SUMMER BIRDS OF THE GREAT SMOKY MOUNTAINS

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The writer of this sketch determined some years ago to make a series of vacation trips to the very heart of this primeval mountain area to ascertain what he could about the birds which were to be found there. His plan was not only to list the number of species but to determine their relative abundance, how they were distributed with reference to altitude and forest conditions and to learn what he could about their breeding habits and life history generally. Many of the areas in which observations were made were well removed from even the dim paths traversed by the infrequent hunter, the lumber prospector or the occasional "Tar Heel" who may cross this "great divide" to visit his Tennessee kin. And so he is sure that he observed many birds that had never before beheld a human being. But nevertheless, most of the birds showed as much fear of man as those about our settled communities. The half wild cattle and ponies which grazed the "bald" summits could walk among them with freedom, but not man. However, many of the smaller birds whose nests we found and whose uneasiness we thereby brought about, showed no fear at all at such times and remonstrated at arm's length.

Apparently no ornithologist has ever attempted to list the birds of the Smokies and the only published notes on its bird life were short notes on 15 of its summer birds, published by Lemoyne, in 1886. The four visits made by the writer to this area were in late May and the middle half of June and observations were made at all altitudes including a number of days spent encamped on the summits. On the first trip, in 1920, the writer spent some ten days in these mountains, for the most part unaccompanied. During June, 1924, he was so fortunate as to have with him four fellow students of bird life, Messrs. H. P. Ijams, G. R. Mayfield, Edgar McNish and Andrew Gregory. On a later trip he was again unaccompanied and on the fourth trip, in 1925, he was joined by Messrs. Ijams and Paul Adams. The data on which this paper is based are the combined notes of the gentlemen listed above and myself, and their assistance is here acknowledged with appreciation.

The distribution of the bird life within this area is of considerable interest. The total number of summer birds noted, from the bases of these mountains at the settlements of Elkmont, Gatlinburg and Greenbrier, to the summits, 10 miles away, was 80 species. This covered altitude ranging from 1,500 to 6,680 feet above sea level in a linear distance of approximately ten miles. Of the total number, 37 were seen only about the small communi-

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ties mentioned, where the clearing and tilling of the small fields has attracted birds which prefer such civilized environment. The number of species which were confined entirely, or almost entirely to the wild areas at or near the summits, was 12. These birds were nearly all species that properly belong to what is known as the Canadian zone and only breed this far south because the high altitude brings the same type of vegetation and temperature conditions as are to be found in Canada at a lower altitude. These birds are the Ruffed Grouse, Wild Turkey, Yellow-bellied Sapsucker, Mountain Solitary Vireo, Black-throated Blue Warbler, Canada Warbler, Northern Raven, Carolina Junco (Snowbird), Rose-breasted Grosbeak, Winter Wren, Brown Creeper and Redbreasted Nuthatch.

Taken as a whole, the bird life of the summits was quite scarce, particularly in the densely-wooded portions. The area as a whole would yield perhaps no more than a third the number of birds that would be found in fertile area of equal size near Nashville or Knoxville. This is a condition that is not unusual in unsettled mountainous areas. At the headwaters of Little River where the lumber had nearly all been taken out and logging operations were still in progress it was found that certain large birds, such as the Raven and Great Horned Owl, had been driven away. On the other hand, the smaller species, such as the Warblers, had adapted themselves to the new conditions and were as abundant as elsewhere.

In the deeply cut valleys where the now abandoned lumber camps had been established and trees almost entirely removed, were open places and blackberry thickets of some years standing, in which one would expect to find numbers of such birds as Yellowbreasted Chat, Maryland Yellow-throats, Indigo Buntings and Field Sparrows. These species, however, were as yet practically absent, showing that even though proper environment be made available it takes many years before a suited population of birds will extend its range so as to "settle" such areas.

