

INTERIM 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

Objective 1: A sample of 2,126 license holders was interviewed during February 2022. Six hundred and ninety-nine individuals interviewed did not hunt during 2021. One thousand four hundred and ten 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 mule deer hunting, supplemental feeding of wildlife and topics related to educational programming.

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 ($n = 2,126$) was contacted during February and March 2022. Sixty-six percent of individuals interviewed hunted during 2021 (this being higher than previous years in that nonresidents are highly active and included for the first time in 2021). Hunter and game harvest estimates and statistics were calculated statewide. Deer (*Odocoileus virginianus* and *O. hemionus*) season was most popular with hunters. Statewide harvest estimates for 2021 increased from 2020 estimates for pheasant (*Phasianus colchicus*), raccoon (*Procyon lotor*), beaver (*Castor canadensis*), fox squirrel (*Sciurus niger*), red fox (*Vulpes fulva*), quail (*Colinus virginianus* and *Callipepla s. quamata*), gray fox (*Urocyon cinereoargenteus*), jackrabbit (*Lepus californicus*), coyote (*Canis latrans*) swamp rabbit (*S. aquaticus*), fall turkey (*Meleagris gallopavo silvestris* and *M. g. intermedia*), bobcat (*Lynx rufus*), river otter (*Lutra canadensis*), and gray squirrel (*S. carolinensis*). Harvest estimates decreased from 2020 estimates for woodcock (*Scolopax minor*), crow (*Corvus brachyrhynchos*), dove (*Zenaida macroura*), cottontail (*Sylvilagus floridanus*), and spring turkey (*Meleagris gallopavo silvestris* and *M. g. intermedia*). A series of human dimensions questions were asked to learn about mule deer management, supplemental feeding of wildlife, comfort level and interest level in various hunting experiences and future interest in hunting.

Procedures:

The 2021-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 as a result of methodological research conducted during the 2014-season survey (Jager 2014) and is a hybrid version of past methodologies. Results are considered comparable from 1986 to present.

A random sample of license holders, stratified by license category, was drawn from the resident database of annual, lifetime, senior license holders (Table A1). Five-year license holders were sampled with annual license holders. The 2021 survey also included a random sample of tribal license holders and a random sample of non-resident license holders.

Based on the sampling scheme above, a sample of 5,999 license holders (500 annual/five-year, 1,983 lifetime, 1,445 senior citizen, 500 Choctaw, 500 Cherokee and 999 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. An error was discovered in the sampling scheme where four license types were left out of the population pull of license holders. Individual licenses are not reported and are instead pooled as “annuals”, “lifetimes”, etc. so it was determined that this would have a limited effect on the final data analysis.

Contact to sampled hunting license holders was first established in the form of a mail-in survey (Appendix C). The survey was mailed on January 19, 2022. The mailed survey packet included a self-addressed, postage-paid envelope for respondents to use to send in their completed survey.

License holders who did not respond by mail and had telephone numbers listed on their license application were contacted by telephone beginning February 7, 2022. All license holders who had not responded by any method were sent a mailed reminder postcard on January 27, 2022 (Appendix C). License holders without telephone numbers, and who had not responded to the first mailed survey were mailed a second survey on February 7, 2022.

The ODWC hired 9 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 2021. 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 35% ($n = 2,126$) of the 5,999 individuals we attempted to contact. The remaining license holders were not interviewed for a variety of reasons:

- Wrong or disconnected number ($n = 1,296$)
- No phone number available ($n = 747$)
- “Over quota” after six attempts ($n = 1,127$)
- Refused to complete the interview ($n = 512$)
- Health issues or deceased ($n = 112$)
- Unavailable during the survey period ($n = 69$)
- Language barrier or hearing impaired ($n = 6$)

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; $n = 1,436$), the final, adjusted survey response rate was 47%.

Fifty-one percent of the completed surveys were conducted by telephone and 49% 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, 2021 quail season participation and likelihood to hunt in 2021 ($P < 0.05$). Overall, there was no significant difference for spring turkey participation, 2021 deer season participation, and 2021 dove season participation ($P > 0.05$). This analysis does not include tribal license holders or non-resident license holders.

Because the survey methodology included multiple contacts, regardless of invitation method, response-mode and invitation-mode biases were not considered a significant problem in data validity; results were not weighted. The average length of the telephone interviews was 9.27 minutes, with a median time of 8.0 minutes (for completed calls only).

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 2021 increased from 2020 estimates for pheasant (+138%), swamp rabbit (+130%), fall turkey (+8%), bobcat (+5%), river otter (+672%), gray squirrel (+69%), quail (+21%), raccoon (+68%), beaver (+33%), fox squirrel (+31%), gray fox (+116%), coyote (+20%) and red fox (+54%). Harvest estimates decreased from 2020 estimates for crow (-28%), cottontail (-20%), jackrabbit (-56%), woodcock (-89%), dove (-0.3%), and spring turkey (-1.5%). Statewide trends in estimated harvest and number of hunters by species from 1986 to 2021 are presented in Table A4 and Figures A1 – A19.

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 2021 deer season (Std. Error = 0.56, Table A5). The average number of days spent hunting deer differed by license category ($P < 0.01$). Deer hunters with a lifetime license averaged 20.5 deer hunting days, annual/five-year license holders averaged 13.1 days, tribal license holders averaged 16.7 days, senior citizen license holders averaged 10.3 days and nonresidents averaged 10.1 days.

The average number of days archery hunters spent in pursuit of deer in 2021 was 16.4 days. Muzzleloader hunters averaged 4.5 days. Youth season hunters averaged 1.9 days. Gun hunters averaged 5.9 days and special antlerless (holiday) season hunters averaged 3.5 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 6.4 days, annual license holders 5.6 days, tribal license holders 5.7 days, senior license holders hunting 5.0 days and nonresident hunters hunting 4.8 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 (18.8 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 0.47 bucks and 0.38 does during all the 2021 deer seasons, for a total average deer harvest of 0.85 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 0.59 deer, senior license holders harvested 0.62 deer, tribal license holders averaged 0.62 deer and nonresidents harvested 0.86 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-year/senior citizen, tribal and nonresident license holders). Use of public land was examined. Several special management questions were also asked.

Hunting Activity

Overall, 66% of participants indicated that they hunted in 2021, but the rate of participation varied significantly according to license type ($P < 0.001$; Figure B1). Senior citizen license holders used their hunting privileges far less often than annual/five-year or lifetime license holders, and tribal license holders were also more likely to not using their hunting privileges. To estimate the number of license holders that hunted in 2021, the total number of license holders in Table A1 (568,011) was multiplied by the ratio of active hunters interviewed (1,410/2126). The estimated number of resident license holders who hunted in Oklahoma during 2021 was 376,715. This number is likely inflated though 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 52% of hunting license holders-both active and non-active), turkey and ducks (14.7% and 13.8% 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 16.7% having spent time pursuing them in 2021.

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 woodcock (100% of woodcock hunters used only private land), pheasant (89%) and feral swine (86%; Figure B2).

Nineteen percent of survey participants used public land for some portion of their hunting during 2021. Focusing only on *active* hunting license holders (those who hunted during 2021), 29% hunted on public land in 2021 and 70% did not (1% left this question blank). Use of public land by active hunters varied slightly by license category (Figure B3; $P=0.046$) with annual license holders using public land most often (35%) followed by tribal (33%) and lifetime (29%). Seniors used public land 28% of the time and nonresidents hunted public

land 25% of the time. When asked how important public land is, 81% of hunters that use public land said it is very important. (Figure B4).

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 2021 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 2021 occurred on public versus private land. Averaging across all active hunters, 18% of the hunting in 2021 occurred on public land. This measure of public land varied by license category ($P = 0.03$) with tribal license holders spending 16% of time on public land, annual/5-year license holders spending 24% of hunting on public land, seniors with 17% on public land, lifetime license holders with 16% on public land and nonresidents hunting 20% 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 B5). Looking at the issue from another angle, most active license holders used private land for at least some of their hunting during 2021. Only 11% relied exclusively on public land for hunting.

Deer Hunting

Deer season is the most popular hunting season in Oklahoma. Fifty-two percent of *all* survey participants and 79% of *active* hunters (those who hunted at all 2021) hunted deer during 2021. Participation in deer season by active hunters in 2021 varied according to license category ($P < 0.001$). Ninety-three percent of active lifetime license holders hunted deer, while 85% of active annual/five-year license holders, 75% of active senior citizen license holders, 93% of active tribal license holders and only 55% of active nonresident license holders hunted deer during 2021.

The regular rifle season was the most popular among 2021 deer hunters (78% participating), followed by archery (61%), primitive firearms (36%), special antlerless (holiday) season (17%), and the youth rifle season (3% participating as a youth) (Figure B6). Deer hunter participation in the individual seasons was analyzed by license type. Archery season participation was most likely for lifetime license holders (65%), followed by nonresident license holders (64%), annual license holders (54%), tribal license holders (51%) and senior citizen license holders (33%) ($P < 0.05$). Muzzleloader season participation was more likely for lifetime license holders (50%) than tribal license holders (41%), senior citizen license holders (37%), annual/five-year license holders (25%) or nonresident license holders (8%) ($P < 0.001$). Rifle season participation was most likely for lifetime license holders (89%), followed by tribal license holders (85%) annual/5-year license holders (76%), senior license holders (73%) and nonresident license holders (54%) ($P < 0.05$). Special antlerless (holiday) season participation was most likely for lifetime license holders (23%), followed by senior and annual/5-year license holders (both 17%), tribal license holders (13%) and nonresident license holders (5%). 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 (66%), and some hunted all four (8%; Figure B7). The most common patterns were participation in gun season only (21%) and participation in the three regular seasons – archery, muzzleloader and gun (21%; Figure B8). Youth deer season participation was not included in this analysis because it only applied to a small portion of surveyed hunters. Examined separately, 90% of youth season participants also hunted deer during other seasons: 76% hunted during rifle season, 62% hunted during archery, 41% hunted during muzzleloader, and 38% hunted during the special antlerless (holiday) deer gun season (Figure B9).

Over half (51%) of all deer hunters successfully harvested a deer during the 2021 season (Figure B10). Less than 1% of hunters filled the annual bag limit of deer for 2021 (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 percent ($n = 655$) of resident hunting license holders did not hunt in 2021 and were asked to identify the main reason why they did not hunt. Twenty-five percent identified health issues, and another 28% indicated other priorities. Eleven percent were simply not interested in hunting (Figure B11). The finding of “health concerns” was unsurprising, given that 49% ($n=265$) 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. Tribal licenses are also given as a combination so they may only be interested in fishing but receive both hunting and fishing privileges. ODWC continues to face limitations in the things the agency can directly influence to remove barriers to hunting.

Special Management Issues

Use of Wildlife Department’s Go Outdoors cell phone application

Our communication and education division has been working to increase the use of our cell phone application for licensing and regulations. Forty-four percent of all licensed hunters use the Go Outdoors app. App usage is highest for annual and 5-year license holders and lowest in senior license holders (Figure B12). We also asked this question on the 2020 Game Harvest Survey so that rates could be assessed year over year. Across all resident license types, usage increased on average by 9%. Highest rate increases occurred in annual (+16%) and lifetime (+14%) license holders with lower increases in senior (+3%) and tribal licenses (+1%).

Mule Deer Hunting

There were only 20 respondents (1%) who selected that they had hunted mule deer in the last three years (Figure B13). Of those who selected they had hunted mule deer in the last three years, only 20% were focusing solely on mule deer every time that they did (Figure B14). The most selected county that people were targeting mule deer in was Beaver County followed by Cimarron, Woodward and Texas counties. The average distance people were traveling to hunt for mule deer one way was 421.1 miles. If removing nonresidents from this analysis, the average miles traveled one way decreases to 90 miles. Only lifetime license holders, nonresidents and senior license holders made up those who had hunted mule deer.

Supplemental Feeding of Wildlife

Forty-one percent of licensed hunters (residents and nonresidents) said that they do use supplemental feed to attract wildlife (Figure B15). Seventy-nine percent of those that supplemental feed do so to attract game species to hunt, 26% do so to attract nuisance species to hunt and 49% use supplemental feed for wildlife watching (Figure B16). The most often used type of supplemental feeder is the broadcast feeder with 61% of respondents saying they use this type of feeder. Thirty-six percent use a food plot, 33% use gravity feeders, 31% pile on the ground and 7% use another method (Figure B17). Most people are feeding during the fall (93%) while 73% feed in the winter, 44% feed in the summer and 38% feed in the spring (Figure B18). Fifty-seven percent of those that supplementally feed wildlife selected “never heard of it” when asked to select their level of knowledge related to aflatoxins/mycotoxins and their impacts on wildlife. Eighteen percent selected “know a little” and 17% selected “heard of it”. Those that “know a fair amount” made up 5% of respondents and only 3% “know it well” (Figure B19).

Future Species Interest to Hunt

To better understand future interest of hunters, we asked what species they would be most interested in hunting that they had little or no experience hunting before. Overall, the most selected answer was elk (19%). Interestingly, the second most selected response was that they had no interest in hunting anything new (12%). This creates an interesting problem for R3 efforts as progression of a hunter to hunting new species tends to retain hunters and keep people buying licenses. Large game also tend to be the end of a hunter progression with

elk and deer being the top two selected species this would get people to the end of their hunting journey quicker than being interested in smaller game. Senior license holders were the only group that had significant differences in their interest level ($P < 0.05$). Twenty-nine percent of senior license holders selected that they were not interested in hunting anything new. Other license types varied in the species they are most interested in with tribals and nonresidents selecting deer and annual and lifetime selecting elk. Feral hogs were in the top three of most interest for seniors and annual license holders while bear appeared in lifetime license holders' top 3 (Table B2).

Comfort Level and Interest Level in Educational Topics Related to Hunting

To determine best strategies for R3 focus we asked hunters about both their comfort level related to specific hunting topics (as a way of determining if there are topics we should further educate on to increase comfort levels) as well as interest in certain educational programs that we could offer to hunters. Comfort level in pulling the trigger when aimed at an animal and taking an animal's life while hunting was high (Figure B20). There was a significant difference between the responses to these two options by survey completion method—phone or mail—suggesting there may be response mode bias and social desirability bias. Although, very comfortable was selected often for pulling the trigger when aimed at an animal in both mail (63%) and phone (69%), neutral, uncomfortable, and very uncomfortable were selected more often on mail responses than by phone. When asking about taking an animal's life while hunting, very comfortable was selected similarly in both mail (53%) and phone (54%) responses, but comfortable was selected less often in mail (32%) than phone (38%) and neutral, uncomfortable, and very uncomfortable were selected twice as often on mail responses than phone responses. The proposed topic that hunters were least comfortable with was hunting with people they are less familiar with. Hunting on public land was also selected less often as being a topic hunters were comfortable with.

For future programming, we asked what our licensed hunters would have most interest in attending. We only analyzed this by resident hunters as nonresidents selected not interested simply because they wouldn't necessarily be able to attend in-person classes. Interest was varied and no course had significant selection of "very interested" (Figure B21). Places to go hunting and animal behavior/scouting were of most interest to hunters overall. Of least interest and most often selected as "not interested at all" were humane harvest and field dressing. Further analysis of interest level in different groups of hunters can be provided upon request.

We also asked licensed hunters if hunting is their favorite sport in comparison to other recreational activities. This varied significantly by those that had hunted in the last year or not (Figure B22). Seventy five percent of those that had hunted in the last year said that hunting was their favorite sport while seventy one percent of those that had not hunted said it was not their favorite sport. This would make R3 efforts to engage with those who didn't hunt in the last year more difficult to bring them back if hunting requires competing with their favorite outdoor activity.

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 2021-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 ($n = 2,126$) 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 2021-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, in order 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.

Literature Cited:

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

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Equipment:

None.

Significant Deviation:

None.

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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, 2021.

License Type	Population		Sampled		Completed	
	Number	Percent	Number	Percent	Number	Percent
Lifetime	171,384	30.2%	1,983	33.1%	844	39.7%
Senior Citizen	132,309	23.3%	1,445	24.1%	340	16.0%
Annual	68,022	12.0%	500	8.3%	185	8.7%
Five-Year	4,510	0.8%	72	1.2%	37	1.7%
Tribal	154,046	27.1%	1,000	16.7%	220	10.3%
Non-Resident	37,740	6.6%	999	16.7%	500	23.5%
Total	568,011		5,999		2,126	

Table A2. Statewide hunter and game harvest estimates and statistics by species/subspecies in Oklahoma, 2021 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	27	12.04	6.00	3.65	9,124	54,745	109,842	68,514	151,169
Dove	206	16.66	4.11	4.53	69,614	285,929	1,160,011	944,747	1,375,275
Furbearers									
Coyote	98	5.76	28.02	0.50	33,118	927,974	190,853	127,234	254,471
Bobcat	31	1.26	19.21	0.17	10,476	201,211	13,179	5,745	20,614
Raccoon	43	10.42	42.67	0.64	14,531	619,997	151,395	91,879	210,910
Beaver	16	3.56	57.19	0.41	5,407	309,210	19,262	11,960	26,564
Gray Fox	6	0.17	14.33	0.17	2,028	29,062	338	0	1,000
Red Fox	5	0.40	16.00	0.01	1,690	27,035	676	0	2,001
Otter	3	1.67	16.00	0.08	1,014	16,221	1,690	0	4,078
Pheasant	38	3.37	2.68	1.76	12,842	34,469	43,256	21,086	65,425
Quail	65	8.85	6.87	2.41	21,966	150,831	194,376	102,825	285,927
Rabbits									
Cottontail Rabbit	55	4.91	6.13	1.09	18,586	113,973	91,178	50,407	131,950
Jackrabbit	3	1.50	3.00	0.70	1,014	3,041	1,521	710	2,332
Swamp Rabbit	12	2.36	9.36	0.18	4,055	37,972	9,585	0	19,911
Squirrels									
Fox Squirrel	107	9.77	13.65	1.71	36,159	493,709	353,164	262,357	443,972
Gray Squirrel	108	11.84	11.11	1.15	36,497	405,559	432,109	307,380	556,839
Turkey									
Fall Turkey	51	0.14	6.29	0.09	17,235	108,332	2,366	722	4,009
Spring Turkey	231	0.23	5.42	0.09	78,063	423,039	18,067	13,045	23,089
Woodcock	1	1.00	1.00	1.00	338	338	338	.	.
Feral Swine	280	17.83	49.87	0.85	94,622	4,718,416	1,687,305	1,117,517	2,257,094

^aEstimated number of hunters that hunted at least one species/subspecies within a given season.

^bEstimated total harvest within a given season.

Table A3. Statewide trends in estimated harvest and estimated number of hunters in Oklahoma, 1986-2021. 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

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

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

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

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

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

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	2.36	9.36	0.18	9,585	-	-	19,911

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

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

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

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

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	.	-	.

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
	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
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

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
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
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

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

^aConfidence 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.

^bFor 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, 1997-2021. All resident and nonresident licensed deer hunters included in 2021 numbers.

Year	<u>Total</u> Mean Days^a	<u>Archery</u> Mean Days	<u>Muzzleloader</u> Mean Days	<u>Youth</u> Mean Days	<u>Rifle</u> Mean Days	<u>Holiday</u> 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

^aNumber 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.

^bHoliday antlerless deer gun season began in 2001.

