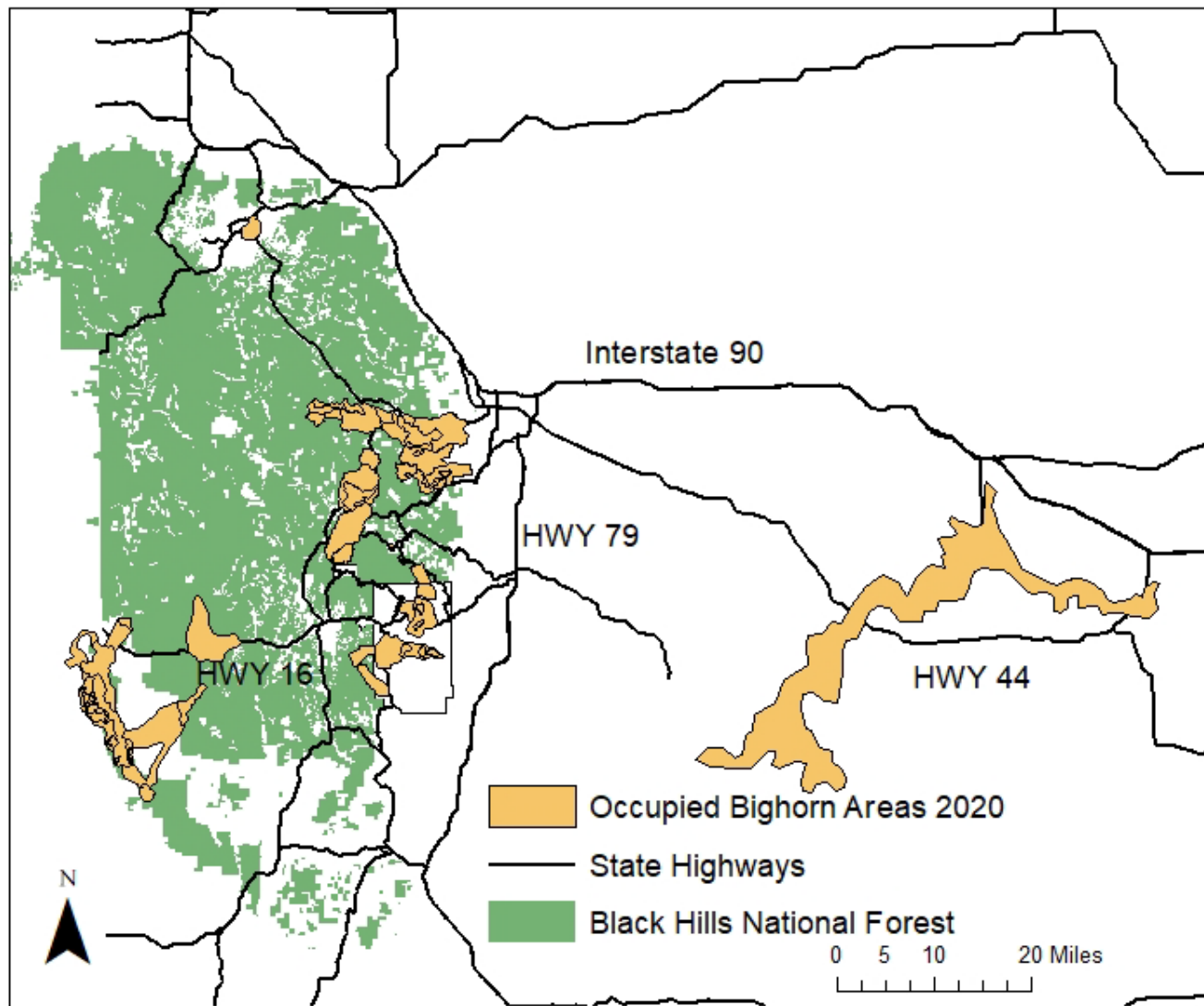




SOUTH DAKOTA GAME, FISH and PARKS

Bighorn Sheep Research and Management-
January Commission Meeting 2020



South Dakota Bighorn Sheep Herds



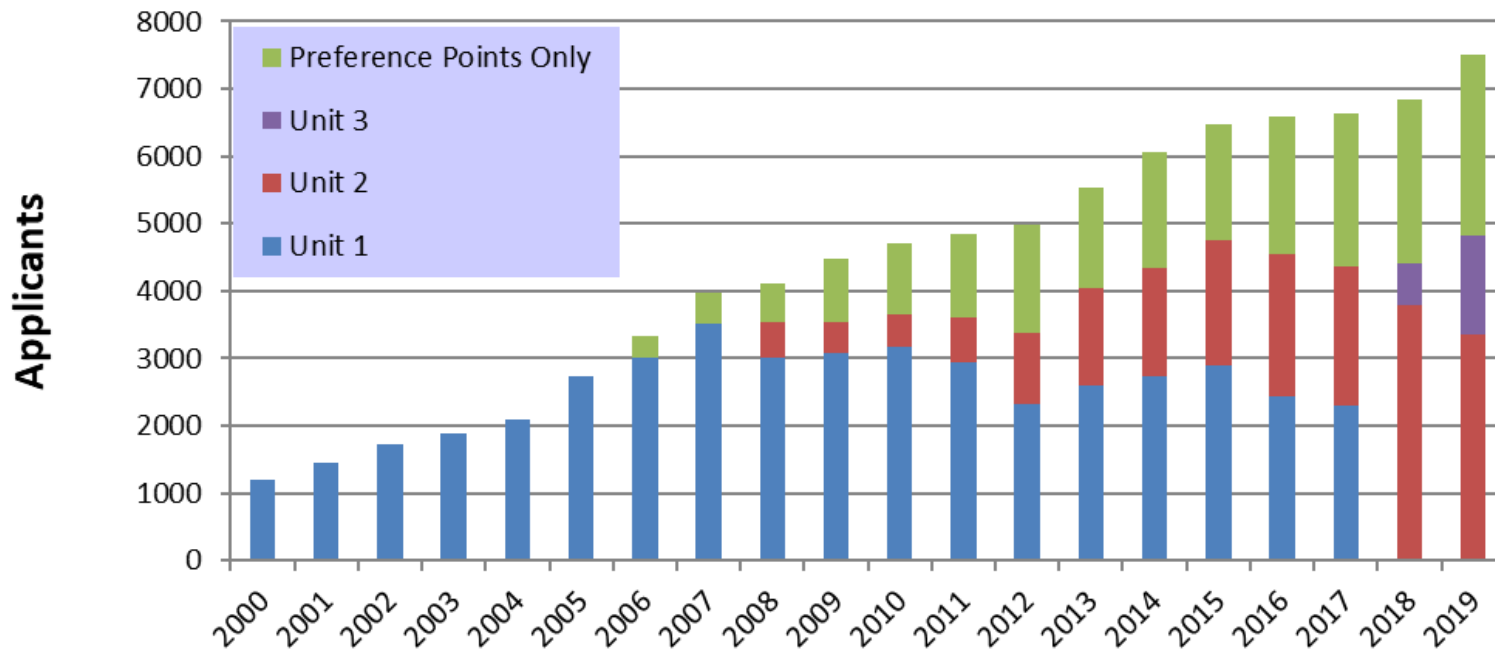
Population Surveys

- Harvest
- Winter ground counts
 - Minimum estimates
 - Gender ratios - Ram:Ewe
 - Age ratios/recruitment - Lamb:Ewe
- Winter mark-resight and detection surveys
 - Population estimates

Bighorn Sheep Licenses



Total Applications



Transplants – History



Year	Source	Destination
1922	Alberta	CSP
1961	Alberta	Slim Buttes
1964	Colorado	BLNP
1965	Wyoming	CSP
1974-82	CSP	CO and NE Spring Creek and
1991	Colorado	BLNP
1999	Alberta	CSP
2001	Spring Creek	Elk Mountain Elk Mountain and
2004	New Mexico Chippewa Cree	BLNP
2014	(MT)	Hell Canyon
2015	Alberta	Deadwood



