

## **SCDNR SMALL GAME PROGRAM SUMMER BOBWHITE QUAIL BROOD SURVEY - 2023**

A sighting survey for bobwhite quail (*Colinus virginianus*) broods was conducted for the 30th consecutive year during the summer of 2023. 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, 2023, through August 29, 2023. Cooperators included, but were not limited to, SCDNR Conservation Officers and Wildlife Section staff, Natural Resources Conservation Service (NRCS) staff, foresters, and plantation managers.

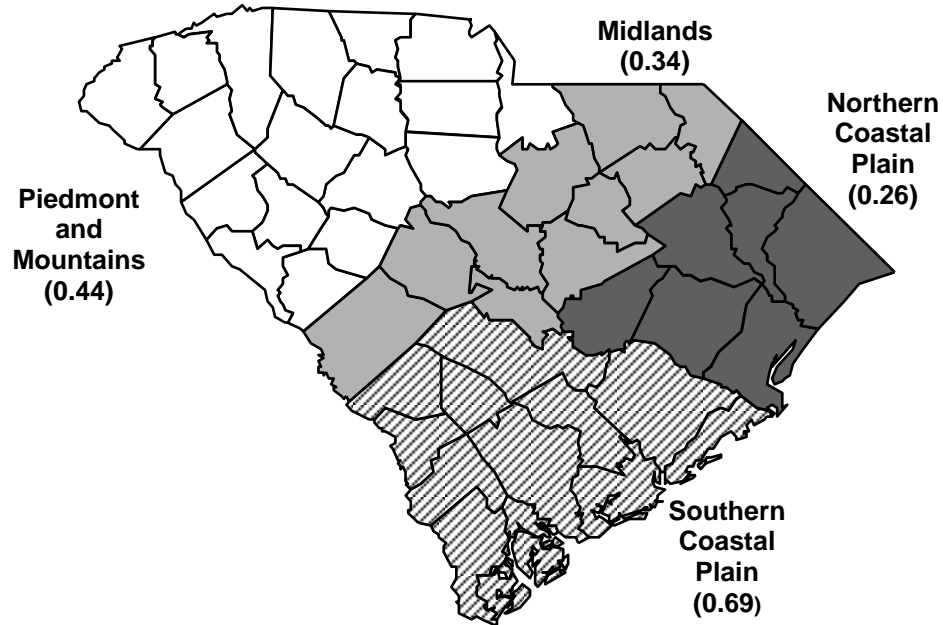
Several assumptions had to be made in compiling the data due to variations in reporting. These assumptions are: (1) groups of 1-4 birds not identified to sex and age were assumed to be adults, (2) groups of birds of 5 or greater were assumed to be a mated pair of adults with the remainder being juveniles, (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 166 observations of quail during the 2023 survey period (Table 1), up from 130 in 2022. The Southern Coastal Plain region reported the greatest number of quail observations (58), and the greatest rate of broods sighted per observation (0.69) (Figure 1). In addition, the percentage of adults without chicks was lowest in the Southern Coastal Plain region (Table 3). Age ratio (juveniles per adult) decreased in the Piedmont and Mountain as well as the Midland Regions (Table 2). The Southern Coastal Plain region (2.3) had the highest age ratio of the four regions (Table 3). Statewide, the age ratio of 1.8 juveniles per adult was slightly higher than the age ratio detected in 2023 (1.7). The average brood size (8.0) decreased from 8.1 in 2022 (Table 4).

Allendale, Aiken, Georgetown, and Williamsburg Counties had the most observations of quail in 2023 (Figure 2). Newberry County reported the highest age ratio of 6.0 juveniles per adult in 2023 (Figure 3). Twenty-four counties (52%) reported at least 1 observation for the year. Allendale, Barnwell, Oconee, and Saluda Counties reported 75% or more of adults seen had juveniles (Figure 5).

