

**ANNUAL REPORT OF THE DEPARTMENT OF NATURAL RESOURCES ON  
ACT 51 123<sup>rd</sup> SESSION OF THE SOUTH CAROLINA  
GENERAL ASSEMBLY (2019)**



**Wild Turkey Resources in South Carolina 2020**



**June 2021**

## **EXECUTIVE SUMMARY**

Act 51 of the 123<sup>rd</sup> Session of the South Carolina General Assembly largely rewrote wild turkey hunting laws in South Carolina. It established new turkey season frameworks, imposed a limit of one gobbler during the first 10 days of the season, a daily limit of one gobbler, and it imposed a first-time fee on turkey tags. Act 51 also requires that “The department shall provide an annual report on the wild turkey resources in South Carolina to the Chairman of the Senate Fish, Game and Forestry Committee and the Chairman of the House Agriculture and Natural Resources Committee.” The following is offered by the department to fulfill that requirement.

The popularity and status of the Eastern wild turkey in South Carolina drives the South Carolina Department of Natural Resources (SCDNR) Wildlife Section's ongoing commitment to conduct pertinent research, surveys and monitoring related to the state's wild turkey population. Due to the importance of turkeys as a state resource, SCDNR believes that accurately assessing the productivity, harvest, as well as hunter participation in turkey hunting, is key to the management of this species.

Agencies and legislators are faced with the daunting task of designing and recommending regulatory frameworks that maximize hunter satisfaction while ensuring that populations are sustainable. Proposed changes in turkey-related laws and regulations should have foundations in biology, therefore, the population dynamics associated with annual reproduction and hunting mortality must be monitored and reported. Similarly, when issues arise that do not involve biological parameters, it is important to have information related to turkey hunter activities afield because they also form an important basis for managing wild turkeys.

The objectives of annual survey and monitoring are to obtain valid estimates of; (1) the statewide spring gobbler harvest, (2) the harvest of gobblers in the constituent counties, (3) hunting effort related to turkeys, (4) information on hunters’ opinions of the turkey resource and other aspects of turkey hunting, and (5) annual reproduction and recruitment of wild turkeys in South Carolina.

Additionally, wildlife biologists and managers in South Carolina and throughout the range of the Eastern wild turkey have observed and reported declines in productivity, likely attributable to large-scale declines in nest success and brood survival. Likewise, declines in turkey abundance, and corresponding declines in spring harvest of males have been noted. Collectively, these findings are of considerable concern to state wildlife agencies, like SCDNR, charged with ensuring sustainable populations of wild turkeys.

To quantify, South Carolina has experienced declines in turkey productivity since 1988. Average recruitment prior to 1988 was 3.5 poults per hen. Average recruitment since then has been 2.1, representing a 40 percent decrease in average recruitment. Coincidentally, the turkey harvest has decreased over 40 percent since it peaked in 2002.

The declines, here and in other states, have precipitated numerous research projects over the last decade. This research has been conducted by several universities across the Southeast, with assistance and primary funding from state wildlife agencies. SCDNR has and continues to support and participate in

these studies. Over time, the agency hopes to gain a better understanding of the factors influencing turkey declines, and methods, techniques, and management strategies to slow or reverse this trend.

This research entails a comprehensive assessment of reproductive ecology and chronology of male and female wild turkeys. This includes studies of timing, location and success of nesting and brood rearing activity. Projects also investigate survival, behavioral and movement data, demographic parameters, gobbling activity, and descriptions of mate selection and parentage for populations of wild turkeys. Summaries of current research can be found within this report.

Turkey harvest, hunter participation and hunter effort are estimated by means of an annual mail survey that involves a single mail-out. Hunters are surveyed randomly by selecting 30,000 individuals who received a set of 2020 Turkey Transportation Tags which are required to hunt turkeys in South Carolina.

During the 2020 spring season it is estimated that 43,164 hunters harvested a total of 13,348 adult gobblers and 696 jakes for a statewide total of 14,044 turkeys (Table 1). This figure represents a 19 percent decrease in harvest from 2019 (17,374). Determining why the harvest decreased this amount is difficult because legislative changes went into effect in 2020 which established new season frameworks, bag limits, and a first-time fee for turkey tags. Additionally, the Covid-19 virus surfaced just prior to the 2020 turkey season. Abrupt and significant changes like these can create “noise” which interrupts or disguises trends that develop over time under more uniform conditions. The big question is was the decrease in harvest in 2020 a continuing trend of fewer turkeys and declining harvests or was it an artifact of the legislative changes and effects of Covid-19? This should become clear as trends emerge over the next several years.

Wild turkey productivity is assessed by observations of reproduction and associated survival of offspring being recruited into the population. This measure of young entering the population based on the number of hens in the population is the Total Recruitment Ratio (TRR). This annual index is the most practical measure of productivity because it considers successful hens, unsuccessful hens, and poult survival. Recruitment of four or more poults per hen is considered excellent, three is good, two is fair and considered a break-even point, and one or less poults per hen is poor.

During 2020 statewide Total Recruitment Ratio was 1.5, and for the last five years has averaged 1.6. For hens that successfully raised a brood, average brood size was 3.7 poults, a number that has remained consistent over time. However, the driving factor in the low productivity is the high percentage of hens with no poults at all by late summer. Sixty percent of hens observed during the 2020 survey had no poults and that figure has averaged 57% the last five years.

The current estimated population of wild turkeys in South Carolina is approximately 100,000. This is based on a hen to gobbler ratio of 1.84:1 derived from the 2020 Summer Turkey Survey, the estimated harvest of 14,044 gobblers during spring 2020 and a 40 percent male harvest rate. Male harvest rate is based on long-term average disparity in hen to gobbler ratio which can only be explained by differential mortality between the sexes, in this case attributed to hunter harvest.

Additional details and discussion on the annual harvest and productivity surveys are found within this report.

## **2020 SC WILD TURKEY HARVEST REPORT**

### **Introduction**

Ranking only behind white-tailed deer in popularity among hunters, the Eastern wild turkey is an important natural resource in South Carolina. The 2020 Turkey Hunter Survey represents the South Carolina Department of Natural Resources (SCDNR), Wildlife Section's ongoing commitment to conduct pertinent research related to the state's wild turkey population. The primary objectives of this survey research were to obtain valid estimates of; (1) the statewide spring gobbler harvest in 2020, (2) the harvest of gobblers in the constituent counties of the state, and (3) hunting effort related to turkeys. Information on hunter's opinions of the turkey resource and other aspects of turkey hunting are also presented.

Due to the importance of turkeys as a state resource, SCDNR believes that accurately assessing the harvest of turkeys, as well as hunter participation in turkey hunting, is key to the management of this species. Proposed changes in turkey-related laws and regulations should have foundations in biology, therefore, the population dynamics associated with annual hunting mortality cannot be ignored. Similarly, when issues arise that do not involve biological parameters, it is important to have information related to turkey hunter activities afield because they too form an important basis for managing wild turkeys.

Since the inception of the Statewide Turkey Restoration and Research Project (Turkey Project) the methods used to document the turkey harvest have changed. Historically, turkey harvest figures were developed using a system of mandatory turkey check stations across the state. This system yielded an actual count of harvested turkey which were reported at check stations and was, therefore, an absolute minimum harvest figure. Shortcomings in this system included deterioration of check station compliance, complaints from hunters regarding the inconvenience of check stations, and costs associated with the check station system. The requirement to check harvested turkeys in South Carolina was eliminated following the 2005 season. Prior to eliminating the check-in requirement, SCDNR conducted surveys in order to document the rate of noncompliance, as well as, to determine the relationship between harvest figures obtained from check stations and those obtained from surveys. As would be expected, harvest figures obtained from surveys are higher than those from check stations due to lack of compliance with the check-in requirement.

### **Survey Methodology**

The 2020 Turkey Hunter Survey represented a random mail survey that involved a single mailout. The questionnaire for the 2020 Turkey Hunter Survey was developed by Wildlife Section personnel (Figure 1). The mailing list database was constructed by randomly selecting 30,000 individuals who received a set of 2020 Turkey Transportation Tags which are required to hunt turkeys in South Carolina. Data entry was completed by Data Dash, Inc., Farmington, Missouri.

Results from the mail survey were corrected for nonresponse bias using data collected by Southwick

Associates, Fernandina Beach, Florida using a Computer Assisted Telephone Interview program (CATI). Statistical analysis was conducted using Statistix 10 (Analytical Software, Tallahassee, FL).

