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**2011 PRAIRIE DOG
SHOOTING SURVEY**

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2011 Prairie Dog Shooting Survey

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Summary

Residents and nonresidents with 2011 predator/varmint or small game licenses were surveyed for their shooting participation and kill of prairie dogs from January through December 2011. The 2011 survey process was much more extensive than surveys conducted in 1999-2001, primarily due to an increase in sample size. The final sample size in 2011 was 37,051 license holders with 14,345 returned for an overall response of 39%.

An estimated 7,448 residents and 7,032 nonresidents participated in prairie dog shooting in South Dakota in 2011 producing an estimated 40,368 recreation days for residents and 23,665 recreation days for nonresidents. An estimated 1,503,515 prairie dogs were killed by licensed shooters in 2011.

Residents averaged 5.46 days of prairie dog shooting while nonresidents averaged 3.43 days. Prairie dog shooting by residents mostly occurred during the summer months as did shooting by nonresidents with a predator/varmint license. However, nonresidents with a small game license did most of their shooting in October and November.

The highest reported kill in the state was in Corson, Mellette, Dewey, Perkins and Ziebach counties and comprised 41% of total Small Game and Predator/Varmint license kill. Residents and nonresidents primarily utilized private land while shooting prairie dogs.

The majority of residents and nonresidents reported using lead-type bullets when shooting prairie dogs in 2011. Approximately 11% to 21% reported exclusively using bullets that were lead-free.

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PRAIRIE DOG SHOOTING IN SOUTH DAKOTA

INTRODUCTION

The purpose of this survey was to learn about prairie dog shooting in South Dakota to: 1) estimate total participation in terms of number of participants and number of days of shooting; 2) estimate total number of prairie dogs killed by shooters; and 3) learn when and where prairie dog shooting occurs. This information will be used to make decisions about possible regulations concerning prairie dog shooting in South Dakota and as baseline information on prairie dog shooting in South Dakota.

Prairie dogs can be shot in South Dakota by anyone who has a valid hunting license of any type or by hunters with a specific Resident Predator/Varmint License (\$5) or Nonresident Predator/Varmint License (\$35), or by resident landowners and their immediate family on their own land. Prairie dog shooting was prohibited year-round on the Buffalo Gap National Grassland in the Conata Basin. The types of small/general game licenses commonly purchased for prairie dog shooting include: Resident Small Game (\$29), Resident Combination (\$49), Resident Youth Small Game (\$5), Resident Junior Combination (\$25), Nonresident Small Game (\$110), and Nonresident Youth Small Game (\$10).

Native American tribes in South Dakota require a special license for shooting prairie dogs on tribal-owned land within their respective reservations, and the season dates for prairie dog shooting were variable among tribes. A license that allowed prairie dog shooting on the Cheyenne River reservation for a non-member/nonresident was \$85 for the season, on the Pine Ridge reservation was \$80 for annual, on the Rosebud reservation was \$80 for annual, \$60 for 3-day, on the Lower Brule reservation was \$150 for the season or \$50 for one day, on the Crow Creek reservation was \$82 for annual, and on the Standing Rock reservation was \$50 for annual resident non-member and \$75 for annual nonresident non-member. The Yankton tribe did not appear to have any special tribal licenses.

A study done in 2008 by Kempema et al. (2009) estimated 630,849 acres (985.7 square miles) of prairie dog colonies in South Dakota with the highest number of acres located in Dewey, Shannon, Pennington, Mellette and Todd counties (Figure 1, Tables 1 and 2).

METHODS

This survey was designed to provide a comprehensive estimate of prairie dog shooting in South Dakota. Part one of the process included an email survey of resident and nonresident hunters who purchased a Predator/Varmint license or a small game license. Part two included sending mail surveys to a random sample of hunters who were sent an email survey but did not respond and also to hunters who did not provide an email address when they purchased their license. The objective of part two was to account for non-response and/or sample method biases. Sample sizes for parts one and two are listed in Tables 3 and 4. Residents and nonresidents received the same questionnaire. The email questionnaire was mailed on February 14, 2012 with one reminder on February 21 and a final reminder on February 24. The email survey was open for response until mid June, when data analysis began.

The first round of paper surveys for the email non-response and no-email samples were mailed on March 16, 2012. Second, third and fourth mailings were made to non-respondents at approximately 3-week intervals. Recipients also had the option of responding via the SDGFP website. Overall, 11.2% of paper survey responses were received through the website. Responses that were received through the mail were encoded at the SDGFP office in Pierre.

To make estimates of total participation and total prairie dog kill a number of assumptions and adjustments were made. Prairie dog shooting with a big game license was assumed to be negligible because most big game hunters also purchase a small game license (and thus would already be included in the estimates), do not know they can legally shoot prairie dogs, and because most big game licenses are not available until fall when little prairie dog shooting occurs.

Another assumption is that shooters can accurately recall the number of days they shoot prairie dogs and the total number of prairie dogs they killed in a year.

Response rates for the different sample groups ranged from 24% to 87%. In this estimate nonresponse to the email survey was assumed to be similar to those that did not respond to the email survey but later responded to the paper survey. However, one typical reason for why people do not respond is that they did not spend any time shooting prairie dogs and therefore felt that the survey did not apply to them. This type of bias would over-estimate the prairie dog kill by shooters. Collection method bias was accounted for using the participation rates reported by the sample of license holders that did not provide an email address when they purchased their license. The respondents in all license categories who responded to the email survey indicated higher participation rates than respondents who did not respond to the email survey but later responded to the paper survey. Resident respondents who did not list an email address and responded to the paper survey also indicated lower participation rates than the email respondents; however, nonresident respondents who did not list an email address indicated similar participation rates to the email respondents.

For this survey, all predator/varmint license holders were grouped together regardless of whether they also had a small game license. The small game license holder pool consisted only of hunters who did not also have a predator/varmint license.

RESULTS

Results – Part 1 – Prairie dog shooting with a predator/varmint license

The final sample size for the resident survey of the predator/varmint license was 547 and 473 questionnaires were returned for an 86.5% return rate (Table 5). Final sample size for the nonresident survey of the predator/varmint License was 1,566 and 958 questionnaires were returned for a 76.4% return rate (Table 5).

About 32% of the residents and 84% of the nonresidents did some prairie dog shooting in South Dakota in 2011 (Table 5). Residents averaged 5.67 days of shooting and nonresidents averaged 3.63 days of shooting (Table 6). Prairie dog shooting by residents increased in May and is relatively high through September while shooting by nonresidents also increased in May and peaked in June (Figure 2). Residents indicated shooting prairie dogs over an average of 1.2 months and nonresidents over an average of 2.2 months (Table 7).

Residents averaged 107 prairie dogs killed (median value = 50) and nonresidents averaged 171 (median value = 100) (Table 8). Approximately 15% of residents and 31% of nonresidents reported killing 200 or more prairie dogs. Both residents and nonresidents did the majority of their prairie dog shooting on private land (66% and 77%; respectively) (Table 9). Residents spent about 30% of their total shooting on public land and about 4% on tribal land. Nonresidents spent about 16% of their total shooting on public land and about 6% on tribal land.

The majority of residents and nonresidents reported exclusively using bullets containing lead (59% and 66% respectively), while 20% of residents and 21% of nonresidents used a combination of both lead and lead-free bullets, and 21% of residents and 13% of nonresidents reported exclusively using lead-free bullets only (Table 10).

Approximately 18% of residents and 4% of nonresidents who had a 2011 predator/varmint license also had a small game license.

Results – Part 2 – Prairie dog shooting with a small game license

The final sample size for the resident survey of the Combination License was 5,567 with 2,112 questionnaires returned for a 37.9% return rate (Table 5). Final sample size for the resident survey of the Small Game License was 5,561 with 1,871 questionnaires returned for a 33.6% return rate. Final sample

size for the resident survey of the Youth Small Game License was 1,859 with 659 questionnaires returned for a 35.4% return rate. Final sample size for the resident survey of the Junior Combination License was 1,809 with 427 questionnaires returned for a 23.6% return rate.

The final sample size for the nonresident survey of the Small Game License was 19,269 with 7,172 questionnaires returned for a 37.2% return rate (Table 3). Final sample size for the nonresident survey of the Youth Small Game License was 873 with 435 questionnaires returned for a 49.8% return rate.

