

the yard during the summer did not appear until later in the day. Add to this list of nineteen the birds seen during the six previous days of the week which were Black-billed Cuckoo, Olive-sided Flycatcher, Baltimore Oriole, Goldfinch, American Redstart and White-breasted Nuthatch. This lot for one week was equalled in number on May 25, 1904, when twenty-six species of birds were observed at Weedseed Inn. They were Mourning Dove, Flicker, Red-headed Woodpecker, Ruby-throated Hummingbird, Kingbird, Phœbe, Chebec, Blue Jay, Bobolink, Cowbird, Red-winged Blackbird, Meadowlark, Baltimore Oriole, English Sparrow, Chipping Sparrow, Song Sparrow, Swallow, White-eyed Vireo, Maryland Yellowthroat, Yellow-breasted Chat, Brown Thrasher, House Wren, Catbird, Bluebird, Robin, and another which could not be satisfactorily named.

Early rising and a day devoted to observing the birds would, no doubt, secure a much longer list of bird guests for one day at this bird hostelry. A list of seventy-nine species named and many others that were not identified suggests in a limited degree what has been seen in one yard by a tyro in the dooryard study of birds.

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#### BREEDING HABITS OF PARULA WARBLER (*Compsothlypis americana usneæ*) IN NEW JERSEY.

BY MARK L. C. WILDE.

Parula Warblers are very common during the breeding season, in suitable localities, throughout the lower half of the state of New Jersey. Commencing at Brown's Mills, on the Rancocas Creek, situated in Burlington county some fourteen miles east of Mount Holly, and journeying southward to the Delaware Bay and the Atlantic Ocean, these birds can be found breeding on the edge of all swamps, streams, lakes, ponds, and mill dams, where there is a fairly good growth of that bearded lichen (*Usnea barbata*), which many of the south Jersey men deign to call "Beard-Moss."

While the climatic conditions, to a very large extent, may be responsible for the presence and growth of this so-called "Beard-Moss," one thing is certain, and that is, this lichen absolutely controls the distribution of the Parula Warbler, as

far as the state of New Jersey is concerned. Wherever there is an abundant growth of *Usnea barbata* a colony of these beautiful warblers will be found breeding, for, strange as it may seem, they construct their nests in it, build their nests of it, and they search in and around it for insects, on all the trees, bushes, and vines, where it grows.

Before proceeding further I wish to say a few things relative to this lichen (*Usnea barbata*). I shall hereafter call it "Beard-Moss," only because that name has been associated in my mind for so many years, in connection with Parula Warblers. It therefore comes to me more naturally than any other name possibly could. "Beard-Moss" must be seen to be appreciated.

It is a long, stringy, or hairlike-growth, grayish-green in color, and when covered with dew or moistened by the rain, it feels quite soft and is pleasant to the touch. In the dampened condition it gives you the impression of elasticity; so much so that I have often tried to make it stretch, as it should were it composed of rubber. It grows in a tangled mass the lower strands only being combed out, as it were, and left to float in the passing breeze. It grows on the tree limbs, and is thick in proportion to the thickness of the limb from which it hangs, excepting when it grows on vines or bushes where the twigs are close together; then the whole growth is a solid mass of "Beard-Moss." In New Jersey it thrives best on the lower limbs of the trees and on small bushes and vines near the surface water of the swamps, streams, or mill ponds, and in the lakes or ponds it mostly grows at the "head," or upper ends, where the water, coming down, empties into these bodies of water.

Imagine being at the "head" of one of these ponds, where all the trees and bushes are draped and festooned with this beautiful growth, and here, on the warm summer days, you are amid the Parula Warblers on their ideal breeding grounds.

The growth of the "Beard-Moss" at Brown's Mills is very scant as compared with the growth along the Maurice River up to about Willow Grove pond, located in eastern Salem county, and even here it is not nearly so abundant as in lower Cumberland, Atlantic, and Cape May counties. The farther

south you go the thicker will be the growth of the "Beard-Moss," hence the Parulas are more abundant.

Parula Warblers breed in colonies, owing to the "Beard-Moss" occurring in separate and distinct patches, where conditions are most favorable to its growth. Some of the ponds where I once found many of their nests, are now almost deserted, simply because the mill-dams have broken, or the water has been drained off, causing the "Beard-Moss" to dry up and die, and the Parulas have taken up quarters in some other neighboring locality where *Usnea barbata* thrives more luxuriantly.

Parula Warblers arrive from the South in the lower portion of the state about the first of May, apparently already paired, and within about ten days or two weeks nest building has begun. Full sets of fresh eggs are usually deposited in Cape May county by May 20th, while further north, at Brown's Mills, Burlington county, the date would be about June 1st.

