# PENNSYLVANIA GAME COMMISSION BUREAU OF WILDLIFE MANAGEMENT ANNUAL PROJECT REPORT 

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TITLE: Survey and Statistical Support
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TITLE: Game Take and Furtaker Surveys
PERIOD COVERED: 1 July 2010 to 30 June 2011
COOPERATING AGENCIES: Bureau of Automated Technology Services, Bureau of Administrative Services

WORK LOCATION(S): Harrisburg, Pennsylvania
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#### Abstract

A questionnaire was mailed to a random sample of 2010-11 general hunting license purchasers ( 17,791 questionnaires mailed) to estimate numbers of hunters, harvests, and hunter-days for small game species during the 2010-11 hunting seasons. After 3 mailings, $57.6 \%$ of the questionnaires were returned. Overall, between the 2009-10 and 2010-11 hunting seasons, harvests decreased for 10 of 11 small game species, hunter numbers decreased for 10 species and hunter days decreased for all species. Twenty-seven year trends in harvest and hunter participation indicate a decline for nearly all small game species. A separate questionnaire was mailed to a random sample of furtaker license purchasers ( 7,018 mailed) to estimate harvest of furbearer species and trapper-days. After 2 mailings, $64.1 \%$ of the questionnaires were returned. Overall, the number of hunters and trappers increased for all species between the 2009-10 and 2010-11 seasons, and harvest of 5 species increased. Twenty-seven year trends for harvests of furbearers indicate harvests have declined dramatically for most species. Junior and senior combination license holders are not included in the furtaker sample, thus some furtakers are not included in survey estimates. An estimated 52,822 adult hunters mentored 62,503 youth less than 12 years old in the fourth year of Pennsylvania's Mentored Youth Hunting Program. However the estimated number of mentored youth greatly exceeds the 30,790 mentored youth permits sold in this second year that mentored youth were required to obtain a permit. Mentored youth woodchuck, squirrel, antlered deer, spring gobbler and coyote harvests, hunter days and number of youth mentored are provided. An estimated 10,343 junior license buyers participated in youth hunts. Number of participants and harvests for waterfowl, spring gobbler, pheasant, rabbit and squirrel youth hunts are provided.


## OBJECTIVES

1. To annually estimate the numbers of animals harvested, participants, and days spent hunting (hunter-days) for small game species.
2. To annually estimate the numbers of furbearers harvested, trappers, and hunters during the furbearer seasons.
3. To monitor long-term trends in harvests, numbers of hunters and trappers, hunter-days, and harvest per 100 hunter-days.

## METHODS

Prior to the 2009-10 hunting season, survey recipients were selected to receive questionnaires based on their license number. General Hunting License numbers ending in either 01 or 51 were chosen for the Game Take Survey, and Furtaker License numbers ending in either 1 or 6 were selected for the Furtaker Survey. These licenses were obtained from the duplicate licenses on file in the License Division of the Bureau of Administrative Services, and from the electronic file of over the counter (OTC) sales. Photocopies of the duplicates and the OTC file were used by the Bureau of Automated Technology Services (BATS) to prepare the mailing list.

Beginning with the 2009-10 hunting season, the Pennsylvania Automated License System (PALS) was fully activated for sale of hunting and Furtaker licenses. Through the PALS system, each hunter or trapper is issued a unique Customer Identification Number (CID) that is assigned to that license holder for life. Because of the transition to the PALS system, the method of selecting participants for the Game Take and Furtaker Surveys had to be modified from previous years. The Game Take Survey was mailed at the close of small game seasons in early March, a month earlier than previous years. Time period for the Furtaker Survey did not change due to the beaver season closing at the end of March. The names and addresses of general hunting license holders and licensed furtakers were selected to receive questionnaires based on their CID. We sorted CIDs into numerical order and selected every $50^{\text {th }}$ hunter for the Game Take Survey, and every $5^{\text {th }}$ license holder with a Furtaker License for the Furtaker Survey. This process was completed by BATS to prepare the mailing list.

Because CIDs are permanently assigned to each individual hunter or trapper, the selection process was modified in the 2010-11 hunting year. A database query was designed that randomly chooses CIDs . Survey timing remained the same as for the 2009-10 survey. This process was again completed by the BATS to prepare the mailing list. BATS and the Bureau of Administrative Services addressed and mailed 17,791 Game Take questionnaires and 7,018 Furtaker questionnaires. In addition to the initial mailing, 2 follow-up mailings were sent to nonrespondents of the Game Take Survey, and 1 follow-up mailing was sent to nonrespondents of the Furtaker Survey.

These surveys reflect major changes of information requested from hunters and trappers from pre-1990 surveys (Boyd 1990). First, information about small game and furbearer species were separated into Game Take and Furtaker surveys, respectively. Second, the Game Take questionnaire
was expanded to include more game species, and the number of days of hunting per species per Wildlife Management Unit (WMU). Third, harvest and hunting effort on shooting preserves were requested separately for ring-necked pheasant, quail, and ducks. Fourth, estimates of coyote harvest included those shot by hunters (Game Take Survey excluding furtaker license buyers) and those trapped or shot by furtakers (Furtaker Survey). Fifth, a cover letter to encourage response was included in all mailings.

During 1990-2000, methods used to survey small game hunters and furtakers remained the same with the following exceptions. The Game Take Survey for 1992 consisted of $2 / 3$ the usual sample size (i.e., every third 01 or 51 license was skipped) and only 2 mailings were conducted, but a telephone survey of nonrespondents was carried out to estimate nonresponse bias. Estimates using the standard estimation techniques (Shope 1985) were similar to those obtained when incorporating nonresponse bias (Diefenbach 1993). Therefore, estimates from the 1992 survey should be comparable to results from other years. In 1996, hunters were asked to report their Canada goose harvest by season (early, regular, late), and their snow goose harvest. This change was implemented to assess the effect of special goose seasons because the regular season was closed for most of the state, and to compare Pennsylvania Game Commission (PGC) estimates to those obtained by the newly implemented Migratory Bird Harvest Information Program. Since the 1998 Game Take Survey, turkey hunters have been asked to report the management unit in which they hunted instead of the county. In 2000, landowner, resident senior lifetime upgrades, and resident senior lifetime renewals were included in the total licenses sold for calculating harvests and participation. This resulted in the addition of licenses to our survey population that otherwise would not have been included. The added senior licenses have existed since 1996 for lifetime renewals and 1999 for lifetime upgrades. Therefore, Game Take Surveys from 1996-99 likely underestimated harvests by about $2-3 \%$. Landowner licenses represent less than $0.5 \%$ of license sales and would have had minimal effect on previous survey estimates.

