FINAL PERFORMANCE REPORT

Federal Aid Grant No. F12AF00945 (W-82-R-51)

Upland Game Investigations

Oklahoma Department of Wildlife Conservation

July 1, 2012 through June 30, 2017

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State: Oklahoma **Grant Number:** F12AF00945 (W-82-R-51)

Grant Program: Wildlife Restoration Program

Grant Title: Upland Game Investigations

Grant Period: July 1, 2012 – June 30, 2017

Reporting Period: July 1, 2012 – June 30, 2017

Project Leader: Corey Jager

Project 4: Upland Game Harvest Surveys

Objective:

During each year of the grant period July 1, 2012 through June 30, 2017, complete a survey of hunters:

1. To provide annual statewide and regional estimates of upland game harvest, hunting pressure, and success for quail, dove, gray squirrel, fox squirrel, cottontail rabbit, swamp rabbit, jackrabbit, pheasant, crow, and woodcock.
2. To provide annual statewide estimates of game harvest, hunting pressure and success for other species as needed (waterfowl, furbearers, deer, etc).
3. To measure hunter opinion on current wildlife topics.

Abstract:

The Oklahoma Department of Wildlife Conservation (ODWC) has conducted telephone surveys since 1986 to estimate the number of hunters and game harvest statewide and regionally. A sample of hunting license holders (n = 1,694) was interviewed during February 2017. Sixty percent of individuals interviewed hunted during 2016. Hunter and game harvest estimates and statistics were calculated statewide. Deer (*Odocoileus virginianus* and *O. hemionus*) season was most popular with hunters. Statewide harvest estimates for 2016 increased from 2015 estimates for quail (*Colinus virginianus* and *Callipepla squamata*), pheasant *Phasianus colchicus*), dove (*Zenaida macroura*), crow (*Corvus brachyrhynchos*), cottontail (*Sylvilagus floridanus*), swamp rabbit (*S. aquaticus*), fox squirrel (*Sciurus. niger*), gray squirrel (*S. carolinensis*), spring turkey (*Meleagris gallopavo silvestris* and *M. g. intermedia*) fall turkey, woodcock (*Scolopax minor*), raccoon (*Procyon lotor*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), beaver (*Castor canadensis*), red fox (*Vulpes fulva*), and river otter (*Lutra canadensis*). Harvest estimates decreased from 2015 estimates for gray fox (*Urocyon cinereoargenteus*), jackrabbit (*Lepus californicus*). Prairie chicken (*Tympanuchus cupido* and *T. pallidicinctus*) season remained closed during 2016. A series of human dimensions questions were asked to learn about feral swine hunting participation and motivations, interest in WMA shooting ranges and the new Oklahoma Land Access Program. The 5-year grant period is summarized. During the 5-year project period new methodologies were tested and a hybrid approach was implemented to improve response rates and address survey biases. A new computer-assisted telephone interviewing software was purchased to address aging computer infrastructure.

Procedures:

The 2016-season game harvest survey was administered using a mixed-mode methodology (mail and telephone). The methodology for this project was developed as a result of methodological research conducted during the 2014-season survey (Jager 2014), and is a hybrid version of past methodologies. Results are considered comparable from 1986 to present.

A random sample of license holders, stratified by license category, was drawn from the database of annual, lifetime, and senior citizen license holders (Table A1). Five-year license holders were sampled with annual license holders. Within each license category, the sample was further stratified by county of residence. The specific license types included in each general category included “hunting only” and “combination hunting and fishing.”

Based on the sampling scheme above, a sample of 5,947 license holders (1,708 annual/five-year, 2,519 lifetime, and 1,720 senior citizen) was selected for interviewing. A goal of more than 3,000 completed interviews was set for this project. License holders were over-sampled to compensate for declining response rates found in the past few seasons of the Game Harvest Survey.

The survey (Appendix D) was mailed to sampled hunting license holders on January 16, 2017. The survey emphasized the importance of the study, described options for responding, and included a self-addressed, postage-paid envelope for those who preferred to participate in the survey through the mail.

License holders who did not respond by mail and had telephone numbers listed on their license application were contacted by telephone beginning February 1, 2017, otherwise license holders without telephone numbers were mailed a second survey on February 22, 2017. The ODWC utilized a contractor to collect telephone interview data and data enter mail surveys. A computer assisted telephone interview (CATI) system was used. If participants completed the survey by both telephone and mail, telephone interview data were used.

Interviews were conducted Monday through Thursdays between 5:00 p.m. and 9:00 p.m. with some afternoon (2:00 p.m.-5:00 p.m.) shifts on various days each week to catch those respondents not available during evening hours or by appointment. Friday shifts went from 4:00 p.m. until 8:00 p.m., Saturday shifts lasted from 10:00 a.m. to 2:00 p.m., and Sunday shifts went from 2:00 p.m. until 6:00 p.m. Before a phone number was retired as "over quota," it was attempted at least 10 different times.

Survey participants answered questions regarding their hunting activities during 2016. Individuals that hunted were asked which species they hunted, the number of days they hunted each species, the number of each species harvested, the county which they hunted each species most, and whether they hunted each species on private or public land. Individuals that hunted on public land were asked the number of days they hunted on public land for each species and the number of each species harvested on public land. The harvest portion of the questionnaire was similar to previous years. Information regarding license holder opinion about current wildlife-related issues was also collected. The survey instrument was reviewed by wildlife division regional supervisors, the wildlife division research supervisor, the wildlife division assistant chief and chief, federal aid coordinator, and the assistant director. Modifications were incorporated as needed.

Statewide and regional (Figure A1) harvest estimates and public land use were calculated. Hunter and harvest estimates were determined by calculating the proportion of license holders hunting each species and their mean bag for that season. These estimates were extrapolated for all license holders. Differences between categorical variables were detected using the chi-square test. Multiple means were compared using a one-way ANOVA. All tests were considered significant at $P \leq 0.05$.

Results:
Interviews were completed for 28% (n = 1,694) of the 5,947 individuals we attempted to contact. The remaining license holders were not interviewed for a variety of reasons:

- Wrong or disconnected telephone number (n = 1,231)
- "Over quota" after ten attempts (n =778)
- Refused to complete the interview (n = 336)
- Unavailable during project (e.g., military duty, incarcerated, hospitalized, etc.; n = 43)
- Fax machine or pager (n = 20)
- Language barrier or hearing impaired (n = 6)

The final adjusted response rate was calculated by dividing the number of completed interviews by the number of all eligible individuals. "Eligible individuals" were individuals that could potentially have resulted in completed interviews. After eliminating phone numbers that could not possibly have resulted in completed interviews (deceased license holders, fax numbers, and wrong or disconnected numbers; n = 1,251), the final, adjusted survey response rate was 36%.

Thirty-four percent of the completed surveys were conducted by telephone and 66% by mail. To examine the impact of mixed methodology, survey responses were compared between mail and telephone respondents for seven variables. Statistically significant differences were found in only one comparison. Hunters who responded by mail were more likely than those who responded by telephone to hold an annual or 5-year hunting license ($P < 0.001$). No differences were found between mail and telephone respondents for overall 2016-season hunting participation, public land use, participation in quail season, spring turkey season, dove season and 2016 deer seasons.

Because the survey methodology included multiple contacts, regardless of invitation method, response-mode and invitation-mode biases were not considered a significant problem in data validity; results were not weighted.

The average length of the telephone interviews was 7 minutes. Call attempt data were not available from the telephone interview contractor, limiting the ability to compare early and late respondents to the survey.

The proportions of license types in the completed survey sample differed by 1.28% or less from the distribution of license types found in the population (Table A1), therefore weighting was deemed unnecessary.

Harvest Estimates (Tables and Figures in Appendix A)
Number of hunters and game harvest estimates and statistics were calculated statewide (Table A2). Statewide harvest estimates for 2016 increased from 2015 estimates for quail (+25%), pheasant (+42%), dove (+29%), crow (+40%), cottontail (+26%), swamp rabbit (+64%), fox squirrel (+65%), gray squirrel (+41%), spring turkey (+46%), fall turkey (+83%), woodcock (+500%), raccoon (+24%), coyote (+76%), bobcat (+173%), beaver (+4%), and red fox (+100%). Harvest estimates decreased from 2015 estimates for gray fox (-50%), jackrabbit (-28%) and river otter (-4%). Prairie chicken season remained closed during 2016. Statewide trends in estimated harvest and number of hunters by species from 1986 to 2016 are presented in Table A5 and Figures A2 – A20.

Most hunters hunted within their region of residence (Table A2). The percentage of hunters that hunted within their home county ranged from 50% for woodcock to 91% for crow.

Regional harvest estimates were calculated, but small sample sizes reduced the reliability of some estimates, as evidenced by the large confidence intervals (Table A3). Small samples sizes have traditionally been a problem for less-popular game seasons. Increasing the sample from previous years improved sub-samples for several species, yet it was still not enough to improve the reliability for certain species. Some regional estimates indicated harvest outside the geographic range of a species. These estimates could be a result of animals harvested on commercial hunting preserves, or simply erred memory.

Game harvest estimates, statistics, and estimated number of hunters for each species were calculated for all public lands collectively (Table A4). The percentage of game harvested on public land ranged from 4% for crow and 77% for swamp rabbit. These estimates were limited by small sample sizes. A larger sample would be needed to obtain more reliable estimates of game harvest and hunter numbers on public hunting lands.

Deer hunter participation was assessed. On average, deer hunters spent 16.4 days in the field during the 2016 deer season (Std. Error = 0.61, Table A6). The average number of days spent hunting deer differed by license category ($P < 0.001$). Deer hunters with a lifetime license averaged 19.1 deer hunting days, annual/five-year license holders averaged 13.2 days and senior citizen license averaged 8.9 days.

The average number of days archery hunters spent in pursuit of deer in 2016 was 17.9 days. Muzzleloader hunters averaged 4.3 days. Youth season hunters averaged 2.2 days. Gun hunters averaged 5.6 days and special antlerless (holiday) season hunters averaged 2.6 days. The number of days hunted in each season was analyzed by license holder category. There was a significant difference found in the number of days hunted by license category during the regular gun season ($P = 0.011$). No differences were found by license type for archery, muzzleloader or the special antlerless (holiday) season ($P \geq 0.05$).

Deer hunter success was also examined. On average, deer hunters harvested 0.42 bucks and 0.39 does during all of the 2016 deer seasons, for a total deer harvest of 0.81 per hunter (Table A7). Harvest differed by deer hunter license category. Lifetime license holders harvested an average of 0.94 deer across all seasons, annual/five-year license holders harvested an average of 0.56 deer and senior citizen license holders harvest an average of 0.95 deer ($P < 0.001$). Lifetime license holders harvested an average of 0.5 bucks across all seasons, annual/five-year license holders harvested an average of 0.26 bucks and senior citizen license holders harvest an average of 0.42 bucks ($P < 0.010$). Lifetime license holders harvested an average of 0.45 does across all seasons, annual/five-year license holders harvested an average of 0.30 does and senior citizen license holders harvest an average of 0.4 does ($P = 0.066$).

Human Dimensions Issues (Tables and Figures in Appendix B)

Human dimensions questions were designed to help ODWC become more familiar with hunting license holders and understand their hunting preferences. The rates of participation in different hunting seasons were analyzed for the various license holder categories (lifetime, annual/5-year and senior citizen license holders). Use of public land was examined. Several special management questions were also asked.

Hunting Activity

Overall, 60% of participants indicated that they hunted in 2016, but the rate of participation varied significantly according to license type ($P < 0.001$; Figure B1). Senior citizen license holders used their hunting privileges far less often than annual/five-year or lifetime license holders. To estimate the number of license holders that actually hunted, the total number of license holders in Table A1 (359,475) was multiplied by the ratio of active hunters interviewed (1,024/1,694). The estimated number of resident license holders who hunted in Oklahoma during 2016 was 217,298.

Rates of participation in the different hunting seasons, overall and by license type, are presented in Table B1. Combining all types of hunting license holders, the most popular season was deer (enjoyed by 49.5% of hunting license holders), followed by turkey and dove (18% and 16.3%, respectively). Overall, less than 1% of hunters participated in woodcock season.

Land Use

Participants used a variety of land types when hunting different game species. Excluding seasons with small sample sizes, the use of private land exclusively among active hunters was most common for pursuit of pheasant (88% of pheasant hunters used only private land), crow (87%), and fall turkey (81%; Figure B2).

Twenty percent of survey participants used public land for some portion of their hunting during 2016. As can be seen from Figure B3, this statistic also reflects 40% of participants who did not hunt at all. Focusing only on *active* hunting license holders (hunted during 2016), 34% hunted on public land in 2016 and 66% did not. Use of public land by active hunters did not vary by license category.

The problem with either of these approaches to measuring public land use is that they do not portray the *relative* importance of public land to Oklahoma's hunting license holders. A hunter who supplemented private land access with public land hunting once or twice during 2016 carried a weight equal to a hunter who relied on public land exclusively, although the relative importance of public land to those two hunters was probably much different. To more accurately capture the importance of public land, active hunters were asked to indicate how much of their hunting in 2016 occurred on public versus private land. Averaging across all active hunters, 19% of the hunting in 2016 occurred on public land (Figure B4). This measure of public land varied by license category ($P < 0.01$) with annual/5-year license holders spending the most amount of time on public land (24% of hunting in 2016).

Looking at the issue from another angle, the majority of active license holders used private land for at least some of their hunting during 2016. Only 8% relied exclusively on public land for hunting (see "overall" in Figure B2).

Active hunters who used public land were asked how important public land was to them for hunting. Eighty percent reported that public land was very important (Figure B5). Responses did not vary by license category ($P = 0.21$). Figure B5 shows the stability of this opinion over time (2008-2016).

In general, more public land is available for hunting in the eastern half of Oklahoma than the western half. Similarly, a greater proportion of active hunters said they used public land located in the eastern half of the state than in the western (Figure B6).

Deer Hunting

Deer season is the most popular hunting season in Oklahoma. Fifty percent of *all* survey participants and 82% of *active* hunters (those who hunted in 2016) hunted deer during 2016. Participation in deer season by active hunters in 2016 varied according to license category ($P < 0.001$). Ninety-one percent of active lifetime license holders hunted deer, while 79% of active annual/five-year license holders and 63% of active senior citizen license holders hunted deer during 2016.

The regular rifle season was the most popular among 2016 deer hunters (87% participating), followed by archery (57%), primitive firearms (44%), special antlerless (holiday) season (19%), and the youth rifle season (4% participating as a youth) (Figure B7). Deer hunter participation in the individual seasons was analyzed by license type. Archery season participation was most likely for lifetime license holders (64%), followed by annual/five-year license holders (52%) and senior citizen license holders (26%) ($P < 0.001$). Muzzleloader season participation was more likely for lifetime license holders (57%) than senior citizen license holders (32%) or annual/five-year license holders (21%) ($P < 0.001$). Rifle season participation was more likely for senior license holders (93%) than lifetime license holders (90%) and annual/five-year license holders (82%) ($P = 0.005$). Youth season and special antlerless (holiday) season participation did not vary by license category ($P \leq 0.05$).

Patterns in deer season participation were also examined. Most deer hunters participated in more than one season (65%), and some hunted all four (7%; Figure B8). The most common patterns were participation in gun season only (25%) and the three regular seasons – archery, muzzleloader and gun (20%; Figure B9). Youth deer season participation was not included in this analysis because it only applied to a small portion of surveyed hunters. Examined separately, it was found that 88% of youth season participants also hunted deer during other seasons: 94% hunted during rifle season, 47% hunted during archery, 33% hunted during muzzleloader, and 24% hunted during the special antlerless (holiday) deer gun season (Figure B10).

Less than half (49%) of all deer hunters successfully harvested a deer during the 2016 season (Figure B11). More hunters shot a buck (34%) than a doe (27%). Less than 1% of hunters filled the annual bag limit of deer for 2016 (six total during archery, youth, muzzleloader and gun seasons, plus one bonus doe allowable during the special antlerless (holiday) season; seven maximum).

Barriers to Participation

ODWC continues to assess barriers to hunting participation. Forty percent (n = 670) of hunting license holders did not hunt in 2016 and were asked to identify the main reason why they did not hunt. Twenty-nine percent identified health issues, and another 27% indicated other priorities. Twelve percent were simply not interested in hunting (Figure B12). The finding of "health concerns" was unsurprising, given that nearly three-quarters of the inactive hunting license holders were senior citizen license holders. Similarly, the finding of "not interested" was expected, as over the years it has become apparent that many senior citizen license holders purchased the combination hunting and fishing license with no intent to hunt. Historically, the cost of a combination license was only slightly greater than the hunting-only or fishing-only license, leading many seniors to buy the combination "just in case" or in the interest of making a donation to ODWC. ODWC continues to face limitations in the things the agency can directly influence in order to remove barriers to hunting.

Special Management Issues

Although the ODWC does not manage feral swine (*Sus scrofa*), the ODWC was interested in collecting baseline information about feral swine hunting and trapping pressure, harvest, and hunter/trapper motivations. Overall, 25% of active hunters pursued feral swine in 2016. There was a significant difference in participation by license category. Thirty percent of lifetime license holders pursued feral swine, compared to 21% of annual/5-year and 14% of senior license holders (Figure B13; $P \leq 0.001$). Estimated statewide hunter numbers and harvest information are reported in Tables A2 and B1. It is important to note that these estimates represent only licensed, resident hunters. Feral swine hunters and trappers are exempt from license requirements in many instances. As such, the feral swine estimates are not fully representative of the feral swine hunting and trapping population.

Seventy-eight percent of hunters who pursued feral swine hunted the species, while 5% trapped, and 17% utilized both methods (Figure B14). Forty-two percent of feral swine hunters pursued swine independent of hunting other species. Thirty-three percent hunted swine in combination with other species' hunting, and 25% did some of both (Figure B15). The majority of feral swine hunters/trappers pursued swine to perform damage or nuisance control (84%; Figure B16).

Eighty-two percent of hunters practiced with or sighted in firearms during 2016 (Figure B17). The majority of these hunters practiced or sighted in on private properties (79%), while some used private gun ranges (26%), WMA ranges (11%) and other locations (including public gun ranges not belonging to the ODWC; 11%; Figure B18). Overall, 57% of hunters said they would be "somewhat" or "very likely" to use a WMA shooting range if one were available within a randomly assigned distance from their home (options were 25, 75 or 150 miles). As the distance increased, hunters showed less interest in utilizing WMA gun ranges. Fifty percent of hunters shown the option of using a WMA shooting range within 150 miles of their home said they

would be “somewhat” or “very likely” to use the range, while 55% said the same when given a range within 75 miles of their home, and 69% within 20 miles of their home (Figure B19). Forty-two percent of hunters stated there was a specific WMA they would like to see a shooting range added to. Specific locations provided by hunters were provided as an open-ended response and can be found in Appendix C.

Hunters were asked if they used the online check station to check harvested deer, turkey, or elk. Forty percent had used the online system (Figure B20). Those who used the system were asked to rate the ease of use. Sixty-one percent found the e-check system “very easy” (Figure B21), a ten percent decrease from when hunters were asked this question in 2011.

Hunters were asked about their willingness to purchase licenses for the new Oklahoma Land Access Program (OLAP). Hunters were randomly assigned various hypothetical hunt opportunities and permit costs (see Table D1 for full matrix of survey versions and respective attributes), and asked if they would be willing to purchase a private land access permit given the described scenarios. The species that hunters were most willing to purchase land permits for were quail, deer and waterfowl (ducks & geese) (Figure B22). Willingness to purchase permits typically declined with increasing distances from home (50 miles to 100 miles). Hunters were about equally willing to purchase permits for pronghorn archery whether it was a controlled hunt or open-access opportunity. Similarly, hunters were about equally willing to purchase a land access permit for pheasant opportunities whether they were in the northwest or northcentral part of the state. Not surprisingly, hunter willingness to pay for land access permits decreased as the price increased; however, the decrease was negligible between the $5 and $20 permit cost intervals.

Hunters that were not willing to purchase the land access permits under the conditions offered to them were asked why not. Many stated they were not interested in the species listed (39%), and a similar number stated they had enough access to hunting land already (38%; Figure B23). Thirty percent of these hunters said the opportunities were too far from home. A smaller number did not choose to purchase the permits because they felt ODWC should not lease private land (8%), the permit costs too much (4%) or some other reason (10%). Hunters provided a variety of “other” reasons they were unwilling to purchase the land access permit. Responses included health issues and age; and hunters considering themselves already exempt (lifetime license-holders). The full list of open-ended responses is available in Appendix C.

Discussion:
The Game Harvest Survey has been conducted for over 30 years and has provided valuable data for ODWC programs. However, the survey is not without its limitations. For years, ODWC managers and biologists have had reservations about the point estimates resulting from the Game Harvest Survey because the numbers of hunters and harvest estimates were inflated beyond what they felt was realistic. Over-estimation of hunter numbers and game harvest may have stemmed from several sources.

Recall Bias
Another significant source of estimation error was probably recall bias. Participants were asked questions about hunting seasons that may have begun 11 months prior to the interview (e.g., spring turkey). The majority of participants probably did not keep written records of the number of field days and harvest, and responded to questions based on memory. A 1998 mail survey found that participants in a one-day controlled quail hunt over-estimated their quail harvest almost a year after the event (Crews 1999). If hunters had trouble recalling an isolated one-day event, the problems of recall bias were surely magnified when hunters were asked to recall hunting activities for seasons spanning several months, as occurred during the Game Harvest Survey. Recall bias during the Game Harvest Survey might only be addressed by breaking the survey into smaller segments to be conducted throughout the year, immediately following the close of each season. At this time, such a change in methodology is cost prohibitive.

Social Desirability Bias
Yet another source of estimation error could have been social pressure, or the participant's desire to give socially acceptable answers. Participants may have felt uncomfortable admitting that they did not harvest any game, did not hunt very many days, harvested more game than legally allowed, harvested game without a tag, etc.

To minimize bias from social pressure, interviewers are trained to read the questions the same way during each interview, avoid discussion about the question items, and not reveal personal opinions. Although the desire to give socially acceptable answers may significantly impact the results of opinion questions, it is presumed that the effect on harvest data should be consistent from year to year and should not impact the trend data, except perhaps in scale.

It is assumed that respondents participating in the survey over the phone may be more likely to provide socially desirable answers than those participating by mail. This was examined on the 2014-season survey by comparing the percentage of respondents reporting unsuccessful hunts by their mode of response. The percentages of respondents who reported not harvesting, deer, spring turkey and dove were nearly identical for mail and phone responses, suggesting phone surveys may not be any more likely to introduce social desirability bias.

Rounding Bias (Digit Preference)
The exact number of game harvested for species with long seasons and/or large bag limits may have been difficult for participants to remember. For example, when successful hunters reported the number of animals harvested, they often respond with numbers ending in 0 or 5 (Crews 1999, 1998). Rounding bias, or digit preference, may have some unknown influence on harvest estimates. This bias was assessed and confirmed to exist on previous game harvest surveys (Jager 2014). It is presumed that any bias introduced by the tendency toward rounded numbers is consistent from year to year and should not impact the trend data, except perhaps in scale.

Non-Response Bias
Non-response bias (resulting when the proportion of the sample interviewed does not represent the proportion which could not be interviewed) can be formally addressed by a follow-up study of non-respondents, comparative analysis, and subsequent weighting of the original data if differences are found. Another way to detect non-response bias is to compare the responses of early and late respondents on a few key variables. The presumption is that the people who could not be interviewed (non-respondents) would be more similar to those that were difficult to interview (success after repeated attempts) than those that were successfully interviewed within the first few attempts. This second approach is typically used to assess non-response bias in the Game Harvest Survey; however data were unavailable for this analysis on the 2016-season survey. Past results of the assessment suggested that non-response bias was present on occasion, but not a significant problem.

Sample Size Limitations
The current number of completed surveys (n = 1,694) is more than adequate to analyze results of questions asked of all respondents (e.g., participation in hunting). A standard sample size of 400 is generally used for populations over 1,000, as the results from a random sample can be reported with 95% confidence at a level of precision of plus or minus 5% (Dillman 2000). Further increasing the sample size does not yield a significant return on investment in reduced sampling error.

However, during the Game Harvest Survey, estimates of hunter numbers and harvest are often calculated from a much smaller sub-sample (e.g., active hunters or participants in a particular season). The overall sample size for the 2016-seasons GHS was doubled from previous years. This helped increase certain sub-sample sizes, however, participant samples of less than 400 were still used for nearly all of the seasons listed in Table A2. Regional estimates and public land estimates are rarely based on data from more than 100 respondents (Tables A3 and A4). Variability in these small samples often yields wide confidence intervals.

The incidence of participation in some seasons is so low that an unrealistic number of completed surveys would be needed to yield a sub-sample size of 400 for estimating harvest. For example, based on 2016 season participation rates, over 10,000 completed surveys would be needed to identify 400 pheasant hunters (3.7% of completed 2016 surveys). For other seasons, almost an entire population census would be necessary (e.g., 1,273 woodcock hunters were estimated to exist statewide in 2016).

Five-year Project Summary

Year 1: July 1, 2012 – June 30, 2013

A sample of 2,301 license holders was interviewed during February 2013. Nine hundred twenty-nine individuals interviewed did not hunt during 2012. One thousand three hundred seventy-two individuals interviewed did hunt. Deer season was most popular with hunters. Statewide harvest estimates increased from 2011 estimates for mourning dove, quail, woodcock, coyote, bobcat, beaver, gray fox, and red fox. Harvest estimates decreased from 2011 estimates for cottontail, spring turkey, gray squirrel, raccoon, swamp rabbit, crow, river otter, jackrabbit, fox squirrel, fall turkey, and pheasant, Prairie chicken season remained closed during 2012. Harvest estimates for most species were calculated statewide, by region of Oklahoma, and for all public lands open to hunting. The limitations of the harvest estimates were discussed in detail. Human dimensions questions pertained to a potential change to the deer buck harvest limit, reasons for not hunting more often, and willingness to pay for a walk-in pheasant hunting access program (Crews 2012).

Year 2: July 1, 2013 – June 30, 2014

A sample of 2,174 license holders was interviewed during March 2014. Nine hundred twenty-nine individuals interviewed did not hunt during 2013. One thousand two hundred forty-five individuals interviewed did hunt. Deer season was most popular with hunters. Statewide harvest estimates increased from 2012 estimates for mourning dove, pheasant, cottontail, jackrabbit, swamp rabbit, spring turkey, and river otter. Harvest estimates decreased from 2012 estimates for quail, gray squirrel, raccoon, crow, fox squirrel, fall turkey, woodcock, coyote, bobcat, beaver, gray fox, red fox. Prairie chicken season remained closed during 2013. Harvest estimates for most species were calculated statewide, by region of Oklahoma, and for all public lands open to hunting. The limitations of the harvest estimates were discussed in detail. One human dimensions question was asked to help evaluate the efficacy of a recent marketing campaign (Jager 2013).

Year 3: July 1, 2014 – June 30, 2015

The 2014-season survey served the additional purpose of testing new methodologies for future surveys. Three independent samples of license holders (n = 12,375) were interviewed during February and March 2015. The traditional game harvest survey methodology (mail and telephone) was applied to two of the samples, one being conducted in-house and the other being conducted through a contractor. A full mail survey methodology was applied to the third sample. The pooled sample data showed that forty-one percent of individuals interviewed did not hunt during 2014. Number of hunters and game harvest estimates and statistics were calculated statewide. Deer season was most popular with hunters. Statewide harvest estimates for 2014 increased from 2013 estimates for fall turkey, cottontail, fox squirrel, gray squirrel, quail, woodcock, coyote, bobcat, raccoon, gray fox, red fox, and river otter. Harvest estimates decreased from 2013 estimates for dove, spring turkey, crow, pheasant, beaver, jackrabbit, and swamp rabbit. Bear, elk and pronghorn antelope harvests were also estimated, but change in harvest cannot be measured as this was the first year asking hunters about these species. Prairie chicken season remained closed during 2014. Harvest estimates for most species were calculated statewide, by region of Oklahoma, and for all public lands open to hunting. The methods and results of each of the project methodologies were described in detail, as well as the limitations of the harvest estimates. The project concluded with three recommendations: 1) adopt a hybrid methodology to address bias in the sampling frame; 2) purchase new CATI software to address

outdated technology infrastructure; and 3) increase the overall sample size to improve sub-sample sizes (Jager 2014).

Year 4: July 1, 2015 – June 30, 2016
The 2015-season survey employed a hybrid mail/telephone methodology, and the ODWC purchased new CATI software as recommended in the 2014-season report. A sample of hunting license holders (n = 3,347) was interviewed during February 2016. Fifty-one percent of individuals interviewed did not hunt during 2015. Hunter and game harvest estimates and statistics were calculated statewide. Deer season was most popular with hunters. Statewide harvest estimates for 2015 increased from 2014 estimates for quail, pheasant, crow, jackrabbit, gray fox, red fox, and river otter. Harvest estimates decreased from 2014 estimates for fall turkey, cottontail, fox squirrel, gray squirrel, woodcock, coyote, bobcat, raccoon, dove, spring turkey, beaver, and swamp rabbit. Bear, elk, and pronghorn antelope harvests were not included on the 2015-season survey. Prairie chicken season remained closed during 2015. Harvest estimates for most species were calculated statewide, by region of Oklahoma, and for all public lands open to hunting. The results of the revised project methodology and the limitations of the harvest estimates were described. Five human dimensions questions were asked to evaluate the efficacy of a recent marketing campaign, and to understand hunter crossbow use, deer hunter preferences for management, and support for a new bear hunting season (Jager 2015).

Year 5: July 1, 2016 – June 30, 2017
Year 5 results are contained herein.

Recommendations:
The 2014-season survey assessed multiple methodologies and provided recommendations to apply a hybrid methodology to future surveys. This hybrid approach was adopted for the 2015 and 2016-seasons surveys, and it is recommended that this new methodological approach continue to be employed for future surveys.

The CATI software replacement helped address outdated infrastructure, simplify the interview process with networking, and reduce human error with data entry (duplicate ID entries). It is recommended to continue with this software, and install upgrades as they become available.

Attracting and maintaining a full staff to conduct the telephone interviews has been a significant challenge. It is recommended that pay increases continue to be offered to returning interviewers, and that at least one of the contract workers is hired as a dedicated daytime worker. Further improvements to address staffing challenges should continue to be sought.

Due to changes in computer technology and statistical software, decades of game harvest survey data are spread across numerous electronic records. This makes accessing historical hunting participation and harvest data difficult. Game harvest survey reports have traditionally reported descriptive estimates of harvest and hunter participation; however, embedded in these data are more detailed information about hunter behavior and harvest. It is recommended that the ODWC merge these data files into a centralized database to allow for the opportunity to assess game harvest survey trends in more depth, as well as provide wildlife managers with more direct access to hunter and harvest information.

The value of this project in collecting trend data on species harvest outweighs the cost, despite concerns about biases. Within the constraint of budget and time, ODWC should continue to sample at the rate necessary to complete more than 3,000 completed surveys, in order to yield the greatest amount of data possible from active hunters.

Literature Cited:

Crews, A. K. 2007. Upland Game Harvest Surveys. Oklahoma Department of Wildlife Conservation Federal Aid Project No. W-82-R-45, Job 4, Final Report. Oklahoma City, OK.

Crews, A. K. 1999. Upland Game Harvest Surveys. Oklahoma Department of Wildlife Conservation Federal Aid Project No. W-82-R-38, Job 4, Final Report. Oklahoma City, OK.

Crews, A. K. 1998. Upland Game Harvest Surveys. Oklahoma Department of Wildlife Conservation Federal Aid Project No. W-82-R-37, Job 4, Final Report. Oklahoma City, OK.

Crews, A. K. 2012. Upland Game Harvest Surveys. Oklahoma Department of Wildlife Conservation Federal Aid Project No. W-82-R-45, Job 4, Interim Report. Oklahoma City, OK.