## **Results and Discussion**

### ***Turkey Harvest***

During the 2020 spring season it is estimated that a total of 13,348 adult gobblers and 696 jakes were harvested for a statewide total of 14,044 turkeys (Table 1). This figure represents a 19 percent decrease in harvest from 2019 (17,374). Determining why the harvest decreased this amount is difficult because legislative changes went into effect in 2020 which established new season frameworks, bag limits, and a first-time fee for turkey tags. Additionally, the Covid-19 virus surfaced just prior to the 2020 turkey season. Abrupt and significant changes like these can create “noise” which interrupts or disguises trends that develop over time under more uniform conditions. The big question is whether the decrease in harvest in 2020 a continuing trend of fewer turkeys and declining harvests or was it an artifact of the legislative changes and effects of Covid-19?

On one hand, turkey harvest figures have trended down for over a decade in South Carolina reflecting decreased numbers of turkeys likely due to ongoing poor recruitment of poults into the population. This trend appears to be a regional situation and has been called the “southeast turkey decline” by biologists and managers. The percentage of jakes in the 2020 harvest (5.0%) was the lowest on record. Low jake harvests are usually indicative of poor recruitment the previous year. This would lend credence to the notion that the decrease in harvest in 2020 was simply a continuation of a declining trend.

On the other hand, the legislative changes and effects of Covid-19 could easily explain much of the decline in harvest. Along with the new season structure the legislative changes allowed for only one gobbler to be taken during the first 10 days of the season. This was an intentional effort to limit the harvest of birds early in the season to moderate possible effects of early gobbler removal on the reproductive success of hens. Additionally, overall hunter numbers were down 12 percent in 2020 perhaps related to “pushback” by hunters on the first-time fee for a set of turkey tags. Nonresident hunter numbers were down nearly 50 percent likely due to the high fee for a set of nonresident turkey tags (\$100), as well as, concerns associated with Covid-19 which was raging during the spring of 2020. It will likely take several years for the effects of the legislative changes and Covid-19 to settle and allow for new trends to emerge.

### ***Harvest Per Unit Area County Rankings***

Comparisons can be made between turkey harvests from the various counties in South Carolina if a harvest per unit area is established. Harvest per unit area standardizes the harvest among counties regardless of the size of individual counties. One measure of harvest rate is the number of turkeys taken per square mile (640ac. = 1 mile<sup>2</sup>). When considering the estimated turkey habitat that is available in South Carolina, the turkey harvest rate in 2020 was 0.6 gobblers per

square mile statewide (Table 2). Although this harvest rate is not as high as it once was, it should be considered good and is similar to other Southeastern states. The top 5 counties for harvest per unit area were Spartanburg (1.5 turkeys/mile<sup>2</sup>), Fairfield (1.2 turkeys/mile<sup>2</sup>), Union (1.1 turkeys/mile<sup>2</sup>), Anderson (1.0 turkeys/mile<sup>2</sup>), and Laurens (0.9 turkeys/mile<sup>2</sup>) (Table2).

### ***Turkey Harvest Rankings by County***

Total turkey harvest is not comparable among counties because there is no standard unit of comparison, i.e., counties vary in size and are, therefore, not directly comparable. However, some readers may be interested in this type of ranking. The top 5 counties during 2020 were Williamsburg, Fairfield, Spartanburg, Orangeburg, and Berkeley (Table 3).

### ***Number of Turkey Hunters***

Even though all individuals receiving a set of Turkey Transportation Tags were licensed to hunt turkeys, only 67 percent indicated that they actually hunted turkeys. Based on this figure, approximately 43,164 hunters participated in the 2020 spring turkey season, a 12 percent decrease from 2019 (49,060). Counties with the highest estimates for individual hunters include Fairfield, Laurens, Newberry, Spartanburg, and Union (Table 4). As previously discussed, “pushback” by hunters on the first-time fee for a set of turkey tags along with travel restrictions and other issues associated with Covid-19 likely was likely responsible for the reduced number of hunters, particularly nonresidents.

### ***Hunter Effort***

For the purposes of this survey hunter effort was measured in days with one day being defined as any portion of the day spent afield. Turkey hunters averaged approximately 8.4 days afield during the 2020 season (Table 4). Successful hunters averaged significantly more days afield (11.2 days) than unsuccessful hunters (6.6 days). Extrapolating to the entire population of turkey hunters yields a figure of 269,154 total days of spring gobbler hunting, a 4 percent increase from 2019 (258,445 days).

Although hunter numbers were down in 2020, there was increased effort by those who did hunt which may be attributable to Covid-19 “lockdowns” and the notion that individuals had more time to hunt. The number of days devoted to turkey hunting in South Carolina is significant and points not only to the availability and popularity of turkeys as a game species, but to the obvious economic benefits related to this important natural resource. The top 5 South Carolina counties for overall days of turkey hunting during 2020 were Fairfield, Spartanburg, Laurens, Chester, Union and Newberry counties (Table 4).

### ***Turkey Harvest by Period of Season***

Gobbling by male wild turkeys occurs primarily in the spring and is for the purpose of attracting hens for mating purposes. Therefore, spring turkey hunting is characterized by hunters attempting to locate and call gobbling male turkeys using simulated hen calls. With respect to

both biology and quality hunting, the timing of the spring gobbler season should consider three primary factors: peak breeding, peak gobbling, and peak nest initiation. Considering these factors, seasons can be set to afford hunters the best opportunity to hunt during the best time (i.e., peak gobbling) without inhibiting reproductive success of hens.

A recent multi-year nesting study conducted in the lower coastal plain indicates that on average, hens do not initiate nesting until April 9. Gobbling studies conducted simultaneously to the nesting studies indicate peak gobbling occurs the first 10 days of April. The peak in gobbling is believed to coincide with nest initiation by hens because gobbling increases in response to decreased hen availability due to commencement of nesting activities.

The 2020 season marked a return to two spring turkey season frameworks in South Carolina. In Game Zones 1 and 2 which encompasses the piedmont and mountains the season is now April 1 to May 10, whereas, in Game Zones 3 and 4 located in the coastal plain the season is March 22 to April 30. Based on the research, the April 1 season start date coincides more closely with the onset of nesting and peak gobbling. This should provide for improved reproductive success by hens because gobblers are not harvested too early and it should also lead to improved hunting success because gobblers are not accompanied by as many hens due to onset of nesting. On the other hand, the March 22 season start date is nearly 3 weeks prior to peak nest initiation and prior to peak gobbling as well. That being the case, considerations should be given to potential effects on reproduction due to excessive early removal of males and decreased hunter success due to decreased gobbling and hunters competing with hens.

If seasons are set appropriately, the greatest proportion of turkeys should be harvested during the first week or 10 days of the season because increasing number of hens should be egg-laying or incubating resulting in gobblers that are naïve and more responsive to hunters' calls.

Harvest by period of season demonstrates that the timing of the April 1 opening date affords higher turkey harvests as most turkeys are harvested during the 10 days following the April 1 opening date (Figure 4).

When broken-out by specific season frameworks the results are similar. In areas where the season begins March 22, only 34 percent of the total harvest was accounted for during the first 10 days of the season (Figure 5). This is likely because late March is the time of peak breeding and males gobble less because hens are available. Hunters refer to this as gobblers being "henned-up." On the other hand, 45 percent of the harvest occurred during the first 10 days of the season in areas where the season begins April 1 (Figure 6). This is because by April 10 a significant number of hens are involved in nesting activities leaving gobblers "lonely" and more susceptible to hunters' calls. These same trends were apparent prior to 2016 when there were split seasons in South Carolina with one framework beginning March 15 and the other April 1.

### ***Hunting Success***

For determination of hunting success only those individuals who actually hunted turkeys were included in the analysis and similarly, success was defined as harvesting at least one turkey. Overall hunting success in 2020 was 27 percent (Figure 5). Unlike deer hunting which typically has high success, turkey hunting can be an inherently unsuccessful endeavor, relatively speaking.

The statewide bag limit in South Carolina is 3 gobblers. Obviously, most successful hunters harvest only one or two birds. However, it is interesting to note the relative contribution to the total harvest of turkeys by the few hunters that harvest 3 birds. Ironically, the percentage of hunters taking 3 birds was only 2.1 percent, however, this small percentage of hunters harvested an estimated 24 percent of the total birds taken in the state (Figure 6).

### ***Hunter Opinion Regarding Turkey Numbers***

The 2020 Turkey Hunter Survey asked participants to compare the number of turkeys in the area they hunt most often with the number of turkeys in past years. Participants were given 3 choices: increasing, about the same, or decreasing. Approximately 48 percent of hunters indicated that the number of turkeys in the area they hunted most often was about the same as in past years. A higher percentage of hunters (37 percent) believed that the turkey population was decreasing than increasing (16 percent). On a scale of 1 to 3 with 1 being increasing, 2 being the same, and 3 being decreasing, the overall mean rating of 2.2 suggests that hunters viewed the turkey population as decreasing. The opinion among hunters that the turkey population is decreasing has been consistent the last few years.