There is no timber line in these mountains, for the luxuriant forests cover the highest summits save certain connecting ridges and peaks that are covered with thick grass and which are called "balds." The timber, for the most part, is hardwood but large areas are also covered with the conifers, hemlock, spruce and balsam, the latter attaining here the southernmost limit of its range at Clingmans Dome. Many of the timber trees, such as cherry, ash, buckeye, chestnut, poplar, hemlock and spruce, exceed a trunk diameter of five feet. Large areas of laurel "swamp" are to be found at all altitudes, even the tops of some of the mountains being frequently an almost impenetrable jungle of "laurel" (rhododendron) and ivy. Some of the latter attain a trunk diameter of 12 inches and assume the most weird and fantastic shapes. The summits of other mountains, such as Mt. LeConte and Cling

mans Dome, are "swamps" of small, closely grown balsam spruce and the dead prostrate trunks and densely shaded ground are covered with a thick mat of damp, green moss. The higher mountains included in the field work were Brier Knob, Silers Bald, Clingmans Dome, the three-peaked Mt. LeConte and various unamed summits along the backbone which connect these peaks. None of the mountains visited have escarpments, except a small amount of cliff on Mt. LeConte and the absence of this feature is probably responsible for the great scarcity of such cliff-loving species as eagles, duck hawks and ravens. Water abounds and no wild creature need go thirsty at any season, even near the high

In order to establish conclusively the fact that the birds noted were permanent summer residents, rather than transients, considerable time was given to finding nests of each of the various species, hence the frequent reference to nesting data. The finding of the nests of rare birds is an absorbing sport in itself, demanding patience, experience and a keen eye.

To enumerate in detail the entire list of 80 species would consume more space than is at my disposal, so the remainder of these remarks will be confined to a few species of more than ordinary

interest.

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The Ruffed Grouse is generally distributed throughout this region and though a prolific bird it is relatively scarce. Mountaineers state that the red fox is responsible for the inability of this species to increase. It is locally known by the name of Pheas-On June 1, 1920, I found a nest containing 8 eggs, in a newly cleared log road right-of-way in the forest, at elevation 4,000 feet. The parent bird flushed y nen I had approached to within 6 feet and scurried away into the brush. The eggs were incubated about three weeks and the nest was located under one end of a 4-inch, fern covered birch root, where it spanned a slight depression. Another nest containing 7 fresh eggs was found June 1, 1924, on top of Silers Bald in a thin wood of dwarf beech and a few days later several broods of young grouse were encountered, to which the parent birds called frequently and uneasily. A nest containing several addled eggs was found in the one-acre clearing near the top of Mt. LeConte, at elevation 6,500 feet. These birds were not uncommon along the "bald" areas along the summits.

A few of that most splendid of American game birds, the Wild Turkey, manage to hold their own in this area, keeping to the more open "tops" during the breeding season. Careful inquiry was made among the mountaineers and the whereabouts of two flocks was ascertained. Search was made in one of these places (4,500 feet) on June 3, 1924, and two hens were flushed. Dusting beds and a few feathers here and there showed that the place, a summit, was regularly used by this flock.

Of the Bob-White, quite a number were heard in the Jakes

Creek valley (3,200 to 3,800 feet), where the deforested areas had been put into cultivation. It was also noted on the very ton of Silers Bald (5,200 feet), where the open, grass covered areas offered a good habitat. These birds are separated from those of the valleys below by miles of heavily forested mountainside About Gatlinburg it was frequently heard.

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I had gained the impression that EAGLES, though now rare could be found well distributed in these mountains but, until my last trip, I was unable to see one or to learn from any of the natives that they were regularly seen here. A number of years ago, in a cliff located in Blount County, a Golden Eagle's nest was found, from which an intrepid naturalist took the eggs for museum purposes. Various points in the region bear the name of "Eagle Rock," "Eagle Mountain," "Eagle Creek," etc., and this would seem to show that the "National Bird" was at one time, at least, a regular inhabitant of these mountains. It is not known as yet whether the predominating form is the Bald Eagle or the Golden Eagle; most likely the latter, however. On my last trip two were noted over the top of LeConte, by Mayfield, who called my attention to them. They were noted several times during the day and at times their cries were noisy. The few available cliffs in the vicinity were searched for a nest without success. A few days later, June 3, I observed two, east of Greenbrier at the Catstair Cliffs (4,500 feet). All of these appeared to be Golden Eagles.

