



2018 SMALL GAME HUNTER MAIL SURVEY

Nicole Davros and 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 (Figure 1) was mailed in early March following the close of the small game hunting season. Hunters who returned it within three weeks were eliminated from a follow-up mailing to non-respondents. The sampling frame consisted of individuals who purchased a small game hunting license (any type) for the 2018-19 small game hunting season (N=225,932). A stratified random sample (n=7,000, 3.1%), allocated proportionally by license type, was drawn from the Minnesota DNR electronic licensing system (ELS) database. Small game license types included: 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=219,214) and "Nonresident" (N=6,718) (Figure 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 harvest estimates and license sales are comparable among years. Also, beginning in 2017, license holders <18-yrs old at the time of the survey were excluded from the sampling frame but included in the overall expansion for sampling. This group comprised <3% of license holders and thus estimates should be comparable among years.

Recipients were asked if they hunted small game in 2018-19 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 were tabulated using Viking Data Entry VDE+ software and analyzed using Program R (ver. 3.5.2; R Development Core Team 2018).

RESULTS

Survey Response and Overall License Sales Trends

Statewide (resident and nonresident) small game license sales and survey response rate are shown in Figure 2. Of the 7,000 mailed surveys, 181 surveys were returned as undeliverable; 2,904 surveys were completed and returned for an adjusted response rate of 43%. The percent of respondents who said they hunted or did not hunt is reported in Table 1. Overall, statewide license sales (225,932 small game licenses) declined 7% from the previous year (Figure 2,

Table 2) and were at their lowest level since 1969. Nonresident small game license sales (6,718 licenses) declined slightly in 2018 but was slightly above the 10-year average (6,591 stamps; Table 3).

Estimates by Species

Harvest trends for the four most sought-after small game species (ducks – all species, Canada geese, ruffed grouse, and ring-necked pheasants) in Minnesota since 2002 are shown in Figure 3 and discussed separately below. For all other species, estimated harvest (Table 2) and number of statewide hunters (Table 4) declined compared to 2017. Similarly, the estimated harvest per active hunter declined for most species except gray partridge which increased slightly (Table 5). Most successful hunters harvested fewer animals except for those hunting American woodcock, gray partridge, and white-tailed jackrabbit who harvested a similar number of animals compared to 2017 (Table 6). Most hunter success rates declined or held steady from last year except for gray partridge and white-tailed jackrabbits success rates which both increased (Table 6).

Ducks – all species

Fewer state duck stamps (82,955 stamps) were sold in 2018 than in each of the previous 10 years (Table 2). The 2018 duck harvest (614,780) was lower than 2017 (688,225 ducks; Table 2) but there were also fewer duck hunters (61,618) afield in 2018 compared to 2017 (63,426 duck hunters; Table 4). Although the estimated harvest per active duck hunter (10.0 ducks/hunter; Table 5) and the mean harvest for successful duck hunters (11.3 ducks/successful hunter; Table 6) were lower in 2018 than 2017 (10.9 ducks/hunter and 12.5 ducks/successful hunter, respectively), the duck hunter success rate (89%) was slightly better than 2017 (87%; Table 6). Despite there being 28% fewer nonresident duck hunters in 2018 than last year, the estimated nonresident harvest was comparable (Table 3).

Canada geese

The 2018 Canada goose harvest (187,578) was well-below the estimated 2017 harvest (267,192 geese) and was the second lowest harvest total in the last 11 years (Table 2). The estimated number of goose hunters (38,278) was also lower than 2017 (44,678 hunters) and the 10-year average (51,526 hunters; Table 4). The estimated harvest per active hunter (4.9) was below the 2017 estimate (6.0 geese/hunter) but comparable to the 10-year average (4.8 geese/hunter; Table 5). Similarly, the mean harvest for successful hunters (6.3) was below the 2017 estimate (7.4 geese/successful hunter) but comparable to the 10-year average of 6.4 geese/successful hunter (Table 6). The 2018 goose hunter success rate (77%) was down from 2017 (81%) but was slightly greater than the 10-year average (75%; Table 6). The number of nonresident goose hunters declined by 27% and their estimated goose harvest (2,940) declined 58% from last year's record high (6,994 geese) (Table 3).

