



2016 SMALL GAME HUNTER MAIL SURVEY

Margaret Dexter, Wildlife Research Unit

INTRODUCTION

The Minnesota Department of Natural Resources (DNR), Division of Fish and Wildlife, Wildlife Research unit annually conducts a mail survey of small game hunters. The small game mail survey was initiated in 1976 as a means to gather small game harvest information, which is used to inform our constituency and guide decisions about hunting regulations and season structure.

METHODS

A postcard survey (Fig. 1) was mailed in early March and respondents who returned it within three weeks were eliminated from follow-up mailings. The sampling frame consisted of individuals who purchased a small game hunting license (any type) for the 2016-17 small game hunting season (N=252,358). A stratified random sample (n=7,000, 2.8%), allocated proportionally by license type, was drawn from the Minnesota DNR electronic database. Small game license types included the following: Resident Senior Citizen, Resident Youth, Resident Adult, Resident Individual Sport, Resident Combination Sport, Resident Lifetime, Resident Lifetime Sport, Nonresident Youth, and Nonresident Adult. For analysis, license types were pooled into "Resident" (N=245,657) and "Nonresident" (N=6,701) (Fig. 2). A free youth license was added to the sampling frame for 2010-13 but that license has since been discontinued. Estimates for those years have been recalculated without the youth license so that harvest estimates and license sales are comparable among years. The percent of respondents who said they hunted or did not hunt is reported in Table 1. License sales and survey response rate are shown in Figure 2.

Recipients were asked if they hunted small game in 2016-17 and if not, they were instructed to return the survey. Respondents who hunted were asked: (1) total number of days they hunted small game, (2) number bagged by species, (3) number of days hunted by species and (4) the county in which they hunted most for each species listed. Returned surveys were checked for completeness, consistency, and biological practicability. Dual key-entry and quality control checks were used to minimize transcription errors. Data was tabulated using Viking Data Entry VDE+ software and analyzed using R programming language (ver. 3.3.3; R Development Core Team [RDCT] 2017).

RESULTS

Of the 7,000 mailed surveys, 123 surveys were undeliverable; 3,371 surveys were returned for an adjusted response rate of 49%. Harvest trends for the top four small game species (ducks-all species, Canada geese, pheasants, and ruffed grouse) harvested in Minnesota for the past 15 years are shown in Figure 3. License sales declined 2% from the previous year (Fig. 2, Table 5). Estimated number of hunters increased slightly for ruffed grouse, gray squirrel, and cottontail rabbits but declined for most other species (Table 2). Estimated harvest per active hunter (Table 3) declined for mourning doves but remained relatively stable for all other species. Mean harvest for successful hunters and hunter success rates also showed no statistically significant changes (Table 4). License sales and estimated hunter harvest are presented in Table 5.

Estimated ring-necked pheasant harvest declined from 243,176 roosters to 196,141, similar to 2011 levels. Ruffed grouse harvest increased slightly from 267,997 grouse in 2015 to 308,955 in 2016. There were fewer duck hunters in 2016 which lead to a decline in the duck harvest from 663,811 in 2015 to 606,458 but the take per active hunter was up slightly in 2016 (9.0 ducks/hunter compared to 8.7 ducks/hunter in 2015). Canada goose harvest edged up slightly to an estimated 204,825 geese harvested despite the decline in hunters from 45,938 in 2015 to 40,950 in 2016. Estimated take per hunter increased from 5.7 to 7.1 geese per successful hunters. Overall Nonresident license sales remained steady but participation increased for hunters of ducks, ruffed grouse, and pheasant (Table 6). Nonresident harvests for ducks increased slightly but decreased for grouse and pheasants.

This project was funded in part by the Wildlife Restoration Program.

Figure 1. Sample of Small Game Hunter survey card.

Dear Small Game Hunter:

You have been selected at random from among Minnesota's small game hunting license buyers to assist us in evaluating the 2016-2017 small game hunting season (**March 2016-February 2017**). We need information to estimate the season's harvest and to help set future small game seasons. Answer only for your Minnesota 2016 hunting experience.

**YOUR RESPONSE IS NEEDED
EVEN IF YOU DID NOT HUNT OR HARVEST SMALL GAME**

Please fill out the attached questionnaire and mail as soon as possible. A reminder will be sent to individuals not returning the questionnaire within three weeks. No envelope or stamp is necessary; just tear along the perforation and drop into a mailbox.

THANK YOU FOR YOUR COOPERATION

Lou Cornicelli, Wildlife Research Program Manager
Division of Fish and Wildlife
Department of Natural Resources

2016 Small Game Hunter Report

1. Did you hunt small game, listed below, in Minnesota this year (March 2016 - Feb 2017)? ☐ No ☐ Yes (Please check box)
2. Indicate the **total number of days** spent hunting small game of all species listed below, in Minnesota. _____
3. For the species you hunted indicate your harvest, number of days hunted, and county in which you hunted most for each species, even if **None** were bagged. Report only game **you personally** bagged and retrieved in Minnesota. **Do not** include birds taken on shooting preserves or game farms.

