

# **2016 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 3,112 people. The mailing list included a mix of NCWRC employees, National Wild Turkey Federation members, and other individuals that had participated in the survey previously.

As in previous years, participants reported wild turkeys they observed during the course of routine daily activities from July 1<sup>st</sup> through August 31<sup>st</sup>. Participants recorded observations in 99 of North Carolina's 100 counties (Figures 1 and 2). No observations were reported from Dare County. A total of 890 individuals participated in the survey in 2016. They recorded a total of 6,230 separate observations (Table 1). At current participation levels the summer observation survey continues to provide meaningful insight into our wild turkey population. Participants reported 479 observations via the on-line application and 5,751 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. 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. 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, 4, and 5. Gobblers per hen ratios were calculated based on the sum of all observations.

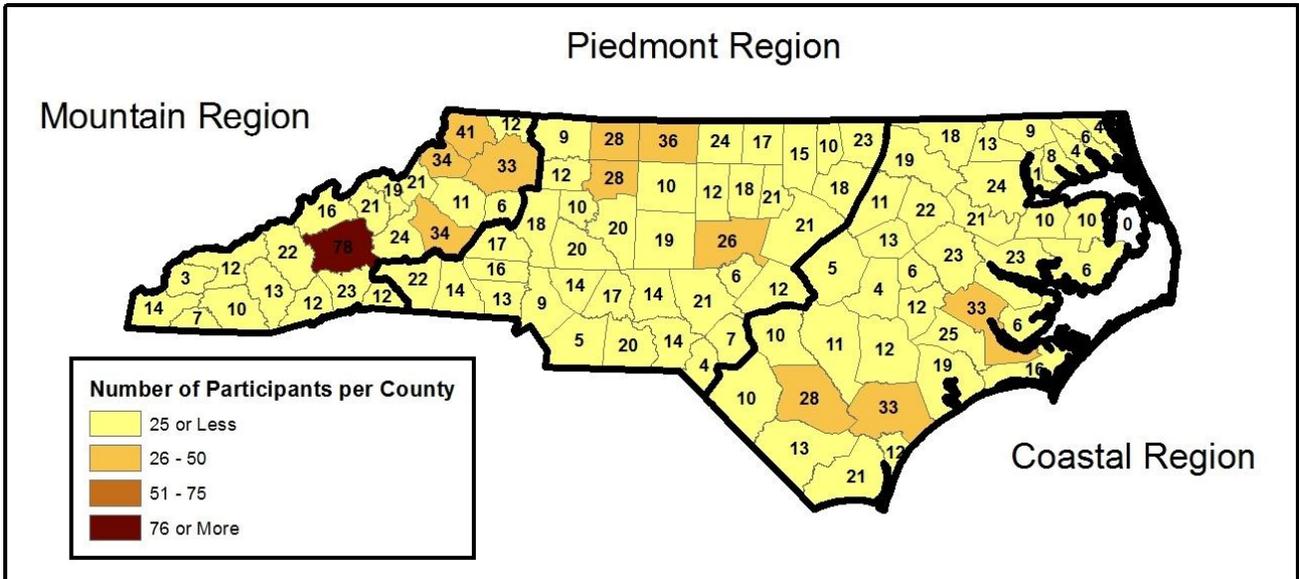


Figure 1. Number of participants reporting turkeys in each county in the 2016 Wild Turkey Summer Observation Survey. Some participants reported turkeys from more than one county.

