
South Dakota SURVEY REPORT

Mountain Lion Population Status Update

2017 Biennial Report

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**SOUTH DAKOTA DEPARTMENT OF GAME, FISH AND PARKS
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WILDLIFE SURVEY REPORT

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INTRODUCTION

Mountain lions (*Puma concolor*) are native to South Dakota and were historically considered numerous in the Black Hills. After near extirpation in the early 1900's due to unregulated harvest and bounties on mountain lions and their prey species, mountain lions were listed as a state threatened species in 1978. Mountain lion populations eventually rebounded, the species was reclassified as a big game animal in 2003, and the first regulated hunting season was established in 2005. Mountain lion hunting seasons in South Dakota provide an important recreational opportunity for resident sportsmen and women, and also provide a means to manage mountain lion populations.

The current goal for mountain lion management in the Black Hills of South Dakota is to “monitor and maintain mountain lion populations and habitats consistent with ecological, social, aesthetic, and economic values of South Dakota citizens while addressing the concerns and issues of both residents and visitors of South Dakota” (South Dakota Game, Fish and Parks 2013). The South Dakota Mountain Lion Management Plan 2010-2015 is located at: <https://gfp.sd.gov/UserDocs/nav/MountainLionManagementPlan.pdf>. The South Dakota Game, Fish, and Parks (SDGFP) has started the process of updating and revising the current management plan, and expects to have a new management plan adopted by the SDGFP Commission before setting the 2019/2020 hunting seasons.

This report provides a statewide overview of mountain lion surveys and assessments conducted by the South Dakota Department of Game, Fish, and Parks (SDGFP) and an update on the population status of mountain lions in the Black Hills.

POPULATION SURVEYS AND ASSESSMENTS

In general, mountain lions exhibit secretive behavior, occur in low densities, and occupy habitats with relatively dense vegetative cover and/or rough topography. These characteristics make estimates of population abundance and evaluations of population trend difficult. The SDGFP therefore uses numerous trend indicators to assess the mountain lion population in the Black Hills. The primary surveys and data used to assess trends include the following: 1) hunting season evaluations (harvest, harvest composition, harvest per unit effort), 2) documented mortalities (harvest/non-harvest, removals, densities), 3) DNA mark/recapture survey, and 4) observation reports.

Hunting Season Evaluations

There is currently an established season and harvest limits for the Black Hills Fire Protection District (BHFPD) of South Dakota, and a year-round season with no limit in the remainder of the state. All harvested mountain lions must be presented to a SDGFP representative within 24 hours of harvest for inspection and DNA sampling. Location of harvest, estimated age, sex, and

weight are all recorded for each harvested mountain lion. In addition, a harvest survey is sent to all licensed hunters to compile additional mountain lion season information.

Harvest

The 2016/17 mountain lion hunting season for the BHFPD was December 26, 2016 – March 31, 2017. Regulations were in place to end the season immediately if the harvest limit of 60 mountain lions, or 40 females, was met at an earlier date. Within the BHFPD, the use of dogs to hunt mountain lions was prohibited except during specified hunting intervals in Custer State Park (CSP). The 2016/17 mountain lion season in the BHFPD ended on March 31 with a total of 30 mountain lions harvested; seven of these mountain lions were harvested with the aid of hounds in CSP (Table 1).

Table 1. Mountain lion hunting season data for South Dakota, 2005/06 – 2016/17.

Year	Licenses Sold *	Season Dates	BLACK HILLS HARVEST			PRAIRIE	Harvest Limit	Limit Reached	Season Length(days)
			Males	Females	Total				
2005/06	2,588	Oct.1 - Dec. 15	6	7	13	1	25 or 5 females	Female	24
2006/07	3,295	Nov. 1 - Dec. 31	7	8	15	1	25 or 8 females	Female	19
2007/08	4,064	Nov. 1 - Dec. 31	2	15	17	2	35 or 15 females	Female	23
2008/09	2,335	Jan.1 - Mar. 31	11	15	26	2	35 or 15 females	Female	45
2009/10	2,274	Jan.1 - Mar. 31	16	24	40	3	40 or 25 females	Total	41
2010/11	2,591	Jan.1 - Mar. 31	20	27	47	5	45 or 30 females	Total	52
2011/12	3,720	Jan.1 - Mar. 31	27	46	73	2	70 or 50 females	Total	61
2012/13	4,637	Dec.26-Mar. 31	26	35	61	6	100 or 70 females	Date	96
2013/14	3,856	Dec.26-Mar. 31	22	31	53	4	75 or 50 females	Date	96
2014/15	3,767	Dec.26-Mar. 31	21	22	43	5	75 or 50 females	Date	96
2015/16	3,681	Dec.26-Mar. 31	16	25	41	8	60 or 40 females	Date	97
2016/17	3,067	Dec.26-Mar. 31	14	16	30	5	60 or 40 females	Date	96

* licenses sold from April 1 to March 31

Outside of the BHFPD, the season is year-round and the use of dogs to pursue mountain lions is allowed on private land. A pursuit by dogs that originates on private land may cross over or culminate on property owned by the Office of School and Public Lands or the United States Bureau of Land Management. On the prairie, five mountain lions (5 males) were harvested in the 2016/17 season (April 1 – March 31).

