



2017 SMALL GAME HUNTER MAIL SURVEY

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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 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 2017-18 small game hunting season (N=243,130). A stratified random sample (n=7,000, 2.9%), 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=236,276) and "Nonresident" (N=6,854) (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 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 2017-18 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 Program R (ver. 3.5.0; R Development Core Team 2018).

RESULTS

License sales and survey response rate are shown in Figure 2. Of the 7,000 mailed surveys, 102 surveys were returned as undeliverable; 4,163 surveys were completed and returned for an adjusted response rate of 60%. The percent of respondents who said they hunted or did not hunt is reported in Table 1. This year marks the first time in the history of this survey that the percentage of license holders who indicated they hunted was <70% whereas those who bought a license but did not hunt was >30% (Table 1). Harvest trends for the four most sought-after small game species (ducks - all species, Canada geese, pheasants, and ruffed grouse) in Minnesota since 2002 are shown in Figure 3. Overall, small game license sales declined 3.8%

from the previous year (Fig. 2, Table 5). The estimated number of hunters increased for Canada goose, crows, raccoons, red foxes, gray foxes, and coyotes but declined for most other species (Table 2). Likewise, the estimated harvest per active hunter showed increases for crows (6.6 in 2016 to 9.5 in 2017), mourning doves (7.7 in 2016 to 9.9 in 2017), and raccoons (3.8 in 2016 to 7.7 in 2017) but remained relatively stable for all other species (Table 3). Mean harvest for successful hunters was up slightly for ducks (12.5 in 2017 compared to 10.9 in 2016) and raccoons (8.2 in 2017 compared to 4.1 in 2016) but all other species remained similar to 2016-2017 (Table 4). Hunter success rates showed no statistically significant changes from last year (Table 4). License sales and estimated hunter harvest are presented in Table 5. License sales continue to trend downward and are at their lowest level since 1976. Estimated harvest for ducks (all species) was 688,225. Canada goose harvest (267,192) was higher than it has been in four years. The crow harvest was estimated at 110,034 birds, and was the third highest harvest since 1989 when the season was established. Raccoon harvest was estimated at 68,685 animals, the highest it has been since 2010-11. Ring-necked pheasant harvest declined 14% with 171,883 roosters harvested in 2017-18 compared to 196,141 roosters the previous year. Ruffed grouse harvest declined slightly from 308,955 grouse in 2016 to 285,180 in 2017. Overall, nonresident license sales remained steady compared to 2016-17, as did the number of nonresident duck hunters and pheasant hunters (Table 6). Estimated nonresident hunters targeting Canada geese (1,730 hunters) were the highest since 2005 when there were 1,818 estimated hunters. Nonresident Canada goose harvest (6,994) surpassed the 1999 record harvest of 6,960. Ring-necked pheasant harvest by nonresidents was also up from the previous year (7,274 roosters in 2017 compared to 4,040 roosters taken in 2016) despite a similar number of estimated hunters.

ACKNOWLEDGMENTS

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

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 2017-2018 small game hunting season (**March 2017-February 2018**). We need information to estimate the season's harvest and to help set future small game seasons. Answer only for your Minnesota 2017 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

2017 Small Game Hunter Report

1. Did you hunt small game, listed below, in Minnesota this year (March 2017 - Feb 2018)? 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	_____	_____

Figure 1. Sample of Small Game Hunter survey card.