The Combination, Resident Small Game, Resident Youth Small Game, Junior Combination, Nonresident Small Game and Nonresident Youth Small Game Licenses are generally purchased for small game hunting but also permit prairie dog shooting. A reported 15% of the Combination License holders, 10% of the Resident Small Game License holders, 14% of the Resident Youth Small Game License holders, 11% of the Junior Combination License holders, 5% of the Nonresident Small Game License holders, and 9% of the Nonresident Youth Small Game License holders did some prairie dog shooting in South Dakota in 2011 (Table 5).

Average number of days shooting prairie dogs with Resident Combination, Resident Small Game, Resident Youth Small Game, Resident Junior Combination, Nonresident Small Game and Nonresident Youth Small Game licenses was 4.67, 6.35, 5.12, 7.30, 2.93 and 2.81; respectively (Table 11). Prairie dog shooting by residents with small game licenses (Combination, Resident Small Game, Resident Youth Small Game, and Junior Combination Licenses) was relatively similar to Predator/Varmint license holders, with the most of the shooting occurring during the summer months (Figure 3). Hunters with the Nonresident Small Game License did most of their shooting in October, which happened to coincide with the opening of pheasant season (Figure 3). Residents indicated shooting prairie dogs over an average of 2.3 months and nonresidents over an average of 1.2 months (Table 12).

Residents with the Combination License averaged 88 prairie dogs killed, residents with the Small Game License averaged 86 prairie dogs killed, residents with the Youth Small Game License averaged 60 prairie dogs killed, and residents with the Junior Combination License averaged 59 prairie dogs killed (Table 5). Nonresidents with the Small Game License averaged 45 prairie dogs killed and nonresidents with the Youth Small Game License averaged 57 prairie dogs killed. Residents as a whole averaged 81 prairie dogs killed (median = 20) and nonresidents averaged 46 prairie dogs killed (median = 10) (Table 13). Approximately 11% of residents and 7% of nonresidents reported killing 200 or more prairie dogs.

Both residents and nonresidents did the majority of their prairie dog shooting on private land (78% and 81%; respectively) (Table 14). Residents spent about 17% of their total shooting on public land and about 4% on tribal land. Nonresidents spent about 11% of their total shooting on public land and about 8% on tribal land.

The majority of residents and nonresidents reported exclusively using bullets containing lead (69% of each), while 20% of residents and 16% of nonresidents used a combination of both lead and lead-free bullets, and 11% of residents and 14% of nonresidents reported exclusively using lead-free bullets only (Table 15).

Results – Part 3 – Estimates of prairie dog shooting participation and kill

Hunters with a predator/varmint license spent an estimated 17,988 recreation days prairie dog shooting and killed an estimated 791,457 prairie dogs (37,500 by residents, 753,957 by nonresidents) (Table 5). Resident hunters with a small game license (Combination, Resident Small Game, Resident Youth Small Game, and Junior Combination) spent an estimated 38,379 recreation days prairie dog shooting and killed an estimated 591,500 prairie dogs. Nonresident hunters with one of the small game licenses (Nonresident Small Game and Nonresident Youth Small Game) spent an estimated 7,667 recreation days prairie dog shooting and killed an estimated 120,557 prairie dogs.

The five counties with the highest reported shooter numbers were Pennington, Tripp, Mellette, Meade and Dewey, comprising 34% of total Small Game and Predator/Varmint licensed shooters (Figure 4, Table 16). The five counties with the highest Nonresident Predator/Varmint license reported shooter numbers were Mellette, Tripp, Stanley, Dewey and Perkins, comprising 37% of shooters (Figure 5, Table 17).

The five counties with the highest reported kill numbers were Corson, Mellette, Dewey, Perkins and Ziebach, comprising 41% of total Small Game and Predator/Varmint license kill (Figure 6, Table 16). The five counties with the highest Nonresident Predator/Varmint license reported kill numbers were Corson, Mellette, Dewey, Ziebach and Perkins, comprising 42% of kill (Figure 7, Table 17). The five counties with the highest reported average kill numbers were Shannon, Ziebach, Corson, Bennett, and Perkins, ranging from 225.4 to 143.6 prairie dogs per shooter (Figure 8, Table 16).

Discussion

The 2011 survey process was much more extensive than that conducted in 1999-2001, primarily due to an increase in sample size (Gigliotti 2000, 2001, 2002). Increasing sample size allowed the estimation of prairie dog shooting participation and kill to the county level with an acceptable level of precision. The final sample size in 2001 was 1,921 license holders with 1,591 surveys returned and in 2011 was 37,051 license holders with 14,345 returned.

Three possible sources of survey error could be hunters confusing ground squirrels with prairie dogs (this would over-estimate the prairie dog kill), recall bias (this could either under- or over-estimate the prairie dog kill but recall bias of this nature tends to over-estimate the true value) and nonresponse bias (this will most likely over-estimate the prairie dog kill. Nonresponse to the email survey was accounted for by assuming participation rate to be similar to those that did not respond to the email survey but later responded to the paper survey. Collection method bias was accounted for using the participation rates reported by the sample of license holders that did not provide an email address when they purchased their license.

In summary, 7,448 residents and 7,032 nonresidents participated in prairie dog shooting in South Dakota in 2011 compared to 10,316 residents and 5,695 nonresidents in 2001. Prairie dog shooting produced an estimated 40,368 recreation days for residents and 23,665 recreation days for nonresidents in 2011, compared to 54,849 days and 20,210 days respectively in 2001. An estimated 1,503,515 prairie dogs were killed by licensed shooters in 2011 compared to 1,607,786 in 2001 (Table 18).

The highest reported kill in the state was in Corson, Mellette, Dewey, Perkins and Ziebach counties and comprised 41% of total Small Game and Predator/Varmint license kill. Due to an inability to sample at the county level, some estimates of kill at the county level have wide confidence intervals and the numbers listed may not be representative of the true values. Since sample proportions between counties were variable, they may not be representative of the populations within them.

Residents averaged 5.46 days of prairie dog shooting while nonresidents averaged 3.43 days, both of which are lower than the 9.65 days and 3.80 days reported in 2001. Prairie dog shooting by residents mostly occurred during the summer months as did shooting by nonresidents with a predator/varmint license. However, nonresidents with a small game license did most of their shooting in October and November, which coincides with pheasant season.

As in 2001, residents and nonresidents utilized primarily private land while shooting prairie dogs. The majority of residents and nonresidents reported using lead-type bullets when shooting prairie dogs in 2011. Approximately 11% to 21% reported exclusively using bullets that were lead-free.

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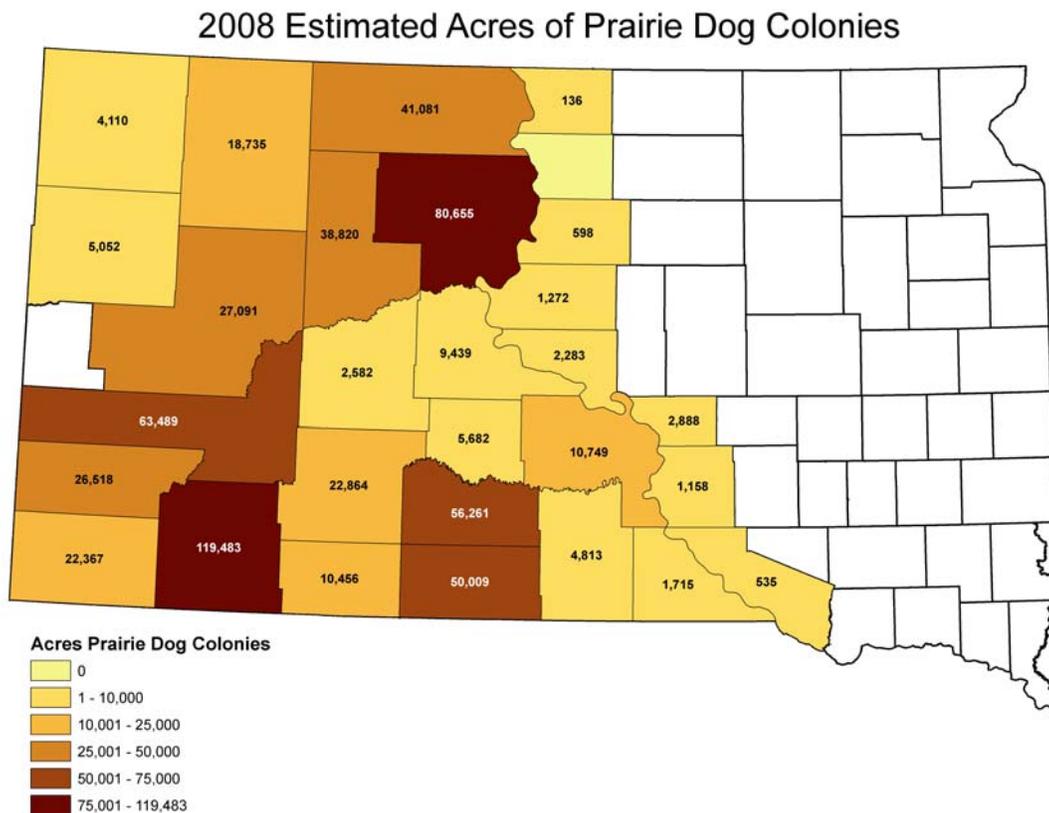