Hunting seasons for mountain lions in South Dakota began in 2005; historical mountain lion harvest, season dates, and associated season data are depicted in Table 1. Mountain lion harvest peaked in 2011/12 at 73 total mountain lions, and currently trends downward (Figure 1). Harvest limits

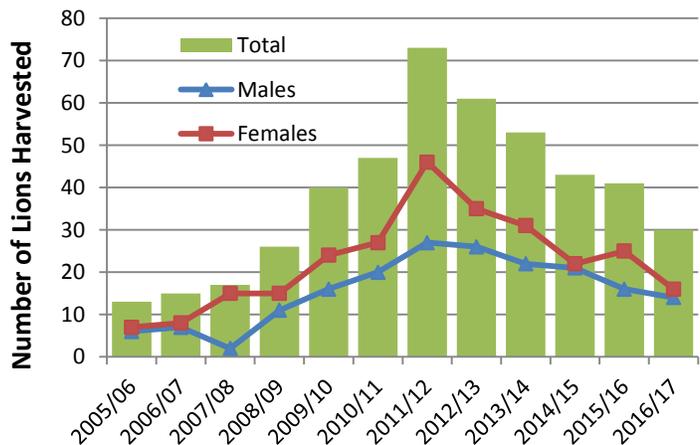


Figure 1. Mountain lion harvest in the Black Hills of South Dakota, 2005/06 – 2016/17 (April 1 – March 31).

are established to ensure harvest levels do not exceed management objectives, but limits have not been reached since the 2011/12 season.

Harvest composition

In South Dakota, trends in age and sex harvest proportions are evaluated annually (Figure 2). Since the first regulated hunting season in 2005, 60% of all adult/sub-adult mountain lions harvested in South Dakota have been females (35% adult, 25% sub-adult), whereas 40% have been males (19% adult, 21% sub-adult). Approximately 46% of all mountain lions harvested have been sub-adults. No apparent trends in overall sex and age compositions are suggestive of population changes.

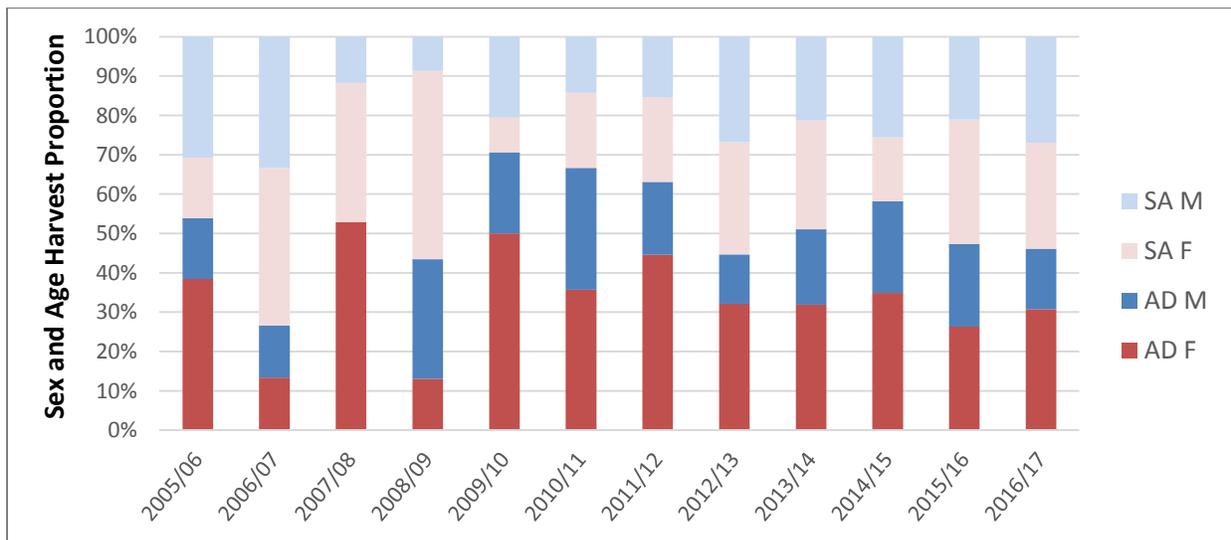


Figure 2. Sex and age harvest proportions of mountain lion harvest in the Black Hills of South Dakota, 2005/06 – 2016/17 (April 1 – March 31; SA = subadult, AD = adult, M = male, F = female).

Age and sex composition of harvest may be a useful index to mountain lion populations in Wyoming that are hunted primarily with the use of hounds (Anderson and Lindzey 2005). The majority of harvest in South Dakota, however, occurs without the use of hounds (hounds are only legal outside the BHFPD and in CSP during designated hunting intervals), and therefore interpretation of harvest composition trends may not be comparable. For example, after the state of Washington made it illegal to hunt mountain lions with hounds, subsequent harvest data showed that the median age of harvested mountain lions declined and percentage of females increased (Martorello and Beausoleil 2003).

Female age structure of harvested mountain lions is also evaluated, as research on some western mountain lion populations suggest relationships between mountain lion age or harvest age, and population trends (Anderson and Lindzey 2005, Stoner et al. 2006). The average age of harvested adult females in South Dakota since the 2005/06 hunting season has been 5.2 (n =

146), with most years averaging between four and six years of age (Figure 3). Data will continue to be evaluated for long term trends.

Harvest per unit effort

Because mountain lion hunting in South Dakota is primarily conducted without the use of hounds, harvest success rates are low compared with other big game hunting seasons. Overall, hunting success for all licensed hunters in the BHFPD from 2005/06 – 2016/17 averaged 1.2%. Hunting licenses for mountain lions in South Dakota are relatively inexpensive (\$28 in 2016/17), and each year hunter surveys conducted by SDGFP reveal that some hunters purchase licenses but do not actually hunt; in the 2016/17 season only about 45% of licensed hunters spent time hunting mountain lions in the BHFPD (Longmire 2017; Table 2). Hunter surveys also collect hunter effort (# days hunted), which is used with active hunting participants to estimate harvest per unit effort. For the most recent 2016/17 mountain lion season, harvest per unit effort was an approximate 2.9 mountain lions per 1,000 hunted days, and has trended downward since the 2009/10 season (Figure 4).