Ruffed grouse

The 2018 ruffed grouse harvest (195,515) declined 30% from the 2017 estimate (285,180 grouse) and was the lowest harvest in the last 11 years (Table 2) while the estimated number of grouse hunters (67,765) was the lowest on record (spanning more than 40 years). The harvest per active hunter (2.9 grouse/hunter) was below the 2017 estimate (3.5 grouse/hunter) and the 10-year average (3.9 grouse/hunter), and the mean harvest for successful hunters (4.3 grouse/successful hunter) was below the 2017 estimate (4.8 grouse/successful hunter) and the 10-year average (5.4 grouse/successful hunter) (Tables 4, 5, and 6, respectively). The 2018 ruffed grouse hunter success rate was 67%, which was below 2017 (73%) and the 10-year average (72%; Table 6). Although a similar number of nonresidents hunted ruffed grouse in

2018 (2,270 hunters) compared to the previous year (2,280 hunters), they harvested 63% fewer grouse (2,856 grouse in 2018 compared to 6,994 grouse in 2017; Table 3).

Ring-necked pheasants

Slightly more pheasant stamps were sold in 2018 (72,192) than in 2017 but these sales have been declining overall in the last 10 years (Table 2). The pheasant harvest increased 19% with 205,395 roosters harvested in 2018 compared to 171,883 roosters the previous year (Table 2). The estimated number of pheasant hunters (55,861) increased from 2017 (45,263 hunters) but is well-below the 10-year average of 73,341 hunters (Table 4). The estimated harvest per active hunter was 3.7 pheasants/hunter which was similar to 2017 (3.8 pheasants/hunter) and slightly above the 10-year average (3.5 pheasants/hunter; Table 5). The mean harvest per successful hunter in 2018 was similar to 2017 (5.4 vs. 5.5 roosters) and slightly above the 10-year average (5.2 roosters; Table 6). Pheasant hunter success in 2018 (68%) was similar to 2017 (69%) and the 10-year average (68%; Table 6). The number of nonresident pheasant hunters increased 54% (2,350 hunters in 2018 vs. 1,520 hunters in 2017) but their harvest was down 17% from last year (6,048 roosters in 2018 vs. 7,274 roosters in 2017) (Table 3).

ACKNOWLEDGMENTS

This project was funded in part by the Federal Aid in Wildlife Restoration Program. John Giudice analyzed the data and Tim Lyons provided comments on a previous draft of this report.

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 2018-2019 small game hunting season (**March 2018-February 2019**). We need information to estimate the season's harvest and to help set future small game seasons. Answer only for your Minnesota 2018 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

2018 Small Game Hunter Report

1. Did you hunt small game, listed below, in Minnesota this year (March 2018 - Feb 2019)? ☐ 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	95		
Coyote (brush wolf)	97		
Gray fox	96		
Raccoon	94		
Red fox	95		

Figure 1. Sample of Small Game Hunter survey card.

