

# Annual Wild Turkey Status Report 2023



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TWRA Wildlife Technical Report 24-01, April 2024



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**TENNESSEE WILDLIFE RESOURCES AGENCY**

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# Turkey Management Units (TMUs)

Beginning this year, TWRA staff began utilizing new, ecologically based management units for hunter surveys and other data collection processes for wild turkeys instead of the administrative regions for monitoring and reporting (Figure 1). The new units will allow long-term tracking of population trends as before but will allow management actions to differ between units as needed. For more information on the new units, view an excerpt from the October 13, 2023 Commission meeting where a brief overview of the new units was provided (visit

<https://www.youtube.com/watch?v=D4CiCGzr8so&list=PLrHYtWwg-24DOpHq4OFS9Hx9IgFbM6WY5&index=2> beginning at time mark 32:49 through 35:50).



Figure 1. Map of new TWRA turkey management units

## Spring Turkey Season

Beginning spring of 2023, several regulation changes took effect for the spring turkey season in light of continued concern for declining turkey population numbers around the state. The statewide season bag limit was once again reduced, from three bearded turkeys to two, only one of which could be a juvenile bird (i.e., a jake). Additionally, the spring hunting season was delayed two weeks—the general spring season opened on April 15 and the Young Sportsman hunt occurred April 8-9.

### 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 Starting from about 2010, physical check stations largely have been replaced by reporting options using the internet (GoOutdoorsTN.com) and smart-phone mobile applications (the “TWRA On the Go” app).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.

Based on reported harvest, the 2023 spring harvest of 31,802 was 6% higher than the 2022 reported harvest, but 2% below the 5-year average (Figure 2). Nonresident hunters accounted for 9% of the total harvest, down 1% from last year and up 1% from the previous 5-year average. Harvest during the 2023

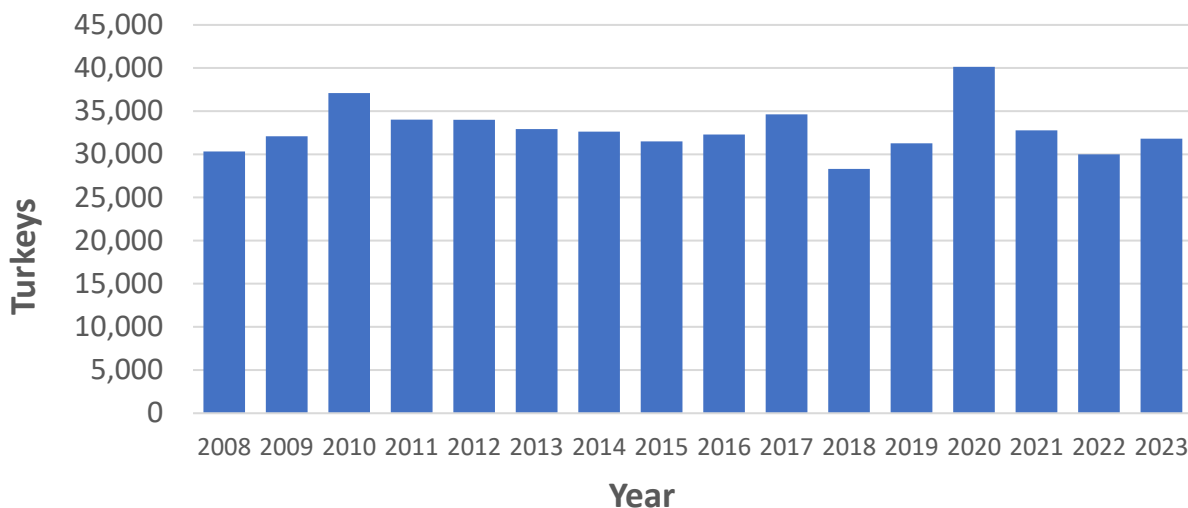


Figure 2. Total reported harvest during spring turkey season, 2008 - 2023.

two-day Young Sportsman hunt (1,855) was 79% higher than 2022 and 72% higher compared to the recent five-year average harvest of 1,076. Harvest on public lands and WMAs where harvest is tracked separately was 2,227, an increase of 1% from last year, and essentially unchanged (1% lower) from the previous 5-year average of 2,251. The top five counties in the state for reported harvest were Maury, Greene, Dickson, Montgomery, and Rutherford counties (Table 1).

Under the new turkey management units (TMUs), the Central unit, given its size and historic turkey densities, has by far the greatest reported harvest, followed distantly by the Northeast unit (Figure 3). All units saw an increase in harvest over 2022, but the West unit saw the greatest relative increase (26%) compared to the other units (<8%).

Prior to this year's bag limit reduction (from 3 to 2 birds), generally about 64% of successful hunters reported harvesting 1 bird; 22% reported 2 birds; and 13% of successful hunters took home 3 or more birds. With the change in bag limits this spring, the number of hunters reporting 1 bird during the 2023 spring season shifted quite a bit from previous years: 76% of successful hunters reported 1 bird and 24% reported 2. The number of successful hunters (25,500) also increased 20% from the past (5-year average = 21,252). Of harvested gobblers, 90% were adult males and just 10% were jakes based on self-reported harvest figures. A combination of strong recruitment from two years ago (2021 hatch year), good weather early in the season, and the regulation changes in place this year likely heavily influenced the positive gains in the number of successful hunters and proportion of adult birds harvested.

Table 1. Total reported spring turkey harvest by county (inclusive of WMA harvests), 2023.