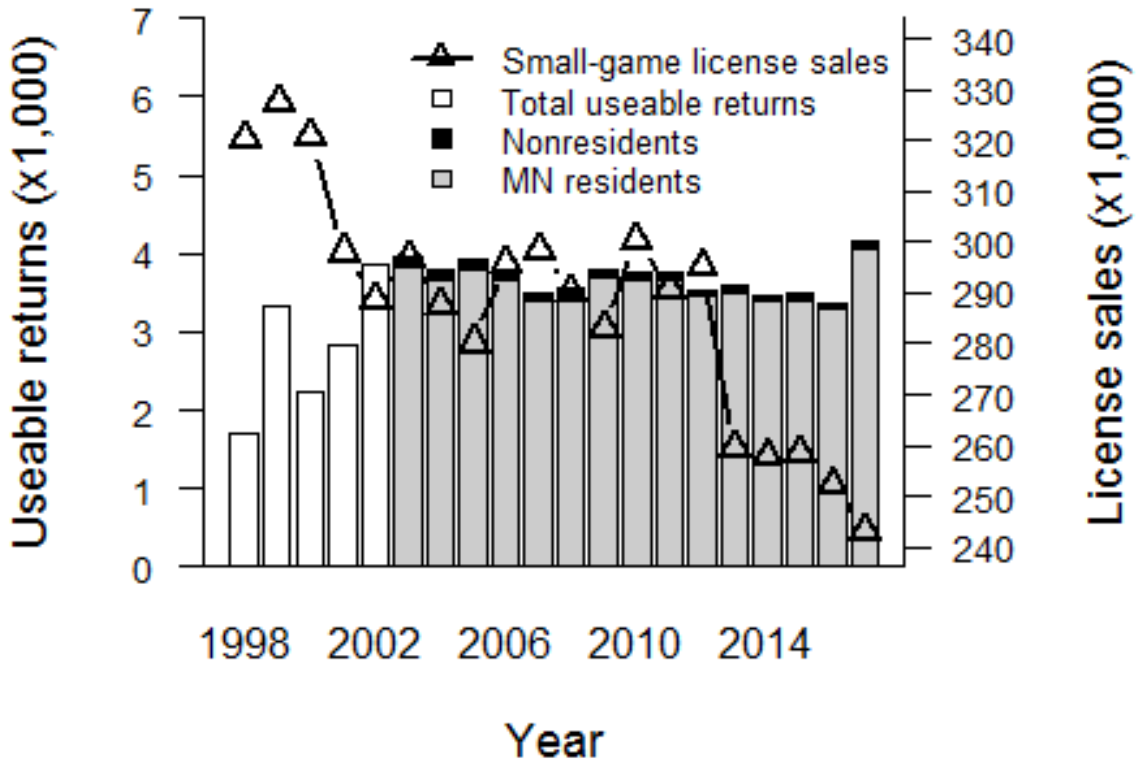


Figure 2. Number of Minnesota small game licenses sold and usable returned surveys, 1990-2017. Includes resident and non-resident licenses, and excludes duplicate and free licenses.

