SOUTH DAKOTA
PRONGHORN ACTION PLAN
2024 – 2028

SOUTH DAKOTA DEPARTMENT OF GAME, FISH AND PARKS
PIERRE, SOUTH DAKOTA

WILDLIFE DIVISION REPORT 2024-02
September 2024

This document is for general, strategic guidance for the Division of Wildlife and serves to identify what we strive to accomplish related to Pronghorn Management. This process will emphasize working cooperatively with interested publics in both the planning process and the regular program activities related to pronghorn management.

This action plan will be utilized by Department staff on an annual basis and will be formally evaluated at least every 5 years. Plan updates and changes, however, may occur more frequently as needed.

All text and data contained within this document are subject to revision for corrections, updates, and data analyses.

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INTRODUCTION

The pronghorn (*Antilocapra americana*) is the only member of the family Antilocapridae and is native only to North America. South Dakota's diverse landscapes of grassland, rangeland, and cropland areas are home to pronghorn across areas primarily adjacent to and west of the Missouri River. It has been estimated that over 700,000 pronghorn ranged in South Dakota prior to 1800 (Bever undated), but pronghorn were nearly extirpated due to unregulated harvest and market hunting by the turn of the 20th century. Legislation created in the 1900s and hunting seasons established by the South Dakota Department of Game, Fish, and Parks (GFP) Commission allowed pronghorn populations to recover from historic lows. Pronghorn hunting seasons have occurred regularly since the 1940s, with pronghorn hunters harvesting approximately 18,000 pronghorn during the recent record year of 2008.

South Dakota has the 5th largest pronghorn population in North America with an estimated 41,533 animals in 2021 (Norton and Lindbloom 2024). Pronghorn hunting is a popular and much-awaited outdoor activity for many sportsmen and women in South Dakota. Within South Dakota, approximately 4,785 residents and 950 non-residents hunted pronghorn in 2023, with a recent peak pronghorn hunter participation occurring in 2008 when approximately 13,000 residents and non-residents pursued pronghorn. Hunting remains the number one tool for managing pronghorn populations across South Dakota and harvest strategies are intended to ensure the well-being of the species and its habitat while maintaining populations at levels compatible with human activity and land use.

The GFP manages wildlife and associated habitats for their sustained and equitable use, and the benefit, welfare and enjoyment of the citizens of this state and its visitors. South Dakota's pronghorn resources demand prudent and increasingly intensive management to accommodate numerous and varied public demands and growing impacts from people. The "*South Dakota Pronghorn Action Plan, 2024-2028*" will serve as the guiding document for decision making and implementation of actions to ensure pronghorn populations and their habitats are managed appropriately, addressing both biological and social tolerances, while considering the needs of all stakeholders. Additional information regarding pronghorn management, research, and history can be found in the *South Dakota Pronghorn Management plan, 2019-2029" (*SDGFP 2019; *https://gfp.sd.gov/UserDocs/docs/PronghornPlan__FINAL.pdf*.)

