

2016 - JCR Evaluation Form

SPECIES: Bighorn Sheep

PERIOD: 6/1/2016 - 5/31/2017

HERD: BS516 - DOUGLAS CREEK

HUNT AREAS: 18

PREPARED BY: LEE KNOX

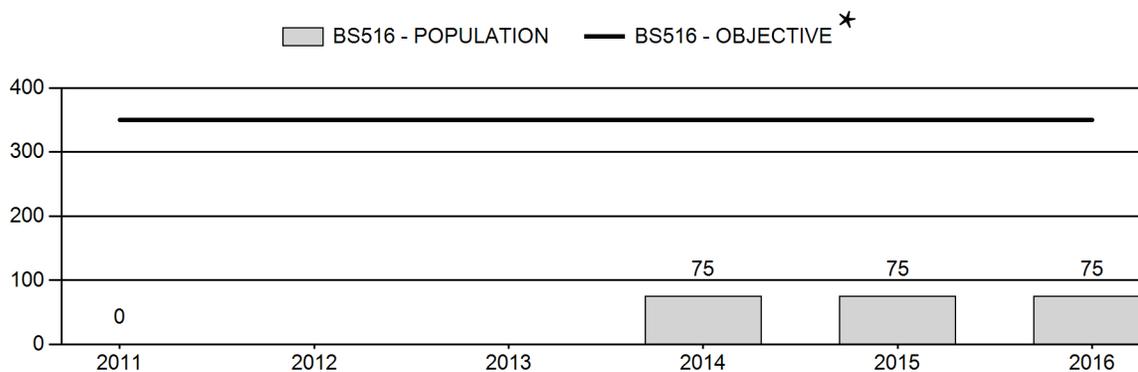
	<u>2011 - 2015 Average</u>	<u>2016</u>	<u>2017 Proposed</u>
Population:	30	75	75
Harvest:	1	0	0
Hunters:	1	0	0
Hunter Success:	100%	0%	0%
Active Licenses:	1	0	0
Active License Success:	100%	0%	0%
Recreation Days:	2	0	0
Days Per Animal:	2	0	0
Males per 100 Females	35	64	
Juveniles per 100 Females	58	45	

Population Objective ($\pm 20\%$) :	350 (280 - 420)
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	-78.6%
Number of years population has been + or - objective in recent trend:	20
Model Date:	0

Proposed harvest rates (percent of pre-season estimate for each sex/age group):

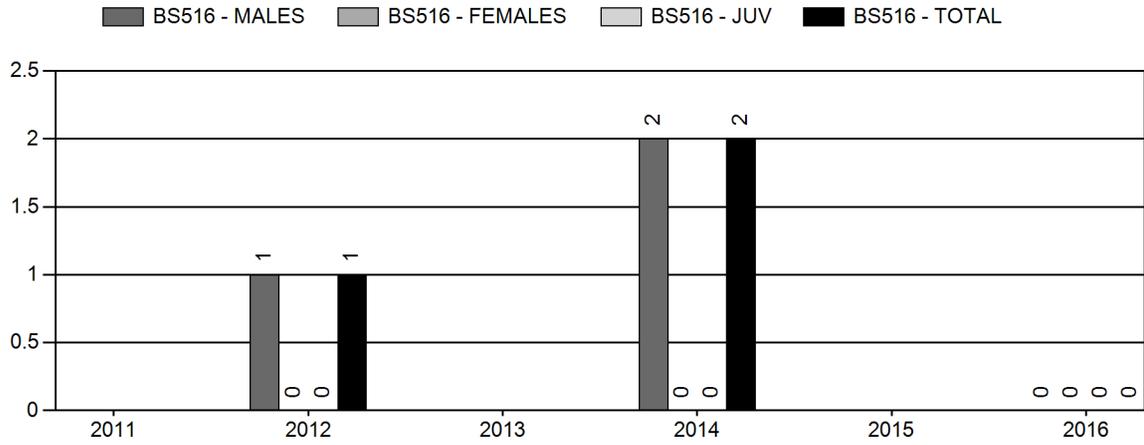
	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	0%	0%
Total:	0%	0%
Proposed change in post-season population:	0%	0%

