

# Annual Wild Turkey Status Report 2021



Roger Shields  
Wild Turkey Management Program Coordinator  
Wildlife and Forestry Division

TWRA Wildlife Technical Report 21-13, November 2021



Equal opportunity to participate in and benefit from programs of the Tennessee Wildlife Resources Agency is available to all persons without regard to their race, color, national origin, sex, age, disability, or military service. TWRA is also an equal opportunity/equal access employer. Questions should be directed to TWRA, Human Resources Office, 5107 Edmondson Pike, Nashville, TN 37211, (615) 781-6594 (TDD 781-6691), or to the U.S. Fish and Wildlife Service, Office for Human Resources, 4401 N. Fairfax Dr., Arlington, VA 22203.

# Annual Wild Turkey Status Report 2021

**TENNESSEE WILDLIFE RESOURCES AGENCY**

Roger Shields, Wild Turkey Management Program Coordinator

TWRA Wildlife Technical Report 21-13

# Table of Contents

- List of Tables ..... iii
- List of Figures ..... iii
- Spring Turkey Season ..... 1
  - Reported Harvest ..... 1
  - Hunter Harvest Survey ..... 3
    - Results* ..... 4
- Fall Turkey Season ..... 7
- Statewide Summer Wild Turkey Survey ..... 10
  - Results ..... 10
- Appendix A ..... 17

## List of Tables

Table 1. Total reported spring turkey harvest by county (inclusive of WMA harvests), 2021.....	2
Table 2. Estimated numbers of hunters and days afield for spring turkey seasons, 2020-2021 .....	4
Table 3. Estimated numbers of adult spring turkey hunters, harvest by adult hunters, and harvest metrics by TWRA administrative region, 2021 .....	5
Table 4. Reported fall turkey harvest by county (inclusive of WMA harvests), 2021 .....	8
Table 5. Fall turkey harvest by WMA, 2021 .....	9
Table 6. Number of Summer Wild Turkey Survey observations by county, 2021.....	11
Table 7. Summary of reproductive data from the Summer Wild Turkey Survey, 2021 .....	13
Table 8. Historical statewide Summer Wild Turkey Survey data, 1983-2021 .....	14
Table 9. Statewide average brood size by age class, 2003-2021 .....	15

## List of Figures

Figure 1. Total reported harvest during spring turkey season, 2007-2021 .....	1
Figure 2. Total reported spring turkey harvest by TWRA administrative region, 2020 and 2021 .....	3
Figure 3. Reported satisfaction of spring turkey hunters with their spring 2021 hunting experience .....	6
Figure 4. Perceptions of Tennessee turkey hunters regarding how turkey populations in the areas they hunt have changed over time .....	6
Figure 5. Proportion of juvenile males in the fall gobbler harvest by TWRA administrative region, 2021 .....	9
Figure 6. Observations of wild turkeys by county during the Summer Wild Turkey Survey, 2021.....	12
Figure 7. Overall productivity and brood size by TWRA administrative region estimated from the Summer Wild Turkey Survey, 2021 .....	13
Figure 8. Statewide productivity estimates (poults per hen ratios) obtained from Summer Wild Turkey Survey data during the month of August, 1983-2021.....	15
Figure 9. Statewide wild turkey nests initiated per week, 2021 .....	16

# Spring Turkey Season

## Reported Harvest

Traditionally, turkey harvest has been monitored by the Tennessee Wildlife Resources Agency (TWRA) through mandatory hunter reporting, or checking, of harvested game. Starting in about 2010, physical check stations largely have been replaced by reporting options using the internet (GoOutdoorsTN.com) and smart-phone mobile applications (the “TWRA On the Go” app). Beginning spring of 2020, big-game hunters in Tennessee are required to tag their harvest before moving it (“Tag Before You Drag”) and then report it as previously required (i.e., by the end of the calendar day of harvest and before transferring the animal to another person or leaving the state). Checking a bird in the field at the time of harvest using the mobile app meets both the tagging and reporting requirement and nothing more is required of the hunter.

Beginning spring of 2021, several regulation changes took effect for the spring turkey season. The statewide season bag limit was reduced from four bearded turkeys to three, and “bonus” birds were eliminated. Additionally, in light of steep harvest declines occurring in several counties adjacent to the Mississippi River (Dyer, Lake, Lauderdale, Shelby and Tipton counties) and in southern middle Tennessee (Giles, Lawrence, Lincoln and Wayne counties), the Commission adjusted hunting regulations designed to improve turkey population numbers in these counties. The spring turkey season in these counties opens two weeks later (April 17th for 2021) and is two weeks shorter, ending with the statewide season closure. This delayed start to the hunting season is based on an average median date of nest initiation of April 15th and allows time for most breeding to occur without disturbance from hunters and before any gobblers are removed by harvest. In addition to the spring season delay, the bag limit for the counties along the Mississippi River (collectively referred to as the Mississippi Alluvial Valley, or MAV, Unit) was reduced to two birds for the unit collectively, and these birds count toward the statewide bag limit. This further bag limit reduction was taken in response to extensive and prolonged flooding of the Mississippi River over the past several years that is believed to have greatly impacted adult survival.

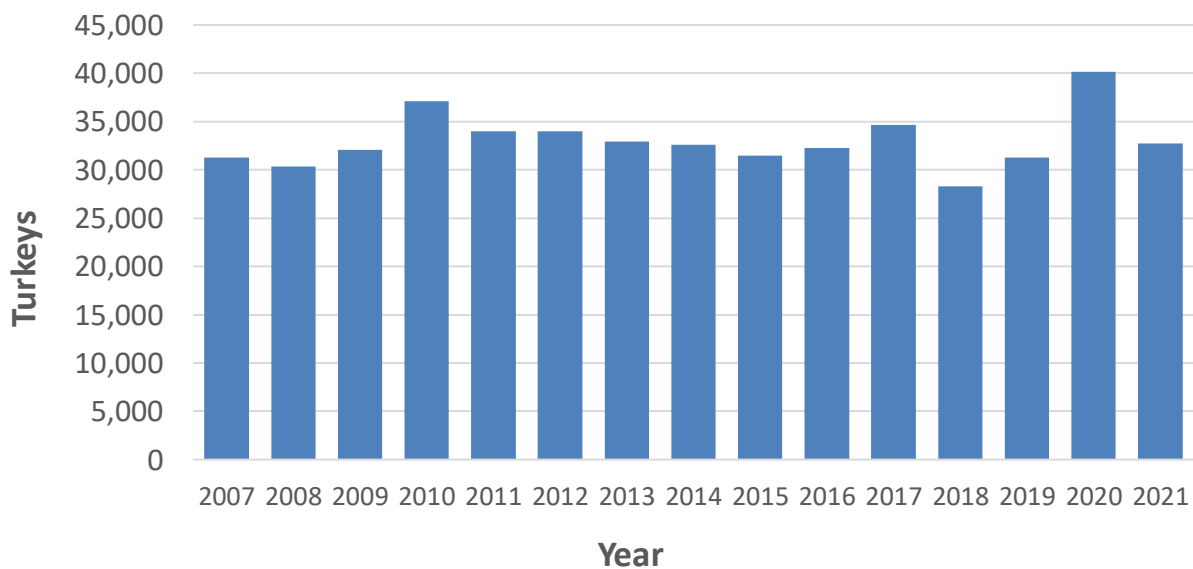


Figure 1. Total reported harvest during spring turkey season, 2007-2021.