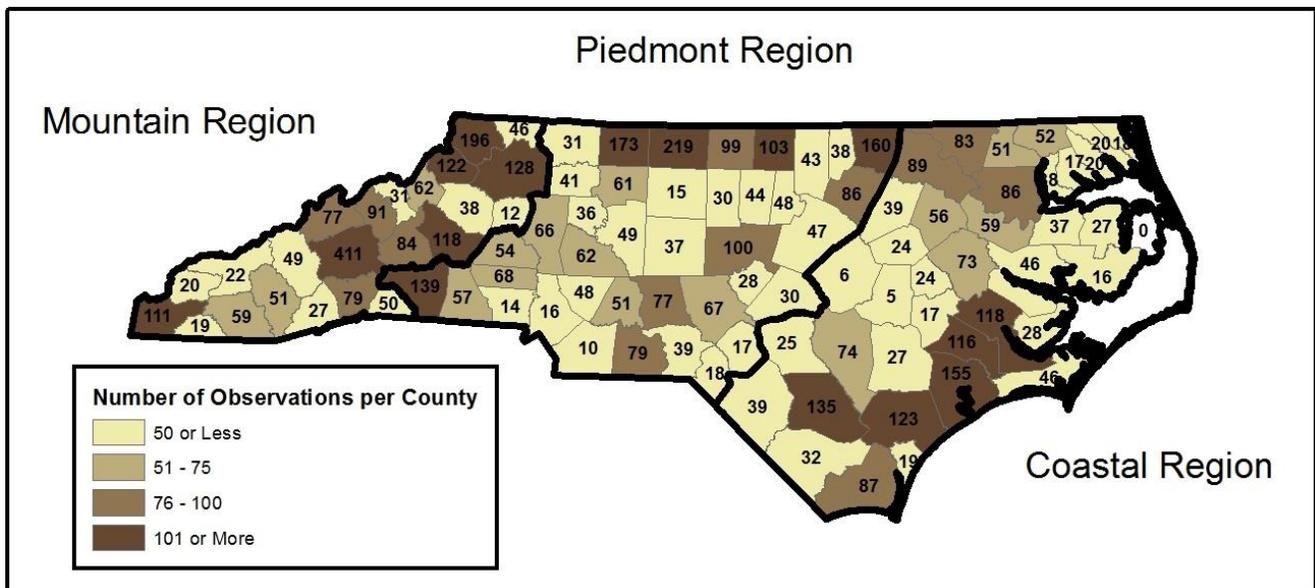


Figure 2. Number of observations reported in each county in the 2016 Wild Turkey Summer Observation Survey.

**Table 1.** Summary of observations from the 2016 Wild Turkey Summer Observation Survey.

<b>Region</b>	<b>Observations</b>	<b>Hens W/O Poults</b>	<b>Hens W/ Poults</b>	<b>Total Hens</b>	<b>Total Poults</b>	<b>Total Gobblers</b>	<b>Total Unk.</b>
<b>Coastal</b>	1,927	1,618	1,583	3,201	4,745	2,024	2,816
<b>Piedmont</b>	2,400	2,300	1,288	3,588	3,553	1,822	2,294
<b>Mountains</b>	1,903	1,831	1,392	3,223	3,923	1,893	1,513
<b>State</b>	<b>6,230</b>	<b>5,749</b>	<b>4,263</b>	<b>10,012</b>	<b>12,221</b>	<b>5,739</b>	<b>6,623</b>

### **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.

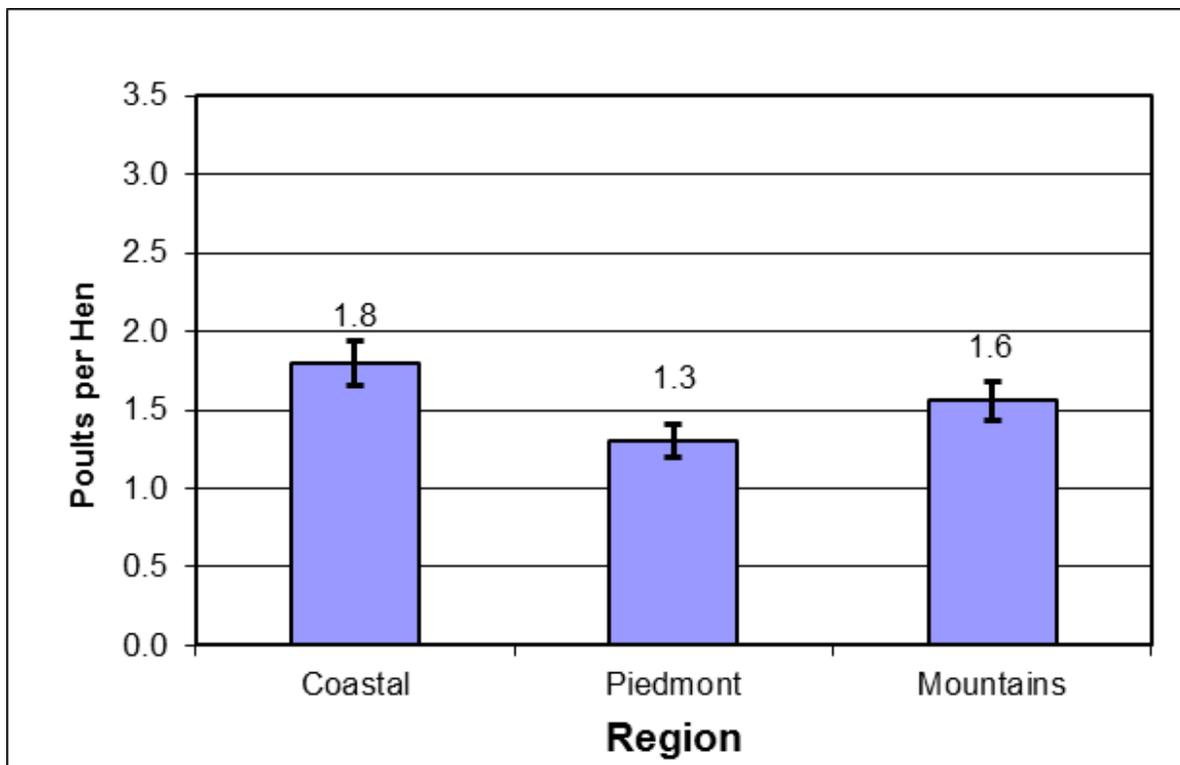
Productivity statewide was estimated to be 1.5 poults per hen (Table 2) and varied significantly across the three regions (Figure 3) (ANOVA  $p < .001$ ). The coastal region had the highest productivity estimate at 1.8 poults per hen, and the piedmont region had the lowest at 1.3 poults per hen. Poult survival statewide (estimated number of poults for hens with at least one poult) was 3.3 and also varied among regions with the coastal region being higher than the mountains and piedmont (2 Sample T-test;  $p < .05$ ).

