

## **Prairie-chicken harvest in Minnesota during 2012**

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### **INTRODUCTION**

Hunting seasons for greater prairie-chickens (*Tympanuchus cupido pinnatus*) in Minnesota were closed from 1943 through 2002. During October 2003 a limited-entry, 5-day hunting season for prairie-chickens was held within 7 contiguous permit areas in western Minnesota. Opportunities to purchase a hunting permit were awarded through a lottery system, and each licensed hunter could harvest a maximum of 2 prairie-chickens. The same format for prairie-chicken hunting seasons has been implemented annually since 2003. The only changes that have occurred were adding 4 new permit areas in 2006 (Figure 1), increasing the quota of hunters in some permit areas, and selling surplus licenses after the lottery beginning in 2011.

Only residents of the state are eligible to hunt prairie-chickens in Minnesota. Residents who are an owner or tenant of  $\geq 40$  acres of grassland within a permit area may apply to the lottery as a "landowner." Twenty percent of the available permits in a permit area are awarded in a lottery consisting of only landowner applicants. Any permits not awarded in the landowner lottery are then included with the other 80% of available permits to be awarded in a subsequent lottery for regular applicants. Any landowners who are unsuccessful in the landowner lottery are also included in the subsequent lottery. The permits within each permit area are awarded first to people who have applied the greatest number of years since last winning a permit.

Lottery winners must purchase a prairie-chicken hunting permit (i.e., license) before they hunt prairie-chickens. Permit areas 804A–811A (i.e., those south of U.S. Highway 2) are in an area of the state that is closed to the hunting of sharp-tailed grouse (*Tympanuchus phasianellus*). Licensed prairie-chicken hunters in those permit areas, however, are allowed to take a regular bag limit of sharp-tailed grouse while hunting prairie-chickens.

The objective of the hunter survey described below is to document results of prairie-chicken hunting seasons.

### **METHODS**

The Electronic Licensing System (ELS) automatically recorded all lottery applications, lottery results, and purchases of permits. Prairie-chicken hunters are not required to register their harvested birds in the ELS, so during the week before the hunting season I sent a postcard survey by mail to all people who were successful in the lottery. Approximately 3 weeks later I

sent the postcard survey a second time to people who had not responded to the first mailing. Inadvertently, however, I failed to send postcard surveys to people who purchased surplus permits for permit areas in which there were fewer lottery applicants than permits available. The survey consisted of the following 5 questions: did you hunt, how many days did you hunt, how many prairie-chickens did you bag, how many sharp-tailed grouse did you bag while hunting for prairie-chickens, and how satisfied were you with the hunt?

To summarize hunting results for this report I used only responses from lottery winners who purchased a hunting permit. To ensure that responses from people who replied to the first mailing were similar to responses from people who replied to the second mailing I compared averages visually but not with a statistical test. Then, to estimate the numbers of hunters and birds harvested, I assumed that nonrespondents would have had the same average response as all those who responded to either mailing of the survey. I calculated all estimates by permit area and summed across permit areas to estimate totals for the entire prairie-chicken range.

## **RESULTS & DISCUSSION**

One hundred eighty-six prairie-chicken hunting permits were available during 2012. There were 179 lottery winners (Table 1), and 6 of them were landowners. There were fewer applicants than there were permits available in 3 of the 11 permit areas. One hundred fifty-one lottery winners purchased permits, and 11 others purchased surplus permits. Although there were 162 permit purchasers in 2012, inadvertently I did not send surveys to the purchasers of surplus permits. One hundred twenty-five purchasers who were surveyed (83%) responded to the first mailing of the survey, and 18 (12%) responded to the second mailing, so the response rate among those surveyed was 95% (i.e., 143 of 151).

Four purchasers who responded to the survey reported that they did not hunt (3%), and 139 respondents reported hunting. Given that 162 people purchased permits, there were an estimated 158 hunters (i.e., purchasers who went afield; Table 2). Hunters hunted an average of 2.4 days during the 5-day season (20–24 October 2012). Surveyed hunters reported harvesting 79 prairie-chickens, and the estimated total harvest was 86 prairie-chickens (Table 2). I estimated that 62 of the 158 hunters bagged at least 1 prairie-chicken (39%, Table 2). The average rating for hunter satisfaction on a 1–5 scale was 3.4 (median = 4), and 78% of the 140 respondents to this question reported a satisfaction level of 3 or greater.