Statewide, forty-eight percent of adult quail were observed without chicks, down from fifty-nine percent in the 2022 survey (Table 4). Also, the average brood size decreased slightly and age ratio per observation increased slightly from 2022 (Table 4). Total numbers of adults observed per observation (2.04) increased as well as the total number of chicks observed per observation (3.72) from the 2022 survey (1.85 and 3.23 respectively). Collectively, these indices suggest that the statewide total reproductive output during the survey period was slightly higher in 2023 than in 2022. While the 2023 brood survey indicated a larger brood size over the 10-year average, the overall age ratio is slightly lower than the 2022 survey. This suggests that, while quail populations remain low across the state, the population has been stable for the last 3 years.

**Figure 1. Physiographic regions used in the South Carolina Summer Bobwhite Quail Brood Survey, 2023. 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, 2023.**

<b>Physiographic Region</b>	<b>Observations</b>	<b>Broods Sighted</b>	<b>Chicks</b>	<b>Adults</b>	<b>Total Quail</b>
Piedmont & Mountains	32	0.44	3.28	1.72	5.00
Midlands	38	0.34	3.03	1.71	4.74
Northern Coastal Plain	38	0.26	1.45	1.87	3.32
Southern Coastal Plain	58	0.69	5.90	2.55	8.45
<b>2023 Totals</b>	<b>166</b>	<b>0.46</b>	<b>3.72</b>	<b>2.04</b>	<b>5.76</b>

**Table 2. Bobwhite quail recruitment data from South Carolina Summer Bobwhite Quail Brood Survey, 2019 – 2023.**

<u>Region</u>	<u>Year</u>	<u>Age Ratio</u> <u>Average Brood Size (Juveniles / Adults)</u>	
Piedmont & Mountains	2019	5.2	1.20
	2020	7.0	1.80
	2021	8.8	2.26
	2022	8.4	2.43
	2023	7.5	1.91
Midlands	2019	5.1	1.43
	2020	9.3	0.85
	2021	7.7	1.54
	2022	8.2	2.24
	2023	8.8	1.91
Northern Coastal Plain	2019	4.7	1.51
	2020	6.0	0.49
	2021	6.0	0.86
	2022	5.0	0.43
	2023	5.5	0.77
Southern Coastal Plain	2019	5.1	2.09
	2020	8.7	2.06
	2021	13.7	2.61
	2022	7.4	0.71
	2023	8.6	2.31
Statewide	2019	6.3	1.74
	2020	8.3	1.80
	2021	9.6	1.98
	2022	8.1	1.74
	2023	8.0	1.82

