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AN ANALYSIS OF SPRING BIRD COUNTS IN TENNESSEE

James T. Tanner

The local chapters of the Tennessee Ornithological Society have long had a tradition of devoting one or two days during the peak of the spring migration to observing and recording the number of birds in their area. The results of these Spring Field Days (bird counts) have been published annually in *THE MIGRANT*. This provides an opportunity to measure the relative abundance of spring migrants across the state and to investigate the question of whether or not there have been any changes in abundance over the years. This last is a pertinent question today because it has been suggested that clearing of forests in Central and South America and habitat changes in North America are affecting the numbers of some species (Wilcove 1985).

A span of 25 years, 1961 through 1985, and the reports from 7 localities were chosen for this investigation. In West Tennessee are Memphis with 19 spring counts and Reelfoot with 13; these localities had fewer counts than the other areas because they were made by members of the Memphis chapter who in some years worked in only one of the two areas. In Middle Tennessee are Columbia with 24 years and Nashville with 23 years. In East Tennessee are Chattanooga with 21 years, Knoxville with 25 years, and Elizabethton with 24 years.

METHODS OF ANALYSIS

The number of each species reported seen on the count day must be adjusted to some base if the numbers are to be compared between localities and years. The number reported depends on both the amount and efficiency of effort (number of observers, area covered, hours in the field, weather) and the abundance of the species on the count day. Of course we have no accurate measure of the true abundance. In a similar analysis of the Christmas Bird Counts (Tanner 1985), the reported numbers were adjusted to the base of numbers per 50 party-hours. Spring bird counts, however, are not as highly organized as Christmas Bird Counts. The spring counts were usually made in one day but occasionally over two days. The areas covered varied from being quite small to parts of two or more counties. The reports of the spring counts rarely included the number of party-hours, and often did not give the number of observers nor the time in the field. After a few trials, I decided that the amount of effort devoted to a count could be measured by the total number of individual birds of all species reported. This total included both resident and migrant species, but did not include the numbers of European Starlings, Common Grackles, and Brown-headed Cowbirds

because these three species fluctuated widely, the number observed being highly influenced by the presence or absence of communal roosts in the count areas.

The total number of individual birds was found to be a linear function of the number of observers. The slope of the relation is 250 birds per observer. Since the total number across all localities and years was about 5000, that number was chosen as the base. The adjusted number for each species equals the number reported multiplied by (5000 divided by the total number of individual birds in that count).

The effectiveness of standardizing to the total number of individual birds was tested by including in the analysis some permanent residents believed to be sedentary, one being the Northern Cardinal. The reported number of cardinals in the 23 Nashville counts had a mean of 358 birds, a standard deviation of 119, and a coefficient of variation (standard deviation divided by the mean) of 33%. After the numbers were adjusted these measurements were respectively 225, 40, and 18%, the latter being reduced by almost half of the unadjusted measure. The other permanent residents included were the Downy Woodpecker, Carolina Chickadee, Tufted Titmouse, and Carolina Wren. For the five permanent residents, coefficients of variation were calculated separately for the Christmas Bird Counts (number standardized to 50 party-hours), and spring bird counts (numbers adjusted to 5000 of the total). There were only small differences between species, between localities, and between Christmas and spring counts. The only trend was a negative correlation between the coefficient of variation and the number of observers; more observers reduces the variation.

Summarizing the above three paragraphs: The method of adjusting the number observed to a base of 5000 total observed individuals (excepting the starlings, grackles, and cowbirds) appears to be a reasonably satisfactory method for standardizing the data.

FREQUENCY AND ABUNDANCE OF SPRING MIGRANTS

Table 1 summarizes the frequency and abundance of 82 species of birds at seven locations in Tennessee as reported in the spring bird count records. Excluded from this table are permanent residents, winter residents unless they winter more abundantly to the south of Tennessee, and species infrequently observed (less than 50% of the counts at every locality).

Frequency is reported as the percent of the times that the bird was listed for that locality. Only 15 species had frequencies greater than 90% in all localities.

The abundance of each species is reported as an average of the adjusted number. The average is the median, the middle number in the sense that reports higher or lower than the median are equally common. The median in Table 1 applies only to the times when that bird was present, i.e., zeroes were not counted in computing the median. If the figures in the table are examined by species, the numbers for frequency and abundance will be seen to vary usually in parallel.

The seven migrant species that are most abundant in the spring bird counts in Tennessee are in descending order: Chimney Swift, Barn Swallow, Indigo Bunting, Blue-gray Gnatcatcher, Purple Martin, Yellow-rumped Warbler, and Red-eyed Vireo.

TABLE 1. Frequency and abundance of migrant birds in Spring Bird Counts in Tennessee. F: frequency in percent of counts that each species has been reported. N: median number of individuals per 5000 of all species. Species followed by an asterisk have changed in abundance as described in the text. In the last column E indicates an early migrant, L a late migrant, as described in the text.

	Memphis		Reelfoot		Columbia		Nashville		Chattanooga		Knoxville		Elizabethton		Early/ Late
	F	N	F	N	F	N	F	N	F	N	F	N	F	N	
Green-backed Heron*	79	6	92	8	96	14	100	15	100	21	100	7	96	12	
Broad-winged Hawk	79	6	62	2	85	5	100	3	81	11	84	4	83	8	
American Kestrel	37	3	62	4	96	15	100	12	86	4	92	2	100	5	
Greater Yellowlegs	47	6	77	20	58	8	78	2	86	2	64	2	71	4	
Lesser Yellowlegs	58	37	77	25	88	18	87	4	90	12	80	3	92	7	
Solitary Sandpiper	79	8	100	8	100	10	96	9	100	19	100	11	100	20	E
Spotted Sandpiper	63	8	100	12	100	14	100	12	100	9	100	8	100	14	L
Least Sandpiper	42	55	77	60	88	18	65	14	76	6	68	2	83	4	L
Pectoral Sandpiper	58	18	92	128	54	7	61	3	67	4	40	2	50	2	
Black-billed Cuckoo	11	1	54	2	29	2	43	1	29	2	48	2	38	3	
Yellow-billed Cuckoo	47	5	77	2	100	6	100	13	95	5	92	4	67	2	L
Common Nighthawk	37	6	69	21	100	6	96	4	81	9	88	4	83	6	L
Chuck-will's-widow	37	5	8	12	96	6	83	2	90	8	100	8	71	1	
Whip-poor-will *	21	2	8	10	100	22	100	10	86	4	88	2	96	6	
Chimney Swift	100	34	100	46	100	145	100	229	100	182	100	195	100	100	
Ruby-throated Hummingbird	100	34	92	28	100	5	100	12	100	10	100	3	92	5	
Red-headed Woodpecker	95	39	92	30	92	11	100	5	95	8	88	3	79	2	
Eastern Wood-Pewee	100	31	92	35	100	23	100	18	100	18	88	3	83	4	L
Acadian Flycatcher	89	29	77	25	100	16	96	10	86	8	56	2	75	3	L
Least Flycatcher	21	3	46	5	17	2	43	2	14	2	8	1	71	11	
Eastern Phoebe *	63	5	100	6	100	18	100	16	100	11	100	13	100	10	
Great Crested Flycatcher	100	40	100	46	100	22	100	20	100	25	100	12	92	7	L
Eastern Kingbird	100	22	100	28	100	38	100	32	100	26	100	17	100	16	L
Purple Martin *	84	29	92	19	96	47	100	45	100	183	100	85	100	47	
Tree Swallow *	63	21	100	100	96	20	78	11	76	17	96	6	92	14	
N. Rough-winged Swallow	84	16	92	21	100	56	100	22	100	46	100	40	100	65	
Bank Swallow	16	14	77	24	75	12	65	3	48	6	76	4	50	4	
Cliff Swallow	21	6	38	1	25	4	96	40	100	165	68	3	50	6	
Barn Swallow *	95	92	100	104	100	165	100	139	100	106	100	122	100	150	L
House Wren *	16	5	23	2	25	2	78	4	29	2	96	5	96	16	L

	Memphis		Reelfoot		Columbia		Nashville		Chattanooga		Knoxville		Elizabethton		Early/Late	
	F	N	F	N	F	N	F	N	F	N	F	N	F	N	F	N
Blue-gray Gnatcatcher	100	181	100	107	100	90	100	59	100	100	56	100	47	100	24	E.
Veery	68	7	62	7	96	8	83	3	67	4	67	2	67	4	L.	L.
Gray-cheeked Thrush	89	14	77	6	62	3	78	4	48	2	68	1	17	2	L.	L.
Swainson's Thrush *	100	89	92	12	96	16	100	22	76	6	100	7	42	2	L.	L.
Wood Thrush *	100	90	100	23	100	34	100	34	100	57	100	57	100	72	L.	L.
White-eyed Vireo	100	121	100	50	100	50	100	59	100	32	100	36	100	26		
Solitary Vireo *	32	3	38	2	29	2	74	1	38	2	88	3	100	14		
Yellowthroated Vireo	100	21	92	14	100	10	100	8	90	19	100	8	92	5		
Warbling Vireo	89	7	100	24	83	3	96	6	33	2	56	1	79	3		
Red-eyed Vireo	100	96	100	44	100	45	100	54	100	83	100	75	100	46		
Blue-winged Warbler	58	6	38	3	100	29	100	19	81	8	100	4	54	2	E.	E.
Goldend-winged Warbler	32	4	46	4	62	3	87	1	48	4	92	3	67	4		
Tennessee Warbler *	100	150	92	70	100	56	100	37	90	15	100	16	38	3	L.	L.
Nashville Warbler *	74	11	54	5	96	10	96	6	57	2	100	7	29	1		
N. Parula Warbler *	100	83	92	47	100	12	100	7	62	3	88	4	100	16		
Yellow Warbler	58	5	100	9	100	36	100	23	100	21	100	23	100	50		
Chestnut-sided Warbler	68	10	62	10	92	6	83	4	81	8	100	6	100	20	L.	L.
Magnolia Warbler	21	9	62	15	74	3	91	3	81	4	68	2	25	2	L.	L.
Cape May Warbler	5	2	54	7	54	4	52	4	95	17	96	4	71	3	L.	L.
Black-thr. Blue Warbler	0	-	0	-	8	2	26	1	24	2	80	2	96	13		
Yellow-rumped Warbler	89	35	100	30	100	56	100	63	100	106	100	131	100	36	E.	E.
Black-thr. Green Warbler *	89	9	85	8	92	8	91	5	81	8	100	18	100	17		
Blackburnian Warbler *	42	6	62	5	67	5	83	2	81	6	96	5	71	2		
Yellowthroated Warbler *	100	6	92	10	100	10	100	9	90	13	88	2	71	5		
Prairie Warbler	21	4	38	3	100	30	100	27	100	10	100	25	100	6		
Palm Warbler	53	8	92	12	100	38	100	23	100	36	100	9	58	5		
Ray-breasted Warbler *	42	6	54	7	58	2	78	4	62	9	80	2	29	1	L.	L.
Blackpoll Warbler *	68	7	85	79	100	12	100	13	100	20	88	6	62	1	L.	L.
Cerulean Warbler	100	65	92	16	100	28	100	9	57	11	100	10	47	2		
Black-and-White Warbler	89	7	77	6	100	16	100	10	100	18	100	19	100	39		