Dillman, D. A. 2000. *Mail and internet surveys: The Tailored Design Method.* Second edition. New York, NY. John Wiley & Sons.

Jager, C.A. 2013. Upland Game Harvest Surveys. Oklahoma Department of Wildlife Conservation Federal Aid Project No. W-82-R-45, Job 4, Interim Report. Oklahoma City, OK.

Jager, C.A. 2014. Upland Game Harvest Surveys. Oklahoma Department of Wildlife Conservation Federal Aid Project No. W-82-R-45, Job 4, Interim Report. Oklahoma City, OK.

Jager, C.A. 2015. Upland Game Harvest Surveys. Oklahoma Department of Wildlife Conservation Federal Aid Project No. W-82-R-45, Job 4, Interim Report. Oklahoma City, OK.

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Date:
September 30, 2017

APPENDIX A

Harvest Estimates – Tables and Graphs

Table A1. Distribution of license types for Game Harvest Survey population (Oklahoma resident hunting license holders), sample, and completed surveys, 2016.

	Population		Sampled		Completed	
LICENSE TYPE	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**
Lifetime						
Hunting	41,886	11.7	666	11.2	219	12.9
Combination	113,481	31.6	1,821	30.6	523	30.9
Hunting Over 60	545	0.2	10	0.2	3	0.2
Combination Over 60	1,950	0.5	22	0.4	6	0.4
Subtotal	*157,862*	*43.9*	*2,519*	*42.4*	*751*	*44.3*
Senior Citizen						
Hunting	2,172	0.6	28	0.5	9	0.5
Combination	111,224	30.9	1,692	28.5	512	30.2
Subtotal	*113,396*	*31.5*	*1,720*	*28.9*	*521*	*30.8*
Annual						
Hunting	38,726	10.8	801	13.5	177	10.4
Hunting Fiscal Year (FY)	8,252	2.3	178	3.0	44	2.6
Combination	15,728	4.4	260	4.4	75	4.4
Combination FY	3,834	1.1	53	0.9	15	0.9
Youth Hunting	3,092	0.9	66	1.1	12	0.7
Youth Hunting FY	1,239	0.3	28	0.5	7	0.4
Youth Combination	1,873	0.5	32	0.5	10	0.6
Youth Combination FY	597	0.2	6	0.1	1	0.1
Subtotal	*73,341*	*20.4*	*1,424*	*23.9*	*341*	*20.1*
Five-Year						
Hunting	4,553	1.3	103	1.7	21	1.2
Combination	10,323	2.9	181	3.0	60	3.5
Subtotal	*14,876*	*4.1*	*284*	*4.8*	*81*	*4.8*
Total	**359,475**		**5,947**		**1,694**	

Table A2. Statewide hunter and game harvest estimates and statistics by species/subspecies in Oklahoma, 2016.

SPECIES/SEASON	SAMPLE	MEAN BAG/ HUNTER	MEAN DAYS HUNTED	MEAN DAILY BAG	NUMBER OF HUNTERS	NUMBER OF DAYS HUNTED	TOTAL HARVEST	95% CONFIDENCE INTERVAL FOR TOTAL HARVEST	HUNTED IN OWN COUNTY (%)	HUNTED IN OWN REGION (%)
Crow	38	17.54	7.81	3.12	8,064	62,985	141,443	52,808 - 230,078	69.70	90.91
Dove	276	23.49	4.83	5.68	58,569	282,685	1,375,710	898,531 - 1,852,889	55.77	77.29
Furbearers	119	.	.	.	25,252[a]	.	320,302[b]	. .	.	.
Coyote	108	8.36	20.40	0.53	22,918	467,485	191,621	103,249 - 279,993	.	.
Bobcat	48	1.63	22.48	0.13	10,186	228,960	16,552	6,665 - 24,439	.	.
Raccoon	32	10.53	30.55	0.67	6,791	207,463	71,513	46,088 - 96,938	.	.
Beaver	14	2.86	20.71	0.45	2,971	61,539	8,488	5,768 - 11,208	.	.
Gray Fox	11	0.55	30.18	0.03	2,334	70,452	1,273	0 - 2,702	.	.
Red Fox	5	0.60	12.60	0.06	1,061	13,369	637	0 - 1,468	.	.
Otter	6	0.40	22.00	0.02	1,273	28,011	509	0 - 1,508	.	.
Pheasant	62	3.67	3.62	1.39	13,157	47,666	48,241	35,215 - 61,268	25.42	65.00
Quail	137	17.57	6.34	2.87	29,072	184,412	510,807	372,263 - 649,351	33.08	65.74
Rabbits	90	.	.	.	19,098[a]	.	145,759[b]	. .	.	.
Cottontail	90	7.16	8.27	1.66	19,098	157,955	136,762	107,591 - 165,933	68.29	83.95
Jackrabbit	5	3.20	6.60	0.94	1,061	7,003	3,395	0 - 6,961	50.00	50.00
Swamp Rabbit	11	2.40	7.64	0.67	2,334	17,825	5,602	966 - 10,238	50.00	80.00
Squirrels	170	.	.	.	36,075[a]	.	645,280[b]	. .	.	.
Fox Squirrel	144	11.09	9.71	1.20	30,557	296,812	338,809	220,525 - 457,093	70.00	82.54
Gray Squirrel	131	11.02	12.02	1.48	27.799	334,031	306,471	212,971 - 399,970	62.81	85.84
Turkeys	305	.	.	.	64,722[a]	.	31,889[b]	. .	.	.
Fall Turkey	96	0.22	8.83	0.12	20,372	179,950	4,429	2,702 - 6,155	43.18	69.51
Spring Turkey	269	0.48	5.20	0.16	57,083	296,659	27,460	22,091 - 32,830	47.47	73.53
Woodcock	6	1.00	4.40	0.40	1,273	5,602	1,273	254 - 2,292	50.00	50.00
Feral Swine	238	.	.	.	50,505[a]	.	455,553[b]	. .	.	.
Hunting	244	6.46	20.38	.	47,534	.	307,069	210,433 - 403,705	.	.
Trapping	47	14.85	53.70	.	9,974	.	148,108	100,434 - 195,782	.	.

[a]Estimated number of hunters that hunted at least one species/subspecies within a given season.
[b]Estimated total harvest within a given season.

Table A3. Hunter and game harvest estimates and statistics by region and species/subspecies in Oklahoma, 2016.

REGION	SPECIES/SEASON	SAMPLE	MEAN BAG/ HUNTER	MEAN DAYS HUNTED	MEAN DAILY BAG	NUMBER OF HUNTERS	NUMBER OF DAYS HUNTED	TOTAL HARVEST	95% CONFIDENCE INTERVAL FOR TOTAL HARVEST	HUNTED IN OWN COUNTY (%)	HUNTED IN OWN REGION (%)
NW											
	Crow	4	9.00	3.50	2.48	849	2,971	7,639	3,083 - 12,196	75.00	75.00
	Dove	38	29.03	5.05	6.42	8,064	40,755	234,068	157,910 - 310,225	47.37	60.53
	Pheasant	18	2.72	4.00	1.04	3,820	15,279	10,398	4,694 - 16,102	33.33	38.89
	Quail	46	19.07	7.48	2.93	9,761	72,998	186,104	130,808 - 241,399	23.91	43.48
	Rabbits: Cottontail	12	8.17	6.92	1.51	2,546	17,613	20,796	9,930 - 31,662	58.33	66.67
	Jackrabbit	4	3.75	8.00	0.93	849	6,791	3,183	0 - 6,671	50.00	50.00
	Swamp Rabbit	0	.	.	.	.	.	.	. - .	.	.
	Squirrels: Fox	4	4.75	5.00	1.14	849	4,244	4,032	1,042 - 7,022	50.00	50.00
	Gray	3	3.00	4.67	1.67	637	2,971	1,910	662 - 3,158	66.67	66.67
	Turkey: Fall	14	0.31	5.00	0.23	2,971	14,854	914	138 - 1,690	28.57	35.71
	Spring	41	0.80	5.10	0.23	8,700	44,351	7,003	4,838 - 9,168	31.71	39.02
	Woodcock	1	0.00	3.00	0.00	212	637	0	. - .	0.00	0.00
SW											
	Crow	2	7.00	10.00	0.70	424	4,244	2,971	475 - 5,466	100.00	100.00
	Dove	46	49.96	7.24	10.95	9,761	70,716	487,647	51,355 - 923,939	56.52	67.39
	Pheasant	0	.	.	.	.	.	.	. - .	.	.
	Quail	21	21.90	4.86	3.56	4,456	21,645	97,614	12,600 - 182,629	47.62	80.95
	Rabbits: Cottontail	4	14.25	5.25	4.42	849	4,456	12,096	3,548 - 20,643	100.00	100.00
	Jackrabbit	0	.	.	.	.	.	.	. - .	.	.
	Swamp Rabbit	0	.	.	.	.	.	.	. - .	.	.
	Squirrels: Fox	7	11.43	7.00	1.44	1,485	10,398	16,976	0 - 35,034	85.71	100.00
	Gray	2	25.50	131.50	0.60	424	55,810	10,822	0 - 31,203	50.00	100.00
	Turkey: Fall	15	0.33	4.00	0.14	3,183	12,732	1,061	275 - 1,847	60.00	73.33
	Spring	17	0.88	6.82	0.17	3,607	24,616	3,183	1,843 - 4,523	70.59	82.35
	Woodcock	0	.	.	.	.	.	.	. - .	.	.
NC											
	Crow	6	17.83	6.00	3.88	1,273	7,639	22,706	6.400 - 39,012	50.00	100.00
	Dove	62	20.21	4.84	4.41	13,157	63,661	265,938	155,896 - 375,979	66.13	75.81
	Pheasant	19	3.56	4.42	0.99	4,032	17,825	14,336	7,186 - 21,485	42.11	84.21
	Quail	25	14.08	7.79	2.79	5,305	41,336	74,696	27,194 - 122,198	48.00	80.00
	Rabbits: Cottontail	19	4.94	5.41	1.63	4,032	21,820	19,935	9,565 - 30,306	63.16	78.95
	Jackrabbit	0	.	.	.	.	.	.	. - .	.	.
	Swamp Rabbit	2	2.50	3.50	0.42	424	1,485	1,061	0 - 3,141	0.00	50.00
	Squirrels: Fox	30	9.73	6.90	1.35	6,366	42,904	61,964	26,809 - 97,118	53.33	63.33
	Gray	21	5.90	5.25	1.47	4,456	23,396	26,313	16,069 - 36,558	47.62	57.14
	Turkey: Fall	18	0.39	12.24	0.26	3,820	46,735	1,485	600 - 2,371	33.33	55.56
	Spring	54	0.62	4.31	0.24	11,459	49,444	7,135	3,647 - 10,622	48.15	75.93
	Woodcock	1	2.00	4.00	0.50	212	849	424	. - .	100.00	100.00

Table A3. Continued.

REGION	SPECIES/SEASON	SAMPLE	MEAN BAG/ HUNTER	MEAN DAYS HUNTED	MEAN DAILY BAG	NUMBER OF HUNTERS	NUMBER OF DAYS HUNTED	TOTAL HARVEST	95% CONFIDENCE INTERVAL FOR TOTAL HARVEST	HUNTED IN OWN COUNTY (%)	HUNTED IN OWN REGION (%)
SC											
	Crow	8	35.71	20.00	3.09	1,698	33,953	60,630	0 - 152,252	75.00	87.50
	Dove	21	13.00	5.38	2.74	4,456	23,979	57,932	32,653 - 83,211	66.67	71.43
	Pheasant	0	.	.	.	.	.	.	. - .	.	.
	Quail	9	11.67	4.56	1.99	1,910	8,700	22,282	3,032 - 41,531	77.78	77.78
	Rabbits: Cottontail	6	4.67	2.83	1.47	1,273	3,607	5,942	300 - 11,584	33.33	50.00
	Jackrabbit	0	.	.	.	.	.	.	. - .	.	.
	Swamp Rabbit	0	.	.	.	.	.	.	. - .	.	.
	Squirrels: Fox	21	21.89	19.35	1.32	4,456	86,229	97,571	0 - 197,879	71.43	76.19
	Gray	11	19.20	29.09	0.83	2,334	67,906	44,818	0 - 111,631	81.82	100.00
	Turkey: Fall	15	0.00	16.64	0.00	3,183	52,975	0	0 - 0	66.67	80.00
	Spring	51	0.44	5.35	0.18	10,822	57,867	4,762	2,830 - 6,694	52.94	68.63
	Woodcock	0	.	.	.	.	.	.	. - .	.	.
NE											
	Crow	10	15.40	3.30	3.52	2,122	7,003	32,680	4,178 - 61,182	70.00	90.00
	Dove	54	17.54	4.23	4.86	11,459	48,431	200,958	137,051 - 264,865	70.37	98.15
	Pheasant	3	5.67	1.33	5.00	637	849	3,607	880 - 6,335	33.33	100.00
	Quail	7	3.86	4.17	0.76	1,485	6,189	5,730	915 - 10,544	42.86	100.00
	Rabbits: Cottontail	28	7.43	7.61	1.55	5,942	45,200	44,139	29,437 - 58,841	75.00	100.00
	Jackrabbit	0	.	.	.	.	.	.	. - .	.	.
	Swamp Rabbit	4	4.00	15.00	0.44	849	12,732	3,395	0 - 8,478	50.00	100.00
	Squirrel: Fox	39	10.72	9.69	1.01	8,276	80,213	88,702	41,743 - 135,660	82.05	94.87
	Gray	43	10.45	10.79	1.37	9,125	93,463	95,376	59,715 - 131,037	69.77	95.35
	Turkey: Fall	13	0.17	12.00	0.04	2,759	33,104	460	0 - 1,067	64.15	92.31
	Spring	40	0.18	5.18	0.07	8,488	43,964	1,485	473 - 2,498	50.00	97.50
	Woodcock	0	.	.	.	.	.	.	. - .	.	.
SE											
	Crow	3	7.67	4.00	1.81	637	2,546	4,881	249 - 9,512	66.67	100.00
	Dove	8	14.29	4.00	4.59	1,698	6,791	24,252	7,415 - 41,089	100.00	100.00
	Pheasant	0	.	.	.	.	.	.	. - .	.	.
	Quail	0	.	.	.	.	.	.	. - .	.	.
	Rabbits: Cottontail	12	7.25	20.92	1.15	2,546	53,263	18,462	6,739 - 30,185	83.33	83.33
	Jackrabbit	0	.	.	.	.	.	.	. - .	.	.
	Swamp Rabbit	4	1.50	3.75	1.00	849	3,183	1,273	0 - 2,866	75.00	75.00
	Squirrels: Fox	25	9.42	9.83	1.16	5,305	52,129	49,957	25,652 - 74,261	80.00	92.00
	Gray	33	15.32	8.50	1.93	7,003	59,523	107,300	57,489 - 157,112	72.73	87.88
	Turkey: Fall	7	0.14	7.33	0.03	1,485	10.893	212	0 - 628	42.86	100.00
	Spring	35	0.26	6.09	0.07	7,427	45,200	1,910	530 - 3,289	68.57	85.71
	Woodcock	0	.	.	.	.	.	.	. - .	.	.

Table A4. Hunter and game harvest estimates and statistics for all public hunting land in Oklahoma, 2016.

SPECIES/SEASON	SAMPLE	MEAN BAG/ HUNTER	MEAN DAYS HUNTED	MEAN DAILY BAG	NUMBER OF HUNTERS	NUMBER OF DAYS HUNTED	TOTAL HARVEST	% OF STATEWIDE HARVEST	95% CONFIDENCE INTERVAL FOR TOTAL HARVEST
Crow	5	4.75	3.40	3.33	1,061	3,607	5,040	3.6	598 - 9,482
Dove	48	9.60	3.32	3.04	10,186	33,798	97,735	7.1	61,362 - 134,109
Pheasant	7	1.71	2.86	1.58	1,485	4,244	2,546	5.3	372 - 4,721
Quail	42	9.48	3.93	2.10	8,913	34,998	84,447	16.5	43,370 - 125,524
Rabbits: Cottontail	33	4.59	5.13	0.96	7,003	35,948	32,116	23.5	13,844 - 50,388
Jackrabbit	1	2.00	10.00	0.20	212	2,122	424	12.5	. - .
Swamp Rabbit	9	2.25	6.38	0.73	1,910	12,175	4,297	76.7	0 - 8,813
Squirrels: Fox	59	10.80	13.04	0.88	12,520	163,208	135,217	40.0	53,386 - 217,048
Gray	56	9.61	18.44	1.55	11,883	219,184	114,166	37.3	66,998 - 161,334
Turkey: Fall	16	0.00	16.21	0.27	3,395	55,052	0	0.0	0 - 12,850
Spring	70	0.22	5.75	0.06	14,854	85,466	3,249	11.8	1,596 - 4,632
Woodcock	2	1.50	7.00	0.30	424	2,971	637	50.00	221 - 1,053

Table A5. Statewide trends in estimated harvest and estimated number of hunters in Oklahoma, 1986-2016.

	Year	Number Of Hunters	Mean Bag Per Hunter	Mean Days Hunted	Mean Daily Bag	Total Harvest	95% Confidence Interval for Total Harvest	
Crow	1986	12,398	18.55	5.15	3.60	229,979	142,439 –	317,519
	1987	13,987	14.07	12.25	1.15	196,744	109,783 –	283,705
	1988	6,711	14.45	6.45	2.24	96,957	55,851 –	138,063
	1989	8,467	17.08	4.05	4.21	144,601	56,951 –	232,252
	1990	7,675	16.64	5.79	2.86	127,678	65,706 –	189,650
	1991	6,518	19.77	7.32	2.94	128,893	70,572 –	187,214
	1992	6,197	12.77	4.82	2.84	79,150	36,475 –	121,826
	1993	7,654	22.22	8.56	3.57	170,054	70,368 –	269,740
	1994	5,309	24.58	4.10	4.86	130,501	41,608 –	219,394
	1995	6,756	22.30	5.18	3.85	150,683	53,458 –	247,909
	1996	13,958	20.87	5.69	3.94	291,375	190,710 –	392,041
	1997	9,900	36.28	7.41	3.29	359,196	87,504 –	630,888
	1998	11,861	23.74	7.88	3.04	281,628	172,534 –	390,722
	1999	12,318	15.16	7.25	3.55	186,684	133,942 –	239,426
	2000	16,692	28.54	6.38	3.97	476,319	174,552 –	778,086
	2001	13,328	40.12	8.00	3.44	534,702	33,840 –	1,035,565
	2002	15,221	23.52	6.95	3.54	358,009	179,811 –	536,206
	2003	17,627	21.11	7.91	4.18	372,186	255,519 –	488,854
	2004	12,209	12.59	5.10	2.94	153,766	88,743 –	218,790
	2005	12,353	20.55	7.00	3.90	253,837	144,478 –	363,196
	2006	11,616	38.68	12.61	3.29	449,351	183,569 –	715,134
	2007	9,536	24.95	8.09	4.01	237,882	94,337 –	381,427
	2008	9,359	18.45	8.21	2.57	172,655	73,100 –	272,210
	2009	10,856	18.26	8.62	3.74	198,224	93,397 –	303,052
	2010	9,763	10.30	11.93	1.93	100,562	62,208 –	138,915
	2011	10,728	19.49	6.62	4.59	209,039	90,600 –	327,478
	2012	9,369	15.17	9.78	2.32	142,145	61,829 –	222,462
	2013	8,867	15.55	5.71	3.43	137,838	82,795 –	192,881
	2014	7,984	11.17	5.99	3.07	89,216	56,084 –	122,348
	2015	6,688	15.15	8.05	2.50	101,292	16,261 –	186,322
	2016	8,064	17.54	7.81	3.12	141,443	52,808 –	230,078

Table A5. Continued.

	Year	Number Of Hunters	Mean Bag Per Hunter	Mean Days Hunted	Mean Daily Bag	Total Harvest	95% Confidence Interval for Total Harvest		
Dove	1986	73,973	28.00	6.25	4.48	2,071,048	1,771,207	–	2,370,889
	1987	78,325	25.13	5.91	4.25	1,968,139	1,668,916	–	2,267,362
	1988	71,966	23.74	5.96	3.98	1,708,665	1,475,536	–	1,941,794
	1989	59,044	20.66	4.99	4.14	1,219,640	1,049,482	–	1,389,799
	1990	65,583	26.72	5.66	4.86	1,752,372	1,464,888	–	2,039,856
	1991	60,142	24.43	5.53	4.69	1,469,351	1,276,161	–	1,662,541
	1992	61,828	23.26	5.18	4.80	1,437,806	1,249,094	–	1,626,519
	1993	48,706	19.64	5.33	4.33	956,451	825,859	–	1,087,044
	1994	61,483	22.66	5.50	4.37	1,393,209	1,157,469	–	1,628,949
	1995	59,598	17.52	4.54	4.14	1,044,286	900,397	–	1,188,176
	1996	64,959	18.05	4.71	4.56	1,172,345	1,016,774	–	1,327,916
	1997	60,666	18.78	4.70	4.58	1,139,192	1,016,289	–	1,262,095
	1998	62,562	23.97	5.12	5.98	1,499,400	1,307,724	–	1,691,076
	1999	69,527	20.32	5.04	4.68	1,413,132	1,254,042	–	1,572,222
	2000	75,116	26.04	6.01	4.71	1,956,043	1,672,467	–	2,239,619
	2001	69,507	20.25	5.11	4.65	1,407,192	1,240,641	–	1,573,742
	2002	73,379	24.60	5.48	4.96	1,804,942	1,570,543	–	2,039,340
	2003	69,844	25.31	5.89	4.83	1,767,431	1,432,089	–	2,102,773
	2004	65,621	23.34	5.36	5.00	1,531,717	1,314,727	–	1,748,707
	2005	53,430	23.30	5.88	5.07	1,244,858	1,067,456	–	1,422,260
	2006	61,700	25.72	5.50	5.36	1,586,916	1,323,873	–	1,849,959
	2007	53,470	21.47	5.78	4.67	1,147,814	944,320	–	1,351,307
	2008	49,537	21.95	5.03	5.14	1,087,404	925,280	–	1,249,528
	2009	57,945	23.31	5.59	4.75	1,350,721	1,160,476	–	1,540,966
	2010	48,976	23.58	4.91	5.08	1,154,651	803,429	–	1,505,873
	2011	49,670	21.04	4.67	5.12	1,044,986	888,392	–	1,201,580
	2012	50,505	24.37	5.21	5.02	1,230,761	898,432	–	1,563,089
	2013	57,392	25.77	4.97	4.90	1,479,101	1,075,013	–	1,883,189
	2014	59,297	22.39	4.98	5.18	1,327,749	1,184,961	–	1,469,966
	2015	45,330	23.49	5.10	4.97	1,064,832	918,750	–	1,210,915
	2016	58,569	23.49	4.83	5.68	1,375,710	898,531	–	1,852,889

Table A5. Continued.

	Year	Number Of Hunters	Mean Bag Per Hunter	Mean Days Hunted	Mean Daily Bag	Total Harvest	95% Confidence Interval for Total Harvest	
Pheasant	1986	20,043	4.12	4.16	0.99	82,652	60,345 –	104,959
	1987	19,348	3.01	3.83	0.79	58,277	46,072 –	70,482
	1988	16,429	3.27	3.35	0.98	53,769	40,807 –	66,731
	1989	15,819	3.00	3.56	0.84	47,458	37,129 –	57,787
	1990	16,280	2.89	3.21	1.07	46,978	33,790 –	60,166
	1991	13,775	2.95	4.01	0.94	40,586	30,920 –	50,253
	1992	16,478	4.00	4.71	1.05	65,912	47,535 –	84,288
	1993	18,787	3.55	5.19	0.97	66,658	54,001 –	79,315
	1994	16,441	2.96	3.71	0.94	48,638	36,766 –	60,510
	1995	17,131	3.13	4.37	0.90	53,566	38,927 –	68,205
	1996	13,690	2.84	3.80	0.98	38,922	27,664 –	50,179
	1997	15,195	3.89	4.36	1.17	59,170	47,167 –	71,173
	1998	13,946	3.86	4.24	1.02	53,830	39,450 –	68,210
	1999	18,203	4.06	5.20	1.15	73,907	59,268 –	88,546
	2000	22,592	5.32	7.14	0.91	120,203	86,005 –	154,401
	2001	16,194	4.52	4.42	0.94	73,233	37,037 –	109,429
	2002	14,740	3.89	4.55	1.41	57,358	35,876 –	78,840
	2003	20,621	4.76	4.77	1.26	98,114	77,301 –	118,927
	2004	21,823	3.79	3.38	1.36	82,713	65,053 –	100,373
	2005	19,348	5.02	3.87	1.56	97,037	72,896 –	121,178
	2006	17,047	4.17	3.65	1.30	71,053	52,350 –	89,756
	2007	18,391	4.39	3.54	1.37	80,783	63,519 –	98,046
	2008	18,072	4.25	4.61	1.18	76,807	60,512 –	93,102
	2009	18,924	6.06	3.81	1.63	114,725	83,682 –	145,769
	2010	19,366	4.57	3.82	1.39	88,440	65,260 –	111,621
	2011	12,344	3.86	3.48	1.20	47,613	34,745 –	60,481
	2012	11,711	2.29	3.14	0.91	26,789	18,965 –	34,614
	2013	10,640	3.26	3.45	1.08	34,661	25,063 –	44,259
	2014	10,887	2.64	2.95	1.09	28,741	20,824 –	36,658
	2015	10,616	3.20	2.95	1.27	33,950	26,496 –	41,404
	2016	13.157	3.67	3.62	1.39	48,241	32,215 –	61,268

Table A5. Continued.

	Year	Number Of Hunters	Mean Bag Per Hunter	Mean Days Hunted	Mean Daily Bag	Total Harvest	95% Confidence Interval for Total Harvest		
Quail	1986	110,960	24.43	7.06	3.46	2,711,186	2,352,252	–	3,070,119
	1987	120,517	26.90	7.51	3.58	3,242,080	2,800,473	–	3,683,687
	1988	97,651	20.61	7.08	2.91	2,012,172	1,701,565	–	2,322,779
	1989	92,465	23.57	7.05	3.34	2,179,840	1,805,160	–	2,554,520
	1990	93,026	24.26	7.46	3.04	2,256,571	1,892,142	–	2,621,000
	1991	98,268	32.98	9.85	3.35	3,240,764	2,846,242	–	3,635,286
	1992	94,079	35.38	8.58	3.86	3,328,404	2,861,486	–	3,795,323
	1993	90,733	22.19	8.31	2.60	2,013,098	1,778,982	–	2,247,214
	1994	84,089	27.44	9.35	2.64	2,307,057	1,976,583	–	2,637,532
	1995	68,646	14.42	6.86	2.15	990,118	836,199	–	1,144,036
	1996	72,743	18.18	7.14	2.58	1,322,260	1,141,940	–	1,502,580
	1997	60,551	24.66	8.01	2.96	1,493,212	1,256,216	–	1,730,208
	1998	60,477	17.34	6.83	2.54	1,048,878	894,731	–	1,203,026
	1999	59,263	17.35	7.54	2.20	1,028,316	836,071	–	1,220,561
	2000	53,243	21.50	8.61	2.75	1,144,868	930,191	–	1,359,544
	2001	38,838	9.43	6.46	1.71	366,289	291,121	–	441,458
	2002	49,507	15.58	6.51	2.41	771,218	645,620	–	896,815
	2003	50,221	17.44	6.68	2.66	875,614	665,353	–	1,085,875
	2004	42,577	24.03	6.62	3.31	1,023,086	834,117	–	1,212,056
	2005	41,524	20.66	6.64	3.25	857,856	681,772	–	1,033,939
	2006	34,395	16.85	5.82	2.64	579,436	421,911	–	736,962
	2007	28,949	13.32	5.61	2.63	385,467	282,172	–	488,762
	2008	31,142	15.28	7.34	2.58	475,850	373,848	–	577,852
	2009	30,659	12.25	5.55	2.22	375,653	289,321	–	461,985
	2010	28,169	13.61	5.94	2.53	383,265	232,279	–	534,251
	2011	17,341	6.30	5.67	1.37	109,186	75,774	–	142,599
	2012	16,396	7.75	5.60	1.69	127,067	89,421	–	164,713
	2013	14,187	8.23	5.36	1.80	116,719	80,308	–	153,130
	2014	20,758	12.43	4.96	2.71	258,081	208,869	–	307,293
	2015	20,276	20.19	6.02	3.42	409,284	276,416	–	542,152
	2016	29,072	17.57	6.34	2.87	510,807	372,263	–	649,351

Table A5. Continued.

	Year	Number Of Hunters	Mean Bag Per Hunter	Mean Days Hunted	Mean Daily Bag	Total Harvest	95% Confidence Interval for Total Harvest		
Cottontail Rabbit	1986	73,560	10.70	7.07	1.51	787,052	658,305	–	915,798
	1987	78,558	14.37	7.39	1.94	1,128,714	678,501	–	1,578,926
	1988	66,181	9.38	8.45	1.11	621,080	512,259	–	729,902
	1989	49,686	9.24	7.23	1.28	459,203	370,984	–	547,423
	1990	57,909	9.24	7.17	1.57	534,898	431,376	–	638,420
	1991	53,746	12.00	7.6	1.77	645,201	488,080	–	802,322
	1992	44,786	8.49	5.84	1.81	280,260	320,761	–	439,759
	1993	35,903	8.99	7.15	1.47	322,714	256,101	–	389,326
	1994	39,219	7.89	6.94	1.45	309,469	249,874	–	369,063
	1995	37,761	7.01	5.95	1.38	264,812	222,666	–	306,957
	1996	43,351	8.56	6.37	1.58	370,963	305,406	–	436,520
	1997	31,772	10.37	7.88	1.62	329,463	264,429	–	396,497
	1998	36,625	9.95	7.92	1.53	364,426	293,158	–	435,695
	1999	35,311	7.42	6.04	1.46	261,880	195,480	–	328,280
	2000	45,616	9.25	7.24	1.80	422,095	356,135	–	488,055
	2001	31,959	13.45	7.25	1.78	429,797	221,176	–	638,417
	2002	31,403	8.39	7.35	1.51	263,397	194,256	–	332,538
	2003	30,598	8.85	10.62	1.46	270,869	221,939	–	319,800
	2004	21,975	10.01	8.55	1.40	219,907	146,217	–	293,596
	2005	23,962	12.09	6.61	1.71	289,772	111,813	–	467,730
	2006	21,572	14.81	8.58	1.59	319,483	169,745	–	469,222
	2007	18,391	7.76	8.81	1.39	142,700	94,777	–	190,624
	2008	19,202	6.78	8.59	1.39	130,217	92,611	–	167,824
	2009	25,672	7.47	7.01	1.53	191,643	149,663	–	233,623
	2010	20,167	6.90	7.29	1.50	139,247	101,532	–	176,961
	2011	18,957	7.81	8.67	1.30	147,982	113,594	–	182,371
	2012	16,981	6.89	6.45	1.26	116,966	86,617	–	147,315
	2013	17,089	7.43	6.21	1.27	126,944	75,628	–	178,261
	2014	19,596	8.04	6.21	1.53	157,648	120,011	–	195,284
	2015	16,667	6.49	5.73	1.72	108,119	83,309	–	132,929
	2016	19,098	7.16	8.27	1.66	136,762	107,591	–	165,933

Table A5. Continued.

