

2008 Virginia Spring Gobbler Season Survey

by

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Abstract: An annual survey of spring gobbler hunters in Virginia was conducted to monitor turkey population trends and hunter satisfactions. Cooperators ($n = 350$) reported data on 12,744 hours of hunting during 3,730 hunts in 96 Virginia counties and cities. Cooperators heard more birds per hour and the seasonal harvest rate increased in 2008 compared to 2007. Gobbling peaked during the first week of the season. Gobbling patterns were generally similar between areas east of the Blue Ridge Mountains (EBR) and west (WBR), however gobbling rates were more variable in EBR counties. Gobbling rates tended to be high in counties EBR than WBR. Cooperators hunting on private lands heard more gobblers than those hunting on public lands. Hunter success rates were higher at the beginning of the season and during early May. The number of hens flushed per hunt suggested nest incubation began during the week of April 16, 2008. Hunter satisfaction during the 2008 season was favorable with 34% of cooperators rating the season as good and 17% rating the season as excellent. However, about 1 of every 5 cooperators rated the season as poor. Overall, hunter satisfactions in 2008 were similar but generally lower than those observed in 2006 and 2007 seasons. Many hunters (35%) reported some type of interference during the season. Slightly higher harvest rates in 2008 suggested a slightly higher turkey population. These results concur with the 7% increase in the 2008 spring gobbler harvest data reported at check stations and by phone. Survey and harvest data suggest the 2007 and 2008 population levels were considerably lower than the high population level seen during the 2006 season.

Spring gobbler hunting in Virginia is a popular sport with nearly 70,000 hunters hunting an estimated 418,254 days in 2007 (Jagnow et al. 2008). The number of spring gobbler hunters has increased almost 63% since 1993. An annual survey has been conducted since 1987 to monitor the status of the wild turkey population and assess characteristics, attitudes, and preferences of spring gobbler hunters in Virginia. Results from these surveys help evaluate wild turkey season length and bag limits, which are the primary wildlife management tools used to effect desired population goals.

METHODS

Prior to the spring gobbler season, a self-administered mail-back questionnaire was distributed to Virginia residents who were members of the National Wild Turkey Federation and to previous survey respondents ($n = 272$). The 2-part survey requested information from daily hunts, hunter opinions and other information (Appendix B). Cooperators were asked to record hunting information through the season and return their survey at the end of the season. Follow-up mailings were not attempted. Standard statistical methods were used to calculate means and standard errors (mean \pm SE) for most variables. Standard errors for variables expressed on a per hour and per hunt basis (e.g., gobbling/hr, hens seen/hunt) were calculated using ratio-estimators (Cochran 1977). Means and standard errors were calculated by post-stratified methods for the following variables: hunters seen, hunts with interference, and dogs observed.

Because daily variation in weather may effect gobbling, daily gobbling rates were calculated as 3-day moving averages. The moving average of gobblers heard per 100 hours of hunting (MG_t) on day t was calculated using:

$$\text{Moving Gobbling (MG)}_t = (G_{t-1} + G_t + G_{t+1}) / 3$$

where, G_t = ratio estimate of gobblers heard per 100 hours of hunting on day t . The moving average of gobblers killed per 100 hours of hunting (MK) was calculated with gobblers killed on day t using:

$$\text{Moving Kill (MK)}_t = (K_{t-1} + K_t + K_{t+1}) / 3$$

where, K_t = ratio estimate of gobblers killed per 100 hours of hunting on day t .

The 2008 regular season began on Saturday, April 12. Weekly time periods were considered Monday through Saturday. In addition to opening day, the weekly time periods were: Week 1, April 14-19; Week 2, April 21-26; Week 3, April 28-May 3; Week 4, May 5-10; and Week 5, May 12-17. Region boundaries were based on climatological and physiographic characteristics.

During the survey history, cooperators noted that they frequently hunt with others and they suggested that we include data on the hunting success of their partners. Therefore, beginning in 1998, cooperators were asked to report information on their hunting partners' activities, specifically, if their partners killed a gobbler on one of their hunts.

RESULTS AND DISCUSSION

Hunter Statistics

Effort and Shot Type. – Questionnaires were received from 432 individuals with daily records from 350

individuals. Cooperators ($n = 350$) reported data on 12,744 hours of hunting during 3,730 hunts in 96 counties and cities. Hunters averaged hunting 10.6 days which is a slight decrease from the 12 day average reported in 2007. Hunts averaged 3.4 hours per day (Table 1). Average length of hunts has changed little over the years. Hunts appeared to increase in length during the last 2 weeks of the season, when all-day hunting is permitted (Table 2). Cooperators scouted an average of 4.2 days prior to the season (Table 1). It appears there has been a declining trend in scouting effort over the past 10 years. The most popular shot type cooperators used was cooper coated (52%), followed by Heavi-shot or similar (26%), lead (20%), and other (2%).

Afternoon Hunting. – During the last 2 weeks of the season when cooperators could hunt all day, 18% of hunts that started in the morning finished in afternoon and 11% of hunts began in the afternoon. Gobbling rates of hunts that began after noon were lower (0.17 gobblers heard/hr) than those that began before noon (0.42 gobblers/heard hr).

Lands Hunted. – About 91% of Virginia is privately owned. Cooperators hunted primarily on privately owned land (86%) followed by federal (11%), and state (2%) owned land. The disproportionate use of public land (9% available vs. 13% hunted) suggests that public lands offer important hunting opportunities for spring gobbler hunters in Virginia.

When asked where they killed their last bird, the most prevalent habitat type for successful hunts was predominately hardwood forests (63%). Agricultural fields and pastures were identified by 11% and 10% of hunters, respectively, as the habitat type in which they killed their last bird. The least prevalent habitat types included pine forests (8%) and forest clearings (6%).

Hunter Success. – During the 2008 season, cooperators saw, called in, and killed slightly more birds than in 2007 (Table 3). Interestingly, cooperators averaged hearing slightly fewer gobbling birds in 2008 (20.4) than in 2007 (21.0), although this difference may not be significant. Cooperators, or their partners, killed 7% of birds heard in 2008, which is comparable to the 6% rate in 2006 and 7% rate in 2007. Approximately 30% of gobblers called-in were successfully harvested by the cooperator or their partner (Table 4). Crippling loss was 2.0% in 2008, the lowest crippling loss rate reported in survey history. Previously, crippling losses have ranged from 3.1 to 7.9% (Table 4). For spring gobbler hunters using shotguns, 30 yards appears to be an important distance for hunters to recognize. The mean distance reported by shotgun hunters who killed a bird was 29 yards, while the average distance for birds that were missed was 37 yards (Table 4). Rifle hunters averaged killing birds at 51 yards. Rifle hunters that shot at longer distances tended to miss (76 yards) or cripple birds (96 yards). Although the sample size is small ($n = 18$), the crippling rate of birds shot with rifles (36%) was higher than the crippling rate reported by hunters using a shotgun (2%).

Most birds (52%) were taken by 8:00 A. M. (Table 5). During the last 2 weeks of the season when cooperators may hunt all day, only 3 percent of the harvest was taken between noon and sunset.

Daily harvest rates (MK/100hr) were highest during the first few days of the spring gobbler season but declined steadily into the second and third weeks of the season. Harvest rates then increased in the last 2 weeks of the season (Fig. 1). This pattern may suggest that gobblers are more vulnerable to

hunting very early and very late in the season. Early in the season gobblers may be more vulnerable to hunting as they are beginning the mating process and are eagerly searching for hens. Their vulnerability appears to decline during the mating process and then increases again as hens begin to incubate nests in early May.

Cooperators reported the age distribution of gobblers harvested was 10%, 34%, 42%, and 14%, for 1-4+ year old birds, respectively (Table 6). Over the course of the survey, the "jake" (1-year-old) kill has averaged 13% (range 7% - 22%) of the reported harvest. The 2008 "jake" kill was slightly below the long-term average. In recent years, the highest harvest rate of "jakes" was seen in 2005 (15%).

Most cooperators (83%) indicated they typically pass up opportunities to shoot "jakes". Therefore only a small percentage (17%) normally take "jakes". However, for whatever reason, in the 2007 and 2008 spring seasons the percentage of hunters that actually harvested a "jake" was much higher. In 2007, 31% of cooperators harvested a "jake". In 2008, 40% of cooperators took advantage of the opportunity to harvest a "jake". It is important to note however, that these data are very different from the age data of birds harvested by cooperators where only 10% of the bag were "jakes".

Most gobblers killed by cooperators were alone (48%) or with other gobblers (28%). However, 13% of harvested gobblers were with hens and 11% were with both gobblers and hens. The average weight reported by cooperators was 18.7 pounds. The heaviest bird reported weighed 25 pounds. Weights of gobblers harvested appeared to change during the season. Gobblers were generally heavier in the early part of the season. Weights averaged 19.2, 18.4, 18.8, and 18.0 pounds for weeks 1-5, respectively.

Average spur length was 0.94 inches. In previous years spur lengths tended to be longer during the latter parts of the season. However, in 2008 there appeared to be little difference in spur lengths throughout the season. Average spur length by week was: 0.94, 0.94, 0.96, 0.96, and 0.93 inches for weeks 1-5, respectively. Until the 2008 season, we believed that older birds may be more vulnerable or available to hunters as hens begin to incubate nests. Further study is needed to fully evaluate this potential relationship.

Hunter satisfaction during the 2008 season was generally favorable with 51% of hunters rating the season as good or excellent (Table 7). These ratings are comparable to most of the preceding seasons but are significantly lower than the high ratings reported in 2001 (68%) and 2006 (65%). In 2008, 21% of cooperators rated the season as poor. This rate is comparable to 2007, but is much higher than the 2001 and 2006 seasons where only 12% of cooperators rated the season as poor.

