FINAL PERFORMANCE REPORT

State: Oklahoma **Grant Number:** F21AF01250-1

Grant Program: Wildlife Restoration Program

Grant Title: Game Harvest Survey

Project Leader: Betsey York

Grant Period: July 1, 2021 – June 30, 2023

TRACS Project Category:
Conservation/Management
TRACS Action Categories:
Data Collection and Analysis

Project Description:
This grant allows the Oklahoma Department of Wildlife Conservation to monitor upland game harvest and hunter opinion as well as share data trends within the agency and to the public.

Objective 1 – Data Collection and Analysis – Research, Survey Monitoring - Utilization:
Complete a harvest survey of 2,000 hunting license holders annually from July 1, 2021 through June 30, 2023.

Accomplishments
Year 1: July 1, 2021- June 30, 2022: Conducted 2021 Game Harvest Survey contacting 2,126 license holders (both resident and non-resident). This project was shared with the agency and the public in fall of 2022.

Year 2: July 1, 2022- June 30, 2023

Objective 1: A sample of 2,647 license holders was interviewed during February 2023. One thousand one hundred and one individuals interviewed did not hunt during 2022. One thousand five hundred and forty-one did hunt. Deer season was most popular with hunters. Harvest estimates for most species were calculated statewide and limitations of the harvest estimates were discussed in detail. Human dimensions questions pertained to the implementation of a permit to access Oklahoma Land Access Program (OLAP) lands, CWD knowledge level and impact on hunting, and the use of e-bikes on wildlife management areas (WMA).

Abstract:
The Oklahoma Department of Wildlife Conservation (ODWC) has conducted hunter surveys since 1986 to estimate the number of hunters and game harvest statewide and regionally. A sample of resident and non-resident hunting license holders (n = 2,647) was contacted during February and March 2022. Fifty-eight percent of individuals interviewed hunted during 2022. Hunter and game harvest estimates and statistics were calculated statewide. Deer (*Odocoileus virginianus* and *O. hemionus*) season was most popular with hunters. Comparing year over year between resident license holders (senior, lifetime and annual/5-year resident licenses), statewide harvest estimates for 2022 increased from 2021 estimates for raccoon (*Procyon lotor*), beaver (*Castor canadensis*), fox squirrel (*Sciurus niger*), quail (*Colinus virginianus* and *Callipepla s. quamata*), coyote (*Canis latrans*) swamp rabbit (*S. aquaticus*), bobcat (*Lynx rufus*), gray fox *(Urocyon cinereoargenteus),* dove (*Zenaida macroura*), cottontail (*Sylvilagus floridanus*), crow (*Corvus brachyrhynchos*), and gray squirrel (*S. carolinensis*). Harvest estimates decreased from 2021 estimates for pheasant (*Phasianus colchicus*), fall turkey (*Meleagris gallopavo silvestris* and *M. g. intermedia*), river otter (*Lutra canadensis*), red fox (*Vulpes fulva*woodcock (*Scolopax minor*), jackrabbit (*Lepus californicus*), and spring turkey (*Meleagris gallopavo*

silvestris and *M. g. intermedia*). A series of human dimensions questions were asked to learn about an OLAP land access permit, CWD knowledge levels and perceived impacts, and e-bike usage on WMA's.

Procedures:
The 2022-season Game Harvest Survey (hereafter referred to as the survey or the Game Harvest Survey) was administered using a mixed-mode methodology (mail and telephone). The methodology for this project was developed because 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 resident database of annual, lifetime, and senior license holders (Table A1). Five-year license holders were sampled with annual license holders. The 2022 survey also included a random sample of non-resident license holders.

Based on the sampling scheme above, a sample of 6,000 license holders (1,044 annual/five-year, 1,990 lifetime, 1,709 senior citizen, and 1,000 nonresidents) was selected for the survey. A goal of more than 2,000 completed responses 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.

Due to delays with printing, contact to sampled hunting license holders was first established in the form of a phone call. We began making calls to sampled hunters on February 13, 2023. The first survey mailing was mailed on February 14th, 2023. The mailed survey packet included a self-addressed, postage-paid envelope for respondents to use to send in their completed survey.

All license holders who had not responded by any method were sent a mailed reminder postcard on March 1, 2023 (Appendix C). License holders without telephone numbers, and who had not responded to the first mailed survey were mailed a second survey on March 17, 2023.

The ODWC hired 10 contract laborers to collect telephone interview data and data-enter mail surveys. The interviewers were trained to collect data systematically. A computer assisted telephone interview (CATI) system was used. If participants completed the survey by both telephone and mail, telephone interview data were used. This year we used a cloud-based data collection system that allowed us to utilize the internet to collect the data, rather than the office's hard-wired network.

Telephone interviews were conducted Monday through Thursdays between 5:00 p.m. and 9:00 p.m. with some day shifts (between 9:00 a.m. to 4:00 p.m.) on various days each week to catch those respondents not available during evening hours or by appointment. Saturday shifts lasted from 9:00 a.m. to 1:00 p.m. Before a phone number was retired as "over quota," it was attempted at least 6 different times.

Survey participants answered questions regarding their hunting activities during 2022. 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 like 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 assistant chief and chief. Modifications were incorporated as needed.

We calculated statewide (Figure A1-A19) estimates for harvest and hunter participation. 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:
Surveys were completed for 44% (n = 2,647) of the 6,000 individuals we attempted to contact. The remaining license holders were not interviewed for a variety of reasons:

- Wrong or disconnected number (n = 1,024)
- No phone number available (n = 455)
- "Over quota" after six attempts (n = 1,317)
- Refused to complete the interview (n = 432)
- Health issues or deceased (n = 11)
- Unavailable during the survey period (n = 53)
- Language barrier or hearing impaired (n = 7)

The final adjusted response rate was calculated by dividing the number of completed surveys by the number of all eligible individuals. "Eligible individuals" were individuals that could potentially have resulted in completed surveys. After eliminating phone numbers that could not possibly have resulted in completed surveys (deceased license holders, fax numbers, and wrong or disconnected numbers; n = 1,035), the final, adjusted survey response rate was 53%.

Fifty-eight percent of the completed surveys were conducted by telephone and 42% by mail. To examine the impact of mixed methodology, survey responses were compared between mail and telephone respondents for seven variables. There were statistically significant differences found between mail and telephone respondents for licenses held, public land use, 2022 dove season participation and likelihood to hunt in 2022 (P<0.05). Overall, there was no significant difference for spring turkey participation, and 2022 deer season participation (P > 0.05). 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.

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 2022 increased from 2021 estimates for swamp rabbit (+46%), bobcat (+36%), gray squirrel (+191%), quail (+21%), raccoon (+150%), beaver (+88%), fox squirrel (+13%), gray fox (+191%), coyote (+338%), crow (+74%), dove (+44%), and cottontail (+44%). Harvest estimates decreased from 2021 estimates for pheasant (-28%), fall turkey (-78%), river otter (-10%), red fox (-100%). jackrabbit (-78%), woodcock (-100%), and spring turkey (-59%). Statewide trends in estimated harvest and number of hunters by species from 1986 to 2022 are presented in Table A3 and Figures A1 – A19. Estimates were adjusted for the 2019-2021 seasons in this report. During these years, we included the tribal compact licenses in our species estimate for a more accurate representation of participation and harvest. In 2022 those tribal compact licenses were cancelled and so were no longer able to be sampled for the 2022 survey. As such, estimates for 2022 only consider annual, lifetime and senior. To create an accurate trend line for species, from the beginning of the trend line to the end, we show only these three license types for all years in this report.

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.

Deer hunter participation was assessed. On average, deer hunters spent 16.4 days in the field during the 2022 deer season (Std. Error = 0.55, Table A4). The average number of days spent hunting deer differed by license category (P < 0.01). Deer hunters with a lifetime license averaged 19.4 deer hunting days, annual/five-year license holders averaged 16.7 days, senior citizen license holders averaged 12.1 days and nonresidents averaged 10.5 days.

The average number of days archery hunters spent in pursuit of deer in 2022 was 16.7 days. Muzzleloader hunters averaged 4.3 days. Youth season hunters averaged 2.3 days. Gun hunters averaged 5.8 days and special antlerless (holiday) season hunters averaged 3.3 days. There was a significant difference found in the number of days hunted by license category during the regular gun season (P <0.05), with lifetime license holders hunting on average 6.3 days, annual license holders 5.6 days, senior license holders hunting 5.5 days and nonresident hunters hunting 4.9 days. There was a significant difference found in the number of days hunted by license category during the archery season (P <0.05) with lifetime license holders hunting the most during archery (18.1 days). No differences were found by resident license type for days spent hunting during muzzleloader or the holiday antlerless season ($P \geq 0.05$).

Deer hunter success was also examined. On average, deer hunters harvested 0.49 bucks and 0.51 does during all the 2022 deer seasons, for a total average deer harvest of 1.01 per hunter (Table A5). Harvest differed by deer hunter license category ($P < 0.001$). Lifetime license holders on average harvested 1.0 deer, annual license holders harvested 0.79 deer, senior license holders harvested 1.0 deer, and nonresidents harvested 1.1 deer.

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-yearsenior citizen, tribal and nonresident license holders). Use of public land was examined. Several special management questions were also asked.

Hunting Activity

Overall, 58% of participants indicated that they hunted in 2022, 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, lifetime license holders, and nonresident license holders. To estimate the number of license holders that hunted in 2022, the total number of license holders in Table A1 (403,502) was multiplied by the ratio of active hunters interviewed (1,541/2,647). The estimated number of resident and nonresident license holders who hunted in Oklahoma during 2022 was 234,906. This number is likely inflated due to the high rate of participation of nonresident license holders.

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 hunting seasons were deer (enjoyed by 47% of hunting license holders-both active and non-active), ducks and turkey (11.2% and 10.7% respectively). Although the ODWC does not manage feral swine (*Sus scrofa*) and a hunting license is typically not required to pursue the species, we collect data on the amount of people that target feral swine and how many are harvested using this survey. Feral swine are now the second most pursued species by Oklahoma licensed hunters, with 15.2% having spent time pursuing them in 2022.

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 (91% of pheasant hunters used only private land), feral swine (83%) and deer (80%; Figure B2).

Sixteen percent of survey participants used public land for some portion of their hunting during 2022 (both active and inactive hunting license holders). Focusing only on *active* hunting license holders (those who hunted during 2022), 27% hunted on public land in 2022 and 73%. Use of public land by active hunters varied by license category (Figure B3; P<0.05) with annual license holders using public land most often (37%) followed by and lifetime (24%), and nonresident (24%). Seniors used public land 17% of the time.

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 2022 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 capture the importance of public land more accurately, active hunters were asked to indicate how much of their hunting in 2022 occurred on public versus private land. Averaging across all active hunters, 18% of the hunting in 2022 occurred on public land. This measure of public land varied by license category with annual license holders spending 24% of time on public land, seniors with 10% on public land, lifetime license holders with 14% on public land and nonresidents hunting 18% of the time on public land. 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 B4). Looking at the issue from another angle, most active license holders used private land for at least some of their hunting during 2022. Only 10% relied exclusively on public land for hunting.

Deer Hunting

Deer season is the most popular hunting season in Oklahoma. Forty-seven percent of *all* survey participants and 80% of *active* hunters (those who hunted at all 2022) hunted deer during 2022. Participation in deer season by active hunters in 2022 varied according to license category ($P < 0.001$). Ninety-three percent of active lifetime license holders hunted deer, while 82% of active annual/five-year license holders, 76% of active senior citizen license holders, and only 60% of active nonresident license holders hunted deer during 2022.

The regular rifle season was the most popular among 2022 deer hunters (77% participating), followed by archery (61%), primitive firearms (28%), special antlerless (holiday) season (19%), and the youth rifle season (3% participating as a youth) (Figure B5). Deer hunter participation in the individual seasons was analyzed by license type. Archery season participation was most likely for annual license holders (64%), followed by lifetime license holders (62%), nonresident license holders (56%), and senior citizen license holders (45%) ($P < 0.05$). Muzzleloader season participation was more likely for lifetime license holders (45%) senior citizen license holders (22%), annual/five-year license holders (19%) or nonresident license holders (6%) ($P < 0.001$). Rifle season participation was most likely for lifetime license holders (87%), followed by senior license holders (79%), annual/5-year license holders (76%) and nonresident license holders (56%) ($P <0.05$). Special antlerless (holiday) season participation was most likely for lifetime license holders (25%), followed by annual-5-year (22%), seniors (12%) and nonresident license holders (6%). Differences in the special season were significantly different ($P<0.05$).

Patterns in deer season participation were also examined. Most resident deer hunters participated in more than one season (54%), and some hunted all four (6%; Figure B6). The most common patterns were participation in gun season only (26%), participation in archery season only (20%), and participation in both archery and gun (15%; Figure B7). Youth deer season participation was not included in this analysis because it only applied to a small portion of surveyed hunters. Examined separately, 87% of youth season participants also hunted deer during other seasons: 77% hunted during rifle season, 44% hunted during archery, 23% hunted during muzzleloader, and 31% hunted during the special antlerless (holiday) deer gun season (Figure B8).

Over half (56%) of all deer hunters successfully harvested a deer during the 2022 season (Figure B9). Less than 1% of hunters filled the annual bag limit of deer for 2022 (a combined season limit of 6 deer no more than two may be antlered during deer archery, youth deer gun, deer muzzle loader and deer gun seasons. Deer taken during controlled hunts or during the holiday antlerless deer gun season do not count toward the combined season limit.).

Barriers to Participation

ODWC continues to assess barriers to hunting participation. Forty-seven percent (n = 1,040) of resident hunting license holders did not hunt in 2022 and were asked to identify the main reason why they did not hunt. Twenty-eight percent identified health issues, and another 31% indicated other priorities. Eleven percent were simply not interested in hunting (Figure B10). The finding of "health concerns" was unsurprising, given that 50% (n=551) 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. ODWC continues to face limitations in the things the agency can directly influence to remove barriers to hunting.

Special Management Issues

Oklahoma Land Access Program land access permit

The Oklahoma Land Access Program has operated for many years at the Wildlife Department as a way to lease private land to offer for public hunting access and wildlife viewing opportunities. This program has been funded under a federal grant from the United States Department of Agriculture (USDA). The USDA has not extended the grant for this program, as such, the ODWC must now fund the lease prices to continue offering these private lands for public access. To determine how many hunters use OLAP, we asked active hunters if they had hunted on OLAP land in the last year. Four percent of residents and 2% of nonresidents had hunted on OLAP land (Figure B11). In both groups combined, 34% were unsure if land they hunted on fell on OLAP property.

We asked active hunters whether they would be willing to pay for an OLAP land access fee. This would be in addition to their license and tag fees when applicable. The question was proposed to residents and nonresidents but the price was changed with residents responding to a proposed $40 access fee and nonresidents responding to a proposed $80 access fee. Overall, 52% of respondents said they would either strongly support or support an OLAP permit. Twenty-five percent of respondents either opposed or strongly opposed. If we separate this by those who use OLAP properties and those that don't, 59% of those that use OLAP would support or strongly support while 52% of those that do not use OLAP support or strongly support (Figure B12). Of those that were unsure if they used OLAP land or not, only 42% support (24% of those unsure if they hunted OLAP were unsure about their support or opposition to a required permit). Comparing residents and nonresidents, responses were very similar with 51% of residents either supporting or strongly supporting and 52% of nonresidents supporting or strongly supporting.

Electric bike (e-bike) uses on Wildlife Management Areas (WMA)

Recently there have been questions about whether or not we as an agency should manage the use of e-bikes on WMAs. Some believe that the use of e-bikes hinders the experience of WMA users due to the noise that it makes and the possible impact to wildlife and habitat within the WMA's borders. Also, e-bikes can be beneficially used to provide access to areas of the WMA that are not easily accessible particularly by those with mobility issues. We asked active hunters if they support or oppose the use of e-bikes on WMAs. Overall, the plurality of active license holders support or strongly support the use of e-bikes on wildlife management areas (45%). Twenty-six percent were neutral and 28% either opposed or strongly opposed. In open-ended comments and through conversations during phone interviews, it seemed like those with neutral views would want more information on the extent to which they could be used and by which user groups. There seemed to be more support for e-bikes if they are being used by those with mobility issues. When breaking this out by those that use public lands and those that don't, there was a significant difference between these two groups ($p<0.001$). Of those that used public lands, 51% support or strongly support while only 43% of those that do not use public land support or strongly support the use of e-bikes (Figure B13). When comparing residents and nonresidents, 45% of residents support or strongly support while 50% of nonresidents support or strongly support the use of e-bikes.

Chronic Wasting Disease

Chronic wasting disease (CWD) is a neurological disease that affects the brains of deer, elk, moose, and other members of the deer family, creating holes that resemble those in sponges. It is always fatal to the animal, and no treatment or vaccine against CWD exists currently. CWD was found in captive deer in Oklahoma and was also discovered four miles south of Oklahoma's panhandle border in Texas. At the time of this survey, no wild deer within Oklahoma's borders had tested positive for CWD. We wanted to better understand the knowledge level of hunters related to CWD as well as how the occurrence of CWD in Oklahoma may impact the future of deer hunting statewide.

First, we asked survey respondents to determine their level of agreement with feeling that they have enough information about specific topics related to CWD. The topics proposed were precautions hunters should take, what causes CWD, what ODWC is doing about CWD, where deer with CWD have been found in Oklahoma, whether or not there are livestock health risks, whether or not there are human health risks, and which wildlife species can have CWD. For these analyses we focused on resident hunters only as hunters from other states may have more information if they live in a CWD positive state. For each proposed piece of information, there was a strong level of disagreement that they have enough information as well as just being completely unsure about the topic. Ahead of these questions, we included the same information stated in the first sentence of this report section explaining what CWD is. There was a higher level of agreement that they know which wildlife species can have the disease but this could be due to us telling them this information (60% agree or strongly agree they have enough information about species that can have CWD). For all other topics, around 30% felt they disagree they have the information they need and around 10% strongly disagree they have the information (Figure B14). Responses remained consistent across license types. Active deer hunters, understandably, tended to have a higher level of agreement that they had sufficient information across topics, but still had a high level of disagreement and unsure responses.

The next set of questions focused on how CWD may or may not impact their activity related to hunting. We asked for their level of agreement or disagreement with the following statements: I will have concerns about eating deer meat for myself or my family, CWD poses a risk to deer but not to humans, efforts should be taken to reduce the rate of CWD in wild deer populations, CWD is likely to impact my hunting activities, and the new CWD regulations in western Oklahoma are easy to understand. There was an extremely high level of agreement that efforts should be taken to reduce the rate of CWD in wild deer populations (84% agree or strongly agree; Figure B15). Also, it will be good for us to know that there was also a level of agreement that people would have concerns about eating deer meat (32% agree or strongly agree) and that it is likely to impact their hunting activities (26%). Fifty-seven percent of active hunters selected unsure about the regulations in western Oklahoma, and 47% selected unsure about if CWD poses a risk to deer but not to humans. When comparing between license types, seniors more often selected it would impact their hunting activities (39%) compared to lifetimes (25%) and annuals (21%). Seniors were also more likely to select that they would have concerns about eating deer meat. Deer hunters were more likely to select that the regulations in western Oklahoma were easy to understand than non deer hunters (33% and 21% respectively).

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 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 2022-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 = 2,647) 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 2022-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. 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 2017 season

participation rates, over 10,000 completed surveys would be needed to identify 400 pheasant hunters (3.3% of completed 2017 surveys). For other seasons, almost an entire population census would be necessary (e.g., 1,048 woodcock hunters were estimated to exist statewide in 2017).

Recommendations:
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 2,000 completed surveys, to yield the greatest amount of data possible from active hunters. In terms of question design, we also need to keep in mind the phone interview portion of the data collection. This should force us to create efficient questions that make sense to be asked over the phone. Check all that apply questions are difficult to ask quickly over the phone.

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

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.

Equipment:
None.
Significant Deviation:
None.

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Prepared by: Betsey York, Human Dimensions Specialist

Approved by:

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Wildlife Division Administration
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APPENDIX A

Harvest Estimates – Tables and Graphs

Table A1. Distribution of license types for Game Harvest Survey population, sample, and completed surveys, 2022.