### ***Turkeys Shot but not Recovered***

Harvesting game signals the end of a successful hunt and although most hunters do a good job of preparing their equipment and mental state, it goes without saying that a certain percentage of game is shot or shot at and not killed or recovered. This point is no different when turkey hunting.

To estimate the prevalence of errant shots at turkeys, the 2020 Turkey Hunter Survey asked hunters to indicate the number of turkeys that they “shot but did not kill or recover during the 2020 season in South Carolina.” Approximately 9.7 percent of hunters indicated that they shot but did not kill or recover at least one turkey in 2020 (10.1 percent in 2019). There were approximately 43,164 turkey hunters in 2020 meaning that approximately 4,181 turkeys were shot or shot at and not killed or recovered. Therefore, approximately 23 percent of the total number of turkeys shot at were not killed or recovered. These results have been consistent since this type of data has been available.

This data is certainly not indicative of “dead and unrecovered turkeys,” however, some



percentage of the 4,181 turkeys that were shot at did eventually die. Although shot shells for turkeys have become increasingly sophisticated, accurate, and lethal it is a fact that the pattern of a shotgun is relatively broad and contains hundreds of pellets. Therefore, a “clean miss” is not as clear-cut for turkeys compared to other big game like deer where there is typically a single projectile. Additional research is needed on this topic.

### ***Turkey Harvest in the Morning vs. Afternoon***

The typical spring turkey hunt is characterized by attempting to locate a gobbling bird prior to or just after sunrise. Once a gobbler is located most hunters position themselves as close as they can to the gobbler without scaring it away. Various types of callers that mimic the sounds of wild turkeys are then used to attempt to call the gobbler into gun range. This technique of locating a gobbling bird, setting up, and calling is repeated as necessary.

Traditionally, spring turkey hunting was primarily carried out during the first few hours of the day. As the popularity of turkey hunting has increased, many hunters now hunt in the afternoon as well. Gobblers are generally not as vocal in the afternoon but can be stimulated to gobble using the various turkey calls, particularly late in the afternoon near areas where turkeys frequently roost. Additionally, it is now common for hunters to set up on food plots, often in blinds, using decoys in areas that turkeys frequent for feeding and loafing in the afternoon.

To gain a better understanding of the distribution of harvest with respect to time of day, the 2020 Turkey Hunter Survey asked hunters to identify the number of birds harvested in the morning compared to the afternoon. Results indicate that approximately 72 percent of gobblers were harvested in the morning compared to 28 percent in the afternoon. This data may be useful if discussions arise concerning the relative importance of morning compared to afternoon harvest of gobblers in the spring. These results have been consistent since this type of data has been available.

### *COVID-19 and the 2020 Spring Turkey Season*

On March 16, the week prior to the opening of the 2020 spring turkey season, Governor Henry McMaster announced the closing of schools in South Carolina. Government agencies, businesses, sporting events, etc. immediately followed suit with stay-at-home recommendations or mandates. This marked the beginning of the COVID-19 “lockdown” which lasted well beyond the close of the turkey season in early May.

To determine possible effects of COVID-19 on spring turkey season, two questions were added to the 2020 Turkey Hunter Survey. The first asked participants how the pandemic affected the amount of time they spent turkey hunting compared to a “normal” year. There were 3 choices: more, about the same, or less. Responses were similar for residents and nonresidents with approximately 57 percent of respondents indicating they hunted the same amount as a normal year. A higher percentage (25%) of participants indicated they hunted more than those who indicated they hunted less (18%). On a scale of 1 to 3 with 1 being more, 2 being the same, and 3 being less, the overall mean of 1.3 suggests that respondents hunted more during the 2020 season. As previously discussed, although total turkey hunter numbers were down (12%), the total amount of effort (man/days) increased (4%) in 2020. Thus, for those individuals who hunted, they hunted more on average than in 2019.

The second question asked participants if the circumstances surrounding the COVID-19 pandemic were the sole reason they did not turkey hunt in South Carolina during 2020. Responses were not similar for residents compared to nonresidents. Significantly more nonresidents (85%) than residents (37%) indicated that circumstances surrounding COVID-19 were the sole reason they did not hunt in South Carolina in 2020. These results are not surprising given that travel restrictions, quarantines, etc. could have easily affected nonresidents more than residents. Finally, these results could easily explain the decrease (12%) in hunter numbers seen in 2020. This is particularly the case as nonresident hunter numbers decreased approximately 50 percent from 2019.

***List of Tables***

<b>Table</b>	<b>Title</b>	<b>Page</b>
1	Estimated statewide turkey harvest in South Carolina in 2020.....	12
2	County rankings based on turkeys harvested per unit area in South Carolina in 2020.....	13
3	County rankings based on total turkeys harvested in South Carolina in 2020.....	14
4	Estimated number of turkey hunters, average days hunted, and total hunting effort by county in South Carolina in 2020.....	15

***List of Figures***

<b>Figure</b>	<b>Title</b>	<b>Page</b>
1	South Carolina Department of Natural Resources 2020 Turkey Hunter Survey.....	16-17
2	Spring wild turkey harvest in South Carolina 1982-2020.....	18
3	Summer wild turkey recruitment ratio in South Carolina 1982-2019.....	18
4	Percentage of gobblers harvested by period of season in South Carolina in 2020.....	19
5	Percentage of gobblers harvested by period of season with March 22-April 30 framework in Game Zones 3 & 4 (coastal plain) in South Carolina in 2020.....	19
6	Percentage of gobblers harvested by period of season with April 1-May 10 framework in Game Zones 1 & 2 (piedmont and mountains) in South Carolina in 2020.....	19
7	Hunter success during the spring turkey season in South Carolina in 2020.....	20
8	Relative contribution to the total turkey harvest by hunters taking between 1 and 3 birds in South Carolina in 2020.....	20

Table 1. Estimated statewide turkey harvest in South Carolina in 2020.

County	Acres*	Square Miles	Gobbler Harvest	Jake Harvest	Total Harvest	Percent Jakes	Harvest Rates	
							Ac/Turkey	Turkey/Mi. <sup>2</sup>
Abbeville	223,113	349	279	14	293	4.8	761	0.8
Aiken	500,546	782	147	9	156	5.8	3,209	0.2
Allendale	216,455	338	248	2	250	0.8	866	0.7
Anderson	219,068	342	324	30	354	8.5	619	1.0
Bamberg	196,573	307	248	7	255	2.7	771	0.8
Barnwell	281,764	440	91	9	100	9.0	2,818	0.2
Beaufort	147,441	230	81	2	83	2.4	1,776	0.4
Berkeley	567,530	887	466	18	484	3.7	1,173	0.5
Calhoun	190,584	298	182	9	191	4.7	998	0.6
Charleston	288,732	451	319	9	328	2.7	880	0.7
Cherokee	156,664	245	223	7	230	3.0	681	0.9
Chester	300,589	470	395	37	432	8.6	696	0.9
Chesterfield	372,478	582	243	28	271	10.3	1,374	0.5
Clarendon	298,087	466	268	9	277	3.2	1,076	0.6
Colleton	502,666	785	395	16	411	3.9	1,223	0.5
Darlington	286,228	447	152	4	156	2.6	1,835	0.3
Dillon	214,069	334	111	16	127	12.6	1,686	0.4
Dorchester	302,717	473	233	9	242	3.7	1,251	0.5
Edgefield	246,543	385	248	7	255	2.7	967	0.7
Fairfield	384,607	601	690	23	713	3.2	539	1.2
Florence	397,888	622	390	23	413	5.6	963	0.7
Georgetown	399,638	624	365	26	391	6.6	1,022	0.6
Greenville	294,257	460	421	9	430	2.1	684	0.9
Greenwood	204,400	319	223	23	246	9.3	831	0.8
Hampton	324,840	508	294	11	305	3.6	1,065	0.6
Horry	533,336	833	426	42	468	9.0	1,140	0.6
Jasper	309,889	484	233	8	241	3.3	1,286	0.5
Kershaw	360,485	563	319	23	342	6.7	1,054	0.6
Lancaster	266,382	416	238	23	261	8.8	1,021	0.6
Laurens	317,916	497	441	26	467	5.6	681	0.9
Lee	220,106	344	213	10	223	4.5	987	0.6
Lexington	280,742	439	86	7	93	7.5	3,019	0.2
McCormick	212,021	331	162	2	164	1.2	1,293	0.5
Marion	216,907	339	202	2	204	1.0	1,063	0.6
Marlboro	281,271	439	101	16	117	13.7	2,404	0.3
Newberry	317,761	497	370	14	384	3.6	828	0.8
Oconee	284,348	444	192	16	208	7.7	1,367	0.5
Orangeburg	504,516	788	487	23	510	4.5	989	0.6
Pickens	219,926	344	289	4	293	1.4	751	0.9
Richland	340,121	531	172	7	179	3.9	1,900	0.3
Saluda	192,173	300	167	4	171	2.3	1,124	0.6
Spartanburg	265,939	416	593	30	623	4.8	427	1.5
Sumter	338,968	530	167	23	190	12.1	1,784	0.4
Union	258,111	403	426	26	452	5.8	571	1.1
Williamsburg	513,851	803	710	28	738	3.8	696	0.9
York	276,650	432	318	23	341	6.7	811	0.8
<b>Total</b>	<b>14,028,896</b>	<b>21,920</b>	<b>13,348</b>	<b>714</b>	<b>14,062</b>	<b>5.1</b>	<b>998</b>	<b>0.6</b>
			(+) 760	(+) 246	(+) 807			

95% confidence interval for harvest

\* Acreage shown represents the acreage of forested land and acreage of row crops considered to be significant turkey habitat within each county.