Hunter satisfactions differed by land type. The percentage of cooperators rating hunts as poor on National Forest lands (24%) was much higher than cooperators rating hunting on private lands hunts as poor (7%). Similarly, the percentage of private land hunters that rated their season as excellent (9%) was higher than cooperators rating their season as excellent on National Forest lands (2%).

The 2008 season was the fifth season for the special youth spring gobbler hunt which occurs 1 week prior to the opening of the regular season. Approximately 9% of cooperators accompanied young hunters on the youth day. The highest participation rate during the youth hunt by cooperators was during the first season (2004; 23%). Prior to the 2008 season participation ranged between 14- 15%.

Other Species Seen. - Cooperators reported seeing a total of 31 bears (0.8 bears per 100 hours) in 2008. This observation rate is identical to 2007. However, in 2006, cooperators saw more bears ($n = 62$, 1.3 per

100 hours). The observation rate of bears in 2005 was 0.7 bears per 100 hours.

Cooperators saw 91 coyotes (2.4 coyotes per 100 hours) in 2008. This rate is identical to 2007 and was a slight increase over 2006 (2.2 coyotes per 100 hours).

Gobbling Statistics

State, Regional. – In 2008, hunters heard 0.56 gobblers per hour (Table 8) and 1.91 gobblers per hunt (Table 9). Compared to 2007, the average number of gobblers heard per hour increased 12% and the average number of gobblers heard per hunt increased 10%. These estimates suggest an increase in the spring gobbler population, which is supported by a 7% increase in the statewide harvest reported at game check stations and by phone. Research has shown total harvest to be a better indicator of population levels than gobbling rates which can be affected by numerous variables. Based on either the harvest or gobbling index, the turkey population appears to have increase slightly from 2007 to 2008. This is encouraging based on the poor reproduction we've seen over the past 4 years.

For past 10 years, the West Piedmont Region has had the highest gobbling rate per hour in Virginia (Table 8). In 2008, the West Piedmont region gobbling rate again led the state with 0.63 birds heard per hour; the Northern Region was a close second with 0.61 birds heard per hour. Gobbling rates in the Northern Region have recently increased relative to other regions. For example, the Northern region ranked fourth in 2005 with 0.47 birds heard per hour and fifth in 2004 with 0.41 birds heard per hour. In 2008, the Tidewater and Eastern Piedmont Regions tied for placed third, while the lowest gobbling rates were reported in the Southwest and Central Mountain Regions (Table 8).

Most cooperators (with opinions) believed their turkey populations were stable (56%). However, 27% believed their population was declining. Only 17% believed their population was increasing.

Chronological. – Gobbling activity is thought to have 2 peak periods through the season. The first peak occurs in March as gobblers attempt to attract hens. Gobbling declines in late March and early April during peak mating. A second peak may occur in mid-late April as hens leave the gobblers to begin laying eggs and incubating nests.

Gobbling activity was highest during the first week of the season (Table 10). Gobbling rates declined steadily throughout the remainder of the season. The highest daily gobbling rates were seen on April 17 and 18 (Fig.1). Last year, the highest daily rates were seen on April 19 and 20. Gobbling patterns were generally similar between areas East (EBR) and West of the Blue Ridge Mountains (WBR), however EBR gobbling rates appeared more variable (Fig. 2). Regional gobbling patters were generally similar, declining by week, except for the Southwest, where gobbling rates were higher in Week 2 (Table 10).

Intensity. – We grouped gobbling intensity into 3 categories (no gobbling, poor gobbling, or fair-good). Good hunting conditions, as characterized by a higher percentage of hunts with fair-good gobbling, declined steadily through the season (Fig. 3). Given this observation it is not surprising that hunts where no gobbling was heard steadily increased through the season. The percentage of hunts with gobbling only on the roost or poor gobbling conditions was similar during Weeks 1 - 3 but declined in Weeks 4 -

5 (Fig. 3).

Land Type. – In 2008, individuals hunting on private lands (0.58 ± 0.01 , $n = 3,212$) heard more birds than those hunting on federal (0.54 ± 0.02 , $n = 422$) or state lands (0.28 ± 0.03 , $n = 90$). These results are identical to previous surveys where gobbling rates on private lands have been higher than public-owned lands.

Hen Statistics

Cooperators averaged hearing 0.61, seeing 0.85, and calling in 0.20 hens per hunt during the 2008 season (Table 11). The rates for hens heard and seen during 2008 were higher than in 2007. The number of hens called in was similar to last year. These observations tended to support the higher rates of gobblers heard, seen, and killed in 2008.

Throughout the survey history, the average number of hens seen and called in per hunt typically declines by week of the season (Tables 12 and 13). Since the season was extended to all-day hunting in 2005 we have generally seen an increase in hens observed in Week 5. This observation could be due to a number of factors. First, afternoon hunters may be more likely to see hens than morning hunters if their visibility increases (in fields and clearings) in the afternoons. We also thought this increase in hens seen at the end of the season might be an indication of nest abandonment due to any potential number of factors (weather, predation). Furthermore, we hoped this relationship might otherwise help us know what to expect or predict with reproduction. This relationship appeared to be correlated with recent years of poor and good reproduction. However, the 2008 the relationship proved unreliable as the hen observation data suggested good reproduction, which is not what we observed from fall feather collections. So, while any potential relationship could be expected to provide some poor predictions by virtue of sample sizes or other confounding factors, we will necessarily need to watch this more closely in the coming years to fully evaluate these correlations.

The number of hens flushed per 100 hours was higher during the second, third, and fifth weeks of the season (Table 14). Research on wild turkey hens in Virginia indicates that peak incubation normally takes place in late April (Norman et al. 2000). The increase in hen flushing rates in the third and fifth week of the season generally coincides with our research findings. A total of 71 hens were flushed from nests by cooperators during 3,730 hunts in 2008. Hens were flushed on nearly 2% of cooperator hunters or one for every 53 hunts. This rate is slightly higher than last year where a hen was flushed every 81 hunts.

Interference

Hunters. – Many (35%) cooperators experienced interference from other hunters in 2008 (Table 15). The rate of interference reported by hunters appears to be relatively stable over the past 10 years, ranging between 32 and 40% (Table 15). Interference rates during the past 10 years appear lower than rates reported prior to 1993 when >50% of cooperators reported interference during the spring gobbler season (Table 15).

Cooperators observed an average of 3.4 other hunters in 2008 (Table 15). The most frequently reported (mode) number was 2. The median number of hunters seen was also 2. The highest number of hunters observed by a cooperator was 20 over the course of the season.

Violations

About 1 out of 5 cooperators (19%) reported seeing a game law violation in 2008. This level of violations is slightly higher than last year (15%). As in previous years, trespassing was the most often cited violation (Table 16). Illegal killing of hens, either intentionally or mistakenly identified as a gobbler, is perhaps of greatest concern because of the potential effects on population status and growth.

We have found a 6% illegal mortality rate of female turkeys in Virginia during a study of radio marked between 1989 and 1994 (Norman et al. 2007).

Fall Hunting

About 40% of cooperators also hunted turkeys in the fall season. The Department would like to increase interest in fall hunting as interest and fall harvests have declined. Those hunters that did not hunt in the fall cited the following reasons why they chose not to hunt turkeys in the fall: (1) hunted deer instead (38%); (2) to save turkey tags for spring (25%); (3) not enough time (12%); (4) other reasons (12%), (5) hunted other game (8%), and had other hobbies (3%).

Remarks

Cooperators provided a variety of comments on their observations, preferences and opinions on the 2008 season. A summary of these remarks is included in Appendix A. Remarks were not included if the name and address were not included on the survey.

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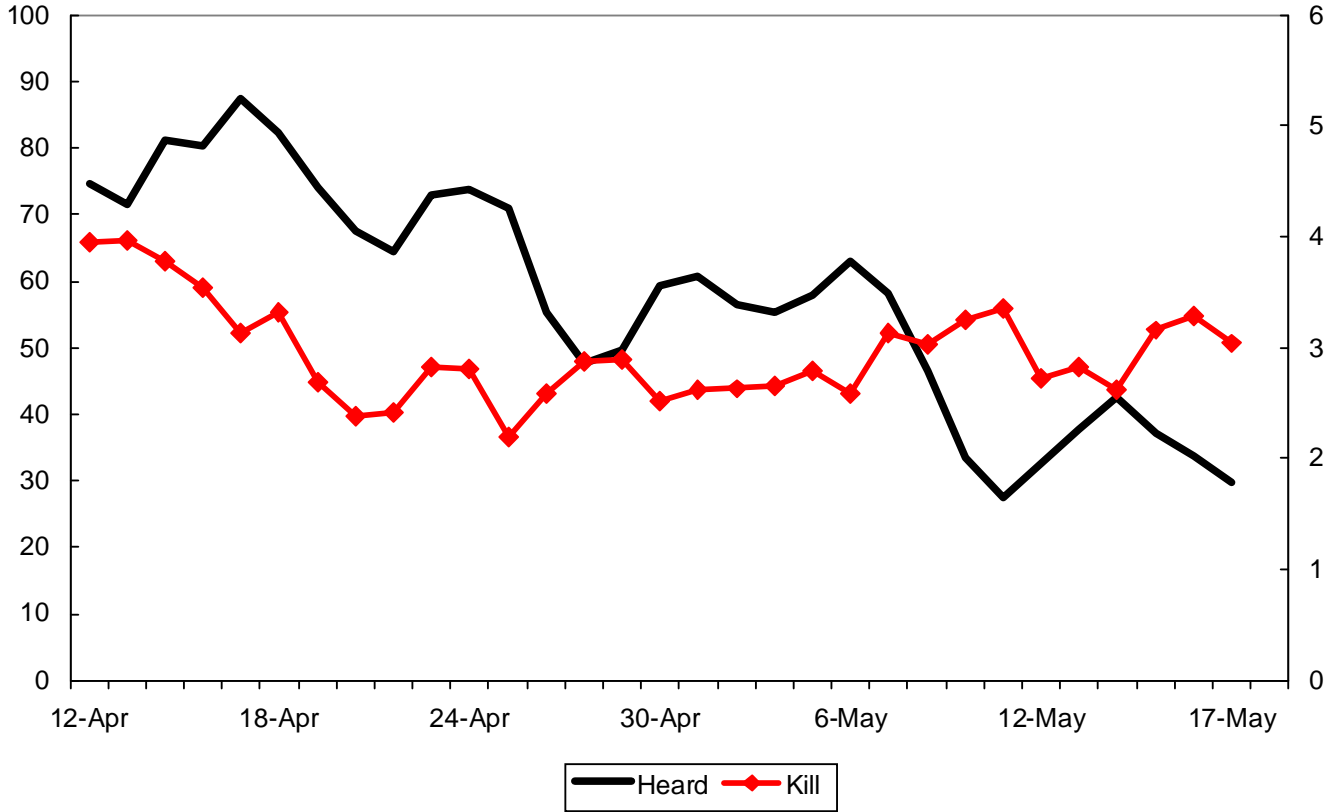