Winter Ground Counts



Herd	Max # Ewes	Max # Lambs	Max # Rams	Unknown	Ram Class 1	Ram Class 2	Ram Class 3	Ram Class 4	Totals	Lamb:Ewe	Ram:Ewe
Rapid Creek	10	4	6	0	0	0	3	3	20		
Spring Creek	7	2	3	0	0	0	2	1	12		
Hill City	1	0	0	0	0	0	0	0	1		
Rapid City Total	18	6	9	0	0	0	5	4	33	33:100	50:100
Badlands	76	40	50	0	0	0	0	0	166	53:100	66:100
Elk Mt	19	3	35	0	1	15	15	4	57	16:100	184:100
Hell Canyon	34	16	26	0	3	3	12	8	76	47:100	76:100
CSP	34	13	16	0	0	10	4	2	63	38:100	47:100
Deadwood	14	4	2	0	0	0	2	0	20	29:100	14:100



Winter Mark-Resight/Detection Surveys

- Elk Mountain Survey Route
- 11 observation points, ~15 minutes at each point
- One sheep observer, one telemetry recorder
- Route completed 5 times
- Helicopter Sightability Model being developed with Wyoming G&F

Mark-Resight		Ewes	Lambs	Rams	Total
Estimate		52	8	92	152
95 CI		27-77	4--12	48-140	55-415

Detection		Ewes	Lambs	Rams	Total
Estimate		54	61	66	211
95 CI		63-127	34-69	52-105	149-301

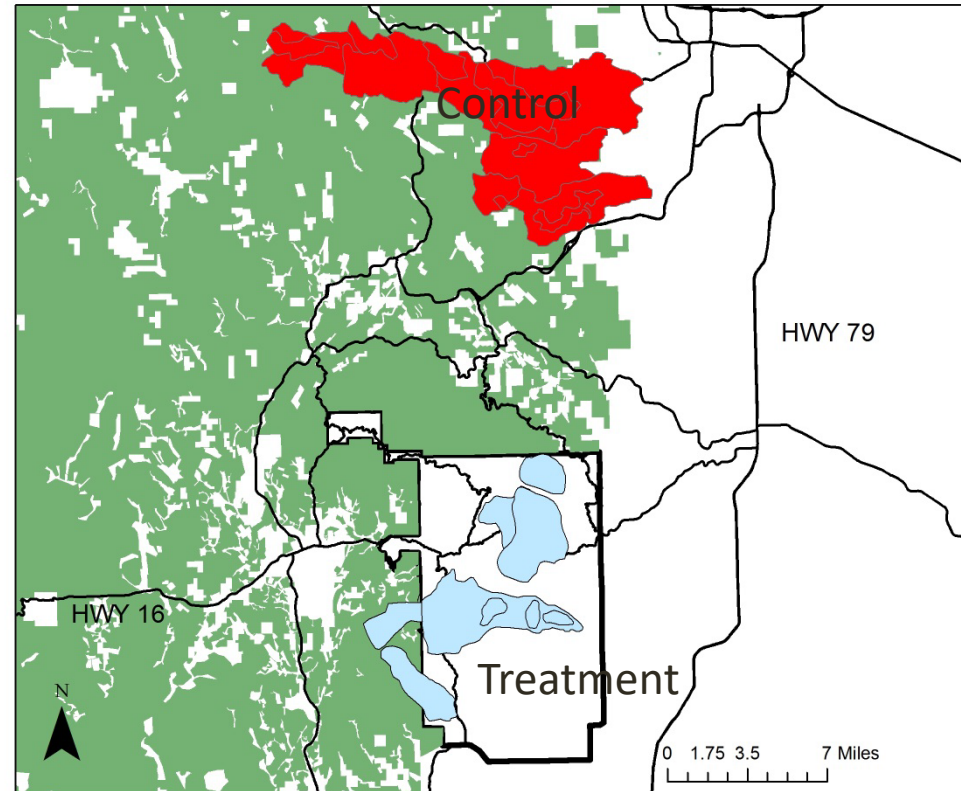
Custer State Park/Rapid City Herds Research

- CSP Study completed- research publication available soon
- Second year of Rapid City research study



We did not detect *Mycoplasma ovipneumoniae* (Mo) carriage or pneumonia in the treatment population (CSP) after shedder removal, while both remained in the control.

