

# THE MIGRANT

A QUARTERLY JOURNAL  
DEVOTED TO TENNESSEE BIRDS

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# THE MIGRANT

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# THE MIGRANT

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## STATUS OF THE REELFOOT LAKE, TENNESSEE HERON AND EGRET COLONY: 1990-1991

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During the early 1970's a new heron and egret colony was established at Reelfoot Lake (Pitts 1982). However, the few recent accounts (Ford 1985; Pullin 1980-1987; Waldron 1988) of this colony have dealt only with limited aspects (e.g., *Anhinga* (*Anhinga anhinga*) nests). The purposes of this study were to determine (1) the size of the area occupied by the colony, (2) the approximate number of nests in the colony, (3) the species composition of the colony, and (4) the perimeter of the colony. This information could be useful for future researchers who study the colony and its effects on the Reelfoot Lake area.

### METHODS AND STUDY AREA

The heron and egret colony is located in the Tennessee Wildlife Resources Agency's (TWRA) Reelfoot Wildlife Management Area (RWMA) on Little Ronaldson Slough, west of Reelfoot Lake, in Lake County, Tennessee. The northeast edge of the colony borders the west end of Little Ronaldson Slough (latitude 36° 24' 06"; longitude 89°25'30") (Figure 1). About 95% of the trees within the colony are bald cypress (*Taxodium distichum*), few of which are less than 15 cm diameter at breast height (=DBH). Some of the trees were greater than 1 m DBH.

We made seven trips into the colony from 2 October - 18 November 1990 and six trips from 26 March - 18 June 1991. During our first trips into the colony in the fall there was no standing water; however, by 18 November 1990 the water in parts of the colony had risen to a depth of about 0.5 m and during the spring to about 0.75 m with scattered deeper holes. We accessed the colony by walking southeast along an old logging road on the RWMA and using a boat to cross Little Ronaldson Slough.

We first identified the perimeter trees (i.e., the outermost trees containing nests) of the colony. We attached a numbered aluminum tag (7.0 cm x 2.5 cm; 0.6 mm thick) with an aluminum nail approximately 2 m above the base of each perimeter tree containing one or more nests. Inside the perimeter trees we tagged most bald cypress trees greater than 20 cm DBH, whether or not the tree contained nests. The tag numbers started at 1001 and ended at 2000. Each tag also had "UTM" stamped beside the number. On 18 November 1990 and 23 April 1991 we took compass

readings with a handheld Silva compass (readings to the nearest 2°) and measured distances between perimeter trees (tree numbers 1001-1154) with a Hip-Chain (Topometric Products Ltd., Vancouver, Canada) which measured to the nearest 0.1 m. We used these measurements to sketch an outline of the colony on a topographic map; from this sketch we determined the approximate area of the colony with the technique used by Pitts (1984). We counted and recorded the number of nests in each of the tagged trees. We estimated the proportions of herons and egrets in the colony during our spring visits.

## RESULTS

The perimeter of the colony contained 154 trees (numbers 1001-1154) and encompassed an area of 16.2 acres (6.6 ha). This perimeter reflects the size of the colony as shown by our surveys in October and November 1990 (Fig. 1). The perimeter trees contained 387 nests, an average of 2.5 nests per tree. When tagging trees during the fall of 1990 we inadvertently tagged 9 trees (tag numbers 1601, 1602, 1614, 1624, 1629, 1631, 1675, 1831, 1825) outside of the perimeter (i.e., these trees contained no nests in 1990); in 1991, these 9 trees contained a total of 7 nests. We did not inspect the entire perimeter during the 1991 nesting season; additional nests could have been located outside of the 1990 perimeter.

We tagged a total (including perimeter trees) of 991 trees in the colony; 533 of these had at least one nest and 458 did not have any nests. Of the 1000 tags that we had available, 6 were lost and 3 trees received 2 tags. We counted a total of 2,051 nests in these 533 trees, with a maximum of 22 nests in one tree and an average of 3.8 nests per tree. We estimated that approximately 100 nests were in trees that were within the perimeter but were not tagged (because we had exhausted our supply of tags). Based on this estimate and the actual number of nests counted after the nesting season, we believe the colony contained approximately 2,150 nests in 1990. In 1991, we did not attempt to count all of the nests during the nesting season, but on our visits while nesting was in progress we observed, as noted above, that some nests were in trees beyond the 1990 perimeter. Apparently in 1991 the colony contained at least as many nests, if not more, as in 1990.

During the fall visits no herons or egrets were using the colony site for nesting or roosting; while we were able to make accurate nest counts at this time (because no leaves were on the trees) we could not accurately determine ownership of the nests. During all the spring visits, nesting birds were present; on these visits we estimated the composition of the colony to be approximately 90% Great Blue Herons (*Ardea herodias*) and 10% Great Egrets (*Casmerodius albus*). We observed a male Anhinga on 16 April 1991 and a female on 23 April 1991 in the vicinity of the colony, but we did not find any Anhinga nests. We observed Little Blue Herons (*Florida caerulea*) flying over Little Ronaldson Slough on 2 April and 23 April 1991, but we did not find any of them nesting in the colony. A single Snowy Egret (*Egretta thula*) was seen on Little Ronaldson Slough on 2 October 1990. No Black-crowned Night-Herons (*Nycticorax nycticorax*), Yellow-crowned Night-Herons (*Nyctanassa violaceus*), Cattle Egrets (*Bubulcus ibis*), Green-backed Herons (*Butorides striatus*), or Double-crested Cormorants (*Phalacrocorax auritus*) were seen in the colony or in the vicinity of the colony on any of our breeding season visits. Our other colony observations of birds known to have nested at Reelfoot Lake are summarized in Appendix A.

While we did not make any counts of dead or dying trees in the colony, we did not observe any obvious adverse effects of the colony on the vegetation.

#### DISCUSSION

The Little Ronaldson Slough colony apparently formed in the early 1970's (Pitts 1982). In Table 1 we present a summary of all the census data from this colony that we have been able to locate for the years prior to our study. The first recorded count was made in the winter of 1976-1977 when there were approximately 90 nests in the colony (Pitts 1982). The colony rapidly increased in size, reaching 2,150 nests in 1990 (this study). Throughout its history, the colony has consisted predominantly of Great Blue Herons. Most of the census data in the 1980's came from the reports of Pullin (1980-1987) who annually made aerial photographs of the colony and from the photographs determined the number of nests and the species composition. Pullin's counts probably underestimated the actual number of nesting pairs because (1) on the date when photographed (mid-March) some of the adults, especially Great Egrets, had probably not yet arrived and, (2) aerial photographs usually do not show all of the nests in a colony (Gibbs et al. 1988). Our contention that Pullin's counts underestimated actual numbers is supported by the report of Fisher (1985) who visited the colony for two days in 1985 and estimated that 750 nesting pairs were present, in contrast to Pullin's count of 284 (Table 1).

One to two pairs of Anhingas have nested in the colony during recent years (Table 1; Waldron 1988). We did not observe an Anhinga nest, but we did see one male on 16 April 1991 and one female on 23 April 1991. Our observations are earlier than the normal nest dates (Ford 1985, Pullin 1987, Waldron 1988); therefore, a nest may have been present later.

The absence of nesting species other than Great Blue Herons and Great Egrets is consistent with the history of past colonies at Reelfoot Lake. Earlier colonies, such as Cranetown and Crane Roost, consisted primarily of Great Blue Herons and Great Egrets, with smaller numbers of night herons, cormorants, and Anhingas (Gersbacher 1964). Other species of wading birds, such as Snowy Egrets, Little Blue Herons, and Cattle Egrets have nested in the Reelfoot Lake area but were concentrated in colonies away from the lake (Ganier 1951, Ganier 1960). The presence of a nesting colony on the south end of Island 13 in the Mississippi River (Lake County) may have influenced the nesting composition of the Little Ronaldson Slough colony. In 1990 the Island 13 colony consisted of at least 1000 nests; species present included Cattle Egrets (65%), Snowy Egrets (10%), Little Blue Herons (20%), and Black-crowned Night-Herons (5%) (Jeff R. Wilson, personal communication).

The Little Ronaldson Slough colony is the largest ever reported from Reelfoot Lake and the second largest in the state. In the 1930's, the Cranetown heronry located on Big Ronaldson Slough of Reelfoot Lake contained about 1,000 nests of herons, egrets, Anhingas, and cormorants (Ganier 1933, Gersbacher 1939). Gersbacher (1964) reported that the Crane Roost heronry located at the north end of Otter Basin at Reelfoot Lake also contained approximately 1,000 nests. The largest heronry reported from Tennessee was the Dyersburg colony located 32 km south of Reelfoot Lake; in 1964 it contained an estimated 2,500 nests, most of which were Little Blue Herons and Great Egrets (Coffey 1964).

Since its formation in the early 1970's the Little Ronaldson Slough colony grew rapidly to its estimated 2,150 nests in 1990. During this time, the number and size

of other heron and egret colonies in the state has also increased (Pullin 1987). Factors that may have influenced this increase include a possible decrease in pesticide levels in aquatic systems and more stringent enforcement of laws protecting colonies from human disturbance. The Reelfoot colony is apparently still growing. Other large colonies in west Tennessee (e.g., Cranetown, Crane Roost, and Dyersburg (Gersbacher 1964, Leggett 1968)) either disbanded or fragmented, but each of those colonies was subjected to human disturbances. Since the Little Ronaldson colony is on state owned land, is relatively inaccessible, and public awareness of the value of the colony (and the penalties for disturbance) has increased, the colony may continue to grow. One of the effects of large nesting colonies is to alter water quality (especially nitrogen and phosphorus levels) and thus adversely affect the health of the trees supporting nests (Dusi et al. 1971). We did not attempt to document water quality and vegetation structure in the colony; therefore, we cannot make comparisons with similar habitats not having nesting herons and egrets. However, we did not observe large numbers of dead or dying trees, and our impressions are that the colony has not obviously affected the trees.

Accepted 2 November 1991.

#### ACKNOWLEDGEMENTS

We wish to acknowledge the assistance and encouragement provided by Paul Brown, Manager of the Reelfoot WMA. We thank the UTM students Judy Barnes, Joyce Collins, Roy Logan, Larry Teague, and Andy Tweed for helping us tag trees. To the person (s) who stole our canoe: our thoughts should not be printed.