	Memphis		Reelfoot		Columbia		Nashville		Chattanooga		Knoxville		Elizabethton		Early/ Late
	F	N	F	N	F	N	F	N	F	N	F	N	F	N	
American Redstart	100	42	77	22	100	12	100	7	86	28	92	4	96	6	
Prothonotary Warbler	100	95	100	86	100	20	100	23	90	6	100	2	21	1	
Worm-eating Warbler *	47	6	38	2	100	11	96	7	88	4	100	8	100	7	
Swainson's Warbler	95	9	69	3	8	2	0	-	14	1	8	1	29	1	
Ovenbird	84	10	62	8	100	16	91	4	100	8	100	15	100	52	L
Northern Waterthrush	63	5	69	8	96	7	91	4	76	2	60	2	67	2	L
Louisiana Waterthrush *	89	15	62	4	100	18	100	14	100	10	96	3	100	10	
Kentucky Warbler	100	80	92	26	100	34	100	24	100	17	100	10	92	4	
Common Yellowthroat *	100	50	100	87	100	58	100	71	100	37	100	54	100	34	L
Hooded Warbler	100	24	69	5	100	14	96	6	100	14	100	16	100	30	
Wilson's Warbler	0		38	4	4	1	52	1	5	1	64	1	8	1	
Canada Warbler	16	2	15	2	25	2	65	1	81	2	80	2	58	6	L
Yellow-breasted Chat *	100	26	92	25	100	34	100	40	100	30	100	18	92	18	
Summer Tanager *	100	96	100	29	100	28	100	40	100	30	100	17	83	2	
Scarlet Tanager	100	17	85	9	100	26	100	18	100	27	100	18	100	24	
Rose breasted Grosbeak	100	23	92	29	100	34	100	37	100	34	100	25	96	16	L
Blue Grosbeak	63	7	38	8	88	5	83	8	95	12	96	4	58	2	
Indigo Bunting	100	222	100	218	100	123	100	145	100	89	100	55	96	24	L
Dickcissel	68	27	100	160	88	14	85	3	24	2	24	4	4	4	
Bobolink	53	20	92	121	71	76	61	14	81	44	88	8	54	7	L
Orchard Oriole *	100	57	100	43	100	46	100	61	100	21	100	16	100	12	
Northern Oriole	100	54	100	80	83	8	100	12	86	10	92	4	96	9	

The relative abundance of each species in different areas of the state can be inferred from Table 1. Thirty-two species appeared in my judgement to be more frequent and abundant in West Tennessee, 8 in Middle Tennessee and 18 in East Tennessee. The remaining 24 species appeared to be more uniformly present.

Nine of the migrant species listed in Table 1 nest in the higher elevations of the Appalachian Mountains in East Tennessee. Six of these are more frequent and in higher abundance in the East Tennessee spring counts, especially in Elizabethton; they are Solitary Vireo, Black-throated Blue Warbler, Black-throated Green Warbler, Chestnut-sided Warbler, Ovenbird, and Canada Warbler. Two, Blackburnian Warbler and Rose-breasted Grosbeak, are equally common across the state. Only one, Veery, is relatively more common in West and Middle Tennessee than it is in the eastern area.

The data made it possible to determine which species were "early" migrants and which were "late", not on the basis of earliest and latest dates as is usually done, but on the basis of abundance. The average date of all counts was April 29. The period April 18-26 was defined as the early period, and May 2-13 as the late period. There were 33 counts in each of these periods. For a species which is neither an early nor a late migrant the number of counts above the median for that species would be expected to equal the number below the median in each of the two periods. On the other hand, an early migrant would be expected to have in the early period more counts above the median and fewer below, and vice versa in the later period. The relation is reversed for a late migrant. A chi-square test was used to test the data for each species. There were 51 species in which there was no significant difference from equality of the counts. Four species were significantly "early" and 27 were "late", at the 2% level of significance (23 of these 31 species actually had probabilities of less than 0.5%). The species designated early or late migrants are indicated in the last column of Table 1.

CHANGES IN ABUNDANCE

As described above, the observed number of individuals of each species was adjusted to the number per 5000 total observed birds. The adjusted numbers, therefore, are relative to the whole bird population. Whether or not this latter number has changed cannot be decided by data from the spring counts, so any observed change in a species must be interpreted as a change relative to all birds in the area at the time of the counts.

For detecting significant trends in the relative abundance of a species I used first the same method as described in the analysis of Christmas Bird Counts (Tanner 1985); this is a combination of testing for trends by the number of runs above or below the median (Conover 1971) and looking for parallel changes in abundance at two or more localities. This method is objective in that it does not depend on any arbitrary division of the time span into two or more periods. About 30 species had significant trends in two different patterns. The larger group showed an increase in abundance occurring about 1970, and a smaller group had a decrease beginning about 1978.

For each species of the first group a further test was performed by comparing the number of times that the adjusted number was above or

below the locality median in each of two periods, 1961-70 and 1976-85. If the abundance had not changed, the numbers above and below the median in each period are expected to be equal. A chi-square test was used to test for significant differences from the expected. A species was considered to show an increase about 1970 if it had a significant trend as shown by the runs test plus a chi-square with probability less than 2.5%, or if it had a non-significant runs test but a chi-square with probability less than 1%.

For the smaller group a similar chi-square test was performed using the periods 1961-77 and 1978-85, with the same criteria for recognizing a change.

Seventeen species increased in abundance beginning about 1970. They are the Green-backed Heron, Purple Martin, Tree and Barn Swallows, House Wren, Swainson's Thrush, Solitary Vireo, and the following warblers: Tennessee, Nashville, Parula, Black-throated Green, Blackburnian, Yellow-throated, Bay-breasted, Blackpoll, Worm-eating, and Common Yellowthroat. These species do not occupy the same nesting range; about a quarter nest primarily south of the Great Lakes, a quarter from Tennessee north into Canada, and half primarily north of the Great Lakes. Nor do they have similar winter ranges; about 40% migrate into South America and 60% no farther than Central America (nesting and winter ranges were determined from the maps in Peterson (1980) and descriptions in the American Ornithologists' Union check-list (1957)). Whatever caused the increase must have operated over a wide geographic range.

The year 1970 was near the end of the time when the insecticide DDT was being phased out of use in the United States and Canada (U.S. Environmental Protection Agency 1975). The last year that DDT was used extensively in forest insect control was 1966 (excepting an intensive use around 1974 in Douglas-fir forests, which would be outside the range of Tennessee migrants). By 1970 the use of DDT had been banned in several states and on U.S. Department of Interior lands. In 1973 the domestic use of DDT had fallen to about 2% of what it had been in 1966, and the U.S. Court of Appeals upheld the decision of the Environmental Protection Agency to cancel all remaining uses of DDT on crops in the United States.

The harmful effect of DDT and other chlorinated hydrocarbon insecticides on the reproduction of larger predatory and fish-eating birds is well known (Hickey and Anderson 1968). Less is known about damage to insectivorous songbirds, but it did occur. Alsop (1972) cites examples of observed harm to Eastern Phoebes, Tree Swallows, American Robins, and two species of European thrushes, and his research proved a connection between DDT use and the thinning of eggshells of Red-winged Blackbirds.

Of the seventeen species showing an increase, the Green-backed Heron is a fish-eating bird and the others are insectivorous. The decline in the use of DDT is a plausible explanation for their increase. After discovering this increase, I performed the chi-square test described above on the commoner fish-eating and insectivorous birds reported in the Christmas Bird Counts in Tennessee (Tanner 1985), comparing abundance in the two periods in 1960-71 and 1976-85. The fish-eating Pied-billed Grebe and Great Blue Heron were both more abundant in the later period (chi-square probability less than 0.1%). Of the insectivorous species, the following increased (with chi-square probability equal to or less than 0.1%): White-breasted and Red-breasted Nuthatches, Carolina Wren, Golden-crowned and Ruby-crowned

Kinglets, and Yellow-rumped Warbler. There were no apparent changes in the numbers of phoebe, Carolina Chickadee, Tufted Titmouse, Winter Wren, and Eastern Bluebird. The results support the conclusion that at least 25 species of birds wintering in or migrating through Tennessee have increased after DDT was banned.

Most birds which migrate through Tennessee are insectivorous, which raises the question: why do not more species show an increase? A possible answer to this is that the numbers reported on spring bird counts are affected by the date on which the count was performed, errors in counting, and variations in habitat coverage, as well as by the true abundance of each species which responds to several kinds of environmental changes. Because of several causes of variation, significant changes due to one cause are hard to detect.

Seven species of migrants showed a significant decrease beginning about 1978. These all nest in the deciduous forest region primarily south of the Great Lakes and have overlapping winter ranges. The seven with their winter ranges are: phoebe—Gulf States and Mexico; Whip-poor-will - Gulf States through Mexico to Central America; Wood Thrush and Yellow-breasted Chat - Mexico and Central America; Louisiana Waterthrush, Summer Tanager, and Orchard Oriole - Mexico through Central America to northwestern South America. All of their winter ranges include Mexico and all but one include Central America. Thirteen species of Tennessee migrants winter entirely on the South American continent; none of these showed a decrease in recent years, and two - Purple Martin and Blackpoll Warbler - are in the group that increased after 1970.

The changes in the relative numbers of Summer and Scarlet Tanagers are interesting. Both species have similar habits and nest in mature deciduous forests. Summer Tanagers nest in all parts of Tennessee except the mountains, and Scarlet Tanagers nest in the Appalachian and Cumberland Mountains and in scattered locations in the rest of the state. In the spring bird counts at Memphis and Reelfoot, Summer Tanagers have always predominated. At Columbia and Nashville, Summer Tanagers were more numerous until 1978, after which Scarlet Tanagers were usually more abundant in the counts. At Chattanooga and Knoxville, Scarlet Tanagers became the predominant tanager after 1970. At Elizabethton, Scarlet Tanagers were always more common. At all localities the ratio of Summer to Scarlet Tanagers showed a marked decrease around 1977. Summer Tanagers winter from Mexico to South America, while Scarlet Tanagers winter in northwestern South America.

The relations between winter ranges and trends in abundance of 74 species of Tennessee migrants can be seen in Table 2. Species listed in Table 1 that are omitted from this table are American Kestrel, Red-headed Woodpecker, and six species of shorebirds. Winter ranges are classified into two groups. The first includes species that winter predominantly or partly in Mexico, and the second is composed of species wintering from Central America southward, entirely in South America, or in the West Indies. The table shows that the 50 species which had no significant changes in abundance and the 17 species which increased about 1970 are divided into the two groups in about the same proportions as all species, but those with decreasing abundance are all in the group whose winter range includes Mexico. The numbers are too small for any statistical tests of significance. They only suggest that the decreases are related to winter ranges in Mexico.

Table 2. Winter ranges of Tennessee migrants classified by trends in abundance.

Winter Range	Number of Species			Total
	No significant trend	Increasing about 1970	Decreasing about 1978	
Includes Mexico	29	12	7	48
Outside of Mexico	21	5	0	26
Totals	50	17	7	74

Several authors (Wilcove 1985) have suggested that in recent years there has been a decline in the abundance of songbirds in the United States due to one or more reasons including the loss of winter habitat from clearing of forests in Central and South America, the fragmentation of woodlands in the United States leading to the extinction of local populations of forest birds, and increased predation resulting from habitat changes favoring predators. This analysis of the numbers of migrants seen in Tennessee does not support these ideas. More species have increased than decreased, with the likely cause for this being the near elimination of the insecticide DDT. If loss of winter habitat is the cause of the decrease of seven species, the habitat changes must have occurred in Mexico or in Mexico and Central America rather than in South America.