Table 2. County rankings based on turkey harvest per unit area in South Carolina in 2020.

County	Acres*	Square Miles	Gobbler Harvest	Jake Harvest	Total Harvest	Percent Jakes	Harvest Rates	
							Ac/Turkey	Turkey/Mi. <sup>2</sup>
Spartanburg	265,939	416	593	30	623	4.8	427	1.5
Fairfield	384,607	601	690	23	713	3.2	539	1.2
Union	258,111	403	426	26	452	5.8	571	1.1
Anderson	219,068	342	324	30	354	8.5	619	1.0
Laurens	317,916	497	441	26	467	5.6	681	0.9
Cherokee	156,664	245	223	7	230	3.0	681	0.9
Greenville	294,257	460	421	9	430	2.1	684	0.9
Chester	300,589	470	395	37	432	8.6	696	0.9
Williamsburg	513,851	803	710	28	738	3.8	696	0.9
Pickens	219,926	344	289	4	293	1.4	751	0.9
Abbeville	223,113	349	279	14	293	4.8	761	0.8
Bamberg	196,573	307	248	7	255	2.7	771	0.8
York	276,650	432	318	23	341	6.7	811	0.8
Newberry	317,761	497	370	14	384	3.6	828	0.8
Greenwood	204,400	319	223	23	246	9.3	831	0.8
Allendale	216,455	338	248	2	250	0.8	866	0.7
Charleston	288,732	451	319	9	328	2.7	880	0.7
Florence	397,888	622	390	23	413	5.6	963	0.7
Edgefield	246,543	385	248	7	255	2.7	967	0.7
Orangeburg	504,516	788	487	23	510	4.5	989	0.6
Calhoun	190,584	298	182	9	191	4.7	998	0.6
Lancaster	266,382	416	238	23	261	8.8	1,021	0.6
Georgetown	399,638	624	365	26	391	6.6	1,022	0.6
Lee	220,106	344	213	10	223	4.5	987	0.6
Kershaw	360,485	563	319	23	342	6.7	1,054	0.6
Marion	216,907	339	202	2	204	1.0	1,063	0.6
Hampton	324,840	508	294	11	305	3.6	1,065	0.6
Clarendon	298,087	466	268	9	277	3.2	1,076	0.6
Saluda	192,173	300	167	4	171	2.3	1,124	0.6
Horry	533,336	833	426	42	468	9.0	1,140	0.6
Berkeley	567,530	887	466	18	484	3.7	1,173	0.5
Colleton	502,666	785	395	16	411	3.9	1,223	0.5
Dorchester	302,717	473	233	9	242	3.7	1,251	0.5
McCormick	212,021	331	162	2	164	1.2	1,293	0.5
Jasper	309,889	484	233	8	241	3.3	1,286	0.5
Oconee	284,348	444	192	16	208	7.7	1,367	0.5
Chesterfield	372,478	582	243	28	271	10.3	1,374	0.5
Dillon	214,069	334	111	16	127	12.6	1,686	0.4
Beaufort	147,441	230	81	2	83	2.4	1,776	0.4
Sumter	338,968	530	167	23	190	12.1	1,784	0.4
Darlington	286,228	447	152	4	156	2.6	1,835	0.3
Richland	340,121	531	172	7	179	3.9	1,900	0.3
Marlboro	281,271	439	101	16	117	13.7	2,404	0.3
Barnwell	281,764	440	91	9	100	9.0	2,818	0.2
Lexington	280,742	439	86	7	93	7.5	3,019	0.2
Aiken	500,546	782	147	9	156	5.8	3,209	0.2
<b>Total</b>	<b>14,028,896</b>	<b>21,920</b>	<b>13,348</b>	<b>714</b>	<b>14,062</b>	<b>5.1</b>	<b>998</b>	<b>0.6</b>
			(+-) 760	(+-) 246	(+-) 807			

95% confidence interval for harvest

\* Acreage shown represents the acreage of forested land and acreage of row crops considered to be significant turkey habitat within each county.

Table 3. County rankings based on total turkeys harvested in South Carolina in 2020.

County	Acres*	Square Miles	Gobbler Harvest	Jake Harvest	Total Harvest	Percent Jakes	Harvest Rates	
							Ac/Turkey	Turkey/Mi. <sup>2</sup>
Williamsburg	513,851	803	710	28	738	3.8	696	0.9
Fairfield	384,607	601	690	23	713	3.2	539	1.2
Spartanburg	265,939	416	593	30	623	4.8	427	1.5
Orangeburg	504,516	788	487	23	510	4.5	989	0.6
Berkeley	567,530	887	466	18	484	3.7	1,173	0.5
Horry	533,336	833	426	42	468	9.0	1,140	0.6
Laurens	317,916	497	441	26	467	5.6	681	0.9
Union	258,111	403	426	26	452	5.8	571	1.1
Chester	300,589	470	395	37	432	8.6	696	0.9
Greenville	294,257	460	421	9	430	2.1	684	0.9
Florence	397,888	622	390	23	413	5.6	963	0.7
Colleton	502,666	785	395	16	411	3.9	1,223	0.5
Georgetown	399,638	624	365	26	391	6.6	1,022	0.6
Newberry	317,761	497	370	14	384	3.6	828	0.8
Anderson	219,068	342	324	30	354	8.5	619	1.0
Kershaw	360,485	563	319	23	342	6.7	1,054	0.6
York	276,650	432	318	23	341	6.7	811	0.8
Charleston	288,732	451	319	9	328	2.7	880	0.7
Hampton	324,840	508	294	11	305	3.6	1,065	0.6
Pickens	219,926	344	289	4	293	1.4	751	0.9
Abbeville	223,113	349	279	14	293	4.8	761	0.8
Clarendon	298,087	466	268	9	277	3.2	1,076	0.6
Chesterfield	372,478	582	243	28	271	10.3	1,374	0.5
Lancaster	266,382	416	238	23	261	8.8	1,021	0.6
Bamberg	196,573	307	248	7	255	2.7	771	0.8
Edgefield	246,543	385	248	7	255	2.7	967	0.7
Allendale	216,455	338	248	2	250	0.8	866	0.7
Greenwood	204,400	319	223	23	246	9.3	831	0.8
Dorchester	302,717	473	233	9	242	3.7	1,251	0.5
Jasper	309,889	484	233	8	241	3.3	1,286	0.5
Cherokee	156,664	245	223	7	230	3.0	681	0.9
Lee	220,106	344	213	10	223	4.5	987	0.6
Oconee	284,348	444	192	16	208	7.7	1,367	0.5
Marion	216,907	339	202	2	204	1.0	1,063	0.6
Calhoun	190,584	298	182	9	191	4.7	998	0.6
Sumter	338,968	530	167	23	190	12.1	1,784	0.4
Richland	340,121	531	172	7	179	3.9	1,900	0.3
Saluda	192,173	300	167	4	171	2.3	1,124	0.6
McCormick	212,021	331	162	2	164	1.2	1,293	0.5
Darlington	286,228	447	152	4	156	2.6	1,835	0.3
Aiken	500,546	782	147	9	156	5.8	3,209	0.2
Dillon	214,069	334	111	16	127	12.6	1,686	0.4
Marlboro	281,271	439	101	16	117	13.7	2,404	0.3
Barnwell	281,764	440	91	9	100	9.0	2,818	0.2
Lexington	280,742	439	86	7	93	7.5	3,019	0.2
Beaufort	147,441	230	81	2	83	2.4	1,776	0.4
<b>Total</b>	<b>14,028,896</b>	<b>21,920</b>	<b>13,348</b>	<b>714</b>	<b>14,062</b>	<b>5.1</b>	<b>998</b>	<b>0.6</b>
			(+) 760	(+) 246	(+) 807			

Table 4. Estimated number of turkey hunters, average days hunted, and total hunting effort in SC in 2020.