Table 1. Total reported spring turkey harvest by county (inclusive of WMA harvests), 2021.

County	Region	Total Harvest
Anderson	4	156
Bedford	2	516
Benton	1	341
Bledsoe	3	254
Blount	4	293
Bradley	3	234
Campbell	4	322
Cannon	2	236
Carroll	1	447
Carter	4	223
Cheatham	2	463
Chester	1	164
Claiborne	4	349
Clay	3	240
Cocke	4	367
Coffee	2	304
Crockett	1	67
Cumberland	3	372
Davidson	2	318
Decatur	1	230
Dekalb	3	293
Dickson	2	883
Dyer	1	140
Fayette	1	356
Fentress	3	184
Franklin	2	290
Gibson	1	492
Giles	2	539
Grainger	4	327
Greene	4	870
Grundy	3	193
Hamblen	4	138
Hamilton	3	251
Hancock	4	154
Hardeman	1	414
Hardin	1	559
Hawkins	4	546
Haywood	1	174
Henderson	1	353
Henry	1	543
Hickman	2	522
Houston	1	345
Humphreys	1	483
Jackson	3	293
Jefferson	4	354
Johnson	4	208
Knox	4	360
Lake	1	31

County	Region	Total Harvest
Lauderdale	1	127
Lawrence	2	232
Lewis	2	200
Lincoln	2	404
Loudon	4	210
Macon	2	363
Madison	1	307
Marion	3	333
Marshall	2	667
Maury	2	1,228
McMinn	3	362
McNairy	1	394
Meigs	3	248
Monroe	3	318
Montgomery	2	768
Moore	2	128
Morgan	3	185
Obion	1	275
Overton	3	392
Perry	1	193
Pickett	3	164
Polk	3	133
Putnam	3	262
Rhea	3	289
Roane	3	280
Robertson	2	615
Rutherford	2	701
Scott	4	223
Sequatchie	3	182
Sevier	4	275
Shelby	1	100
Smith	2	364
Stewart	1	473
Sullivan	4	439
Sumner	2	628
Tipton	1	94
Trousdale	2	165
Unicoi	4	92
Union	4	237
Van Buren	3	230
Warren	3	297
Washington	4	375
Wayne	2	382
Weakley	1	535
White	3	412
Williamson	2	556
Wilson	2	675
<b>Grand total</b>		<b>32,703</b>

Based on reported harvest, the 2021 spring harvest of 32,703 was 19% lower than the 2020 record harvest, but on par with the 5-year average (down 1.9%, Figure 1). Harvest during the 2021 two-day Young Sportsman hunt (1,405) was 25% lower than 2020 but was still up 11% compared to the recent five-year average harvest of 1,271. Harvest on public lands and WMA where harvest is tracked separately was 2,417, a decrease of only 4% from last year, and 23% greater than the previous 5-year average. The top five counties in the state for reported harvest were Maury, Dickson, Greene, Montgomery, and Rutherford counties (Table 1).

Region 2 continued to have the highest reported harvest, followed distantly by Region 1 (Figure 2). Specific to the two areas of the state with special regulations, total reported harvest was down 15% from the 5-year average for these counties; however, the season was 14 days shorter by comparison. When harvest through just the first 32 days of hunting (equivalent to the shortened season) are compared, harvest in 2021 was only down 4% from the 5-year average.

Despite the change in bag limits this spring, the breakdown of the number of birds per hunter during the 2021 spring season changed little from previous years, basically shifting percentages up slightly (1% - 3%) in each category: 65% of successful hunters harvested one bird; 24% bagged 2 birds; and 11% of successful hunters took home 3 birds. Of harvested gobblers, 90% were adult males and 10% were jakes based on self-reported harvest figures.

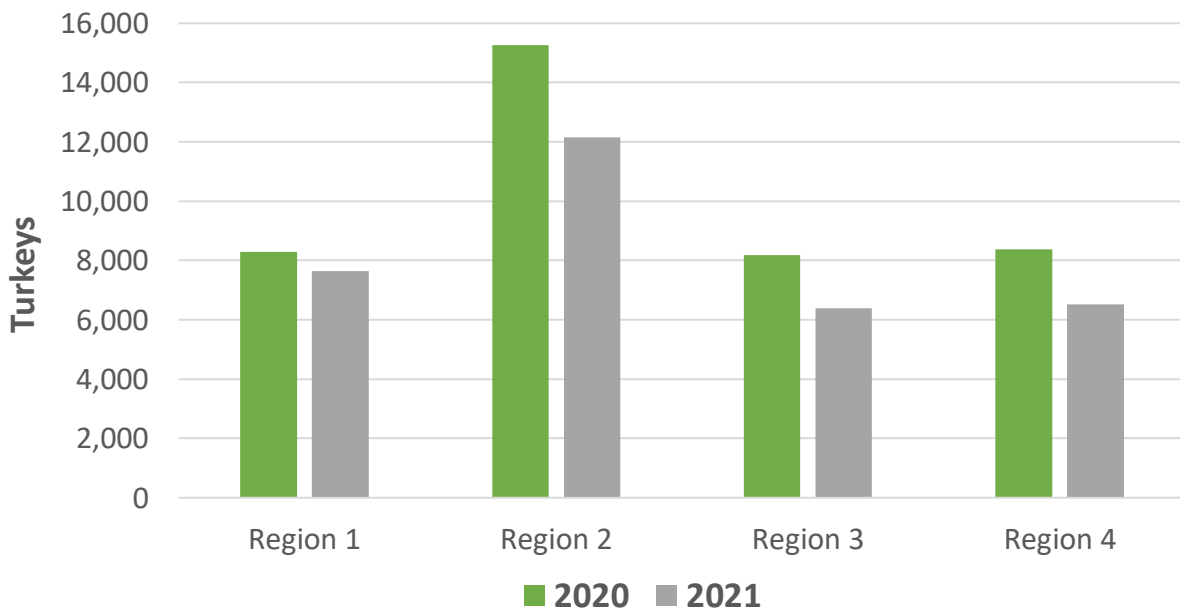


Figure 2. Total reported spring turkey harvest by TWRA administrative region, 2020 and 2021.

### Hunter Harvest Survey

Beginning with the 2020 spring turkey season, TWRA has contracted with the University of Tennessee to conduct an annual harvest survey of wild turkey hunters. The primary objective of this turkey hunter survey is to estimate hunter numbers, hunting effort, and harvest success at the statewide level as well as by TWRA administrative region. Another objective is to understand hunter satisfaction and their



opinions regarding various topics related to wild turkeys. One of the strengths of this survey is it uses standardized survey protocols and a statistically valid sample representative of the hunter population that allows results to be estimated with confidence intervals. So, even though estimates generated from the survey may differ markedly from reported harvest numbers, one can assess the level of confidence associated with these estimates. Further, the survey guarantees respondent anonymity, which bolsters honest reporting. This additional, statistically valid information on hunting effort and success provides for better monitoring of the turkey population and harvest trends over time than simply harvest numbers alone.

