

2020 SUMMER TURKEY PRODUCTIVITY SURVEY

ACTIVITY:

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 an index of annual turkey productivity and recruitment, expressed as the ratio of observed poults (young) per hen (adult female). In addition, data will be 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 (adult male), hens, and poults seen during each observation (Figure 2.1). 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 1.2).

REMARKS:

A total of 30 participants submitted 113 observations during the two-month survey period (Table 2.1). The number of observations recorded for each zone varied considerably.

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). Statewide estimates of productivity were below 3.0 in 2020 (Table 2.2). Therefore, production appears to have been ‘poor to fair’ in most parts of the state for the 2020 nesting season. Mean poult-per-hen was half as great (1.01 [95% CI 0.66, 1.38]) as the 2019 survey year (2.15 [95% CI, 1.55, 2.78]). As suggested previously, it may be important to note that small sample size and uneven distribution of observations may limit the accuracy of these estimates.

In its tenth year, volunteer effort and participation was up 42.9% with 13 fewer observations than those submitted from 2019 ($n = 21$ participants; $n = 126$ observations). However, only 96 observations were useable in the analysis. We plan to continue this survey in 2021. We also hope to increase awareness and participation in this survey in successive years. As a result of increased participation, our data will provide better estimated trends to inform decision-making and management for the Wild Turkey in Delaware.

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**DELAWARE DIVISION OF FISH AND WILDLIFE
 WILD TURKEY OBSERVATION SURVEY FORM
 SURVEY PERIOD: JULY 1 – AUGUST 31**

| OBSERVER INFORMATION | | INSTRUCTIONS | | | | |
|----------------------|--------|--|---|--------|----------|---------|
| Name: | | <ul style="list-style-type: none"> • Each time you see turkeys, record the date, county, and number of adult hens, poults (young of the year), & adult gobblers. Record ALL turkeys seen, not just broods. Use additional sheets if necessary. • Please record the turkey management zone in which your observation was made. REFER TO INCLUDED MAP. • AVOID REPORTING DUPLICATE SIGHTINGS (e.g. if you see the same number of hens and poults in the same location several days in a row, only record once). • If you cannot determine sex or age, record them in "UNKNOWN" column – that information is still important. • Either mail, fax, or email the survey by September 10 to: Matt DiBona, Delaware Division of Fish and Wildlife 6180 Hay Point Landing Road Smyrna, DE 19977 Fax: 302-653-6755 Email: Matthew.DiBona@state.de.us | | | | |
| Address: | | | | | | |
| Phone: | | | | | | |
| Email: | | | | | | |
| DATE (month/day) | COUNTY | TURKEY MGMT ZONE <i>(refer to map)</i> | NUMBER OF TURKEYS OBSERVED <i>(Record ALL turkeys seen, not just broods)</i> | | | |
| | | | HENS | POULTS | GOBBLERS | UNKNOWN |
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Figure 2.1. Wild Turkey, *Meleagris gallopavo*, observation survey form during survey period of 1 July – 31 August 2020.

Table 2.1. Total number of hens, poult, males, and unknown turkeys observed during the survey in each region and at the statewide scale:

| Zone | Hens | Poult | Males | Unknown | Total |
|------------------|-------------|--------------|--------------|----------------|--------------|
| 1B | 26 | 30 | 8 | 1 | 65 |
| 2 | 8 | 9 | 0 | 0 | 17 |
| 3 | 19 | 21 | 8 | 0 | 48 |
| 4 | 2 | 5 | 0 | 0 | 7 |
| 5 | 20 | 22 | 2 | 0 | 44 |
| 6 | 8 | 11 | 3 | 0 | 22 |
| 8 | 3 | 4 | 1 | 0 | 8 |
| 9 | 32 | 13 | 6 | 0 | 51 |
| 11 | 8 | 2 | 9 | 0 | 19 |
| 12 | 1 | 5 | 0 | 0 | 6 |
| 13 | 1 | 1 | 0 | 0 | 2 |
| 14 | 7 | 0 | 5 | 0 | 12 |
| 15 | 7 | 0 | 7 | 0 | 14 |
| 17 | 30 | 20 | 7 | 0 | 57 |
| Unknown | 0 | 0 | 10 | 0 | 10 |
| Statewide | 172 | 143 | 66 | 1 | 382 |