County	Total Harvest	Number Hunters	Avg. Days Hunted	Total Man/Days
Abbeville	293	1,091	5.8	6,339
Aiken	156	850	5.8	4,949
Allendale	250	609	6.4	3,871
Anderson	354	1,245	5.1	6,286
Bamberg	255	682	5.7	3,898
Barnwell	100	408	6.4	2,614
Beaufort	83	294	4.8	1,423
Berkeley	484	1,251	6.7	8,401
Calhoun	191	609	5.9	3,579
Charleston	328	1,164	5.8	6,751
Cherokee	230	689	7.8	5,354
Chester	432	1,485	6.8	10,064
Chesterfield	271	703	7.5	5,255
Clarendon	277	723	6.2	4,503
Colleton	411	1,050	7.3	7,716
Darlington	156	509	6.0	3,060
Dillon	127	241	6.4	1,550
Dorchester	242	682	6.2	4,250
Edgefield	255	903	6.7	6,053
Fairfield	713	2,288	6.6	15,066
Florence	413	1,024	6.4	6,545
Georgetown	391	890	5.3	4,689
Greenville	430	1,372	5.0	6,864
Greenwood	246	897	5.5	4,969
Hampton	305	923	6.0	5,574
Horry	468	1,064	6.4	6,818
Jasper	241	495	6.4	3,146
Kershaw	342	1,004	6.0	6,046
Lancaster	261	863	6.9	5,946
Laurens	467	1,733	6.5	11,228
Lee	223	616	5.5	3,392
Lexington	93	482	4.3	2,082
McCormick	164	736	6.2	4,556
Marion	204	468	6.5	3,066
Marlboro	117	301	6.6	1,976
Newberry	384	1,686	6.1	10,203
Oconee	208	796	7.2	5,694
Orangeburg	510	1,345	6.2	8,275
Pickens	293	897	6.1	5,487
Richland	179	776	6.3	4,889
Saluda	171	743	5.9	4,350
Spartanburg	623	1,633	7.0	11,467
Sumter	190	816	5.3	4,363
Union	452	1,546	6.6	10,223
Williamsburg	738	1,352	6.2	8,314
York	341	1,231	6.5	8,008
<b>Total</b>	<b>14,062</b>	<b>43,164</b>	<b>6.3*</b>	<b>269,154</b>

\*Note - Since individuals hunt multiple counties the average number of days hunted per county varies from the average number of days individuals hunt (8.4 days).

Figure 1. South Carolina Department of Natural Resources 2020 Turkey Hunter Survey.

- 2020 South Carolina Turkey Hunter Survey
1. Did you turkey hunt in SC this past season (2020)?      1. Yes      2. No  
If you answered **No** to this question please go to question # 9.
  2. Did you harvest any turkeys in SC this past season?      1. Yes      2. No
  3. Even if you did not harvest a turkey, please record the SC counties you turkey hunted and the number of days hunted in each county this past season (2020). If you harvested turkeys please record the number of adult gobblers and jakes taken in each county. A day of hunting is defined as any portion of the day spent afield. Please do not give ranges (i.e. 5-10), rather provide absolute numbers (i.e. 5). Provide information only for yourself - not friends, relatives, or other people you may have called or guided for or hunted with. *(Jakes typically have beards less than 6", spurs less than 1/2" and longer feathers in the center of their tail fan.)*



**COMPLETE YOUR HUNTER SURVEY**



**TURKEY HUNTER SURVEY**  
 SCDNR  
 PO BOX 167  
 COLUMBIA SC 29202-0167  
 www.dnr.sc.gov

SC Counties You Turkey Hunted	# Days Hunted	Number Turkeys Harvested
1		Adult gobblers _____ Jakes _____
2		Adult gobblers _____ Jakes _____
3		Adult gobblers _____ Jakes _____
4		Adult gobblers _____ Jakes _____

If you did not harvest any turkeys in SC this past season please go to question 6.

4. If you harvested turkeys in SC this past season, please indicate as best you can the number of turkeys killed by County and 10-day period of the season.

County of Harvest	Number of Turkeys Harvested by Time Period				
	March 22-31	April 1-10	April 11-20	April 21-30	May 1-10
1.					
2.					
3.					

5. How many turkeys did you kill in the morning \_\_\_\_\_ after 12:00 noon \_\_\_\_\_?
6. How many turkeys did you shoot but not kill or recover in SC this past season? \_\_\_\_\_
7. Compared to past years, how would you describe the number of turkeys in the area that you hunted most often this spring?  
Circle one      1. Increasing      2. About the same      3. Decreasing
8. How did the COVID-19 pandemic situation impact the amount of time you spent turkey hunting this spring compared to a "normal" year? I hunted:  
Circle one      1. More      2. About the same      3. Less *(skip to question 10)*
9. Were circumstances surrounding the COVID-19 pandemic (travel restrictions, quarantines, illness, employed in the medical field, etc.) the sole reason you did not turkey hunt in SC this year?      1. Yes      2. No
10. Are you a resident of SC?      1. Yes      2. No
11. If yes, which county \_\_\_\_\_

Separate and return this portion of the survey. Postage is prepaid. Please do not staple this form.

PRESTORTED  
 FIRST CLASS  
 US POSTAGE  
 PAID  
 COLUMBIA SC  
 PERMIT 1156



Figure 1. continued

May, 2020

Dear SC Turkey Hunter:

Eastern wild turkeys are one of the most important game species in South Carolina. Therefore, it is important that this species be monitored for population status and harvesting activities. Wildlife resource managers require current and accurate information about wild turkey harvests to aid in successfully managing this important natural resource and to optimize future hunting potential. To obtain this needed data, the South Carolina Department of Natural Resources (SCDNR) is conducting a survey of hunters who received a set of turkey tags during spring 2020.

You are one of a group of randomly selected hunters asked to participate in this survey. To draw accurate conclusions it is very important that you complete the survey and return it. Please take time to read each question. Even if you did not hunt or harvest wild turkeys this spring please indicate this by answering the appropriate questions and moving on to the next set of questions.

Please note that complete confidentiality will be given to you. Keep in mind that the purpose of the survey is to determine the wild turkey harvest in South Carolina and not to determine whether game laws are observed. By accurately answering the survey questions you will enable SCDNR biologists to better manage the Eastern wild turkey resource for you and other citizens of the state. Therefore, it is very important that you take a few minutes to complete this survey and mail it. Return postage is prepaid.

Results of this survey will be posted on the SCDNR web site once completed. The results from the 2019 survey can be found at: [www.dnr.sc.gov/wildlife/turkey/2019TurkeyHarvest.html](http://www.dnr.sc.gov/wildlife/turkey/2019TurkeyHarvest.html)

Thank you for your assistance.

Charles Ruth  
Wildlife Biologist  
Big Game Program Coordinator

**PLEASE MAIL YOUR SURVEY AFTER SEPARATING THIS HALF FROM THE SIDE ON WHICH YOUR ANSWERS HAVE BEEN ENTERED. NO POSTAGE IS NECESSARY.**

If you have questions regarding this survey, please call 803-734-3886

The South Carolina Department of Natural Resources prohibits discrimination on the basis of race, color, sex, national origin, disability, religion or age. Direct all inquiries to the Office of Human Resources, P.O. Box 167, Columbia, SC 29202

20-12590



**TURKEY HUNTER SURVEY  
SC DEPARTMENT OF NATURAL RESOURCES  
PO BOX 167  
COLUMBIA SC 29202-9976**

POSTAGE WILL BE PAID BY ADDRESSEE

**BUSINESS REPLY MAIL**  
FIRST CLASS MAIL PERMIT NO 1371 COLUMBIA SC



Figure 2. Spring wild turkey harvest in South Carolina 1982-2020. Harvest increased ( $R^2 = 0.92$ ) between 1982 and 2002 because of increasing turkey population during restoration efforts. Since 2002 harvest has generally declined likely due to less than desirable annual recruitment.

