

**SCDNR SMALL GAME PROGRAM  
SUMMER BOBWHITE QUAIL BROOD SURVEY - 2021**

A sighting survey for bobwhite quail (*Colinus virginianus*) broods was conducted for the 28th consecutive year during the summer of 2021. The quail brood survey was again conducted in conjunction with the summer turkey brood survey.

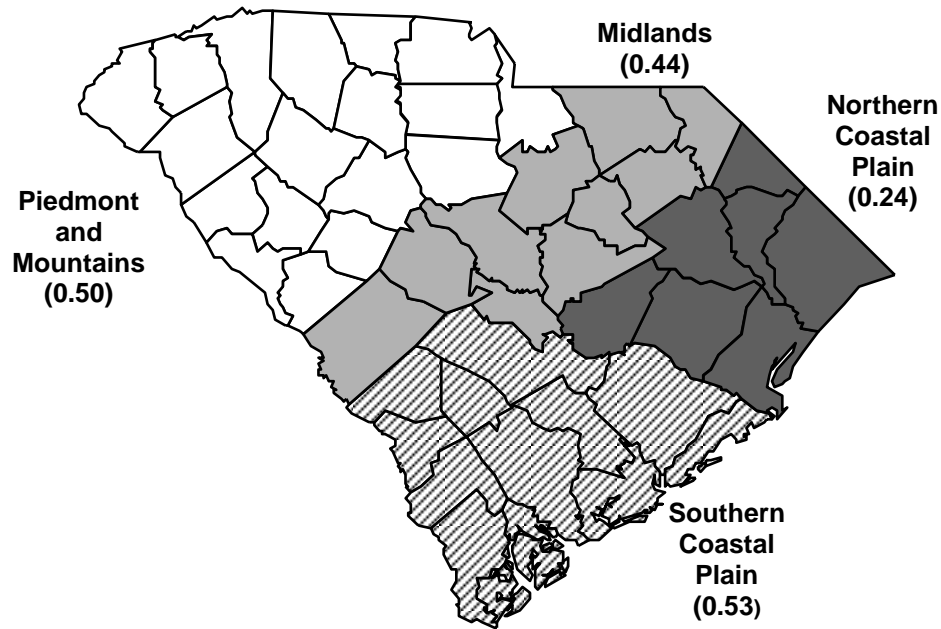
Past survey cooperators and additional potential cooperators were provided with data forms and requested to record sightings of turkeys and quail during the period July 1, 2021, through August 29, 2021. Cooperators included, but were not limited to, SCDNR Conservation Officers and Wildlife Section staff, Natural Resources Conservation Service (NRCS) staff, foresters, and plantation managers.

Several assumptions had to be made in compiling the data due to variations in reporting. These assumptions are: (1) groups of 1-4 birds not identified to sex and age were assumed to be adults, (2) groups of birds of 5 or greater were assumed to be a mated pair of adults with the remainder being juveniles, (3) when a numerical range for number of birds was given, the median was used (e.g.: 8-12=10), (4) if no adult quail were observed with a brood, one adult was assumed present and not seen and, (5) for adult pairs with more than 15 juveniles it was assumed these groups were comprised of adult pairs with 12 or fewer juveniles. Data expressed in this report represents parameters per observation where appropriate.

Results were compiled from 202 observations of quail during the 2021 survey period (Table 1), down from 242 in 2020. The Midlands region reported the greatest number of quail observations, but the Piedmont region had the greatest number of brood sightings. In addition, the percentage of adults without chicks was lowest in the Southern Coastal Plain (Table 3). Age ratio (juveniles per adult) increased across all regions (Table 2). The Southern Coastal Plain (2.6) and Piedmont and Mountains (2.3) had the highest age ratio of the four regions (Table 3). Statewide, the age ratio of 2.0 juveniles per adult was slightly higher than the age ratio detected in 2020 (1.8). The average brood size (9.6) increased from 8.3 in 2020 (Table 4).