Population Size - Postseason

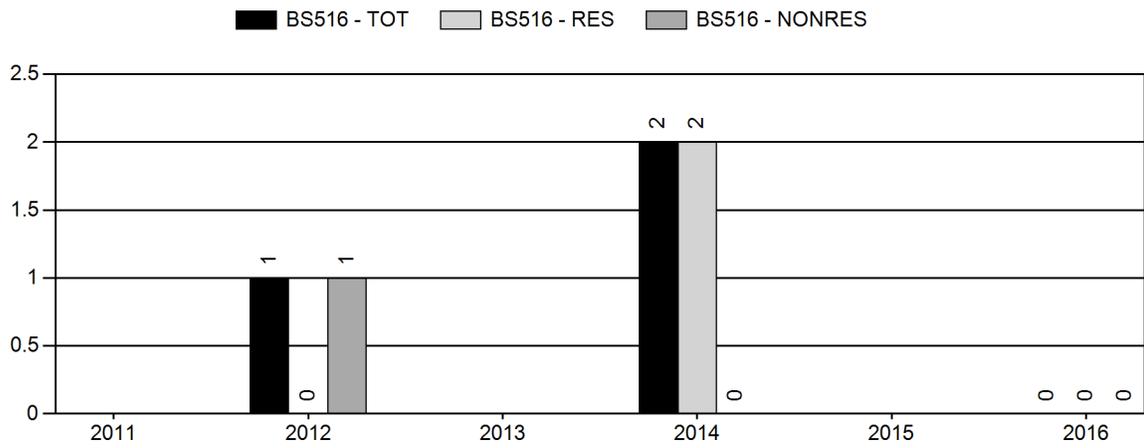


*The management objective was reviewed in 2016 and changed from a postseason population objective to the bighorn sheep limited opportunity objective.

