

THE MIGRANT

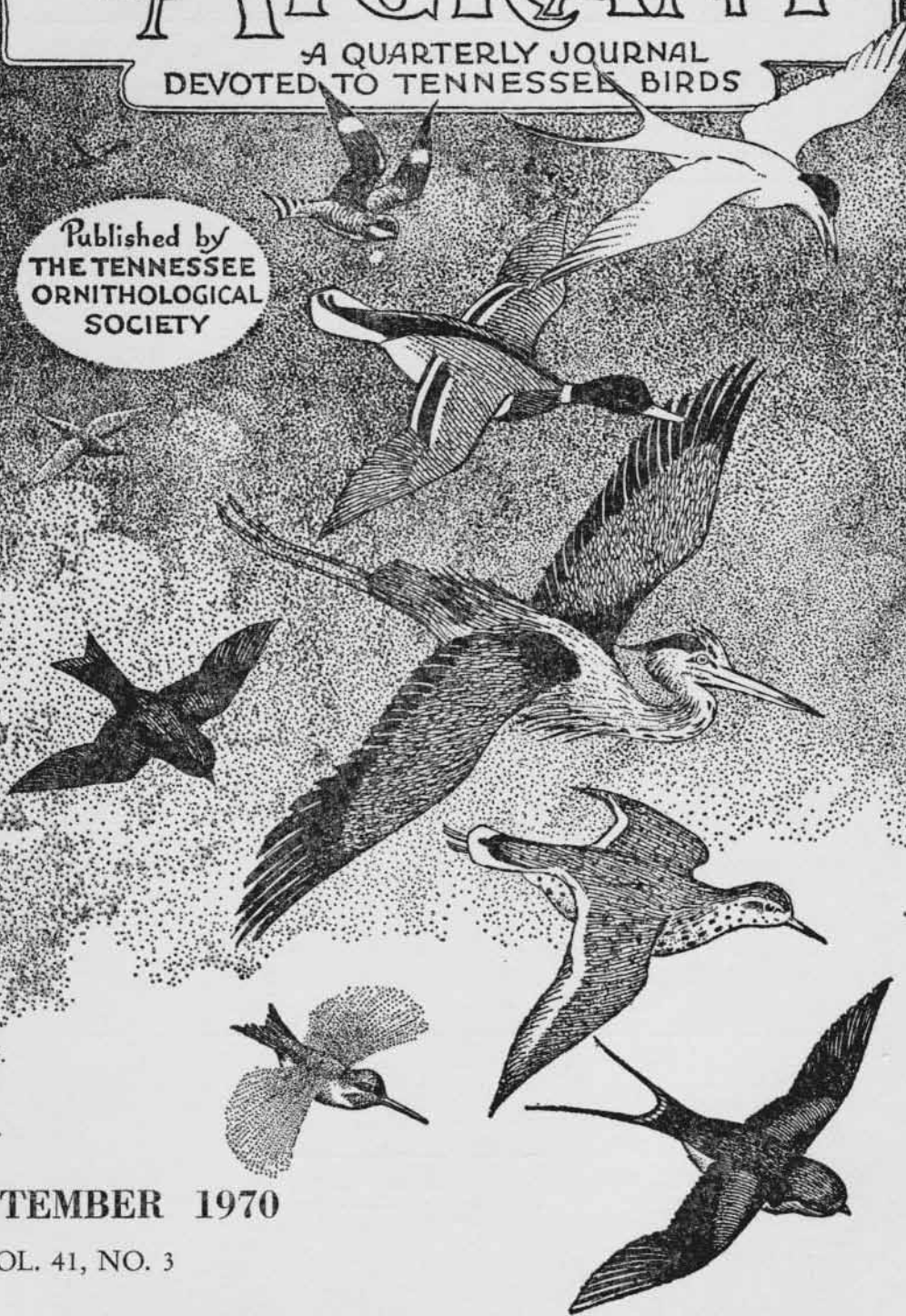
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A CENSUS OF A BREEDING BIRD POPULATION IN A VIRGIN SPRUCE FIR FOREST ON MT. GUYOT, GREAT SMOKY MOUNTAINS NATIONAL PARK

BY FRED J. ALSOP, III

INTRODUCTION

There is no true timberline in the Southern Appalachians. The spruce-fir forests that crowned the crests of this chain of mountains bisecting much of the eastern United States have been reduced to a remnant by the activities of man. More than ninety percent of the virgin spruce stands of these mountains have been lost due to lumbering and fires (Stupka, 1963). The unspoiled Canadian Zone forests of Mt. Guyot and the other high mountains within the boundaries of the Great Smoky Mountains National Park are unique in eastern North America, both their fauna and flora. Not every species of bird found in the boreal spruce-fir forests of northern Maine and western Ontario are to be found there. Indeed, many characteristics of the forests of the north are rare in the spruce-fir of these southern highlands, but enough boreal species inhabit the biome to make it the only clearly-defined "life zone" in these mountains. In these high-altitude forests many Canadian Zone birds nest in the southernmost extension of their breeding range in the Eastern United States.

The Balsam Woolly Aphid (*Chermes picea*) was accidentally introduced from Europe into New England in 1908. It has since spread to eastern Canada, the Pacific Northwest, and to the Southern Appalachians. In 1957 it was discovered in North Carolina, and in 1963 on Mt. Sterling in the Great Smoky Mountains National Park.

Because of its exceedingly high reproductive capacity and the absence of natural predators the aphid represents a very serious threat to many species of fir trees in this country. A heavy stem infestation can kill a tree within two years (United States Departments of Agriculture and Interior, 1964). In the Great Smoky Mountains National Park, Fraser Fir (*Abies fraseri*) forms al-

most pure stands above 6,000 feet altitude. Should this species be destroyed, the vegetation of these mountain highlands would undergo dramatic changes which would soon be followed by equally intense changes in the kinds of animals living in this biome.

PURPOSE OF THE STUDY

The uppose of this study was to determine as accurately as possible the density of the bird populations in a virgin spruce-fir forest before changes in the forest resulting from aphid damage could occur. Accounts of the kinds of birds to be found in the spruce-fir biome are numerous. Some taken in the Southern Appalachians date almost one hundred years ago (Brewster, 1886). These reports give excellent records of the numbers of species to be found, but none gives the numbers of individuals of each species, the density, to be expected for a given unit of measure of spruce-fir forest.

A knowledge of the approximate avian population is of importance for several reasons: 1) As far as can be determined from the literature search, there are no records of population censuses taken in a virgin spruce-fir forest. The study is, therefore, unique. 2) Should the aphid continue to spread unchecked, there will occur many changes in the flora and fauna of the area. 3) Records of the present population densities are needed as a basis for comparison for ecological studies which might be undertaken at some future date.

THE AREA

The area chosen for study was a sample plot established in the spruce-fir forest on Mt. Guyot in Great Smoky Mountains National Park. Mt. Guyot is the second highest mountain in the Park and the third highest point in the Eastern United States, reaching an altitude of 6,621 feet above sea level at 35°43' N., 83°16' W. (USGS map NI 17-1). It is located on the boundary of Haywood County, North Carolina and Sevier County in East Tennessee. The mountain is accessible by United States Highway 441 and by Tennessee Highways 32 and 73. Only foot trails enter the mountain itself. A base camp from which the census was conducted was established at Tricorner Knob, a permanent shelter on the Appalachian Trail.

The study plot was a sixty-acre L-shaped grid divided into forty squares 256 feet on a side, each square having an area of one and one-half acres. Elevation of the plot varied from 5,760 to 6,000 feet. The climate at this elevation is similar to that found farther to the north. The average annual precipitation is about 38 inches. The average temperature in January is equivalent to that in Central Ohio while the average July temperature is duplicated along the southern edge of Hudson Bay in Canada (U.S. Dept. of Commerce, Weather Bureau, 1962). During the period of the census, 17 June, 1967, to 27 June, 1967, the average daily noon temperature at Tricorner Knob was 58°F.

The dominant plant association is the spruce-fir forest of the Canadian Zone biome. Because of their remoteness from easily accessible areas, the forests of Mt. Guyot were not logged before the national park was established. The forests that exist on the mountain at present are magnificent virgin remnants of those that once extended northward from the Southern Appalachians into Canada.

There was no edge or ecotone in the study area. The forest surrounding the grid was the same for miles in all directions being broken only by an occasional windfall. The uniformity of the area is an important factor. Uniform habitats typical of large regions are particularly desirable and at least one-half the value of each count depends upon it (Hall, 1964).

A survey of the forest crown vegetation on the census area was made. Its composition was found to be as follows: Fraser Fir 80%, Red Spruce (*Picea rubens*) 16%, and Yellow Birch (*Betula lutea*) 4%. (For a complete description of vegetation see Alsop, 1968.) Due to the shallowness of their root systems many trees are blown over during periods of strong winds leaving a mass of roots, soil, and matted vegetation standing almost vertically at the butt of the trunk. At least two species of birds, the Winter Wren (*Troglodytes troglodytes*) and the Slate-colored Junco (*Junco hyemalis*), were found to use these upturned tangled masses for nesting sites.

