

2014 WILD TURKEY SUMMER OBSERVATION SURVEY REPORT

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Survey Overview

Each summer, the North Carolina Wildlife Resources Commission (NCWRC) coordinates an observation survey to gain insight into wild turkey productivity and carryover of gobblers from the previous spring turkey season. This year survey cards were mailed to 3,638 participants. The mailing list included 2,271 members of the National Wild Turkey Federation and 1,367 other individuals that had participated in the survey previously. Additional participants were recruited through a statewide news release and an e-mailed Wildlife Update issued by the NCWRC in late June. Many media outlets (newspaper, radio, internet) carried the request after receiving it from our agency. The news release and e-mail request were extremely successful in increasing participation. Individuals recruited in this manner were not mailed a traditional survey card, but were directed to an on-line application to enter their turkey observation data.

As in previous years, participants reported wild turkeys they observed during the course of routine daily activities from July 1st through August 31st. Participants recorded observations in all 100 counties in North Carolina (Figures 1 and 2). A total of 2,175 individuals participated in the survey in 2014. They recorded a total of 8,690 separate observations (Table 1). When compared to the 2013 survey, this represents a 114% increase in the number of participants and a 73% increase in the number of observations. This huge increase was undoubtedly due to the success of the statewide news release and e-mailed Wildlife Update. Participants reported 3,564 observations via the on-line application and 5,126 observations via the traditional survey cards.

Data Analysis

As in previous years, the data were compiled, checked for errors, and analyzed to determine a productivity index from poult per hen ratios and to evaluate carryover of gobblers from gobblers per hen ratios. However, one substantial difference in data analysis this year is that estimates of productivity were derived from the ratios of poults and hens in each reported observation, rather than from the total number of hens and poults observed as has been done in past years. This approach recognizes the fact that the reported turkey observations are just a sample of the entire population and that a measurement of error is part of the estimation process. Specifically, this approach provides a way to compute a 95% confidence interval for each estimate. The actual productivity of the turkey population, which is being estimated, has a 95% chance of falling within the specified range. The large number of participants and observations in this survey allows for precise estimates, hence the relatively small confidence intervals in Table 2 and Figures 3 and 4. Gobblers per hen ratios were calculated based on the sum of all observations, as they have been in previous surveys.

Figure 1. Number of participants in the 2014 Wild Turkey Summer Observation Survey.

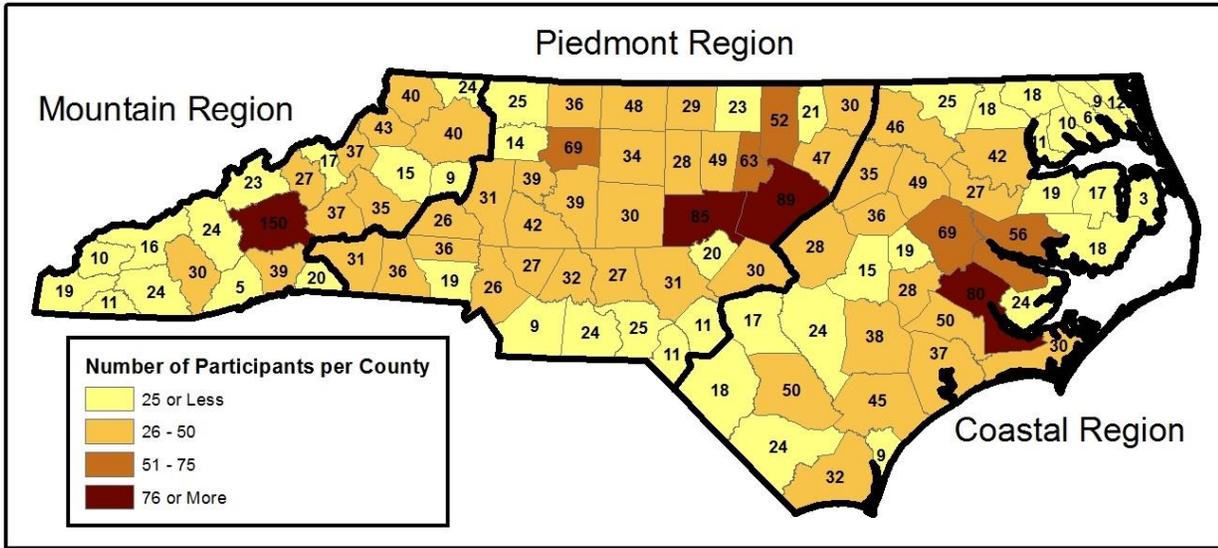


Figure 2. Number of observations reported in the 2014 Wild Turkey Summer Observation Survey.