	Year	Number Of Hunters	Mean Bag Per Hunter	Mean Days Hunted	Mean Daily Bag	Total Harvest	95% Confidence Interval for Total Harvest	
Jackrabbit	1986	6,612	7.06	6.97	1.01	46,698	5,716 –	87,681
	1987	7,926	4.62	6.35	0.73	36,598	8,927 –	64,269
	1988	2,314	4.00	3.50	1.14	9,256	1,850 –	16,662
	1989	2,005	0.78	7.44	0.10	1,560	128 –	2,991
	1990	2,326	3.00	3.67	0.67	6,977	1,541 –	12,413
	1991	2,583	7.71	5.71	0.88	19,924	0 –	41,977
	1992	1,268	4.89	8.89	0.41	6,197	0 –	17,124
	1993	2,227	4.12	5.75	0.95	9,185	2,580 –	15,790
	1994	1,199	1.14	1.86	0.67	1,370	0 –	3,318
	1995	603	2.20	1.60	1.20	1,327	0 –	3,644
	1996	805	0.50	21.67	0.33	403	0 –	942
	1997	1,151	2.60	3.20	1.01	2,993	1,481 –	4,505
	1998	912	6.29	12.29	0.54	5,735	666 –	10,804
	1999	1,506	2.00	3.82	0.83	3,011	432 –	5,590
	2000	1,151	3.38	7.13	0.54	3,885	0 –	9,411
	2001	1,433	2.10	7.10	0.40	3,010	856 –	5,163
	2002	1,762	1.09	3.55	0.47	1,923	490 –	3,355
	2003	998	1.50	5.17	0.41	1,497	3 –	2,990
	2004	1,679	4.55	3.91	1.41	7,630	3,779 –	11,482
	2005	1,191	4.13	7.25	0.94	4,911	1,056 –	8,767
	2006	1,961	7.08	8.08	1.19	13,879	0 –	28,118
	2007	1,533	6.44	2.78	3.00	9,877	2,315 –	17,438
	2008	1,291	5.00	12.13	1.64	6,454	1,673 –	11,236
	2009	2,054	29.00	15.57	1.29	59,559	0 –	127,281
	2010	1,601	3.30	4.70	0.66	5,282	443 –	10,120
	2011	882	27.33	26.67	1.75	24,100	0 –	66,544
	2012	1,025	0.43	3.86	0.29	439	0 –	1,036
	2013	1,773	1.55	6.18	0.46	2,741	427 –	5,054
	2014	1,524	0.89	3.72	0.28	1,364	0 –	2,945
	2015	849	5.56	4.11	0.92	4,718	0 –	10,113
	2016	1,061	3.20	6.60	0.94	3,395	0 –	6,961

Table A5. Continued.

	Year	Number Of Hunters	Mean Bag Per Hunter	Mean Days Hunted	Mean Daily Bag	Total Harvest	95% Confidence Interval for Total Harvest	
Swamp Rabbit	1986	8,885	7.53	7.37	1.02	66,948	36,672 –	97,224
	1987	12,122	3.85	7.62	0.51	46,622	30,227 –	63,016
	1988	10,876	4.23	9.02	0.47	46,049	32,353 –	59,744
	1989	12,032	4.13	10.22	0.40	49,686	31,287 –	68,084
	1990	9,535	5.68	8.80	0.70	54,187	23,908 –	84,466
	1991	10,454	7.45	10.60	0.96	77,852	41,742 –	113,962
	1992	8,028	9.75	10.21	1.28	78,305	35,583 –	121,027
	1993	9,045	7.31	9.32	0.83	66,101	43,944 –	88,259
	1994	7,535	6.11	7.57	0.96	46,069	28,701 –	63,438
	1995	7,721	5.95	8.22	0.78	45,965	27,923 –	64,007
	1996	10,737	3.66	6.21	0.69	39,324	23,196 –	55,452
	1997	5,641	6.33	8.53	0.81	35,686	19,760 –	51,612
	1998	7,560	5.76	10.19	0.90	43,533	29,328 –	57,738
	1999	6,980	5.80	10.24	0.93	40,512	27,075 –	53,950
	2000	5,036	3.94	8.29	0.69	19,858	12,309 –	27,407
	2001	7,309	4.36	9.24	0.83	31,867	21,768 –	41,966
	2002	4,486	3.57	9.39	0.78	16,022	8,368 –	23,676
	2003	5,820	9.91	19.11	0.68	57,690	23,946 –	91,433
	2004	3,357	6.36	5.33	0.65	21,365	775 –	41,955
	2005	2,977	3.70	6.51	0.62	11,013	4,333 –	17,694
	2006	3,319	6.05	21.00	0.50	20,064	10,216 –	29,912
	2007	2,725	2.88	24.25	0.34	7,833	3,060 –	12,607
	2008	2,420	5.73	9.40	0.69	13,877	7,081 –	20,673
	2009	2,347	4.19	10.47	0.52	9,829	4,021 –	15,636
	2010	3,041	2.74	11.05	0.59	8,323	3,250 –	13,395
	2011	2,645	5.50	12.28	0.51	14,548	6,908 –	22,188
	2012	2,489	3.24	9.00	0.69	8,051	4,072 –	12,031
	2013	2,418	8.20	8.27	0.92	19,829	3,520 –	36,138
	2014	2,250	5.35	6.30	0.91	12,048	5,338 –	18,758
	2015	1,592	2.14	4.69	0.61	3,412	945 –	5,879
	2016	2,334	2.40	7.64	0.67	5,602	966 –	10,238

Table A5. Continued.

	Year	Number Of Hunters	Mean Bag Per Hunter	Mean Days Hunted	Mean Daily Bag	Total Harvest	95% Confidence Interval for Total Harvest
Fox Squirrel	1986	57,856	10.95	8.68	1.26	633,526	523,349 – 743,704
	1987	73,662	12.67	11.22	1.13	933,602	727,904 – 1,139,300
	1988	65,718	11.65	9.22	1.26	765,706	604,072 – 927,340
	1989	59,489	13.61	9.89	1.38	809,727	673,544 – 945,910
	1990	54,187	11.30	10.98	1.25	612,342	463,989 – 760,695
	1991	49,934	12.43	9.66	1.37	620,849	467,251 – 774,448
	1992	38,167	12.49	9.09	1.58	476,593	371,000 – 582,186
	1993	37,156	12.82	9.27	1.55	476,486	391,293 – 561,679
	1994	41,788	15.73	11.18	1.64	657,300	507,640 – 806,959
	1995	45,000	12.09	8.22	1.69	544,221	444,539 – 643,902
	1996	53,551	11.84	10.43	1.60	633,976	527,694 – 740,258
	1997	42,248	12.05	10.75	1.50	509,281	416,914 – 601,648
	1998	46,661	14.73	11.74	1.80	687,108	560,613 – 813,604
	1999	41,607	10.67	9.26	1.40	444,038	366,757 – 521,319
	2000	46,911	11.79	8.85	1.66	553,236	447,442 – 659,029
	2001	39,411	16.40	11.30	1.46	646,228	344,774 – 947,681
	2002	41,336	9.07	9.93	1.42	374,769	316,121 – 433,418
	2003	41,906	11.57	12.71	1.27	484,749	406,934 – 562,564
	2004	34,489	13.13	12.61	1.34	452,690	264,873 – 640,507
	2005	38,249	12.26	10.17	1.60	469,002	388,729 – 549,276
	2006	36,054	21.85	13.33	1.57	787,745	188,944 – 1,386,546
	2007	32,355	9.53	11.12	1.25	308,390	254,067 – 362,713
	2008	32,433	10.85	12.95	1.43	351,926	287,011 – 416,841
	2009	33,593	11.99	12.54	1.40	402,825	308,350 – 497,299
	2010	32,011	14.69	13.51	1.44	470,188	147,961 – 792,414
	2011	31,448	14.49	11.23	1.30	455,624	157,811 – 753,437
	2012	31,181	10.67	11.70	1.25	332,649	257,327 – 407,971
	2013	29,180	7.53	8.47	1.26	219,821	178,286 – 261,355
	2014	29,975	9.27	12.21	1.27	277,823	226,013 – 329,634
	2015	28,132	7.29	9.11	1.10	205,010	167,161 – 242,858
	2016	30,557	11.09	9.71	1.20	338,809	220,525 – 457,093

Table A5. Continued.

	Year	Number Of Hunters	Mean Bag Per Hunter	Mean Days Hunted	Mean Daily Bag	Total Harvest	95% Confidence Interval for Total Harvest	
Gray Squirrel	1986	45,458	10.87	10.14	1.07	494,258	383,057 –	605,459
	1987	53,149	14.36	11.93	1.20	763,199	573,765 –	952,633
	1988	39,570	9.27	9.85	0.94	367,002	259,805 –	474,199
	1989	43,002	17.21	11.08	1.55	740,162	288,418 –	1,191,906
	1990	41,164	11.53	12.78	1.10	474,664	307,081 –	642,246
	1991	38,742	14.04	10.31	1.30	543,981	381,217 –	706,745
	1992	26,759	12.21	10.44	1.37	326,601	246,865 –	406,338
	1993	28,667	12.39	9.73	1.46	355,138	284,629 –	425,647
	1994	28,943	16.20	12.47	1.49	468,741	334,001 –	603,482
	1995	33,056	10.58	8.42	1.37	349,744	278,775 –	420,714
	1996	43,082	12.56	10.35	1.44	541,144	417,513 –	664,776
	1997	34,074	13.58	11.73	1.48	462,653	340,049 –	585,256
	1998	36,886	15.80	12.22	1.67	582,978	429,766 –	736,191
	1999	32,984	11.24	8.67	1.50	370,729	274,683 –	466,775
	2000	37,270	10.85	8.33	1.63	404,395	323,112 –	485,678
	2001	32,102	27.64	11.68	1.70	887,334	131,722 –	1,642,946
	2002	32,524	12.85	8.08	1.69	417,797	305,531 –	530,062
	2003	34,257	11.84	11.25	1.39	405,759	323,635 –	487,883
	2004	28,080	15.57	13.15	1.54	437,241	258,660 –	615,822
	2005	29,915	21.27	10.78	2.63	636,397	321,275 –	951,519
	2006	30,020	31.32	13.64	1.72	940,381	149,264 –	1,731,497
	2007	25,713	25.25	12.29	1.45	649,304	0 –	1,319,893
	2008	28,238	12.94	13.51	1.56	365,319	282,518 –	448,120
	2009	29,633	10.19	10.68	1.16	301,836	226,912 –	376,759
	2010	27,209	12.87	12.19	1.22	350,176	255,386 –	444,967
	2011	24,982	15.96	10.43	1.37	398,673	105,095 –	692,250
	2012	23,569	12.77	12.01	1.31	300,979	225,288 –	376,670
	2013	21,603	8.19	9.27	1.12	176,882	131,725 –	222,039
	2014	24,822	11.41	12.23	1.32	277,823	226,013 –	329,634
	2015	24,629	8.82	9.56	1.11	217,124	175,438 –	258,811
	2016	27,799	11.02	12.02	1.48	306,471	212,971 –	399,970

Table A5. Continued.

	Year	Number Of Hunters	Mean Bag Per Hunter	Mean Days Hunted	Mean Daily Bag	Total Harvest	95% Confidence Interval for Total Harvest	
Turkey: Fall[a]	1986	25,607	0.42	4.56	0.09	10,755	. –	.
	1987	24,568	0.39	3.99	0.10	9,589	. –	.
	1988	21,057	0.24	3.34	0.07	5,054	. –	.
	1989	18,199	0.30	4.08	0.07	5,460	. –	.
	1990	19,574	0.24	3.92	0.10	4,698	. –	.
	1991	20,049	0.34	3.68	0.19	6,817	. –	.
	1992	16,247	0.35	3.33	0.20	5,687	. –	.
	1993	12,664	1.10	4.11	0.27	13,930	. –	.
	1994	11,746	0.21	6.21	0.10	2,467	. –	.
	1995	13,150	0.19	9.28	0.08	2,557	1,571 –	3,543
	1996	19,863	0.22	6.81	0.10	4,429	3,092 –	5,766
	1997	17,267	0.26	6.78	0.14	4,434	3,214 –	5,653
	1998	17,596	0.27	5.13	0.15	4,763	3,429 –	6,096
	1999	21,625	0.25	4.59	0.15	5,406	3,392 –	6,880
	2000	20,434	0.26	4.49	0.13	5,217	3,741 –	6,693
	2001	21,354	0.22	5.99	0.11	4,617	3,196 –	6,038
	2002	27,557	0.35	5.27	0.16	9,669	7,692 –	11,646
	2003	27,605	0.26	6.79	0.14	7,151	5,305 –	8,996
	2004	28,690	0.34	5.06	0.18	9,614	7,673 –	11,555
	2005	22,920	0.37	4.40	0.20	8,483	6,730 –	10,237
	2006	22,628	0.28	6.99	0.13	6,336	4,705 –	7,967
	2007	16,688	0.21	8.88	0.12	3,576	2,213 –	4,939
	2008	20,977	0.20	8.28	0.07	4,195	2,747 –	5,643
	2009	22,444	0.32	7.11	0.14	7,188	5,523 –	8,853
	2010	20,967	0.26	8.67	0.12	5,442	3,862 –	7,022
	2011	16,753	0.32	9.31	0.15	5,290	3,855 –	6,726
	2012	17,860	0.25	9.77	0.08	4,538	3,153 –	5,924
	2013	16,927	0.20	6.46	0.08	3,385	2,084 –	4,687
	2014	20,467	0.27	7.12	0.12	5,600	4,336 –	6,865
	2015	12,421	0.19	9.27	0.10	2,421	1,529 –	3,313
	2016	20,372	0.22	8.83	0.12	4,429	2,703 –	6,155

Table A5. Continued.

	Year	Number Of Hunters	Mean Bag Per Hunter	Mean Days Hunted	Mean Daily Bag	Total Harvest	95% Confidence Interval for Total Harvest	
Turkey: Spring[a]	1986	31,632	0.56	5.35	0.10	17,714	. –	.
	1987	30,909	0.55	5.62	0.10	17,000	. –	.
	1988	30,082	0.40	5.18	0.08	12,033	. –	.
	1989	45,244	0.58	6.00	0.10	27,146	. –	.
	1990	32,391	0.45	6.02	0.12	14,576	. –	.
	1991	32,564	0.46	6.12	0.13	14,980	. –	.
	1992	34,226	0.58	5.40	0.18	19,851	. –	.
	1993	28,667	0.52	5.66	0.16	14,906	. –	.
	1994	29,102	0.43	5.60	0.15	12,514	. –	.
	1995	43,190	0.48	5.64	0.14	20,751	17,509 –	23,992
	1996	46,706	0.38	6.41	0.09	17,582	14,337 –	20,826
	1997	45,011	0.38	6.08	0.10	17,196	14,349 –	20,044
	1998	44,315	0.46	5.40	0.13	20,393	16,967 –	23,818
	1999	47,903	0.45	5.71	0.14	21,549	18,012 –	25,087
	2000	49,502	0.49	5.89	0.14	24,390	20,678 –	28,102
	2001	53,456	0.48	5.15	0.15	25,866	22,072 –	29,659
	2002	64,407	0.50	5.97	0.13	32,123	27,553 –	36,694
	2003	73,502	0.56	5.7	0.14	41,241	36,135 –	46,347
	2004	63,027	0.54	6.00	0.14	33,879	29,532 –	38,225
	2005	58,490	0.62	6.23	0.17	36,463	31,824 –	41,102
	2006	66,075	0.63	6.20	0.17	41,485	36,636 –	46,334
	2007	61,984	0.50	6.86	0.11	30,992	26,092 –	35,893
	2008	56,799	0.55	6.97	0.14	31,142	26,628 –	35,657
	2009	65,720	0.57	6.65	0.13	37,407	32,609 –	42,206
	2010	54,578	0.47	5.83	0.12	25,769	21,519 –	30,018
	2011	56,283	0.51	6.23	0.12	28,954	24,701 –	33,207
	2012	52,554	0.42	5.21	0.13	22,251	18,760 –	25,743
	2013	49,331	0.45	5.17	0.12	22,394	18,527 –	26,261
	2014	51,894	0.38	5.32	0.11	19,835	17,385 –	22,286
	2015	41,296	0.45	5.34	0.14	18,781	16,019 –	21,543
	2016	57,083	0.48	5.20	0.16	27,460	22,091 –	32,830

Table A5. Continued.

	Year	Number Of Hunters	Mean Bag Per Hunter	Mean Days Hunted	Mean Daily Bag	Total Harvest	95% Confidence Interval for Total Harvest	
Woodcock	1986	3,513	2.00	5.69	0.35	7,025	2,978 –	11,073
	1987	3,030	2.92	3.17	0.92	8,858	4,968 –	12,748
	1988	694	2.67	5.00	0.53	1,851	0 –	3,828
	1989	2,451	3.27	6.91	0.47	8,021	1,907 –	14,135
	1990	2,093	3.44	8.11	1.32	7,209	976 –	13,443
	1991	984	2.25	4.25	0.81	2,214	814 –	3,613
	1992	563	1.25	5.00	0.58	704	0 –	1,749
	1993	974	1.57	2.00	0.66	1,531	223 –	2,839
	1994	514	0.33	0.67	0.50	171	0 –	507
	1995	603	1.60	5.00	0.65	965	0 –	1,996
	1996	537	1.50	20.75	0.21	805	126 –	1,484
	1997	1,036	18.89	5.11	2.79	19,570	0 –	40,238
	1998	782	1.00	3.00	0.85	782	222 –	1,342
	1999	821	3.67	4.83	0.89	3,011	947 –	5,075
	2000	1,151	2.00	6.88	0.73	2,302	213 –	4,391
	2001	1,003	1.00	3.43	0.26	1,003	0 –	2,360
	2002	801	2.80	2.00	1.10	2,243	0 –	5,113
	2003	665	1.25	1.00	1.25	831	506 –	1,157
	2004	305	2.50	1.00	2.50	763	464 –	1,062
	2005	595	1.75	14.25	0.81	1,042	750 –	1,334
	2006	302	1.00	1.00	1.00	302	302 –	302
	2007	341	0.50	1.50	0.50	170	0 –	504
	2008	323	0.50	2.50	0.50	161	0 –	475
	2009	733	0.60	2.80	0.45	440	88 –	792
	2010	640	0	1.50	0	0	0 –	0
	2011	588	1.50	2.50	0.45	882	0 –	1,879
	2012	878	2.17	5.67	0.56	1,903	401 –	3,405
	2013	1,128	0.29	1.00	0.33	322	0 –	954
	2014	435	1.00	2.17	0.42	435	0 –	975
	2015	106	2.00	2.00	1.00	212	. –	.
	2016	1,273	1.00	4.40	0.40	1,273	254 –	2,292

Table A5. Continued.

	Year	Number Of Hunters	Mean Bag Per Hunter	Mean Days Hunted	Mean Daily Bag	Total Harvest	95% Confidence Interval for Total Harvest	
Coyote	2003	19,623	5.08	22.11	0.44	99,611	57,158 –	142,063
	2004	17,092	4.79	19.30	0.48	81,918	55,526 –	108,311
	2005	15,329	17.76	29.20	0.52	272,210	0 –	567,975
	2006	17,198	8.70	32.63	0.47	149,649	57,916 –	241,381
	2007	21,797	4.65	15.56	0.45	101,321	75,585 –	127,056
	2008	16,943	9.50	25.53	0.48	161,037	45,366 –	276,708
	2009	23,618	5.14	20.00	0.16	121,485	90,980 –	151,991
	2010	23,208	5.94	21.67	0.50	137,966	87,223 –	188,709
	2011	25,864	5.59	27.04	0.44	144,455	85,406 –	203,504
	2012	31,181	4.86	24.40	0.53	151,661	120,863 –	182,458
	2013	26,117	6.86	21.22	0.45	179,270	89,781 –	268,758
	2014	20,830	8.84	21.68	0.62	184,036	39,004 –	329,069
	2015	18,684	5.81	19.81	0.48	108,587	83,305 –	133,870
	2016	22,918	8.36	20.40	0.53	191,621	103,249 –	279,993
Bobcat	2003	7,650	1.93	16.00	0.22	14,800	6,817 –	22,783
	2004	7,173	1.06	12.96	0.16	7,630	3,702 –	11,559
	2005	8,781	1.90	15.14	0.16	16,669	8,636 –	24,701
	2006	9,051	2.50	23.95	0.20	22,628	14,734 –	30,523
	2007	9,706	1.51	17.16	0.18	14,645	9,647 –	19,642
	2008	8,229	1.76	15.80	0.25	14,522	7,258 –	21,786
	2009	10,415	1.44	14.17	0.21	14,963	8,225 –	21,701
	2010	12,164	1.57	14.01	0.25	19,138	12,287 –	25,990
	2011	10,581	1.15	16.06	0.13	12,220	7,650 –	16,789
	2012	10,101	1.52	17.93	0.13	15,371	7,449 –	23,293
	2013	9,673	0.93	20.49	0.14	9,028	5,751 –	12,305
	2014	7,621	1.44	19.83	0.13	10,950	7,075 –	14,826
	2015	6,263	0.97	16.53	0.09	6,047	3,297 –	8,798
	2016	10,186	1.63	22.48	0.13	16,552	6,665 –	26,439
Raccoon	2003	9,146	7.26	24.36	0.49	66,439	45,639 –	87,239
	2004	8,088	8.87	20.65	0.44	71,705	47,872 –	95,538
	2005	8,930	8.12	23.95	0.42	72,480	51,955 –	93,005
	2006	6,939	8.30	23.26	0.83	57,627	40,533 –	74,721
	2007	8,174	8.66	24.15	0.77	70,781	46,919 –	94,644
	2008	7,261	8.39	22.82	0.39	60,895	38,468 –	83,322
	2009	9,682	8.02	24.09	0.66	77,607	57,094 –	98,119
	2010	9,123	8.63	25.80	0.52	78,746	55,681 –	101,812
	2011	11,022	8.42	24.05	0.62	92,789	72,481 –	113,097
	2012	9,515	8.20	25.18	0.71	78,026	56,244 –	99,808
	2013	9,189	8.26	24.89	0.73	75,932	52,288 –	99,576
	2014	9,290	8.22	21.83	0.62	76,402	61,077 –	91,727
	2015	6,157	9.38	21.63	0.62	57,751	39,867 –	75,634
	2016	6,791	10.53	30.55	0.67	71,513	46,088 –	96,938

Table A5. Continued.

	Year	Number Of Hunters	Mean Bag Per Hunter	Mean Days Hunted	Mean Daily Bag	Total Harvest	95% Confidence Interval for Total Harvest	
Beaver	2003	3,326	3.00	6.15	0.72	9,978	4,733 –	15,223
	2004	1,984	5.85	39.23	0.54	11,598	4,233 –	18,963
	2005	2,381	5.06	17.13	0.63	12,055	4,464 –	19,647
	2006	2,112	4.93	39.86	0.53	10,409	2,379 –	18,439
	2007	1,873	5.91	20.73	0.53	11,069	1,174 –	20,963
	2008	1,775	7.18	17.55	0.77	12,747	3,629 –	21,866
	2009	2,347	4.13	20.13	1.14	9,682	1,562 –	17,802
	2010	2,561	6.56	15.06	0.50	16,806	1,301 –	32,310
	2011	2,792	2.67	48.28	0.32	7,446	5,022 –	9,869
	2012	2,049	6.29	30.43	0.50	12,882	1,682 –	24,082
	2013	2,741	4.18	36.29	0.26	11,446	0 –	23,156
	2014	3,048	3.68	12.45	0.43	11,227	7,440 –	15,014
	2015	1,911	4.28	39.72	0.44	8,174	3,118 –	13,230
	2016	2,971	2.86	20.71	0.45	8,488	5,768 –	11,208
Gray Fox	2003	831	1.20	12.80	0.12	998	0 –	2,578
	2004	916	2.17	12.83	0.35	1,984	418 –	3,550
	2005	1,637	1.27	11.45	0.35	2,084	1,208 –	2,959
	2006	1,509	0.40	24.40	0.15	603	121 –	1,086
	2007	1,873	0.91	18.91	0.05	1,703	547 –	2,859
	2008	1,291	1.88	27.38	0.10	2,420	482 –	4,359
	2009	1,614	1.09	25.73	0.10	1,760	596 –	2,925
	2010	1,601	2.80	26.70	0.30	4,482	2,298 –	6,665
	2011	1,176	0.38	11.13	0.03	441	19 –	862
	2012	1,464	1.30	21.90	0.04	1,903	300 –	3,506
	2013	1,935	0.75	13.64	0.15	1,451	0 –	3,076
	2014	1,234	1.53	20.00	0.18	1,887	934 –	2,840
	2015	1,274	2.00	17.18	0.21	2,548	0 –	5,559
	2016	2,334	0.55	30.18	0.03	1,273	0 –	2,702
Red Fox	2007	851	0.40	21.40	0.04	341	0 –	1,008
	2008	484	1.00	12.67	0.43	484	0 –	1,032
	2009	1,027	0.67	31.86	0.20	685	14 –	1,355
	2010	320	0.50	36.00	0.01	160	0 –	474
	2011	735	0	10.20	0	0	0 –	0
	2012	1,610	0.64	20.64	0.23	1,025	255 –	1,795
	2013	1,290	0.13	14.88	0.01	161	0 –	477
	2014	653	0.44	15.44	0.04	290	0 –	600
	2015	743	0.43	24.29	0.03	319	24 –	613
	2016	1,061	0.60	12.60	0.06	637	0 –	1,468
River Otter	2007	170	0	10.00	0	0	. –	.
	2008	645	1.50	8.75	1.02	968	336 –	1,601
	2009	293	1.00	50.00	0.10	293	0 –	868
	2010	320	0.50	3.00	0.10	160	0 –	474
	2011	588	0.75	14.75	0.03	441	0 –	992
	2012	0	0	0	0	0	. –	.
	2013	967	0.50	24.67	0.01	484	0 –	1,131
	2014	581	0.88	21.13	0.08	508	172 –	844
	2015	318	1.67	21.67	0.08	531	0 –	1,081
	2016	1,273	0.40	22.00	0.02	509	0 –	1,508

Table A5. Continued.

	Year	Number Of Hunters	Mean Bag Per Hunter	Mean Days Hunted	Mean Daily Bag	Total Harvest	95% Confidence Interval for Total Harvest		
Bear	2014	1,452	0.22	4.17	0.19	323	36	–	609
Elk	2014	1,814	0.33	4.77	0.21	605	255	–	954
Antelope	2014	581	0.67	6.20	0.27	387	147	–	627
Prairie Chicken	1986	5,992	2.07	2.45	0.85	12,398	3,714	–	21,081
	1987	5,595	1.33	1.96	0.68	7,459	3,302	–	11,617
	1988	3,934	1.53	1.65	0.93	6,016	2,388	–	9,645
	1989	3,342	2.29	2.57	0.89	7,639	2,811	–	12,467
	1990	4,186	1.56	2.72	0.51	6,512	2,411	–	10,613
	1991	3,936	2.12	2.25	0.81	8,363	4,921	–	11,805
	1992	3,239	1.65	2.57	0.72	5,352	1,097	–	9,606
	1993	974	1.14	2.43	0.64	1,113	464	–	1,763
	1994	1,713	0.75	1.22	0.59	1,284	101	–	2,468
	1995	1,448	0.56	1.56	0.45	812	169	–	1,455
	1996	671	0.80	3.80	0.53	537	45	–	1,029
	1997	576	1.00	1.80	0.68	576	71	–	1,080

[a]Confidence intervals for turkey harvest estimates were not available for 1986-1994. A correction factor was applied to the turkey estimates during those years, but it was evaluated in 1996 and deemed inappropriate. The harvest estimates for turkey prior to 1995 were recalculated without the correction factor but confidence intervals could not be calculated.

Table A6. Mean number of days deer hunters participated in each deer season in Oklahoma, 1997-2016.

Year	Total Mean Days[a]	Archery Mean Days	Muzzleloader Mean Days	Youth Mean Days	Rifle Mean Days	Holiday Mean Days[b]
1997	15.1	.	.	.	.	N/A
1998	14.5	.	.	.	.	N/A
1999	15.4	.	.	.	.	N/A
2000	16.0	.	.	.	.	N/A
2001	16.2	.	.	.	.	.
2002	16.8	.	.	.	.	.
2003	19.1	18.6	4.7	1.9	6.5	2.1
2004	16.8	16.4	4.6	1.9	6.1	2.1
2005	16.6	16.5	4.5	1.8	6.0	2.1
2006	18.3	18.3	4.6	2.0	6.1	2.0
2007	17.3	17.9	4.7	1.8	6.3	2.5
2008	17.4	17.8	4.7	2.1	6.1	2.3
2009	17.9	17.7	4.6	2.1	6.3	2.3
2010	18.3	18.2	4.6	2.1	6.1	2.8
2011	18.4	18.6	4.7	2.2	6.2	2.8
2012	17.8	18.0	4.7	2.1	6.3	2.8
2013	17.7	16.7	4.5	2.0	5.9	2.9
2014	17.8	17.8	4.6	2.2	5.9	2.8
2015	19.1	18.9	4.6	2.2	6.0	2.7
2016	16.4	17.9	4.3	2.2	5.6	2.6

[a]Number of days of deer hunting was collected as one aggregate variable in years 1997-2002. In years 2003-present, number of days of deer hunting was collected by season and summed to calculate total mean days.
[b]Holiday antlerless deer gun season began in 2001.

Table A7. Mean number of deer harvested by deer hunters in each deer season in Oklahoma, 2001-2016.