THE STUDY

Because many birds pass through the Great Smokies in the course of their spring migration, the end of the second week of June was chosen as a favorable time to begin the census. At this time no migrants are likely to be found in the spruce-fir forests and most of the passerine birds in residence in these high elevations are involved in some phase of their nesting activities during this period.

In order to minimize error in the conversion of the numbers of territorial males on the plot to a basis of the number of males per hundred acres the plot was made as large as possible. It was felt that sixty acres could be covered by the observer in one census trip before the birds' activity began to decline. Coverage of an area this large by a single observer was possible largely due to the restriction of the environment to a single uniform type and to the persistence of the birds' activity during most of the day at this altitude.

When the grid was established, with the recording stations at the intersections of the grid lines, a map was made of it for each species recorded on or over the study area (for a more detailed description of the methods and materials used see Alsop, 1968). These were used to plot the location of each contact and to establishing the number of territorial males using the area.

At each station, as soon as the time and station number were recorded, birds were counted by sight and sound for three minutes. During this time all the birds contacted were recorded. This was done even though the population density would be based on males only, to gain a knowledge of all the birds that occurred on the census area regardless of their status. No contacts made while moving from one station to the next were recorded.

Contacts were scored in three ways using the symbols *se* for seen, *si* for heard singing, and *b* for heard calling only. This procedure was used because it was felt by the observer that a singing bird was probably a male advertising his territory and was therefore more important, from the standpoint of the census results, than a bird detected only by his call notes. In the same manner a bird scored as singing was given priority over one actually seen. The type of contact was followed with an estimate of the distance, in feet, from the observer to the bird. The bird's direction in relation to that of the observer was plotted using a compass.

A special effort was made to record the locations of males of the same species singing simultaneously. This information was much more helpful than clusters of records of singing observations from a series of days because the birds were known to be two different individuals, a fact that enabled me to draw a territorial line between them on a map. During each count special notations were made of birds that flew over the area such as Chimney Swifts (*Chaetura pelagica*), Broad-winged Hawks (*Buteo platypterus*), and Ravens (*Corvus corax*). Noted also were the locations of immature birds and birds whose actions indicated a nest might be close by. In all, nine counts were made during the morning hours and six in the afternoon for a total of fifteen.

TABLE 1
THE POPULATION DENSITY OF MID-JUNE BREEDING BIRDS OF THE
MT. GUYOT SPRUCE-FIR FOREST

Species	Number of males per 60 acres	Number of males per 100 acres
Slate-colored Junco (<i>Junco hyemalis</i>)	46	76
Golden-crowned Kinglet (<i>Regulus satrapa</i>)	30	50
Winter Wren (<i>Troglodytes troglodytes</i>)	20	33
Veery (<i>Hylecichla fuscescens</i>)	20	33
Black-throated Blue Warbler (<i>Dendroica caerulescens</i>)	14	23
Solitary Vireo (<i>Vireo solitarius</i>)	9	15
Black-throated Green Warbler (<i>Dendroica virens</i>)	7	11+
Brown Creeper (<i>Certhia familiaris</i>)	6	10
Red-breasted Nuthatch (<i>Sitta canadensis</i>)	5	8
Robin (<i>Turdus migratorius</i>)	5	8
Black-capped Chickadee (<i>Parus atricapillus</i>)	4	6+
Hairy Woodpecker (<i>Dendrocepes villosus</i>)	2	3
Blackburnian Warbler (<i>Dendroica fusca</i>)	2	3
Totals	170	281

TABLE 2

A COMPARISON OF THE NUMBERS OF MALE BIRDS PER HUNDRED ACRES ON MT. GUYOT AND MT. MITCHELL

Species	Plot Census	Strip Census	Plot Census
	Mt. Guyot	Mt. Mitchell	Mt. Mitchell
	Alsop, 1967	Alsop, 1967	Adams, 1959
Slate-colored Junco (<i>Junco hyemalis</i>)	76	24	65
Golden-crowned Kinglet (<i>Regulus satrapa</i>)	50	13	50
Winter Wren (<i>Troglodytes troglodytes</i>)	33	22	35
Veery (<i>Hylocichla fuscescens</i>)	33	12	+
Black-throated Blue Warbler (<i>D. caerulescens</i>)	23	0	0
Solitary Vireo (<i>Vireo solitarius</i>)	15	3	40
Black-throated Green Warbler (<i>Dendroica virens</i>)	11+	3	75
Brown Creeper (<i>Certhia familiaris</i>)	10	0	+
Red-breasted Nuthatch (<i>Sitta canadensis</i>)	8	1+	20
Robin (<i>Turdus migratorius</i>)	8	4	15
Black-capped Chickadee (<i>Parus atricapillus</i>)	6+	0	0
Hairy Woodpecker (<i>Dendrocoptes villosus</i>)	3	0	+
Blackburnian Warbler (<i>Dendroica fusca</i>)	3	0	35
Song Sparrow (<i>Melospiza melodia</i>)	0	6	0
Chestnut-sided Warbler (<i>Dendroica pensylvanica</i>)	0	8	0
Canada Warbler (<i>Wilsonia canadensis</i>)	0	1+	1
Catbird (<i>Dumetella carolinensis</i>)	0	1+	0
Totals	281	94	340

This method of plotting the birds contacted on maps to determine the number of territorial males present, the Williams spot-mapping method, is very well adapted for most species of small passerine birds. The method is not used to determine the territorial boundaries, but to determine the number of territories present.

Twenty-four species of birds were found on or flying over the Mt. Guyot study plot. Of these twenty-four, thirteen were thought to be breeding birds or territory holders at the time of the census. These thirteen species were represented by one hundred-seventy territorial males, an average of 2.8 territorial males per acre (Table 1).

A trip was made to Mt. Mitchell in North Carolina to see the effects of the Balsam Woolly Aphid and to conduct a brief census of a bird population in a disturbed habitat for comparison with the Mt. Guyot study. It can be assumed from the close proximity of Mt. Guyot to Mt. Mitchell (they are about fifty-five statute miles apart and of similar elevations) that the forests and the birds found on both were originally identical. This can be further

substantiated by the records of early naturalists such as Brewster (1886). Today they are quite different. The forests on Guyot are in their primitive condition; those of Mt. Mitchell have been logged, burned, infested, and left to the ravages of the winds except for some Fraser Fir at the very summit which now face the threat of the aphid. Adams (1959) conducted a breeding bird census on Mt. Mitchell.

On 1 and 2 July, 1967, I conducted two strip censuses to get an index of the relative abundance of the breeding birds there. I was looking for the absence of species recorded on Mt. Guyot and the occurrence of any birds that had not been observed there whose presence could be tied to the ecological changes in the vegetation on Mt. Mitchell. The result of these counts and a comparison with those of Adams' on Mitchell and mine on Guyot are shown in Table 2.

The most dramatic differences in the avifauna were the absences of the Black-throated Blue Warbler (*Dendroica caerulescens*), Brown Creeper (*Certhia familiaris*), and Black-capped Chickadee (*Parus atricapillus*) on Mt. Mitchell as these were common in the spruce-fir of Mt. Guyot. Similarly, the Song Sparrow (*Melospiza melodia*) and the Chestnut-sided Warbler (*Dendroica pensylvanica*) were plentiful on Mt. Mitchell, but the Song Sparrow was never recorded on Mt. Guyot and only one Chestnut-sided Warbler was a visitor to the study plot.

The strip censuses taken on Mt. Mitchell also indicate decreases in the populations of Solitary Vireos (*Vireo solitarius*), Black-throated Green Warblers (*Dendroica virens*), Red-breasted Nuthatches (*Sitta canadensis*), Robins (*Turdus migratorius*), and Blackburnian Warblers (*Dendroica fusca*). Possibly the bird that has benefited the most by the changes in Mt. Mitchell's vegetation is the Song Sparrow. This seems to be a "disaster" species in the higher elevations of the Southern Appalachians. It extends its range to the very peaks of these mountains when sufficient damage has been done to the vegetation to establish the open second-growth areas it prefers.

SUMMARY

The introduction of the European Balsam Woolly Aphid into the United States poses a threat to the Fraser Fir of this country. A census was conducted in the virgin spruce-fir forests of Mt. Guyot in the Great Smoky Mountains National Park using a spot-mapping method to determine the absolute breeding bird population on a sixty-acre plot before ecological changes were brought about by aphid destruction. The results of this census were compared to findings of other investigators in similar biomes. A trip was made to, and a strip census was conducted on, Mt. Mitchell where the forests have undergone dramatic changes due to the destruction of the trees by man and aphid infestation. The findings on Mt. Mitchell were compared to those of Mt. Guyot to see if any changes in the avifauna could be linked directly to the aphid.