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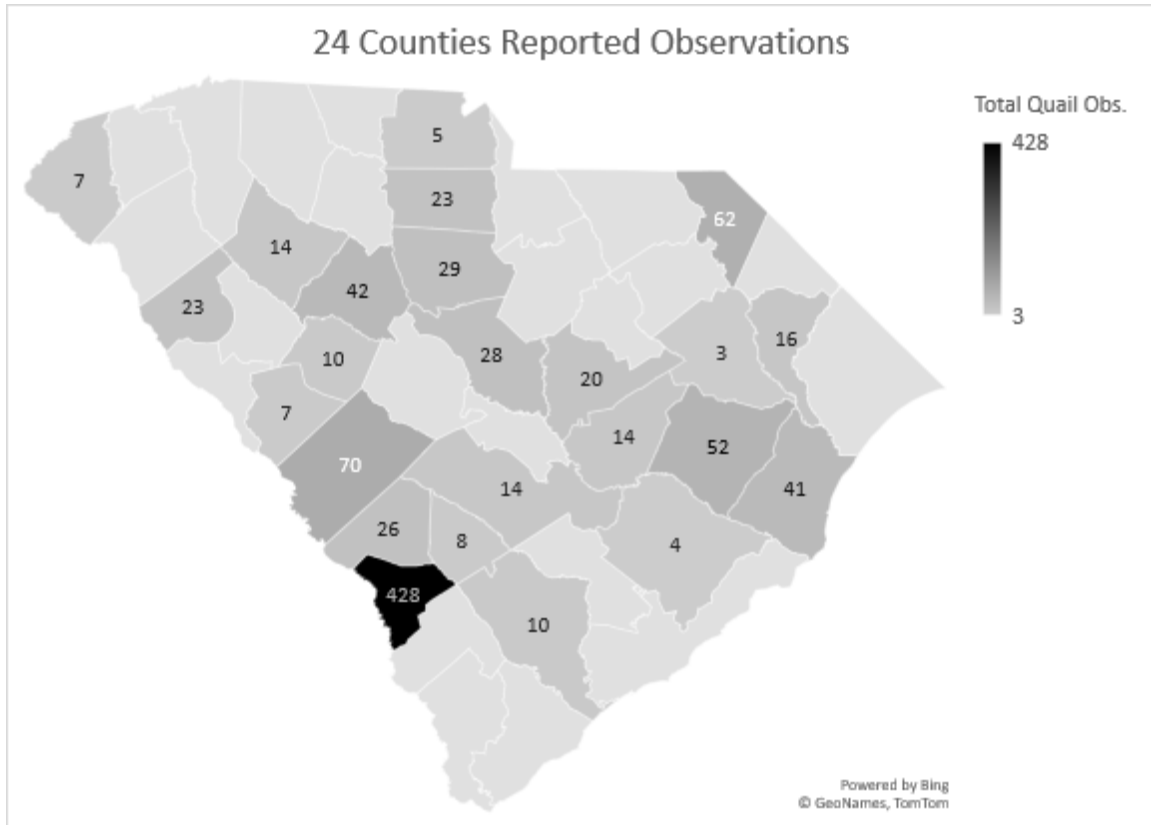
**Table 3. Summary of reproductive data per observation for 2023 South Carolina Summer Bobwhite Quail Brood Survey by region.**

Region	% Adults w/Chicks	% Adults w/o Chicks	No. Chicks	Avg. Brood Size	Age Ratio
Piedmont and Mountains	44	56	3.28	7.5	1.91
Midlands	34	66	3.03	8.8	1.77
Northern Coastal	24	76	3.32	5.5	0.77
Southern Coastal	77	23	5.90	8.6	2.31
Statewide	52	48	3.72	8.0	1.82

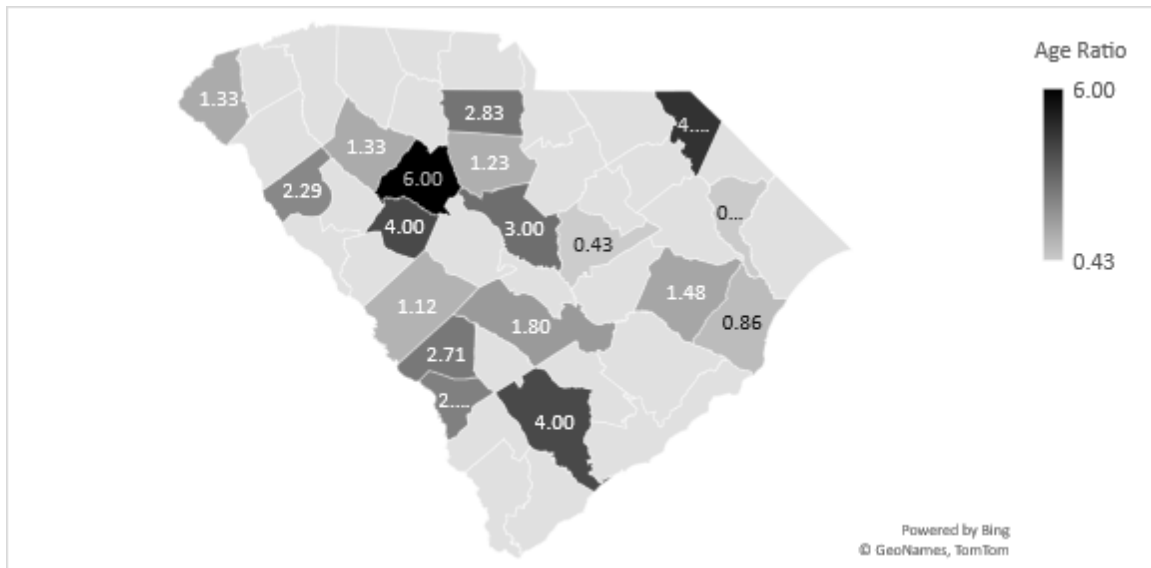
**Table 4. South Carolina Summer Bobwhite Quail Brood Survey reproductive data per observation for 2014 - 2023.**