Figure 1. Estimated acres of prairie dog colonies in South Dakota in 2008 (unshaded areas were not surveyed for prairie dog colonies) (from Kempema et al 2009)

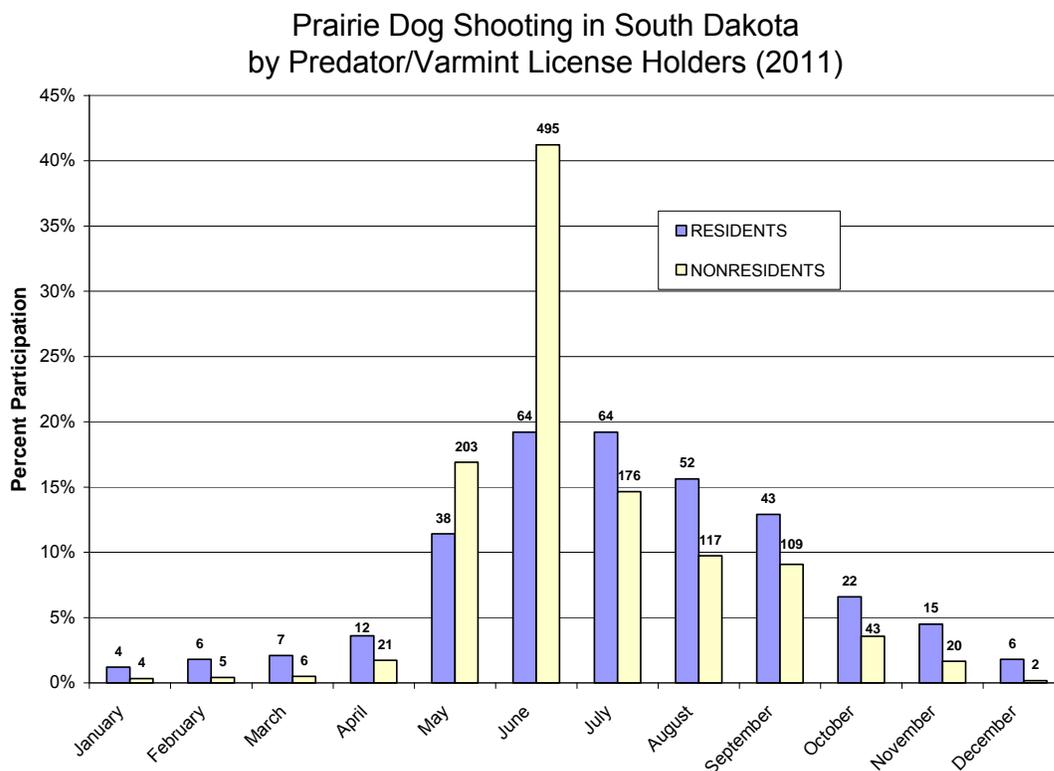


Figure 2. Participation in prairie dog shooting by month in South Dakota in 2011 by predator/varmint license holders (numbers above bars indicate number of responses)

Prairie Dog Shooting in South Dakota by Small Game License Holders (2011)

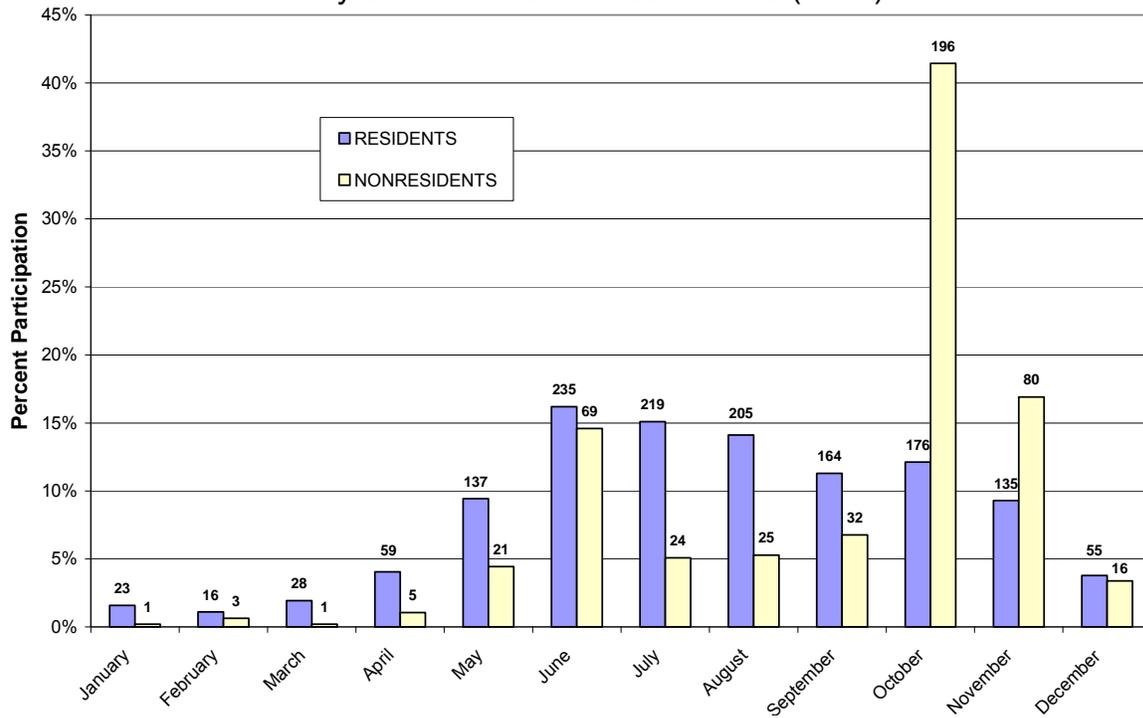


Figure 3. Participation in prairie dog shooting by month in South Dakota in 2011 by small game license holders (numbers above bars indicate number of responses)

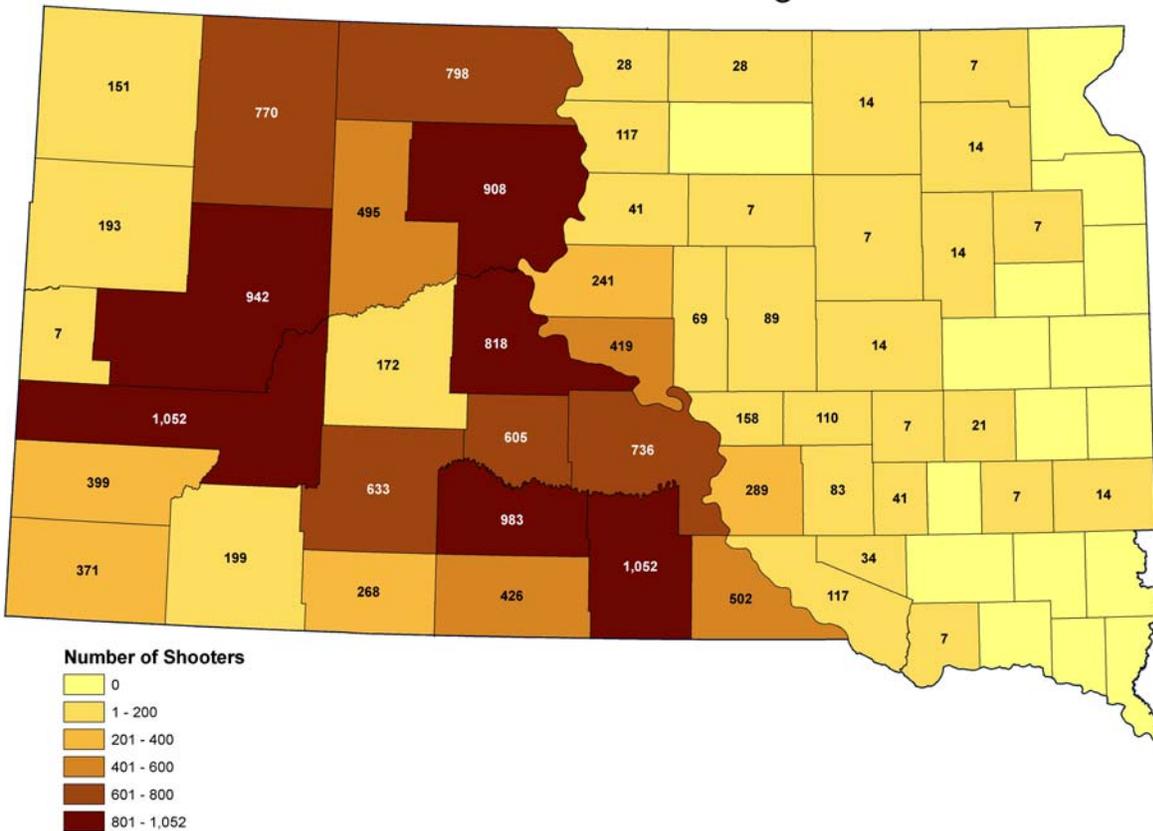


Figure 4. Estimated number of licensed prairie dog shooters in South Dakota in 2011

