



2013-14 North Carolina Avid Quail Hunter Survey Prepared by Ryan T. Myers, NCWRC Surveys and Research Biologist



Since 1984, an annual avid quail hunter survey has been conducted by the North Carolina Wildlife Resources Commission (NCWRC) 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 trip activity throughout the fall/winter hunting 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 have typically consisted of a single day per hunting party.

Northern Bobwhite Quail Management Units and Estimated Relative Abundance 2008-2012

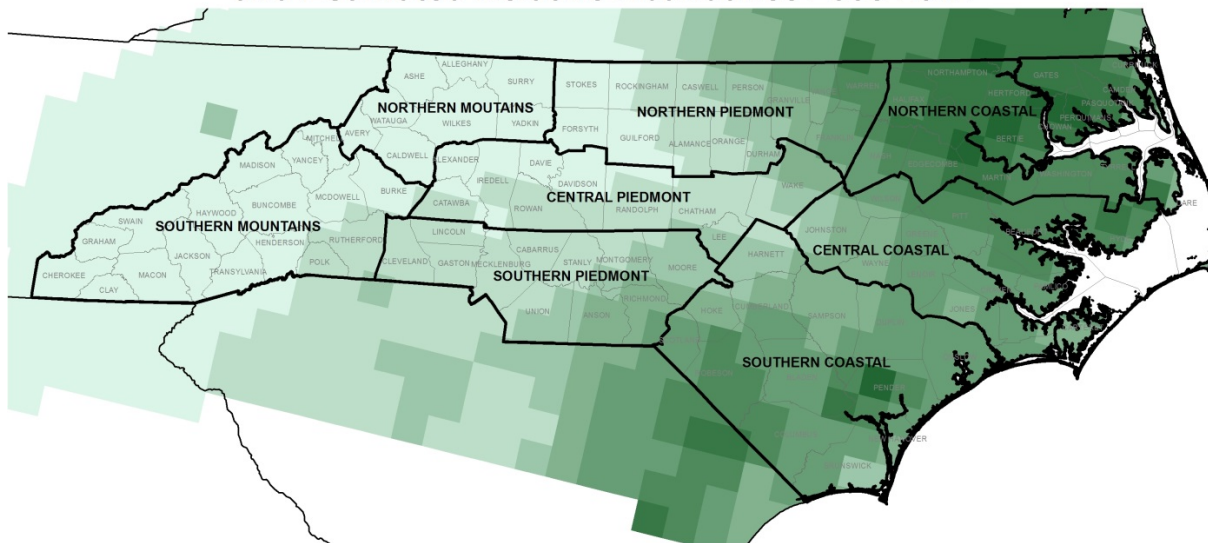


Figure 1. – North Carolina Quail Management Units and Estimated Relative Abundance, 2008-2012. Estimated relative abundance of quail based on USGS Breeding Bird Survey data using smoothed modeling procedures. Darker shading represents higher relative abundance.

Seventy-one avid quail hunters responded during the 2013-14 survey season, providing quail hunting statistics for 883 hunting trips (Fig. 2). The gradual annual decline of total reported quail hunting trips has primarily been a function of less survey respondents and less hunting trips taken per hunter. Corresponding declines of total statewide quail hunters and hunting days have also been observed in NCWRC state hunter harvest surveys (Fig. 3).

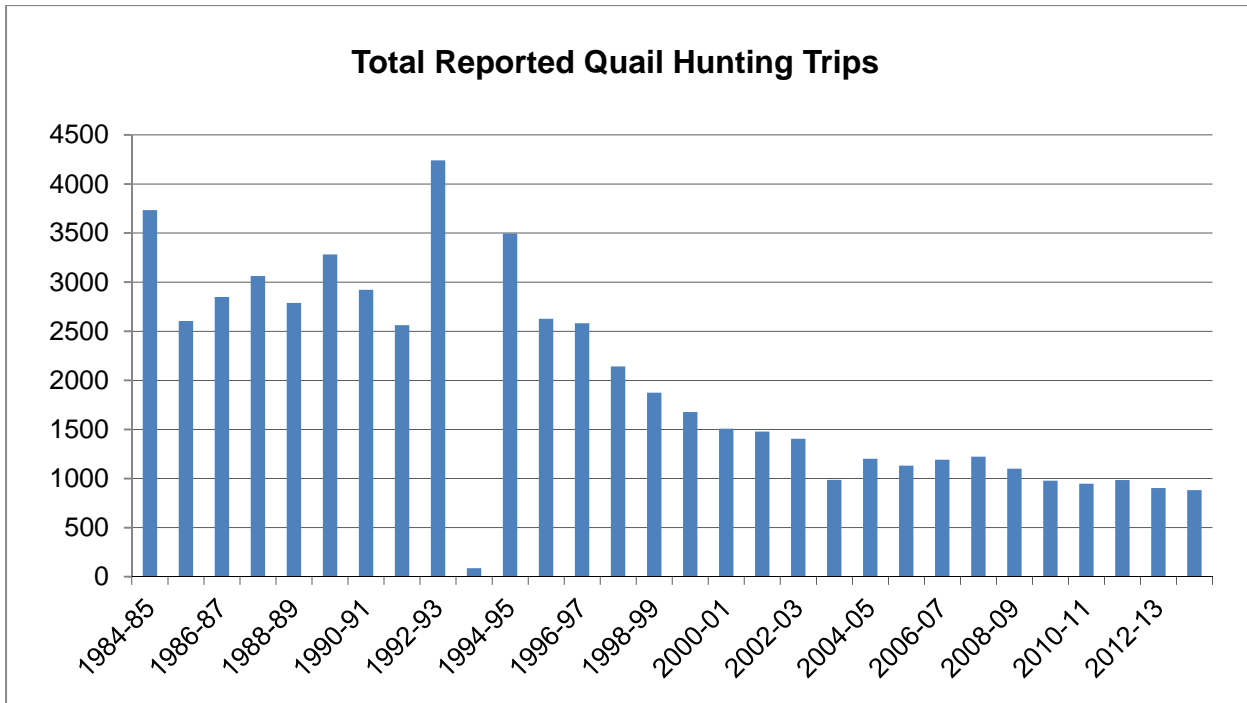


Figure 2. - Total Number of Reported Hunts by Volunteer Avid Quail Hunter Survey Respondents, 1984-85 through 2013-14 hunting seasons.