Table 2.2. Poult-per-hen (PPH) ratios & 95% CIs, standard errors, and sample sizes for each region and at the statewide scale:

| Zone | PPH | 95% CI | | SE | n |
|------------------|------------|---------------|--------------|-----------|----------|
| | | Lower | Upper | | |
| 1B | 1.09 | 0.27 | 2.04 | 0.13 | 13 |
| 2 | 0.93 | 0.00 | 2.00 | 0.28 | 4 |
| 3 | 0.78 | 0.17 | 1.62 | 0.14 | 8 |
| 4 | 2.47 | 0.00 | 5.00 | 1.27 | 2 |
| 5 | 1.68 | 0.38 | 3.12 | 0.25 | 8 |
| 6 | 0.91 | 0.00 | 2.25 | 0.28 | 4 |
| 8 | 1.33 | 0.00 | 4.00 | 0.61 | 3 |
| 9 | 0.72 | 0.00 | 1.58 | 0.11 | 13 |
| 11 | 0.32 | 0.00 | 0.75 | 0.10 | 4 |
| 12 | 5.00 | 5.00 | 5.00 | 0.00 | 1 |
| 13 | 1.00 | 1.00 | 1.00 | 0.00 | 1 |
| 14 | 0.00 | 0.00 | 0.00 | 0.00 | 2 |
| 15 | 0.00 | 0.00 | 0.00 | 0.00 | 4 |
| 17 | 1.08 | 0.22 | 2.19 | 0.14 | 13 |
| Statewide | 1.01 | 0.66 | 1.38 | 0.02 | 80 |

Table 2.3: Poults-per-brood (PPB) r ratios, 95% Confidence Intervals (Cis), Standard Errors (SE), and sample sizes (*n*) for each Turkey Management Zone and Statewide.

| Zone | PPB | 95% CI | | SE | <i>n</i> |
|------------------|------|--------|-------|------|----------|
| | | Lower | Upper | | |
| 1B | 3.62 | 3.25 | 4.00 | 0.10 | 4 |
| 2 | 1.82 | 1.00 | 2.67 | 0.40 | 2 |
| 3 | 2.09 | 1.33 | 3.00 | 0.23 | 3 |
| 4 | 5.00 | 5.00 | 5.00 | 0.00 | 1 |
| 5 | 3.25 | 1.75 | 4.50 | 0.38 | 4 |
| 6 | 1.84 | 1.00 | 2.67 | 0.42 | 2 |
| 8 | 4.00 | 4.00 | 4.00 | 0.00 | 1 |
| 9 | 3.09 | 1.25 | 5.00 | 0.49 | 3 |
| 11 | 0.68 | 0.33 | 1.00 | 0.17 | 2 |
| 12 | 5.00 | 5.00 | 5.00 | 0.00 | 1 |
| 13 | 1.00 | 1.00 | 1.00 | 0.00 | 1 |
| 17 | 2.27 | 0.85 | 3.92 | 0.33 | 6 |
| Statewide | 2.69 | 2.15 | 3.25 | 0.05 | 30 |

Table 2.4: Proportion of hens observed with a brood and sample sizes (*n*) for each Turkey Management Zone and Statewide.

| Zone | Proportion H/B | <i>n</i> |
|------------------|----------------|----------|
| 1B | 0.31 | 13 |
| 2 | 0.50 | 4 |
| 3 | 0.47 | 8 |
| 4 | 0.50 | 2 |
| 5 | 0.35 | 8 |
| 6 | 0.75 | 4 |
| 8 | 0.33 | 3 |
| 9 | 0.19 | 13 |
| 11 | 0.50 | 4 |
| 12 | 1.00 | 1 |
| 13 | 1.00 | 1 |
| 14 | 0.00 | 2 |
| 15 | 0.00 | 4 |
| 17 | 0.47 | 13 |
| Statewide | 0.36 | 80 |

Table 2.5: Male to female ratio and sample sizes (n) for each Turkey Management Zone, Statewide, and Unknown.

| Zone | Male:Female | n |
|------------------|--------------------|-----------------------|
| 1B | 0.31 | 15 |
| 2 | 0.00 | 4 |
| 3 | 0.42 | 11 |
| 4 | 0.00 | 2 |
| 5 | 0.10 | 9 |
| 6 | 0.38 | 5 |
| 8 | 0.33 | 4 |
| 9 | 0.19 | 15 |
| 11 | 1.12 | 6 |
| 12 | 0.00 | 1 |
| 13 | 0.00 | 1 |
| 14 | 0.71 | 2 |
| 15 | 1.00 | 5 |
| 17 | 0.23 | 15 |
| Unknown | Undefined | 1 |
| Statewide | 0.38 | 96 |