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Fig. 1. Perimeter (as determined in November 1990) of the heron and egret colony bordering the west side of Little Ronaldson Slough, Reelfoot Lake. The numbers indicate tag numbers on trees.

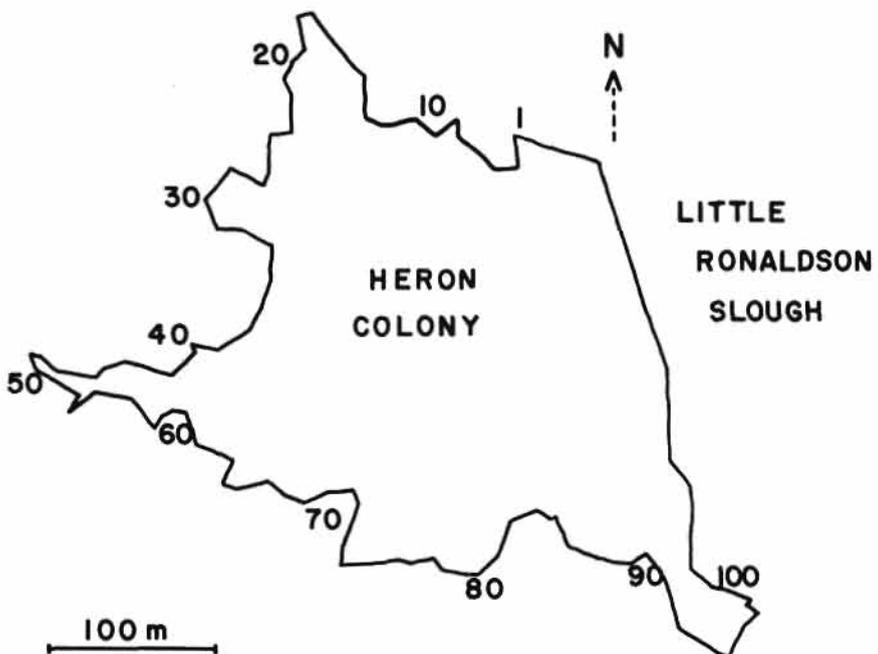


Table 1. Summary of counts made before 1990 at the Little Ronaldson Slough heron colony at Reelfoot Lake.

<u>YEAR</u>	<u>ESTIMATED TOTAL</u>		<u>SPECIES PRESENT<sup>a</sup></u>	
	<u>NO. OF NESTS</u>		<u>NO. OF NESTS</u>	<u>SOURCE</u>
ca 1972	established		GBH (100%)	Pitts 1982
1976	ca 90		GBH (ca 90) GE <sup>b</sup> , A (1)	Pitts 1982
1977	ca 135 <sup>c</sup>		GBH (100% ?) GE <sup>b</sup> ; CE <sup>b</sup> ; A (1)	Pitts 1982
1980	184		GBH (174), GE (10) <sup>e</sup>	Pullin 1980
1981	193		GBH (183) GE (10) <sup>b</sup>	Pullin 1981
	221		GBH (211) GE (10); A <sup>b</sup>	Pitts 1982
1982	222		GBH (210) GE (12)	Pullin 1982
1983	207		GBH (202) GE (5)	Pullin 1983
1984	265		GBH (250) GE (15)	Pullin 1984
1985	284		GBH (281) GE (3) <sup>d</sup>	Pullin 1985
	ca 750		GBH (700) YCNH (50) <sup>b</sup> A (1)	Fisher 1985 Ford 1985
1986	341+		GBH (316) GE (25-30) <sup>e</sup> A (1) <sup>e</sup>	Pullin 1986
1987	411		GBH (350) GE (60) <sup>e</sup> A (1) <sup>e</sup> DCC <sup>b</sup>	Pullin 1987
1990	2,150 <sup>f</sup>		GBH (1,950) <sup>g</sup> GE (200) <sup>g</sup> A <sup>b</sup>	this study

Table 1 (continued)

<sup>a</sup>Great Blue Heron -- GBH; Great Egret -- GE; Cattle Egret -- CE; Anhinga -- A; Double-crested Cormorant --DCC.

<sup>b</sup>Adults present in the colony but no nests observed.

<sup>c</sup>Based on the nest count conducted during Feb. 1978.

<sup>d</sup>50 adults in the colony in July.

<sup>e</sup>Based on an estimate made by W. Cook.

<sup>f</sup>Based on nest counts made in Oct-Nov 1990.

<sup>g</sup>Based on estimates of species composition in 1991.

<sup>h</sup>We believe this identification is an error; both Pullin (1985) and Ford (1985) identified Great Egrets, but no Yellow-crowned Night-Herons, in the colony in 1985.

#### APPENDIX A

Birds (other than herons, egrets, cormorants and anhingas) known to have nested at Reelfoot Lake -- summary of breeding season observations in the Little Ronaldson Slough Heron Colony.

Wood Duck (*Aix sponsa*) -- seen on most trips into the colony and on Little Ronaldson Slough.

Mallard (*Anas platyrhynchos*) -- six were present on Little Ronaldson Slough on 2 April 1991; these could have been migrants but some semi-domestic Mallards nest at Reelfoot Lake (Pitts 1985).

Turkey Vulture (*Cathartes aura*) -- one to two individuals seen soaring high over Little Ronaldson Slough on 16 April and 23 April 1991.

Red-shouldered Hawk (*Buteo lineatus*) -- one to three individuals seen or heard on most trips into the colony. This species probably nests around the colony although no active nests were discovered.

Mourning Dove (*Zenaidura macroura*) -- several individuals were seen in the vicinity of the colony on most trips into the colony.

Barred Owl (*Strix varia*) -- heard on most trips into the colony.

Red-bellied Woodpecker (*Melanerpes carolinus*) -- recorded on most trips into the colony.

Downy Woodpecker (*Picoides pubescens*) -- recorded on most trips into the colony.

Pileated Woodpecker (*Dryocopus pileatus*) -- recorded on most trips into the colony.

Eastern Phoebe (*Sayornis phoebe*) -- seen on 2 April 1991 near Little Ronaldson Slough.

Great Crested Flycatcher (*Myiarchus crinitus*) -- one heard on 23 April 1991 in the colony.

Blue Jay (*Cyanocitta cristata*) -- recorded on most trips into the colony.

American Crow (*Corvus brachyrhynchos*) -- recorded on most trips into the colony.

Fish Crow (*Corvus ossifragus*) -- one to two individuals recorded on most trips; 17 were seen on 2 April 1991 and 40+ were seen flying over the colony on 16 April 1991.

Carolina Chickadee (*Parus carolinensis*) -- recorded on each trip into the colony.

Tufted Titmouse (*Parus bicolor*) -- recorded on each trip into the colony.

White-breasted Nuthatch (*Sitta carolinensis*) -- recorded on most trips into the colony.

Carolina Wren (*Thyothorus ludovicianus*) -- recorded on most trips into the colony.

Blue-gray Gnatcatcher (*Poliophtila caerulea*) -- very conspicuous and numerous from 2 April 1991 to 23 April 1991.

Brown Thrasher (*Toxostoma rufum*) -- one seen on 23 April 1991 in the colony.

Northern Parula (*Parula americana*) -- heard on 16 April 1991 and 23 April 1991 in trees adjacent to Little Ronaldson Slough.

Yellow-throated Warbler (*Dendroica dominica*) -- recorded on 2 April 1991 in cypress trees in Little Ronaldson Slough.

Prothonotary Warbler (*Protonotaria citrea*) -- very conspicuous and numerous on our 16 April and 23 April 1991 trips into the colony.

Kentucky Warbler (*Oporornis formosus*) -- two heard on 23 April 1991 in woodland adjacent to Little Ronaldson Slough.

Northern Cardinal (*Cardinalis cardinalis*) -- recorded on every trip into the colony.

Red-winged Blackbird (*Aqelaius phoeniceus*) -- recorded around Little Ronaldson Slough.

Common Grackle (*Quiscalus quiscula*) -- recorded on every trip into the colony.

## CHIMNEY SWIFTS CHOOSE HOLLOW OAK TREE FOR NESTING SITE

Jim Ferguson and Sue Ferguson  
Iris Hill Farm  
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In early 1988 we purchased a late 19th century farmhouse surrounded by 30 acres of woods, fields, and a small pond. The birding habitat was wonderful, but the old log farmhouse was a shambles. The removal of a partially collapsed chimney was one of many major changes necessary in the long process of making the house habitable. For the remainder of that summer (1988), Chimney Swifts (*Chaetura pelagica*) continued to circle the house in a vain attempt to locate the missing chimney. Our other chimney has a cap and is not acceptable to swifts.

After we moved into our house in 1989, the swifts were our ever-present companions and were often seen circling in the area of the old chimney. In the spring of 1990, we observed swifts gathering nesting material from the tips of a dead American elm (*Ulmus americana*) by flying up to the tree, hesitating momentarily, and then flying away with a small twig in their bills. During the latter part of May, we realized that some of the swifts were entering an opening in a very large white oak (*Quercus alba*), located 6 m from the house and approximately 12 m from the missing chimney.

The stately oak, 28 m high and 4.5 m in circumference at 1.5 m above the ground, has a narrow diamond-shaped opening approximately 3 meters high by 0.7 m wide at its midpoint. The opening begins 5 m above the ground. (Figure 1) The old tree is completely hollow from the ground to a height of approximately 10 m where branching reduces the diameter of the tree considerably.

The lower branches, some as large as 0.5 m in diameter, begin about 4 m above the ground and are also hollow. Even Wood Ducks (*Aix sponsa*) have checked out these hollow branches, one pair spending nearly a week before moving on. The opening is obviously the result of some long past calamity which tore away a major branch, and exposed the interior to the weather. An opening at the ground level is large enough to allow our dog, a beagle, access to the interior and to confirm that the hollow extends to the ground.

Because of the near vertical opening and the lack of a clear field for maneuvering, the typical spiraling flight of the swifts had to be modified to gain access to the tree opening. The swifts entered the tree by approaching on a direct flight and then dropping lightly into the aperture. This maneuver was accomplished so quickly it was often difficult to determine whether the swifts had entered the tree or passed on by. At least three, and possibly as many as five, swifts were seen entering the tree. Swifts leaving the opening would flutter up vertically out of the trunk before beginning their typical flight pattern.

