2015 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 3,099 participants. 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 1st through August 31st. Participants recorded observations in all 100 counties in North Carolina (Figures 1 and 2). A total of 968 individuals participated in the survey in 2015. They recorded a total of 6,651 separate observations (Table 1). When compared to the 2014 survey, this represents a 55% decrease in the number of participants and a 23% decrease in the number of observations. However, this decrease was not wholly unexpected as participation levels in 2014 were unusually high. At current participation levels the summer observation survey continues to provide meaningful insight into our wild turkey population. Participants reported 745 observations via the on-line application and 5,906 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 and 4. Gobblers per hen ratios were calculated based on the sum of all observations.

Figure 1. Number of participants in the 2015 Wild Turkey Summer Observation Survey.

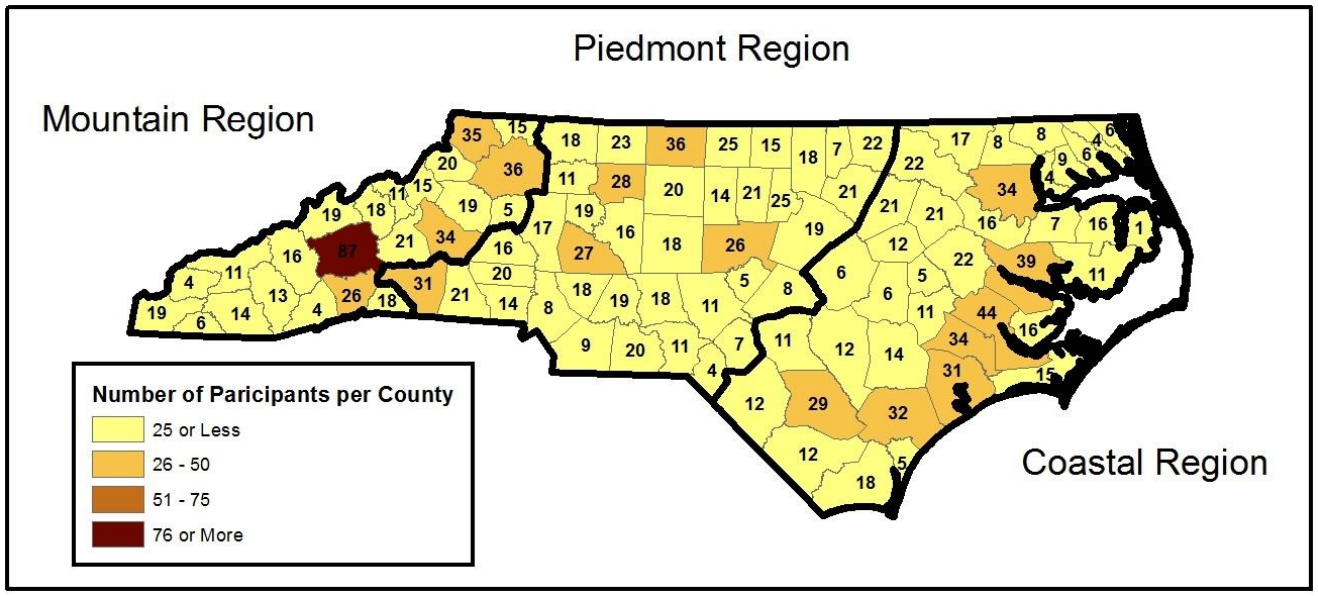


Figure 2. Number of observations reported in the 2015 Wild Turkey Summer Observation Survey.