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- Route 28, Box 155, Knoxville, TN 37920. Accepted 3 November 1986.

ROUND TABLE NOTES

BROWN-HEADED COWBIRDS FEEDING YOUNG IN COFFEE COUNTY, TENNESSEE—In our backyard in Tullahoma, my husband Frank Hernandez and I had several Brown-headed Cowbirds (*Molothrus ater*) come to our bird feeders during the winter of 1984-85. They continued to frequent the feeders where sunflower seed was offered in the spring and early summer of 1985. One pair of cowbirds stayed around the yard most of every day, especially in early April when a pair of Eastern Bluebirds (*Sialia sialis*) was building a nest in a nest box. We did not see any cowbirds again until 1 May, and then saw them daily from 11 May to 20 May. On 20 May I heard many raucous bird noises in the backyard. I went out and observed a female Northern Cardinal (*Cardinalis cardinalis*) feeding a young cowbird. There were a male and female cowbird also feeding the young cowbird between feedings by the female cardinal. We saw no cowbirds the next day, and did not observe any until 4-5 June when we observed a pair of adult birds in the yard. We observed the 3 cowbirds together for the next three days.

It appears that these adult cowbirds did not just lay their eggs in another bird's nest and then abandon them, but remained in the area and cared for the young. Bent (*U.S. Nat. Mus. Bull* 211:441) records 3 cases of female cowbirds feeding young, and Merritt (*Migrant* 27:40, 1956) also notes this behavior. Having read an article by Kay McCracken "Do Cowbirds recruit their own young" (*Bird Watcher's Digest* 6(4):72-74, 1984), I was aware that the behavior we had observed is rarely noted.

MARGUERITE D. HERNANDEZ, 415 Parkway Rd., Rt. 2, Tullahoma, TN 37388. Accepted 15 August 1986.

FIRST SIGHT RECORD OF RUFIOUS HUMMINGBIRD IN TENNESSEE—On 6 September 1983 I observed an immature male Rufous Hummingbird (*Selasphorus rufus*) in west Murfreesboro, Rutherford County. The bird was seen by Anne L. Hettish and Ruth V. McMillan later the same day. More than 20 other observers viewed it 7-8 September 1983; several of them —J. Paul Crawford, Michael L. Bierly, and Lee F. Kramer—obtained photographs.

This bird was often viewed in direct comparison with Ruby-throated Hummingbirds (*Archilochus colubris*). Its plumage was distinctly more rufous than that of any of the other hummingbirds with which it associated, especially on its undersides and back. No greenish coloration was evident on its upper back, separating it from the very similar Allen's Hummingbird (*Selasphorus sasin*), which occurs accidentally as far east as southern Louisiana (AOU Check-List of North American Birds, 6th ed., 1983). A color transparency of this bird taken by Crawford has been viewed by a number of individuals; it appears to confirm the identification of the bird. If accepted by the Certification Committee of the Tennessee Ornithological Society, this record would constitute the first one for this species in Tennessee.

Although no previous record of Rufous Hummingbird has occurred in the state, two *Selasphorus* sp. have been recorded. On 9 November 1976 a freshly dead female of this genus was discovered by Cal Newman at the Pink Palace Museum in Memphis. The specimen was eventually deposited

in the collection of the Louisiana State University Museum of Zoology (LSUMZ 87078), where it was examined by Allan Phillips, who identified it as a Rufous, and by Bruce Sorrie, who identified it as an Allen's. J.V. Remsen, besides offering the foregoing data about the process of attempting an identification of the bird, has recommended that it "should probably be left as a *Selasphorus* sp." (pers. comm.). A second record of a *Selasphorus* hummingbird also occurred in Memphis 26-29 September 1983, only 18 days after the sighting in Murfreesboro. An immature male was observed by William C. and Joyce North at Riverbluff Point in that city. Photographs of this bird were obtained by George R. Payne and Jo Levy. Remsen (pers. comm.) studied these and concluded, since the transparencies made by Payne suggested that the bird was an Allen's Hummingbird while a print by Levy suggested Rufous, that the identity of the bird "should remain as *Selasphorus* sp."

LOU A. ERWIN, Rt. 2, Box 187, Murfreesboro, TN 37130. Accepted 8 November 1986.

RUFIOUS HUMMINGBIRD IN CARTER COUNTY, TENNESSEE—On 27 September, 11 and 12 October 1985, I observed a male Rufous Hummingbird (*Selasphorus rufus*) at my house, then located between Johnson City and Elizabethton in Carter County, Tennessee. I had excellent views of this bird on all 3 occasions. On 27 September about noon I spotted the bird as it sat on a telephone line over a blooming bed of scarlet sage (*Salvia carabiniere*) in my yard — a bed which Ruby-throated Hummingbirds (*Archilochus colubris*) frequented. I saw it at a distance of approximately 4 m for a period of roughly 1½ minutes. The sky was overcast.

On 11 and 12 October I observed the bird repeatedly as it fed among the scarlet sage and sat on the same telephone line. This time I observed the bird at a distance of about 3 m. The time of day was late afternoon on 11 October and early morning on 12 October. On both days the sky was clear.

On all 3 occasions I watched the bird with my naked eye and through Bushnell ensign 7x50 binoculars. The bird was readily identifiable as a Rufous by its reddish-brown back, sides, and tail. It lacked the Ruby-throated Hummingbird's distinguishing characteristics, the iridescent green crown and back, the olive sides and the largely black tail. The bird's red gorget marked it as a male.

Most Rufous Hummingbird records in the East have come from Florida; however, some records come from as far north as Nova Scotia (*American Birds*, Vol. 40, No. 1, 1986). In Tennessee, Lou A. Erwin, *et al.* recorded one immature Rufous seen in Murfreesboro on 6-8 September 1983 (*Migrant* 55:21, 1984). In addition, there have been 2 records of *Selasphorus* sp. Memphis (Erwin, *Migrant* 57:98-99, 1986).

RICHARD CLARK, Route 7, Box 297A, Lenoir City, TN 37771. Accepted 15 August 1986.

UNUSUAL SMALL GULL SEEN IN ROANE COUNTY, TENNESSEE—On 22 May 1980 Daniel R. Jacobson, Kathy Davidson, and Lillian H. Dubke visited the Kingston Steam Plant near Kingston, Roane County. While counting birds there, they observed a small gull which they identified as a Sabine's Gull (*Xema sabina*). Because moderate to heavy rain was falling that day, no other observers notified about this gull went to look for it except Barbara H. Stedman and myself; we arrived at the

site in late evening and obtained unsatisfactory views of the bird due to the rain which continued to fall. Had we not seen the bird again, we would have agreed that it was a Sabine's Gull.

On 23 May 1980 several observers visited the steam plant and obtained lengthy views of the gull. These observers were J.B. Owen, Paul Pardue, and J. Paul and Dot T. Crawford. Weather conditions were much better that day, and all observers viewed the gull, agreeing that it was a Sabine's Gull. Most of them cited the deeply forked tail of this larid as its key identifying mark, although other field marks were also cited in support of this identification.

Later on the 23rd Barbara and I revisited the steam plant and were once again able to view the gull. Our observations of it convinced us that we were seeing a Little Gull (*Larus minutus*). In particular we were impressed by the immature kittiwake-like wing pattern which the bird displayed and by the strong contrast between the color of the hindneck and that of the mantle of the bird.

Since that time the identity of this gull has been a subject of some debate and has never been resolved; no mention of it occurred in "The Official List of Tennessee Birds" (Nicholson, *Migrant*, 54:2-5, 1983). Currently, only one mention of the sighting has occurred (Hall, "Appalachian Region," *American Birds*, 34:775-778, 1980); Hall merely noted that "opinions were divided as to whether it was a Sabine's Gull" (p.776). It is not the purpose of this note to attempt a resolution of the identity of this bird, which may not be possible in any event. Rather, I would simply like to put on record the facts of the sighting and to alert Tennessee field workers that either Sabine's Gull or Little Gull is a species which might have occurred in the state in 1980 as a first state record. Either species could be expected to recur.

STEPHEN J. STEDMAN, Rt. 6, Pinewood Rd., Franklin, TN 37064.
Accepted 10 November 1986.

BOOK REVIEW

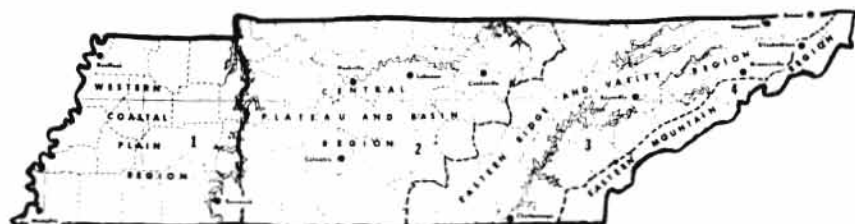
HUMMINGBIRDS, THEIR LIFE AND BEHAVIOR - by Esther Q. Tyrrell and Robert A. Tyrrell. 1985. Crown Publishers, New York. 212 pp., drawings, 253 color photos. \$35.

This book begins with a brief introduction, followed by "A portfolio of North American hummingbirds." This chapter includes a section on each of the 16 species which have bred in the United States, and describes field marks, breeding and wintering range, migratory habits, nesting season and habitat. Except for field marks, the amount of detail here varies somewhat from species to species, and there are a few errors. For some species described as non-migratory in the 1983 AOU Check-list, information on either the breeding range, winter range, or both is said to be unavailable. The breeding range of the Violet-crowned Hummingbird (*Amazilia violiceps*) is described as "Southeastern Arizona and Southwestern New Mexico," omitting the large part of Mexico in which the species also breeds. These descriptions are accompanied by frontal and rear or side photographs of the male and a drawing of the female of each species. The drawings of the females are of limited use for identification. Other chapters include "Anatomy," which has sections on the main bodily systems illustrated by paintings or drawings of dissections and photographs, "Feathers," "Flight," "Courtship and Nesting," "Food and Metabolism," "Behavior," and "Wildflower Pollination." Each of these chapters is illustrated with photographs. The last chapter includes a section on hummingbird flower mites (but no photos of mites), and a list of hummingbird-pollinated wildflowers. An appendix lists all the hummingbirds of the world, and the bibliography cites about 150 works published through 1983. The various topics are discussed in detail in the text, and it is obvious that much use was made of the references in the bibliography. No citations are given in the text. This makes the book easier to read, but hinders its use as a starting point in hummingbird research. The text also contains several misspellings or typos, such as "Great Smokey (sic) Mountains" in the preface.

The text, however, is secondary to the photographs, which are the *raison d'être* for the book. Indeed, the subtitle of the book is 'A photographic study of the North American species.' The 235 color photos are stunning, and illustrate most aspects of hummingbird life. Numerous photos of feeding birds are included, as well as shots of courtship and aggressive behavior, nesting, development and care of young, molting, preening, sleep and torpor, and stretching. The photos range up to full page in size, and in my copy of the book, are reproduced very well. Except for acknowledgements of custom high-speed strobe equipment, little information is given on how the photos were taken. Photo series showing molt sequences were probably made in an aviary, and some birds appear to have bent primary tips. This does not, however, detract from the presentation.