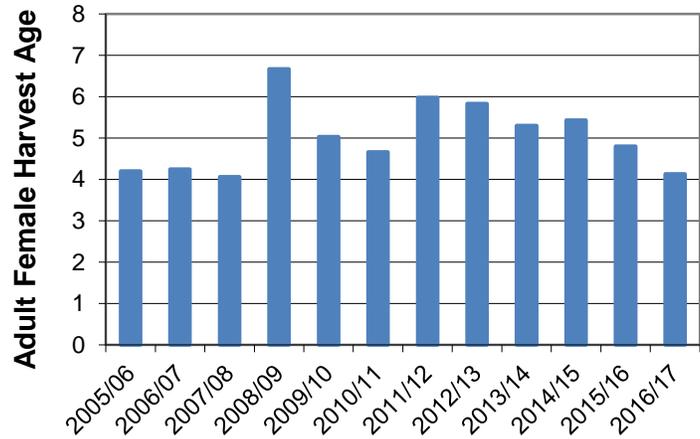


Figure 3. Average age of harvested adult female mountain lions in the Black Hills of South Dakota, 2005/06 – 2016/17 (April 1 – March 31).

Table 2. Harvest per unit effort for BHFPD mountain lion hunting seasons, 2008/09 – 2016/17 (April 1 – March 31; Longmire 2017).

Year	Season Length (Days)	Lions Harvested	Licenses	Active Hunters	Average # Days	Man-Days Hunted	Harvest Per 1,000 Man-Days	% Change from Previous Yr
2008/2009	45	26	2,428	1,646 (1,594, 1,698)	6.5	10,698 (10,003, 11,404)	2.43 (2.28, 2.60)	-
2009/2010	41	40	2,082	1,468 (1,423, 1,513)	6.2	9,100 (8,535, 9,678)	4.40 (4.13, 4.69)	81%
2010/2011	52	47	2,325	1,790 (1,749, 1,831)	6.6	11,814 (11,128, 12,508)	3.98 (3.76, 4.22)	-9%
2011/2012	61	69	3,482	2,646 (2,591, 2,701)	7.1	18,787 (17,831, 19,749)	3.67 (3.49, 3.87)	-8%
2012/2013	96	54	4,351	2,872 (2,804, 2,940)	7.3	20,966 (19,799, 22,143)	2.58 (2.44, 2.73)	-30%
2013/2014	96	44	3,293	1,861 (1,796, 1,925)	6.9	12,841 (11,920, 13,775)	3.43 (3.19, 3.69)	33%
2014/2015	96	38	3,210	1,689 (1,620, 1,758)	7.1	11,992 (11,053, 12,953)	3.17 (2.93, 3.44)	-8%
2015/2016	97	35	3,102	1,529 (1,462, 1,596)	7.1	10,856 (9,972, 11,759)	3.22 (2.98, 3.51)	2%
2016/2017	96	23	2,561	1,153 (1,093, 1,213)	6.9	7,956 (7,204, 8,727)	2.89 (2.63, 3.19)	-10%

* numbers in parentheses represent 95% confidence intervals; calculations do not include lions harvested or days hunted in CSP

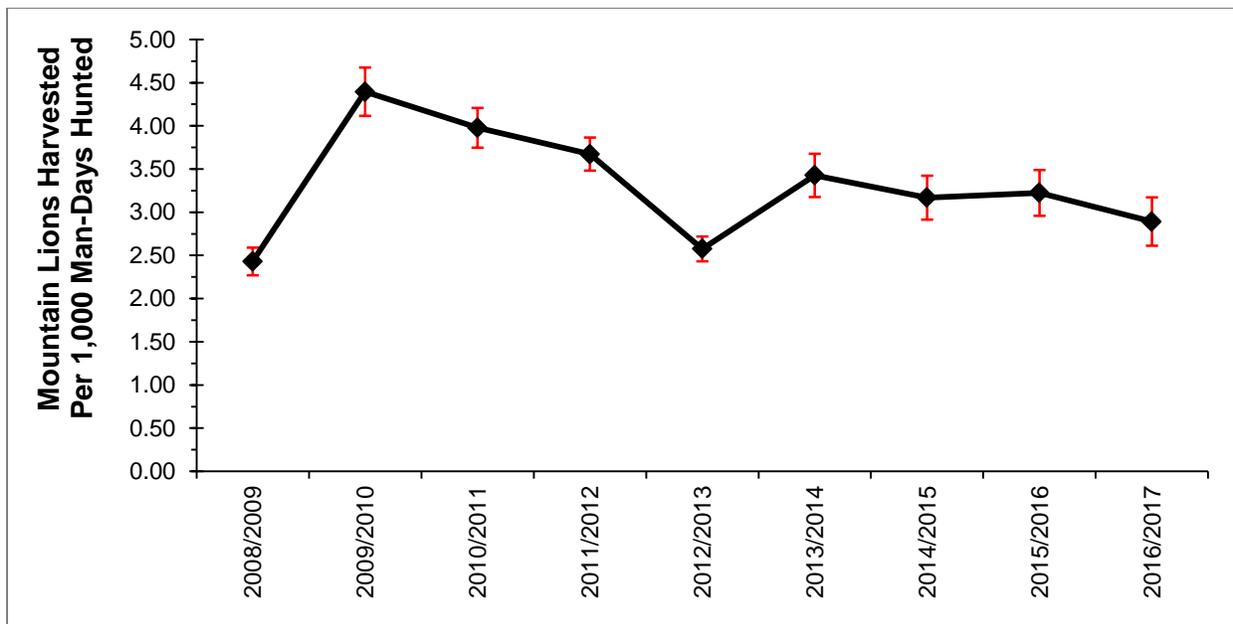


Figure 4. Mountain lion harvest per unit effort for the BHFPD seasons, 2008/09 – 2016/17 (April 1 – March 31; Longmire 2017). Red error bars represent 95% confidence intervals.