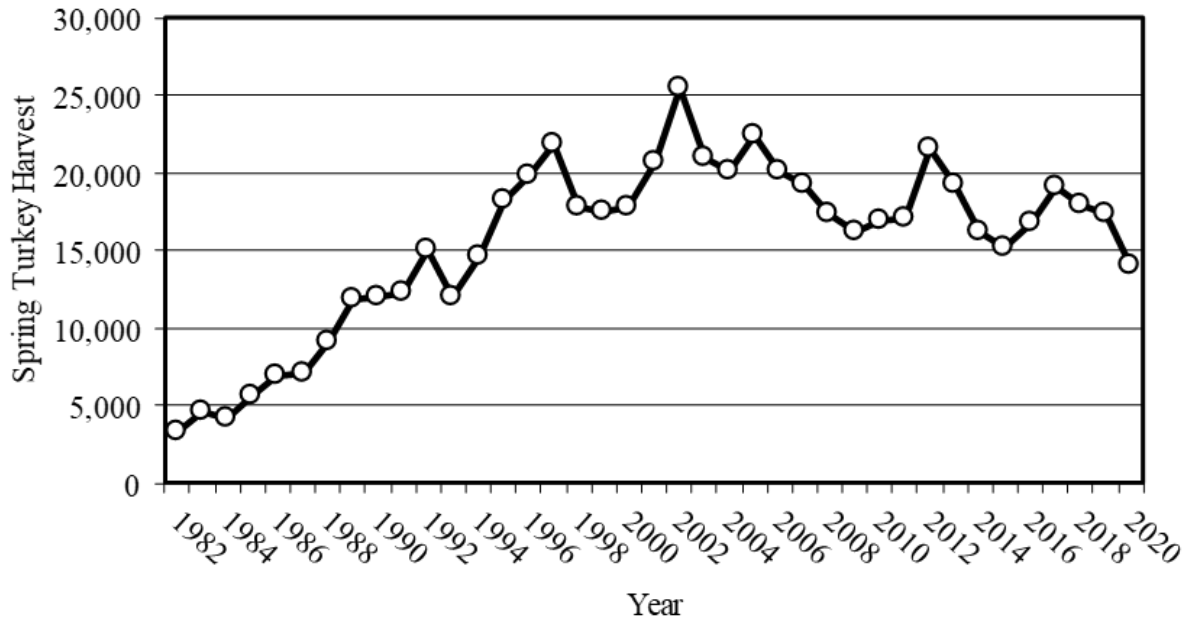


Figure 3. Summer wild turkey recruitment ratio in South Carolina 1982-2019. Note declining trend since 1988. Average recruitment prior to 1988 = 3.5. Average recruitment since 1988 = 2.1. This represents a 40 percent decrease in average recruitment.

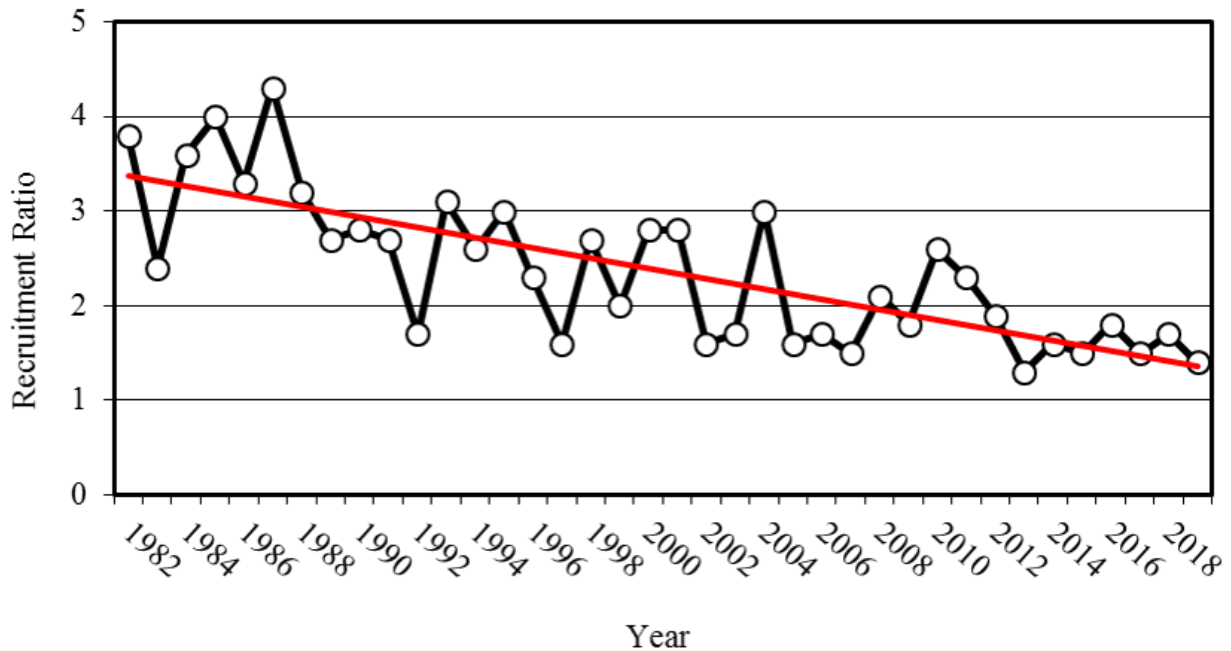


Figure 4. Percentage of gobblers harvested by period of season in South Carolina in 2020.

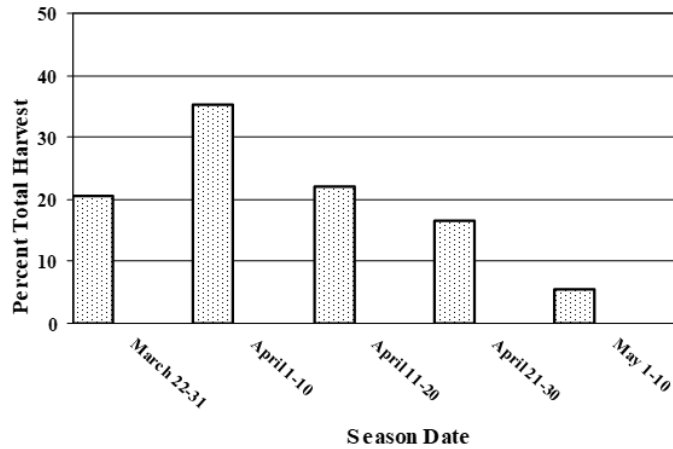


Figure 5. Percentage of gobblers harvested by period of season with March 22-April 30 framework in Game Zones 3 & 4 (coastal plain) in South Carolina in 2020.

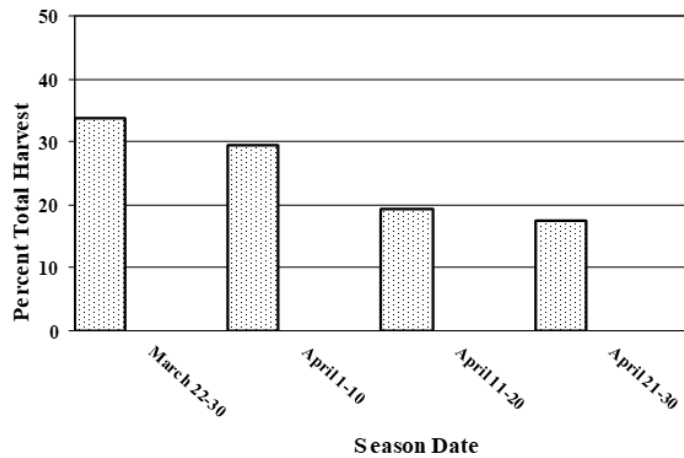


Figure 6. Percentage of gobblers harvested by period of season with April 1-May 10 framework in Game Zones 1 & 2 (piedmont and mountains) in South Carolina in 2020.

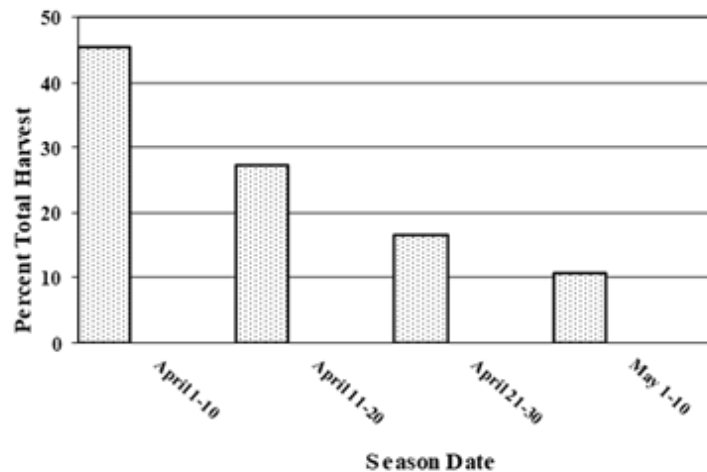


Figure 7. Hunter success during the spring turkey season in South Carolina in 2020. Overall success was 27 percent at harvesting at least one gobbler.