Year	% Adults w/Chicks	% Adults w/o Chicks	No. Chicks	Avg. Brood Size	Age Ratio
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
2022	41	59	3.2	8.1	1.7
2023	52	48	3.7	8.0	1.8
10 -Year Average	44.9	55.1	3.5	7.3	1.9

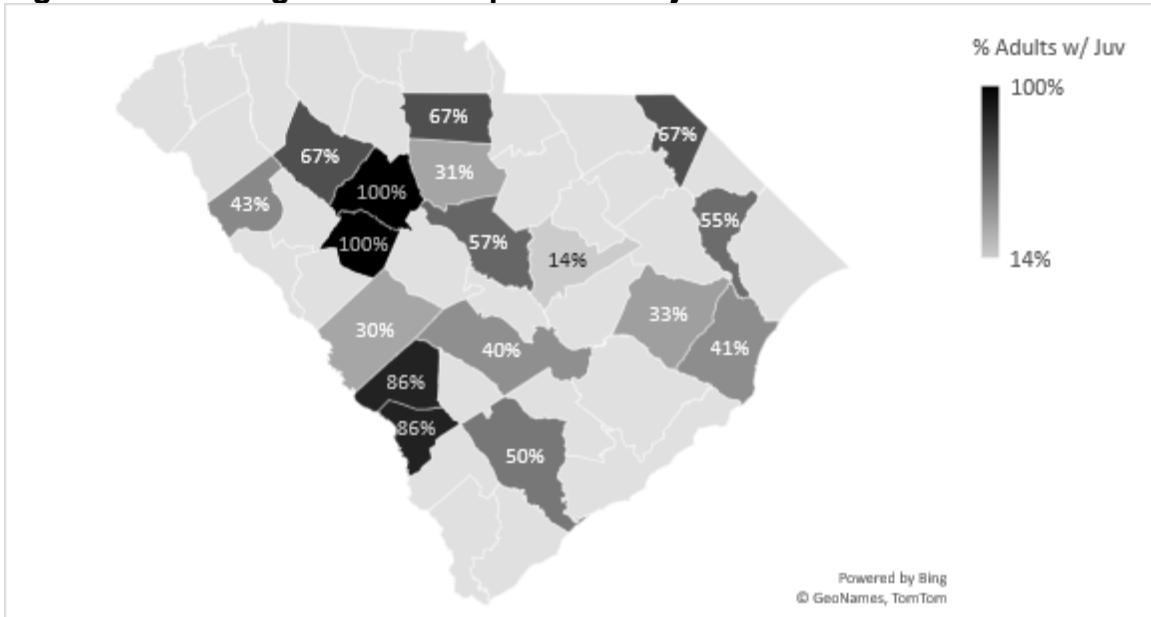
**Figure 2: Total quail observations by county for 2023**



**Figure 3: Age ratio by county for 2023.**



**Figure 4: Percentage of adults reported with juveniles in 2023.**



*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 biologists and quail enthusiasts 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/>. If you would like to participate in the annual turkey and quail brood survey please visit <https://www.dnr.sc.gov/wildlife/turkey/volunbroodsurvey.html>.*