



2014-15 North Carolina Avid Quail Hunter Survey

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Since 1984, the North Carolina Wildlife Resources Commission (NCWRC) has conducted an annual avid quail hunter survey to estimate long term avid quail hunting trends and to provide annual insight into avid quail hunting demographics. Volunteer quail hunters participate by recording and submitting their annual hunting activity throughout the season. Quail hunting activity is recorded by county and landownership type (e.g. private or game lands) within 8 management units within North Carolina (Fig. 1). Reported hunting trips typically consist of a single day per hunting party.

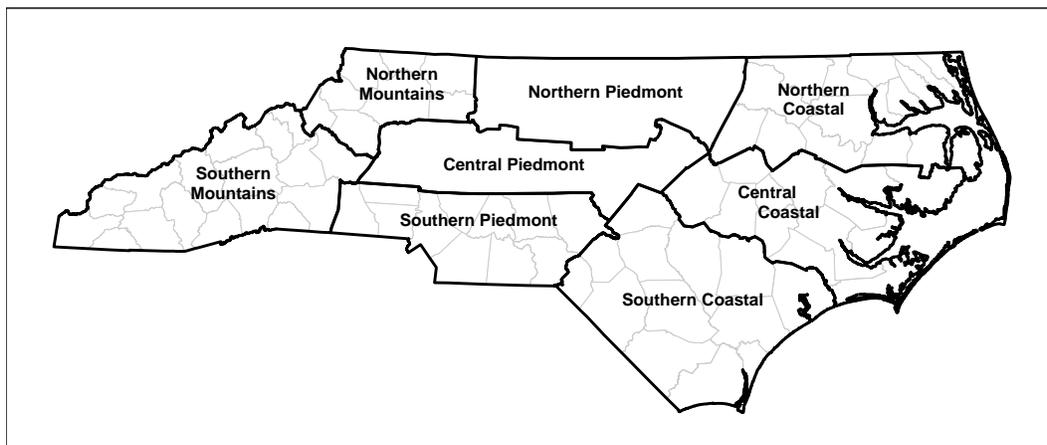


Figure 1. North Carolina quail management units in the avid quail hunter survey, 1984-2014.

Sixty-two avid quail hunters responded during the 2014-15 survey season, providing quail hunting statistics for 752 hunting trips (Fig. 2). The gradual annual decline of total reported quail hunting trips has primarily been a function of fewer survey respondents and fewer hunting trips taken per hunter.

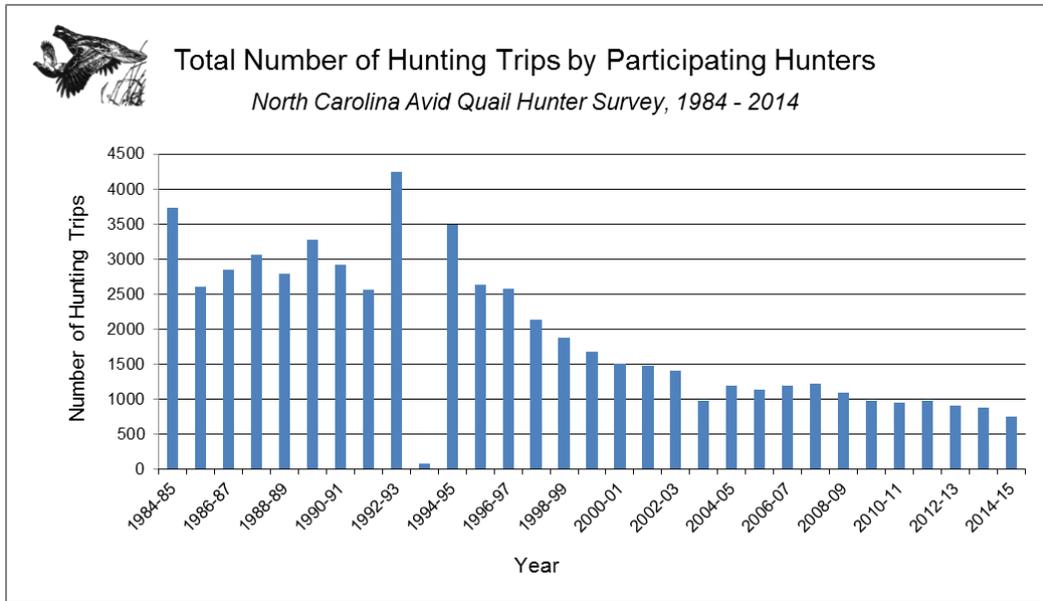


Figure 2. Total number of hunts reported by volunteer avid quail hunter survey respondents, 1984 - 2014.