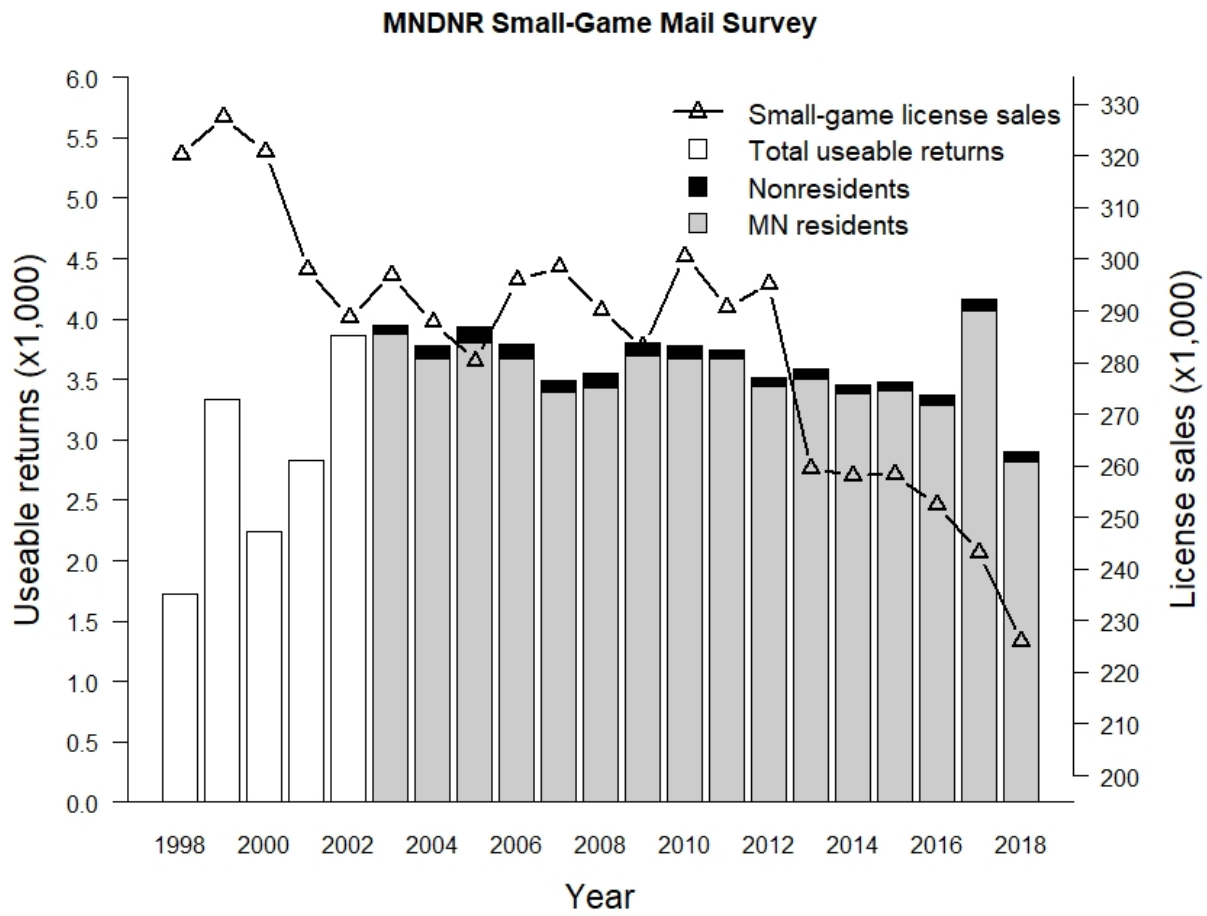


Figure 1. Number of Minnesota small game licenses sold and usable returned surveys, 1998-2018. Includes resident and non-resident licenses, and excludes duplicate and free licenses.