| | | Number You bagged | Days Hunted | County |
|----------------------------------|----|----------------------|----------------|--------|
| Ducks (all species) | 01 | | | |
| Coots (mud hens) | 50 | | | |
| Canada geese | 40 | | | |
| Other geese | 41 | | | |
| Snipe (jacksnipe) | 51 | | | |
| Rails and gallinules | 52 | | | |
| Crows | 53 | | | |
| Woodcock | 60 | | | |
| Mourning Dove | 65 | | | |
| Pheasants | 70 | | | |
| Ruffed grouse (Forest partridge) | 71 | | | |
| Spruce grouse | 72 | | | |
| Sharp-tailed grouse | 73 | | | |
| Hungarian (Gray) partridge | 74 | | | |
| Fox squirrel | 89 | | | |
| Gray squirrel | 90 | | | |
| Cottontail rabbit | 91 | | | |
| Jackrabbit | 92 | | | |
| Snowshoe hare | 93 | | | |
| Badger | 35 | | | |
| Coyote (brush wolf) | 97 | | | |
| Gray fox | 96 | | | |
| Raccoon | 94 | | | |
| Red fox | 95 | | | |

Figure 2. Number of Minnesota small game licenses sold and usable returned surveys, 1990-2016. Includes resident and non-resident licenses, and excludes duplicate and free licenses.

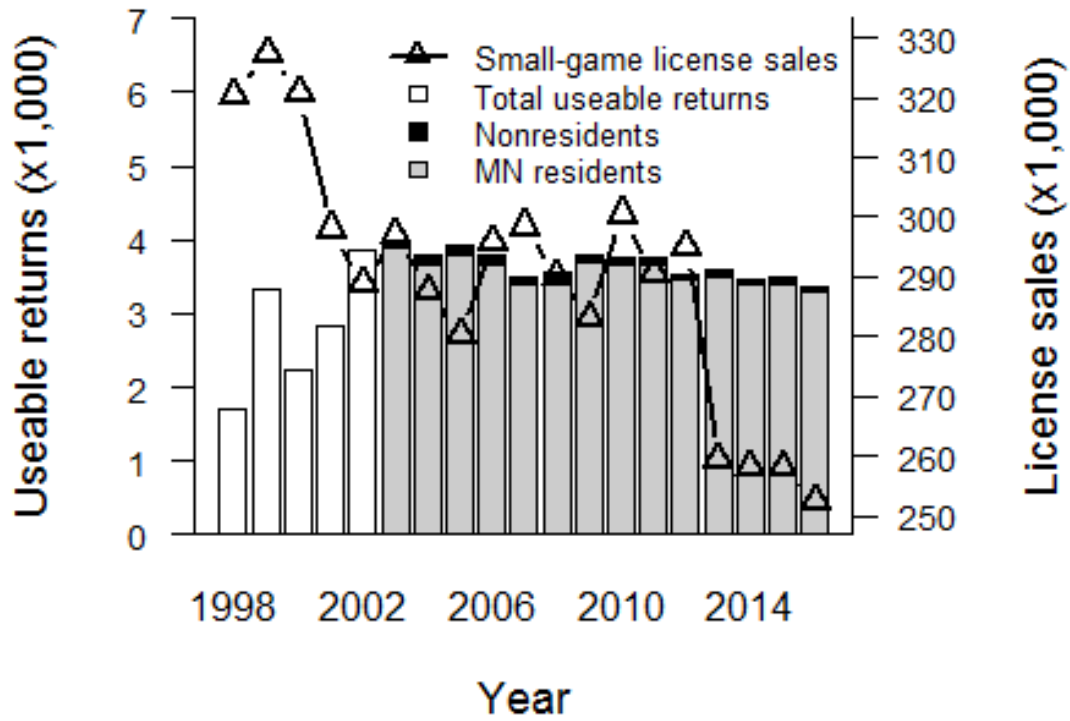


Figure 3. Harvest trends for top four small game species harvested in Minnesota, 2002-2016.