Documented Mortalities

Harvest and non-harvest mortalities

All known mountain lion mortalities in South Dakota are recorded and later evaluated for population trend assessments. Mortalities documented over the past 2 years (April 1 – March 31) can be found in Appendix A. The highest documented number of mountain lion mortalities was 114 in the year 2011/12 (Figure 5). Harvest mortalities can be influenced by hunting season regulations and other factors, but have been decreasing for the past five years (Figure 5); the harvest limit in the BHFPD has not been reached in the past five hunting seasons.

Non-harvest mortalities peaked at 51 lions in 2009/10, and have declined to 10 in 2016/17 (Figure 5). Non-harvest mortality trend may reflect significant increases or decreases in the mountain lion population; however, factors influencing non-harvest mortality can be variable and may influence trend assessments.

The majority of the mountain lion population in South Dakota occurs within the Black Hills. Mountain lions are occasionally observed outside of the Black Hills area, but most are likely transient mountain lions with the majority being young males. Since 1996, SDGFP has documented 105 lion mortalities outside of the Black Hills Fire Protection District. Of those lions, 25 were female (4 adults, 21 subadults) and 80 were male (8 adults, 70 subadults, 2 kittens).

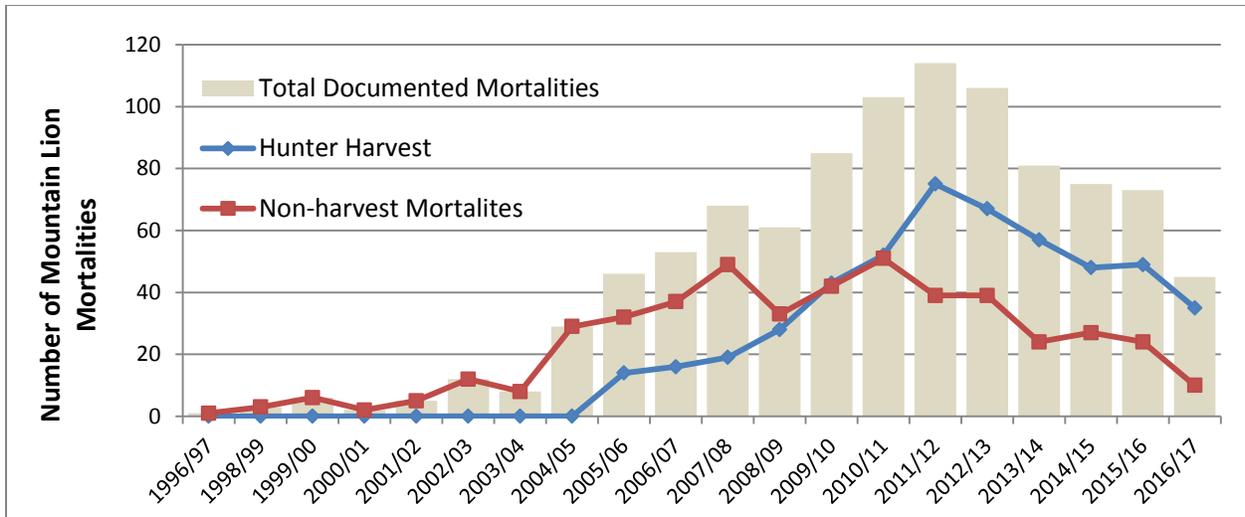


Figure 5. Harvest and non-harvest mountain lion mortalities documented in South Dakota, 1996/97 – 2016/17 (April 1 – March 31).

Mountain lion removals

In South Dakota, mountain lions are removed by SDGFP in situations involving livestock depredation, attacks on pets or mountain lions that pose a substantial threat to public safety. The most mountain lions annually removed by SDGFP was 19 in 2009/10, and the number of removals has decreased to zero in 2016/17 (Figure 6). SDGFP will remove a mountain lion for attacking domestic animals, but may not remove a mountain lion for attacking or killing pets that are free-roaming or that provoke a mountain lion. Feeding of prey species in urban areas or near rural homes is discouraged as it can lead to an increased presence of mountain lions. SDGFP encourages problem prevention whenever possible when dealing with mountain lion incidents.

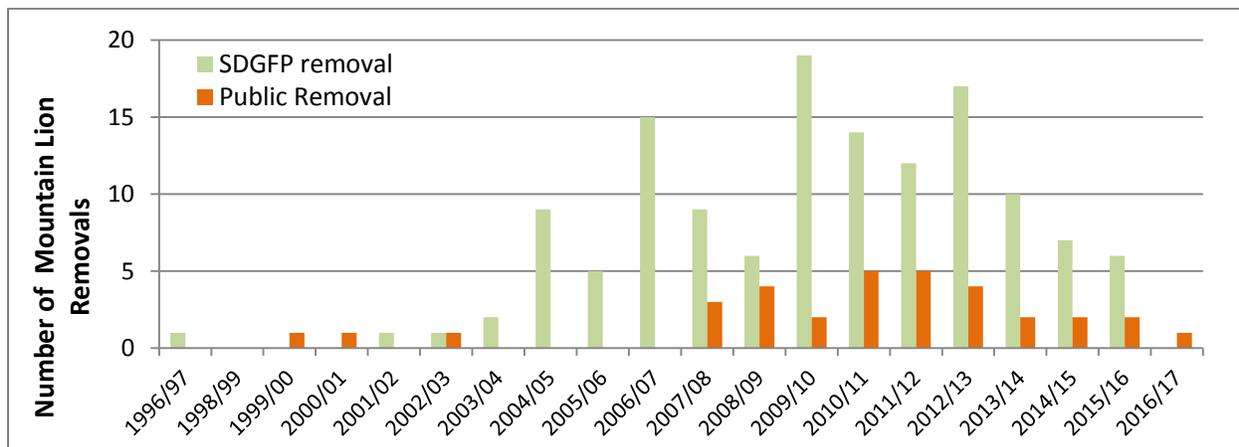


Figure 6. Mountain lion removals by SDGFP and the public, 1996/97 – 2016/17 (April 1 – March 31).