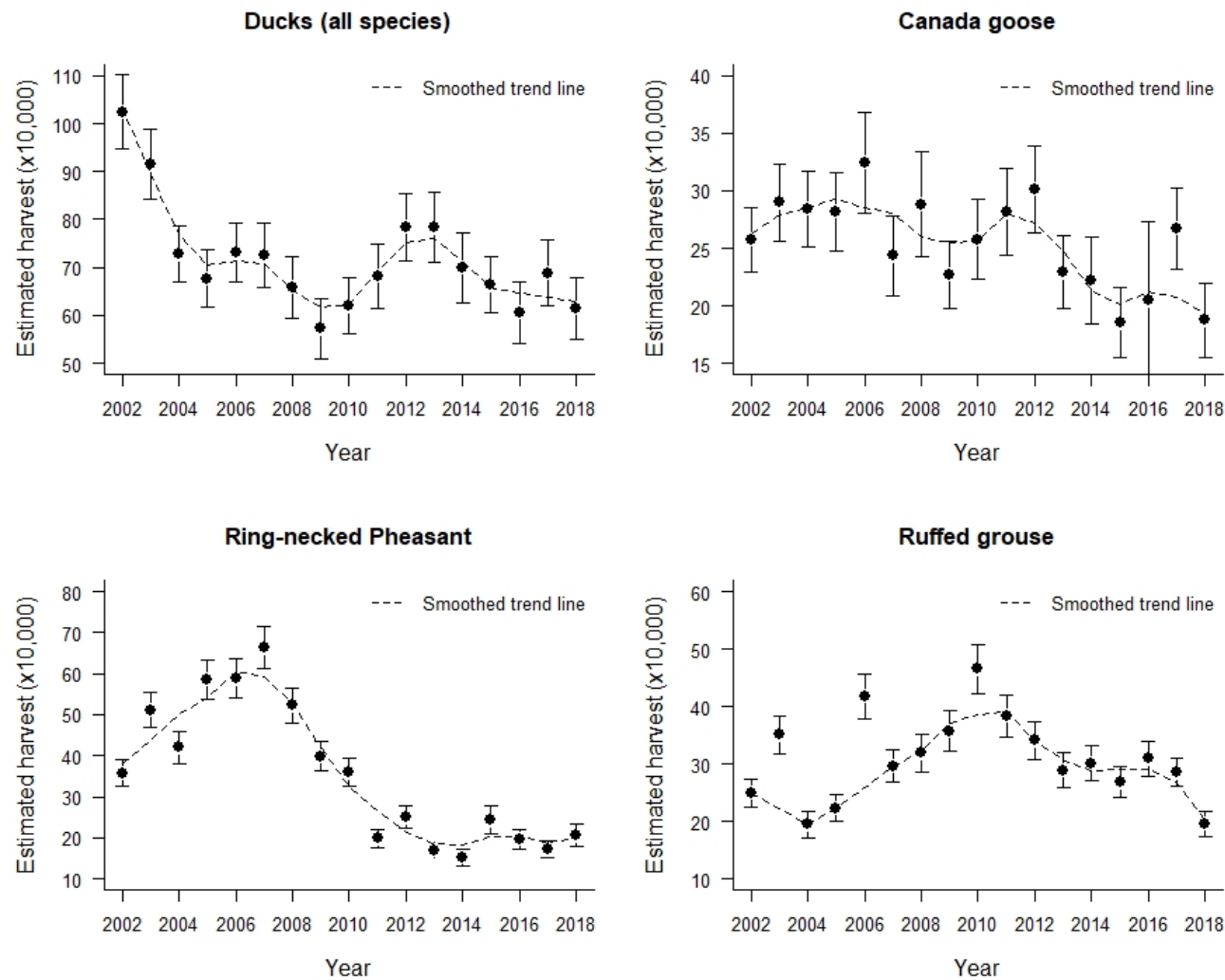


Figure 3. Harvest trends for top four small game species harvested in Minnesota, 2002-2018.

Table 1. Percent of respondents who hunted small game, 2008-09 through 2018-2019^a.