Figure 1. Statewide gobbling and harvest rates by day in Virginia, 2008.

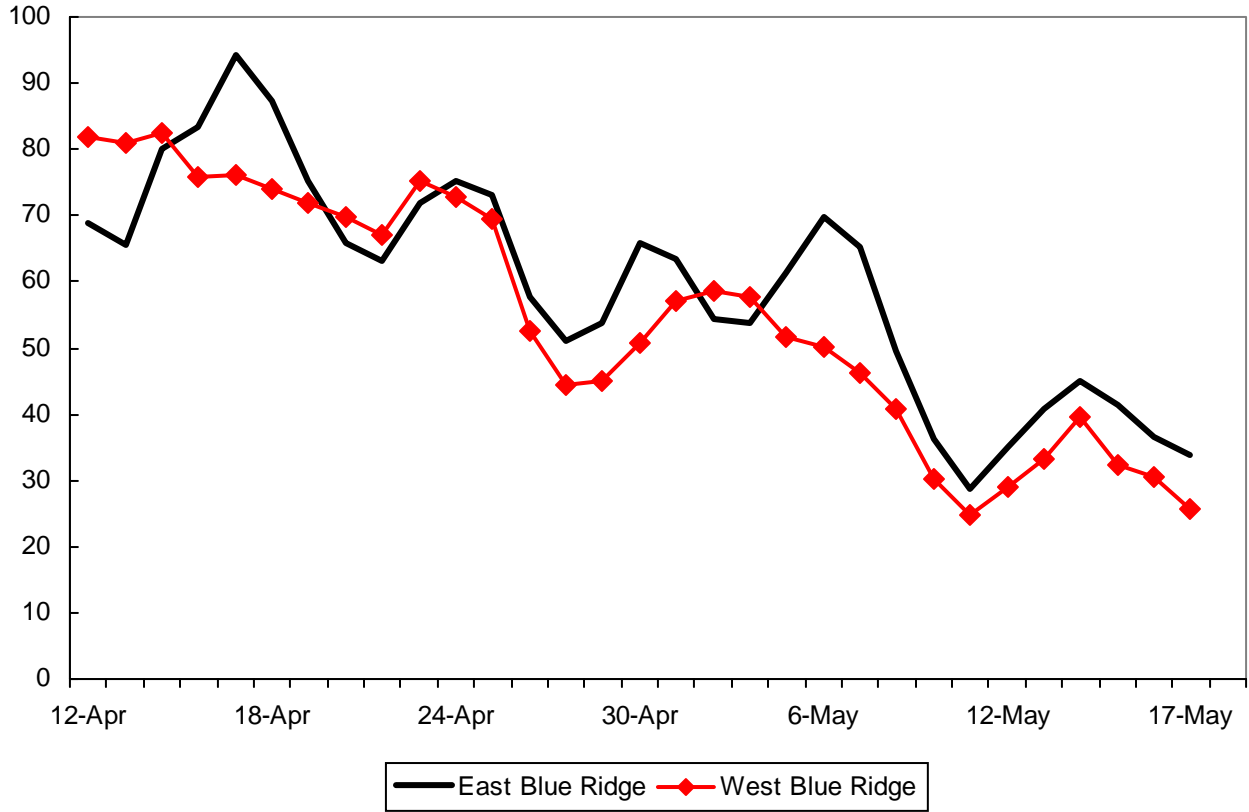


Figure 2. Daily gobbling rates by region in Virginia, 2008.

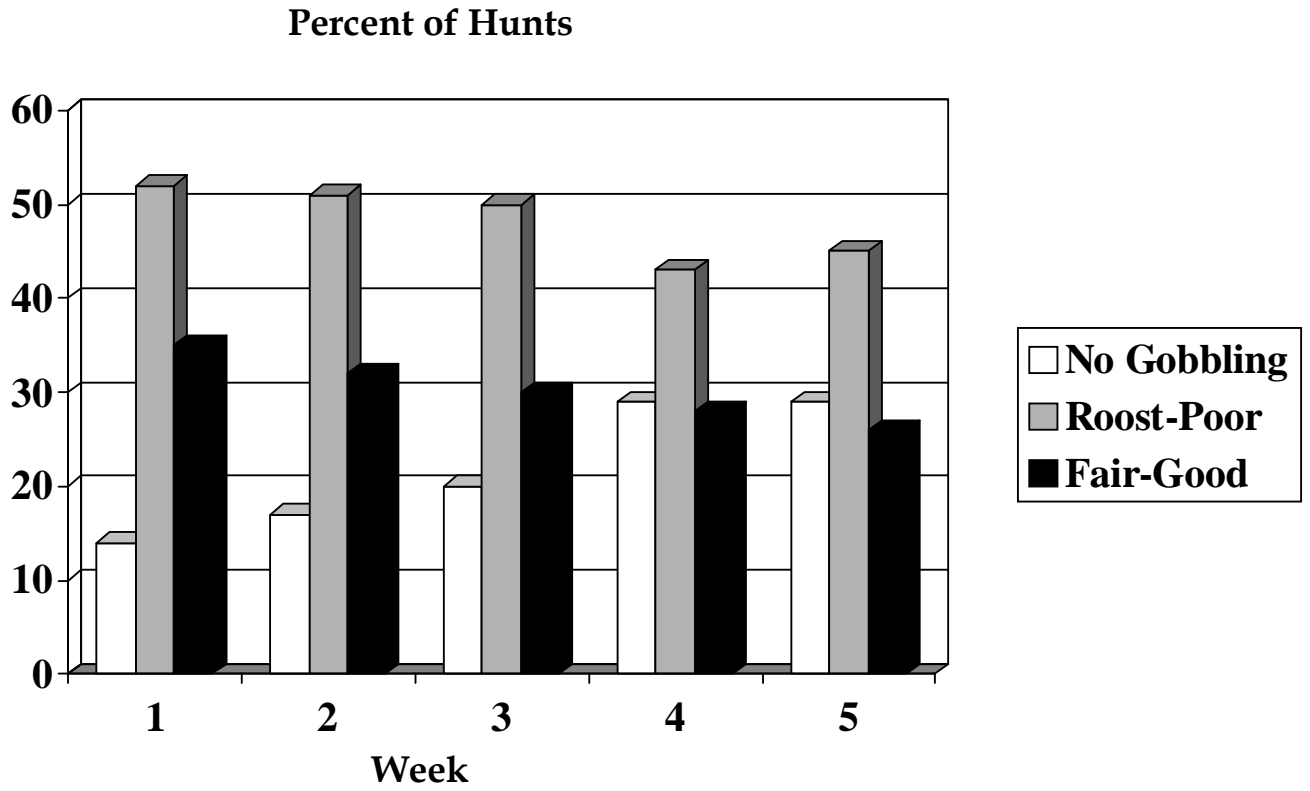


Figure 3. Gobbling intensity by week in Virginia, 2008.

Table 1. Hunting effort, scouting, and decoy use by cooperating wild turkey hunters in Virginia.