Measures of turkey reproduction this year are very low in comparison to recent years. During the last 10 years, productivity estimates have been as high as 2.7 poults per hen (Figure 4) and estimates of poult survival have been as high as 4.0 poults per hen with poults (Figure 5). Unfortunately, this year’s statewide estimates of 1.5 poults per hen and 3.3 poults per hen with poults are the lowest on record during this time period. While it is important to note that productivity alone does not predict potential changes in the turkey population, this year’s relatively low turkey reproduction may lead to lower population and harvest levels in the next few years.

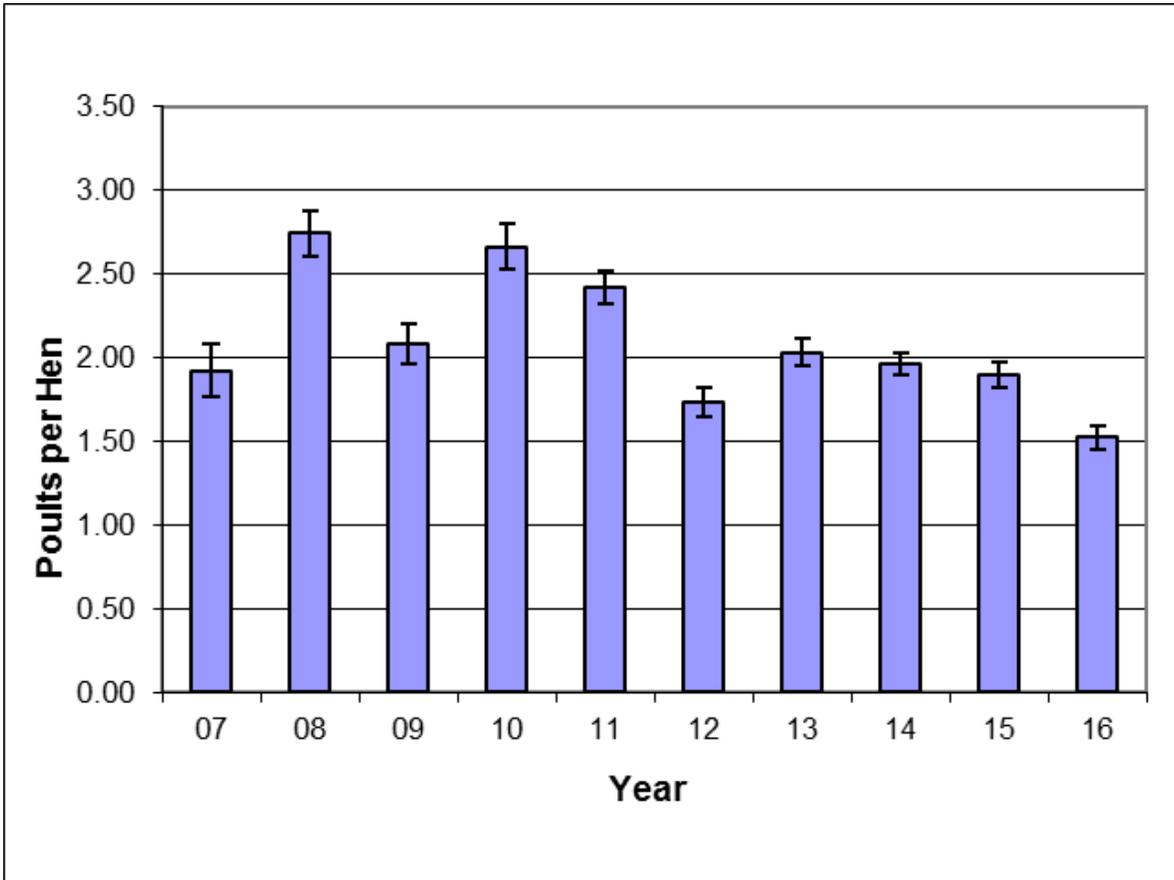
**Table 2.** Summary of turkey observations (hens with poults and gobblers per hen) and estimates of productivity and poult survival from the 2016 Wild Turkey Summer Observation Survey. Values in parentheses represent 95% confidence intervals.