We made no attempt to verify nesting until 16 September 1990 when an extension ladder was used to enable us to inspect the interior. A swift nest was observed approximately halfway between the bottom of the opening and the base of the tree, which would place it about 2.5 m above the ground. Only this one nest appeared to have been constructed, and there was no evidence of any earlier nest. The nest was located directly below the opening where it would have been partially exposed to rain during the summer.

The swifts returned in late March for the 1991 nesting season. Again we observed them entering the oak. In June the swifts suddenly disappeared. Shortly thereafter, our beagle discovered a raccoon (*Procyon lotor*) living in the oak. The three babies were soon old enough for the mother to move to the woods for more privacy from the persistent beagle. We speculated that the raccoon killed the swifts as they were not observed again in the tree. A check inside the tree in late summer disclosed no evidence of a nest, old or new. Apparently it had either been destroyed by the raccoon or dislodged by rains.

Chimney Swifts, having adapted so successfully to the advance of civilization, are commonly thought of as nesting almost exclusively in chimneys or other man-made structures. The widespread use of screens and chimney caps may have reduced somewhat the availability of open chimneys. However, we have evidenced that the swift has not lost its ability to use a hollow tree for a nesting site. We await the 1992 nesting season and hope that a swift, perhaps a survivor of the 1990 clutch, will once again choose our hollow white oak for a summer home.

Accepted 5 October 1991.

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Fig. 1. Oak tree in which Chimney Swifts nested in 1990.

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## 1991 DISTINGUISHED SERVICE AWARDS

Ron Hoff

2512 Gray Hendrix Road  
Knoxville, TN 37931

The recipients of the 1991 TOS Distinguished Service Awards are: Ben and Lula Coffey (Memphis), Helen Dinkelspiel (Memphis), George R. Mayfield, Jr. (Columbia), and Robbie C. Hassler (Brydstown).

Ben and Lula Coffey: Mention the city of Memphis to an ornithologist, birdwatcher or birder almost anywhere in North, Central, or South America, and the response will probably be, "How are the Coffeys?" Space is not available here to do justice to their many contributions. They have played a major role in building the reputation of TOS and its journal, directly by way of their many field records and indirectly by way of the many individuals they have influenced (and housed and fed!).

Helen Dinkelspiel: If this lady wrote a book, it would surely be called "The joy of birding." Extensive field work, careful study of species and habitats, a love of travel, and a great sense of humor are combined in one of Memphis' most active birders for 33 years. A TOS member since 1957, she has served as chapter secretary, chapter vice-president, chapter president, state director and local director. She has also been state secretary two times, no small task. She attends nearly all state meetings and participates in the affairs of the society. She has participated in Breeding Bird Surveys for over 20 years and in most chapter counts. Perhaps her greatest attribute is her willingness to always take new birders under her wing, a service that is invaluable to TOS.

George R. Mayfield, Jr.: Son of a TOS founder, an avid birder since childhood, and father of a family of birders. He has been a TOS member since 1961 and has been banding birds since 1978. He has consistently contributed records to *The Migrant* for many years. He helped revive the Columbia chapter where he has been active in virtually all of the chapter activities. He served as state president in 1968-70. He served as a member of the Tennessee Conservation Commission during Lamar Alexander's second term as governor. More recently, he has done extensive work on the Tennessee Breeding Birds Atlas. He is one of the strongest supporters of TOS and conservation efforts in Tennessee.

Robbie C. Hassler: She has been a TOS member since 1967. Even before becoming a member she recorded observations on Sandhill Cranes and continues to do so. She has attended most state meetings since becoming a member. She hosted a state foray in 1979 and has participated in most of the state forays. She participates in most counts, contributes to the Cornell Nest Record program, leads bird walks in state parks, gives numerous slide programs, and has participated in Breeding Bird Surveys. She consistently reports observations to *The Migrant* and has published three articles. She has served as Director-at-Large for middle Tennessee several times. In most of these activities she was assisted by her husband, David. She has apparently not been hampered by the absence of a local chapter; instead, she has demonstrated, again and again, that "one person can make a difference."

## MINUTES OF THE 1991 FALL BOARD OF DIRECTORS MEETING TENNESSEE ORNITHOLOGICAL SOCIETY

The 1991 Fall Meeting and Symposium, consisting of a Board of Directors meeting, symposium, and field trips, was held at Shoney's Inn at Lebanon, Tennessee on October 4-6, 1991.

The Board of Directors meeting was called to order by President Bob Ford. Minutes of the Spring, 1991 meeting were distributed to the Directors and approved except on the last page the spelling of "Hesler" was corrected to have only one "s".

TREASURER George Payne, Jr. reported 897 members to date. Current assets were \$78,990.46. Income during April 24 - September 30, 1991 was \$4,935.32. Total expenses during this period were \$4,545.69. He advised that no dues increase was needed. The 1992 budget of \$25,000 was accepted as presented.

No CURATOR had been appointed to replace the late chairman Dr. James Tanner. Chuck Nicholson advised that back issues of *The Migrant* are stored at Zoology Dept. of University of Tennessee. Nicholson had been selected at the Spring, 1991 meeting to chair a committee to locate a permanent location. The back issues are to be moved on October 26, 1991 to President Ford's office in the new Tennessee Conservation League headquarters at 300 Orlando, Nashville, TN 37209 at least for one year. Long-term storage is still being investigated; other material includes Dr. James Tanner's and Dr. Joe Howell's bird notes and records. A new Curator is to be responsible for deciding whether future records go to the University of Tennessee Library, with back issues of *The Migrant*, or elsewhere. If the Curator is in another part of state separate from *The Migrant*, someone else needs to be responsible locally for mailing out *The Migrant*. A new Curator is to be recommended at the Spring meeting. Lula Coffey recommended an ongoing inventory of his/her stored items be maintained by future curators. Between 40 and 50 feet of shelf space is needed for the Curator's inventory. George Payne and Katherine Goodpasture recommended for the committee's consideration that Historian and Curator's positions be kept separate.

EDITOR of *The Migrant* Dr. David Pitts reported that the September, 1990 issue was ready for printing. The December, 1990 issue will be the 75th anniversary issue, which will include: ospreys, bald eagles, shorebirds, and Dr. James Tanner's presentation at the Spring Meeting, "Looking Forward, Looking Backward". He advised that a historian is needed to keep records of chapters and pictures of members. Chapters were encouraged to submit histories for their chapters to the Editor.

### Reports of Standing Committees

BREEDING BIRD ATLAS - Chuck Nicholson reported all field work has been done. Some coverage had been completed for about 60 percent of all blocks. All priority blocks had some coverage. An appeal was made for preparation of 2-page Species Accounts. The target date for manuscript completion was reported to be July, 1992.

BIRD RECORDS COMMITTEE - Rick Knight reported the Committee has worked on some species and is seeking outside help with a few others.

CONSERVATION COMMITTEE - Ken Dubke requested ideas for TOS conservation projects. Bob Harcher reported that Monsanto Chemical Company, which had saved and enhanced valuable wildlife habitat on their 5,000-acre Columbia site due to TOS and TWRA input, was named Industrial Organization of the Year by Tennessee Conservation League and the Natural Resources Conservation Society. Dubke reported Brainerd Levee of Chattanooga has been accepted as a Wildlife Observation Area.

PATCHES AND DECALS - Carolyn Bullock reported she has patches available.

TOS AWARDS - Chairman Ron Hoff could not be present. President Bob Ford reported Hoff desires that someone else accept this position.

#### OLD BUSINESS

Margaret Mann reported plans to put a HISTORIC MARKER in the alley on the outside of the Nashville building (currently Sports Page Restaurant) where TOS was started (419 Union Street). It was decided to move it up the street on the outside of the building at 5th and Union Street. Prior approval is needed from a North Carolina part owner and the Metro Historical Commission. A contract has been prepared for placement of the marker on the building by a sign company. One copy of the contract will be kept in the President's file and one with the Nashville Chapter's Curator.

Final entries in the contest for a NEW COVER FOR THE MIGRANT have been received. Bill Fowler moved that we use a special cover as submitted by Teresa Bullock only for the 75th Anniversary issue; the subsequent issues are to return to the traditional cover. The motion carried.

#### NEW BUSINESS

Ken Dubke recommended that President revitalize a SELF STUDY COMMITTEE for TOS. Ford hoped to implement it by Fall, 1992.

President Ford announced plans to appoint a FIELD INVENTORY STUDY COMMITTEE. Strategies for chapter membership promotion is to be included in this study.

Martha Waldron reported that BIRD RECORDS have been extensively accumulated by Ben and Lula Coffey and others. She advised she has compiled much of this and is often contacted for use of this data for environmental review and compilations of site-specific bird lists. She urges others with such records to submit them to their Chapter Curators for compilation.

A motion was made by Chuck Nicholson concerning OWNERSHIP, DISTRIBUTION, AND USE OF BREEDING BIRD ATLAS DATA, as follows:

1. Atlas data, as used here is defined as the computer files, field maps, and survey forms resulting from the Atlas project.
2. Atlas data are owned by the Tennessee Ornithological Society.
3. Until publication of the Atlas book, the TOS Curator will control distribution of the Atlas data.
4. Following publication of the Atlas book, the distribution of Atlas data will be controlled by the Atlas Coordinator.
5. Atlas data will be made available to legitimate users upon submission of a written request, describing the intended use. The applicant will sign an agreement stating that data will not be distributed to others, that it will be put to the intended use, and that the TOS will be acknowledge in all publications and reports resulting from use of the Atlas data.
6. The user may be charged a nominal fee to cover expenses involved in filling his/her request.

7. If the Atlas Coordinator or the Curator denies a request for use of Atlas data, the applicant may appeal the request to the TOS President, or, if the President denies the request, to the TOS Board of Directors.

George Payne, Jr. seconded Nicholson's motion concerning use of Atlas data. Wallace Coffey amended the motion that every written request be responded to in writing within 30 days concerning yes or no; and if no, the written notice include a method of appeal. The amendment was agreeable to Nicholson. The motion with amendment passed.

