

2014 WILD TURKEY PRODUCTIVITY SURVEY

Overview

Since 2010, the Delaware Division of Fish and Wildlife has used a volunteer-based survey to record observations of wild turkeys across the state during the months of July and August. The primary purpose of this survey is to generate (over time) an index of annual turkey productivity and recruitment, expressed as the ratio of observed poults per hen. Data are used to track the health and distribution of the turkey population, as well as, evaluate potential regional differences in reproductive success within Delaware.

Participants were asked to record observations of turkeys in the months of July and August during the course of their daily activities. Using a Division-provided data sheet, participants recorded the date and number of gobblers, hens, and poults seen during each observation (Figure 1). If the participant was unable to distinguish age/sex of the birds, they were recorded as 'unknown'. Effort was made to instruct observers to avoid documenting multiple encounters with the same flock or brood of birds during the survey period. Participants were also asked to record the Turkey Management Zone (TMZ) in which each encounter occurred; Delaware is divided into 18 TMZs (Figure 2).

Results

A total of 47 participants submitted 261 observations during the two-month survey period (Table 1). The number of observations recorded for each zone varied considerably, ranging from no observations (TMZ 13) to a high of 69 observations (TMZ 7; Table 1). A total of 1,720 turkeys were counted, including 863 poults and 484 hens.

To generate a turkey productivity index, the average number of poults per hen was calculated for each TMZ (Table 2). Two ratio estimates were generated for each TMZ, one that calculated poults:hen based on all hens observed in each TMZ and a second ratio of poults:brood hen which incorporated only observations of hens with broods. The poults:hen ratio provides a more conservative estimate of productivity because it incorporates observations of hens without broods, and it is possible an observer failed to detect poults that were present with a hen. Conversely, the poults:brood hen ratio may inflate productivity values by excluding observations of hens without poults. Taken together, these two productivity estimates provide a range of values for each TMZ.

Using the more conservative poults:hen estimate, productivity index values ranged from a low of 0.0 (Zones 1A and 16) to a high of 5.5 (Zone 9), with a statewide estimate of 2.1 ± 0.2 . Using the poults:brood hen ratio, estimates ranged from a low of 0.0 (Zones 1A, 1B, and 16) to a high of 6.5 (Zone 10), but with a statewide estimate of 3.4 ± 0.2 poults per brood hen. The difference in the range of values using those two estimating methods illustrates the variability in the number of brood hens observed in each zone (Table 2), and was likely an artifact of having a small sample size of observations for a given zone, rather than some zones having exceptionally high or low recruitment.

While the use of brood counts is considered a valuable, cost-effective method to measure productivity and recruitment into the fall population, little formal research has been done to quantify/qualify the relationship between an index value and annual production and recruitment. However, it is generally considered that a productivity index value of ≥ 3.0 represents a 'fair to good' production/recruitment season (B. Eriksen, National Wild Turkey Federation, personal communication). Given the statewide estimates calculated using either productivity estimate, production appears to have been poor to fair for the 2014 nesting season. Using the poults:hen estimate, which is likely the more useful of the two metrics, productivity appears to have declined since the survey began in 2010 (Figure 1) but was higher this year than in 2013. However, it is important to note that small sample size and the uneven distribution of observations may limit the accuracy of these estimates. Weather conditions in Spring 2014 were generally favorable for nesting/brooding and much less precipitation was recorded in June 2014 (2.52 in.; Dover, DE-SFS Station) compared to June 2013 (10.15 in.; Dover, DE-SFS Station), which likely negatively impacted nest success and brood survival in 2013.