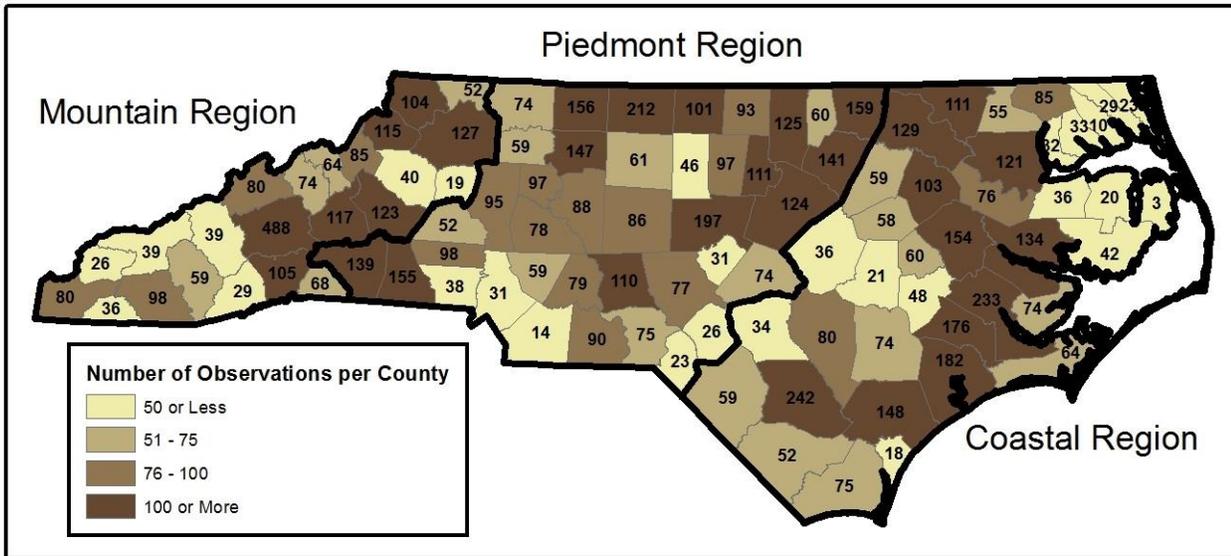


Table 1. Summary of observations from the 2014 Wild Turkey Summer Observation Survey.

Region	Observations	Hens W/O Poults	Hens W/ Poults	Total Hens	Total Poults	Total Gobblers	Total Unk.
Coastal	3,007	2,680	2,544	5,224	7,769	2,983	4,303
Piedmont	3,600	3,106	2,421	5,527	7,608	2,837	3,306
Mountains	2,083	1,974	1,783	3,757	5,715	1,654	1,408
State	8,690	7,760	6,748	14,508	21,092	7,474	9,017