LICENSE TYPE	Population		Sampled		Completed	
	Number	Percent	Number	Percent	Number	Percent
Lifetime						
Hunting	39,632	10.9	465	9.3	222	10.2
Combination	123,227	33.8	1,497	29.9	670	30.7
Hunting Over 60	401	0.1	7	0.1	1	0.0
Combination Over 60	1,597	0.4	21	0.4	13	0.6
Subtotal	*164,857*	45.2	*1,990*	39.8	*906*	41.6
Senior Citizen						
Hunting	2,418	0.7	41	0.8	21	1.0
Combination	102,439	28.1	1,668	33.4	634	29.1
Subtotal	*104,857*	28.7	*1,709*	34.2	*655*	30.1
Annual						
Hunting	41,870	11.5	590	11.8	266	12.2
Hunting Fiscal Year (FY)	2,813	0.8	65	1.3	30	1.4
Combination	20,926	5.7	243	4.9	131	6.0
Combination FY	2,331	0.6	38	0.8	23	1.1
Youth Hunting	3,681	1.0	71	1.4	25	1.1
Youth Hunting FY	180	0.0	7	0.1	2	0.1
Youth Combination	1,396	0.4	19	0.4	10	0.5
Youth Combination FY	372	0.1	11	0.2	6	0.3
Subtotal	*73,569*	20.2	*1,044*	20.9	*493*	22.6
Five-Year						
Hunting	5,158	1.4	92	1.8	43	2.0
Combination	16,330	4.5	165	3.3	82	3.8
Subtotal	*21,488*	5.9	*257*	5.1	*125*	5.7
Total	**364,771**		**5,000**		**2,179**	

Non-Residents Table

LICENSE TYPE	POPULATION		SAMPLED		COMPLETED	
	Number	Percent	Number	Percent	Number	Percent
NONRESIDENT 5-DAY HUNTING	11803	30.5%	319	31.9%	132	28.2%
NONRESIDENT DEER ARCHERY	7483	19.3%	198	19.8%	99	21.1%
NONRESIDENT DEER GUN	7162	18.5%	180	18.0%	93	19.9%
NONRESIDENT FISCAL YEAR HUNTING	2630	6.8%	60	6.0%	28	6.0%
NONRESIDENT HUNTING	8325	21.5%	211	21.1%	103	22.0%
NONRESIDENT TRAPPER	11	0.0%	0	0.0%	0	0.0%
NONRESIDENT YOUTH DEER ARCHERY ANTLERLESS	83	0.2%	2	0.2%	1	0.0%
NONRESIDENT YOUTH DEER GUN ANTLERLESS	283	0.7%	6	0.6%	1	0.0%
NONRESIDENT YOUTH DEER GUN EITHER SEX	911	2.4%	23	2.3%	11	2.4%
NONRESIDENT YOUTH DEER MUZZLELOADER ANTLERLESS	10	0.0%	0	0.0%	0	0.0%
NONRESIDENT YOUTH DEER MUZZLELOADER EITHER SEX	29	0.1%	1	0.1%	0	0.0%
NONRESIDENT YOUTH DEER PRIVATE LANDS ANTLERLESS	1	0.0%	0	0.0%	0	0.0%
TOTAL	38,731		1,000		468	

Table A2. Statewide hunter and game harvest estimates and statistics by species/subspecies in Oklahoma, 2022 Includes all resident license types.

Species	Sample	Mean Bag Per Hunter	Mean Days Hunted	Mean Daily Bag	Number of Hunters	Number of Days Hunted	Total Harvest	Lower Confidence Interval (95%)	Upper Confidence Interval (95%)
Crow	32	12.17	7.17	2.58	8,563	61,366	104,180	44,122	164,238
Dove	248	28.53	5.03	4.88	66,314	333,852	1,892,231	1,084,209	2,700,254
Furbearers									
Coyote	107	20.96	41.26	0.7	28,632	1,181,330	600,174	221,810	978,537
Bobcat	34	1	20.27	0.19	9,098	184,439	9,098	5,275	12,921
Raccoon	56	14.25	30.11	0.86	14,985	451,178	213,601	135,311	291,892
Beaver	16	4.93	14.73	0.54	4,281	63,079	21,121	9,242	33,001
Gray Fox	3	4.5	24	0.22	803	19,252	3,612	0	9,393
Red Fox	3	0	24	0	803	19,266	-	-	-
Otter	3	1.5	10.5	0.55	803	8,429	1,204	562	1,846
Pheasant	37	2.12	3.63	1.11	6,590	23,913	13,956	8,380	19,531
Quail	65	9.48	5.14	2.46	11,577	59,540	109,708	62,254	157,162
Rabbits									
Cottontail Rabbit	43	6.24	12.88	1.07	11,506	148,210	71,777	26,745	116,808
Jackrabbit	3	0.33	2.67	0.33	803	2,141	268	0	792
Swamp Rabbit	9	4.11	7	0.82	2,408	16,858	9,901	413	19,388
Squirrels									
Fox Squirrel	126	7.5	10.98	1.14	33,716	370,325	253,003	162,547	343,459
Gray Squirrel	110	7.35	10.95	1.30	29,413	321,944	216,323	162,773	269,872
Turkey									
Fall Turkey	52	0.2	6.48	1.14	13,914	90,166	2,783	1,255	4,311
Spring Turkey	210	0.21	4.99	0.09	56,193	280,416	12,002	8,880	15,125
Woodcock	3	0	2	0	803	1,606	-	-	-
Feral Swine	314	27.08	1.99	0.9	55,927	111,504	1,514,285	588,520	2,440,050

[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. Statewide trends in estimated harvest and estimated number of hunters in Oklahoma, 1986-2022. In survey years 2019-2021 tribal licenses were included in statewide estimates.

	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
	2017	9,432	11.17	4.70	3.79	105,371	50,853	–	159,889
	2018	6,609	11.90	4.05	3.16	78,646	13,738	–	143,553
	2019	8,536	12.54	5.21	3.25	107,014	55,615	-	158,413
	2020	8,553	17.84	6.28	2.90	152,596	55,216	-	249,977
	2021	9,124	12.04	6.00	3.65	109,842	68,514	-	151,169
	2022	8,563	12.17	7.17	2.58	104,180	44,122		164,238

Table A3. 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
	2017	62,619	30.24	6.43	7.43	1,893,421	1,241,116	–	2,545,727
	2018	52,193	19.35	4.48	5.11	1,009,704	824,468	–	1,194,940
	2019	70,118	18.42	4.78	4.60	1,291,703	1,026,624	-	1,556,781
	2020	69,298	16.79	4.64	4.12	1,163,628	1,003,776	-	1,323,480
	2021	69,614	16.66	4.11	4.53	1,160,011	944,747		1,375,275
	2022	66,314	28.53	5.03	4.88	1,892,231	1,084,209		2,700,254

Table A3. 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
	2017	11,790	3.36	3.31	1.19	39,039	18,774	–	60,351
	2018	10,506	4.29	4.26	1.12	45,076	23,812	–	66,340
	2019	12,398	3.70	3.77	1.73	45,871	28,523	-	63,220
	2020	9,868	1.84	3.95	0.78	18,202	12,739	-	23,664
	2021	12,842	3.37	2.68	1.76	43,256	21,086		65,425
	2022	10,436	2	3.57	1.05	20,872	12,367		29,376

Table A3. 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
	2017	30,655	14.33	5.91	2.95	439,291	341,199	–	537,384
	2018	21,352	9.56	6.18	1.58	204,108	147,507	–	260,710
	2019	24,389	6.54	5.95	1.71	159,415	116,162	-	202,668
	2020	20,833	7.70	5.32	1.74	160,460	81,143	-	239,778
	2021	21,966	8.85	6.87	2.41	194,376	102,825		285,927
	2022	17,928	9.66	5.54	2.4	173,214	100,868		245,560

Table A3. 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
	2017	17,030	7.10	5.67	1.72	120,887	83,517	–	158,257
	2018	13,726	4.44	6.25	0.97	60,986	41,210	–	80,761
	2019	18,698	5.88	6.85	1.19	109,852	71,755	-	147,949
	2020	16,886	6.71	8.31	1.04	113,313	50,795	-	175,832
	2021	18,586	4.91	6.13	1.09	91,178	50,407		131,950
	2022	11,506	6.24	12.88	1.07	71,777	26,745		116,808

Table A3. 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
	2017	1,310	3.60	9.20	0.77	4,716	0	–	10,016
	2018	1,186	3.43	2.67	1.68	4,067	1,249	–	6,885
	2019	1,016	0.50	1.50	0.25	508	0	-	1,399
	2020	1,316	2.60	11.67	1.07	3,421	1,508	-	5,334
	2021	1,014	1.50	3.00	0.70	1,521	710		2,332
	2022	803	0.33	2.67	0.33	268	0		792

Table A3. 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
	2017	2,358	11.86	13.50	1.13	27,960	4,020	–	51,899
	2018	1,695	1.90	3.80	0.45	3,220	0	–	6,630
	2019	3,455	4.47	5.38	0.95	15,446	2,473	-	28,419
	2020	2,851	1.46	5.92	0.41	4,167	1,667	-	6,667
	2021	4,055	0.36	9.36	0.18	9,585	-		19,911
	2022	2,408	4.11	7	0.82	9,901	413		19,388

Table A3. 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
	2017	29,607	10.42	9.17	1.24	271,535	209,442	–	333,627
	2018	29,486	8.27	10.98	1.34	243,960	174,411	–	313,508
	2019	38,209	6.55	9.61	0.96	250,209	201,602	-	298,816
	2020	27,412	9.85	13.74	1.25	269,921	185,521	-	354,322
	2021	36,159	9.77	13.65	1.71	353,164	262,357		443,972
	2022	33,716	7.5	10.98	1.14	253,003	162,547		343,459

Table A3. 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
	2017	24,890	12.13	10.80	1.34	301,797	211,694	–	391,900
	2018	25,927	7.39	10.91	1.12	191,475	139,676	–	243,275
	2019	35,364	7.86	9.69	1.16	277,919	223,162	-	332,675
	2020	25,658	9.96	10.95	1.26	255,462	180,211	-	330,714
	2021	36,497	11.84	11.11	1.15	432,109	307,380		556,839
	2022	29,413	7.35	10.95	1.30	216,322	-		1,592,058

Table A3. 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
	2017	21,484	0.26	10.71	0.16	5,640	3,555	–	7,724
	2018	17,793	0.21	6.60	0.12	3,764	2,361	–	5,167
	2019	17,885	0.27	6.87	0.11	4,878	2,298	-	7,457
	2020	18,860	0.12	6.25	0.06	2,193	908	-	3,478
	2021	17,235	0.14	6.29	0.09	2,366	722		4,009
	2022	13,914	0.2	6.48	1.14	2,783	1,255		4,311

Table A3. 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
	2017	52,925	0.51	5.42	0.17	26,865	21,248	–	32,483
	2018	49,651	0.43	4.99	0.13	21,425	17,595	–	25,255
	2019	63,005	0.33	5.29	0.10	20,864	16,615	-	25,112
	2020	59,210	0.31	5.42	0.09	18,338	13,945	-	22,730
	2021	78,063	0.23	5.42	0.09	18,067	13,045		23,089
	2022	56,193	0.21	4.99	0.09	12,002	8,880		15,125

Table A3. 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
	2017	1,048	3.33	1.67	1.67	1,747	0	–	10,340
	2018	508	0.33	3.67	0.17	169	0	–	502
	2019	610	1.33	1.00	1.33	813	0	-	1,867
	2020	1,096	2.80	2.40	1.00	3,070	0	-	6,358
	2021	338	1.00	1.00	1.00	338	.		.
	2022	803	0	2	0	-	-		-

Table A3. 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
	2017	18,602	8.12	26.09	0.64	151,074	95,992	–	206,156
	2018	18,471	4.04	22.76	0.49	74,574	54,695	–	94,454
	2019	28,454	5.23	23.45	0.49	148,915	80,452	-	217,377
	2020	26,316	6.04	21.20	0.60	158,991	106,275	-	211,706
	2021	33,118	5.76	28.02	0.50	190,853	127,234		254,471
	2022	28,632	20.96	41.26	0.7	600,174	221,810		978,537
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
	2017	8,122	3.52	18.73	0.30	28,559	14,809	–	42,308
	2018	5,931	1.77	19.79	0.20	10,506	2,718	–	18,295
	2019	7,723	1.84	13.11	0.27	14,194	6,332	-	22,056
	2020	8,333	1.50	15.16	0.13	12,500	5,296	-	19,704
	2021	10,476	1.26	19.21	0.17	13,179	5,745		20,614
	2022	9,098	1	20.27	0.19	9,098	5,275		12,921
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
	2017	8,122	9.79	22.56	0.63	79,481	50,182	–	108,780

	2018	6,948	6.58	23.08	0.68	45,682	32,232	–	59,132
	2019	10,365	4.82	31.25	0.58	49,923	32,778	-	67,067
	2020	10,088	8.93	29.52	0.62	90,131	62,886	-	117,377
	2021	14,531	10.42	42.67	0.64	151,395	91,879		210,910
	2022	14,985	14.25	30.11	0.86	213,601	135,311		291,892

Table A3. 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
	2017	3,144	5.18	12.20	0.52	16,292	7,273	–	25,311
	2018	1,017	1.20	13.83	0.31	1,220	244	–	2,196
	2019	2,642	3.86	37.79	0.94	10,191	3,271	-	17,110
	2020	1,974	6.89	19.00	0.53	13,596	4,583	-	22,610
	2021	5,407	3.56	57.19	0.41	19,262	11,960		26,564
	2022	4,281	4.93	14.73	0.54	21,121	9,242		33,001
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
	2017	1,572	1.17	16.67	0.13	1,834	364	–	3,305
	2018	678	2.00	15.75	0.13	1,356	0	–	2,890
	2019	1,219	0.50	27.17	0.09	610	0	-	1,426
	2020	658	2.00	1.00	2.50	1,316	26	-	2,605
	2021	2,028	0.17	14.33	0.17	338	-		1,000
	2022	803	4.5	24	0.22	3,612	0		9,393
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
	2017	1,048	0	23.00	0	0	0	–	–
	2018	847	0.25	10.80	0.02	212	0	–	627
	2019	406	0	1.00	0	0	0	-	0
	2020	658	0.67	60.00	0.01	439	9	-	868
	2021	1,690	0.40	16.00	0.01	676	-		2,001
	2022	803	0	24	0	-	-		-

Table A3. Continued.

	Year	Number Of Hunters	Mean Bag Per Hunter	Mean Days Hunted	Mean Daily Bag	Total Harvest	95% Confidence Interval for Total Harvest		
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
	2017	786	1.50	6.00	0.27	1,179	409	–	1,949
	2018	169	.	42.00	.	.	.	–	.
	2019	1,016	1.60	7.20	0.47	1,626	0	-	3,362
	2020	219	1.00	1.00	1.00	219	.	-	.
	2021	1,014	1.67	16.00	0.08	1,690	-		4,078
	2022	803	1.5	10.5	0.55	1,204	562		1,846

[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.

[b]For estimates of bear, elk, pronghorn, and prairie chicken during years when those seasons were open please see previous federal aid reports on the Wildlife Department website. This data was most recently collected in 2014 and does not pertain to data within this report.

Table A4. Mean number of days deer hunters participated in each deer season in Oklahoma, 1997-2022. All resident and nonresident licensed deer hunters included in 2022 numbers.

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
2017	17.7	16.7	4.6	2.6	6.1	2.1
2018	17.8	18.3	4.7	2.2	5.8	2.7
2019	16.1	17.7	4.4	1.8	5.6	2.6
2020	17.4	18.6	4.4	2.6	5.8	2.7
2021	16.4	16.4	4.5	1.9	5.9	3.5
2022	16.4	16.7	4.3	2.3	5.8	3.3

[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 A5. Mean number of deer harvested by deer hunters in each deer season in Oklahoma, 2001-2022. All resident and nonresident licensed deer hunters included in 2022 numbers.

	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
2017	0.92	0.51	0.41	0.18	0.23	0.22	0.11	0.44	0.23	0.32	0.21	0.19
2018	0.87	0.46	0.41	0.19	0.26	0.20	0.14	0.21	0.20	0.31	0.18	0.20
2019	0.79	0.46	0.32	0.22	0.21	0.25	0.12	0.28	0.19	0.28	0.16	0.15
2020	0.91	0.49	0.42	0.23	0.24	0.25	0.12	0.20	0.44	0.30	0.21	0.18
2021	0.85	0.47	0.38	0.25	0.24	0.20	0.12	0.28	0.29	0.32	0.19	0.22
2022	1.01	0.49	0.51	0.27	0.36	0.17	0.16	0.10	0.24	0.36	0.23	0.34

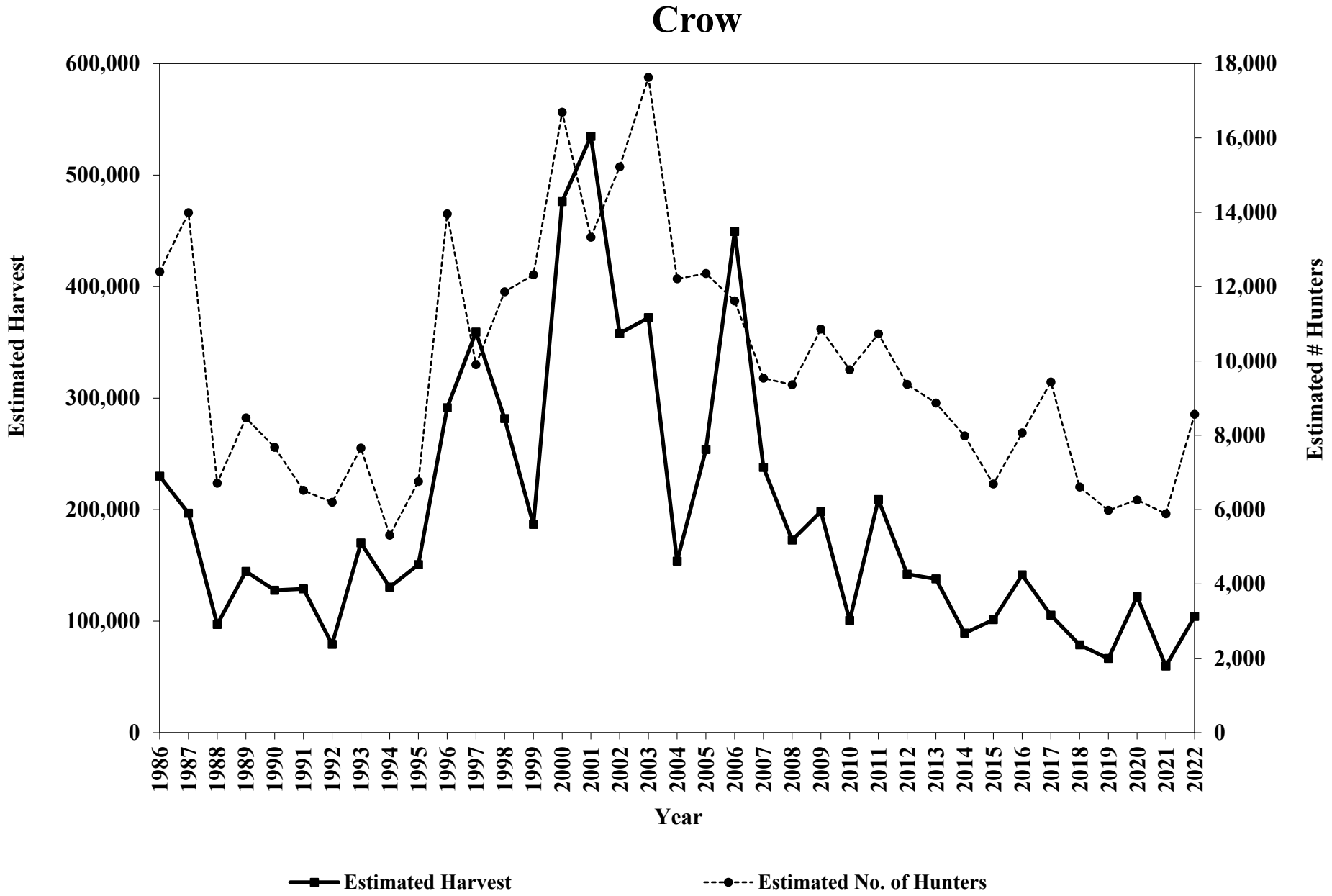


Figure A1. Statewide trends in estimated crow harvest and estimated number of crow hunters in Oklahoma, 1986-2022. All years displaying only resident license holders (senior, lifetime and annual).