Since 1999, Furtaker Surveys sampled those who purchased a furtaker license but not those who purchased junior and senior combination licenses, which include furtaker privileges. As a result of this licensing change, furtaker harvest and participation estimates beginning in 1999 are biased low compared to pre-1999 estimates. To reduce this bias, a correction factor was used to adjust harvest and participation estimates in the 1999 and 2000 Furtaker Surveys (Rosenberry 2000); however, this correction was discontinued in 2001, (Rosenberry 2001), and furtaker harvest estimates since 1999 are minimum estimates that do not include junior and senior combination licenses.

Beginning in 2003-04, respondents reported harvests by WMUs rather than counties. In addition, the survey form was simplified by reducing the number of possible hunting areas from 4 counties to 2 WMUs. This was done because less than $5 \%$ of hunters hunted in the $3^{\text {rd }}$ or $4^{\text {th }}$ county on previous surveys and there are fewer WMUs ( 22 WMUs vs. 67 counties).

Beginning in 2005-06, respondents reported Canada goose and duck harvests by Canada goose and duck zones, respectively. This change was implemented because Canada goose and duck populations are harvested and managed by zone, not WMU. Respondents also reported dove harvest by seasons (early, mid, and late) instead of just total harvest. In the 2010-2011 survey however,

Canada goose hunting was inadvertently omitted from the survey.
Respondents to the Game Take Survey were post-stratified on the basis of whether or not they had purchased special licenses or stamps, to reduce the effect of nonresponse bias on estimates (see Shope 1985). Prior to the 2010-11 survey, we relied on hunters to indicate these purchases, except for combination license buyers who were identified by a letter in the license number since 2001, and who where identified this year by the combination privilege code indicated in the PALS database. Currently, with the full implementation of PALS, we no longer need to ask respondents if they have purchased special licenses or stamps; that information can be pulled from the database along with their name and address. Nonresponse bias for the Furtaker Survey was not corrected.

Beginning with the 2006-07 Game Take Survey, we requested Special Turkey License and bear archery season information. The Special Turkey License database was compared to the results of the Game Take Survey to confirm that those who had purchased a Special Turkey License reported so on the survey. This is the only electronic license database currently available to compare with Game Take results. Due to concerns identified during the 2007 survey that many Special Turkey License buyers were recording license purchase and hunting information for the wrong spring turkey season, changes were made to the Game Take Survey cover letter and survey instrument to improve accuracy of this information.

Due to concerns about falling response rates for Game Take and Furtaker surveys, several procedures were modified starting with the 2007-08 surveys. All addresses in the mailer files were run through address correction software to delete undeliverable addresses. A post card reminder was mailed 1 week after the first mailing for the 2007-08 surveys, and a post card announcement was mailed to all survey participants 1 week before the first mailing since 2008-09 surveys, with no reminder post card.

We estimated (for each species) total harvest, number of participants, hunter-days, and harvest per 100 hunter-days based on 896,267 General Hunting Licenses sold for the Game Take Survey, and 35,267 Furtaker Licenses sold for the Furtaker Survey. We estimated trends over time using Pearson product-moment correlation coefficients.

In addition to the harvest and participation estimates, bobcat and fisher sightings by archery and firearms deer hunters and spring turkey hunters were added in 2001-02 to the Game Take Survey, to monitor distribution and range of these species. In 2005-06, bobcat and fisher sightings by bear hunters during the regular season were also added. These results are presented in furtaker and bobcat population and management reports. In 2006-07, a section was added for hunters to report how many, and in which WMUs, they saw wild pheasants and bobwhite quail during all hunting seasons. This section was added to help monitor distribution and range of these species.

For the 2010-11 Game Take Survey, we asked questions pertaining to wildlife protection activities, mentored youth program, and youth hunt participation. We asked mentors if they mentored youth and how many youth they mentored. For each species, respondents reportednumbers of youth mentored, harvests, and days of hunting effort by mentored youth. Surveys from junior hunters were excluded from analysis because only adults are allowed to mentor a youth. If respondents indicated
they participated in the mentored youth program, and they did not provide information on the number of youth mentored, their results were not used.

Participation and harvests for each species were assessed for youth hunts. Participation in the youth pheasant hunt has been assessed since the 2003-04 Game Take Survey, youth waterfowl and spring gobbler hunts have been assessed since 2005-06, and youth squirrel hunts have been assessed since 2006-07. A junior rabbit hunting season was added in 2010-11.Only junior resident hunter participation is assessed because there is currently no way to distinguish between non-resident junior, adult, and senior licenses. Estimates for youth hunt participation and harvests have been expanded to statewide estimates using the purchaser/nonpurchaser adjustment since 2006-07. Previous reports just summarized raw numbers from respondents.

## RESULTS

For the Game Take and Furtaker surveys, 9,380 and 4,421 useable returned questionnaires were processed, respectively. The response rates, after adjusting for undeliverable questionnaires, were $57.6 \%$ for the Game Take Survey and $64.1 \%$ for the Furtaker Survey,

The Game Take Survey has not been a reliable procedure for estimating harvests and hunter days of hunters pursuing a $2^{\text {nd }}$ gobbler (Boyd and Weaver 2010). Hence, these data are not included in this report. A more reliable technique and results are provided in the wild turkey productivity and harvest trends report.

## Annual Changes

Compared to the 2009-2010 season, harvests of 10 of 11 small game species decreased in the 2010-2011 season (Table 1). Geese were inadvertently omitted from the 2010-11 survey, so results for Canada Geese are not available this year. The number of hunters decreased for 10 small game species and hunter-days decreased for all species (Tables 2 and 3). Spring turkey hunters increased, while harvest and hunter-days decreased. Fall turkey also had an increase in the number of hunters and a decrease for both harvest and hunter-days.

Harvest per 100 hunter-days increased for 6 of 11 small game species (Table 4).
The number of hunters/trappers of furbearers increased for all 9 species (Table 5), and harvests increased for 5 species (Table 6).

## Twenty-seven Year Trends

Harvests have declined ( $P<0.05$ ) for nearly all species except for spring turkey and crow. Trends for quail ( $P=0.14$ ), ducks $(P=0.41)$ and fall turkey ( $P=0.44$ ) were not significant (Table 1). Number of hunters has declined for nearly all seasons and species ( $P<0.01$ ) except spring turkey and quail whose change in numbers were not significant (Table 2). Geese were not included in the trend analysis because they were inadvertently omitted from the survey instrument this year.

Since 1990, numbers of hunters and trappers for 4 of 9 furbearer species have remained stable, the number of hunters and trappers pursuing raccoons has declined ( $P<0.01$ ), and the
number of hunters and trappers pursuing red fox, skunk, weasel and coyote has increased ( $P<0.05$ ) (Table 5). The harvest of almost all furbearers for which we have 1983-2010 data has declined ( $P \leq$ 0.05 ). Since 1990, coyote harvests have increased ( $P<0.01$ ) and weasel harvests have varied with no consistent change ( $P=0.41$ ) (Table 6).