During the 2014-15 hunting season, most reported avid quail hunting occurred in the coastal management units and the least in the mountain units (Fig. 3). Since 1984, the long term trend for the number of trips spent hunting has continued to decline (Fig. 4) while the number of hours hunting per trip has generally fluctuated between 3.5 and 4.0 hours per hunt (Fig. 5). Avid quail hunters went afield an average of 12.7 trips and hunted 3.5 hours per trip during the 2014-15 season. Party size averaged 1.6 hunters per hunting trip.

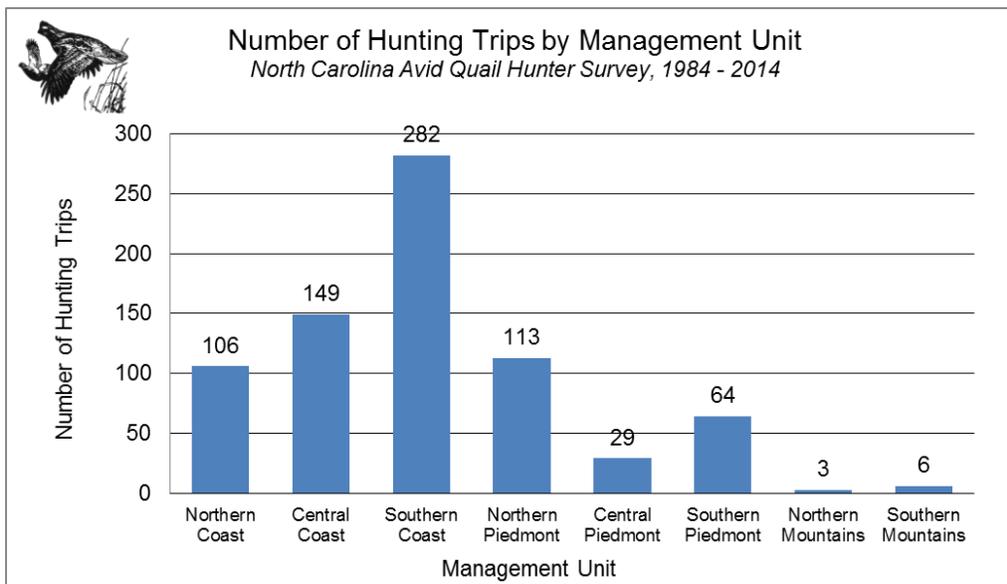


Figure 3. Total number of reported hunting trips by management unit by avid quail hunter survey respondents during the 2014-15 hunting season.

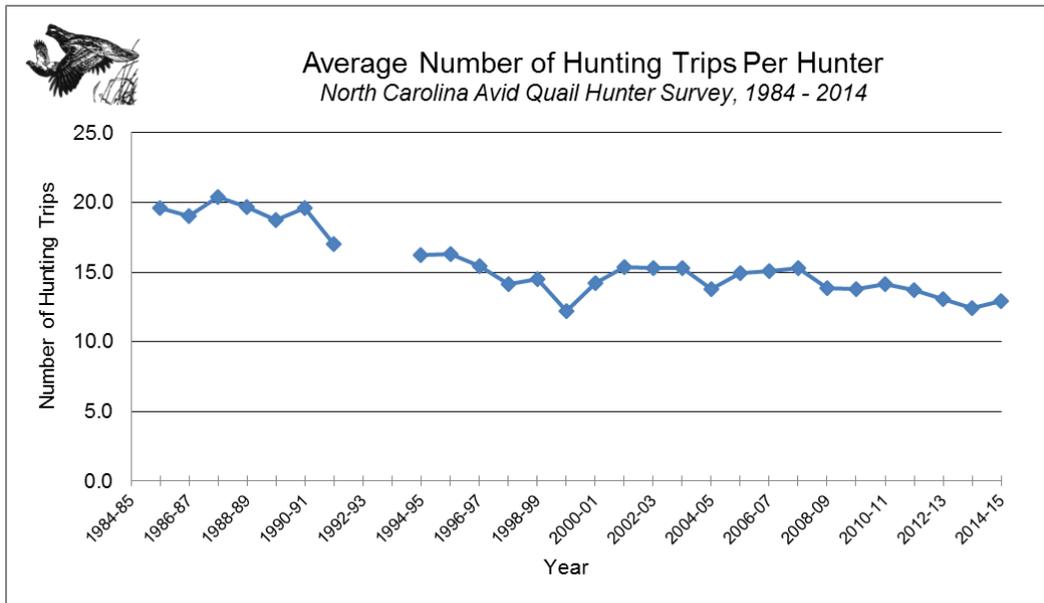


Figure 4. Average number of hunting trips per hunter in the avid quail hunter survey, 1984 - 2014.