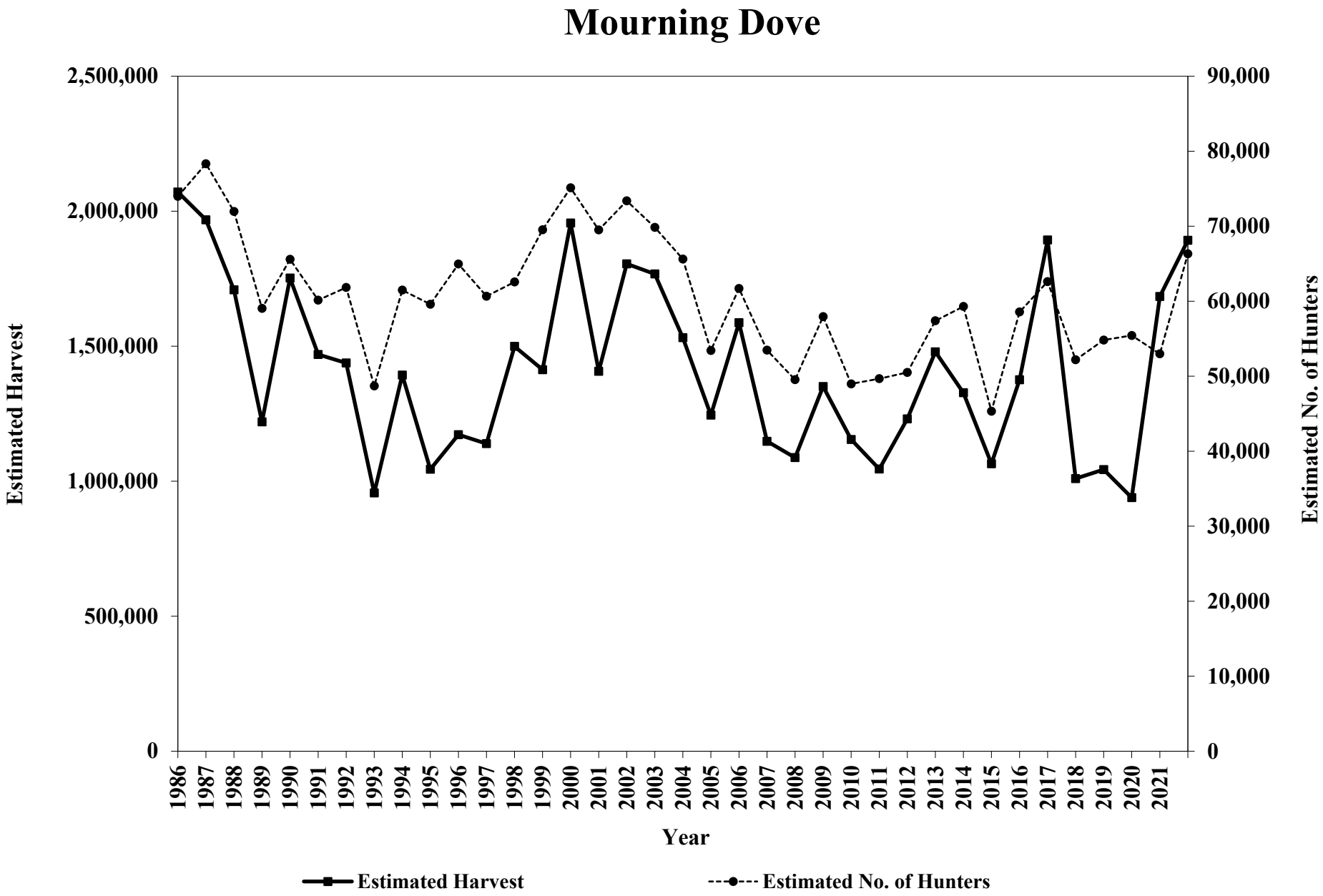


Figure A2. Statewide trends in estimated mourning dove harvest and estimated number of mourning dove hunters in Oklahoma, 1986-2022. All years displaying only resident license holders (senior, lifetime and annual).

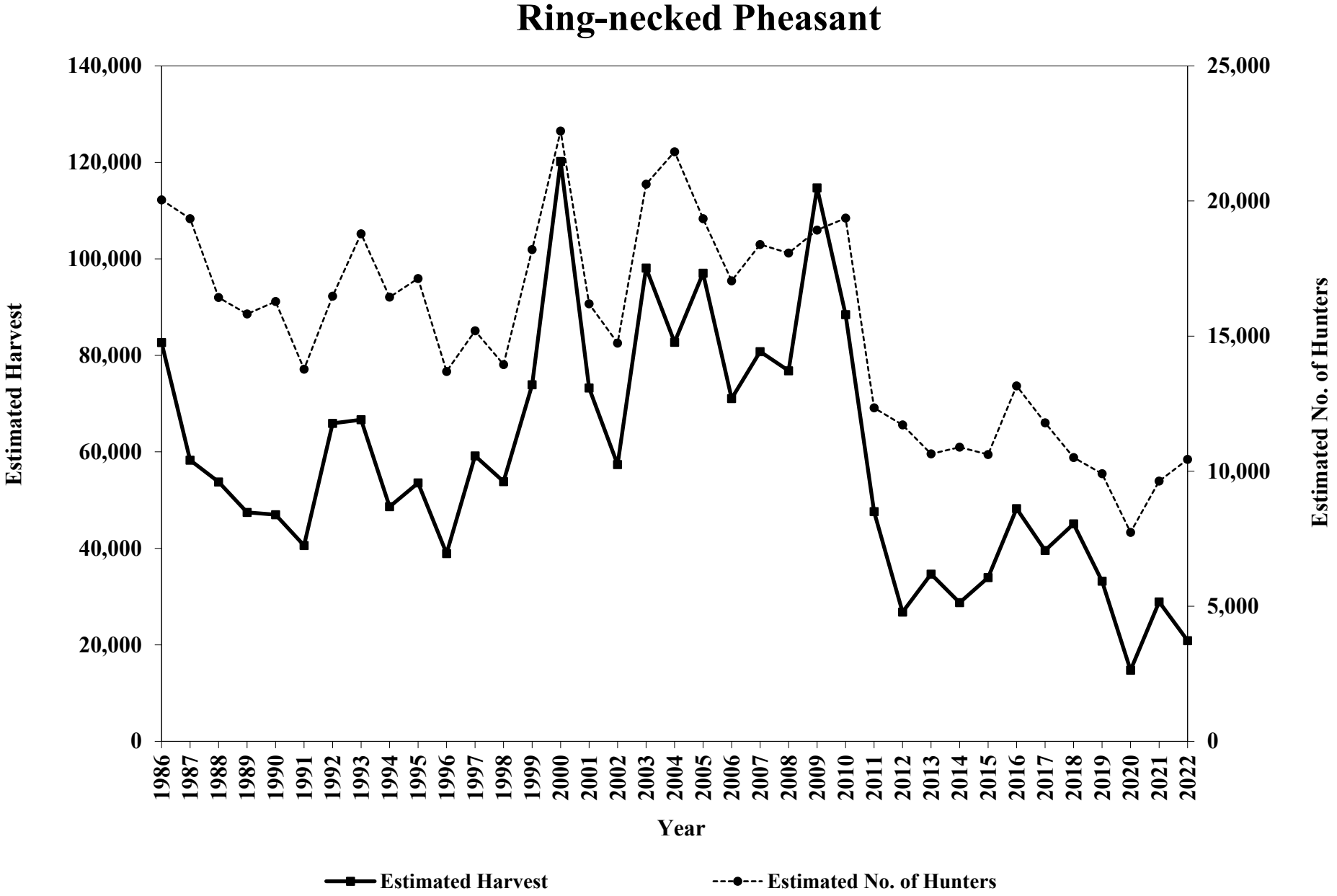


Figure A3. Statewide trends in estimated ring-necked pheasant harvest and estimated number of ring-necked pheasant hunters in Oklahoma, 1986-2022. All years displaying only resident license holders (senior, lifetime and annual).

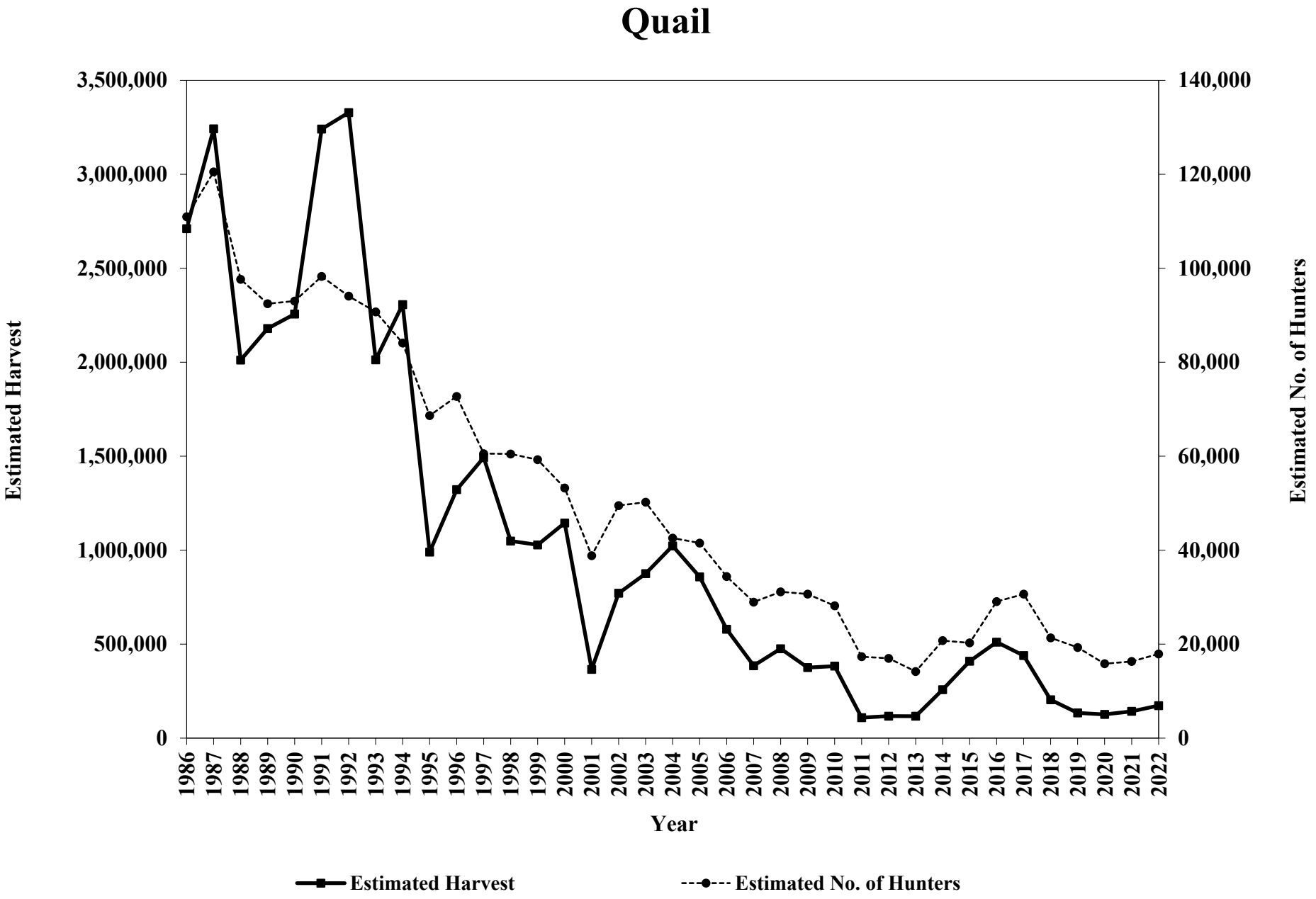


Figure A4. Statewide trends in estimated quail harvest and estimated number of quail hunters in Oklahoma, 1986-2022. All years displaying only resident license holders (senior, lifetime and annual).

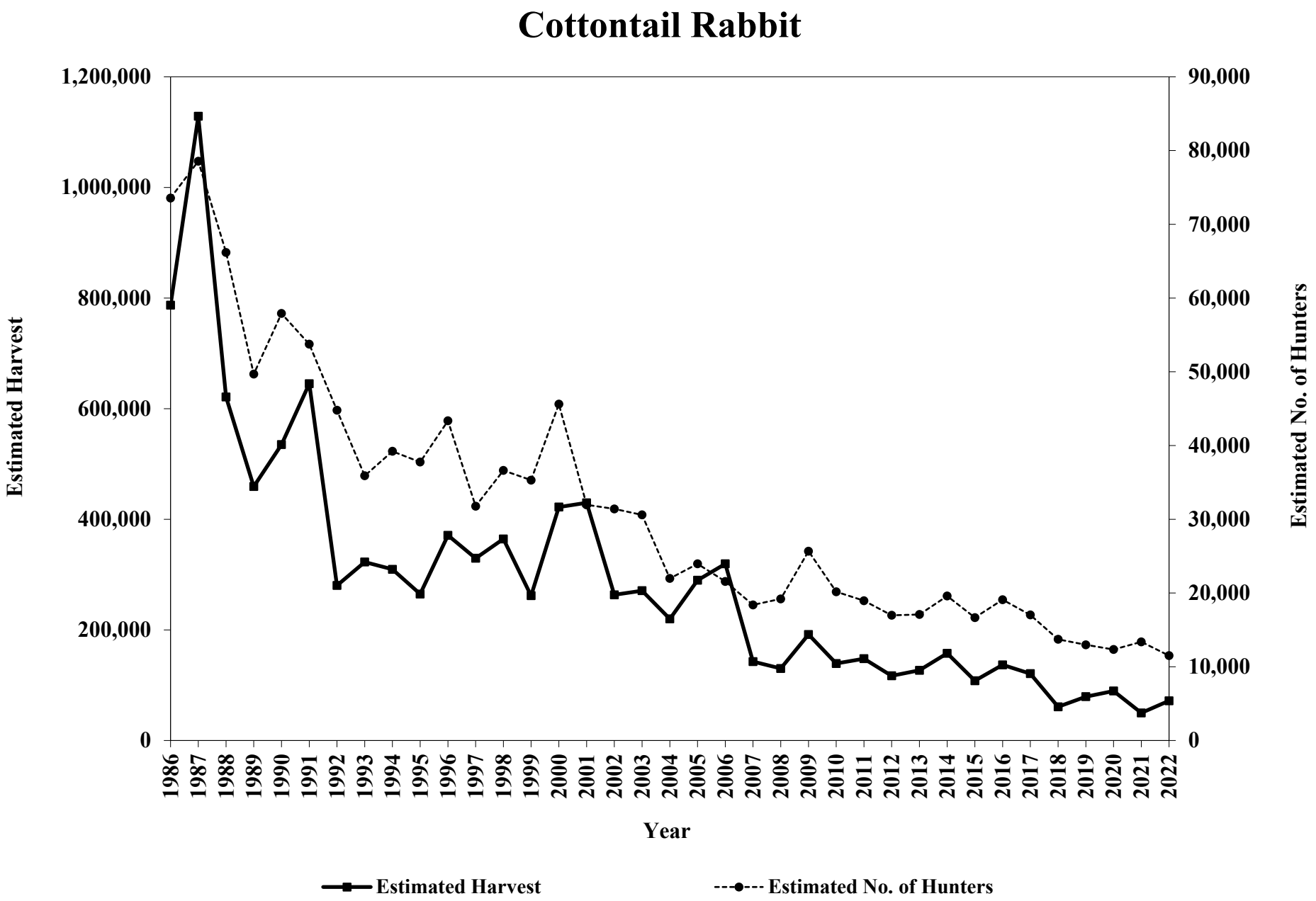


Figure A5. Statewide trends in estimated cottontail rabbit harvest and estimated number of cottontail rabbit hunters in Oklahoma, 1986-2022. All years displaying only resident license holders (senior, lifetime and annual).

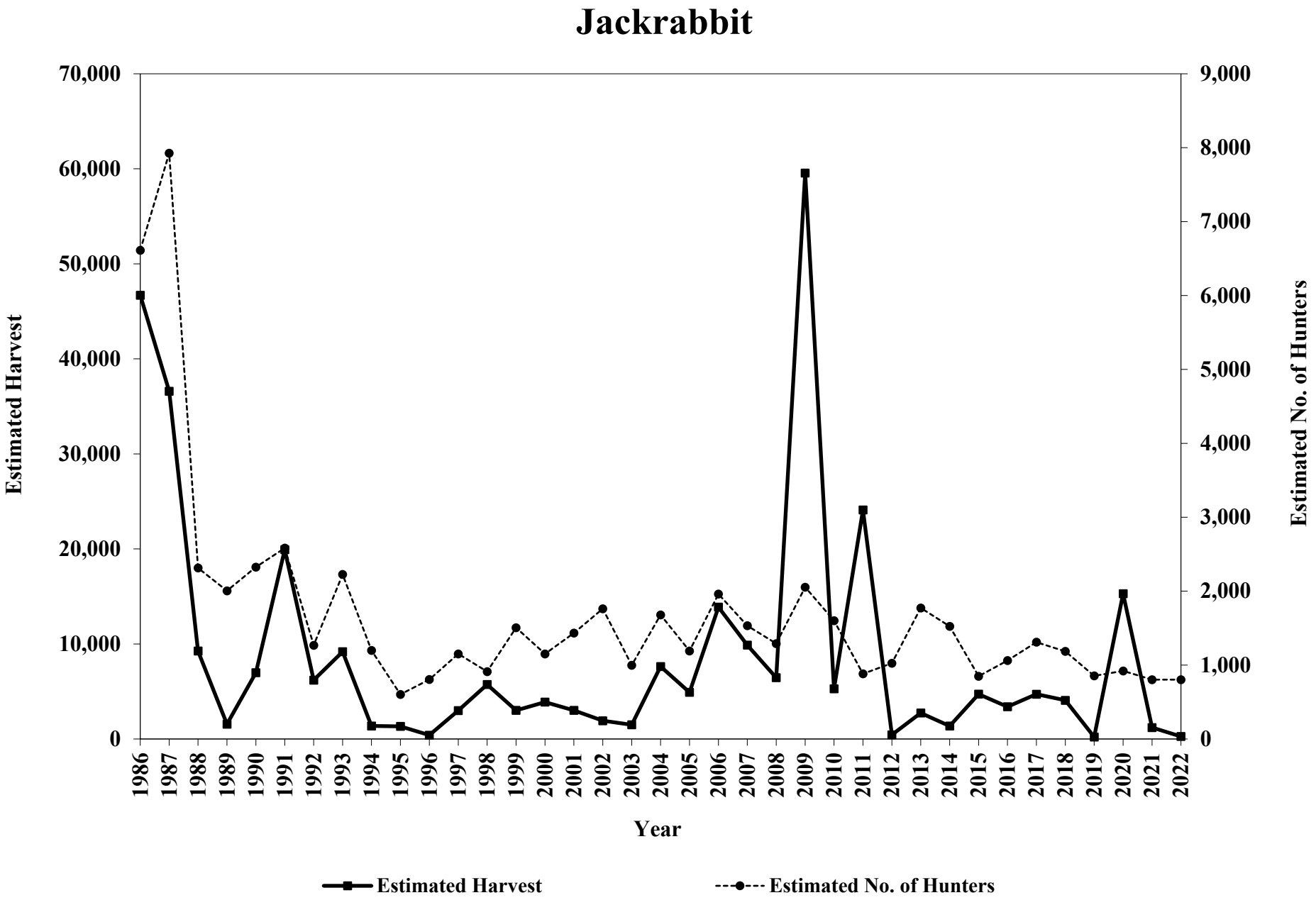


Figure A6. Statewide trends in estimated jackrabbit harvest and estimated number of jackrabbit hunters in Oklahoma, 1986-2022. All years displaying only resident license holders (senior, lifetime and annual).

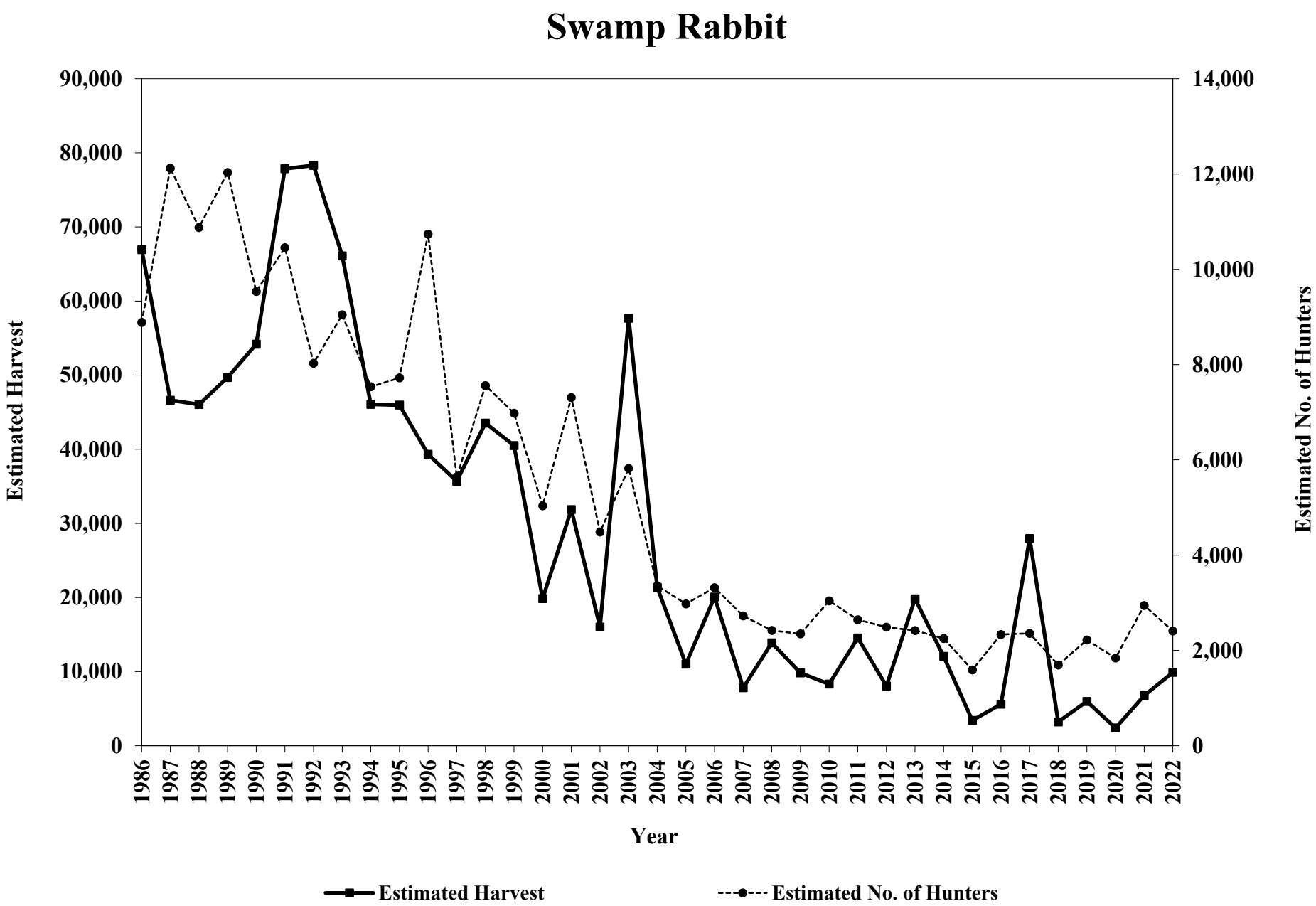


Figure A7. Statewide trends in estimated swamp rabbit harvest and estimated number of swamp rabbit hunters in Oklahoma, 1986-2022. All years displaying only resident license holders (senior, lifetime and annual).