## Survey Questions

We included three questions concerning wildlife protection activities, mentored youth program, and youth hunts. The sampling error for these questions is a maximum of $\pm 1 \%$.

Seven percent of hunters reported being checked by a WCO during the 2010-10 hunting seasons.

Concerning the mentored youth program, we asked hunters if they mentored any youth; how many youth they mentored; how many youth were mentored while hunting woodchucks, squirrels, antlered deer, spring gobblers, and coyotes; how many days each species was hunted; and how many of each species were harvested. Statewide, 52,822 hunters mentored 62,503 youth, of which 10,313 mentored youth harvested 18,022 woodchucks during 37,722 days hunting; 22,426 mentored youth harvested 33,081 squirrels during 57,826 days hunting; 36,250 mentored youth harvested 5,141 antlered deer during 99,846 days hunting; 15,727 mentored youth harvested 2,208 spring gobblers during 29,217 days hunting; and 3,099 mentored youth harvested 883 coyotes during 10,671 days hunting. Interestingly only 30,790 mentored youth permits were sold in this second year that mentored youth were required to obtain a permit. It is possible for mentored youth to be mentored by more than one adult, which would result in an overestimate of mentored youth through this process. It is also possible that some mentored youth are not purchasing the required permit.

The final question assessed resident junior hunter participation in the Youth Waterfowl, Spring Gobbler, Pheasant, Rabbit, and Squirrel hunts. Overall resident junior license buyers' participation in the youth hunts increased from last year to 10,343 participants. Five-year trends show no discernable or consistent increases or decreases ( $P \geq 0.26$ ) in junior license holder participation or harvest (Table 7, 8).

## RECOMMENDATIONS

1. The Game Take and Furtaker surveys are the best source for harvest and participant data; thus, we recommend continuing these surveys.
2. The special Spring Turkey license database has allowed a comparison of results from the Game Take Survey to a known complete database. The timing of the survey appears to have an effect on the accuracy of spring turkey data. Conducting a separate spring turkey hunter survey immediately after the close of spring turkey season should be considered.
3. Continue to evaluate cover letters, survey instruments and methodologies to improve response rates.
4. Major changes to the Game Take and Furtaker surveys need to be addressed now that the

Game Commission's wildlife biometrician position has been filled, and PALS is in place.

## LITERATURE CITED

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Table 1. Harvest, by species, 1984-2010, Pennsylvania. Survey was not conducted in 2004.

| Year | Spring <br> Turkey | Fall Turkey | Rabbits | Grouse | Squirrel | Pheasant ${ }^{\text {a }}$ | Woodcock | Quail ${ }^{\text {a }}$ | Dove | Geese | Ducks ${ }^{\text {a }}$ | Hare | Woodchuck | Crow |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1984 | 9,723 | 15,844 | 1,939,399 | 475,960 | 2,256,311 |  | 170,296 |  | 1,402,180 | 64,452 |  | 13,989 |  |  |
| 1985 | 14,197 | 18,217 | 2,137,737 | 511,271 | 2,428,683 |  | 137,183 |  | 1,443,109 | 56,233 |  | 14,749 |  |  |
| 1986 | 16,155 | 26,763 | 2,092,910 | 536,553 | 2,833,061 |  | 165,685 |  | 1,531,868 | 69,748 |  | 13,189 |  |  |
| 1987 | 14,674 | 28,346 | 1,764,744 | 484,016 | 2,364,596 |  | 175,124 |  | 1,374,110 | 68,541 |  | 14,412 |  |  |
| 1988 | 14,659 | 22,515 | 1,930,737 | 523,271 | 2,313,153 |  | 165,590 |  | 1,520,322 | 49,573 |  | 8,488 |  |  |
| 1989 | 17,154 | 21,669 | 1,696,712 | 410,371 | 2,206,719 |  | 143,502 |  | 1,209,438 | 78,821 |  | 7,595 |  |  |
| 1990 | 17,472 | 25,527 | 1,672,360 | 353,647 | 2,044,264 | 302,276 | 50,918 | 7,879 | 1,022,402 | 72,901 | 98,026 | 3,615 | 1,299,647 | 355,492 |
| 1991 | 16,606 | 31,979 | 1,462,270 | 293,891 | 1,632,108 | 269,065 | 53,183 | 3,005 | 968,421 | 69,127 | 87,478 | 3,579 | 1,304,020 | 257,009 |
| 1992 | 18,180 | 21,468 | 1,488,850 | 254,539 | 1,761,285 | 261,541 | 51,246 | 1,236 | 734,707 | 78,883 | 93,687 | 3,961 | 1,157,090 | 185,192 |
| 1993 | 24,068 | 30,477 | 1,160,939 | 272,690 | 1,585,368 | 250,149 | 52,959 | 4,837 | 735,089 | 84,251 | 133,354 | 2,114 | 1,274,166 | 191,639 |
| 1994 | 28,558 | 39,094 | 1,025,319 | 304,162 | 1,826,618 | 236,698 | 29,654 | 2,902 | 669,459 | 102,979 | 128,164 | 3,352 | 1,284,819 | 247,219 |
| 1995 | 36,401 | 49,748 | 1,010,938 | 315,197 | 1,599,104 | 250,930 | 28,624 | 1,204 | 670,791 | 64,382 | 156,511 | 2,997 | 1,225,101 | 295,962 |
| 1996 | 33,726 | 35,787 | 807,072 | 218,256 | 1,442,560 | 215,502 | 26,846 | 3,387 | 603,114 | 96,910 | 151,142 | 1,582 | 1,149,995 | 275,541 |
| 1997 | 30,956 | 37,398 | 827,520 | 187,770 | 1,352,038 | 219,864 | 23,878 | 1,766 | 506,677 | 115,506 | 188,034 | 1,432 | 1,251,145 | 184,944 |
| 1998 | 32,661 | 33,628 | 911,003 | 183,468 | 1,331,051 | 216,669 | 31,602 | 241 | 562,348 | 131,831 | 146,050 | 2,507 | 1,204,582 | 247,047 |
| 1999 | 37,806 | 40,718 | 715,862 | 177,355 | 1,236,108 | 211,257 | 25,704 | 3,938 | 519,116 | 128,385 | 164,328 | 2,412 | 1,117,970 | 209,273 |
| 2000 | 43,815 | 44,865 | 770,841 | 145,525 | 1,276,009 | 233,537 | 31,199 | 4,373 | 478,602 | 194,480 | 185,185 | 1,747 | 1,191,114 | 219,773 |
| 2001 | 49,186 | 48,008 | 701,551 | 159,610 | 1,276,603 | 244,282 | 32,504 | 4,276 | 460,971 | 197,767 | 143,907 | 4,584 | 1,187,114 | 195,273 |
| 2002 | 41,147 | 37,346 | 602,234 | 118,577 | 1,002,309 | 205,696 | 31,167 | 1,064 | 462,538 | 173,391 | 169,828 | 1,369 | 1,267,265 | 217,068 |
| 2003 | 42,876 | 31,100 | 588,310 | 106,587 | 1,063,996 | 234,196 | 42,434 | 2,059 | 500,980 | 228,310 | 191,132 | 1,908 | 1,171,888 | 207,707 |
| 2005 | 32,593 | 25,171 | 428,414 | 58,596 | 646,033 | 175,676 | 37,792 | 2,891 | 409,769 | 208,704 | 163,065 | 1,522 | 892,391 | 188,460 |
| 2006 | $37,845^{\text {b }}$ | 24,481 | 409,350 | 89,145 | 784,741 | 141,775 | 39,782 | 1,228 | 384,625 | 181,708 | 159,388 | 1,310 | 910,654 | 222,382 |
| 2007 | 36,294 ${ }^{\text {b }}$ | 25,369 | 418,139 | 82,020 | 674,991 | 168,094 | 26,924 | 4,507 | 416,844 | 188,266 | 138,860 | 685 | 840,523 | 182,320 |
| 2008 | 40,483 | 24,288 | 463,935 | 108,693 | 708,898 | 110,331 | 41,556 | 1,097 | 409,837 | 212,158 | 135,234 | 783 | 993,207 | 183,203 |
| 2009 | 42,478 | 20,934 | 419,721 | 75,997 | 635,193 | 151,737 | 15,171 | 3,452 | 316,930 | 195,105 | 137,974 | 1,525 | 710,411 | 268,711 |
| 2010 | 31,908 | 15,884 | 341,288 | 66,385 | 530,125 | 103,366 | 25,247 | 311 | 181,533 | - ${ }^{\text {d }}$ | 71,766 | 1,030 | 684,927 | 96,831 |
| $r^{c}$ | 0.860 | 0.156 | -0.965 | -0.951 | -0.967 | -0.905 | -0.790 | -0.338 | -0.926 | - ${ }^{\text {d }}$ | 0.196 | -0.812 | -0.850 | 0.537 |
| $P$ | $<0.01$ | 0.44 | $<0.01$ | <0.01 | $<0.01$ | $<0.01$ | $<0.01$ | 0.14 | <0.01 | - ${ }^{\text {d }}$ | 0.41 | $<0.01$ | <0.01 | <0.05 |