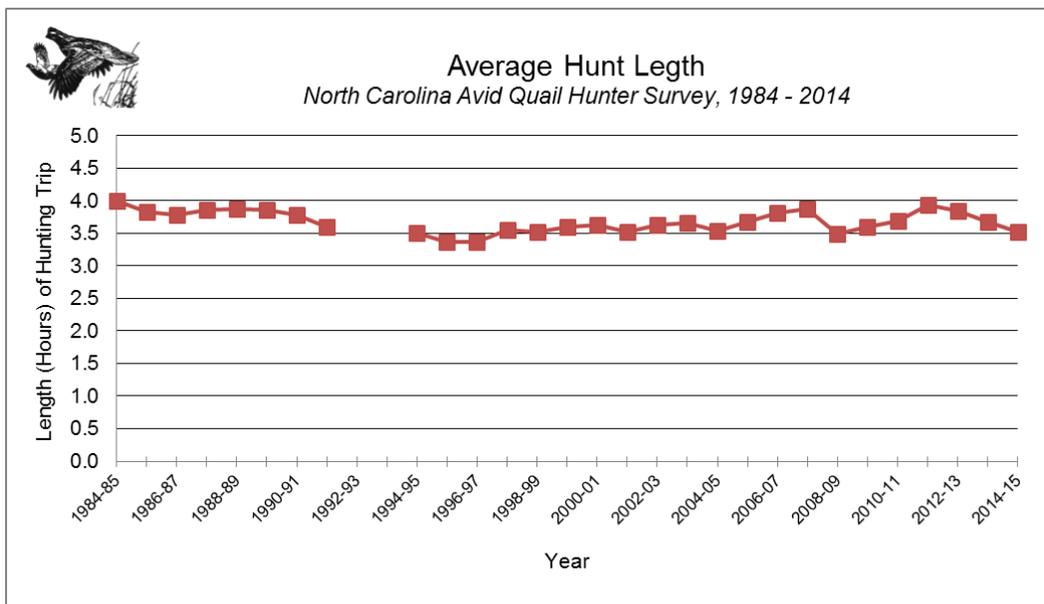


Figure 5. Average hunting hours per trip in the avid quail hunter survey, 1984 - 2014.

Covey flush rates are presented both by hunting trip and hours hunted. Flush rates by hour may provide more precise indices of quail abundance, while flush rates by hunting trip are more applicable from a quail hunting perspective. However, we recognize that hunters change their hunting locations over time to areas with relatively more quail. This selective behavior by avid hunters has a tendency to skew abundance trend estimates such that they may not represent actual annual abundances or changes in abundance across the full landscape.

More quail are typically found in the coastal management units than in the piedmont or mountain units (Fig. 6). In 2014-15, coastal flush rates continued to be higher (0.60 coveys/hunting hour) than either the piedmont (0.35) or the mountains (0.06). The high degree of variability seen in the mountain region estimate in recent years is likely a function of a low number of reported hunts from the region, rather than actual changes in abundance. Flush rates continue to be much higher on private land than on public game lands (Fig. 7).