		Returns from mail survey	Projections from license sales
2008-09	Hunted Did not hunt	2,678 (75%) <u>873 (25%)</u> 3,551 (100.0%)	218,753 <u>71,311</u> 290,064
2009-10	Hunted Did not hunt	2,850 (75%) <u>952 (25%)</u> 3,802 (100.0%)	212,126 <u>70,857</u> 282,983
2010-11	Hunted Did not hunt	2,824 (75%) <u>953 (25%)</u> 3,777 (100.0%)	210,129 <u>70,911</u> 281,040
2011-12	Hunted Did not hunt	2,761 (74%) <u>987 (26%)</u> 3,748 (100.0%)	214,137 <u>76,549</u> 290,686
2012-13	Hunted Did not hunt	2,669 (76%) <u>851 (24%)</u> 3,520 (100%)	223,808 <u>71,360</u> 295,168
2013-14	Hunted Did not hunt	2,586 (72%) <u>1,003 (28%)</u> 3,589 (100%)	186,317 <u>72,264</u> 258,581
2014-15	Hunted Did not hunt	2,476 (72%) <u>975 (28%)</u> 3,451 (100%)	185,186 <u>72,923</u> 258,109
2015-16	Hunted Did not hunt	2,505 (72%) <u>980 (28%)</u> 3,485 (100%)	185,604 <u>72,612</u> 258,216
2016-17	Hunted Did not hunt	2,426 (72%) <u>945 (28%)</u> 3,371 (100%)	181,614 <u>70,744</u> 252,358
2017-18	Hunted Did not hunt	2,768 (66%) <u>1,395 (34%)</u> 4,163 (100%)	161,658 <u>81,472</u> 243,130
2018-19	Hunted Did not hunt	2,000 (69%) <u>904 (31%)</u> 2,904 (100%)	155,601 <u>70,331</u> 225,932

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

Table 2^a. Statewide (resident and non-resident) small game hunting license sales and estimated hunter harvest, 2008-09 through 2018-19.

	2008-09	2009-10	2010-11	2011-12 ^b	2012-13 ^b	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Small game license sales ^c	290,064	282,983	282,227	271,768	264,063	258,581	258,109	258,208	252,358	243,130	225,932
State duck stamp sales	95,675	89,942	88,069	89,681	90,052	93,412	94,265	92,176	88,905	86,258	82,955
Pheasant stamp sales	123,270	110,456	104,286	86,868	90,541	77,597	74,295	77,750	76,920	71,925	72,192
Estimated harvest^d											
Ducks	658,186	572,220	619,600	681,550	784,360	782,810	699,620	663,811	606,458	688,225	614,780
Canada geese	288,411	227,160	257,530	281,630	301,550	229,120	221,620	185,012	204,825	267,192	187,578
Other geese	13,895	6,250	3,940	4,800	8,820	7,130	6,510	4,448	7,188	8,062	1,557
American coot	23,871	14,810	26,340	10,520	16,720	15,130	17,050	15,861	21,564	19,976	10,663
Common snipe	2,210	1,490	1,940	1,390	1,420	2,310	520	223	1,948	1,928	1,401
Rails / gallinules	163	300	80	390	80	70	80	1,039	n.a. ^e	1,697	n.a. ^f
Crow	51,742	56,350	57,300	81,500	90,260	67,440	56,020	57,576	48,590	110,034	34,940
American woodcock	29,210	35,430	29,770	24,980	30,360	31,920	25,810	37,270	46,867	38,546	30,500
Mourning dove	132,577	109,940	100,230	74,000	92,760	80,480	103,370	96,552	58,618	88,021	54,623
Ring-necked pheasant	522,071	398,130	359,400	198,500	250,140	169,100	152,800	243,176	196,141	171,883	205,395
Ruffed grouse	318,338	357,420	465,580	383,150	341,320	288,410	301,190	267,997	308,955	285,180	195,515
Spruce grouse	16,997	19,130	14,960	18,640	11,980	13,110	14,590	9,856	15,348	12,032	7,081
Sharp-tailed grouse	13,695	9,530	16,820	11,600	10,650	7,130	8,530	7,929	8,610	11,097	5,681
Gray partridge	9,660	8,040	9,150	3,950	5,160	2,380	3,590	3,187	3,745	4,557	3,893
Gray squirrel	121,534	109,790	138,920	115,840	126,110	84,010	91,250	96,400	95,374	105,712	71,888
Fox squirrel	51,079	53,970	61,690	48,100	49,750	33,940	40,840	46,383	39,603	41,994	28,398
Eastern cottontail	79,927	57,760	53,870	34,640	64,140	40,710	38,820	41,716	49,187	47,135	32,057
White-tailed jack rabbit	6,446	2,610	7,220	5,180	1,910	1,870	1,050	742	1,124	585	623
Snowshoe hare	11,343	5,360	6,770	8,430	16,800	6,200	7,860	6,374	5,990	10,864	3,191
Raccoon	72,026	66,700	77,690	44,080	48,340	46,690	52,800	38,387	22,312	68,685	29,332
Red fox	4,408	10,270	8,780	7,120	7,990	5,190	3,220	3,780	2,247	9,229	1,868
Gray fox	2,443	1,860	2,380	1,160	250	430	600	816	225	3,798	78
Coyote	45,689	46,070	44,050	33,410	51,990	23,630	17,430	35,123	24,481	56,184	22,408
Badger	490	750	600	230	330	290	80	149	375	760	78