My acquaintance with the KINGFISHER had heretofore been confined to the streams of flat or rolling country and it seemed to me out of place to find them in this high, wild forest covered country. Three pair were noted on the headwaters of Little River; one pair at Elkmont (2,400 feet), another on Jakes Creek (2,700 feet) and the third pair on Rough Creek, in the recently cleared forest, above the lumber camp, at elevation 3,000 feet. This pair had excavated a nest hole in the newly made railroad cut and, judging by their constant clatter, were enjoying rare fishing among the unsophisticated young rainbow trout.

The PILEATED WOODPECKER was noted at several points, including Gatlinburg and from Jakes Creek (2,700 feet) to the top of Miry Ridge (4,700 feet). A number of their excavations were to be seen along this ridge. The "Log-cock" is one of the

most picturesque birds of these fine forests.

But one specimen of the Red-Headed Woodpecker was seen. It was in a clearing on Jakes Creek at elevation 2,700 feet. Apparently the high altitude is not to its liking.

A pair of Yellow-bellied Sapsuckers were noted on the top of Silers Bald (5,200 feet) and several other pair on Chestnut and Miry Ridges (4,700 feet). One of the latter pair entered and remained in a new nest hole 50 feet up in a dead hemlock.

One of the surprises of the higher altitudes was the abundance of Chimney Swifts. Hundreds were to be seen about the summit of Silers Bald flying over the open grassy areas; they were found up to 6,680 feet but not in such abundance. At this altitude they were feeding over heavily forested areas. In the valleys below they were to be found in normal numbers. I presume the birds on the mountain tops were at home for the summer and if so their nesting must occur in hollow trees. One on May 30, was observed to be flying in and out of a hollow tree.

No visit to this wild and unfrequented area would have been complete without a sight of the Northern Raven and this pleasure was given me late on the afternoon of May 28, 1920. I was retracing my footsteps along the ridge from Clingmans Dome trying to locate a deserted sheep herders cabin in which I was forced to spend the night, when a pair of these great birds came winging their way toward me. One of the pair passed not fifty feet from where I stood and its ragged neck feathers and heavy beak could plainly be seen. On observing me it swerved sharply and uttered a coarse "croak" as a warning to its mate. Native hunters say that it is to be found regularly along the escarpments of some of the lower mountains but that it is always scarce. While but few vertical cliffs are available for nesting sites, the dense and lofty hemlocks should afford good locations for its bulky nests. On June 1, 1924, Ijams heard one passing over Silers Bald and Adams reported it at LeConte in 1925.

Another bird of the high altitudes which held my interest was the CAROLINA JUNCO, commonly called "Snowbird." They are quite common from the summits of Mt. LeConte (6,680 feet) and Clingmans Dome (6,611 feet) to the lower altitudes of the long connecting ridges. They were also found in the logged out gulches down to elevation 3,000 feet, but were less common here. Single individuals were noted at the relatively low altitudes of 2,700 and 2.800 feet. A number of nests with fresh eggs were found on top and several nests with young were found at lower altitudes. In the logged out gulches nests were found among the roots which overhung the vertical cuts graded out for the log road tracks. The nests on the ridges, 10 or 12 in number, were located either on the ground or from 5 to 8 feet above. The elevated nests were placed either in young spruce or at the ends of the lower horizontal branches of the larger ones or among the roots of upturned trees. On LeConte several nests were as high up as 30 feet. The nests are quite bulky, beautifully constructed of green and usnea moss externally and lined thickly with fine, damp, red fibres and some horsehair from the semi-wild horses that range the "balds." The Snowbird in its summer home is quite unsuspicious and nearly all of the many seen were in pairs, keeping closely together at all times.

The cheerful song of the Rose-breasted Grosbeak was to be

heard quite frequently about the mountain tops and connecting ridges. This bird, which is a cousin to the Cardinal, replaces the latter at the higher altitudes. Several nests were found among the thickets of wind stunted deciduous trees and one below the "tops" in dense woods.