[^0]Table 2. Hunters, by species, 1984-2010, Pennsylvania. Survey was not conducted in 2004.

| Year | Spring <br> Turkey | Fall Turkey | Rabbits | Grouse | Squirrel | Pheasant ${ }^{\text {a }}$ | Woodcock | Quail ${ }^{\text {a }}$ | Dove | Geese | Ducks ${ }^{\text {a }}$ | Hare | Woodchuck | Crow |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1984 | 209,717 | 322,347 | 626,892 | 419,367 | 525,670 |  | 120,643 |  | 162,779 | 66,406 |  | 27,133 |  |  |
| 1985 | 214,331 | 298,055 | 619,220 | 423,393 | 528,599 |  | 100,270 |  | 150,904 | 62,742 |  | 25,141 |  |  |
| 1986 | 246,039 | 336,225 | 612,424 | 442,897 | 552,336 |  | 110,886 |  | 166,139 | 65,087 |  | 27,557 |  |  |
| 1987 | 206,039 | 282,761 | 516,281 | 374,741 | 472,250 |  | 96,936 |  | 137,402 | 50,804 |  | 19,573 |  |  |
| 1988 | 226,008 | 300,055 | 528,615 | 390,192 | 472,841 |  | 93,110 |  | 143,981 | 53,475 |  | 21,873 |  |  |
| 1989 | 224,138 | 296,139 | 497,463 | 365,211 | 464,434 |  | 87,053 |  | 131,321 | 43,603 |  | 17,568 |  |  |
| 1990 | 191,442 | 234,911 | 436,961 | 299,534 | 369,848 | 274,957 | 30,045 | 5,378 | 93,532 | 33,509 | 28,443 | 7,831 | 123,204 | 39,579 |
| 1991 | 179,202 | 252,210 | 405,004 | 292,418 | 348,868 | 254,051 | 24,681 | 3,279 | 86,377 | 36,032 | 29,247 | 7,601 | 118,257 | 39,014 |
| 1992 | 186,738 | 212,104 | 373,800 | 254,724 | 329,726 | 217,189 | 25,916 | 1,444 | 76,998 | 38,301 | 29,263 | 6,156 | 114,515 | 34,442 |
| 1993 | 201,060 | 222,780 | 347,129 | 242,398 | 311,103 | 198,657 | 23,452 | 2,657 | 73,462 | 41,577 | 35,782 | 5,801 | 109,576 | 34,648 |
| 1994 | 224,405 | 244,095 | 335,715 | 259,727 | 326,271 | 205,384 | 19,401 | 1,323 | 74,589 | 40,106 | 34,097 | 7,236 | 117,251 | 37,841 |
| 1995 | 239,521 | 261,395 | 297,570 | 239,014 | 293,852 | 182,224 | 15,702 | 1,451 | 67,754 | 28,715 | 30,274 | 5,949 | 113,127 | 36,782 |
| 1996 | 241,613 | 250,377 | 280,351 | 214,272 | 279,259 | 171,275 | 14,464 | 1,184 | 65,808 | 31,119 | 32,434 | 5,011 | 101,576 | 30,087 |
| 1997 | 233,287 | 249,934 | 261,115 | 197,994 | 267,051 | 148,900 | 13,374 | 1,009 | 60,178 | 30,574 | 32,180 | 3,723 | 104,561 | 30,696 |
| 1998 | 194,819 ${ }^{\text {b }}$ | 199,696 ${ }^{\text {b }}$ | 242,509 | 183,511 | 252,738 | 158,497 | 12,907 | 1,116 | 57,579 | 32,871 | 34,103 | 5,506 | 92,517 | 31,390 |
| 1999 | 237,984 | 244,638 | 221,179 | 174,576 | 238,887 | 142,142 | 12,212 | 1,550 | 49,551 | 33,734 | 31,503 | 4,379 | 90,853 | 29,131 |
| 2000 | 231,860 | 230,448 | 229,906 | 162,073 | 238,540 | 149,260 | 12,977 | 1,870 | 52,496 | 35,628 | 31,998 | 3,666 | 99,294 | 29,371 |
| 2001 | 230,115 | 228,564 | 213,295 | 161,186 | 231,436 | 146,751 | 14,411 | 2,029 | 51,144 | 38,292 | 31,893 | 4,930 | 99,787 | 33,343 |
| 2002 | 218,931 | 217,099 | 195,078 | 149,106 | 201,694 | 123,879 | 12,652 | 1,342 | 50,883 | 41,240 | 32,328 | 3,818 | 91,149 | 28,470 |
| 2003 | 246,820 | 211,967 | 181,426 | 134,115 | 199,922 | 130,676 | 15,321 | 3,518 | 46,580 | 44,467 | 34,173 | 5,091 | 92,986 | 27,591 |
| 2005 | 247,304 | 203,982 | 149,647 | 112,210 | 166,476 | 105,508 | 13,615 | 3,222 | 41,328 | 37,426 | 26,673 | 5,033 | 71,682 | 23,380 |
| 2006 | 245,024 | 182,233 | 145,712 | 105,282 | 174,151 | 96,590 | 11,978 | 3,322 | 40,145 | 35,226 | 27,628 | 5,211 | 80,522 | 26,880 |
| 2007 | 223,808 | 162,323 | 135,956 | 96,429 | 154,653 | 90,548 | 12,574 | 3,112 | 40,166 | 34,803 | 27,136 | 3,030 | 75,554 | 23,228 |
| 2008 | 216,551 | 152,294 | 137,842 | 102,139 | 171,786 | 86,052 | 11,709 | 2,396 | 39,780 | 33,814 | 27,654 | 2,890 | 80,116 | 25,706 |
| 2009 | 228,903 | 156,752 | 139,772 | 104,228 | 157,907 | 91,549 | 9,935 | 4,412 | 37,895 | 31,732 | 25,870 | 4,703 | 69,407 | 31,519 |
| 2010 | 237,037 | 163,433 | 125,537 | 91,003 | 150,309 | 71,579 | 8,223 | 3,499 | 25,490 | - ${ }^{\text {d }}$ | 19,160 | 2,756 | 71,618 | 20,835 |
| $r^{c}$ | 0.269 | -0.909 | -0.959 | -0.970 | -0.957 | -0.964 | -0.811 | 0.250 | -0.918 | - ${ }^{\text {d }}$ | -0.567 | -0.817 | -0.956 | -0.857 |
| $P$ | 0.18 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | 0.29 | <0.01 | - ${ }^{\text {d }}$ | <0.01 | <0.01 | <0.01 | <0.01 |