POPULATION MONITORING

Numerous surveys are completed by GFP to manage pronghorn populations for both consumptive and non-consumptive users. Pronghorn surveys in South Dakota include hunter harvest surveys, aerial surveys, herd composition surveys, survival monitoring, disease monitoring, winter severity evaluation, and population modeling for 27 pronghorn game management units within seven Data Analysis Units (DAUs) that comprise the state's pronghorn range (Figure 1). A DAU is an aggregate of management units that serves as the definition of
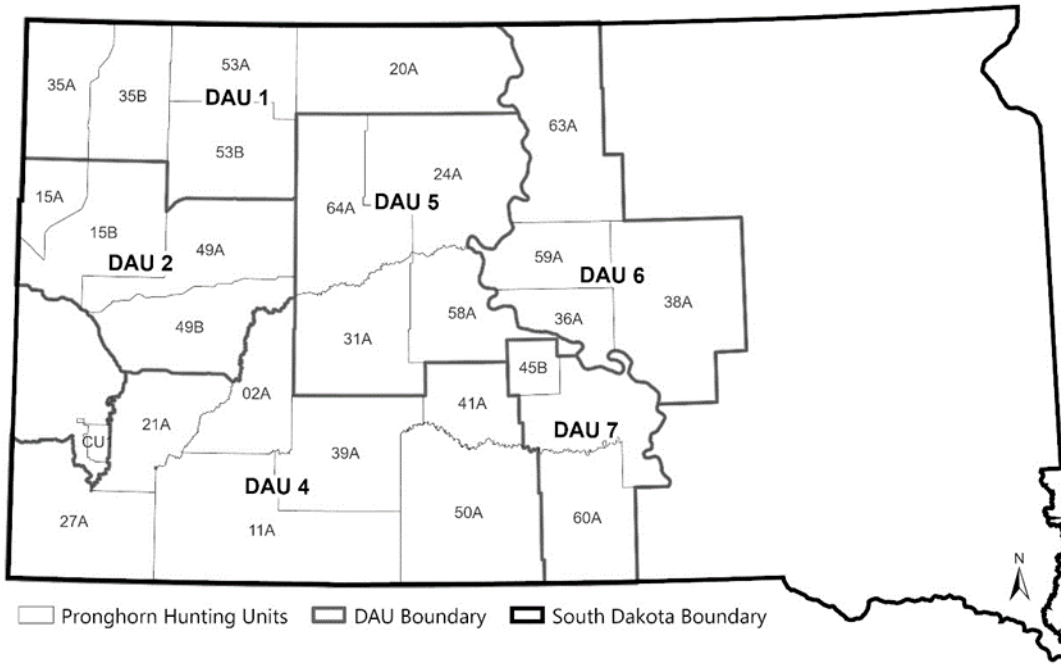
Figure 1. Data Analysis Units (DAUs) and firearm hunting units in South Dakota, 2024.

the geographic extent of a biological population, but potentially large amounts of heterogeneity may exist in animal abundance within a DAU. For the latest survey data and population updates, see GFP's Biennial Status Updates (Lindbloom et al. 2024).

Harvest Surveys
The pronghorn hunter harvest survey is conducted annually via emailed surveys. Currently, hunters are surveyed for each pronghorn season available; firearm, archery, landowner, mentored youth, and CSP. Prior to 2019, hunters were sampled using mail and email mixed-mode methodology. Post 2019, 100% of license holders are sampled via email, which has substantially increased hunter samples.