The sampling frame used for this survey consisted of individuals  $\geq 18$  years of age who had a valid license to hunt turkeys in Tennessee during the spring turkey season. We also included individuals who reported harvesting a turkey during the season to account for landowners who hunted their own property and were therefore exempt from license requirements. We used a stratified random sampling approach to ensure all license types were represented and we assigned participants to one of six strata (Annual, Disability, Lifetime, Non-resident, Permanent Senior, and Reported Harvest) based on expected differences in response rate and a general similarity in license types. To collect data on turkeys harvested by youth during the turkey season, we asked the adult survey participants a series of questions regarding turkey harvest by youth they guided or mentored.

We used a mixed-mode approach to survey resident and non-resident spring turkey hunters in Tennessee. Individuals who had an email address on file were first invited to complete an online version of the survey. Three reminder emails were sent over a 2-week period. We then sent a hard copy of the survey with a business reply envelope to those who did not respond to the email invitation and those who did not have an email address on file. After a week, a final survey packet was mailed to participants. For additional details on survey methodology and analysis, as well as complete survey results, please refer to the full survey technical report available online at: <https://www.tn.gov/content/tn/twra/hunting/big-game/turkey.html>.

### Results

During the spring 2021 turkey season, an estimated  $91,247 \pm 8,384$  hunters ( $67,091 \pm 3,408$  adults and  $24,156 \pm 4,976$  youth) statewide participated in turkey hunting and spent  $682,302 \pm 39,457$  days afield. This was a slight increase in hunters over spring 2020, but a decrease in time spent afield (Table 2), although neither difference was significant. Adult and youth hunters combined harvested an estimated 53,669 turkeys ( $47,895 \pm 4,837$  adult gobblers,  $5,153 \pm 1,682$  jakes, and  $621 \pm 394$  bearded hens). The statewide harvest rate (the number of birds harvested per day of hunting) averaged  $0.14 \pm 0.01$  for adult hunters and  $0.20 \pm 0.05$  birds per day for youth hunters. This was a significant improvement over 2020 rates ( $0.12 \pm 0.01$  and  $0.18 \pm 0.03$ , respectively) for adult hunters, but not for youth hunters. Overall, for license holders, 57% of adult hunters and 46% of youth hunters harvested at least one turkey during the 2020 spring turkey season. An additional estimated  $7,214 \pm 1,662$  turkeys were shot but not killed or recovered by hunters during the 2021 spring turkey hunting season.

Table 2. Estimated numbers of hunters and days afield for spring turkey seasons, 2020-2021.

	Total Hunters	95% CL	Total Days	95% CL
Spring 2020	90,015	5,659	728,558	47,737
Spring 2021	91,247	8,384	682,302	39,457

Most Tennessee hunters pursued turkeys to some degree on private land. From survey responses regarding where people hunt, an estimated 48,165 adults hunted only private land with another estimated 10,414 hunting both private and public land, whereas only 5,659 adult hunters exclusively hunted public land. Adult hunters who hunted both public and private land spent  $15.5 \pm 1.37$  days afield on average, significantly greater than the  $8.39 \pm 0.49$  and  $7.74 \pm 1.05$  days spent by hunters on exclusively private and public lands, respectively. Harvest rate also differed significantly by land type. The harvest rate for private land-only hunters was  $0.16 \pm 0.01$ , whereas harvest rate was  $0.08 \pm 0.01$  and  $0.05 \pm 0.01$  for those who hunted on both public and private land and on only public land, respectively.

Regional differences occurred in harvest results. More adults hunted in Region 2 than any other region, and significantly more birds were harvested by adult hunters in Region 2 than in any other region (Table 3). Likewise, the estimated harvest rate was greatest in Region 2 ( $0.15 \pm 0.02$  birds/day) and differed significantly from that of Region 1, which had the lowest rate ( $0.11 \pm 0.01$ ; Table 3). Interestingly, the percentage of the gobbler harvest comprised of juvenile birds increased from west to east (Table 3).

Table 3. Estimated numbers of adult spring turkey hunters, harvest by adult hunters, and harvest metrics by TWRA administrative region, 2021.

	Adult Hunters	95% CL	Total Harvest	95% CL	Harvest Rate	95% CL	% Jakes
Region 1	16,287	1,923	10,684	1,397	0.11	0.01	5.35
Region 2	22,821	2,091	15,217	1,880	0.15	0.02	7.06
Region 3	15,566	1,835	9,724	1,252	0.12	0.02	8.37
Region 4	13,738	1,686	10,070	1,178	0.14	0.02	12.70

Most Tennessee hunters reported being satisfied with their hunting experience in 2021. Overall, 59% of the statewide respondents were somewhat or very satisfied with their spring turkey hunting experience. Another 13% of respondents indicated being neither dissatisfied nor satisfied and just over a quarter (28%) of respondents reported being dissatisfied or very dissatisfied with their turkey hunting experience this year (Figure 3). Satisfaction levels differed very little by administrative region, but a greater proportion of hunters in regions 2 and 3 reported being very satisfied compared to hunters in regions 1 and 4 (Figure 3).

From the 2021 survey, we obtained information on hunter opinions about turkey populations in the areas they hunt. Over half (60%) of the respondents perceived the turkey population in areas they hunt to have decreased over the years, whereas 16% feel populations have increased (Figure 4). A relatively greater proportion of hunters in Regions 1 and 4 reported declines in turkey populations compared to hunters in Regions 2 and 3 (Figure 4). When asked, hunters who reported observing declining populations in the areas they hunt overwhelmingly (70%) believed predation on nests and poults to be the primary reason for observed declines. Only a third or fewer of hunters believed other potential causes (e.g., predation on adults, loss of habitat, bad weather during nesting season, hunting pressure) were related to declining populations.