Year	Hunters (<i>n</i>)	Hunting Days (<i>n</i>)	Hunts/Season	Hours/Day	Scouting Days/ Season	% Using Decoys
1987	133	1,364	11.5	3.2		15
1988	230	2,447	13.7	3.2		7
1989	241	2,622	13	3.1		15
1990	303	3,703	12.9	3.3		18
1991	408	4,459	10.9 ± 0.3	3.2 ± 0.02		15
1992	446	5,031	11.3 ± 0.3	3.2 ± 0.03		25
1993	369	4,316	11.7 ± 0.4	3.2 ± 0.02		36
1994	341	4,018	12.0 ± 0.4	3.2 ± 0.03	4.7 ± 0.3	46
1995	401	4,678	11.7 ± 0.4	3.3 ± 0.03	6.7 ± 1.1	46
1996	461	5,502	11.7 ± 0.3	3.2 ± 0.02	5.1 ± 0.3	56
1997	486	5,610	11.5 ± 0.3	3.3 ± 0.02	5.0 ± 0.2	60
1998	455	5,085	11.2 ± 0.3	3.3 ± 0.02	5.4 ± 0.3	61
1999	490	5,704	11.6 ± 0.3	3.3 ± 0.02	5.1 ± 0.3	63
2000	441	5,655	12.8 ± 0.3	3.3 ± 0.02	5.0 ± 0.3	65
2001	418	5,368	12.8 ± 0.4	3.3 ± 0.02	4.9 ± 0.3	69
2002	380	4,726	12.1 ± 0.3	3.4 ± 0.02	5.0 ± 0.3	71
2003	355	4,545	12.8 ± 0.4	3.3 ± 0.02	4.6 ± 0.3	72
2004	352	4,352	12.5 ± 0.4	3.4 ± 0.02	4.3 ± 0.3	66
2005	345	4,303	12.9 ± 0.5	3.4 ± 0.03	4.3 ± 0.2	69
2006	407	4,840	11.5 ± 0.3	3.4 ± 0.03	3.9 ± 0.9	70
2007	272	3,314	12.0 ± 0.4	3.4 ± 0.03	3.1 ± 0.2	63

2008	350	3,730	10.6 ± 0.4	3.4 ± 0.03	4.2 ± 0.2	--
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Table 2. Hunting effort by week for cooperating wild turkey hunters in Virginia.

Year	Day 1	Hours/Hunt ± SE n (Hunts)				
		Week				
		1	2	3	4	5
1996	3.93 ± 0.07 378	3.31 ± 0.04 1,458	3.16 ± 0.04 1,181	3.17 ± 0.05 978	3.09 ± 0.06 822	3.17 ± 0.06 670
1997	3.33 ± 0.07 400	3.38 ± 0.04 1,467	3.35 ± 0.04 1,128	3.10 ± 0.05 942	3.15 ± 0.05 848	3.27 ± 0.05 799
1998	3.89 ± 0.08 394	3.43 ± 0.04 1,480	3.12 ± 0.05 1,101	3.10 ± 0.05 808	3.14 ± 0.06 716	2.98 ± 0.06 597
2000	3.74 ± 0.07 363	3.45 ± 0.04 1,392	3.31 ± 0.04 1,087	3.40 ± 0.05 999	3.24 ± 0.06 975	3.07 ± 0.06 829
2001	4.00 ± 0.08 363	3.48 ± 0.04 1,348	3.34 ± 0.05 1,136	3.27 ± 0.05 1,004	3.22 ± 0.05 866	3.08 ± 0.06 639
2002	4.00 ± 0.08 324	3.47 ± 0.04 1,385	3.46 ± 0.05 909	3.29 ± 0.05 811	3.28 ± 0.06 732	3.09 ± 0.06 547
2003	3.85 ± 0.08 293	3.38 ± 0.04 1,172	3.35 ± 0.06 1,004	3.29 ± 0.05 855	3.19 ± 0.06 600	3.18 ± 0.06 619
2004	3.98 ± 0.04 308	3.40 ± 0.02 1,013	3.38 ± 0.02 975	3.20 ± 0.02 748	3.47 ± 0.02 661	3.55 ± 0.02 603
2005	3.75 ± 0.09 278	3.24 ± 0.05 894	3.16 ± 0.05 795	3.10 ± 0.07 591	3.57 ± 0.01 688	3.50 ± 0.01 617
2006	3.36 ± 0.04 291	3.35 ± 0.02 1320	3.21 ± 0.02 973	3.20 ± 0.02 798	3.50 ± 0.02 779	3.87 ± 0.02 624
2007	3.47 ± 0.11 171	3.39 ± 0.06 650	3.18 ± 0.06 619	3.24 ± 0.06 529	3.70 ± 0.10 488	3.84 ± 0.13 385
2008	3.70 ± 0.09 249	3.39 ± 0.05 961	3.35 ± 0.05 774	3.10 ± 0.06 654	3.55 ± 0.11 593	3.69 ± 0.12 467

Table 3. Season gobbler statistics reported by cooperating wild turkey hunters in Virginia.

Year	Gobblers Heard	Gobblers Called	Gobblers Seen	Gobblers Killed	Gobblers Crippled	Gobblers Missed
1991	13.4 ± 0.6	3.0 ± 0.2	4.6 ± 0.03	0.8 ± 0.05	0.07 ± 0.01	0.30 ± 0.03
1992	16.3 ± 0.7	3.6 ± 0.2	5.4 ± 0.3	0.8 ± 0.04	0.05 ± 0.01	0.30 ± 0.04
1993	16.0 ± 0.8	3.3 ± 0.2	4.9 ± 0.3	0.7 ± 0.04	0.05 ± 0.01	0.30 ± 0.03
1994	14.6 ± 0.7	3.5 ± 0.2	5.8 ± 0.4	0.72 ± 0.04	0.04 ± 0.01	0.29 ± 0.03
1995	20.1 ± 0.8	4.5 ± 0.2	6.6 ± 0.3	0.93 ± 0.04	0.07 ± 0.01	0.33 ± 0.03
1996	20.1 ± 0.8	5.0 ± 0.2	7.7 ± 0.4	0.91 ± 0.05	0.05 ± 0.01	0.33 ± 0.03
1997	21.7 ± 0.8	4.7 ± 0.2	7.7 ± 0.4	0.87 ± 0.04	0.04 ± 0.01	0.30 ± 0.03
1998	19.4 ± 0.8	4.6 ± 0.2	7.4 ± 0.3	0.84 ± 0.04	0.05 ± 0.01	0.38 ± 0.03
1999	20.6 ± 0.8	2 ± 0.2	.2 ± 0.3	0.81 ± 0.04	0.07 ± 0.01	0.33 ± 0.03
2000	22.0 ± 0.9	4.5 ± 0.2	7.9 ± 0.4	0.87 ± 0.04	0.06 ± 0.01	0.35 ± 0.03
2001	26.7 ± 1.1	5.7 ± 0.3	9.1 ± 0.5	1.04 ± 0.05	0.06 ± 0.01	0.35 ± 0.03
2002	27.8 ± 1.0	5.1 ± 0.3	8.8 ± 0.5	1.00 ± 0.05	0.06 ± 0.01	0.45 ± 0.04
2003	25.1 ± 1.1	5.4 ± 0.4	8.7 ± 0.6	1.01 ± 0.05	0.06 ± 0.01	0.40 ± 0.04
2004	21.1 ± 0.9	4.2 ± 0.3	8.2 ± 0.6	0.88 ± 0.05	0.04 ± 0.01	0.20 ± 0.02
2005	21.3 ± 1.0	5.0 ± 0.3	9.0 ± 0.5	0.92 ± 0.05	0.03 ± 0.01	0.31 ± 0.04
2006	24.7 ± 1.0	5.1 ± 0.3	9.1 ± 0.4	1.07 ± 0.05	0.05 ± 0.01	0.29 ± 0.03
2007	21.0 ± 1.1	4.7 ± 0.3	8.1 ± 0.6	0.99 ± 0.06	0.04 ± 0.01	0.27 ± 0.04
2008	20.4 ± 1.0	4.9 ± 0.3	8.5 ± 0.5	1.05 ± 0.06	0.03 ± 0.01	0.25 ± 0.03

Table 4. Shot distances and harvest success of cooperating hunters in Virginia.

Year	Shotgun Distance Killed (Yd) ^a	Shotgun Distance Missed (Yd) ^a	Shotgun Distance Crippled (Yd) ^a	% Called in Killed - Cooperator ^b	% Called in Killed- Cooperator & Partner ^b	% Crippling Loss ^b All weapons
1995	26.5 ± 0.5 (362)	32.9 ± 1.1 (103)	33.5 ± 2.2 (26)	20		6.7
1996	27.1 ± 0.5 (398)	34.5 ± 0.9 (115)	35.9 ± 2.0 (24)	18		5.6
1997	26.1 ± 0.5 (405)	34.4 ± 1.0 (107)	37.6 ± 0.3 (16)	18		3.9
1998	27.6 ± 0.4 (411)	33.8 ± 1.2 (104)	34.9 ± 1.9 (18)	18	30	5.3
1999	26.9 ± 0.5 (418)	36.1 ± 1.4 (92)	29.2 ± 3.8 (16)	19	30	7.9
2000	27.6 ± 0.7 (405)	34.2 ± 1.2 (87)	31.5 ± 2.5 (19)	19	29	6.3
2001	28.4 ± 0.8 (468)	33.7 ± 1.2 (72)	35.1 ± 2.1 (18)	18	28	5.8
2002	29.4 ± 0.8 (383)	36.0 ± 1.2 (88)	35.3 ± 2.5 (20)	20	30	5.4
2003	28.9 ± 0.9 (380)	35.3 ± 1.4 (83)	32.1 ± 1.8 (14)	19	30	5.5
2004	28.9 ± 0.9 (315)	34.8 ± 1.6 (51)	35.7 ± 4.2 (9)	21	30	4.0
2005	27.9 ± 0.6 (306)	35.5 ± 1.2 (78)	34.6 ± 2.8 (10)	23	29	3.8
2006	27.7 ± 0.5 (403)	33.8 ± 1.3 (88)	28.5 ± 2.3 (16)	21	31	3.1
2007	29.8 ± 0.7 (245)	36.4 ± 1.4 (47)	27.4 ± 2.0 (7)	21	31	3.5
2008	28.6 ± 0.5 (402)	36.5 ± 1.3 (72)	26.7 ± 2.4 (7)	21	30	2.0

^a Distance variables are calculated from End-of-Season Questionnaire.

^b Percent called and crippling are calculated from daily hunt records.

^b Percent crippling = (number crippled/number crippled + cooperator killed birds) x 100

Table 5. Percent of wild turkey harvest by hour for cooperating wild turkey hunters in Virginia.