^a Harvest estimates in this table, and the number of hunters and mean take per hunter in Table 4, 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 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.

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

^c Includes all types of small game licenses. Duplicate and free licenses not included.

^d Estimates based upon response of hunters to questionnaires.

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

^f No respondents indicated they hunted rails.

Table 3. Mail survey results of nonresident small game hunters, 2008-09 through 2018-19.

	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Nonresident licenses issued^a	7,114	6,934	6,695	6,312	6,456	6,031	6,056	6,755	6,701	6,854	6,718
Questionnaires:											
Number mailed	226	196	163	169	166	162	165	169	190	200	200
Number not delivered	15	10	6	11	11	10	12	5	15	19	16
Number (percent) returned	89 (42)	105 (54)	107 (66)	91 (54)	71 (43)	81 (50)	70 (42)	73 (43)	78 (41)	99 (50)	80 (40)
Estimated nonresidents and (percent) of all licensed nonresidents hunting:											
Ducks	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)	2,350 (34.3)	1,680 (25)
Canada goose	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)	1,730 (25.3)	1,260 (18.8)
Ruffed grouse	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)	2,280 (33.3)	2,270 (33.8)
Ring-necked pheasant	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)	1,520 (22.2)	2,350 (35)
Raccoon ^{b,c}	0 (0)	0 (0)	63 (0.9)	0 (0)	0 (0)	80 (1.2)	0 (0)	0 (0)	170 (2.6)	70 (1.0)	0
Estimated nonresident take:											
Ducks	15,463	11,755	17,055	13,840	20,380	20,410	13,060	16,863	17,701	15,717	15,792
Canada goose	5,762	3,698	6,334	4,050	2,270	3,650	2,680	1,484	1,462	6,994	2,940
Ruffed grouse	6,938	8,651	12,600	8,980	10,090	4,990	9,090	13,805	11,772	6,994	2,856
Ring-necked pheasant	10,642	6,274	8,076	4,860	6,820	3,430	3,720	6,581	4,040	7,274	6,048
Raccoon ^{b,c}	0	0	593	0	0	1,280	0	0	172	770	0

^a Excludes duplicate licenses and nonresident shooting preserve licenses.

^b In 2008, 2009, 2011, 2012, 2014, 2015 and 2018 no non-residents reported hunting/harvesting raccoons.

^c In 2013 and 2017 only one non-resident reported hunting/harvesting raccoons. The extrapolated estimate is not reliable.

Table 4. Estimated number of statewide hunters by species, 2008-09 through 2018-19.