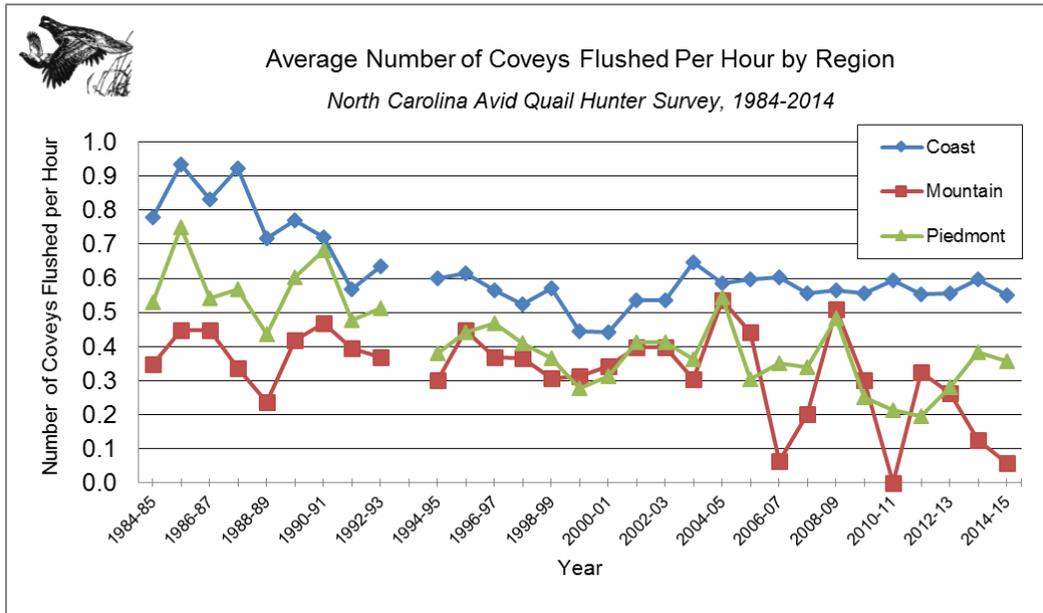


Figure 6. Average number of coveys flushed per hour by region by avid quail hunter survey respondents, 1984 - 2014.

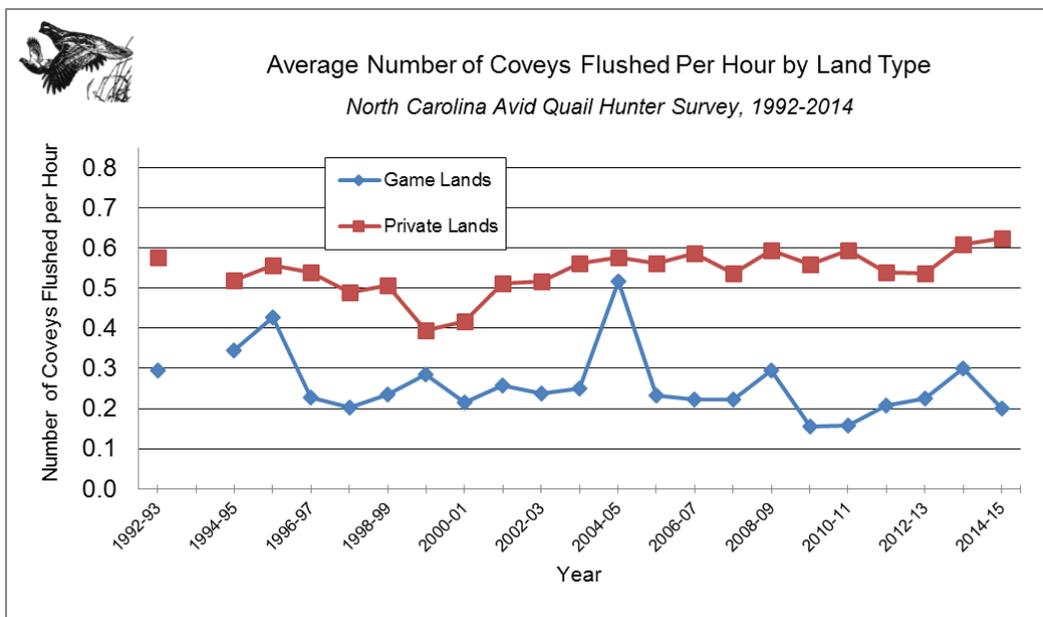


Figure 7. Average number of coveys flushed per hour by land type by avid quail hunter survey respondents, 1992 - 2014.

During the 2014-15 hunting season, avid hunters in the central coastal management unit reported the highest flush rates (3.98 coveys/trip) and harvest rates (4.42 quail/trip) (Fig. 9). The peak in this management unit was primarily driven by a few survey participants with extremely high success rates which skewed comparisons between management units. Most hunters are experiencing far lower success rates.