Year	Time Begin Time End							<i>n</i>
	06:00 06:59	07:00 07:59	08:00 08:59	09:00 09:59	10:00 10:59	11:00 11:59	12:00 Sunset	
1998	22	33	18	12	9	5		559
1999	26	31	18	12	8	5		585
2000	22	36	17	12	8	6		541
2001	25	30	19	11	8	7		579
2002	25	30	17	12	7	8		520
2003	28	31	18	11	8	4		501
2004*	26	37	15	11	7	5		397
2005	23	29	18	12	9	5	4	423
2006	20	33	20	10	8	6	2	574
2007	24	31	20	11	7	4	3	323
2008	20	32	17	12	9	7	3	522

* Only included first 3-weeks of 2004 season because survey hours were not available for all-day hunting.

Table 6. Age distribution (%) of gobblers harvested as reported by cooperating wild turkey hunters in Virginia.

Year	Age (Years)				<i>n</i> ^a
	1	2	3	4+	
1991	16	37	40	7	328
1992	18	29	37	15	347
1993	10	47	35	7	267
1994	22	33	29	15	250
1995	15	35	40	10	380
1996	13	39	40	8	409
1997	8	42	41	9	424
1998	12	37	38	14	433
1999	16	35	35	15	496
2000	13	34	38	15	429
2001	13	32	38	17	482
2002	9	36	41	14	417
2003	7	37	42	14	402
2004	11	34	37	17	316
2005	15	28	40	17	319
2006	11	30	45	14	444
2007	13	29	40	18	267
2008	10	34	42	14	400

n^a = reported gobbler harvest.

Table 7. Percent of cooperators rating season in Virginia by category.

Year	Excellent	Good	Fair	Poor	No Opinion
1990	23	30	25	21	1
1991	23	33	26	17	1
1992	17	50	29	5	1
1993	22	30	29	19	1
1994	25	29	22	22	1
1995	40	34	17	9	1
1996	36	32	21	12	1
1997	37	30	19	13	1
1998	29	30	24	17	1
1999	29	29	24	16	2
2000	26	31	24	17	2
2001	36	32	19	12	1
2002	25	34	24	14	2
2003	23	30	27	19	1
2004	14	34	23	23	2
2005	15	28	40	17	1
2006	29	36	21	12	1
2007	19	32	27	21	1
2008	17	34	27	21	2

Table 8. Region gobbling by hour for cooperating wild turkey hunters in Virginia.

Year	Gobblers Heard / Hour \pm SE						
	Tidewater	Southwest	Western Piedmont	Eastern Piedmont	Central Mountain	Northern	State
1997	0.63 \pm 0.02 (1,358)	0.55 \pm 0.02 (888)	0.65 \pm 0.02 (892)	0.53 \pm 0.02 (831)	0.60 \pm 0.02 (881)	0.45 \pm 0.02 (704)	0.57 \pm 0.01 (5,610)
1998	0.56 \pm 0.02 (1,261)	0.51 \pm 0.02 (900)	0.71 \pm 0.03 (807)	0.56 \pm 0.02 (698)	0.44 \pm 0.02 (856)	0.41 \pm 0.02 (572)	0.53 \pm 0.01 (5,096)
1999	0.56 \pm 0.02 (1,392)	0.55 \pm 0.02 (970)	0.62 \pm 0.02 (867)	0.52 \pm 0.02 (762)	0.49 \pm 0.02 (1,040)	0.46 \pm 0.02 (647)	0.54 \pm 0.01 (5,704)
2000	0.53 \pm 0.01 (1,322)	0.55 \pm 0.02 (886)	0.69 \pm 0.02 (1,035)	0.46 \pm 0.02 (811)	0.43 \pm 0.01 (961)	0.36 \pm 0.02 (638)	0.51 \pm 0.01 (5,655)
2001	0.55 \pm 0.02 (1,060)	0.65 \pm 0.02 (1,012)	0.76 \pm 0.02 (986)	0.59 \pm 0.02 (670)	0.62 \pm 0.02 (958)	0.50 \pm 0.02 (654)	0.62 \pm 0.01 (5,368)
2002	0.55 \pm 0.02 (898)	0.60 \pm 0.02 (879)	0.70 \pm 0.02 (776)	0.60 \pm 0.03 (578)	0.52 \pm 0.02 (883)	0.42 \pm 0.02 (693)	0.56 \pm 0.01 (4,726)
2003	0.59 \pm 0.02 (943)	0.63 \pm 0.02 (825)	0.71 \pm 0.02 (831)	0.69 \pm 0.03 (572)	0.46 \pm 0.02 (711)	0.45 \pm 0.02 (649)	0.59 \pm 0.01 (4,545)
2004	0.50 \pm 0.02 (803)	0.54 \pm 0.02 (885)	0.58 \pm 0.02 (700)	0.57 \pm 0.03 (540)	0.39 \pm 0.02 (744)	0.41 \pm 0.02 (666)	0.49 \pm 0.01 (4,352)
2005	0.51 \pm 0.02 (798)	0.57 \pm 0.02 (907)	0.57 \pm 0.02 (804)	0.46 \pm 0.02 (515)	0.42 \pm 0.02 (706)	0.47 \pm 0.02 (570)	0.51 \pm 0.01 (4,303)
2006	0.62 \pm 0.02 (842)	0.60 \pm 0.02 (1,020)	0.68 \pm 0.02 (920)	0.57 \pm 0.03 (455)	0.54 \pm 0.02 (942)	0.67 \pm 0.03 (648)	0.61 \pm 0.01 (4,840)
2007	0.49 \pm 0.02 (573)	0.50 \pm 0.02 (746)	0.57 \pm 0.02 (517)	0.45 \pm 0.03 (400)	0.47 \pm 0.02 (572)	0.53 \pm 0.04 (483)	0.50 \pm 0.01 (3,314)
2008	0.58 \pm 0.02 (754)	0.54 \pm 0.02 (709)	0.63 \pm 0.02 (692)	0.58 \pm 0.03 (540)	0.43 \pm 0.02 (559)	0.61 \pm 0.05 (447)	0.56 \pm 0.01 (3,730)

Table 9. Region gobbling by hunt for cooperating wild turkey hunters in Virginia.

Year	Gobblers Heard/Hunt \pm SE						
	Tidewater	Southwest	Western Piedmont	Eastern Piedmont	Central Mountain	Northern	State
1994	1.28 \pm 0.05 (897)	1.09 \pm 0.05 (643)	1.19 \pm 0.06 (590)	1.28 \pm 0.06 (758)	1.26 \pm 0.05 (741)	1.39 \pm 0.10 (333)	1.24 \pm 0.02 (4,018)
1995	1.99 \pm 0.06 (947)	1.74 \pm 0.06 (834)	1.58 \pm 0.05 (767)	1.52 \pm 0.05 (847)	1.82 \pm 0.06 (895)	1.52 \pm 0.08 (369)	1.72 \pm 0.03 (4,678)
1996	1.67 \pm 0.05 (1,145)	1.91 \pm 0.06 (1,037)	1.69 \pm 0.06 (1,527)	1.45 \pm 0.06 (1,165)	1.71 \pm 0.06 (998)	1.61 \pm 0.07 (571)	1.68 \pm 0.02 (5,502)
1997	2.10 \pm 0.06 (1,358)	1.81 \pm 0.06 (888)	2.0 \pm 0.06 (892)	1.48 \pm 0.05 (831)	2.16 \pm 0.07 (881)	1.58 \pm 0.06 (704)	1.88 \pm 0.02 (5,584)
1998	1.77 \pm 0.05 (1,261)	1.82 \pm 0.06 (900)	2.12 \pm 0.07 (807)	1.64 \pm 0.07 (698)	1.61 \pm 0.06 (856)	1.44 \pm 0.07 (572)	1.70 \pm 0.03 (5,096)
1999	1.78 \pm 0.05 (1,392)	1.96 \pm 0.06 (970)	1.91 \pm 0.06 (867)	1.57 \pm 0.05 (762)	1.78 \pm 0.05 (1,040)	1.53 \pm 0.06 (647)	1.77 \pm 0.02 (5,704)
2000	1.67 \pm 0.04 (1,322)	1.92 \pm 0.06 (886)	2.28 \pm 0.06 (1,035)	1.43 \pm 0.06 (811)	1.58 \pm 0.05 (961)	1.19 \pm 0.05 (638)	1.72 \pm 0.02 (5,645)
2001	1.75 \pm 0.05 (1,055)	2.31 \pm 0.08 (1,012)	2.44 \pm 0.07 (986)	1.84 \pm 0.07 (670)	2.32 \pm 0.07 (958)	1.64 \pm 0.07 (654)	2.08 \pm 0.03 (5,368)
2002	1.89 \pm 0.06 (896)	2.17 \pm 0.07 (879)	2.23 \pm 0.07 (776)	1.71 \pm 0.07 (578)	2.00 \pm 0.07 (883)	1.32 \pm 0.06 (693)	1.91 \pm 0.03 (4,708)
2003	1.94 \pm 0.06 (943)	2.14 \pm 0.07 (825)	2.24 \pm 0.07 (831)	2.02 \pm 0.08 (572)	1.71 \pm 0.07 (711)	1.50 \pm 0.06 (649)	1.96 \pm 0.03 (4,545)
2004	1.79 \pm 0.08 (802)	1.94 \pm 0.07 (885)	1.86 \pm 0.07 (700)	1.79 \pm 0.08 (540)	1.50 \pm 0.06 (744)	1.34 \pm 0.07 (666)	1.70 \pm 0.03 (4,352)
2005	1.69 \pm 0.06 (798)	2.09 \pm 0.07 (907)	1.82 \pm 0.06 (804)	1.39 \pm 0.07 (515)	1.52 \pm 0.06 (706)	1.48 \pm 0.07 (570)	1.70 \pm 0.03 (4,303)
2006	2.06 \pm 0.06 (842)	2.28 \pm 0.07 (1,020)	2.18 \pm 0.07 (920)	1.76 \pm 0.09 (455)	1.94 \pm 0.07 (942)	2.05 \pm 0.06 (648)	2.07 \pm 0.03 (4,840)
2007	1.79 \pm 0.08 (573)	1.76 \pm 0.07 (746)	1.83 \pm 0.07 (517)	1.38 \pm 0.08 (400)	1.85 \pm 0.08 (572)	1.65 \pm 0.12 (483)	1.73 \pm 0.03 (3,314)
2008	1.92 \pm 0.08 (754)	1.93 \pm 0.07 (709)	2.06 \pm 0.07 (692)	1.86 \pm 0.08 (540)	1.63 \pm 0.07 (559)	2.07 \pm 0.15 (447)	1.91 \pm 0.03 (3,730)

Table 10. Region gobbling by week for cooperating wild turkey hunters in Virginia.