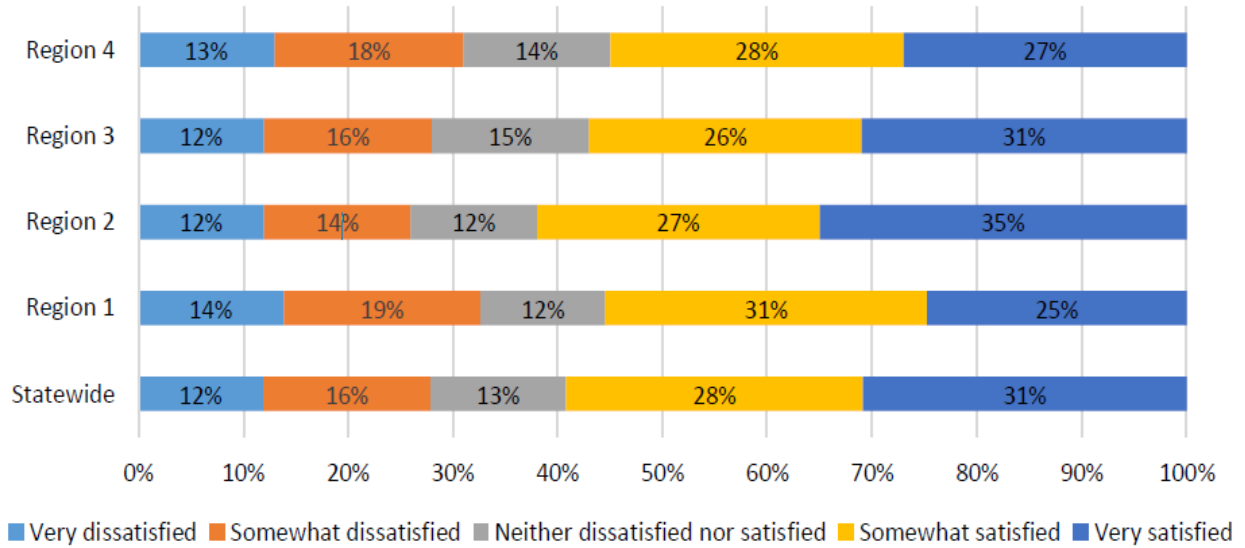


Figure 3. Reported satisfaction of spring turkey hunters with their spring 2021 hunting experience.

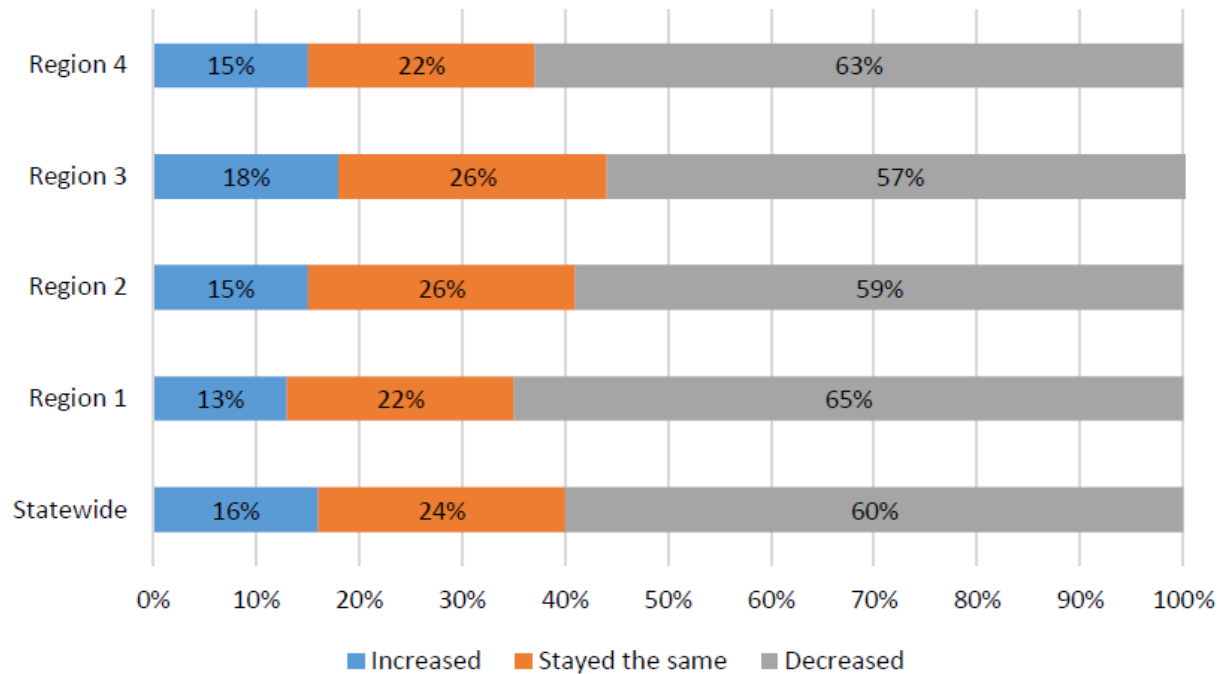


Figure 4. Perceptions of Tennessee turkey hunters regarding how turkey populations in the areas they hunt have changed over time.

## Fall Turkey Season

In 2018, the Tennessee Fish and Wildlife Commission eliminated either-sex fall hunting in favor of bearded turkeys only during the fall beginning with the 2018 season. Consequently, subsequent fall harvest numbers are not readily comparable to earlier harvests. The total reported 2021 fall season harvest was 226 birds, down 37% from the 2020 fall season harvest of 356 birds and the lowest harvest since the new fall regulations took effect in 2018. Greene, Washington, Wilson, Hawkins, and Sullivan counties were the top five counties in the state for fall 2021 (Table 4). Harvest in the fall on WMAs was negligible, with just four birds reported harvested on four WMAs (Table 5).

Juvenile males (i.e., “jakes”) accounted for roughly 15% of the statewide fall gobbler harvest in 2021. Jakes comprised the highest proportion of the harvest in Region 4, representing 20% of the gobbler harvest (Figure 5). Bearded females represented about 8% (18 birds) of the fall harvest in 2021. Clearly, regulatory efforts to protect the female segment of the turkey population from harvest are succeeding. Even though the bag limit during the fall is one bearded turkey per county, only five hunters reported harvesting more than a single bird during the fall season.

Table 4. Reported fall turkey harvest by county (inclusive of WMA harvests), 2021. (Note, counties with no value for harvest were closed during the fall season.)

County	Region	Total Harvest
Anderson	4	2
Bedford	2	5
Benton	1	2
Bledsoe	3	.
Blount	4	5
Bradley	3	.
Campbell	4	0
Cannon	2	1
Carroll	1	5
Carter	4	6
Cheatham	2	5
Chester	1	0
Claiborne	4	4
Clay	3	0
Cocke	4	5
Coffee	2	0
Crockett	1	.
Cumberland	3	1
Davidson	2	3
Decatur	1	1
Dekalb	3	1
Dickson	2	2
Dyer	1	.
Fayette	1	1
Fentress	3	1
Franklin	2	0
Gibson	1	2
Giles	2	.
Grainger	4	2
Greene	4	14
Grundy	3	1
Hamblen	4	1
Hamilton	3	4
Hancock	4	0
Hardeman	1	2
Hardin	1	0
Hawkins	4	8
Haywood	1	.
Henderson	1	2
Henry	1	6
Hickman	2	1
Houston	1	0
Humphreys	1	0
Jackson	3	3
Jefferson	4	4
Johnson	4	2
Knox	4	6
Lake	1	.