Under South Dakota codified law 46-6-29.2, killing of a mountain lion is permitted if reasonably necessary to protect the life of a person or if a mountain lion is posing an imminent threat to a person’s livestock or pets. If a person kills a mountain lion pursuant to state law, they must contact SDGFP within twenty-four hours of killing the mountain lion. Public removals of mountain lions have followed similar trends to SDGFP removals, and peaked at five removals/year in both 2010/11 and 2011/12 (Figure 6).

Mortality densities

Total mortality densities are evaluated in relation to thresholds defined for adjacent mountain lion populations in Wyoming. Based on Anderson and Lindzey (2005) and evaluations of harvest densities in Wyoming (Wyoming Game and Fish 2006), the Wyoming Game and Fish Department (WGFD) uses the following harvest densities for establishing source-stable-sink (Cougar Management Guidelines Working Group 2005) mountain lion management:

- Reduce lion population: > 8 lions/1,000 km²
- Maintain lion population: 5-8 lions/1,000 km²
- Increase lion population: < 5 lions/1,000 km²

Human caused mountain lion mortality densities in the BHFPD are monitored by the state wildlife agencies of both South Dakota and Wyoming. Using criteria established in Wyoming, mortality densities in both states have been sufficient to lower mountain lion populations in the Black Hills from approximately 2010/11 to 2014/15 (Figure 7). Mortality densities over the past two years in South Dakota, however, would suggest an approximate stable mountain lion population.

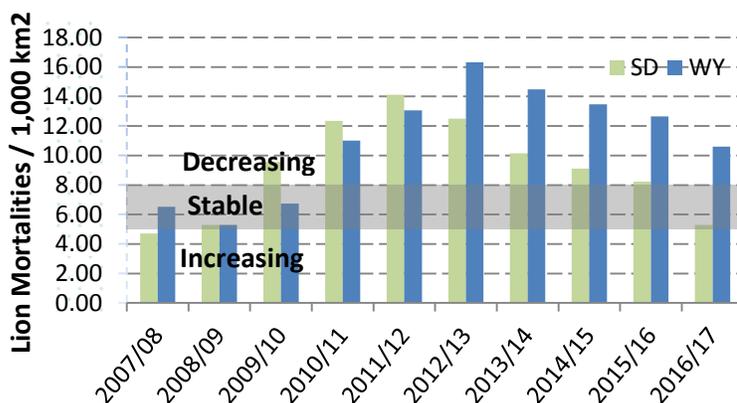


Figure 7. Human-caused mountain lion mortality densities (lions per 1,000 square kilometers) in the Black Hills of South Dakota and Wyoming, 2007/08 – 2016/17 (April 1 – March 31). Stable population threshold (5-8 mortality density) identified by shaded horizontal bar.

DNA Mark/Recapture Survey

Mountain lion population estimates are derived using the Lincoln-Petersen mark-recapture method, with the Chapman modification to account for small sample sizes. Beginning in 2013, after completion and evaluation of research conducted by Juarez (2014), the SDGFP began using biopsy-darting as the primary method to mark mountain lions immediately prior to the season; radio-collared mountain lions from previous research are also utilized to assess availability. In December of 2016, SDGFP used three houndsmen teams (SDGFP, WGFD, private contractor) to collect 63 samples. After DNA analyses were conducted by the USFS National

Genomics Center for Wildlife and Fish Conservation and data were further reviewed, there were DNA samples from 50 individual adult and sub-adult mountain lions that were considered available for harvest for the first day of the 2016/17 hunting season. The 96-day hunting season is considered the recapture event, and during that time 26 adult and sub-adult mountain lions were harvested; five were either previously DNA sampled or had a functioning radio collar. The inputs for the 2016/2017 Lincoln-Petersen mark-recapture estimate are as follows; $M = 50$, $C = 26$, $R = 5$.

Lincoln-Petersen mark-recapture Chapman estimates are derived using:

$$N = \frac{(M + 1)(C + 1)}{R + 1} - 1$$

N = Estimate of adult/sub-adult population size

M = Total number of adults captured and marked on the first visit

C = Total number of adults captured on the second visit

R = Number of adults captured on the first visit that are then recaptured on the second visit

95% confidence intervals are then formulated using the variance estimator below:

$$var(N) = \frac{(M + 1)(C + 1)(M - R)(C - R)}{(R + 1)(R + 1)(R + 2)}$$

Vital rates from radio-collared individuals and recruitment data from previous research studies in the Black Hills (e.g., Thompson 2009, Jansen 2011) were used as input variables to calculate the total mountain lion population. Age and sex composition of starting populations was based on the 3-year average composition of harvested mountain lions. The 2016/17 pre-season population estimate for the Black Hills was approximately 300 total mountain lions (95% CI: 119-466), of which 230 were adults/sub-adults. Population estimates have low precision, but appear to be slightly above management objective the past few years (Figure 8). Catch per unit effort data are also recorded during DNA collection efforts, and are evaluated annually (Table 3).