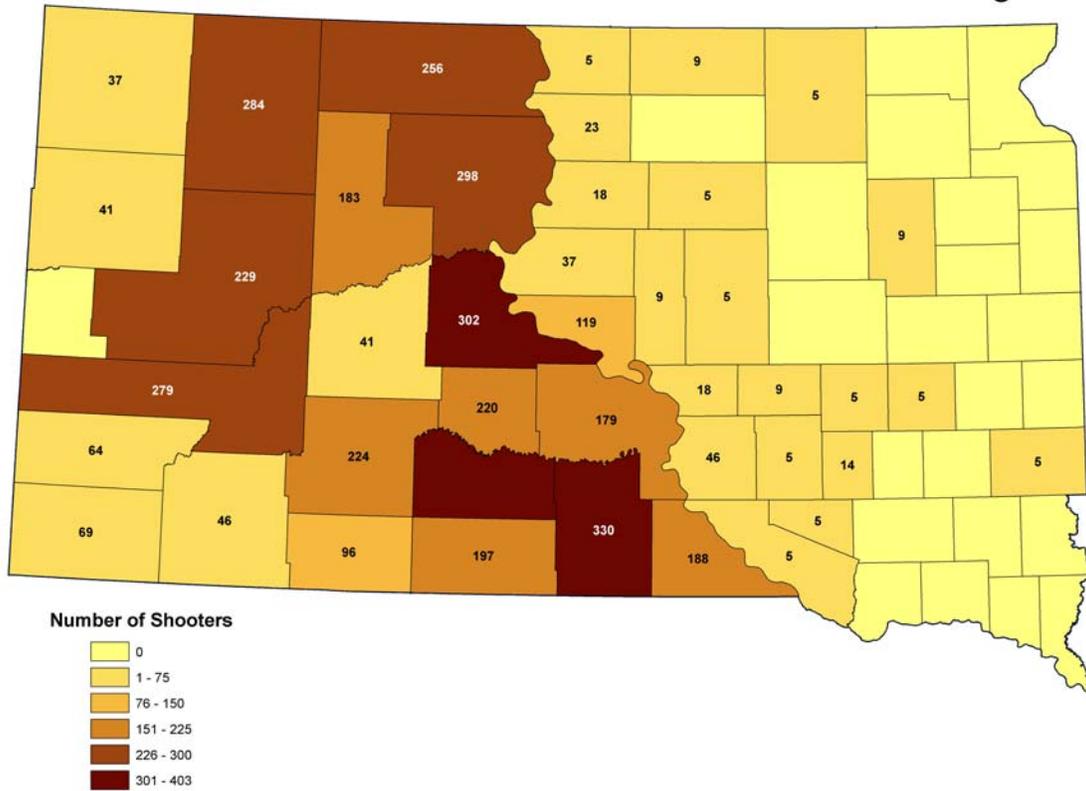


Figure 5. Estimated number of Nonresident Predator/Varmint licensed prairie dog shooters in South Dakota in 2011

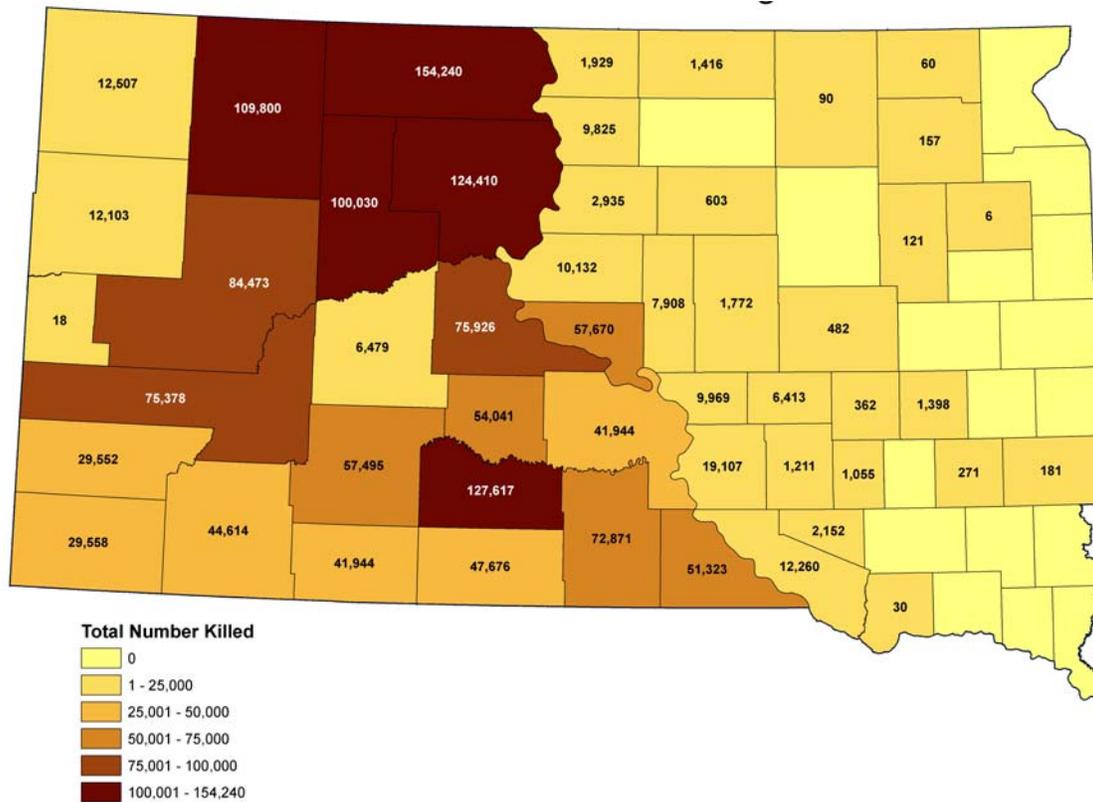


Figure 6. Estimated number of prairie dogs killed in South Dakota by predator/varmint and small game licensed shooters in 2011