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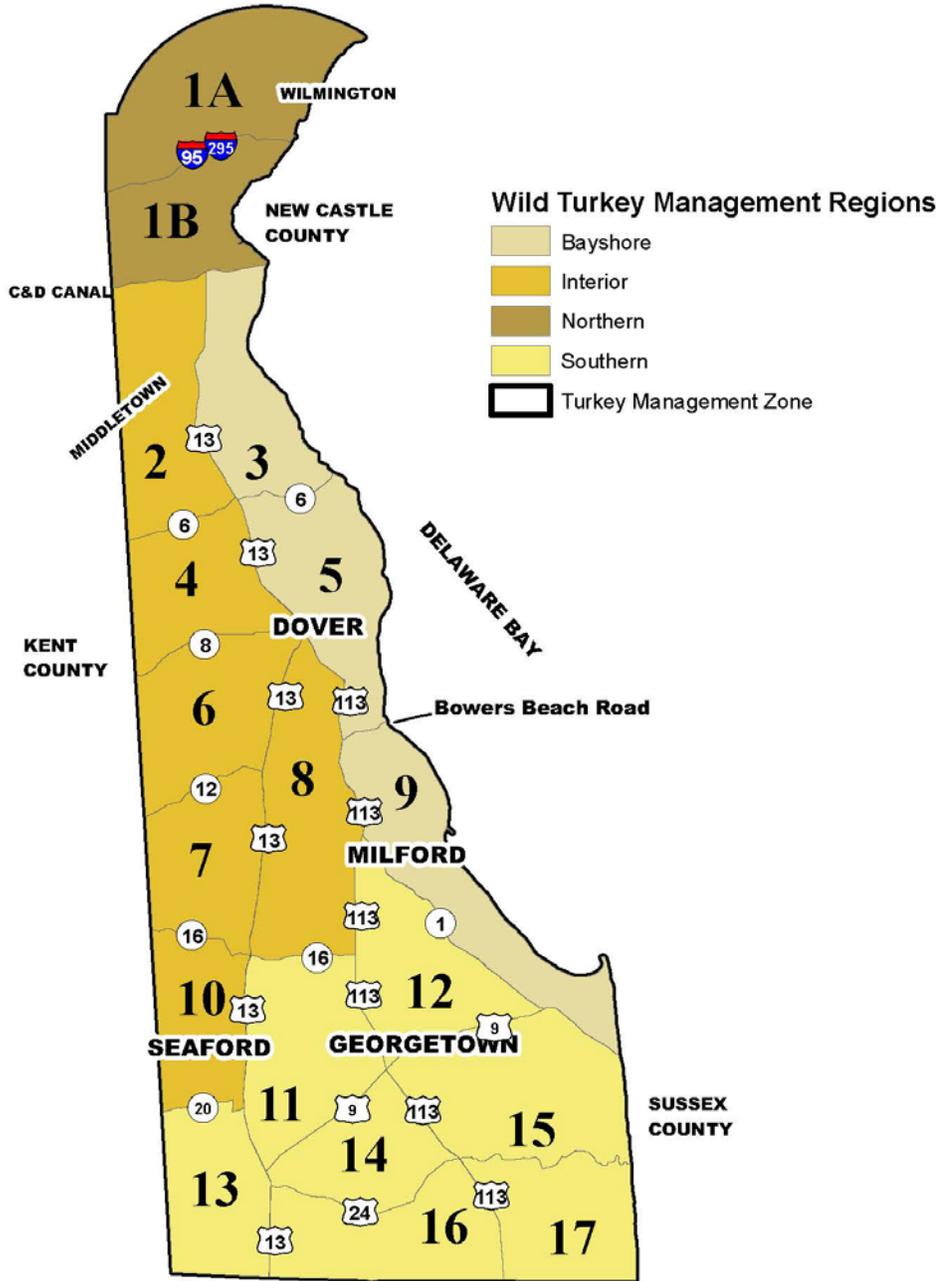


Figure 2. Wild turkey management zones in Delaware

Table 1. Summary of reported turkey observations for each Turkey Management Zone (TMZ) collected from 1 July to 31 August 2014 in Delaware. No observations were reported in zone 13.

TMZ	# of obs.	# of hens	# of poults	# of gobblers	# of unk.	Total # of birds
1A	1	1	0	0	0	1
1B	1	1	3	0	0	4
2	20	36	100	4	4	114
3	22	34	56	10	11	111
4	32	39	45	21	40	145
5	22	32	42	2	14	90
6	33	63	93	13	34	203
7	69	200	326	115	24	665
8	10	12	13	14	4	43
9	1	2	11	1	0	14
10	11	5	13	7	2	27
11	5	7	24	0	6	37
12	14	15	70	5	13	103
13	0	-	-	-	-	-
14	1	2	5	0	0	7
15	1	2	2	2	0	6
16	1	2	0	0	0	2
17	17	31	60	10	17	118
All	261	484	863	204	169	1720

Table 2. Average number of poults per hen and poults per brood hen (hen with brood) for each Turkey Management Zone (TMZ) collected from 1 July to 31 August 2014 in Delaware. No observations of hens with poults were reported in Zones 1A, 13, 15, 16. Observations of poults without hens were not included.