County	TMU	Total Harvest
Anderson	Northeast	189
Bedford	Central	551
Benton	Central	333
Bledsoe	Southeast	191
Blount	Southeast	275
Bradley	Southeast	209
Campbell	Northeast	300
Cannon	Central	279
Carroll	Midwest	469
Carter	Northeast	169
Cheatham	Central	465
Chester	Midwest	131
Claiborne	Northeast	292
Clay	Central	175
Cocke	Northeast	350
Coffee	Central	275
Crockett	West	68
Cumberland	Northeast	356
Davidson	Central	267
Decatur	Central	263
Dekalb	Central	321
Dickson	Central	753
Dyer	West	199
Fayette	Midwest	406
Fentress	Northeast	172
Franklin	Central	232
Gibson	Midwest	411
Giles	Central	626
Grainger	Northeast	316
Greene	Northeast	891
Grundy	Southeast	212
Hamblen	Northeast	182
Hamilton	Southeast	256
Hancock	Northeast	123
Hardeman	Midwest	461
Hardin	Midwest	406
Hawkins	Northeast	491
Haywood	West	164
Henderson	Midwest	291
Henry	Midwest	547
Hickman	Central	605
Houston	Central	372
Humphreys	Central	532
Jackson	Central	304
Jefferson	Northeast	419
Johnson	Northeast	128
Knox	Southeast	392
Lake	West	115

County	TMU	Total Harvest
Lauderdale	West	151
Lawrence	Central	276
Lewis	Central	256
Lincoln	Central	536
Loudon	Southeast	213
Macon	Central	286
Madison	Midwest	356
Marion	Southeast	371
Marshall	Central	556
Maury	Central	1040
McMinn	Southeast	311
McNairy	Midwest	339
Meigs	Southeast	263
Monroe	Southeast	275
Montgomery	Central	652
Moore	Central	146
Morgan	Northeast	183
Obion	Midwest	306
Overton	Northeast	336
Perry	Central	269
Pickett	Northeast	121
Polk	Southeast	98
Putnam	Northeast	239
Rhea	Southeast	296
Roane	Southeast	346
Robertson	Central	577
Rutherford	Central	643
Scott	Northeast	154
Sequatchie	Southeast	230
Sevier	Southeast	264
Shelby	West	164
Smith	Central	351
Stewart	Central	385
Sullivan	Northeast	366
Sumner	Central	603
Tipton	West	142
Trousdale	Central	129
Unicoi	Northeast	48
Union	Northeast	232
Van Buren	Southeast	204
Warren	Central	331
Washington	Northeast	357
Wayne	Central	449
Weakley	Midwest	552
White	Northeast	357
Williamson	Central	472
Wilson	Central	637
<b>Grand total</b>		<b>31,802</b>



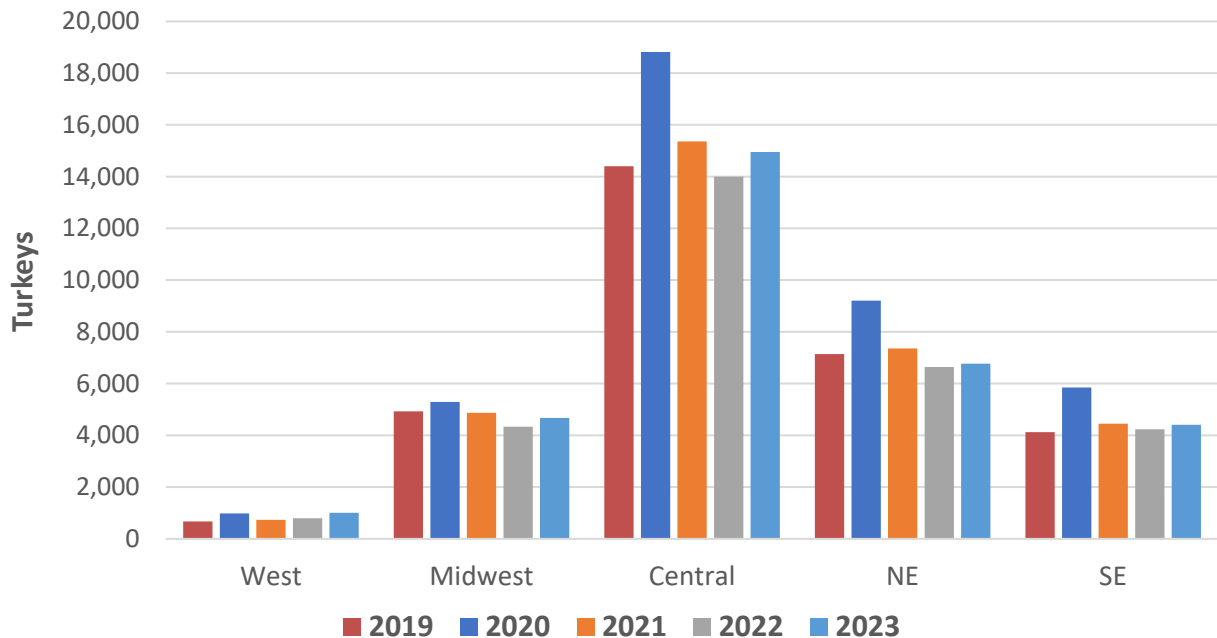


Figure 3. Total reported spring turkey harvest by TWRA turkey management unit, 2019 - 2023.

### 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 TMU. 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 hunting behavior within 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 2023 turkey season, an estimated  $111,975 \pm 8,539$  hunters ( $83,545 \pm 4,692$  adults and  $28,430 \pm 3,847$  youth) statewide participated in turkey hunting and spent  $724,364 \pm 52,067$  days afield (Table 2). This was a substantial but not significant increase in terms of number of hunters, but no change in total days afield resulting in a significant decrease in average days afield per adult hunter (2023:  $7.83 \pm 0.45$  vs 2022:  $9.30 \pm 0.47$ ). Adult and youth hunters combined harvested an estimated 56,785 turkeys ( $50,724 \pm 5,326$  adult gobblers,  $5,536 \pm 2,022$  jakes, and  $525 \pm 695$  bearded hens). The statewide harvest rate (the number of birds harvested per day of hunting) averaged  $0.15 \pm 0.02$  for adult hunters and  $0.19 \pm 0.04$  birds per day for youth hunters, which was a statistically significant increase for adult hunters and nearly so for youth hunters compared to 2022 ( $0.10 \pm 0.01$  and  $0.14 \pm 0.02$ , for adult and youth hunters respectively). Overall, for license holders, 52% of adult hunters and 41% of youth hunters harvested at least one turkey during the 2023 spring turkey season.