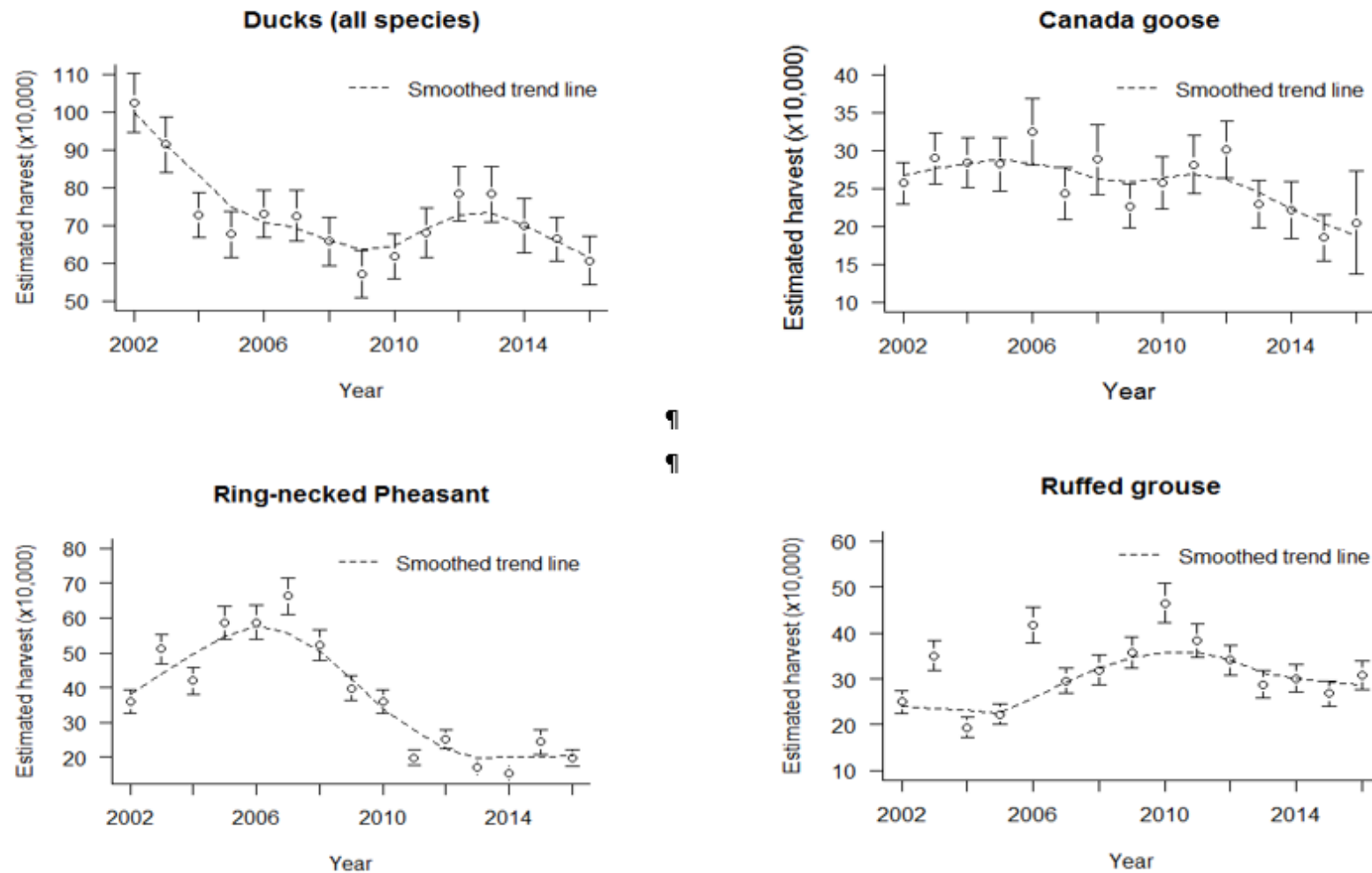


Table 1. Percent of respondents who hunted small game, 2005-06 through 2016-2017 ^a.

| | | Returns from mail survey | Projections from license sales |
|---------|--------------|--------------------------|--------------------------------|
| 2005-06 | Hunted | 3,035 (77%) | 216,000 |
| | Did not hunt | <u>900 (23%)</u> | <u>64,156</u> |
| | | 3,935 (100.0%) | 280,156 |
| 2006-07 | Hunted | 2,994 (79%) | 233,759 |
| | Did not hunt | <u>795 (21%)</u> | <u>62,139</u> |
| | | 3,789 (100.0%) | 295,898 |
| 2007-08 | Hunted | 2,894 (78%) | 232,505 |
| | Did not hunt | <u>822 (22%)</u> | <u>65,961</u> |
| | | 3,716 (100.0%) | 298,467 |
| 2008-09 | Hunted | 2,678 (75%) | 218,753 |
| | Did not hunt | <u>873 (25%)</u> | <u>71,311</u> |
| | | 3,551 (100.0%) | 290,064 |
| 2009-10 | Hunted | 2,850 (75%) | 212,126 |
| | Did not hunt | <u>952 (25%)</u> | <u>70,857</u> |
| | | 3,802 (100.0%) | 282,983 |
| 2010-11 | Hunted | 2,824 (75%) | 210,129 |
| | Did not hunt | <u>953 (25%)</u> | <u>70,911</u> |
| | | 3,777 (100.0%) | 281,040 |
| 2011-12 | Hunted | 2,761 (74%) | 214,137 |
| | Did not hunt | <u>987 (26%)</u> | <u>76,549</u> |
| | | 3,748 (100.0%) | 290,686 |
| 2012-13 | Hunted | 2,669 (76%) | 223,808 |
| | Did not hunt | <u>851 (24%)</u> | <u>71,360</u> |
| | | 3,520 (100%) | 295,168 |
| 2013-14 | Hunted | 2,586 (72%) | 186,317 |
| | Did not hunt | <u>1,003 (28%)</u> | <u>72,264</u> |
| | | 3,589 (100%) | 258,581 |
| 2014-15 | Hunted | 2,476 (72%) | 185,186 |
| | Did not hunt | <u>975 (28%)</u> | <u>72,923</u> |
| | | 3,451 (100%) | 258,109 |
| 2015-16 | Hunted | 2,505 (72%) | 185,604 |
| | Did not hunt | <u>980 (28%)</u> | <u>72,612</u> |
| | | 3,485 (100%) | 258,216 |
| 2016-17 | Hunted | 2,426 (72%) | 181,614 |
| | Did not hunt | <u>945 (28%)</u> | <u>70,744</u> |
| | | 3,371 (100%) | 252,358 |

^aIncludes resident and non-resident information. Excludes duplicates and free licenses (youth under 16, active-duty military and disabled veterans).