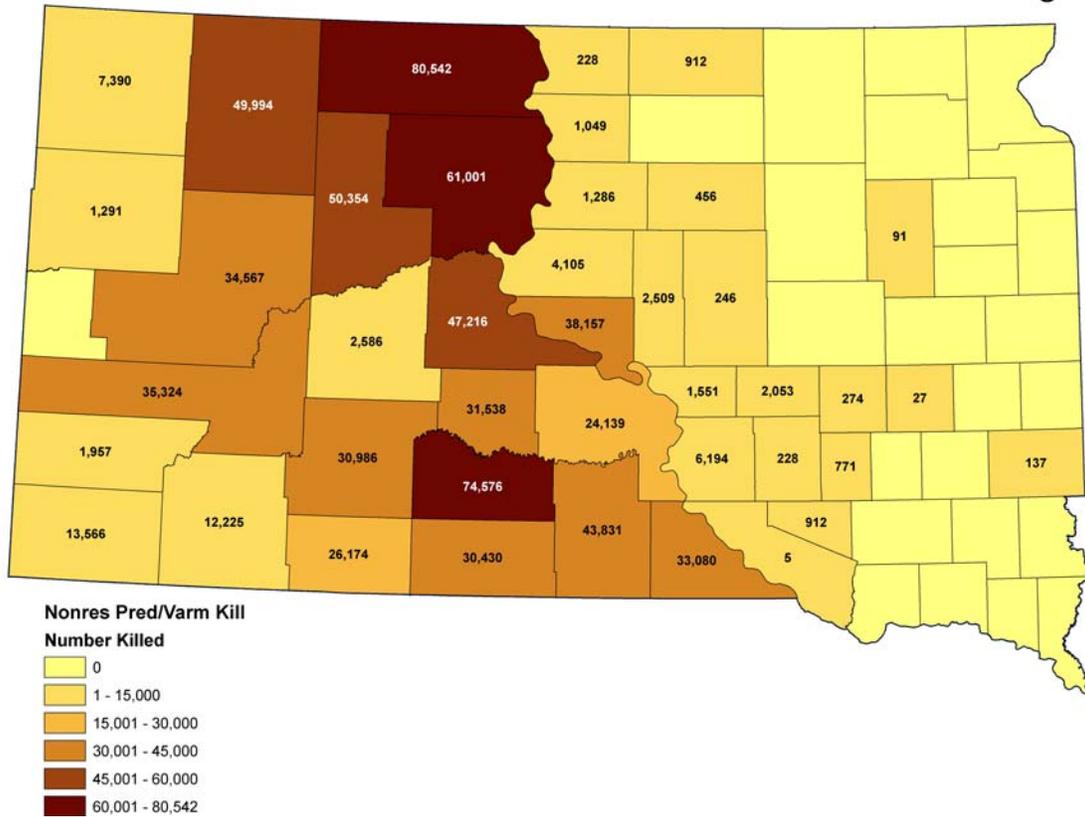


Figure 7. Estimated number of prairie dogs killed in South Dakota by Nonresident Predator/Varmint licensed shooters in 2011

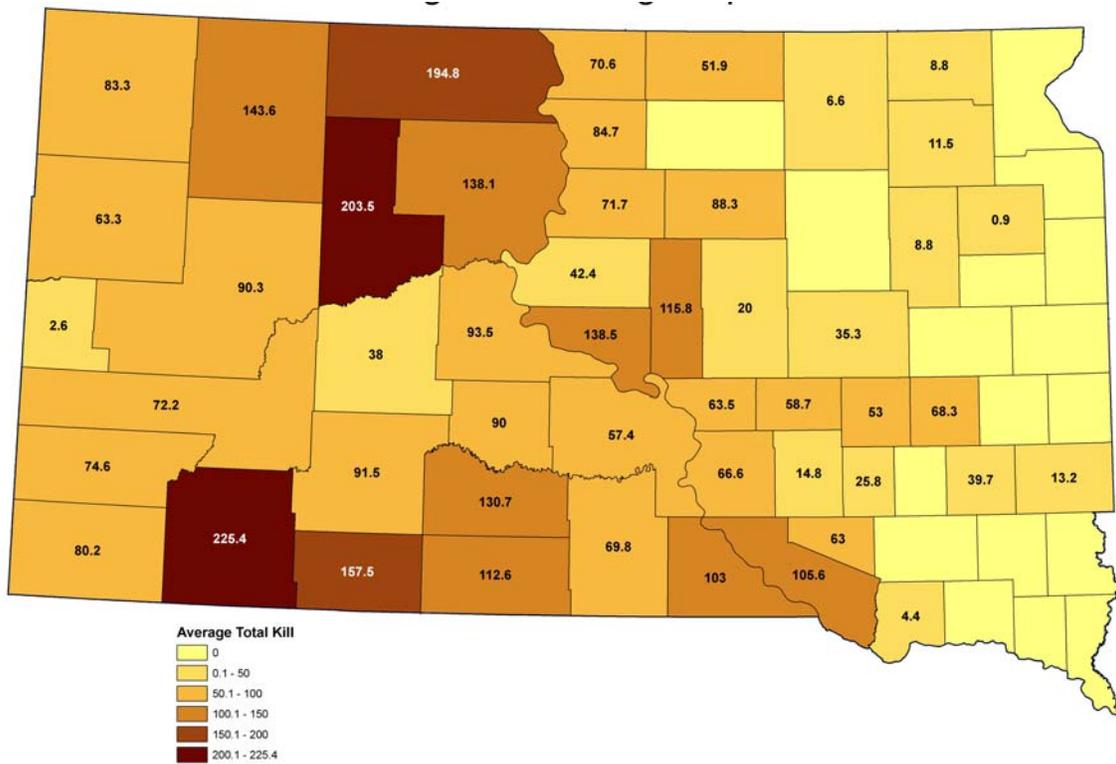


Figure 8. Average number of prairie dogs killed by predator/varmint and small game licensed shooters in South Dakota in 2011

Table 1. Black-tailed prairie dog colony acreage and distribution on non-tribal and tribal lands in South Dakota, 2008 (from Kempema et al 2009)

County		Colony Acres			
Name	Area ^b	Tribal	Non-Tribal	Total	% ^c
Bennett	762,249	4,029	6,427	10,456	1.7
Brule	541,318	0	1,158	1,158	0.2
Buffalo	311,706	861	2,027	2,888	0.5
Butte	1,431,054	0	5,052	5,052	0.8
Campbell	493,334	0	136	136	0.0
Charles Mix	735,548	40	494	535	0.1
Corson	1,618,709	21,261	19,821	41,081	6.5
Custer	614,364	0	26,518	26,518	4.2
Dewey	1,564,822	53,379	27,275	80,655	12.8
Fall River	1,122,286	0	22,367	22,367	3.5
Gregory	673,666	45	1,670	1,715	0.3
Haakon	1,169,652	0	2,582	2,582	0.4
Harding	1,717,456	0	4,110	4,110	0.7
Hughes	511,857	330	1,953	2,283	0.4
Jackson	1,197,962	9,819	13,046	22,864	3.6
Jones	621,636	0	5,682	5,682	0.9
Lyman	1,091,761	5,301	5,449	10,749	1.7
Meade	2,163,858	1	27,090	27,091	4.3
Mellette	837,985	30,964	25,297	56,261	8.9
Pennington	1,273,769	0	63,489	63,489	10.1
Perkins	1,851,915	7	18,727	18,735	3.0
Potter	574,606	0	598	598	0.1
Shannon	1,343,507	103,665	15,818	119,483	18.9
Stanley	970,540	617	8,822	9,439	1.5
Sully	684,610	0	1,272	1,272	0.2
Todd	889,890	37,271	12,737	50,009	7.9
Tripp	1,034,429	384	4,429	4,813	0.8
Walworth	475,988	0	0	0	0.0
Ziebach	1,261,819	23,758	15,062	38,820	6.2
Totals	29,542,298	291,735	339,114	630,849	100%

^b County area includes both land and water.

^c Percent of total black-tailed prairie dog colony acres in study area.

Table 2. Black-tailed prairie dog colony acreage and distribution on non-tribal (state, federal and private) lands in South Dakota in 2008 (from Kempema et al 2009)

County	Public			Private	Total
	State	Federal	Total		
Bennett	192	794	986	5,439	6,425
Brule	37	0	37	1,121	1,158
Buffalo	0	0	0	2,027	2,027
Butte	104	1,054	1,158	3,894	5,052
Campbell	0	0	0	136	136
Charles Mix	10	0	10	485	494
Corson	373	1,028	1,400	18,420	19,821
Custer	687	8,625	9,312	17,206	26,518
Dewey	323	0	323	26,953	27,275
Fall River	489	5,012	489	21,878	22,367
Gregory	0	0	0	1,670	1,670
Haakon	47	0	47	2,535	2,582
Harding	1,144	201	1,344	2,766	4,110
Hughes	29	0	29	1,925	1,953
Jackson	48	2,086	2,134	10,912	13,046
Jones	124	281	406	5,276	5,682
Lyman	431	316	747	4,701	5,449
Meade	972	498	1,470	25,620	27,090
Mellette	517	0	517	24,780	25,297
Pennington	845	38,641	39,486	24,004	63,489
Perkins	1,056	2,397	3,452	15,275	18,727
Potter	8	0	8	590	598
Shannon	0	4,517	4,517	11,301	15,818
Stanley	347	1,922	2,269	6,553	8,822
Sully	87	0	87	1,186	1,272
Todd	0	0	0	12,737	12,737
Tripp	24	0	24	4,405	4,429
Ziebach	402	0	402	14,660	15,062
Total	8,293	67,372	75,665	263,449	339,114

Table 3. Part 1, email survey sample

License Type	Starting Sample Size	Final Sample Size
Resident Predator/Varmint	585	547
Nonresident Predator/Varmint	1,626	1,566
Combination	6,000	5,567
Resident Small Game	6,000	5,561
Resident Youth Small Game	2,000	1,859
Junior Combination	2,000	1,809
Nonresident Small Game	20,000	19,269
Nonresident Youth Small Game	906	873
Total	39,117	37,051