The Mountain Solitary Vireo was one of the most characteristic birds of the higher altitudes. Singing birds were nearly always within earshot from 3,000 up to 5,000 feet. One individual was noted at Elkmont (2,200 feet). They were most common along the connecting ridges, around 4,500 feet, and along Miry Ridge. Here on May 31, 1920, I found a beautifully constructed nest built 6 feet up near the top of a small hemlock. It held three eggs incubated about one week. The nest was lined with fine grasses and covered externally with blue-green lichens and spider silk. The parent left the nest only after I had tapped the branch with my pencil a few inches away. She immediately joined her mate, in the branches some eight feet away, and while she scolded me he indulged nervously in his loud, jerky song.

During 1924, four nests were found during the first few days in June, all holding fresh eggs. In each case the sitting bird would not fly from the nest until touched with one's hand. They were built among the branches of deciduous trees from 6 to 10

feet above the ground.

As might be expected of a bird student in these regions, I had looked forward with much pleasure to having experience with certain species of the rarer warblers, which were not to be found at lower altitudes. Perhaps my most valued experience was that with the BLACK-THROATED BLUE, or CAIRN'S WARBLER, as this Southern subspecies is called. These gaudily-colored little birds were most conspicuous and possibly most numerous in the cutover areas, where fallen treetops amid the laurel jungle made a nearly impenetrable tangle. Following up the rapid little mountain streams and keeping an eye out for birds, one could see a pair of these little warblers about every quarter-mile. They ranged between 2,800 and 5,000 feet altitude, wherever there was laurel not too far from water. One pair, however, was feeding on the crest of Blanket Mountain (4,500 feet) in an extensive burntover area covered with sprouting clumps of laurel and birch. While following this pair I had a disagreeable encounter with a black rattler and later agreed with Sam Cook, locally famous "b'ar hunter," when he said, "thems the evilist critters in these here mountains." This rattler, by the way, was the only one seen Another pair of Cairns was located June 1, 1920, by finding the female sitting on her nest which contained three nearly fresh eggs. Being my first nest of this species and one of the few ever found. it gave me no small thrill of pleasure. The location was near the top of a ridge, at 4,000 feet, in open woodland and well above the laurel belt which grew below. Throughout the woods grew a

scattered undergrowth, chiefly of small hemlocks. The nest was located 40 feet from a spring in one of a small clump of baby hemlocks with ground touching branches. The beautiful little cupshaped nest was but 12 inches above the ground and was built in a crotch, against the hole of the tree. Externally it was composed of inner bark fibres and the interior was lined with fine. The female sat closely and only flushed when I black rootlets. snapped my fingers a foot from the nest. Both birds chipped vigorously at my intrusion, alighting upon low branches 8 or 10 feet away. The eggs were typical, being creamy white heavily blotched about the large end with various shades of light brown. Another nest was located near the mountaintop just within the edge of laurel growth and this nest held three fresh eggs on June 15. 1924. At Alum Cave (4,500 feet) a third nest, containing four eggs, was found June 1, 1925, built among licothea stems on a steep, shaded slope. Besides the above, half a dozen unoccupied nests were also found, nearly all built in laurel from two to five feet up.

The Ovenbird was noted in all openly wooded areas, up to the top of Silers Bald (5,200 feet), where a specimen was taken among the dwarf beeches. It was quite common along the higher ridges. A nest, found June 1, 1920, on Miry Ridge, contained young about six days old. It was the typical oven-like structure, built on the ground in rather thin woods.

THE KENTUCKY WARBLER was found to be common in the thin cut-over woods about Elkmont but apparently does not occur at a higher altitude. A nest with very small young, was found on May 27th, in a clump of second growth sprouts just inside a steep hillside woods. This nest differed from all I had previously found in that the bottom foundation of leaves cleared the ground by about four inches.

But two Hooded Warblers were met, being observed in thin woods above Elkmont at elevation 2,600 feet. Little field work was done below 3,000 feet else this species might have been more frequently recorded.

Perhaps the most common warbler met was the Canadian Warbler. Its habitat was found to be the dark, shaded gulches along the mountain torrents between 3,200 and 4,000 feet. At such places the ground, boulders and prostrate tree trunks—half hidden among the rhododendron—are thickly covered with green moss and ferns. To find a nest in such a riot of vegetation would be purely accidental since it always builds on the ground among this moss. The birds themselves are conspicuous, not only because they are very active but on account of their conspicuous black and yellow markings.