	Total: All-Seasons			Archery		Primitive		Youth		Rifle		Holiday
Year	Mean Number Deer	Mean Number Bucks	Mean Number Does	Mean Number Bucks	Mean Number Does	Mean Number Bucks	Mean Number Does	Mean Number Bucks	Mean Number Does	Mean Number Bucks	Mean Number Does	Mean Number Does
2001	0.91	0.46	0.46	0.13	0.21	0.22	0.16	N/A	N/A	0.27	0.20	0.21
2002	0.93	0.53	0.48	0.16	0.23	0.18	0.17	N/A	N/A	0.28	0.19	0.23
2003	0.98	0.49	0.49	0.19	0.19	0.20	0.17	N/A	0.32	0.29	0.22	0.22
2004	0.89	0.50	0.39	0.20	0.19	0.22	0.19	N/A	0.23	0.29	0.16	0.16
2005	0.84	0.45	0.39	0.13	0.18	0.20	0.15	N/A	0.42	0.29	0.18	0.17
2006	1.04	0.54	0.50	0.15	0.22	0.23	0.20	N/A	0.37	0.34	0.21	0.22
2007	0.86	0.47	0.39	0.14	0.19	0.20	0.13	0.18	0.30	0.28	0.18	0.22
2008	0.94	0.44	0.50	0.16	0.28	0.16	0.15	0.20	0.26	0.29	0.23	0.26
2009	0.92	0.45	0.47	0.17	0.28	0.20	0.13	0.23	0.15	0.27	0.22	0.24
2010	0.89	0.44	0.45	0.15	0.24	0.17	0.13	0.31	0.16	0.28	0.22	0.20
2011	0.95	0.47	0.48	0.20	0.26	0.17	0.17	0.17	0.23	0.31	0.23	0.19
2012	0.87	0.46	0.41	0.17	0.24	0.21	0.14	0.24	0.23	0.28	0.18	0.21
2013	0.72	0.36	0.35	0.16	0.18	0.17	0.13	0.12	0.08	0.20	0.17	0.16
2014	0.78	0.40	0.39	0.18	0.23	0.16	0.12	0.17	0.16	0.25	0.18	0.17
2015	0.74	0.39	0.35	0.16	0.22	0.19	0.12	0.10	0.22	0.24	0.15	0.14
2016	0.81	0.42	0.39	0.19	0.27	0.13	0.11	0.16	0.16	0.30	0.19	0.20

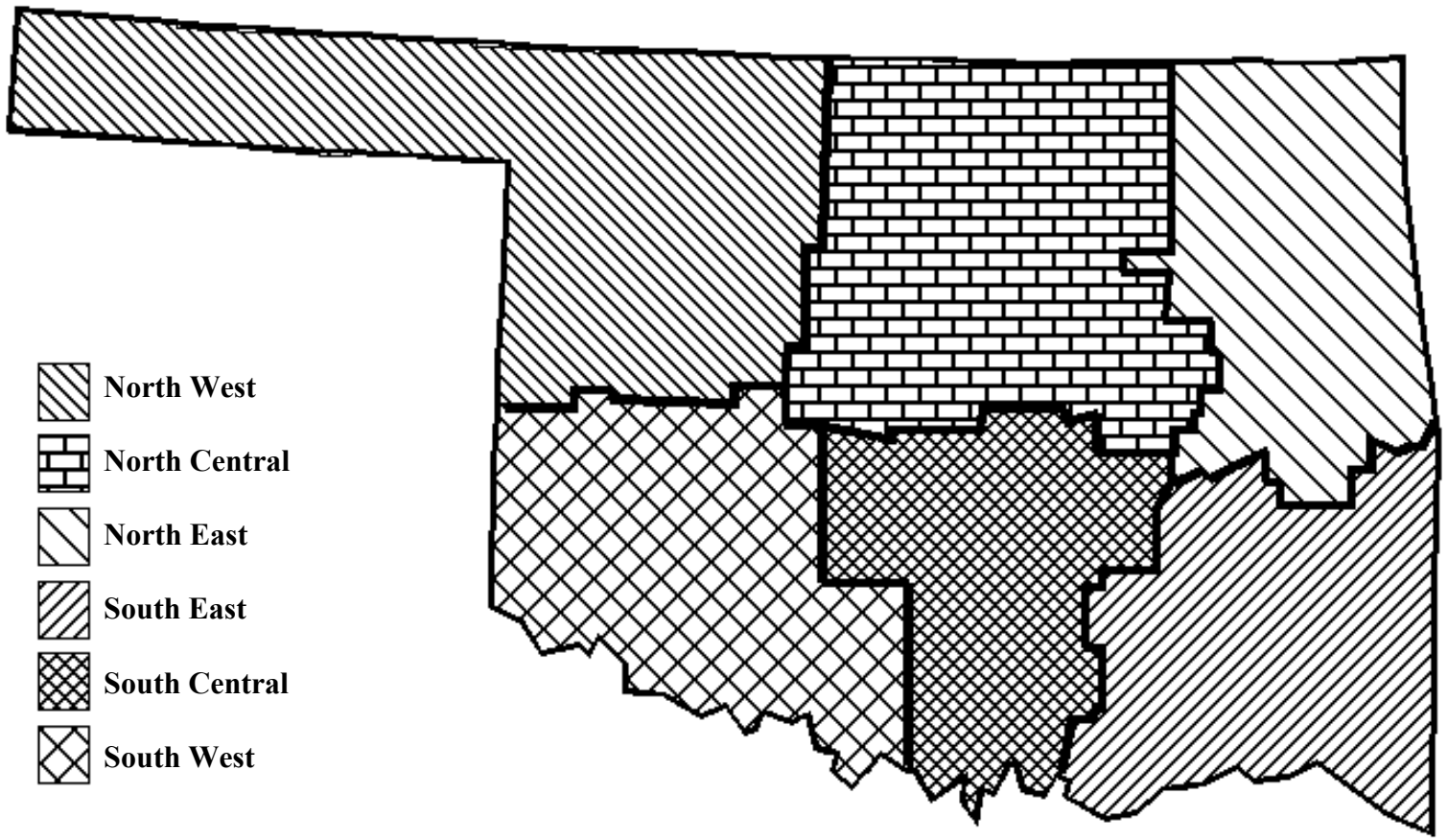


Figure A1. Regional boundaries for Oklahoma used in the Game Harvest Survey.

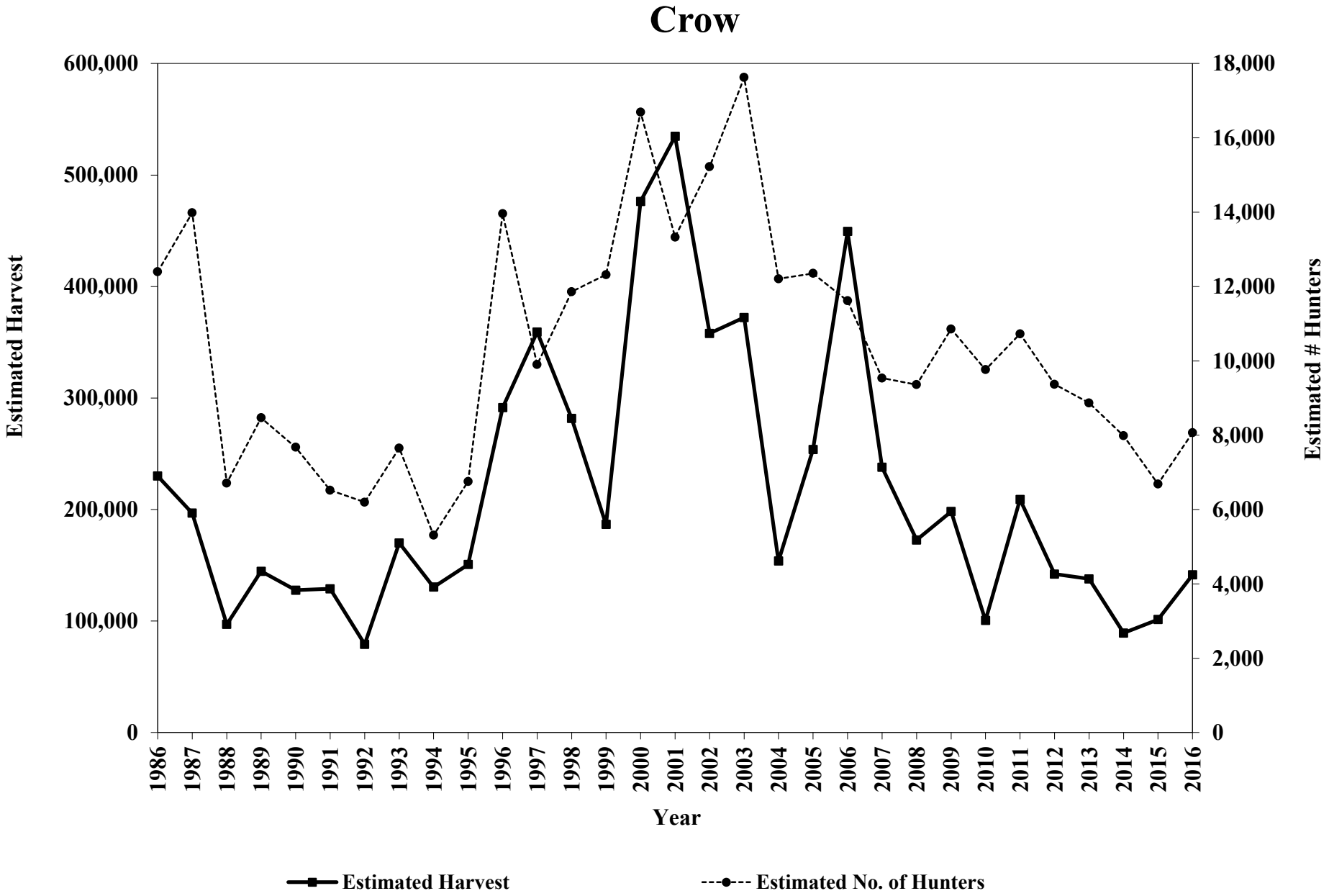


Figure A2. Statewide trends in estimated crow harvest and estimated number of crow hunters in Oklahoma, 1986-2016.

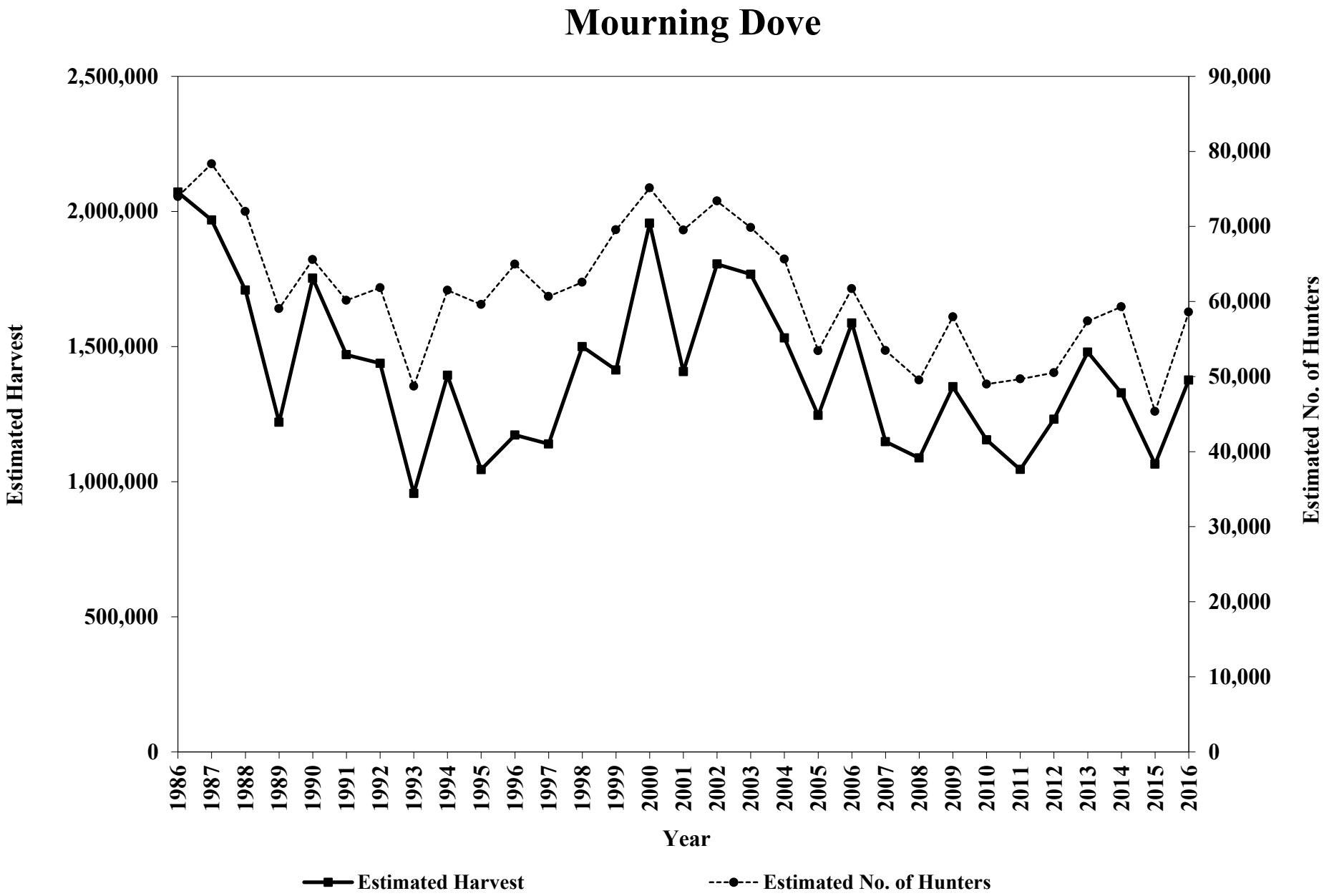


Figure A3. Statewide trends in estimated mourning dove harvest and estimated number of mourning dove hunters in Oklahoma, 1986-2016.

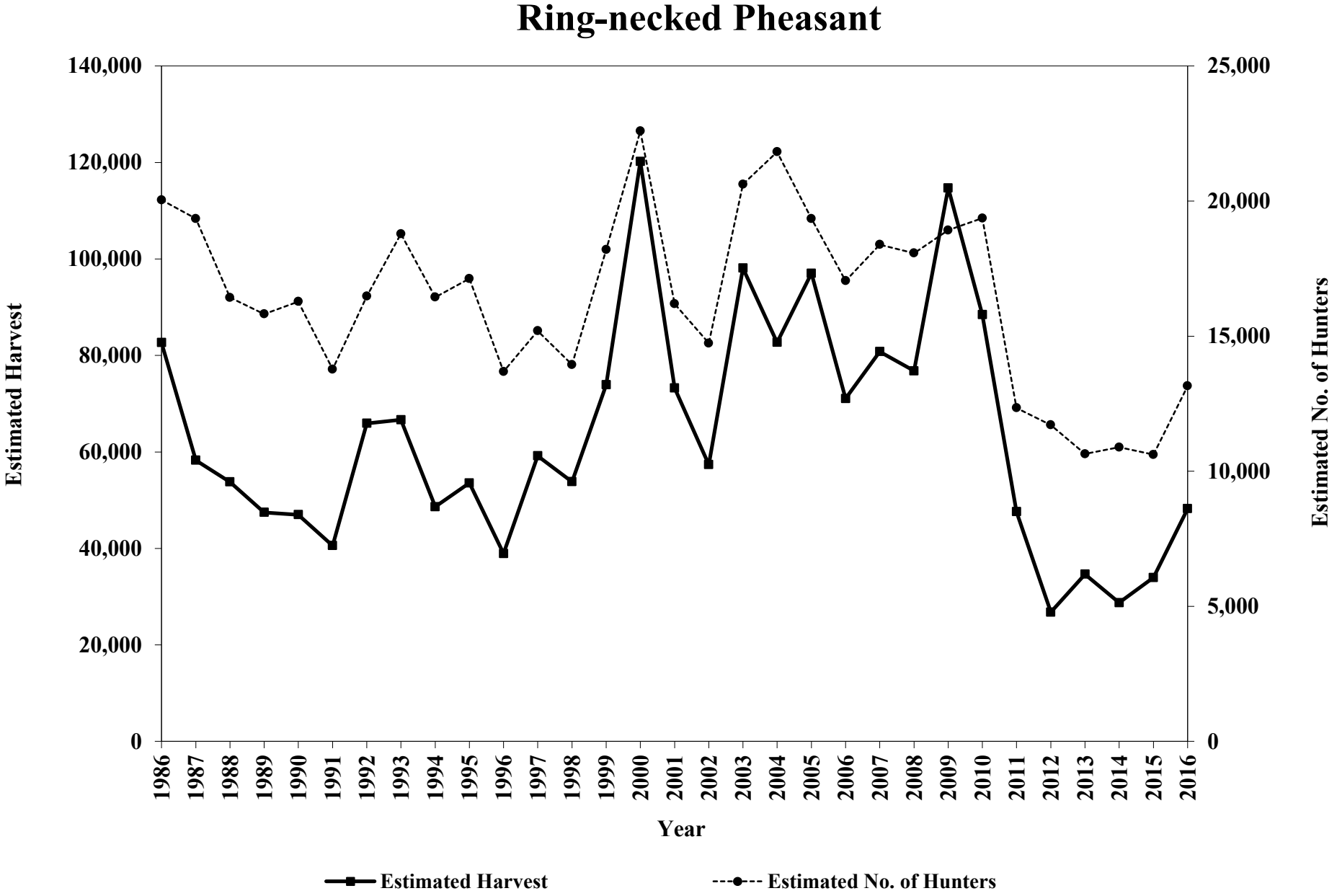


Figure A4. Statewide trends in estimated ring-necked pheasant harvest and estimated number of ring-necked pheasant hunters in Oklahoma, 1986-2016.

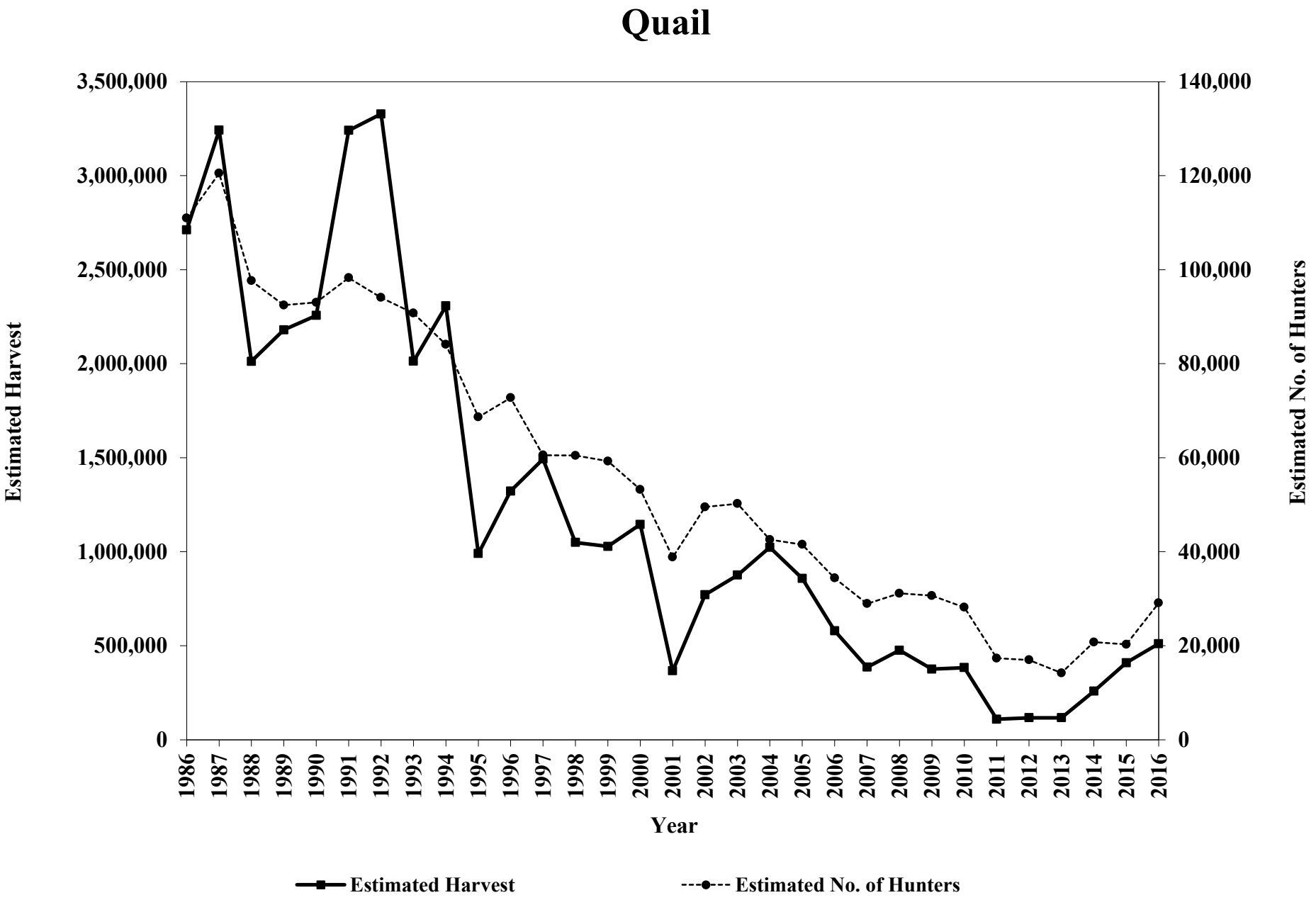


Figure A5. Statewide trends in estimated quail harvest and estimated number of quail hunters in Oklahoma, 1986-2016.

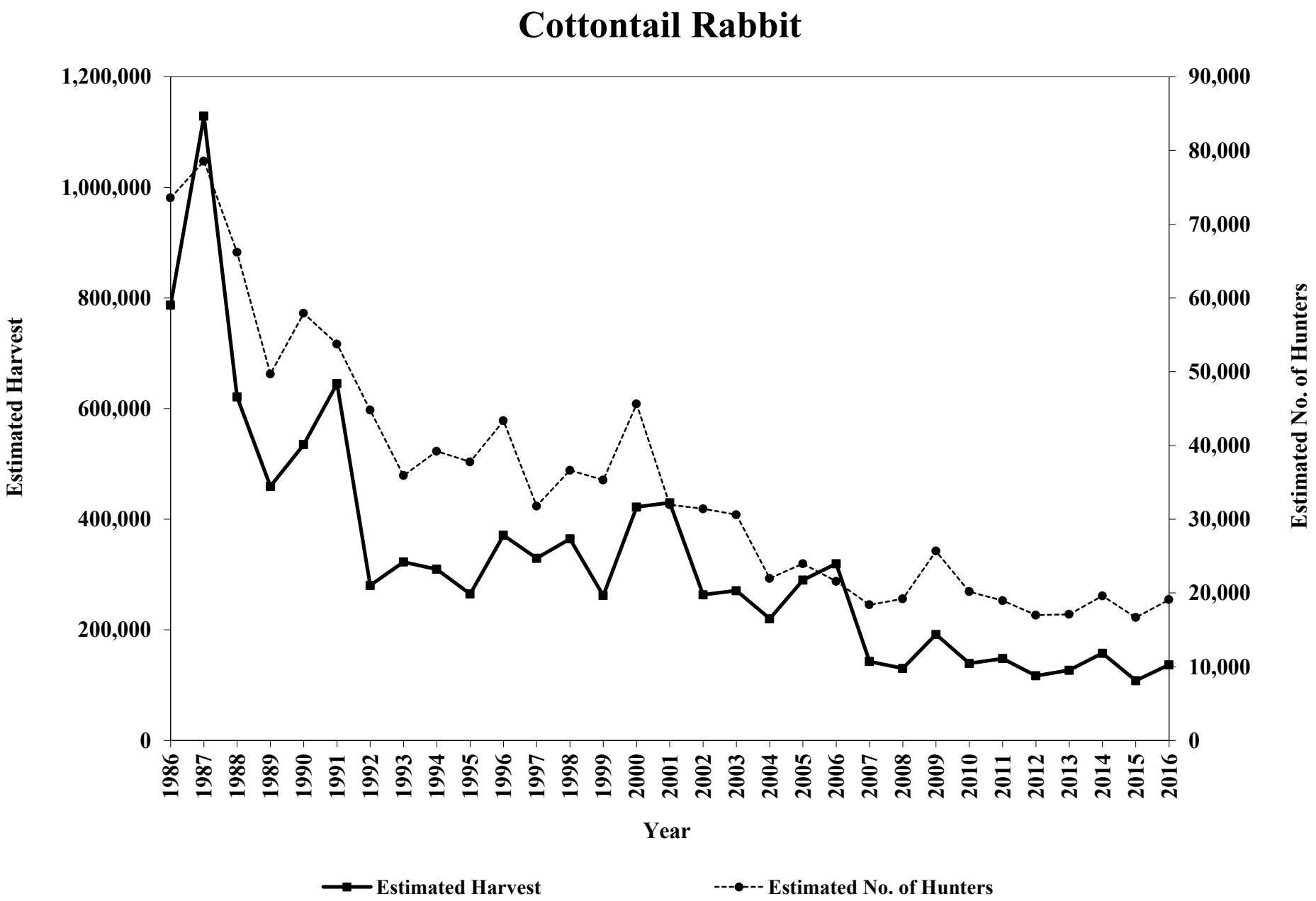


Figure A6. Statewide trends in estimated cottontail rabbit harvest and estimated number of cottontail rabbit hunters in Oklahoma, 1986-2016.

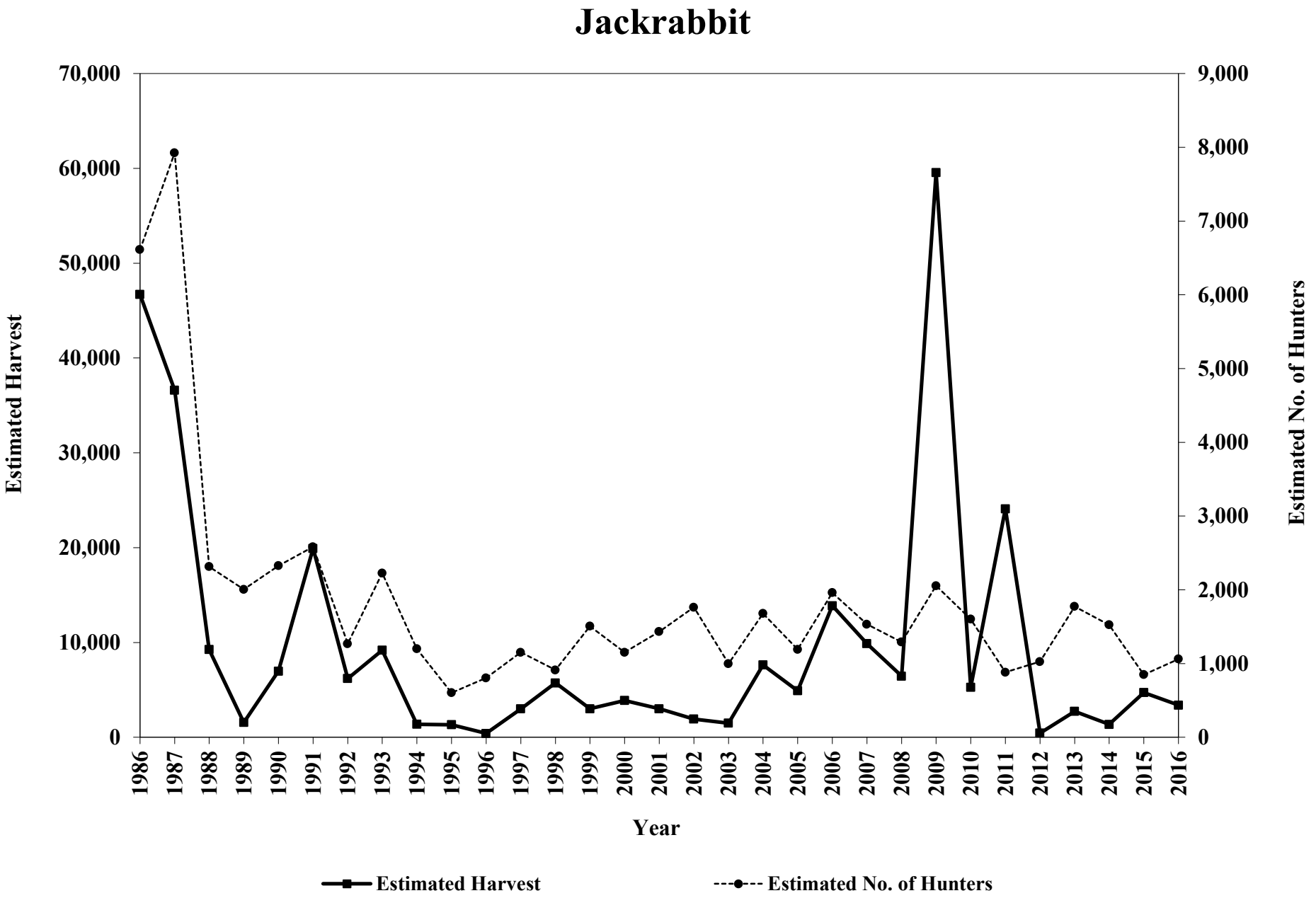


Figure A7. Statewide trends in estimated jackrabbit harvest and estimated number of jackrabbit hunters in Oklahoma, 1986-2016.

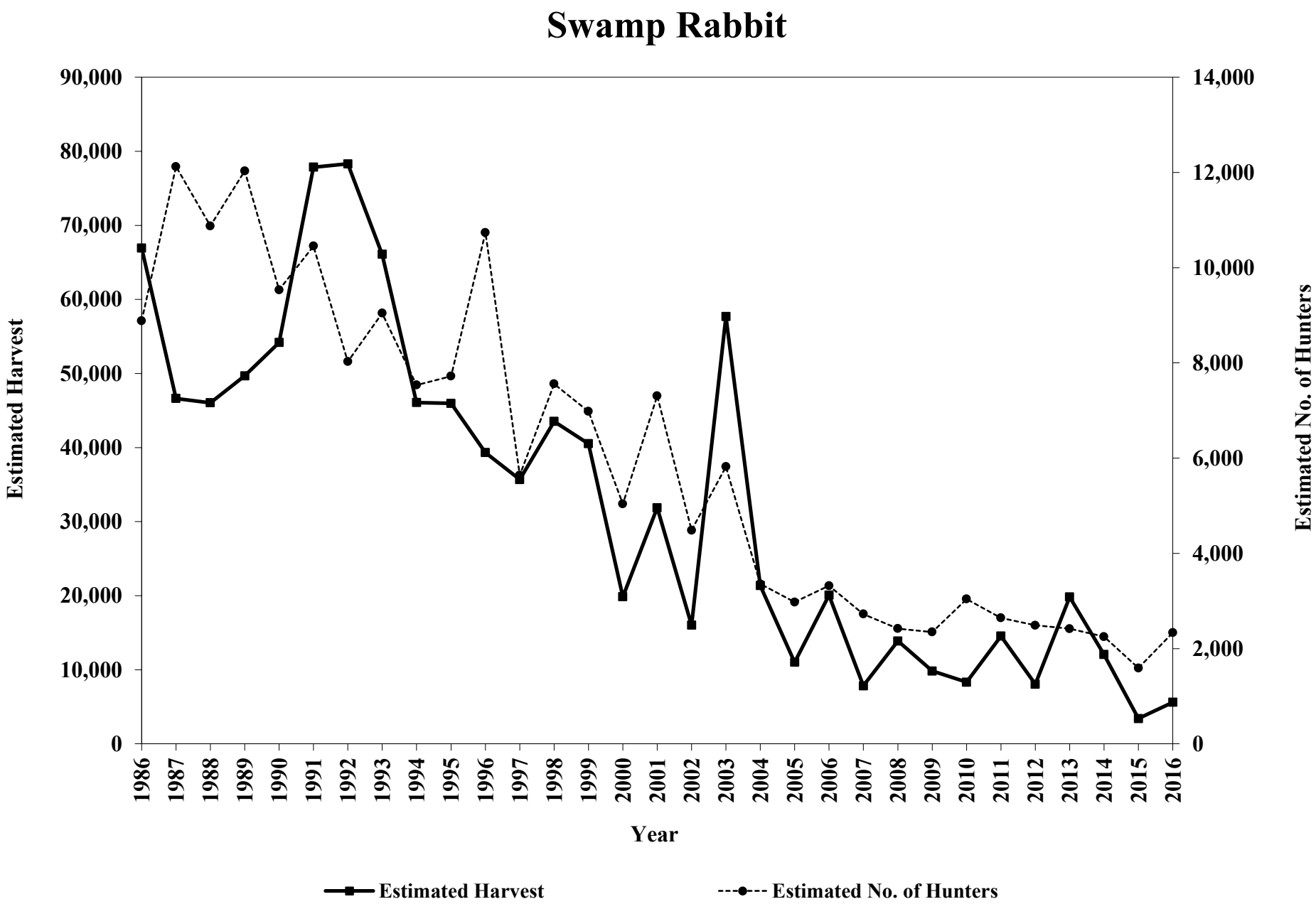


Figure A8. Statewide trends in estimated swamp rabbit harvest and estimated number of swamp rabbit hunters in Oklahoma, 1986-2016.