Table 4. Part 2, paper survey (email non-response and no-email) samples

Sample Type	License Type	Starting Sample	Final Sample	
Email Non-response	Resident Predator/Varmint	200	190	
	Nonresident Predator/Varmint	200	195	
	Combination	400	396	
	Resident Small Game	400	388	
	Resident Youth Small Game	200	198	
	Junior Combination	200	192	
	Nonresident Small Game	400	390	
	Nonresident Youth Small Game	200	198	
	Total		2,200	2,147
Sample Type	License Type	Starting Sample	Final Sample	
No-Email	Resident Predator/Varmint	300	269	
	Nonresident Predator/Varmint	300	285	
	Combination	400	363	
	Resident Small Game	400	356	
	Resident Youth Small Game	100	96	
	Junior Combination	100	90	
	Nonresident Small Game	800	737	
	Nonresident Youth Small Game	200	188	
	Total		2,600	2,384

Table 5. Prairie dog shooting projections for predator/varmint and small game license holders in 2011

PRAIRIE DOG SHOOTING PROJECTIONS FOR 2011	RESIDENT TOTALS BY LICENSE TYPE						NONRESIDENT TOTALS			
	Predator/ Varmint	Small Game	Combo	Junior Combo	Youth SmGm	Sum Estimates	Predator/ Varmint	Nonres Sm Game	Youth Sm Game	Sum Estimates
Revised: 11/02/2012										
Licenses Sold	1,559	31,871	43,437	7,498	5,818	90,183	5,044	96,971	3,140	105,155
Unique License Holders	1,559	31,638	43,381	7,471	5,806	89,855	5,041	94,636	3,101	102,778
Projected ACTIVE PRAIRIE DOG SHOOTERS	351	2,257	3,761	442	638	7,448	4,212	5,092	314	9,618
Number Sampled by Survey	547	5,561	5,567	1,809	1,859	15,343	1,566	19,269	873	21,708
Total Number Responded to Survey	473	1,871	2,112	427	659	5,542	1,196	7,172	435	8,803
Survey Response Rate	86.5%	33.6%	37.9%	23.6%	35.4%	36.1%	76.4%	37.2%	49.8%	40.6%
No. Hunters Reporting Prairie Dog Days	149	187	315	46	95	792	1,006	368	37	1,411
Sum Prairie Dog Hunted Days	845	1,187	1,471	336	486	4,325	3,654	1,078	104	4,836
Average Days Shooting Prairie Dogs	5.67	6.35	4.67	7.30	5.12	5.46	3.63	2.93	2.81	3.43
Sum Prairie Dogs Reported Shot	15,928	16,118	27,866	2,705	5,702	68,319	172,199	16,452	2,102	190,753
Average Prairie Dogs Killed for Season	106.90	86.19	88.46	58.80	60.02	86.26	171.17	44.71	56.81	135.19
Projected Days Prairie Dog Shooting	1,989	14,325	17,564	3,226	3,265	40,368	15,999	6,950	717	23,665
Projected No. Prairie Dog Shooters	351	2,257	3,761	442	638	7,448	4,405	2,372	255	7,032
TOTAL ACTIVE LICENSED PRAIRIE DOG SHOOTERS =							14,481			
Projected Prairie Dogs Killed	37,500	194,509	332,718	25,968	38,306	629,000	753,957	106,063	14,494	874,514
							TOTAL PRAIRIE DOGS KILLED = 1,503,515			

Table 6. Frequency of the number of days spent shooting prairie dogs by predator/varmint license holders in 2011

Days Prairie Dog Shooting– 2011	Residents		Nonresidents	
	Number	Percent	Number	Percent
1	23	15.4%	76	7.6%
2	23	15.4%	253	25.1%
3	28	18.8%	306	30.4%
4	30	20.1%	190	18.9%
5	18	12.1%	76	7.6%
6	5	3.4%	39	3.9%
7	1	0.7%	13	1.3%
8	0	0.0%	15	1.5%
9	0	0.0%	7	0.7%
10	6	4.0%	12	1.2%
11-20	9	6.0%	14	1.4%
21-30	3	2.0%	2	0.2%
31+	3	2.0%	3	0.3%
Total	149	100%	1,006	100%
Mean	5.67		3.63	
Median	3		3	
Mode	4		3	
Range	1 – 50		1 – 45	

Table 7. Frequency of the number of months of prairie dog shooting in South Dakota by predator/varmint license holders in 2011

Number of Months of Prairie Dog Shooting	<u>RESIDENTS</u>	<u>NONRESIDENTS</u>
1	45.6%	87.2%
2	25.5%	8.5%
3	12.8%	2.7%
4	6.0%	0.6%
5	4.0%	0.8%
6	2.0%	0.1%
7	1.3%	0.1%
8	1.3%	0.0%
9	0.7%	0.0%
10	0.7%	0.0%
11	0.0%	0.0%
12	0.0%	0.0%
Total Number	149	1,006
Mean	1.20	2.24

Table 8. Frequency of the number of prairie dogs killed in South Dakota by predator/varmint license holders in 2011

Number of Prairie Dogs Killed	RESIDENTS		NONRESIDENTS	
	NUMBER	PERCENT	NUMBER	PERCENT
0-9	28	18.8%	84	8.3%
10-24	23	15.4%	96	9.5%
25-49	23	15.4%	129	12.8%
50-99	33	22.1%	188	18.7%
100-199	20	13.4%	196	19.5%
200-499	14	9.4%	226	22.5%
500+	8	5.4%	87	8.6%
Total	149	100%	1,006	100%
Mean	107		171	
Median	50		100	
Mode	50		100	
Range	0 – 2,000		0 – 4,705	

Table 9. Summary of the average percent of total time spent shooting prairie dogs in South Dakota by type of land used for predator/varmint license holders in 2011

Land Type	Residents	Nonresidents
Private Land	66.0%	77.0%
Public Land	29.5%	16.0%
Tribal Land	3.8%	6.4%
Don't Know	0.7%	0.6%
Sample Size	148	984

Table 10. Summary of the types of bullets used when shooting prairie dogs in South Dakota for predator/varmint license holders in 2011

Bullet Type	Residents	Nonresidents
Lead Only	59%	66%
Lead-free Only	21%	13%
Lead and Lead-free	20%	21%
Sample Size	145	988

Table 11. Frequency of the number of days spent shooting prairie dogs by small game license holders in 2011

Days Prairie Dog Shooting–2011	License Type					
	Comb	RSG	RYSG	Jr. C	NSG	NYSG
1	21.0%	18.2%	24.2%	13.0%	31.5%	16.2%
2	23.2%	18.7%	25.3%	34.8%	25.5%	37.8%
3	13.3%	12.3%	8.4%	4.3%	14.9%	18.9%
4	14.0%	13.4%	13.7%	8.7%	12.5%	13.5%
5	10.5%	13.4%	7.4%	13.0%	7.3%	5.4%
6	4.4%	3.7%	2.1%	0.0%	2.4%	5.4%
7	1.0%	0.5%	0.0%	0.0%	0.8%	2.7%
8	0.6%	2.1%	2.1%	4.3%	1.1%	0.0%
9	0.0%	0.5%	0.0%	0.0%	0.3%	0.0%
10	3.5%	5.9%	5.3%	2.2%	1.4%	0.0%
11-20	6.7%	5.9%	8.4%	10.9%	1.9%	0.0%
21-30	1.0%	3.2%	2.1%	6.5%	0.3%	0.0%
31+	1.0%	2.1%	1.1%	2.2%	0.0%	0.0%
Number	315	187	95	46	368	37
Mean	4.67	6.35	5.12	7.3	2.93	2.81
Median	3	4	2	3	2	2
Mode	2	2	2	2	1	2
Range	1 – 50	1 – 80	1 – 40	1 – 50	1 – 27	1 – 7

Table 12. Frequency of the number of months of prairie dog shooting in South Dakota by small game license holders in 2011

Number of Months of Prairie Dog Shooting	RESIDENTS	NONRESIDENTS
1	49.6%	87.2%
2	21.2%	9.1%
3	11.7%	2.2%
4	6.7%	1.5%
5	5.0%	0.0%
6	1.6%	0.0%
7	0.9%	0.0%
8	1.6%	0.0%
9	0.3%	0.0%
10	0.3%	0.0%
11	0.0%	0.0%
12	1.2%	0.0%
Total Number	643	405
Mean	2.28	1.18