Table 2. Estimated number of statewide hunters by species, 2006-07 through 2016-17.

| | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 ^β | 2012-13 ^β | 2013-14 | 2014-15 | 2015-16 | 2016-17 |
|------------------------------------|---------|---------|---------|---------|---------|----------------------|----------------------|---------|---------|---------|---------|
| Ducks | 87,075 | 87,468 | 81,358 | 77,480 | 72,770 | 76,090 | 80,770 | 76,950 | 75,170 | 76,243 | 67,301 |
| Canada goose | 66,224 | 62,649 | 59,222 | 55,520 | 53,430 | 57,220 | 58,900 | 51,160 | 48,240 | 45,938 | 40,950 |
| Other geese | 4,529 | 3,695 | 4,411 | 3,280 | 3,650 | 2,710 | 3,830 | 2,810 | 2,770 | 2,520 | 2,321 |
| American coot | 4,529 | 3,454 | 4,166 | 4,090 | 4,610 | 3,480 | 3,990 | 3,820 | 4,410 | 3,261 | 3,519 |
| Common snipe | 2,187 | 1,928 | 1,797 | 1,340 | 1,340 | 1,160 | 1,160 | 1,370 | 820 | 667 | 899 |
| Rails / gallinules | 547 | 482 | 408 | 370 | 220 | 230 | 500 | 140 | 300 | 445 | 75 |
| Crow * | 10,777 | 8,514 | 10,047 | 10,640 | 9,380 | 10,360 | 11,480 | 8,570 | 7,400 | 7,410 | 7,412 |
| American woodcock | 13,510 | 10,843 | 12,171 | 11,760 | 10,790 | 9,430 | 13,310 | 12,030 | 9,650 | 12,596 | 12,877 |
| Mourning dove ^γ | 12,886 | 13,172 | 11,599 | 10,500 | 10,640 | 8,970 | 9,230 | 10,380 | 9,950 | 8,966 | 7,636 |
| Ring-necked pheasant | 118,703 | 118,311 | 106,763 | 99,440 | 89,140 | 72,840 | 76,950 | 62,110 | 57,590 | 63,350 | 59,965 |
| Ruffed grouse | 91,682 | 90,600 | 86,505 | 87,230 | 92,490 | 88,620 | 91,260 | 81,130 | 83,020 | 79,058 | 82,348 |
| Spruce grouse | 9,840 | 10,602 | 8,332 | 9,750 | 8,860 | 10,210 | 7,400 | 10,810 | 10,320 | 8,225 | 9,658 |
| Sharp-tailed grouse | 6,560 | 6,827 | 6,616 | 5,510 | 7,140 | 6,190 | 6,570 | 6,700 | 5,460 | 5,113 | 6,214 |
| Gray partridge | 6,013 | 6,667 | 4,411 | 4,240 | 3,720 | 2,400 | 3,080 | 2,450 | 2,540 | 2,075 | 2,097 |
| Gray squirrel | 25,459 | 25,863 | 22,382 | 22,260 | 23,740 | 23,280 | 24,710 | 21,690 | 21,240 | 22,303 | 23,806 |
| Fox squirrel | 15,619 | 14,779 | 13,233 | 13,180 | 15,630 | 12,060 | 14,220 | 12,030 | 12,790 | 13,411 | 13,625 |
| Eastern cottontail | 20,070 | 19,598 | 17,644 | 16,300 | 15,030 | 12,300 | 16,390 | 14,550 | 13,160 | 11,633 | 16,096 |
| White-tailed jackrabbit | 2,577 | 2,891 | 2,451 | 1,790 | 2,230 | 2,320 | 1,750 | 1,220 | 1,350 | 890 | 1,423 |
| Snowshoe hare | 5,545 | 4,257 | 4,574 | 3,500 | 3,800 | 3,250 | 4,820 | 3,750 | 4,560 | 4,076 | 3,369 |
| Raccoon (Sept - Feb) | 8,747 | 9,558 | 7,433 | 7,300 | 8,260 | 8,040 | 8,570 | 7,640 | 6,880 | 5,632 | 5,840 |
| Raccoon [‡] (March -Aug) | | | | | | | | | | | |
| Red fox (Sept -Feb) | 6,248 | 5,783 | 5,800 | 7,820 | 7,220 | 6,030 | 5,820 | 5,910 | 4,560 | 4,150 | 3,594 |
| Red fox [‡] (March -Aug) | | | | | | | | | | | |
| Gray fox | 2,030 | 1,928 | 1,879 | 1,790 | 1,640 | 1,390 | 1,580 | 1,730 | 1,050 | 1,186 | 899 |
| Coyote | 17,024 | 16,064 | 19,278 | 19,280 | 19,420 | 17,940 | 21,050 | 17,650 | 17,580 | 18,302 | 15,871 |
| Badger | 859 | 482 | 490 | 370 | 600 | 310 | 330 | 500 | 80 | 297 | 375 |

*Crow season added in 1989. [‡] Raccoon and red fox season continuous May 1994 thru March 15, 2006. ^γ Mourning dove season added 2004. ^β Estimates from these years were recomputed without license type 99- free youth license to be consistent with other years of data.

Table 3. Estimated harvest per active hunter by species, 2006-07 through 2016-17.

| | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 ^β | 2012-13 ^β | 2013-14 | 2014-15 | 2015-16 | 2016-17 |
|------------------------------------|---------|---------|---------|---------|---------|----------------------|----------------------|---------|---------|---------|---------|
| Ducks | 8.4 | 8.1 | 8.1 | 7.4 | 8.5 | 9.0 | 9.7 | 10.2 | 9.3 | 8.7 | 9.0 |
| Canada geese | 4.9 | 3.9 | 4.9 | 4.1 | 4.8 | 4.9 | 5.1 | 4.5 | 4.6 | 4.0 | 5.0 |
| Other geese | 1.5 | 2.1 | 3.2 | 1.9 | 1.1 | 1.8 | 2.3 | 2.5 | 2.4 | 1.8 | 3.1 |
| American coot | 5.6 | 4.6 | 5.7 | 3.6 | 5.7 | 3.0 | 4.2 | 4.0 | 3.9 | 4.9 | 6.1 |
| Common snipe | 1.9 | 2.0 | 1.2 | 1.1 | 1.4 | 1.2 | 1.2 | 1.7 | 0.6 | 0.3 | 2.2 |
| Rails/gallinules | 2.4 | 5.3 | 0.4 | 0.8 | 0.3 | 1.7 | 0.2 | 0.5 | 0.2 | 2.3 | n.a.* |
| Crow* | 6.4 | 6.4 | 5.2 | 5.3 | 6.1 | 7.9 | 7.9 | 7.9 | 7.6 | 7.8 | 6.6 |
| American woodcock | 3.2 | 2.6 | 2.4 | 3.0 | 2.8 | 2.6 | 2.3 | 2.7 | 2.7 | 3.0 | 3.6 |
| Mourning dove ^γ | 6.7 | 7.7 | 11.4 | 10.5 | 9.4 | 8.2 | 10.0 | 7.8 | 10.4 | 10.8 | 7.7 |
| Ring-necked pheasant | 4.9 | 5.5 | 4.9 | 4.0 | 4.0 | 2.7 | 3.3 | 2.7 | 2.7 | 3.8 | 3.3 |
| Ruffed grouse | 4.5 | 3.2 | 3.7 | 4.1 | 5.0 | 4.3 | 3.7 | 3.6 | 3.6 | 3.4 | 3.8 |
| Spruce grouse | 2.7 | 1.7 | 2.0 | 2.0 | 1.7 | 1.8 | 1.6 | 1.2 | 1.4 | 1.2 | 1.6 |
| Sharp-tailed grouse | 1.8 | 2.0 | 2.1 | 1.7 | 2.4 | 1.9 | 1.6 | 1.1 | 1.6 | 1.6 | 1.4 |
| Gray partridge | 1.9 | 1.6 | 2.2 | 1.9 | 2.5 | 1.6 | 1.7 | 1.0 | 1.4 | 1.5 | 1.8 |
| Gray squirrel | 5.5 | 5.2 | 5.4 | 4.9 | 5.9 | 5.0 | 5.1 | 3.9 | 4.3 | 4.3 | 4.0 |
| Fox squirrel | 4.2 | 3.2 | 3.9 | 4.1 | 3.9 | 4.0 | 3.5 | 2.8 | 3.2 | 3.5 | 2.9 |
| Eastern cottontail | 3.9 | 4.0 | 4.5 | 3.5 | 3.6 | 2.8 | 3.9 | 2.8 | 2.9 | 3.6 | 3.1 |
| White-tailed jackrabbit | 1.6 | 3.3 | 2.6 | 1.5 | 3.2 | 2.2 | 1.1 | 1.5 | 0.8 | 0.8 | 0.8 |
| Snowshoe hare | 3.0 | 1.4 | 2.5 | 1.5 | 1.8 | 2.6 | 3.5 | 1.7 | 1.7 | 1.6 | 1.8 |
| Raccoon (Sept - Feb) | 7.2 | 4.9 | 9.7 | 9.1 | 9.4 | 5.5 | 5.6 | 6.1 | 7.7 | 6.8 | 3.8 |
| Raccoon [‡] (March -Aug) | | | | | | | | | | | |
| Red fox (Sept -Feb) | 1.3 | 1.1 | 0.8 | 1.3 | 1.2 | 1.2 | 1.4 | 0.9 | 0.7 | 0.9 | 0.6 |
| Red fox [‡] (March -Aug) | | | | | | | | | | | |
| Gray fox | 1.8 | 0.3 | 1.3 | 1.0 | 1.5 | 0.8 | 0.2 | 0.2 | 0.6 | 0.7 | 0.2 |
| Coyote | 1.2 | 2.1 | 2.4 | 2.4 | 2.3 | 1.9 | 2.5 | 1.3 | 1.0 | 1.9 | 1.5 |
| Badger | 1.3 | 0.3 | 1.0 | 2.0 | 1.0 | 0.8 | 1.0 | 0.6 | 1.0 | 0.5 | 1.0 |

^γCrow season added in 1989. [‡] Raccoon and red fox season continuous May 1994 thru March 15, 2006. ^β Mourning dove season added 2004. ^β Estimates from these years were recomputed without license type 99- free youth license to be consistent with other years of data. * Only 1 respondent indicated they hunted rails and they reported 0 bagged.

Table 4. Mean harvest for successful hunters and hunter success rates (%), 2006-07 through 2016-17.

| | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 ^β | 2012-13 ^β | 2013-14 | 2014-15 | 2015-16 | 2016-17 |
|------------------------------------|----------|----------|-----------|-----------|-----------|----------------------|----------------------|-----------|-----------|-----------|-----------|
| Ducks | 9.9 (84) | 9.5 (85) | 9.8 (83) | 9.2(80) | 10.3 (83) | 10.5 (85) | 11.1 (87) | 11.7 (87) | 11.0 (85) | 10.6 (82) | 10.9 (83) |
| Canada geese | 6.3 (78) | 5.5 (71) | 6.4 (77) | 5.6 (73) | 6.1 (80) | 6.3 (78) | 6.5 (78) | 5.8 (77) | 6.6 (69) | 5.7 (71) | 7.1 (70) |
| Other geese | 2.7 (55) | 4.2 (50) | 6.3 (50) | 3.5 (55) | 2.6 (41) | 3.4 (51) | 4.4 (52) | 5.5 (46) | 4.3 (54) | 4.0 (44) | 8.0 (39) |
| American coot | 7.2 (78) | 6.3 (74) | 6.9 (82) | 5.5 (65) | 7.2 (79) | 4.4 (69) | 5.2 (81) | 5.2 (75) | 5.0 (78) | 6.7 (73) | 7.6 (81) |
| Common snipe | 2.6 (75) | 2.9 (71) | 1.7 (73) | 1.8 (61) | 2.2 (67) | 1.6 (73) | 2.1 (57) | 2.1 (79) | 1.4 (45) | 1.0 (33) | 3.2 (67) |
| Rails / gallinules | 4.3 (57) | 6.4 (83) | 1.0 (40) | 1.3 (60) | 1.0 (33) | 5.0 (33) | 1.0 (17) | 1.0 (50) | 1.0 (25) | 3.5 (67) | n.a.* |
| Crow | 7.2 (89) | 7.3 (88) | 5.9 (88) | 5.9 (90) | 6.7 (91) | 8.9 (88) | 8.8 (90) | 9.4 (84) | 8.7 (87) | 8.3 (94) | 7.6 (86) |
| American woodcock | 3.9 (83) | 3.7 (69) | 3.3 (74) | 4.1 (73) | 3.6 (76) | 3.8 (70) | 3.4 (68) | 3.8 (70) | 4.2 (64) | 4.4 (67) | 5.4 (67) |
| Mourning dove ^γ | 8.2 (81) | 9.8 (79) | 13.2 (87) | 11.4 (92) | 11.1 (85) | 10.5 (78) | 12.5 (80) | 9.2 (85) | 12.5 (83) | 13.3 (81) | 10.3 (75) |
| Ring-necked pheasant | 6.6 (75) | 7.1 (78) | 6.4 (77) | 5.8 (69) | 5.6 (72) | 4.4 (63) | 4.9 (67) | 4.2 (64) | 4.3 (61) | 5.4 (71) | 5.0 (65) |
| Ruffed grouse | 5.9 (77) | 4.7 (69) | 5.0 (74) | 5.5 (74) | 6.6 (76) | 5.9 (74) | 5.2 (71) | 5.2 (68) | 5.1 (71) | 4.9 (69) | 5.3 (70) |
| Spruce grouse | 3.8 (71) | 3.1 (54) | 3.0 (68) | 3.1 (64) | 2.4 (71) | 3.0 (61) | 2.8 (57) | 2.4 (51) | 2.5 (56) | 2.4 (50) | 2.7 (58) |
| Sharp-tailed grouse | 3.3 (56) | 4.4 (46) | 3.2 (64) | 3.0 (58) | 3.5 (68) | 3.1 (61) | 3.4 (48) | 3.2 (33) | 3.8 (41) | 3.1 (51) | 2.9 (47) |
| Gray partridge | 2.8 (69) | 3.0 (55) | 3.4 (65) | 3.3 (58) | 4.2 (58) | 3.2 (52) | 3.1 (54) | 2.5 (38) | 4.4 (32) | 2.7 (57) | 3.3 (54) |
| Gray squirrel | 6.4 (87) | 5.9 (88) | 6.2 (88) | 5.8 (86) | 7.0 (84) | 6.3 (78) | 6.3 (80) | 5.0 (77) | 5.5 (78) | 5.3 (81) | 5.1 (79) |
| Fox squirrel | 5.0 (85) | 3.9 (83) | 4.6 (83) | 4.8 (85) | 4.6 (86) | 5.4 (74) | 4.4 (80) | 3.7 (75) | 4.3 (75) | 4.9 (71) | 3.8 (76) |
| Eastern cottontail | 4.6 (85) | 4.8 (84) | 5.3 (85) | 4.3 (83) | 4.4 (81) | 4.1 (69) | 5.5 (71) | 3.5 (79) | 4.1 (73) | 5.0 (72) | 4.0 (77) |
| White-tailed jackrabbit | 2.5 (64) | 4.5 (72) | 3.8 (70) | 2.1 (71) | 4.6 (70) | 3.5 (63) | 2.3 (48) | 5.2 (29) | 1.8 (44) | 2.0 (42) | 1.9 (42) |
| Snowshoe hare | 3.8 (80) | 2.2 (62) | 3.5 (71) | 2.6 (60) | 2.6 (69) | 3.8 (69) | 5.0 (69) | 2.9 (58) | 3.0 (57) | 3.0 (53) | 3.2 (56) |
| Raccoon (Sept -Feb) | 7.7 (94) | 5.4 (90) | 10.6 (91) | 9.6 (95) | 10.0 (94) | 6.1 (89) | 6.1 (93) | 6.9 (89) | 8.5 (90) | 7.7 (88) | 4.1 (92) |
| Raccoon [‡] (March -Aug) | | | | | | | | | | | |
| Red fox (Sept -Feb) | 2.1 (60) | 2.3 (46) | 1.5 (49) | 2.4 (54) | 2.3 (54) | 2.4 (49) | 2.7 (50) | 2.0 (44) | 1.7 (41) | 1.6 (57) | 1.4 (44) |
| Red fox [‡] (March -Aug) | | | | | | | | | | | |
| Gray fox | 2.7 (65) | 1.0 (29) | 3.3 (39) | 2.5 (42) | 4.0 (36) | 2.5 (33) | 1.0 (16) | 1.5 (17) | 2.0 (29) | 1.4 (50) | 1.0 (25) |
| Coyote | 2.4 (51) | 4.4 (49) | 4.4 (54) | 4.6 (52) | 4.0 (57) | 4.0 (47) | 5.1 (49) | 2.7 (50) | 2.4 (41) | 3.4 (57) | 3.1 (49) |
| Badger | 1.6 (82) | 1.0 (33) | 1.2 (83) | 2.5 (80) | 1.0 (100) | 1.5 (50) | 1.0 (100) | 1.0 (57) | 1.0 (100) | 1.0 (50) | 1.2 (80) |

[‡] Raccoon and red fox season continuous May 1994 thru March 15, 2006. ^γ Mourning dove season added 2004. * No hunters surveyed reported Rails/Gallinules in bag.