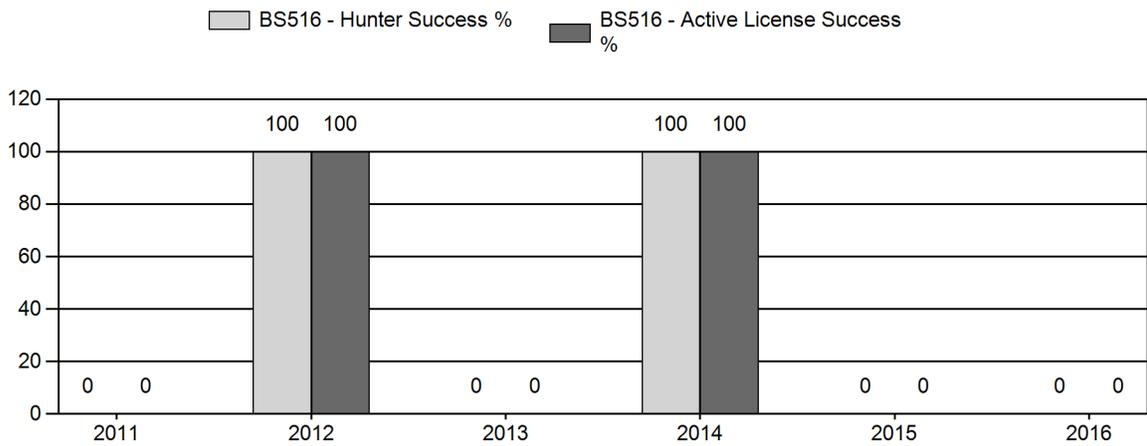
Harvest



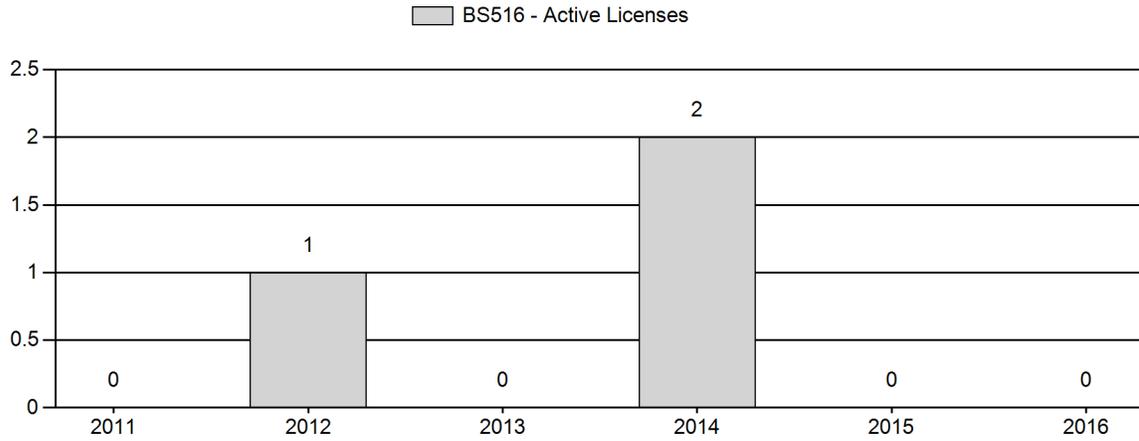
Number of Active Licenses



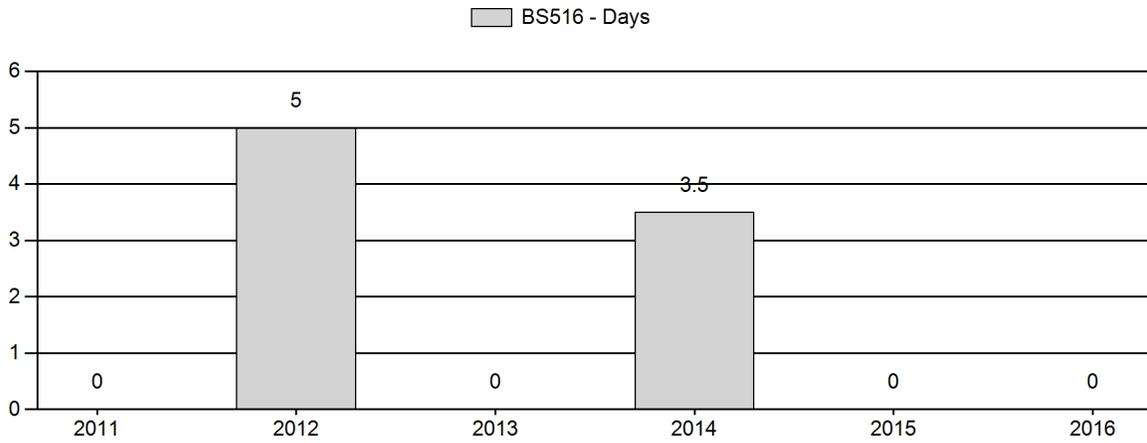
Harvest Success



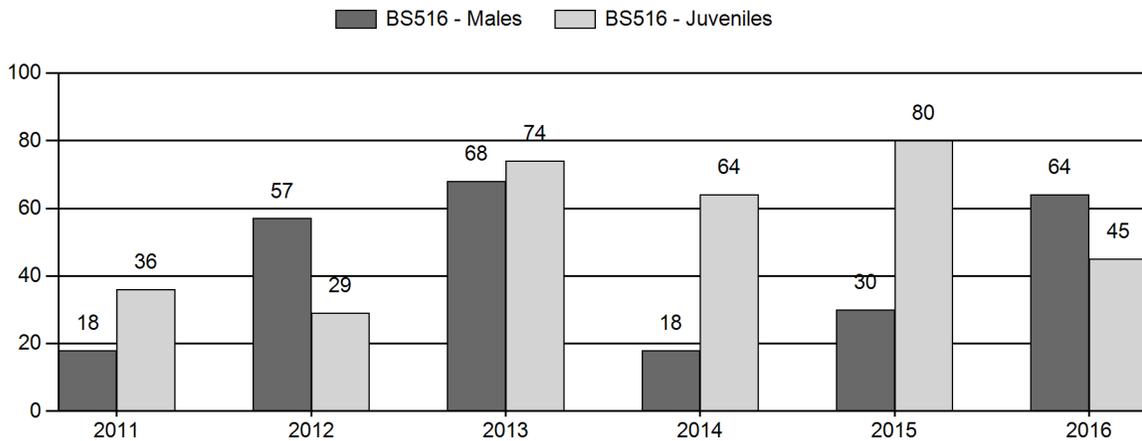
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2011 - 2016 Postseason Classification Summary

for Bighorn Sheep Herd BS516 - DOUGLAS CREEK

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Ylg	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2011	0	0	4	4	12%	22	65%	8	24%	34	0	0	18	18	± 0	36	± 0	31
2012	0	1	3	4	31%	7	54%	2	15%	13	0	14	43	57	± 0	29	± 0	18
2013	0	6	7	13	28%	19	41%	14	30%	46	0	32	37	68	± 0	74	± 0	44
2014	75	3	1	4	10%	22	55%	14	35%	40	0	14	5	18	± 9	64	± 19	54
2015	75	0	3	3	14%	10	48%	8	38%	21	0	0	30	30	± 21	80	± 41	62
2016	75	4	3	7	30%	11	48%	5	22%	23	0	36	27	64	± 33	45	± 26	28