Table A5. Mean number of deer harvested by deer hunters in each deer season in Oklahoma, 2001-2021. All resident and nonresident licensed deer hunters included in 2021 numbers.

Year	Total: All-Seasons			Archery		Primitive		Youth		Rifle		Holiday
	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

Crow

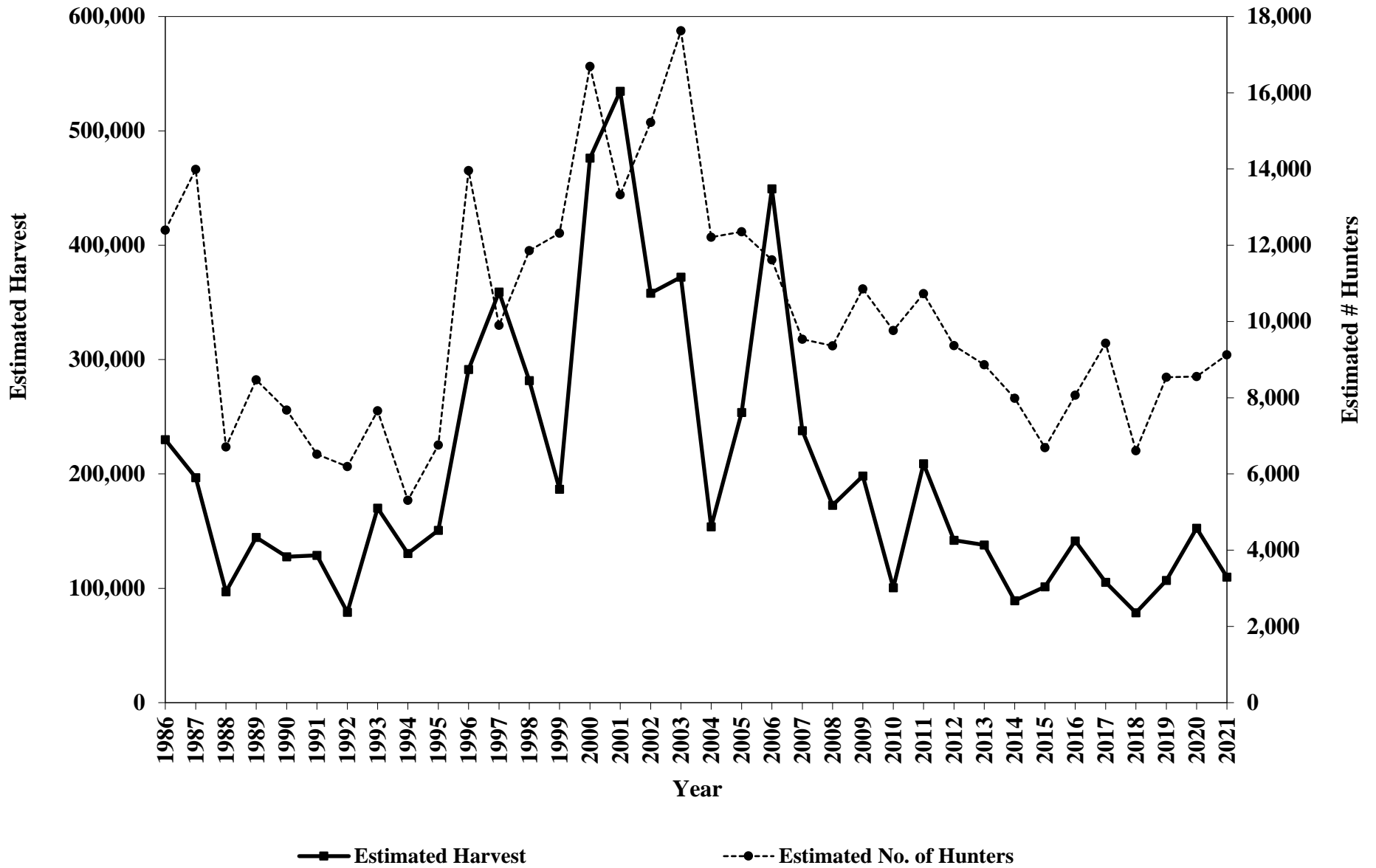


Figure A1. Statewide trends in estimated crow harvest and estimated number of crow hunters in Oklahoma, 1986-2021.

Mourning Dove

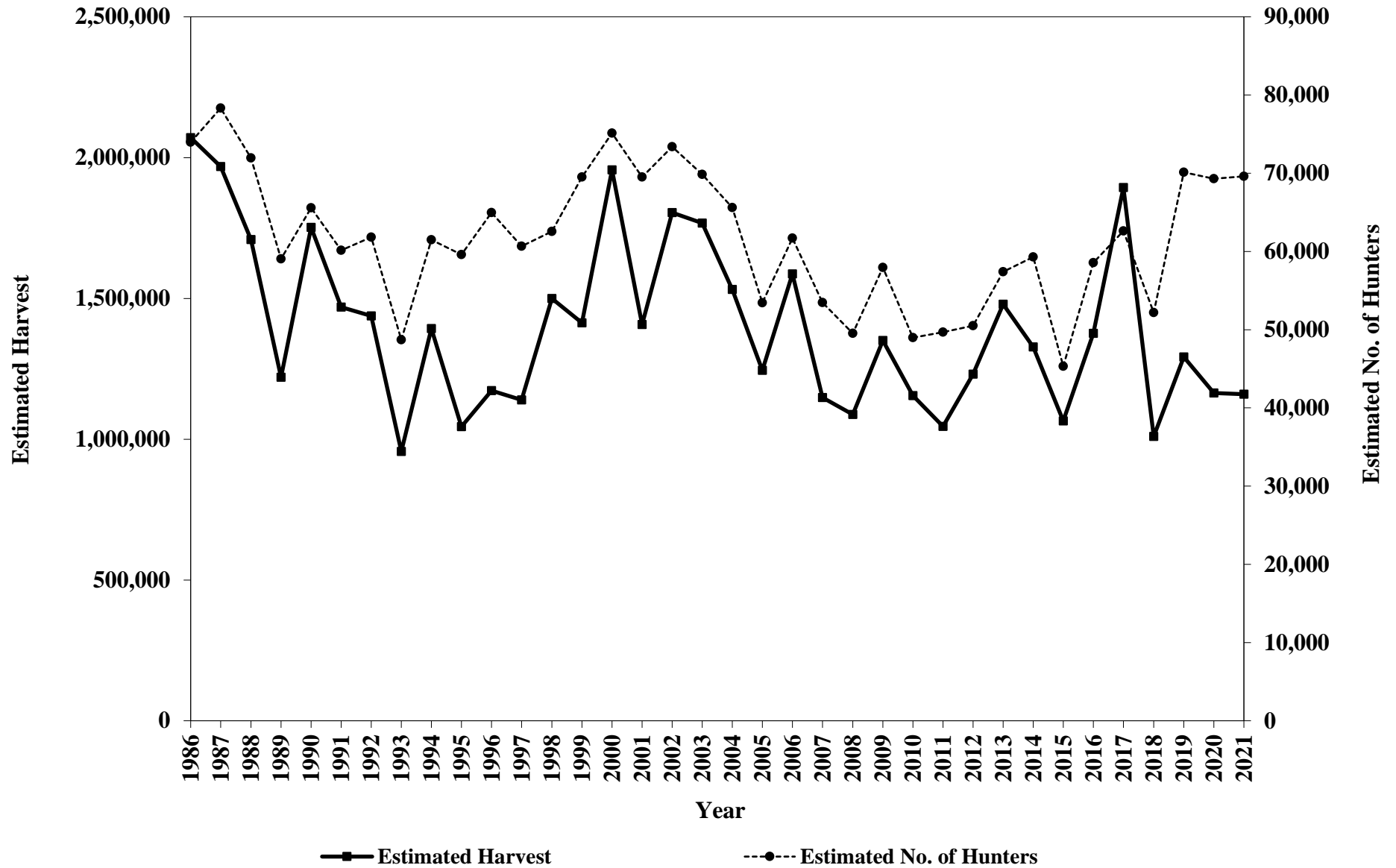


Figure A2. Statewide trends in estimated mourning dove harvest and estimated number of mourning dove hunters in Oklahoma, 1986-2021.

Ring-necked Pheasant

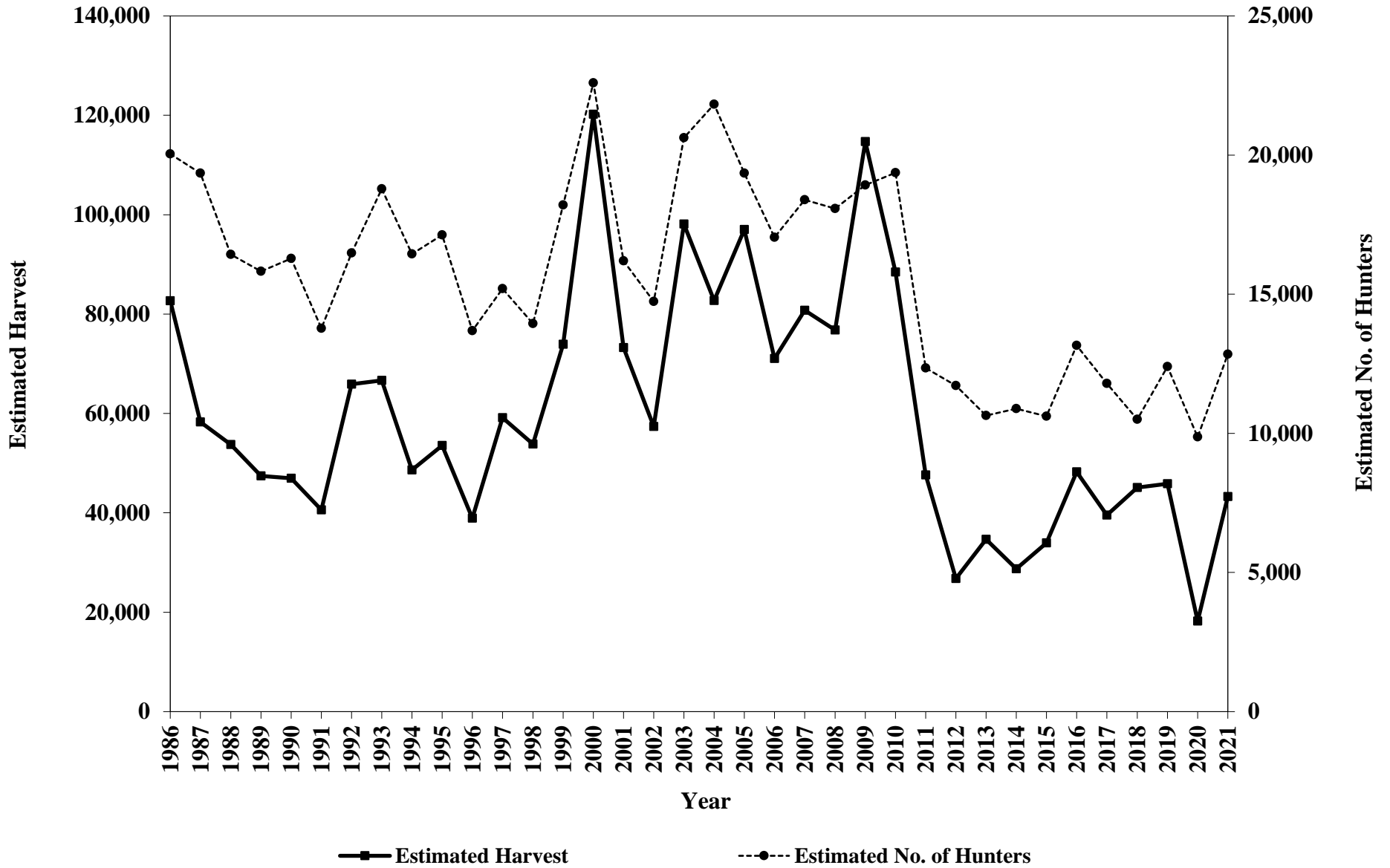


Figure A3. Statewide trends in estimated ring-necked pheasant harvest and estimated number of ring-necked pheasant hunters in Oklahoma, 1986-2021.

Quail

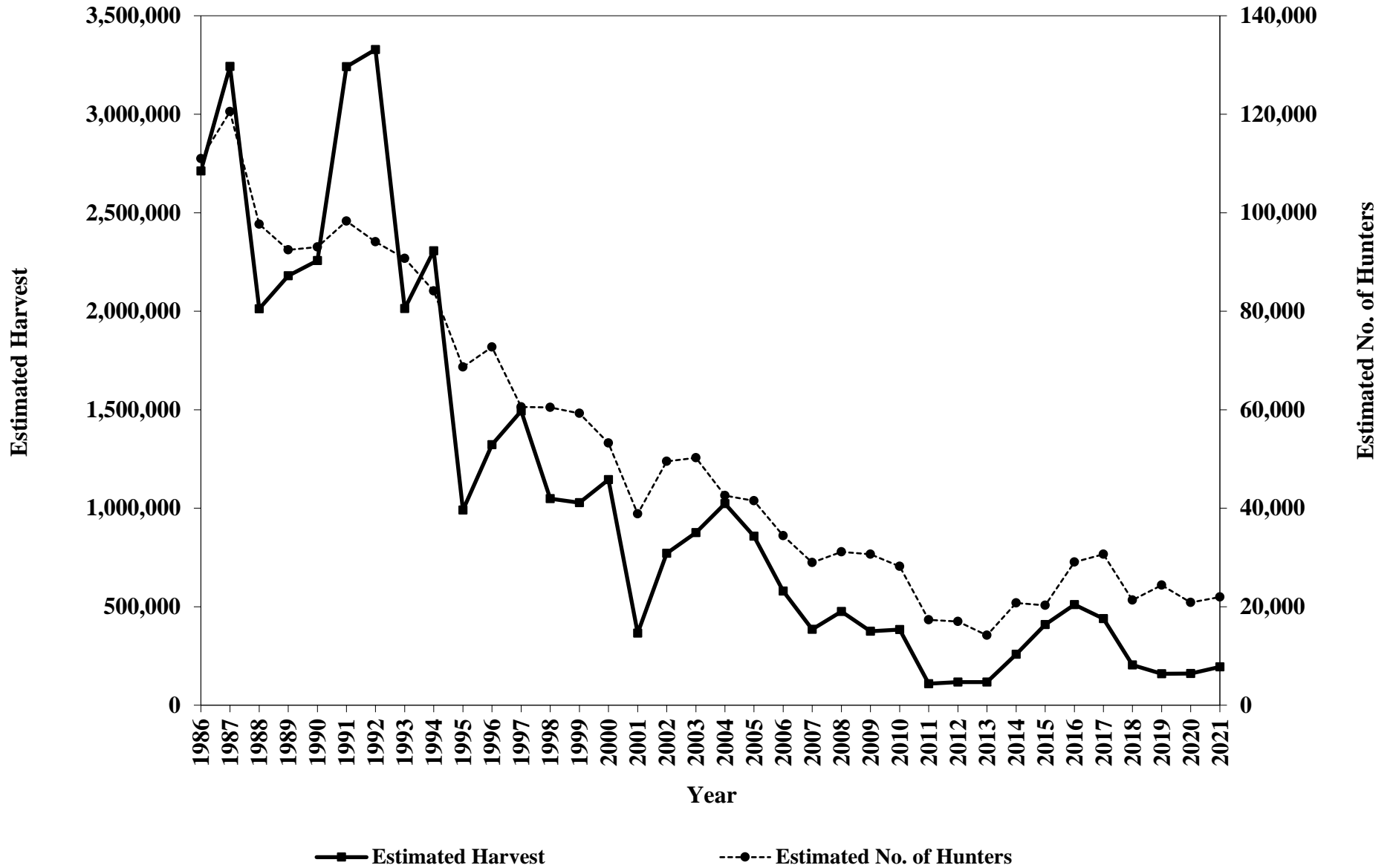


Figure A4. Statewide trends in estimated quail harvest and estimated number of quail hunters in Oklahoma, 1986-2021.

Cottontail Rabbit

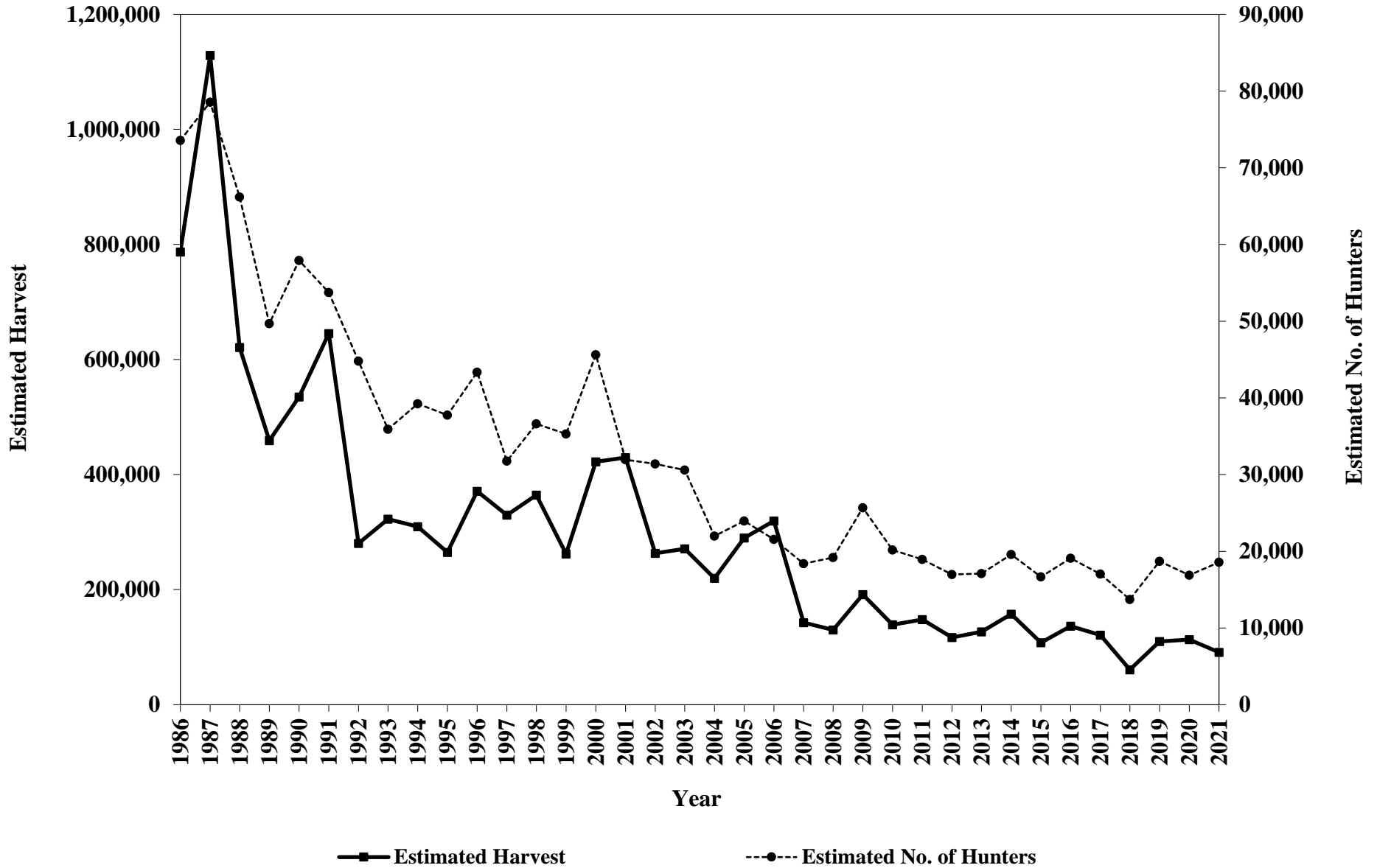


Figure A5. Statewide trends in estimated cottontail rabbit harvest and estimated number of cottontail rabbit hunters in Oklahoma, 1986-2021.