Productivity

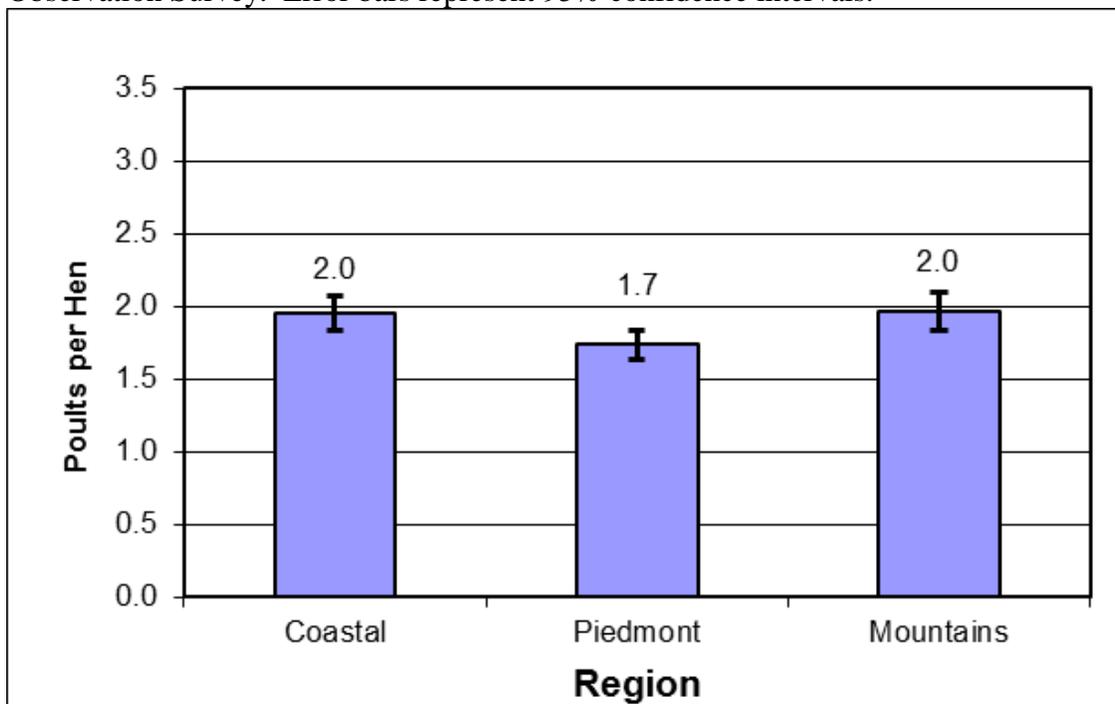
Wild turkey productivity can be evaluated by examining the observations of hens and poults in the survey. The percentage of hens observed with poults is an indication of nesting success, while the ratio of poults to hens observed with poults (previously called poults/brood) is an indication of poult survival. Overall productivity is indicated by the ratio of poults per hen. As seen in previous summary reports, classifying individual estimates as “poor,” “fair,” “good,” or “excellent” can be problematic and sometimes misleading. These estimates are best considered in a relative fashion, comparing the data among the three regions and also evaluating the trends through time.

Productivity in the coastal and mountain regions was estimated at 2.0 poults per hen (Table 2, Figure 3). Estimated productivity in the piedmont region was slightly less at 1.7 poults per hen. Poult survival (estimated number of poults for hens with at least one poult) was 3.6 in all regions.

Region*	% Hens with Poults	Poults/Hens with Poults	Poults/Hen Ratio	Gobblers/Hen Ratio
Coastal	49%	3.6 (3.4 - 3.8)	2.0 (1.9 – 2.1)	0.57
Piedmont	44%	3.6 (3.4 – 3.8)	1.7 (1.6 – 1.8)	0.51
Mountains	47%	3.6 (3.4 – 3.8)	2.0 (1.9 – 2.1)	0.44
State	46%	3.6 (3.5 – 3.7)	1.9 (1.8 – 2.0)	0.52