County	Region	Total Harvest
Lauderdale	1	.
Lawrence	2	.
Lewis	2	2
Lincoln	2	.
Loudon	4	1
Macon	2	1
Madison	1	4
Marion	3	1
Marshall	2	3
Mauzy	2	5
McMinn	3	.
McNairy	1	4
Meigs	3	2
Monroe	3	.
Montgomery	2	4
Moore	2	0
Morgan	3	2
Obion	1	1
Overton	3	1
Perry	1	1
Pickett	3	0
Polk	3	.
Putnam	3	1
Rhea	3	3
Roane	3	3
Robertson	2	5
Rutherford	2	6
Scott	4	0
Sequatchie	3	1
Sevier	4	5
Shelby	1	.
Smith	2	2
Stewart	1	3
Sullivan	4	8
Sumner	2	7
Tipton	1	.
Trousdale	2	4
Unicoi	4	.
Union	4	1
Van Buren	3	3
Warren	3	2
Washington	4	9
Wayne	2	.
Weakley	1	4
White	3	4
Williamson	2	6
Wilson	2	9
<b>Grand total</b>		<b>226</b>

Table 5. Fall turkey harvest by WMA, 2020.

WMA	Region	2020 Harvest
Haley-Jaqueth WMA	2	1
Hiwassee Wildlife Refuge	3	1
Lick Creek Bottoms WMA	4	1
Tennessee NWR	1	1
<b>Grand total</b>		<b>4</b>

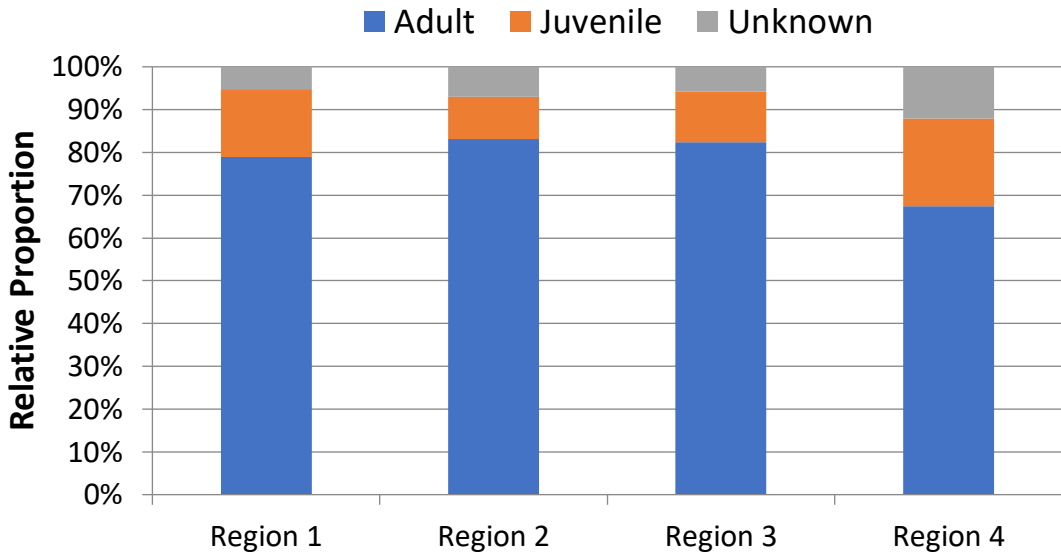


Figure 5. Proportion of juvenile males in the fall gobbler harvest by TWRA administrative region, 2021.

# Statewide Summer Wild Turkey Survey

Each year TWRA maintains records of sightings of wild turkeys to provide supplemental data on population trends. These sightings provide us estimates for monitoring trends in nesting success, trends in brood survival, trends in annual productivity, peak hatching dates on turkey brood range, and carry-over of males from the spring hunting season.

During the summer survey, agency staff and other natural resource professionals record observations of wild turkeys made incidental to regular field activities from June through the end of August. Observations are recorded on the “Wild Turkey Survey Report” form (Appendix A) or with a mobile device using a Survey123 electronic survey form. The observer records the date and county of the observation, the number of adult individuals by sex, the number and age class of poults, and whether the observation was made on private or public lands as indicated on the “Wild Turkey Survey Report” form. Accurate counts are important; if more than one hen is present with a group of poults, the observer ascertains if there is more than one age group present. The observer also notes if vegetation inhibited an accurate poult count and whether they had likely seen this group of turkeys before.

The main purpose of the summer survey is to obtain wild turkey production and population data which can be compared with previous year’s data in evaluation of population trends. Data is collected from June to August, but historically only August data has been used to obtain most of the estimates, including an overall poult to hen ratio estimate. The reasoning behind this is based on the fact that if a poult makes it into the month of August, survival odds are much greater.

Metrics estimated from data collected during the survey provide indices of productivity and population status. The percentage of hens observed with poults is an estimate of annual nesting success. The number of poults accompanying hens observed with poults (or poults per brood) is an indication of poult survival, as is brood attrition by age-class. The poults per hen ratio is a measure of overall productivity. Back-dating based on age class of poults observed generates an estimated nest chronology and an indication of when peak nesting for the year occurred. Lastly, the ratio of gobblers to hens provides an estimate of gobbler carry-over from the spring hunting season. Large harvests in the spring will typically lead to lower numbers of gobblers observed in the summer relative to hens. In broad terms, estimates  $<0.50$  gobblers per hen indicate that excessive gobbler harvests may be occurring if quality spring harvest (i.e., abundant older-aged gobblers) is a management goal, while estimates approaching 1.0 gobbler per hen indicate there may be an additional harvestable surplus of gobblers.

## Results

Observations were recorded during the 2021 summer survey by 138 different observers; observer numbers were substantially greater than last year ( $n = 72$ ) and even more than in prior years ( $n \approx 100$ ). The ongoing COVID-19 pandemic and adjusted work situations likely negatively impacted observer numbers last year and staff made a concerted effort this year to increase survey participants and observations. As a result, participants recorded over 70% more observations ( $n = 1,418$ ) than during past surveys ( $n \leq 835$ ). Still, not all counties were represented in the surveys and not all counties were represented equally (Table 6, Figure 6). To improve reliability of the estimates generated by these surveys, it would be preferable to obtain even more total observations and greater coverage of the state (i.e., more counties with more observations).

Table 6. Number of Summer Wild Turkey Survey observations by county, 2021.

Region	County	2020 Count		Region	County	2020 Count
1	Benton	39		3	Bledsoe	3
1	Carroll	4		3	Bradley	15
1	Chester	1		3	Clay	
1	Crockett	2		3	Cumberland	30
1	Decatur	5		3	Dekalb	6
1	Dyer	18		3	Fentress	
1	Fayette	33		3	Grundy	3
1	Gibson	51		3	Hamilton	6
1	Hardeman	4		3	Jackson	9
1	Hardin	63		3	Marion	45
1	Haywood			3	McMinn	3
1	Henderson	18		3	Meigs	25
1	Henry	4		3	Monroe	37
1	Houston			3	Morgan	5
1	Humphreys	5		3	Overton	2
1	Lake	3		3	Pickett	
1	Lauderdale	37		3	Polk	14
1	Madison	28		3	Putnam	21
1	McNairy	2		3	Rhea	9
1	Obion	5		3	Roane	3
1	Perry			3	Seqatchie	1
1	Shelby	4		3	VanBuren	14
1	Stewart	30		3	Warren	6
1	Tipton	1		3	White	16
1	Weakley	38		4	Anderson	4
2	Bedford	37		4	Blount	5
2	Cannon	6		4	Campbell	44
2	Cheatham	8		4	Carter	4
2	Coffee			4	Claiborne	7
2	Davidson	2		4	Cocke	25
2	Dickson	7		4	Grainger	
2	Franklin	46		4	Greene	46
2	Giles	26		4	Hamblen	7
2	Hickman	28		4	Hancock	1
2	Lawrence	21		4	Hawkins	2
2	Lewis	1		4	Jefferson	15
2	Lincoln	6		4	Johnson	1
2	Macon			4	Knox	2
2	Marshall	46		4	Loudon	3
2	Maury	57		4	Scott	4
2	Montgomery	104		4	Sevier	4
2	Moore	1		4	Sullivan	11
2	Robertson	1		4	Unicoi	18
2	Rutherford	25		4	Union	16
2	Smith	2		4	Washington	29
2	Sumner	4			<b>Grand Total</b>	<b>1,418</b>
2	Trousdale	3				
2	Wayne	38				
2	Williamson	18				
2	Wilson	15				