This research was important not only in providing a basis for comparison by future investigators, but also in that censuses in undisturbed spruce-forests are few in general and unique in the Southern Appalachians.

ACKNOWLEDGEMENTS

I would like to express my sincere appreciation to Dr. James T. Tanner, my major professor, for his continued aid and suggestions before, during, and after the period of research which helped to make this work possible. I am further grateful to him and Dr. J. C. Howell and Dr. D. A. Etnier, members of my review committee, who gave of their time in evaluating the original manuscript.

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Department of Zoology and Entomology, University of Tennessee, Knoxville, 37916.

A 1969 SPOT-COUNT OF SUMMER BIRDS OF SHELBY COUNTY

BY BEN B. COFFEY, JR.

Many early summer field trips have been made in the Mid-South, generally at some distance from Memphis, during the last two decades. Last June, I decided to renew acquaintance with Shelby County. From 8 June through 6 July, 1969, I was out for parts of fifteen mornings (with Mrs. Coffey on four) for a total of 46 hours of roadside observations including travel time between the frequent stops made. Representative areas throughout the county were worked. Except for short periods in Overton and Riverside Parks, no observations were made in Memphis (including Whitehaven) or the larger towns.

In arranging the total count, which follows, I decided it would be of more interest to list the eighty species in numerical order, the numbers being both relative and tentative. The House Sparrow, for which no count was made, was ranked arbitrarily. Counts for the Rough-winged Swallow include a flock of 32 and for the Turkey, 12 immatures with the 3 adults, placing them higher in the ranking than deserved. Further discussion follows the list.

Common Grackle, 680; Mockingbird, 539; Cardinal, 508; Bobwhite, 431; Indigo Bunting, 424; Eastern Meadowlark, 424; Starling, 353; Robin, 293; Blue Jay, 280; Red-winged Blackbird, 254; House Sparrow, common; Yellow-throat, 227; Carolina Wren, 204; Rufous-sided Towhee, 155; Wood Thrush, 142; Barn Swallow, 141; Yellow-breasted Chat, 138; Brown-headed Cowbird, 129; Orchard Oriole, 121; Carolina Chickadee, 117; Mourning Dove, 108; Chimney Swift, 107; Eastern Kingbird, 105; Tufted Titmouse, 77; Red-bellied Woodpecker, 61; Brown Thrasher, 58; White-eyed Vireo, 58; Yellow-billed Cuckoo, 57; Summer Tanager, 52; Dickcissel, 50; Yellow-shafted Flicker, 44; Acadian Flycatcher, 41; Rough-winged Swallow, 39; Wood Pewee, 36; Downy Woodpecker, 32; Purple Martin, 31; Red-eyed Vireo, 30; Field Sparrow, 29; Great Crested Flycatcher, 26; Common Crow, 23; Blue Grosbeak, 20; Catbird, 19; Loggerhead Shrike, 18; Killdeer, 18; Prothonotary Warbler, 16; Green Heron, 15; Turkey, 15; Blue-gray Gnatcatcher, 13; Parula Warbler, 13; Kentucky Warbler, 11; Baltimore Oriole, 11; American Redstart, 9; Red-headed Woodpecker, 7; Grasshopper Sparrow, 7; Warbling Vireo, 6; Eastern Bluebird, 6; Fish Crow, 5; Ruby-throated Hummingbird, 4; Wood Duck, 4; Pileated Woodpecker, 4; Mississippi Kite, 4; Swainson's Warbler, 4; Hooded Warbler, 3; Horned Lark, 3; Yellow-throated Vireo, 3; Eastern Phoebe, 3; Yellow-throated Warbler, 2; Belted Kingfisher, 2; Red-tailed Hawk, 2; Yellow-crowned Night Heron, 2; Chipping Sparrow, 2; Common Nighthawk, 1; Hairy Woodpecker, 1; Cerulean Warbler, 1; Turkey Vulture, 1; Broad-winged Hawk, 1; Common Egret, 1; Little Blue Herron, 1; Painted Bunting, 1; Bewick's Wren, 1.

A roadside count is, to some extent, weighted in favor of certain species. But, on June mornings, a large percentage of the birds present within an appreciable distance will be heard. Some species may be relatively quiet during short periods and there are other variables (including the observer factor). If some wooded bottoms and ravine areas (not otherwise visited) had been walked, relatively more warblers (except the Chat and Yellow-throat) and two

vireo species might have been listed. However, we do not, now, have many such areas. One route was by road through Shelby Forest. For some reason, Cerulean, Yellow-throated and Hooded Warblers were low; absence of the Louisiana Water-thrush would warrant a special search for the species at the first chance. The number of Wood Thrushes indicates that routes passed close to woods at many points. If it had been practical to take some of the routes along noisy city streets, the relative number of Robins, Towhees, Mocking-Birds, Starlings, Grackles, and House Sparrows would have been increased; to a lesser extent, Catbird and Brown Thrasher. One or two Sparrow Hawks might have been found in town. Late evening runs might have shown more Mourning Doves. Night runs in the right areas would have added the Chuck-Will's-widow and Barred Owl, with remote chances for Great Horned Owl and Screech Owl. Certain town areas after dark would add to the single Nighthawk seen. The Hairy Woodpecker and hawks and vultures were low. The Cooper's Hawk may not be seen here for a year or two at a time; the Black Vulture and Red-shouldered Hawk have become uncommon. All herons, except the Green Heron, are now uncommon, but the Yellow-crowned Night Heron is now nesting in Riverside Park. Other species now absent or difficult to find as summer residents here, are: Pied-billed Grebe, Great Blue Heron, King Rail, and Bachman's Sparrow. The White-breasted Nuthatch (0) and Bewick's Wren (1) have always been very uncommon here. The Painted Bunting is local but it does seem to be absent now from the Riverside Park bluff and edges.

One item of interest is that this list of 80 species includes about fourteen that were not summer residents about 50 years ago; some are high in the list. These, with approximate year of first nesting in Shelby County, are: Robin (1918), Horned Lark (1932), Painted Bunting (1933), Barn Swallow (1935), Starling (1935), Rufous-sided Towhee (1941), Cerulean Warbler (1942) Eastern Phoebe (1947), Blue Grosbeak (1960). The first state record for the Fish Crow was in 1931, for the Mississippi Kite, 1932. The Broad-winged Hawk, Red-tailed Hawk, and Grasshopper Sparrow also moved in from the north during this period.

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NOTICE

Birds of the Nashville Area, revised by Henry E. Parmer is available by mail for \$1.25 from Mike Bierly, 3826 Bedford Avenue, Nashville, Tennessee 37215. The booklet was originally published in 1966 and was reviewed in *The Migrant* 37:16. The revised edition contains over 100 changes and three additional species. It would be useful to all birders of Tennessee and surrounding area as a reference to bird distribution in this area.

ROUND TABLE NOTES

HERONRY AT DYERSBURG IS NO LONGER ACTIVE—The heronry on U. S. 51 just north of Dyersburg in the industrial park is no longer active. This heronry has been the subject of notes by myself, (*The Migrant* 39:59) by Mrs. Ben Coffey, (*The Migrant* 35:54) and by Albert Ganier (*The Migrant* 31:48-49).

The heronry was active in 1969 but with fewer birds than in the prior year. The species mix had changed drastically over the past few years. The number of Cattle Egrets had been increasing while the Common Egret and Little Blue Heron had been declining. There has been a large decline in the Common Egret.

During the past two years there had been increased local concern for the heronry and it was the subject of a number of newspaper articles including an excellent one in the Commercial Appeal by Jan Taylor. Mack Prichard had worked with several of the local organizations and had enlisted their aid in preserving the heronry. However, the precarious location made it difficult to save it. It was merely a row of trees with the industrial park on one side and a subdivision on the other.

I made two trips to the area of the heronry this spring, one in May and the other in June without seeing a single bird. I had a letter from John Hughen, owner of part of the property where the heronry was located. He stated that the birds came back in April but only stayed for a few days. He said that every so often a stray spends the night. He said that he sort of missed having them around in spite of inconveniences he had to put up with because the heronry was only about a hundred yards from his house.

KENNETH LEGGETT, P. O. Box 16, Pinconning, Mich. 48650.

LITTLE BLUE HERONS IN GREAT SMOKY MOUNTAINS NATIONAL PARK—On 29 August 1969, at 11:15 (EDT) I observed nine large white birds in flight at treetop level over the eastern entrance to Cades Cove, Great Smoky Mountains National Park. As I watched, the birds came to rest in the tops of three American Sycamore (*Platanus occidentalis*) trees at a height of approximately sixty feet above the ground. The trees stand along a branch of Abram's Creek and approximately 100 yards WNW of the Cades Cove sewage lagoons. I approached the birds on foot to a distance of 80 feet. Twice during this approach the birds left the treetops in short flights, but each time returned to their former perches.