2017 HUNTING SEASONS

DOUGLAS CREEK BIGHORN SHEEP (BS516)

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
18,21	1	Sept. 1	Oct. 31	0	Limited quota	Closed

Area	Type	Changes from 2016
18,21	1	Closed
Herd Unit Total	1	Closed

Management Evaluation

Current Management Objective:

- 1) **5-year running average of $\geq 75\%$ hunter success- 100%**
 - 2) **5-year running average age of harvested rams between 6 and 8 years of age- 2012-2016 Average Age: 7 years old**
 - 3) **Documented occurrence of adult rams in the population~ > 20 rams observed**
- Management Strategy: Special**

The management objective for the Douglas Creek bighorn sheep herd unit was changed in 2016 from a post season population objective to limited opportunity that manages for the following objectives:

- 1) 5-year running average of $\geq 75\%$ hunter success
- 2) 5-year running average age of harvested rams between 6 and 8 years of age
- 3) Documented occurrence of adult rams in the population

Herd unit Issues

The Douglas Creek herd unit is located primarily in the Savage Run and Platte River wilderness areas in the Snowy Range Mountains on the Medicine Bow National Forest. The herd is under special management guidelines which require a mean age of harvested rams to be between 6-and 8 years old. This direction was taken to provide trophy opportunity to the public and allow this herd to grow. Pine beetles have dramatically changed the landscape in the Medicine Bow National Forest where a large percentage of mature pines have died and starting to fall over. At this time the impacts to this herd from the pine beetle epidemic are unclear. Area 18 was closed from 2004 through 2007 and then again in 2009, 2011, 2013, 2015 because this population has remained below desired levels. Hunt Area 18 will be closed in 2017.

Weather

Weather in this herd unit was relatively normal during the past bio-year. Precipitation amounts were above average at all elevations throughout southeast Wyoming. No significant prolonged periods of extreme heat or cold temperatures were observed, or extreme or prolonged periods of snow loading in lower elevation winter ranges. Timing of precipitation and amounts received during key growth periods for cool season grasses and preferred transitional range and winter range shrub species was excellent. While early season growing conditions were optimal, late summer and fall precipitation were lacking. Weather patterns most likely had a positive influence on all big game species. For specific meteorological information for the Douglas Creek herd unit the reviewer is referred to the following link: <http://www.ncdc.noaa.gov/cag/>.

Habitat

Forage availability continued to improve in 2016 with an increase in amounts of precipitation received and the timeliness of when it was received. Precipitation received in April, May, and early June resulted in excellent growth of cool season grasses and forbs, and above average leader growth on preferred key shrubs in low elevations. At upper elevations, May, June, and July precipitation was also above average, and created favorable forage conditions. While early season growing conditions were optimal, late summer and fall precipitation were lacking. Conifer encroachment and windthrow of beetle-killed pine trees is suspected to, or likely will have negative impacts on bighorn sheep movements and migrations. Cheatgrass prevalence at lower elevations is also concerning to habitat managers, particularly on south facing aspects in the Platte Valley.

The limited number of habitat transects that have been established throughout the Laramie Region have not provided sufficient data to make reliable assumptions of habitat quantity or quality and consequently heavily influence population management for any particular big game species.

Field Data

We have very little data on this population. The general public provides a few reports during the summer and hunting seasons. Field personnel make an effort to document the status of segments of the herd during other big game surveys and an annual winter ground survey. Past observation data consistently documents low post-weaning lamb survival. Poor habitat quality, lack of habitat, and the lack of well-defined seasonal migrations, and perhaps lingering effects of Pasteurellosis or some other disease may be stagnating this population. In January 23 sheep were classified with a lamb to ewe ratio of 45:100. An additional 15 sheep were also observed by highway 230 at the state line.