Table 13. Frequency of the number of prairie dogs killed in South Dakota by small game license holders in 2011

Number of Prairie Dogs Killed	RESIDENTS		NONRESIDENTS	
	NUMBER	PERCENT	NUMBER	PERCENT
0-9	168	26.1%	197	48.6%
10-24	174	27.1%	84	20.7%
25-49	95	14.8%	37	9.1%
50-99	71	11.0%	33	8.1%
100-199	67	10.4%	25	6.2%
200-499	44	6.8%	21	5.2%
500+	24	3.7%	8	2.0%
Total	643	100%	405	100%
Mean	81		46	
Median	20		10	
Mode	10		2	
Range	0 – 3,010		0 – 800	

Table 14. Summary of the total average percent of total time shooting prairie dogs in South Dakota by type of land used for small game license holders in 2011

Land Type	Residents	Nonresidents
Private Land	78.1%	81.2%
Public Land	16.8%	10.6%
Tribal Land	4.4%	8.0%
Don't Know	0.7%	0.2%
Sample Size	628	398

Table 15. Summary of the types of bullets used when shooting prairie dogs in South Dakota for small game license holders in 2011

Bullet Type	Residents	Nonresidents
Lead Only	69%	69%
Lead-free Only	11%	14%
Lead and Lead-free	20%	16%
Sample Size	619	390

Table 16. Total small game and predator/varmint license prairie dog shooting distribution by county in 2011

COUNTY	SHOOTER DISTRIBUTION				KILL DISTRIBUTION				Prairie Dogs/Hunter **	CI (95%)
	# Reported	# Projected	% of Total	# Proj w/ Unk *	# Reported	# Projected	% of Total	# Proj w/ Unk *		
Minnehaha	2	13	0.1	14	30	174	0.0	181	13.2	+/-29.4
Pennington	153	1,006	7.3	1,052	12,506	72,578	5.0	75,378	72.2	+/-20.6
Brown	2	13	0.1	14	15	87	0.0	90	6.6	+/-14.7
Beadle	2	13	0.1	14	80	464	0.0	482	35.3	+/-19.6
Codington	1	7	0.0	7	1	6	0.0	6	0.9	
Brookings	0	0	0.0	0	0	0	0.0	0	0	
Yankton	0	0	0.0	0	0	0	0.0	0	0	
Davison	6	39	0.3	41	175	1,016	0.1	1,055	25.8	+/-31.5
Lawrence	1	7	0.0	7	3	17	0.0	18	2.6	
Aurora	12	79	0.6	83	201	1,166	0.1	1,211	14.8	+/-16.7
Bennett	39	256	1.9	268	6,959	40,386	2.8	41,944	157.5	+/-110.9
Bon Homme	1	7	0.0	7	5	29	0.0	30	4.4	
Brule	42	276	2.0	289	3,170	18,397	1.3	19,107	66.6	+/-27.7
Buffalo	23	151	1.1	158	1,654	9,599	0.7	9,969	63.5	+/-40.5
Butte	28	184	1.3	193	2,008	11,653	0.8	12,103	63.3	+/-45.0
Campbell	4	26	0.2	28	320	1,857	0.1	1,929	70.6	+/-47.5
Charles Mix	17	112	0.8	117	2,034	11,804	0.8	12,260	105.6	+/-121.6
Clark	2	13	0.1	14	20	116	0.0	121	8.8	+/-19.6
Clay	0	0	0.0	0	0	0	0.0	0	0	
Corson	116	762	5.5	798	25,590	148,511	10.3	154,240	194.8	+/-89.1
Custer	58	381	2.8	399	4,903	28,454	2.0	29,552	74.6	+/-73.4
Day	2	13	0.1	14	26	151	0.0	157	11.5	+/-13.7
Deuel	0	0	0.0	0	0	0	0.0	0	0	
Dewey	132	868	6.3	908	20,641	119,789	8.3	124,410	138.1	+/-32.6
Douglas	5	33	0.2	34	357	2,072	0.1	2,152	63.0	+/-70.2
Edmunds	0	0	0.0	0	0	0	0.0	0	0	
Fall River	54	355	2.6	371	4,904	28,460	2.0	29,558	80.2	+/-33.4
Faulk	1	7	0.0	7	100	580	0.0	603	88.3	
Grant	0	0	0.0	0	0	0	0.0	0	0	
Gregory	73	480	3.5	502	8,515	49,416	3.4	51,323	103.0	+/-82.6
Haakon	25	164	1.2	172	1,075	6,239	0.4	6,479	38.0	+/-19.2
Hamlin	0	0	0.0	0	0	0	0.0	0	0	
Hand	13	85	0.6	89	294	1,706	0.1	1,772	20.0	+/-12.1
Hanson	0	0	0.0	0	0	0	0.0	0	0	
Harding	22	145	1.0	151	2,075	12,042	0.8	12,507	83.3	+/-73.1
Hughes	61	401	2.9	419	9,568	55,528	3.8	57,670	138.5	+/-146.2
Hutchinson	0	0	0.0	0	0	0	0.0	0	0	
Hyde	10	66	0.5	69	1,312	7,614	0.5	7,908	115.8	+/-114.4
Jackson	92	605	4.4	633	9,539	55,359	3.8	57,495	91.5	+/-28.9
Jerauld	16	105	0.8	110	1,064	6,175	0.4	6,413	58.7	+/-49.5
Jones	88	578	4.2	605	8,966	52,034	3.6	54,041	90.0	+/-36.7
Kingsbury	0	0	0.0	0	0	0	0.0	0	0	
Lake	0	0	0.0	0	0	0	0.0	0	0	
Lincoln	0	0	0.0	0	0	0	0.0	0	0	
Lyman	107	703	5.1	736	6,959	40,386	2.8	41,944	57.4	+/-19.0
McCook	1	7	0.0	7	45	261	0.0	271	39.7	
McPherson	4	26	0.2	28	235	1,364	0.1	1,416	51.9	+/-47.0
Marshall	1	7	0.0	7	10	58	0.0	60	8.8	
Meade	137	901	6.5	942	14,015	81,336	5.6	84,473	90.3	+/-24.8
Mellette	143	940	6.8	983	21,173	122,877	8.5	127,617	130.7	+/-44.9
Miner	3	20	0.1	21	232	1,346	0.1	1,398	68.3	+/-133.9
Moody	0	0	0.0	0	0	0	0.0	0	0	
Perkins	112	736	5.3	770	18,217	105,722	7.3	109,800	143.6	+/-68.3
Potter	6	39	0.3	41	487	2,826	0.2	2,935	71.7	+/-90.0
Roberts	0	0	0.0	0	0	0	0.0	0	0	
Sanborn	1	7	0.0	7	60	348	0.0	362	53.0	
Spink	1	7	0.0	7	0	0	0.0	0	0	
Stanley	119	782	5.7	818	12,597	73,106	5.0	75,926	93.5	+/-28.1
Sully	35	230	1.7	241	1,681	9,756	0.7	10,132	42.4	+/-25.2
Tripp	153	1,006	7.3	1,052	12,090	70,164	4.8	72,871	69.8	+/-21.1
Turner	0	0	0.0	0	0	0	0.0	0	0	
Union	0	0	0.0	0	0	0	0.0	0	0	
Walworth	17	112	0.8	117	1,630	9,460	0.7	9,825	84.7	+/-111.9
Ziebach	72	473	3.4	495	16,596	96,314	6.7	100,030	203.5	+/-74.1
Shannon	29	191	1.4	199	7,402	42,957	3.0	44,614	225.4	+/-131.1
Todd	62	408	2.9	426	7,910	45,905	3.2	47,676	112.6	+/-45.9
Unk/Unreported	97	638	-	-	9,623	55,847	-	-	87.6	
TOTALS:	2,203	14,481	100%	14,481	259,072	1,503,515	100%	1,503,515	103.83	

Last Revised: 5 Nov 2012
* Includes unknown county projection values by assuming unknown county values are distributed the same as reported county values. Total values may be different due to rounding.
** Calculation uses "# projected" values without correction for unknown/unreported county values.

