

DISTRIBUTION OF BLACK-THROATED GREEN WARBLERS AND
WILSON'S WARBLERS WINTERING IN CAMERON COUNTY,
TEXAS, DURING THE SEASON OF 1933-1934

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The year 1933 developed the most unusual and interesting biological conditions in the lower Rio Grande Valley of Texas, particularly in Cameron County. The several hurricanes which struck here or near here during the summer and fall were each accompanied by and followed by heavy rains. The rainfall for the months of July, August, and September was so far above normal that entirely different growing conditions obtained. The U. S. Weather Bureau at Brownsville reports the total rainfall during these months as 26.14 inches (nearly three times normal average). Usually this country exhibits all the earmarks of its semi-desert character during the summer and frequently during the month of August even the most resistant weeds are burned black by the sun. This season grass and weeds grew rankly all summer and fall. The trees did not make much showing on account of the storm damage—most of those that escaped more serious damage were completely defoliated by the last hurricane. As would be expected we had an enormous crop of insects. This gave a food supply for insect-eating birds far above the average.

The winter was extremely mild. The mean temperature during December, 1933, was 68.8° F. This was 7.6° above normal and the highest mean temperature since 1889. During January and February, 1934, the mild weather continued. However, our spring was late and cool and the only killing frost of the winter came in the last half of March.

It seems that the mild weather and (or) the plentiful food supply may have caused a northward shift of the winter residence of several species of warblers.¹ Of particular interest was the wintering here of the Black-throated Green Warbler (*Dendroica virens*) and the Wilson's Warbler (*Wilsonia pusilla*). The Black-throated Green Warbler was found to be widely distributed over the lower southwestern portion of the county throughout the winter. Unfortunately, I do not know when these birds arrived as my first trip into this part of the county since early summer was made on December 23. During the last week in December and the first half of January I observed them at many points

¹The Black and White Warbler (*Mniotilta varia*), the Nashville Warbler (*Vermivora ruficapilla* Ssp.), and the Pine Warbler (*Dendroica pinus*) were all represented by several times the usual number of winter residents. This was the first season since I came here in 1925 in which I have observed the Pine Warbler.

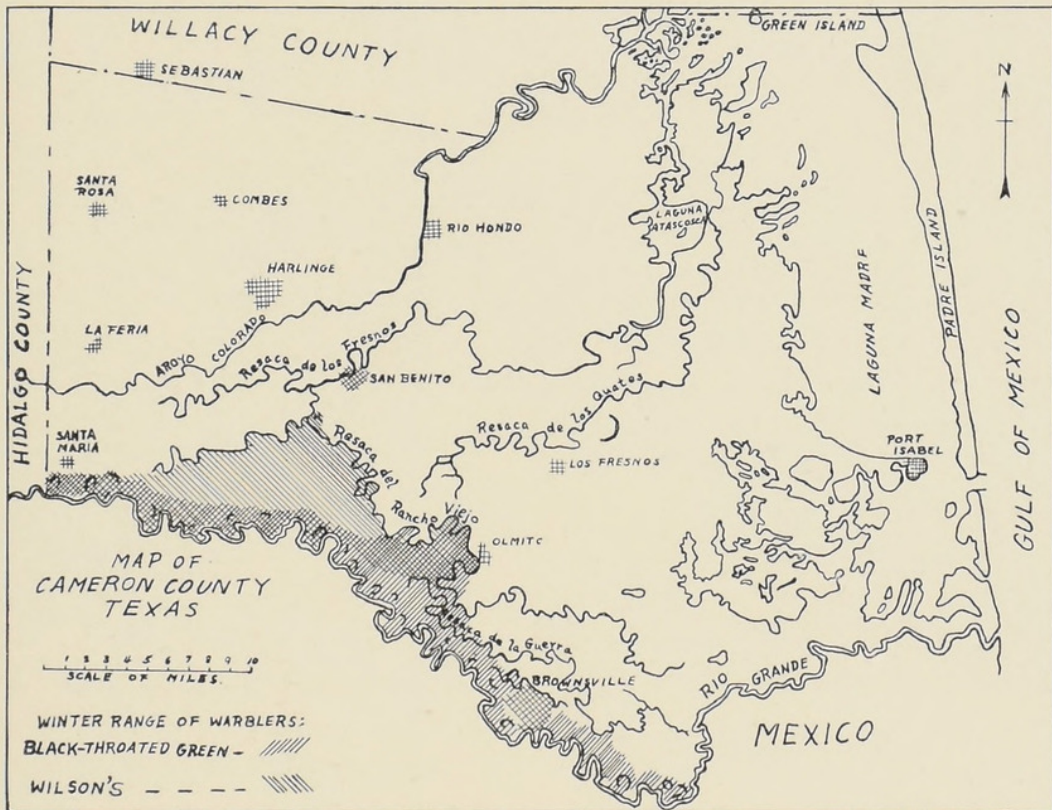
between the Resaca del Rancho Viejo and the Rio Grande, from Santa Maria at the western boundary of the county across to Olmito and thence southeastward to the southernmost point in Texas some ten or twelve miles southeast of Brownsville.² These birds were found only in what may be called the lower resaca association, i. e., the heavy growth of trees, shrubs (chaparral), and vines which extends a short distance on either side of the resacas and ponds and in a few places along the banks of the river. Near the river south of Brownsville this becomes a somewhat different association as the native palm, *Sabal texana*, is encountered in large numbers. Where the palms were thickest this species of warbler became much scarcer apparently and I could find none at all in Rabb's Palm Grove.

