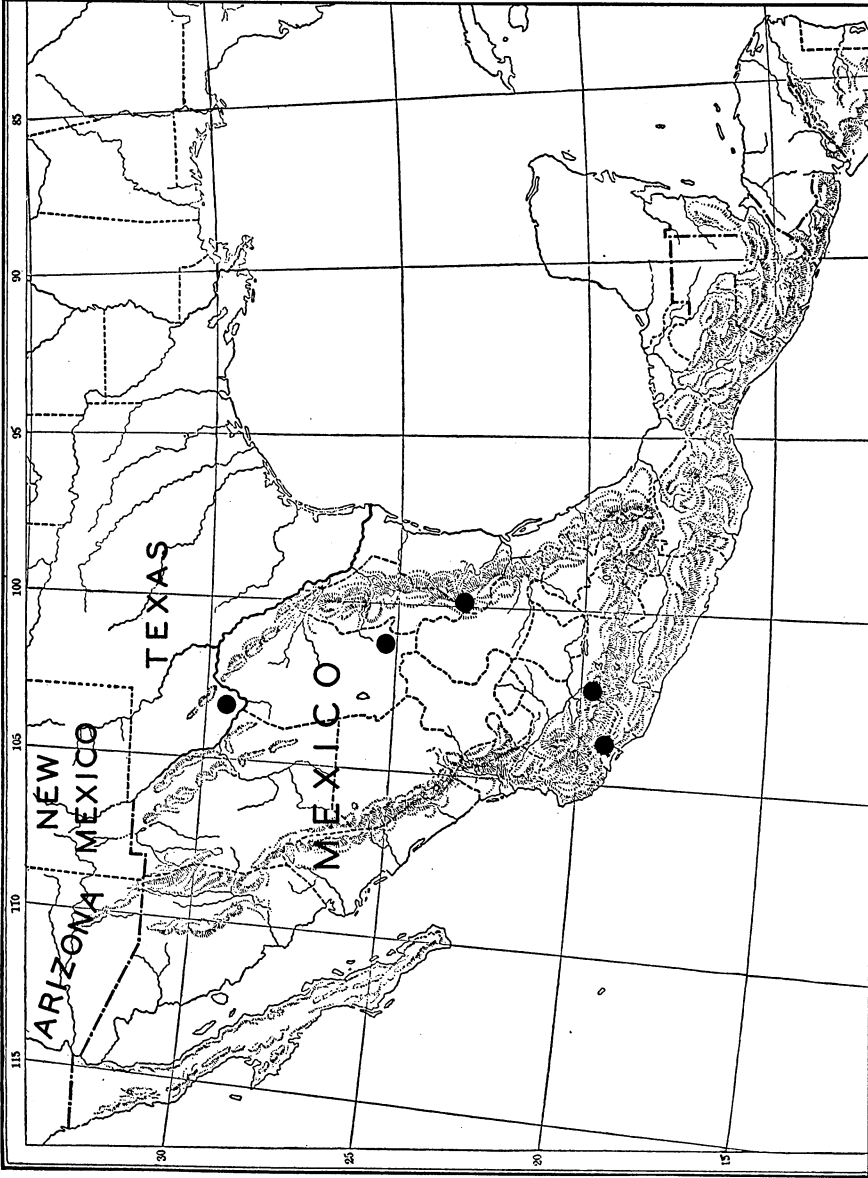
(In letter of October 20, 1932.)

The only other name which has been applied to this species is *Vermivora browni* Griscom. On October 28, 1932, I had the privilege of examining the type of this species at the American Museum of Natural History and of making certain for myself that it is a normal specimen of *Vermivora crissalis*.

The Colima Warbler differs from its nearest relative, the Virginia Warbler, in being larger; darker, less gray, above; crown paler; rump and upper tail coverts darker and richer in color; yellow of throat and breast absent or, if present, more green and more diffuse; sides and flanks more brownish; crissum darker, more aniline yellow; sexes much more nearly alike.

The known distribution of the Colima Warbler is indicated on the map. The precise localities (reading from top to bottom) are: Chisos Mountains, Texas; Sierra Guadalupe, Coahuila; Miquihuana, Tamaulipas; Patamba, Michoacan; Sierra Nevada, Colima. As Outram Bangs⁵ remarked, the two southern localities may well represent only the winter range. The dates involved are April 6, 1889 (Colima), and January 29, 1903, and, in spite of the passing of thirty years, nothing has been added to our knowledge of the species in the southern part of its range. At the three northern localities (in Coahuila, Tamaulipas, and Texas) the records range from April 25 to July 25. For the present these three points in the mountains of north-eastern Mexico and adjacent Texas represent the sum of our knowledge of the breeding range of the Colima Warbler.

⁵ *Loc. cit.*



MAP 1. The distribution of the Colima Warbler.

The published references to this species may be summarized as follows:

Helminthophila crissalis Salvin and Godman, *Ibis*, 1889: 380-381 (Sierra Nevada de Colima; type in British Museum).