Jackrabbit

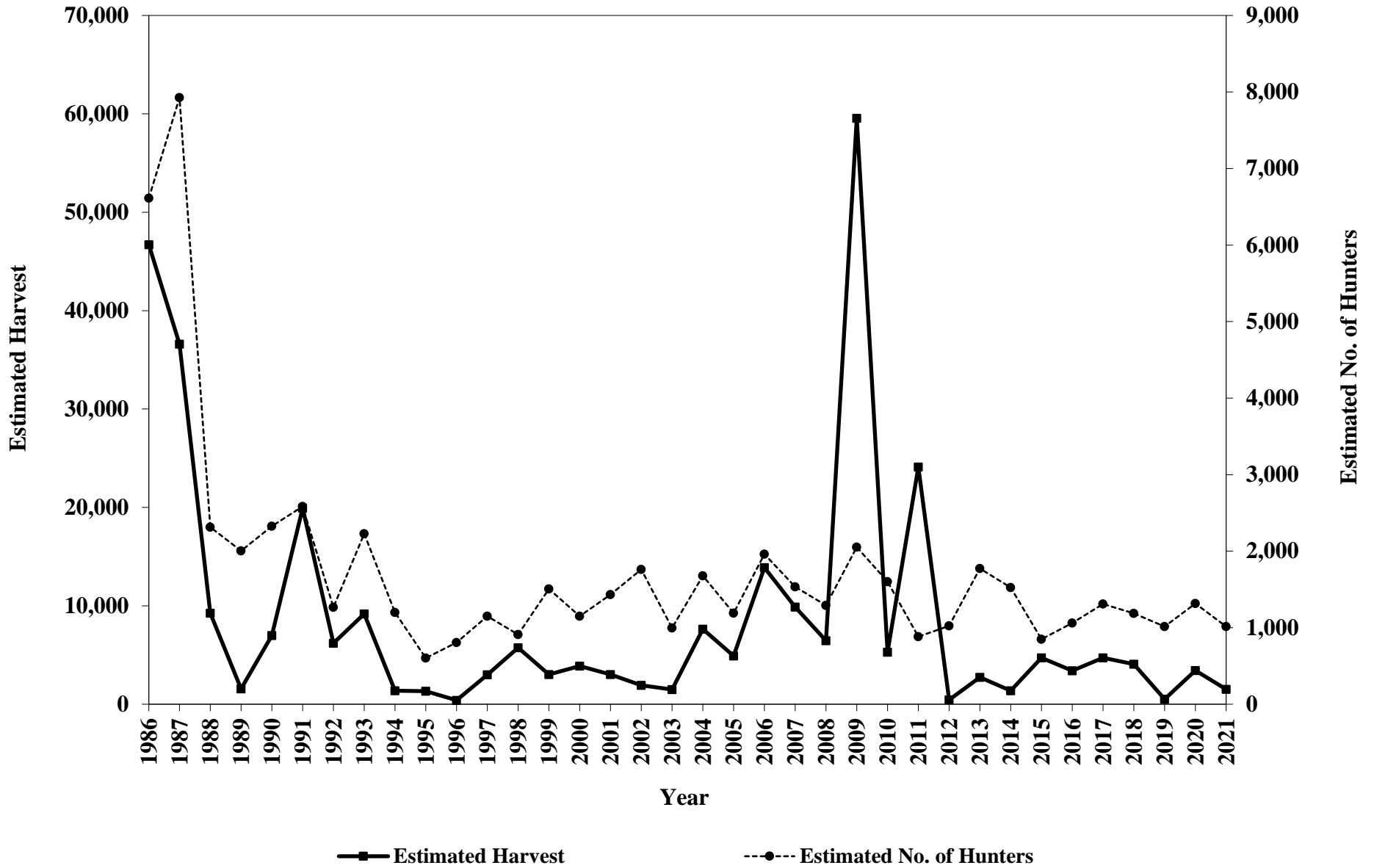


Figure A6. Statewide trends in estimated jackrabbit harvest and estimated number of jackrabbit hunters in Oklahoma, 1986-2021.

Swamp Rabbit

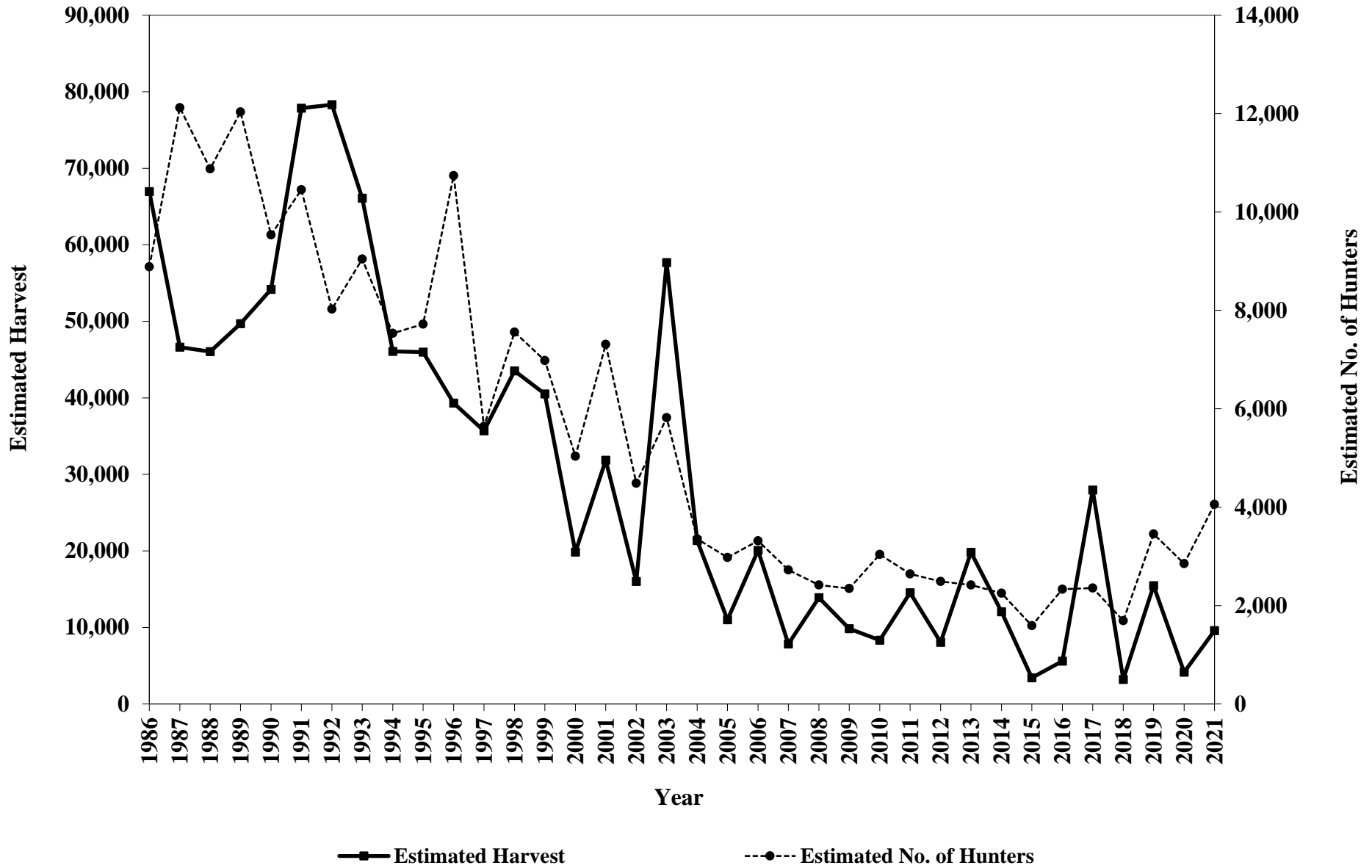


Figure A7. Statewide trends in estimated swamp rabbit harvest and estimated number of swamp rabbit hunters in Oklahoma, 1986-2021.

Fox Squirrel

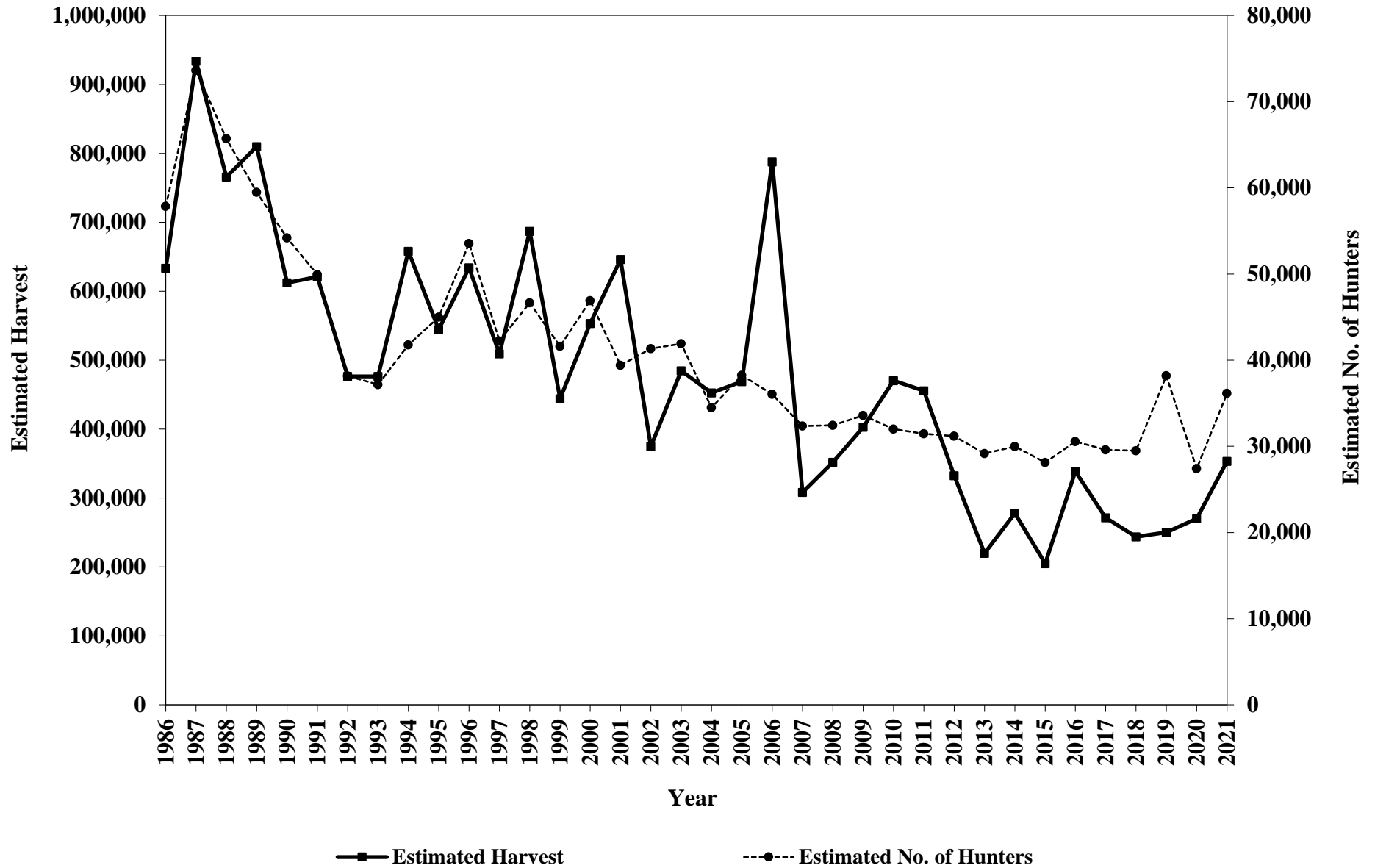


Figure A8. Statewide trends in estimated fox squirrel harvest and estimated number of fox squirrel hunters in Oklahoma, 1986-2021.

Gray Squirrel



Figure A9. Statewide trends in estimated gray squirrel harvest and estimated number of gray squirrel hunters in Oklahoma, 1986-2021.

Fall Turkey

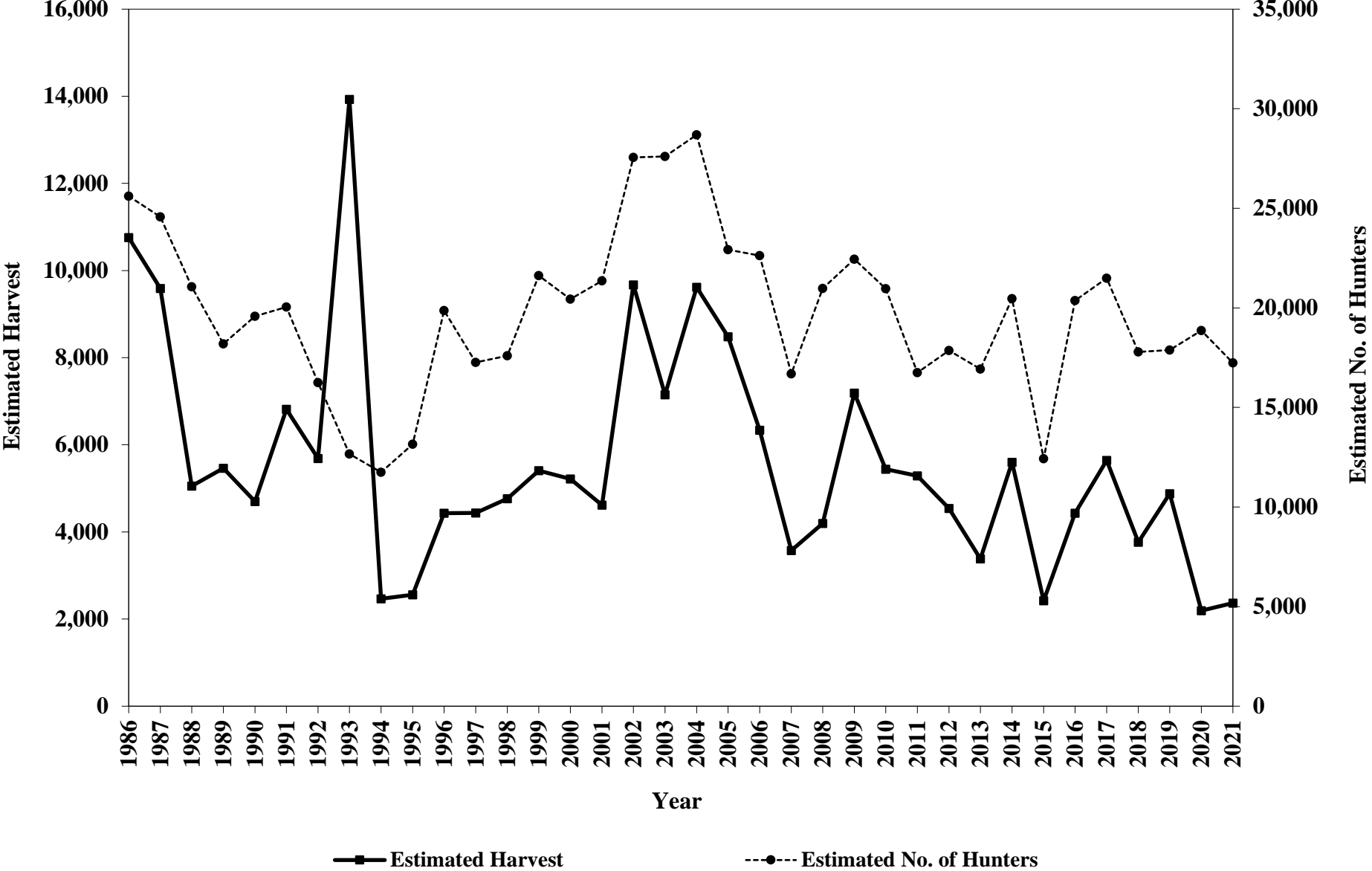


Figure A10. Statewide trends in estimated fall turkey harvest and estimated number of fall turkey hunters in Oklahoma, 1986-2021.

Spring Turkey

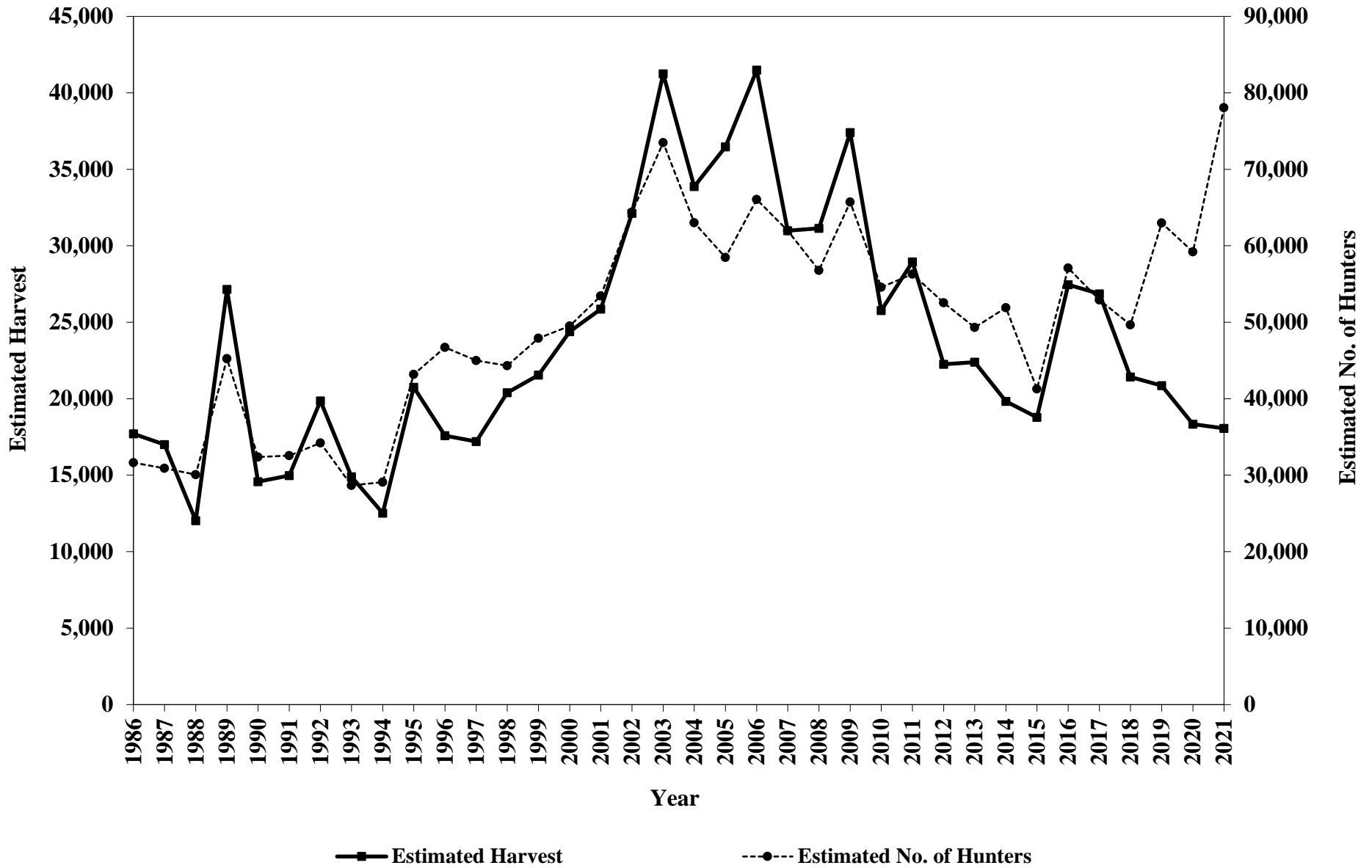


Figure A11. Statewide trends in estimated spring turkey harvest and estimated number of spring turkey hunters in Oklahoma, 1986-2021.