Date	Gobblers Heard/Hour \pm SE						
	Tidewater	Southwest	Western (n) Piedmont	Eastern Piedmont	Central Mountain	Northern	State
Opening Day	0.37 \pm 0.06 (53)	0.60 \pm 0.08 (49)	0.71 \pm 0.09 (44)	0.42 \pm 0.08 (34)	0.38 \pm 0.07 (35)	1.15 \pm 0.32 (33)	0.59 \pm 0.06 (249)
Week 1	0.79 \pm 0.05 (202)	0.59 \pm 0.04 (163)	0.81 \pm 0.05 (197)	0.76 \pm 0.07 (131)	0.63 \pm 0.05 (142)	0.82 \pm 0.12 (117)	0.72 \pm 0.02 (793)
Week 2	0.66 \pm 0.06 (157)	0.66 \pm 0.05 (139)	0.68 \pm 0.04 (153)	0.57 \pm 0.05 (123)	0.48 \pm 0.06 (100)	0.56 \pm 0.06 (97)	0.61 \pm 0.02 (774)
Week 3	0.52 \pm 0.05 (134)	0.51 \pm 0.05 (121)	0.54 \pm 0.04 (117)	0.55 \pm 0.06 (78)	0.42 \pm 0.04 (109)	0.53 \pm 0.09 (92)	0.51 \pm 0.02 (654)
Week 4	0.57 \pm 0.07 (106)	0.40 \pm 0.04 (133)	0.54 \pm 0.07 (85)	0.50 \pm 0.07 (101)	0.34 \pm 0.05 (98)	0.35 \pm 0.06 (60)	0.44 \pm 0.02 (593)
Week 5	0.29 \pm 0.04 (100)	0.43 \pm 0.05 (96)	0.37 \pm 0.05 (86)	0.46 \pm 0.06 (70)	0.23 \pm 0.04 (71)	0.29 \pm 0.05 (43)	0.34 \pm 0.02 (467)

Table 11. Statewide hen observations by hunt for cooperating wild turkey hunters in Virginia.

Year	Average/Hunt		
	Hens Heard	Hens Seen	Hens Called In
1993	0.39 ± 0.02	0.44 ± 0.02	0.12 ± 0.01
1994	0.46 ± 0.02	0.54 ± 0.02	0.15 ± 0.01
1995	0.56 ± 0.02	0.55 ± 0.02	0.16 ± 0.01
1996	0.66 ± 0.02	0.78 ± 0.02	0.22 ± 0.01
1997	0.62 ± 0.02	0.74 ± 0.02	0.19 ± 0.01
1998	0.57 ± 0.02	0.71 ± 0.02	0.17 ± 0.01
1999	0.58 ± 0.02	0.70 ± 0.02	0.18 ± 0.01
2000	0.57 ± 0.02	0.76 ± 0.02	0.19 ± 0.01
2001	0.71 ± 0.02	0.73 ± 0.02	0.19 ± 0.01
2002	0.72 ± 0.02	0.89 ± 0.02	0.22 ± 0.01
2003	0.56 ± 0.02	0.74 ± 0.02	0.19 ± 0.01
2004	0.61 ± 0.02	0.82 ± 0.03	0.22 ± 0.01
2005	0.69 ± 0.02	0.95 ± 0.03	0.24 ± 0.01
2006	0.70 ± 0.02	0.86 ± 0.02	0.22 ± 0.01
2007	0.55 ± 0.02	0.76 ± 0.03	0.20 ± 0.01
2008	0.61 ± 0.02	0.85 ± 0.03	0.20 ± 0.01

Table 12. Wild turkey hens seen per hunt by cooperating wild turkey hunters in Virginia.

Year	Hens Seen/Hunt						
	Day 1	Week 1	Week 2	Week 3	Week 4	Week 5	Season
1995	1.0 \pm 0.10 (344)	0.65 \pm 0.04 (1,363)	0.50 \pm 0.04 (1,018)	0.44 \pm 0.04 (700)	0.44 \pm 0.04 (692)	0.39 \pm 0.04 (561)	0.55 \pm 0.02 (4,678)
1996	1.26 \pm 0.13 (378)	1.02 \pm 0.06 (1,462)	0.80 \pm 0.05 (1,182)	0.62 \pm 0.04 (982)	0.56 \pm 0.04 (824)	0.48 \pm 0.04 (674)	0.78 \pm 0.02 (5,502)
1997	1.19 \pm 0.12 (401)	0.90 \pm 0.05 (1,476)	0.75 \pm 0.04 (1,131)	0.61 \pm 0.04 (948)	0.59 \pm 0.05 (849)	0.54 \pm 0.04 (805)	0.74 \pm 0.02 (5,610)
1998	1.12 \pm 0.10 (394)	0.89 \pm 0.05 (1,480)	0.69 \pm 0.04 (1,101)	0.56 \pm 0.05 (808)	0.45 \pm 0.04 (716)	0.57 \pm 0.05 (597)	0.71 \pm 0.02 (5,096)
1999	1.12 \pm 0.12 (413)	0.87 \pm 0.04 (1,640)	0.68 \pm 0.04 (1,150)	0.52 \pm 0.03 (996)	0.53 \pm 0.04 (804)	0.48 \pm 0.04 (701)	0.70 \pm 0.02 (5,570)
2000	1.21 \pm 0.13 (364)	0.96 \pm 0.05 (1,393)	0.79 \pm 0.05 (1,092)	0.69 \pm 0.04 (1,001)	0.56 \pm 0.04 (976)	0.41 \pm 0.03 (829)	0.76 \pm 0.02 (5,655)
2001	1.14 \pm 0.09 (363)	0.83 \pm 0.04 (1,355)	0.75 \pm 0.04 (1,138)	0.65 \pm 0.05 (1,007)	0.60 \pm 0.04 (866)	0.57 \pm 0.05 (639)	0.73 \pm 0.02 (5,368)
2002	1.51 \pm 0.15 (324)	1.02 \pm 0.05 (1,388)	0.92 \pm 0.05 (915)	0.69 \pm 0.05 (816)	0.71 \pm 0.05 (734)	0.67 \pm 0.07 (549)	0.89 \pm 0.02 (4,726)
2003	1.00 \pm 0.12 (293)	1.01 \pm 0.05 (1,172)	0.72 \pm 0.05 (1,004)	0.60 \pm 0.04 (855)	0.54 \pm 0.05 (600)	0.55 \pm 0.05 (621)	0.75 \pm 0.02 (4,545)
2004	1.42 \pm 0.20 (308)	1.06 \pm 0.07 (1,013)	0.74 \pm 0.05 (975)	0.74 \pm 0.06 (748)	0.57 \pm 0.05 (661)	0.55 \pm 0.05 (603)	0.83 \pm 0.03 (4,352)
2005	1.65 \pm 0.20 (278)	1.20 \pm 0.07 (1,032)	0.96 \pm 0.05 (900)	0.85 \pm 0.06 (667)	0.63 \pm 0.05 (740)	1.38 \pm 0.05 (662)	0.95 \pm 0.03 (4,303)
2006	1.49 \pm 0.14 (291)	0.90 \pm 0.04 (1,320)	0.85 \pm 0.05 (973)	0.71 \pm 0.05 (798)	0.65 \pm 0.05 (779)	0.80 \pm 0.07 (624)	0.86 \pm 0.02 (4,840)
2007	1.28 \pm 0.16 (208)	0.89 \pm 0.06 (793)	0.68 \pm 0.05 (722)	0.64 \pm 0.05 (596)	0.63 \pm 0.06 (535)	0.74 \pm 0.08 (427)	0.76 \pm 0.03 (3,314)
2008	1.41 \pm 0.15 (249)	0.95 \pm 0.06 (961)	0.90 \pm 0.06 (774)	0.63 \pm 0.05 (654)	0.75 \pm 0.07 (593)	0.68 \pm 0.05 (467)	0.85 \pm 0.03 (3,730)

Table 13. Wild turkey hens called per hunt by cooperating wild turkey hunters in Virginia.