Announcement was made that the SPRING MEETING is to be at Oak Ridge on May 1-3, 1992 and to be hosted by the Knoxville Chapter.

Minutes by Bob Hatcher, TOS Secretary

(Completion of Minutes)

*The Migrant*, 62(4):102, 1991.

#### EDITORIAL

This is the fifteenth and last issue of *The Migrant* for which I will be serving as editor. Many members have made contributions to the journal or have directly assisted me during my term of office. John Robinson and Bob Ford worked as Season Editors. Glen Eller, Rick Knight, Richard Lewis, Steve Stedman, David Vogt, and Martha Waldron served as Regional Compilers. Damien Simbeck and Susan McWhirter compiled the Counts. Numerous persons reviewed manuscripts. The people who have been most responsible for the success of *The Migrant* are the contributors of observations and the authors of manuscripts. To all of these I offer my thanks.

TOS has multiple roles, including commitments to science, conservation, education, and historical documentation. I wish the society well in its endeavors to meet these challenges. Farewell.

T. David Pitts

## THE EARTH COMPLEX, MEMPHIS, TENNESSEE

Martha G. Waldron and Dianne P. Bean  
Memphis, Tennessee

The Environmental and Resource Technology (EARTH) Complex is known as "The Pits" to local birders, Ensley Bottoms to long time residents of Memphis and Shelby County, and the Pidgeon Industrial Park to city government. The once partially wooded bottomland was utilized for agricultural purposes under private ownership until it was acquired by the Memphis and Shelby County Port Commission in 1956. The 4500 acre tract was purchased for future development as an industrial park, but in 1990, under a lease agreement with the Port Commission, the City of Memphis opened the EARTH Complex to the public as a research, reclamation and disposal demonstration area for solid and organic waste material. Located about eight miles south of downtown Memphis, the Complex is bounded by the Mississippi River, the TVA Allen Steam Plant, the T. E. Maxon Wastewater Treatment Facility, T. O. Fuller State Park and Chucalissa Archaeological Museum and private farm land. Established on the concept that an appropriately planned and managed organic and solid waste treatment and research facility could concurrently support viable wildlife habitat, the EARTH Complex has received three national awards.

One important function of the EARTH Complex is to research the treatment and disposal of organic waste. For example, ongoing research is being conducted on the application of various mixtures of sludge from the wastewater treatment plant and composted grass clippings, leaves and/or tree trimmings on crops, such as winter wheat, cotton, soybean, and on domestic shrubs, flowers and lawn grass. One by-product of this research is that the Bermuda and Zoysia sod grown at the EARTH Complex is used in city parks and on public golf courses. A unique project utilizing tree stumps and brush picked up by city sanitation crews is a hibernaculum. The brush is buried in trenches and will hopefully attract burrowing animals, such as foxes and snakes. The animals will make their homes in the earthen structure and in turn, they will help control the rodent population at the EARTH Complex (Charlier 1991).

An ever present area of concern addressed by the EARTH Complex is the disposal of sludge and solid waste. Over one thousand acres of the EARTH Complex are scheduled for use as a solid waste landfill. The acreage has been divided in such a way that as each landfill section is closed out, it will become a sludge disposal site, and areas previously used for sludge disposal will be used for landfill. Between one-third to one-half of the EARTH Complex is presently subleased for agricultural use.

The T.E. Maxon Wastewater Treatment Facility, completed in 1975, utilizes 700 acres of the EARTH Complex for sludge disposal. Before the sludge can be safely used for agricultural purposes, it is presently treated in a succession of five oxidation sludge holding lagoons. There are plans to increase the number of sludge ponds in the near future and to recover methane as fuel to power the wastewater treatment plant.

The root of the development of the EARTH Complex is the concept that a waste disposal area environmentally managed can become a viable ecosystem for wildlife

habitat. Consequently, areas of the Complex have been designated as wildlife preserves. Three of the larger oxidation sludge lagoons have been designated as a bird sanctuary. The 40 acre bird sanctuary was established, partially, because of its use by migrating shorebirds, but mainly because of the continuous breeding colony of Black-necked Stilts (*Himantopus mexicanus*) on the lagoons since 1984 (Coffey, 1985; Anon. 1990). A one hundred acre "wet area" presently used for sludge disposal west of the bird sanctuary also attracts shorebirds and waterfowl. A 770 acre strip of wetland and bottomland forest at the south end of the facility has been designated as an undeveloped wildlife refuge. With its year-round availability of water and wetland areas, the EARTH Complex is a valuable and productive supplemental wetland area for migratory waterfowl and shorebirds.

The sewage lagoons of Ensley Bottoms and now the EARTH Complex have attracted shorebirds for many years. The Memphis Chapter of TOS began working the area in 1982. Earlier observations recorded by local birders date back to 1932 (Coffey, pers. com). Of the 257 species of birds recorded in the area, 33 species of shorebirds have been seen on or near the lagoons. In addition to fairly common migrants, first state records and several rare visitors have been observed. State records include the Garganey (*Anas querquedula*); Wilson's Plover (*Charadrius wilsonia*); and the White-faced Ibis (*Plegadis chihli*). Rare visitors for west Tennessee include the Wood Stork (*Mystera americana*), Black-bellied Whistling-Duck (*Dendrocygna autumnalis*), Merlin (*Falco columbarius*), Peregrine Falcon (*Falco peregrinus*), Marbled Godwit (*Limosa fedoa*), Whimbrel (*Numenius americanus*), Ruff (*Philomachus pugnax*), Common Ground-Dove (*Columbina passerina*), Western Kingbird (*Tyrannus verticalis*), Vermilion Flycatcher (*Pyrocephalus rubinus*), Scissor-tailed Flycatcher (*Tyrannus forficatus*), and the Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*).

Nesting records include the unusual Black-necked Stilt. The success of the Black-necked Stilt at this site could be one reason for the recent occurrence of nesting sites in northwest Shelby County and further north in Stoddard County, Missouri (Jacobs, 1991) and in Chicot County, Arkansas (Parker, 1991). The EARTH Complex was also the first nesting site of the Sora (*Porzana carolina*) in Tennessee (Waldron, 1990). The Painted Bunting (*Passerina ciris*), known to breed in Tennessee only in Shelby County in 1934 (Coffey, unpublished records), was recorded as a possible nesting bird in this locale in 1986. The Song Sparrow (*Melospiza melodia*), a rare summer resident in west Tennessee, was observed for the past two summers although no positive nesting record was established.

In addition to these nesting records at the EARTH Complex, the Short-eared Owl (*Asio flammeus*), the Smith's Longspur (*Calcarius pictus*) and an increasing number of wintering waterfowl have made the EARTH Complex their occasional winter home. It has been the summer breeding ground for the state threatened Grasshopper Sparrow (*Anmodramus savannarum*), and it is a migratory resting and feeding area for flycatchers, vireos and warblers.

With the success of the EARTH Complex city planners and managers have demonstrated that the incorporation of environmental considerations and needs in waste disposal procedures does enhance the protection of wildlife without additional costs. Hopefully, the immediate success of the EARTH Complex will strengthen its position against industrial development and the possibilities of considering wildlife habitat in future development of waste disposal sites/facilities.

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*The Migrant*, 62(4):105-106, 1991.

## PINE SISKINS DIE FROM SALMONELLOSIS

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Like most TOS members, my family and I have spent many enjoyable hours watching birds at the feeders in our yard. During the winter of 1989-1990, we had record high numbers of Pine Siskins (*Carduelis pinus*), but our joy turned to concern and then grief as many siskins became obviously sick and several died.

In early November 1989 I had my feeders filled with sunflower seeds, as usual, and was eagerly looking forward to what the season would bring from the north. Regularly occurring species at my feeders included: Mourning Dove (*Zenaidura macroura*), Red-bellied Woodpecker (*Melanerpes carolinus*), Downy Woodpecker (*Picoides pubescens*), Blue Jay (*Cyanocitta cristata*), Carolina Chickadee (*Parus carolinensis*), Tufted Titmouse (*Parus bicolor*), White-breasted Nuthatch (*Sitta carolinensis*), Carolina Wren (*Thryothorus ludovicianus*), Northern Cardinal (*Cardinalis cardinalis*), Purple Finch (*Carpodacus purpureus*), House Finch (*Carpodacus mexicanus*), and American Goldfinch (*Carduelis tristis*).

A few Pine Siskins first appeared in late December 1989 and early January 1990. Then they rapidly increased until as many as 200 were feeding at one time. During

this time I watched them closely. Most departed in early March, but about 10 March, while an estimated 90 siskins were still present, one individual was observed sitting on a second floor bedroom window sill. It remained there for a couple of hours with its feathers unnaturally fluffed, and it vomited the recently eaten seeds. From then until mid-April 1990 this scene was often repeated at various locations around the yard. Some siskins were found dead. When I checked with other people who had feeders I found that they too were witnessing similar scenes. I salvaged 13 siskins and 1 goldfinch and shipped them to the Georgia Poultry Laboratory at Dalton, Georgia. Their diagnosis was salmonellosis, a disease caused by the bacterium *Salmonella*. This same group of organisms frequently causes food poisoning in humans.

The birds were concentrated at feeders because of the abundant supply of food. The sunflower hulls were not allowed to accumulate but were shoveled up and replaced at least once a week with clean sand, gravel and soil. Food was not placed on the ground. The weather turned warm in early March with temperatures in the 70's on the 6th and 10th and in the 80's on the 11-14. Rain accompanied the warm weather. Even though an effort was made to provide sanitation, the resulting deaths proved otherwise. The warm weather may have facilitated the survival and/or transmission of the bacteria.

What can be done to reduce the chances of an outbreak of this type from occurring again? E. H. Dunn (*FeederWatch News* 1(2):9-10, 1988) stated that salmonellosis is the most common cause of death in birds autopsied by wildlife health authorities. She noted that species that form large flocks are most likely to be infected. She suggested: (1) clean and disinfect feeders at least once a year and more frequently if diseased birds are seen; (2) stop feeding completely for 10 days when many bird deaths occur; and, (3) place food in locations that will lessen the chance of contact with the fecal material from other birds.

I wish to thank Kenneth H. Dubke for assistance in the preparation of this manuscript.