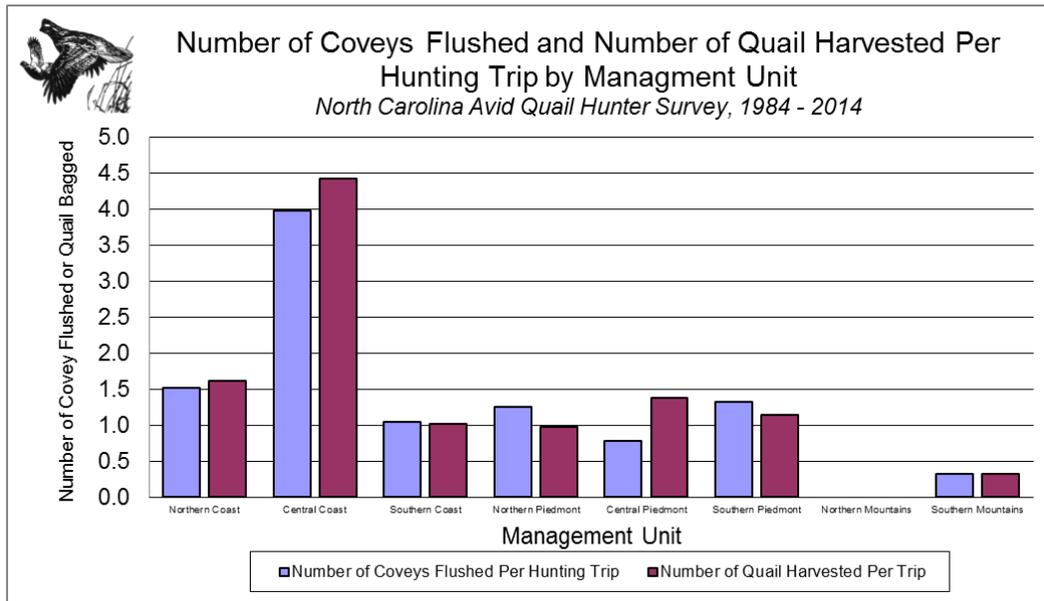


Figure 8. Average number of coveys flushed and quail harvested per hunting trip by management unit in the avid quail hunter survey, 2014-15 hunting season.

Despite the decline in avid quail hunters, the number of coveys flushed and quail bagged per hunting trip has remained relatively stable over the past 20 years (Fig. 9). During the 2014-15 season, avid hunters flushed on average 1.7 coveys and harvested 1.8 quail per hunting trip. Some avid hunters commented that they were likely to abandon quail hunting when quail were scarce. The stabilization of flush and harvest rates may indicate the minimum acceptable threshold for focused quail hunting to occur. “Avid” quail hunters continued to maintain higher harvest rates than to “standard” quail hunters who have responded to the NCWRC statewide hunter surveys (<1 quail per hunting trip).

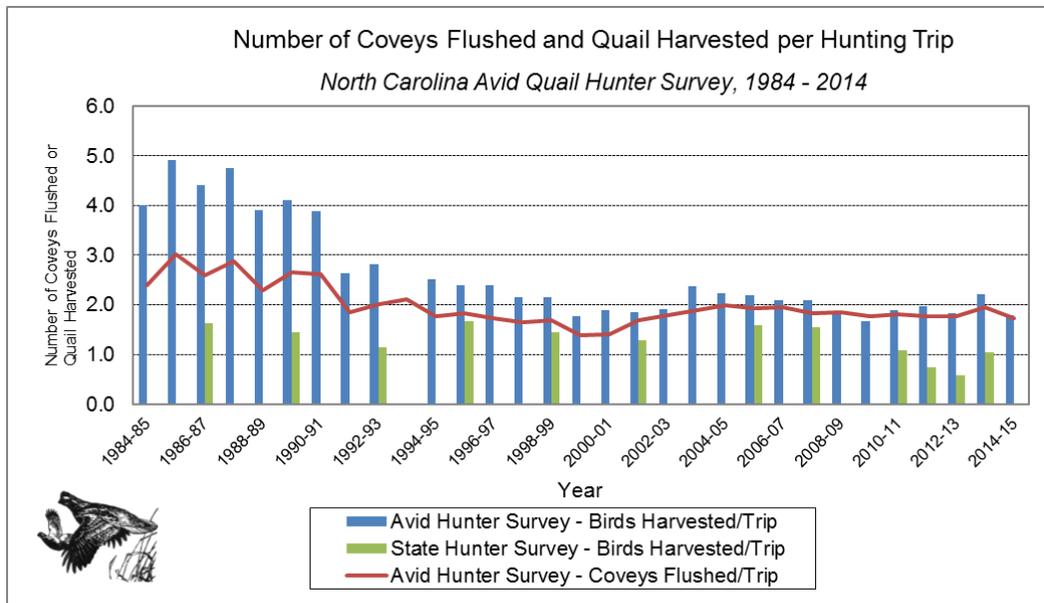


Figure 9. Average number of quail coveys flushed and birds harvested per hunting trip for avid quail hunter survey and state hunter survey respondents, 1984 - 2014.

Since 1984, the avid quail hunter survey has shown a general decline in the number of quail harvested from each covey flushed (Fig. 10). This change may be related to more hunters choosing not to shoot flushed quail (because of their concern of quail declines) and/or their desire to primarily train bird dogs. Average reported covey size during 2014-15 was 15.6 quail and was fairly consistent from November through February. Reported covey size was higher on private lands (16.6 quail/covey) than on public game lands (9.0 quail/covey). Reported covey size was highest in the central coastal management unit (19.4 quail/covey) and lowest in the southern mountain management unit (8.0 quail/covey). No quail were flushed on 42% of the reported hunting trips.