^β Estimates from these years were recomputed without license type 99- free youth license to be consistent with other years of data.

* Only 1 respondent indicated they hunted rails and they reported 0 bagged.

Table 5. Statewide (resident and non-resident) small game hunting license sales and estimated hunter harvest, 2006-07 through 2016-17.

| | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 ^b | 2012-13 ^b | 2013-14 | 2014-15 | 2015-16 | 2016-17 |
|---------------------------------------|---------|---------|---------|---------|---------|----------------------|----------------------|---------|---------|---------|---------|
| Small game license sales ^a | 295,898 | 298,467 | 290,064 | 282,983 | 282,227 | 271,768 | 264,063 | 258,581 | 258,109 | 258,208 | 252,358 |
| State duck stamp sales | 101,792 | 100,134 | 95,675 | 89,942 | 88,069 | 89,681 | 90,052 | 93,412 | 94,265 | 92,176 | 88,905 |
| Pheasant stamp sales | 129,546 | 129,315 | 123,270 | 110,456 | 104,286 | 86,868 | 90,541 | 77,597 | 74,295 | 77,750 | 76,920 |
| Estimated harvest^b | | | | | | | | | | | |
| Ducks | 730,559 | 708,491 | 658,186 | 572,220 | 619,600 | 681,550 | 784,360 | 782,810 | 699,620 | 663,811 | 606,458 |
| Canada geese | 324,498 | 243,705 | 288,411 | 227,160 | 257,530 | 281,630 | 301,550 | 229,120 | 221,620 | 185,012 | 204,825 |
| Other geese | 6,658 | 7,723 | 13,895 | 6,250 | 3,940 | 4,800 | 8,820 | 7,130 | 6,510 | 4,448 | 7,188 |
| American coot | 24,909 | 16,061 | 23,871 | 14,810 | 26,340 | 10,520 | 16,720 | 15,130 | 17,050 | 15,861 | 21,564 |
| Common snipe | 4,221 | 3,933 | 2,210 | 1,490 | 1,940 | 1,390 | 1,420 | 2,310 | 520 | 223 | 1,948 |
| Rails / gallinules | 1,329 | 2,569 | 163 | 300 | 80 | 390 | 80 | 70 | 80 | 1,039 | n.a.* |
| Crow | 69,188 | 54,319 | 51,742 | 56,350 | 57,300 | 81,500 | 90,260 | 67,440 | 56,020 | 57,576 | 48,590 |
| American woodcock | 39,907 | 27,866 | 29,210 | 35,430 | 29,770 | 24,980 | 30,360 | 31,920 | 25,810 | 37,270 | 46,867 |
| Mourning dove ^d | 85,950 | 101,161 | 132,577 | 109,940 | 100,230 | 74,000 | 92,760 | 80,480 | 103,370 | 96,552 | 58,618 |
| Ring-necked pheasant | 587,580 | 655,443 | 522,071 | 398,130 | 359,400 | 198,500 | 250,140 | 169,100 | 152,800 | 243,176 | 196,141 |
| Ruffed grouse | 417,153 | 293,544 | 318,338 | 357,420 | 465,580 | 383,150 | 341,320 | 288,410 | 301,190 | 267,997 | 308,955 |
| Spruce grouse | 26,568 | 17,705 | 16,997 | 19,130 | 14,960 | 18,640 | 11,980 | 13,110 | 14,590 | 9,856 | 15,348 |
| Sharp-tailed grouse | 11,939 | 13,790 | 13,695 | 9,530 | 16,820 | 11,600 | 10,650 | 7,130 | 8,530 | 7,929 | 8,610 |
| Gray partridge | 11,545 | 11,000 | 9,660 | 8,040 | 9,150 | 3,950 | 5,160 | 2,380 | 3,590 | 3,187 | 3,745 |
| Gray squirrel | 140,788 | 133,194 | 121,534 | 109,790 | 138,920 | 115,840 | 126,110 | 84,010 | 91,250 | 96,400 | 95,374 |
| Fox squirrel | 66,068 | 47,736 | 51,079 | 53,970 | 61,690 | 48,100 | 49,750 | 33,940 | 40,840 | 46,383 | 39,603 |
| Eastern cottontail | 77,872 | 78,588 | 79,927 | 57,760 | 53,870 | 34,640 | 64,140 | 40,710 | 38,820 | 41,716 | 49,187 |
| White-tailed jack rabbit | 4,149 | 9,482 | 6,446 | 2,610 | 7,220 | 5,180 | 1,910 | 1,870 | 1,050 | 742 | 1,124 |
| Snowshoe hare | 16,801 | 5,789 | 11,343 | 5,360 | 6,770 | 8,430 | 16,800 | 6,200 | 7,860 | 6,374 | 5,990 |
| Raccoon (Sept -Feb) | 62,891 | 46,739 | 72,026 | 66,700 | 77,690 | 44,080 | 48,340 | 46,690 | 52,800 | 38,387 | 22,312 |
| Raccoon ^c (Mar –Aug) | | | | | | | | | | | |
| Red fox (Sept –Feb) | 7,872 | 6,188 | 4,408 | 10,270 | 8,780 | 7,120 | 7,990 | 5,190 | 3,220 | 3,780 | 2,247 |
| Red fox ^c (Mar –Aug) | | | | | | | | | | | |
| Gray fox | 3,593 | 559 | 2,443 | 1,860 | 2,380 | 1,160 | 250 | 430 | 600 | 816 | 225 |
| Coyote | 20,769 | 34,377 | 45,689 | 46,070 | 44,050 | 33,410 | 51,990 | 23,630 | 17,430 | 35,123 | 24,481 |
| Badger | 1,091 | 159 | 490 | 750 | 600 | 230 | 330 | 290 | 80 | 149 | 375 |