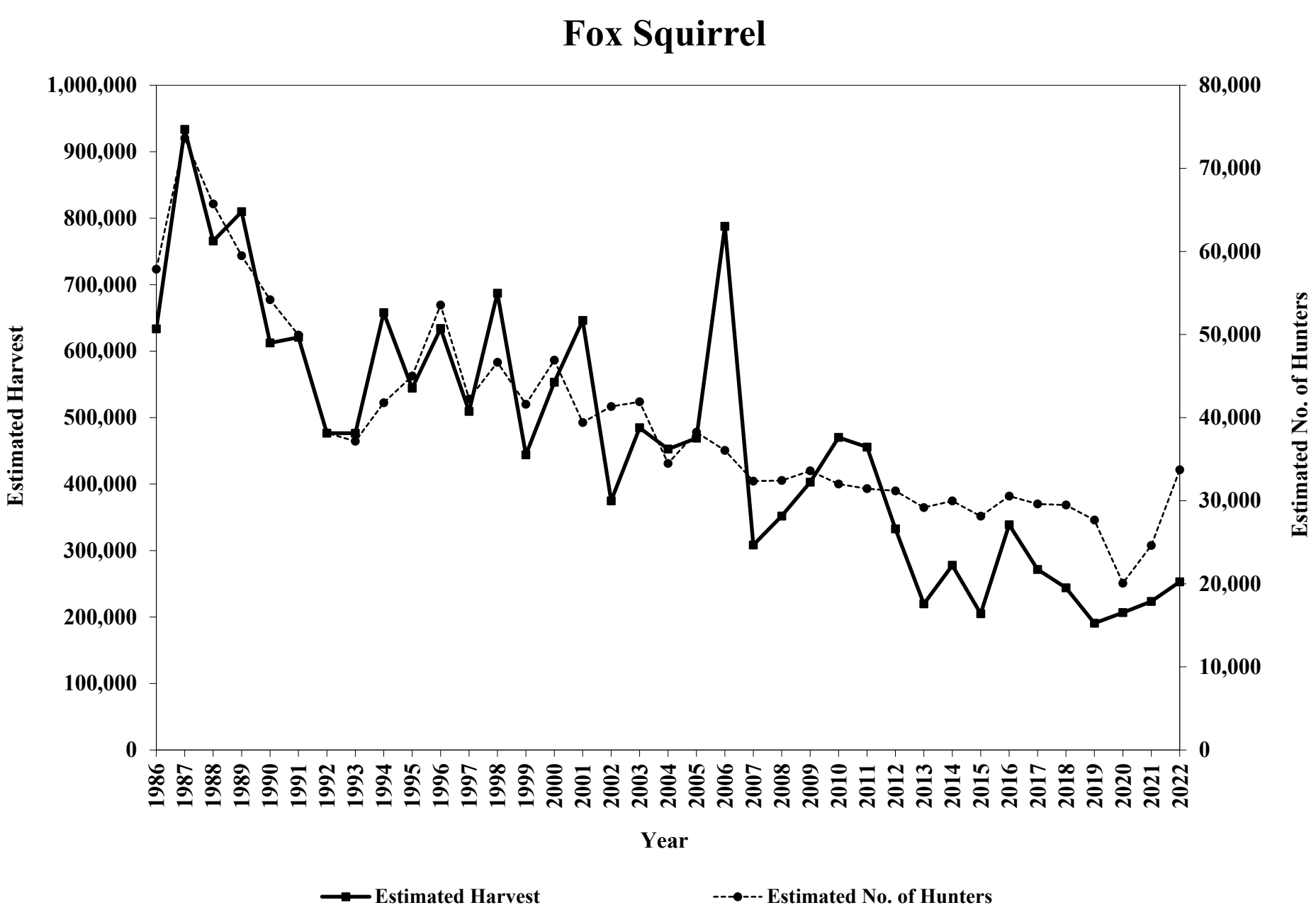


Figure A8. Statewide trends in estimated fox squirrel harvest and estimated number of fox squirrel hunters in Oklahoma, 1986-2022. All years displaying only resident license holders (senior, lifetime and annual).

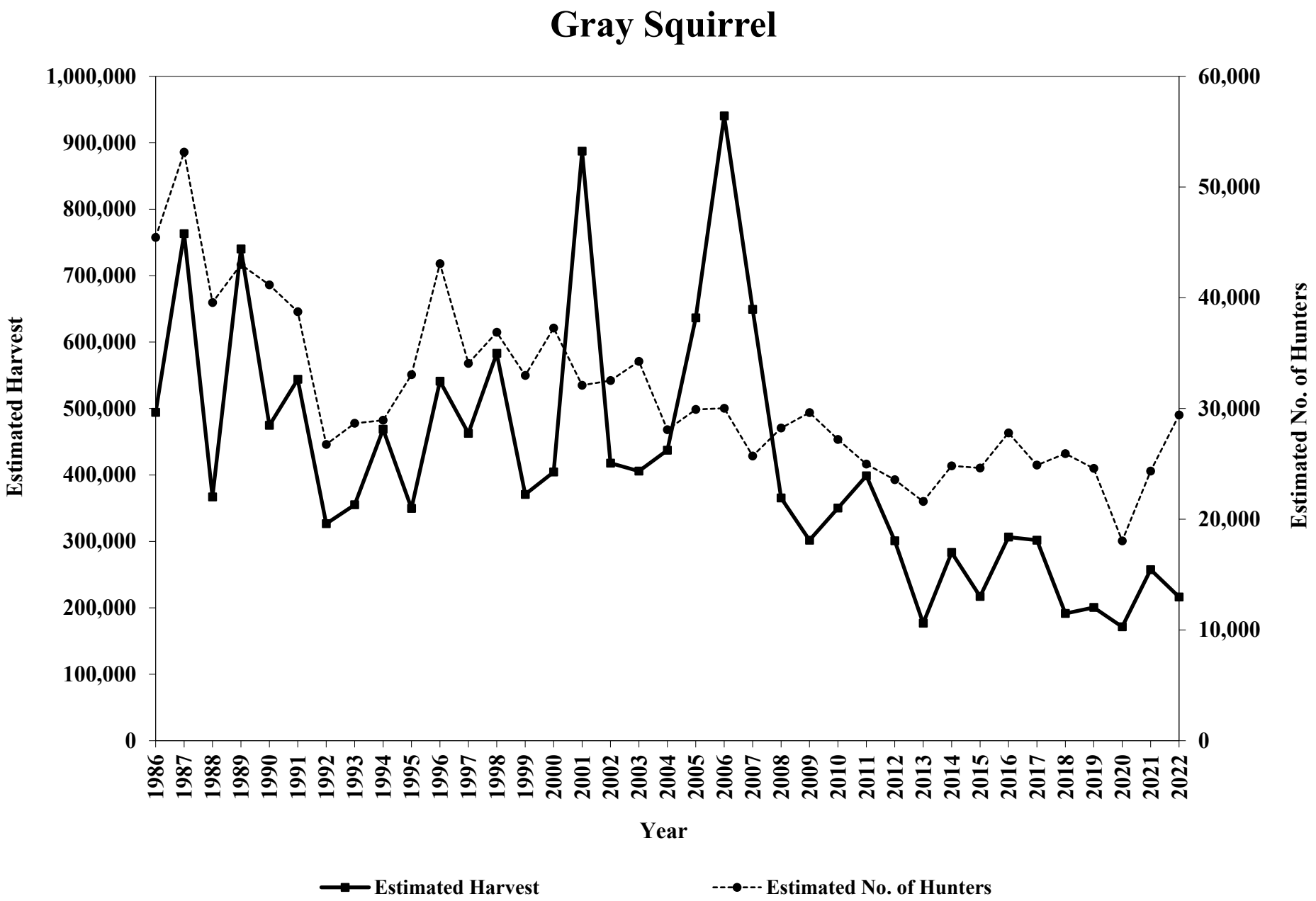


Figure A9. Statewide trends in estimated gray squirrel harvest and estimated number of gray squirrel hunters in Oklahoma, 1986-2022. All years displaying only resident license holders (senior, lifetime and annual).

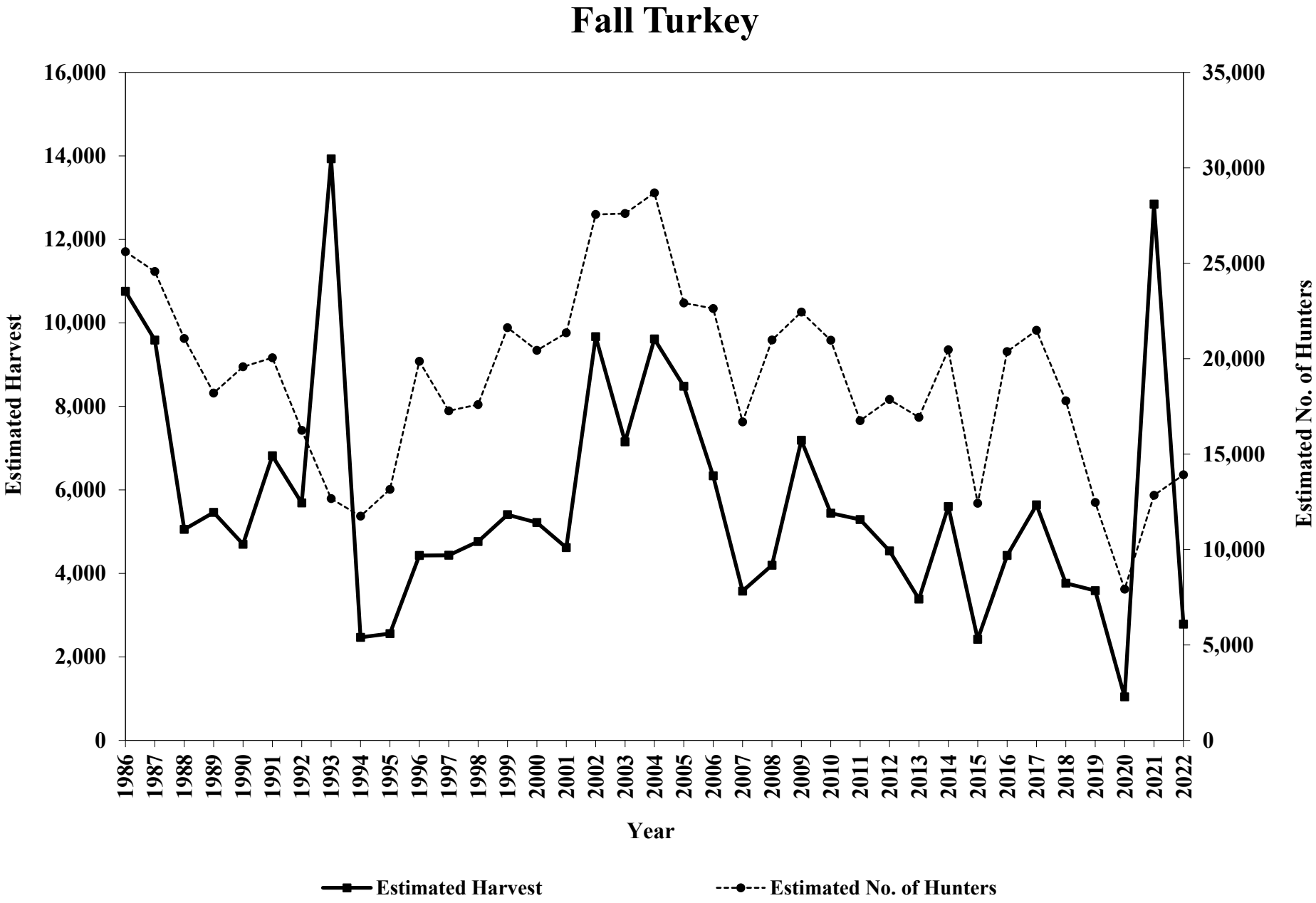


Figure A10. Statewide trends in estimated fall turkey harvest and estimated number of fall turkey hunters in Oklahoma, 1986-2022. All years displaying only resident license holders (senior, lifetime and annual).

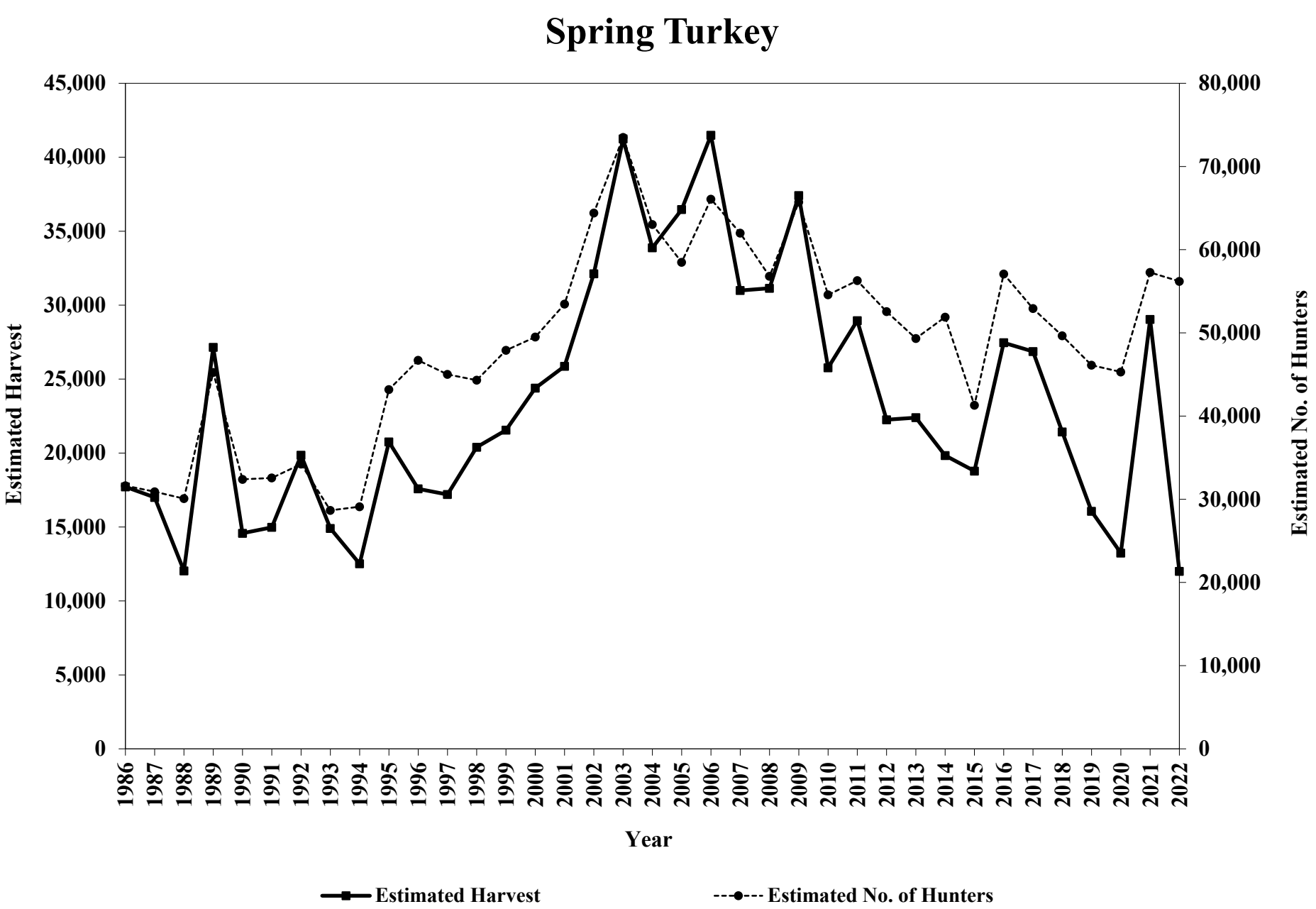


Figure A11. Statewide trends in estimated spring turkey harvest and estimated number of spring turkey hunters in Oklahoma, 1986-2022. All years displaying only resident license holders (senior, lifetime and annual).

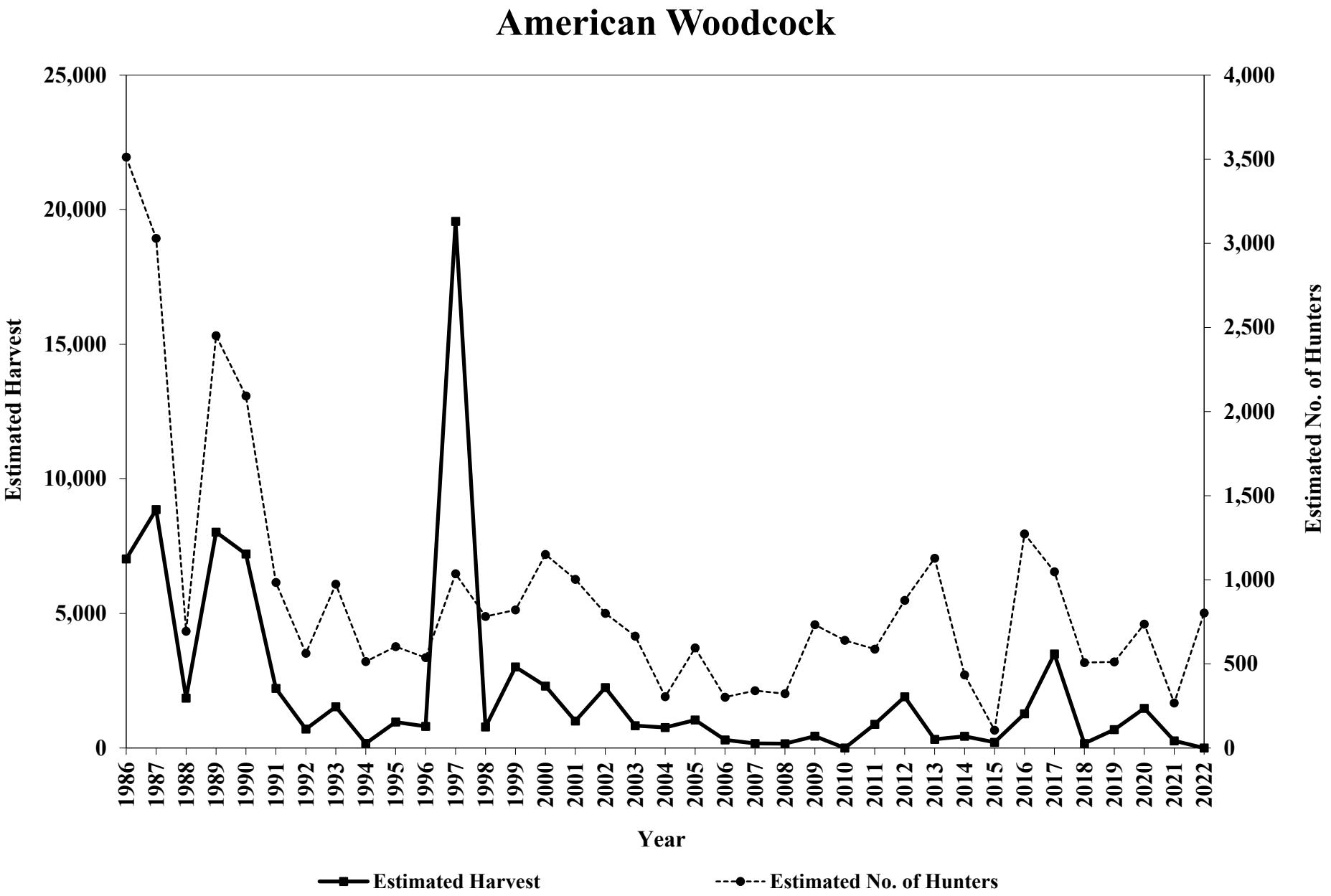


Figure A12. Statewide trends in estimated American woodcock harvest and estimated number of American woodcock hunters in Oklahoma, 1986-2022. All years displaying only resident license holders (senior, lifetime and annual).