Almost all of the many nests I have examined contained four eggs. I have never found over four, but occasionally some nests contain but three. It will therefore be seen that four eggs constitute a full set under normal conditions.

On several occasions I have spent from seven to ten days at a time right among these Warblers on their breeding ground, from early morning until dusk, and by not disturbing their nests, they have become so accustomed to my presence as to take little notice of me. I have moved along slowly and quietly in my boat, passing in and around the bushes and trees containing their nests, often within three or four feet of the sitting birds. The feeding birds were likewise just as unconcerned as those which were incubating their eggs.

Nests can be found from the border to the middle of the mill-ponds and open swamps, and may be looked for anywhere from under the tip of an outstretched or drooping branch, to against the tree trunk, or in the smaller bushes; and from one foot above the water to twenty feet high. Generally, however, on account of the "Beard-Moss" growing more abundantly on the lower branches of the trees and on the bushes, five feet may be considered the average height.

The females alone attended to the construction of the nest, while the males were leisurely feeding in and around the tan-

gled moss-covered branches, often clinging to them upside down in Chickadee fashion, reaching here and there for lurking insects, and flying a short distance, they would pause for a moment to emit their sweet song.

The nest is invariably placed in a hanging position. The female usually selects a tree or bush in which the "Beard-Moss" grows quite thickly, and here, within the tufts, she loops and weaves together the inside particles of moss, forming a beautiful nest, much resembling the style of the Baltimore Orioles, only of course on a very much smaller scale. The bird is careful that the moss shall be left hanging in its natural way from the bottom and sides of the nest, and often so conceals it that it can only be found by close and careful searching. Into the structure the bird then carries thread-like particles of the moss collected from some near-by tree. I have never known them to use moss from the tree or bush in which their nest is built for lining purposes.

"Beard-Moss" is used exclusively by some Parulas in lining their nests, while others add a few horse-hairs and a yellow down which is taken from the stems of swamp ferns. The nest is very compact and closely woven, occasionally having a few pine-needles stuck into it around the outside, probably to help support and pin it to the hanging particles of moss.

The entrance, which is always on a level with the top of the bowl, is made through the moss on the side, very often directly under the limb where the moss is parted. The walls of the bowl, being at least half an inch in thickness, form a platform which is sometimes flattened out, resembling a small mat, on which the bird rests when entering or leaving the nest. Some nests have two or more entrances, either left as peep windows for escape, or unintentionally caused by the thinness of the moss above the bowl. I have examined a few nests where the entrance was made from the top, the nest having been suspended either between two twigs, or between the trunk of a tree and an adjoining tuft; but such cases as these are rare, and may be considered departures from their regular style of building. From a very large number of nests of this species examined during the past ten years, nearly all were entirely or partly roofed over, with the entrances from the sides, as previously described. One nest collected some years

ago, was suspended from a two-inch limb, containing little or no moss outside of that of which the nest was constructed; but this I do not consider a typical nest.

The inside measurements of the nests vary, ranging from about one and a half to two inches both in depth and diameter.

The eggs show a remarkable variation both in size and shape. They have a white ground color, and are more heavily dotted with reddish brown and lilac at the larger ends, often forming a ring around them.

Camden, N. J.

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## SUMMER BIRDS OF SUMMIT (UNION COUNTY), NEW JERSEY, AND VICINITY.

BY LA RUE K. HOLMES.

Summit is located on the crest of the Second Mountain, at an elevation varying from 300 to 520 feet above sea level. The surrounding hills were at one time well wooded, but most of the timber now standing is of recent growth, only a few small tracts of virgin forest now remain and these are being rapidly cut. The cover is for the most part deciduous, there being but few groves of coniferous trees in this neighborhood that I know of. The ground is furrowed in every direction by streams, mostly of a small size and a river (the Passaic), runs through the center of the territory covered by this list. Several fresh-water swamps of considerable area are within walking distance of Summit and are frequently visited.

As will be seen from the list, Summit is located between the Carolinian and Alleghanian zones; and such Carolinian birds as *Bæolophus bicolor*, *Thryothorus ludovicianus*, *Icteria virens*; and Alleghanian birds as *Dendroica pensylvanica*, *Habia ludoviciana*, etc., are found breeding here.

1. *Aix sponsa*. Wood Duck.—A rare summer resident, formerly more common. A pair succeeded in rearing a brood of 8, this last summer (1904) within three miles of Summit. The parent birds with the young were seen daily by many people and were apparently devoid of fear.

2. *Botaurus lentiginosus*. American Bittern.—A rare summer resident in the large fresh-water marshes. I only know of three nests having been found.