Accepted 21 December 1991.

RED CROSSBILL FEEDING YOUNG IN  
SHELBY COUNTY, TENNESSEE

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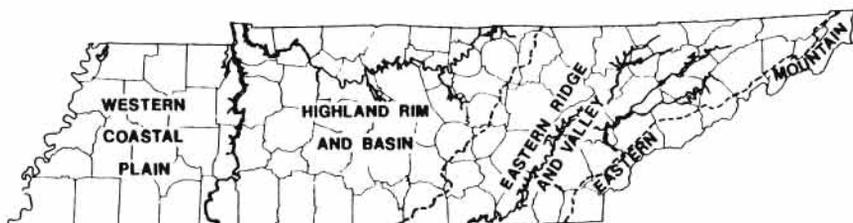
On the morning of 23 May 1991, Kevin McKown and Bob Endres observed a flock of Red Crossbills (*Loxia curvirostra*) at Farmington Country Club in Germantown (adjacent to Memphis) in Shelby Co., Tennessee. Several other observers found the flock on 24 May. On 26 May, George and Jeanne Payne, Virginia Reynolds, Martha Waldron and I counted 10 Red Crossbills, including two fledglings, at the same location. The young birds were smaller than the adults, thickly streaked, and with the bill not noticeably crossed. Bent (1937, *Life Histories of North American Cardinals, Grosbeaks, Towhees, Finches, Sparrows, and Allies*. Dover Publications, Inc. New York) states (p. 507) that, "When the young leave the nest their bills are not crossed but during the next following weeks the tips of the mandibles extend and cross as in the adults." The feathers were not sleek, but rough and fluffy. Martha Waldron noted that the feathers on the wings had whitish edgings. Bent (*ibid.*) describes the juvenal plumage as having feathers with whitish edgings.

The young birds followed the adults. One was seen begging, with shaking wings and constant calling. I observed an adult male extract an item (presumably a piece of pine seed) from a pine cone and drop it into the mouth of a young crossbill. Bent (*ibid.*) notes, "The young are fed by the parents for at least two weeks after leaving the nest."

Based on the observations reported here and the comments of Bent (*ibid.*), I suspect that the young were hatched in Shelby county. This is the first record of Red Crossbills in Shelby County and the first possible evidence of their breeding in Tennessee outside of the Appalachians (McNair, *Migrant* 59:105-113, 1988). The nearest nesting record is apparently from Noxubee National Wildlife Refuge in central Mississippi where Red Crossbills nested in 1976 (Warren et al., *American Birds* 31:1100, 1977).

Accepted 3 July 1991.

THE SEASON  
ROBERT P. FORD, Editor



Spring: 1 March - 31 May 1991

Weather patterns early in this season seemed to be a continuation of the mild, wet winter of this year. Across the state, precipitation was generally above normal and temperatures were cool but near normal.

Migration and local occurrences of birds reflected the weather patterns of the season. In the coastal plain, waterfowl lingered longer than normal in many areas, possibly because of wet weather. However, in East Tennessee, waterfowl left early this year, perhaps because of mild temperatures. Many spring migrants arrived in Tennessee early this year, notable records include Little Blue Heron, Chimney Swift, and Red-eyed Vireo. Many other spring migrants arrived close to the usual dates, although in relatively lower numbers - shorebird concentrations were monitored weekly at sites in the Coastal Plain.

Rarities of the season included a state record Black-shouldered Kite and many unusual nesting occurrences. Details are described below in the regional reports.

Abbreviations used in the following report include: ad - adult; CBC - Christmas Bird Count; EOP - end of period; ers - earliest reported sighting; et al - and others; f - female; m - male; max - maximum number reported from 1 county in 1 day; m.ob. - many observers; NWR - National Wildlife Refuge; TBRC - Tennessee Bird Records Committee. \* - record has been documented.

**WESTERN COASTAL PLAIN** - Despite the record setting wet spring with cool but near normal temperatures, dedicated observers throughout West Tennessee reported a number of species including a state record for Black-shouldered Kite and a nesting report of Red Crossbills. With an increase in the number of observers reporting from several locations ranging from Reelfoot to Memphis and east to the Tennessee River, sampling of bird populations is becoming more reliable. Migrants arrived like clockwork, and the "housekeeping" of summer residents did not go unnoticed by people involved in atlasng. Shorebirds were observed in large concentrations at the EARTH Complex (TEC) and on Island 13 and in the flooded fields of Lake and Dyer counties.

*Loon-Sora*: Common Loon: 4 Apr (1) HWR (JBC); 3-15 May (1, but two different birds during the observation period) PEF (MLG, MTOS), late SBC; 17 May (1) Blue Basin, REL, LKC, (MAG, Gail Greene, Jackie Taylor); 18/27 May (3/1) LKC (WGC). Double-crested Cormorant: 23 Mar-EOP (1-250) LKC, 24 Mar-EOP (220-3) DYC

(WGC); 24 Mar (185) TEC (MLG); 25 Mar (1) Chickasaw NWR, Lauderdale Co. (JBC, HSH); 26 Mar (5) O'Neal Lake, HWR (JBC). Anhinga: 16/23 APR (pair) Little Ronaldson Slough, REL, OBC (MAG, Judy K. Knox, TDP). American Bittern: 6 Apr (1) Hog Creek Rd., NE DTC (CHB), first report for county; 6/20 Apr (1/3) Easton-Brazil Marsh, GBC (MAG, SDL); 29 Apr (2) two different locations, LKC (WGC); 2 May (1) Tatumville Marsh, DYC (MAG). Least Bittern: 4 May (1) O'Neal Lake, HWR (Robert L. Browne, David Smith, Sue Winikles, and others); 16 May (1) O'Neal Lake., HWR (JBC, LBC, HSH); 26/27 May (1) Long Point, REL (WGC), observed carrying nesting material. Herons and egrets were reported in many counties. An aerial survey was made in 1989 and 1990 of the heronries in West TN, tabled results should be published separately. The aerial survey date and field observations will establish a basis for management by TWRA. Great Blue Heron: 2 Apr (1000+) Little Ronaldson Slough, REL LKC (MAG, Judy K. Knox). Snowy Egret: 11 May (1) PEF (RWP). Little Blue Heron: 28 Mar (1) LKC (WGC), early. Black-crowned Night Heron: 20/30 Apr (4/1) LKC/DYC line, 18/25 May (3/1) DYC (WGC). Yellow-crowned Night Heron: 21 Apr (1) REL, OBC (WGC); 5/11 May (1/4) TEC (MLG, TAF); 30 Apr (1) REL, OBC (MAG); 18 May (6) DYC (WGC) four different nesting sites within Memphis city limits. Three sites with six to eight nests, each with three to four young; one site with two active nests (BBC, GRP, JKP, MGW). WHITE IBIS: 14 Apr (1 ad) LKC/DYC (WGC), first spring record. Field observations reported many lingering waterfowl (16 species) in various counties. This could be attributed to our mild, wet winter and very wet spring. Tundra Swan: 7 Mar (1) HYC (JBC). Greater White-fronted Goose: 1 Mar (6) BRF (John C. Robinson); 7 Mar (6) HYC (JBC); 15 Mar (2 ad) IS 13 WGC, late date for West TN. Lesser Scaup: 5 Mar (250+) REL, LKC, 16 Mar (235) Sludge Lagoon, LKC (MAG); 1 Apr (600+) TEC (MLG, TAF). Ruddy Duck: 5/19 Mar (2000+/3000+) REL, LKC (MAG); 1 Apr (1000+) North Lake, SBC (MLG, TAF). Bald Eagle: 6/19 Mar (2 on nest) Lake Isom, LKC (WGC, MAG); 23/24 Mar (5; 1 ad, 4 im) REL, LKC (WGC). Osprey: 19 Mar (2 on nest) Lower Blue Basin, LKC (MAG); 6 Apr (1) REL, LKC, 14 Apr/ 1 May (1/2) DYC (WGC); 15 Apr (1) Garrett Lake, WKC (MAG, SDL); 25 Apr (1) HWR (DAM, DPB, VBR), 30 Apr (2 on nest), REL, LKC (WGC); 20 May (1) Lake Graham, MDC (JCG). Mississippi Kite: 5 May (16) MEM (MTOS); 11 May (1) PEF (GRP, JKP); 15 May (1) Easton-Brazil Marsh, GBC (MAG), location of nests should be reported to the regional compiler. BLACK-SHOULDERED KITE: 20 May (1) Dyersburg, (WGC and family) first state record, details submitted and were accepted by the TBRC. Sharp-shinned Hawk: 7 Mar (1) HYC (JBC); 2 Apr (1) MDC (HSH); 5 Apr (1) LDC (RPF); 5 Apr (1) MDC (HSH); 20 Apr (2) Big Hill Pond, McNairy Co. (MTOS); 21 Apr (1) Ponderosa, DTC (CHB); 5 May (1) MEM, SEP (MTOS). Cooper's Hawk: 3 Mar (1) PEF (RWP); 15 Mar (1) TEC (VBR, CHB); 25 Mar (1) LKC (JBC, HSH); 26 Mar (2) Windrow Rd, HWR (JBC); 5 Apr (1) LDC (RPF); 20 Apr (1) Hwy 45, GBC (MAG, SDL); 25 Apr (1) TEC (MGW, VBR); 1 May (2) REL, OBC (VBR, HBD, BHW, CHB). "Kriger's" Red-tailed Hawk: 5 Mar (1) LKC (MAG). Peregrine Falcon: 17 Apr (1) Phillipy, LKC (WGC); 4 May (1) Hwy 79 W, LKC (WGC); 9 May (1) TEC (MGW, VBR). Purple Gallinule: 29 Apr (1) DYC (WGC). Sora: 6 Apr (1) Easton-Brazil Marsh, GBC (MAG); 20 Apr (1,4,1) three different locations, LKC (WGC); 25 Apr/9 May (/2) TEC (MGW, VBR, CHB); 5 May (1) PEF (VBR, DAM).