TMZ	# of obs. ^a	Total # of hens	Total # brood hens	Total # of poults	Poults/hen	Poults/brood hen
1A	1	1	0	0	0.0	0.0
1B	1	1	1	3	3.0	0.0
2	16	36	29	100	2.4	3.4
3	18	34	18	56	1.5	3.4
4	20	39	14	45	1.4	3.9
5	16	32	18	33	1.6	2.6
6	21	63	42	93	1.8	3.2
7	50	200	123	326	2.2	3.2
8	7	12	8	13	1.3	2.3
9	1	2	2	11	5.5	5.5
10	5	5	2	13	2.6	6.5
11	3	7	5	14	1.7	2.5
12	11	15	13	70	4.3	5.3
13	0	0	0	0	-	-
14	1	2	2	5	2.5	2.5
15	0	0	0	0	-	-
16	1	2	0	0	0.0	0.0
17	10	31	22	58	2.4	3.0

^a sightings with only gobblers observed are not included

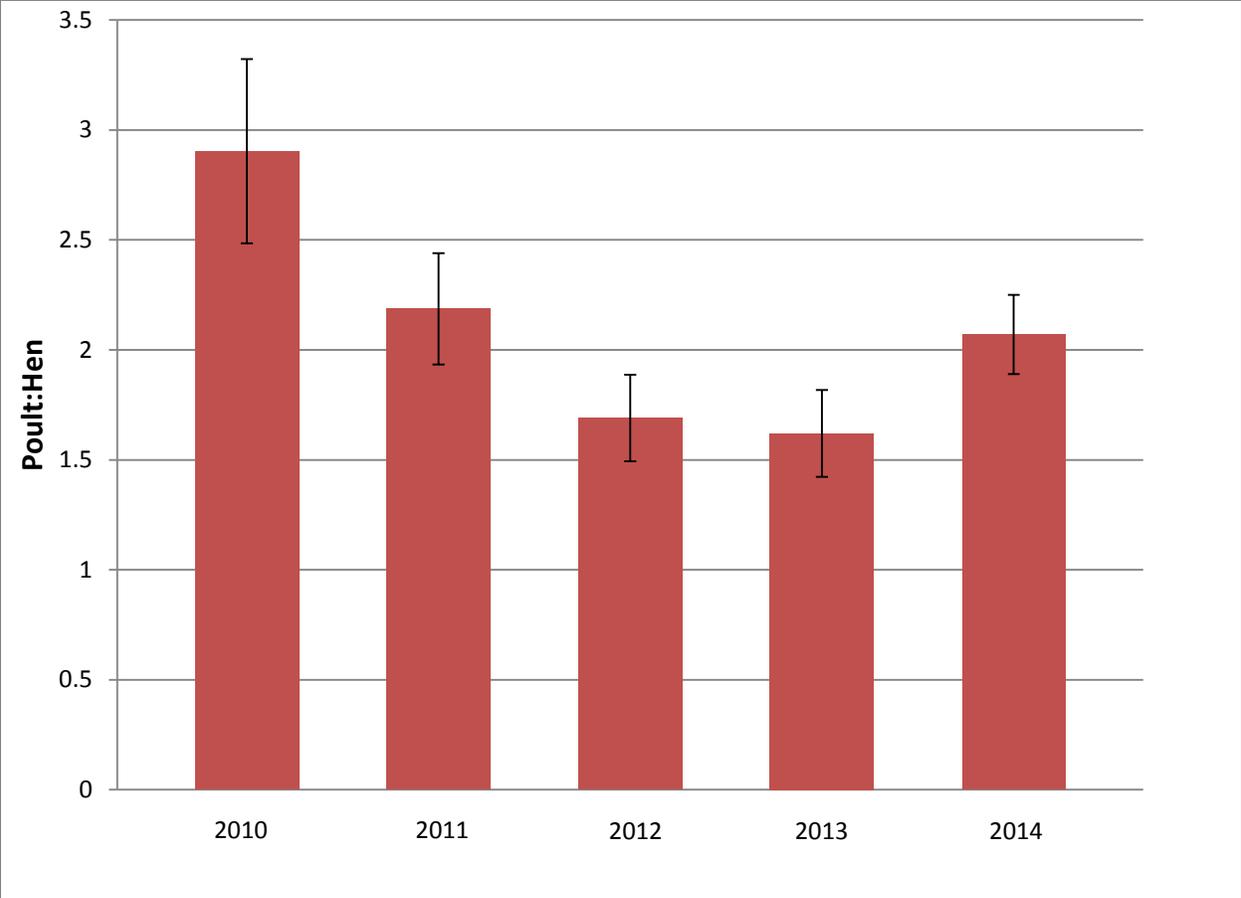


Figure 1. 2010-2014 Statewide estimates of wild turkey poults:hen in Delaware, USA