About the middle of January I turned my attention to the more northern parts of the county and for the next two months searched diligently every habitat which appeared to be suitable for either of the two species under discussion, but without avail. To two places in particular I returned again and again. One was just east of Combes where a heavy growth of ebony, mesquite, and huisache trees occurred and where there was enough moisture in the soil to permit the growth of elms, a tree very seldom found north of the Arroyo Colorado. The other was near the mouth of a small stream emptying into the Arroyo a short distance southwest of Harlingen where I have always found these warblers in past years during migration. I was very much disappointed with the last mentioned place, especially, because I felt sure that one or the other if not both of the warblers would move into such a favorite haunt before spring.

A Wilson's Warbler was observed on January 8 in a resaca-side thicket habitat. Although I saw this bird only a few seconds before it flew into the thickest of the foliage and was lost and although I could scarcely believe that this species was also wintering here, I knew I could not be mistaken for I was at very close quarters and the bird had the distinct cap of the male. Near the same location (southeast of Santa Maria) another or the same bird was observed carefully with 10x32 binoculars on January 14 from a distance of about thirty-five feet. It flitted about busily catching insects on the outer twigs of an ebony tree. I could detect no difference in the coloring or appearance of this bird and the migrating specimen usually seen here about the first of May. Although I returned to the favored association only

²This species no doubt wintered in spots (near the river) across Hidalgo County also as there were two reported in a Christmas census from Mission printed in *Bird-Lore*, January, 1934.

once a week for the next two months, I kept a sharper lookout for Wilson's Warblers from now on and during the next few weeks found them in numerous other, though scattered, locations. By the end of February I had the range of this species mapped out as extending from the southwestern corner of the county across to Olmito and northward to a point about 2.5 miles south of San Benito. I was very much sur-



prised to find this range extending farther north than that of the Black-throated Green Warbler. On February 11 a Wilson's Warbler was found in a mixed flock consisting of one Black and White Warbler, two Ruby-crowned Kinglets (*Corthylio calendula*), three Blue-gray Gnatcatchers (*Polioptila caerulea*), and nine Orange-crowned Warblers (*Vermivora celata*) in a resaca-side thicket. I was almost certain that there were two Wilson's Warblers in this flock but could never get two in view at the same time; hence, recorded only one. This was the farthest north that any of the hundreds of specimens of the species that wintered in the county were found. As near as I could estimate the exact location of this spot was $26^{\circ} 6' 12''$ N. and $97^{\circ} 39' 25''$ W.