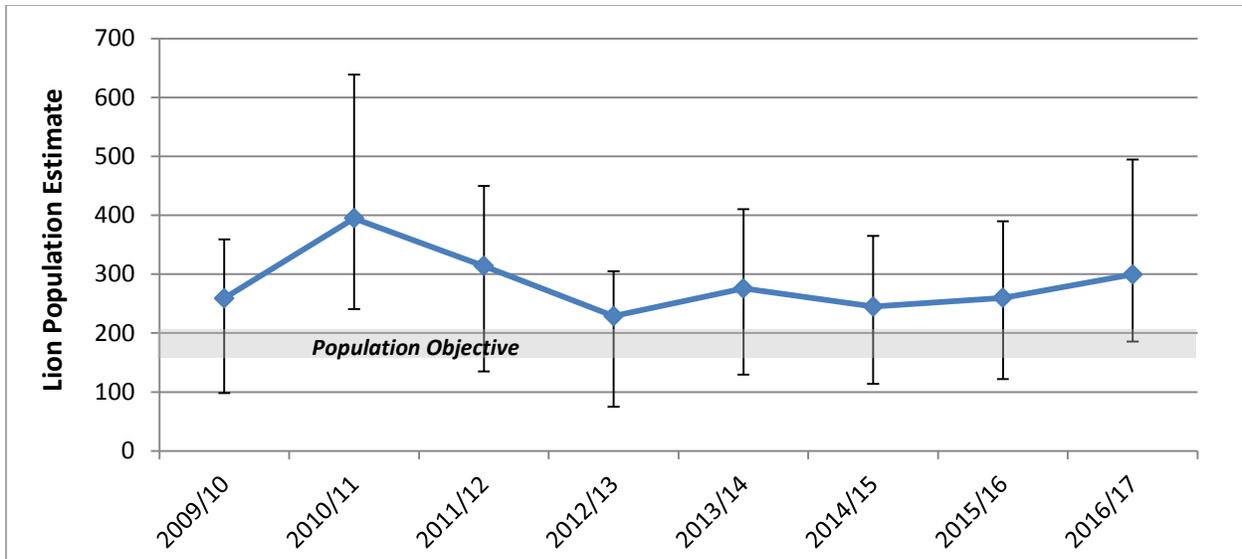


Figure 8. Mark/recapture estimates of the mountain lion population in the Black Hills of South Dakota, 2009/10 – 2016/17 (April 1 – March 31). Current population objective (175±25) identified by shaded horizontal bar.

Table 3. Catch per unit effort data collected during annual biopsy surveys of mountain lions in the Black Hills of South Dakota, 2013 – 2016.

Year	hours	lions	hrs/lion	catch/100 hrs
2013	319	26.0	12.3	8.2
2014	615	31	19.8	5.0
2015	508	56	9.1	11.0
2016	578	63	9.2	10.9

Observation Reports

All mountain lion observations reported by the public are documented and evaluated for trend assessments along with other mountain lion population data. Observation reports have been on a decreasing trend since they peaked in 2004/05 at approximately 406 total reports (Figure 9). Because SDGFP encourages the public to report any observations of mountain lions and documents all such observations, it is important to report these data. Interpretation of observational data is challenging, however, because reporting rates from the public are unknown and likely variable which impacts data trend evaluations. It is likely that only significant increases or decreases to the mountain lion population would be documented with observation report data.

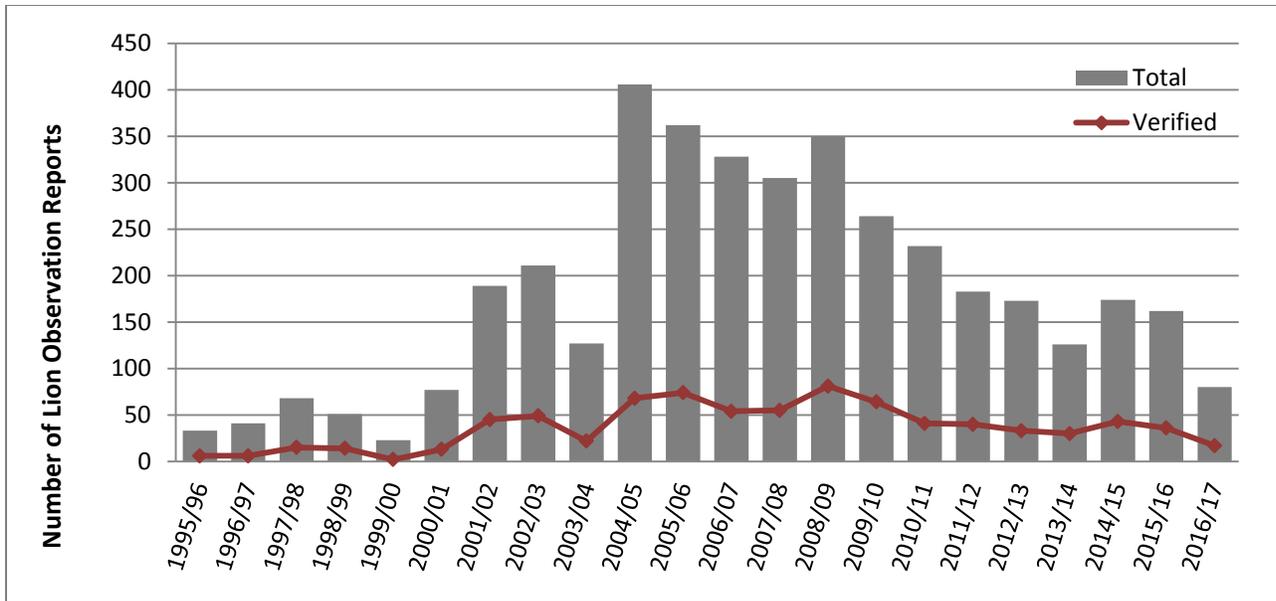


Figure 9. Mountain lion observation reports in South Dakota, including total number of reports and those verified by SDGFP, 1995/96 – 2016/17 (April 1 – March 31).