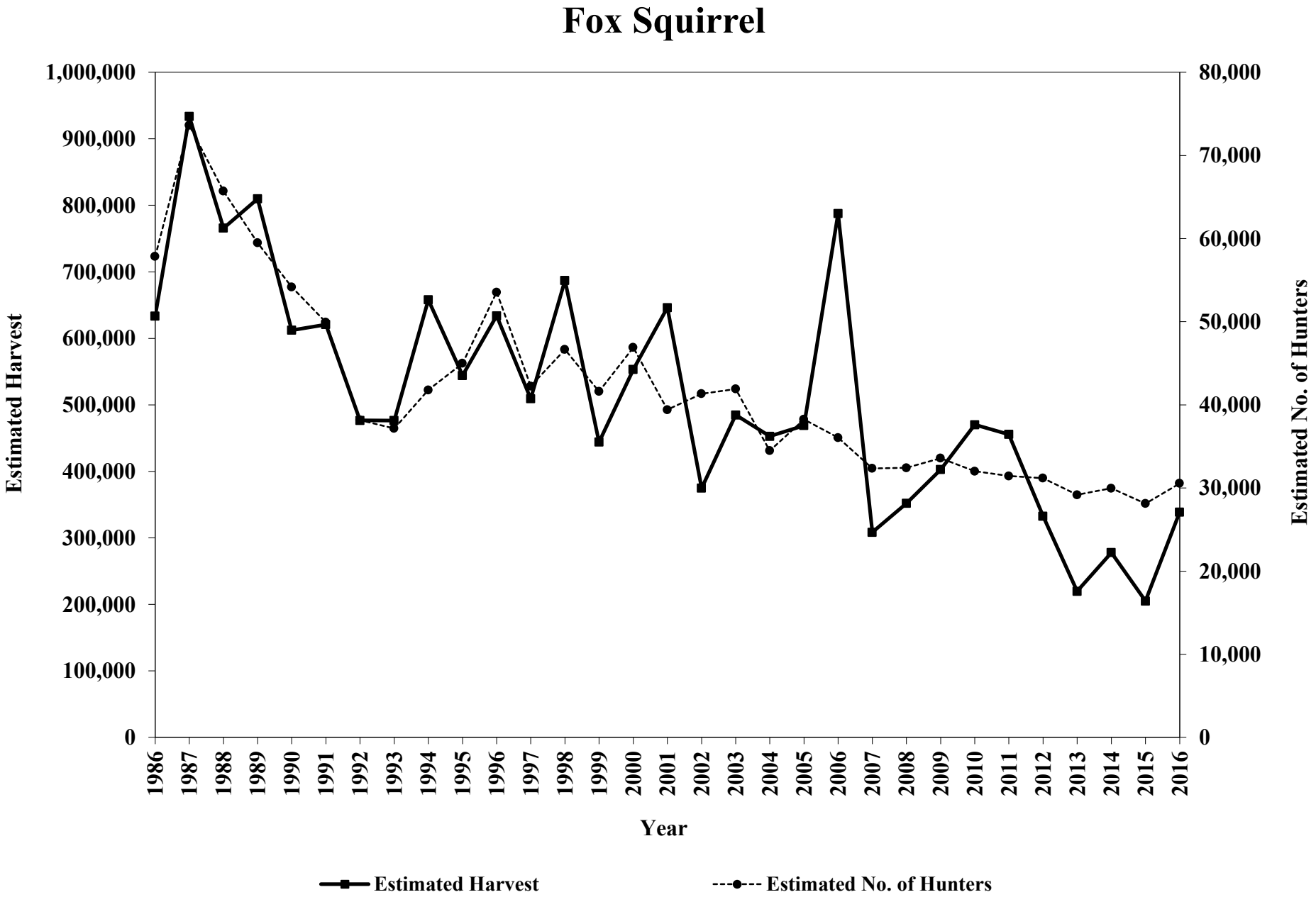


Figure A9. Statewide trends in estimated fox squirrel harvest and estimated number of fox squirrel hunters in Oklahoma, 1986-2016.

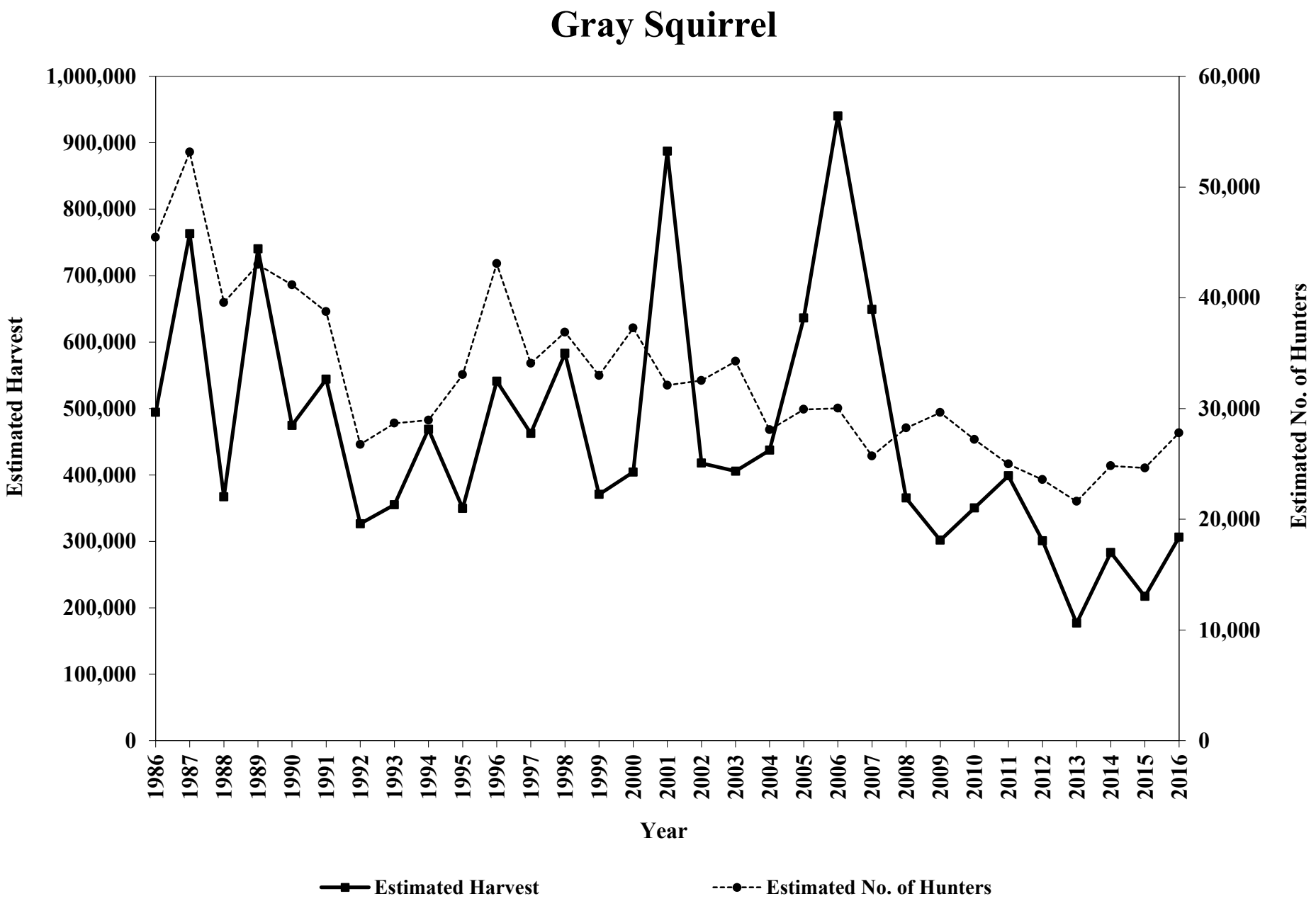


Figure A10. Statewide trends in estimated gray squirrel harvest and estimated number of gray squirrel hunters in Oklahoma, 1986-2016.

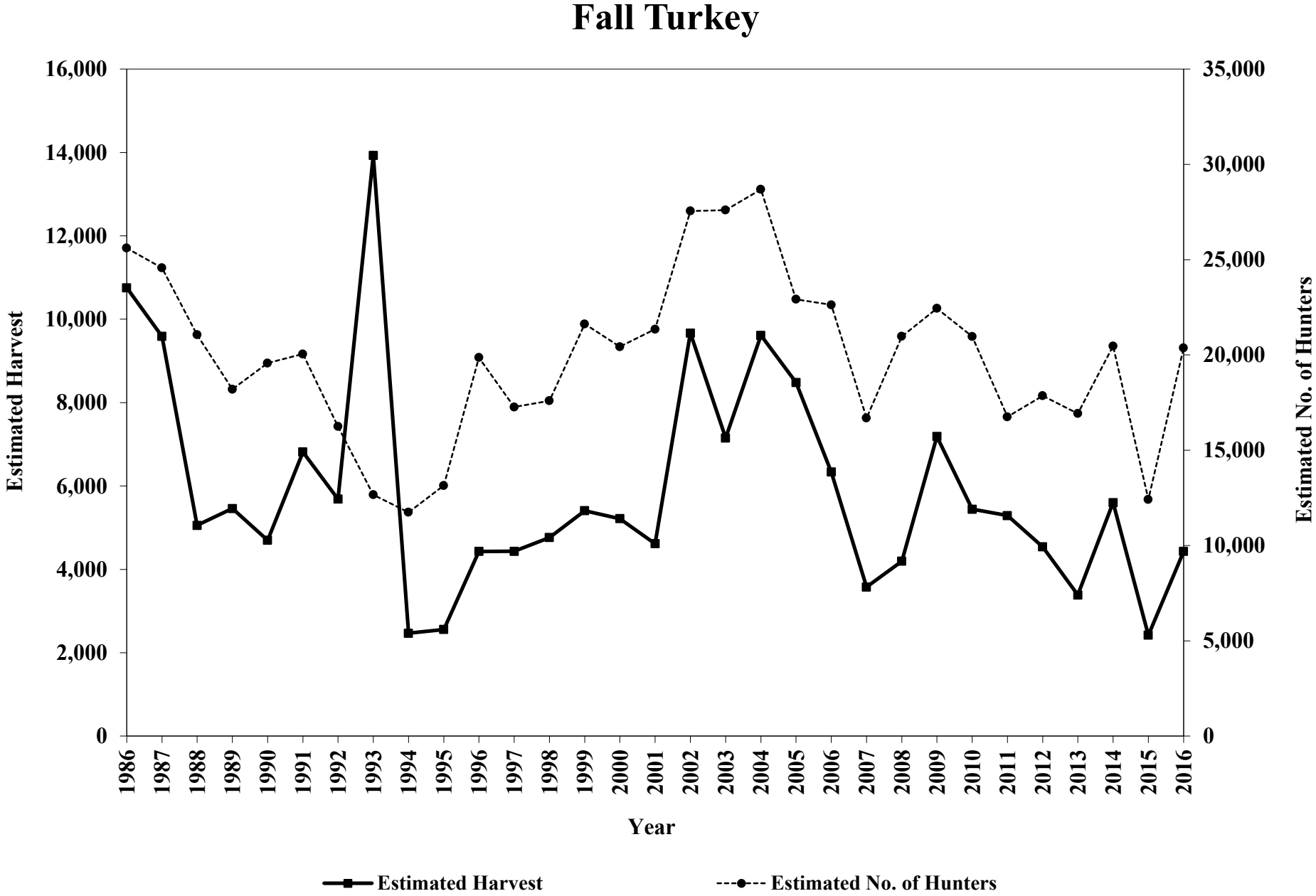


Figure A11. Statewide trends in estimated fall turkey harvest and estimated number of fall turkey hunters in Oklahoma, 1986-2016.

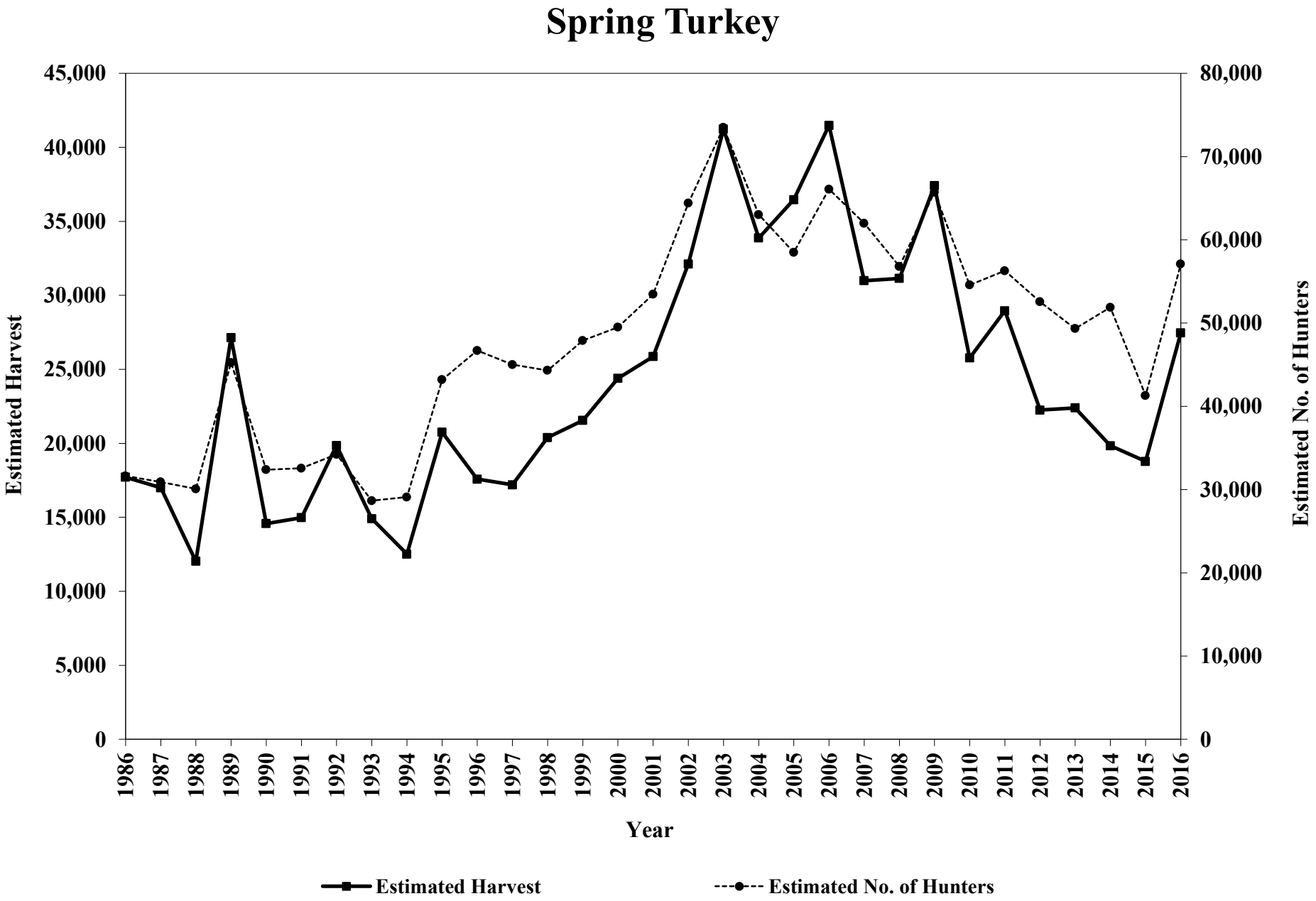


Figure A12. Statewide trends in estimated spring turkey harvest and estimated number of spring turkey hunters in Oklahoma, 1986-2016.

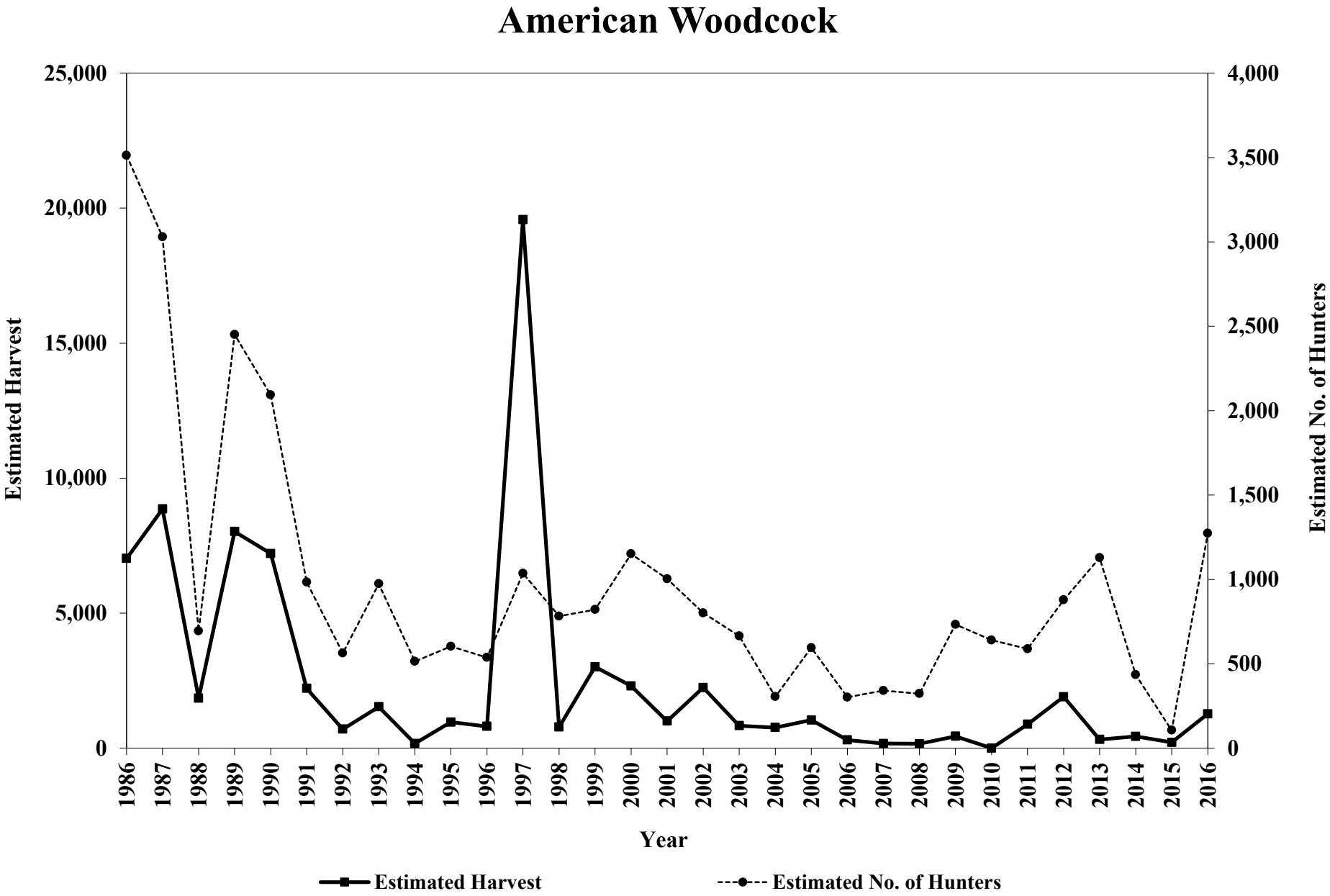


Figure A13. Statewide trends in estimated American woodcock harvest and estimated number of American woodcock hunters in Oklahoma, 1986-2016.

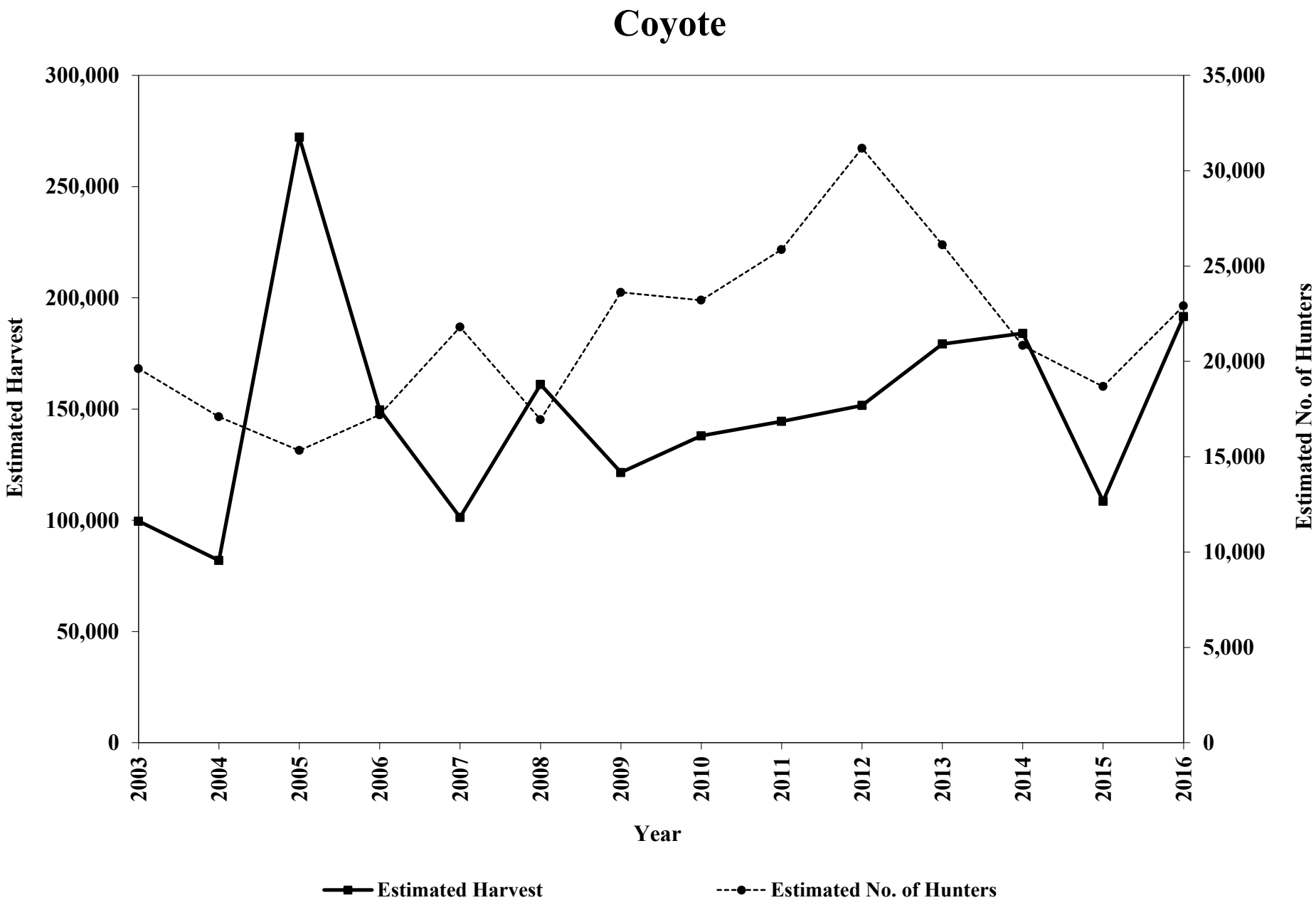


Figure A14. Statewide trends in estimated coyote harvest and estimated number of coyote hunters in Oklahoma, 2003-2016.

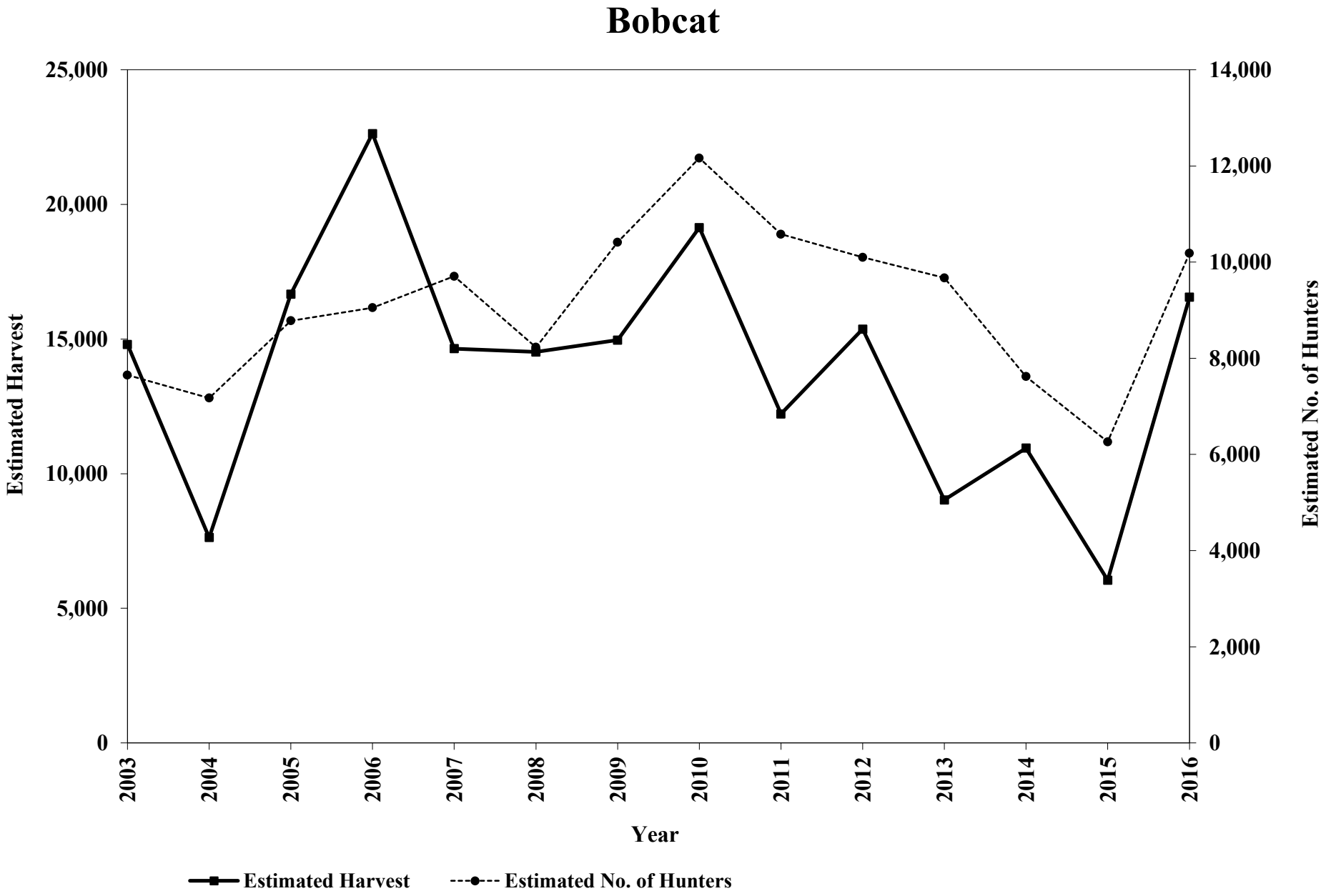


Figure A15. Statewide trends in estimated bobcat harvest and estimated number of bobcat hunters in Oklahoma, 2003-2016.

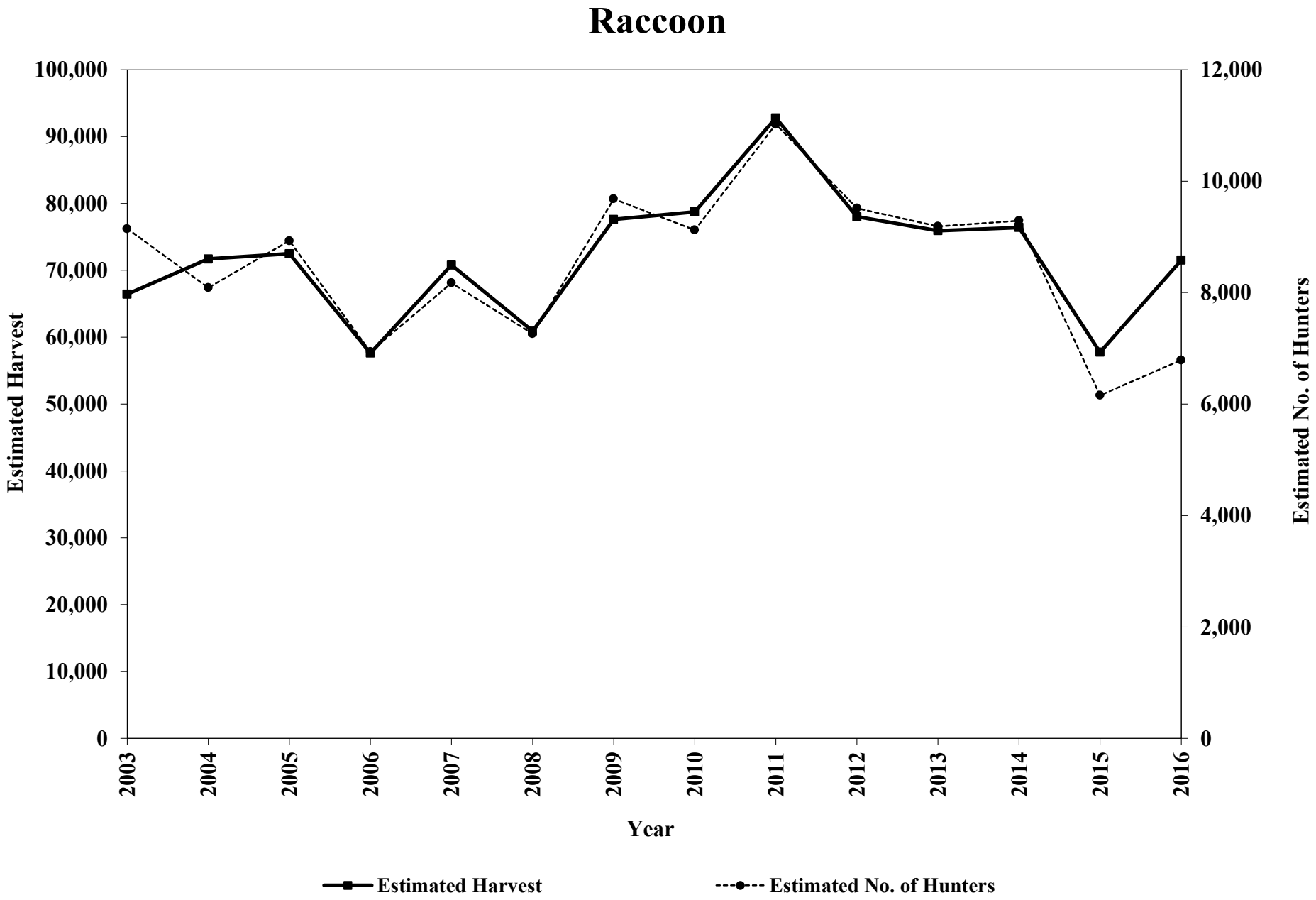


Figure A16. Statewide trends in estimated raccoon harvest and estimated number of raccoon hunters in Oklahoma, 2003-2016.

