

FEMALES		13 adts	8 adts	2 adts	4 adts	18 adts	2 adts	6 adts
Depth of	Av.	9.5	9.8	10.1	9.5	10.5	10.3	10.1
bill at	Max.	10.3	10.6	10.6	10.0	11.5	10.4	10.7
base.	Min.	8.3	8.6	9.7	8.9	9.6	10.2	9.6
Width of	Av.	7.8	8.1	7.8	7.7	8.4	8.4	8.3
bill at	Max.	8.3	8.5	8.0	8.5	9.1	8.6	8.8
base.	Min.	7.5	7.5	7.6	7.3	7.6	8.3	8.1
Width of	Av.	4.0	3.8	3.4	4.0	4.6	3.9	4.1
bill at mid.	Max.	4.3	4.2	3.6	4.3	5.0	4.2	4.3
of culmen	Min.	3.6	3.4	3.3	3.8	4.1	3.7	4.0

Of the thirty-six adults in spring and early summer plumage from southern California nine were molting more or less of the middle wing coverts. On the remaining twenty-seven the black tipping to the middle wing coverts is as follows: heavily tipped, two; considerably, seven; slightly, eight; on one or two of the inner feathers only, eight; spotted only, one; partly black but not tipped, one; with absolutely no black, none.

While some of the specimens from the San Francisco Bay region measure very close to some of those from the San Joaquin Valley, the former seem to have slightly heavier tipping to the middle wing coverts, and the bills of the specimens, from Marin County anyway, are more slender than those from the valley. For example the measurements of two specimens are as follows:

Coll. of J. & J. W. M. no. 3300, San Geronimo, Marin Co., Cal., wing 125.9, tail 90.3, culmen 22.5, depth of bill 11.8, width of bill at base 9.4, width of bill at middle 4.2, no. 7009, Modesto, Stanislaus Co., Cal., wing 125.9, tail 87.4, culmen 22.1, depth of bill 11.4, width of bill at base, 9.2, width of bill at middle 4.2.

These two specimens measure very close to each other, but the San Joaquin (Stanislaus Co.) specimen has a bill that looks heavier, tho there is no way of showing this by measurements unless with very delicate instruments, and while the black tips are heavy in each they are more so in the Marin County bird.

## HABITS OF THE BLACK-CAPT VIREO (*VIREO ATRICAPILLUS*)

By C. D. BUNKER

WITH ONE PHOTO BY THE AUTHOR

THE range of the Black-capt Vireo includes south-western Kansas, Oklahoma, central and western Texas, and extends well into Mexico, keeping to the gypsum canyons, or their vicinity, where the bird feeds on a little black beetle found on the under side of leaves, and which, I believe, occurs only in such localities.

In May, 1903, I collected thirty of these birds in Blaine County, Oklahoma, and preserved the stomachs of all of them. There seemed to be but one species of beetle in every stomach. I afterward sent the stomachs to an eastern entomologist, for the purpose of determining the food contents, and to learn if the beetle was peculiar to any certain locality, but unfortunately they were lost and the knowledge not obtained.

Ridgway in his "Birds of North and Middle America" says: "Writers differ as to whether the sexes agree in color, or not. The series examined, which

however, includes only one adult female (there are eighteen adult males) if the sex has been correctly determined in all cases, shows that the sexes are alike and that the presence of black on the head or its extent is probably a matter of age. The grayer headed specimens invariably have the whites of the under parts less pure, in this respect being more or less like young birds in their first autumn which lends probability to the theory that the relative age is the true explanation of the variations noted."

As for myself, however, I think that Mr. Ridgway lacked sufficient material for examination, and has been led astray by the mistakes of collectors in determining the sex correctly in some of the specimens. I spent three weeks with the Black-caps at their breeding time, when they were in full plumage, and had ample time and opportunity to study them. I watched them build their nests, incubate their eggs and feed their young. I dissected over thirty of them, and can say that the sexes *are not alike*, and that the female *does not* have a distinct black cap at any age. This matter, as to whether the sexes of *Vireo atricapillus* are different in plumage or not, has been discussed by several writers since the year 1878, and both conclusions have been reached. For several years I have been of the opinion that the sexes *are* different, and after an examination of nearly forty skins I am firmly convinced that such is the case.