SUMMARY

The South Dakota Game, Fish, and Parks conducts several surveys and assessments to better understand mountain lion population abundance and trends in the Black Hills. Data from hunting seasons and hunter surveys are evaluated annually, such as harvest, harvest sex and age composition, female proportions in the harvest, and harvest per unit effort. Lion mortality data, including harvest, non-harvest, removals, and total mortality densities are also assessed for any apparent trends. In addition, DNA biopsy-darting surveys are conducted annually prior to each hunting season in order to complete mark/recapture estimates and evaluations of catch per unit effort. Furthermore, all observation reports from the public are recorded into a database and evaluated.

This report provides the most recent mountain lion survey data and analyses completed in South Dakota. Caution is warranted when comparing data in South Dakota with trend indicators developed for mountain lion populations in western states with substantially different habitats, predator and prey densities, and data collection methods (e.g., hound hunting vs. no hound hunting). Additionally, it should be noted that not all trend estimates assessed by the SDGFP are in agreement. Given these considerations, however, most survey data and evaluations of mountain lion trend indicators suggest that the mountain lion population in the Black Hills is stable or slightly decreasing.

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APPENDIX

Appendix A. Documented mountain lion mortalities in South Dakota, April 1, 2015 – March 30, 2017.

Date Died or Reported	Adjusted Year	Sex	Age Class	Classification of Death	County	Black Hills or Prairie
04/05/2015	2015	M	SA	Public Removal	Fall River	Prairie
04/13/2015	2015	M	SA	Removal	Meade	Black Hills
04/15/2015	2015	F	SA	Hunter Harvest	Perkins	Prairie
04/17/2015	2015	M	SA	Removal	Meade	Black Hills
04/30/2015	2015	M	K	Sick	Custer	Black Hills
05/30/2015	2015	M	SA	Removal	Pennington	Black Hills
05/30/2015	2015	F	SA	Removal	Lawrence	Black Hills
06/04/2015	2015	F	A	Vehicle	Lawrence	Black Hills
06/16/2015	2015	M	K	Unknown	Pennington	Black Hills
06/26/2015	2015	M	K	Sick	Lawrence	Black Hills
08/07/2015	2015	M	SA	Hunter Harvest	Meade	Prairie
08/12/2015	2015	M	SA	Vehicle	Meade	Black Hills
09/05/2015	2015	F	SA	Vehicle	Pennington	Black Hills
09/10/2015	2015	F	SA	Removal	Custer	Prairie
09/19/2015	2015	F	SA	Vehicle	Pennington	Black Hills
09/20/2015	2015	M	SA	Vehicle	Lawrence	Black Hills
09/25/2015	2015	M	SA	Emaciation	Pennington	Black Hills
11/18/2015	2015	M	SA	Vehicle	Custer	Black Hills
12/09/2015	2015	F	A	Unknown	Lawrence	Black Hills
12/11/2015	2015	F	K	Research	Meade	Black Hills
12/17/2015	2015	M	SA	Hunter Harvest	Meade	Prairie
12/21/2015	2015	M	SA	Removal	Lawrence	Black Hills
12/26/2015	2015	M	A	Hunter Harvest	Custer	Black Hills
12/27/2015	2015	M	A	Hunter Harvest	Pennington	Black Hills
12/28/2015	2015	M	SA	Hunter Harvest	Charles Mix	Prairie
12/30/2015	2015	F	A	Hunter Harvest	Pennington	Black Hills
12/29/2015	2015	F	SA	Hunter Harvest	Jackson	Prairie

12/30/2015	2015	M	SA	Hunter Harvest	Meade	Prairie
01/10/2016	2015	F	SA	Hunter Harvest	Lawrence	Black Hills
01/10/2016	2015	M	SA	Hunter Harvest	Meade	Black Hills
01/11/2016	2015	F	K	Hunter Harvest	Lawrence	Black Hills
01/16/2016	2015	F	A	Hunter Harvest	Lawrence	Black Hills
01/16/2016	2015	F	SA	Hunter Harvest	Pennington	Black Hills
01/17/2016	2015	F	A	Hunter Harvest	Lawrence	Black Hills
01/19/2016	2015	F	A	Hunter Harvest	Pennington	Black Hills
01/20/2016	2015	M	SA	Hunter Harvest	Pennington	Black Hills
01/20/2016	2015	F	SA	Hunter Harvest	Lawrence	Black Hills
01/21/2016	2015	F	SA	Hunter Harvest	Pennington	Black Hills
01/22/2016	2015	F	A	Hunter Harvest	Lawrence	Black Hills
01/23/2016	2015	F	SA	Hunter Harvest	Pennington	Black Hills
01/25/2016	2015	M	A	Hunter Harvest	Custer	Black Hills
01/26/2016	2015	F	A	Hunter Harvest	Pennington	Black Hills
01/26/2016	2015	M	SA	Hunter Harvest	Meade	Black Hills
01/26/2016	2015	M	SA	Incidental	Harding	Prairie
01/27/2016	2015	M	SA	Hunter Harvest	Pennington	Black Hills
01/28/2016	2015	M	K	Vehicle	Pennington	Black Hills
01/30/2016	2015	F	SA	Hunter Harvest	Lawrence	Black Hills
02/03/2016	2015	M	A	Hunter Harvest	Custer	Black Hills
02/03/2016	2015	M	A	Hunter Harvest	Custer	Black Hills
02/04/2016	2015	F	SA	Hunter Harvest	Custer	Black Hills
02/05/2016	2015	M	A	Hunter Harvest	Custer	Black Hills
02/05/2016	2015	F	K	Hunter Harvest	Lawrence	Black Hills
02/13/2016	2015	M	SA	Hunter Harvest	Pennington	Black Hills
02/15/2016	2015	F	K	Hunter Harvest	Pennington	Black Hills
02/19/2016	2015	F	A	Hunter Harvest	Meade	Black Hills
02/19/2016	2015	M	SA	Hunter Harvest	Lawrence	Black Hills
02/22/2016	2015	M	SA	Hunter Harvest	Lawrence	Black Hills
02/24/2016	2015	F	A	Hunter Harvest	Oglala Lakota	Prairie
02/28/2016	2015	M	SA	Hunter Harvest	Meade	Prairie
02/28/2016	2015	F	A	Hunter Harvest	Custer	Black Hills