It would not be fair to conclude this review without a comparison with Johnsgard's 1983 'Hummingbirds of North America.' Johnsgard's book, with a comprehensive text, literature citations, and paintings of hummingbirds, should appeal more to those interested in an introduction to hummingbird research. The Tyrrell's book, with its beautiful photographs, will appeal to a much wider audience. And, at \$35 for a large format book full of color photographs, it is affordable by a large audience. — CHARLES P. NICHOLSON.

THE SEASON



SUMMER: 1 JUNE — 31 JULY 1986

Although most of the state received some much-needed rainfall during June and July, the amount remained below normal as the drought continued. In parts of the state, drought effects were intensified by unusually high July temperatures. Based on the regional compiler's comments, there were apparently few drought-related impacts on nesting birds. I did notice several American Robin nests near my home in Norris which were constructed without any mud, and then abandoned. While watering my garden with a sprinkler, I often had a frenzy of robin mud-gathering. See Steve Stedman's comments below on the Bewick's Wren for more possible drought effects.

This was the first year of the Tennessee Breeding Bird Atlas project, and some significant breeding records were mentioned in the spring report. Atlas fieldwork continued through the summer, although record July temperatures caused some of us to seek temporary refuge near our air conditioners. Nevertheless, there were many more birders afield this summer, and the reports that follow here are longer as a result. Interesting reports included Anhingas and young Blue-winged Teal in west Tennessee, several reports of Cooper's Hawks from across the state, a Common Moorhen pair near Columbia, new sites for Willow Flycatchers, new nesting locations for Tree and Cliff Swallows, a fledgling Black-throated Blue Warbler in the Cumberland Mountains, and Red Crossbills feeding young on Roan Mountain. Read on for more.—CHARLES P. NICHOLSON.

WESTERN COASTAL PLAIN REGION — The summer was hot and dry. Nesting was again recorded for Black-necked Stilts and House Finches in the Memphis area. No Bachman's or Grasshopper Sparrows were found at areas previously used by these species. High water on the Mississippi River limited the number of available nest sites for Least Terns. Early records were established for several fall migrants.

Grebe-Egret: Pied-billed Grebe: 1-30 June (21 imm), the 4-16 July (2-8 imm) TAT (WGC); marsh ditched and planted in August. Anhinga: 23 Jun (1) REL (JRW); possible nesting in Anderson-Tully WMA, LDC (PBH, RPF). Least Bittern: 4 Jun (1) TAT (WGC); 5 Jul (1) TIG (JCR). Great Blue Heron: May-Jul (50-plus active nests) Camden area of Kentucky Lake WMA (Mark Goodlin, *vide* RMH); 4 Jul (95) LKC (JCR); 30 Jun, 4 Jul (25) TAT (WGC); 30 Jul (35) I13 (WGC). Great Egret: 4 Jul (86) LKC (JCR); 19 Jul (18) TAT

(WGC). Snowy Egret: 14 Jul (14) levee 2 mi S of I13 (WGC). Little Blue Heron: 4 Jul (75) TAT (WGC); 4 Jul (13) Miss. R., LKC (JCR); 5 Jul (23) TIG (JCR). Yellow-crowned Night-Heron; colony of 6 pairs at MEM (BBC); 30 Jun (14 ad, 10 imm) TAT (WGC). Cattle Egret: 4 Jul (90) LKC/DYC (JCR).

Teal—Falcon: Blue-winged Teal: 1 Jun-24 Jul (4 males, 1 female) TAT: (WGC); 1 Jun (1 ad, 4 y) ESL (BBC, LCC). Northern Shoveler: 1 Jun (1 male), 24 Jul (2 males) TAT (WGC). Green-winged Teal: 3 Jun (pair) TAT (WGC). Hooded Merganser: 1 Jun (7 females), 3 Jun (imm) TAT (WGC). Mississippi Kite: 3 Jun (10) Hwy 78, mile 5, LDC (Linda Waters, USFWS); 10 Jun (60) ESL (JLL, DWM), new area high count; 4 Jul (31) ESL (JRW); 4 Jul (8) LKC/DYC, 5 Jul (5) TIG (JCR); 26 Jul (16) ESL (JRW). Bald Eagle: see Highland Rim and Basin Region report. Cooper's Hawk: 7 Jul (3 y) HEC (Charlie Norvell, TN Parks). Red-shouldered Hawk: 4 Jun (1) TAT (WGC). Broad-winged Hawk: 10 Jun (1) Chucalissa, SBC (CHB, Selma L. Lewis, Noreen M. Smith, MGW); 17 Jun (1) MEM (JRW); 27 Jun (5) ESL (JRW, MGW). American Kestrel: 12-25 Jun (5 banded) MEM (MGW); 13 Jun (1) NW HEC (CHB); 5 Jul (5) DYC (JCR); 20, 26 Jul (2) ESL (DPB, DAD, JRW, MGW); more reports than in previous years. Peregrine Falcon: 20 Jul (1) ESL (JRW).

Plover—Tern: Semipalmated Plover: 28 Jul (6) I13 (WGC). Piping Plover: 26 Jul (2) I13 (MHI, CKC); 28 Jul (1) TN 79 at Great River Rd., LKC (WGC). Killdeer: high of 318 on 27 Jul at ESL (JRW, MGW). Black-necked Stilt: up to 9 adults present and 4 possible nests, only 2 of which hatched young at ESL (JRW, DPB, DHB, DAD, MGW). Greater Yellowlegs: first present 13 Jul, 20 Jul (24) ESL (DPB, DAD, JRW, MGW). Lesser Yellowlegs: 4 Jul (3) LKC (JCR); 13 Jul (34), 20 Jul (24) ESL (DPB, DAD, JRW, MGW). Solitary Sandpiper: 6 Jul (7) ESL (JRW), new early record by 7 days; 13 Jul (6) TAT (WGC); 20 Jul (24), 26 Jul (19) ESL (JRW, DPB, DAD, MGW). Spotted Sandpiper: 1 Jun (1) ESL (JRW); 1 Jul — EOP, max of 14 on 20 Jul, at ESL (JRW, MGW, DPB, DAD *et al.*); 16 Jul (2) TAT (WGC). Western Sandpiper: 29 Jun (1) ESL (RTC), first SBC June record; 20-27 Jul (4-13) ESL (DPB, DAD, JRW, MGW); 24 Jul (1) TAT (WGC); 28 Jul (3) TN 103 at levee, DYC, (14) TN 79 at levee, LKC (WGC). Least Sandpiper: low of 2 on 4 Jul to high of 212 on 26 Jul at ESL (JRW); 4 Jul (18) LKC (JCR). White-rumped Sandpiper: 20 Jul (8) ESL (JRW, DPB, DAD, MGW), early record by 3 days. Baird's Sandpiper: 26 Jul (2) PHI (MHI, CKC). Pectoral Sandpiper: first 13 Jul (15), to EOP, max 560 on 26 Jul at ESL (JRW, DPB, DAD, MGW); 20 Jul (16) TAT (WGC). Stilt Sandpiper: 20 Jul (4), 26 Jul (6) ESL (DPB, DAD, JRW, MGW); 28 Jul (6) TN 103 at levee, DYC, (3) TN 79 at levee, LKC (WGC). Short-billed Dowitcher: 4 Jul (5) LKC (JCR); 13-20 Jul (2-7) ESL (JRW, DPB, DAD, MGW); 13 Jul (1) TAT (WGC). Least Tern: 4 Jun-26 Jul (2-12) Miss. R., SBC (MHI, JCR, JEW, JRW, MGW, DAD); 15 Jun (2) Island 36, Tipton Co. (RPF); 19 Jun (6) Golddust, LDC (RPF); 14-30 Jul (27-50 +) I13 (WGC, JCR).

Wood-Pewee—Finch: Eastern Wood-Pewee: 23 Jun (pair feeding y in nest) MEM (JRW). Tree Swallow: 3 Jun (2) Tenn. R. near Eva, Benton Co.; 22 Jun (1) Britton Ford, HNC (JCR); 4 Jul (65) PHI (JCR). Cliff Swallow: 3 Jun (50) Stewman Cr., DTC, (25) Doe Cr., HDC, (40) Owl Cr. at TN 142, HDC, a

few at US 70 bridge, BNC/HNC (BBC, LCC); 29 Jun (1) ESL (RTC). Northern Rough-winged Swallow: 4 Jul (150 +) LKC (JCR). Bank Swallow: 4 Jul (1) PHI (JCR). Fish Crow: 4 Jul (2) TIG (JCR). Brown Creeper: 12 Jun (1) Forked Deer R., Madison Co.; 17 Jun (2) near Rossville, FYC; 20 Jun (2) REL, LKC; 23 Jun (1) Como, HNC; 5 Jul (2) Shelby Forest State Park, SBC, all by RPF; details to be published as Round Table Note. Loggerhead Shrike: reported from HEC, LKC, and SBC at ESL (BBC, LCC, DAD, MGW, RCS, DOS, JRW, CHB). Warbling Vireo: reported from SBC, HNC, BNC, LKC, OBC, Haywood Co. (BBC, LCC, RPF, RCS). Ovenbird: 8-29 Jun (1-4) NE DTC (CHB). Scarlet Tanager: 2 Jun (1) E of Samburg, OBC (Rob Peeples); 4 Jun (pair) Cub Creek, HDC, (HBD, CHB). Painted Bunting: 14 Jun-1 Jul (1-3) President's Island, SBC (CHB, JLL, DWM, DOS, JRW, MGW); 29 Jun (1) ESL (JEW, MGW). Bachman's Sparrow: 22 Jun (1), 24 Jun (2) Big Sandy Unit, Tenn. Nat. Wildl. Refuge, HNC (JCR, DPB, DAD, Virginia Reynolds, MGW); not found at previously used locations checked in late May and June (BBC, LLC, CHB). Lark Sparrow: 2 Jun (possibly 2 pairs) near Parker Crossroads, HEC (BBC, LCC). Grasshopper Sparrow: 5 Jul (5) 1 mi S of Roellen, DYC (JCR). House Finch: nesting in area for 5th season, MEM (William R. Miller, BBC).

Locations: BNC - Benton Co.; DTC - Decatur Co.; DYC - Dyer Co.; ESL - Ensley Sewage Lagoons, Shelby Co.; HDC - Hardin Co.; HEC - Henderson Co.; HNC - Henry Co.; I13 - Island 13, Lake Co.; LDC - Lauderdale Co.; LKC - Lake Co.; MEM - Memphis; OBC - Obion Co.; PHI - Philippy, Lake Co.; REL - Reelfoot Lake; SBC - Shelby Co.; TAT - Tatumville Marsh, Dyer Co.; TIG - Tigrett WMA, Dyer Co.

MARTHA G. WALDRON, 1626 Yorkshire Dr., Memphis, TN 38119.

HIGHLAND RIM AND BASIN REGION—The season was exciting; read on.

Needless to say, dry conditions continued. Nashville rainfall in June was 2.38 inches (1.20 in. deficient) while July was drier still with 0.77 inches falling (3.05 in. deficient). The yearly shortfall in the city for the first 7 months of 1986 almost equalled the shortfall for all of 1985; however, to the west in Waverly, HPC, nearly normal rainfall accumulation for the year occurred during the same period. Throughout the region it was hotter than normal; the 102°F on 20 July set an alltime record for that date in Nashville, and it was hotter still in Gallatin—106°F. Overall, July averaged 30°F above normal.