All nine were Little Blue Herons (*Florida caerulea*) in the white plumage of immature birds. The tips of the primaries were a bluish slate-color; the legs, feet, and lores, greenish-yellow; mandibles bicolored, bluish with black tips. Binoculars used were 7 x 35 and the minimal distance to the birds was around 75 feet. The sky was clear with high-scattered clouds and the temperature was 83°F.

I observed the birds for 20 minutes during which time they remained in the trees. I left, returning shortly with Dennis Huffman, Cades Cove Ranger, and together we watched the birds another 10 minutes. I last observed them still sitting in the crowns of the sycamores at 12:05 (EDT).

This constitutes the second record for this species for the Great Smoky Mountains National Park. Arthur Stupka in his "Notes on the Birds of the Great Smoky Mountains National Park" (p. 21, University of Tennessee Press, 1963) lists only one record for this species by Joe F. Manley along the West Prong of the Little Pigeon River, between Gatlinburg and the Park Headquarters area. His observation of a single bird, in the white plumage of an immature, was on 19 November 1939.

FRED J. ALSOP, III, Department of Zoology and Entomology, University of Tennessee, Knoxville 37916.

LEAST BITTERN NESTING IN BLOUNT COUNTY—On 28 May 1970, while searching for Red-winged Blackbird nests in the Maryville Marshes of Blount County, Fred Alsop and I discovered the nest of a Least Bittern (*Ixobrychus Exilis*). This constitutes the first nesting record of this species for the area surrounding and including Knox County. No bitterns were seen about the nest. However, identification was made possible by an examination of the location and structure of the nest and measurements of egg shell fragments which lay beneath the nest. The nest was placed in cattails at a height of 18 inches. It was constructed entirely of cattail blades. The nest measured 6 x 12 inches. The exterior depth was 4 inches. There was no appreciable depression for a nest cup. The fragments of at least 4 eggs were found beneath the nest. Two of the fragments were complete enough to yield measurements. Both measured 30 x 23 mm. Bent gives the average measurements of Least Bittern eggs as 31 x 23.5 mm. (Bent, A. C. 1926, *Life Histories of North American Marsh Birds*, U. S. National Museum Bulletin 135.) The eggs were pale blue.

The dominant plant in the immediate vicinity of the nest was the cattail. The cattail area was fringed with willows. Three inches of water stood about the nest. Active nests of the Red-winged Blackbird were found near the bittern nest.

MORRIS D. WILLIAMS, Box 25, Five Points 38457.

MUTE SWAN IN SULLIVAN COUNTY—Bill Yambert, Tennessee Game and Fish Commission biologist, informed the writer on 23 January 1970, that a bird fitting the description of a Mute Swan (*Cygnus olor*) had been reported to his office by Louis Milhorn, a resident of Boone Lake. Several observers attempted to locate the bird on 24 and 26 January, but had no success.

On the afternoon of 27 January, Johnny Wood and J. Wallace Coffey went to Boone Lake and located the bird on the South Holston River Embayment approximately one-fourth mile north of Sugar Hollow in Sullivan County, Tennessee.

It was a clear, warm, and sunny day. With the sun to our backs, we employed a 30x telescope and Johnny Wood made several photographs with a 400mm telephoto lens. The bird appeared to be very shy and upon our approach began to swim away. We were unable to get closer than about 200 yards.

The swan appeared to be mostly white. The neck was held curved with the bill pointed downward. The bill was somewhat orange and tipped with black. A distinct knob was evident at the base of the upper mandible but did not

seem as fully developed as shown in various popular field guides. The knob and area surrounding the base of the bill were mostly black. We did not see the wings raised above the back at anytime.

On 29 January, Dr. Lee R. Herndon joined the writer and observed the bird. The weather was overcast, rainy, and windy. He confirmed the identification as a Mute Swan and noted that the neck (nape) had a light brownish cast. This had not been previously observed in bright sunlight. This individual closely approached a definitive plumage. However, due to a general lack of reference material concerning the molt and plumage sequence of this species, little more has been concluded.

Louis Milhorn stated that the swan arrived in the area on or about 16 January, and was first seen by his daughter. He has been unable to approach the bird closely and has seen it flying over the lake at a height of several hundred feet and down the lake for a distance of a mile or more. Herndon and Coffey observed the bird in flight and noted the flight was strong and the bird seemed wild. Thomas W. Finucane reported that he had seen the bird and agreed that it was definitely a wild Mute Swan.

The last observation of this bird, of which we have record, was 21 Feb. 1970.

This record appears to be the first known occurrence of the Mute Swan in Tennessee. It has been "Introduced and naturalized in New York (lower Hudson Valley, Long Island and Gardiners Island); wanders to eastern Massachusetts, Rhode Island, New Jersey, Ohio (Cleveland), Pennsylvania (Erie Bay, Pymatuning), and West Virginia (Brooke and Jefferson Counties)" (see *Check-List of North American Birds*, [fifth edition] American Ornithologists' Union 1957, page 58.)

J. WALLACE COFFEY, 508 Spruce Street, Bristol 37620.

BARNACLE GOOSE AT TENNESSEE NATIONAL WILDLIFE REFUGE—On 2 March 1970, a Barnacle Goose (*Branta leucopsis*), was observed mingling with five Canada Geese at the Duck River Unit of the Tennessee National Wildlife Refuge near Camden, Tennessee. Bob Easley, biological technician for the refuge, made the initial identification of this rare and unusual species, and notified me. (This is only the second recorded sighting in the state; the first was reported by Tony Koella in the September, 1969, issue of *The Migrant*.)

On my first visit, I observed the bird from approximately 50 yards with 7 x 50 binoculars and a 30x zoom spotting scope. It appeared to be about

two-thirds the size of the companion Canada Geese. The predominantly white



head with black eye patch, extending across the bill in spectacle fashion, a black crown and nape, black chest, greyish upperparts and white breast, confirmed my identification. The Barnacle's coloration is markedly different from Snow, Blue, or Canada Geese. Because this species is monomorphic, it is visually impossible to determine whether this Barnacle is male or female. The

Barnacle appeared to be amicably mingling with the Canadas. They engaged in playful pecking and feeding.

As recently as 24 April 1970, the goose was reportedly still in the area. The bird is residing in a restricted portion of the refuge, being usually observed in wheat fields adjacent to the dike which separates the farming portion of the refuge from the waters of the Tennessee River.

On subsequent visits, I have been able to view the bird from as close as 25 yards. This bird has been photographed many times by myself and others.

It would appear that the Canadas were unable to complete the Spring migration North, and may summer, and perhaps even nest on the refuge this year. The Barnacle appears to be in good condition, and I speculate that it remained behind with these Canadas, rather than continuing North with another flock. According to *Waterfowl of the World*, by Jean Delacour, Vol. 1, p. 180, Barnacle Geese and Canada Geese readily mate, and produce fertile young. The exciting possibility exists that hybrid goslings may be produced on the refuge this year. However, it might be mentioned here, that the birds have NOT been observed in a nesting situation; it is merely a possibility. High water during the months of April and May, at Tennessee Refuge, could hamper nesting conditions. Also, predators are more prevalent in this area than in the natural nesting habitat in the North, which might endanger young, if, indeed, any young birds were hatched. (Note: Barnacle Goose breeding grounds are found in Eastern Greenland.)

After notifying Henry E. Parmer, of Nashville, of the positive identification of this goose, many amateur and professional ornithologists from over the State have made visits to the refuge to add this species to their life lists. Among those who have contacted me are: Michael Lee Bierly, Roger O. Harshaw, John and Heather Riggins, all of Nashville, and Mrs. Don Manning, of McKenzie, Tennessee.

GARY N. BURKE, Ass't. Manager, Box 849, Tennessee National Wildlife Refuge, Paris 38242.

DARK-PHASED, ROUGH-LEGGED HAWK IN COFFEE COUNTY— While returning to Lebanon from a trip to Chattanooga on 9 February 1970, on US 41, my wife noticed a large hawk-like bird "hunting" along the side of a ridge which is located in a very prominent "saddle" midway between the town of Manchester and the community of Beech Grove. We returned to the point of her observation to look for it and shortly thereafter saw a large, dark hawk about 100 yards away hunting midway down the ridge which was partially pastured and the rest left fallow in broomsedge. Though quite large, it was apparent by its flight that this was neither of the vultures. Even though there were intermittent snow flurries and the day overcast, observation with 7x50 binoculars disclosed an almost uniformly dark, almost black, buteo with dark tail broken by a broad white line dorsally and ventrally. Even under adverse conditions it was apparent that this was not one of our "uncommon" but resident buteos, the Red-tailed or Red-shouldered Hawk nor was it large enough to be an eagle. The bird perched in a dead tree and upon consultation with Robbins, Bruun *et al*, *Birds of North America* (pp. 64ff) and Peterson, *A Field Guide to the Birds* (pp. 53-68), the bird was tentatively identified as a Rough-legged Hawk. After remaining perched for a few minutes the buteo flew along the side of the ridge, about 1/3 of the way from the top, hovered, disclosing very plainly black-tipped white primaries and a white base to the dorsal surface of the tail. We continued to watch this hawk hunting, soaring, and perched for about five more minutes until he "flapped" over the ridge toward Manchester and we proceeded homeward. The "hovering" behavior, according to Peterson, p. 64, is distinctive for this species. According to Henry E. Parmer, *Birds of the Nashville Area*, 2nd Ed. p. 10, this is a very rare winter visitor to Middle Tennessee.