The prairie-chicken harvest and hunter success rate during 2012 were less than during 2011 and 18–26% less than averages from sets of previous years (e.g., the modern hunting era = 2003–2011, years with >180 permits = 2006–2011; Table 3). This is consistent with a

declining trend in spring survey counts since 2007. As I have reported in previous prairie-chicken harvest reports, there was a moderate degree of correlation between the total number of males observed in survey blocks during spring and total harvest during the fall (Kendall's  $\tau = 0.6$ ,  $n = 5$  years [2006–2010]). The correlation coefficient ( $\tau$ ) is on a 0–1 scale and is not closer to 1 because (1) survey counts are not a perfect reflection of spring bird densities, (2) reproductive success (i.e., the number of juvenile birds in the fall population per adult in the spring population) varies from year to year, and (3) factors other than bird density contribute to annual variation in hunter success (e.g., weather conditions during the hunting season).

Prairie-chicken hunters reported bagging 23 sharp-tailed grouse while hunting prairie-chickens during 2012, and the estimated total harvest of sharp-tailed grouse by prairie-chicken hunters was 25. The reported sharp-tailed grouse were harvested from permit areas 802A through 808A, with the most (i.e., 6 or 7) coming from 803A, 805A, and 806A and none coming from 807A (Figure 1).

## **ACKNOWLEDGEMENTS**

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Table 1. Results of the lottery for prairie-chicken hunting permits in Minnesota during 2012.

Permit area	Permits available	No. of applicants	Lottery winners		Permit purchasers <sup>a</sup>		Surplus purchasers <sup>c</sup>
			No. <sup>b</sup>	Proportion	No.	Proportion	
801A	10	8	8	1.00	7	0.88	0
802A	10	13	11	0.85	10	0.91	0
803A	10	9	9	1.00	8	0.89	1
804A	17	7	7	1.00	7	1.00	10
805A	20	54	20	0.37	19	0.95	0
806A	17	24	19	0.79	17	0.89	0
807A	25	53	25	0.47	25	1.00	0
808A	20	35	20	0.57	19	0.95	0
809A	20	33	22	0.67	12	0.55	0
810A	27	47	27	0.57	21	0.78	0
811A	10	15	11	0.73	6	0.55	0
All	186	298	179	0.60	151	0.84	11

<sup>a</sup> Number and proportion of lottery winners who purchased a permit.

<sup>b</sup> More permits than were available may be awarded in a permit area when the last applicant selected in the lottery applied as a member of a hunting party.

<sup>c</sup> Number of people who purchased a surplus permit after the lottery because there were fewer applicants than there were permits available.

Table 2. Hunter harvest of prairie-chickens in Minnesota during 2012.

Permit area	No. of hunters <sup>a</sup>		Birds harvested		Birds per harvester <sup>b</sup>	Success rate <sup>c</sup>
	Self-reported	Estimated	Self-reported	Estimated		
801A	7	7	1	1	1.0	0.14
802A	10	10	4	4	1.3	0.30
803A	8	9 <sup>d</sup>	3	3	1.5	0.22
804A	7	17 <sup>d</sup>	0	0	NA	0.00
805A	18	19	10	11	1.4	0.42
806A	16	17	12	13	1.3	0.59
807A	21	22	13	14	1.8	0.36
808A	16	18	14	16	1.3	0.67
809A	11	12	11	12	1.5	0.67
810A	19	21	9	10	1.1	0.43
811A	6	6	2	2	2.0	0.17
All	139	158	79	86	1.4	0.39

<sup>a</sup> Number of permit purchasers who actually went hunting.

<sup>b</sup> Estimated number of prairie-chickens harvested per successful hunter.

<sup>c</sup> Proportion of estimated hunters who harvested  $\geq 1$  prairie-chicken.

<sup>d</sup> Purchasers of surplus permits in permit areas 803A ( $n = 1$ ) and 804A ( $n = 10$ ) were inadvertently not surveyed.

Table 3. Annual summary of prairie-chicken hunting results in Minnesota during 2003–2012.