One important gauge of bird species' status—the "Blue List" (*American Birds* 40: 227-235, 1986)—returned after a four-year publication hiatus. This list acts as an early-warning system for species declining in major parts or all of their ranges, and it has application to a number of species breeding in middle Tennessee, as the following report makes clear. Species denoted as "Blue-listed" are in most serious jeopardy, those listed as of "Special Concern" are in lesser jeopardy, and those characterized as of "Local Concern" are least seriously in decline, although all are judged to be jeopardized. Some Blue-listed species may eventually find a place on the list

of Endangered Species if their decline continues long and precipitously enough, as has recently happened to the Piping Plover.

Breeding Bird Surveys (BBS) provided data on 96 species breeding in the region this year, equalling the 1985 total. For the first time in 17 years, one of the region's BBS routes was not covered in 1986; thus, the lowest-ever totals which follow are slightly less significant than they would normally be, while the highest-ever totals are slightly more significant. Counted in lower numbers than in any of the preceding 20 years were Gray Catbird (28), White-eyed Vireo (80), Prairie Warbler (30), Hooded Warbler (1), Yellow-breasted Chat (164), and Eastern Meadowlark (532); the last two species continue to trend downward. Highest-ever totals were accumulated for Canada Goose (70), Downy Woodpecker (72), Eastern Kingbird (129), Cliff Swallow (20), American Robin (303), and Blue Grosbeak (88); all of these species except the woodpecker and kingbird show clear trends of increase over the past 20 years. Comments about BBS results for a number of other species may be found in the species accounts which follow; however, one of those species deserves more prominent discussion.

On the BBSs and in every other facet of its existence in the region, the Bewick's Wren remains an enigma. After its very poor showing on the 1985 BBSs and CBCs, even more dire results were expected from the 1986 breeding season. Instead, the species rebounded extremely well with 3 showing up on the BBSs. Overall, birds were observed at 17 sites in 9 counties, making the 1986 nesting season the best in this decade for the species, based on available data. Breeding Bird Atlas workers were certainly responsible for some of the increase in sightings, but not all of the increase can be attributed to atlas work. Since Bewick's Wren continues to do well in the western U.S., where many areas routinely experience drier conditions than are normal in Tennessee, perhaps the drought of 1986, following that of 1985, actually benefitted the species. If no researcher is currently studying the biology of this Blue-listed species in the state, then it is time that the professional and amateur ornithologists of Tennessee initiated a few projects.

Thanks go to all the observers cited below, as their documentation and submission of records are the vital first steps which lead to season reports. Thanks also go to John C. Robinson for review of a draft of this report.

Loon - Night-Heron; Common Loon: 31 Jul (1) WDR (Ruth Luckado), only report. Pied-billed Grebe: 28 Jun (2 in breeding plumage) BEC (MHI, ECC), only report. Double-crested Cormorant: 16 Jul (1 ad) DRU (SJS, MHI, CKC), only report; at a site known to have harbored a breeding population in 1940's. American Bittern: 28 Jul (1) RDL (ATT); 4th NA summer record. Great Blue Heron: 18 Apr (208 active nests) DRU heronry (EB), slightly up in numbers from 1985; no data on the CFC rookery available; widely reported in mid-July with max on 20 Jul (29) LWP (MHI, CKC) away from rookery. Great Egret: reported from HPC, SWC, SUC, WMC, and WLC with max 16 July (10) DRU (SJS, CKC, MHI). SNOWY EGRET: 26 Jul (1) LWP (JPC, DTC), 11th NA record. Little Blue Heron: reported only from CCNWR and LWP with max 31 Jul (63) CCNWR (JCR). Cattle Egret: 10 Jun (2 ad in breeding plumage) Shrader Lane, DVC (RJM); 29 Jun (1 ad) Leatherwood X Long Creek Rds., SWC (JCR); only reports. Black-crowned Night-Heron: 13 Apr (175-325 active nests) Bordeaux heronry, DVC (PBH *et al.*); all season

(up to 20, with nesting highly probable) island in OHL offshore from GSP (DTC, JPC); by EOP (up to 13) CCNWR (JCR), probably an influx from a heronry on Lake Barkley in Kentucky portion of LBL (*vide* Brainard L. Palmer-Ball, Jr., JCR); by EOP (up to 7) MOP (KGA, SJS, JCR), post-breeding influx from unknown rookery. Yellow-crowned Night-Heron: small numbers reported from Ruskin, DIC (1 ad), Shrader Lane, Morrow Rd., and MC, DVC (up to 6/4/4), Stones R., Murfreesboro (1), BEC (3), CCNWR (1), and Tullahoma, CFC (4).

Shelduck-Vulture: RUDDY SHELDUCK: 4, 11 Jul (1 unbanded ad female) GSP (JPC, DTC), steam plant personnel indicated bird had been present for 8-10 weeks previously; 2nd NA record, but bird almost as suspect in origin as first one (*Migrant* 55: 44, 1984). Wood Duck: 31 May (116) CCNWR (JCR), max. American Black Duck: 6 Jul (1) DRU (JCR); brooding ad (in Osprey nest) and, earlier, young birds reported (without details) (EB); 19 Jul (1 capable of strong flight) MOP (SJS, JCR), probable migrant. Lesser Scaup: 6 Jun (1 ad male) MOP (WNJ, CKC, DJS, SJS), only report. Black Vulture: early Apr (2 at site used for nesting in the 4 previous years) Suggs Creek, WLC (Eric Thibault); 25 May (1 ad taking off from nesting habitat-cliff face) near Burrirstown, OVC (PBH, DOS); 10 Jun (51) CCNWR (JCR), max; a species of Local Concern, but apparently not declining in middle Tennessee. Turkey Vulture: Mar-May (nest with 2 young) LWC (MDW), first nest reported in region in last 4 years (although this one was active during that time).

OSPREY: The number of pairs attempting to nest in the region increased from 1 to 3; however, no successful fledging was reported at any of the 3 sites where nesting occurred. The pair at DRU returned to the nest used in 1984 and 1985, laid eggs, incubated them for 3 weeks, and then abandoned the nest; they built another nest some distance from the first one but abandoned it also; they returned to the original nest only to find it in the possession of a brooding Black Duck, so they built another nest about 50 m away, but results of that nesting were not reported (*vide* EB). Another pair, including one bird hacked from the PPL hack site in the past (indicating that the hacking program works), built a nest on a transmission tower in PPL, but the nest blew down in an April storm; in July the birds started another nest at the hack site; perhaps after all this practice they will return and successfully fledge young next year, especially if TWRA bars disruptive activities from the nest site (*vide* RMH, MHI). A third pair built a nest on a transmission tower in OHL in June (Wick Comer, *vide* RMH) and were reported there in July (JDP); no evidence of eggs or young was ever detected at that site. Taken together, the latter two nesting efforts probably constitute the first NA nesting record, although perhaps that honor should be accorded the Ospreys which carried sticks at PPL or those which placed them on lighting towers at GSP last summer (*Migrant* 56:110, 1985). Indicative of the increasing numbers of this species in the region during summer was the occurrence of a pair at mile 181 near Cockrell Bend on the Cumberland R. on 5 Jul (JDP); no other evidence of the pair was reported, but Ospreys should be looked for in that area, and at many others along the Cumberland River, in the future.

BALD EAGLE: The number of breeding pairs in the region increased from 5 to at least 7 with 3 of the pairs fledging a total of at least 5 young. This year the Westvaco birds, which began the "great comeback" in 1983, initiated activities around the nest in Jan and laid 3 eggs in late Feb. These

hatched in late Mar, and three young fledged in early Jun, making this nest the most successful of all those active this year (*vide* JCR); indeed, the nesting biology of this pair in 1986 was a classic textbook case. The other CCNWR pair was active from Jan-Jun, but their deep nest prevented observers from seeing eggs or young; however, an unbanded and untagged immature eagle sighted at CCNWR on 25 Jul (Sarah McClellan) suggested to JCR that the pair was successful this year, though he is right in thinking that the record remains conjectural. Of the LBL pair little was reported except that they constructed a new nest after abandoning the one built in 1984 due to harassment from low-flying jet planes stationed at Fort Campbell (*vide* RMH). At DRU 2 pairs built nests, up from 1 in 1985; however, the rival birds stole one another's nesting material with such persistence that both nests were abandoned; each pair built a new nest, but only the pair nesting on the west side of the Tennessee R. was successful, fledging 1 young (*vide* EB, RMH). The Normandy L., CFC, birds were active around the nest in Jan but no other data were reported, though efforts to observe the birds were made (MDH). The most exciting news of all came on 19 Jul when a juvenile Bald Eagle was sighted in Jackson County on Cordell Hull L. On 27 Jul an adult Bald Eagle was seen transferring a carp to the juvenile, establishing the breeding of the species in this area convincingly; photographs were obtained of the juvenile (Kurt Eichenburger, JDP). This nesting record confirmed the earlier suspicions of these observers, who had reported an immature eagle on Cordell Hull in late summer of 1985 (*Migrant* 57: 26, 1986). The occurrence of an adult Bald Eagle on PPL 1 Jul (RVM) raised the prospect of still another pair breeding in the region in the future, while the hacking project at LBL continued to release potential breeding birds with 8 hacked this year (*vide* RMH).

Hawk-Kestrel: Sharp-shinned Hawk: 16 Jul (1 ad) mile 73 on I-65, WMC (DJS), only report of this Blue-listed species. Cooper's Hawk: 16 May (1 ad carrying prey) HIC (SJS); 24 May (1 ad) RUC (RVM); 25 May (1) SE JAC (LHD); 26 May (1 ad) S of Gainesboro, JAC (SJS, DJS); 1 Jun (1 ad) near St. Joseph, LWC (DJS); 4 Jun (1 ad) S of LOR (DJS); 15, 24 Jun (1 carrying prey each date) CCSP (JCR); 16 Jun (1 ad) mile 59 on I-65, WMC (DJS); 21 Jun (1 ad) LOR (Don K. Simbeck); 29 Jun (1) SWC (JCR); 4 Jul (1 ad, 1 im) South Harpeth Valley, WMC (ATT); 29 Jul (1) CCNWR (JCR); 29 Jul (1) LEF (BHS); an encouraging number of breeding season reports of this Blue-listed accipiter. Red-shouldered Hawk: Mar-May (10 active nests) SE LWC along Sugar Creek (MDW), the 16th year that MDW has monitored nests at this site; Mar-Jun (nest with young) Basin Spring, WMC (KAG); 3 Jun (1) Barnes Hollow, PUC (Richard W. Simmers, Jr.), few nesting reports of this Blue-listed buteo. Red-tailed Hawk: Jan-May (7/5 active nests) LWC/Giles Co. (MDW), also 16th year of coverage. American Kestrel: 19 Jun (1 ad feeding young at nest in side of Iroquois Apartments) SW DVC (PBH); observer's comment is a good one: "!"

Chukar-Tern; CHUKAR: 2 Jun (1) PWP (DFV), although a first for the NA, the bird undoubtedly was an escapee. KING RAIL: 6 Jun (1 calling) Goose Pond, GYC (Jerry L. Ingles), only report of this species of Special Concern. COMMON MOORHEN: 6-27 Jun (pair, one seen giving distraction display when a raccoon came near) MOP (KGA, *et al.*), first positive evidence of this species as a breeder at the site. PURPLE GALLINULE: 4 Jun (1) BEC (CKC, MHI), continues a Spring 86 record. Spotted Sandpiper: 11 Jun (1 ad) Center Hill L., Dekalb Co. (JWW); 15, 24 Jun (4/2 ad) CCSP

(JCR); no nesting evidence was secured. American Woodcock: 15 Jul (1) near pumping station at DRU (CPN), only report. Herring Gull: 4 Jun (1 3rd-year) LIB (DJS), late migrant. Caspian Tern: 11 Jun (2) CCNWR (JCR), also late migrants. Least Tern: 12 Jun (2 ad) CCNWR (JCR, DWB), a suggestive report; the birds probably were wanderers from a known breeding population near Smithland Dam in Kentucky, but were possibly from an unknown site in Tennessee (JCR).