Harvest Data

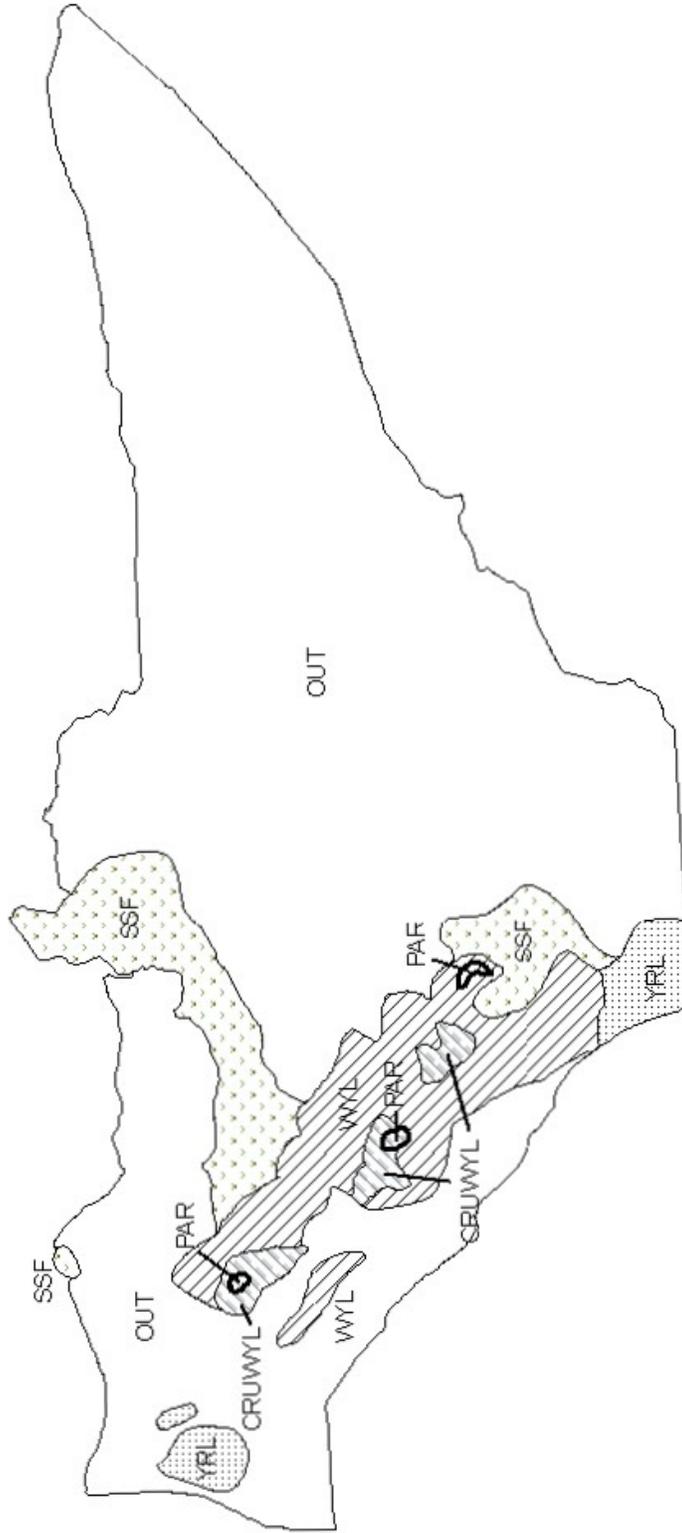
In 2016 two licenses were issued for one nonresident and one resident, valid in hunt areas 18 and 21. Two rams were harvested in 21.

Population

Data is not adequate for developing a reasonable population model. We are unable to collect the data needed to reliably estimate the population size of this sheep herd.

Management Strategy

The season is open for 2 rams every other year to maintain the opportunity to harvest a 6 year or older age class ram, which is specified by the special management guidelines. The season will be closed in 2017.