Harvest estimates in this table, and the number of hunters and mean take per hunter in Table 5, are calculated from different questions on the survey form. The sample used in calculations differs from one estimator to the next. This is because some respondents give specific answers to one question but not to a related one. A formula is used to calculate the total estimated take for each species that appear in this table. In most years the formula produces results rather close to those obtained by multiplying the average take per hunter times the number of hunters. However, in other years (e.g., 1985) results of the two methods are quite divergent, perhaps as a result of an unusual sample. This is being investigated further, and as a result, numbers may change somewhat in future reports. The most current report of survey findings will have the best data available at that time. A youth-free license was part of the sampling frame for the 2011-12 and 2012-13 seasons but was discontinued for 2013-14. The harvest statics for those years have been recomputed by removing the youth free license from both the sampling frame and the respondents' database. The estimates are now more comparable over time.

^a Includes all types of Small game licenses. Duplicate and free licenses not included. ^b Estimates based upon response of hunters to questionnaires.

^c Raccoon and red fox seasons were year round from May, 1994 through March 16, 2006. ^d Mourning dove season added 2004.

* Only 1 respondent indicated they hunted rails and they reported 0 bagged.

Table 6. Mail survey results of nonresident small game hunters, 2006-07 through 2016-17.

| | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-14 | 2014-15 | 2015-16 | 2016-17 |
|---|------------|------------|------------|------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Nonresident licenses issued ^a | 7,356 | 7,858 | 7,114 | 6,934 | 6,695 | 6,312 | 6,456 | 6,031 | 6,056 | 6,755 | 6,701 |
| Questionnaires: | | | | | | | | | | | |
| Number mailed | 185 | 185 | 226 | 196 | 163 | 169 | 166 | 162 | 165 | 169 | 190 |
| Number not delivered | 11 | 11 | 15 | 10 | 6 | 11 | 11 | 10 | 12 | 5 | 15 |
| Number (percent) returned | 115 (62) | 101 (58) | 89 (42) | 105 (54) | 107 (66) | 91 (54) | 71 (43) | 81 (50) | 70 (42) | 73 (43) | 78 (41) |
| Estimated nonresidents and (percent) of all licensed nonresidents hunting: | | | | | | | | | | | |
| Ducks | 2,344 (32) | 2,256 (29) | 2,293 (32) | 1,849 (27) | 2,003 (29.9) | 2,430 (38.5) | 2,360 (36.6) | 2,010 (33.3) | 2,340 (38.6) | 1,850 (27.4) | 2,320 (34.6) |
| Canada goose | 2,083 (28) | 934 (12) | 1,587 (22) | 726 (10) | 1,314 (19.6) | 1,620 (25.6) | 1,360 (21.1) | 1,270 (21.0) | 1,300 (21.4) | 650 (9.6) | 770 (11.5) |
| Ruffed grouse | 1,953 (26) | 1,867 (24) | 1,940 (27) | 1,915 (28) | 2,503 (37.4) | 1,460 (23.1) | 2,820 (43.7) | 2,010 (33.3) | 2,600 (42.9) | 2,870 (42.5) | 3,520 (52.6) |
| Ring-necked pheasant | 3,776 (51) | 2,645 (34) | 3,116 (44) | 1,519 (22) | 2,003 (29.9) | 1,780 (28.2) | 1,910 (29.6) | 1,420 (23.5) | 1,380 (22.9) | 1,480 (21.9) | 1,550 (23.1) |
| Raccoon ^{b, c} | 0 (0) | 78 (1.0) | 0 (0) | 0 (0) | 63 (0.9) | 0 (0) | 0 (0) | 80 (1.2) | 0 (0) | 0 (0) | 170 (2.6) |
| Estimated nonresident take: | | | | | | | | | | | |
| Ducks | 12,173 | 22,718 | 15,463 | 11,755 | 17,055 | 13,840 | 20,380 | 20,410 | 13,060 | 16,863 | 17,701 |
| Canada goose | 3,580 | 3,501 | 5,762 | 3,698 | 6,334 | 4,050 | 2,270 | 3,650 | 2,680 | 1,484 | 1,462 |
| Ruffed grouse | 11,522 | 7,236 | 6,938 | 8,651 | 12,600 | 8,980 | 10,090 | 4,990 | 9,090 | 13,805 | 11,772 |
| Ring-necked pheasant | 16,079 | 17,661 | 10,642 | 6,274 | 8,076 | 4,860 | 6,820 | 3,430 | 3,720 | 6,581 | 4,040 |
| Raccoon ^{b, c} | 0 | 3,268 | 0 | 0 | 593 | 0 | 0 | 1,280 | 0 | 0 | 172 |

^a Excludes duplicate licenses and nonresident shooting preserve licenses.

^b In 2002, 2003, 2004, 2006, 2008, 2009, 2011, 2012, 2014, and 2015 no non-residents reported hunting/harvesting raccoons.

^c In 2013 only one non-resident reported hunting/harvesting raccoons. The extrapolated estimate is not reliable.