Mortality hazard was reduced by 72% in the treatment population relative to the control for lambs. There was a 41% reduction in adult hazard attributable to the treatment.



Harvest Recommendations

- Rapid City (Unit 1)- fewer sheep in that herd, still has *Mo.* Keep closed.
- Elk Mt (Unit 2)- stable population can sustain 3 on both sides of border; met with Wyoming Game and Fish and jointly decided recommendation.
- Eastern Pennington (Unit 3)- most of the sheep are located in NPS (roughly 70 outside of Park during hunting season) and can support 1 ram license, or potentially 2.
- Hell Canyon (Unit 4)- increase in population can sustain 2 ram licenses
- Custer State Park (CSP)- increase in population can sustain 1 ram license.
- One auction license available.
- Total of 8 licenses available in South Dakota.



Season Dates:

Sept 1 - Dec 31, 2020

Licenses:

Unit 1: 0 “ram bighorn sheep” license

Unit 2: 3 “ram bighorn sheep” licenses

Unit 3: 1 “ram bighorn sheep” license

Unit 4: 2 “ram bighorn sheep” licenses

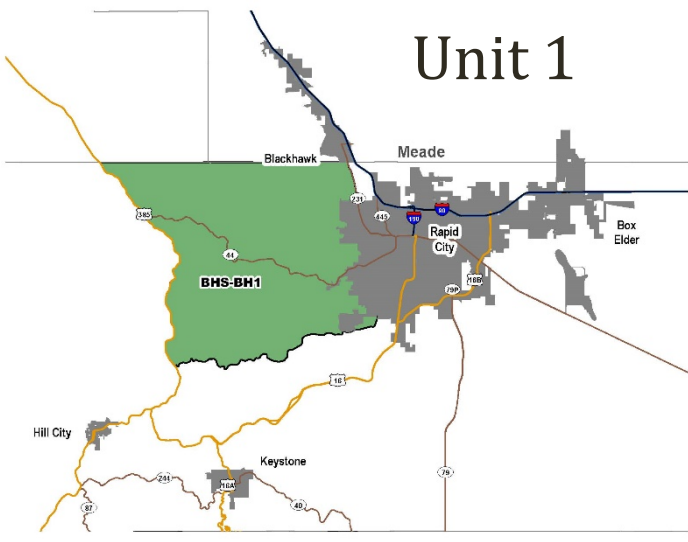
CSP: 1 “ram bighorn sheep” license

*One bighorn sheep license shall be allocated as an auction license if a minimum of three bighorn licenses are approved by the Commission.