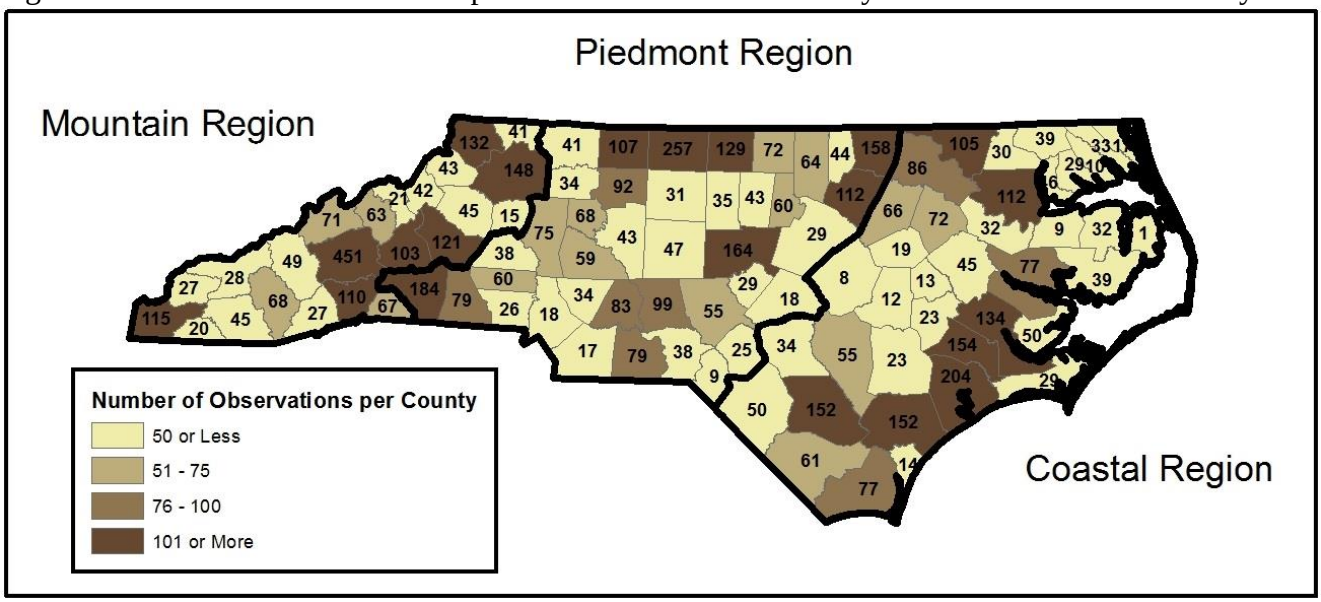


Table 1. Summary of observations from the 2015 Wild Turkey Summer Observation Survey.

Region	Observations	Hens W/O Poults	Hens W/ Poults	Total Hens	Total Poults	Total Gobblers	Total Unk.
Coastal	2,144	1,617	1,830	3,447	6,337	1,771	2,899
Piedmont	2,655	1,997	1,984	3,981	6,479	2,118	2,181
Mountains	1,852	1,487	1,571	3,058	4,806	1,422	1,200
State	**6,651**	**5,101**	**5,385**	**10,486**	**17,622**	**5,311**	**6,280**

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 2.0 poults per hen (Table 2) and did not vary substantially across the three regions (Figure 3). Poult survival statewide (estimated number of poults for hens with at least one poult) was 3.6 but appeared to be slightly higher in the coastal and piedmont regions as compared to the mountain region.

Over the last 10 years, productivity estimates have fluctuated between 1.7 and 2.7 poults per hen (Figure 4). The productivity estimates for 2015 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 265,000 turkeys in 2015) and the reported spring turkey harvest has increased 52% (from 11,706 turkeys in 2006 to 17,828 turkeys in 2015). As such, turkey productivity during this time period has been sufficient to expand the population and outpace mortality factors.

Table 2. Summary of turkey observations (hens with poults and gobblers per hen) and estimates of productivity and poult survival from the 2015 Wild Turkey Summer Observation Survey. Values in parentheses represent 95% confidence intervals.

Region*	% Hens with Poults	Poults/Hens with Poults	Poults/Hen Ratio	Gobblers/Hen Ratio
Coastal	53%	3.7 (3.5 - 3.9)	2.0 (1.9 – 2.1)	0.51
Piedmont	50%	3.8 (3.6 – 4.0)	2.0 (1.9 – 2.1)	0.53
Mountains	51%	3.4 (3.2 – 3.6)	1.9 (1.8 – 2.0)	0.47
State	**51%**	**3.6 (3.5 – 3.7)**	**2.0 (1.9 – 2.1)**	**0.51**

**Geographical regions, not NCWRC regions.*

Figure 3. Regional productivity estimates from the 2015 Wild Turkey Summer Observation Survey. Error bars represent 95% confidence intervals.