REV. WILLIAM SENTER, 827 Castle Heights Ave., Lebanon 37087.

MERLIN (PIGEON HAWK) IN LEBANON—At 12:10 on Wednesday, 4 Feb. 1970 while observing birds with my 7x50 binoculars at my feeder and around the perimeter of my yard, I noticed a large bird perched in the top (about 40 feet) of a "snag" oak tree about 150 feet from my window and due east. As I observed it through my binoculars, two Blue Jays perched underneath it and began to harass it. Although there was about 1.5 inches of new fallen snow on the ground, the sky had cleared and the bird was facing directly into the sun (and facing toward the house). I was immediately impressed with a bright golden streaked chest. Closer scrutiny revealed a dark back, a long, light tail, the complete absence of any rufous color anywhere, and a facial pattern. After several minutes, the bird flew very rapidly almost directly overhead, and I was able to observe a definite falcon-like bend to the wings, light belly and under-wings, dark wing-tips and a barred tail. Being familiar with Kestrels (Sparrow Hawks), I eliminated this bird as being a member of that species because of the absence of red color, size (it was longer and larger and filled that perch on the snag more fully than does the Sparrow Hawk which occasionally looks over my yard) and flight (which was faster and less hump-shouldered than that of a Kestrel). Because of the presence of a facial pattern, streaked breast, and rapid flight I made a preliminary identification of a Peregrine Falcon, and called Mrs. Carole Knauth of Nashville for consultation. While talking with her and upon further reference to Peterson, *A Field Guide to the Birds* (pp. 54, 55, 66, 67 and 73) and Robbins, Bruun,

et al, *Birds of North America*, I changed my earlier identification to that of a Merlin because, although large and with somewhat of a face pattern, this bird was not quite the size of a crow (which, according to Peterson is near the size of a Peregrine) nor was its wingspread as great as 40 inches (which according to Robbins, *et al*, p. 78-79 is that of a Peregrine). Shortly after concluding my call, I noticed the small birds at my feeders were "startled" to low cover and I searched the yard and discovered the falcon perched on a CB radio antenna about 45 feet high and 75 feet away to the North-west. This time I was able to get a side view and noted the brown back and streakings, again, the absence of any rufous color, and the brownish facial pattern which showed a vertical line through the eyes which was not quite as distinct as that shown for the Peregrine. In fact, the facial pattern and tail pattern more closely resembled those pictures of a Prairie Falcon in Robbins, *et al*, pp. 78-79; however, the Peregrine size and western range of that species rules out identification of this bird as being that species even though the facial patterns were similar. After about a minute, the falcon flew and again I was able to observe the rapidity of its flight, the bend of its wings and its light underbelly. Although it can be presumed from the behavior of the smaller birds at the feeder that the bird remained in the area, I did not see it again that day. Early the next morning, 09:00, I again observed the bird in the oak snag and captured a Starling and tied it down in the hopes of luring the falcon to attack; however, that was the last sighting.

On Friday evening, 6 Feb., 1970, I attended the records meeting of the Nashville TOS for discussion and collaboration of this find. After presentation and consultation, this sighting was accepted as an immature or female Merlin, or Pigeon Hawk. Prior to this, there had been only eight records since 1916 (Henry E. Parmer, *Birds of the Nashville Area*, 2nd Ed. p. 10). Although both Peterson and Robbins, *et al*, state the winter range of this falcon to be south of Tennessee, according to Parmer, there are records for the Pigeon Hawk in September, November, December, January, and March. Whether or not this was a late migrant pushed southward by the cold and snow of late January and early February, a winter resident of the Cumberland Plateau forced to the Basin by the same weather, a resident of this winter in the area, or an early spring migrant laying over for a few days, one can only guess.

REV. WILLIAM SENTER, 827 Castle Heights Ave., Lebanon 37087.

KING RAIL IN THE GREAT SMOKY MOUNTAINS NATIONAL PARK—On the afternoon of 15 May 1970 Park Ranger Dennis Huffman and I were working the western end of Cades Cove along a section of Abram's Creek known as "the oxbow". I was searching for the nests and eggs of the Red-winged Blackbird (*Agelaius phoeniceus*) in the bullrushes and willows along the creek and in the wet-weather ditches that drain into the creek at that point. While wading the ankle-deep water in a patch of bullrushes about 40 yards from the main stream I flushed a King Rail (*Rallus elegans*). The bird flew past us and on for a distance of about 75 feet before dropping into the tall vegetation at the edge of the creek. A search was made in the area from which the bird was flushed for a nest, but none was found. Our efforts to put the rail up again were also unsuccessful.

On the afternoon of 19 May 1970 Morris Williams and I returned to the oxbow to secure Red-wing eggs. The King Rail was flushed again, this time

about 100 yards from the previous site and from a wet ditch containing about six inches of water and a dense stand of Blue Flag (*Iris versicolor*). Again a search was made for a possible nest with none being located. And again the rail, which had flown approximately eighty feet, could not be found a second time.

Arthur Stupka (1963. *Notes on the Birds of Great Smoky Mountains National Park*, Univ. of Tenn. Press) lists but two previous records for this species in the Park. Both are late summer (9 Aug. 1959) and fall (28 Oct. 1947) records.

FRED J. ALSOP, III, Dept. of Zoology and Entomology, University of Tennessee, Knoxville, 37916.

KING RAILS IN KNOX COUNTY—For several nesting seasons Ray M. Ellis, Jim Campbell, and I (FJA) have looked for evidence of breeding King Rails (*Rallus elegans*) in Knox County without success. On 26 May, 1970, Morris Williams and I were working a small marsh bordering the eastern end of the single runway of Powell airport in north-central Knox County. While searching a dense stand of Blue Flag (*Iris versicolor*) for nests of the Red-winged Blackbird (*Agelaius phoeniceus*) I heard the note of a marshbird near my feet. I followed the note of the unseen bird for several feet without once seeing the caller. A marker was placed in the area where the bird was first detected and with Morris' help a search for a possible nest was soon initiated. Approximately 10 feet from my marker I found the nest; under the toe of my left boot. The nest contained 7 eggs (two of which I had broken) and one downy young of the day.

The eggs were olive-brown in color with dark and cinnamon brown spots scattered over them. The two broken eggs were removed and the fragments later measured were approximately 39 x 28.5 mm. The two embryos looked as if they would have hatched in the next 48 hours. The young bird was almost two inches long and its pink legs were about as long as its body. The plumage was glossy-black except for the chin which was bright orange. The bill was entirely white. Photographs were taken of the nest, eggs, and young before the site was returned to its approximate previous condition. At 22:30 Gary Wallace, Jim Campbell, and I returned to the nest site. I heard the adult slip off and we found the young and 5 eggs still warm. This is the first evidence of King Rails nesting in Knox County in 18 years (Howell, J. C. and Muriel B. Monroe. 1957. *The Birds of Knox County, Tennessee. Journal of Tenn. Acad. of Sci.* 32 (4):247-322).

On 2 June, 1970 the nest was collected. The base of the nest touched the $\frac{1}{2}$ inch of water beneath it. The nest averaged $3\frac{1}{2}$ inches in height and was trapezoid shaped with the two parallel sides being $6\frac{1}{2}$ inches, the short side 6 inches, and the long side $6\frac{3}{4}$ inches. The extreme width, diagonally, was $8\frac{1}{2}$ inches. The top of the nest was only slightly concave. It was constructed almost entirely of a single species of grass (unidentified) that was found growing commonly throughout the marsh.

On 27 May, 1970, I (FJA) watched an adult King Rail feeding along the vegetated edge of a pond at Johnson Bible College in extreme southeastern Knox

County. This bird was still present on 13 June when it was observed and photographed by Mrs. E. E. Overton and Miss Jessie Dempster.

FRED J. ALSOP, III, Dept. of Zoology and Entomology, University of Tennessee, Knoxville 37916.