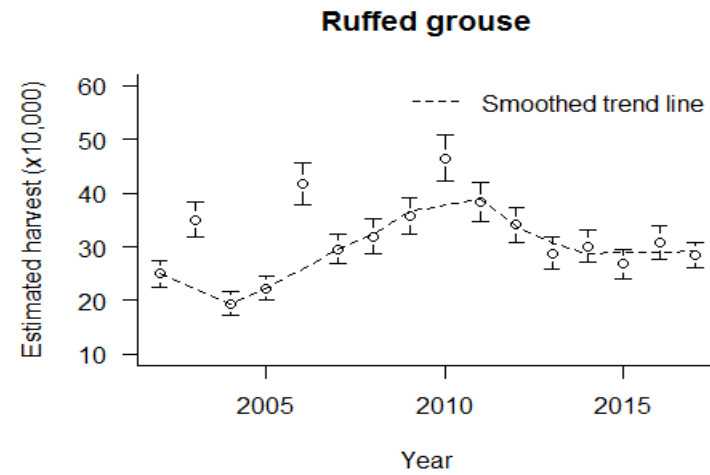
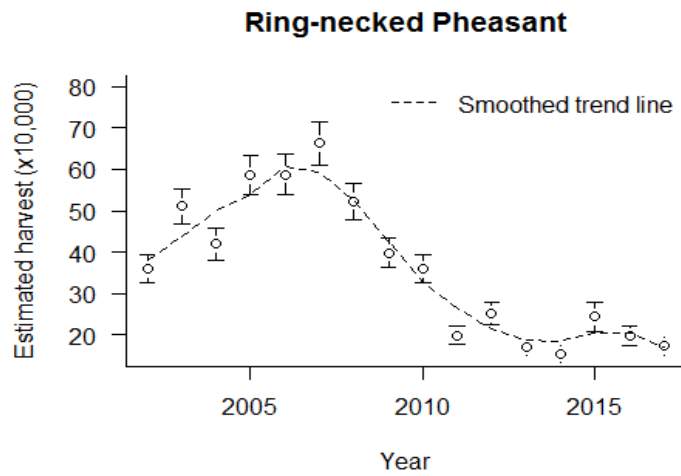
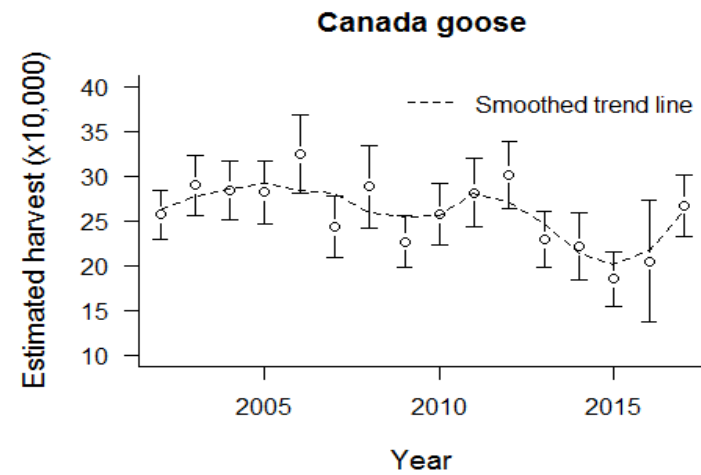
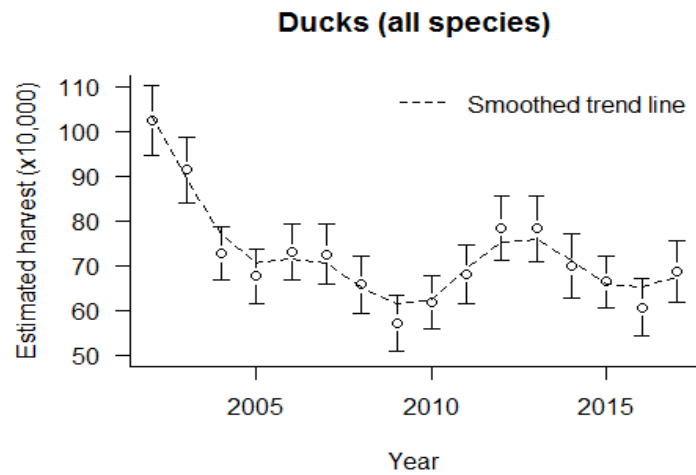


Figure 3. Harvest trends for top four small game species harvested in Minnesota, 2002-2017.

Table 1. Percent of respondents who hunted small game, 2007-08 through 2017-2018^a.

		Returns from mail survey	Projections from license sales
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
2017-18	Hunted	2,768 (66%)	161,658
	Did not hunt	<u>1,395 (34%)</u>	<u>81,472</u>
		4,163 (100%)	243,130

^a Includes 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, 2007-08 through 2017-18.