Year	Hens Called In/Hunt						
	Day 1	Week 1	Week 2	Week 3	Week 4	Week 5	Season
1994	0.25 ± 0.05 (266)	0.21 ± 0.02 (1,115)	0.12 ± 0.02 (879)	0.10 ± 0.02 (591)	0.11 ± 0.02 (625)	0.12 ± 0.02 (542)	0.15 ± 0.01 (4,018)
1995	0.27 ± 0.04 (344)	0.18 ± 0.02 (1,363)	0.17 ± 0.02 (1,018)	0.12 ± 0.02 (700)	0.11 ± 0.01 (692)	0.14 ± 0.02 (561)	0.16 ± 0.01 (4,678)
1996	0.38 ± 0.07 (378)	0.28 ± 0.02 (1,463)	0.23 ± 0.02 (1,182)	0.17 ± 0.02 (982)	0.17 ± 0.02 (824)	0.11 ± 0.02 (674)	0.22 ± 0.01 (5,502)
1997	0.27 ± 0.05 (401)	0.22 ± 0.02 (1,476)	0.17 ± 0.02 (1,131)	0.17 ± 0.04 (948)	0.15 ± 0.02 (849)	0.15 ± 0.02 (849)	0.19 ± 0.02 (5,610)
1998	0.28 ± 0.04 (394)	0.21 ± 0.02 (1,480)	0.17 ± 0.02 (1,101)	0.13 ± 0.02 (808)	0.15 ± 0.02 (716)	0.13 ± 0.02 (597)	0.18 ± 0.01 (5,096)
1999	0.35 ± 0.05 (413)	0.20 ± 0.02 (1,640)	0.17 ± 0.02 (1,150)	0.16 ± 0.02 (996)	0.15 ± 0.02 (804)	0.15 ± 0.02 (701)	0.18 ± 0.01 (5,704)
2000	0.31 ± 0.05 (364)	0.26 ± 0.03 (1,393)	0.18 ± 0.02 (1,092)	0.16 ± 0.02 (1,001)	0.13 ± 0.02 (976)	0.13 ± 0.02 (829)	0.19 ± 0.01 (5,655)
2001	0.39 ± 0.04 (363)	0.19 ± 0.02 (1,355)	0.20 ± 0.02 (1,138)	0.17 ± 0.02 (1,007)	0.20 ± 0.02 (866)	0.12 ± 0.02 (639)	0.19 ± 0.01 (5,368)
2002	0.39 ± 0.07 (324)	0.26 ± 0.02 (1,388)	0.23 ± 0.02 (915)	0.15 ± 0.02 (816)	0.19 ± 0.02 (734)	0.17 ± 0.02 (549)	0.22 ± 0.01 (4,726)
2003	0.25 ± 0.06 (293)	0.25 ± 0.02 (1,172)	0.18 ± 0.02 (1,004)	0.17 ± 0.02 (855)	0.14 ± 0.02 (600)	0.15 ± 0.02 (621)	0.19 ± 0.01 (4,545)
2004	0.44 ± 0.09 (308)	0.26 ± 0.03 (1,013)	0.20 ± 0.02 (975)	0.24 ± 0.04 (748)	0.12 ± 0.02 (661)	0.17 ± 0.03 (603)	0.22 ± 0.01 (4,352)
2005	0.43 ± 0.09 (278)	0.31 ± 0.03 (1,032)	0.23 ± 0.02 (900)	0.20 ± 0.02 (667)	0.17 ± 0.02 (740)	0.16 ± 0.02 (662)	0.24 ± 0.01 (4,303)
2006	0.41 ± 0.07 (291)	0.23 ± 0.02 (1,320)	0.21 ± 0.02 (973)	0.17 ± 0.02 (798)	0.18 ± 0.02 (779)	0.18 ± 0.03 (624)	0.22 ± 0.01 (4,840)
2007	0.33 ± 0.06 (208)	0.21 ± 0.02 (793)	0.19 ± 0.02 (722)	0.12 ± 0.02 (596)	0.18 ± 0.03 (535)	0.22 ± 0.04 (427)	0.20 ± 0.01 (3,314)
2008	0.35 ± 0.07 (249)	0.21 ± 0.02 (961)	0.19 ± 0.02 (774)	0.15 ± 0.02 (654)	0.22 ± 0.03 (593)	0.17 ± 0.03 (467)	0.20 ± 0.01 (3,730)

Table 14. Flushing rates of nesting wild turkey hens by cooperating wild turkey hunters in Virginia.

Year	Hens flushed/100 hrs hunting (number flushed)						
	Day 1	Week 1	Week 2	Week 3	Week 4	Week 5	Season
1999	0.56 (9)	0.48 (27)	0.38 (14)	0.39 (12)	0.49 (12)	0.64 (14)	0.47 (88)
2000	0.44 (6)	0.25 (12)	0.19 (7)	0.71 (24)	0.54 (17)	1.06 (27)	0.42 (81)
2001	0.27 (4)	0.62 (29)	0.39 (15)	0.58 (19)	0.79 (22)	0.46 (9)	0.55 (98)
2002	0.39 (5)	0.25 (12)	0.70 (22)	0.67 (18)	0.58 (14)	0.41 (7)	0.49 (78)
2003	0 (0)	0.35 (14)	0.50 (17)	0.64 (18)	0.63 (12)	0.66 (13)	0.49 (74)
2004	0.08 (1)	0.18 (6)	0.15 (5)	0.46 (11)	0.39 (9)	0.28 (6)	0.26 (74)
2005	0.93 (8)	0.28 (8)	0.20 (5)	0.98 (18)	0.94 (23)	0.74 (16)	0.61 (78)
2006	0.65 (5)	0.21 (8)	0.60 (16)	0.50 (11)	0.39 (10)	0.46 (10)	0.42 (60)
2007	0.0 (0)	0.63 (14)	0.36 (7)	0.47 (8)	0.39 (7)	0.34 (5)	0.42 (41)
2008	0.43 (4)	0.25 (8)	0.62 (16)	0.64 (17)	0.57 (12)	0.81 (14)	0.56 (71)

Table 15. Interference reported by cooperating wild turkey hunters in Virginia.

Year	Cooperators(<i>n</i>)	Percent with Interference	Percent Hunts Disturbed	Avg. Hunters seen
1987	161	50	10	
1988	230	54	9	
1989	251	47	8	
1990	319	60	11	5.5
1991	408	60	8.1	5.6
1992	430	52	9.0	3.7
1993	361	47	3.8	4.6
1994	341	36	2.8	4.0
1995	401	48	8.2	4.5
1996	481	39	3.3	4.5
1997	486	42	3.6	4.4
1998	455	35	3.2	4.5
1999	500	38	5.2	4.3
2000	441	38	2.9	3.9
2001	433	38	6.2	4.1
2002	380	39	5.9	4.0
2003	372	40	6.3	3.9
2004	357	40	3.1	4.7
2005	354	37	—	4.0
2006	412	34	—	3.0
2007	280	32	—	2.4
2008	403	35	—	3.4

^a Average was based on total number cooperators that responded to question about interference.

Table 16. Violations observed during spring gobbler seasons by cooperating wild turkey hunters in Virginia.

Year	Tres- pass	Pre- Season	Sunday Hunt	Before Hours	After Hours	Over Limit	Baiting	Killing Hens	Other	Total (<i>n</i>)
1987	21	17	10	7	7	7	7	7	7	
1988	43	7	5	14	0	5	5	12	2	42
1989	53	4	0	17	6	11	2	7	0	53
1990	54	6	4	6	0	7	3	3	13	68
1991	48	12	--	10	--	13	0	7	11	87
1992	49	15	--	9	--	14	--	4	9	148
1993	70	12	--	12	--	21	--	6	13	134
1994	46	14	--	4	--	14	--	3	10	91
1995	79	30	--	23	--	30	--	7	23	192
1996	61	23	--	18	--	26	--	8	19	155
1997	82	13	--	11	--	25	--	2	22	155
1998	74	27	--	19	--	25	--	4	23	172
1999	64	19	--	9	--	21	--	2	27	142
2000	61	18	--	11	--	19	--	3	16	128
2001	61	16	--	7	--	14	--	0	12	110
2002	61	4	--	11	--	20	--	1	8	104
2003	61	6	--	4	--	7	--	2	13	93
2004	36	4	--	6	--	7	--	1	7	61
2005	40	4	--	3	--	7	--	1	11	66
2006	53	8	--	10	--	14	--	1	15	110
2007	31	6		3		4		1	10	55
2008	52	8		8		12		1	0	81

Appendix A. Cooperator comments and remarks with cooperator ID number in parentheses. Comments without name and address were not included.

WEATHER

Bad or not very good: 6838, 4769, 4553, 6031, 7360, 5966, 5986, 2963, 0349, 3748, 6456, 9196, 0072, 7540, 0422, 8920, 1339, 0198, 0348, 4892, 0294, 5339, 1549, 3771, 9487, 5599, 2891, 3331

GOBBLING

Poor to unresponsive: 1150, 4553, 3360, 2185, 8299, 1084, 6838, 8127, 4644, 6203, 8964, 8239, 7589, 5966, 0570, 7424, 1964, 7540, 8920, 8279, 0602, 6338, 9777, 6951, 5041, 0754, 0443, 6773, 0763, 6586, 2143, 8732, 0294

No gobbling: 3305

Good gobbling: 9142, 4931, 2198, 3244, 9487

Gobbled on roost then not on ground: 8854, 7827, 5986, 0349, 9401, 3992, 5304, 0198, 5599, 2891, 6195, 0754, 6239, 2193

Gobbled on ground not on roost: 1023

Gobbled before season: 4553, 6331

More responsive toward first week in May: 0256

Responded only to loud noises not to calls: 8085

POPULATION

Lots of jakes: 8766, 8041, 6975, 0349, 8920, 5304, 9400, 9401

Few or no jakes: 4455, 5186, 3879, 5239

Large number of hens: 9859, 9487, 0894

Very few or not many hens: 0422

Too many hens early in season: 0072

Way too many hens need extra tag in fall for hens: 6243

Population decreased: 4455, 4769, 2568, 9083, 3879, 6031, 7589, 5827, 6406, 8024, 0151, 7513, 0622, 1964, 7921, 9777, 3264, 6359, 9400, 0327, 0776