Table 17. Nonresident predator/varmint license prairie dog shooting distribution by county in 2011

COUNTY	SHOOTER DISTRIBUTION				KILL DISTRIBUTION				Prairie Dogs/Hunter **	CI (95%)
	# Reported	# Projected	% of Total	# Proj w/Unk *	# Reported	# Projected	% of Total	# Proj w/Unk *		
Minnehaha	1	4	0.1	5	30	131	0.0	137	30.0	
Pennington	61	267	6.5	279	7,744	33,906	4.7	35,324	127.0	+/-41.5
Brown	1	4	0.1	5	0	0	0.0	0	0.0	
Beadle	0	0	0.0	0	0	0	0.0	0	0	
Codington	0	0	0.0	0	0	0	0.0	0	0	
Brookings	0	0	0.0	0	0	0	0.0	0	0	
Yankton	0	0	0.0	0	0	0	0.0	0	0	
Davison	3	13	0.3	14	169	740	0.1	771	56.3	+/-46.2
Lawrence	0	0	0.0	0	0	0	0.0	0	0	
Aurora	1	4	0.1	5	50	219	0.0	228	50.0	
Bennett	21	92	2.2	96	5,738	25,123	3.5	26,174	273.2	+/-192.6
Bon Homme	0	0	0.0	0	0	0	0.0	0	0	
Brule	10	44	1.1	46	1,358	5,946	0.8	6,194	135.8	+/-72.2
Buffalo	4	18	0.4	18	340	1,489	0.2	1,551	85.0	+/-79.7
Butte	9	39	1.0	41	283	1,239	0.2	1,291	31.4	+/-22.0
Campbell	1	4	0.1	5	50	219	0.0	228	50.0	
Charles Mix	1	4	0.1	5	1	4	0.0	5	1.0	
Clark	2	9	0.2	9	20	88	0.0	91	10.0	+/-19.6
Clay	0	0	0.0	0	0	0	0.0	0	0	
Corson	56	245	5.9	256	17,657	77,310	10.7	80,542	315.3	+/-171.8
Custer	14	61	1.5	64	429	1,878	0.3	1,957	30.6	+/-20.9
Day	0	0	0.0	0	0	0	0.0	0	0	
Deuel	0	0	0.0	0	0	0	0.0	0	0	
Dewey	65	285	6.9	298	13,373	58,552	8.1	61,001	205.7	+/-48.3
Douglas	1	4	0.1	5	200	876	0.1	912	200.0	
Edmunds	0	0	0.0	0	0	0	0.0	0	0	
Fall River	15	66	1.6	69	2,974	13,021	1.8	13,566	198.3	+/-84.5
Faulk	1	4	0.1	5	100	438	0.1	456	100.0	
Grant	0	0	0.0	0	0	0	0.0	0	0	
Gregory	41	180	4.3	188	7,252	31,752	4.4	33,080	176.9	+/-142.7
Haakon	9	39	1.0	41	567	2,483	0.3	2,586	63.0	+/-39.3
Hamlin	0	0	0.0	0	0	0	0.0	0	0	
Hand	1	4	0.1	5	54	236	0.0	246	54.0	
Hanson	0	0	0.0	0	0	0	0.0	0	0	
Harding	8	35	0.8	37	1,620	7,093	1.0	7,390	202.5	+/-179.0
Hughes	26	114	2.8	119	8,365	36,625	5.1	38,157	321.7	+/-335.6
Hutchinson	0	0	0.0	0	0	0	0.0	0	0	
Hyde	2	9	0.2	9	550	2,408	0.3	2,509	275.0	+/-44.1
Jackson	49	215	5.2	224	6,793	29,743	4.1	30,986	138.6	+/-41.3
Jerauld	2	9	0.2	9	450	1,970	0.3	2,053	225.0	+/-147
Jones	48	210	5.1	220	6,914	30,272	4.2	31,538	144.0	+/-61.6
Kingsbury	0	0	0.0	0	0	0	0.0	0	0	
Lake	0	0	0.0	0	0	0	0.0	0	0	
Lincoln	0	0	0.0	0	0	0	0.0	0	0	
Lyman	39	171	4.1	179	5,292	23,171	3.2	24,139	135.7	+/-39.8
McCook	0	0	0.0	0	0	0	0.0	0	0	
McPherson	2	9	0.2	9	200	876	0.1	912	100.0	+/-0
Marshall	0	0	0.0	0	0	0	0.0	0	0	
Meade	50	219	5.3	229	7,578	33,180	4.6	34,567	151.6	+/-44.4
Mellette	88	385	9.3	403	16,349	71,583	9.9	74,576	185.8	+/-56.0
Miner	1	4	0.1	5	6	26	0.0	27	6.0	
Moody	0	0	0.0	0	0	0	0.0	0	0	
Perkins	62	271	6.6	284	10,960	47,987	6.6	49,994	176.8	+/-76.9
Potter	4	18	0.4	18	282	1,235	0.2	1,286	70.5	+/-117.3
Roberts	0	0	0.0	0	0	0	0.0	0	0	
Sanborn	1	4	0.1	5	60	263	0.0	274	60.0	
Spink	0	0	0.0	0	0	0	0.0	0	0	
Stanley	66	289	7.0	302	10,351	45,321	6.3	47,216	156.8	+/-43.4
Sully	8	35	0.8	37	900	3,941	0.5	4,105	112.5	+/-72.9
Tripp	72	315	7.6	330	9,609	42,072	5.8	43,831	133.5	+/-39.1
Turner	0	0	0.0	0	0	0	0.0	0	0	
Union	0	0	0.0	0	0	0	0.0	0	0	
Walworth	5	22	0.5	23	230	1,007	0.1	1,049	46.0	+/-43.9
Ziebach	40	175	4.2	183	11,039	48,333	6.7	50,354	276.0	+/-75.1
Shannon	10	44	1.1	46	2,680	11,734	1.6	12,225	268.0	+/-230.5
Todd	43	188	4.6	197	6,671	29,208	4.0	30,430	155.1	+/-62.8
Unk/Unreported	62	271	-	-	6,911	30,259	-	-	111.5	
TOTALS:	1,006	4,405	100%	4,324	172,199	753,957	100%	753,957	171.17	

Last Revised: 5 Nov 2012

* Includes unknown county projection values by assuming unknown county values are distributed the same as reported county values. Total values may be different due to rounding.

** Calculation uses "# projected" values without correction for unknown/unreported county values.

Table 18. Estimated participation and total kill of prairie dogs by licensed shooters in South Dakota from 1999-2001 and 2011

Year	Number of Shooters		Estimated Kill
	Resident	Nonresident	
1999	17,800	3,319	1,703,976
2000	12,219	3,081	1,292,681
2001	10,316	5,695	1,607,786
2011	7,448	7,032	1,503,515

Appendix A. Questionnaire used for mail surveys

Dear Hunter:

According to our records you purchased one of the license types that included the opportunity to shoot prairie dogs in 2011. Game, Fish and Parks must monitor populations and harvest of prairie dogs in South Dakota in order to continue providing shooting opportunities. We need your response to this survey even if you did not shoot prairie dogs this past year (2011) because the results of this survey will be used to estimate total participation and harvest. It is just as important to know how many hunters did not shoot prairie dogs.

PLEASE RESPOND at your soonest convenience. Our goal is to receive a response from each survey recipient. We will provide follow up mailings to those who don't respond so returning this survey now will save you from repeat mailings of this same card. Thanks to you, we believe we have one of the most accurate harvest surveys in the nation.

Thank you for being a part of wildlife management in South Dakota.

2011 PRAIRE DOG SHOOTING SURVEY

Please complete and return within 5 days following the season's closure or receipt of this card.

- 1. Have you ever done any prairie dog shooting in South Dakota?**
 No – This completes your survey, please return your questionnaire
 Yes- Please continue
- 2. Did you do any prairie dog shooting in South Dakota this past year (2011)?**
 No – This completes your survey, please return your questionnaire
 Yes- Please continue
- 3. How many days did you shoot prairie dogs in 2011?**
Please provide your best estimate. [_____] days
- 4. Which months did you shoot prairie dogs in 2011? Please check all that apply.** Jan. Feb. Mar. Apr. May Jun.
 July Aug. Sept. Oct. Nov. Dec.
- 5. Approximately, how many prairie dogs did you kill in 2011?**
Please only include the number you killed by shooting, not by other means, such as poisoning, or the number killed in your group.
 [_____] prairie dogs you killed by shooting in 2011
- 6. Of your total time shooting prairie dogs in South Dakota, approximately what percent was spent on private, public and/or tribal land? Total time should equal 100 percent.**
 _____ % Private _____ % Public _____ % Tribal _____ %Don't Know
- 7. Did you use lead or lead-free bullets for the prairie dog shooting you did in 2011?**
 Lead Bullets Lead-Free Bullets Both Lead and Lead-Free Bullets
- 8. What county did you do MOST of your prairie dog shooting in 2011?**
 _____ county