	2007-08	2008-09	2009-10	2010-11	2011-12 ^a	2012-13 ^a	2013-14	2014-15	2015-16	2016-17	2017-18
Ducks	87,468	81,358	77,480	72,770	76,090	80,770	76,950	75,170	76,243	67,301	63,426
Canada goose	62,649	59,222	55,520	53,430	57,220	58,900	51,160	48,240	45,938	40,950	44,678
Other geese	3,695	4,411	3,280	3,650	2,710	3,830	2,810	2,770	2,520	2,321	2,512
American coot	3,454	4,166	4,090	4,610	3,480	3,990	3,820	4,410	3,261	3,519	3,446
Common snipe	1,928	1,797	1,340	1,340	1,160	1,160	1,370	820	667	899	1,285
Rails / gallinules	482	408	370	220	230	500	140	300	445	75	234
Crow ^b	8,514	10,047	10,640	9,380	10,360	11,480	8,570	7,400	7,410	7,412	11,564
American woodcock	10,843	12,171	11,760	10,790	9,430	13,310	12,030	9,650	12,596	12,877	12,615
Mourning dove ^c	13,172	11,599	10,500	10,640	8,970	9,230	10,380	9,950	8,966	7,636	8,878
Ring-necked pheasant	118,311	106,763	99,440	89,140	72,840	76,950	62,110	57,590	63,350	59,965	45,263
Ruffed grouse	90,600	86,505	87,230	92,490	88,620	91,260	81,130	83,020	79,058	82,348	80,654
Spruce grouse	10,602	8,332	9,750	8,860	10,210	7,400	10,810	10,320	8,225	9,658	8,819
Sharp-tailed grouse	6,827	6,616	5,510	7,140	6,190	6,570	6,700	5,460	5,113	6,214	5,198
Gray partridge	6,667	4,411	4,240	3,720	2,400	3,080	2,450	2,540	2,075	2,097	2,103
Gray squirrel	25,863	22,382	22,260	23,740	23,280	24,710	21,690	21,240	22,303	23,806	20,967
Fox squirrel	14,779	13,233	13,180	15,630	12,060	14,220	12,030	12,790	13,411	13,625	11,798
Eastern cottontail	19,598	17,644	16,300	15,030	12,300	16,390	14,550	13,160	11,633	16,096	14,368
White-tailed jackrabbit	2,891	2,451	1,790	2,230	2,320	1,750	1,220	1,350	890	1,423	643
Snowshoe hare	4,257	4,574	3,500	3,800	3,250	4,820	3,750	4,560	4,076	3,369	4,439
Raccoon	9,558	7,433	7,300	8,260	8,040	8,570	7,640	6,880	5,632	5,840	8,936
Red fox	5,783	5,800	7,820	7,220	6,030	5,820	5,910	4,560	4,150	3,594	5,549
Gray fox	1,928	1,879	1,790	1,640	1,390	1,580	1,730	1,050	1,186	899	2,103
Coyote	16,064	19,278	19,280	19,420	17,940	21,050	17,650	17,580	18,302	15,871	22,193
Badger	482	490	370	600	310	330	500	80	297	375	701

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

^b Crow season added in 1989.

^c Mourning dove season added in 2004.

Table 3. Estimated harvest per active hunter by species, 2007-08 through 2017-18.

	2007-08	2008-09	2009-10	2010-11	2011-12 ^a	2012-13 ^a	2013-14	2014-15	2015-16	2016-17	2017-18
Ducks	8.1	8.1	7.4	8.5	9.0	9.7	10.2	9.3	8.7	9.0	10.9
Canada geese	3.9	4.9	4.1	4.8	4.9	5.1	4.5	4.6	4.0	5.0	6.0
Other geese	2.1	3.2	1.9	1.1	1.8	2.3	2.5	2.4	1.8	3.1	3.2
American coot	4.6	5.7	3.6	5.7	3.0	4.2	4.0	3.9	4.9	6.1	5.8
Common snipe	2.0	1.2	1.1	1.4	1.2	1.2	1.7	0.6	0.3	2.2	1.5
Rails/gallinules	5.3	0.4	0.8	0.3	1.7	0.2	0.5	0.2	2.3	n.a. ^b	7.2
Crow ^c	6.4	5.2	5.3	6.1	7.9	7.9	7.9	7.6	7.8	6.6	9.5
American woodcock	2.6	2.4	3.0	2.8	2.6	2.3	2.7	2.7	3.0	3.6	3.1
Mourning dove ^d	7.7	11.4	10.5	9.4	8.2	10.0	7.8	10.4	10.8	7.7	9.9
Ring-necked pheasant	5.5	4.9	4.0	4.0	2.7	3.3	2.7	2.7	3.8	3.3	3.8
Ruffed grouse	3.2	3.7	4.1	5.0	4.3	3.7	3.6	3.6	3.4	3.8	3.5
Spruce grouse	1.7	2.0	2.0	1.7	1.8	1.6	1.2	1.4	1.2	1.6	1.4
Sharp-tailed grouse	2.0	2.1	1.7	2.4	1.9	1.6	1.1	1.6	1.6	1.4	2.1
Gray partridge	1.6	2.2	1.9	2.5	1.6	1.7	1.0	1.4	1.5	1.8	2.2
Gray squirrel	5.2	5.4	4.9	5.9	5.0	5.1	3.9	4.3	4.3	4.0	5.0
Fox squirrel	3.2	3.9	4.1	3.9	4.0	3.5	2.8	3.2	3.5	2.9	3.6
Eastern cottontail	4.0	4.5	3.5	3.6	2.8	3.9	2.8	2.9	3.6	3.1	3.3
White-tailed jackrabbit	3.3	2.6	1.5	3.2	2.2	1.1	1.5	0.8	0.8	0.8	0.9
Snowshoe hare	1.4	2.5	1.5	1.8	2.6	3.5	1.7	1.7	1.6	1.8	2.4
Raccoon	4.9	9.7	9.1	9.4	5.5	5.6	6.1	7.7	6.8	3.8	7.7
Red fox	1.1	0.8	1.3	1.2	1.2	1.4	0.9	0.7	0.9	0.6	1.7
Gray fox	0.3	1.3	1.0	1.5	0.8	0.2	0.2	0.6	0.7	0.2	1.8
Coyote	2.1	2.4	2.4	2.3	1.9	2.5	1.3	1.0	1.9	1.5	2.5
Badger	0.3	1.0	2.0	1.0	0.8	1.0	0.6	1.0	0.5	1.0	1.1