Table 2. Estimated numbers of hunters and days afield for spring turkey seasons, 2020 - 2023.

	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
Spring 2022	95,905	6,425	724,726	43,688
Spring 2023	111,975	8,539	724,364	52,067

Most Tennessee hunters pursued turkeys to some degree on private land. From survey responses regarding where people hunt, an estimated 64,046 adults hunted only private land with another estimated 10,683 hunting both private and public land, whereas only 6,417 adult hunters exclusively hunted public land. Adult hunters who hunted both public and private land spent  $13.4 \pm 1.6$  days afield on average, significantly greater than the  $7.0 \pm 0.4$  and  $7.2 \pm 1.9$  days spent by hunters on exclusively private and public lands, respectively. Harvest rate also differed significantly by land type. The harvest rate for those who hunted on both public and private land was  $0.09 \pm 0.02$  birds per day, well below the  $0.17 \pm 0.02$  harvest rate estimated for private land-only hunters, but not statistically different than the  $0.12 \pm 0.06$  for public land-only hunters.

Regional differences occurred in harvest results. Significantly more adults hunted in the Central unit than any other unit, and subsequently, significantly more birds were harvested by adult hunters in the Central unit than any other unit (Table 3). The estimated harvest rate was greatest in the Central unit ( $0.18 \pm 0.03$  birds/day) and differed significantly from that of the West and Midwest units, which had the lowest rates ( $0.09 \pm 0.02$  and  $0.12 \pm 0.02$ , respectively; Table 3). Interestingly, the percentage of the gobbler harvest comprised of juvenile birds was lowest in the West (3.4%) and Central (5.4%) units and highest in the Northeast unit (11.3%; Table 3).

Table 3. Estimated numbers of adult spring turkey hunters, harvest by adult hunters, and harvest metrics by TWRA turkey management unit, 2023.

TMU	Adult Hunters	95% CL	Total Harvest	95% CL	Harvest Rate	95% CL	% Jakes
West	4,191	1,234	1,465	604	0.09	0.02	3.4
Midwest	13,893	2,018	7,093	1,162	0.12	0.02	8.2
Central	34,277	3,214	21,875	2,375	0.18	0.03	5.4
Northeast	19,468	2,616	9,947	2,081	0.13	0.02	8.4
Southeast	14,246	2,357	6,066	1,323	0.13	0.02	11.3

From the 2023 survey, we obtained information on hunter opinions about turkey populations in the areas they hunt. Over half (52%) of the respondents perceived the turkey population in areas they hunt to be stable or increasing (Figure 4), up considerably from the past two years when nearly two-thirds (60%-64%) of respondents reported observing declines. A relatively greater proportion of hunters in the Southeast unit reported stable to increasing turkey populations, whereas hunters in the Northeast unit reported relatively greater incidents of declining populations compared to hunters in the other units (Figure 4).

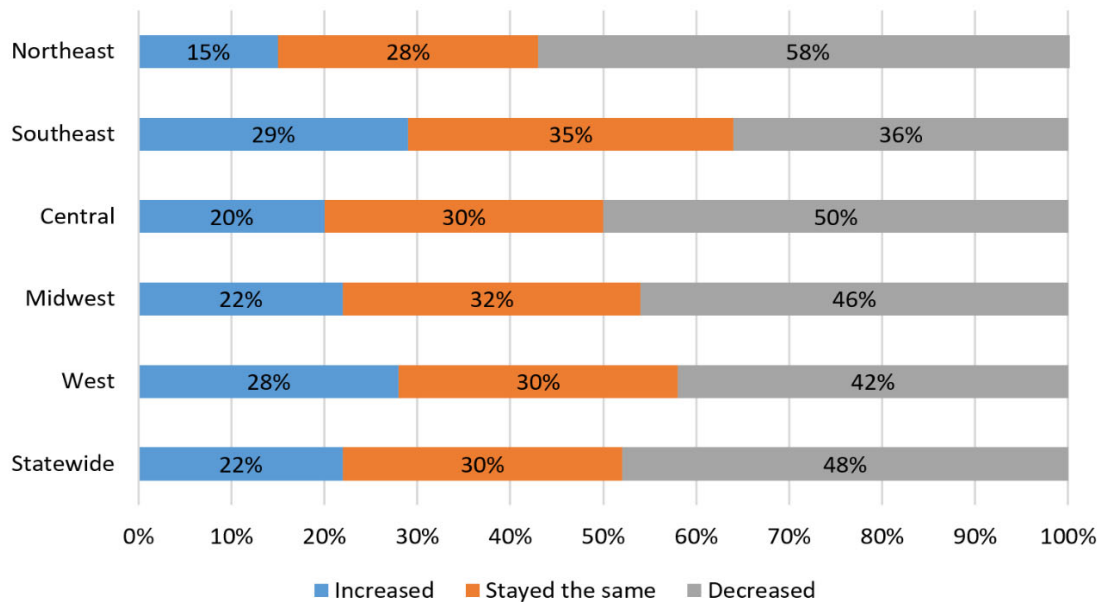


Figure 4. Perceptions of Tennessee turkey hunters in 2023 regarding how turkey populations in the areas they hunt have changed over time.

## 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 2023 fall season harvest was 297 birds, a decrease of 26% from the 2022 fall season harvest of 404 birds and a decrease of 8% from the previous 5-year average (324). Hawkins, Greene, Cumberland, Dickson, Knox, and Maury counties were the top six counties in the state for fall 2023 (Table 4). Harvest in the fall on WMAs was minimal, with just 21 birds reported harvested on 5 WMAs and other public lands (Table 5).