*Shorebirds:* Twenty-four species of shorebirds were observed at the EARTH Complex (TEC) this season. The area was checked twice a week. Records were

submitted by (CHB, DPB, TAF, MLG, DAM, RWP, VBR, JEW, MGW). Black-bellied Plover: 5 May (1) PEF (MLG); 27 May (15/10) LKC (WGC); 14 May (1) TEC (VBR, DAM). Lesser Golden Plover: 19 Mar (4) REL, OBC (MAG); 19 Mar-6 Apr (60-419+) DYC, 23 Mar (60), 24 Mar (an estimated hundreds or thousands in field. There was a mixed flock which included Pectoral Sandpipers and Greater and Lesser Yellowlegs), 28 Mar-21 Apr (200-90) REL, LKC (WGC), numbers higher than those observed in same county in 1988; 24 Mar (34) TEC (MLG); 1 Apr (5) TEC (MLG, TAF); 30 Apr (6) LKC (MAG); 3 May (30) LKC (WGC). Semipalmated Plover: 1 Apr (3) PEF (MLG, TAF); 2 May-EOP (1-4) TEC. Black-necked Stilt: 16 Apr-EOP (2-18) TEC, four nests; 1 May (2) Moss Island Lauderdale Co.; (WGC). Greater Yellowlegs: 6 Mar - 2 May (1-90) DYC (WGC); 15 Mar - 9 May (10 max) TEC; 16 Mar (7) DYC (MAG, SDL); 19 Mar (126) REL, OBC (MAG). Lesser Yellowlegs: 2 Mar (5) TEC (RWP), SBC early record; 3 Mar-EOP (5-303), 25 Apr (506) TEC, second highest count since 1941; 6 Mar (2) DYC (WGC); 19 Mar/30 Apr (175/75+) REL. OBC (MAG); 6 Mar-3 May (1-164) LKC (WGC). Solitary Sandpiper: 28 Mar-5 May (1-10) DYC (1-15) LKC (WGC); 31 Mar-EOP (1-219), 25 Apr (298) TEC, highest number recorded for TN; 1 Apr (1) PEF (MLG, TAF). WILLET: 21-25 Apr (1) PEF (MLG, RWP); 5 May (6) MEM, (MTOS). Spotted Sandpiper: 21 Apr -EOP (2-5) TEC. Upland Sandpiper: 31 Mar (9) TEC (Jack Harrell, m.ob.); 5 May (1) TEC, SFD (MLG); 11 May (1) TEC (VBR, DAM), late departure date. Semipalmated Sandpiper: 1 Apr (3) PEF (MLG, TAF), early; 21 Apr -EOP (1-300) TEC. Western Sandpiper: 21 Apr -5 May (1-10) PEF (MLG); 11 May (1) PEF (GRP, JKP); 5 May-EOP (3-1) TEC. Least Sandpiper: 15 Mar-EOP (6-1500) TEC. White-rumped Sandpiper: 25 Apr/3-5 May (1) PEF (MLG, MTOS), early; 5-25 May (5-45) TEC; 2/3 May (2/11) LKC (WGC). Baird's Sandpiper: 1 Apr/2 Apr/21-25 Apr/5 May (1-3) PEF (\*MLG, TAF, VBR, CHB, MGW), 1 Apr observation is early; 5/7/16 May (1) TEC (MLG, VBR, DAM). Pectoral Sandpiper: 3 Mar-EOP (10-556) TEC; 6 Mar-6 Apr (8-150) LKC; (1-55) DYC (WGC), 19 Mar (225), OBC (MAG). Dunlin: 24 Mar (1) TEC (MLG), early; 3/17 May (1-7) PEF (MLG); 9-25 May (13-1) TEC; 11 May (1) PEF (MLG, RWP); 26 May (93) LKC (WGC). Stilt Sandpiper: 24 Mar-EOP (1-17) TEC; 3/4 Mar (1) PEF (MLG); 26 May (1) LKC (WGC), late. Buff-breasted Sandpiper: 14 May (1) TEC (DAM, VBR), second spring record for SBC. Short-billed Dowitcher: 3-16 May (5-15) PEF (MLG); 4-19 May (6-27) TEC (MLG); 11 May (15) PEF (MLG, RWP). Long-billed Dowitcher: 9 May (5) TEC (VBR, MGW).

*Phalarope-Crow*: Wilson's Phalarope: 25 Apr - 9 May (1) TEC; 5 May (1) PEF, SFD (MTOS); 5 May (5) TEC (MLG). Laughing Gull: 11 May (1) TEC (RWP, MLG), second spring record for SBC. Franklin's Gull: 24 Mar (1 ad, breeding plumage) McKellar Lake (MLG), 7 May (2) Is 13 (WGC). Bonaparte's Gull: 24 Mar (28) DYC (WGC); 24 Mar/1 Apr (600+125) McKellar Lake (MLG); 21 Apr (1) LKC (WGC). Ring-billed Gull: 24 Mar (2) DYC (WGC); 24 Mar/1 Apr (200+/40) McKellar Lake (MLG); 21 Apr/7 May (1-80) Is 13 (WGC). Herring Gull: 24 Mar (1) McKellar (MLG); 5 Apr (1) LHWR (RPF); 7 May (2) Is 13 (WGC). Caspian Tern: 23 Apr (1) PEF (VBR); 3 May (1) LKC (WGC). Common Tern: 12 May (2) PEF (MTOS); 17 May (1) Upper Blue Basin, REL, LKC (MAG). Forster's Tern: 29 Apr (1) Heloise, DYC, 1 May (3) DYC (WGC); 3/16 May (3/1) PEF (MLG, RWP); 4 May (4) HWR (MAG, Gail Greene); 5/12 May (5/1) PEF (MTOS); 3/7 May (4/2) Is 13, 3/18 May (3) LKC (WGC). Least Tern: 16/23 May (1) PEF (MLG), additional observations in LKC, SBC, OBC, DYC. Black Tern: 3/27 May (2/6) PEF (MLG); 11 May (3) TEC (MTOS); 30 May (50+) SFP (MAG). Black-billed Cuckoo: 5 May (2) MEM, 12 May (1) Mud Island, Memphis

(Charles W. McCrary et al.). Barn Owl: 15 May (1) Powell Lake Rd., HWR (MAG). Short-eared Owl: 6 Mar (3) LKC (MAG). Chimney Swift: 17 Mar (2) MEM (Bill Fowler), early SBC. Olive-sided Flycatcher: 11 May (1) SFP (RWP, MLG); 18 May (2) H 79W, LKC; 19 May (1) road to Is 13 (WGC). Yellow-bellied Flycatcher: 24 Apr (1) MEM (LCC). Bank Swallow: 3/5 May (1/82) MEM (MTOS); 2 May (40-50 nesting sites along a 3/4 mile field road, some colonies having only two nesting sites) LKC (WGC). Barn Swallow: 11 Mar (1) PEF (RWP) early. Fish Crow: 16 Mar (12) DYC (MAG, SDL); 19 Mar (6) REL, LKC (MAG); 20 Mar (5) SFP (HBD, CHB, SSL, BHW, VBR); 2 Apr (17) Little Ronaldson Slough, REL, LKC, 3/16 Apr (13/40+) Crockett Bottoms, Gooch WMA (MAG, Judy K. Knox);

*Wren-Finch*: Sedge Wren: 25 Mar (2) Lauderdale Co. (JBC, HSH). Water Pipit: 4 Mar (9) Phillipy Pits (MAG); 1 Apr (6) TEC (MLG, TAF). BELL'S VIREO: 19 May (1) Germantown, SBC (MLG), details submitted. Philadelphia Vireo: 30 April (2) PEF (DAM, VBR). Golden-winged Warbler: 22 Apr (1) PEF (RWP). Swainson's Warbler: 23 Apr (1) REL, LKC (MAG, TDP); 4 May (2) HWR, HYC (MLG, Marvin Nichols). Mourning Warbler: 12 May (1) PEF (MTOS). Hooded Warbler: 24 Mar (1) PEF (VBR). Painted Bunting: 14 May-EOP (2) (VBR, DAM), 15 May - EOP (2) PI (VBR, SBC, et.al.). Vesper Sparrow: 23 Mar (9) PEF (MGW); 1 Apr (5) TEC (MLG, TAF). Lark Sparrow: 1 April (1) PEF (MLG, TAF), early; 2 Apr (2) PEF (VBR, CHB, MGW). Grasshopper Sparrow: 13/17 Apr (2/1) PEF (VBR); 21 Apr (2) PEF (MLG). Song Sparrow: 25 May (2) TEC (MLG, RWP). Lincoln's Sparrow: 15 Mar (1) MEM (RWP); 24 Mar (5) TEC (MLG); 2 May (1) Tatumville Marsh, DYC, 5 May (5) PEF, (MTOS); (1) Old 104 N. Forked Deer River, GBC (MAG). Swamp Sparrow: 15 May (3) Eaton-Brazil Marsh, GBC (MAG), late West TN. Smith's Longspur: 23 Mar (1) PEF (MGW), late for West Tennessee data, but not for SBC unpublished records. Bobolink: 25 Apr (25) LKC (MAG); 30 Apr (24) LKC, 2 May (3 m) DYC (WGC); 9 May (37) TEC (MGW, VBR); 11 May (6) TEC (MTOS). Rusty Blackbird: 18 Mar (4) PEF (RWP); 20 Mar (10) SFP (HBD, et. al.). Brewer's Blackbird: 1 Apr (pair) PEF (MLG, TAF). RED CROSS-BILL: 23/24 May (5 or 6) Germantown, SBC (Robert Endres, \*Kevin McKowan, m.ob.), 26 May (6-7 ad, 2 juv) young observed begging and being fed (RWP, MGW, JKP, GRP, VBR), first breeding record outside of Appalachian range in TN, third sight record for west TN.; 30 May (6-7) Germantown (TAF). Purple Finch: 23 Mar-24 Mar (4-1) Jackson, MDC (HSH), reports only from this location.