^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 Crow season added in 1989.

^d Mourning dove season added in 2004.

Table 4. Mean harvest for successful hunters and hunter success rates (%), 2007-08 through 2017-18.

	2007-08	2008-09	2009-10	2010-11	2011-12 ^a	2012-13 ^a	2013-14	2014-15	2015-16	2016-17	2017-18
Ducks	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)	12.5 (87)
Canada geese	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)	7.4 (81)
Other geese	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)	8.6 (37)
American coot	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)	8.1 (71)
Common snipe	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)	2.5 (59)
Rails / gallinules	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. ^b	14.5 (50)
Crow ^c	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)	11.0 (86)
American woodcock	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)	4.5 (69)
Mourning dove ^d	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)	11.6 (86)
Ring-necked pheasant	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)	5.5 (69)
Ruffed grouse	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)	4.8 (73)
Spruce grouse	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)	2.4 (57)
Sharp-tailed grouse	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)	4.0 (53)
Gray partridge	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)	4.3 (50)
Gray squirrel	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)	5.7 (89)
Fox squirrel	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)	4.3 (83)
Eastern cottontail	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)	4.0 (3)
White-tailed jackrabbit	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)	1.7 (55)
Snowshoe hare	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)	3.9 (63)
Raccoon	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)	8.2 (93)
Red fox	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)	2.6 (63)
Gray fox	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)	2.8 (64)
Coyote	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)	4.3 (59)
Badger	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)	1.6 (67)

^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 Crow season added in 1989.

^d Mourning dove season added in 2004.

Table 5^a. Statewide (resident and non-resident) small game hunting license sales and estimated hunter harvest, 2007-08 through 2017-18.