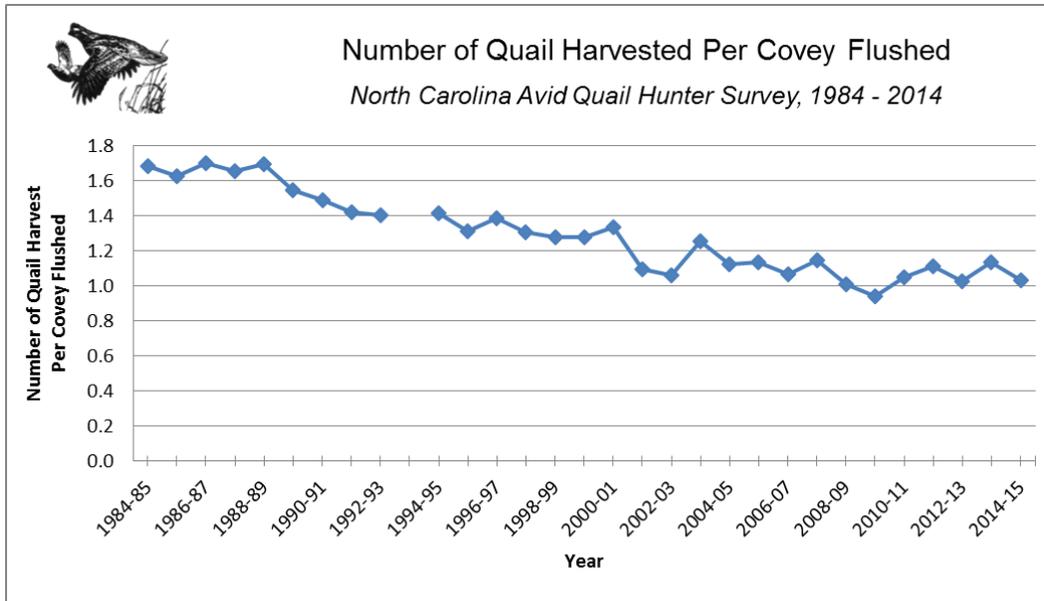


Figure 10. Average number of quail harvested per covey flushed by avid quail hunters, 1984 – 2014.

Reported quail hunting effort (number of trips) was highest during the month of January (Fig. 11). Avid hunters reported more covey flushes and more harvests per trip at the beginning of the hunting season (Fig. 12). A slight decline in the harvest rate was seen through the course of the season, from 1.1 quail harvested per covey flushed in November to 0.9 quail harvested per covey flushed in February.

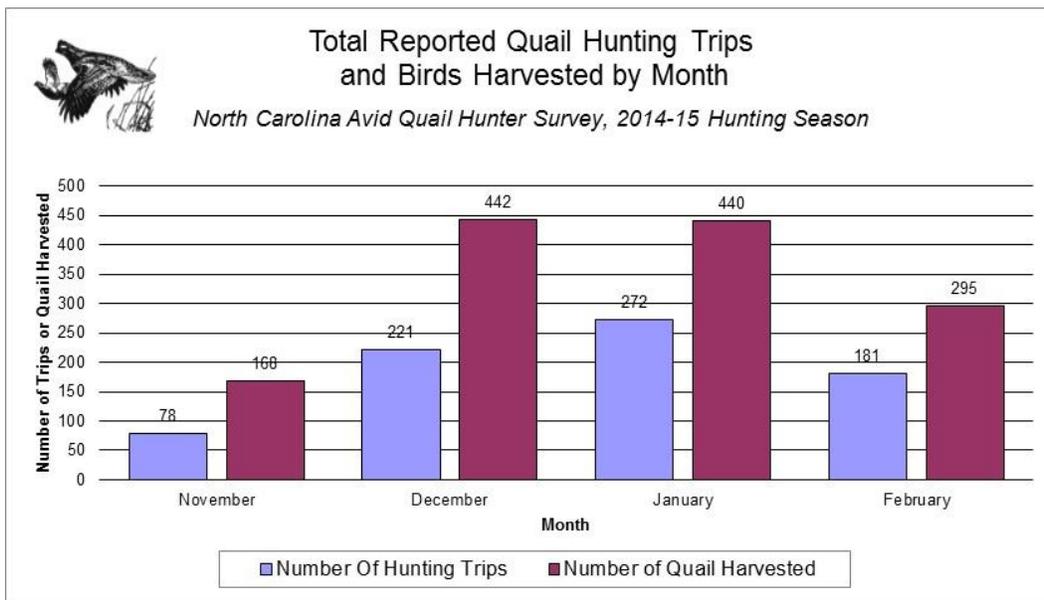


Figure 11. Total reported quail hunting trips and quail harvest by avid quail hunters during the 2014-15 hunting season (November 22, 2014 through February 28, 2015).