Barn-Owl—Flycatcher: Common Barn-Owl: 4 Jun (used nest with fairly fresh prey still present, but no young or ad), LIB (DJS); Jun-Jul (up to 4) Buffalo Rd., SW DVC (Debbie W. Hill), nesting suspected; an unsubstantiated report from Lebanon, WLC (at the now defunct Castle Heights Military Academy) was received. Eastern Screech-Owl: 24 Jul (9) along one-half km stretch of Harpeth R. in EWP (MHI, CKC), max; although counts such as this one are simple to make, none has been submitted for past 3 years; since this species and the previous one have been listed as of Special Concern, there is reason to monitor their numbers with some care during the next few years. Ruby-throated Hummingbird: Jul (45+) LEF (BHS), max; a Blue-listed species. Red-headed Woodpecker: poorly reported during the period, this species of Special Concern was recorded at 3 sites in DVC (PBH, RVM, *fide* ATT), 1 in SUC (BAH), 1 in LWC (DJS), 1 in CFC (MDH), and 5 in WMC (SJS, JCR). Acadian Flycatcher: 21 Jun (25) along about 10 km of Shoal Creek, LWC (DJS, SJS), max.

Willow Flycatcher: Another species of Special Concern, this *Empidonax* appears to be doing well in the region. 12-31 May (9 territorial males) CCNWR (JCR) and 11-23 Jun (4 singing) Pool 4, CCNWR (JCR); 17 May-2 Jun (1 singing in atypical habitat; details to be published) Del Rio Pike, WMC (SJS, Pamilla S. Hopkins, m. ob), not seen after last date; 23 May-EOP (up to 8 singing) MOP (DJS, WNJ, m.ob.); 25 May (1 singing; 2 other empidonaces present) Celina, CYC (SJS, DJS); 25 May (1 singing) Livingston, OVC (DFV, Linda Anderson, Betty Worden); (1 singing; tape-recorded) N OVC (RCH, J. David Hassler); 26 May, 22 Jun (1 singing) Smith's Bend, JAC (DFV); 6 Jul (1 singing) DRU (JCR); 31 May (1+) MC (DFV); the reduction in numbers which occurred at CCNWR and the disappearance of the WMC bird in early June suggest that males of this species may establish territories to which they are unable to draw a mate, causing them to vacate for more promising breeding areas.

Lark-Wren: Horned Lark: 6 Apr (1 "ad feeding a newly fledged bird") Smyrna Airport, RUC (C. Gerald Drewry, Jr.), few NA breeding records in recent years; 3 May (1 ad) Cason Lane, RUC (TJW, DMM); 13-30 May (1 singing) CFC (ELR, Nicky Medley); 30 May (1 ad) LOR (DJS); 8 Jun (1) Glen BBS, GYC (DRJ), only BBS report; all season (4) LIB (DJS); 3 Jul (2) WDR (JRP, HCY); only reports; definitely a declining breeder in the region, though unmentioned on the Blue List. Tree Swallow: 7 Jun (2 + Pairs; at least 2 nests with young) MOP (WNJ, SJS, DJS, CKC); 7 Jun (3 nests, 2 with young and 1 where young had recently fledged) Laurel Hill L., LWC (DJS); 19 Jun (7 birds; at least 2 nests) CCNWR (JCR). Northern Rough-winged Swallow: 25 May (3 pairs nesting in cavities in the underside of 3 different tractor trailers) Celina, CYC (SJS, DJS); details to be published. Bank Swallow: 1 Jun (2) Shoal Creek, LWC (DJS), at site where nesting has occurred in previous years; 16 Jun (1) CCNWR (JCR). Cliff Swallow: continues to move eastward up the river systems of the region; 26 Apr (4 ad) and 9-10 Jul (12) NE of Barton Springs, CFC, on Duck R. (MDH); 16 May (2

colonies) under 2 bridges on Duck R. near Coble, HIC (SJS, BHS); 26 May (12 plus) Hwy 85 at Salt Lick Creek, JAC, on Cumberland R. tributary (DFV); 14 Jun (8 +, but no nests seen) near Ruskin, DIC (SJS, BHS); 21 Jun (30 + active nests) Shoal Creek, LWC (DJS, SJS); large numbers at CCNWR (100) and Cheatham Dam (250 +) where breeding has occurred along the Cumberland R. for many years. Barn Swallow: slightly up on the BBSs, perhaps reversing a longterm trend of decline. Carolina Wren: BBSs show almost total recovery from the losses sustained during the cold winter of 1984-1985.

BEWICK'S WREN: See Introduction for comments on this Blue-listed species; 8 Apr-31 Jul (1) Dover, SWC (JCR), continues a record from Spring 86; 23, 30 Apr (1) Rock Springs Rd., RUC (TJW, *et al.*), not relocated thereafter; 3 May-10 Jun (2, courtship display seen) S of Columbia, MUC (WNJ, CKC, DJS, JRP); 3 May (1) 5 km E of GAL (DTC, JPC); 6-18 May, 20 Jun (1) Hwy 109, WLC, (Earline C. Berry); 17 May (1) near Hobbs Lane, WLC (SJS, RJM, NTOS), not relocated thereafter; 20 May (2) near Bethpage, SUC (Debbie Spero); 6 Jun (1) LOR (DJS), not seen thereafter; 12 Jun, 16 Jul (1) near Hustburg, HPC (CPN, SJS, CKC); 13 Jun (1) Peytonsville BBS, WMC (SJS), at same site in 1983 and 1984; 13 Jun (1) Rocky Hill Rd., RUC (RVM), seen entering and leaving mailbox, and RVM later learned that the mailbox owner had earlier destroyed one or more nests; 14 Jun (1) near Ruskin, DIC (SJS, BHS); Jun (2) N DIC (RJM, *et al.*); 15 Jun (2) Collinwood BBS, LWC (DJS); 17 Jun (1) Patterson Rd., RUC (RVM), perhaps same bird as Rocky Hill Rd., RUC, record, as the 2 sites are only 2 km apart; 30 Jun (1) Simmons Bluff Rd., WLC (SJS, MHI); 27 Jun (2 singing) LWP (CKC), at site last known to be occupied in 1982.

House Wren: Continues to increase in most suburban areas in the northern half of the region; much less reported, but probably present, in southern half; 8 Jun (10 singing males; 8 with mates; at least 4 pairs fledged young) Clarksville, MTC (EJW); 3 Jun-Jul (reported at 7 sites, but many more undoubtedly present) NASH (BAH, ATT, CKC); 19 May-21 Jun (5 pairs) Lebanon, WLC, (RVM *et al.*); 7 Apr-20 Jul (3 + pairs) Murfreesboro, RUC (DMM, Edith Haynes, Alberta Spence); all season (9 + pairs) GAL (DTC, JPC); 25 May (4 singing males) Celina, CYC (SJS, DJS); all season (1 pair) Cookeville (JWW); 10, 12 Jul (1 singing) PIC (RCH).

Gnatcatcher-Grosbeak: Blue-gray Gnatcatcher: only 69 reported on the BBSs (about 60% of 1985 total), but too early to tell if the longterm increase in their numbers has reversed. Eastern Bluebird: 192 were counted on the BBSs, the largest total since 1972, indicating the species is in excellent shape. Brown Thrasher: 1986 saw their numbers decline for the second consecutive year on the BBSs, after many years of slow increase. Cedar Waxwing: The usual sprinkling of summer reports occurred with 1 each in MTC, MUC, SUC, and SWC; see Addenda. Loggerhead Shrike: This Blue-listed species appears to be present in moderate numbers where it is monitored with some diligence: Apr-Jun (65 active sites with at least 10 nests) central WMC (SJS); Jun-Jul (35 active sites with at least 4 nests) south-central and NW LWC (DJS); 23 on the BBSs, a slight increase from 1985. Yellow-throated Vireo: 28 Jun (pair at nest) near Indian Mound, MTC/SWC border (George R. Beringer), a female Brown-headed Cowbird "repeatedly tried to get on the nest . . . , but was fought off each time by the vireos." Warbling Vireo: 6 Jul (5) DRU (JCR), max. **CHESTNUT-SIDED WARBLER:** 7 Jul (1 male) S NASH (Jane C. Maynard), bird seen splashing

about in fountain, the obvious behavior for a nonbreeding visitor in this hot summer; only one other NA summer record. Yellow-throated Warbler: 13-20 Jun (1 eating hard-boiled egg yolk) Byrdstown, PIC (RCH), apparently an attractive food to use at feeders (egg yolk, not warblers!). Cerulean Warbler: May-Jun (3) 2 sites in EWP (PBH), "these birds were much less numerous" than in 1985, "and perhaps did not breed in EWP in 1986"; PBH suspects that "the drought was responsible," as he "didn't see similar loss of birds in sites in west Tennessee that are less subject to drought - i.e., Hatchie Bottoms and Anderson-Tully" (the soon-to-be Chickasaw NWR). Black-and-white Warbler: 11, 24 Jun (1) RDL (*vide* ATT). American Redstart: 21 Jun (5 singing) Shoal Creek, LWC (DJS, SJS, BHS), max. Scarlet Tanager: 29 Jun (8) SWC (JCR), max. ROSE-BREADED GROSBEAK: 9-10 Jun (1 male) north-central WMC (Jeanne J. Cobb, David G. Cobb), first NA summer record or new NA late spring date, depending on your druthers. Dickcissel: another species of Special Concern, it appeared to have a good year in 1986, although the 9 reported on the BBSs represented a somewhat low figure; 30 May-24 Jun (5 territorial) CCNWR (JCR); 4 Jun (at least 11 territorial) 3 sites in MTC (EJW, AHH); 9 Jul (2) Belote's Bend BBS, SUC (PBH); 6-16 Jul (7 singing) DRU (JCR, SJS, MHI, CKC), about one-quarter the 1985 total; 26-27 May (3 +) SE of Livingston, OVC (CHB, DPB, PBH); late May (at least 12 singing) 3 sites in WMC (SJS); 7 Jun (2 singing) W of Columbia, MUC (DJS); 6 Jun (1 singing) 8 km E of Bell Buckle, Bedford Co. (SJS); 4 May-2 Jun (8 singing) 2 sites in RUC (ALH, TJW, DMM); 8 Jul (1 singing) near Hillsboro, CFC (ELR); all season (at least 20 singing) many sites in LWC (DJS); 8 Jun (7) Glen BBS, GYC (DRJ); 21-25 Jun (1 singing) near Morris Ferry, FKC (JRP *et al.*), rare in FKC.