	2007-08	2008-09	2009-10	2010-11	2011-12 ^b	2012-13 ^b	2013-14	2014-15	2015-16	2016-17	2017-18
Small game license sales ^c	298,467	290,064	282,983	282,227	271,768	264,063	258,581	258,109	258,208	252,358	243,130
State duck stamp sales	100,134	95,675	89,942	88,069	89,681	90,052	93,412	94,265	92,176	88,905	86,258
Pheasant stamp sales	129,315	123,270	110,456	104,286	86,868	90,541	77,597	74,295	77,750	76,920	71,925
Estimated harvest^d											
Ducks	708,491	658,186	572,220	619,600	681,550	784,360	782,810	699,620	663,811	606,458	688,225
Canada geese	243,705	288,411	227,160	257,530	281,630	301,550	229,120	221,620	185,012	204,825	267,192
Other geese	7,723	13,895	6,250	3,940	4,800	8,820	7,130	6,510	4,448	7,188	8,062
American coot	16,061	23,871	14,810	26,340	10,520	16,720	15,130	17,050	15,861	21,564	19,976
Common snipe	3,933	2,210	1,490	1,940	1,390	1,420	2,310	520	223	1,948	1,928
Rails / gallinules	2,569	163	300	80	390	80	70	80	1,039	n.a. ^e	1,697
Crow ^f	54,319	51,742	56,350	57,300	81,500	90,260	67,440	56,020	57,576	48,590	110,034
American woodcock	27,866	29,210	35,430	29,770	24,980	30,360	31,920	25,810	37,270	46,867	38,546
Mourning dove ^g	101,161	132,577	109,940	100,230	74,000	92,760	80,480	103,370	96,552	58,618	88,021
Ring-necked pheasant	655,443	522,071	398,130	359,400	198,500	250,140	169,100	152,800	243,176	196,141	171,883
Ruffed grouse	293,544	318,338	357,420	465,580	383,150	341,320	288,410	301,190	267,997	308,955	285,180
Spruce grouse	17,705	16,997	19,130	14,960	18,640	11,980	13,110	14,590	9,856	15,348	12,032
Sharp-tailed grouse	13,790	13,695	9,530	16,820	11,600	10,650	7,130	8,530	7,929	8,610	11,097
Gray partridge	11,000	9,660	8,040	9,150	3,950	5,160	2,380	3,590	3,187	3,745	4,557
Gray squirrel	133,194	121,534	109,790	138,920	115,840	126,110	84,010	91,250	96,400	95,374	105,712
Fox squirrel	47,736	51,079	53,970	61,690	48,100	49,750	33,940	40,840	46,383	39,603	41,994
Eastern cottontail	78,588	79,927	57,760	53,870	34,640	64,140	40,710	38,820	41,716	49,187	47,135
White-tailed jack rabbit	9,482	6,446	2,610	7,220	5,180	1,910	1,870	1,050	742	1,124	585
Snowshoe hare	5,789	11,343	5,360	6,770	8,430	16,800	6,200	7,860	6,374	5,990	10,864
Raccoon	46,739	72,026	66,700	77,690	44,080	48,340	46,690	52,800	38,387	22,312	68,685
Red fox	6,188	4,408	10,270	8,780	7,120	7,990	5,190	3,220	3,780	2,247	9,229
Gray fox	559	2,443	1,860	2,380	1,160	250	430	600	816	225	3,798
Coyote	34,377	45,689	46,070	44,050	33,410	51,990	23,630	17,430	35,123	24,481	56,184
Badger	159	490	750	600	230	330	290	80	149	375	760

^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 Crow season added in 1989.

^g Mourning dove season added in 2004.

Table 6. Mail survey results of nonresident small game hunters, 2007-08 through 2017-18.

Nonresident licenses issued^a	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
	7,858	7,114	6,934	6,695	6,312	6,456	6,031	6,056	6,755	6,701	6,854
Questionnaires:											
Number mailed	185	226	196	163	169	166	162	165	169	190	200
Number not delivered	11	15	10	6	11	11	10	12	5	15	19
Number (percent) returned	101 (58)	89 (42)	105 (54)	107 (66)	91 (54)	71 (43)	81 (50)	70 (42)	73 (43)	78 (41)	99 (50)
Estimated nonresidents and (percent) of all licensed nonresidents hunting:											
Ducks	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)	2,350 (34.3)
Canada goose	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)	1,730 (25.3)
Ruffed grouse	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)	2,280 (33.3)
Ring-necked pheasant	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)	1,520 (22.2)
Raccoon ^{b,c}	78 (1.0)	0 (0)	0 (0)	63 (0.9)	0 (0)	0 (0)	80 (1.2)	0 (0)	0 (0)	170 (2.6)	70 (1.0)
Estimated nonresident take:											
Ducks	22,718	15,463	11,755	17,055	13,840	20,380	20,410	13,060	16,863	17,701	15,717
Canada goose	3,501	5,762	3,698	6,334	4,050	2,270	3,650	2,680	1,484	1,462	6,994
Ruffed grouse	7,236	6,938	8,651	12,600	8,980	10,090	4,990	9,090	13,805	11,772	6,994
Ring-necked pheasant	17,661	10,642	6,274	8,076	4,860	6,820	3,430	3,720	6,581	4,040	7,274
Raccoon ^{b,c}	3,268	0	0	593	0	0	1,280	0	0	172	770

^a Excludes duplicate licenses and nonresident shooting preserve licenses.

^b In 2008, 2009, 2011, 2012, 2014, and 2015 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.