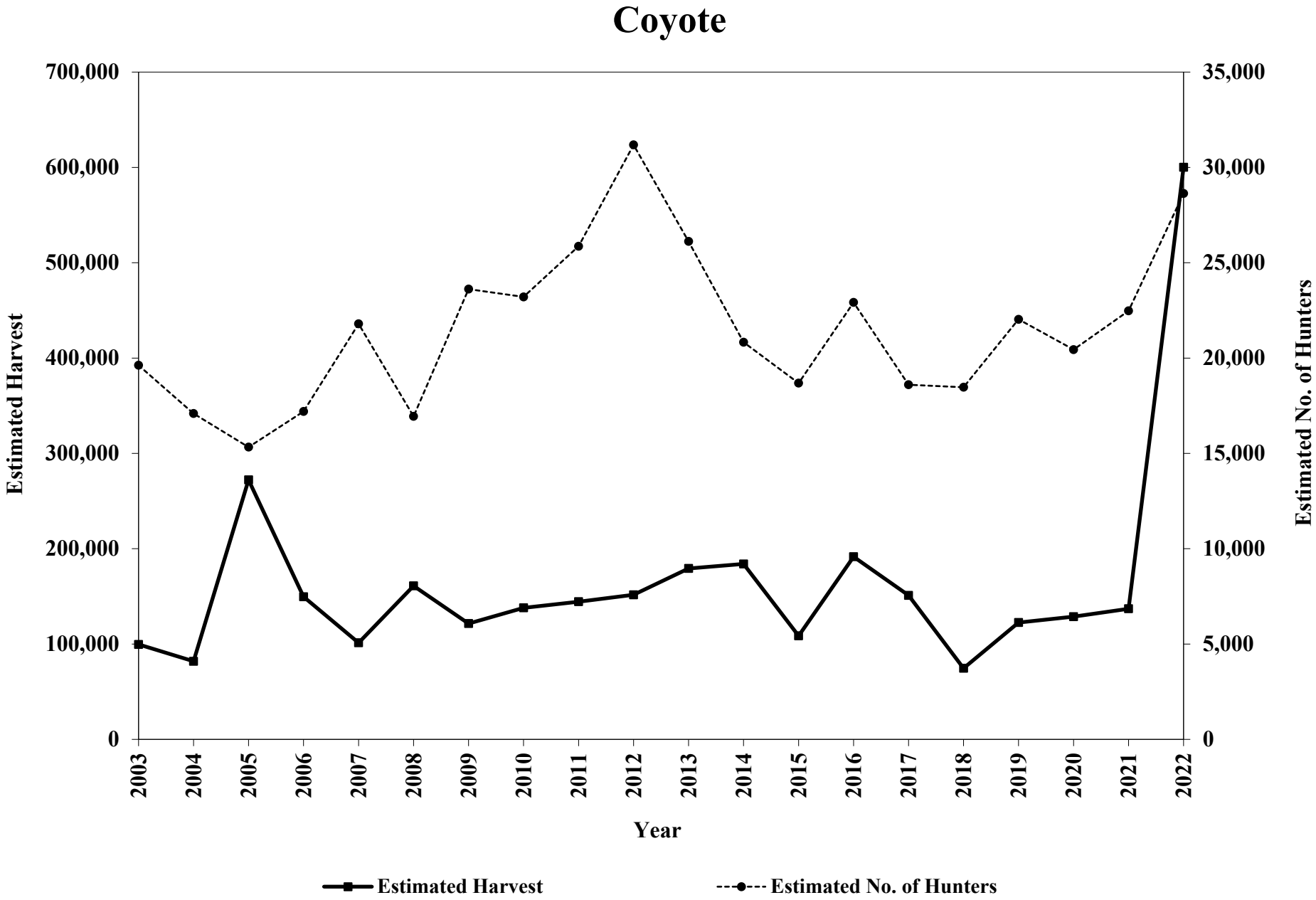


Figure A13. Statewide trends in estimated coyote harvest and estimated number of coyote hunters in Oklahoma, 2003-2022. All years displaying only resident license holders (senior, lifetime and annual).

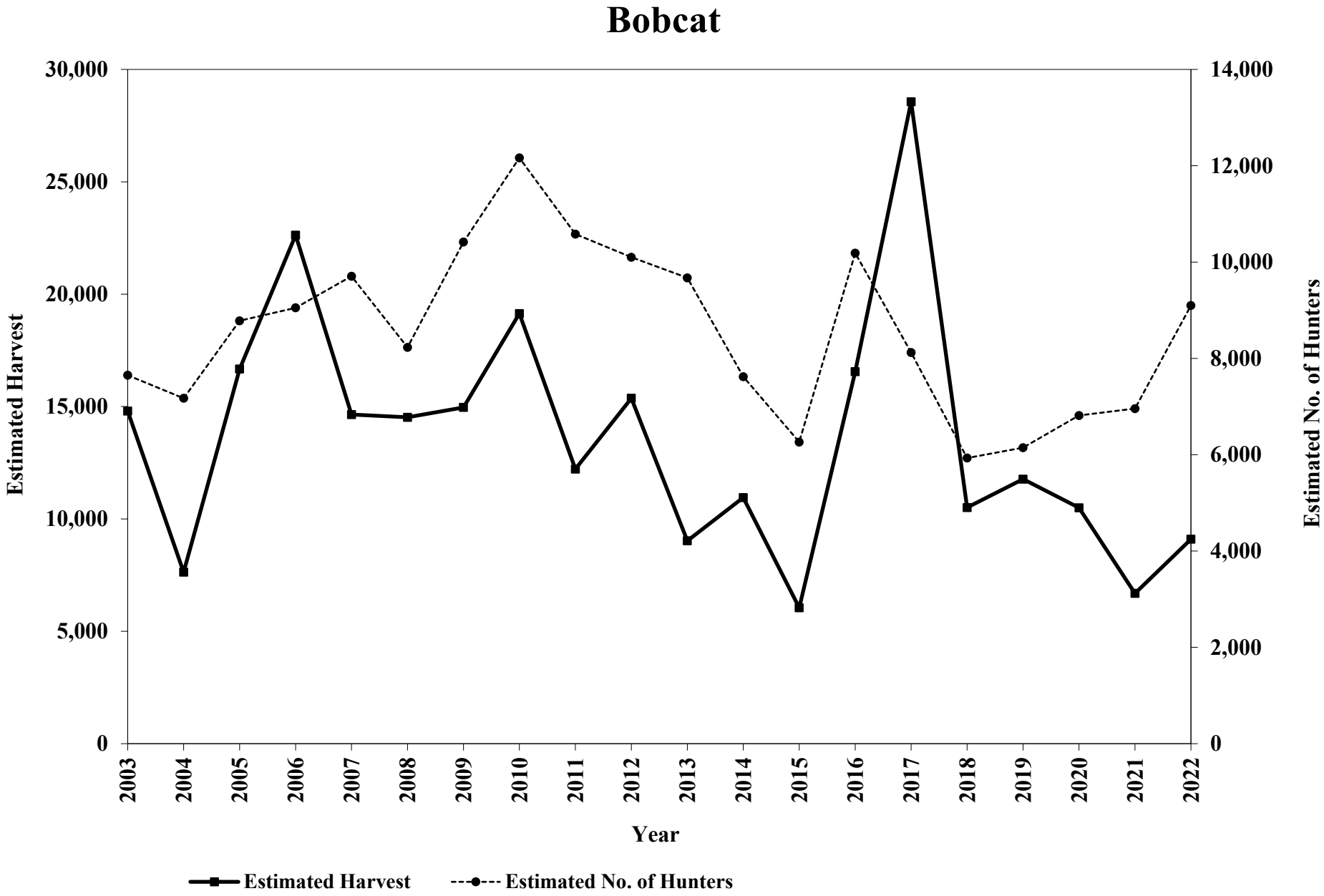


Figure A14. Statewide trends in estimated bobcat harvest and estimated number of bobcat hunters in Oklahoma, 2003-2022. All years displaying only resident license holders (senior, lifetime and annual).

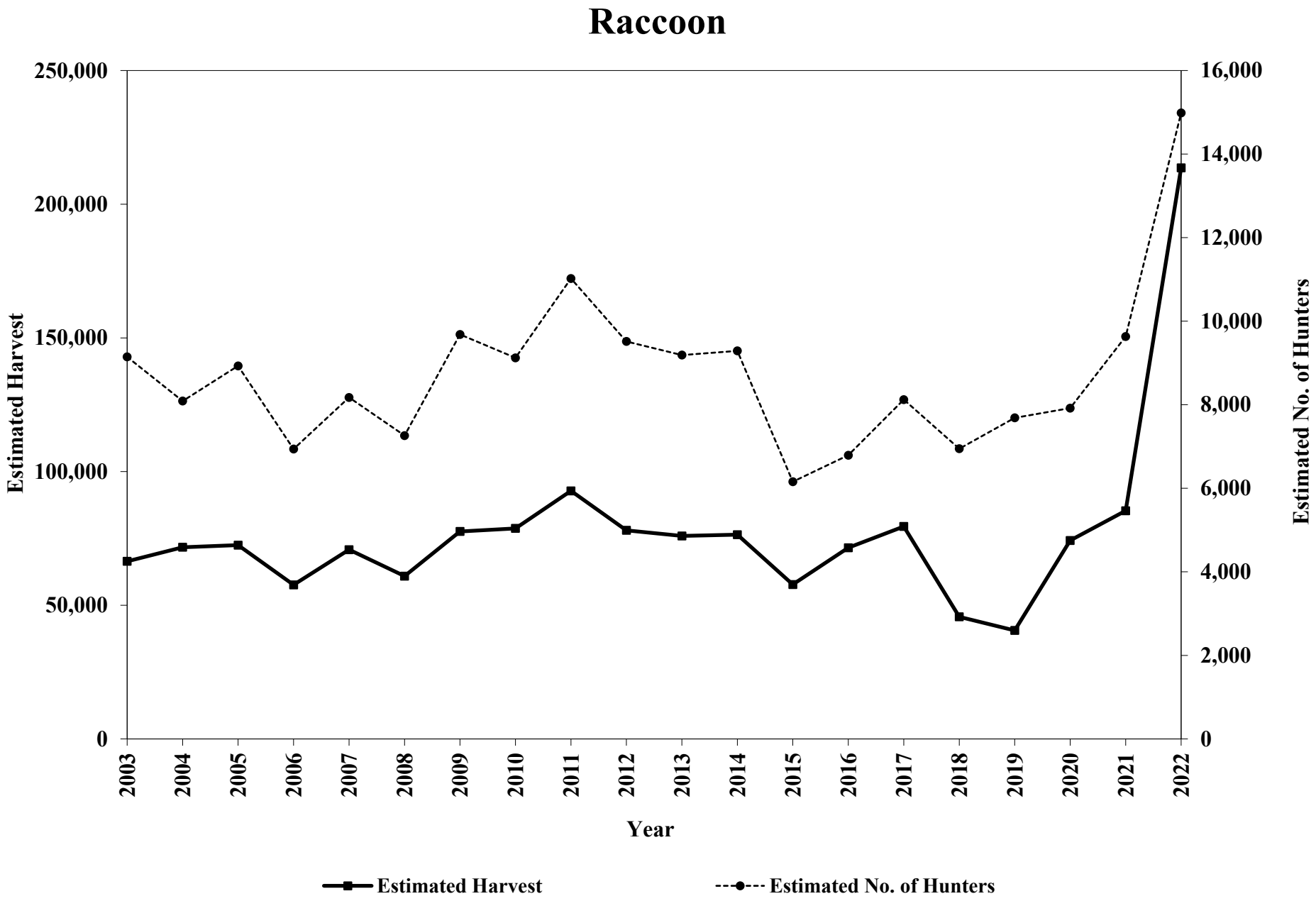


Figure A15. Statewide trends in estimated raccoon harvest and estimated number of raccoon hunters in Oklahoma, 2003-2022. All years displaying only resident license holders (senior, lifetime and annual).

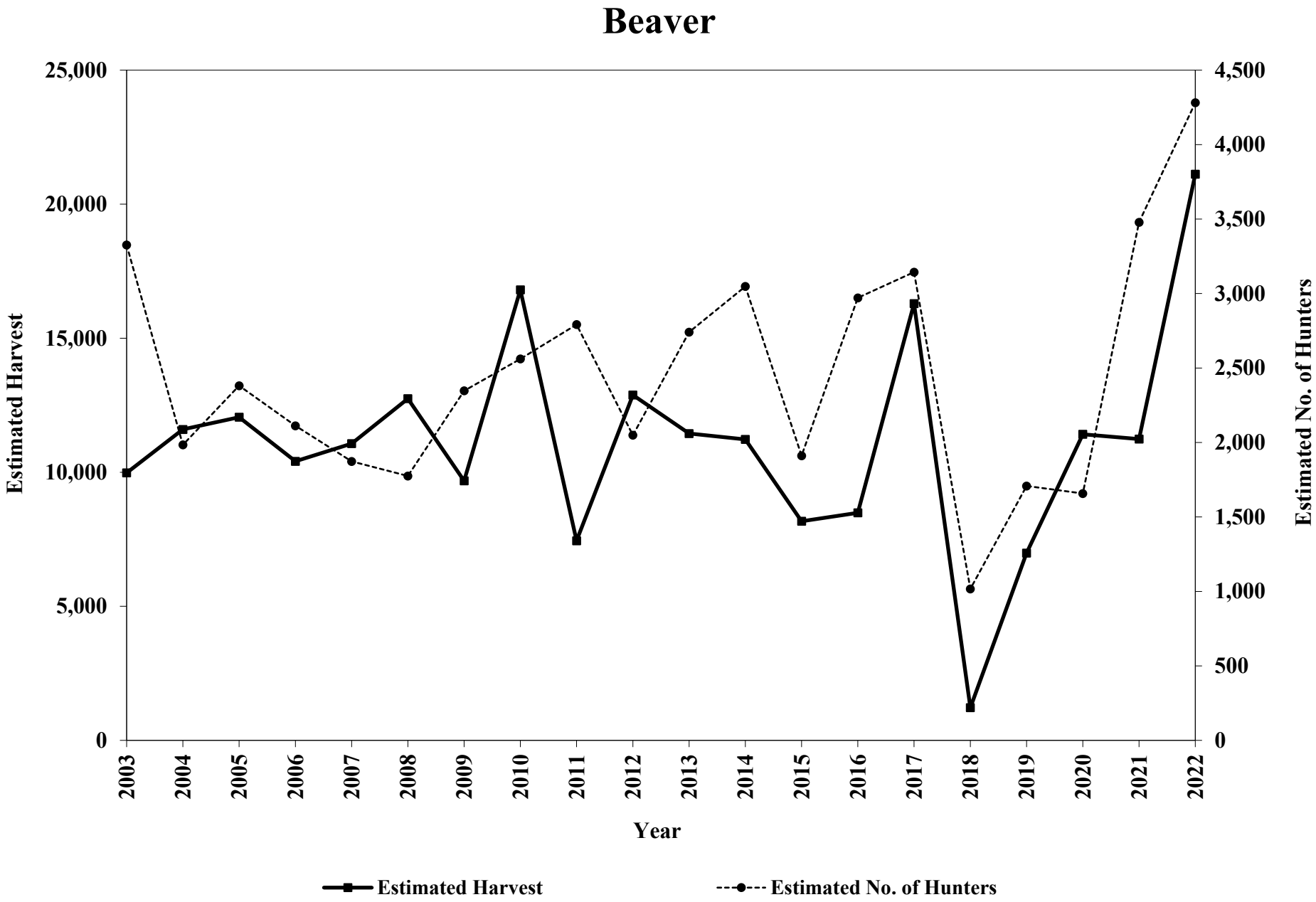


Figure A16. Statewide trends in estimated beaver harvest and estimated number of beaver hunters in Oklahoma, 2003-2022. All years displaying only resident license holders (senior, lifetime and annual).

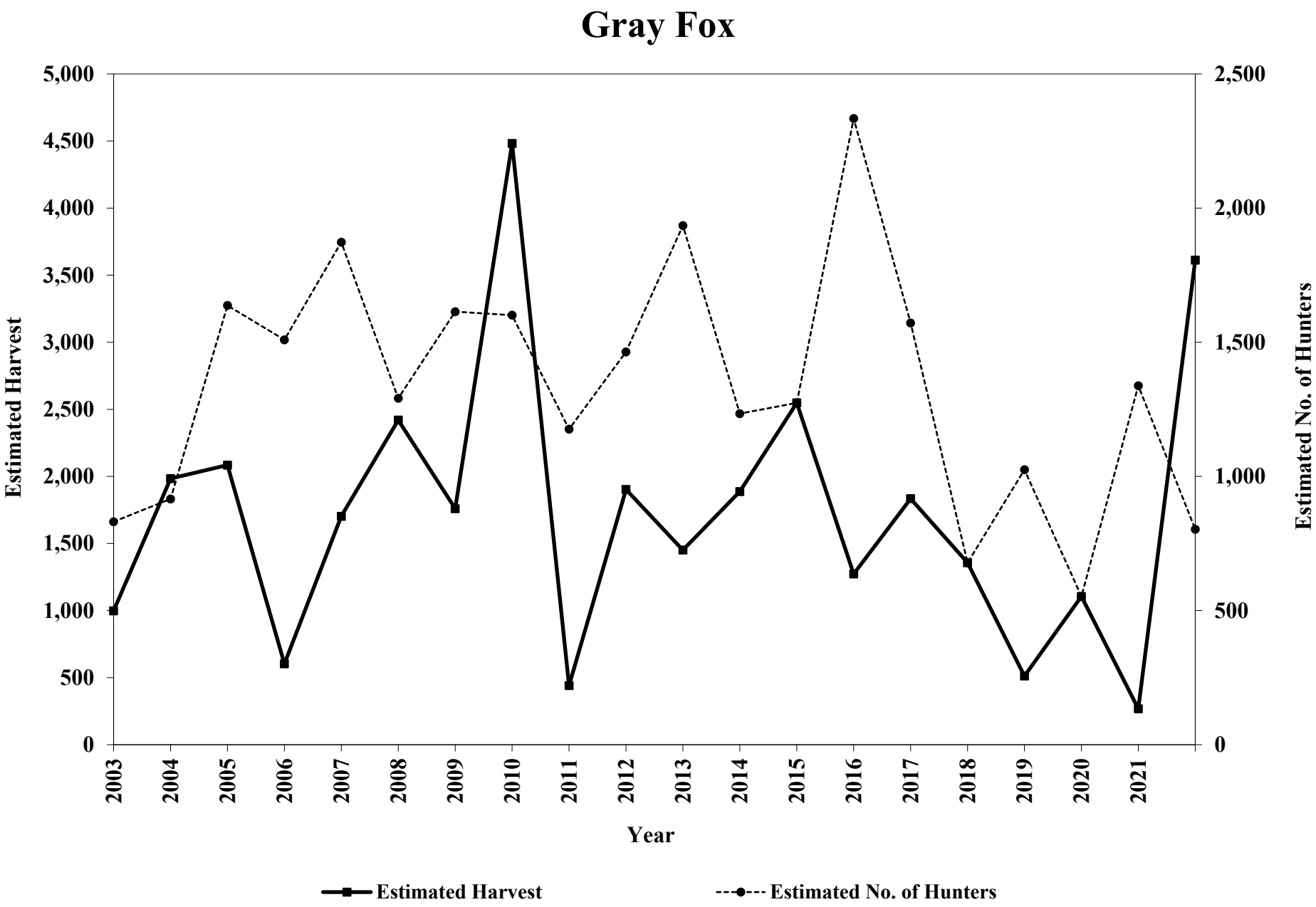


Figure A17. Statewide trends in estimated gray fox harvest and estimated number of gray fox hunters in Oklahoma, 2003-2022. All years displaying only resident license holders (senior, lifetime and annual).