Population good to great: 2168, 2198, 1927, 8041, 1451, 1852, 0464, 3793, 6571, 7540, 8920, 9981, 0894, 9401

Gobblers were with hens: 3305, 1231, 5917, 9327, 6927, 3508, 8920, 9024, 6195, 0754

Gobblers were with gobblers: 2068

SURVEY RECOMMENDATIONS

Need column for Jakes: 5304

Should have space for each day of season: 1947

Put a number on each county instead of using county name: 1649

Have form on-line: 9237, 5133

Partner missed and partner killed should be included in daily record section: 9687, 4892

Add column for quail heard: 9713

Add column for partner misses: 2592

LIKED SEASON OR NOT

Enjoyed the season: 9142, 4455, 3266, 5321, 6164, 4920, 8760, 7181, 2198, 1927, 8041, 1451, 0464, 3353, 5178, 3793, 4796, 1321, 8920, 8511, 1733, 4874, 8189, 4465, 0347, 1567, 0776

Terrible to bad: 9315, 5239, 7360, 3992, 4336

Difficult: 4814, 9024, 4892

Disappointing and frustrating: 9336

THANK YOU

Thanks Gary Norman for all you do for turkeys: 8854, 5186, 6927, 7181, 1927, 9161, 6031, 8718, 5337, 9735, 4914, 5289, 2592, 9160

Thanks for survey: 8646, 3353, 8920, 1007, 9880, 5934, 4892, 3547, 0776

Thanks Gary Norman, VDGIF & NWTF: 8239

Thanks Gary Norman and VDGIF: 4499, 5196, 7945, 6342

Thanks VDGIF: 1831, 8732

They should have made you the Director: 4892

Gary Norman and his staff do an outstanding job for turkey hunters in VA: 1302

POACHERS AND HUNTER PRESSURE

Not many hunters: 4796

Too many hunters: 5934, 0327, 0776

Arrested and prosecuted a poacher: 3316

Baiting kept birds out of my area: 8085

Hunter parked vehicle 30 yds from roosted bird, after fly down he shot & crippled gobbler: 8066

Hunts ruined by other hunters: 7937, 2180, 8300, 1158, 5255

Too much baiting/feeding going on: 0536, 9687

Too many trespassers: 9687

Road hunters interfered: 9472

A lot more people hunting and not respecting other hunters: 0754

Interrupted by dirt bikes and 4 wheelers riding in fields and pastures: 3241

Caught poacher on our land and reported him: 5337

Population has decreased due to poaching and coyotes: 6406

Need more wardens per county: 9687

Pickup stopped on road and shot about 300 yds at turkey, thank goodness he missed both of us: 8259

Saddens me that 2 hunters killed 6 birds: 9880

Trespasser shot at turkey very close to me: 3303

DOGS

Free roaming dogs are a problem: 0611, 6285, 6031, 5255, 9713, 2926,

Deer dogs are a problem: 1239, 3771

Free roaming dogs should be shot: 9395

Dogs should not be allowed to run free during turkey season: 1002, 9735

Ban running fox with dogs April – June: 4555

Put dogs up during nesting and hatching season: 8920

LENGTH OF DAY HUNTING AND SUNDAY

Yes to Sunday hunting: 9846, 9237, 0472, 3316, 3278, 0349, 4796, 6732, 8920, 2844, 7111, 2193

No to Sunday hunting: 3758, 4555, 2578, 2568, 4499, 6710, 8760, 6031, 9602, 6975, 6951, 3264, 9713, 2339, 1549

Should be able to hunt on Sunday on private land: 9159

Wants all day hunting: 9846, 9237, 9859, 3278, 6918, 5339, 0347

No to all day hunting: 3758, 1461, 2578, 2568, 2794, 8718, 6975, 5289

Make all day first 2 weeks: 3353

Last 2 weeks should be all day: 6631

Last 2 weeks should be noon also: 2215

Have all day opening day: 1305

Season should last until 4 p.m. all season and not until sunset: 0349

Have all day hunting whole season or extend season to end of May: 8589

SEASON DATES

Open 1 week earlier: 8920, 0753, 3866, 0573, 2050

Begin Monday following youth day: 9237

Start earlier: 0894, 6331

Season opens too early: 2844

Season is too long: 3473, 8732

Start season earlier and end earlier: 9580, 9266

Season dates OK: 6031, 4555, 3054, 0464, 0422, 7868, 2193

Start 1 week earlier end 1 week earlier: 8864, 6406

Begin season April 1 in eastern part: 1852

Start earlier and go out later: 9072

Begin first Saturday in April: 8128, 6732

Don't change a thing dates, limits and lengths are fine: 0824

FALL SEASON

Shorten: 6631, 4340, 9160, 7921, 2339

Reduce hens in fall to one: 3264

Reduce hen kill in fall: 9160, 8239

Should not kill hens in the fall: 1292

Leave fall season as is: 8920

Likes fall turkey season with dogs: 4499

Restore close of November fall season to a Saturday: 5133

Close fall season in Buchanan and Dickenson counties: 9687

Have hen only fall tag, lots of folks don't want to use their gobbler tag: 6301

Reopen turkey season during deer season so you can get hens away from gobblers by busting up the gangs: 0443

Only have early 2 week fall season: 5339

LIMITS AND LICENSE

Limit is good: 6031, 3054, 0464, 0422, 7868, 2193

Would like limit 2 per day instead of 1: 2264

Three birds are too many for harvest: 4520, 3473

Reduce to 1 west of the Blue Ridge: 3264

Tenants should have to buy license: 0472, 3316

Reduce to 2 birds in spring: 4555, 2578, 6918, 3866, 2339

Only 2 bearded birds spring or fall per year: 8732

Tagging system allows killing over the limit: 6951

WEAPONS

Do not allow rifles in spring: 1171, 0332, 2578, 3083, 2215, 7045, 6031, 8718, 7732, 8964, 6466, 3054, 8239, 5986, 9735, 6975, 8128, 9159, 4520, 8920, 3866, 6945, 9981, 7868, 2592

No rifles allowed for hunting turkeys: 4555, 4455, 4333, 3734, 4644, 9417, 9160, 1852, 0349, 9493, 6918, 6951, 8783, 5934, 5289, 2193

Rifles should be allowed: 5196, 8430, 4756, 7725, 2050, 4768, 2339, 9395

Do not allow shot larger than size 4: 4455

Likes option of combination gun: 3801, 9237

Should be shotguns only for turkeys: 8732

No muzzleloaders during fall season: 1171

EXPERIENCES

Saw hen strut: 0256

Coyote spooked: 0256

Coyote came to call: 8014, 8920, 1158

Coyote sneaked in on me: 2833, 3197

Killed 5 coyote pups, first seen on our farm: 7513

Young bald eagle swooped down at flopping bird partner shot: 8766

Found hen dead laying on fox den: 1108

Saw bald eagle in Bland County: 4559

Called in bobcat: 3734, 6164, 5023

Bobcat tried to get flopping turkey I shot: 7945

Gobbler had 2 beards: 2568

Bird had 4 beards: 8239, 5023

Hen had 4-5 inch beard did not shoot only watched: 7184

Killed a bearded hen: 3629

Jake had white head: 4993

Bird gobbled at coyote from a safe distance: 5321

**Shot 1 of 2 jakes called in while flopping the other one fought and circled shot one for 45 minutes:
2338**

Saw box turtles mating: 6164

Found remains of turkey and 4 deer: 7946

Gobbler harvested had tapeworms coming out of anus: 4644

Hawk spooked birds: 4644, 8718

Hen gobbled: 4743, 6302

Bear and 3 cubs spooked turkey: 6482

Golden Eagle swooped down on hen she barely made it to the laurels for safety: 4877

Four jakes ran off gobbler: 1645

Red fox walked close enough for me to touch: 3748

Canada goose attacked decoy: 3353

Fox spooked turkey: 9493

Saw lots of gobblers on train tracks due to increase in grain and corn trains: 4679

I was hunting 400 yds behind some houses and 2 pit bulls circled a tree that a jake was in: 4408

Hen came in yelping at hen decoy: 4833

Hunter using a rifle almost caused a tragedy: 9713

Bald eagle attacked and took away hen decoy: 8026

OPINIONS

Would like to see Crooked Creek and Stewarts Creek WMA better managed: 7917

Lots of coyotes: 4920, 7510, 5667, 7589, 3505, 0622, 3197, 9065, 2273, 3992, 0268, 0602, 1831, 6951, 9472, 7945, 5934, 3344, 0294

Should not shoot jakes or maybe just last 12 days of season: 1292

Regulate killing of jakes: 6945

Should not kill jakes in spring: 2578

Make it illegal to harvest jakes: 4644

Need to put turkeys back on federal and state lands West of Blue Ridge, they are all cornered up on private land, can't NWTF help: 5239

Completed single season DIY grand slam with bow, VA bird toughest to get: 6956

Need to preserve and create habitat: 2339

We need draw hunts in all areas and deer seasons like Amelia: 3547

YOUTH DAY

Make youth day all day: 2215, 5239

Thanks for youth day: 0422

Need more youth days: 9687, 8732

Youth day should be Saturday and Sunday: 5239

Extend to a week: 5023

NESTING

April 23 found nest with 10 eggs on April 29 only 1 broken egg in nest others gone: 6927

April 12 hens were nesting: 8300

May 13 found 1 dead week old poult after heavy rains and temperature 55: 8646

May 17 flushed hen with poults: 5337