KING RAILS IN BLOUNT COUNTY—On 28 May, 1970, Morris Williams and I (FJA) found 3 nests of the King Rail (*Rallus elegans*) in a small marsh of less than three acres within the city limits of Alcoa, Blount County, Tennessee. Each of the nests was placed in the base of a Great Bulrush (*Scirpus validus*). Each nest site was in bulrush that was surrounded by somewhat shorter marsh grasses and some distance from the next clump of bulrush. The first nest discovered was 5 inches above the water. It measured 4½ inches in depth and was 7½ inches across at its widest point, with a lip of approximately ½ inch. The bulrush it was in was 50 inches tall and the rail had bent much of it over 13 inches above the nest. It was built over water and was some 20 feet from a pool of open water. It appeared the nest had not been used, but subsequent trips revealed no further usage.

The second nest was across the open water and 75 feet from the first. It measured 4 inches in depth and 8 inches across with a lip of ½-¾ inches. It contained 12 eggs, medium olive-gray in color with cinnamon-brown and purplish splotches, which averaged 43 x 33 mm. On 29 May, Morris Williams and Jim Campbell found two of the clutch had hatched and the young were not seen. They returned on the afternoon of 31 May to find all except one of the remaining eggs had hatched and the nest was empty. Small pieces of the egg shells were found scattered in the water around the nest.

The third nest was located 100 yards from the second and about 20 feet from a stand of Cattail (*Typha latifolia*) and open water. It measured 5 inches in depth and 8 inches across with the cup depressed below the lip about one inch. Its appearance was one of a used nest-of-the-season. As with the other two, the bulrush had been bent over above the nest. All nests were constructed almost entirely of bulrush, only the third nest located had some finer grasses used as a liner for the cup.

Not once during the course of any of our visits did we see, or hear any sound given by, a King Rail, though on one occasion I saw tracks so fresh in the soft mud that water was still seeping into them.

FRED J. ALSOP, III, Dept. of Zoology and Entomology, University of Tennessee, Knoxville, 37916.

EARLIEST TENNESSEE RECORD OF BUFF-BREADED SAND-PIPER—On the morning of Sunday, 3 August 1969, the observers encountered a Buff-breasted Sandpiper (*Tryngites subruficollis*) at Ashland City Marsh. The marsh is in the Cumberland River Bottoms near Ashland City, Tennessee, in Cheatham County. The marsh was in excellent condition for attraction of shore birds as the conservation personnel had partially drained it about two weeks before for the purpose of planting duck food. The vegetation was just beginning to sprout in mudflat areas and all along the edges of the marsh, and there was about a 20 yard strip of one inch high vegetation which merged with a 20 yard strip of bare, exposed mud that extended to the water.

The observers approached the marsh at approximately 10:00 on a clear, hot day with the sun behind them. They were at first engrossed in checking

and identifying the various shore birds and did not notice the Buff-breasted Sandpiper for about 10 minutes. At that time their attention became centered on the bird whose head seemed similar to a Mourning Dove. The bird was feeding with Killdeer (5), Pectoral Sandpiper (1), Solitary Sandpiper (3), Semipalmated Sandpiper (1), and nearby Green Heron (4), Great Blue Heron (2), and Little Blue Heron (12).

Observations were made of this bird through Tasco 10 x 40 binoculars, Tasco 7 x 35 binoculars, and a Tasco 20 to 60 power spotting scope. The bird was observed feeding near a Killdeer, but it seemed to restrict itself to the mudflat edge farthest from the water; therefore, confining itself to the area nearest the short duck growth, while the Killdeer fed nearer but not on the water.

For about 45 minutes and under close scrutiny at a distance of 45 feet, the bird's characteristics were easily noted and compared with Peterson's and Robbins' Guides. The bird had a scaly back, medium length and bill, a buff-colored plain breast, short tail, pale legs, a white eye ring, and was observed to be smaller than the nearby Killdeer.

One of the observers walked along the marsh edge to get nearer the sandpiper and although it kept itself slightly ahead of the observer at a distance of about 15 feet, it showed no real concern. The observer "drove" this tame bird for about $\frac{1}{4}$ mile down the marsh, then succeeded in passing it and drove it back to the original starting point. At this point the observer walked up to his car to get his camera to photograph the bird, leaving his wife looking at the bird through the spotting scope. While the observer was getting his camera, his wife observed the bird flying back and forth across the mudflat several times and she remarked that the bird had very pale wings underneath. Before the observer had returned with his camera, the bird had flown away.

According to H. E. Parmer, this is the earliest sighting of the Buff-breasted Sandpiper in Tennessee.

One year later on Saturday, 8 August, 1970, the observers spotted a Buff-breasted Sandpiper in a freshly plowed field adjacent to Bush Lake in Nashville, Tennessee. It was in the company of Upland Plover (5), Pectoral Sandpiper (3), Killdeer (78), Horned Lark (1) and a large flock of Rock Doves. On the next day, 9 August, the Buff-breasted Sandpiper was sighted again, this time in the company of Semipalmated Plover (4), Pectoral Sandpiper (2) and Upland Plover (1). Other members of the TOS were contacted and the following saw the bird: M. L. Bierly, Roger Harshaw, Katherine A. Goodpasture, H. E. Parmer, Ann Tarbell.

JOHN AND HEATHER RIGGINS, 97 White Bridge Rd., Nashville 37205.

NORTHERN PHALAROPE IN WASHINGTON COUNTY—A Northern Phalarope (*Phalaropus lobatus*) was present at Austin Springs, Boone Lake, Washington County, Tennessee on 18 May 1969. The bird was discovered and subsequently identified by Charles R. Smith, Pete Range, Timothy M. Hawk and J. Wallace Coffey.

This represents the first spring migratory record and second known occurrence of this species in Tennessee. John C. Ogden previously reported two birds at Bush Farm, Davidson County on 21 October 1959 (*The Migrant*, 30:55).

The present observation occurred at 11:20 EST and was continued for forty minutes. The bird was observed with 7x35 binoculars and 30x Balscope within a range varying from ten to fifty feet. It swam with the characteristic phalarope action and was in close association with the Least Sandpiper, Semipalmated Sandpiper, Spotted Sandpiper, and Semipalmated Plover.

The bird was judged to be a female in definitive alternate plumage (*The Shorebirds of North America*, Gardner D. Stout, Editor, 1967, page 264). The characteristics of this individual will be given here as recorded in the field:

"Showed black on brown with cinnamon patch joining crown patch extending down side of neck and across breast, being fainter on breast. Cinnamon band on breast bordered above by white throat and below by slate-gray grading into black . . . white spots at bend of wing . . . very small white spot above eye (may be white upper eyelid). Showed definite white wing stripe in flight. Underparts below breast band white. Breast band edged with white. Cinnamon extending up nape to back of head . . . black legs, bill and dark eye. White showed indistinctly in tail in flight. Edges of tail showed alternating black and white bars as in Solitary Sandpiper."

J. WALLACE COFFEY, 508 Spruce Street, Bristol 37620.

LONG-EARED OWL IN NASHVILLE—At 09:00 on 3 January 1970, a sunny day with temperatures in the twenties, the cries of jays brought the writer to her front porch. Not quite four feet from the side of the porch is a hackberry tree, the trunk and lower branches of which are covered with ivy. On a small dead branch about fifteen feet from the ground, where the trunk divides into two, partly shielded by the twin trunks, sat an owl considerably larger and somewhat slimmer than a Screech Owl, with two long, straight "ears." From Roger Tory Peterson's *A Field Guide to the Birds* (1947), he was identified as a Long-eared Owl (*Asio otus*). Although Peterson calls him gray, this owl appeared brownish, rather like a log mottled with lichens, except for his rusty face.

At the suggestion of Mrs. Carol Knauth, writer of weekly "Wing Tips" for the Nashville *Banner*, Dr. Katherine Goodpasture was called, and upon arriving confirmed the identification. She then called several other T.O.S. members, among whom Mr. Henry E. Parmer, Mrs. Anne Nichols, Mr. Roger Harshaw, Mr. John Riggins, and Mr. Mike Beirly saw and, in some instances, photographed the owl. He was under almost constant observation from 09:00 until about 16:00 when he flew across the street into the grounds of a currently unoccupied convent. He has not been seen again.

According to *Birds of the Nashville Area*, compiled by Henry Parmer, there have been only three previous sightings of the Long-eared Owl in the vicinity of Nashville, one collected by Grover Cooke on 12 January 1923, another by Albert Ganier on 3 February 1946, and a third brought wounded to Mrs. Amelia Lasky on 3 January 1950, which she gave to the Children's Museum after it died.

VIOLET JANE WATKINS, 1402 17th Avenue South, Nashville 37212.

THE SEASON

CHARLES R. SMITH, *Editor*

Temperatures for the months of May, June and July were about normal, but perhaps averaging slightly on the high side. Rainfall for the first part of the period was about normal, but for all of June and the first half of July was deficient in rainfall, particularly in the eastern portion of the state.