[^1]Table 3. Hunter-days, by species, 1990-2010, Pennsylvania. Survey was not conducted in 2004.

| Year | Spring Turkey | Fall Turkey | Rabbits | Grouse | Squirrel | Pheasant ${ }^{\text {a }}$ | Woodcock | Quail ${ }^{\text {a }}$ | Dove | Geese | Ducks ${ }^{\text {a }}$ | Hare | Woodchuck | Crow |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1990 | 861,086 | 872,815 | 2,901,567 | 1,764,129 | 2,345,050 | 1,287,702 | 133,947 | 24,493 | 475,402 | 171,436 | 141,441 | 15,632 | 1,228,548 | 223,525 |
| 1991 | 781,499 | 851,155 | 2,474,017 | 1,580,574 | 2,004,826 | 1,115,902 | 119,238 | 13,630 | 409,149 | 167,342 | 132,775 | 15,397 | 1,341,605 | 227,527 |
| 1992 | 799,621 | 696,705 | 2,210,784 | 1,331,444 | 1,814,807 | 902,308 | 97,699 | 3,228 | 329,087 | 188,303 | 135,656 | 11,650 | 1,191,725 | 170,185 |
| 1993 | 843,987 | 753,896 | 1,926,331 | 1,246,856 | 1,721,261 | 859,018 | 94,588 | 16,683 | 326,265 | 202,644 | 174,023 | 11,882 | 1,338,167 | 201,412 |
| 1994 | 1,003,939 | 857,959 | 2,104,454 | 1,438,808 | 1,919,013 | 937,974 | 73,958 | 4,455 | 340,661 | 217,021 | 163,690 | 15,208 | 1,294,150 | 209,854 |
| 1995 | 1,084,725 | 865,565 | 1,769,363 | 1,281,923 | 1,630,631 | 844,056 | 62,819 | 6,022 | 295,114 | 128,611 | 165,196 | 11,712 | 1,253,239 | 193,952 |
| 1996 | 1,103,556 | 867,072 | 1,641,774 | 1,130,129 | 1,568,102 | 733,806 | 51,493 | 5,061 | 280,603 | 165,523 | 168,834 | 9,230 | 1,246,439 | 186,781 |
| 1997 | 1,019,546 | 834,253 | 1,525,740 | 1,022,603 | 1,462,230 | 648,985 | 48,577 | 2,837 | 237,910 | 214,269 | 199,017 | 6,849 | 1,241,112 | 178,724 |
| 1998 | $881,026^{\text {b }}$ | $691,787^{\text {b }}$ | 1,517,673 | 994,150 | 1,422,957 | 775,398 | 55,343 | 6,704 | 261,442 | 212,538 | 188,694 | 11,805 | 1,359,595 | 222,980 |
| 1999 | 1,023,988 | 807,292 | 1,268,639 | 882,167 | 1,306,098 | 605,034 | 47,142 | 5,004 | 207,743 | 230,635 | 189,306 | 6,864 | 1,151,067 | 173,186 |
| 2000 | 995,472 | 780,297 | 1,295,397 | 817,545 | 1,254,598 | 652,602 | 56,098 | 8,906 | 230,991 | 259,153 | 202,279 | 5,351 | 1,196,679 | 157,828 |
| 2001 | 1,025,011 | 800,113 | 1,319,445 | 894,983 | 1,371,514 | 714,970 | 66,333 | 8,355 | 217,529 | 284,517 | 183,880 | 10,837 | 1,280,855 | 250,869 |
| 2002 | 964,575 | 770,899 | 1,043,657 | 723,845 | 1,069,972 | 520,372 | 52,222 | 9,638 | 209,960 | 277,528 | 210,663 | 8,761 | 1,178,530 | 164,521 |
| 2003 | 1,069,299 | 757,304 | 1,058,453 | 700,729 | 1,049,995 | 595,908 | 75,627 | 13,834 | 210,869 | 331,784 | 226,495 | 11,206 | 1,103,755 | 237,168 |
| 2005 | 1,038,280 | 684,865 | 896,931 | 597,139 | 922,347 | 465,017 | 66,675 | 12,086 | 215,773 | 255,605 | 176,006 | 8,955 | 903,986 | 158,723 |
| 2006 | 937,023 ${ }^{\text {c }}$ | 534,136 | 860,909 | 582,271 | 923,826 | 445,757 | 69,440 | 14,696 | 197,412 | 238,934 | 173,266 | 10,957 | 986,407 | 169,039 |
| 2007 | $894,393{ }^{\text {c }}$ | 522,911 | 825,125 | 537,558 | 858,443 | 405,715 | 69,846 | 10,625 | 185,568 | 231,659 | 166,757 | 6,764 | 958,838 | 177,617 |
| 2008 | 896,165 | 486,591 | 791,313 | 581,668 | 893,693 | 369,914 | 65,497 | 10,047 | 184,800 | 238,906 | 164,849 | 5,067 | 1,049,157 | 169,391 |
| 2009 | 1,034,804 | 529,427 | 815,945 | 521,708 | 855,046 | 386,842 | 45,099 | 20,502 | 178,587 | 247,165 | 170,544 | 9,103 | 800,482 | 195,430 |
| 2010 | 925,561 | 457,435 | 658,703 | 414,499 | 726,177 | 303,398 | 34,052 | 12,235 | 97,021 | - ${ }^{\text {e }}$ | 102,579 | 5,541 | 747,656 | 96,950 |
| $r^{\text {d }}$ | 0.28 | -0.826 | -0.953 | -0.965 | -0.967 | -0.946 | -0.646 | 0.155 | -0.908 | - | 0.110 | -0.694 | -0.844 | -0.480 |
| $P$ | 0.24 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | 0.51 | <0.01 | - ${ }^{\text {e }}$ | 0.64 | <0.01 | <0.01 | <0.05 |