Juvenile males (i.e., “jakes”) accounted for roughly 8% of the statewide fall gobbler harvest in 2023. Jakes comprised the highest proportion of the harvest in the Midwest unit, representing 19% of the gobbler harvest (Figure 5). Bearded females represented about 3% (11 birds) of the reported fall harvest in 2023. 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 13 hunters reported harvesting more than a single bird during the fall season.

Table 4. Reported fall turkey harvest by county (inclusive of WMA harvests), 2023. (Note, counties with an asterisk were closed during the fall season.)

County	TMU	Total Harvest
Anderson	Northeast	5
Bedford	Central	5
Benton	Central	2
Bledsoe*	Southeast	1
Blount	Southeast	4
Bradley*	Southeast	1
Campbell	Northeast	.
Cannon	Central	3
Carroll	Midwest	5
Carter	Northeast	1
Cheatham	Central	4
Chester	Midwest	1
Claiborne	Northeast	4
Clay	Central	5
Cocke	Northeast	7
Coffee	Central	4
Crockett*	West	.
Cumberland	Northeast	9
Davidson	Central	4
Decatur	Central	1
Dekalb	Central	2
Dickson	Central	9
Dyer*	West	1
Fayette	Midwest	3
Fentress	Northeast	1
Franklin	Central	.
Gibson	Midwest	1
Giles*	Central	.
Grainger	Northeast	3
Greene	Northeast	10
Grundy	Southeast	7
Hamblen	Northeast	7
Hamilton	Southeast	6
Hancock	Northeast	1
Hardeman	Midwest	.
Hardin	Midwest	6
Hawkins	Northeast	12
Haywood*	West	.
Henderson	Midwest	1
Henry	Midwest	3
Hickman	Central	6
Houston	Central	3
Humphreys	Central	5
Jackson	Central	1
Jefferson	Northeast	8
Johnson	Northeast	3
Knox	Southeast	9
Lake*	West	.

County	TMU	Total Harvest
Lauderdale*	West	.
Lawrence*	Central	.
Lewis	Central	6
Lincoln*	Central	.
Loudon*	Southeast	.
Macon	Central	1
Madison	Midwest	1
Marion	Southeast	5
Marshall	Central	2
Maurry	Central	9
McMinn*	Southeast	.
McNairy	Midwest	.
Meigs	Southeast	5
Monroe*	Southeast	.
Montgomery	Central	7
Moore	Central	3
Morgan	Northeast	2
Obion	Midwest	3
Overton	Northeast	2
Perry	Central	3
Pickett	Northeast	2
Polk*	Southeast	.
Putnam	Northeast	3
Rhea	Southeast	6
Roane	Southeast	5
Robertson	Central	.
Rutherford	Central	6
Scott	Northeast	.
Sequatchie	Southeast	2
Sevier	Southeast	6
Shelby*	West	.
Smith	Central	1
Stewart	Central	3
Sullivan	Northeast	5
Sumner	Central	6
Tipton*	West	.
Trousdale	Central	2
Unicoi*	Northeast	.
Union	Northeast	2
Van Buren	Southeast	.
Warren	Central	2
Washington	Northeast	6
Wayne*	Central	.
Weakley	Midwest	3
White	Northeast	2
Williamson	Central	6
Wilson	Central	6
<b>Grand total</b>		<b>297</b>

Table 5. Fall turkey harvest by WMA, 2023.

WMA	TMU	2020 Harvest
Cordell Hull WMA	Central	1
Edgar Evins SP & WMA	Central	1
Natchez Trace SF & WMA	Midwest	1
North Cherokee NF & WMA	Northeast	1
Yanahli WMA	Central	3
Other Public Lands	na	14
<b>Grand total</b>		<b>21</b>

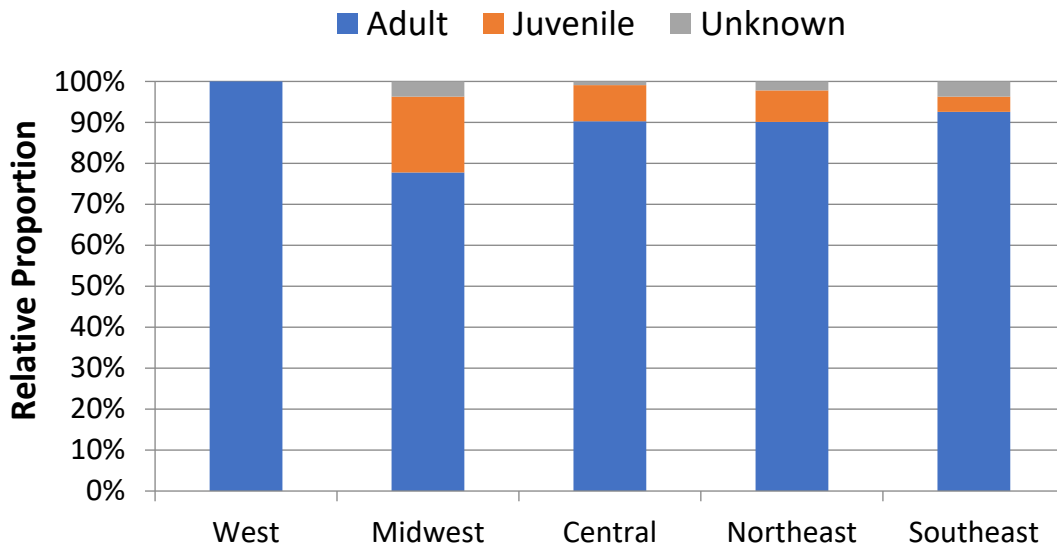


Figure 5. Proportion of juvenile males in the fall gobbler harvest by TWRA turkey management unit, 2023.

# Statewide Summer Wild Turkey Survey

TWRA maintains records of sightings of wild turkeys to provide supplemental data on population trends. Each year since the 1980s, we conduct a wild turkey summer observational survey. 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.