Aerial Surveys
Spring adult pronghorn estimates are generated biennially using a fixed–winged aircraft flown at speeds <100 mph and altitudes between 100 to 200 feet above ground level. In units west of the Missouri River, aerial strip transects are flown 1.5 miles apart, with transect widths of 0.5 miles. Results from sampled areas (an approximate systematic third of each unit) are used to estimate pronghorn densities in un-sampled areas (Figure 2). In units east of the Missouri River, the entire area is surveyed, but transect widths are increased to 1 mile. No sightability correction factor is used to account for potential pronghorn missed during the survey, resulting in an assumption of 100% detection probability. Assuming independence among hunting units, the total statewide and DAU spring population estimates are calculated by summing the total population and variance across hunting units (Thompson 2002).
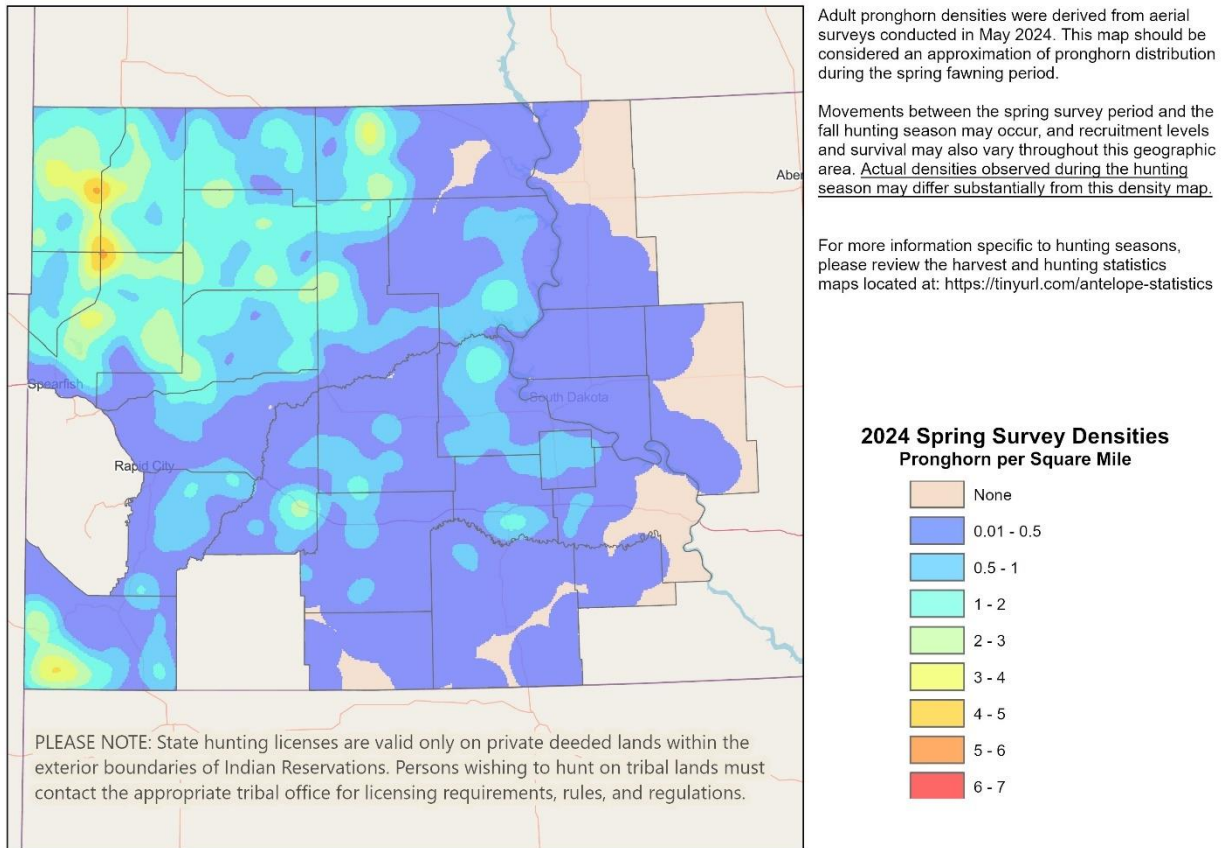
2024 Spring Pronghorn Density

Adult pronghorn densities were derived from aerial surveys conducted in May 2024. This map should be considered an approximation of pronghorn distribution during the spring fawning period.

Movements between the spring survey period and the fall hunting season may occur, and recruitment levels and survival may also vary throughout this geographic area. Actual densities observed during the hunting season may differ substantially from this density map.

For more information specific to hunting seasons, please review the harvest and hunting statistics maps located at: https://tinyurl.com/antelope-statistics

2024 Spring Survey Densities
Pronghorn per Square Mile

None	
0.01 - 0.5	
0.5 - 1	
1 - 2	
2 - 3	
3 - 4	
4 - 5	
5 - 6	
6 - 7	

PLEASE NOTE: State hunting licenses are valid only on private deeded lands within the exterior boundaries of Indian Reservations. Persons wishing to hunt on tribal lands must contact the appropriate tribal office for licensing requirements, rules, and regulations.

Figure 2. Adult pronghorn density estimates derived from spring aerial surveys in South Dakota, 2024.

Herd Composition Surveys
Pre-season herd composition ground surveys are completed by driving roads or hiking in areas of known pronghorn concentrations in September. All pronghorn herds that are observed in their entirety are classified to numbers of fawns, does, and bucks. A minimum sample size of 200-400 independent group observations per DAU is currently the goal to ensure sufficient precision in herd composition estimates.

Survival Monitoring
Understanding population dynamics of pronghorn and determining annual rates of population change (λ) requires knowledge of juvenile and adult survival rates. Annual rates of change within a pronghorn population are influenced primarily by adult survival and the number of fawns that reach one year of age. GFP staff are currently monitoring GPS-collared pronghorn in DAUs 1 and 6. Survival studies have been instrumental in providing area specific biological data for GFP to use in evaluating pronghorn populations and management options.