American Woodcock

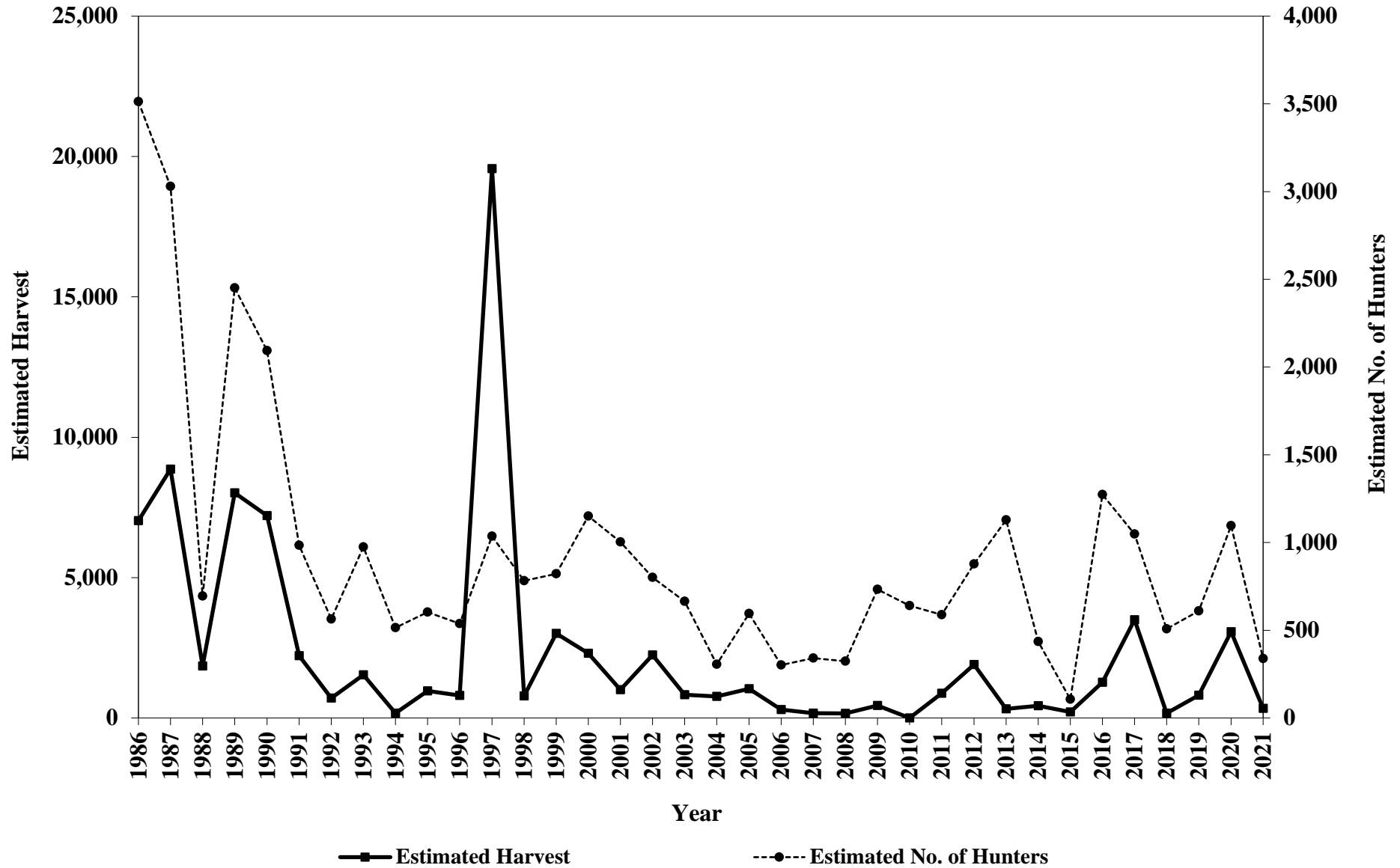


Figure A12. Statewide trends in estimated American woodcock harvest and estimated number of American woodcock hunters in Oklahoma, 1986-2021.

Coyote

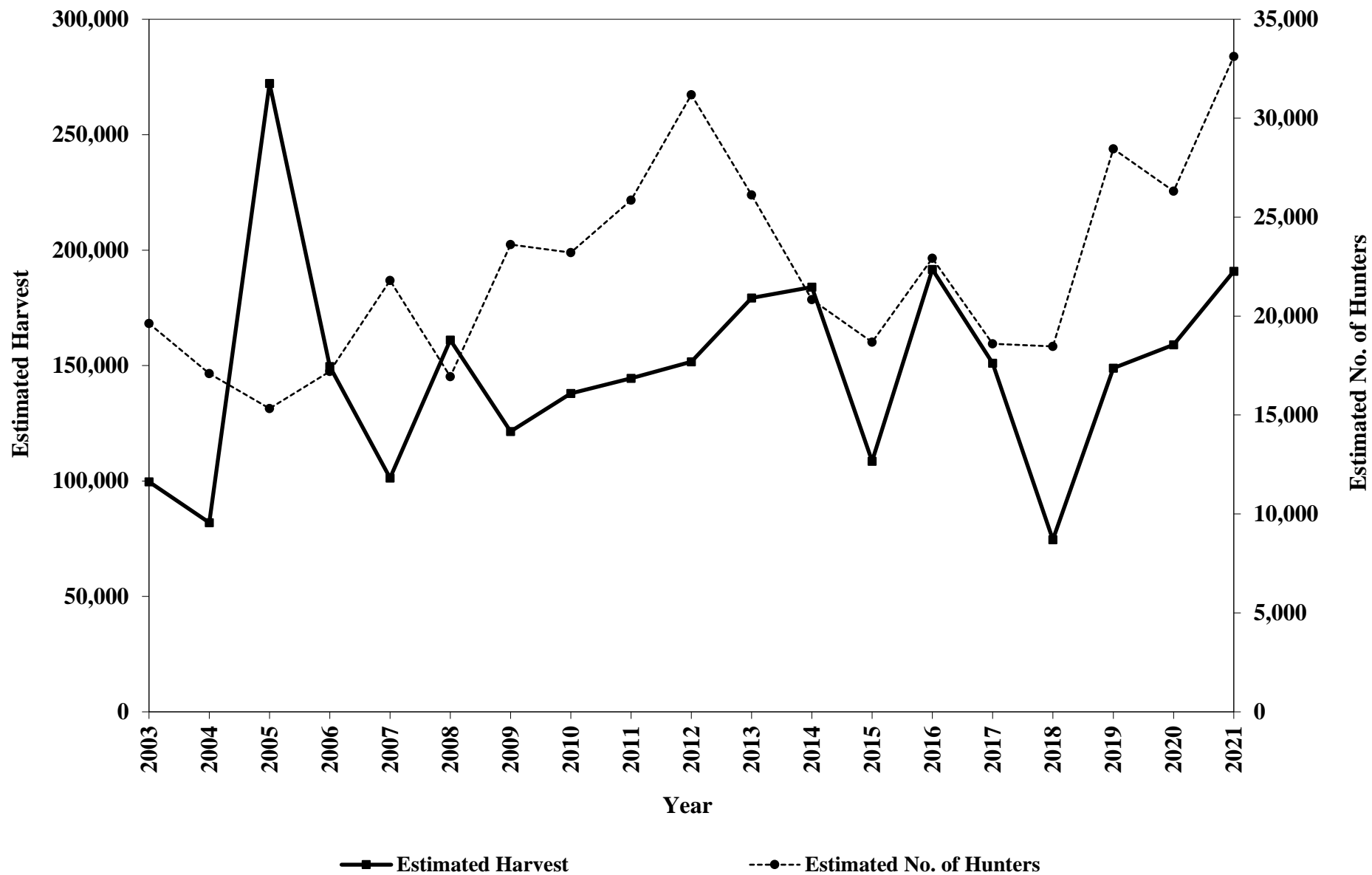


Figure A13. Statewide trends in estimated coyote harvest and estimated number of coyote hunters in Oklahoma, 2003-2021.

Bobcat

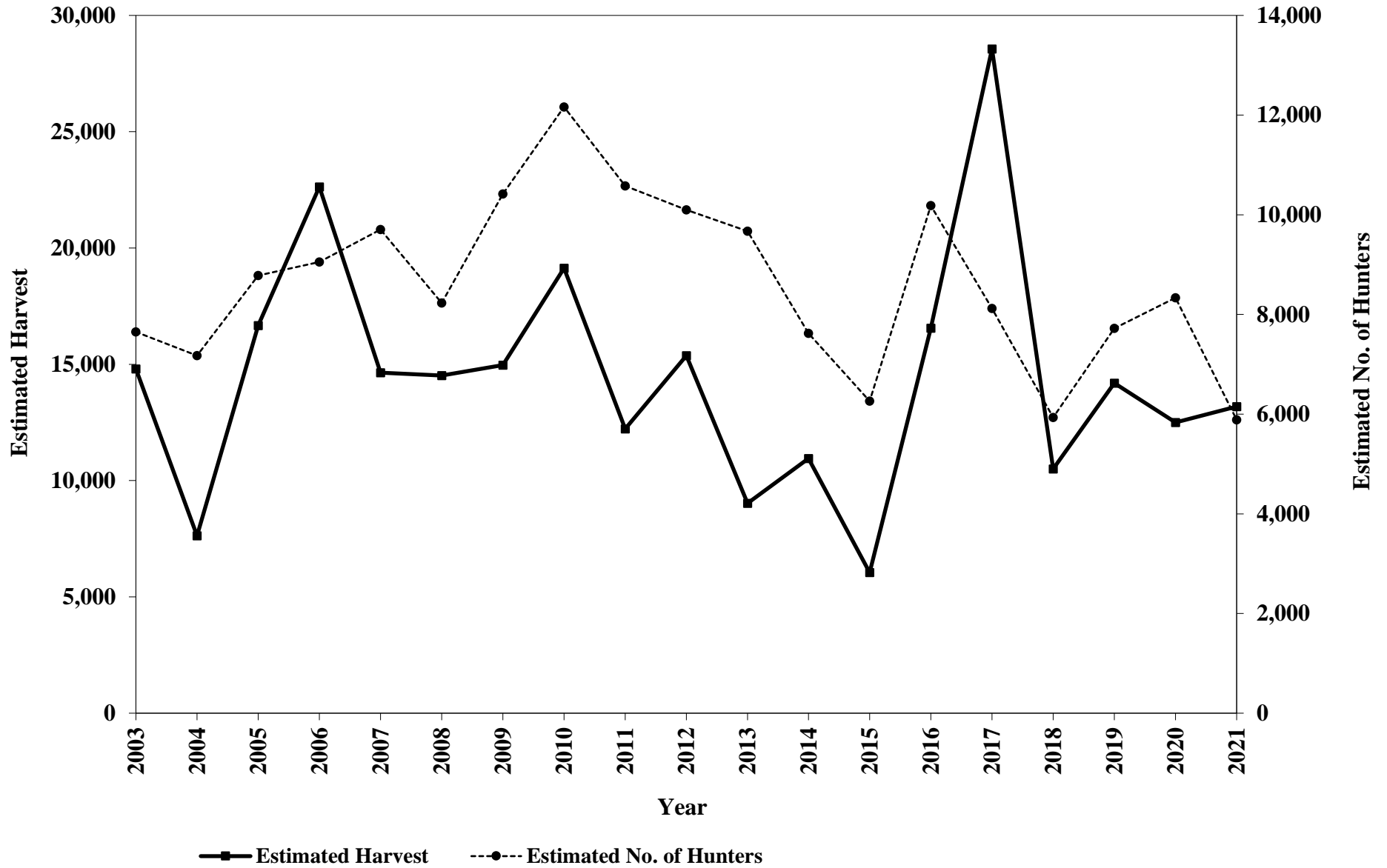


Figure A14. Statewide trends in estimated bobcat harvest and estimated number of bobcat hunters in Oklahoma, 2003-2021.

Raccoon

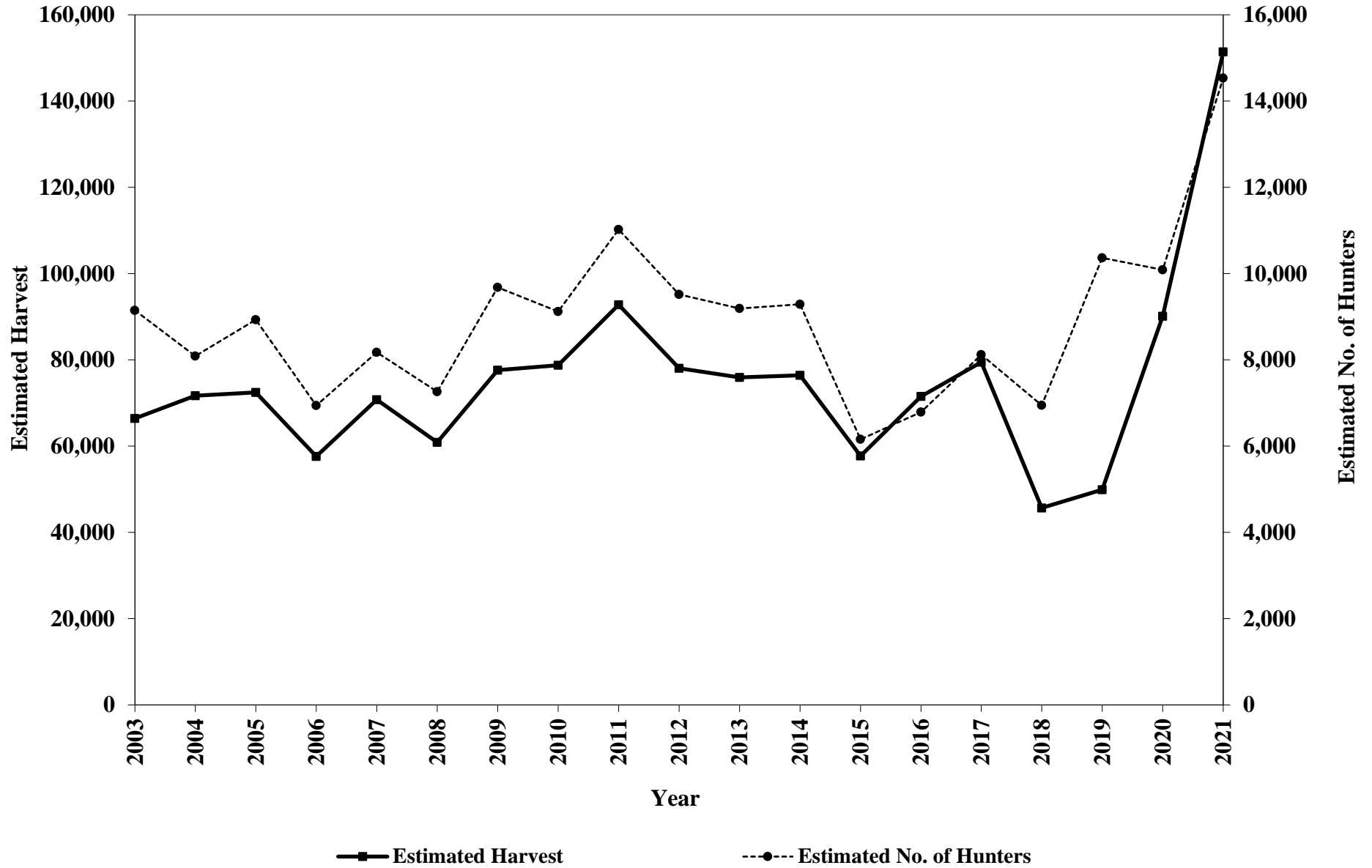


Figure A15. Statewide trends in estimated raccoon harvest and estimated number of raccoon hunters in Oklahoma, 2003-2021.

Beaver

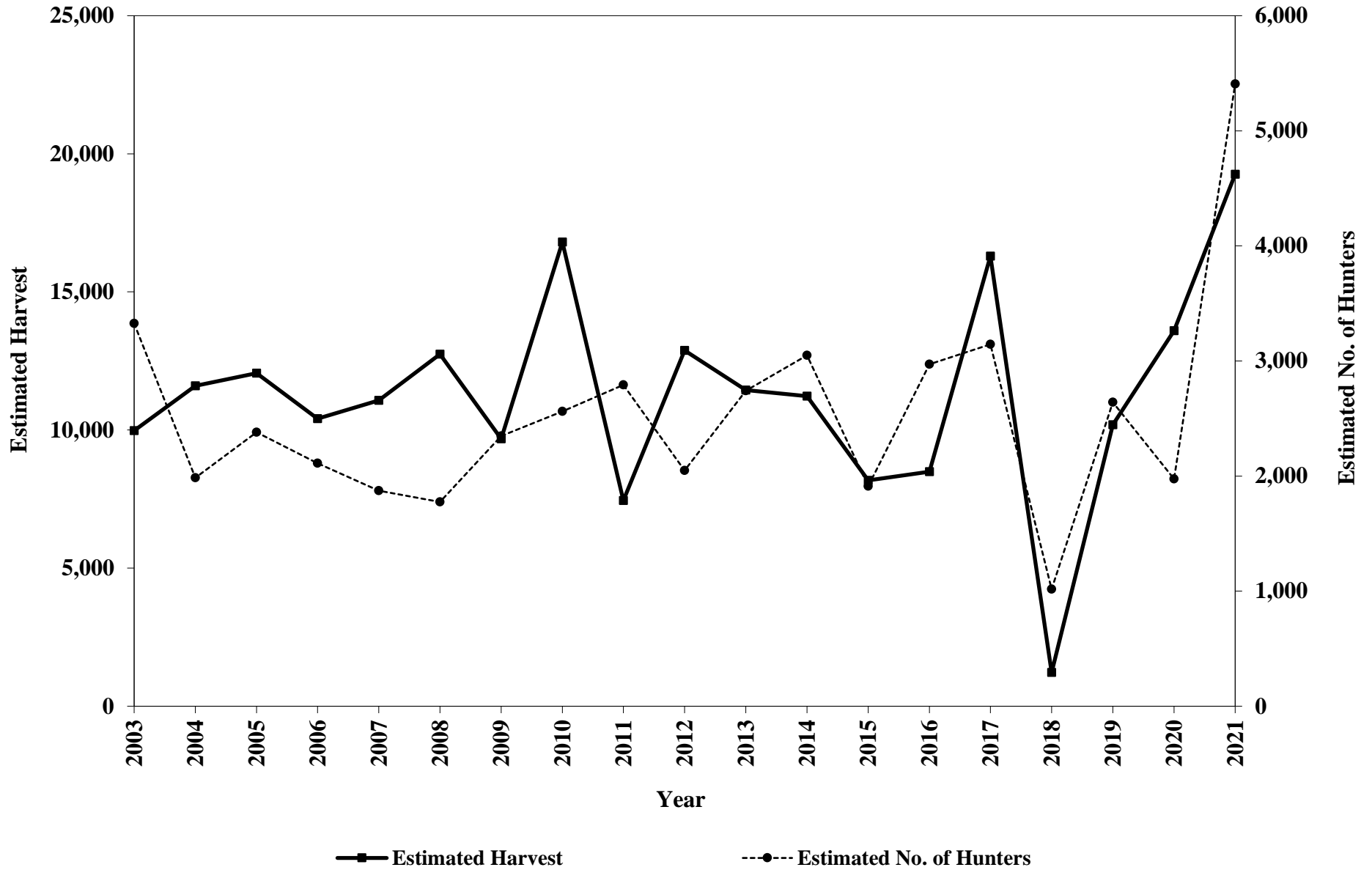


Figure A16. Statewide trends in estimated beaver harvest and estimated number of beaver hunters in Oklahoma, 2003-2021.