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.

Historically the summer survey has been conducted only by agency staff and other natural resource professionals who record observations of wild turkeys made incidental to regular field activities from June through the end of August (see Appendix A for survey form). Because of poor coverage of the state due to limited numbers of staff and cooperators in some counties, beginning in 2022, we invited the public to take part in the survey. These citizen scientists were able to report turkey observations using an electronic survey form via the TWRA website or with a mobile device using the Survey 123 app. Each observer was asked to record 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. 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.

Traditionally, the poults per hen and poults per brood ratios were calculated simply by dividing the total number of poults observed by the total number of observed hens (or hens accompanied by poults for poults per brood). However, this approach does not provide any measure of confidence for the ratio estimates. Consequently, data collected since 2003 has been reanalyzed using a new approach, one used by other states sharing data under a standardized survey format. The new approach calculates poults per hen (or poults per brood) for each individual observation; then we calculate a mean with standard deviation for all the respective observations. It should be noted that this new approach tends to produce slightly higher estimates than the traditional methodology ( $\sim 0.5$  pph).

Table 6. Number of Summer Wild Turkey Survey observations by county, 2023.

County	TMU	Staff Count	Public Count	County	TMU	Staff Count	Public Count
Anderson	Northeast	9	28	Lauderdale	West	27	4
Bedford	Central	18	14	Lawrence	Central	26	11
Benton	Central	29	23	Lewis	Central	12	7
Bledsoe	Southeast	6	1	Lincoln	Central	8	16
Blount	Southeast	27	29	Loudon	Southeast	1	21
Bradley	Southeast	2	8	Macon	Central		1
Campbell	Northeast	22	10	Madison	Midwest	55	8
Cannon	Central	5	10	Marion	Southeast	15	9
Carroll	Midwest	9	3	Marshall	Central	39	10
Carter	Northeast	16	14	Mauury	Central	10	29
Cheatham	Central	5	31	McMinn	Southeast	3	11
Chester	Midwest	2	2	McNairy	Midwest		
Claiborne	Northeast	4	6	Meigs	Southeast	11	2
Clay	Central	13	3	Monroe	Southeast	14	20
Cocke	Northeast	17	8	Montgomery	Central	174	24
Coffee	Central	9	6	Moore	Central	5	8
Crockett	West			Morgan	Northeast	4	6
Cumberland	Northeast	48	19	Obion	Midwest	21	7
Davidson	Central	6	58	Overton	Northeast	5	4
Decatur	Central		5	Perry	Central	4	4
Dekalb	Central	11	11	Pickett	Northeast	2	
Dickson	Central		23	Polk	Southeast	7	2
Dyer	West	17	12	Putnam	Northeast	5	10
Fayette	Midwest	14	4	Rhea	Southeast	11	6
Fentress	Northeast		4	Roane	Southeast	7	54
Franklin	Central	42	3	Robertson	Central	1	15
Gibson	Midwest	46	8	Rutherford	Central	22	42
Giles	Central	16	7	Scott	Northeast	5	4
Grainger	Northeast	20	6	Sequatchie	Southeast	2	5
Greene	Northeast	39	60	Sevier	Southeast	3	40
Grundy	Southeast		12	Shelby	West	6	14
Hamblen	Northeast	10	9	Smith	Central	1	5
Hamilton	Southeast	11	36	Stewart	Central	58	7
Hancock	Northeast	2	9	Sullivan	Northeast	10	22
Hardeman	Midwest		6	Sumner	Central	1	49
Hardin	Midwest	20	4	Tipton	West	5	1
Hawkins	Northeast	12	16	Trousdale	Central	2	2
Haywood	West		7	Unicoi	Northeast	6	27
Henderson	Midwest	4	7	Union	Northeast	9	7
Henry	Midwest	5	18	Van Buren	Southeast	1	
Hickman	Central	33	25	Warren	Central	8	8
Houston	Central		4	Washington	Northeast	8	13
Humphreys	Central	2	11	Wayne	Central	7	5
Jackson	Central	25	8	Weakley	Midwest	39	9
Jefferson	Northeast	14	25	White	Northeast	30	15
Johnson	Northeast	6		Williamson	Central	18	39
Knox	Southeast	11	78	Wilson	Central	9	38
Lake	West	7	1		<b>Grand Total</b>	<b>1,331</b>	<b>1,333</b>



## Results

Observations were recorded during the 2023 summer survey by 158 different staff and cooperator observers and 742 unique public observers. Agency staff and cooperators recorded 1,331 observations and survey participants from the public recorded 1,333 observations. As a result of public participation, all but two of the 95 counties were represented in the survey even though staff observations occurred in only 85 total counties. All the same, 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 a more balanced coverage of the state (i.e., all counties with >30 total observations).