Disease
Pronghorn, as with other wildlife species, have the potential to acquire and transmit diseases from other wildlife or domestic species. In South Dakota, there are few diseases documented within pronghorn herds, and most diseases do not cause major concerns regarding the sustainability of pronghorn populations within the State. The most common disease that could likely affect pronghorn in South Dakota is hemorrhagic disease. Epizootic hemorrhagic disease (EHD) and bluetongue (BT), collectively called Hemorrhagic Disease, are caused by *orbiviruses* that are spread by biting flies of the genus *Culicoides* (Davidson 2006). Hemorrhagic disease is the most commonly found disease in white-tailed deer in South Dakota and has occasionally been documented in pronghorn and no significant die-offs have been reported.

Winter Severity Evaluation
Winter severity is an important metric that can impact survival of pronghorn across South Dakota. Weather data are obtained through an annual data request via the National Oceanic and Atmospheric Administration (NOAA). Program R, a statistical software package (R Core Team 2015), is used to extrapolate weather data across all pronghorn units using an inverse distance weighted interpolation function. In addition, GFP collects and maintains a database of pronghorn mortalities reported to staff from the public during hard winters. Weather and mortality data combined provide a relative assessment of overwinter mortalities and represent an approximate spatial distribution of where those losses occur.

Population Modeling
Biennial DAU pre-hunt pronghorn estimates are projected from adult spring aerial survey estimates using fall herd composition data from the most recent 3 years available. Assuming no adult mortality occurs between the spring survey to the hunting season, fall pre-hunt adult male and female cohorts are projected by multiplying the spring estimate by adult sex ratios, calculated from the most recent 3-year average of herd composition data. Pre-hunt fawns are estimated by multiplying pre-hunt adult females by fawns per adult female (age ratio), calculated from the most recent 3-year average of herd composition data. Male and female recruitment from birth to fall is assumed to be equal. Because aerial surveys for pronghorn are conducted biennially, pre-hunt population abundance and trends for DAUs are projected during years without surveys using herd composition and winter severity data.

CITIZEN INVOLVEMENT AND OUTREACH

Effective decision-making by wildlife agencies necessitates the need to consider public perceptions, opinions, and potential responses to management policies. Along with hunter harvest and biological data collected, public involvement is an important component in developing and implementing a Pronghorn Management Plan in South Dakota. Public participation helps ensure decisions are made in consideration of public needs and preferences. It can help resolve conflicts, build trust, and inform the public about pronghorn management in South Dakota. Successful public participation is a continuous process, consisting of a series of activities and actions to inform the public and stakeholders, as well as obtain input regarding

decisions that affect them. Public involvement strategies provide more value when they are open, relevant, timely, and appropriate to the intended goal of the process. It is important to provide a balanced approach with representation of all stakeholders. A combination of informal and formal techniques reaches a broader segment of the public; therefore, when possible, combining different techniques is preferred to using a single public involvement approach.

When it comes to public involvement, one-size does not fit all. Every situation is different and each approach to a specific situation will be unique. No single citizen or group of citizens can represent the views of all citizens. Multiple avenues for public involvement and outreach were used in the development of the Pronghorn Management Plan. These approaches were designed to involve the public at various stages of plan development and to ensure opportunities for participation were accessible to all citizens. Specific strategies to gather public input in the future are outlined in the *Management Objectives and Strategies* section.

POPULATION OBJECTIVES

GFP manages pronghorn 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. Multiple sources of public opinion are used to assess management objectives and include personal contacts with landowners and hunters, open houses, hunter and landowner opinion surveys, hunter harvest surveys quantifying success and satisfaction ratings, and other submitted comments. GFP also considers pronghorn population abundance levels, pronghorn depredation issues, landowner tolerance, hunter comments, and harvest results from the previous season to set quantitative management objectives for each firearm management unit (Appendix A). Staff then evaluate current pronghorn abundance estimates and define a qualitative management objective direction (i.e., substantially decrease, slightly decrease, maintain current level, slightly increase, substantially increase). The development of objective directions is important in better defining management intentions with the public and provides more transparency (Figure 3).