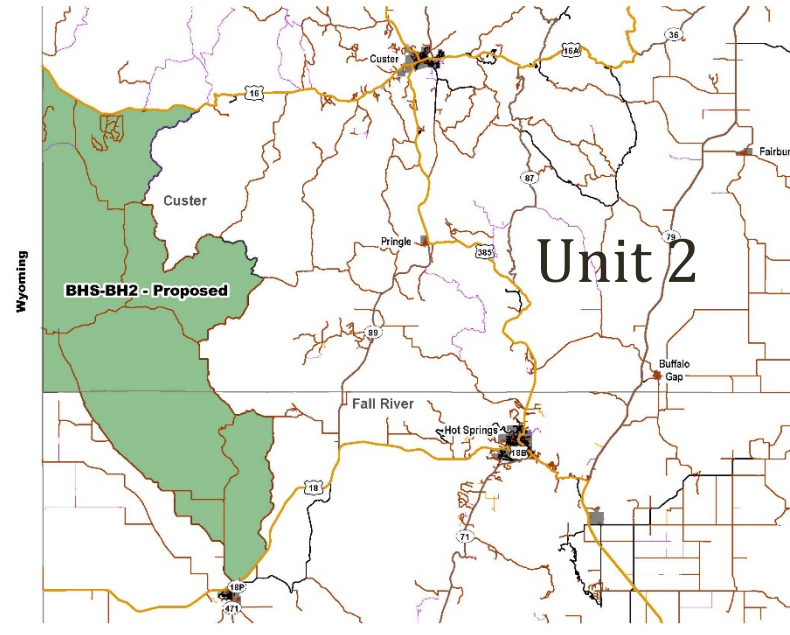
2020 Bighorn Sheep Units



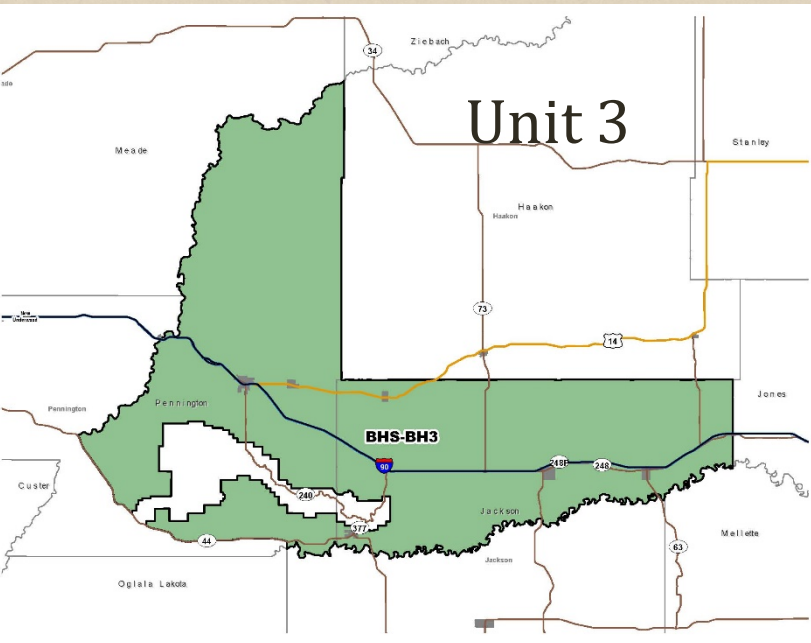
Unit 1



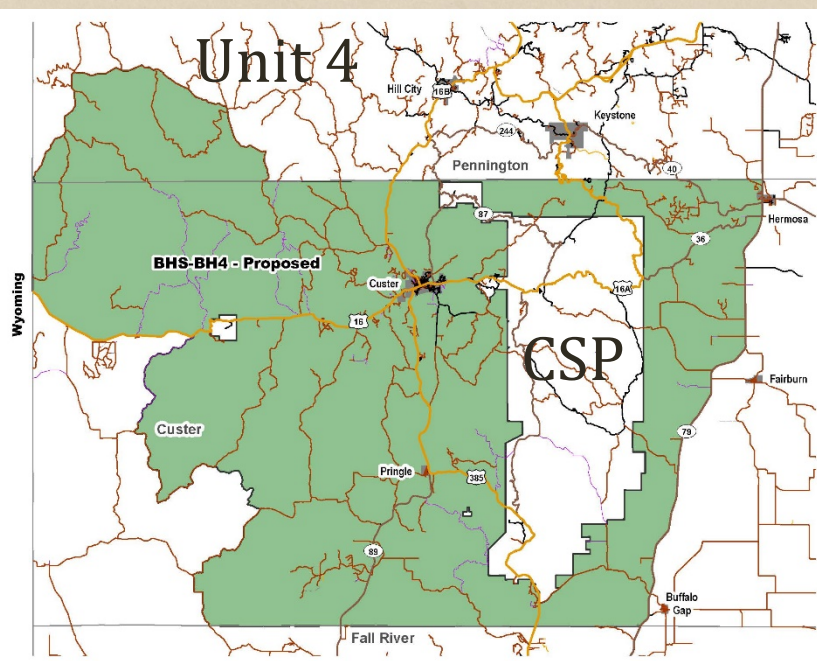
Unit 2



Unit 3



Unit 4



Questions....