BHS516- Douglas Creek
 HA'8
 Revised 7/02



2016 - JCR Evaluation Form

SPECIES: Bighorn Sheep

PERIOD: 6/1/2016 - 5/31/2017

HERD: BS517 - LARAMIE PEAK

HUNT AREAS: 19

PREPARED BY: MARTIN HICKS

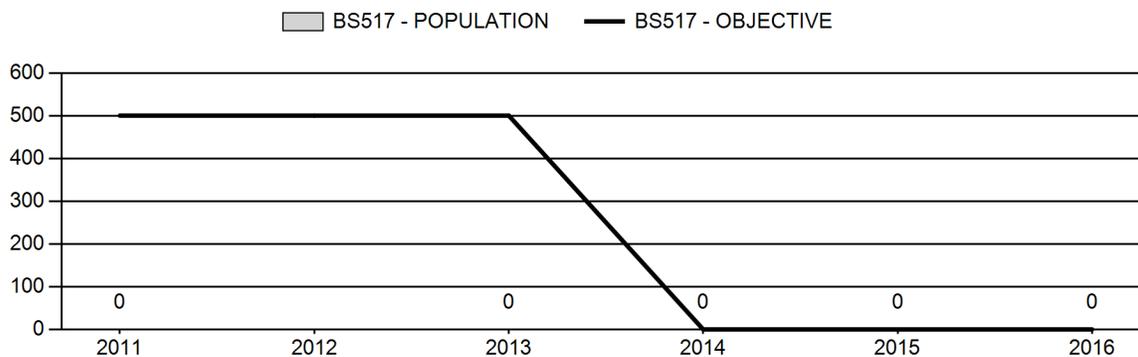
	<u>2011 - 2015 Average</u>	<u>2016</u>	<u>2017 Proposed</u>
Population:	0	N/A	N/A
Harvest:	7	5	8
Hunters:	8	7	8
Hunter Success:	88%	71%	100 %
Active Licenses:	8	7	8
Active License Success:	88%	71%	100 %
Recreation Days:	87	126	100
Days Per Animal:	12.4	25.2	12.5
Males per 100 Females	54	60	
Juveniles per 100 Females	43	61	

Population Objective ($\pm 20\%$) :	0 (0 - 0)
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	N/A%
Number of years population has been + or - objective in recent trend:	0
Model Date:	None

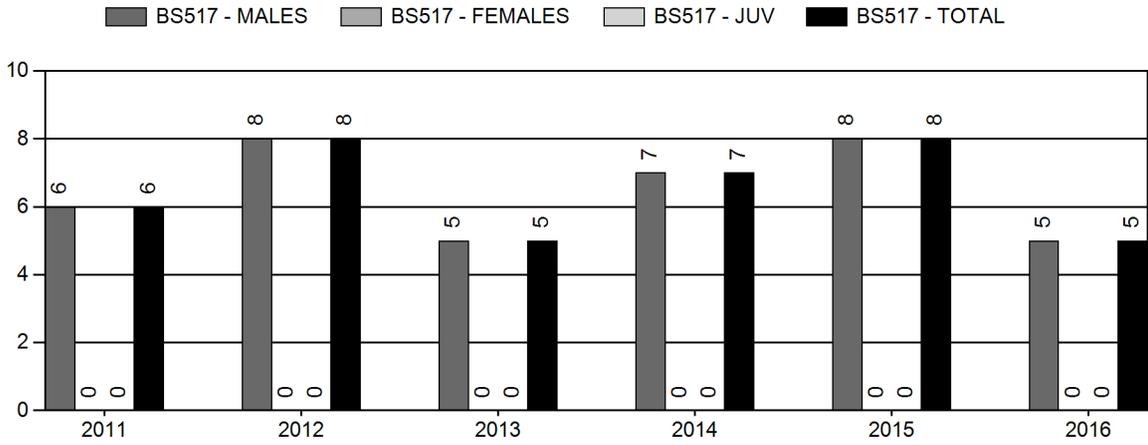
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	na%	na%
Males ≥ 1 year old:	na%	na%
Total:	na%	na%
Proposed change in post-season population:	na%	na%