The current statewide population objective is approximately 69,000 total pre-season pronghorn, but actual population abundance may range from 59,000 to 80,000. The statewide objective is a summation of all hunting unit objectives. The GFP will adopt harvest strategies that will allow the pronghorn population to stay within the objective range.
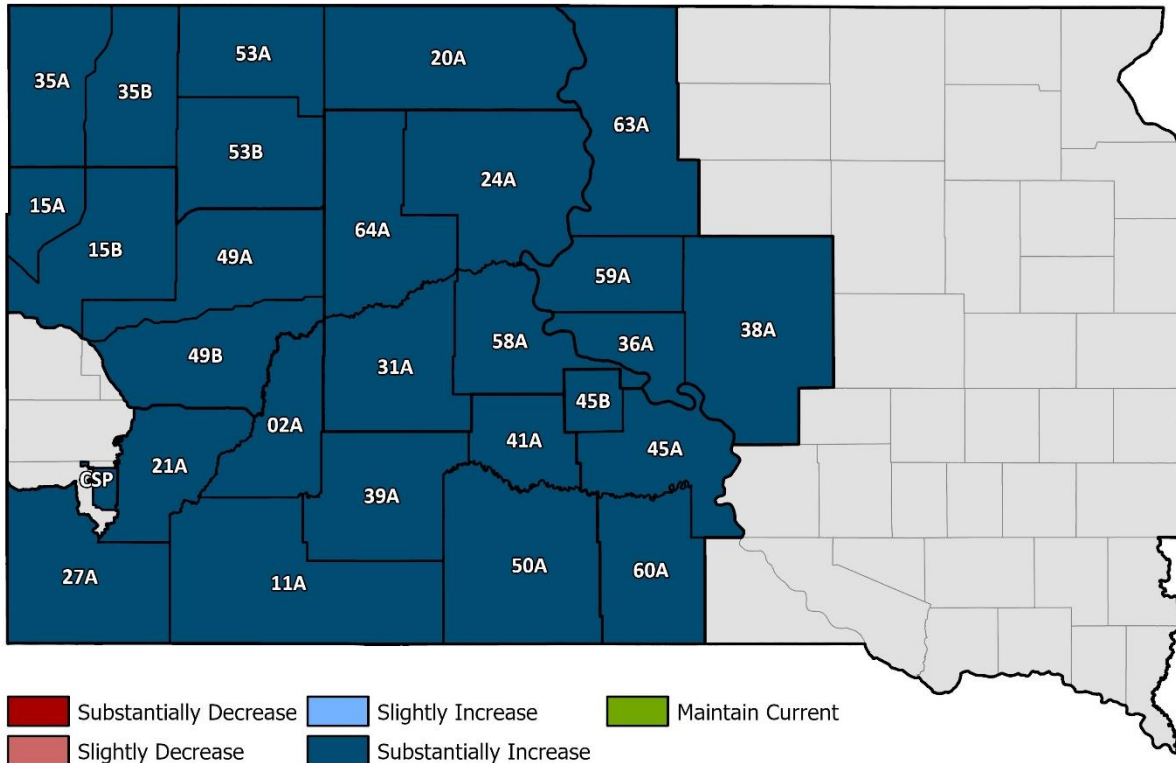
Figure 3. South Dakota pronghorn hunting unit population objectives, 2024-2025.

HARVEST STRATEGIES

Once population objectives are defined, GFP staff develop season recommendations that strive to provide the most hunting opportunity, while shifting the population towards management objectives. Depending on population densities and objectives within each pronghorn management unit, GFP staff uses harvest strategies to guide management decisions (Table 1). This table is presented as a guide to appropriate harvest options available for local herds based on unit objectives and herd status. This table defines harvest strategies presently available and will be modified as needed if other options become available in the future.

Table 1. Harvest management strategies dependent on unit objectives and population estimates.