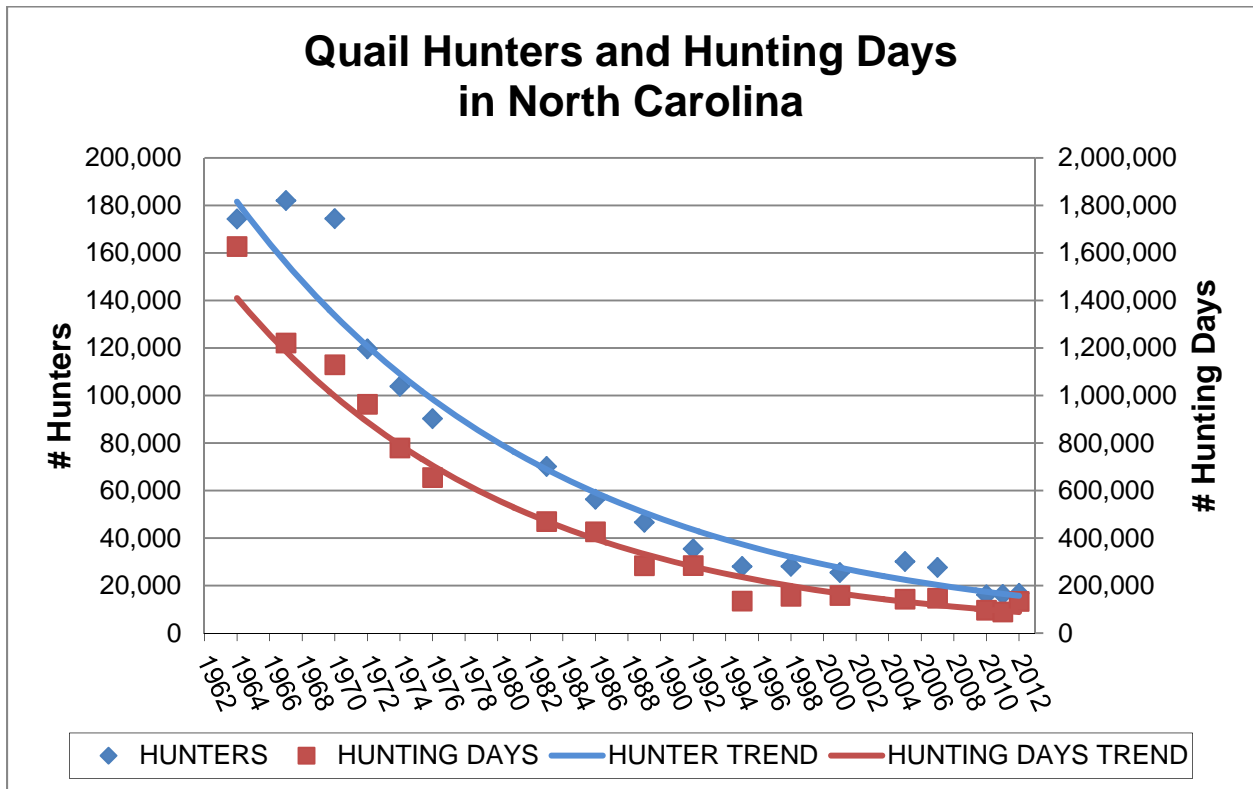


Figure 3. – Estimated Total Number of Quail Hunters and Hunting Days in North Carolina, 1964-2012. NCWRC Hunter Harvest Surveys, 1964-2013.

During the 2013-14 hunting season, most reported avid quail hunting occurred in the coastal management units with the least in the mountain units (Fig. 3). Despite the long-term increase in avid quail hunter survey respondent's age, average age has appeared to stabilize at approximately 58 years old over the last 10 years (Fig. 4).