[^2]Table 4. Harvest per 100 hunter-days, by species, 1990-2010, Pennsylvania. Survey was not conducted in 2004.

| Year | Spring <br> Turkey | Fall <br> Turkey | Rabbits | Grouse | Squirrel | Pheasant ${ }^{\text {a }}$ | Woodcock | Quail ${ }^{\text {a }}$ | Dove | Geese | Ducks ${ }^{\text {a }}$ | Hare | Woodchuck | Crow |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1990 | 2.0 | 2.9 | 57.6 | 20.0 | 87.2 | 23.5 | 38.0 | 32.2 | 215.1 | 42.5 | 69.3 | 23.1 | 105.8 | 159.0 |
| 1991 | 2.1 | 3.8 | 59.1 | 18.6 | 81.4 | 24.1 | 44.6 | 22.0 | 236.7 | 41.3 | 65.9 | 23.2 | 97.2 | 113.0 |
| 1992 | 2.3 | 3.1 | 67.3 | 19.1 | 97.1 | 29.0 | 52.5 | 38.3 | 223.3 | 41.9 | 69.1 | 34.0 | 97.1 | 108.8 |
| 1993 | 2.9 | 4.0 | 60.3 | 21.9 | 92.1 | 29.1 | 56.0 | 29.0 | 225.3 | 41.6 | 76.6 | 17.8 | 95.2 | 95.1 |
| 1994 | 2.8 | 4.6 | 48.7 | 21.1 | 85.2 | 25.2 | 40.1 | 65.1 | 196.5 | 47.5 | 78.3 | 22.0 | 99.3 | 117.8 |
| 1995 | 3.4 | 5.7 | 57.1 | 24.6 | 98.1 | 29.7 | 45.6 | 20.0 | 227.3 | 50.1 | 96.8 | 25.6 | 97.8 | 152.6 |
| 1996 | 3.1 | 4.1 | 49.2 | 19.3 | 92.0 | 29.4 | 52.1 | 66.9 | 214.9 | 55.3 | 89.5 | 17.1 | 92.3 | 147.5 |
| 1997 | 3.0 | 4.5 | 54.2 | 18.4 | 92.5 | 33.9 | 49.2 | 62.2 | 213.0 | 53.9 | 94.5 | 20.9 | 100.8 | 103.5 |
| 1998 | 3.7 | 4.9 | 60.0 | 18.5 | 93.5 | 27.9 | 57.1 | 3.6 | 215.1 | 66.9 | 77.4 | 21.2 | 88.6 | 110.8 |
| 1999 | 3.7 | 5.0 | 56.4 | 20.1 | 94.6 | 34.9 | 54.5 | 78.7 | 249.9 | 55.7 | 86.8 | 35.1 | 97.1 | 120.8 |
| 2000 | 4.4 | 5.7 | 59.5 | 17.8 | 101.7 | 35.8 | 55.6 | 49.1 | 207.2 | 75.0 | 91.5 | 32.6 | 99.5 | 139.2 |
| 2001 | 4.8 | 6.0 | 53.2 | 17.8 | 93.1 | 34.2 | 49.0 | 51.2 | 211.9 | 67.2 | 78.3 | 42.3 | 92.7 | 77.8 |
| 2002 | 4.3 | 4.8 | 57.7 | 16.4 | 93.7 | 39.5 | 59.7 | 11.0 | 220.3 | 62.5 | 80.6 | 15.6 | 107.5 | 131.9 |
| 2003 | 4.0 | 4.1 | 55.6 | 15.2 | 101.3 | 39.3 | 56.1 | 14.9 | 237.6 | 68.8 | 84.4 | 17.0 | 106.2 | 87.6 |
| 2005 | 3.1 | 3.7 | 47.8 | 9.8 | 70.0 | 37.8 | 56.7 | 23.9 | 189.9 | 81.7 | 92.6 | 17.0 | 98.7 | 118.7 |
| 2006 | 4.0 | 4.6 | 47.5 | 15.3 | 84.9 | 31.8 | 57.3 | 8.4 | 194.8 | 76.0 | 92.0 | 12.0 | 92.3 | 131.6 |
| 2007 | 4.1 | 4.9 | 50.7 | 15.3 | 78.6 | 41.4 | 38.5 | 42.4 | 224.6 | 81.3 | 83.3 | 10.1 | 87.7 | 102.6 |
| 2008 | 4.5 | 5.0 | 58.6 | 18.7 | 79.3 | 29.8 | 63.4 | 10.9 | 221.8 | 88.8 | 82.0 | 15.5 | 94.7 | 108.2 |
| 2009 | 4.1 | 4.0 | 51.4 | 14.6 | 74.3 | 39.2 | 33.6 | 16.8 | 177.5 | 78.9 | 80.9 | 16.8 | 88.7 | 137.5 |
| 2010 | 3.4 | 3.5 | 51.8 | 16.0 | 73.0 | 34.1 | 74.1 | 2.5 | 187.1 | - ${ }^{\text {c }}$ | 70.0 | 18.6 | 91.6 | 99.9 |
| $r^{\text {b }}$ | 0.719 | 0.229 | -0.516 | -0.580 | -0.561 | 0.726 | 0.317 | -0.302 | -0.267 | $-{ }^{\text {c }}$ | 0.272 | -0.430 | -0.101 | 0.073 |
| $P$ | $<0.01$ | 0.33 | $<0.05$ | $<0.01$ | <0.05 | <0.01 | 0.17 | 0.20 | 0.25 | - ${ }^{\text {c }}$ | 0.25 | 0.06 | 0.67 | 0.76 |