Statewide, fifty-five percent of adult quail were observed without chicks, down from sixty-one percent in the 2020 survey (Table 4). Also, the average brood size and age ratio per observation increased from 2020 (Table 4). Total numbers of adults observed per observation (2.18) increased as well as the total number of chicks observed per observation (4.31) from the 2020 survey (1.80 and 3.23 respectively). Collectively, these indices suggest that the statewide total reproductive output during the survey period was higher in 2021 as in 2020. While the 2021 brood survey indicated an increase in brood size over the 10-year average, the overall age ratio is slightly lower than the 10-year average.

**Figure 1. Physiographic regions used in the South Carolina Summer Bobwhite Quail Brood Survey, 2021. Number of broods sighted per observation is in parentheses.**



**Table 1. Results of the South Carolina Summer Bobwhite Quail Brood Survey per observation by Region, 2021.**

<b>Physiographic Region</b>	<b>Observations</b>	<b>Broods Sighted</b>	<b>Chicks</b>	<b>Adults</b>	<b>Total Quail</b>
Piedmont & Mountains	60	0.50	4.42	1.95	6.37
Midlands	66	0.44	3.36	2.18	5.55
Northern Coastal Plain	29	0.24	1.45	1.69	3.14
Southern Coastal Plain	47	0.53	7.28	2.79	10.06
<b>2021 Totals</b>	<b>202</b>	<b>0.45</b>	<b>4.31</b>	<b>2.18</b>	<b>6.50</b>

**Table 2. Bobwhite quail recruitment data from South Carolina Summer Bobwhite Quail Brood Survey, 2016 – 2021.**

<u>Region</u>	<u>Year</u>	<u>Age Ratio</u> <u>Average Brood Size (Juveniles / Adults)</u>	
Piedmont & Mountains	2016	8.1	1.70
	2017	7.6	1.10
	2018	8.2	2.41
	2019	5.2	1.20
	2020	7.0	1.80
	2021	8.8	2.26
Midlands	2016	6.4	1.00
	2017	5.7	0.28
	2018	6.8	1.78
	2019	5.1	1.43
	2020	9.3	0.85
	2021	7.7	1.54
Northern Coastal Plain	2016	9.8	3.20
	2017	7.6	0.76
	2018	8.2	1.90
	2019	4.7	1.51
	2020	6.0	0.49
	2021	6.0	0.86
Southern Coastal Plain	2016	8.0	3.20
	2017	8.0	1.05
	2018	8.8	3.04
	2019	5.1	2.09
	2020	8.7	2.06
	2021	13.7	2.61
Statewide	2016	8.1	2.10
	2017	7.3	0.87
	2018	7.9	2.52
	2019	6.3	1.74
	2020	8.3	1.80
	2021	9.6	1.98

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**Table 3. Summary of reproductive data per observation for 2021 South Carolina Summer Bobwhite Quail Brood Survey by region.**

Region	% Adults w/Chicks	% Adults w/o Chicks	No. Chicks	Avg. Brood Size	Age Ratio
Piedmont and Mountains	50	50	4.4	8.8	2.3
Midlands	44	56	3.4	7.7	1.5
Northern Coastal	24	76	1.5	6.0	0.9
Southern Coastal	53	47	7.3	13.7	2.6
Statewide	45	55	4.3	9.6	2.0

**Table 4. South Carolina Summer Bobwhite Quail Brood Survey reproductive data per observation for 2012 - 2021.**

Year	% Adults w/Chicks	% Adults w/o Chicks	No. Chicks	Avg. Brood Size	Age Ratio
2012	55	45	3.2	9.2	3.2
2013	48	52	2.5	7.9	2.5
2014	33	67	1.5	7.2	1.5
2015	48	52	1.9	6.3	1.9
2016	49	51	3.9	5.8	2.1
2017	48	52	4.0	5.9	2.1
2018	51	49	5.1	7.9	2.5
2019	43	57	4.0	6.3	1.7
2020	39	61	3.2	8.3	1.8
2021	45	55	4.3	9.6	2.0
10 -Year Average	46	54	3.4	7.4	2.1

*If you are interested in improving quail and upland habitat on your property (owned or leased), SCDNR has partnered with other government and non-government organizations to provide landowners and managers with the latest information and improvements to upland management. This collective group of wildlife biologist and quail enthusiast can also guide you through the process of requesting cost share assistance through various government and non-government sources. For more information about assistance and cost share please visit <http://scbobwhites.org/>.*