Gray Fox

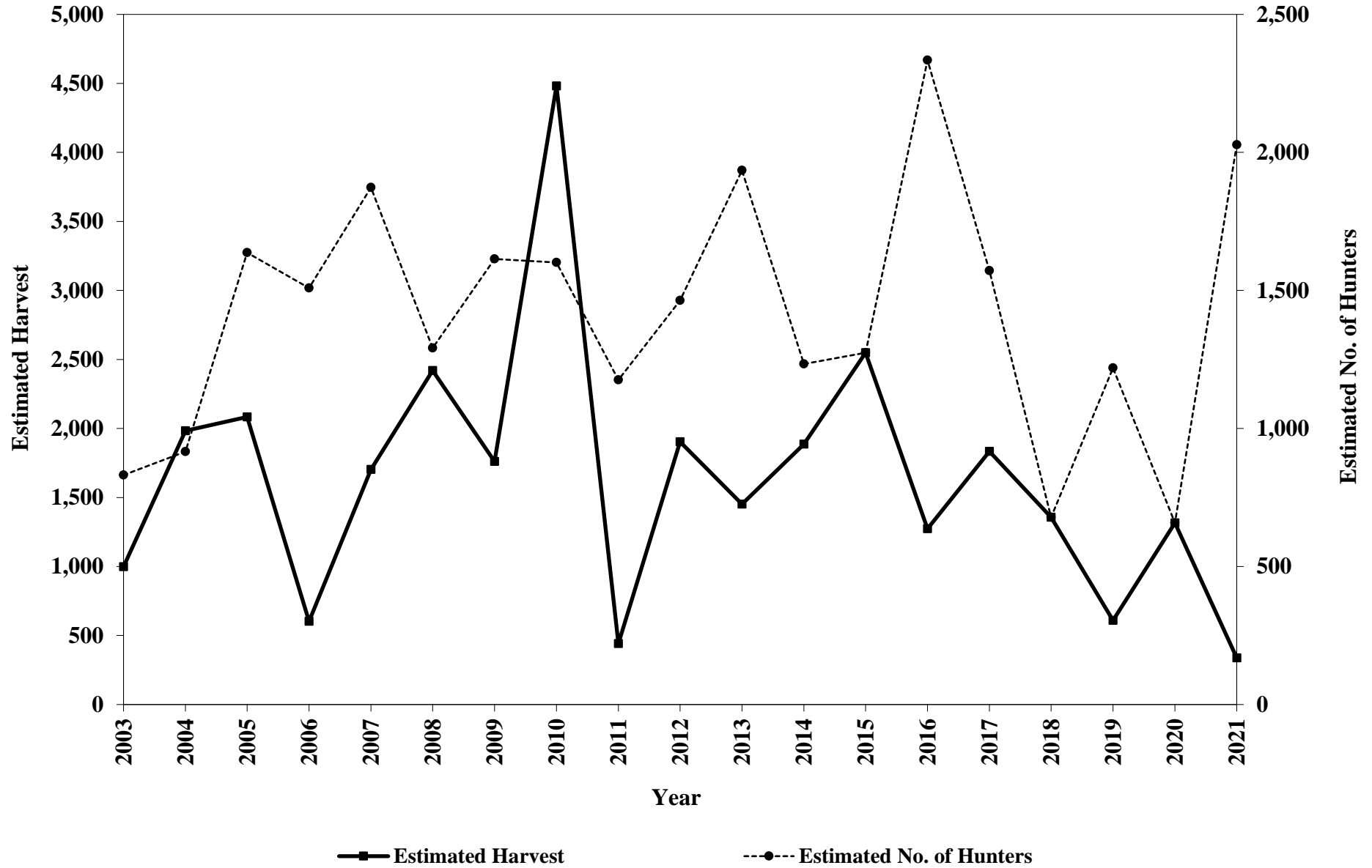


Figure A17. Statewide trends in estimated gray fox harvest and estimated number of gray fox hunters in Oklahoma, 2003-2021.

Red Fox

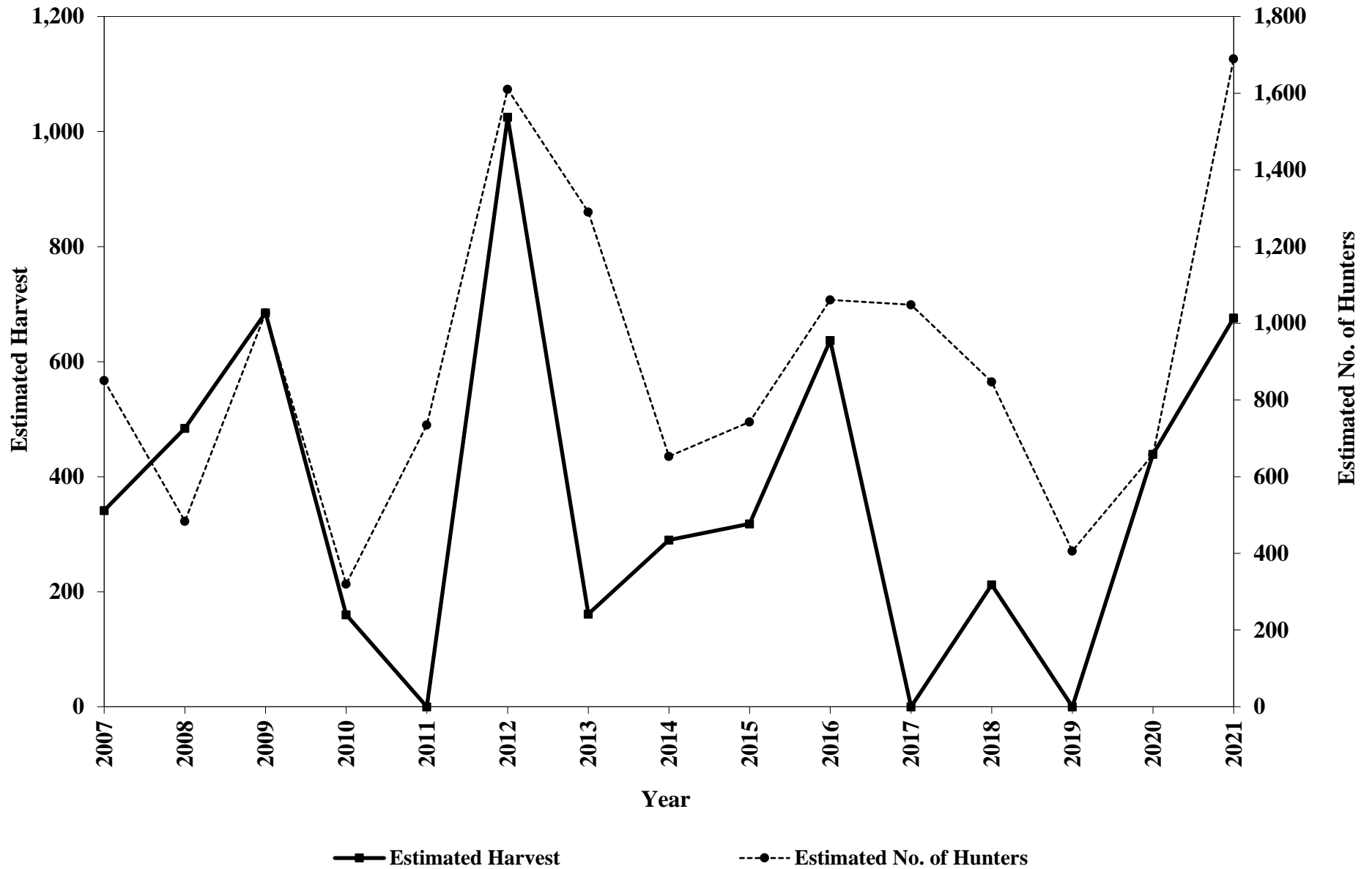


Figure A18. Statewide trends in estimated red fox harvest and estimated number of red fox hunters in Oklahoma, 2007-2021.

River Otter

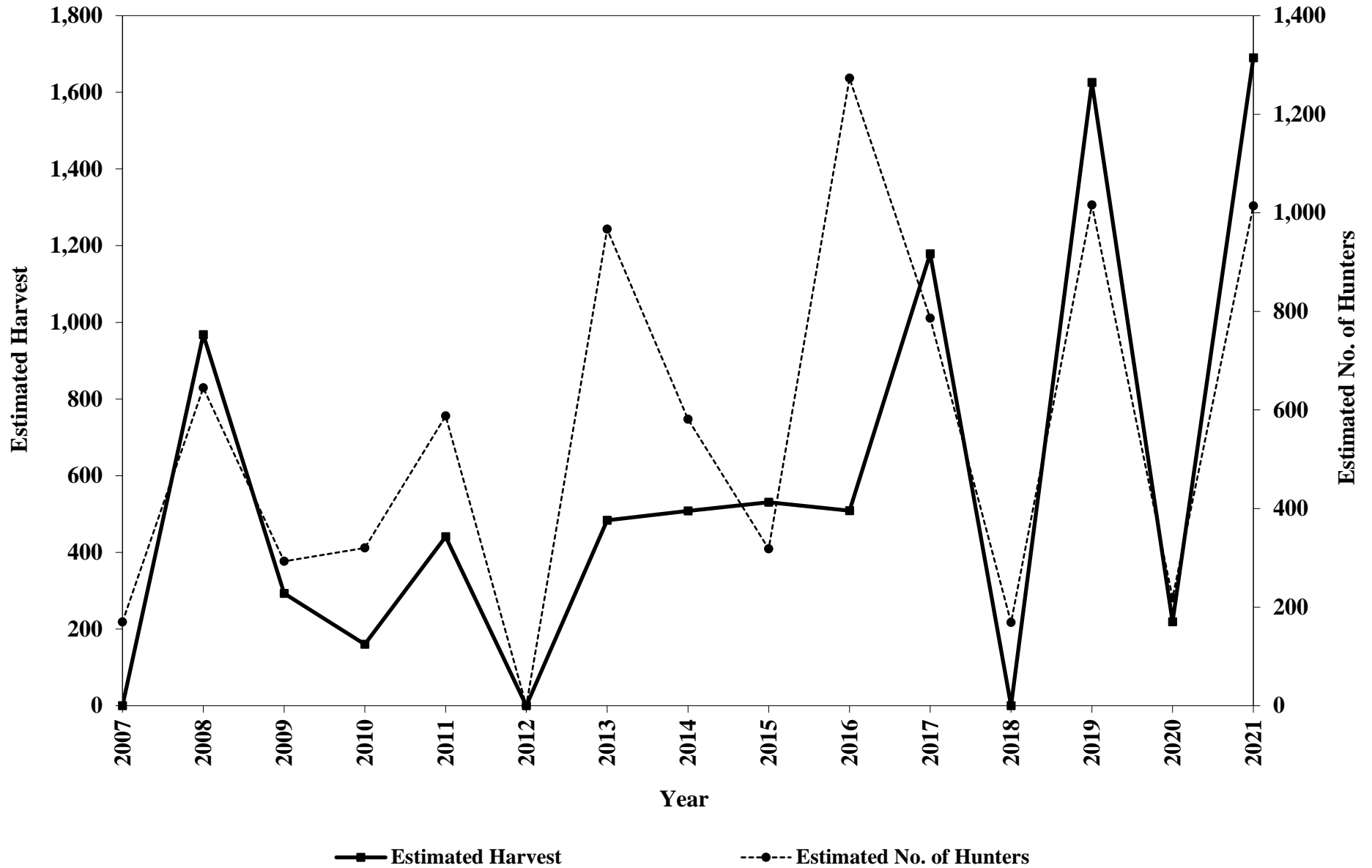


Figure A19. Statewide trends in estimated river otter harvest and estimated number of river otter hunters in Oklahoma, 2007-2021.

APPENDIX B

Human Dimensions Issues – Tables and Graphs

Table B1. Rate of participation in specific 2021 hunting seasons by all license holders, and by license type. (*Small sample size.)

Hunting Season	Total Sample		Participation by License Type					
	Participation		Lifetime		Annual/Five-Year		Senior	
	(n = 2,126)		(n = 844)		(n = 222)		(n = 340)	
	Season <i>n</i>	Percent	Season <i>n</i>	Percent	Season <i>n</i>	Percent	Season <i>n</i>	Percent
Any Hunting	1,410	66.3	617	73.1	184	82.9	69	20.3
Deer (Overall)	1,105	52.0	570	67.5	155	69.8	52	15.3
Gun	860	40.5	505	59.8	117	52.7	38	11.2
Primitive Firearms	395	18.6	286	33.9	39	17.6	19	5.6
Archery	672	31.6	371	44.0	84	37.8	17	5.0
Special Antlerless	187	8.8	130	15.4	26	11.7	9	2.6
Youth Season	29	1.4	22	2.6	4	1.8	0	0.0
Turkey (Overall)	313	14.7	193	22.9	27	12.2	14	4.1
Spring Turkey	285	13.4	176	20.9	24	10.8	14	4.1
Fall Turkey	59	2.8	39	4.6	5	2.3	4	1.2
Dove	234	11.0	155	18.4	31	14.0	12	3.5
Feral Swine	354	16.7	212	25.1	30	13.5	13	3.8
Ducks	293	13.8	50	5.9	33	14.9	9	2.6
Geese	167	7.9	95	11.3	19	8.6	4	1.2
Squirrel (Overall)	147	6.9	96	11.4	13	5.9	14	4.1
Fox Squirrel	111	5.2	73	8.6	9	4.1	10	2.9
Gray Squirrel	110	5.2	71	8.4	7	3.2	13	3.8
Quail	86	4.0	50	5.9	4	1.8	7	2.1
Furbearers (Overall)	139	6.5	82	9.7	23	10.4	8	2.4
Coyote	106	5.0	63	7.5	16	7.2	5	1.5
Raccoon	45	2.1	24	2.8	8	3.6	4	1.2
Bobcat	34	1.6	22	2.6	2	0.9	2	0.6
Beaver*	17	0.8	12	1.4	1	0.5	0	0.0
Gray Fox*	6	0.3	4	0.5	1	0.5	0	0.0
Red Fox*	5	0.2	3	0.4	1	0.5	0	0.0
Otter*	3	0.1	2	0.2	0	0.0	0	0.0
Rabbit (Overall)	58	2.7	34	4.0	5	2.3	11	3.2
Cottontail Rabbit	57	2.7	34	4.0	5	2.3	11	3.2
Swamp Rabbit*	13	0.6	7	0.8	2	0.9	2	0.6
Jackrabbit*	4	0.2	1	0.1	0	0.0	2	0.6
Pheasant	48	2.3	29	3.4	5	2.3	2	0.6
Crow	29	1.4	18	2.1	1	0.5	3	0.9
Woodcock*	1	0.0	1	0.1	0	0.0	0	0.0

Table B1 (continued). Rate of participation in specific 2021 hunting seasons by all license holders, and by license type.

Hunting Season	Tribal Partnership Licenses (n = 220)		NonResident Licenses (n=500)	
	Season <i>n</i>	Percent	Season <i>n</i>	Percent
Any Hunting	85	38.6	455	91.0
Deer (Overall)	78	35.5	250	50.0
Gun	66	30.0	134	26.8
Primitive Firearms	32	14.5	19	3.8
Archery	40	18.2	160	32.0
Special Antlerless	10	4.5	12	2.4
Youth Season*	3	1.4	246	49.2
Turkey (Overall)	18	8.2	61	12.2
Spring Turkey	17	7.7	54	10.8
Fall Turkey	3	1.4	8	1.6
Dove	8	3.6	28	5.6
Feral Swine	25	11.4	74	14.8
Ducks	8	3.6	148	29.6
Geese*	5	2.3	89	17.8
Squirrel (Overall)	18	8.2	6	1.2
Fox Squirrel	15	6.8	4	0.8
Gray Squirrel	17	7.7	2	0.4
Quail*	4	1.8	21	4.2
Furbearers (Overall)*	16	7.3	10	2.0
Coyote*	14	6.4	8	1.6
Raccoon*	7	3.2	2	0.4
Bobcat*	5	2.3	3	0.6
Beaver*	3	1.4	1	0.2
Gray Fox*	1	0.5	0	0.0
Red Fox*	1	0.5	0	0.0
Otter*	1	0.5	0	0.0
Rabbit (Overall)	5	2.3	3	0.6
Cottontail Rabbit	5	2.3	2	0.4
Swamp Rabbit*	1	0.5	1	0.2
Jackrabbit*	0	0.0	1	0.2
Pheasant*	2	0.9	10	2.0
Crow*	5	2.3	2	0.4
Woodcock*	0	0.0	0	0.0

(*Small sample size.)

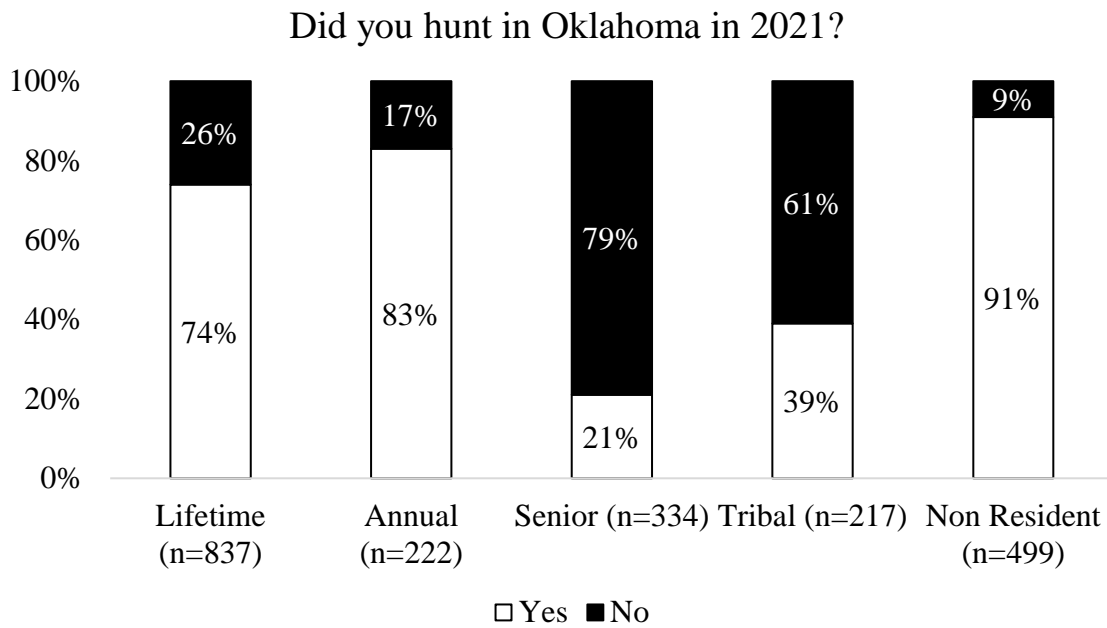


Figure B1. Distribution of hunting license holder participation in hunting activities during 2021, by license category. Both hunting and combination-hunting-and-fishing licenses were included in all license categories.