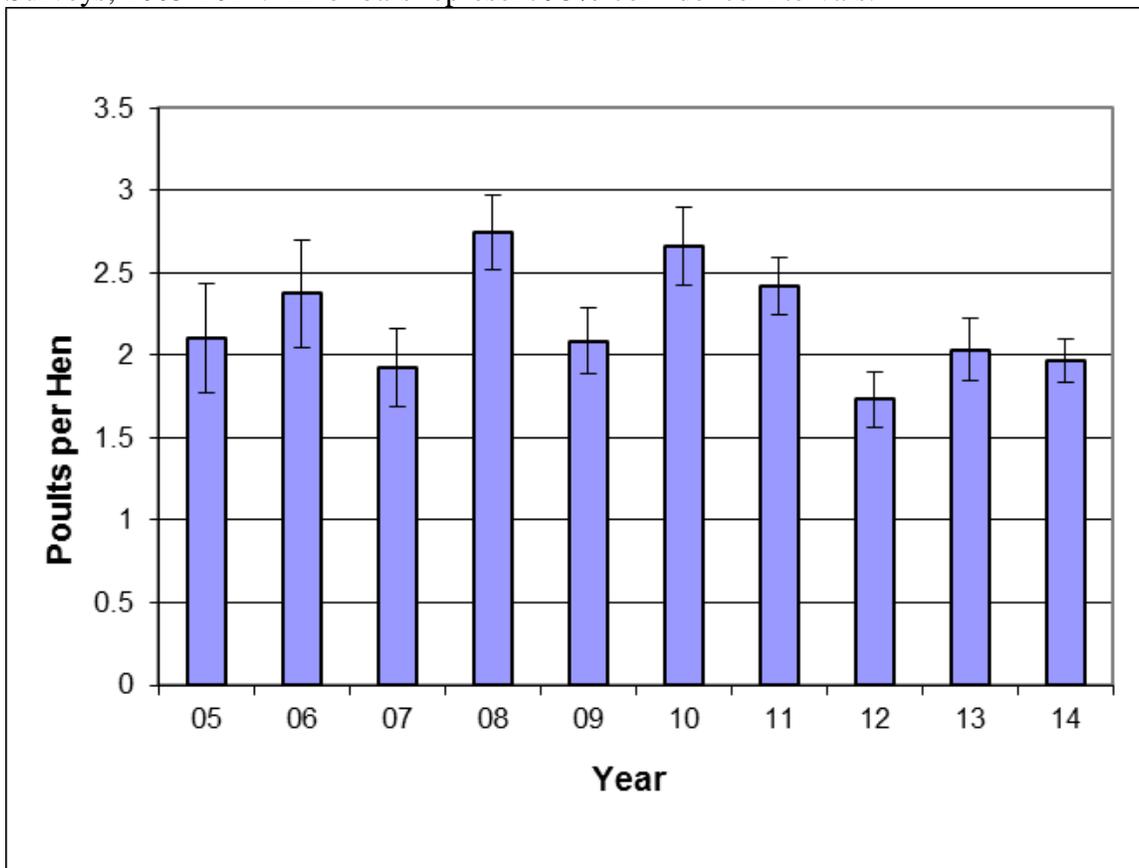
**Geographical regions, not NCWRC regions.*

Figure 3. Regional productivity estimates from the 2014 Wild Turkey Summer Observation Survey. Error bars represent 95% confidence intervals.



Over the last 10 years, productivity estimates have fluctuated between 1.7 and 2.7 poult per hen (Figure 4). The productivity estimates for 2014 are relatively low for this 10-year time period. (**The poult per hen ratios in Figure 4 have been estimated with the procedures described in the data analysis section above. As such, direct comparison of these estimates to previous reports may show slight discrepancies.) It is important to note that productivity alone does not predict potential changes in the turkey population. The overall turkey population increased greatly during this same time period (from an estimated 150,000 turkeys in 2005 to an estimated 260,000 turkeys in 2010) and the reported spring turkey harvest has increased 72% (from 9,824 turkeys in 2005 to 16,912 turkeys in 2014). As such, turkey productivity during this time period has been sufficient to expand the population and outpace mortality factors.

Figure 4. Statewide productivity estimates from Wild Turkey Summer Observation Surveys, 2005-2014. Error bars represent 95% confidence intervals.



Gobbler Carryover

The observed ratio of gobblers per hen indicates the level of carryover of gobblers from the previous spring turkey season. Higher levels of gobbler harvest will typically result in lower gobblers per hen ratios. A ratio of less than 0.50 gobblers per hen may be an indication of over-harvest of the male segment of the turkey population if quality spring gobbler hunting is the management goal.

Over the past 10 years, gobblers per hen ratios in the summer observation survey have been between 0.41 and 0.62 gobblers per hen. The ratio for the 2014 summer observation survey was 0.52 gobblers per hen. The average ratio for the last ten years is 0.51 gobblers per hen. These data indicate that, if quality spring gobbler hunting is to be maintained, additional pressure should not be placed on the male segment of the wild turkey population by increasing the season length, opening the spring season earlier, or increasing the bag limit.

Figure 5. Ratio of gobblers per hen observed in Wild Turkey Summer Observation Surveys, 2005-2014.