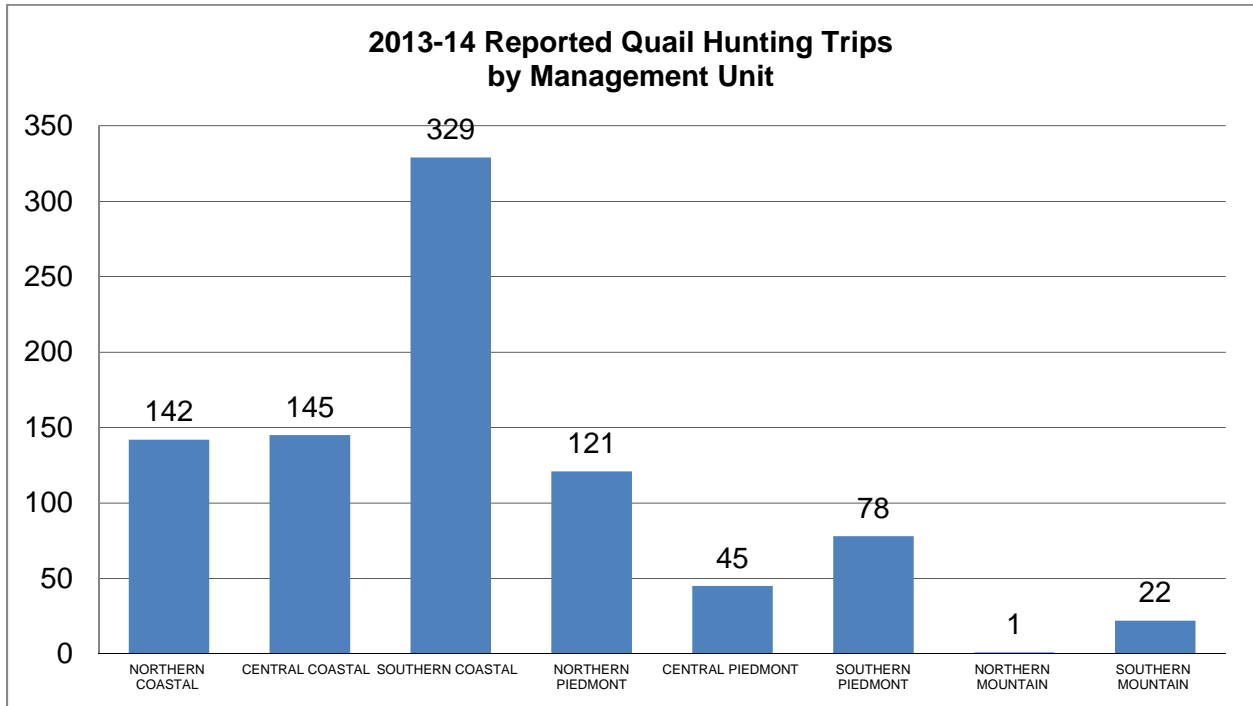


Figure 3. – Total Number of Reported Hunting Trips by Quail Management Unit by Avid Quail Hunter Survey Respondents during the 2013-2014 Hunting Season.

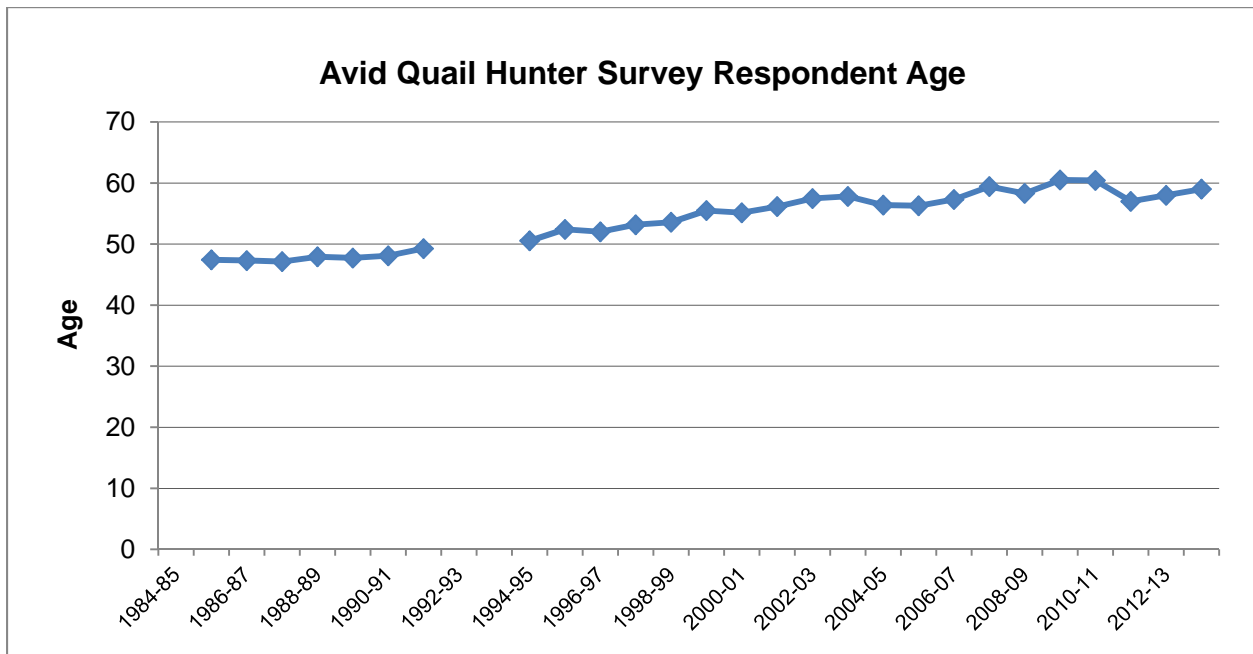


Figure 4. - Average Avid Quail Hunter Age based on Avid Quail Hunter Survey Respondents, 1984-85 through 2013-14 hunting seasons.

Since 1984, the long term trend for the number of trips spent hunting continued to decline while the number of hours hunting per trip has remained fairly consistent (Fig. 5). Avid quail hunters went afield an average of 12.4 trips and hunted 3.7 hours per trip during the 2013-14 season. Party size averaged 1.7 hunters per hunting trip.