	2008-09	2009-10	2010-11	2011-12 ^a	2012-13 ^a	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Ducks	81,358	77,480	72,770	76,090	80,770	76,950	75,170	76,243	67,301	63,426	61,618
Canada goose	59,222	55,520	53,430	57,220	58,900	51,160	48,240	45,938	40,950	44,678	38,278
Other geese	4,411	3,280	3,650	2,710	3,830	2,810	2,770	2,520	2,321	2,512	1,323
American coot	4,166	4,090	4,610	3,480	3,990	3,820	4,410	3,261	3,519	3,446	3,113
Common snipe	1,797	1,340	1,340	1,160	1,160	1,370	820	667	899	1,285	934
Rails / gallinules	408	370	220	230	500	140	300	445	75	234	n.a. ^b
Crow	10,047	10,640	9,380	10,360	11,480	8,570	7,400	7,410	7,412	11,564	4,669
American woodcock	12,171	11,760	10,790	9,430	13,310	12,030	9,650	12,596	12,877	12,615	10,737
Mourning dove	11,599	10,500	10,640	8,970	9,230	10,380	9,950	8,966	7,636	8,878	6,536
Ring-necked pheasant	106,763	99,440	89,140	72,840	76,950	62,110	57,590	63,350	59,965	45,263	55,861
Ruffed grouse	86,505	87,230	92,490	88,620	91,260	81,130	83,020	79,058	82,348	80,654	67,765
Spruce grouse	8,332	9,750	8,860	10,210	7,400	10,810	10,320	8,225	9,658	8,819	7,314
Sharp-tailed grouse	6,616	5,510	7,140	6,190	6,570	6,700	5,460	5,113	6,214	5,198	4,202
Gray partridge	4,411	4,240	3,720	2,400	3,080	2,450	2,540	2,075	2,097	2,103	1,479
Gray squirrel	22,382	22,260	23,740	23,280	24,710	21,690	21,240	22,303	23,806	20,967	17,972
Fox squirrel	13,233	13,180	15,630	12,060	14,220	12,030	12,790	13,411	13,625	11,798	9,803
Eastern cottontail	17,644	16,300	15,030	12,300	16,390	14,550	13,160	11,633	16,096	14,368	12,449
White-tailed jackrabbit	2,451	1,790	2,230	2,320	1,750	1,220	1,350	890	1,423	643	623
Snowshoe hare	4,574	3,500	3,800	3,250	4,820	3,750	4,560	4,076	3,369	4,439	2,101
Raccoon	7,433	7,300	8,260	8,040	8,570	7,640	6,880	5,632	5,840	8,936	4,746
Red fox	5,800	7,820	7,220	6,030	5,820	5,910	4,560	4,150	3,594	5,549	3,035
Gray fox	1,879	1,790	1,640	1,390	1,580	1,730	1,050	1,186	899	2,103	623
Coyote	19,278	19,280	19,420	17,940	21,050	17,650	17,580	18,302	15,871	22,193	14,394
Badger	490	370	600	310	330	500	80	297	375	701	234

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

^b No respondents indicated they hunted rails.

Table 5. Estimated harvest per active hunter by species, 2008-09 through 2018-19.