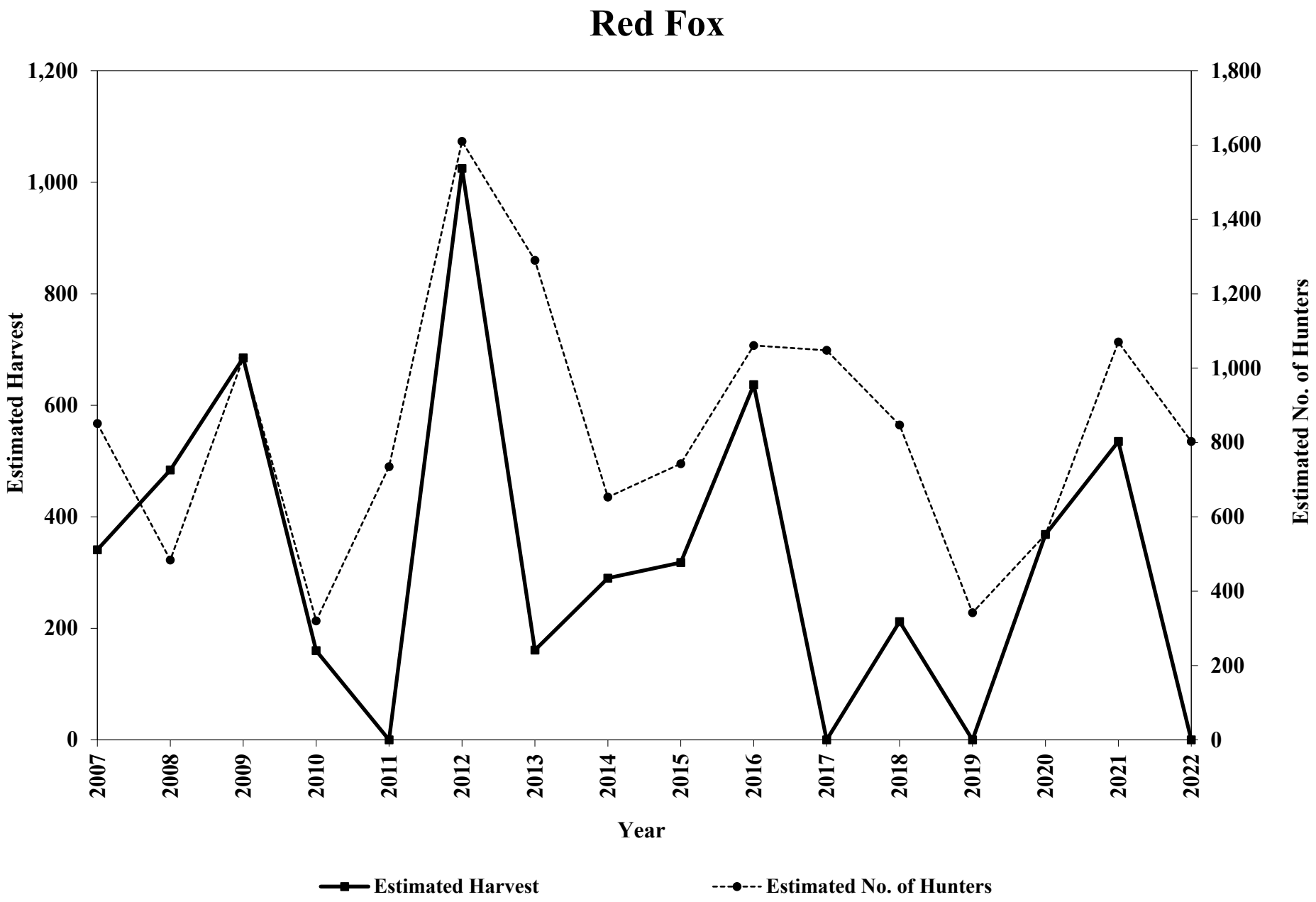


Figure A18. Statewide trends in estimated red fox harvest and estimated number of red fox hunters in Oklahoma, 2007-2022. All years displaying only resident license holders (senior, lifetime and annual).

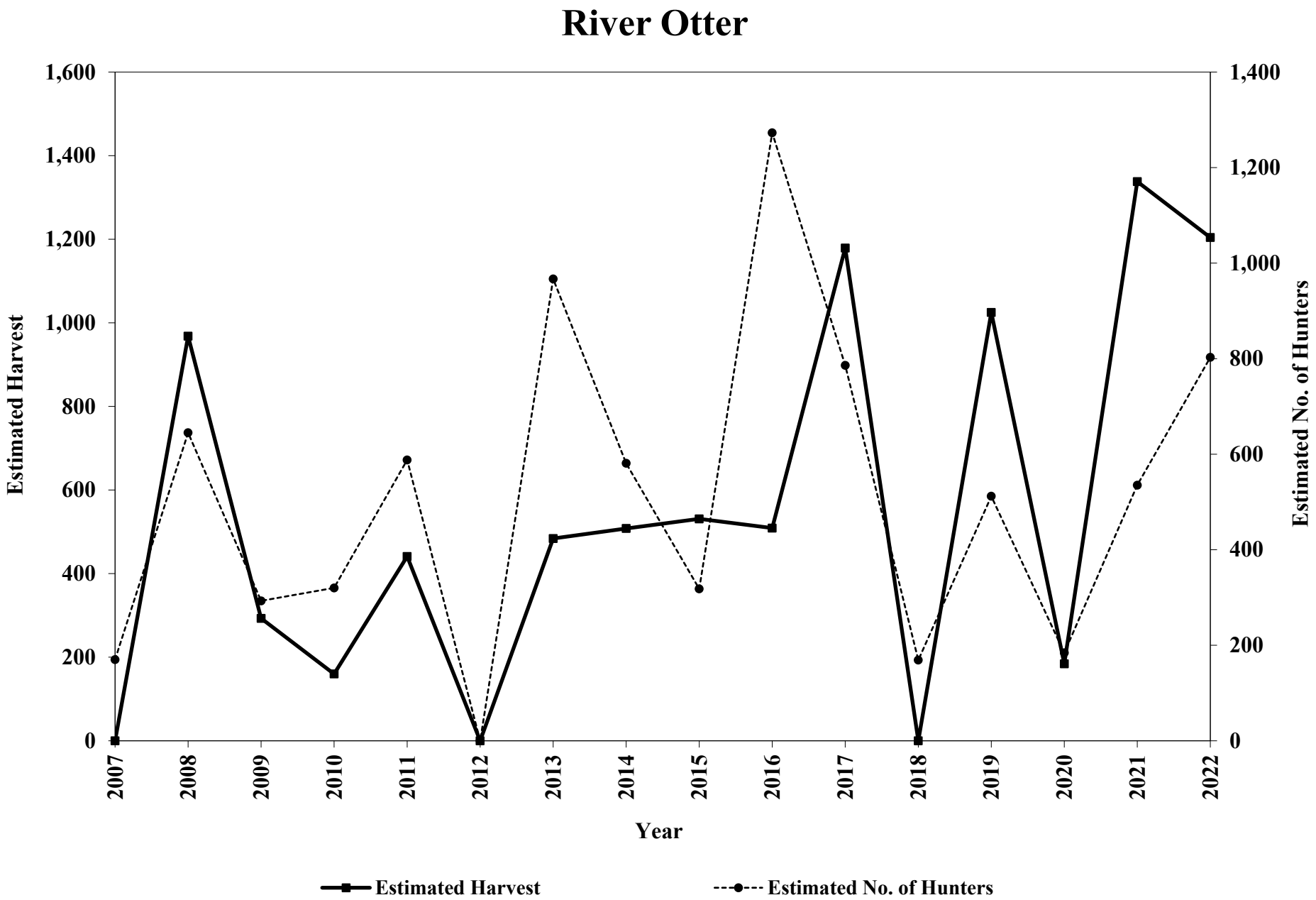


Figure A19. Statewide trends in estimated river otter harvest and estimated number of river otter hunters in Oklahoma, 2007-2022. All years displaying only resident license holders (senior, lifetime and annual).

APPENDIX B

Human Dimensions Issues – Tables and Graphs

Table B1. Rate of participation in specific 2022 hunting seasons by all license holders, and by license type. (*Small sample size.)

Hunting Season	Total Sample Participation (n = 2,642)		Participation by License Type: Lifetime (n = 905)		Annual/Five-Year (n = 617)		Senior (n = 652)		Non-Resident (n = 468)	
	Season *n*	Percent	Season *n*	Percent	Season *n*	Percent	Season *n*	Percent	Season n	Percent
Any Hunting	1,541	58.3	592	65.4	441	71.5	101	15.5	407	87.0
Deer (Overall)	1,233	46.7	551	60.9	360	58.3	77	11.8	245	52.4
Gun	954	36.1	481	53.1	275	44.6	61	9.4	137	29.3
Primitive Firearms	348	13.2	249	27.5	68	11.0	17	2.6	14	3.0
Archery	748	28.3	344	38.0	231	37.4	35	5.4	138	29.5
Special Antlerless	239	9.0	137	15.1	79	12.8	9	1.4	14	3.0
Youth Season	39	1.5	17	1.9	19	3.1	0	0.0	3	0.6
Turkey (Overall)	282	10.7	160	17.7	62	10.0	11	1.7	49	10.5
Spring Turkey	253	9.6	148	16.4	53	8.6	9	1.4	43	9.2
Fall Turkey	60	2.3	27	3.0	20	3.2	5	0.8	8	1.7
Dove	282	10.7	138	15.2	96	15.6	14	2.1	34	7.3
Feral Swine	402	15.2	204	22.5	94	15.2	22	3.4	82	17.5
Ducks	297	11.2	70	7.7	96	15.6	4	0.6	127	27.1
Geese	182	6.9	49	5.4	54	8.8	3	0.5	76	16.2
Squirrel (Overall)	160	6.1	84	9.3	52	8.4	18	2.8	6	1.3
Fox Squirrel	130	4.9	71	7.8	40	6.5	15	2.3	4	0.9
Gray Squirrel	115	4.4	57	6.3	40	6.5	13	2.0	5	1.1
Quail	88	3.3	41	4.5	19	3.1	7	1.1	21	4.5
Furbearers (Overall)	154	5.8	95	10.5	35	5.7	9	1.4	15	3.2
Coyote	119	4.5	75	8.3	28	4.5	4	0.6	12	2.6
Raccoon	59	2.2	35	3.9	15	2.4	6	0.9	3	0.6
Bobcat	35	1.3	26	2.9	7	1.1	1	0.2	1	0.2
Beaver*	18	0.7	13	1.4	1	0.2	2	0.3	2	0.4
Gray Fox*	4	0.2	2	0.2	0	0.0	1	0.2	1	0.2
Red Fox*	3	0.1	2	0.2	0	0.0	1	0.2	0	0.0
Otter*	3	0.1	2	0.2	0	0.0	1	0.2	0	0.0
Rabbit (Overall)	52	2.0	22	2.4	20	3.2	5	0.8	5	1.1
Cottontail Rabbit	45	1.7	20	2.2	19	3.1	4	0.6	2	0.4
Swamp Rabbit*	9	0.3	4	0.4	3	0.5	2	0.3	0	0.0
Jackrabbit*	5	0.2	0	0.0	3	0.5	0	0.0	2	0.4
Pheasant	50	1.9	23	2.5	12	1.9	4	0.6	11	2.4
Crow	32	1.2	17	1.9	7	1.1	8	1.2	0	0.0
Woodcock*	3	0.1	1	0.1	1	0.2	1	0.2	0	0.0

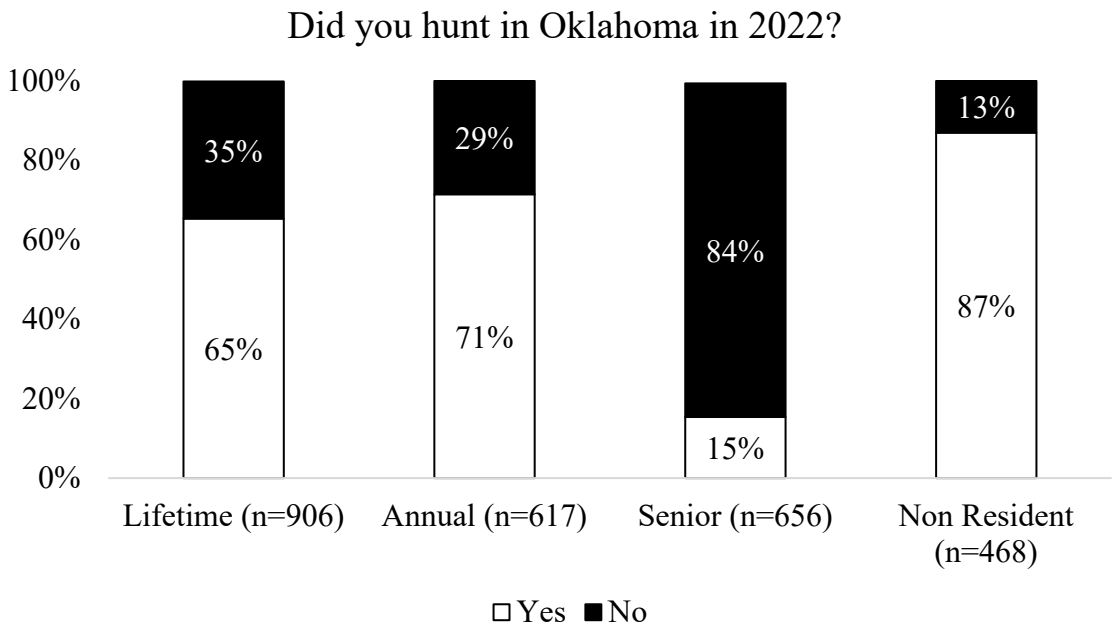


Figure B1. Distribution of hunting license holder participation in hunting activities during 2022, by license category. Both hunting and combination-hunting-and-fishing licenses were included in all license categories.

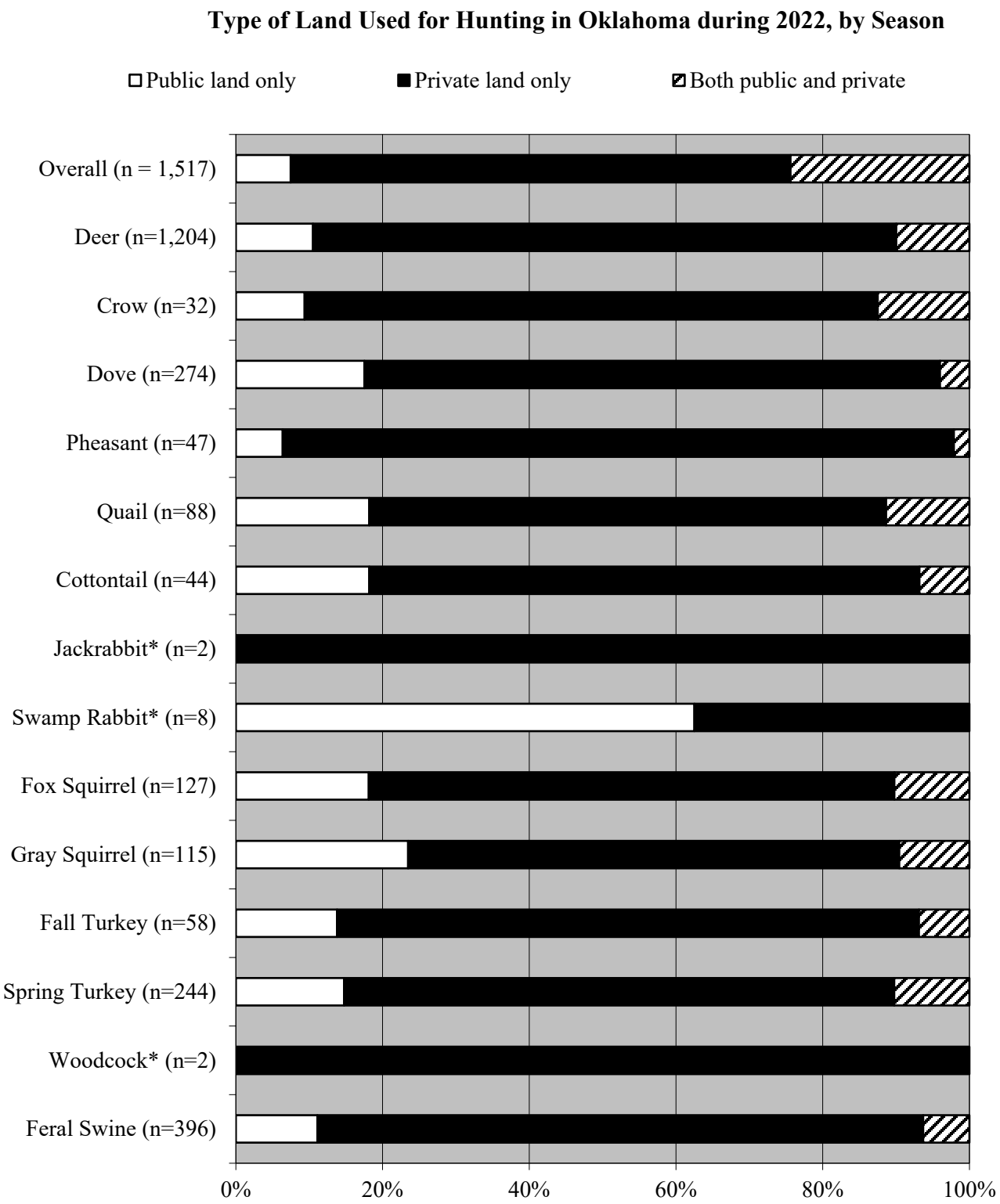


Figure B2. Distribution of land use for specific hunting seasons during 2022. Sample sizes and missing data vary for each species. *Small sample size. Displaying senior, annual, lifetime and nonresident licenses

[Asked of all active hunters:]

"Did you use public land for any portion of your hunting in Oklahoma during 2022? (n=1,541)"

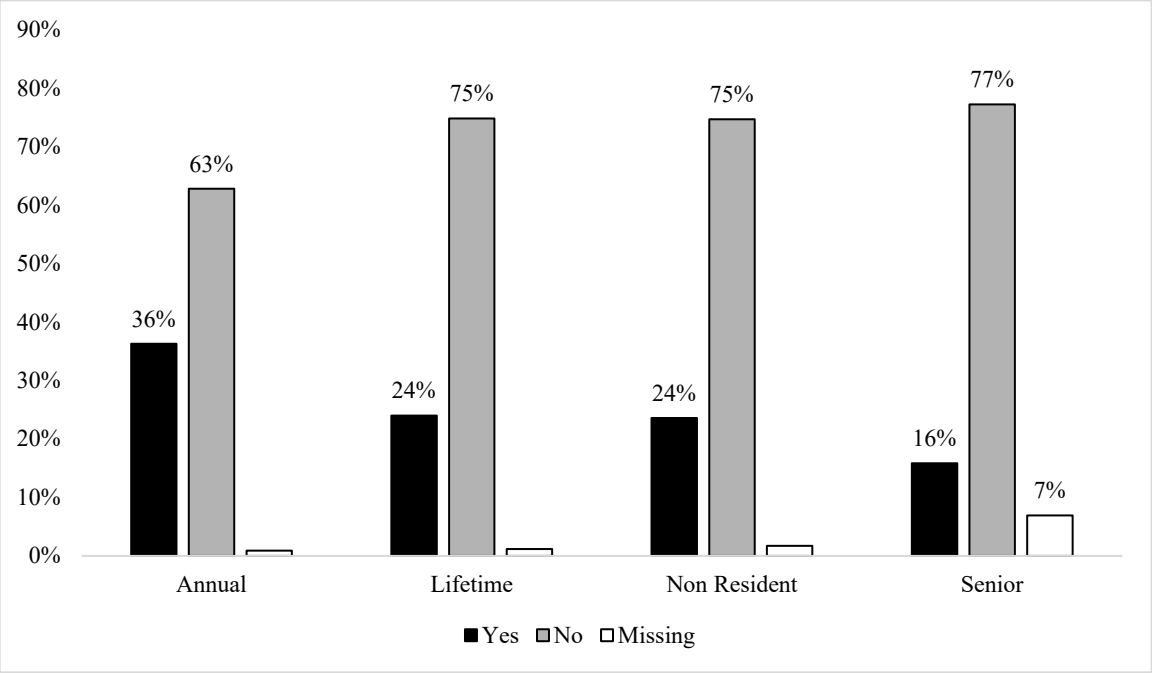
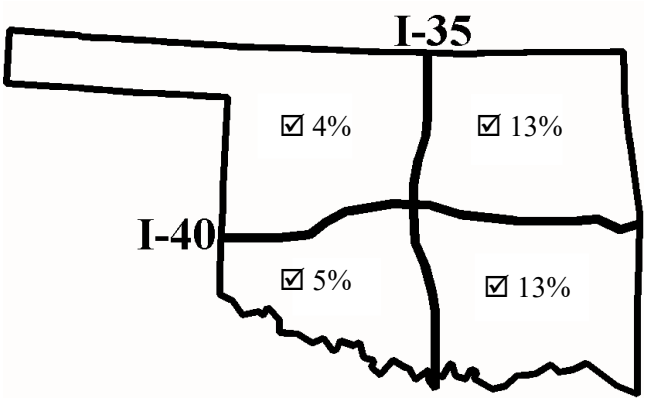


Figure B3. Distribution of hunting license holder use of public land during the 2022 hunting season.