In the winter time, throughout Tennessee, we entertain a very small feathered visitor from the north which is called the WINTER

Wren. This little fellow is about half the size of the large Carolina Wren, which breeds commonly about us, and he has a very short, stubby tail and dark brown coat. When we began to explore the higher portions of the Smokies we were agreeably surprised to find this little fellow there and breeding just as though it were in the Canadian forests. The Winter Wren dwells about the prostrate logs or among the brush piles and was found to be fairly common at all altitudes above 3,200 feet. Its nest was sought among the upturned tree roots and old stumps, without success. A never tiring singer, his tinkling roundelay is a fit accompaniment to the babbling of the small mountain streams near which he is usually found.

The Brown Creeper finds here the only place in the State suitable for its summer home, for it is normally a bird of the far north woods. Half a dozen in all were observed along the backbone which connects Clingmans Dome with Silers Bald, on June 1, 3 and 4. In their characteristic way, they were creeping restlessly around the trunks of balsam and spruce. No nests were found.

Another Canadian bird which extends its range this far south on account of the high altitude is the Red-Breasted Nuthatch. These fearless little fellows confine themselves to the high spruce and balsam timber, digging holes in the dead stubs for their nests. On June 2, 1925, two pairs were noted building their nests and 12 days later one of these nests was visited and found to contain six fresh eggs. While examining the nest one of the parent birds kept within a few feet of me, occasionally alighting on my arm. This species appeared to confine its range to the tops exclusively, none being found lower than 4,700 feet.

THE WILSONS THRUSH or "VEERY" was frequently met with on the mountainsides above 3,000 feet. Their loud, whistling call note and weird song proclaimed their presence when they were near. A nest near the summit of Miry Ridge (at 4,700 feet) held three fresh eggs on May 31. It was located in thin cut-out woods on a very steep slope. The location chosen was one of a clump of low spruce, growing up through the branches of a fallen tree, the nest being placed three feet above the ground. Several other nests, containing eggs, were found the first week in June, 1924. All were in low bushes in the woods, close to the ground between elevations 4,000 and 5,000 feet.

Having come from a section where the Robin was to be found breeding only about city lawns and parks, it was a decided novely to find these birds quite common on the uninhabited mountain summits and the ridges between. A dozen of their nests were found in stunted beech and on the lower horizontal limbs of large spruce and balsam. Their exteriors were occasionally constructed of the abundant green usnea moss and some nests, in which this material trailed a foot or more below the limbs on which they were

saddled, were particularly beautiful. The Robin of the mountains is as wary as its city cousin is confiding and I fancied his song also partook of the wildness of the surroundings. My first morning's sleep in the deserted cabin on the mountaintop, was broken at daybreak by the outpourings of a Robin which had perched upon the dilapidated stone chimney.

And so I could go on and tell in greater or less detail about many other of the birds quite as interesting as these. Suffice it to say, however, that the bird life of The Smokies is as attractive as the scenery itself, for here dwell many species that cannot be found elsewhere in the State. A number of other rare or northerly ranging species will, doubtless, be recorded here, as summer residents, upon further field work. Among these possibilities are the Duck Hawk, Olive-sided, Least, and Alder Flycatchers, Purple Finch, American Crossbill, Pine Siskin, Goldencrowned Kinglet and Golden-winged, Cerulean, Blackthroated Green, and Blackburnian Warblers.

Careful observations extending over a period of years, at all seasons, would probably yield a total list of 200 species.

The following is a complete list of the 80 species of birds actually observed from Elkmont (2,200 feet) to Silers Bald and adjacent peaks and from Gatlinburg (1,400 feet) and Greenbrier (1,500 feet) to the summit of Mt. LeConte and vicinity.

The appended letters denote as follows: "a" indicates species seen on the summits and their connecting ridges; "b" those noted at intermediate altitudes, in the forest and slashings; "c" those noted at Elkmont, Gatlinburg, Greenbrier or in the inhabited valleys immediately above these points; and "*" indicates species treated more fully in the preceding text.