"TOOLS"	RESTRICTIVE Objective: Increase Population	MODERATE Objective: Maintain Population	LIBERAL Objective: Decrease Population
Doe harvest rate[1]	0-10% of adult doe population	10-20% of adult doe population	20-40% of adult doe population
License numbers	None – limited	Moderate	Liberal
License types	Any antelope Buck only Single tag	Any antelope Doe/kid Single/double tag	Any antelope Doe/kid Single/double/triple tags
Firearm license eligibility	Residents and Nonresidents (2%)	Residents and Nonresidents (4%)	Residents and Nonresidents (8%)
Season structure	Single season Closed season	Single season	Single season Split seasons
Extra seasons	None	None	Doe/kid legal during deer season
Archery[2]	Limited archery[3,4]	Limited archery[3,4]	Limited archery[3,4]
Mentored Youth[2]	Limited youth[4]	Limited youth[4]	Limited youth[4]

[1] See population growth table for more specific harvest rates (SDGFP 2019; Table 12).
[2] Archery and mentored youth seasons will be closed in units closed to firearm.
[3] Archery hunters currently limited to 1 single-tag (buck-only) antelope license.
[4] Additional archery and mentored youth restrictions will be considered.

MANAGEMENT OBJECTIVES AND STRATEGIES

<u>Objective 1:</u> Manage for biologically and socially acceptable pronghorn populations in each firearm management unit within South Dakota.

a) Where habitat and social tolerances allow, manage pronghorn in South Dakota for a pre-season population abundance of approximately 68,350 (58,000-79,000) pronghorn.
b) Gather hunter input on pronghorn population unit objectives.
   - Annually survey hunters to assess objectives as desired by hunters.
c) Gather input from landowners and the general public on pronghorn population unit objectives.
   - Evaluate the current database for contacts, sampling strategies, and costs needed to collect data at the unit level.
   - Biennially survey landowners and the general public to further evaluate pronghorn populations, objectives, management needs, and social tolerance.
d) Survey hunters to estimate annual pronghorn harvest statistics.
e) Biennially conduct spring aerial surveys in all management units.
f) Annually model pronghorn abundance and growth rates.
g) Conduct and assess annual fall herd composition surveys in each Data Analysis Unit.
h) Investigate and collect biological samples from reported or observed sick and/or dead pronghorn demonstrating symptoms of concern.

<u>Objective 2:</u> Manage pronghorn populations for both maximum and quality recreational hunting opportunities, considering all social and biological inputs.

a) Modify and adopt future hunting season structure as needed to maximize hunting opportunities for unique hunters, minimize regulation complexity, and maximize population growth to meet objectives as soon as possible.
b) Manage pronghorn in Custer State Park (CSP) to balance quality wildlife viewing and hunting opportunities as follows:
   - "Buck-only" licenses will be set at a base percentage of the pre-season CSP pronghorn population estimate.
   - "Doe/kid" licenses will be set at 3% of the pre-season CSP pronghorn population estimate. No licenses will be issued if the CSP pre-season population estimate is < 250 pronghorn.

Objective 3: Cooperatively work with private landowners, organizations, and other agencies to resolve pronghorn depredation to agricultural crops and other social conflict issues.

a) Respond to all pronghorn depredation concerns on private land promptly.
b) Encourage the enrollment of willing landowners who are experiencing chronic pronghorn depredation issues into Walk-In Area and Controlled Hunting Access Programs to allow public hunting access.
c) Utilize pool hunts when warranted to address pronghorn depredation concerns.
d) Expand hunting opportunities, when possible, to address depredation on private lands.
e) Where needed, evaluate additional depredation management strategies to increase acceptance of pronghorn population goals.

Objective 4: Cooperatively work with private landowners and public land managers to create, enhance, restore, and protect pronghorn habitat.

a) Develop program options to restore pronghorn forage and security cover in shrub-steppe habitats through plantings and management assistance.
   • Investigate and identify forb and browse enhancement options that are specific to pronghorn.
b) Annually strive to restore and establish 1,000 acres of new grassland habitat west of the Missouri River.
c) Annually strive to improve and enhance 50,000 acres of grassland habitat in western South Dakota by supporting improved grazing systems on private lands.
d) Annually strive to replace a minimum of 40 miles of woven wire or other non-wildlife-friendly fences with wildlife-friendly fences.