Please check the box for each part of Oklahoma where you hunted on public land during 2022, based on the major highways:"

Active resident hunters 2022 (*n* = 1,134)



Active nonresident hunters 2022 (*n* = 407)

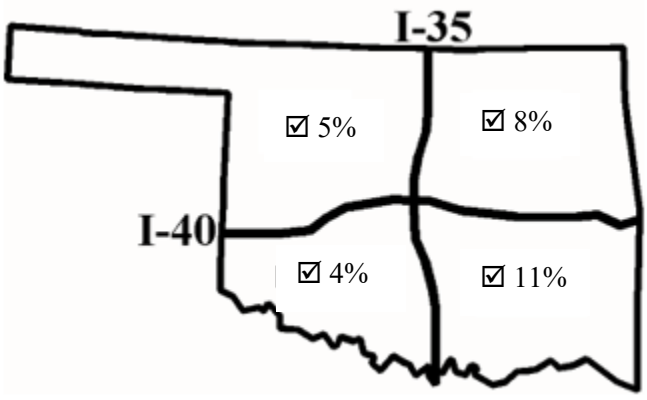


Figure B4. Use of public land located in each region, by active hunting license holders in 2022. Displaying senior, annual, lifetime (resident) and nonresident licenses

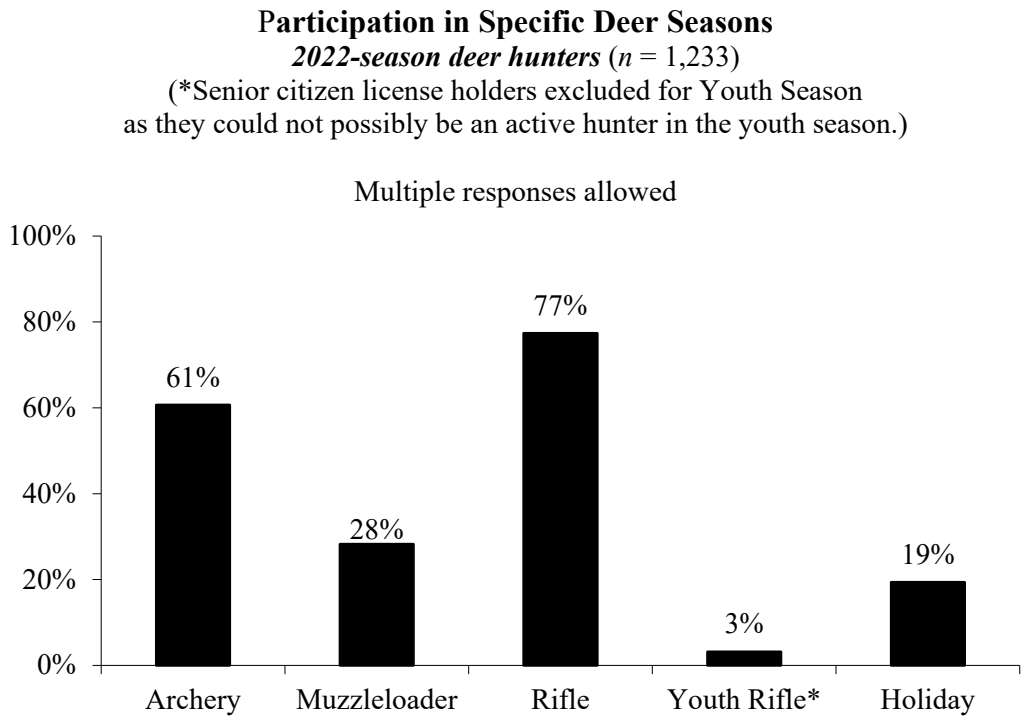


Figure B5. Participation in individual deer seasons, by 2022-season resident deer hunters. Displaying senior, annual, lifetime and nonresident licenses.

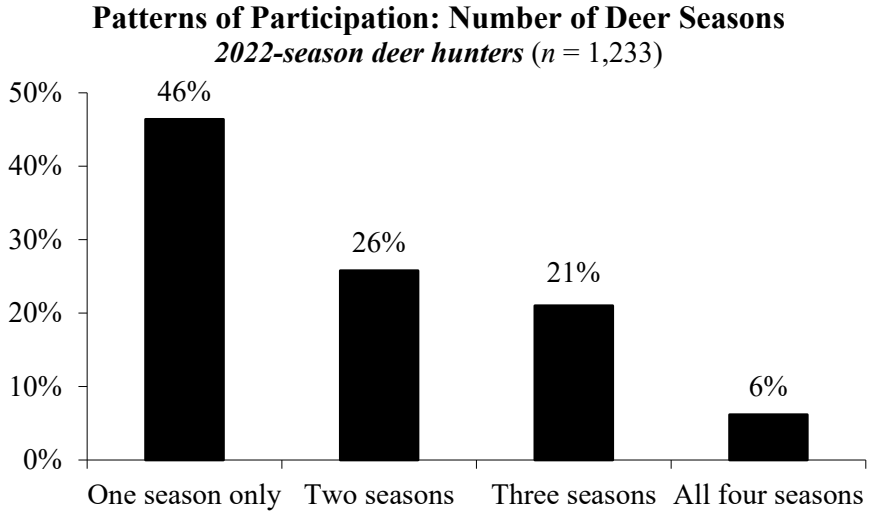


Figure B6. Number of deer seasons (archery, primitive, gun and holiday season; youth season excluded) participated in by 2022-season deer hunters. Displaying senior, annual, lifetime and nonresident licenses

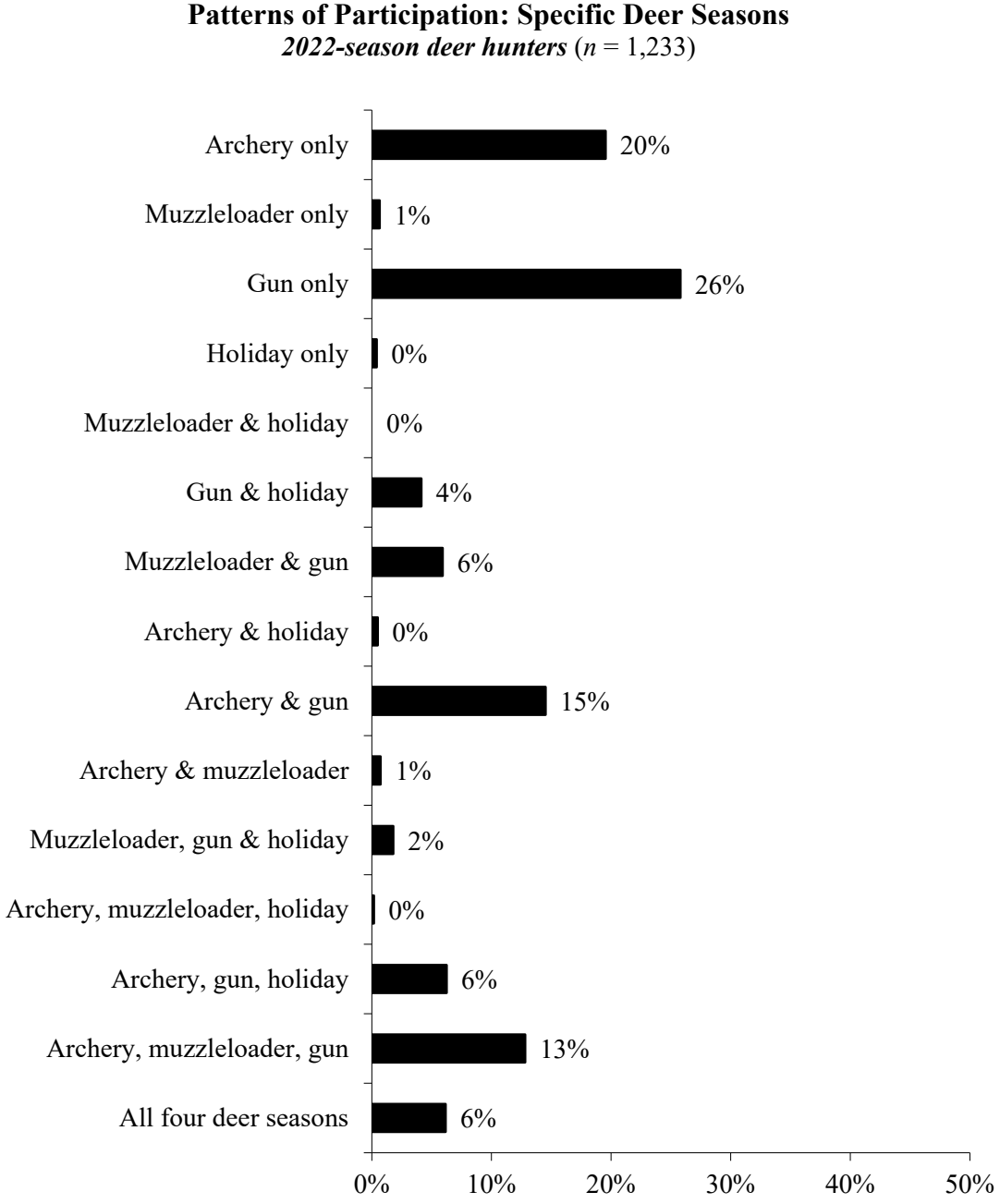


Figure B7. Specific deer seasons (archery, primitive, gun and holiday antlerless season; youth season excluded) participated in by 2022-season resident deer hunters. Displaying senior, annual, lifetime and nonresident licenses

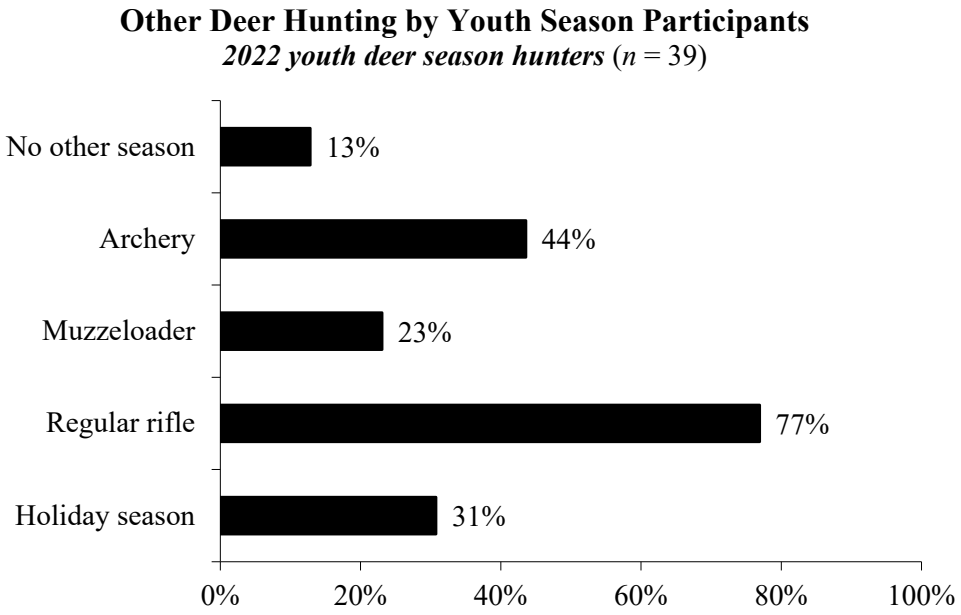


Figure B8. Participation in other deer seasons by 2022 youth deer season hunters. Displaying senior, annual, lifetime and nonresident licenses.

Total Number of Deer Harvested Per Hunter
2022-season deer hunters (*n* = 1,233)

Total Number of Bucks: annual limit of 2 in archery, muzzleloader, gun & youth combined

Total Number of Does: annual limit of 7 in archery, muzzleloader, gun, youth & the holiday antlerless season combined

Total Number of Deer: annual limit of 7 in archery, muzzleloader, gun, youth & the holiday antlerless season combined

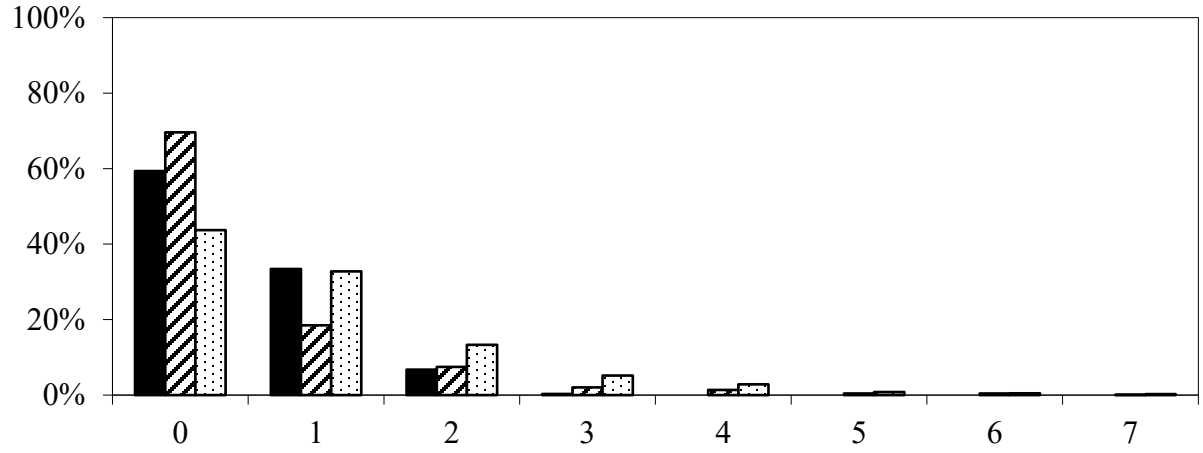


Figure B9. Total number of deer harvested per hunter across all 2022 seasons: archery, muzzleloader, gun, youth, and the holiday antlerless season. Displaying senior, annual, lifetime, and nonresident licenses

Reasons for Not Hunting by Inactive Hunting License Holders
Did not hunt in 2022, n=1,091, missing=18

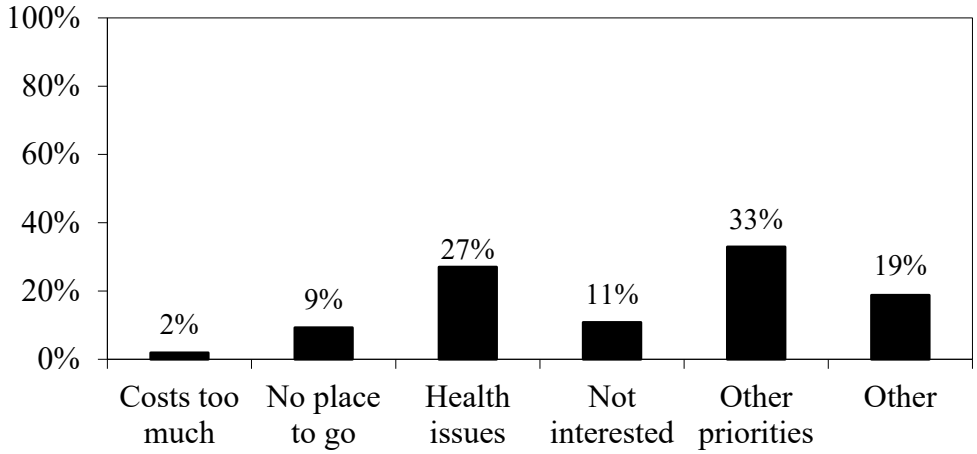


Figure B10. Barriers to hunting participation, by hunting license holders who were inactive in 2022. Displaying senior, annual, lifetime, and nonresident license holders.

[Asked of all active hunters:]

"Was any of the land that you hunted on in 2022 Oklahoma Land Access Program (OLAP) land?"

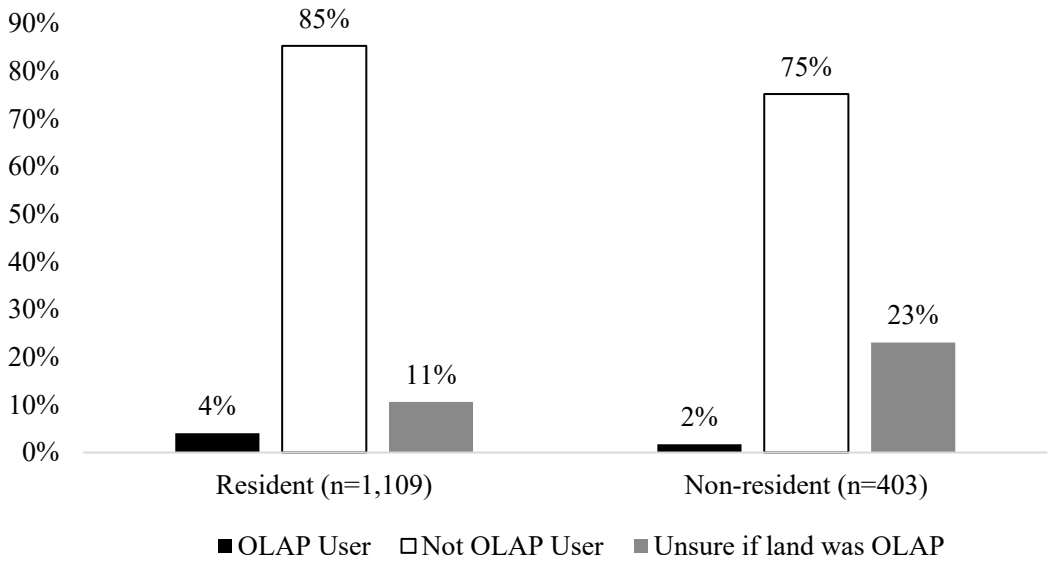


Figure B11. Use of OLAP property to hunt in the last year. Displaying senior, annual, lifetime, (resident) and nonresident licenses

[Asked of all active hunters:]

"Grant money allows ODWC to lease land from private landowners for public hunting access. If grants were no longer available, would you support or oppose a $40/year (residents)/// $80/year (non-residents) access fee (in addition to license and tag fees) to provide continued access to these private lands?"

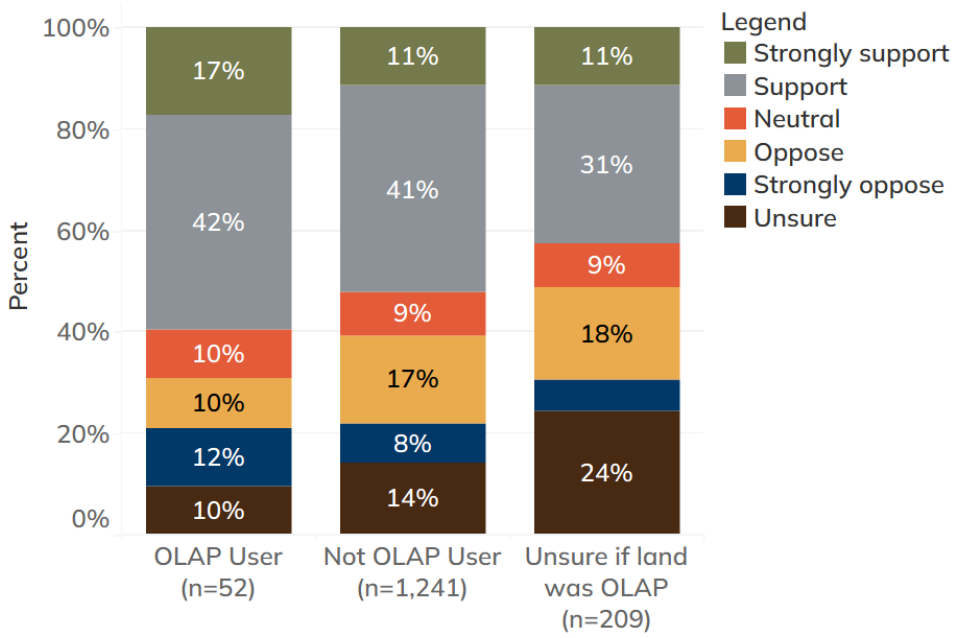


Figure B12. Support for an OLAP permit by whether the respondent had used OLAP property to hunt in the last year. Displaying senior, annual, lifetime, and nonresident licenses

Do you support or oppose the use of e-bikes on Wildlife Management Areas in Oklahoma?
Resident active hunters in 2022 by use of public land

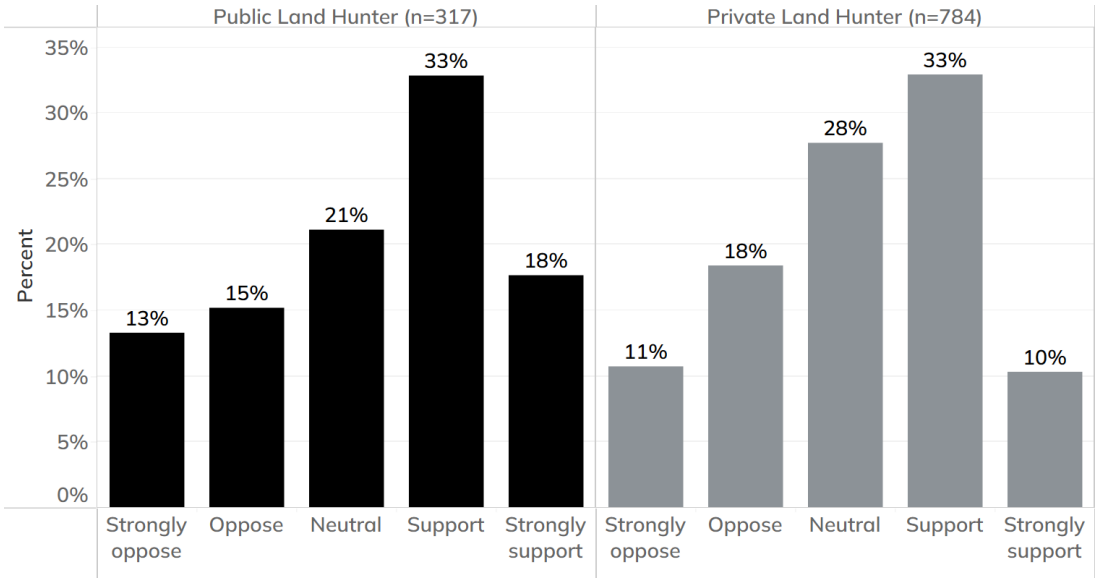


Figure B13. Level of support for the use of e-bikes on Wildlife Management Areas separated by use of public land in 2022. Displaying active senior, annual, and lifetime license holders.