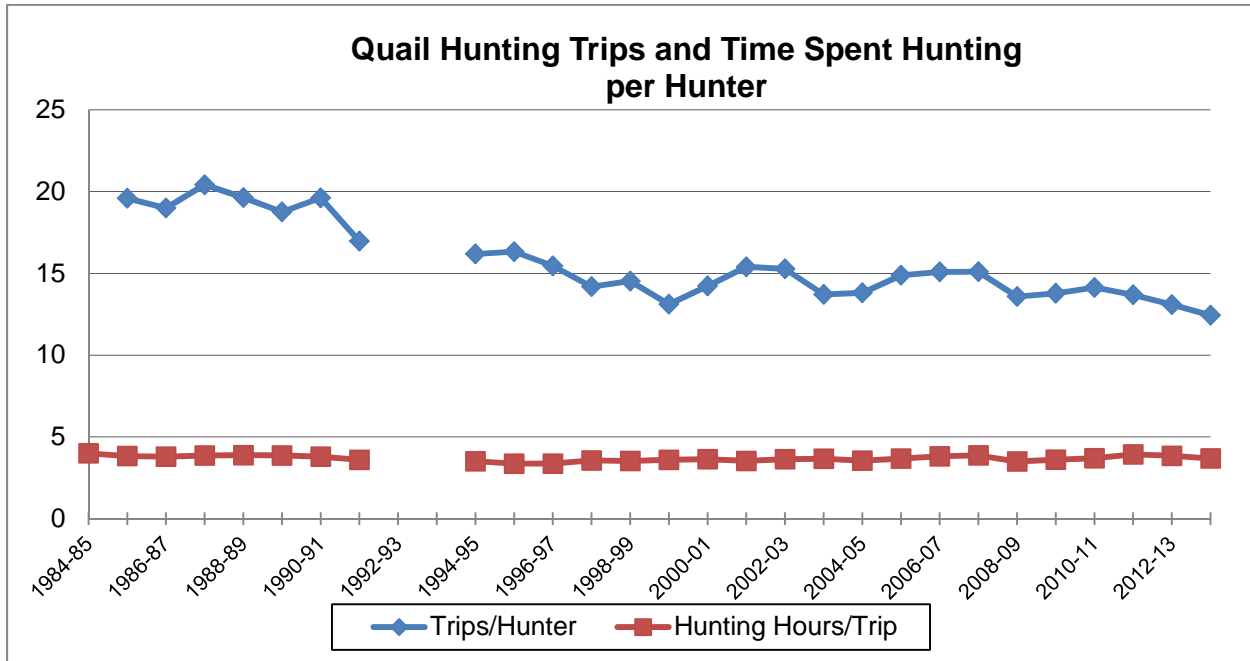


Figure 5. - Average Number of Hunting Trips per Hunter and Hunting Hours per Trip based on Avid Quail Hunter Survey Respondents, 1984-85 through 2013-14 hunting seasons.

Covey flush rate trends are presented in this document as both flushes per hunting trip and flushes per hour hunted. Flush rate per hour may provide more precise indices of quail abundance, while flush rates by hunting trip are more applicable from a quail hunting perspective. However it is recognized that avid hunters will focus and change their hunting locations to areas with relatively more quail. This selective behavior by avid hunters has a tendency to skew abundance trend estimates and may not represent actual annual abundances or changes in abundance across the full landscape.

Historically, more coveys were found in the coastal region than in the piedmont or mountains (Fig. 6). In 2013-14, coastal flush rates continued to be higher (0.60 coveys/hunting hour), than either the piedmont (0.38) or the mountains (0.12). Long term quail covey flush rates by avid hunters have declined slightly in all three physiographic regions and both land types (game lands and private lands). The high degree of variability seen in the mountain region estimate over the past 5 years was likely a function of a low number of reported hunts from the region, rather than actual changes in abundance. Average annual regional declines since the inception of the survey have been -1.7% (Coast), -5.4% (Piedmont), and -26.0% (Mountains). Regional declines have correlated fairly well with estimated population abundance changes by the USGS Breeding Bird Surveys (Fig. 7). Flush rates continued to be roughly twice as high on private land versus public game lands (Fig. 8).