Ram Class

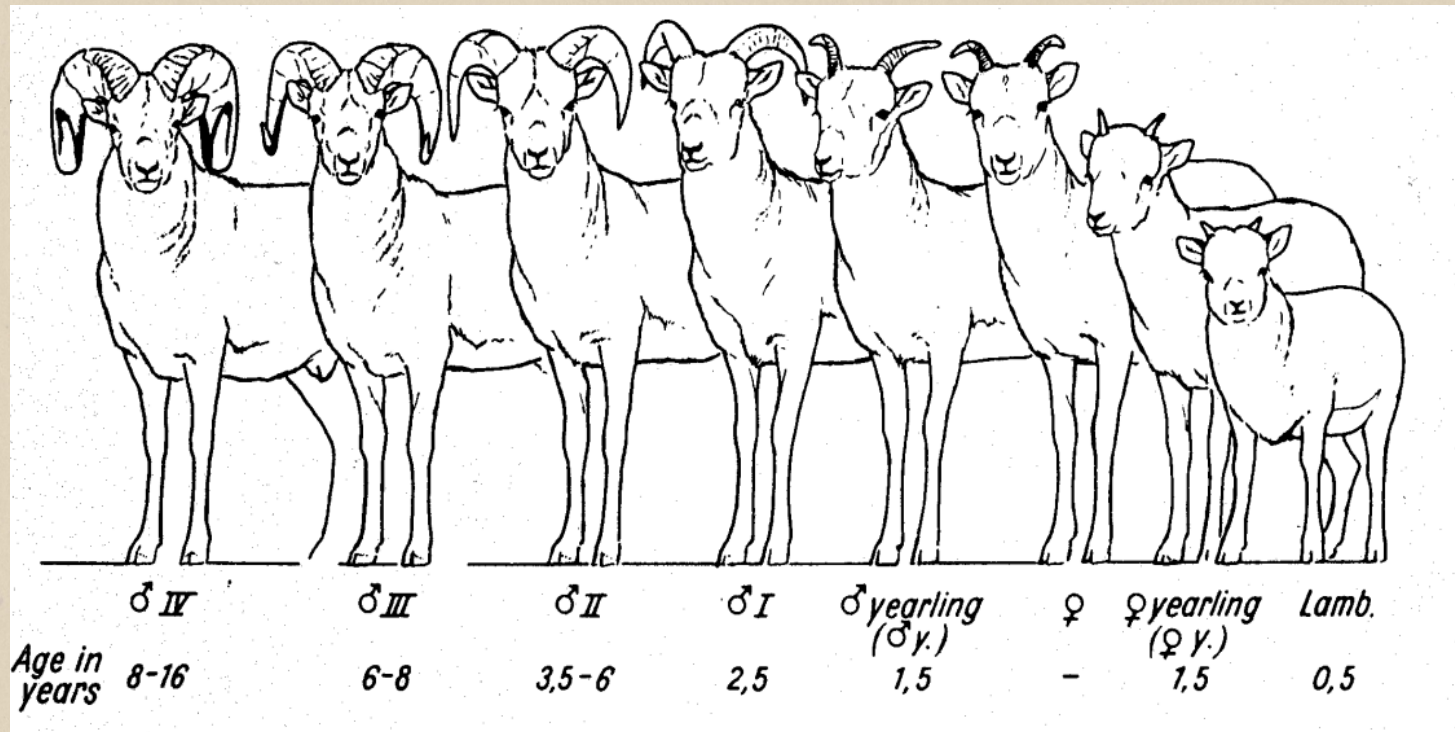


Fig. 1. Bighorn sheep age and sex characteristics. Note that animals form a cline in body and horn size, and the adult female is very similar in external appearance to the yearling ram. The above drawing is taken from Geist 1968.