

**SCDNR SMALL GAME PROGRAM
SUMMER BOBWHITE QUAIL BROOD SURVEY - 2020**

A sighting survey for bobwhite quail (*Colinus virginianus*) broods was conducted for the 27th consecutive year during the summer of 2020. 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, 2020 through August 29, 2020. 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, (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 242 observations of quail during the 2020 survey period (Table 1), up from 152 in 2019. The Southern Coastal Plain region reported the greatest number of quail observations and brood sightings. In addition, the percentage of adults without chicks was lowest in the Southern Coastal Plain and the Piedmont and Mountains regions (Table 3). Age ratio (juveniles per adult) decreased in the Midlands, Northern Coastal Plain, and Southern Coastal Plain but increased in the Piedmont and Mountains regions (Table 2). The Southern Coastal Plain had the highest age ratio of the four regions (Table 3). Statewide, the age ratio of 1.80 juveniles per adult was higher than the age ratio detected in 2019 (1.74). The average brood size (8.3) increased from 6.3 in 2019.

Statewide, sixty-one percent of adult quail were observed without chicks, up from fifty-seven percent in the 2019 survey (Table 4). Also, the average brood size and the age ratio per observation increased from 2019 (Table 4). Total numbers of adults observed (per observation) decreased while total number of chicks observed per observation was slightly lower than the 2019 survey. Collectively, these indices suggest that the statewide total reproductive output during the survey period was similar in 2020 as in 2019. It should be noted that the 2020 survey indicated slightly higher nesting success than the prior year and the statewide reproduction was also slightly higher, driven by the Piedmont and Mountains and Southern Coastal Plain regions, than the ten-year average.

Figure 1. Physiographic regions used in the South Carolina Summer Bobwhite Quail Brood Survey, 2020. Number of broods sighted per observation is in parentheses.

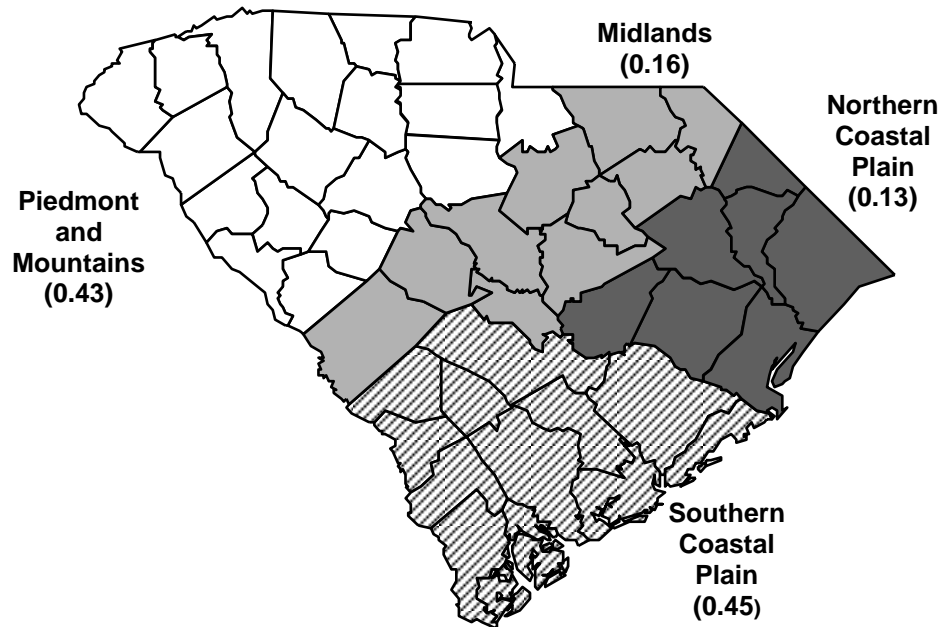


Table 1. Results of the South Carolina Summer Bobwhite Quail Brood Survey by Region, 2020.

Physiographic Region	Observations	Broods Sighted	Chicks	Adults	Total Quail
Piedmont & Mountains	47	0.43	3.19	1.68	4.88
Midlands	19	0.16	1.47	1.74	3.21
Northern Coastal Plain	24	0.13	0.75	1.54	2.29
Southern Coastal Plain	152	0.45	3.91	1.89	5.80
2020 Totals	242	0.39	3.23	1.80	5.03

Table 2. Bobwhite quail recruitment data from South Carolina Summer Bobwhite Quail Brood Survey, 2016 – 2020.

<u>Region</u>	<u>Year</u>	<u>Average Brood Size</u>	<u>Age Ratio (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
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
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
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
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

Table 3. Summary of reproductive data per observation for 2020 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	43	57	3.2	7.0	1.8
Midlands	16	84	1.5	9.3	0.8
Northern Coastal	13	87	0.8	6.0	0.5
Southern Coastal	45	55	3.9	8.7	2.1
Statewide	39	61	3.2	8.3	1.8

Table 4. South Carolina Summer Bobwhite Quail Brood Survey reproductive data per observation for 2011 - 2020.

Year	% Adults w/Chicks	% Adults w/o Chicks	No. Chicks	Avg. Brood Size	Age Ratio
2011	32	68	2.1	8.0	2.2
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
10 -Year Average	45	55	3.1	7.3	2.2