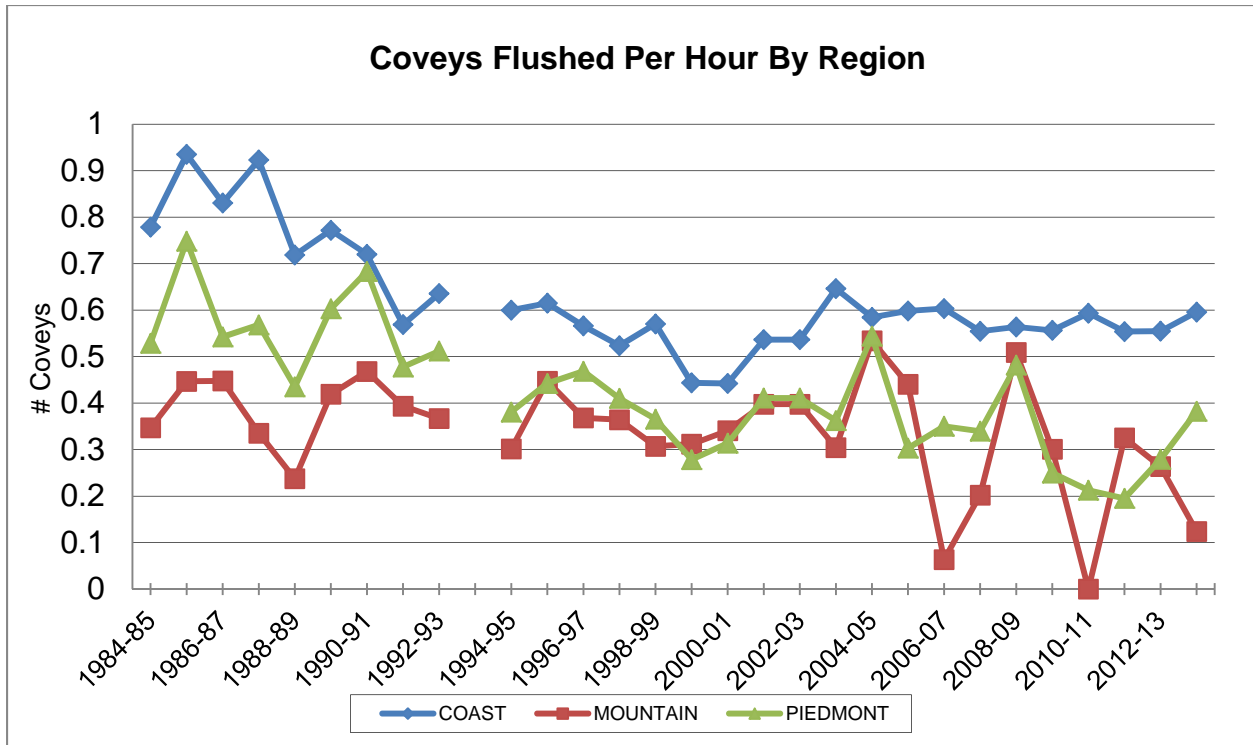


Figure 6. - Average Coveys Flushed per Hour by Region by Avid Quail Hunter Survey Respondents, 1984-85 through 2013-14 hunting seasons.

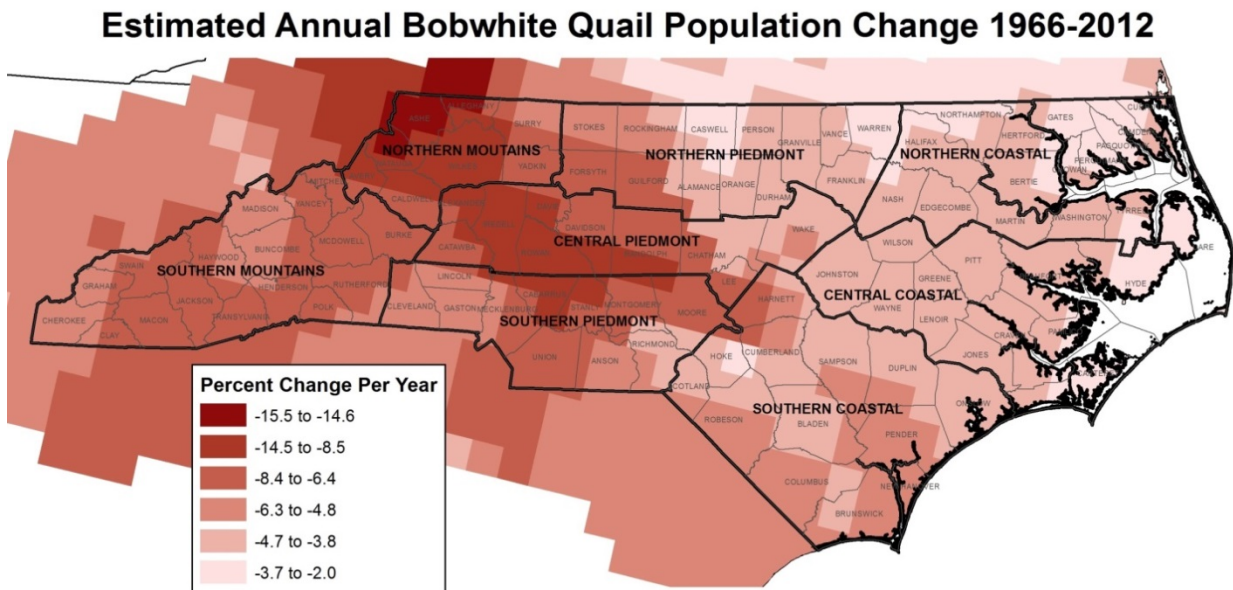


Figure 7. – North Carolina Quail Management Units and Estimated Population Change, 1966-2012. Estimated annual rate of change based on USGS Breeding Bird Survey data using smoothed modeling procedures. Darker shading represents higher rate of change.

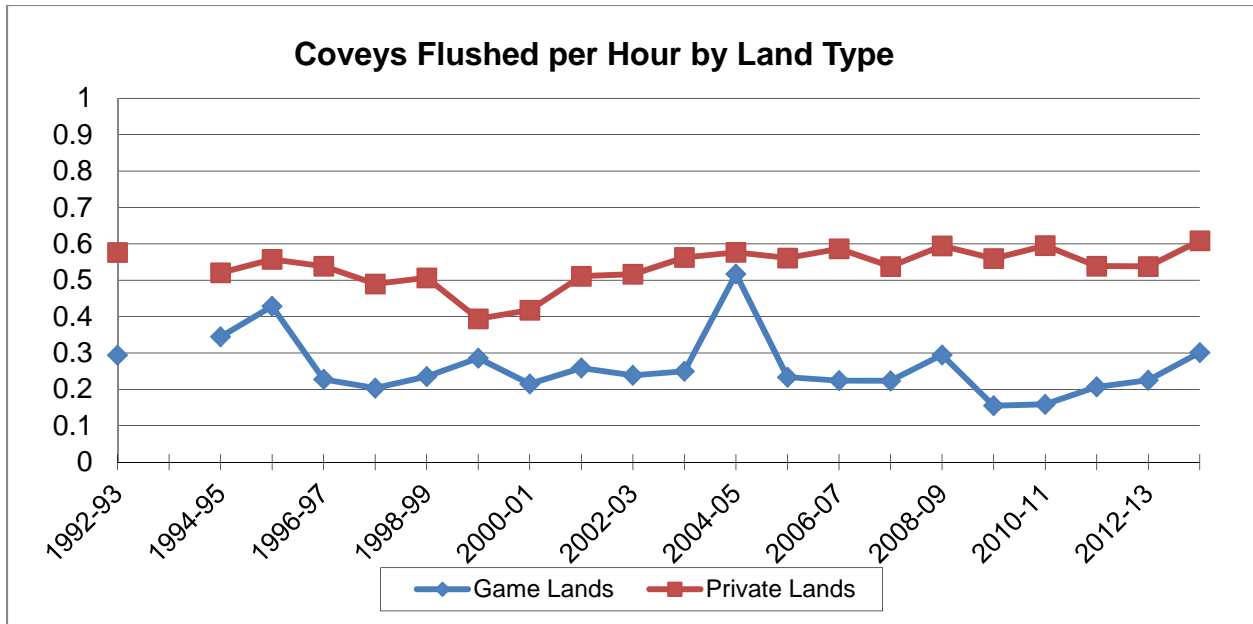


Figure 8. - Average Quail Coveys Flushed per Hour by Land Type by Avid Quail Hunter Survey Respondents, 1992-93 through 2013-14 hunting seasons.