Ridgway, *U. S. Nat. Mus. Bull.*, No. 50, Pt. 2, 1902: 473 (description translated from Salvin and Godman).

Vermivora browni Griscom, *Amer. Mus. Novit.*, No. 71, April 30, 1923: 4-5 (Miquihuana, Tamaulipas; type in American Museum of Natural History).

Vermivora crissalis Bangs, *Auk*, 42, No. 2, April, 1925: 251-253 (Patamba, Michoacan; Sierra Guadalupe, Coahuila; Miquihuana, Tamaulipas; history and characters).

Van Tyne, *Auk*, 46, No. 2, April, 1929: 206 (Chisos Mountains, Texas).

Van Tyne, *Rept. Director Univ. Mich. Mus. Zool. for 1931-32, 1933*: 21 (Chisos Mountains, Texas; discovery of first nest).

Sutton, *Cardinal*, 4, No. 1, published Dec., 1934: 5 (Chisos Mountains, Texas; discovery of second nest).

Hellmayr, *Field Mus. Nat. Hist., Zool. Ser.*, 13, Pt. 8, Sept. 16, 1935: 344 (range, synonymy).

In conclusion I wish to express my deep gratitude to my friend William G. Fargo who not only generously supported the two expeditions which secured the data presented in this paper but also encouraged and assisted the undertaking in countless ways. To George Miksch Sutton I am very greatly indebted for the use of his exquisite painting of this hitherto unfigured species.

PLATE I

FIG. 1. Boot Spring, seen from the north.

FIG. 2. View northwest from the Boot, showing the mountain-side habitat of the Colima Warbler.



FIG. 1.

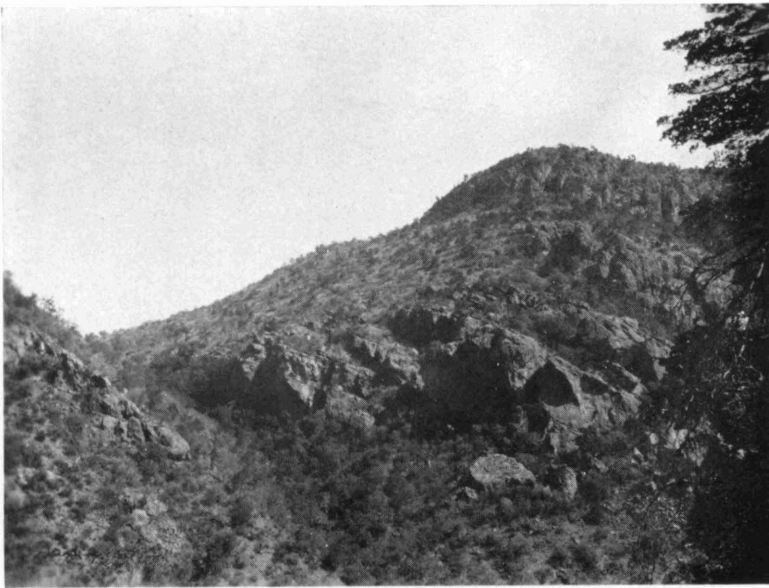


FIG. 2.

PLATE II

FIG. 1. Site of the Colima Warbler nest.

FIG. 2. Colima Warbler nest (before collecting).



FIG. 1.

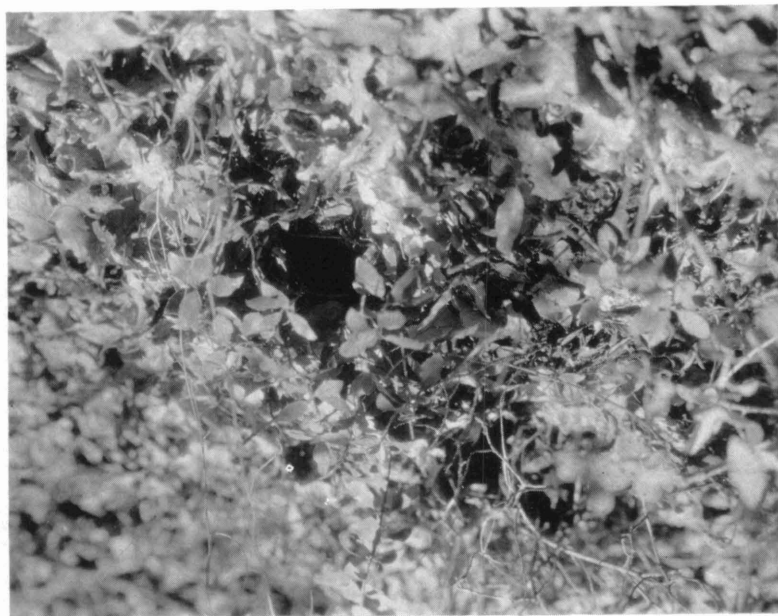


FIG. 2.

PLATE III

FIG. 1. Colima Warbler nest (removed from ground cover).

FIG. 2. The eggs of the Colima Warbler.



FIG. 1.



FIG. 2.