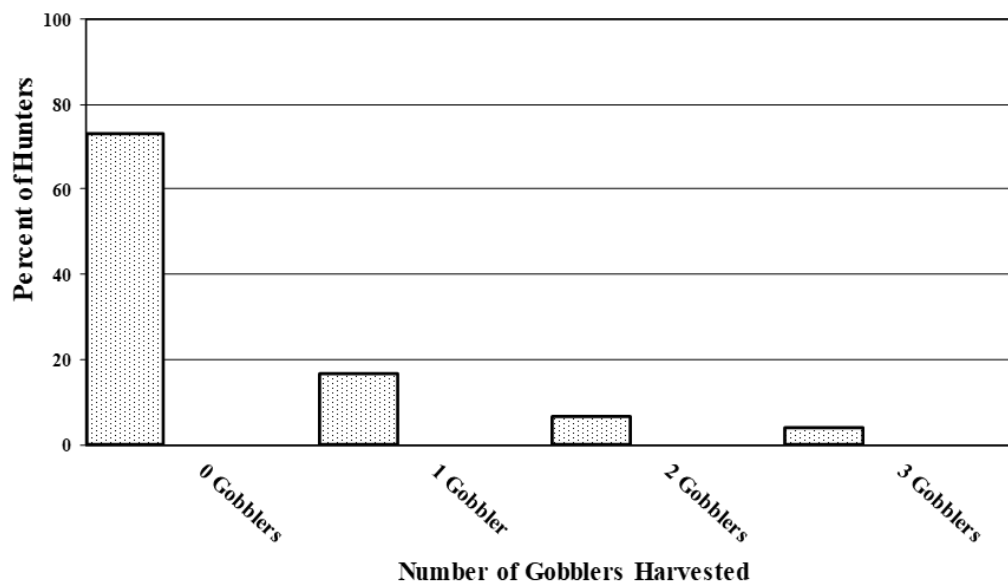
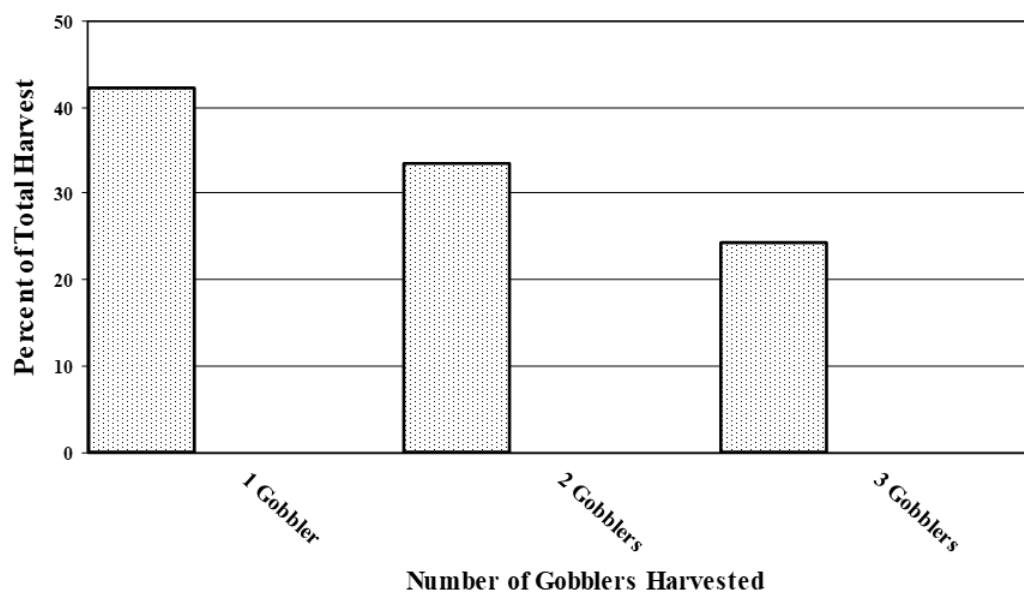


Figure 8. Relative contribution to the total turkey harvest by hunters taking between 1 and 3 gobblers in South Carolina in 2020.



## **2020 SC WILD TURKEY SUMMER SURVEY**

Annually since the early 1980's, the S.C. Department of Natural Resources (DNR) has conducted a Summer Turkey Survey to estimate reproduction and recruitment of wild turkeys in South Carolina. The survey involves agency wildlife biologists, technicians, and conservation officers, as well as many volunteers from other natural resource agencies and the general public. The 2020 survey involved approximately 195 participants recording 1,058 unique observations, seeing approximately 6,300 turkeys across the state in July and August. Although wild turkeys nest primarily in April and May in South Carolina, the survey does not take place until late summer. Therefore, the survey statistics document poults (young turkeys) that have survived and have a high probability of entering the fall population (Table 1).

Wild turkey productivity is assessed by observations of reproduction and associated survival of offspring being recruited into the population. This measure of young entering the population based on the number of hens in the population is the Total Recruitment Ratio (TRR). This annual index is the most practical measure of productivity because it considers successful hens, unsuccessful hens, and poult survival. Recruitment of four or more poults per hen is considered excellent, three is good, two is fair and considered a break-even point, and one or less poults per hen is poor. If hens are successful at some level, a turkey population can be maintained. However, the goal is to optimize conditions through management applications to promote optimal reproductive success and turkey populations that provide sustainable, quality turkey hunting opportunities into the future. Unlike deer, wild turkeys are much more susceptible to significant fluctuations in reproduction and recruitment. Lack of reproductive success is often associated with bad weather (cold and wet) during nesting and brood rearing season. However, there are a host of predators that take advantage of turkey nests and broods including: raccoons, opossums, skunks, armadillos, snakes, foxes, coyotes, bobcats, feral hogs, and numerous avian predators including hawks, owls, and crows.

South Carolina has experienced declines in turkey productivity since 1988. Average recruitment prior to 1988 was 3.5 poults per hen. Average recruitment since 1988 has been 2.1, representing a 40 percent decrease in average recruitment. Coincidentally, the turkey harvest has decreased over 40 percent since it peaked in 2002. This has been a slow and steady decline with TRR numbers in the 1990's generally between 2 and 3, but since 2005 numbers below 2.0 have been the norm with an average TRR the last 15 years of 1.7 (Figure 2). The 2020 statewide TRR was 1.5. For hens that successfully raise a brood, average brood sizes of 3.5 to 4 poults have remained consistent over time. However, the driving factor in the low productivity is the high percentage of hens that have no poults at all by late summer. Sixty percent (60%) of hens observed during this survey period had no poults and that figure has averaged 57 percent the last five years (Table 2). By comparison, the percentage of hens with no poults averaged only 39 percent from 1982 to 2010. Hens without poults are considered unsuccessful and either did not attempt to nest, abandoned their nest, lost their nest to predation or human disturbance, or had no poults survive due to predation, exposure, starvation, disease, or flooding.

These TRR figures consistently below 2.0 are indicative of a shrinking population which does not pair well with increasing hunter numbers and hunter effort. It is also worth noting that turkeys have high reproductive potential and are normally able to maintain populations despite predation and weather-related factors. Predators and periodic poor weather conditions existed prior to the year 2000 so this more recent and prolonged poor success may be tied to a high number of hens that did not breed successfully or poor fitness, vigor and survival of poults due to genetics, disease, other environmental

factors or large-scale changes in habitat. Continued research and attention to season timing and other potential contributing factors is needed.

It is also worth noting that both short and long-term fluctuations up and down are not unexpected given the reproductive strategy of turkeys and the multiple factors that influence their success and survival. This inherent instability is the reason that annual monitoring is critical for this species.

Anyone interested in participating in the annual Summer Turkey Survey is encouraged to sign-up. The survey period is July 1-August 29 annually and those who participate typically spend a reasonable amount of time outdoors during that period. Cooperators obviously must be able to identify wild turkeys and must be comfortable in telling the difference between hens, poults, and gobblers. If you would like to participate in the survey, contact Jay Cantrell at [cantrellj@dnr.sc.gov](mailto:cantrellj@dnr.sc.gov). You will be added to the cooperator list and receive materials at the end of June annually. Those interested in the survey can also download instructions and survey forms at the following website: <http://www.dnr.sc.gov/wildlife/turkey/volunbroodsurvey.html>

Figure 1. Map of physiographic regions for 2020 Summer Turkey Survey.