For the 2013-14 hunting season, avid hunters reported the highest flush rates (3.85 coveys/trip) and harvest rates (4.39 birds/trip) in the central coastal management unit (Fig. 9). The peak in this management unit was primarily driven by a few survey participants with extremely high avidity which skewed comparisons between management units. These extremely avid hunters commented that coveys are now commonly found in thick wooded areas and dense cutovers compared to field edges in the past. However for the average quail hunter, these areas may be too thick for them to pursue quail.

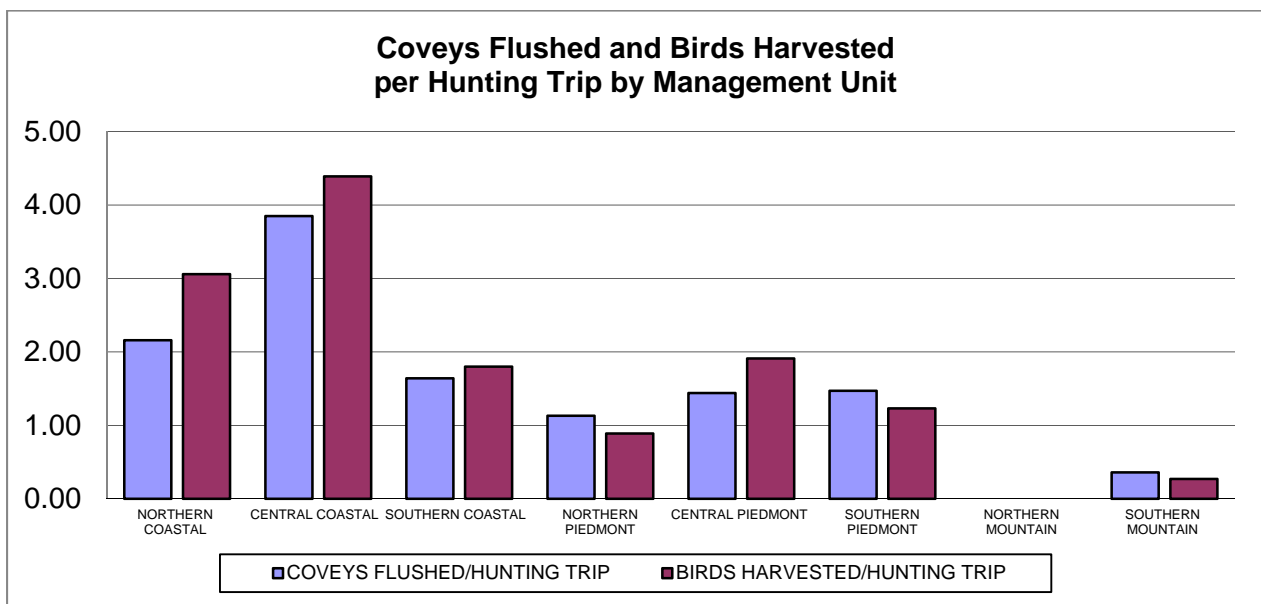


Figure 9. - Average Number of Quail Coveys Flushed and Birds Harvested per Hunting Trip by Quail Management Unit based on Avid Quail Hunter Survey Respondents during the 2013-14 hunting season.

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. 10). During the 2013-14 season, avid hunters flushed on average 2.0 coveys and harvested 2.2 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).