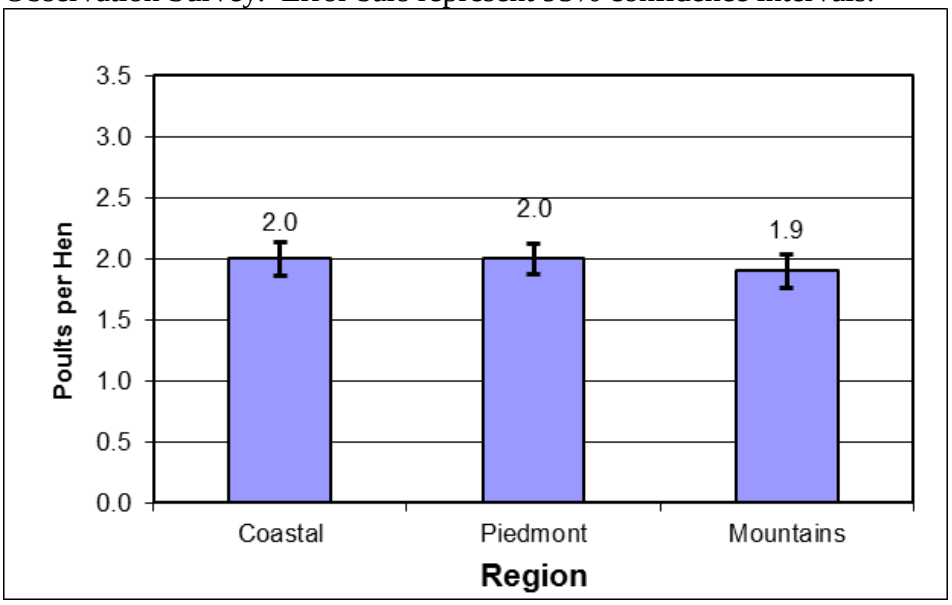
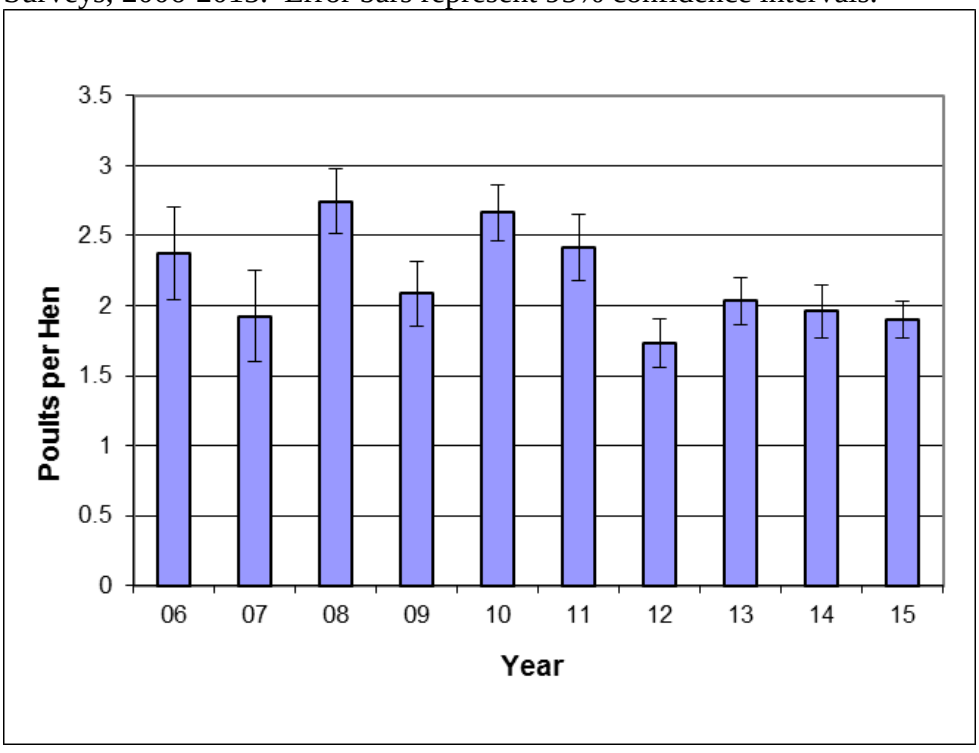


Figure 4. Statewide productivity estimates from Wild Turkey Summer Observation Surveys, 2006-2015. Error bars represent 95% confidence intervals.



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 2015 summer observation survey was 0.51 gobblers per hen which has been the average ratio observed over the last ten years. 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, 2006-2015.