The material on which I base the following conclusions numbers nineteen specimens, six adult males taken in July 1901, seven adult males and five adult females in May, 1902, all taken in Blaine County, Oklahoma; and one adult male taken in Comanche County, Kansas, in May, 1885.

When compared with the males, it is at once apparent that the females have a distinct buffy tinge on the under parts, strongest on the breast, and nearly, if not entirely, absent from the throat and abdomen. Above, the olive-green tint of the back averages duller in color than in the males, though this character is not strongly noticeable in some instances. The wing bars and the light edgings to the tertials are also paler—nearly white—in place of the yellow of the males. The same is true, to a less extent, of the light greenish edgings of the rectrices. In the males the head and neck—except the throat, loreal streak, and an orbital ring of white—are clear black, while the same region in the females is slate-gray. (See Fig. 24.) The white of the loreal and orbital region is clearer in the male, though

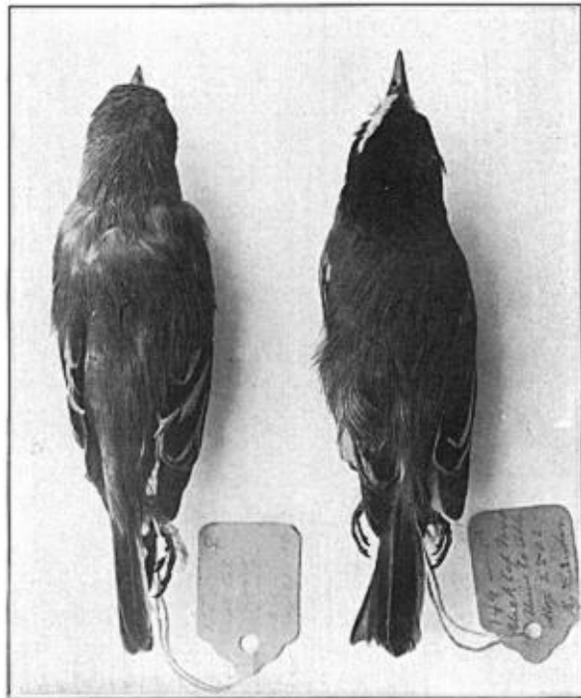


Fig. 24. DORSAL SURFACE OF MALE AND FEMALE BLACK CAPT VIREO, ILLUSTRATING SEXUAL DIFFERENCES IN COLORATION AND MARKINGS

the distinction here is very slight. Eighteen of these specimens were collected by myself and the sex carefully determined, so there can be no doubt on that score. I wish to thank Mr. H. H. Lane for his kindness in sending me the series in the University of Oklahoma for examination.

In the locality of which I speak, the canyons were about three hundred and twenty feet deep, with outcroppings of gypsum rock from bottom to top, with a strong salt stream running at the bottom. The only fresh water for miles was a spring on the ridge, a quarter of a mile above the head of the canyon. The canyon walls, and gulches leading to the canyons, were studded with clumps of bushes, mostly dog-wood, scrub-oak and similar shrubs, forming ideal cover for vireos, of which *Vireo belli* was not uncommon. On one occasion the nest of a Bell Vireo was found in the same bush with that of a Black-cap.

The nesting habits of the Black-cap are unlike Bell's, in that it always builds in the center of a bush or rather in a clump of bushes instead of on the outer edge, slips away upon the approach of an intruder, and if singing or scolding in a bush, you may depend upon it, that the nest is nowhere near. I cannot remember of finding a nest in a clump of bushes from which the male was singing. His song is clear and bell-like and is never to be mistaken if one comes to know it.

The nest resembles Bell's in appearance and structure, and is usually about eighteen inches from the ground, hanging from a forked twig. The eggs are four in number and pearly white, unmarkt. When blown, they resemble a small woodpecker's egg. Cowbirds frequently lay in the Black-caps' nests, and on one occasion a nest was found containing two eggs of the Black-cap and three of the Cowbird. The former were discolored and had the appearance of being deserted. I watcht the nest nearly an hour and as no bird appeared, I finally took it.