[^3]Table 5. Furbearer hunters and trappers, by species, 1990-2010, Pennsylvania. Survey was not conducted in 2004.

| Year | Raccoon | Muskrat | Red Fox | Gray <br> Fox | Opossum | Skunk | Mink | Coyote ${ }^{\text {a }}$ | Weasel |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1990 | 9,676 | 4,147 | 7,941 | 6,542 | 3,653 | 1,914 | 2,560 | 7,782 | 508 |
| 1991 | 9,921 | 4,865 | 7,827 | 6,613 | 3,915 | 2,264 | 2,726 | 12,184 | 422 |
| 1992 | 9,525 | 4,419 | 7,019 | 6,263 | 3,793 | 2,208 | 2,539 | 13,643 | 452 |
| 1993 | 8,195 | 4,227 | 6,790 | 6,089 | 3,369 | 1,967 | 2,465 | 14,260 | 387 |
| 1994 | 7,066 | 5,570 | 8,319 | 7,515 | 4,267 | 3,071 | 3,212 | 20,597 | 784 |
| 1995 | 9,718 | 4,465 | 8,080 | 6,908 | 3,989 | 2,643 | 2,879 | 20,413 | 853 |
| 1996 | 12,951 | 6,478 | 10,007 | 8,361 | 6,140 | 3,443 | 3,703 | 21,937 | 942 |
| 1997 | 13,750 | 7,363 | 10,330 | 8,553 | 6,386 | 3,473 | 4,434 | 24,526 | 1,125 |
| 1998 | 12,794 | 5,900 | 9,982 | 8,594 | 5,558 | 2,948 | 3,512 | 30,016 | 733 |
| $1999{ }^{\text {b }}$ | 7,555 | 3,230 | 6,996 | 6,061 | 2,653 | 1,718 | 2,152 | 28,265 | 392 |
| $2000^{\text {b }}$ | 6,996 | 3,121 | 7,280 | 6,353 | 2,870 | 1,750 | 2,026 | 28,270 | 509 |
| $2001{ }^{\text {b }}$ | 7,935 | 3,997 | 8,234 | 6,938 | 3,180 | 2,036 | 2,587 | 36,249 | 619 |
| $2002{ }^{\text {b }}$ | 7,295 | 3,287 | 8,022 | 6,494 | 3,434 | 2,116 | 2,433 | 28,535 | 676 |
| $2003{ }^{\text {b }}$ | 7,292 | 3,362 | 6,998 | 5,547 | 3,585 | 2,132 | 2,305 | 29,048 | 453 |
| $2005^{\text {b }}$ | 8,434 | 3,815 | 9,583 | 7,358 | 4,479 | 2,813 | 2,997 | 35,010 | 714 |
| $2006^{\text {b }}$ | 10,606 | 5,630 | 11,331 | 8,264 | 5,669 | 3,603 | 4,194 | 36,175 | 1,325 |
| 2007 | 10,131 | 4,272 | 10,628 | 7,811 | 5,307 | 3,484 | 3,674 | 37,792 | 1,447 |
| 2008 | 11,498 | 4,687 | 12,426 | 9,561 | 6,344 | 4,143 | 3,617 | 40,982 | 1,466 |
| 2009 | 8,702 | 3,261 | 6,651 | 3,953 | 4,482 | 2,587 | 2,147 | 40,648 | 203 |
| 2010 | 11,609 | 4,539 | 13,635 | 9,455 | 6,012 | 3,891 | 4,093 | 43,162 | 1,655 |
| $r^{\text {c }}$ | -0.674 | -0.254 | 0.523 | 0.201 | 0.377 | 0.492 | 0.257 | 0.965 | 0.502 |
| $P$ | <0.01 | 0.28 | $<0.05$ | 0.39 | 0.10 | $<0.05$ | 0.27 | <0.01 | <0.05 |

${ }^{\text {a }}$ Combines estimates from Game Take Survey and Furtaker Survey, but does not include mentored youth harvest.
${ }^{\mathrm{b}}$ Cautionary note: Estimates are minimum estimates that do not account for combination licenses.
${ }^{c}$ Pearson product-moment correlation coefficient from data collected from 1990-2010.

Table 6. Furbearer harvests, by species, 1983-2010, Pennsylvania. Survey was not conducted in 2004.