Sparrows: **BACHMAN'S SPARROW**: all season (at least 10, including 5 males, 3 females, and 2 imm) Fall River, Giles Co. (DJS), same site as in 1985; the bird at the SWC site (see Spring 86 report) was seen into Jul but observers neglected to submit data, an ill-advised practice where Blue-listed species are concerned. **LARK SPARROW**: reported Apr-Jul from 2 sites in south-central WLC (RVM *et al.*) and 3 sites in north-central RUC (RVM *et al.*); although not a species of Special or Local Concern, it ought to be. Grasshopper Sparrow: another Blue-listed species reported only in moderate numbers from the following counties: MTC, WLC, JAC, OVC, WMC, CFC, MUC, FKC. Song Sparrow: continues expansion: Jun-Jul (4 singing) CCNWR (JCR); 23 May (1) Patterson Rd., RUC (RVM); 8 Jun (20) Glen BBS, GYC (DRJ); all season (pair nesting) Anne Hettish Bird Sanctuary, RUC (ALH); Jun-Jul (5 + singing) Tullahoma (Ruth Luckado); 24 Jun (1 singing) 100 Oaks Mall, NASH (BAH); Jun-Jul (2 singing) MOP (WNJ, KGA, m. ob.); Jun-Jul (6 singing) GSP (DTC, JPC, SJS, MHI); Jun-Jul (2 singing) LWP (DTC, JPC); Jun-Jul (10 +) MC (DFV), site needs more careful monitoring; 3 Jul (2 singing) WDR (JRP, HCY, SJS); Jun-Jul ("common" breeder) PIC (RCH); 25-27 May (common breeder) Overton County Foray (TOS); Jun-Jul ("abundant breeder") PUC (JWW), it has been only 18 years since the first nest was located in Cookeville (*Migrant* 39: 84, 1968). This species seem to be expanding into middle Tennessee in 2 ways: gradual osmosis westward from the eastern edge of its range along the eastern Highland Rim, and long-range pioneering westward along the river systems of the region, particularly the Cumberland R.

Oriole-Sparrow: Northern Oriole: 30 Apr (pair copulating near site where an old nest was found 5 May) Bull Run Rd., DVC (Andrea L. Hopkins); 17

May (pair) Hobbs Lane, WLC (RJM, BAH, *et al.*), not located thereafter; 6 Jun (1 male singing) Bradyville BBS, CFC (SJS); see *Addenda*. House Finch: first-ever positive breeding evidence noted in MTC (EJW, Nancy Hughes) and RUC (ALH); suspected breeding noted in CYC (DJS, SJS), PIC (RCH), and PUC (PBH); further breeding noted in DVC (DFV, DOS) and SUC (DTC, JPC). House Sparrow: 16 Jun (ad female feeding young Northern Cardinal) Ellington Agricultural Center, NASH (Roy Anderson).

Addenda: Cedar Waxwing: Jun-Jul 1984 (pair at nest in Virginia pine (*Pinus virginiana*) at height of 12-14 m) Ashland City, Cheatham Co. (Scott C. Gunn, *vide* PBH), constitutes 2nd NA breeding record and first in 56 years. Northern Oriole: 16 Jun 1985 (pair at nest) Neville Bay, LBL (MHI, ECC), now a rare breeder in the region. All nests of these two species should be reported.

Corrigenda: *Migrant* 56:112, 1985: in entry for Northern (Baltimore) Oriole change "Petonsville" to "Peytonsville."

Locations: BEC-Bear Creek Waterfowl Management Unit, Stewart Co.; CCNWR-Cross Creeks National Wildlife Refuge, Stewart Co.; CCSP-Cumberland City Steam Plant, Stewart Co.; CFC-Coffee Co.; CYC-Clay Co.; DIC-Dickson Co.; DRU-Duck River Unit, Tennessee National Wildlife Refuge, Humphreys Co.; DVC-Davidson Co.; EWP-Edwin Warner Park, Davidson Co.; FKC-Franklin Co.; GAL-Gallatin, Sumner Co.; GSP-Gallatin Steam Plant, Sumner Co.; GYC-Grundy Co.; HIC-Hickman Co.; HPC-Humphreys Co.; JAC-Jackson Co.; LBL-Land Between the Lakes, Stewart Co.; LEF-Leiper's Fork, Williamson Co.; LIB-Liberty Grove, Lawrence Co.; LOR-Loretto, Lawrence Co.; LWC-Lawrence Co.; LWP-Lewis Pond, Sumner Co.; MC-Metro Center, Davidson Co.; MOP-Monsanto Ponds, Maury Co.; MTC-Montgomery Co.; MUC-Maury Co.; NA-Nashville Area (includes all of Cheatham, Davidson, Robertson, Rutherford, Sumner, Williamson, Wilson Cos., and parts of Dickson and Trousdale Cos.); NASH-Nashville; OHL-Old Hickory Lake (in Davidson, Sumner, Wilson, Trousdale, Smith, and Jackson Cos.); OVC-Overton Co.; PIC-Pickett Co.; PPL-Percy Priest Lake (in Davidson, Rutherford, and Wilson Cos.); PUC-Putnam Co.; PWP-Percy Warner Park, Davidson Co.; RDL-Radnor Lake State Natural Area, Davidson Co.; RUC-Rutherford Co.; SUC-Sumner Co.; SWC-Stewart Co.; WDR-Woods Reservoir, Franklin Co.; WLC-Wilson Co.; WMC-Williamson Co.

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EASTERN RIDGE AND VALLEY REGION - The prolonged drought extended into this period with one account based on tree rings stating 1986 was the driest year since 1711. In the Johnson City area Glen Eller commented June was hot and very dry with only 1.95 inches of rainfall where they usually record over 4 inches. July was still hot and humid, but they did receive almost average rainfall.

Knoxville had the driest summer on record and one of the hottest. Knoxville's June rainfall was 1.8 inches, and July's 1.9 inches was a bit less than normal. For Knoxville this was the third year in a row when summer rainfall was below normal. July was especially hot with several consecutive days of 95°F + temperatures, and 90°F + temperatures on over half the days in the month. Much of their summer rainfall resulted from thunderstorms and was spottily distributed. At Chattanooga the weather pattern continued in a similar fashion with the total rainfall deficit measuring 3.6

inches for the period. The drought conditions produced no noticeable effects on the breeding avifauna. Perhaps the effects may surface in next years numbers and distribution. This is something we should all carefully monitor.

In spite of the weather conditions, this has been one of the most exciting seasons in memory. Over the years we have attempted to document the various raptors nesting in the area. There was a total of 7 active Osprey nests on Watts Bar Lake again, plus one new successful nest near Hiwassee Island on Chickamauga Lake. According to our records, the Chickamauga Lake nest was the first successful nesting in this area since 1971. Through the intense efforts of Paul Mascush and Dale Liner, the elusive Sharpshinned Hawk and Cooper's Hawk were documented nesting in McMinn and Bradley Counties, respectively.

Tree and Cliff Swallows continue to make news. Tree Swallows were successful in fledging young at Austin Springs and another 5 pairs with nests were recorded at the Kinser Park Golf course in Greene County., Active Cliff Swallow nests were found under various bridges around Boone Lake and they were at 9 different sites in Jefferson, Hamblen, and Grainger Counties. It seems there have always been good Cliff Swallow populations in the Chattanooga area and they have now expanded to other new suitable nest sites.

The House Wren apparently nests in scattered locations around the region. This report contains nest records from Bradley County and Chattanooga.

For the past several years we have strongly encouraged observers to record their observations on the conspicuous nesting Loggerhead Shrike. The birds seem to be disappearing in other sections of the country and we need documentation in order to establish a reference point regarding their distribution in our area for the future. With the sightings recorded in the last report and with those in this one, we now possess the finest documentation yet recorded for the species in the region.

We have always been impressed with the possibility of the wide variety of species that are yet to be documented in the wide expanse of the Cumberland Mountains and Plateau. Nicholson has shown us again what one person can find by persistent and diligent searching. His recording of Black-throated Blue Warblers nesting at Frozen Head Mountain is the first for the Cumberland Mountains of Tennessee. There is one previous record of the species nesting at Savage Gulf on the Cumberland Plateau (Ganier, *Wilson Bull.* 35:26-34, 1923).

The Grasshopper Sparrow is one species we have stressed obtaining documentation on their nesting distribution over the years. This season we are proud to say reports were received from many locations with a most impressive tally of 40-50 singing males along the Brainerd Levee in Chattanooga.

This summary concludes our 35th report since the first one submitted in June 1978. We wish to thank the many cooperators who have so diligently forwarded their observations and comments over the years. Because of these many field workers and their unselfish efforts, we now possess the finest distribution knowledge yet for the region. However, we are also the first to admit the surface has only been touched and there is still much more

to be learned. We heartily wish the best to our successor Rick Knight.

Loon-Ibis: Common Loon: 8 Jun (1) Nickajack L. (JSL, Randall L. & Linda Kay Doyle); 28 Jun (1) Tellico L. (Frank Bills). Double-crested Cormorant: 6 Jun (1) HRA, Meigs Co. (CPN). Great Egret: 4-31 Jul (1-2) SAB (KHD, LHD); 6 Jul (4-9) HRA (DCC, Jay W. Knott); 19 Jul (6) DOL (JAK); 27-30 Jul (2-3) HRA, (KHD, LHD, Wesley K. James). Little Blue Heron: 23 Jun (2) SAB (KHD, LHD); 6 Jul (10) HRA, (DCC); 27 Jul (4) HRA (KHD, LHD). Black-crowned Night-Heron: new colony discovered in Pigeon Forge, Sevier Co., 50+ nests (J.B. Owen); 5 Jun (1) NRL (JCH) - not a known nesting area; 19 Jul (50+) CRL (RLK). White Ibis: 1 imm at EBF from 7 Jul to EOP (LJF *et al.*); 27 Jul (1 imm) CHA (Gilda Lyon).

Goose-Hawk: Canada Goose: 2 pairs fledged 15 y AUS (RLK *et al.*). Lesser Scaup: 27 Jul (1 female) KSP (KHD, LHD). Osprey: 5, 10, 16 Jun (1) Hiwassee R., POC (JCW); 13 Jun (1) s Knoxville (PDH), neither of these reports from known nesting locations; 9 active nests on Watts Bar L., and 1 on CHL (TEB). Bald Eagle: 3-20 Jun (1 ad), 30 Jun (1 imm) NRL (JCH); 29 Jun (1 ad) TRG, MAC (Barbara T. Claiborne). Sharp-shinned Hawk: active nest McMinn Co., y banded (PGM, JDL); 1 Jun (1) TRG, MAC (KHD, LHD); 14 Jun (1) Louisville, BLC (JAK); 20, 22 Jun (1) Signal Mt. (JSL); 25 Jul (1) s KNC (PDH); 26 Jul (1) White Pine (JAK). Cooper's Hawk: 22 Jun (active nest, 3 y banded) BYC (PCM, JDL); 19 Jul (1) AUS (RLK); 17 Jul, 3 Aug (1) Seymour (PDH).