*Locations*: BRF - Britton Ford, Tennessee NWR, Henry Co.; DTC-Decatur Co.; DYC - Dyer Co.; GBC - Gibson County.; HAC - Hardeman Co.; HDC - Hardin Co.; HWR - Hatchie Wildlife Refuge, Haywood Co.; Is 13 - 12, Joe Echles Towhead, Lake Co.; LHWR - Lower Hatchie Wildlife Refuge, Lauderdale Co.; LKC - Lake Co.; MDC - Madison Co.; MEM - Memphis, Shelby Co.; OBC - Obion Co.; PEF - Penal Farm, Shelby Co.; PLS - Paris Landing State Park, Henry Co.; PSP - Pickwick State Park, Henry Co.; REL - Reelfoot Lake, Obion and Lake Cos.; SBC - Shelby Co.; SFP - Shelby Forest State Park, Shelby Co.; TEC - The EARTH Complex, Memphis, Shelby Co.; TIC - Tipton Co.

*Addendum*: Black Tern: 19-22 May 1990, several thousand observed in flocks of approx. 600 each, flocks flying about 3 feet above the water, each flock 2-5 miles apart between Cairo, Mo. and Rosedale, Miss. (John Rumancik and Ken McMullen, U.S. Corps of Engineers, in two boats communicating with each other while on the river.

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HIGHLAND RIM AND BASIN REGION - David Vogt has resigned as regional compiler for this region, and, as yet, there is no replacement. Regrettably, no report follows. I wish to thank David for his past efforts - Editor.

EASTERN RIDGE AND VALLEY REGION - The mild winter blended into an early spring for most of March, with April and May having more normal temperatures. Seasonal precipitation ranged from 3 in. above average in Chattanooga to 0.7 in. above average in Johnson City, where the month of May was on the dry side. Lakes in the region were brought up to full summer levels earlier than in most years.

The "early spring" resulted in low numbers and the early departure of waterfowl, plus some early arrivals of other migrants. Cormorant numbers continue to increase and herons were pretty well represented. Because of high lake levels, shorebirds were generally restricted to marsh and pond edges. Controlled burns at Amnicola Marsh earlier in the year apparently enhanced conditions there, as American Bittern, Sora and Upland Sandpiper put in extended visits. The final year of the Breeding Bird Atlas project got off to a good start, with nesting records of Cattle Egret and hawks in the Chattanooga area, and with Barn Owls and Tree Swallows in the Knoxville and Tri-Cities areas. Other records of note follow.

*Loon - Heron:* Common Loon: 13 Apr (49) Tellico Lake, MOC (RDH, ARH, Steve and Rebecca Satterfield), max; 28 May (2) CHL (Nelson Bennett), 1rs. Horned Grebe: 15 Mar (1) DCL (JBH, Don Holt), 1rs. Double-crested Cormorant: 7 Apr-8 May (2-4) AUS (Stan Strickland, DH, RLK); "throughout period on KNX area lakes" (fide RDH); "1-2 regular thru period at NIL, CHL, SAB, & HRA" (m.ob., fide KHD); 16 May (20) Watts Bar Lake, MEC, RHC, RNC (Carl W. Campbell); 25 May (2) Rankin Bottoms, Cocke Co. (Jon A. Koella). American Bittern: 1-17 Apr (1) AMM (WGH et al.); 17 May (1) BLV (WGH). Great Egret: 23 Mar (1) AMM (WGH); 9 Apr (1) AUS (RLK); 29 Apr (1) SAB (KHD, LHD); 22 May (1) AMM (PCH). Snowy Egret: 23-25 May (1) AMM (PCH, WGH et al.). Little Blue Heron: 23 Mar (1 ad) Gunstocker Creek, HRA (KHD, LHD), new early arrival date for state. TRICOLORED HERON: 18 Apr (1) AUS (Shirley Wayland), second JNC - Elizabethton area record. Cattle Egret: 25 May (4, 1 on a nest) in a Great Blue Heron colony near Hiwassee Is., HRA, MEC-RHC line (Gene Van Horn). Green-backed Heron: 22 Mar (1) BLV (BGM), ers. Black-crowned Night-Heron: 23 Apr (1) DCL (JBH, Ben Britton et al.). Yellow-crowned Nigh-Heron: 15 May (1 on nest) near AMM (KHD).

*Ducks - Bobwhite:* Green-winged Teal: 14 May - 11 Jun (1) LST (BLC, RLK), 1rs. Canvasback: 5 Mar (1) NIL (KHD); 10 Mar (2) HRA (KHD, LHD); only reports. Greater Scaup: 2 Mar (350) CHL (KHD, LHD), Max; 12 Apr (6) CHL (KHD, LHD), 1rs. Bufflehead: 23 Apr (4) DCL (JBH, Ben Britton, et al.), 1rs. Red-breasted Merganser: 12 Apr (50) CHL (KDH, LHD), max; 5 May (7) AUS (RLK), 1rs. Ruddy Duck: 13 Mar (71) NIL (KHD), max. Osprey: 17 Mar (1) CH: (RJH), ers; 26 Mar (1) DCL (Jerry Rhinehardt), early there; 8 May (1) AUS (RLK), last there. Bald Eagle: 23 Mar (1 ad) Tennessee River Gorge, Marion Co. (RJH); 16 Apr (1 im) JNC (FJA). Northern Harrier: 10 Mar (5) Phipps Bend, HKC (DH), max; 20 Apr (1) WGC (LHTOS), 1rs. Cooper's Hawk: "on nest" BYC (KHD, JDR). Red-shouldered Hawk: "on nest" BYC, HLC, MEC & McMinn Co (KHD, JDR). Broad-winged Hawk: 27 Mar (1) WGC

(James Brooks), ers. Golden Eagle: 6 & 14 May (1 ad) along I-81, SLC (BLC), unusually late. Merlin: 14 Apr (1) AMM (RJH). Peregrine Falcon: 15 Mar (1) SAB (KHD, LHD). Northern Bobwhite: KNX Spring Count recorded second lowest number (29) in 38 years (fide RDH).

*Rail - Phalarope*: Sora: 12 Mar-3 May (1-4) AMM (WGH et al.); 26 Mar/19-23 Apr/5 May (1) AUS (RLK). Common Moorhen: 8 May (1) BLV (BGM). American Coot: 23 Mar (450) CHL (KHD, LHD), max. Sandhill Crane: see last report; 13 May (1) Long Is., Watts Bar Lake, RNC (fide Ed Collier), 1rs. Black-bellied Plover: 20 Mar (19) AMM (PCH), early date & large number. Lesser Golden-Plover: 21 Mar (2) SAB (LHD). American Avocet: 10 Apr (15-20 flying over water) SAB (KHD, LHD). Greater Yellowlegs: 24 Mar (1) SAB (C. Del Blum), ers. Lesser Yellowlegs: 16 Mar (1) BLV (fide KHD), ers; 26 May (1) LST (Linda Northrop et al.), 1rs. Solitary Sandpiper: 31 Mar (1) AUS (RLK), ers; 18 May (1) BLV (BGM), 1rs. Willet: 29 Apr (1) AUS (RLK). Spotted Sandpiper: 13 Apr (1) CHA (WGH), ers. Upland Sandpiper: 13 Apr - 4 May (1-4) AMM (WGH et al.), rare in region in recent years. Least Sandpiper: 28 Mar (1) AUS (RLK), ers away from CHA area wintering sites. Pectoral Sandpiper: 16 Mar (2) AUS (LHTOS), ers; 22 Mar (100) SAB (LHD), max. Dunlin: 2 Mar (10) SAB (KHD, LHD) 1rs at wintering site. Common Snipe: 2 Mar (87) SAB (KHD, LHD), max; 8 May (1) AUS (RLK), 1rs. American Woodcock: 23 Mar (nest w/4 eggs) Leesburg, WGC (Andy Ammann et al.); 7 Apr (ad w/3 yg) Morgan Springs, RHC (John H. Shaver, Jr.). RED-NECKED PHALAROPE: 26-27 May (2-4) LST (Linda Northrop et al.), 4th JNC area record.

*Gull - Woodpecker*: Laughing Gull: 29 Apr (1) AUS (RLK), 4th JNC-Elizabethton area record; 4 May (1) NIL (RJH). Caspian Tern: 1 Apr (1) CHL (WGH); 13/15 Apr (2/4) NIL (LHD/FJA); 10 Apr (2) Patrick Henry Lake, SLC (Marty Silvers). Common Tern: 4 May (2) NIL (RJH). Forster's Tern: 6/15 Apr (3/1) NIL (KHD/FJA). 19/29 Apr (15/2) AUS (RLK); 4 May (3) NIL (RJH). Black-billed Cuckoo: 5 May (1) KNX Spring Count (Paul Pardue); 12 May (2) Hancock Co. (RDH, ARH); only reports. Barn Owl: 10 Apr (nest w/3 yg in chimney of old house) Morristown, Hamblen Co. (fide RDH); 30 Apr (1) near LaFollette, Campbell Co. (George W. McKinney); 1 May (nest w/5 yg in silo) Burem, HKC (RLK). 2 May (1) Talbott, Hamblen Co. (RLK); 2 May (fresh pellets and feathers in silo) near SAB (KHD, LHD); 11 May (1) Jonesborough, WGC (RLK). Short-eared Owl: 10 Mar-8 Apr (1) Philipps Bend, HKC (DH et al.). Chimney Swift: 1 Mar (10) CHA (WGH), new early arrival date for state. Ruby-throated Hummingbird: 5 Apr (1) HLC (JSL), ers. Red-headed Woodpecker: one site each in KNC, JEC & MOC (fide RDH); at 5 sites in WGC (RLK).