| Year | Raccoon | Muskrat | Red Fox | Gray Fox | Opossum | Skunk | Mink | Coyote ${ }^{\text {a,b }}$ | Weasel ${ }^{\text {a }}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1983 | 449,499 | 575,530 | 88,643 | 64,754 | 339,436 | 86,769 | 13,089 |  |  |
| 1984 | 495,106 | 621,111 | 75,532 | 66,975 | 339,294 | 72,050 | 23,627 |  |  |
| 1985 | 557,989 | 362,074 | 68,074 | 40,476 | 237,493 | 48,847 | 13,932 |  |  |
| 1986 | 426,625 | 440,880 | 95,330 | 46,387 | 210,953 | 39,064 | 16,008 |  |  |
| 1987 | 443,934 | 346,558 | 74,590 | 56,944 | 217,552 | 39,632 | 18,513 |  |  |
| 1988 | 247,743 | 230,058 | 52,778 | 23,102 | 105,881 | 16,371 | 12,914 |  |  |
| 1989 | 155,761 | 141,577 | 43,525 | 28,818 | 80,660 | 20,409 | 9,669 |  |  |
| 1990 | 116,443 | 112,358 | 32,699 | 21,653 | 36,574 | 9,298 | 7,053 | 1,810 | 798 |
| 1991 | 130,608 | 156,014 | 28,495 | 30,409 | 37,177 | 8,907 | 10,355 | 3,719 | 481 |
| 1992 | 124,404 | 135,533 | 27,611 | 25,395 | 27,754 | 7,221 | 9,157 | 4,402 | 343 |
| 1993 | 118,964 | 121,657 | 25,862 | 23,839 | 25,807 | 7,920 | 7,808 | 6,161 | 526 |
| 1994 | 186,551 | 178,145 | 30,649 | 34,691 | 29,621 | 12,620 | 10,208 | 6,240 | 723 |
| 1995 | 120,462 | 130,442 | 31,110 | 23,518 | 29,688 | 9,995 | 8,602 | 6,662 | 687 |
| 1996 | 214,958 | 146,013 | 29,623 | 23,307 | 48,549 | 11,571 | 9,315 | 7,957 | 589 |
| 1997 | 194,696 | 216,066 | 36,923 | 26,043 | 60,717 | 12,344 | 14,063 | 6,685 | 1,172 |
| 1998 | 195,110 | 148,202 | 47,202 | 32,922 | 56,287 | 11,190 | 12,238 | 11,652 | 662 |
| $1999{ }^{\text {c }}$ | 96,270 | 88,426 | 34,297 | 21,762 | 28,950 | 6,853 | 12,512 | 8,797 | 336 |
| $2000^{\text {c }}$ | 97,509 | 79,933 | 30,893 | 20,096 | 25,062 | 7,248 | 7,980 | 10,160 | 313 |
| $2001{ }^{\text {c }}$ | 121,810 | 121,994 | 33,003 | 23,275 | 27,192 | 9,245 | 13,214 | 12,363 | 815 |
| $2002^{\text {c }}$ | 106,485 | 75,340 | 33,007 | 18,805 | 34,787 | 7,207 | 10,069 | 11,444 | 406 |
| $2003{ }^{\text {c }}$ | 104,781 | 71,368 | 31,592 | 15,956 | 33,760 | 9,319 | 6,494 | 11,697 | 359 |
| $2005^{\text {c }}$ | 106,082 | 70,995 | 40,551 | 17,616 | 43,720 | 9,977 | 9,335 | 20,377 | 567 |
| $2006{ }^{\text {c }}$ | 138,640 | 121,167 | 45,512 | 20,754 | 48,102 | 10,687 | 12,680 | 21,601 | 487 |
| 2007 | 121,446 | 72,174 | 52,000 | 18,613 | 41,168 | 9,818 | 10,004 | 28,974 | 813 |
| 2008 | 142,808 | 74,059 | 44,745 | 20,845 | 54,273 | 12,331 | 8,632 | 23,699 | 504 |
| 2009 | 112,550 | 63,988 | 37,418 | 13,793 | 37,270 | 8,314 | 7,261 | 30,386 | 468 |
| 2010 | 125,423 | 58,296 | 54,661 | 15,691 | 36,188 | 8,935 | 8,204 | 26,658 | 436 |
| $r^{\text {d }}$ | -0.714 | -0.772 | -0.467 | -0.769 | -0.683 | -0.664 | -0.539 | 0.942 | -0.195 |
| $P$ | $<0.01$ | $<0.01$ | <0.05 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | 0.41 |

[^4]Table 7. Resident junior license holder participation for Youth Hunts, 2006-2010.

| Year | Waterfowl | Spring <br> Gobbler | Pheasant | Squirrel | Rabbit $^{\text {a }}$ |
| :--- | :---: | :---: | :---: | :---: | :---: |
| 2006 | 1,171 | 8,976 | 5,660 | 7,652 |  |
| 2007 | 254 | 5,911 | 3,874 | 6,165 |  |
| 2008 | 682 | 7,354 | 5,272 | 8,941 |  |
| 2009 | 417 | 1,876 | 2,003 | 4,713 |  |
| 2010 | 800 | 8,096 | 5,048 | 7,850 | 4,371 |
| $r^{\mathrm{b}}$ | -0.258 | -0.329 | -0.330 | -0.102 | - |
| $P$ | 0.68 | 0.59 | 0.587 | 0.871 | - |

${ }^{a}$ The Youth Rabbit Hunt began in the 2010 hunting season.
${ }^{\mathrm{b}}$ Pearson product-moment correlation coefficient from data collected from 20062010.

Table 8. Resident junior license holder harvest for Youth Hunts, 2006-2010.

| Year | Ducks | Geese | Spring <br> Gobbler | Pheasant | Squirrel | Rabbit $^{\text {a }}$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| 2006 | 766 | 153 | 613 | 3,218 | 12,259 |  |
| 2007 | 508 | 888 | 1,650 | 5,964 | 18,101 |  |
| 2008 | 409 | 0 | 1,638 | 3,412 | 29,143 |  |
| 2009 | 1,355 | 313 | 1,772 | 3,671 | 17,453 |  |
| 2010 | 554 | 185 | 1,478 | 4,617 | 22,625 | 5,325 |
| $r^{\text {b }}$ | 0.177 | -0.236 | 0.625 | 0.070 | 0.501 | - |
| $P$ | 0.78 | 0.70 | 0.26 | 0.91 | 0.39 | - |

${ }^{a}$ The Youth Rabbit Hunt began in the 2010 hunting season.
${ }^{\mathrm{b}}$ Pearson product-moment correlation coefficient from data collected from 2006-
2010 .


[^0]:    ${ }^{\text {a }}$ Estimates exclude harvest on shooting preserves.
    ${ }^{\mathrm{b}}$ Spring turkey harvest estimate does not include 2nd gobbler harvests from Special Turkey License holders.
    ${ }^{\text {c }}$ Pearson product-moment correlation coefficient from data collected from 1983-2010
    ${ }^{\mathrm{d}}$ No data for geese, inadvertently omitted from the survey.

[^1]:    ${ }^{\text {a }}$ Estimates exclude number of hunters on shooting preserves.
    ${ }^{\mathrm{b}}$ Cautionary note: these low values may have been caused by inadvertently not including the TMA map on the 1998-1999 survey instructions. See 1998-1999 annual report
    ${ }^{\text {c }}$ Pearson product-moment correlation coefficient from data collected from 1983-2010.
    ${ }^{\mathrm{d}}$ No data for geese, inadvertently omitted from the survey.

[^2]:    ${ }^{\text {a }}$ Estimates exclude effort on shooting preserves.
    ${ }^{\mathrm{b}}$ Cautionary note: these low values may have been caused by inadvertently not including the TMA map on the 1998-1999 survey instructions. See 19981999 annual report.
    ${ }^{c}$ Spring turkey effort does not include data from Special Turkey License holders pursuing a $2{ }^{\text {nd }}$ gobbler.
    ${ }^{\text {d }}$ Pearson product-moment correlation coefficient from data collected from 1990-2010.
    ${ }^{\mathrm{e}}$ No data for geese, inadvertently omitted from the survey.

[^3]:    ${ }^{\text {a }}$ Estimates exclude effort on shooting preserves.
    ${ }^{\mathrm{b}}$ Pearson product-moment correlation coefficient from data collected from 1990-2010.
    ${ }^{\mathrm{c}}$ No data for geese, inadvertently omitted from the survey.

[^4]:    ${ }^{\text {a }}$ No data are available prior to 1990.
    ${ }^{\mathrm{b}}$ Combines estimates from the Game Take and Furtaker surveys, but does not include mentored youth harvest.
    ${ }^{\text {c }}$ Cautionary note: Estimates are minimum estimates that do not account for combination licenses.
    ${ }^{d}$ Pearson product-moment correlation coefficient from data collected from 1983-2010.