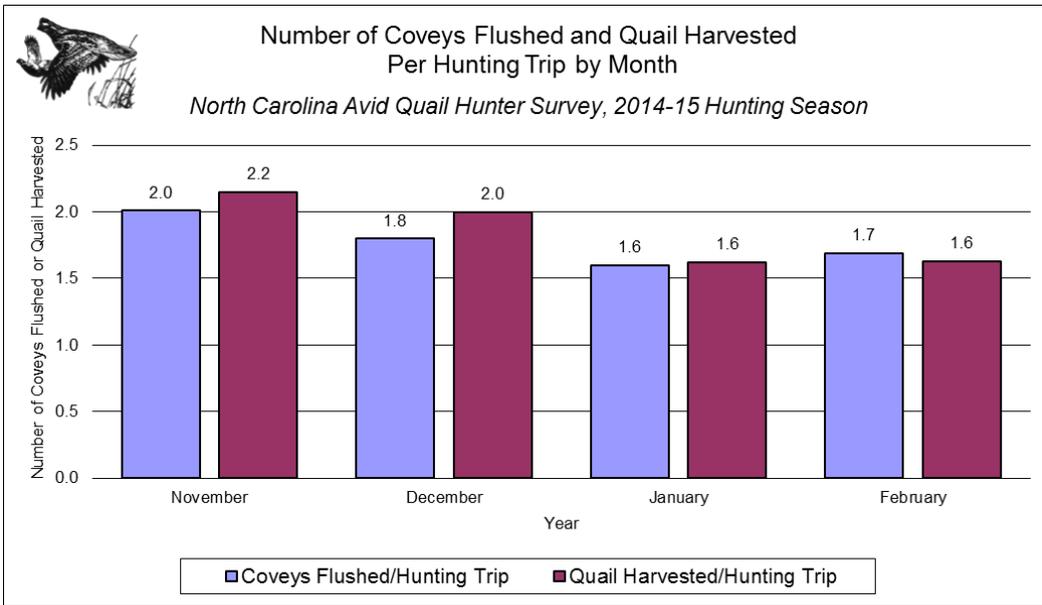


Figure 12. Average number of coveys flushed and quail harvested per hunting trip by month by avid quail hunters during the 2014-15 hunting season.

Funding for the avid quail hunter survey report was partially provided through a Pittman-Robertson Wildlife Restoration Multi-state Grant. The Federal Aid in Wildlife Restoration Act, popularly known as the Pittman-Robertson Act, was approved by Congress on September 2, 1937, and began functioning July 1, 1938. The purpose of this Act was to provide funding for the selection, restoration, rehabilitation and improvement of wildlife habitat, wildlife management research, and the distribution of information produced by the projects. The Act was amended October 23, 1970, to include funding for hunter training programs and the development, operation and maintenance of public target ranges.

Funds are derived from an 11 percent Federal excise tax on sporting arms, ammunition, and archery equipment, and a 10 percent tax on handguns. These funds are collected from the manufacturers by the Department of the Treasury and are apportioned each year to the States and Territorial areas (except Puerto Rico) by the Department of the Interior on the basis of formulas set forth in the Act. Funds for hunter education and target ranges are derived from one-half of the tax on handguns and archery equipment.

Each state's apportionment is determined by a formula which considers the total area of the state and the number of licensed hunters in the state. The program is a cost-reimbursement program, where the state covers the full amount of an approved project then applies for reimbursement through Federal Aid for up to 75 percent of the project expenses. The state must provide at least 25 percent of the project costs from a non-federal source.



Appendix I. Reported hunting activity from avid quail hunter survey respondents, 1984 - 2014.