They do not build over water, but they have no choice as to the lay of the ground. Nests were found at the bottom of canyons, and steep canyon walls, uplands, and little draws leading to the canyons. They nested in jack-oak, dog-wood, wild plum, China berry and like shrubs. No matter where the nest was built, on bottom lands, or ravines, the bush in which it was placed was always above high water mark. I had a splendid opportunity to observe this as the highest water ever known in this locality, occurred while I was campd there in the canyons. Although nests are usually placed in sheltered spots, many had their eggs shaken out by a severe storm. About fifty such cases were observed and the birds immediately went to work to repair the damage, and take up their family duties again.

The Black-cap is a restless little thing, and rarely stays in one place long enough for a shot, or to be observed. The song is composed of many notes, one resembling the Wood Thrush in miniature, and when disturbed it can hardly find time to scold. The female is much shyer than the male and one seldom gets a glimpse of her unless concealed near her nest. In one case a female allowed me to approach within two feet of her nest without being alarmed, but when I carefully tried to cover her with my hand, she slipped away without a sound. Upon examination I found that the eggs were just hatching.

Male and female share alike in the duties of providing for the young, but in no case have I seen the male sit upon the eggs or assist in building the nest. I was fortunate enough to watch the construction of one nest from start to finish. The weaving was accomplitht after the fibers had all been attacht to the forked twig, and hung down like a fringe. The female would dart down from a nearby twig, catch the end of a fiber in her bill, fly up to the opposite side of the fork,

draw up the fiber a little at a time, turning her head from side to side, as if studying her work, and then secure it.

A nest collected measures as follows: Outside diameter 57 mm., inside diameter 43, outside depth, 65, inside depth 41. The diameter of the rim of the nest is distinctly less than that of the inside of the nest at its greatest width. On one occasion a nest was found to be empty on the evening of May 24 and contained two eggs at noon on the twenty-sixth.

Average measurements in millimeters of a small series are as follows:

	Length	Wing	Tail	Culmen	Tarsus
Thirteen adult males from Kansas and Oklahoma	109.5	56.2	43.4	9.4	16.6
Three adult females from Oklahoma	108.2	54.1	43.0	9.1	16.0

## THE NESTING OF THE FRAZAR OYSTER-CATCHER

By PINGREE I. OSBURN

ON EASTER Sunday, April 11 1909, while lying at anchor off Cape Corrientes, State of Jalisco, Mexico, Mr. Thompson, a friend, brought me the news that he had found the Frazar Oyster-catcher (*Haematopus frazari*) nesting on one of the islands we were visiting. This group of islands, known as the Tres Marietas group, is unusually far south for this bird to be found breeding, but the news was not surprising to me as I had noticed individuals of this species flying along the rocky coast on several different occasions.

Upon inquiry and investigation I found that the nest was on the pebbly beach about fifteen feet from the high water mark, back in a sheltered recess under a low overhanging cliff. It was unlined, except for a few bits of shell and consisted of a mere depression in the pebbles. The eggs were fresh, but thru the carelessness of a Mexican sailor I was able to save but one. They were finely marked specimens. An example before me is light cream buff in ground color, and is irregularly spotted and blotched with varying shades of brown, lavender, and pale pearl grey, principally at the larger end. It is oval in shape, with one end pointed, and measures 2.21×1.50. It has a smooth texture.

The birds were extremely wild, like most of their kind, and were approached with difficulty. I made several efforts before they were finally secured. Two other birds were seen on this island but a thoro search failed to reveal their nest.

The two birds belonging to the set described are clothed in conspicuous black and white, the white areas being more extensive in this pair than in birds of this species taken off the coast of Lower California, far to the north. Unfortunately no photographs were secured, as the eggs were disturbed before I heard of their discovery.

It is interesting to note the great difference between the nesting sites used by these birds and the Black Oyster-catcher described by Mr. Willett in his article in the November CONDOR.

The references available to me at this time, tho somewhat limited, are all similar in their statements, and give the breeding range of this species as "both coasts of Lower California". The peninsula of Lower California is several hundred miles north and west of the Tres Marietas Islands, and at this extreme south latitude even individual birds of the species are a comparative rarity, I believe.