	2008-09	2009-10	2010-11	2011-12 ^a	2012-13 ^a	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Ducks	8.1	7.4	8.5	9.0	9.7	10.2	9.3	8.7	9.0	10.9	10.0
Canada geese	4.9	4.1	4.8	4.9	5.1	4.5	4.6	4.0	5.0	6.0	4.9
Other geese	3.2	1.9	1.1	1.8	2.3	2.5	2.4	1.8	3.1	3.2	1.2
American coot	5.7	3.6	5.7	3.0	4.2	4.0	3.9	4.9	6.1	5.8	3.4
Common snipe	1.2	1.1	1.4	1.2	1.2	1.7	0.6	0.3	2.2	1.5	1.5
Rails/gallinules	0.4	0.8	0.3	1.7	0.2	0.5	0.2	2.3	n.a. ^b	7.2	n.a. ^c
Crow	5.2	5.3	6.1	7.9	7.9	7.9	7.6	7.8	6.6	9.5	7.5
American woodcock	2.4	3.0	2.8	2.6	2.3	2.7	2.7	3.0	3.6	3.1	2.8
Mourning dove	11.4	10.5	9.4	8.2	10.0	7.8	10.4	10.8	7.7	9.9	8.4
Ring-necked pheasant	4.9	4.0	4.0	2.7	3.3	2.7	2.7	3.8	3.3	3.8	3.7
Ruffed grouse	3.7	4.1	5.0	4.3	3.7	3.6	3.6	3.4	3.8	3.5	2.9
Spruce grouse	2.0	2.0	1.7	1.8	1.6	1.2	1.4	1.2	1.6	1.4	1.0
Sharp-tailed grouse	2.1	1.7	2.4	1.9	1.6	1.1	1.6	1.6	1.4	2.1	1.4
Gray partridge	2.2	1.9	2.5	1.6	1.7	1.0	1.4	1.5	1.8	2.2	2.6
Gray squirrel	5.4	4.9	5.9	5.0	5.1	3.9	4.3	4.3	4.0	5.0	4.0
Fox squirrel	3.9	4.1	3.9	4.0	3.5	2.8	3.2	3.5	2.9	3.6	2.9
Eastern cottontail	4.5	3.5	3.6	2.8	3.9	2.8	2.9	3.6	3.1	3.3	2.6
White-tailed jackrabbit	2.6	1.5	3.2	2.2	1.1	1.5	0.8	0.8	0.8	0.9	1.0
Snowshoe hare	2.5	1.5	1.8	2.6	3.5	1.7	1.7	1.6	1.8	2.4	1.5
Raccoon	9.7	9.1	9.4	5.5	5.6	6.1	7.7	6.8	3.8	7.7	6.2
Red fox	0.8	1.3	1.2	1.2	1.4	0.9	0.7	0.9	0.6	1.7	0.6
Gray fox	1.3	1.0	1.5	0.8	0.2	0.2	0.6	0.7	0.2	1.8	0.1
Coyote	2.4	2.4	2.3	1.9	2.5	1.3	1.0	1.9	1.5	2.5	1.6
Badger	1.0	2.0	1.0	0.8	1.0	0.6	1.0	0.5	1.0	1.1	0.3

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

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

^c No respondents indicated they hunted rails.

Table 6. Mean harvest for successful hunters and hunter success rates (%), 2008-09 through 2018-19.

	2008-09	2009-10	2010-11	2011-12 ^a	2012-13 ^a	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Ducks	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)	12.5 (87)	11.3 (89)
Canada geese	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)	7.4 (81)	6.3 (77)
Other geese	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)	8.6 (37)	3.3 (35)
American coot	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)	8.1 (71)	5.3 (65)
Common snipe	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)	2.5 (59)	2.6 (58)
Rails / gallinules	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. ^b	14.5 (50)	n.a. ^c
Crow	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)	11.0 (86)	9.4 (80)
American woodcock	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)	4.5 (69)	4.4 (65)
Mourning dove	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)	11.6 (86)	10.2 (82)
Ring-necked pheasant	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)	5.5 (69)	5.4 (68)
Ruffed grouse	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)	4.8 (73)	4.3 (67)
Spruce grouse	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)	2.4 (57)	1.9 (50)
Sharp-tailed grouse	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)	4.0 (53)	3.0 (44)
Gray partridge	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)	4.3 (50)	4.5 (58)
Gray squirrel	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)	5.7 (89)	4.8 (83)
Fox squirrel	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)	4.3 (83)	3.6 (81)
Eastern cottontail	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)	4.0 (83)	3.6 (71)
White-tailed jackrabbit	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)	1.7 (55)	1.6 (62)
Snowshoe hare	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)	3.9 (63)	2.7 (56)
Raccoon	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)	8.2 (93)	7.4 (84)
Red fox	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)	2.6 (63)	1.2 (51)
Gray fox	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)	2.8 (64)	1.0 (12)
Coyote	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)	4.3 (59)	2.9 (53)
Badger	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)	1.6 (67)	1.0 (33)

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

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

^c No respondents indicated they hunted rails.