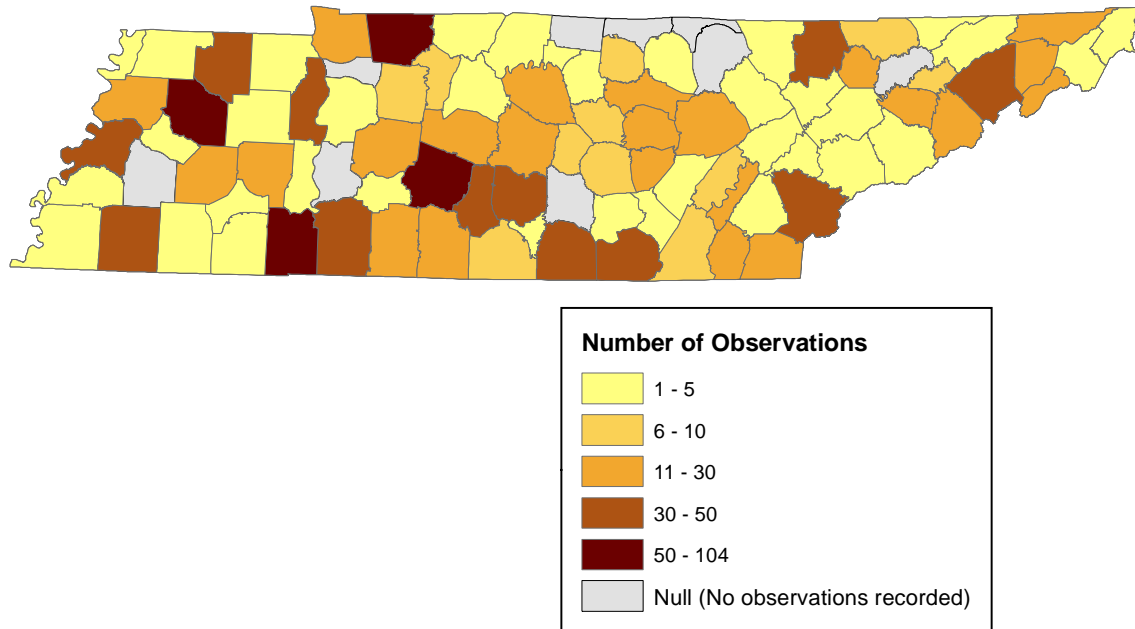


Figure 6. Observations of wild turkeys by county during the Summer Wild Turkey Survey, 2021.

Regionally, east Tennessee (TWRA Regions 3 and 4) had greater reproductive output in 2021, both in terms of poults per hen and brood size, than the regions in west Tennessee (Table 7, Figure 7), but all regions saw greatly improved reproduction over last year. This strong production, especially in east Tennessee, should benefit turkey hunters in a couple years as these new young birds reach adulthood.

Long-term August poult to hen ratios show a fairly steady decline (Table 8, Figure 8), although numbers seem to have leveled off somewhat during the past 8-9 years, fluctuating at around 2.0 poults per hen. The 2021 results (2.2 poults per hen) were well above the previous 5-year average (1.7). Broods averaged 3.7 poults, somewhat better than the previous 5-year average (3.2), suggesting poult survival was slightly better this year than the past few years (Table 9). (Note, although estimates of brood size are substantially lower than results reported prior to 2015, methodology used to calculate the estimate was different prior to 2015.) The proportion of hens with poults has steadily declined over the years of data collection, from >75% in the 1980's to <60% in the 2010's. This year, 60% of hens were observed with poults, a great improvement over the record low of 43% observed last year. All told, these lower but relatively stable estimates of productivity observed over the past 5-10 years may be reflective of a statewide population that peaked after years of steady increase and has now settled into a more stable population with annual variation around a point of lower average productivity.

Table 7. Summary of reproductive data from the Summer Wild Turkey Survey<sup>a</sup>, 2021.

	Total Turkeys Reported	Total Hens Reported	% of Hens w/ Poults	Poults per Hen Ratio	Poults per Brood	Total Poults Reported	Gobbler to Hen Ratio
Region 1	583	180	53.9%	1.86	3.45	335	0.45
Region 2	993	304	56.6%	1.95	3.45	593	0.38
Region 3	713	179	67.6%	2.73	4.04	489	0.25
Region 4	531	126	68.3%	2.67	3.92	337	0.52
Statewide	2,820	789	60.3%	2.22	3.68	1,754	0.40

<sup>a</sup> All estimates are from August observations only, except the Gobbler to Hen ratio, which is calculated from all observations during the June - August survey period.