All of the species reported for the Western Coastal Plains Region are exceptionally noteworthy and for some of the species reported might indicate a probable extension of the breeding range. In future breeding seasons intensive efforts should be made to locate breeding birds in favorable habitats.

The Song Sparrow has definitely extended its breeding range to the westward in the state, as a nest was reported for the Nashville area this season.

Reports of Purple Gallinules appear more frequently than formerly and were reported from Hiwassee River and Knoxville areas, both being in the Eastern Ridge and Valley Region.

Traill's Flycatchers have extended their breeding range southwestward to lower elevations and for the first time reported to have nested in Knox County.

Bank Swallows have nested for the second consecutive season in the gravel pits near Austin Springs on the Watauga River prong of Boone Lake. If they nest in this area again, it must of necessity be at a different location because the bank in which they have nested has been leveled by sand and gravel operators.

For the second consecutive summer Buffleheads (two females this season) have remained on Wilbur Lake in the Eastern Mountain Region.

WESTERN COASTAL PLAIN REGION—*Osprey-Siskin*: Osprey: One nest produced (3) young this season, R (JDL). Scissor-tailed Flycatcher: 16 May (1) T (DP, VTM). Vermilion Flycatcher: 12 May (1) D (JSL), Chestnut-sided Warbler: 4-22 June (1, male) S (DEP). Pine Siskin: 10 May (2) R (BC), 11 May (20), and 13 May (3) D (JSL).

Locations: D—Dyersburg, R—Reelfoot, S—Savannah, T—Tiptonville.

Observers: BC—Ben B. Coffey Jr., JDL—John DeLime, JSL—Mrs. John S. Lamb, VTM—V. T. Martin, DEP—David Patterson, DP—David Pitts.

DAVID E. PATTERSON, Harbert Hills Academy, Savannah 38372.

CENTRAL PLATEAU AND BASIN AREA — Loons-Ducks: Common Loon: 24 May (1) ACM (MLB). Great Blue Heron: 18, 25 July (1) ACM (J,HR)*. Green Heron: abundant during period WB (FB). Little Blue Heron: 29 June (1) WR (LR, KHD), 18 July (4) ACM (J,HR). Cattle Egret: 12 May (1) Kingston Springs (RF), second NA record. Black-crowned Night Heron: 21 May (5) BL (HEP, HS), 23 May to 4 July (20+) BV (J,HR). Yellow-crowned Night Heron: 3 June thru period (2-5) BV (J,HR) 11 to 19 July (1-3) WB (FB). Least Bittern: 21 May (2) LD (RTH). Canada Goose: two seen at nest in June PPL (JP)*. Gadwall: late, 3 May (1) LD (RTH). Blue-winged Teal: last, 23 May (1) BV (J,HR), then early, 15 July (5) on river NA (J,HR). Wood Duck: 23 May (41), 6 June (17), (14) being immatures ACM (MLB, J,HR), 15 July (12) RL (MCW). Hooded Merganser: late, 7 May (1) LD (RTH).

Vultures-Owls: Turkey Vulture: 25 May (31) RR, WB (MCW). Cooper's Hawk: 21, 26 June (1) LD (RTH)*. Broad-winged Hawk: a few reports from LD, WB, NA. Marsh Hawk: unusual was (1) H BT 4 July (RH). Osprey: 17 May (1) ACM (JDV)*. American Coot: last NA was 23 May (3) BV (J,HR) and (1) ACM (MLB). Semipalmated Plover: 17 May (1) ACM (JNR). Killdeer: 4 July (23) BV (J,HR) was the beginning of the usual late summer movement in NA. Spotted Sandpiper: last were 16 May (3) LD (RTH), 17, 19 May (1) WB (FB), 23 May (1) BL (J,HR). Then 4 July (1) ACM (MLB), 6 days earliest fall record NA. Solitary Sandpiper: also very early, 4 July (1) ACM (J,HR) Lesser Yellowlegs: 18 July (1) ACM (J,HR). Pectoral Sandpiper: 18 July (5) ACM (J,HR)*. Least Sandpiper: 17 May (3) ACM)*. Semipalmated Sandpiper: 3 June (21) (J,HR), 4 June (18) (JNR) BV, one day latest ever NA. Least Tern: 3 June (1) BV (J,HR, MLB, HEP), third NA record. Great Horned Owl: 18 May (1) LD (RTH), 20 May (1) BT (RH)*. Barred Owl: 5 May (2), 11 May (2 with 1 young) LD (RTH), all period (4) H BT (RH).

Goatsuckers-Shrikes: Whip-poor-will: (1-7) H BT (RH) all period. Common Nighthawk: 26 July (1) BT (RH), only observation there for period! Red-cockaded Woodpecker: 8 May (1) Catoosa (KHD)*. Eastern Kingbird: 18 July (1) WB (MCW), continued fairly common NA. Acadian Flycatcher: 22 June (2) feeding young in nest LD (RTH). Olive-sided Flycatcher: 29 May (1) injured bird caught FV (MD, AC), died 2 days later H (ARL). Horned Lark: (1-5) period LD (RTH)*. Cliff Swallows: normal nestings RR, NA, and ACM. House Wren: (3) nesting pairs near H KAG*. Wood Thrush: 29 May incubating FV (JOE). Swainson's Thrush: (1-3) H until 21 May BT (RH), last NA 25 May (1) H (SB). Gray-checked Thrush: 19 May (1) H (AT)*. Veery: 6 May (1) H SB*. Loggerhead Shrike: none during period BT (RH).

Warblers: Golden-winged: very late, 24 May (2) Dunlap (LR, *vide* KHD). Tennessee: last report, 14 May (1) H (AT). Orange-crowned: 3 May (1) (MLB)*. Yellow: 25 May (25) RR, WB (MCW). Magnolia: last, 11 May (1) H (AT). Myrtle: late, 2 May (6) H (AT). Black-throated Green: 12 July (6) PSP (RH)*. Blackburnian: 16 June active nest found FCF by Mark Wagner. Bay-breasted: 11 May (1) H (AT)*. Blackpoll: last, 12 May (3) H (AT). Pine: 12 June (1) PSP (RH). Ovenbird: 6-15 May

(1) LD (RTH), 12 July (common) PSP (RH). Kentucky: 17 May nest (2 eggs, plus 3 Cowbird eggs), 22 May (1 Kentucky and 2 Cowbird young) FV (JOE). Yellowthroat: (20-43) on trips thru period WB (MCW). Yellow-breasted Chat: 25 May (18) RR, WB (MCW). Canada: last, 14 May (1) RL (AT).

Bobolinks-Sparrows: Bobolink: 1 June (1) Jasper (KHD). Orchard Oriole: 25 May (17) RR, WB (MCW), 25 July first year male feeding (3) immatures RR, NA (J,HR). Baltimore Oriole: 6 June adults feeding young H (AT), 21 June same (J,HR). Rose-breasted Grosbeak: either scarce or left early, 1 May (1) Rickmon (RTH) 2 May (1) H (AT)*. Blue Grosbeak: in good numbers over area as last year. Indigo Bunting: 25 May (61) RR, WB (MCW). Dickcissel: 1 June (12) TC (KHD), 26 June (2) BLV (MLB), 8 July (1) WB (FB)*. Evening Grosbeak: 12 May (1) H BT (RH)*. Pine Siskin: 5 May (1) H (GBW)*. Grasshopper Sparrow: 1 June (9) TC (KHD), 8-15 July (2) H BT (RH)*. Slate-colored Junco: 11 May (2) H (AT)*. White-crowned Sparrow: last, 6 May (1) H (MLB). White-throated Sparrow: 2 June (1) H (RE), heard by (KAG, MLB). Song Sparrow: (2) pair H BT thru period (RH), 1 June (2) Viola (KHD), 9 June (6) Jasper (KHD), 19 June first NA nest found near H (LJ).

Note: the asterisk (*) is used to denote that these records are the only ones received for a species by the writer.

Locations: ACM—Ashland City Marsh area, BL—Bush Lake, BLV—Bellevue area, BT—Byrdstown, BV—Buena Vista Marsh, FCF—Falls Creek Falls Park, FV—Fernvale, H—home area, LD—Lilydale, NA—Nashville Area, PPL, Percy Priest Lake, PSP—Pickett State Park, RL—Radnor Lake, RR—River Road, TC—Tracy City, WB—Woodbury, WR—Woods Reservoir.

Observers: SB—Sue Bell, MLB—Mike L. Bierly, FB—Frances Bryson, AC—Annella Creech, MD—Milbrey Dugger, KHD—Kenneth H. Dubke, RE—Roy Elliott, JOE—John O. Ellis, RF—Rachel Farris, KAG—Katherine A. Goodpasture, RH—Robbie Hassler, RTH—Roy T. Hinds, LJ—Louise Jackson, ARL—Amelia R. Laskey, HEP—Henry E. Parmer, JP—Jimmy Parrish, LR—Lil Richards, J,HR—John N. and Heather Riggins, HS—Hugh Savage, AT—Ann Tarbell, J, DV—J. D. Vaudrey, MCW—Mary C. Wood, GBW—George B. Woodring.