Moorhen—Barn-Owl: Common Moorhen: 8-14 Jun (1) BLC (PDH), bird left after cows destroyed vegetation around pond. Semipalmated Plover: 27 Jul (1) KSP (KHD, LHD). Killdeer: max 23 Jul (142) EBF (LJF). Lesser Yellowlegs: 4 Jul (2) KSP (RC); 27 Jul (2) KSP (KHD, LHD); 29 Jul (2) JNB (RLK). Spotted Sandpiper: 24 Jun (1) Hiwassee R., POC (JCW); 19 Jul (2) CRL (RLK); 27 Jul (1) KSP (KHD, LHD); 29 Jul (1) JNB (RLK). Semipalmated Sandpiper: 1 Jun (25) KSP (KHD); 20 Jul (8), 27 Jul (10) KSP (KHD, LHD). Least Sandpiper: 20 Jul (6) KSP (KHD, LHD); 29 Jul (2) JNB (RLK). White-rumped Sandpiper: 1 Jun (1) KSP (KHD); 2 Jun (3) KSP (RC). Pectoral Sandpiper: 20 Jun (1) KSP (KHD, LHD); 27 Jul (15) KSP (KHD, LHD); 29 Jul (7) JNB (RLK). Dunlin: 1 Jun (1) KSP (KHD). Stilt Sandpiper: 26 Jul (10) Dutch Bottoms, DOL (JAK). Ring-billed Gull: 7 Jun (3) Cherokee Dam, Grainger/Jefferson Co. (JAK); 20 Jul (1) NRL, Union Co. (CPN). Black Tern: 13 Jul (20) CHL (Dan N. Williams, Jr.). Common Barn-Owl: 5-7 Jul (1) GNC (RN).

Woodpecker-Shrike: Red-headed Woodpecker: pair with young, Limestone, WGC (RLK *et al.*); 28 Jun (1) BLC (PDH). Willow Flycatcher: 2-3 pairs regular AUS (RLK *et al.*); 4 Jun (1-2) HRA (CPN, Johnny T. Parks); 5 Jul (1) Stinking Creek, Campbell Co. (JCH). Horned Lark: 26 May (1 singing) Fortress Co. (CPN); 14 Jun (1) NE BLC (PDH), different location from BLC report in last report. Tree Swallow: pair with 4 fledged y AUS (RLK *et al.*); 5 pairs with nests at Kinser Park Golf Course, GNC (DJN). Bank Swallow: 1 Jun (56 active nest holes) KSP (KHD); nested again Mascot, KNC (JAK *et al.*). Cliff Swallow: 10-12 active nests under bridges around Boone L. (RLK *et al.*); 9 sites in Jefferson, Hamblen & Grainger Cos. with minimum of 274 nests (JAK); 25 Jun (11 active nests) Snow Hill Bridge, SAB (KHD, LHD); 6 Jul (193 active nests) Veterans Bridge, CHA (J. Thomas & David C. Patton); 7 Jul (200 active nests) C. B. Robinson Bridge, CHA (KHD); when one considers these sites with the other known active locations it certainly

appears we have an increasing population. House Wren: 5 pairs or singing individuals GNC (VNM, DJN, RN, WRN, BKB, William K. Gaut, Margaret S. Gaut); pair with 2 broods Maryville, BLC (JAK); pair with 2 active nests Cleveland, BYC (Paul H. Dietrich); pair with 2 active nests CHA (John Whitaker). Cedar Waxwing: numerous throughout JNC area (LHTOS); 3 different locations at lower elevation GNC (BKB, DJN); numerous small flocks and twos reported through season at ANC, Claiborne Co., Seymour (PDH, CPN, GWN); no nests reported from any of these areas. Loggerhead Shrike: 6-8 Jun (1) Mosheim, GNC (Linda J. Northrop); pair with 2 y at Limestone, WGC (RLK *et al.*); 17-20 Jun (pair with nest) GNC (BKB); reported from Sevier Co. (ad with fledgling), at 4 locations in BLC, including fledglings at 2 locations, pair in W KNC, single birds at 1 location each in Campbell, Claiborne, and Meigs Cos. (PDH, GWM, CPN, JAK).

Vireo-Finch: Solitary Vireo: 9 Jun (1) Jones Gap Breeding Bird Survey, Bledsoe Co. (KHD, LHD). Warbling Vireo: 14-30 Jun (1) Holly Creek on Old Tusculum Rd., GNC (BKB, DJN, NPB). Blue-winged Warbler: male from last period remained singing in CHA on its Davidson Rd. territory until 22 Jun (Robin A. Rudd). Chestnut-sided Warbler: 7 Jun (1) Oneida, Scott Co. (CPN), not regular breeding area. **BLACK-THROATED BLUE WARBLER**: 9 Jun (several agitated pairs, and pair with just fledged young) Frozen Head Mountain, Morgan Co. (CPN), first confirmed breeding evidence from Cumberland Mountains of Tennessee. Prothonotary Warbler: 3 pairs feeding y GNC (DJN *et al.*). Canada Warbler: 9 Jun (several agitated pairs) Frozen Head Mountain, Morgan Co. (CPN), same area as reported last summer. Yellow-breasted Chat: pair nested in old mail box and successfully fledged 4 y (Cynthia D. Cragin, Herb E. Cragin) - an unusual nest site for the species. Blue Grosbeak: above average numbers in JNC area (LHTOS). Grasshopper Sparrow: above average numbers in JNC area (LHTOS); 13 different singing individuals from GNC (BKB, DJN, RN, WRN); in BLC at 10 locations in 2 atlas blocks (PDH), and 13 at 8 locations (JAK); 10 singing birds in 4 atlas blocks in Claiborne Co. (GWM); 1 in NE ANC and 1 in N Hamilton Co. (CPN); 3 at 1 location in Loudon Co. (Marc & Laurie Armstrong); 40-50 singing along Brainerd Levee, CHA (Barbara G. & Michael A. McMahan). Northern Oriole: 8 Jun (1 male) Cove Lake, Campbell Co. (GWM), has nested at this location in previous years. House Finch: several reports of adults feeding y at JNC (LHTOS); several broods reported in KNC, BLC, and ANC (many observers, *vide* CPN); 7 Jun (2) Onieda, Scott Co. (CPN), first county record from county with no resident birders. Pine Siskin: 3, 7 Jun (1) Signal Mt. (JSL).

Locations: ANC-Anderson Co.; AUS-Austin Springs, Washington Co.; BLC-Blount Co.; BYC-Bradley Co.; CHA-Chattanooga; CRL-Cherokee Lake; CHL-Chickamauga Lake; DOL-Douglas Lake; EBF-Eagle Bend Fish Hatchery, Anderson Co.; GNC-Greene Co.; HRA-Hiwassee River Area; JNB-Jonesborough; JNC-Johnson City; KSP-Kingston Steam Plant, Roane Co.; KNC-Knox Co.; MAC-Marion Co.; NRL-Norris Lake; POC-Polk Co.; SAB-Savannah Bay, Hamilton Co.; TRG-Tennessee River Gorge; WGC-Washington Co.

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EASTERN MOUNTAIN REGION--Temperatures during both June and July were above normal. The drought continued, and June rainfall was about 2 inches, half the normal amount. July rainfall was near normal, but

the rainfall deficit for the year was 8 inches at the end of the period. No apparent effects of the drought on nesting birds were reported.

Night-Heron—Owl: Yellow-crowned Night-Heron: adults with y reported from 3 areas near ELI (GDE, GOW *et al.*). Canada Goose: 2 Jun (2 ad, 3 y) ELI (*vide* GDE). Wood Duck: good nesting results in ELI area (LHTOS). Black Vulture: 1 Jun-16 Jul (2) GSMNP (RLK *et al.*). Sharp-shinned Hawk: 2 Jun, 14 Jul (1) GSMNP (RLK *et al.*). Peregrine Falcon: young again hacked at Greenbriar Pinnacle, GSMNP (RLK *et al.*). Solitary Sandpiper: 28 Jul (1) SJP (RLK), first fall report. Spotted Sandpiper: 29 Jul (1) RNC (RLK), first fall report. Least Sandpiper: 29 Jul (2) RNC (RLK), first fall report. Pectoral Sandpiper: 29 Jul (1) RNC (RLK), first fall report. Herring Gull: 7 Jun (1) WTL (GDE), late. Forster's Tern: 27 Jul (1) WTL (GDE). Yellow-billed Cuckoo: more numerous than normal in ELI area (LHTOS). Great Horned Owl: 1-2 through period at South Holston Lake (Richard P. Lewis). Barred Owl: 7 Jun (1) Iron Mountain Gap (SG).

Flycatcher-Siskin: Alder Flycatcher: 1 Jun-12 Jul (1-4) RNM above 5000 ft. (RLK, ECC, MHI). Horned Lark: 1-24 Jun (1-4) Siam Valley, Carter Co. (GOW *et al.*). Common Raven: 1-3 regular at RNM, GSMNP (RLK *et al.*). Winter Wren: common on RNM (LHTOS). HERMIT THRUSH: 6 Jun (1 singing) RNM above 5000 ft. (RLK). Cedar Waxwing: abundant through period in ELI area (LHTOS); fairly common in GSMNP through 16 Jul (RLK *et al.*). Warbling Vireo: 1-30 Jun (pair) ELI (GDE). Blue-winged Warbler: 7 Jun (4 singing males) Polk Co. (Chattanooga Chapter, TOS). House Finch: several reports of broods in ELI area (LHTOS). Red Crossbill: 12 Jul (2 ad feeding 5 y) RNM (DCC, RJH, PCH); 1 Jun-16 Jul regular, max 3 Jun (9) GSMNP (RLK). Pine Siskin: 2 Jun (1) GSMNP (RLK); 6 Jun (1) RNM (RLK).

Locations: ELI-Elizabethton, Carter Co.; GSMNP-Great Smoky Mountains National Park, Sevier Co.; RNC-Roans Creek, Johnson Co.; RNM-Roan Mountain, Carter Co.; WTL-Watauga Lake.

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- KGA - Kenneth G. Anderson
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NPB - N. Phine Britton
CHB - Carolyn H. Bullock
RTC - Robert T. Casey
DCC - David C. Chaffin
WGC - William G. Chriswell
RC - Richard Clark
BBC - Ben B. Coffey, Jr.
LCC - Lula C. Coffey
CKC - C. Kinian Cosner, Jr.
DTC - Dot T. Crawford
JPC - J. Paul Crawford
ECC - E. Camille Crenshaw
DAD - Dollyann Daily
HBD - Helen B. Dinkelspiel
KHD - Kenneth H. Dubke
LHD - Lillian H. Dubke
GDE - Glen D. Eller
RPF - Robert P. Ford
LJF - Linda J. Fowler
KAG - Katherine A. Goodpasture
PBH - Paul B. Hamel
BAH - Barbara A. Harris
PCH - Paul C. Harris
PDH - Paul D. Hartigan
RCH - Robbie C. Hassler
RMH - Robert M. Hatcher
AHH - Anne H. Heilman
RJH - R. John Henderson
MDH - Marguerite D. Hernandez
ALH - Annie L. Hettish
JCH - Joseph C. Howell
MHI - Maxey H. Irwin
DRJ - Daniel R. Jacobson
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RLK - Richard L. Knight
JAK - Jon A. Koella
JLL - Jo L. Levy
JDL - J. Dale Liner
JSL - Jonnie Sue Lyons
PGM - Paul G. Mascuch
DMM - David M. McCarroll
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RJM - Rocky J. Milburn, Jr.
RM - Richard Nevius
WRN - W. Ruth Nevius
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DJN - Daniel J. Nieves
JDP - James D. Parrish
JRP - James R. Peters
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JEW - Jeff E. Waldron
MGW - Martha G. Waldron
EJW - Ellen J. Walker
GOW - Gary O. Wallace
JCW - J. Craig Watson
MDW - Morris D. Williams
VNW - Virginia N. Williams
JRW - Jeff R. Wilson
TJW - Terry J. Witt
HCY - Harry C. Yeatman
LHTOS - L.R. Herndon Chapter, TOS
NTOS - Nashville Chapter, TOS
TWRA - Tennessee Wildlife Resources Agency

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