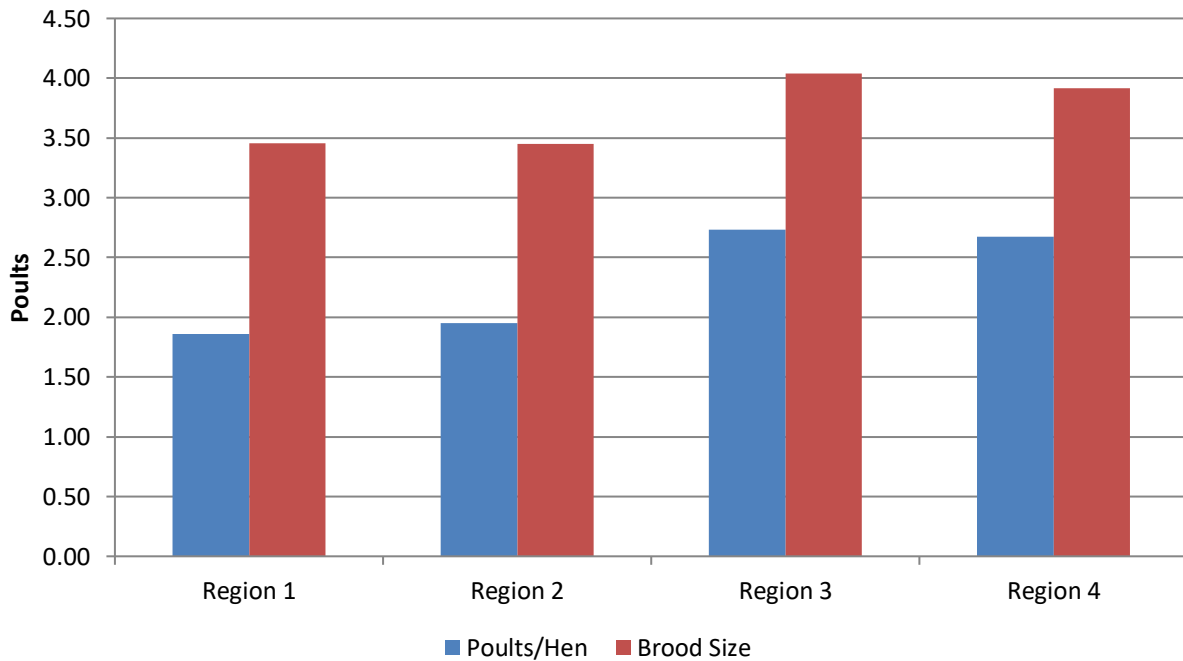


Figure 7. Overall productivity and brood size by TWRA administrative region estimated from the Summer Wild Turkey Survey, 2021.

Table 8. Historical statewide Summer Wild Turkey Survey data, 1983-2021.

Year	Total Turkeys Reported	Total Hens Reported	% of Hens With Poults	Poults per Hen Ratio	Poults per Brood <sup>a</sup>	Total # of Poults
1983	471	68	61.8	5.3	6.8	360
1984	837	131	72.5	4.8	6.9	629
1985	1,216	138	76.8	7.0	7.2	966
1986	1,505	198	72.9	5.9	6.4	1,168
1987	1,528	235	81.3	4.9	7.0	1,152
1988	1,838	298	81.3	4.6	4.7	1,371
1989	1,976	232	88.4	6.4	7.4	1,485
1990	1,893	273	89.0	4.4	6.2	1,206
1991	2,739	421	85.5	4.9	7.4	2,028
1992	1,816	424	63.2	2.9	5.9	1,233
1993	3,037	491	84.5	4.6	6.7	2,258
1994	5,310	870	78.9	4.5	6.5	3,895
1995	3,173	518	72.6	4.5	6.7	2,350
1996	4,179	760	78.6	4.2	6.4	3,164
1997	2,856	663	60.5	2.8	5.7	1,831
1998	5,124	893	78.4	4.3	6.2	3,853
1999	3,100	592	74.5	3.8	6.4	2,229
2000	4,726	837	77.3	3.8	5.8	3,192
2001	3,573	606	76.9	4.0	6.1	2,415
2002	5,796	1,063	73.6	3.8	5.8	4,054
2003	2,126	574	60.6	2.4	6.0	1,365
2004	2,640	611	65.3	3.0	6.5	1,828
2005	1,540	369	50.1	2.6	5.0	964
2006	2,768	707	55.7	2.6	6.0	1,819
2007	2,100	593	53.8	2.2	4.2	1,277
2008	2,409	598	54.5	2.4	4.8	1,418
2009	1,478	377	57.8	2.5	6.2	957
2010	1,964	568	53.9	2.2	6.0	1,241
2011	4,278	1,110	56.7	2.3	6.1	2,587
2012	2,066	654	57.4	2.2	5.3	1,412
2013	2,487	806	51.9	2.1	5.6	1,683
2014	2,533	820	53.2	1.8	5.5	1,483
2015	2,760	746	59.8	2.3	3.8	1,689
2016	3,328	1,097	53.3	1.6	3.0	1,737
2017	2,661	836	56.8	1.7	3.0	1,444
2018	2,166	607	58.8	2.1	3.5	1,257
2019	2,128	642	54.7	1.8	3.3	1,166
2020	1,340	470	43.0	1.4	3.3	664
2021	2,820	789	60.3	2.2	3.7	1,754
Average	2,623	582	66.3	3.4	5.6	1,759

<sup>a</sup> Prior to 2015, surveys recorded number of broods for each observation and the poults per brood (PPB) estimates were calculated based on that number; beginning 2015, PPB was calculated as PPB = #poults/#hens with poults

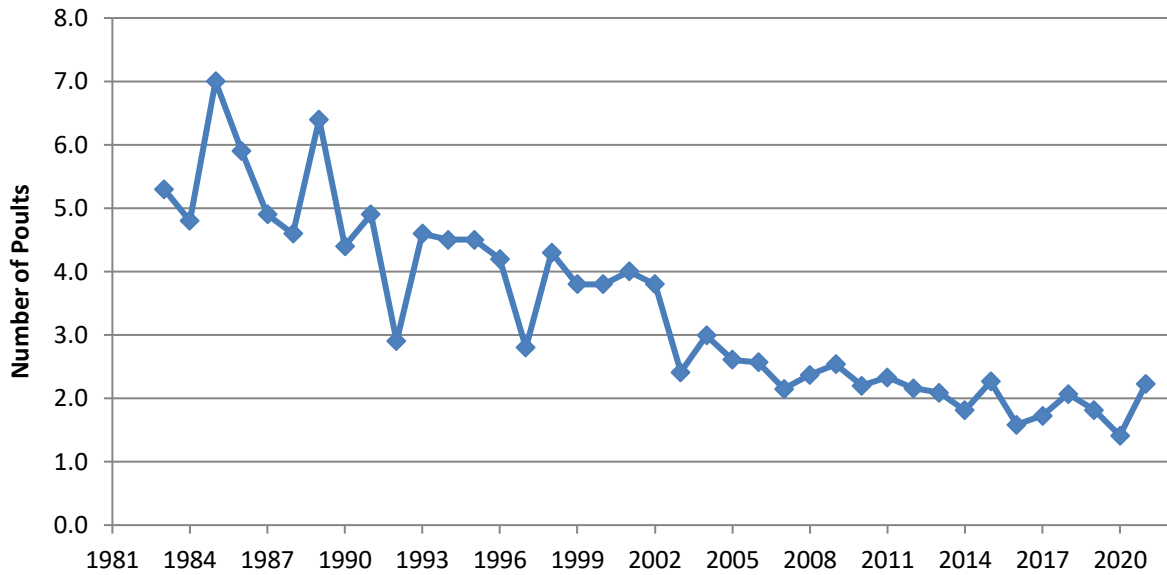


Figure 8. Statewide productivity estimates (poults per hen ratios) obtained from Summer Wild Turkey Survey data during the month of August, 1983-2021.

Table 9. Statewide average brood size by age class, 2003-2021.