03/09/2016	2015	M	A	Hunter Harvest	Lawrence	Black Hills
03/12/2016	2015	F	SA	Hunter Harvest	Pennington	Black Hills
03/20/2016	2015	M	SA	Public Removal	Fall River	Prairie
03/24/2016	2015	M	A	Hunter Harvest	Custer	Black Hills
03/24/2016	2015	F	SA	Hunter Harvest	Pennington	Black Hills
03/24/2016	2015	M	SA	Hunter Harvest	Lawrence	Black Hills
03/25/2016	2015	F	A	Hunter Harvest	Lawrence	Black Hills
03/26/2016	2015	F	SA	Hunter Harvest	Lawrence	Black Hills
03/27/2016	2015	F	A	Hunter Harvest	Custer	Black Hills
03/30/2016	2015	F	A	Wounding Loss	Pennington	Black Hills
03/30/2016	2015	F	SA	Hunter Harvest	Lawrence	Black Hills
03/31/2016	2015	F	SA	Hunter Harvest	Lawrence	Black Hills
04/05/2016	2016	F	K	Vehicle	Pennington	Black Hills
05/02/2016	2016	F	SA	Unknown	Pennington	Prairie
07/02/2016	2016	F	SA	Vehicle	Pennington	Black Hills
12/05/2015	2015	F	A	Illegal Kill	Pennington	Black Hills
08/20/2016	2016	F	SA	Vehicle	Fall River	Prairie
10/08/2016	2016	M	SA	Vehicle	Pennington	Black Hills
10/18/2016	2016	M	SA	Electrocution	Pennington	Black Hills
11/08/2016	2016	M	SA	Hunter Harvest	Meade	Prairie
11/22/2016	2016	M	SA	Public Removal	Custer	Black Hills
12/10/2016	2016	M	SA	Hunter Harvest	Jackson	Prairie
12/19/2016	2016	F	K	Research	Pennington	Black Hills
12/19/2016	2016	M	K	Research	Pennington	Black Hills
12/26/2016	2016	M	SA	Hunter Harvest	Custer	Black Hills
12/26/2016	2016	M	A	Hunter Harvest	Custer	Black Hills
12/31/2016	2016	F	A	Hunter Harvest	Pennington	Black Hills
01/01/2017	2016	M	SA	Hunter Harvest	Lawrence	Black Hills
01/06/2017	2016	F	A	Hunter Harvest	Lawrence	Black Hills
01/21/2017	2016	F	A	Hunter Harvest	Pennington	Black Hills
01/21/2017	2016	F	SA	Hunter Harvest	Pennington	Black Hills
01/24/2017	2016	F	SA	Hunter Harvest	Custer	Black Hills
01/25/2017	2016	M	A	Hunter Harvest	Pennington	Black Hills

01/26/2017	2016	M	A	Hunter Harvest	Pennington	Black Hills
01/27/2017	2016	M	SA	Hunter Harvest	Lawrence	Black Hills
01/29/2017	2016	F	SA	Hunter Harvest	Pennington	Black Hills
01/30/2017	2016	F	A	Hunter Harvest	Lawrence	Black Hills
02/02/2017	2016	M	SA	Hunter Harvest	Custer	Black Hills
02/03/2017	2016	F	SA	Hunter Harvest	Pennington	Black Hills
02/03/2017	2016	M	A	Hunter Harvest	Meade	Prairie
02/04/2017	2016	M	SA	Hunter Harvest	Custer	Black Hills
02/08/2017	2016	M	K	Hunter Harvest	Meade	Black Hills
02/09/2017	2016	F	A	Hunter Harvest	Lawrence	Black Hills
02/11/2017	2016	M	K	Hunter Harvest	Lawrence	Black Hills
02/20/2017	2016	M	SA	Hunter Harvest	Meade	Prairie
02/22/2017	2016	F	K	Unknown	Meade	Black Hills
02/23/2017	2016	M	A	Hunter Harvest	Lawrence	Black Hills
02/25/2017	2016	F	A	Hunter Harvest	Lawrence	Black Hills
02/25/2017	2016	F	K	Hunter Harvest	Custer	Black Hills
02/25/2017	2016	M	SA	Hunter Harvest	Custer	Black Hills
02/25/2017	2016	F	A	Hunter Harvest	Lawrence	Black Hills
02/25/2017	2016	M	SA	Hunter Harvest	Pennington	Black Hills
02/26/2017	2016	M	K	Hunter Harvest	Pennington	Black Hills
02/26/2017	2016	M	SA	Hunter Harvest	Fall River	Prairie
02/26/2017	2016	F	SA	Hunter Harvest	Custer	Black Hills
03/14/2017	2016	F	A	Hunter Harvest	Pennington	Black Hills
03/21/2017	2016	F	SA	Hunter Harvest	Custer	Black Hills
03/22/2017	2016	F	SA	Hunter Harvest	Custer	Black Hills