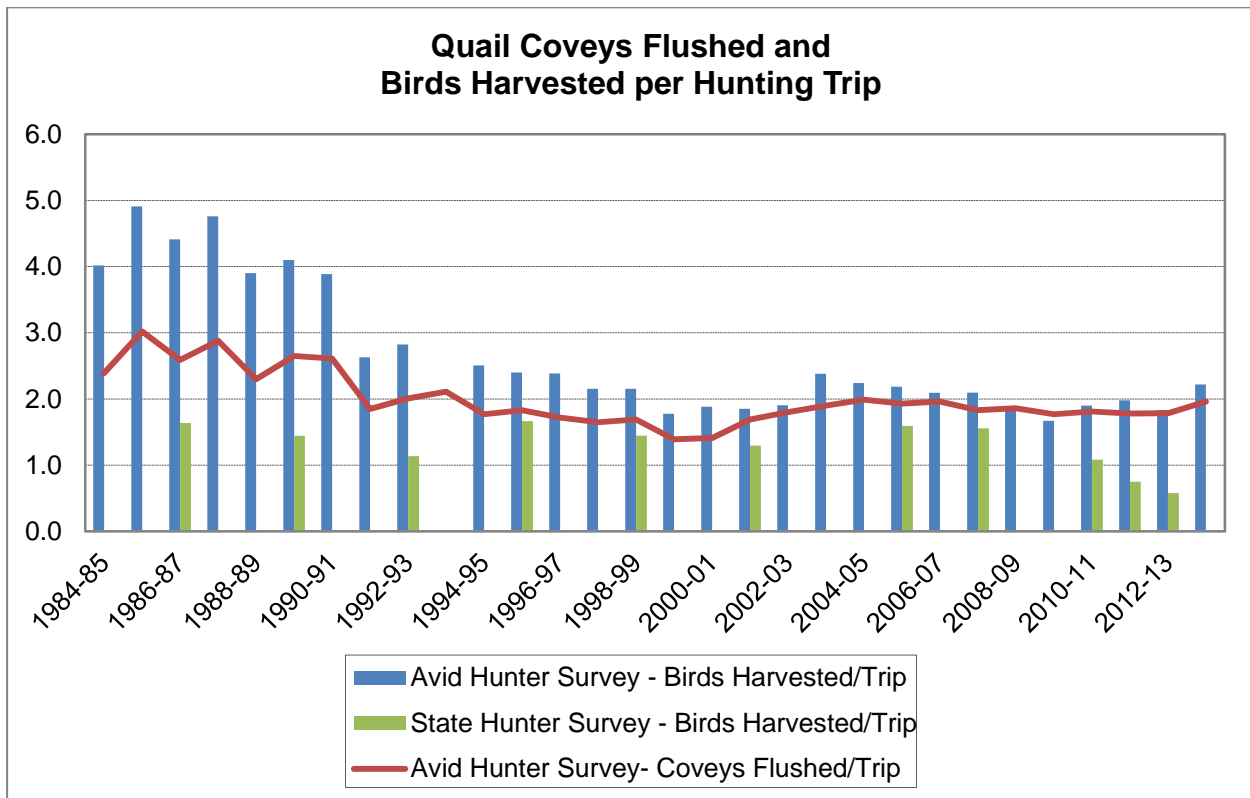


Figure 10. - Average Number of Quail Coveys Flushed and Birds Harvested per Hunting Trip for Avid Quail Hunter Survey and State Hunters Survey Respondents, 1984-85 through 2013-14 hunting seasons.

The long term declines in quail bagged per covey flushed may also indicate a decrease in covey sizes, since rates have declined from 1.7 to 0.9 quail bagged/covey flushed (Fig. 11). However, this change may also be related to more hunters choosing not to shoot flushed quail because of their concern over their observed decline of quail abundance and/or their desire to hunt primarily to train bird dogs. Average reported covey size was 11.1 birds and was fairly consistent across all regions, land types, and months for the 2013-14 hunting season. No quail were flushed on 31% of the reported hunting trips.

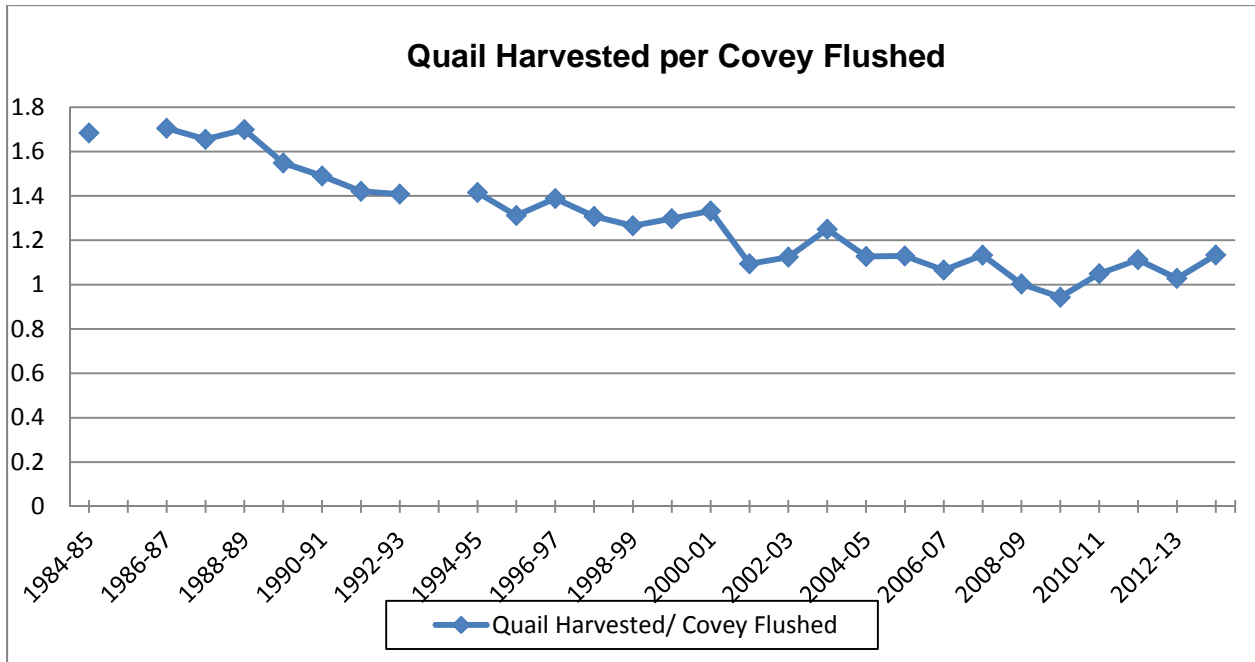


Figure 11. - Average Number of Quail Harvested per Covey Flushed by Avid Quail Hunter Survey Respondents, 1984-85 through 2013-14 hunting seasons.

Reported quail hunting effort (trips) by month appeared to be consistent throughout the season which ran from November 23rd through February 28th (Fig. 12). Avid hunters reported more covey flushes (2.4 coveys/trip), larger covey sizes (11.5 birds/covey), and more harvests (1.9 birds harvested/trip) at the beginning of the hunting season (Fig. 13). Regardless of covey size, hunters maintained a steady kill rate of 1.1 bird per covey flush throughout the season.