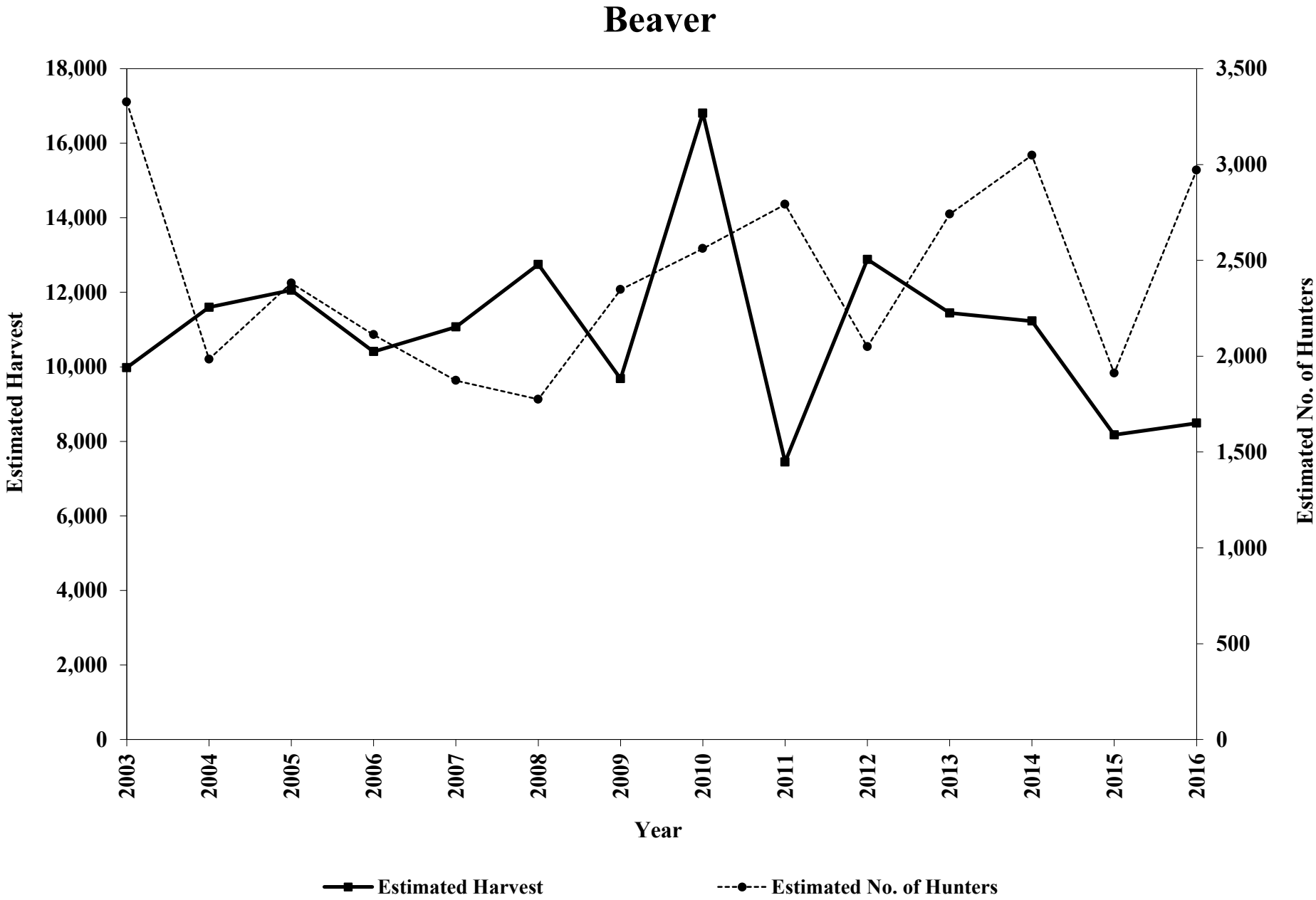


Figure A17. Statewide trends in estimated beaver harvest and estimated number of beaver hunters in Oklahoma, 2003-2016.

Figure A18. Statewide trends in estimated gray fox harvest and estimated number of gray fox hunters in Oklahoma, 2003-2016.

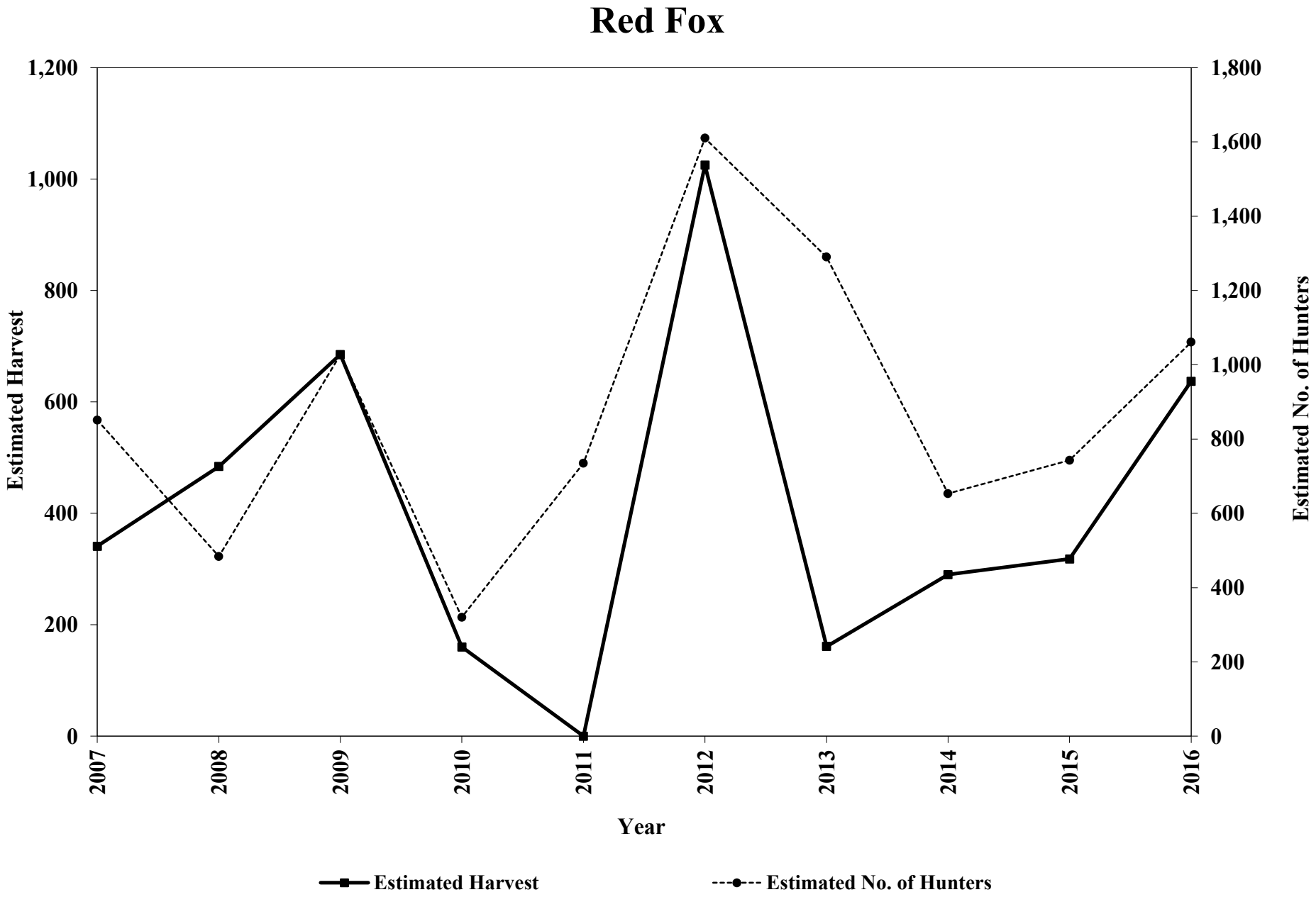


Figure A19. Statewide trends in estimated red fox harvest and estimated number of red fox hunters in Oklahoma, 2007-2016.

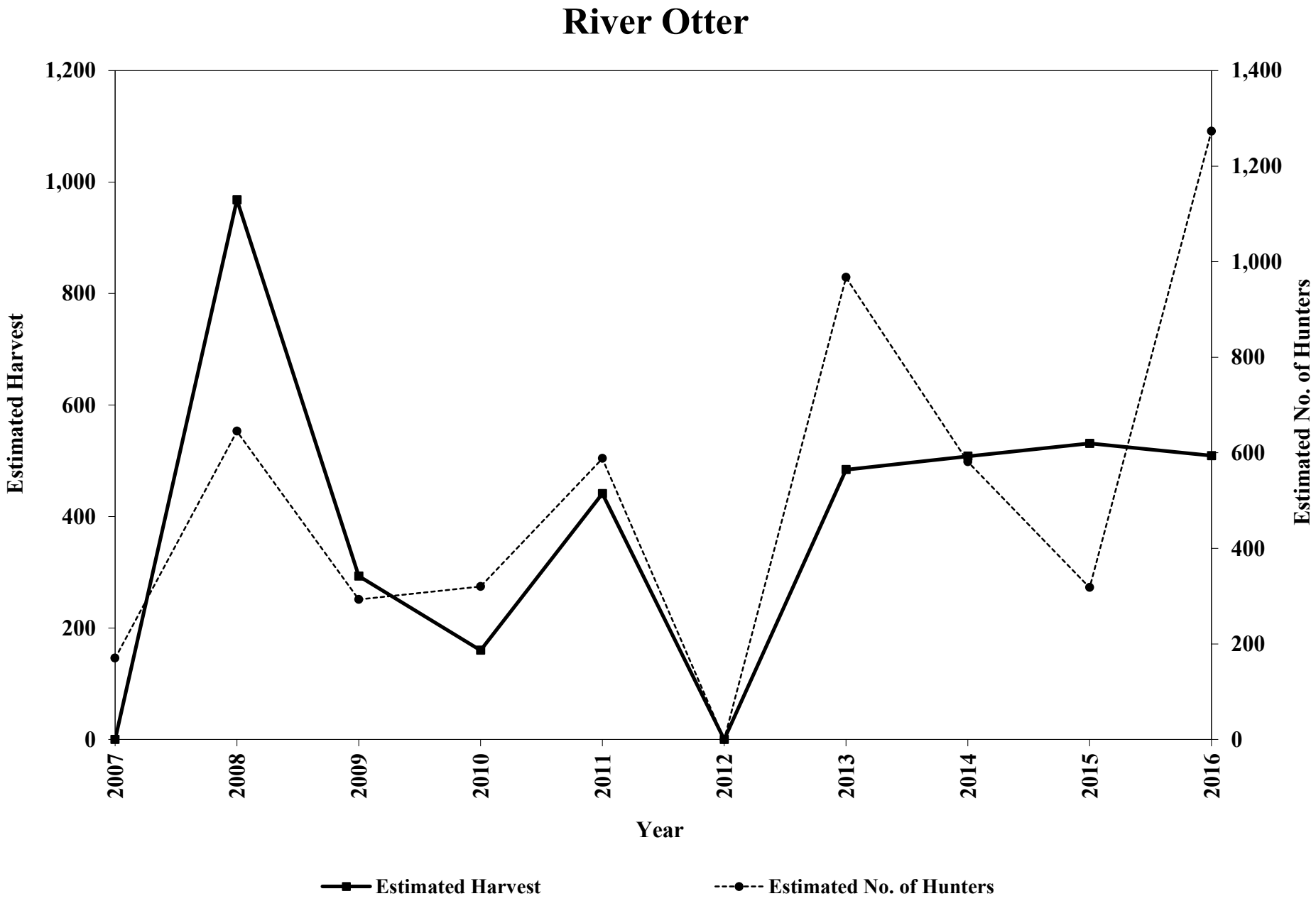


Figure A20. Statewide trends in estimated river otter harvest and estimated number of river otter hunters in Oklahoma, 2007-2016.

APPENDIX B

Human Dimensions Issues – Tables and Graphs

Table B1. Rate of participation in specific 2016 hunting seasons by all license holders, and by license type. (*Small sample size.)

Hunting Season	Total Sample Participation (n = 1,694)		Participation by License Type: Lifetime (n = 751)		Annual/Five-Year (n = 422)		Senior (n = 521)	
	Season *n*	Percent	Season *n*	Percent	Season *n*	Percent	Season *n*	Percent
Any Hunting	1,024	60.4	562	74.8	349	82.7	113	21.7
Deer (Overall)	839	49.5	498	66.3	274	64.9	67	12.9
Gun	728	43.0	443	59.0	223	52.8	62	11.9
Primitive Firearms	360	21.3	284	37.8	55	13.0	21	4.0
Archery	470	27.7	315	41.9	138	32.7	17	3.3
Special Antlerless	159	9.4	101	13.4	44	10.4	14	2.7
Youth Season	29	1.7	12	1.6	17	4.0	0	0.0
Turkey (Overall)	305	18.0	216	28.8	68	16.1	21	4.0
Spring Turkey	269	15.9	199	26.5	54	12.8	16	3.1
Fall Turkey	96	5.7	61	8.1	25	5.9	10	1.9
Dove	276	16.3	176	23.4	75	17.8	25	4.8
Waterfowl (Overall)	173	10.2	101	13.4	63	14.9	9	1.7
Ducks	164	9.7	94	12.5	61	14.5	9	1.7
Geese	102	6.0	58	7.7	39	9.2	5	1.0
Furbearers (Overall)	119	7.0	79	10.5	35	8.3	5	1.0
Coyote	108	6.4	74	9.9	30	7.1	4	0.8
Raccoon	32	1.9	21	2.8	9	2.1	2	0.4
Bobcat	48	2.8	38	5.1	9	2.1	1	0.2
Beaver*	14	0.8	6	0.8	8	1.9	0	0.0
Gray Fox*	11	0.6	7	0.9	3	0.7	1	0.2
Red Fox*	5	0.3	2	0.3	2	0.5	1	0.2
Otter*	6	0.4	3	0.4	3	0.7	0	0.0
Squirrel (Overall)	170	10.0	107	14.2	44	10.4	19	3.6
Fox Squirrel	144	8.5	90	12.0	40	9.5	14	2.7
Gray Squirrel	131	7.7	83	11.1	33	7.8	15	2.9
Rabbit (Overall)	90	5.3	51	6.8	28	6.6	11	2.1
Cottontail Rabbit	90	5.3	51	6.8	28	6.6	11	2.1
Swamp Rabbit*	11	0.6	8	1.1	3	0.7	0	0.0
Jackrabbit*	5	0.3	2	0.3	2	0.5	1	0.2
Quail	137	8.1	78	10.4	42	10.0	17	3.3
Pheasant	62	3.7	42	5.6	17	4.0	3	0.6
Crow	38	2.2	27	3.6	7	1.7	4	0.8
Woodcock*	6	0.4	4	0.5	2	0.5	0	0.0
Feral Swine	244	14.4	162	21.6	67	15.9	15	2.9

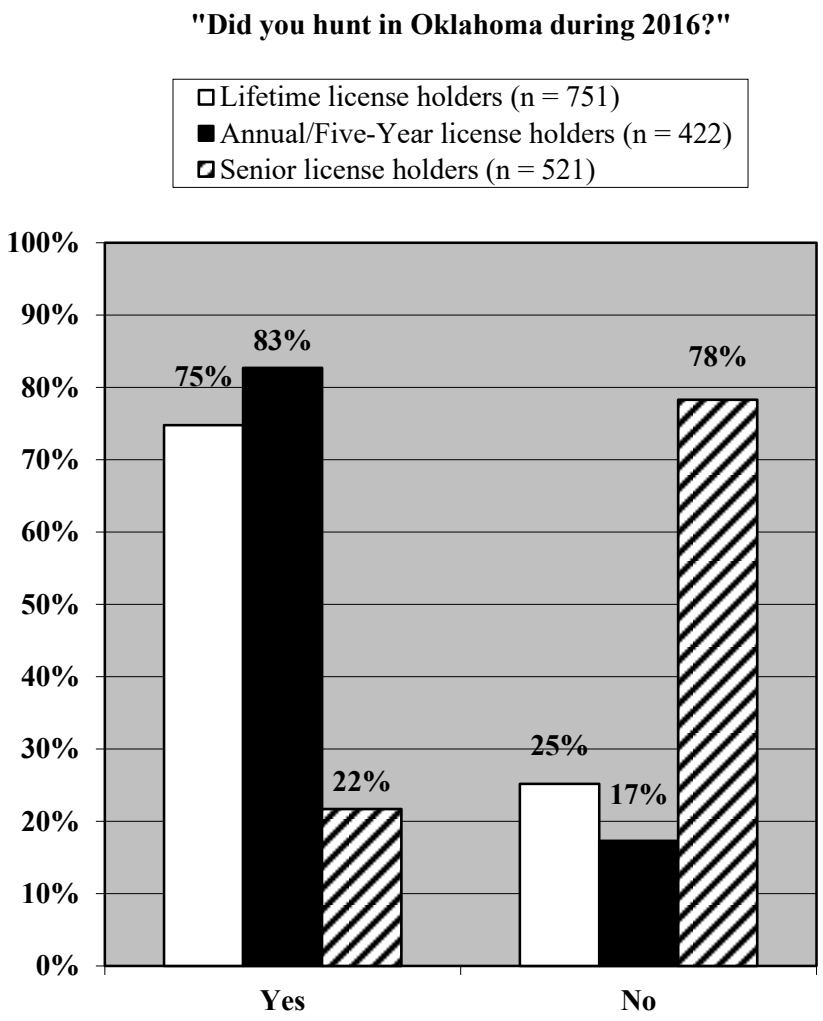


Figure B1. Distribution of hunting license holder participation in hunting activities during 2016, by license category. Both hunting and combination-hunting-and-fishing licenses were included in all license categories (*n* = 1,694).

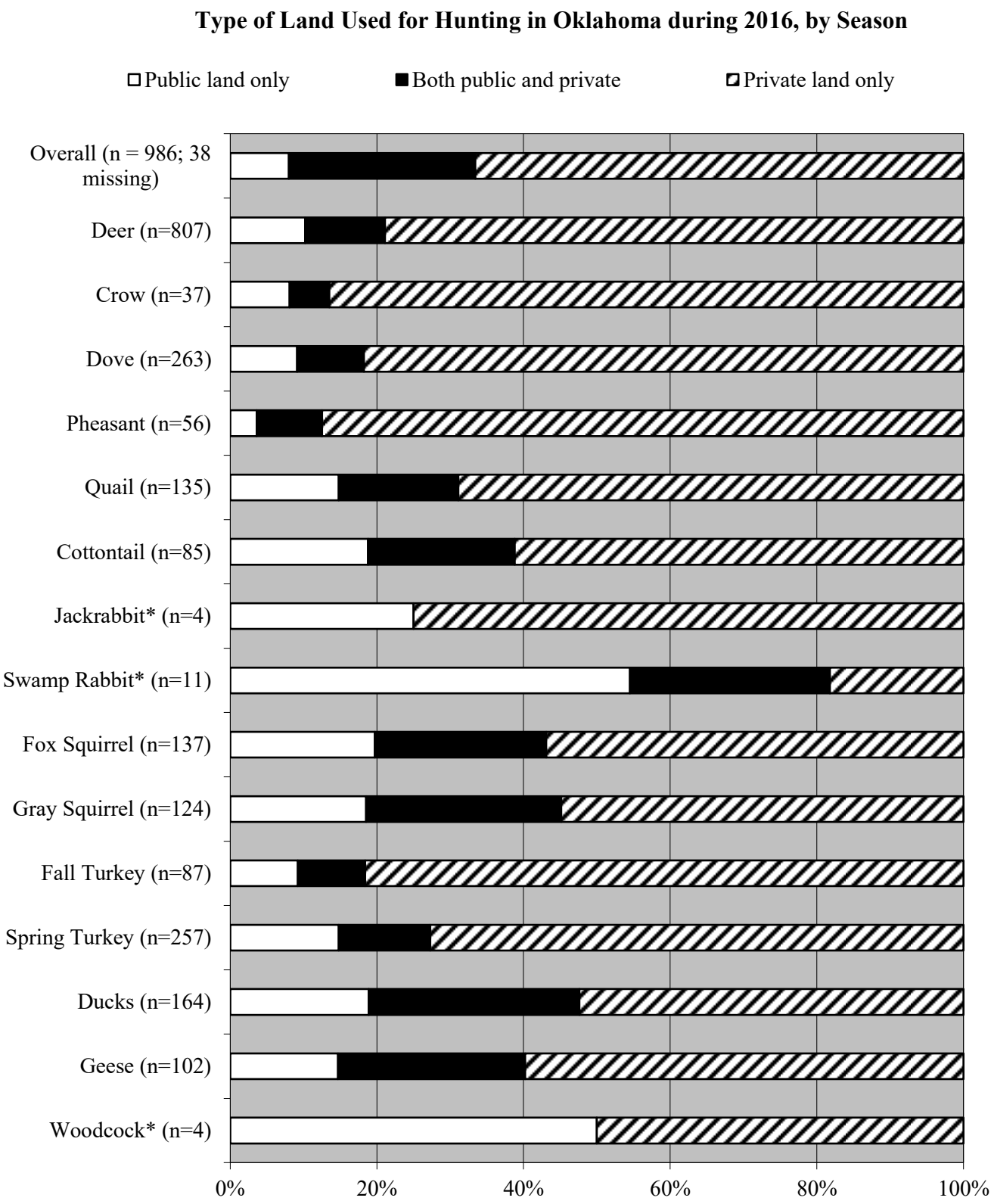


Figure B2. Distribution of land use for specific hunting seasons during 2016. Sample sizes and missing data vary for each species. *Small sample size.

"Did you use public land for any portion of your hunting in Oklahoma during 2016?"

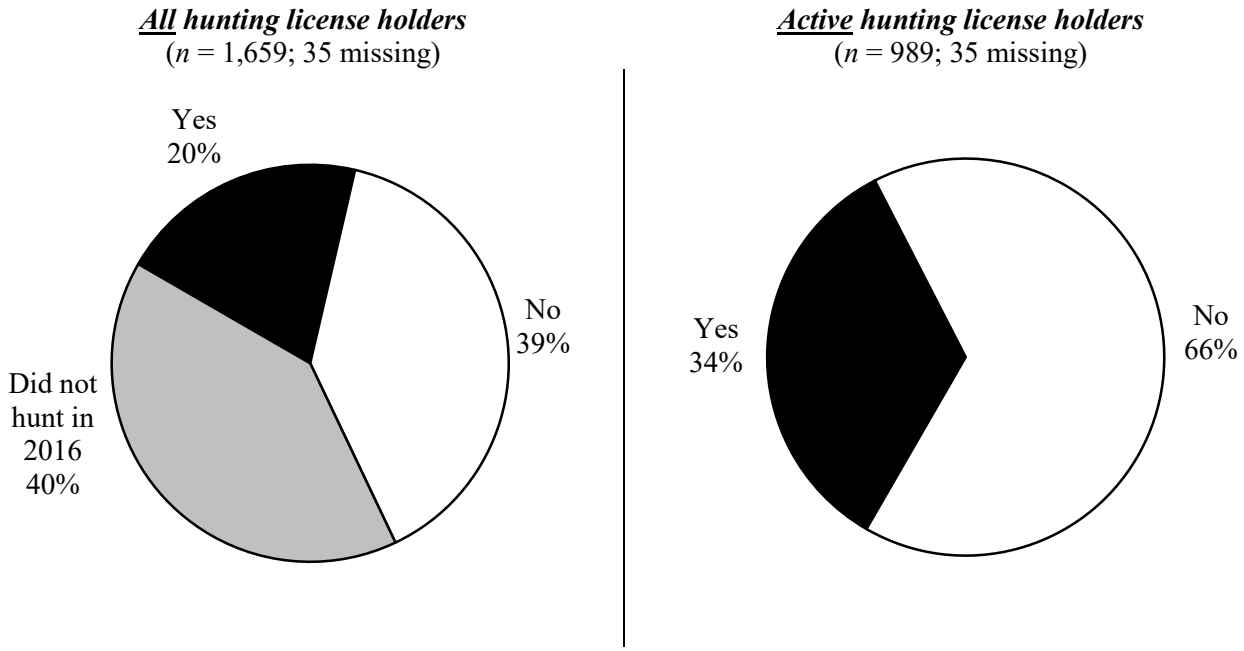


Figure B3. Distribution of hunting license holder use of public land during the 2016 hunting season.

"Considering all Oklahoma hunting seasons in 2016, how much of your hunting occurred on public vs. private land?"

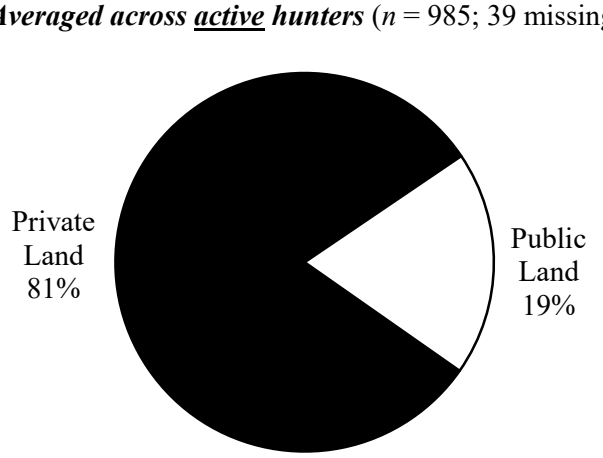


Figure B4. Average proportion of 2016-season hunting that occurred on public or private land, by license holders who hunted during 2016.

[Asked of hunters who used public land:]
"How important is public land to you for your hunting?"

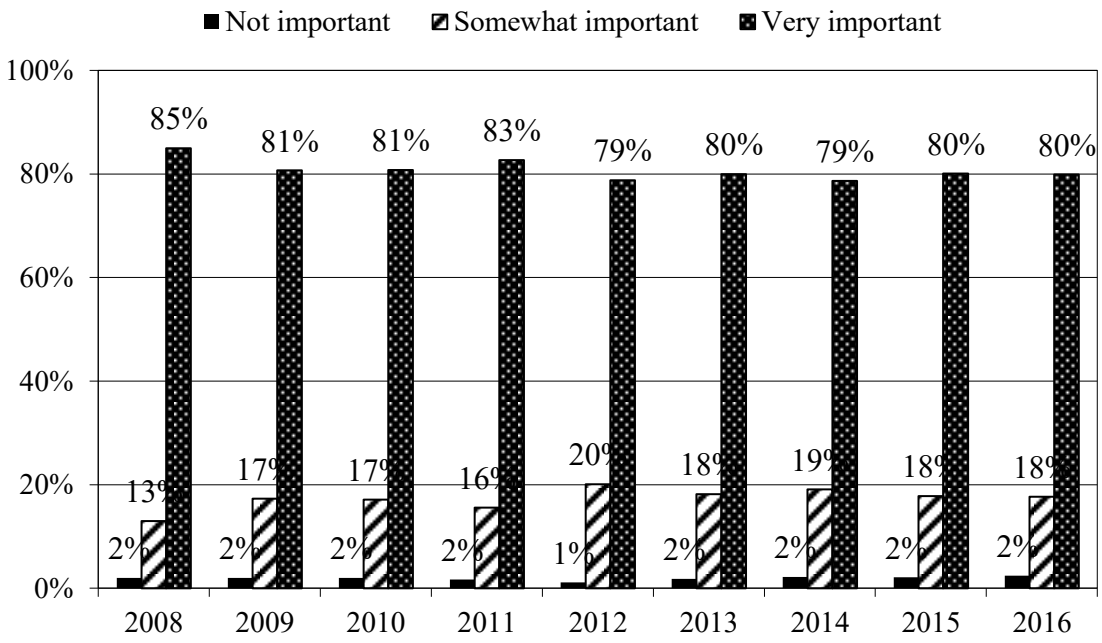


Figure B5. Importance of public land to active hunters who used public land (2008 *n* = 447, 5 missing; 2009 *n* = 497, 15 missing; 2010 *n* = 449, 7 missing; 2011 *n* = 474, 5 missing; 2012 *n* = 452, 4 missing; 2013 *n* = 385, 0 missing; 2014 *n* = 958, 6 missing; 2015 *n* = 512, 2 missing; 2016 *n* = 334, 3 missing).

"Please check the box for each part of Oklahoma where you hunted on public land during 2016, based on the major highways:"

Active hunters 2016 (*n* = 1,024)

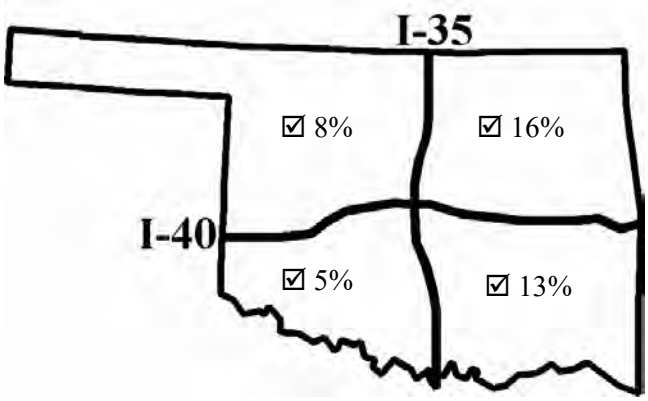


Figure B6. Use of public land located in each region, by active hunting license holders in 2016.

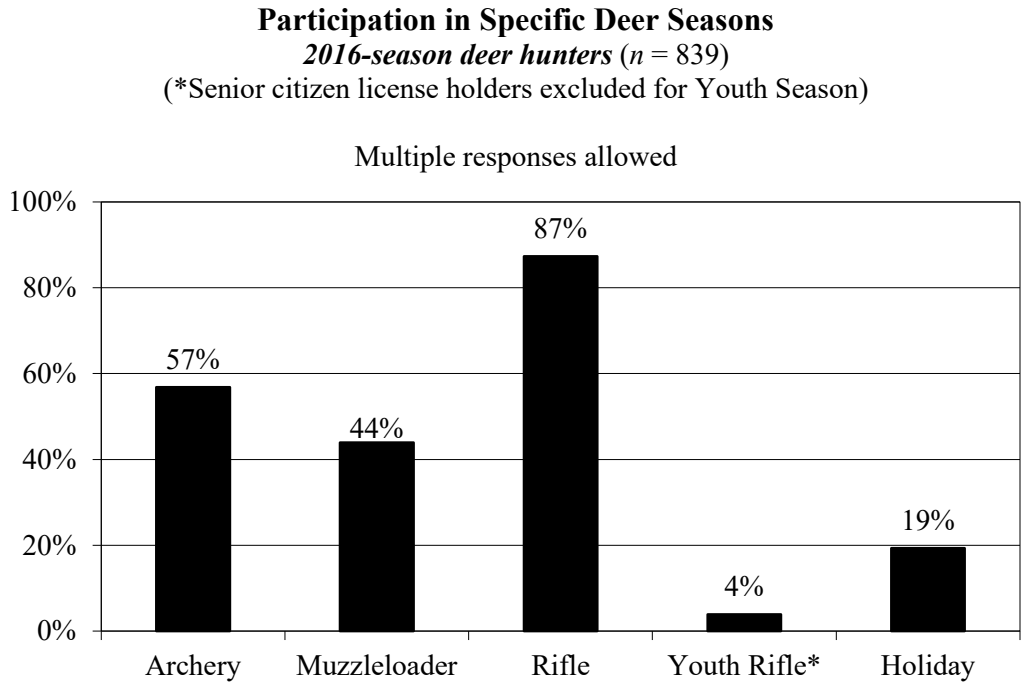


Figure B7. Participation in individual deer seasons, by 2016-season deer hunters.

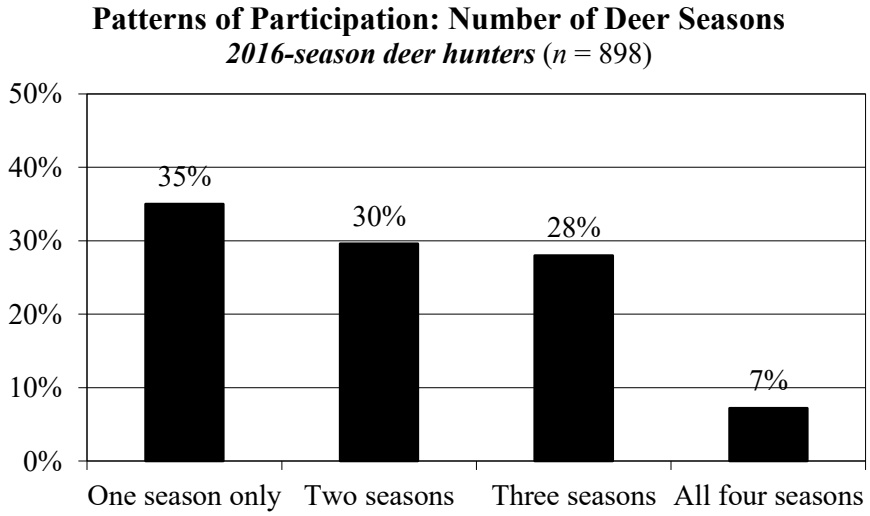


Figure B8. Number of deer seasons (archery, primitive, gun and holiday season; youth season excluded) participated in by 2016-season deer hunters.