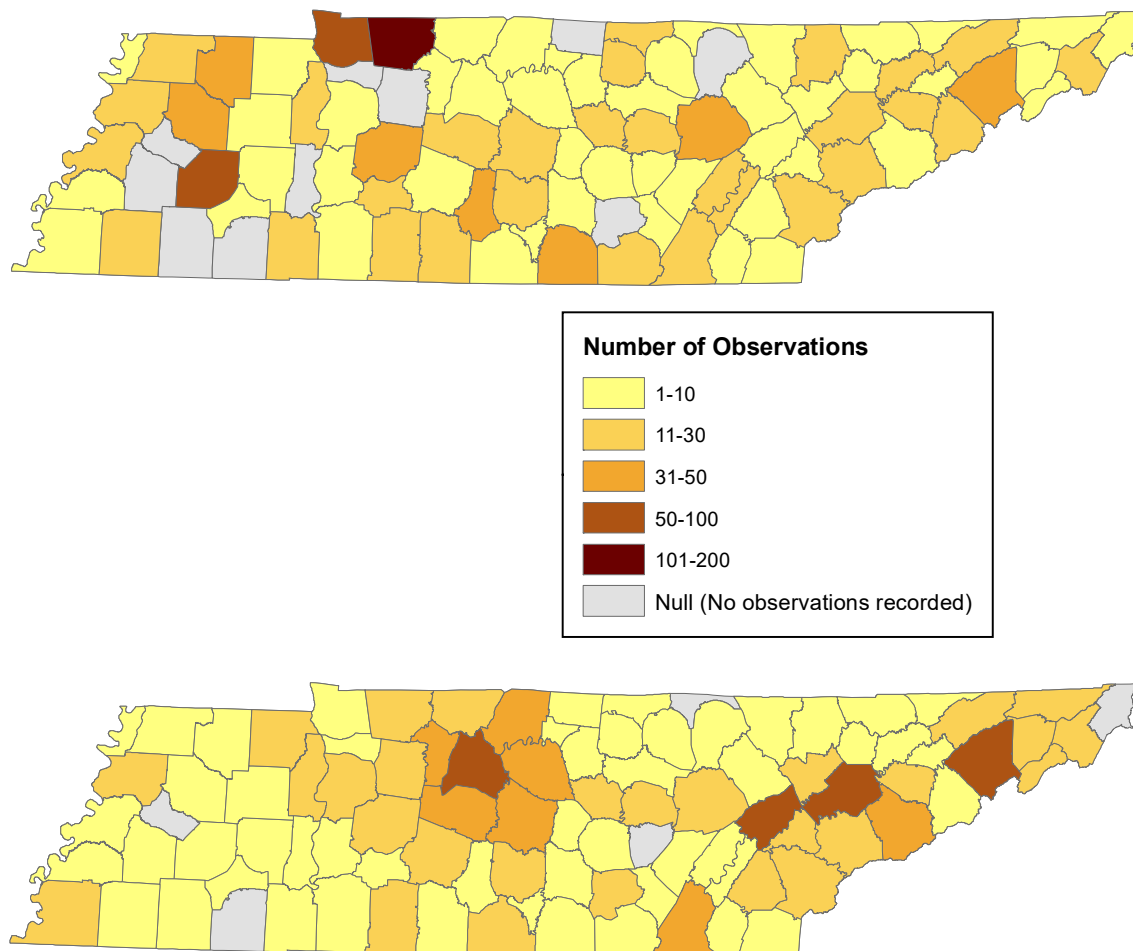


Figure 6. Number of observations of wild turkeys by agency staff (top map) and public observers (bottom map) by county during the Summer Wild Turkey Survey, 2023.

Overall, survey metrics obtained from public observer data were similar to those obtained by staff (Table 7, Figure 7). The general trend, both in terms of poult per hen and brood size, increased from east to west Tennessee. The West and Midwest units had the greatest reproductive output in 2023, and the Northeast and Southeast units had the lowest (Table 7, Figure 7). This strong production again from west Tennessee was especially needed because productivity had been down in this part of the state for several years prior to last year.

Long-term August poult to hen ratios show a fairly steady decline (Table 8, Figure 8), although numbers seem to have leveled off somewhat over the past decade, fluctuating at around 2.5 poult per hen. The 2023 results ( $2.1 \pm 0.2$  poult per hen, based on the new calculation methodology) were below the previous 5-year average ( $2.5 \pm 0.3$ , using comparable data calculations). Broods averaged  $3.3 \pm 0.2$  poult (based on new methodology), slightly below the previous 5-year average ( $3.6 \pm 0.4$ ), suggesting poult survival was down a bit this year (Table 9). The proportion of hens with poults has steadily declined over the years of data collection, from >75% in the early 2000's to <60% in the mid-2010's. This year, 59% of hens were observed with poults, down slightly from last year. All told, these slightly lower estimates of productivity suggest a slowing of potential growth that had occurred the past couple of years. By and large, the productivity trends of lower—but somewhat stable—measures 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>, 2023.

	Total Turkeys Reported	Total Hens Reported	% of Hens w/ Poults	Poults per Hen Ratio	Poults per Brood	Total Poults Reported	Gobbler to Hen Ratio
Staff Observers							
West	115	29	93.1%	3.12	3.90	85	0.37
Midwest	531	117	86.3%	3.26	3.85	361	0.70
Central	1,334	391	61.6%	2.32	3.39	714	0.65
Northeast	437	203	34.5%	1.11	2.91	147	0.36
Southeast	229	80	43.8%	1.64	3.49	92	0.47
Statewide	2,646	820	57.8%	2.17	3.46	1,399	0.55
Public Observers							
West	79	14	100.0%	4.36	4.36	62	0.18
Midwest	351	99	81.8%	2.73	4.02	209	0.76
Central	1,515	510	60.2%	1.97	3.17	744	0.48
Northeast	472	167	43.7%	1.67	2.72	169	0.72
Southeast	461	179	58.7%	1.61	2.80	194	0.56
Statewide	2,878	969	59.9%	1.95	3.14	1,378	0.56

<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.