I was so busy working the northern part of the county that I made no attempt to determine the concentration of Wilson's Warblers

in their favorite habitat until spring. On March 25 I went to a resaca-like pond about a mile southeast of Santa Maria and forced my way under a thicket to the water's edge. Then I worked my way along near the shore, usually in a stooping position but frequently on hands and knees and sometimes prone wriggling snake fashion, for a total distance of possibly one-quarter mile. Of course my field of view was quite limited under such a low hanging canopy of huisache and hackberry branches matted and weighed down as they were with vines and a great deal of my attention naturally had to be directed toward the business of getting through the brush; nevertheless, I succeeded in listing six Wilson's Warblers, widely separated, and so proved to my satisfaction that these birds were much more plentiful than the scattered individuals I had observed previously had indicated.

In an attempt to determine the relative concentration of different warblers in the favored southwestern corner of the county, I made a census on a small track about eight-tenths of a mile southeast of Santa Maria on January 14, 1934. The time and location were carefully selected. The area was 335 paces long and 75 paces wide and consisted of what appeared to be a dried-up resaca bed. At any rate it was a low flat strip covered with grass and weeds and contained a scattered growth of huisache trees mixed with occasional mesquites and retamas. This narrow strip was bordered on either side by an almost impenetrable growth of trees, shrubs, vines, and cacti growing upon the higher ground. The trees consisted mainly in ebony (*Siderocarpus flexicaulis*), coma (*Bumelia lanuginosa*), hackberry (*Celtis occidentalis*), Mexican persimmon (*Diospyros texana*), brasil (*Condalia obovata*), elm (*Ulmus crassifolia*), anaqua (*Ehretia elliptica*), mesquite (*Prosopis juliflora*), retama (*Parkinsonia aculeata*), huisache (*Acacia farnesiana*), ash (*Fraxinus velutina*), tepeguaje (*Acacia acapulcensis*), and anaquita (*Cordia boissieri*). The frequency of occurrence or relative number of a given species of tree is in general indicated by the place in the above list; however, in one or two spots there was a much heavier growth of elms and in these places the elm and the hackberry replaced the ebony in dominance. At the time of the census the birds were traveling across this relatively open strip (mostly from the south to the north bank of heavy jungle growth) and feeding in the huisache trees. As I very leisurely strolled eastward down the opening, I studied each bird carefully with my glasses and recorded them at once. Proceeding thus for approximately one thousand feet, I then turned and paced off the distance covered and finally totaled up the following results: Myrtle Warbler (*Dendroica coro-*

nata), 32; Black-throated Green Warbler, 27 (11 male and 16 female); Orange-crowned Warbler, 11; Black and White Warbler, 8; Nashville Warbler, 3; Western Yellow-throat (*Geothlypis trichas*), 2; Audubon's Warbler³ (*Dendroica auduboni*), 2; Wilson's Warbler, 1. As a relative gauge some other birds were counted at the same time. The most numerous species aside from kinglets and gnatcatchers were as follows: White-eyed Vireo (*Vireo griseus*), 4; Gray-tailed Cardinal (*Cardinalis cardinalis*), 2; Western Mockingbird (*Mimus polyglottos*), 2. The above ratios, I believe, give an accurate picture of conditions as they existed from Santa Maria to Olmito and no doubt for some distance between Olmito and Brownsville. South of Brownsville, however, they would not hold as the Black-throated Green Warbler was scarcer and as far as I could determine the Wilson's Warbler was entirely absent. Also in the vicinity of palms of the fan-leaf type the ratios would not hold as the Sycamore Warbler (*Dendroica dominica*) would be high up in the list.

The Black-throated Green Warblers were observed singing for the first time on April 7, but from then on they were heard on every side throughout their range. It seems that this singing was their way of letting us know they were about to leave, for by the 15th not a one could be found. Both species left at the same time. There was no gradual movement across the county as far as I could observe. They stayed within the bounds of the winter zone until ready to leave the county entirely.

HARLINGEN, TEXAS.

³Only those birds showing definite yellow patches on the throat were counted as Audubon's, doubtfuls being classed as Myrtle.



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