Type of Land Used for Hunting in Oklahoma during 2021, by Season

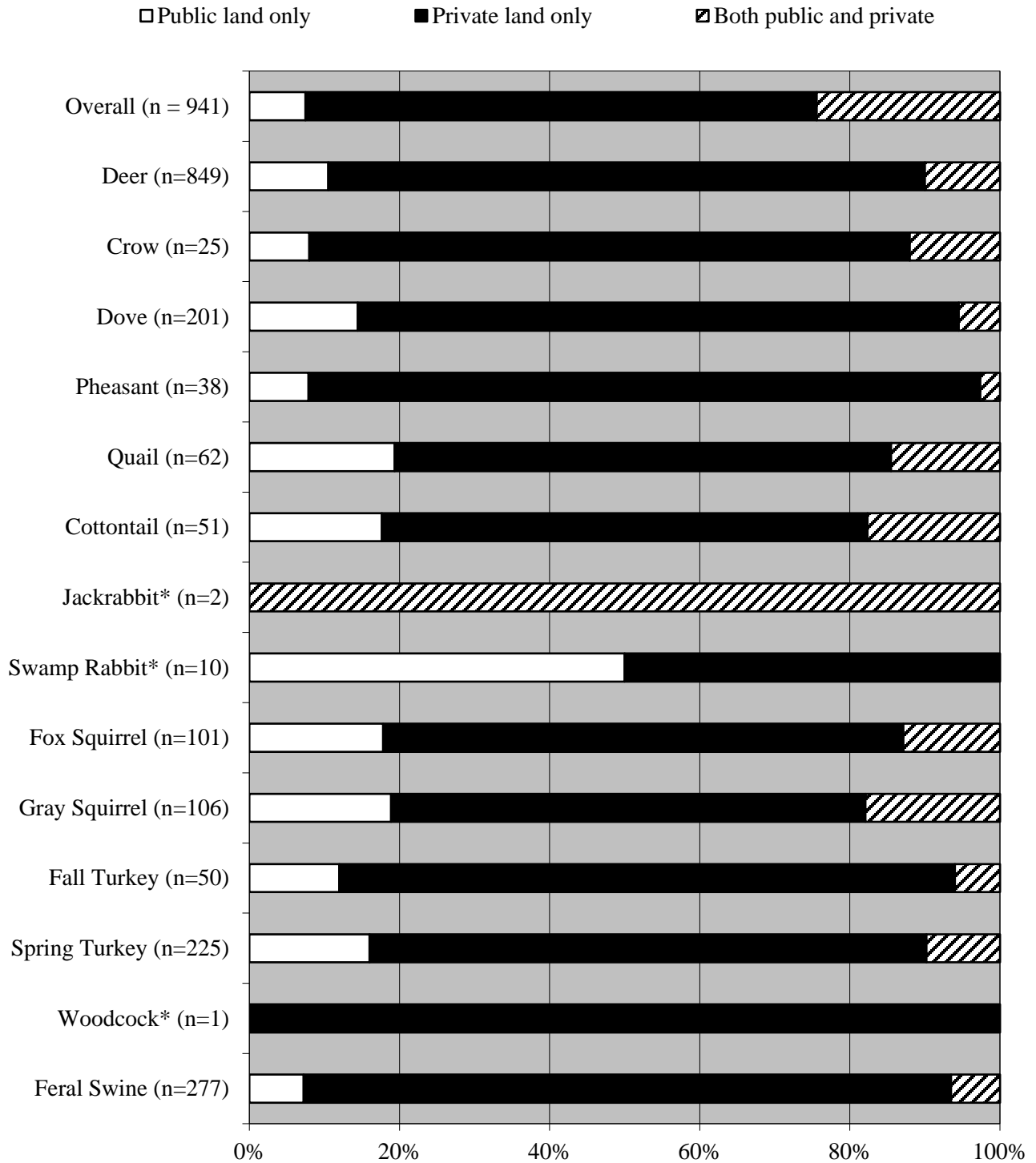


Figure B2. Distribution of land use for specific hunting seasons during 2021. Sample sizes and missing data vary for each species. *Small sample size. Displaying senior, annual, lifetime and tribal licenses

**“Did you use public land for any portion of your hunting in Oklahoma during 2021?”
(n=1,346)”**

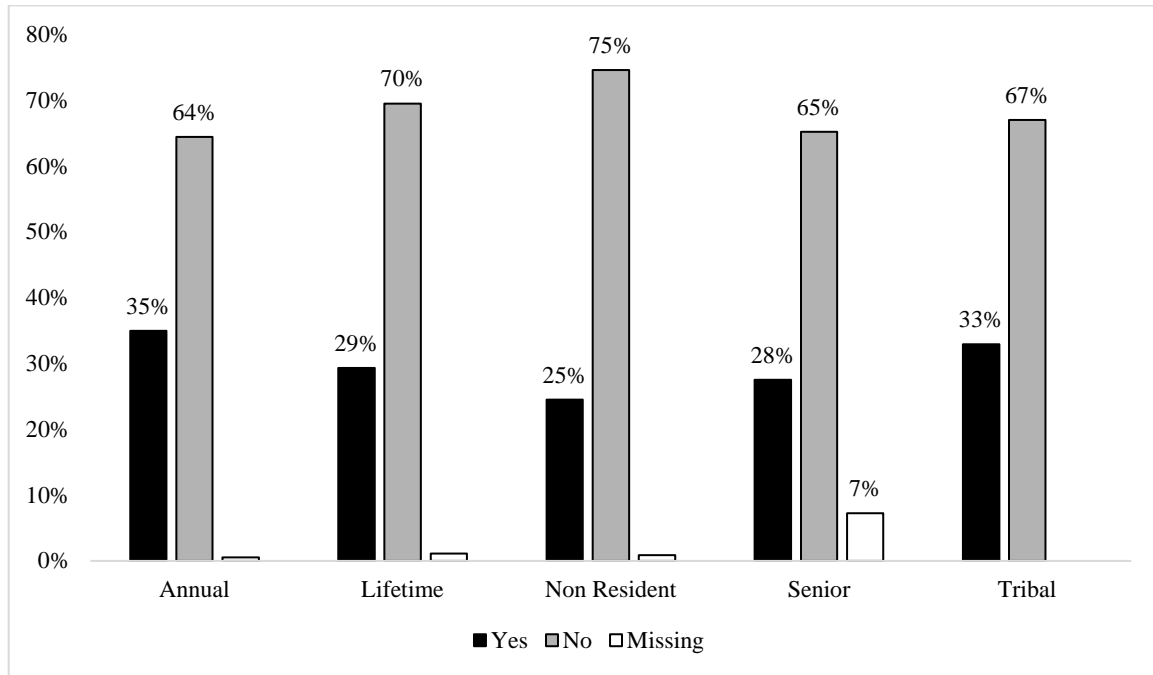


Figure B3. Distribution of hunting license holder use of public land during the 2021 hunting season.

[Asked of hunters who used public land:]
“Overall, how important to your hunting experience is public land?”

■ Very important □ Somewhat important ▒ Not important at all

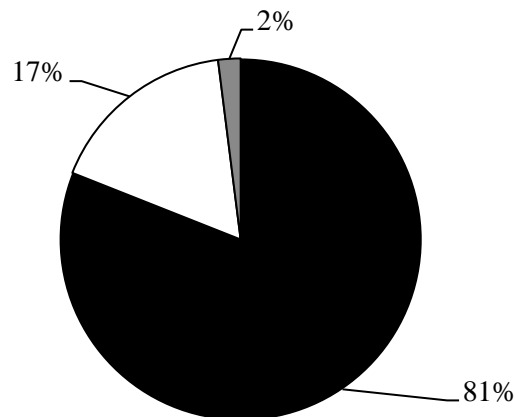


Figure B4. Importance of public land, by 2021 public land hunters ($n = 291$; excludes 7 respondents who selected “No opinion/Don’t know”). Displaying senior, annual, lifetime and tribal licenses

Please check the box for each part of Oklahoma where you hunted on public land during 2021, based on the major highways:”

Active resident hunters 2021 (n = 955)

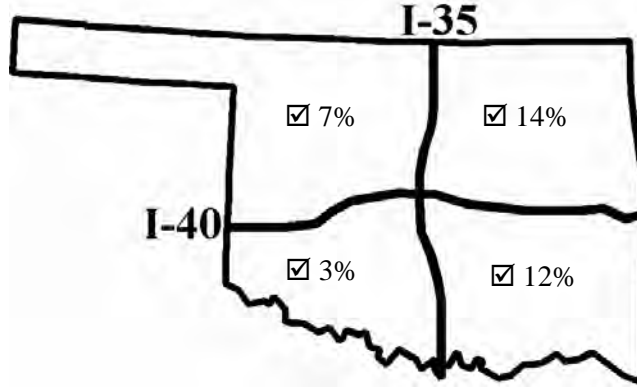


Figure B5. Use of public land located in each region, by active hunting license holders in 2021. Displaying senior, annual, lifetime and tribal licenses

Participation in Specific Deer Seasons

2021-season resident deer hunters (n = 855)

(*Senior citizen license holders excluded for Youth Season as they could not possibly be an active hunter in the youth season.)

Multiple responses allowed

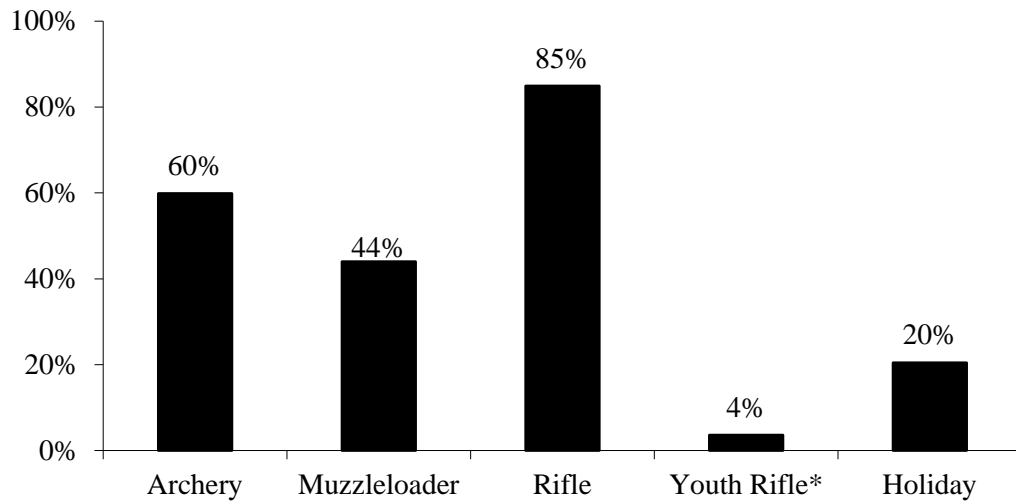


Figure B6. Participation in individual deer seasons, by 2021-season resident deer hunters. Displaying senior, annual, lifetime and tribal licenses

Patterns of Participation: Number of Deer Seasons
2021-season deer hunters (n = 855)

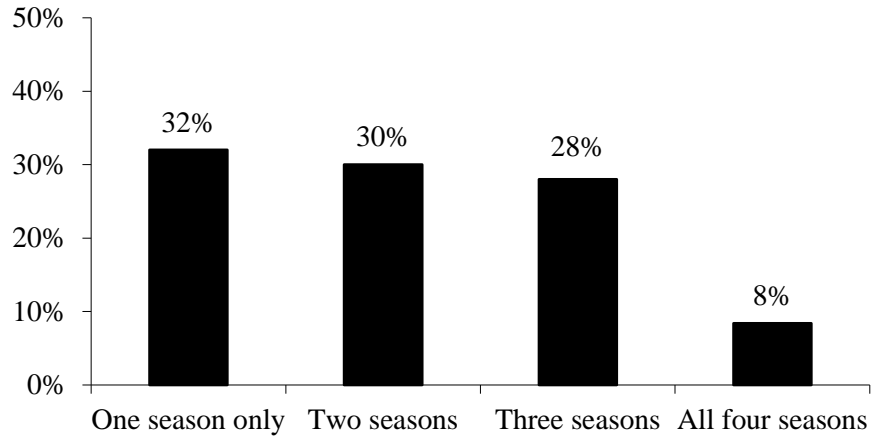


Figure B7. Number of deer seasons (archery, primitive, gun and holiday season; youth season excluded) participated in by 2021-season deer hunters. Displaying senior, annual, lifetime and tribal licenses

Patterns of Participation: Specific Deer Seasons
2021-season resident deer hunters (n = 768)

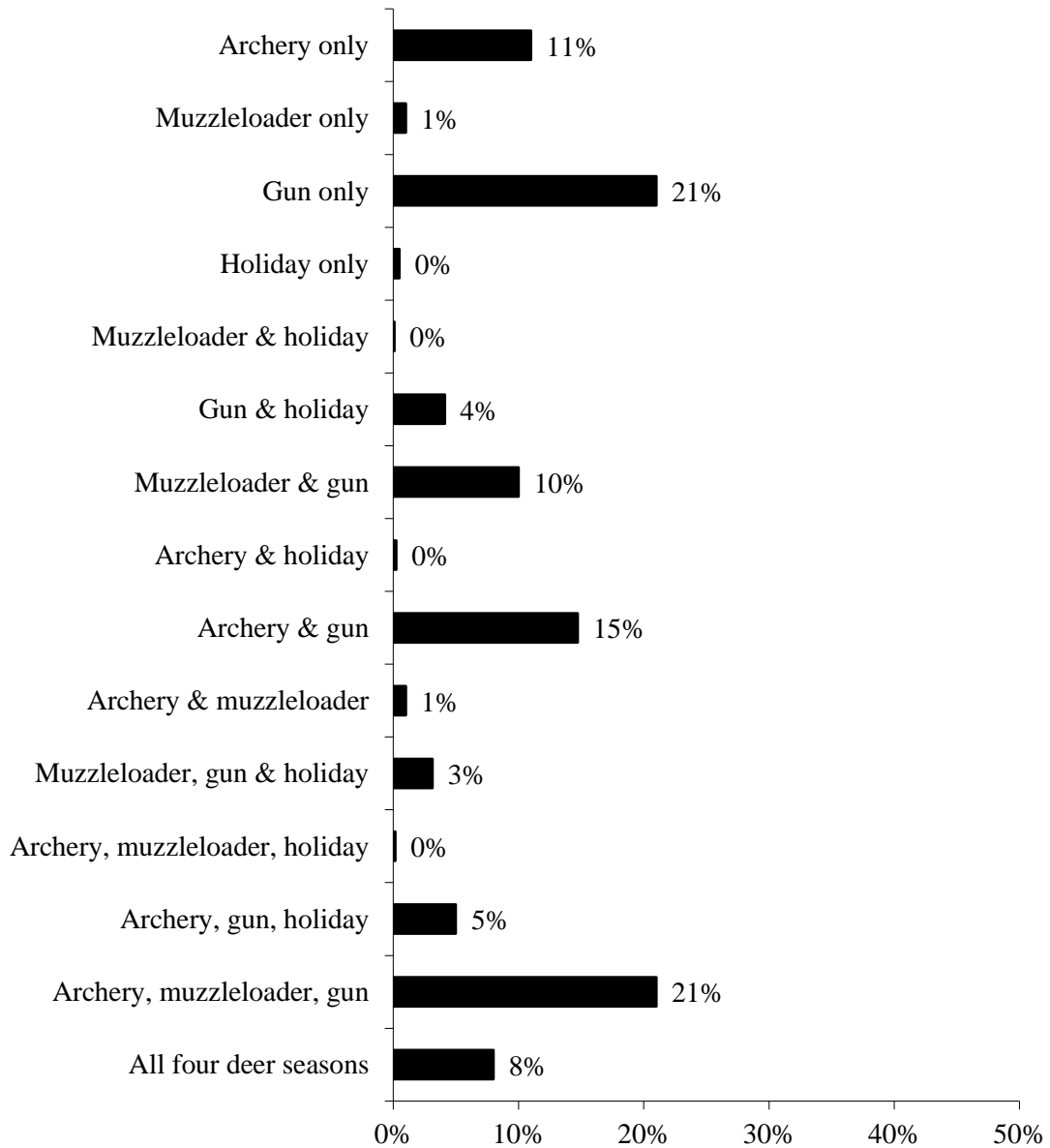


Figure B8. Specific deer seasons (archery, primitive, gun and holiday antlerless season; youth season excluded) participated in by 2021-season resident deer hunters. Displaying senior, annual, and lifetime licenses

Other Deer Hunting by Youth Season Participants
2021 youth deer season hunters (n = 29)

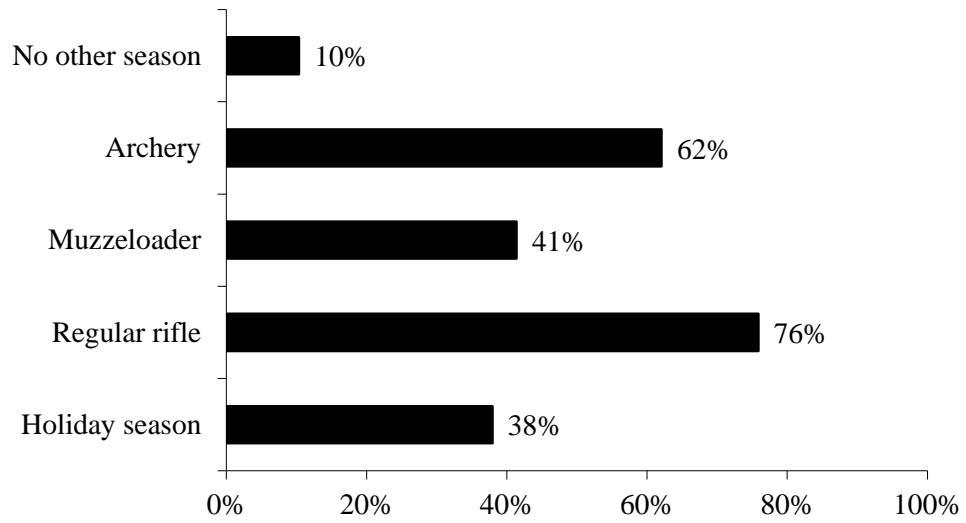


Figure B9. Participation in other deer seasons by 2021 youth deer season hunters. Displaying senior, annual, lifetime and tribal licenses