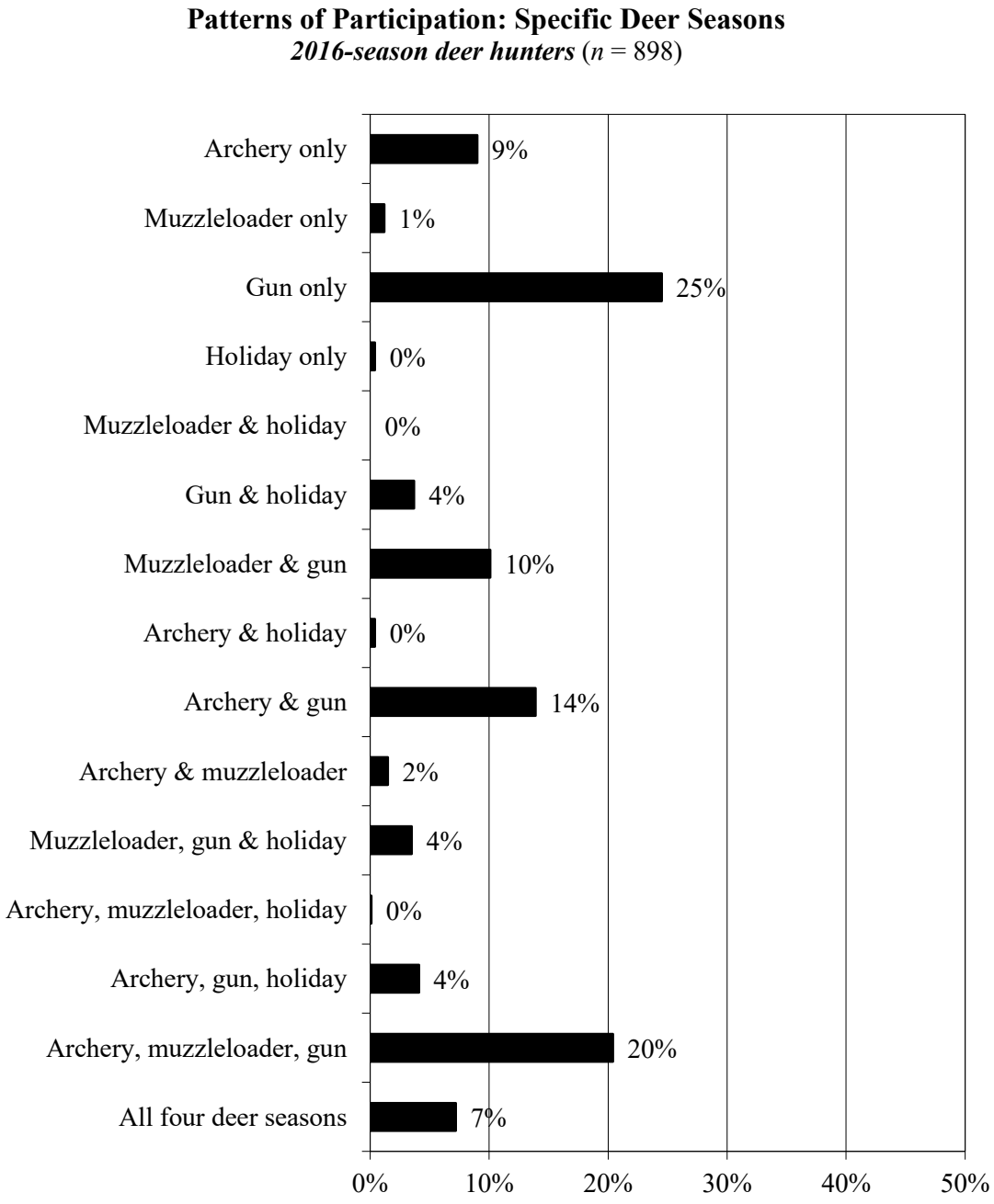


Figure B9. Specific deer seasons (archery, primitive, gun and holiday antlerless season; youth season excluded) participated in by 2016-season deer hunters.

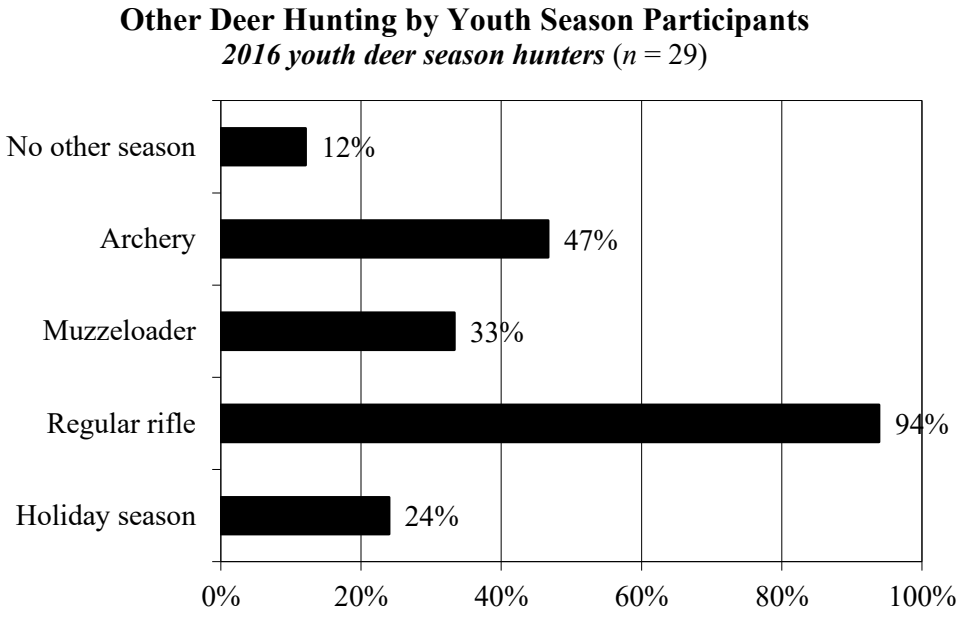


Figure B10. Participation in other deer seasons by 2016 youth deer season hunters.

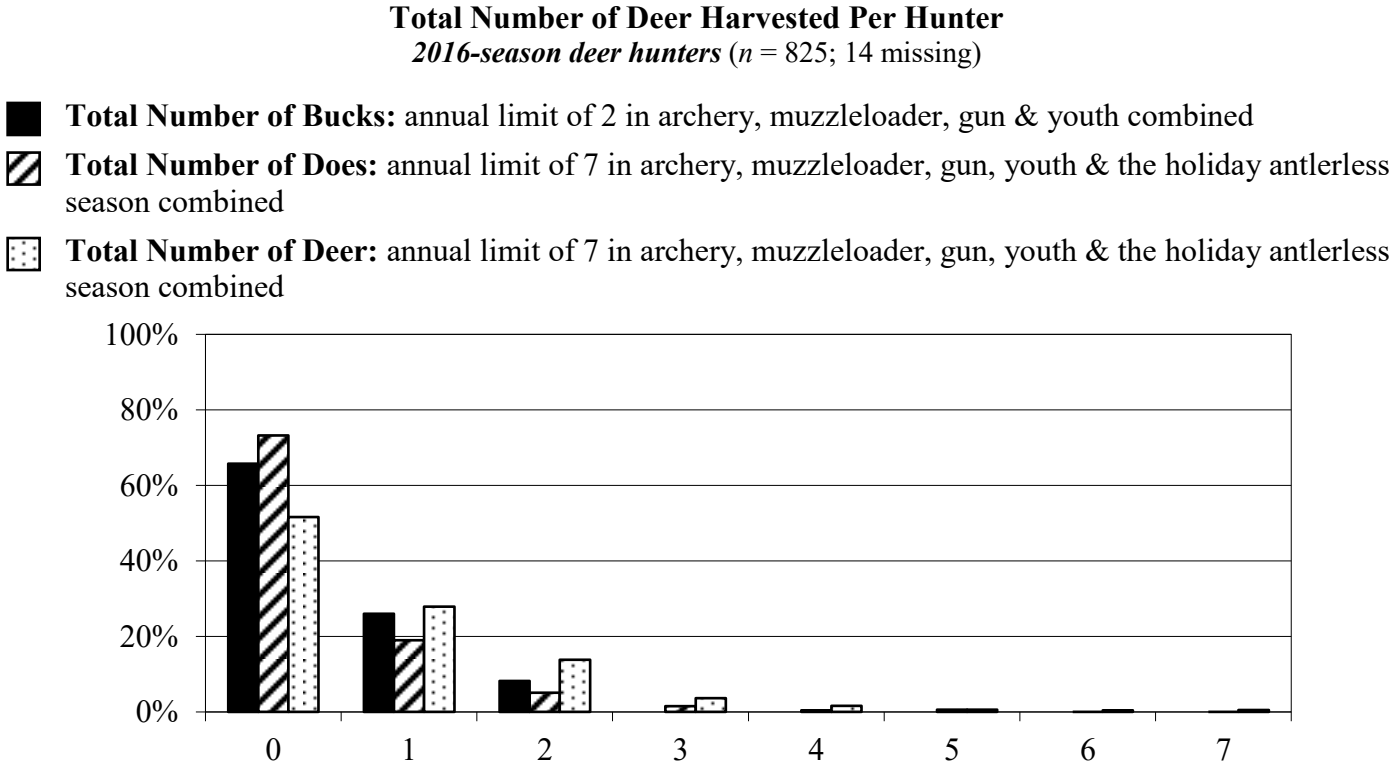


Figure B11. Total number of deer harvested per hunter across all 2016 seasons: archery, muzzleloader, gun, youth, and the holiday antlerless season.

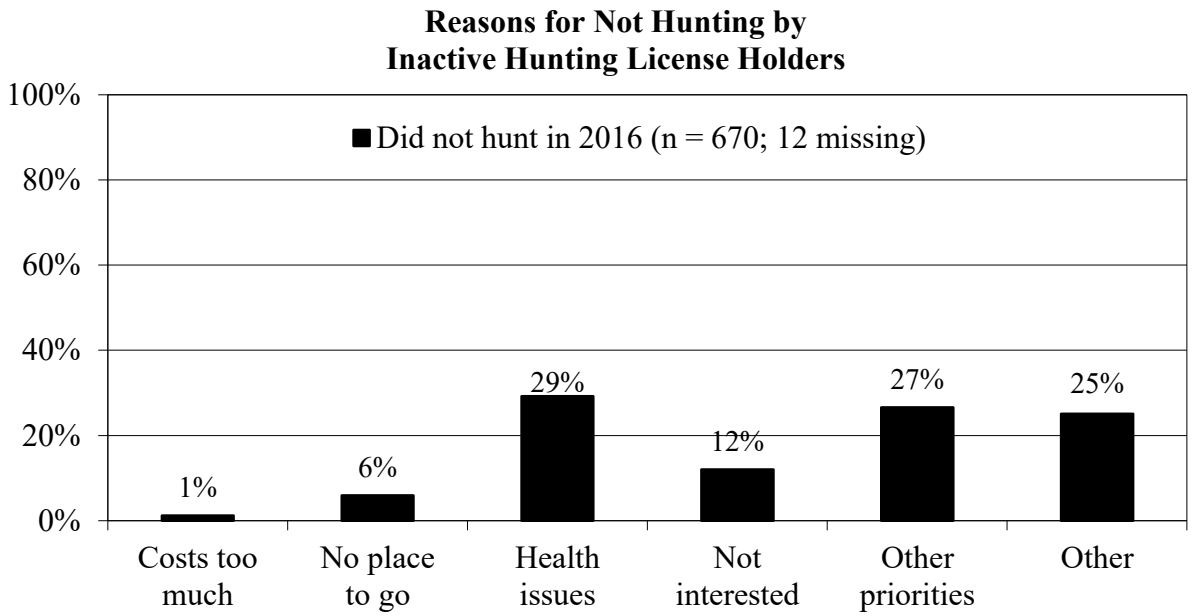


Figure B12. Barriers to hunting participation, by hunting license holders who were inactive in 2016.

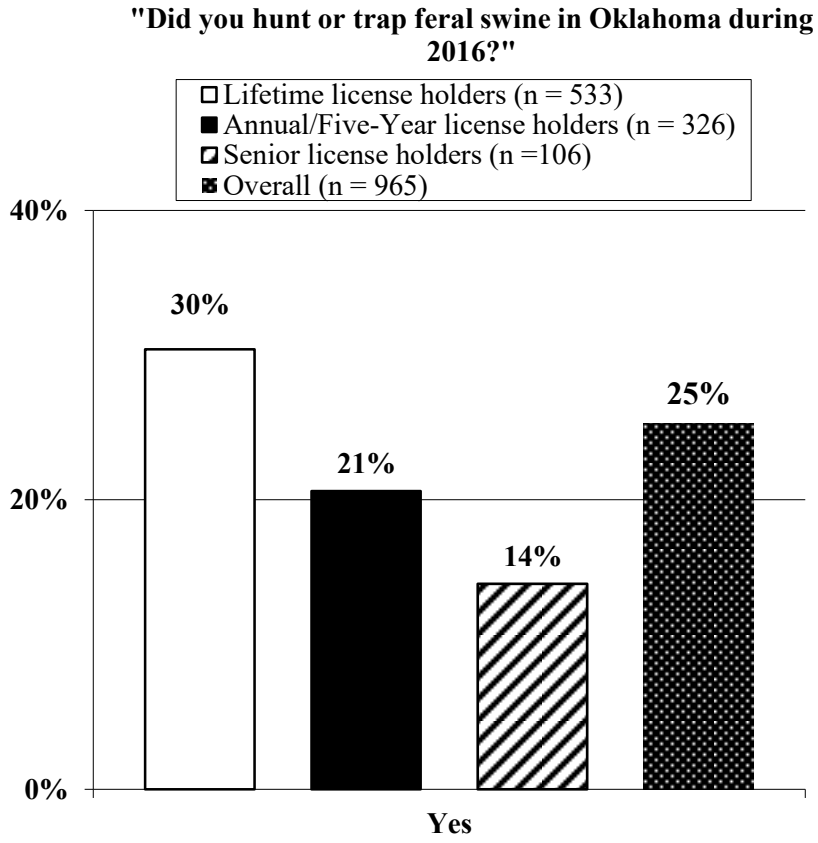


Figure B13. Distribution of hunting license holder participation in feral swine hunting/trapping activities during 2016, by license category. Both hunting and combination-hunting-and-fishing licenses were included in all license categories (n = 965).

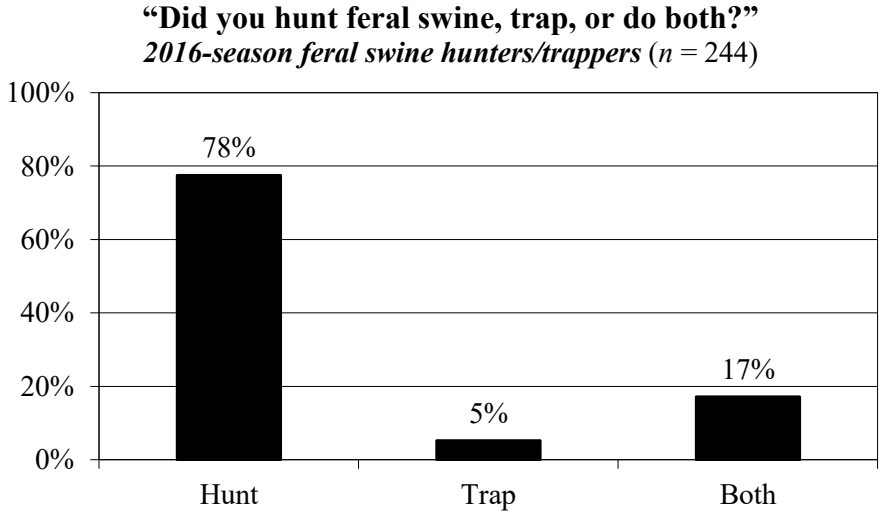


Figure B14. Type of feral swine pursuit (hunting, trapping, or a combination) used by 2016-season feral swine hunters/trappers.

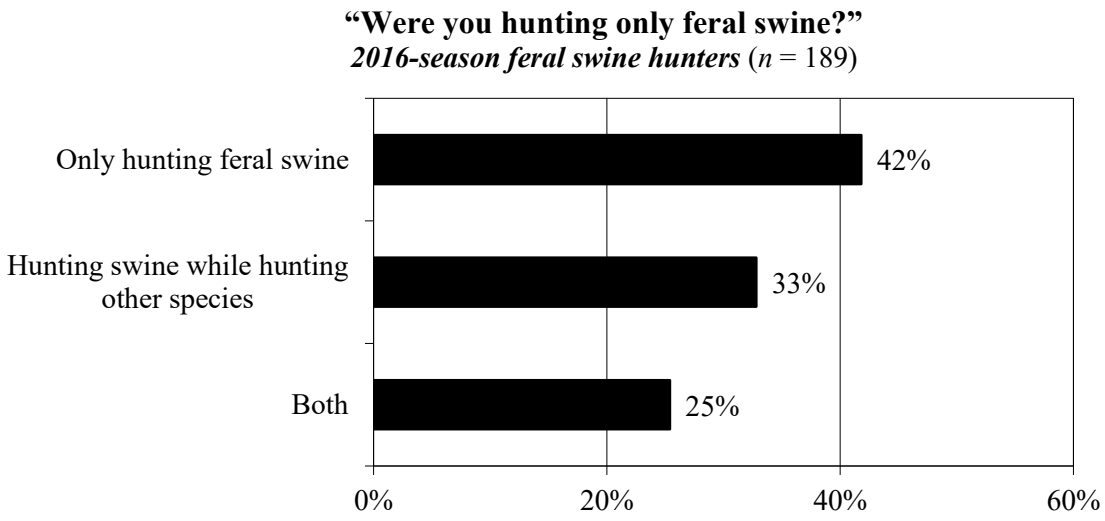


Figure B15. Proportion of feral swine hunters who pursued swine independently, in combination with other species' hunting, or some of both, by 2016-season feral swine hunters.

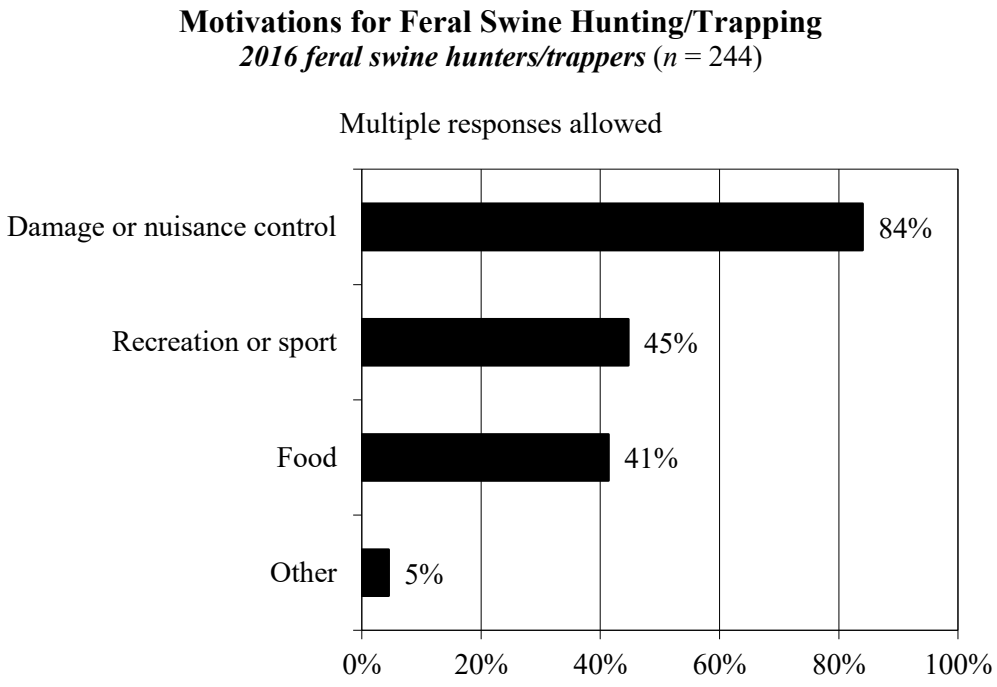


Figure B16. Motivations for hunting or trapping feral swine by 2016 feral swine hunters/trappers.

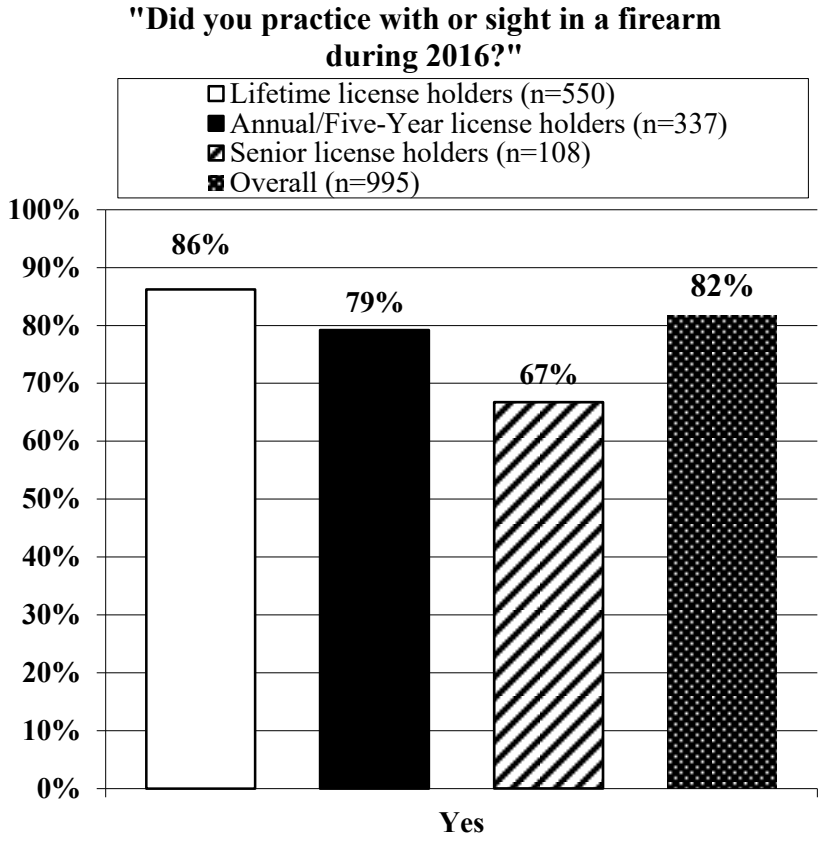


Figure B17. Distribution of hunting license holder participation in practicing or sighting in firearms during 2016, by license category. Both hunting and combination-hunting-and-fishing licenses were included in all license categories (n = 995).

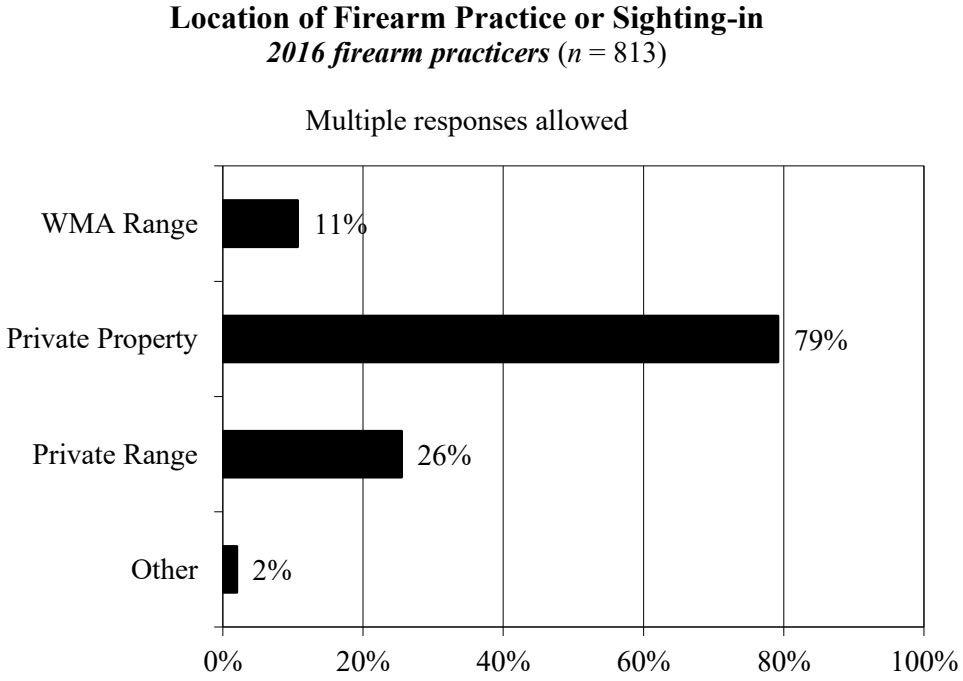


Figure B18. Locations where Oklahoma hunters practiced with or sighted in their firearms during 2016.

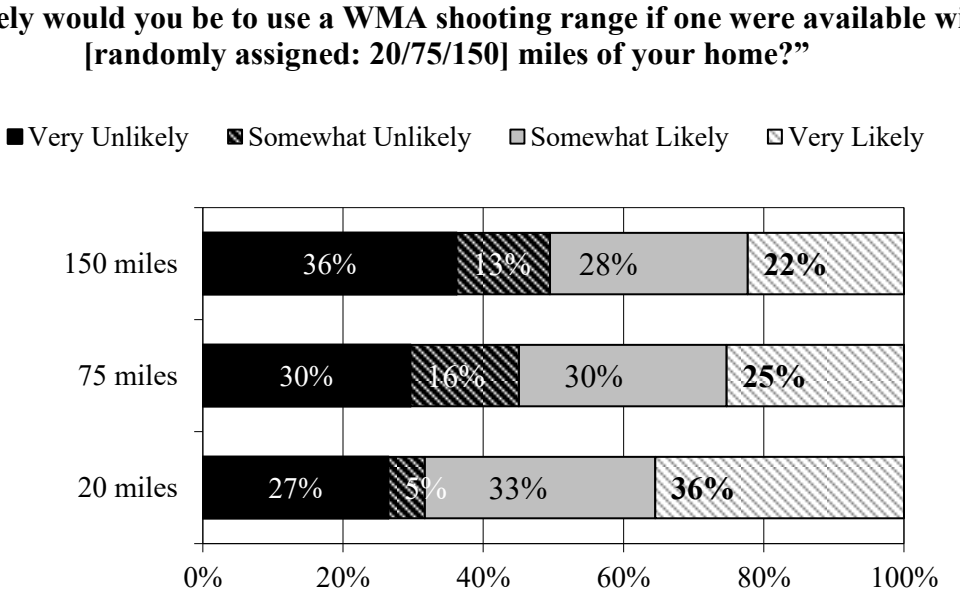


Figure B19. Likeliness of Oklahoma hunters to use a WMA shooting range if one were within a certain distance of their home. Distances were randomly assigned (20 miles *n* = 310; 75 miles *n* = 328; 150 miles *n* =354).

"Oklahoma hunters have the option to check in deer, turkey and elk through the internet instead of at a check station. Have you ever checked in game using the internet?"

2016 active hunters (*n* = 975; 49 missing)

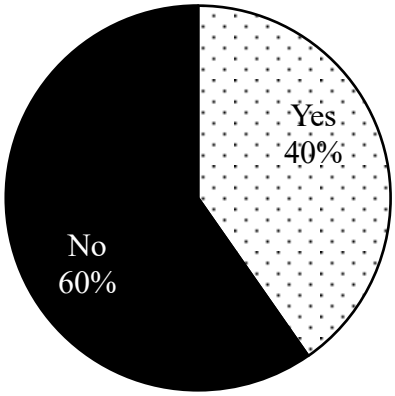


Figure B20. Use of the e-check system, by 2016 deer, turkey, and elk hunters.

"How difficult or easy was the internet check station to use?"

2016 hunters who checked game online (*n* = 470; 6 missing)

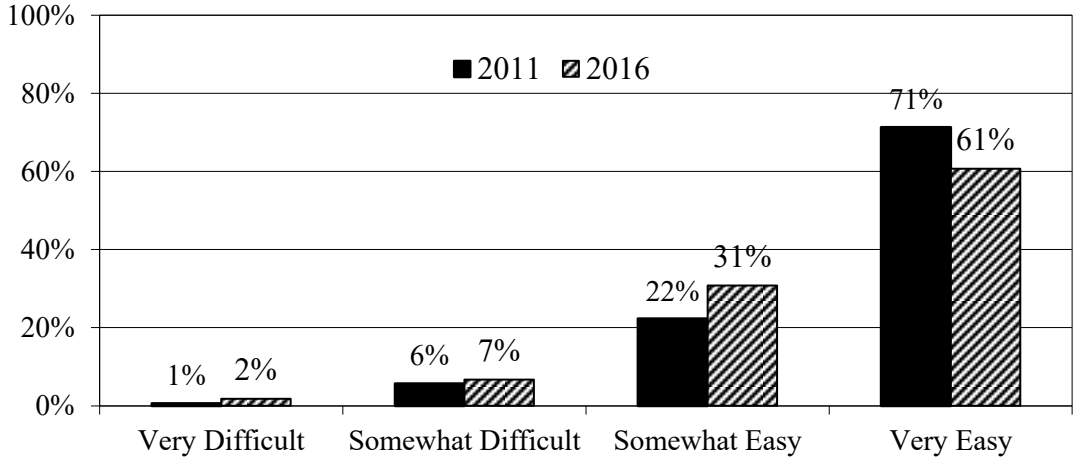


Figure B21. Ease of use of the e-check system, by 2011-season deer hunters and 2016-season deer, turkey, and elk hunters who used the system.

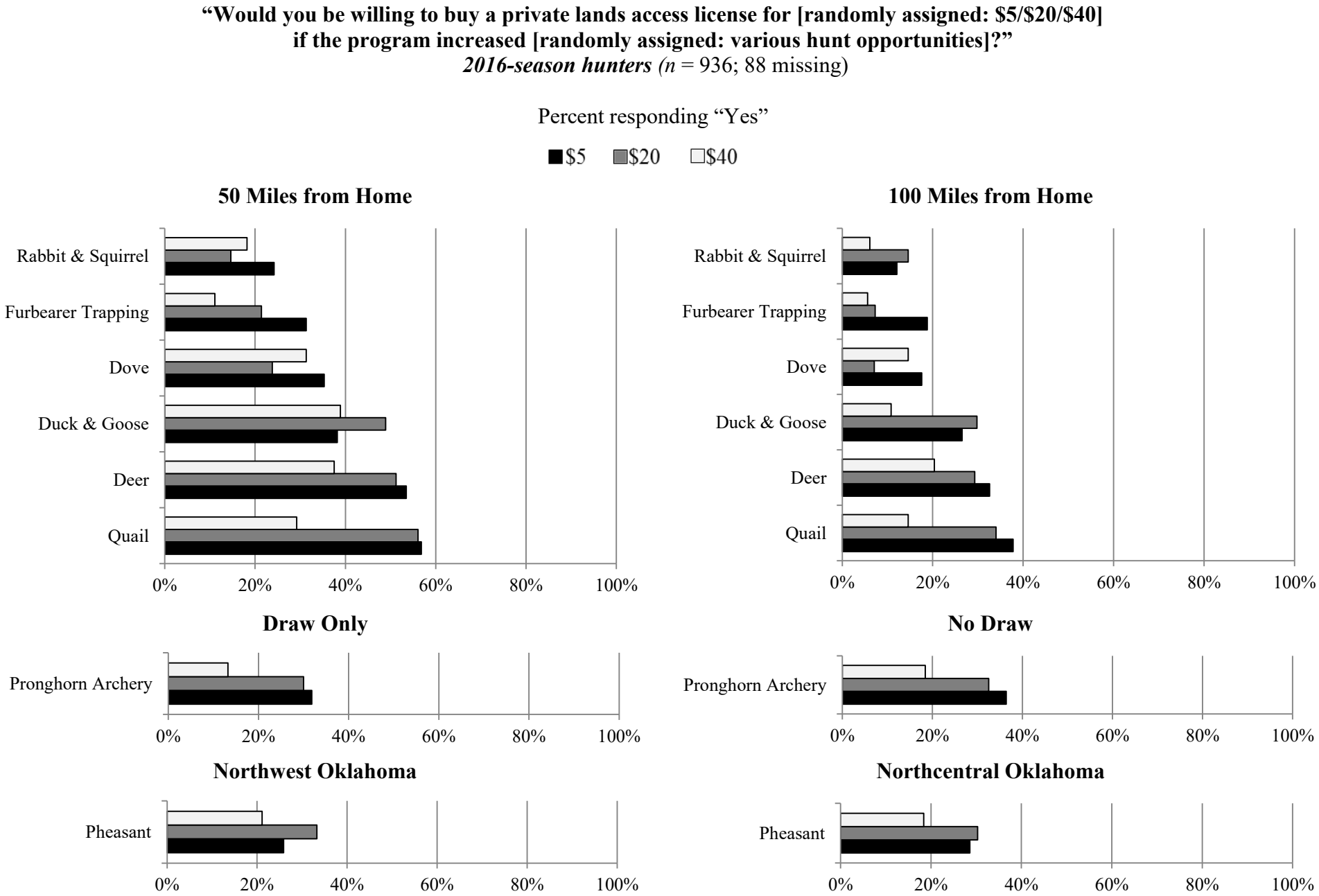


Figure B22. Hunter willingness to pay for private lands hunt permits. Hunt opportunities and permit cost were randomly assigned. Sample sizes for each variation in hunt opportunity ranged from n = 27-48.