Region*	% Hens with Poults (Nesting Success)	Poults/Hens with Poults (Poult Survival)	Poults/Hen Ratio (Productivity)	Gobblers/Hen Ratio
Coastal	49%	3.4 (3.2 - 3.6)	1.8 (1.7 - 1.9)	0.63
Piedmont	36%	3.2 (3.1 - 3.3)	1.3 (1.2 - 1.4)	0.51
Mountains	43%	3.2 (3.0 - 3.4)	1.6 (1.4 - 1.8)	0.59
<b>State</b>	<b>43%</b>	<b>3.3 (3.2 - 3.4)</b>	<b>1.5 (1.4 - 1.6)</b>	<b>0.57</b>

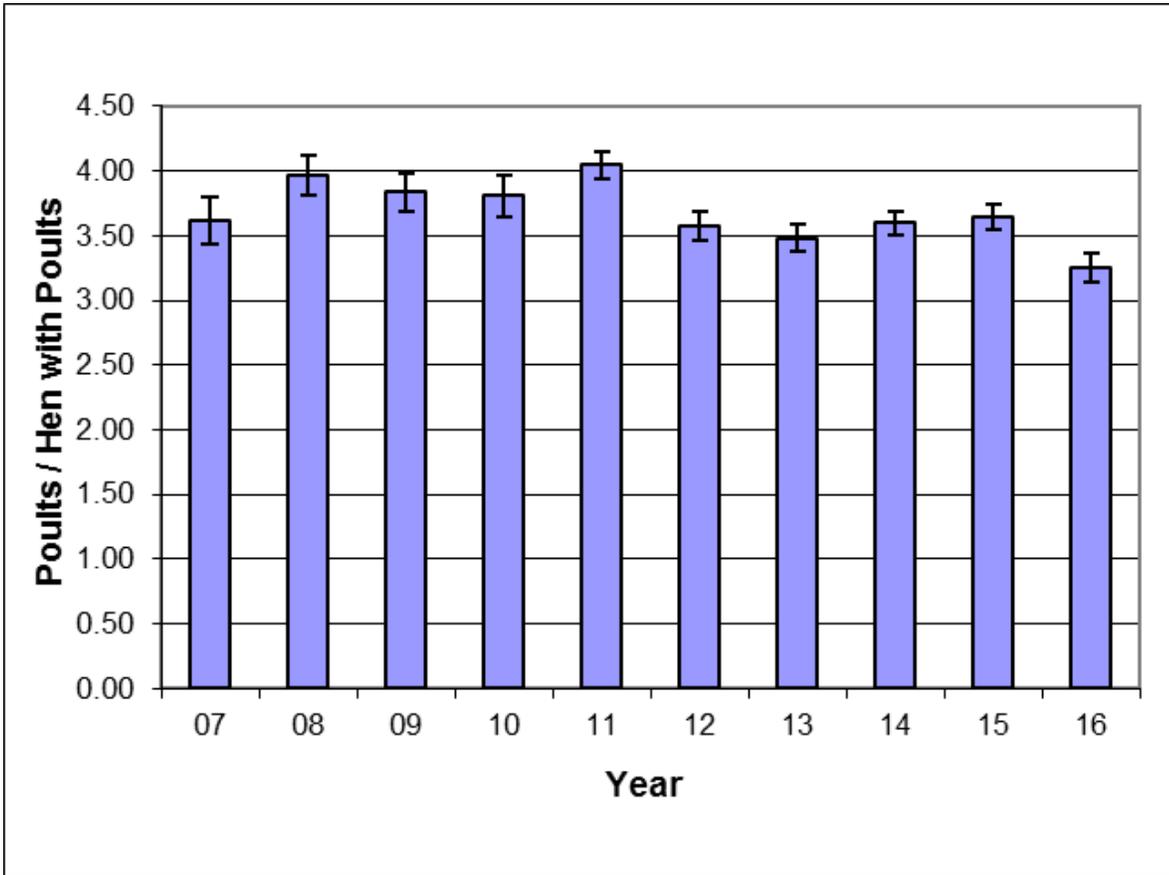
\*Geographical regions, not NCWRC regions.