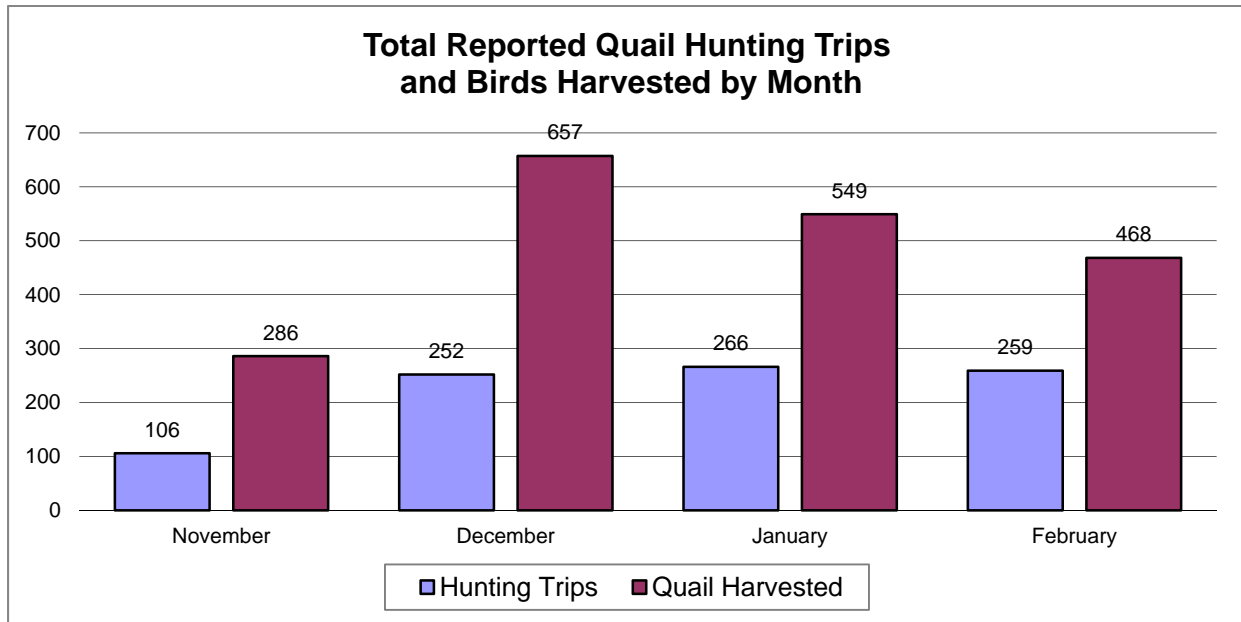


Figure 12. - Total Reported Quail Hunting Trips and Harvests by Avid Quail Hunter Survey Respondents during the 2013-14 Hunting Season (November 23, 2013 through February 28, 2014).

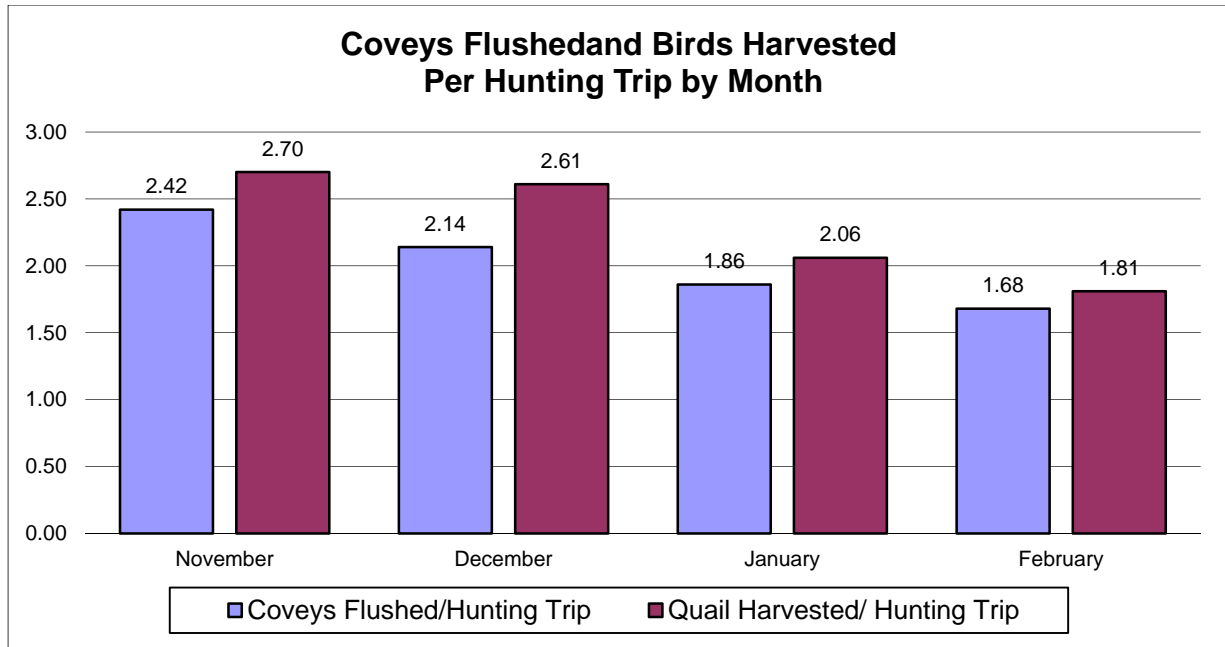


Figure 13. - Average Number of Coveys Flushed and Quail Harvested per Hunting Trip by Month by Avid Quail Hunter Survey Respondents during the 2013-14 Hunting Season.

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.