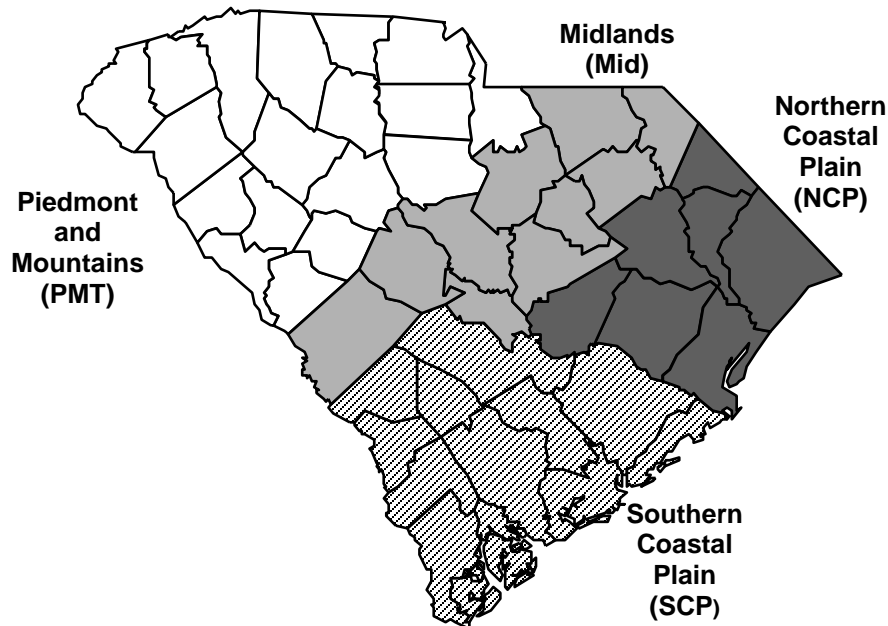


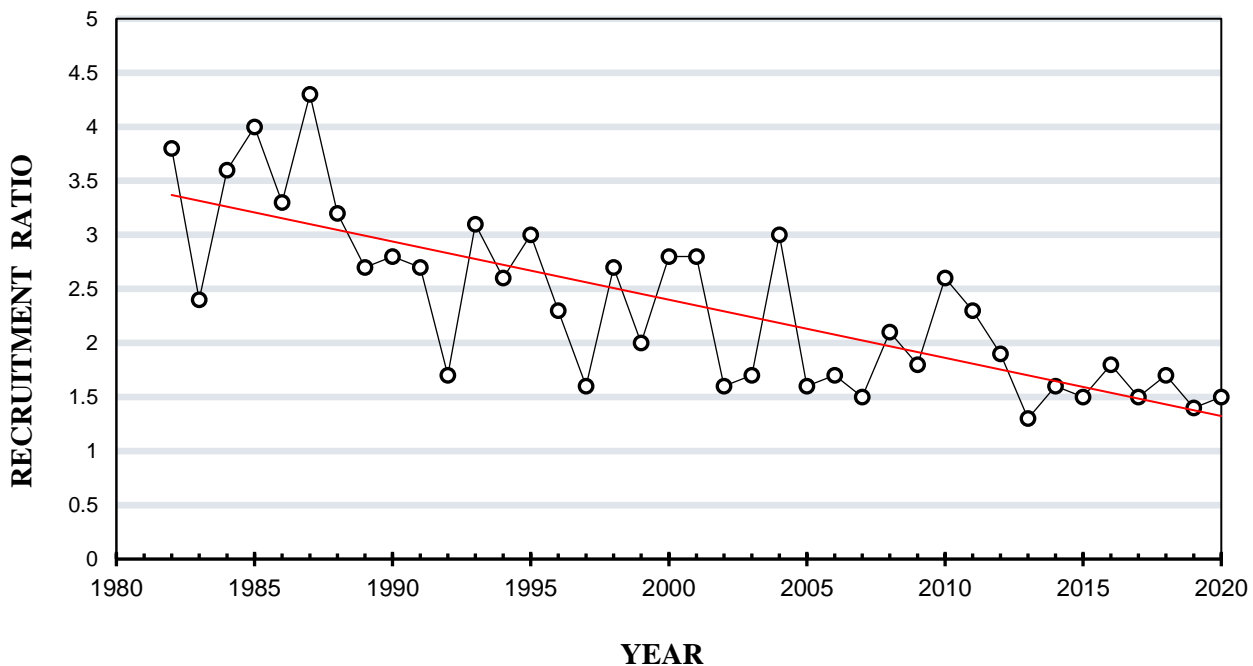
Table 1. Summary of reproductive data for 2020 Summer Turkey Survey by region.

Region	Gobbler Hen Ratio	No. Hens w/Poults	No. Hens w/o Poults (%)	No. Poults	Avg. Brood Size	Total Recruitment Ratio
Piedmont	0.44	266	571 (68)	959	3.6	1.15
Midlands	0.52	100	137 (58)	369	3.7	1.56
Northern Coastal	0.48	149	275 (65)	538	3.6	1.27
Southern Coastal	0.76	292	242 (45)	1,105	3.8	2.07
<b>Statewide</b>	<b>0.54</b>	<b>807</b>	<b>1,225 (60)</b>	<b>2,971</b>	<b>3.7</b>	<b>1.46</b>

Table 2. Statewide Summer Turkey Survey reproductive data 2016-2020.

Year	Gobbler Hen Ratio	No. Hens w/Poults	No. Hens w/o Poults (%)	No. Poults	Avg. Brood Size	Total Recruitment Ratio
2016	0.48	893	1,003 (53)	3,370	3.8	1.8
2017	0.58	1,409	1,737 (55)	4,832	3.4	1.5
2018	0.62	1,076	1,206 (53)	3,948	3.7	1.7
2019	0.62	728	1,173 (62)	2,670	3.7	1.4
2020	0.54	807	1,225 (60)	2,971	3.7	1.5
<b>Average</b>	<b>0.57</b>	<b>983</b>	<b>1,269 (57)</b>	<b>3,558</b>	<b>3.7</b>	<b>1.6</b>

Figure 2. Summer wild turkey recruitment ratio in South Carolina 1982-2020.



Note the declining trend since 1988. Average recruitment prior to 1988 = 3.5. Average recruitment since 1988 = 2.1. This represents a 40 percent decrease in average recruitment.

## **SUMMARY OF CURRENT WILD TURKEY RESEARCH IN SOUTH CAROLINA**

SCDNR is contributing funding and cooperating on a study entitled “Reproductive Ecology of Wild Turkeys in an Unhunted Population.” This is a joint project between SCDNR, USDA Forest Service-Southern Research Station, University of Georgia, Louisiana State University, and University of Missouri. This research is occurring on the Savannah River Site (SRS), and is focused on evaluating reproductive ecology of a population of wild turkeys not exposed to hunting. Specific objectives include:

1. Determining space use, habitat selection, and survival of male and female wild turkeys
2. Assessing nesting and brooding ecology of female wild turkeys, with a focus on thoroughly describing nesting chronology and behavior of females during laying, incubating, and brooding.
3. Describing vegetative and habitat characteristics associated with nest sites and areas used by brooding females.
4. Spatially and temporally describing gobbling activity and relating gobbling activity to nesting chronology of females and movement ecology of males.
5. Evaluating the genetic mating system of wild turkeys and describe patterns of parentage in clutches of females.

These research objectives have been studied on several other study sites across the Southeast in recent years on populations subjected to hunting (i.e. the recent SCDNR funded project at the Webb Wildlife Center). By conducting parallel research on an unhunted population, we will be able to better assess the impacts of hunting on wild turkeys.

To date, 116 birds (62 females, 54 males) have been captured and banded. 80 of these birds were marked with GPS transmitters. This project will continue until 2024 and findings will be provided as they become available.

---

A 3-year cooperative study is nearing completion with Clemson University. The project is assessing variation of chronology of wild turkey gobbling in the Upstate of South Carolina using 38 autonomous recording units (ARUs) on public and private lands in the foothills/mountains. The goal is to quantify turkey gobbling chronology and occupancy in relation to latitude, elevation, and habitat within the Upstate of South Carolina. The results of this project combined with gobbling chronology data from coastal plain study areas which include SRS, Crackerneck WMA and the Webb Wildlife Center will provide quantifiable differences in the timing and amount of gobbling activity across different latitudes, elevations, and hunting regimes in the state.

---



SCDNR funded and collaborated on an in-depth mail survey and analysis that was conducted in 2019 by Dr. Shari Rodriguez at Clemson University. This project was designed to gain a better understanding of turkey hunter satisfaction in South Carolina and Wildlife Management Area (WMA) use for turkey hunting in the state.

Input from turkey hunter stakeholders is key for SCDNR to remain a well-informed management agency. The goal of this study was to learn more about SC WMA turkey hunters, as well as provide them with a formal outlet to express their level of satisfaction and their concerns regarding turkey hunting in the state. Specifically, the objectives were to 1) determine WMA turkey hunter opinions on turkey hunting quality in SC, 2) understand what factors influence their satisfaction, dissatisfaction, and success, 3) assess their perceptions of recent turkey population trends, and 4) identify any significant differences between lottery hunt and open access hunting regimes. A final report is available.

---

SCDNR is cooperating on a project to assess the diet of coyotes in South Carolina through non-invasive genetic sampling and DNA metabarcoding. This study is part of a larger coyote abundance estimation project underway with the University of Georgia and Savannah River Ecology Lab, using coyote fecal samples collected from sites across South Carolina. The project will analyze these samples for species-specific prey found within each fecal sample through DNA metabarcoding. As part of this analysis we will be able to estimate the percentage of wild turkeys in coyote diets during the spring and summer (nesting and brood rearing season).