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EASTERN RIDGE AND VALLEY REGION — *Loons-Mergansers*: 14 May (1) BD (TF). Pied-billed Grebe: 5 May (1) HRA (KD). Little Blue Heron: 30 June (3) HRA (KD), 3 July (3) CC (JMC, JCH), 20 July (1) AS (LRH, PH, CRS). Common Egret: 30 June and through period (1 to 28) HRA (KD), 3 July (1) CC (JMC, JCH). Black-crowned Night Heron: through period (1 to 4) K (FA, JMC). Yellow-crowned Night Heron: 5 July (1) AM (KD), 10 July (1) MB (KD). Least Bittern: through period (1 to 5, no nests found) AM (KD), 28 May (nest, abandoned, remains of 3-4 eggs) BC (FA, MW). American Bittern: 6 May (1) DA (LS), 17 May (1) AM (KD). Black Duck: 13 May (2) K (JMC). Lesser Scaup: 19 May (2) C (KD). Red-breasted Merganser: 3 May (3) K (FA, JA, JMC, JS, LOS, MW), 19 May (1) CL (KD).

Hawks-Sandpipers: Sharp-shinned Hawk: 27 June (nest, both adults, 3 young) CC—Cross Mountain (JMC, JCH). Red-tailed Hawk: 19 May (1 young in nest) EB (KD). Red-shouldered Hawk: one nest DA (date and success not known) (LS), 7 June (1) CC (JCH, FO), 21 June (1) CC (JMC, JCH). Osprey: 3 unsuccessful nests (2 on WBL and 1 on CL) (KD). King Rail: 26 May (1 adult, nest with 7 eggs and 1 newly hatched chick) K (FA, MW), 27 May (1) K, different location (FA), 28 May (3 nests, one with 12 eggs and other two empty) BC (FA, MW). Sora Rail: 3 May (1) K (JMC), 6 May (1) K (JMC), 6 May (1) AM (KD), 11 May (1) K (FA). Purple Gallinule: 12 May (1) HRA (KD), 26 May (1) K (FA, MW). American Coot: last, 16 May (1) K (FA, JMC, MW). Woodcock: 3, 19 May, 10 June (1) (1 and 2) K (FA, MW). Common Snipe: unusually late spring record 20 May (1) K (FA). Spotted Sandpiper: 28 June (2) AS (PR, CRS), 28 June (1) K (JTT) either very late spring, very early fall, or territorial? Solitary Sandpiper: last spring, 12 May (1) K (JMC), earliest fall, 20 July (1) AS (LRH, PH, CRS). Greater Yellowlegs: earliest fall, 27 July (1) HRA (KD). Lesser Yellowlegs: latest spring, 7 May (1) JC (PR), earliest fall, 27 July (3) HRA (KD). Pectoral Sandpiper: latest spring, 16 May (1) K (FA, JMC, MW), earliest fall, 11 July (2) SB (KD). Least Sandpiper: latest spring, 27 May (1) K (FA). Dowitcher (species undetermined); 6 May (11) AM (KD). Semipalmated Sandpiper: latest spring, 1 June (1) AM (KD). Western Sandpiper: 21 May (1) Col (ML).

Terns-Veery: Black Tern: 19 May (3) OW (KD), 28 July (2) HRA (KD). Barn Owl: occasionally through period (1) AM (KD), 17 May (1) JC (CRS). Yellow-bellied Sapsucker: unusually late spring, 2 May (1) K (FA, JMC). Traill's Flycatcher: 7 May (1) Ki (TF), 29, 31 May (2) BC (JMC, MW), 5 June (1) BC (FA), 18 June (2 adults, nest with 4 eggs) first Knox County nest reported (FA, JTT), 24 June (1) BC (JMC, JCH), 21 and 28 June, 20 July (1) AS (CRS), 22 June (3) HRA (KD, LS, MWa), 28 and 29 June, 1 and 10 July (1) MB (KD). Least Flycatcher: 7 and 21 June (1) CC (JCH). Olive-sided Flycatcher: 6 May (1) K (BL). Tree Swallow: 29 July (2) SB (KD). Bank Swallow: 21 June (2) AS (CRS), 28 June 8—possibly 4 nesting pairs) AS (CRS), 29 July (2) SB (KD). Cliff Swallow: 16 May (14 active nests, first Knox County nest reported) K (FA, JMC, MW), 23 May (2 active nests) BC (JTT), during June (214 active nests) GC (GW). House Wren: 28, 29 May, 1, 2 June (1) C (KD). Bewick's Wren: 5 May (1) HRA (KD), 11 June (1) SP (LS). Veery: 2 May (1) K (JMC), 6 May (1) K (BL).

Vireos-Sparrows: Philadelphia Vireo: 9 May (1) K (JMC). Warbling Vireo: 3 May through period (2, no nest found) K (JMC), 20 and 28 May (1) Ki (TF). Swainson's Warbler: 31 May and 11 June (1) CC (JCH), 21 June (1) CC (JMC, JCH), all three observations apparently were the same bird. Brewster's Warbler: 2 May (1) K (FA, JMC). Northern Waterthrush: 1 May (1) Ki (TF), 4 May (1) K (BL). Baltimore Oriole: 21 June (1) CC (JMC, JCH). Dickcissel: 12 May and 8 June (1) HRA (KD). Pine Siskin: last 9 May (3) K (JMC). Red Crossbill: 2 and 3 May (17 and 10) K (FA, JMC), 4 May (1) Ki (TF). Grasshopper Sparrow: found in 3 Chattanooga areas (KD, LS) and in two Knoxville areas (FA, JMC, MW). Many areas noticed absence or reduced numbers.

Locations: AM—Amnicola Marsh, AS—Austin Springs, BC—Blount County, BD—Boone Dam, CC—Campbell County, C—Chattanooga, CL—Chickamauga Lake, Col—Collegedale, DA—Daus, EB—Eaves Bluff, GC—Grainger County, HRA—Hiwassee River Area, JC—Johnson City, K—Knoxville, Ki—Kingsport, MB—Moccasin Bend, OW—Old Washington, SB—Savannah Bay, SP—South Pittsburgh, WBL—Watts Bar Lake.

Observers: FA—Fred Alsop III, JA—Jean (Mrs. Fred) Alsop, JMC—James M. Campbell, KD—Kenneth Dubke, TF—Tom Finucane, JCH—Joseph C. Howell, LRH—Lee R. Herndon, PH—Patrick Helton, BL—Beth Lacy, ML—Mike Lilly, FO—Frances (Mrs. Earl) Olson, PR—Peter Range, CRS—Charles R. Smith, LS—Lee Shafer, JS—Johneta (Mrs. Louis) Smith, LoS—Louis Smith, JTT—James T. Tanner, GW—Gary Wallace, MW—Morris Williams, MWa—Mark Wagner.

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EASTERN MOUNTAIN REGION—Heron-Flycatcher: Little Blue Heron: 26 July (12) RC (PR). Bufflehead: throughout May, June, July (2) WiL (GE *et al.*). Osprey: 26 July (1) WaL (PR). American Coot: 28 July (1) WiL (MS). Semipalmated Plover: 26 July (3) RC (PR). American Woodcock: 18 June (1) WaR (GE). Spotted Sandpiper: 26 July (5) RC (PR). Solitary Sandpiper: 26 July (2) RC (PR). Traill's Flycatcher: 21 June (3) RM (TWF, CRS), 25 June (2) RM (GE, CRS).

Raven-Crossbill: Common Raven: throughout June (1-3) RM (FWB, GE). Gray-cheeked Thrush: only report, 12 May (1) HC (MS). Yellow-throated Vireo: last 4 May (1) EGC (LRH). Golden-winged Warbler: throughout June, July (4-6) HM (PR). Yellow-throated Warbler: 21 June (1) RM (TWF, CRS), 25 June (2, nesting) DLG (CRS). Pine Siskin: 9 May (75) RM (CRS), 16 May (12) RM (FWB). Red Crossbill: 30 May-21 June (3-17) RM (FWB, GE). White-winged Crossbill: 25 May (40) RM (FWB).

Locations: DLG—Devil's Looking Glass, Unicoi Co., EGC—Elizabethton Golf Course, HC—Heaton Creek, HM—Holston Mountain, Camp Tom Howard, RC—Roan Creek area of Watauga Lake, RM—Roan Mountain, WaL—Watauga Lake, WaR—Watauga River, WiL—Wilber Lake.

Observers: FWB—Fred W. Behrend, GE—Glen Eller, TWF—Thomas W. Finucane, LRH—Lee R. Herndon, PR—Pete Range, CRS—Charles R. Smith, MS—Maxie Swindell.

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