Year	Permits available	Applicants	Hunters <sup>a</sup>	Birds harvested	Success rate <sup>b</sup>	Hunter satisfaction <sup>c</sup>
2003	100	853	92	130	0.75	4.4
2004	101	759	87	58	0.45	3.6
2005	110	500	86	94	0.63	4.0
2006	182	512	149	109	0.49	3.6
2007 <sup>d</sup>	187	519		122	0.53	
2008	186	535	137	133	0.58	3.9
2009	186	512	143	118	0.52	3.4
2010	186	421	136	78 <sup>e</sup>	0.32	3.0
2011	186	264	138	103	0.45	3.4
2012	186	298	158	86	0.39	3.4

<sup>a</sup> Estimated number of people who went hunting, not the number of permit purchasers.

<sup>b</sup> Proportion of hunters who harvested  $\geq 1$  prairie-chicken.

<sup>c</sup> Average on a 1–5 scale.

<sup>d</sup> No hunter survey was conducted for the 2007 season; results are from the Electronic Licensing System only, which had 150 permit purchasers.

<sup>e</sup> One hunter reported harvesting 10 prairie-chickens during 2010.

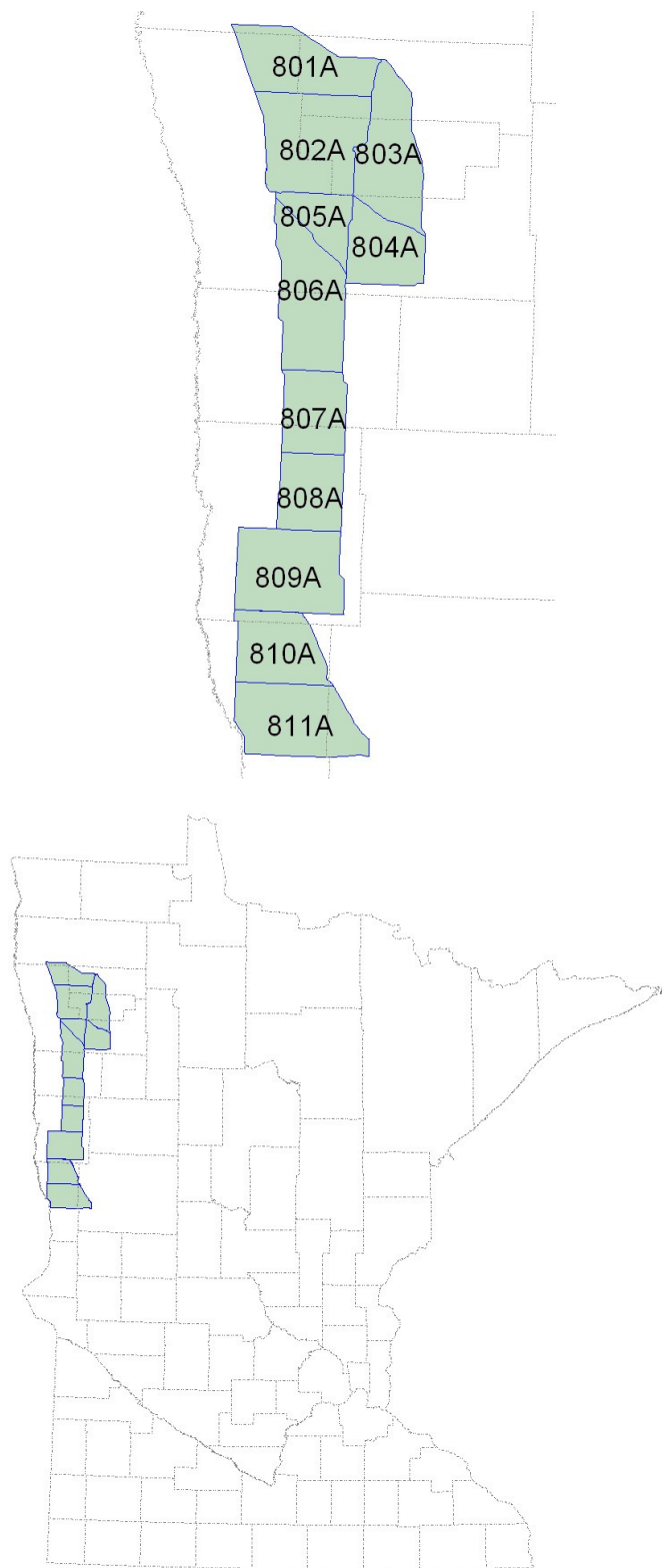


Figure 1. Map of permit areas for prairie-chicken hunting in Minnesota (top) and their location relative to counties within the state (bottom).