Bob White		a -		
Kutted Crouse	Ronasa u. umbellus	a t) -	
Wild Turkey	Melegaris gallopado sudestris	a -		
Mourning Dove	Lenaidura macroura curotinensis			
Turkey Villture	(athartes aura septemirionalis	a 1		
Red-tailed Hawk	Ruteo b borealls	a -		
Golden Fagle	Aguala chrysagtos	a -		
Sparrow Hawk	Halco e chargerius	- :		
Barred Owl	String 71 710mid	a 1		
Great Horned Owl	Bubo v. virginianus	a		
Yellow-billed Cuckoo	.Coccyzus a. americanus	-		
Black-billed Cuckoo	.Coccyzus erythrophthalmus*	-		
Delted Kingfisher	Cervle alcyon	-		
Talry Woodnecker	Dryphates 7 mllosus	a		
Downy Woodnecker	Dryphates bubescens medianus		b	
TCIOW-Dellied Sanguelear	Chlarabicale at marine	a		
"Calcul W Oodbecker	Dilacatamus b bileatus	a		
			-	
		-	b	c
Whippoorwill	Antrostomus v. vociferus*	-	_	c
Chimney Swift	Chaetura pelagica*	a	b	c
		-		C
Ruby-throated Hummingbird	. Chordedes v. virginianus	_	-	c
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Crested Flycatcher	Myiarchus crinitus
Dhoebe	Savornis phoebe
Wood Perree	Myjochanes virens
Blue Jay	Cyanocitta c. cristataab Corvus corax principalis*a-
Northern Raven	Corvus corax principalis* a
Crow	Corvus b. brachyrnynchos
Redwing Blackbird	Agelaius p. phoniceus
Orchard Oriole	Icterus spurius
Bronzed (?) Grackle	Ouiscalus guiscula aeneus
Goldfinch	Astragalinus t. tristis
House Sparrow	Passer domesticus
Chipping Sparrow	Spizella b. basserma
Field Sparrow	Spizella p. pusilla
Carolina Junco	Junco hyemalis carolinensis* a b.
Song Sparrow	Melospiza m. melodia
Tomboo	Pipilo erythrophthalmus
Caudino1	Cardinalis c cardinalis
Pace breasted Grosheak	Zamelodia ludoviciana* a h
Indian Bunting	Passerina cvanea
Coorlot Tanager	Piranaa erythromelas
C. Tomoron	Piranaa r rubra
D 1 M	Progne e cubic
Rough-winged Swallow	Stelgidopteryx serripennis — Bombycilla cedrorum — Vireosylva olivacea — b
Cedar Waxwing	.Bombycilla cedrorum
Red-eved Vireo	.Vireosylva olivaceab
Vellow-throated Vireo	Lanivireo flavifrons
Mountain Solitary Vireo	.Lanivireo solitarius alticola* a b
White-eved Vireo	Lanvireo solitarias alticola
Vellow Warbler	.Dendroica a. aestiva
Cairns Warbler	.Dendroica caerulescens cairnsi* a b
Chartest aided Worklor	Dendroica bensylvanica D
Desiming Worklow	Dendroica discolor
O - 1:1	Canivale any ocapallate
Louisiana Water Thrush	. Seiurus motacilla b
Kentucky Warbler	Seiurus motacilla b Oporornis formosus * -
Maryland Vellowthroat	$(\tau e o t h l v b i s t. trichas$
Hooded Warbler	. Wilsonia citrina*
Canadian Warbler	Wilsonia citrina*
Redstart	Setophaga ruticilla
C-11:1	Dumetella carolmensis
Brown Thrasher	Toxostoma rufum
Bewicks Wren	Thryomanes b. bewicki
House Wren	Troglodytes a. aedon
Winter Wren	Nannus h. hiemalis* a b
White-breasted Nuthatch	Certhia familiaris americana Sitta c. carolinensis Sitta canadensis Raelophus hicolor
Red-breasted Nuthatch	Sitta canadensis*a-
Tufted Titmouse	Baelophus bicolor
W 1 Th	Hallocachla mustelma
Wilsons Thrush	Hylocichla fi. fuscescens * a b
Bluebird	Sialia s. sialis
Didebit d	