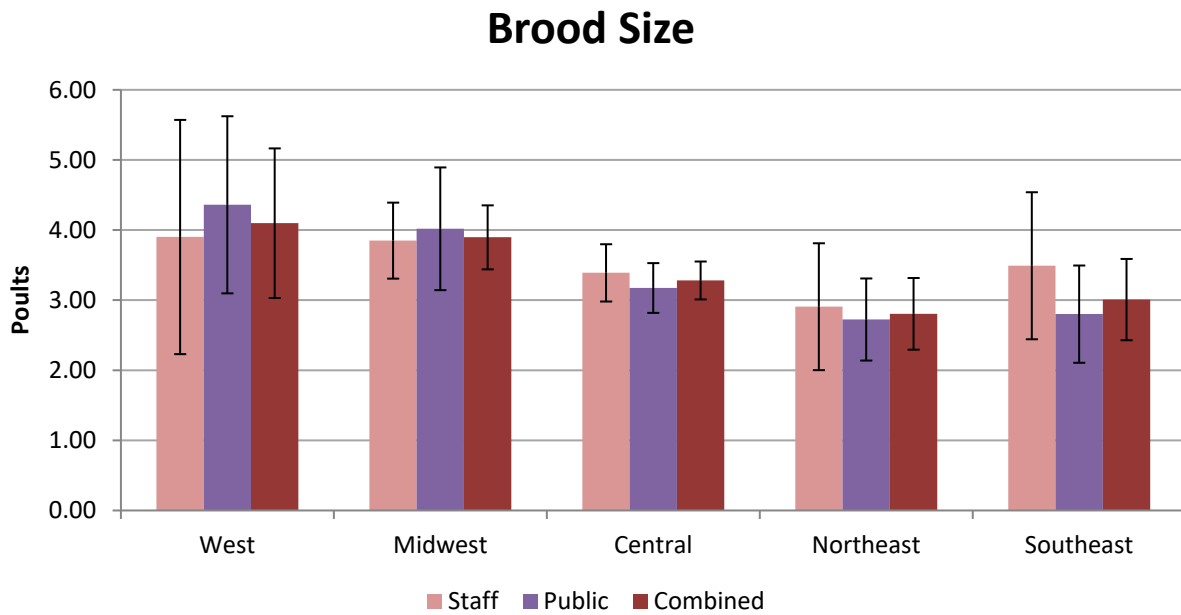
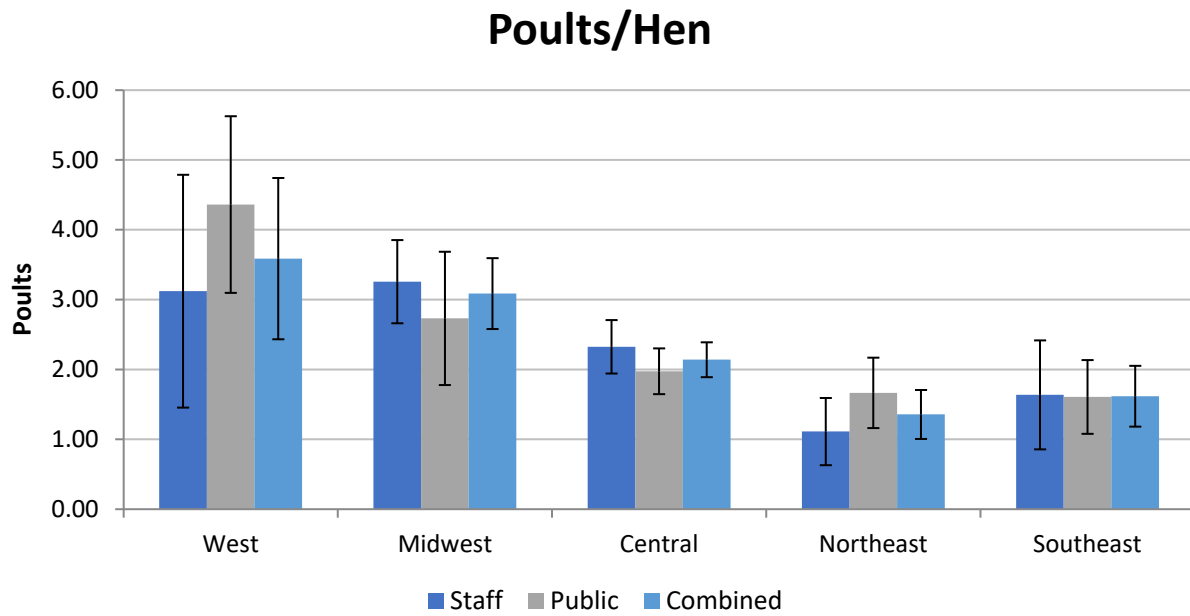


Figure 7. Overall productivity (top graph) and brood size (bottom graph) with 95% confidence interval bars by TWRA turkey management unit estimated from the Summer Wild Turkey Survey, 2023.

Table 8. Historical statewide Summer Wild Turkey Survey data, 2003 - 2023.

Year	Total Turkeys Reported	Total Hens Reported	% of Hens With Poults	Poults per Hen Ratio	Poults per Brood	Total # of Poults
2003	2,057	521	77.0	3.2	4.1	1,353
2004	2,898	644	84.0	3.7	4.4	2,054
2005	1,755	441	79.4	3.2	3.9	1,058
2006	1,852	426	77.2	3.3	4.1	1,232
2007	1,935	507	77.5	2.9	3.6	1,213
2008	2,065	501	74.7	3.4	4.3	1,360
2009	1,396	372	68.5	3.0	4.1	949
2010	1,865	525	68.4	2.8	4.0	1,221
2011	3,624	927	73.8	3.0	4.1	2,367
2012	2,172	577	76.8	3.1	3.9	1,369
2013	2,714	741	53.7	2.8	4.5	1,650
2014	2,362	705	55.0	2.6	4.1	1,457
2015	2,786	757	58.7	2.6	4.1	1,700
2016	3,382	1,147	56.1	2.0	3.3	1,747
2017	2,077	710	64.9	2.0	2.9	1,044
2018	2,166	607	69.5	2.6	3.6	1,257
2019	2,080	640	70.0	2.4	3.5	1,166
2020	1,340	470	56.8	1.9	3.2	664
2021	2,820	789	71.4	2.8	3.7	1,754
2022	2,536	660	61.5	2.8	4.0	1,443
2023	5,524	1,789	58.9	2.1	3.3	2,777
Average	2,448	688	68.3	2.8	3.8	1,468