To what extent do you disagree or agree with each of the following statements related to CWD?
Resident active hunters in 2022 (n=1,539)

I feel that I have enough information about…..

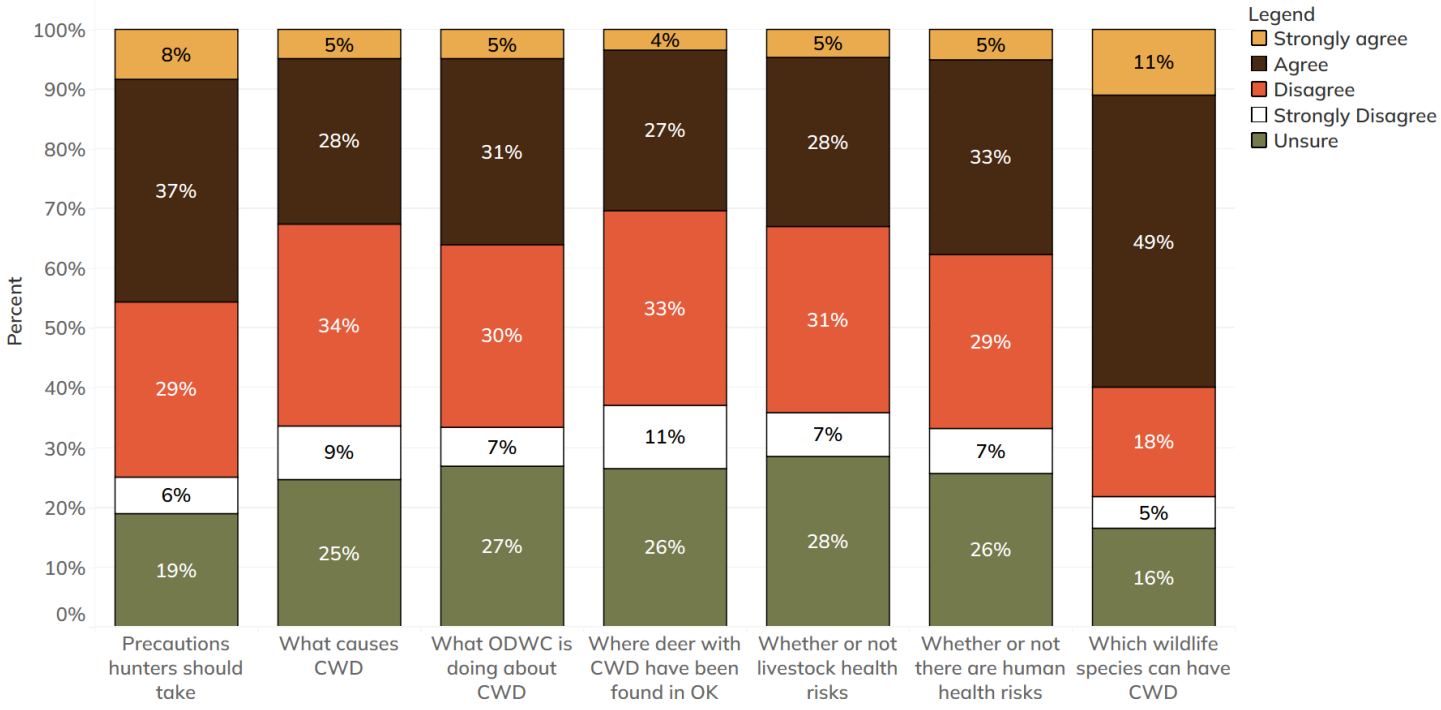


Figure B14. Level of information held on various topics related to CWD. Displaying active senior, annual, and lifetime license holders.

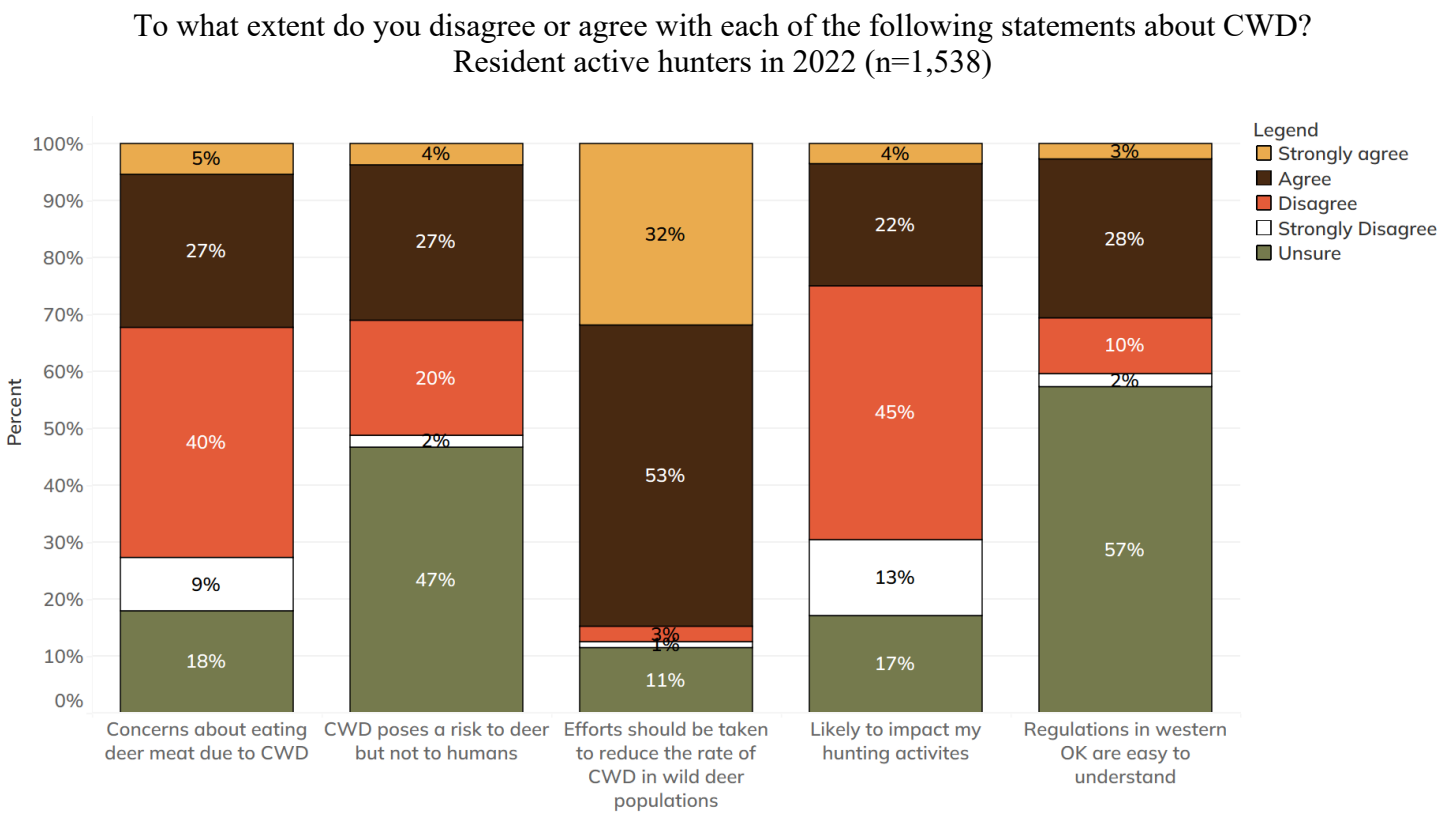


Figure B15. Level of agreement on various statements related to CWD. Displaying active senior, annual, and lifetime license holders.

APPENDIX C

Survey Instrument and Reminder Postcard

2022-Season Game Harvest Survey

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

Congratulations, you are one of a few hunting license holders that the Oklahoma Department of Wildlife Conservation (ODWC) has selected for a very important survey. We are interested in learning about the seasons you hunted in 2022 (if any) and the game you harvested. We need your help with this survey even if you did not hunt. Your answers will help us improve wildlife conservation in Oklahoma. This survey is being conducted via mail and phone. Should we not receive your survey by mail we will begin contacting you via the phone number provided on your license holder information the first week of February.

As a token of our appreciation, upon receipt of your completed survey you will be entered to win an *Outdoor Oklahoma* hat and WMA atlas bundle. The survey should take no more than 15 minutes of your time. If you have any questions or would like a report of this study's findings, please contact Betsey York at (405) 521-4605 or betsey.york@odwc.ok.gov. Your help in this project is greatly appreciated, and we look forward to learning about your 2022 hunting experiences!

Sincerely,
Betsey York
Human Dimensions Specialist

1. Did you hunt in Oklahoma during 2022?

☐ 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
☐ Not interested	☐ Other priorities	☐ Other

If you did not hunt in 2022, your survey is complete. Please mail back in the envelope provided at your earliest convenience.

Public Land

2. Did you use public land for any portion of your hunting in Oklahoma during 2022?

(Public land might include wildlife management areas, wildlife refuges, U.S. Army Corps of Engineers land, state parks, city-owned land, etc. NOT privately owned land-ex. OLAP)

☐ No → If no, please go to question #6.

☐ Yes

3. Considering all Oklahoma hunting seasons in 2022, how much of your hunting occurred on public vs. private land?

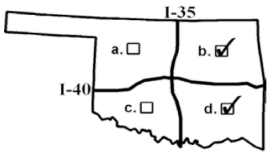
_____% Public land

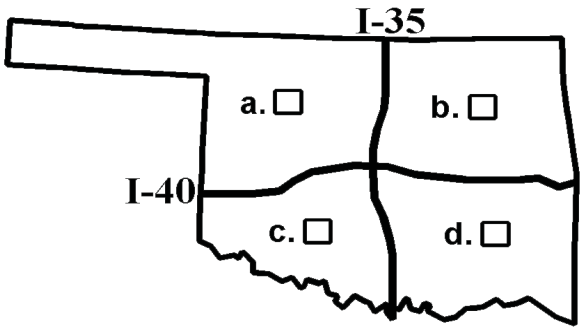
_____% Private land

Total should equal: 100%

4. Please check (☑) the box for each part of Oklahoma where you hunted on public land during 2022, based on the major highways:

Example:





Oklahoma Land Access Program

5. Was any of the land that you hunted on in 2022 Oklahoma Land Access Program (OLAP) land?

☐ Yes ☐ No ☐ Unsure

6. In Oklahoma, OLAP properties are leased by ODWC from private landowners to allow for public access through grant money. Suppose Oklahoma no longer had access to this funding source for OLAP properties, would you support or oppose a $40/year access fee to allow continued access to these private lands and fund OLAP property management?

☐ Strongly oppose ☐ Oppose ☐ Support ☐Strongly support ☐Unsure

Hunting in Oklahoma During 2022

Please complete the box for each season <u>you</u> hunted in Oklahoma during 2022 (not others in your household or hunting party). If you are unsure about exact numbers, please estimate.

7. Quail

a. Did you hunt **quail** in Oklahoma during 2022? ☐ Yes ☐ No
(If not, skip to next box.)

b. How many days did you hunt quail? _____

c. How many quail did you harvest? _____ Scaled quail
_____ Bobwhite
_____ Unsure of species
☐ 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 2022:

f. How many days did you hunt quail on public land? _____

g. How many quail did you harvest on public land? _____

8. Pheasant

a. Did you hunt **pheasant** in Oklahoma during 2022? ☐ 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?)

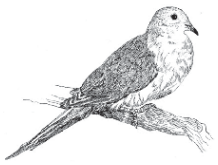
e. Land used for pheasant hunting? ☐ Public ☐ Private ☐ Both

If you hunted pheasant on <u>public</u> land at all during 2022:

f. How many days did you hunt pheasant on public land? _____

g. How many pheasant did you harvest on public land? _____

9. Dove



a. Did you hunt **dove** in Oklahoma during 2022? ☐ 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

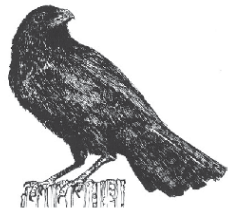
If you hunted dove on <u>public</u> land at all during 2022:
f. How many days did you hunt dove on public land? _____
g. How many dove did you harvest on public land? _____

10. Woodcock

a. Did you hunt **woodcocks** in Oklahoma during 2022? ☐ 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 2022:
f. How many days did you hunt woodcocks on public land? _____
g. How many woodcocks did you harvest on public land? _____

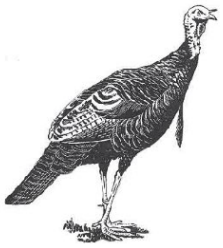
11. Crow



a. Did you hunt **crows** in Oklahoma during 2022? ☐ 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 2022:
f. How many days did you hunt crows on public land? _____
g. How many crows did you harvest on public land? _____

12. Spring Turkey



a. Did you hunt the **spring turkey season** in Oklahoma during 2022? ☐ Yes ☐ No
(If not, skip to next box.)

b. How many days did you hunt spring turkey? _____

c. Did you harvest a tom? ☐ Yes ☐ No

d. County you hunted spring turkey most often? _____
(If unsure, what town is closest?)

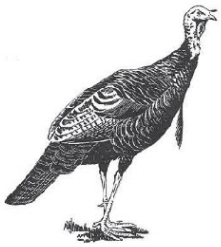
e. Land used for spring turkey hunting? ☐ Public ☐ Private ☐ Both

If you hunted turkey on <u>public</u> land at all during spring 2022:

f. How many days did you hunt spring turkey on public land? _____

g. Was your tom harvested on public land? ☐ Yes ☐ No

13. Fall Turkey



a. Did you hunt the **fall turkey season** in Oklahoma during 2022? ☐ Yes ☐ No
(If not, skip to next box.)

b. How many days did you hunt fall turkey? _____

c. Did you harvest a tom? ☐ Yes ☐ No

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 2022:

f. How many days did you hunt fall turkey on public land? _____

g. Was your tom harvested on public land? ☐ Yes ☐ No

14. Gray Squirrel

a. Did you hunt **gray squirrels** in Oklahoma during 2022? ☐ 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 2022:

f. How many days did you hunt gray squirrels on public land? _____

g. How many gray squirrels did you harvest on public land? _____

15. Fox Squirrel

a. Did you hunt **fox squirrels** in Oklahoma during 2022? ☐ 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 2022:

f. How many days did you hunt fox squirrels on public land? _____

g. How many fox squirrels did you harvest on public land? _____

16. Cottontail Rabbit

a. Did you hunt **cottontail rabbits** in Oklahoma during 2022? ☐ 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?)

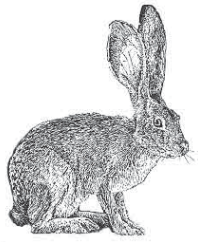
e. Land used for cottontail rabbit hunting? Public ☐ Private ☐ Both

If you hunted cottontail rabbits on <u>public</u> land at all during 2022:

f. How many days did you hunt cottontail rabbits on public land? _____

g. How many cottontail rabbits did you harvest on public land? _____

17. Jackrabbit



a. Did you hunt **jackrabbits** in Oklahoma during 2022? ☐ 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 2022:

f. How many days did you hunt jackrabbits on public land? ____

g. How many jackrabbits did you harvest on public land? ____

18. Swamp Rabbit

a. Did you hunt **swamp rabbits** in Oklahoma during 2022? ☐ 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 2022:

f. How many days did you hunt swamp rabbits on public land? _____

g. How many swamp rabbits did you harvest on public land? _____

19. Furbearers

a. Did you hunt or trap **furbearers** in Oklahoma during 2022?
☐ **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	→	_____	→	_____

20. Feral Swine (feral hogs, feral pigs, etc.)

a. Did you target **feral swine** in Oklahoma during 2022? ☐ Yes ☐ No *(If not, skip to next box.)*

b. How many days did you target feral swine? _____

c. How many feral swine did you harvest? _____ ☐ None

d. County you targeted feral swine most often? _____
(If unsure, what town is closest?)

e. Land used for targeting feral swine? ☐ Public ☐ Private ☐ Both

If you targeted feral swine on <u>public</u> land at all during 2022:

f. How many days did you target feral swine on public land? _____

g. How many feral swine did you harvest on public land? _____

Deer Hunting in 2022

21. Deer

a. Did you hunt deer in Oklahoma during 2022?

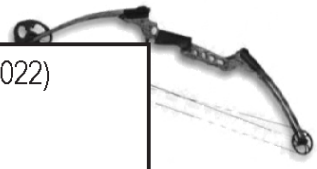
☐ Yes ☐ No → *(If you did not hunt deer during 2022, please skip to question 27.)*

b. County you hunted deer most often? _____

(If unsure, what town is closest?)

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

22. Deer: Archery Season



a. Did you hunt **deer** during **archery** season? (Oct. 1, 2022 - Jan. 15, 2022)

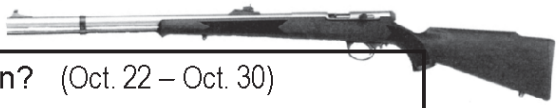
☐ Yes ☐ No *(If not, skip to next box.)*

b. How many **days** did you hunt during archery? _____

c. Number of **bucks** harvested during archery? _____ ☐ None

d. Number of **does** harvested during archery? _____ ☐ None

23. Deer: Muzzleloader Season



a. Did you hunt **deer** during **muzzleloader** season? (Oct. 22 – Oct. 30)

☐ Yes ☐ No *(If not, skip to next box.)*

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

24. 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 next box.)*

☐ 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

25. Deer: Regular Gun Season

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

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

26. Deer: Holiday Antlerless Gun Season

a. Did you hunt **deer** during the **holiday antlerless deer gun** season? (Dec. 18 - 31)
☐ Yes ☐ No
b. How many **days** did you hunt during holiday season? _____
c. How many does did you harvest? _____

The following questions are about Chronic Wasting Disease in Oklahoma.

Chronic wasting disease (CWD) is a neurological disease that affects the brains of deer, elk, moose, and other members of the deer family, creating holes that resemble those in sponges. It is always fatal to the animal, and no treatment or vaccine against CWD exists at this time.

27. To what extent do you disagree or agree with each of the following statements related to CWD?

I feel that I have enough information about……	Strongly Disagree	Disagree	Agree	Strongly Agree	Don' t know/ Unsure
Where deer with CWD have been found in Oklahoma	☐	☐	☐	☐	☐
Which wildlife species can have CWD	☐	☐	☐	☐	☐
What causes CWD in wildlife	☐	☐	☐	☐	☐
Whether or not there are livestock health risks associated with CWD	☐	☐	☐	☐	☐
Whether or not there are human health risks associated with CWD	☐	☐	☐	☐	☐
Precautions hunters should take because of CWD	☐	☐	☐	☐	☐
What ODWC is doing about CWD	☐	☐	☐	☐	☐

28. To what extent do you disagree or agree with each of the following statements about CWD?

	Strongly Disagree	Disagree	Agree	Strongly Agree	Don' t know/ Unsure
Efforts should be taken to reduce the rate of CWD in wild deer populations	☐	☐	☐	☐	☐
CWD poses a risk to deer, but not to humans	☐	☐	☐	☐	☐
Because of CWD, I have concerns about eating deer meat (for myself or my family)	☐	☐	☐	☐	☐
CWD occurrence is likely to impact my hunting activities	☐	☐	☐	☐	☐
The new regulations for CWD in western Oklahoma are easy to understand	☐	☐	☐	☐	☐

. Do you have any other feedback for the Wildlife Department?

Thank you, your survey is complete. Please mail it back in the postage-paid envelope provided at your earliest convenience.

Reminder postcard:

Dear Fellow Hunter,

In the past few weeks, you received a survey from the Oklahoma Department of Wildlife Conservation. You were selected as part of a small pool of hunters in the state with a unique opportunity to shape how we manage your wildlife in Oklahoma. It should only take about 15 minutes out of your busy schedule to give us your ideas and concerns. And don't forget, when we receive your completed survey, your name will be entered into a drawing for one of 20 available 1-year subscriptions to *Outdoor Oklahoma* magazine. We look forward to receiving your completed survey.

Gratefully, The Oklahoma Department of Wildlife Conservation

Questions? Contact Betsey York (405-521-4605), betsey.york@odwc.ok.gov