**Figure 3.** Regional productivity estimates from the 2016 Wild Turkey Summer Observation Survey. Error bars represent 95% confidence intervals.



**Figure 4.** Statewide productivity estimates from Wild Turkey Summer Observation Surveys, 2007-2016. Error bars represent 95% confidence intervals.

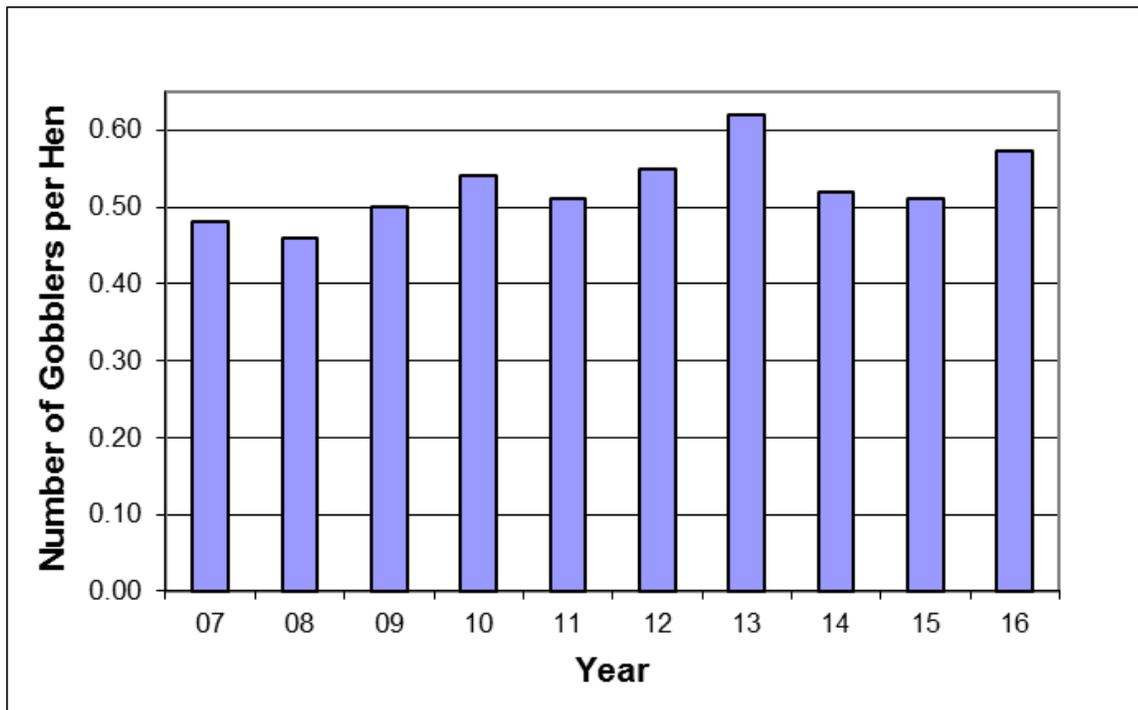


**Figure 5.** Statewide poult survival estimates from Wild Turkey Summer Observation Surveys, 2007-2016. Error bars represent 95% confidence intervals.

### **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 0.46 and 0.62 gobblers per hen. The ratio for the 2016 summer observation survey was 0.57 gobblers per hen which is above the 10-year average and is the second highest estimate during this time period (Figure 6). While the trend is generally increasing, 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 6.** Ratio of gobblers per hen observed in Wild Turkey Summer Observation Surveys, 2007-2016.