Total Number of Deer Harvested Per Hunter
2021-season deer hunters (n = 1,105)

- **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

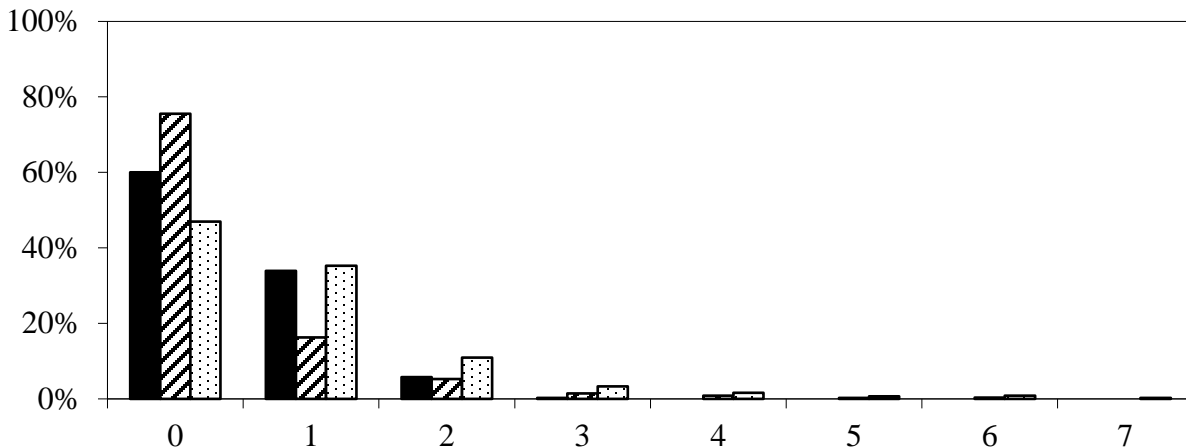


Figure B10. Total number of deer harvested per hunter across all 2021 seasons: archery, muzzleloader, gun, youth, and the holiday antlerless season. Displaying senior, annual, lifetime, tribal and nonresident licenses

Reasons for Not Hunting by Inactive Hunting License Holders
Did not hunt in 2021, n=675, missing=42

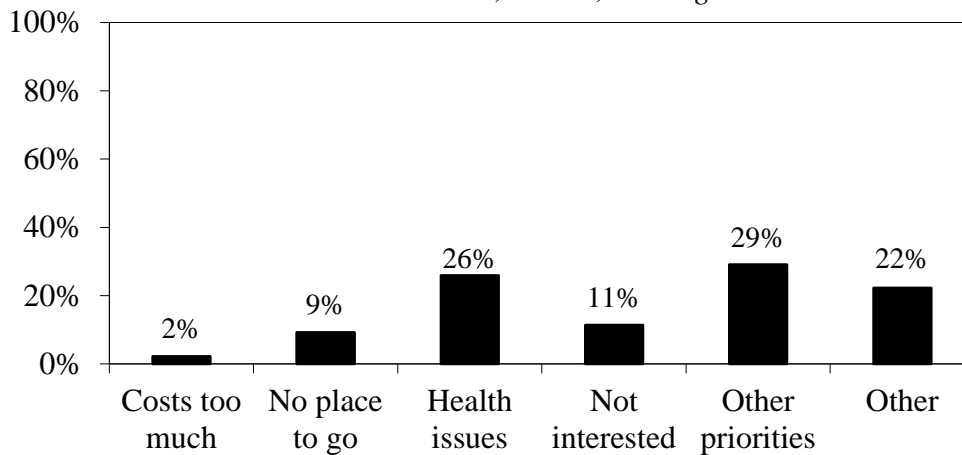


Figure B11. Barriers to hunting participation, by hunting license holders who were inactive in 2021. Displaying senior, annual, lifetime, tribal and nonresident licenses

Do you use the Wildlife Department's Go Outdoors cell phone application?

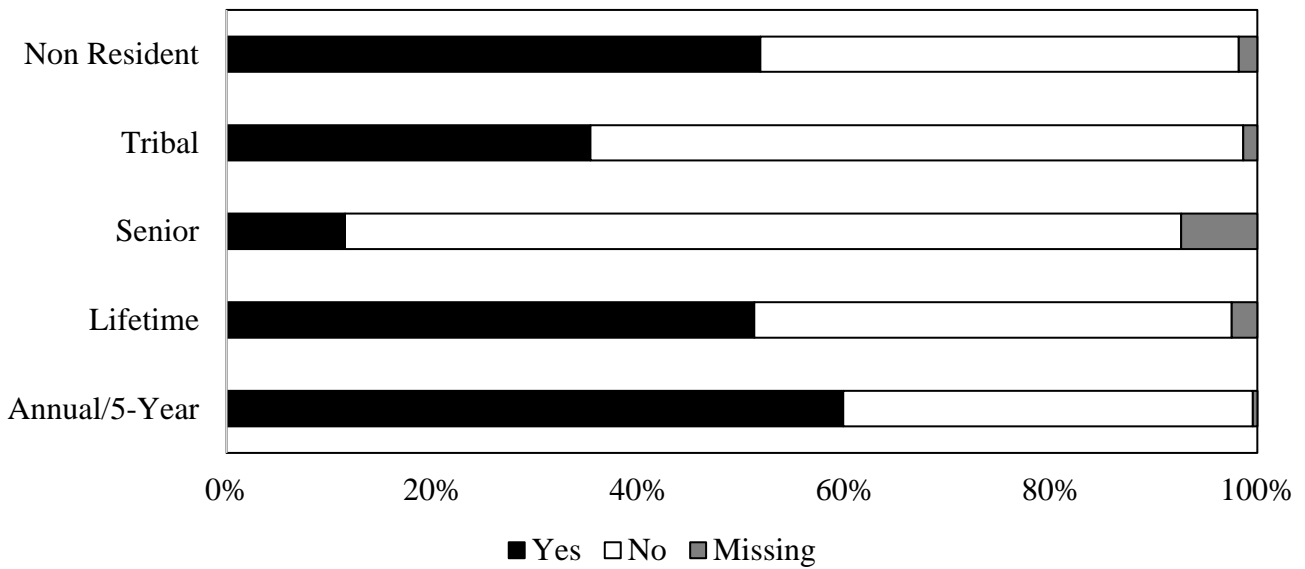


Figure B12. Use of the Go Outdoors cell phone application by hunting license type

In the past three years, have you hunted mule deer in Oklahoma?

n=2,117

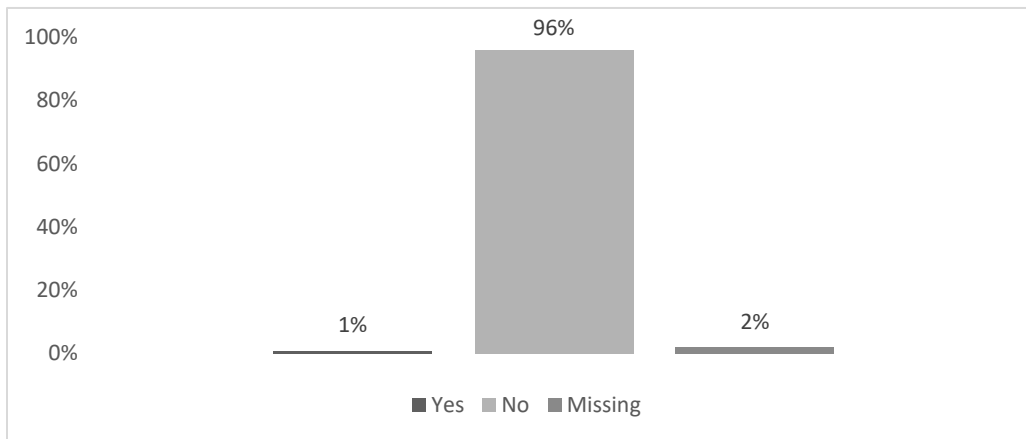


Figure B13. Mule deer hunters in the last three years across all active 2021 hunting license holders. Displaying all resident and nonresident license types.

Were you only hunting mule deer or while hunting deer? $n=20$

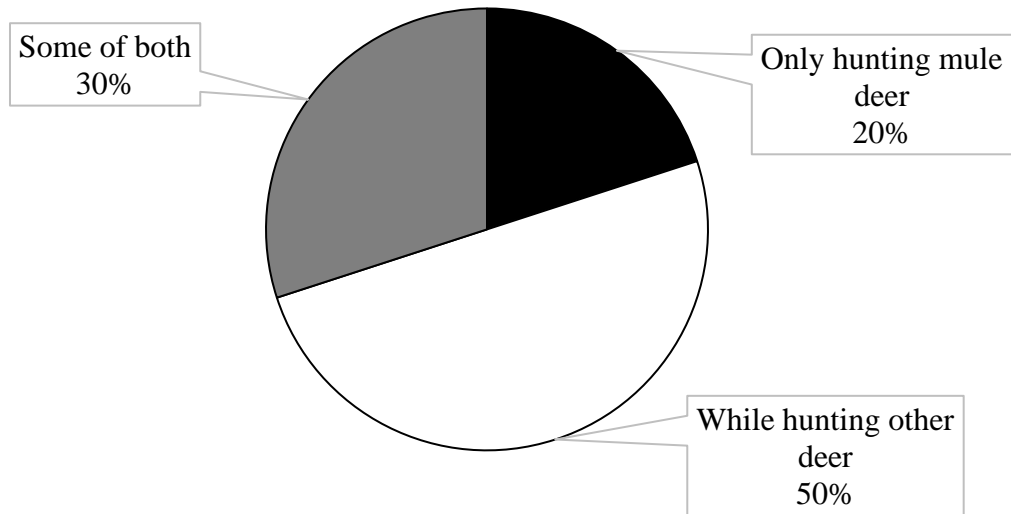


Figure B14. Activity of mule deer hunters both resident and nonresidents

Do you use supplemental feed to attract wildlife?
($n=1,563$, excluding 53 missing)

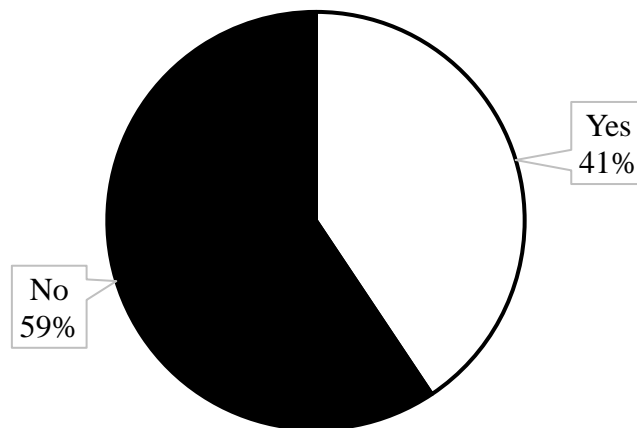


Figure B15. Use of supplemental feed to attract wildlife by all resident hunters in Oklahoma

What is your reason for supplemental feeding? Check all that apply.
(n=635)

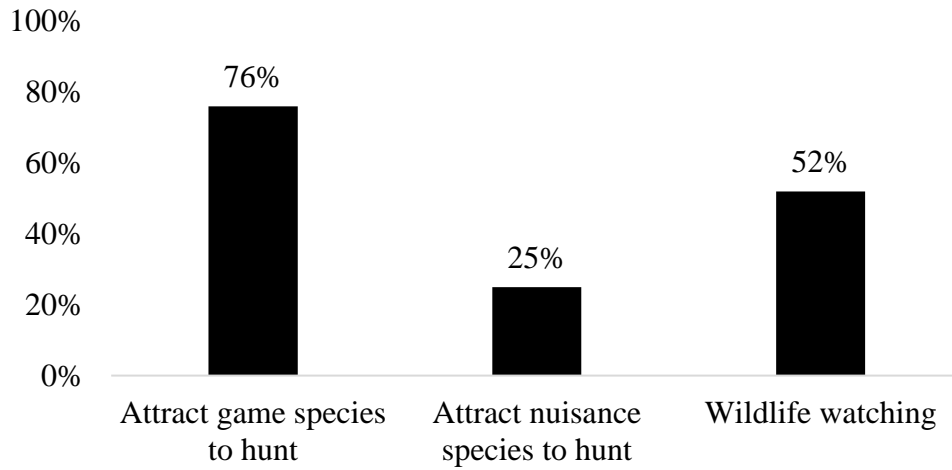


Figure B16. Reasons for supplemental feeding across all resident license types.

What method do you use to supplementally feed? Check all that apply.
(n=635)

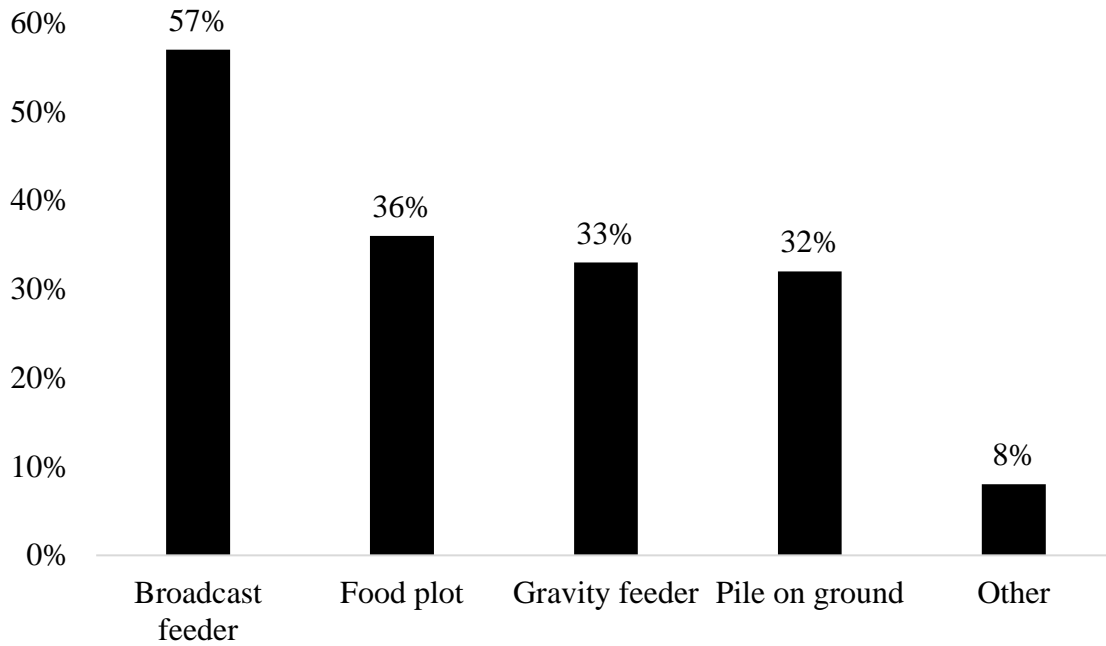


Figure B17. Method of supplementally feeding across all resident license types.

**What time of year do you supplementally feed wildlife? Check all that apply.
(n=635)**

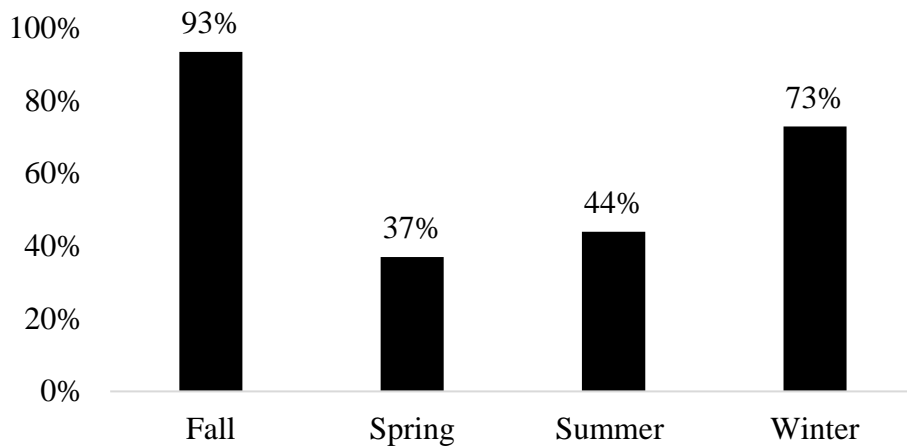


Figure B18. Timing of supplemental feeding in Oklahoma across all resident license types.

**What is your level of knowledge of aflatoxins/mycotoxins and their impacts on wildlife?
(n=635)**

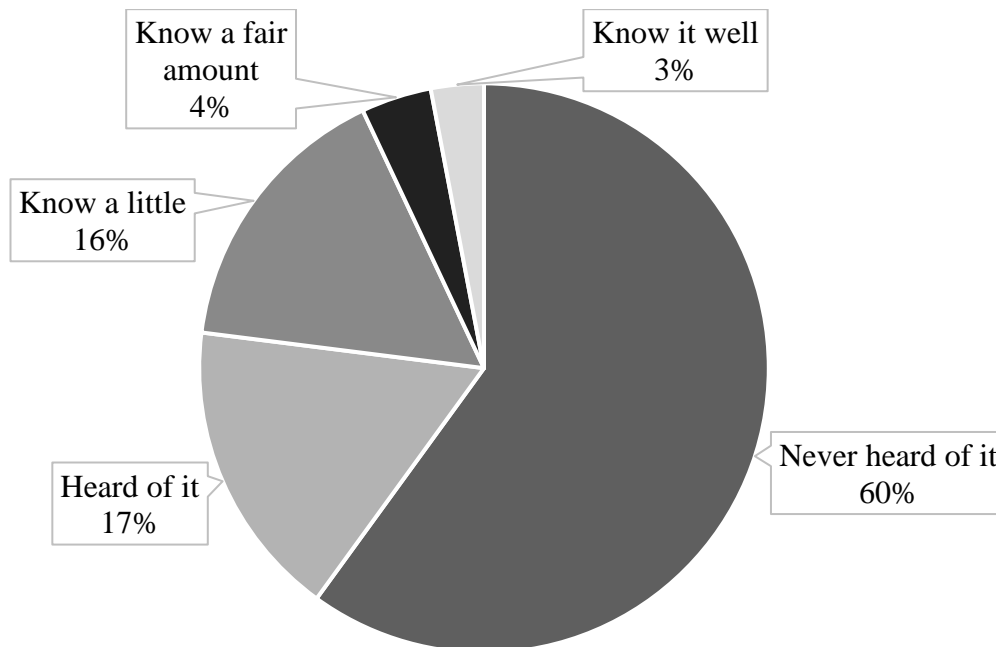


Figure B19. Knowledge levels of the impacts to wildlife due to mycotoxins and aflatoxins across all resident license types.

Table B2. Species of most interest to target in the future by 2021 hunting license holders separated by license type.

What species are you most interest in attempting to hunt in Oklahoma that you have little or no experience hunting?