*Kingbird - Vireo*: Eastern Kingbird: 13 Mar (1) Baileyton, GNC (BLC), 2nd earliest record in state. Horned Lark: 12 Mar (4) Tri-Cities Airport, SLC (RLK); 4 Apr (1) U.T. Plant Science Farm, KNC (ARH); 26 Apr (2 ad w/2 yg) Kingston Steam Plant, RNC (RLK, JWC). Tree Swallow: 20 Mar (1/2) CHA/AUS (WGH/RLK), ers; 6 Apr ("several defending tree cavities") Douglas Lake, JEC (RDH, ARH et al.); 4 May (pair nesting in bluebird box) Fort Loudoun Lake, Loudon County. (Robert Ledbetter); 11 May (pair nesting in bluebird box) White Pine, JEC (Jon A. Koella); "several reports of nesting in bluebird boxes in KNC and surrounding area" (fide RDH, J.B. Owen); pair nesting in bluebird box at AUS (RLK). Bank Swallow: 11 May (500 nest holes) New Market, JEC (RDH), an additional site to one reported last year, both in zinc mine tailings. Red-breasted Nuthatch: 6/10 Mar (1 each at 2 sites) CHA (WGH/

BGM), only reports. Sedge Wren: 4 May (1) AMM (RJH). Marsh Wren: 28 Apr-7 May (1) CHA (WGH); 5 May (1) AUS (RLK). Ruby-crowned Kinglet: 8 May (1) JNC (RLK), 1rs. American Pipit: 13 Mar (24) Boone Lake, SLC & WGC (RLK). Loggerhead Shrike: 9 Mar (3) GNC (JBH, Dan Nieves); 2 reports in KNC (RDH, ARH); 8-10 reports in WGC & SLC (LHTOS). White-eyed Vireo: 2 Apr (1) CHA (WGH), ers. Yellow-throated Vireo: 6 Apr (1) SAB (KHD, LHD), ers. Warbling Vireo: 20-23 Apr (1) KNC (ARH); 24 Apr (1) Kingsport, SLC (Stan Strickland); 5 May into Jun (1) LST (RLK).

*Warbler - Grosbeak:* Orange-crowned Warbler: 21 Apr (1) CHA (WGH); 27 Apr (1) WGC (DH); 7 May (1) BYC (C. Richard Hughes). Black-and-white Warbler: 23 Mar (1) HLC (JSL), ers. Prothonotary Warbler: 17 Apr (1) DCL (JBH), ers. Swainson's Warbler: 29 Apr-11 May (1) Baylor School, HLC (RJH et al.); 5 May (1) KNX Spring Count (Beth Lacy); both unusual. Connecticut Warbler: 5 May (1) JNC (RLK); 14 May (1) CHA (WGH). Hooded Warbler: 23 Mar (1) HLC (JSL), ers. Scarlet Tanager: 6 May (40) Tennessee River Gorge, Marion Co. (PCH), max. Dickcissel: 5 May (1) KNX Spring Count (CPN); 13 May into Jul (1) LST (BLC, DH). Vesper Sparrow: 16/31 Mar (1) AUS (LHTOS/RLK); 17 Mar/Apr 9-10 Apr (2/4) BLV (C. Del Blum/BGM). Grasshopper Sparrow: 9 Apr (2) BLV (BGM), ers. Fox Sparrow: 23 Mar (6) Cross Mountain, Campbell Co. (RDH, ARH, Boyd Sharp), max: 31 Mar (1) CHA (WGH), 1rs. Lincoln's Sparrow: 13 Mar (1) Piney Flats, SLC (RLK), first Mar record in JNC area; was this a wintering bird or an early migrant? Bobolink: 19 Apr-11 May (1-15) AMM (WGH et al.); 2 May (50) Kingston Steam Plant, RNC (ARH, Carol Coleman). Purple Finch: sporadic, low numbers (m.ob). Pine Siskin: scattered, low numbers; 10 May (5) CHA (Tommie L. Rogers), 1rs. Evening Grosbeak: 22 Apr (24) GNC (JBH et al.); 30 Apr (6) HLC (Gertrude Fleming), 1rs.

*Locations:* AMM - Amnicola Marsh, Hamilton Co.; AUS - Austin Springs, Washington Co.; BLV - Brainerd Levee, Hamilton Co.; BYC - Bradley Co.; CHA - Chattanooga; CHL - Chickamauga Lake, Hamilton Co. portion; DCL - Davy Crockett Lake, Greene Co.; GNC - Greene Co.; HKC - Hawkins Co.; HLC - Hamilton Co.; HRA - Hiwassee River Area, primarily Meigs Co., but also Bradley, McMinn & Rhea Cos.; JEC - Jefferson Co.; JNC - Johnson City; KNC - Knox Co.; KNX - Knoxville; LST - Limestone, Washington Co.; MEC - Meigs Co.; MOC - Monroe Co.; NIL - Nickajack Lake, Marion Co.; RHC - Rhea Co.; RNC - Roane Co.; SAB - Savannah Bay, Hamilton Co.; SLC - Sullivan Co.; WGC - Washington Co.

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EASTERN MOUNTAIN REGION - Precipitation for the period was from normal to slightly below normal. Warmer temperatures of the mild winter persisted through the early spring. This resulted in some notable early arrivals. Most passerines arrived at unusual dates, however.

*Loon - tern:* Common Loon: 9 Apr (14) WTL (RLK); 4 Apr (45) TEL (RDH, ARH), max.; 10 May (1) WTL (BLC), 1rs. Great Egret: 24 Apr (1) WTR (CFW). Yellow-crowned Night-Heron: 20 Mar (2) Hunter Swamp, ELI (GOW), ers; one nesting pair in Hunter Swamp, ELI, and one at Sycamore Shoals State Park, (RLK/FJA). Gadwall: 31 Mar-13 May (1) Erwin, UNC (RPL, GWS, RLK). American Wigeon: 21 Mar (20) WTL (RLK), max. Ring-necked Duck: 21 Mar (114) WTL (RLK), max. Lesser

Scaup: 21 Mar (10) WTL (RLK), max. Hooded Merganser: 6 Apr (3) WTR (CFW), 1rs. Red-breasted Merganser: 9 Apr (23) WTL (RLK), max.; 13 Apr (2m, 7f) TEL (ROH, ARH). Bald Eagle: 13 Apr (1 im) TEL (ROH, ARH, Steve and Rebecca Satterfield). Osprey: 9 Apr (1) WTL (RLK), ers. 16 Apr (1) Ripshin Lake, (RLK). Merlin: 16 Apr (1) RNM (RLK). Peregrine Falcon: 3 May (1) Greenbrier Pinnacle, GSMNP (RLK). Greater Yellowlegs: 24 Apr (2) WTR (CFW), max.; 5 May (1) RNM at 3600' elev. (DH). Least Sandpiper: 29 Apr (1) Siam Valley, CAR (CFW), max. Common Snipe: 24 Mar (17) WTR (CFW), max. Bonaparte's Gull: 9 Apr (1) WTL (RLK). Caspian Tern: 11 May (1) SHL (BLC). Tern sp. (Common or Forester's): 13 Apr (1) TEL (RH, AH).

*Cuckoo - waxing*: Black-billed Cuckoo: 5 May (1) UNC (BLC, GWS et al.), only report. Northern Saw-whet Owl: 24 Mar, 3-7 Apr (1-2) RNM (James Brooks, RLK et al.). Chuck-wills-widow: 7 Apr (1) MIL (FJA), ers. Whip-or-will: 14 Apr (1) WTL (Glen D. Eller), ers. Ruby-throated Hummingbird: 6 Apr (1) MIL (FJA), ers. Red-headed Woodpecker: 23 May (pair copulating) TEL (Paul Pardue). Olive-sided Flycatcher: 5 May (1) Holston Mt., CAR (GOW, RDL et al.). Alder Flycatcher: 11 May (1) RNM (Jerry Nagel), early record by 3 days. Bank Swallow: 21 Apr (2) WIL (FJA). Common Raven: 1 Apr (1) MIL (Red Mayfield); 9 Apr (1) Doe River Gorge, CAR (RLK); 16 Apr-EOP (1-2) BUF (Jerry Nagel); 14 May (2) Big Bald Mtr., UNC (Red Mayfield, RLK); 18 May (2) Rocky Fork, UNC (RLK). Red-breasted Nuthatch: scarce on RNM. Brown Creeper: 16 Apr (2 singing) RNM (RLK). Cedar Waxwing: scarce Mar & Apr, common in May.

*Vireo - grosbeak*: Philadelphia Vireo: 5 May (1) Holston Mt., CAR (GOW, RDL et al.); 7 May (1) SHL (BLC). Red-eyed Vireo: 31 Mar (4) BUF (Tom McNeil), ten days record early. Pine Warbler: 4 Mar (1) CAR (Martha Dillenbeck), ers. Worm-eating Warbler: 14 May (nest w/6 eggs) Frozen Knob, UNC (RM, RLK). Swainson's Warbler: 5/9/25 May (1/1/1) BUF (RLK/DH/RPL), separate sites. Wilson's Warbler: 5 May (1) UNC (BLC, GWS et al.), only report. Vesper Sparrow: 16 Apr (2 singing) Round Bald, RNM (RLK). Red Crossbill: 3 May (2) Greenbrier Pinnacle, GSMNP (RLK). Pine Siskin: 14 May (1) Big Bald Mt., UNC (RLK), 1rs, very few reports. Evening Grosbeak: til late Mar (20-30) Simmerly Cr., CAR (Tom McNeil); 3 Apr (12) RNM (RLK); until 5 May (2) Shady Valley, Johnson Co. (John Shumate).

*Locations*: BUF - Buffalo Mt., Washington Co.; CRC - Carter Co.; ELI - Elizabethton; GSMNP - Great Smoky Mt. National Park; MIL - Milligan College, Carter Co.; RNM - Roan Mountain Carter Co.; SHL - South Holston Lake area, Sullivan Co.; TEL - Tellico Lake, Monroe Co.; UNC - Unicoi Co.; WTL - Watauga Lake, Carter Co.; WTR - Watauga River, Carter Co.

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## OBSERVERS:

- FJA - Fred J. Alsop  
 DPB - Dianne P. Bean  
 GBB - Gil B. Beaver  
 CHB - Carolyn H. Bullock  
 BEB - Barbara E. Bullock  
 JBC - Joyce B. Champion  
 LBC - Larry B. Champion  
 WGC - William G. Chriswell  
 BBC - Ben B. Coffey, Jr.  
 JWC - J. Wallace Coffey  
 ECC - E. Camille Crenshaw  
 BLC - Brian L. Cross  
 DLD - Don L. Davidson  
 HBD - Helen B. Dinkelspiel  
 KHD - Ken H. Dubke  
 LHD - Lillian H. Dubke  
 RPF - Robert P. Ford  
 TAF - Tim A. Furr  
 WBF - William B. Fowler  
 MLG - Murray L. Gardler  
 MAG - Mark A. Greene  
 JBH - James B. Holt  
 PCH - Paul C. Hamel  
 WGH - William G. Haley, Jr.  
 AHH - Annie H. Heilman  
 RDH - Ron D. Hoff  
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