Objective 5: Cooperatively work with private landowners and public land managers to provide and enhance hunting access for pronghorn.

a) Annually lease an additional 20,000 acres of private land for pronghorn hunting opportunities through GFP access programs.

LITERATURE CITED

Bever, W., undated. The Pronghorn in South Dakota. South Dakota Game, Fish, and Parks, Pierre, South Dakota, USA.

Davidson, W. R. 2006. Field manual of diseases in the Southeastern United States, Third Edition. Southeastern Cooperative Wildlife Disease Study. Athens, Georgia, USA.

Lindbloom, A. J., B. R. Buckley, S. L. Griffin, and L. M. Wiechmann. 2024 *in progress*. Pronghorn population status update. 2024 Biennial Report. South Dakota Game, Fish and Parks, Pierre, South Dakota, USA.

Norton, A. S. and A. J. Lindbloom. 2024. Western States and Provinces Pronghorn Status Report, 2022. Pages 37-50 *in* Lindbloom, A. J., Wiechmann, L. M., and A. S. Norton, editors. Proceedings of the Western States and Provinces 29th Biennial Pronghorn Workshop, 2022. South Dakota Game, Fish and Parks, Pierre, South Dakota. USA. 127pp.

R Core Team. 2015. R: A language and environment for statistical computing. R foundation for statistical computing, Vienna, Austria. http://www.R-project.org

South Dakota Department of Game, Fish and Parks. 2019. South Dakota Pronghorn Management Plan, 2019 – 2029. Completion Report 2019-05. South Dakota Department of Game, Fish and Parks, Pierre, South Dakota, USA.

Thompson, S. K. 2002. Sampling. Second edition. John Wiley & Sons, New York, New York, USA.

Appendix A. Population objectives for pronghorn management units in South Dakota, 2024-2025.

Unit	Unit#	sq mi	Population Objective		
			Objective	Range (+/- 15%)	Density/sq mi
Pennington	02A	1,263	**2,000**	1,700	2,300	1.58
Bennett/Oglala Lakota*	11A	1,191	**200**	170	230	0.17
NW Butte	15A	624	**2,500**	2,130	2,880	4.01
Butte	15B	1,808	**8,000**	6,800	9,200	4.42
Corson	20A	2,529	**2,500**	2,130	2,880	0.99
Custer	21A	1,322	**2,500**	2,130	2,880	1.89
Dewey	24A	1,657	**2,500**	2,130	2,880	1.51
Fall River	27A	2,213	**5,000**	4,250	5,750	2.26
Haakon	31A	1,828	**2,000**	1,700	2,300	1.09
West Harding	35A	1,351	**8,000**	6,800	9,200	5.92
East Harding	35B	1,332	**6,000**	5,100	6,900	4.50
Hughes	36A	1,666	**400**	340	460	0.24
Hyde/Hand/Buffalo	38A	2,796	**150**	130	170	0.05
Jackson	39A	1,872	**1,500**	1,280	1,730	0.80
Jones	41A	924	**800**	680	920	0.87
Lyman	45A	1,499	**400**	340	460	0.27
FPNG	45B	373	**500**	430	580	1.34
North Meade	49A	1,722	**6,000**	5,100	6,900	3.48
South Meade	49B	1,706	**2,000**	1,700	2,300	1.17
Mellette/Todd	50A	1,309	**900**	770	1,040	0.69
North Perkins	53A	1,359	**4,000**	3,400	4,600	2.94
South Perkins	53B	1,599	**5,000**	4,250	5,750	3.13
Stanley	58A	1,398	**1,300**	1,110	1,500	0.93
Sully	59A	1,070	**400**	340	460	0.37
Tripp	60A	1,616	**150**	130	170	0.09
Walworth/Potter/Campbe	63A	1,642	**300**	260	350	0.18
Ziebach	64A	1,972	**3,000**	2,550	3,450	1.52
CSP	CSP	110	**350**	300	400	3.18
Total		41,751	**68,350**	58,000	79,000	1.64

*flight area reduced to Bennett county only, objective reduced