Year	Poult Age Class <sup>a</sup>		
	1	2	3
2003	6.6	4.2	5.2
2004	7.4	6.4	5.4
2005	4.8	5.6	5.1
2006	6.4	5.0	4.6
2007	7.3	5.3	4.5
2008	6.3	6.0	4.7
2009	6.8	5.6	5.0
2010	6.6	4.8	5.0
2011	5.3	6.1	5.5
2012	5.1	6.3	5.9
2013	5.8	4.6	4.2
2014	3.7	3.5	4.4
2015	5.1	4.5	4.2
2016	4.1	4.1	3.3
2017	5.0	3.4	3.2
2018	4.7	3.8	3.5
2019	4.2	4.0	3.6
2020	3.4	3.3	3.5
2021	4.4	4.2	3.7
Average	5.4	4.8	4.4

<sup>a</sup> Age classes: 1 = 1 week; 2 = 2-5 weeks; 3 = 6-8 weeks and older

Based on estimated age-classes of poult observed during the Summer Wild Turkey Survey (Table 9) and standard back-dating, earliest onset of egg-laying began the week of March 8 in 2021, but most nests (including initial attempts and re-nesting attempts) were initiated between the weeks beginning April 12 and June 7 (Figure 9). Median initiation date for all nesting attempts was during the week of May 3.

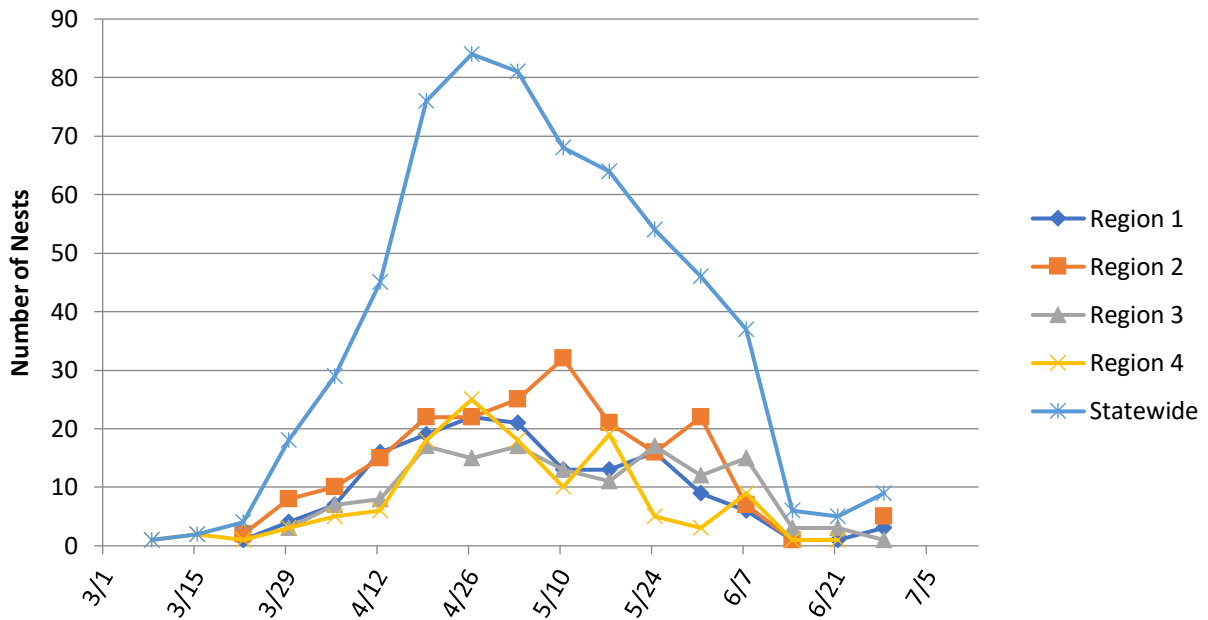


Figure 9. Statewide wild turkey nests initiated per week, 2021.

## ANNUAL WILD TURKEY SUMMER SURVEY



Name: \_\_\_\_\_

Phone Number: \_\_\_\_\_

### RETURN TO:

- Supervisor by September 1
- Regional Biologist by September 5
- Nashville Office by September 10

---

### WILD TURKEY POULT AGE CLASSES

Please classify poults observed as one of these three age classes and record in the "poult age" column.



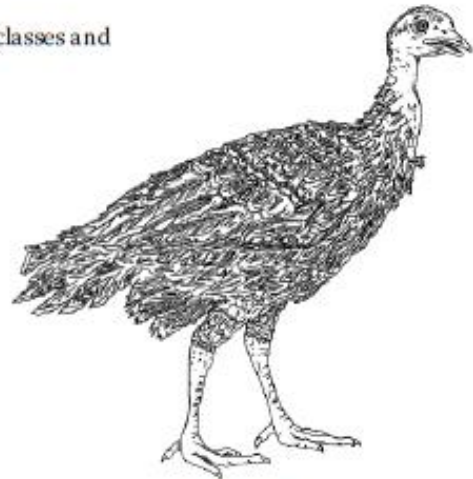
**CLASS 1**

cardinal size (Week 1)  
up to 6 inches tall  
full down  
2 wing bars



**CLASS 2**

quail - wood duck size (Weeks 2-5)  
7 - 10 inches tall  
downy body, feathered wings  
3 - 4 wing bars



**CLASS 3**

≥ chicken size (Weeks 6-8)  
14 - 15 inches tall  
body with contour feathers, some down at neck  
black and white primaries emerging



Tennessee Wildlife Resources Agency  
**WILD TURKEY SUMMER SURVEY**



Name: \_\_\_\_\_ Affiliation: \_\_\_\_\_ E-mail: \_\_\_\_\_ Phone #: \_\_\_\_\_

Date	County	# of hens without poults	# of hens with poults	# of poults	Poult age class	Complete observation?	# of males	# of adults unknown gender	Likely seen before?	Private or public land
					1 2 3	yes no			yes no	Priv. Pub.
					1 2 3	yes no			yes no	Priv. Pub.
					1 2 3	yes no			yes no	Priv. Pub.
					1 2 3	yes no			yes no	Priv. Pub.
					1 2 3	yes no			yes no	Priv. Pub.
					1 2 3	yes no			yes no	Priv. Pub.
					1 2 3	yes no			yes no	Priv. Pub.
					1 2 3	yes no			yes no	Priv. Pub.
					1 2 3	yes no			yes no	Priv. Pub.
					1 2 3	yes no			yes no	Priv. Pub.
					1 2 3	yes no			yes no	Priv. Pub.
					1 2 3	yes no			yes no	Priv. Pub.

- Please record all observations of gobblers, hens, and poults on this form.
  - Record each observation on a single row. However, if poults of different age classes are present, record the number of poults in each age class on separate lines, with the accompanying hen group (brood).
  - Accurate counts are important. When observing from a vehicle, pull over (if possible) to get a good look, preferably using binoculars.
  - **Complete Observation:** If you are unable to get an accurate poult count due to vegetation cover, rapid movement, etc., circle "no." Incomplete counts are still used in data analysis.
  - **Likely Seen Before:** If you suspect observations of the same turkey(s) are being made, record once per month and circle "yes" for subsequent observations.
- Survey period begins June 1 and continues through August 31. Use multiple forms if needed.  
Direct question/comments to: Roger Shields, TWRA Wild Turkey Program Coordinator, roger.shields@tn.gov, (615) 781-6619.  
WR-1032 (Rev. 4/21) • Wildlife & Forestry Division      **Thank you for participating!**