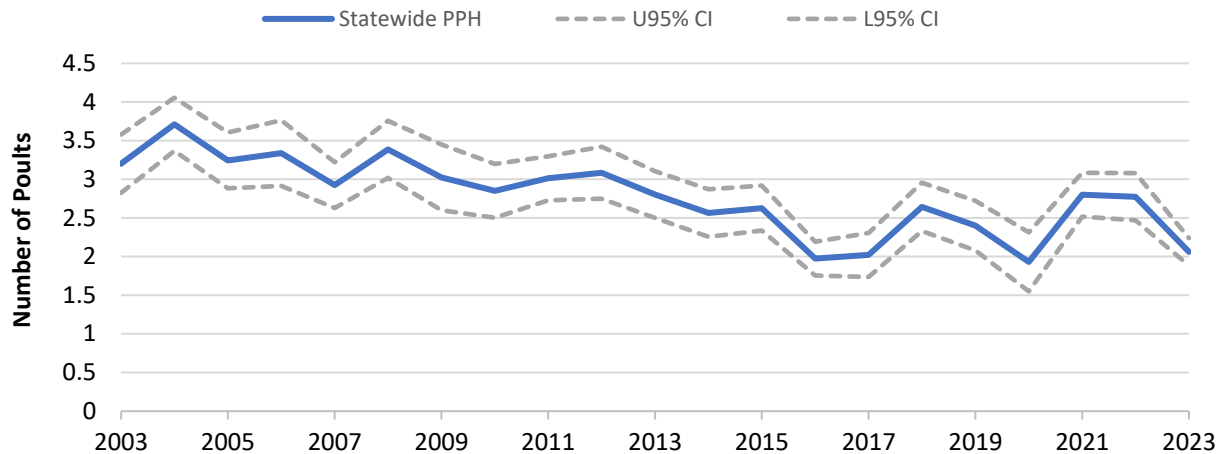


Figure 8. Statewide productivity estimates (poults per hen ratios) obtained from Summer Wild Turkey Survey data during the month of August, 2003 - 2023.

Table 9. Statewide average brood size by age class, 2003 - 2023.

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
2022	3.4	2.8	3.3
2023	4.2	3.2	3.0
Average	5.3	4.6	4.3

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

Based on estimated age-classes of poults 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 2023, but most successful nests (including initial attempts and renesting attempts) were initiated between the weeks beginning April 19 and May 17 (Figure 9). Median initiation date for all nesting attempts was during the week of May 3.

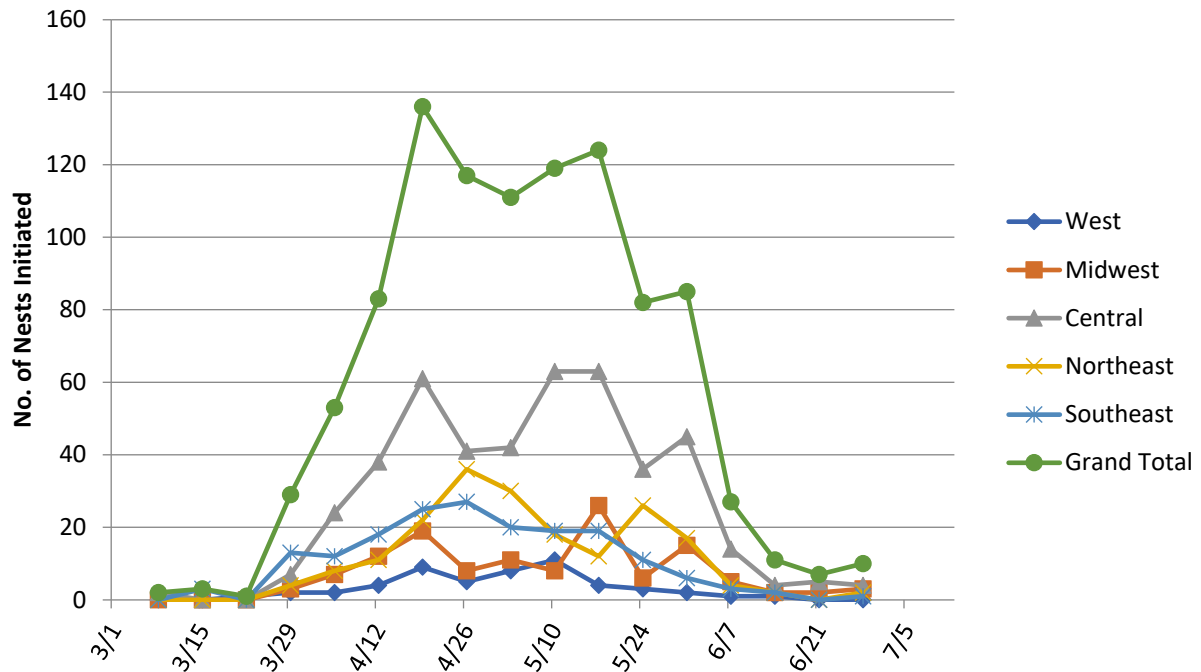


Figure 9. Statewide wild turkey nests initiated per week based on backdating of staff and public observations, 2023.

## ANNUAL WILD TURKEY SUMMER SURVEY



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

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

### RETURN TO:

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

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### WILD TURKEY POULT AGE CLASSES

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



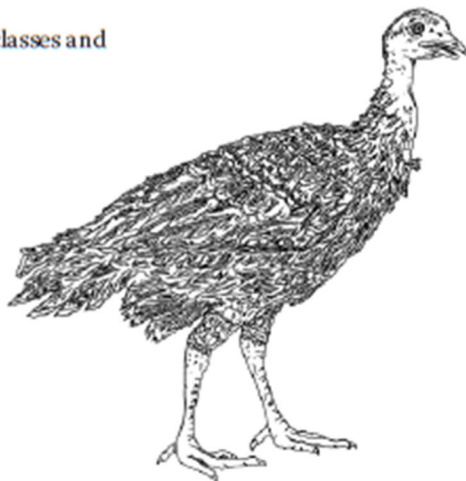
**CLASS 1**

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 #: \_\_\_\_\_

### Affiliation

E-mail:

Phone #:

[illegible]

- 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 &amp; Forestry Division

**Thank you for participating!**