Annual/5-Year (n=203)	Lifetime (n=722)	Non-Resident (n=449)	Senior (n=217)	Tribal (n=184)
Elk- 22%	Elk- 31%	Deer- 16%	No interest- 29%	Deer- 18%
Feral Hogs- 13%	Bear- 9%	No interest- 16%	Deer- 17%	Elk- 15%
No interest- 12%	No interest- 9%	Elk- 16%	Feral Hogs- 13%	No interest- 15%

**What is your comfort level with the following aspects of hunting?
Displaying all resident and nonresident hunting license holders**

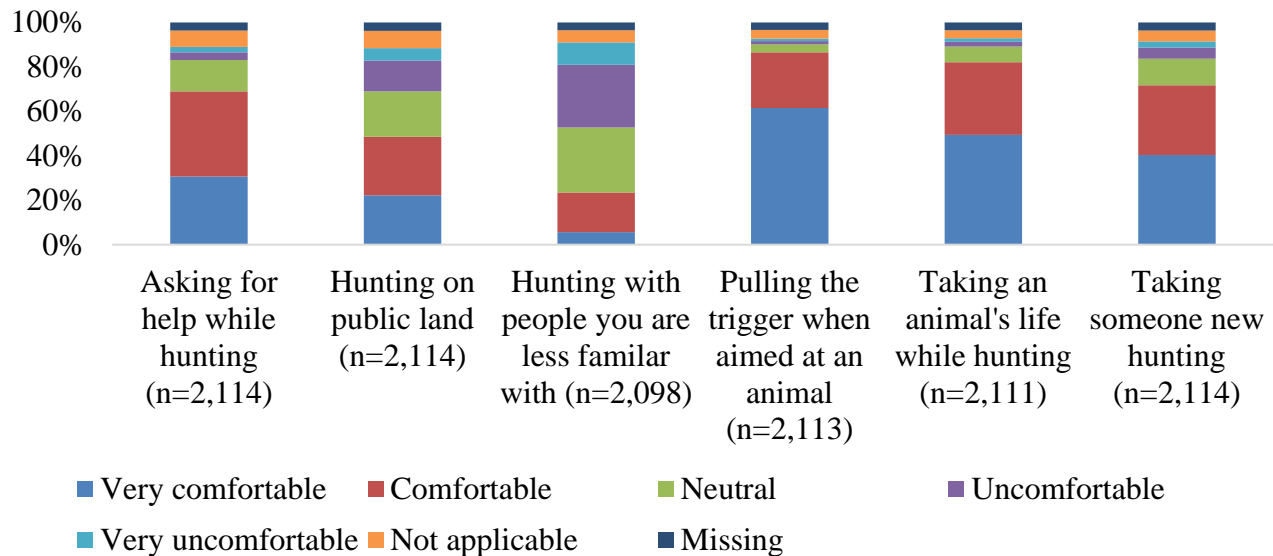


Figure B20. Comfort level surrounding several proposed hunting related topics of all 2021 hunting license holders.

What is your interest level for attending Wildlife Department-led programs on the following topics? Displaying responses of resident hunting license holders

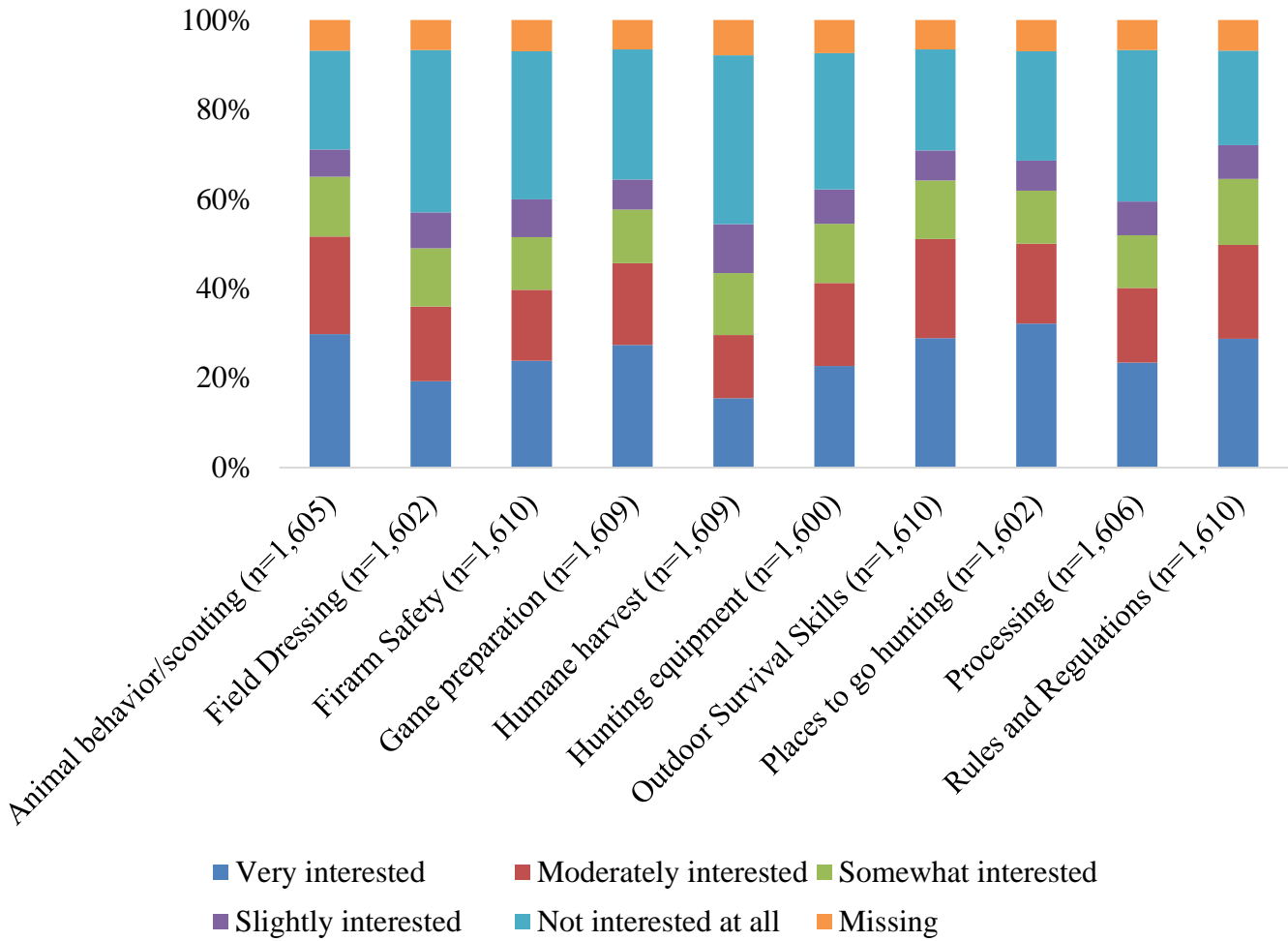


Figure B21. Interest in various topics related to hunting by resident 2021 hunting license holders

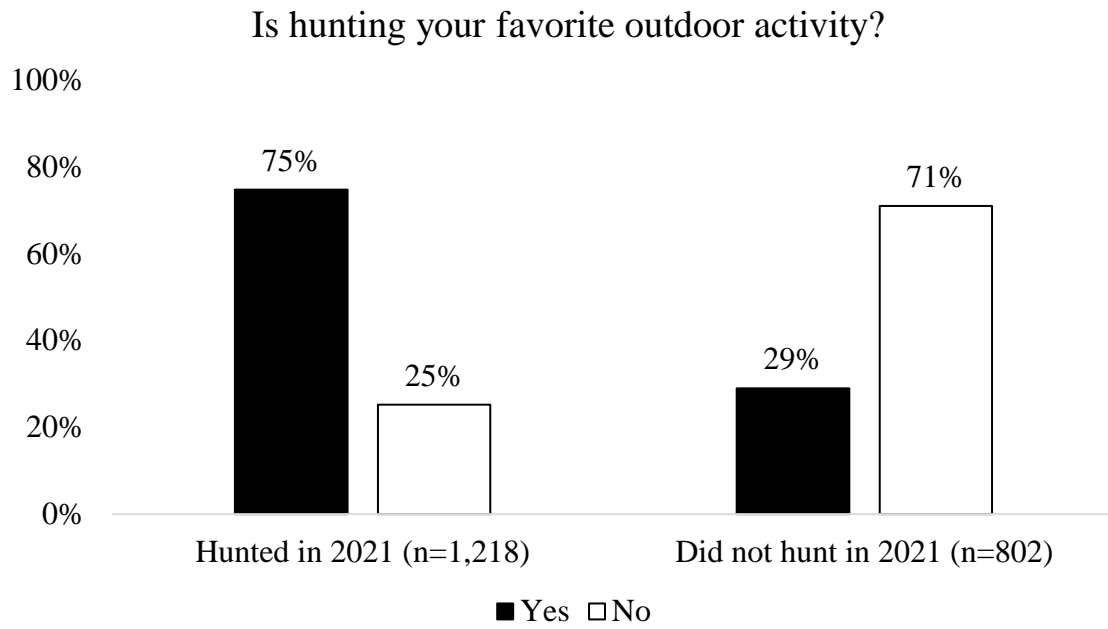


Figure B22. Selection of hunting as their favorite activity by all resident and nonresident hunting license holders in 2021 by whether or not they hunted in the last year.

Appendix C



2021-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 2021 (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.

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) 521-4805 or betsey.york@odwc.ok.gov. Your help in this project is greatly appreciated, and we look forward to learning about your 2021 hunting experiences!

Sincerely,

Betsey York
Human Dimensions Specialist

1. Did you hunt in Oklahoma during 2021?

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 2021, please skip to question #20.

Public Land

2. Did you use public land for any portion of your hunting in Oklahoma during 2021?

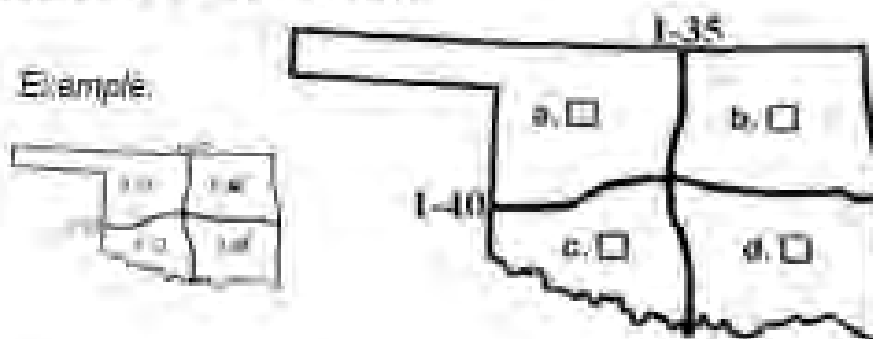
(Public land might include wildlife management areas, wildlife refuges, U.S. Army Corps of Engineers land, state parks, city-owned land, etc. NOT privately owned land-ex. CLAP)

- No → If no, please go to question #6 on the next page
 Yes

3. Considering all Oklahoma hunting seasons in 2021, how much of your hunting occurred on public vs. private land?

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

4. Please check (a) the box for each part of Oklahoma where you hunted on public land during 2021, based on the major highways:



5. Overall, how important to your hunting experience is public land?

- Very important
 Somewhat important
 Not important at all

Hunting in Oklahoma During 2021

Please complete the box for each season you hunted in Oklahoma during 2021 (not others in your household or hunting party). If you are unsure about exact numbers, please estimate.

6. Quail



a. Did you hunt quail in Oklahoma during 2021?	<input type="checkbox"/> Yes	<input type="checkbox"/> 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	
	<input type="checkbox"/> None	
d. County you hunted quail most often?	_____	
(If unsure, what town is closest?)		
e. Land used for quail hunting?	<input type="checkbox"/> Public	<input type="checkbox"/> Private <input type="checkbox"/> Both
If you hunted quail on <u>public</u> land at all during 2021:		
f. How many days did you hunt quail on public land?	_____	
g. How many quail did you harvest on public land?	_____	

7. Pheasant



a. Did you hunt pheasant in Oklahoma during 2021?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
(If not, skip to next box.)		
b. How many days did you hunt pheasant?	_____	
c. How many pheasant did you harvest?	_____	<input type="checkbox"/> None
d. County you hunted pheasant most often?	_____	
(If unsure, what town is closest?)		
e. Land used for pheasant hunting?	<input type="checkbox"/> Public	<input type="checkbox"/> Private <input type="checkbox"/> Both
If you hunted pheasant on <u>public</u> land at all during 2021:		
f. How many days did you hunt pheasant on public land?	_____	
g. How many pheasant did you harvest on public land?	_____	

8. Dove



a. Did you hunt doves in Oklahoma during 2021? Yes No
(If not, skip to next box.)

b. How many days did you hunt doves? _____

c. How many doves did you harvest? _____ None

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

e. Land used for dove hunting? Public Private Both

If you hunted doves on public land at all during 2021:

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

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

9. Woodcock



a. Did you hunt woodcocks in Oklahoma during 2021? 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 public land at all during 2021:

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

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

10. Crow



a. Did you hunt crows in Oklahoma during 2021? 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 public land at all during 2021:

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

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

11. Spring Turkey



- a. Did you hunt the spring turkey season in Oklahoma during 2021? Yes No
(If not, skip to next box.)
- b. How many days did you hunt spring turkey? _____
- c. How many spring turkey did you harvest? _____ None
- d. County you hunted spring turkey most often? _____
(if unsure, what town is closest?)
- e. Land used for spring turkey hunting? Public Private Both
- If you hunted turkey on public land at all during spring 2021:**
- f. How many days did you hunt spring turkey on public land? _____
- g. How many spring turkeys did you harvest on public land? _____

12. Fall Turkey



- a. Did you hunt the fall turkey season in Oklahoma during 2021? Yes No
(If not, skip to next box.)
- b. How many days did you hunt fall turkey? _____
- c. What did you harvest? Hen Tom No fall turkey harvested
- d. County you hunted fall turkey most often? _____
(if unsure, what town is closest?)
- e. Land used for fall turkey hunting? Public Private Both
- If you hunted turkey on public land at all during fall 2021:**
- f. How many days did you hunt fall turkey on public land? _____
- g. How many fall turkeys did you harvest on public land? _____

13. Gray Squirrel



- a. Did you hunt gray squirrels in Oklahoma during 2021? 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 public land at all during 2021:**
- f. How many days did you hunt gray squirrels on public land? _____
- g. How many gray squirrels did you harvest on public land? _____

14. Fox Squirrel



- a. Did you hunt fox squirrels in Oklahoma during 2021? 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 public land at all during 2021:

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

15. Cottontail Rabbit



- a. Did you hunt cottontail rabbits in Oklahoma during 2021? 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 public land at all during 2021:

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

16. Jackrabbit



- a. Did you hunt jackrabbits in Oklahoma during 2021? 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 public land at all during 2021:

- f. How many days did you hunt jackrabbits on public land? _____
- g. How many jackrabbits did you harvest on public land? _____

17. Swamp Rabbit



a. Did you hunt swamp rabbits in Oklahoma during 2021? 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 public land at all during 2021:

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

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

18. Furbearers



a. Did you hunt or trap furbearers in Oklahoma during 2021?
 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?
<input type="checkbox"/> Coyote	↓	_____	↓	_____
<input type="checkbox"/> Bobcat	↓	_____	↓	_____
<input type="checkbox"/> Raccoon	↓	_____	↓	_____
<input type="checkbox"/> Beaver	↓	_____	↓	_____
<input type="checkbox"/> Otter	↓	_____	↓	_____
<input type="checkbox"/> Gray fox	↓	_____	↓	_____
<input type="checkbox"/> Red fox	↓	_____	↓	_____

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



a. Did you target feral swine in Oklahoma during 2021? 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

f. Did you target feral swine most often at night or during the day? Night Day

If you targeted feral swine on public land at all during 2021:

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

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

20. Prairie Dogs



- a. Did you hunt prairie dogs in Oklahoma during 2021? Yes No (If not, skip to next box.)
- b. How many days did you hunt prairie dogs? _____
- c. How many prairie dogs did you harvest? _____ None
- d. County you hunted prairie dogs most often? _____
(If unsure, what town is closest?)
- e. Land used for prairie dog hunting? Public Private Both
- f. If you hunted prairie dogs, were you ONLY hunting for prairie dogs or were you hunting them while you were out hunting other species?
- Only hunting prairie dogs
- While hunting other species
- Some of both
- If you hunted prairie dogs on public land at all during 2021:
- g. How many days did you hunt prairie dogs on public land? _____
- h. How many prairie dogs did you harvest on public land? _____

21. Migratory Game Birds



- a. Did you hunt ducks, geese or sandhill crane in Oklahoma during 2021?
 Yes No (If not, skip to next box.)
- | b. Which did you hunt? | c. How many days? | d. How many did you harvest? |
|---|-------------------|------------------------------|
| <input type="checkbox"/> Ducks → | _____ → | _____ |
| <input type="checkbox"/> Geese → | _____ → | _____ |
| <input type="checkbox"/> Sandhill Crane → | _____ → | _____ |

Deer Hunting in 2021 _____

22. Deer



- a. Did you hunt deer in Oklahoma during 2021?
 Yes No → (If you did not hunt deer during 2021, please skip to question 26.)
- b. County you hunted deer most often? _____
(If unsure, what town is closest?)
- c. Land used for deer hunting? Public Private Both

23. Deer: Archery Season

- a. Did you hunt deer during archery season? (Oct. 1, 2021 - 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

24. Deer: Muzzleloader Season

- a. Did you hunt deer during muzzleloader season? (Oct. 23 - Oct. 31)
 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

25. Deer: Youth Gun Season

- a. Did you participate in the youth deer gun season in October as a youth hunter? (Oct. 15 - 17) (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

26. Deer: Regular Gun Season

- a. Did you hunt deer during the regular gun season? (Nov. 20 - Dec. 5)
 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

27. 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? _____

28. In the past three years have you hunted mule deer in Oklahoma?

- No...please skip to question 29.
- Yes...please answer the next few questions about your experience hunting mule deer.
- a. Were you **ONLY** hunting for mule deer or were you hunting them while you were out hunting white-tail deer?
- Only hunting mule deer
 - While hunting other deer
 - Some of both
- b. What county do you hunt mule deer most often? _____
- c. How many miles one-way did you travel to hunt mule deer? _____

29. Do you use the Wildlife Department's Go Outdoors call phone application?

(This is an app that you download to your mobile phone and allows you to hold your license on your cell phone as well as check-in animals that are required to be e-checked.)

- Yes No

30. Do you use supplemental feed to attract wildlife? Yes No...please skip to #31.

a. What is your reason for supplemental feeding? *Check all that apply.*

- Attract nuisance species to hunt
- Attract game species to hunt
- Wildlife watching

b. What method do you use to supplementally feed? *Check all that apply.*

- Pile on ground
- Gravity feeder
- Broadcast feeder
- Food plot
- Other: _____

32. What species are you most interested in attempting to hunt in Oklahoma that you have little or no experience hunting? _____

33. Is hunting your favorite outdoor activity (in comparison to hiking, fishing, camping, etc.)?

- Yes
- No



Why or why not?

34. The Wildlife Department offers guidance on several hunting topics. What is your interest level for attending Wildlife Department-led programs on the following topics?

	Very interested	Moderately interested	Somewhat interested	Slightly interested	Not interested at all
Humane harvest (shot placement)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Firearm safety	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Rules and regulations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Outdoor survival skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Animal behavior/scouting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Places to go hunting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hunting equipment (firearms, bows, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Field dressing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Processing (butchering)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Game preparation (cooking)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Thank you for your time filling out this survey.

Please mail this survey back to the Wildlife Department in the pre-paid envelope provided.