Year	# Avid Hunter Respondents	# Hunting Trips	Hours Hunted	Respondent Age	Trips / Hunter	Hours / Trip	# Coveys Flushed	Coveys Flushed / Trip	Coveys Flushed / Hour	Coveys Flushed / Hour - Game Land	Coveys Flushed / Hour - Private Land	# Quail Harvested	Quail Harvested / Trip	Quail Harvested / Hour	Quail Harvested / Covey Flush	# Hunts w/No Coveys Flushed	% Hunts w/No Coveys Flushed	Average Covey Size
1984-85		3,736	14,905			3.99	8,929	2.39	0.60			15,004	4.02	1.01	1.68	590	15.80%	
1985-86	133	2,605	9,963	47	19.59	3.82	7,867	3.02	0.79			12,785	4.91	1.28	1.63	237	9.10%	
1986-87	150	2,849	10,785	47	18.99	3.79	7,379	2.59	0.68			12,565	4.41	1.17	1.70	403	14.15%	
1987-88	150	3,062	11,802	47	20.41	3.85	8,819	2.88	0.75			14,574	4.76	1.23	1.65	373	12.18%	
1988-89	142	2,789	10,817	48	19.64	3.88	6,415	2.30	0.59			10,881	3.90	1.01	1.70	475	17.03%	
1989-90	175	3,282	12,677	48	18.75	3.86	8,697	2.65	0.69			13,455	4.10	1.06	1.55	369	11.24%	
1990-91	149	2,924	11,068	48	19.62	3.79	7,632	2.61	0.69			11,367	3.89	1.03	1.49	335	11.46%	
1991-92	151	2,566	9,213	49	16.99	3.59	4,747	1.85	0.52			6,750	2.63	0.73	1.42	559	21.78%	
1992-93		4,241					8,524	2.01		0.29	0.58	11,977	2.82		1.41	765	18.04%	
1993-94		3,184					6,718	2.11										
1994-95	216	3,498	12,271	51	16.19	3.51	6,191	1.77	0.50	0.34	0.52	8,767	2.51	0.71	1.42	802	22.94%	
1995-96	161	2,628	8,832	52	16.32	3.36	4,809	1.83	0.54	0.43	0.56	6,308	2.40	0.71	1.31	584	22.22%	
1996-97	167	2,581	8,677	52	15.46	3.36	4,439	1.72	0.51	0.23	0.54	6,157	2.39	0.71	1.39	608	23.56%	
1997-98	151	2,140	7,618	53	14.17	3.56	3,531	1.65	0.46	0.20	0.49	4,611	2.15	0.61	1.31	548	25.63%	
1998-99	129	1,874	6,602	54	14.53	3.52	3,167	1.69	0.48	0.24	0.51	4,038	2.15	0.61	1.27	488	26.04%	
1999-00	128	1,560	6,036	55	12.19	3.87	2,168	1.39	0.36	0.29	0.39	2,772	1.78	0.46	1.28	538	34.51%	
2000-01	106	1,509	5,474	55	14.24	3.63	2,128	1.41	0.39	0.21	0.42	2,841	1.88	0.52	1.34	471	31.23%	
2001-02	96	1,478	5,212	56	15.40	3.53	2,498	1.69	0.48	0.26	0.51	2,738	1.85	0.53	1.10	390	26.39%	
2002-03	92	1,405	5,098	57	15.27	3.63	2,529	1.80	0.50	0.24	0.52	2,675	1.90	0.52	1.06	384	27.33%	
2003-04	72	1,103	3,614	58	15.32	3.28	2,096	1.90	0.58	0.25	0.56	2,625	2.38	0.73	1.25	333	30.19%	
2004-05	87	1,201	4,255	56	13.80	3.54	2,388	1.99	0.56	0.52	0.58	2,691	2.24	0.63	1.13	344	28.64%	
2005-06	76	1,132	4,150	56	14.89	3.67	2,185	1.93	0.53	0.23	0.56	2,475	2.19	0.60	1.13	362	32.01%	
2006-07	79	1,192	4,543	57	15.09	3.81	2,336	1.96	0.51	0.22	0.59	2,495	2.09	0.55	1.07	363	30.45%	
2007-08	81	1,236	4,729	59	15.26	3.83	2,262	1.83	0.48	0.22	0.54	2,589	2.09	0.55	1.14	384	31.07%	
2008-09	81	1,120	3,841	58	13.83	3.43	2,083	1.86	0.54	0.29	0.59	2,105	1.88	0.55	1.01	339	30.27%	
2009-10	71	978	3,521	61	13.77	3.60	1,731	1.77	0.49	0.15	0.56	1,633	1.67	0.46	0.94	332	33.95%	
2010-11	67	948	3,493	60	14.15	3.68	1,716	1.81	0.49	0.16	0.60	1,802	1.90	0.52	1.05	324	34.20%	
2011-12	72	985	3,872	57	13.68	3.93	1,753	1.78	0.45	0.21	0.54	1,950	1.98	0.50	1.11	384	38.98%	
2012-13	69	903	3,468	58	13.09	3.84	1,610	1.78	0.46	0.23	0.54	1,655	1.83	0.48	1.03	310	34.33%	10.6
2013-14	71	883	3,249	59	12.44	3.68	1,729	1.96	0.53	0.30	0.61	1,960	2.22	0.60	1.13	271	30.69%	11.1
2014-15	62	752	2,642	58	12.10	3.50	1,303	1.73	0.49	0.20	0.63	1,345	1.79	0.51	1.03	314	41.76%	15.6