Reasons Hunters Not Willing to Purchase OLAP Permit

2016-season hunters that responded "no" to one or both of the OLAP willingness to pay questions (*n* = 603)

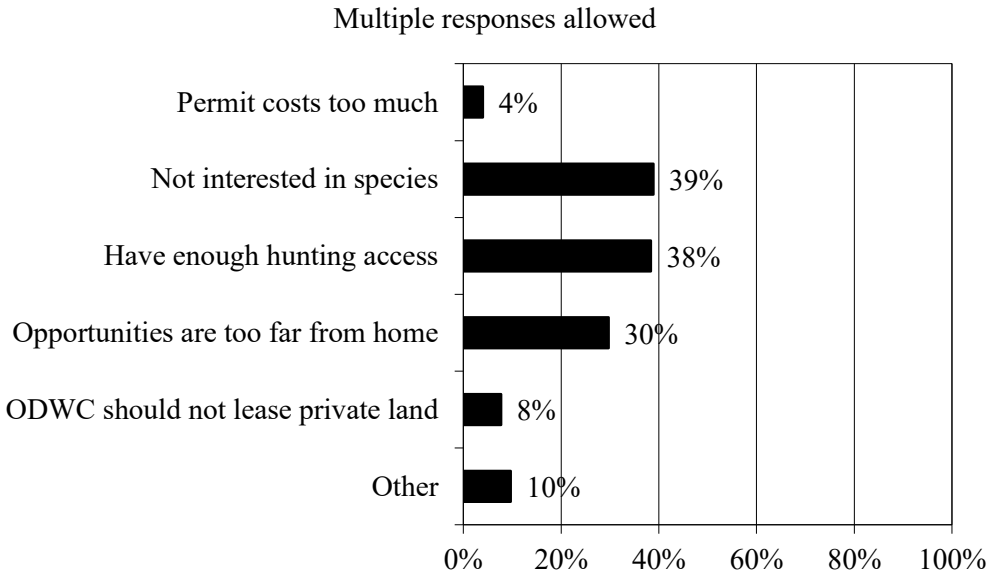


Figure B23. Hunter responses to reasons why they chose not to accept the hypothetical Oklahoma Land Access Program (OLAP) permit described in questions 33 and/or 34 of the 2016-season game harvest survey.

APPENDIX C
Open-ended Responses

Q7. Where did you go to practice or sight in your firearm? (other responses) (*n* = 13):

- The place by Tenkiller Lake.
- Public Shooting Range
- Public range
- Police Shooting Range
- Police range
- Old dirt road
- National Forest (3)
- Lick Creek
- I am not sure if it was national forest or a WMA.
- Edmond PD Range
- A Public Shooting Range

Q9. Name of WMA or description of location where you would like to see a shooting range added (*n* = 355):

- A new one at Canton Lake
- All of them (2)
- Altus Logert; Sandy Sanders
- Altus Lugert (2)
- Any Near Norman
- Any of them
- Any of them. It would help promote firearm safety.
- Any that doesn't have one
- Any WMA land near Altus
- Anything around the Oologah Lake area.
- Anything close to north Oklahoma City
- Anywhere
- Anywhere around Lawton, OK
- anywhere close to Stillwater, Oklahoma
- Anywhere near Durrant
- Anywhere near Tulsa or Brokenarrow
- Arcadia (4)
- Arcadia and Black Kettle
- Around Ufalla, Gerver
- Atoka (2)
- Atoka WMA, Crosstimbers WMA
- Better one at Hickory Creek WMA
- Between El Reno + W. OKC
- Black Kettle (2)
- Blackburn east bend

- Blaine County
- Blue River
- Broken Arrow (2)
- Broken Bow (2)
- By Keystone or Deep Fork
- Camp Gruber. I know it's not a WMA.
- Canadian County
- Candy creek-Skiatook
- Canton or close to OKC
- Canton Wildlife Area (4)
- Cherokee (4)
- Cherokee WMA
- Chickasha Area
- Claremore
- Claremore, OOlogah area
- Clayton
- Cleveland County game range
- Close to OKC (2)
- Close to Tulsa
- Closer to or in Oklahoma County
- Closest one to Piedmont
- Closet one to Tulsa
- Cookinhill near three counties.
- Cookson (2)
- Cookson Hills
- Cooper WMA (3)
- Copan (3)
- Copan Area
- Copan, Fort Gibson, John Dahl, and Keystone
- Cottonwood Creek (2)
- Creek County
- Crosstimbers (2)
- Custer County
- Deep Fork Okmulgee
- Deep Fork WMA (4)
- Don't know
- Draper Lake
- Drummond Flats (3)
- Edmond
- Ellis County
- Eufala WMA, Cherokee WMA
- Eufaula WMA (2)
- Fort Cobb (5)

- Foss
- Foss Lake; Crowder Lake
- Foss, Oklahoma
- Ft. Gibson (8)
- Ft. Gibson Wildlife Management
- Ft. Gibson WMA; Wagoner, OK
- Ft. Gibson/Wagoner
- Ft. Supply (2)
- Grady County
- Greasy Bend Rd Stringtown, OK
- Great idea anywhere possible
- Great Salt Plains
- Grouber
- Guthrie
- Hackberry Flats
- Hackberry Flats, Tom Steed, Ft. Cobb
- Hal and Fern
- Heyborn WMA (3)
- Heyburn/Skiatook
- Hickory Creek (2)
- Hickory Creek WMA has a range that I use. I would like to see it made available to have longer range targets.
- Hickory Creek-UPGRADE
- Hugo WMA (3)
- Hulah (3)
- Hulah, Rock Creek, Western Wall
- I do not know what is close. I am NW corner Grant County
- I would be open to having more options available.
- I would like them to make the one near my house bigger.
- I would like to see all the GRDA land in Ottawa County, OK used for the use of public land so kids could have a place to hunt around here.
- I would like to see it extended
- Improvements at WMA at Camp Gruber
- It is by the Kerr-McClellan Dam.
- It's in Oolagah
- James Colllins WMA (2)
- James White
- Kaw WMA (10)
- Kaw-Ponca City
- Kellyville
- Keota, OK
- Kerr
- Keystone WMA (6)

- Lake Arcadia
- Lake Oolagah Area
- Lake Thunderbird SP (8)
- Lawton
- Le Flore county
- Lexington (9)
- Lexington PHA
- Lick Creek, James Collins, or near Robber's Cave
- Little River, Hugo, Pine Creek
- Logan County.
- Mannford, OK area
- Marshall County
- McAlester, OK
- McClellan-Kerr or OverCup Bottoms
- McCurtain County (4)
- Mcgee
- McGee Creek Atoka, Oklahoma
- McGee Creek Wildlife Management Area
- Moore Area
- Muskogee or Cherokee
- Near Claremore
- Near Mannford and Keystone Lake.
- Near Miami
- Near norman; The pubic outdoor range in Lexington is great until the uneducated ones bring their children w/no rules and let them shoot whatever/whenever they want; very dangerous.
- Near OK City (2)
- Near OKC and Lake Eufaula
- Near Stillwater
- Near Sulphur, OK
- Near Washita, OK
- Near Wilburton.
- Norman if there is not already one there
- Northeast bertigus area
- Northwest Area
- Not sure what is in my area. I live on Lake Hudson.
- Nothing close to Piedmont
- OKC metro area (2)
- Okmulgee WMA (6)
- One around the Triple Lake.
- One near Oklahoma City.
- Oolagah Lake Area
- Oologah Lake somewhere near Claremore, OK
- Oologah WMA (8)

- Optima
- Optima needs something a little bigger but also needs to be patrolled for hunting license verification.
- Osage
- Over by Keystone Lake Reserve
- Over by Oilton
- Overcup just NE of nowata
- Overholser
- Packsaddle WMA
- Pushmataha
- Pushmataha and McCurtain
- Rereg area on Mt Fork River
- Rocky Point
- Roman Nose if not one there already
- Salt Plains WMA (8)
- Salt Plains, Drummond Flats, Canton
- Sandy Sanders WMA (3)
- Sandy Sanders WMA, Waurika WMA, if possible on US ACE-owned property
- Sarge or Coon Creek
- Sequoyah County
- Sequoyah Wildlife Vian OK
- Skiatook WMA (5)
- Slaughterville
- Somewhere in Oklahoma County
- South of Jay, OK
- Southeartern part of the State
- Southern Oklahoma
- Southwest ok
- Spavinaw WMA (2)
- Stephens County
- Stringtown
- Tenkiller
- Texas County
- Texoma, Washita, Tishomingo
- The city of Prague just built one but haven't let anyone use it yet, just the cops.
- The one south of Wilson, OK on Hwy 76
- The place north of Dutchess Creek Cove at Lake Eufala
- Three Rivers WMA (6)
- Three Rivers WMA, close to walk in; turkey hunting north of 259 Hwy
- Tishomingo, Ok. They have one already but very ran down and not well maintained.
- Tom Steed
- Tulsa Area (2)
- Unsure

- Upgrade Fort Supply WMA
- Wagner county (2)
- Washinga Bay on Kaw Lake
- Washita WMA
- Waurika Area (8)
- Waurika Lake (2)
- Waurika Lake area
- Waurika luma
- Webber Falls Public Hunting Area
- Welty
- Westside of Hugo Lake
- Whisker
- Wichita Mountains (5)
- Wister WMA (9)
- Yourmans WMA (3)

Q25g. Why do you hunt/trap feral swine? (other responses) (*n* = 11):

- They've hurt my deer numbers over the years.
- They destroy turkey and quail nest
- They can carry bugs and forms of rabies that can be passed to livestock.
- They are runing deer hunting
- Target practice
- Sell to state certified buyers
- It's fun
- It's a good time with my buddies and something to do during off season.
- Donate to people that need them. Never waste them.
- Damaging land
- Because I enjoy it

Q35. If you answered "no" to either of the above questions, why not? (other responses) (*n* = 40):

- Where I hunt is about 100 miles from home on public land in Kay County
- We do not fur trap.
- We are moving.
- Too far away, gas is expensive.
- Take care of what we have-Wagoner County
- Public hunting is very dangerous
- People won't let you hunt on their land. People like to watch the deer but won't let you hunt and we have a lot of car accidents around here.
- Old age
- Not interested in getting another hunt or another license
- Not for Department of Wildlife leasing private land
- Lifetime license holder is lifetime

- landowners in specific regions when the same hunting opportunities could be arranged between landowners and hunters already. Further, the state should not create a situation like this that could be deemed as interfering with private enterprise.
- If the new license were for guns I would consider it.
- I'm too old
- I'm not interested in that type of hunting.
- I'm exempt
- I just mainly hunt private land
- I have land 100 miles or less to hunt
- I have 5200 acres
- I don't know how it would work. There's not many people interested in hunting squirrel and rabbit.
- I don't bow hunt and I'm not interested in antelope.
- I do not hunt anything
- I am disabled.
- Health issues
- Don't want to pay for other hunters
- Don't quail hunt
- Don't care for the idea at all
- Can barely afford license and tags now

APPENDIX D
Survey Instrument

2016-Season Game Harvest Survey

Please help the Department of Wildlife by participating in this study, **even if you did not hunt last year!**

The Oklahoma Department of Wildlife Conservation is conducting a statewide survey of hunting license holders. We are interested in learning about the seasons you hunted in 2016 (if any) and the game you harvested. Your answers will help us improve wildlife conservation in Oklahoma. Your answers will be kept confidential.

You are one of a few hunting license holders we have contacted, and we need your help - even if you didn't hunt. You can complete the survey either by mail or by phone. If we do not receive your survey in the mail, we will try to contact you by phone.

If you have any questions or would like a copy of the report from this study, please call Corey Jager at (405) 521-4651. Your help in this project is greatly appreciated and we look forward to learning about your 2016 hunting experiences!

1

Please answer the following questions about your Oklahoma hunting experience in 2016, **even if you did not hunt**. Your information will help the Oklahoma Department of Wildlife Conservation manage the wildlife populations in our state. Your answers will be kept strictly confidential. Thank you for your help!

1. Did you hunt in Oklahoma during 2016?

☐ Yes → If yes: please continue with survey on the next page →

☐ No → **1a.** What was the **main** reason you did not hunt last year?

☐ Costs too much ☐ No place to go ☐ Health issues
☐ Not interested ☐ Other priorities ☐ Other

If you **did not hunt** in Oklahoma during 2016, your survey is complete! Please mail it today. Otherwise, please continue to question 2.

Public Land & Shooting Ranges

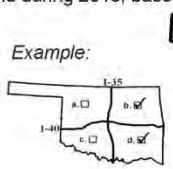
2. Did you use public land for any portion of your hunting in Oklahoma during 2016?

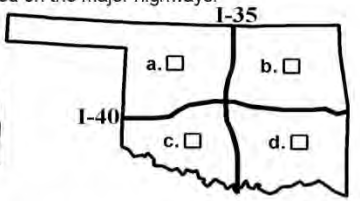
(Public land might include Wildlife Management Areas, Wildlife Refuges, Corps of Engineers land, State Parks, city-owned land, etc. NOT privately owned land.)

☐ No → If no, go to question 6.
☐ Yes

3. Please check (☑) the box for **each** part of Oklahoma where you hunted on public land during 2016, based on the major highways:

Example:





4. How important is public land to you for hunting?

☐ Very important
☐ Somewhat important
☐ Not important

5. Considering all Oklahoma hunting seasons in 2016, how much of your hunting occurred on public vs. private land?

_____% **Public** land
_____% **Private** land
Total should equal: **100%**

6. Did you practice with or sight in a firearm during 2016?

- ☐ Yes
- ☐ No → If no, go to question 8
- ☐ Unsure

7. Where did you go to practice or sight in your firearm? *Check all that apply.*

- ☐ Wildlife Management Area shooting range
- ☐ Private property
- ☐ A private shooting range
- ☐ Other: _____

8. How likely or unlikely would you be to use a WMA shooting range if one were available within 20 miles of your home?

☐	☐	☐	☐
Not very likely	*Somewhat unlikely*	*Somewhat likely*	*Very likely*

9. The Wildlife Department is considering building new shooting ranges on its Wildlife Management Areas. Is there a WMA you would like to see a shooting range added to?

- ☐ No
- ☐ Yes → *Name of WMA or description of location*: _____

Hunting in Oklahoma during 2016

Please complete the box for each season <u>you</u> hunted in Oklahoma during 2016 (not others in your household or hunting party). If you are unsure about exact numbers, please estimate.

10. Quail

a. Did you hunt **quail** in Oklahoma during 2016? ☐ Yes ☐ No
(If not, skip to next box.)
b. How many days did you hunt quail? _____
c. How many quail did you harvest? _____ ☐None
d. County you hunted quail most often? _____
(If unsure, what town is closest?)
e. Land used for quail hunting? ☐Public ☐Private ☐Both

If you hunted quail on <u>public</u> land at all during 2016:
f. How many days did you hunt quail on public land? ____
g. How many quail did you harvest on public land? ____

11. Pheasant

a. Did you hunt **pheasant** in Oklahoma during 2016? ☐ Yes ☐ No
(If not, skip to next box.)
b. How many days did you hunt pheasant? _____
c. How many pheasant did you harvest? _____ ☐ None
d. County you hunted pheasant most often? _____
(If unsure, what town is closest?)
e. Land used for pheasant hunting? ☐ Public ☐ Private ☐ Both

If you hunted pheasant on <u>public</u> land at all during 2016:
f. How many days did you hunt pheasant on public land? ____
g. How many pheasant did you harvest on public land? ____

12. Dove

a. Did you hunt **dove** in Oklahoma during 2016? ☐ Yes ☐ No
(If not, skip to next box.)
b. How many days did you hunt dove? _____
c. How many dove did you harvest? _____ ☐ None
d. County you hunted dove most often? _____
(If unsure, what town is closest?)
e. Land used for dove hunting? ☐ Public ☐ Private ☐ Both

If you hunted dove on <u>public</u> land at all during 2016:
f. How many days did you hunt dove on public land? _____
g. How many dove did you harvest on public land? _____

13. Woodcock

a. Did you hunt **woodcocks** in Oklahoma during 2016? ☐ Yes ☐ No
(If not, skip to next box.)
b. How many days did you hunt woodcocks? _____
c. How many woodcocks did you harvest? _____ ☐ None
d. County you hunted woodcocks most often? _____
(If unsure, what town is closest?)
e. Land used for woodcock hunting? ☐ Public ☐ Private ☐ Both

If you hunted woodcocks on <u>public</u> land at all during 2016:
f. How many days did you hunt woodcocks on public land? _____
g. How many woodcocks did you harvest on public land? _____

14. Spring Turkey

a. Did you hunt **spring turkey** in Oklahoma during 2016? ☐ Yes ☐ No
(If not, skip to next box.)
b. How many days did you hunt spring turkey? _____
c. How many spring turkey did you harvest? _____ ☐ None
d. County you hunted spring turkey most often? _____
(If unsure, what town is closest?)
e. Land used for spring turkey hunting? ☐ Public ☐ Private ☐ Both

If you hunted turkey on <u>public</u> land at all during spring 2016:
f. How many days did you hunt spring turkey on public land? _____
g. How many spring turkey did you harvest on public land? _____

15. Fall Turkey

a. Did you hunt **fall turkey** in Oklahoma during 2016? ☐ Yes ☐ No
(If not, skip to next box.)
b. How many days did you hunt fall turkey? _____
c. What did you harvest? ☐ Hen ☐ Tom ☐ No fall turkey harvested
d. County you hunted fall turkey most often? _____
(If unsure, what town is closest?)
e. Land used for fall turkey hunting? ☐ Public ☐ Private ☐ Both

If you hunted turkey on <u>public</u> land at all during fall 2016:
f. How many days did you hunt fall turkey on public land? _____
g. How many fall turkey did you harvest on public land? _____

16. Gray Squirrel

a. Did you hunt **gray squirrels** in Oklahoma during 2016? ☐ Yes ☐ No
(If not, skip to next box.)
b. How many days did you hunt gray squirrels? _____
c. How many gray squirrels did you harvest? _____ ☐ None
d. County you hunted gray squirrels most often? _____
(If unsure, what town is closest?)
e. Land used for gray squirrel hunting? ☐ Public ☐ Private ☐ Both

If you hunted gray squirrels on <u>public</u> land at all during 2016:
f. How many days did you hunt gray squirrels on public land? _____
g. How many gray squirrels did you harvest on public land? _____

17. Fox Squirrel

a. Did you hunt **fox squirrels** in Oklahoma during 2016? ☐ Yes ☐ No
(If not, skip to next box.)
b. How many days did you hunt fox squirrels? _____
c. How many fox squirrels did you harvest? _____ ☐ None
d. County you hunted fox squirrels most often? _____
(If unsure, what town is closest?)
e. Land used for fox squirrel hunting? ☐ Public ☐ Private ☐ Both

If you hunted fox squirrels on <u>public</u> land at all during 2016:
f. How many days did you hunt fox squirrels on public land? _____
g. How many fox squirrels did you harvest on public land? _____

18. Cottontail Rabbit

a. Did you hunt **cottontail rabbits** in Oklahoma during 2016? ☐ Yes ☐ No
(If not, skip to next box.)
b. How many days did you hunt cottontail rabbits? _____
c. How many cottontail rabbits did you harvest? _____ ☐ None
d. County you hunted cottontail rabbits most often? _____
(If unsure, what town is closest?)
e. Land used for cottontail rabbit hunting? Public ☐ Private ☐ Both

If you hunted cottontail rabbits on <u>public</u> land at all during 2016:
f. How many days did you hunt cottontail rabbits on public land? _____
g. How many cottontail rabbits did you harvest on public land? _____

19. Jackrabbit

a. Did you hunt **jackrabbits** in Oklahoma during 2016? ☐ Yes ☐ No
(If not, skip to next box.)
b. How many days did you hunt jackrabbits? _____
c. How many jackrabbits did you harvest? _____ ☐ None
d. County you hunted jackrabbits most often? _____
(If unsure, what town is closest?)
e. Land used for jackrabbit hunting? ☐ Public ☐ Private ☐ Both

If you hunted jackrabbits on <u>public</u> land at all during 2016:
f. How many days did you hunt jackrabbits on public land? _____
g. How many jackrabbits did you harvest on public land? _____

20. Swamp Rabbit

a. Did you hunt **swamp rabbits** in Oklahoma during 2016? ☐ Yes ☐ No
(If not, skip to next box.)
b. How many days did you hunt swamp rabbits? _____
c. How many swamp rabbits did you harvest? _____ ☐ None
d. County you hunted swamp rabbits most often? _____
(If unsure, what town is closest?)
e. Land used for swamp rabbit hunting? ☐ Public ☐ Private ☐ Both

If you hunted swamp rabbits on <u>public</u> land at all during 2016:
f. How many days did you hunt swamp rabbits on public land? _____
g. How many swamp rabbits did you harvest on public land? _____

21. Crow

a. Did you hunt **crows** in Oklahoma during 2016? ☐ Yes ☐ No
(If not, skip to next box.)
b. How many days did you hunt crows? _____
c. How many crows did you harvest? _____ ☐ None
d. County you hunted crows most often? _____
(If unsure, what town is closest?)
e. Land used for crow hunting? ☐ Public ☐ Private ☐ Both

If you hunted crows on <u>public</u> land at all during 2016:
f. How many days did you hunt crows on public land? _____
g. How many crows did you harvest on public land? _____

22. Ducks

a. Did you hunt **ducks** in Oklahoma during 2016? ☐ Yes ☐ No
(If not, skip to next box.)
b. Land used for duck hunting? ☐ Public ☐ Private ☐ Both

23. Geese

a. Did you hunt **geese** in Oklahoma during 2016? ☐ Yes ☐ No
(If not, skip to next box.)
b. Land used for goose hunting? ☐ Public ☐ Private ☐ Both

24. Furbearers

a. Did you hunt or trap **furbearers** in Oklahoma during 2016?
☐ Yes ☐ No *(If not, skip to next box)*

b. Which did you hunt or trap?		c. How many days?		d. How many did you harvest?
☐ Coyote	→	_____	→	_____
☐ Bobcat	→	_____	→	_____
☐ Raccoon	→	_____	→	_____
☐ Beaver	→	_____	→	_____
☐ Otter	→	_____	→	_____
☐ Gray fox	→	_____	→	_____
☐ Red fox	→	_____	→	_____

Feral Swine Hunting/Trapping in 2016

25. Feral Swine

a. Did you hunt or trap **feral swine** in Oklahoma during 2016? (*If not, skip to question 26.*) ☐ Yes ☐ No

b. Did you hunt, trap or do both? *Check all that apply and fill in columns below.* ☐ Hunt ☐ Trap

c. How many days? _____ _____

d. How many did you harvest? _____ _____

e. County you hunted/trapped most often? _____ _____

f. If you **hunted** feral swine: were you ONLY hunting for feral swine, or were you hunting them while you were out hunting other species?

Select one.
- ☐ Only hunting feral swine
- ☐ While hunting other species
- ☐ Some of both

g. Why do you hunt/trap feral swine? *Check all that apply.*
- ☐ Recreation or sport
- ☐ Damage or nuisance control
- ☐ Food
- ☐ Other: _____

Deer Hunting in 2016

26. Deer

a. Did you hunt **deer** in Oklahoma during 2016?
☐ Yes ☐ No → *(If you did not hunt deer during 2016, skip to 32.)*

b. County you hunted deer most often? _____
(If unsure, what town is closest?)

c. Land used for deer hunting? ☐ Public ☐ Private ☐ Both

27. Deer: Archery Season

a. Did you hunt **deer** during **archery** season? (Oct. 1 - Jan. 15)
☐ **Yes** ☐ No *(If not, skip to 28.)*

b. How much of your archery hunting was done with a crossbow?
☐All or most ☐Some ☐None

c. How many **days** did you hunt during archery? _____
d. Number of **bucks** harvested during archery? _____☐ None
e. Number of **does** harvested during archery? _____☐ None

28. Deer: Muzzleloader Season

a. Did you hunt **deer** during **muzzleloader** season? (Oct. 22 - 30)
☐ **Yes** ☐ No *(If not, skip to 28.)*

b. How many **days** did you hunt during muzzleloader? _____
c. Number of **bucks** harvested during muzzleloader? _____☐ None
d. Number of **does** harvested during muzzleloader? _____☐ None

29. Deer: Youth Gun Season

a. Did you participate in the **youth deer gun** season in October as a youth hunter? (Oct. 14 – 16) *(If not, skip to 30.)*
☐ Yes ☐ No

b. How many **days** did you hunt during youth season? _____
c. Number of **bucks** harvested during youth season? _____ ☐ None
d. Number of **does** harvest during youth season? _____ ☐ None

30. Deer: Regular Gun Season

a. Did you hunt **deer** during the **regular gun** season? (Nov. 19 – Dec. 4)
☐ Yes ☐ No *(If not, skip to 31.)*

b. How many **days** did you hunt during gun season? _____
c. Number of **bucks** harvested during gun season? _____ ☐ None
d. Number of **does** harvest during gun season? _____ ☐ None

31. Deer: Holiday Antlerless Gun Season

a. Did you hunt **deer** during the **holiday antlerless deer gun** season? (Dec. 16 - 25)
☐ Yes ☐ No

b. How many **days** did you hunt during holiday season? _____
c. Number of **does** harvested during holiday season? _____ ☐ None

32. Did you use the ODWC internet check station for deer, turkey, or elk during 2016?

☐ No
☐ Yes → How difficult or easy was the internet check station to use?

☐	☐	☐	☐
Very difficult	*Somewhat difficult*	*Somewhat easy*	*Very easy*

Land Access Program

The Oklahoma Land Access Program is a new Wildlife Department program which leases private land for public hunting opportunities. This land could be used by hunters who buy an additional license.

33. Would you be willing to buy a private lands access license for **$5** in addition to the cost of your hunting license, if the program increased **dove hunting opportunities 50 miles from your home**?

☐ Yes ☐ No ☐ Unsure

34. Would you be willing to buy a private lands access license for **$5** in addition to the cost of your hunting license, if the program increased **dove hunting opportunities 100 miles from your home**?

☐ Yes ☐ No ☐ Unsure

35. If you answered "no" to either of the above questions, why not?
Check all that apply.

☐ Permit costs too much
☐ Not interested in those species
☐ Opportunities are too far from home
☐ Do not think the Wildlife Department should lease private land
☐ Have enough access to hunting property (leased or owned)
☐ Other: _____

36. **a**. What species would you most prefer to hunt as part of the private lands access program, and where?

Game species (list only one):_____
County or nearest town (list only one):_____

b. If the additional private lands license cost you **$5** for the hunt you described in **36a**, would you:

☐ Buy the private lands license and go on the described hunt.
OR
☐ Not buy the private lands license, and go on a hunt that does not require the license.

Thank you! Your survey is complete.

The Oklahoma Department of Wildlife Conservation, or ODWC, is the agency responsible for managing fish and wildlife in the state. ODWC issues hunting and fishing licenses, and provides important information about outdoor recreation to the public. ODWC enforces rules and regulations, and has numerous programs to provide healthy resources and to satisfy customers.

ODWC receives no general state tax appropriations and is supported by hunting and fishing license fees and federal excise taxes on hunting and fishing equipment.

Thank you for your help! Please mail the survey today.
P.O. Box 53465, Oklahoma City, OK 73152

Table D1. Choice attributes for each of the twenty-four survey versions for the 2016-season Game Harvest Survey. Survey versions were randomly assigned to hunters.

Survey Version	Q8 Distance	Q33, 34, 36 Fee	Q33 Hunt Opportunity	Q34 Hunt Opportunity
1	20	$5	dove hunting opportunities 50 miles from your home	dove hunting opportunities 100 miles from your home
2	75	$5	pheasant hunting opportunities in northcentral Oklahoma	pheasant hunting opportunities in northwest Oklahoma
3	150	$5	pronghorn archery controlled hunt opportunities (draw only) in the panhandle	pronghorn archery open-access opportunities (no draws) in the panhandle
4	20	$5	quail hunting opportunities 50 miles from your home	quail hunting opportunities 100 miles from your home
5	75	$5	deer hunting opportunities 50 miles from your home	deer hunting opportunities 100 miles from your home
6	150	$5	rabbit and squirrel hunting opportunities 50 miles from your home	rabbit and squirrel hunting opportunities 100 miles from your home
7	20	$5	duck and goose hunting opportunities 50 miles from your home	duck and goose hunting opportunities 100 miles from your home
8	75	$5	furbearer trapping opportunities 50 miles from your home	furbearer trapping opportunities 100 miles from your home
9	150	$20	dove hunting opportunities 50 miles from your home	dove hunting opportunities 100 miles from your home
10	20	$20	pheasant hunting opportunities in northcentral Oklahoma	pheasant hunting opportunities in northwest Oklahoma
11	75	$20	pronghorn archery controlled hunt opportunities (draw only) in the panhandle	pronghorn archery open-access opportunities (no draws) in the panhandle
12	150	$20	quail hunting opportunities 50 miles from your home	quail hunting opportunities 100 miles from your home
13	20	$20	deer hunting opportunities 50 miles from your home	deer hunting opportunities 100 miles from your home
14	75	$20	rabbit and squirrel hunting opportunities 50 miles from your home	rabbit and squirrel hunting opportunities 100 miles from your home
15	150	$20	duck and goose hunting opportunities 50 miles from your home	duck and goose hunting opportunities 100 miles from your home
16	20	$20	furbearer trapping opportunities 50 miles from your home	furbearer trapping opportunities 100 miles from your home
17	75	$40	dove hunting opportunities 50 miles from your home	dove hunting opportunities 100 miles from your home
18	150	$40	pheasant hunting opportunities in northcentral Oklahoma	pheasant hunting opportunities in northwestern Oklahoma
19	20	$40	pronghorn archery controlled hunt opportunities (draw only) in the panhandle	pronghorn archery open-access opportunities (no draws) in the panhandle
20	75	$40	quail hunting opportunities 50 miles from your home	quail hunting opportunities 100 miles from your home
21	150	$40	deer hunting opportunities 50 miles from your home	deer hunting opportunities 100 miles from your home
22	20	$40	rabbit and squirrel hunting opportunities 50 miles from your home	rabbit and squirrel hunting opportunities 100 miles from your home
23	75	$40	duck and goose hunting opportunities 50 miles from your home	duck and goose hunting opportunities 100 miles from your home
24	150	$40	furbearer trapping opportunities 50 miles from your home	furbearer trapping opportunities 100 miles from your home