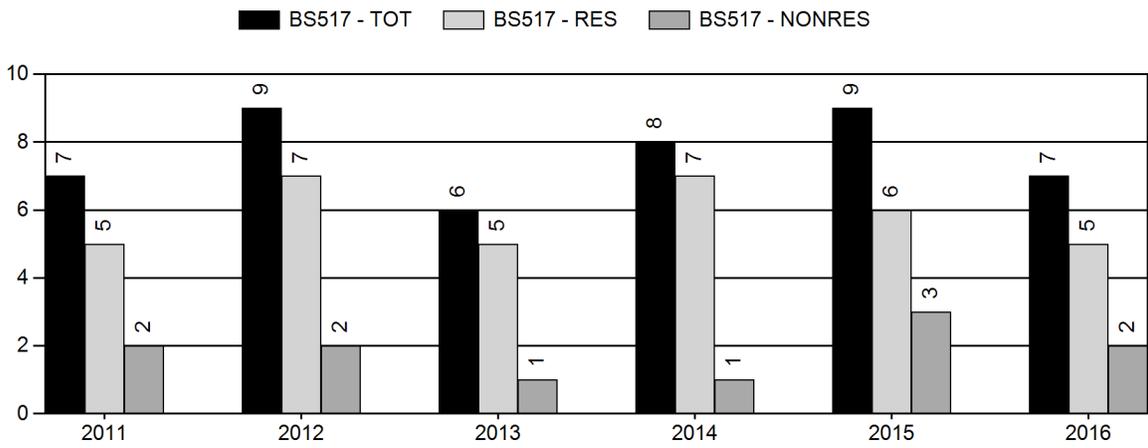
Population Size - Postseason



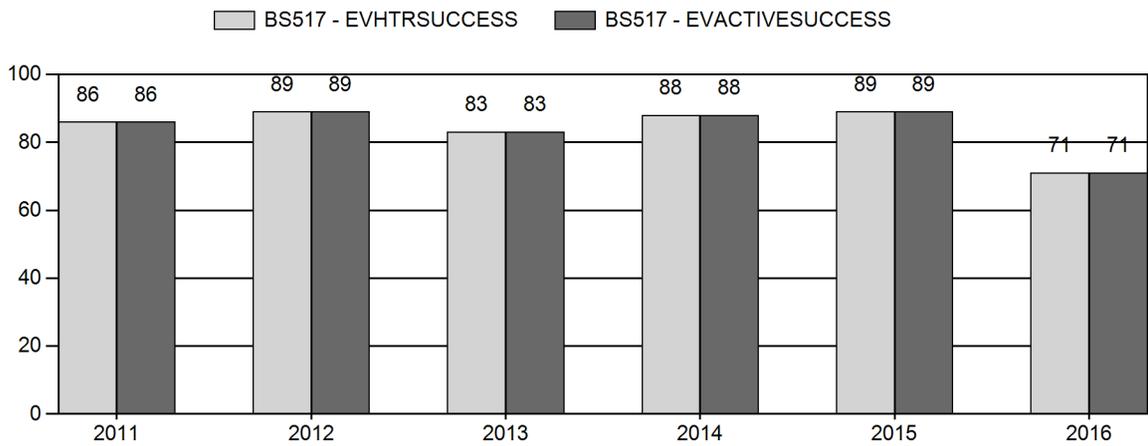
Harvest



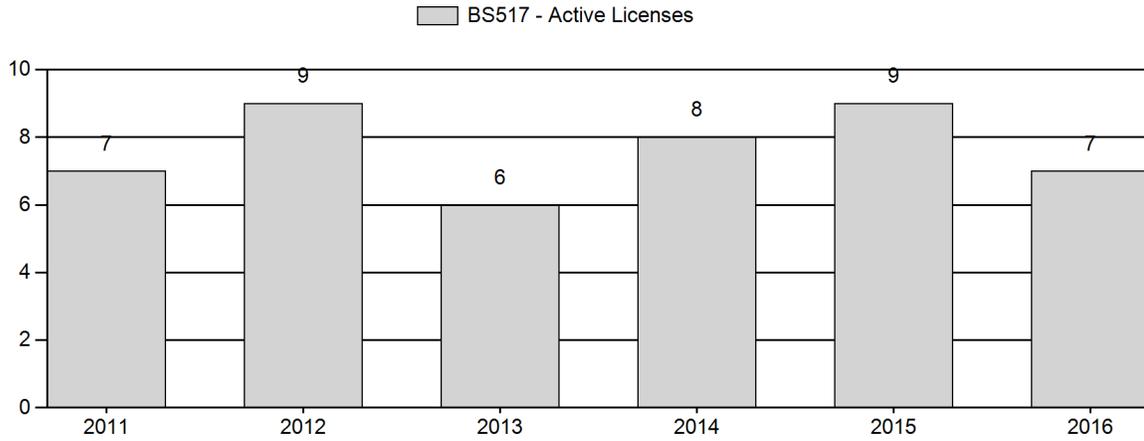
Number of Active Licenses



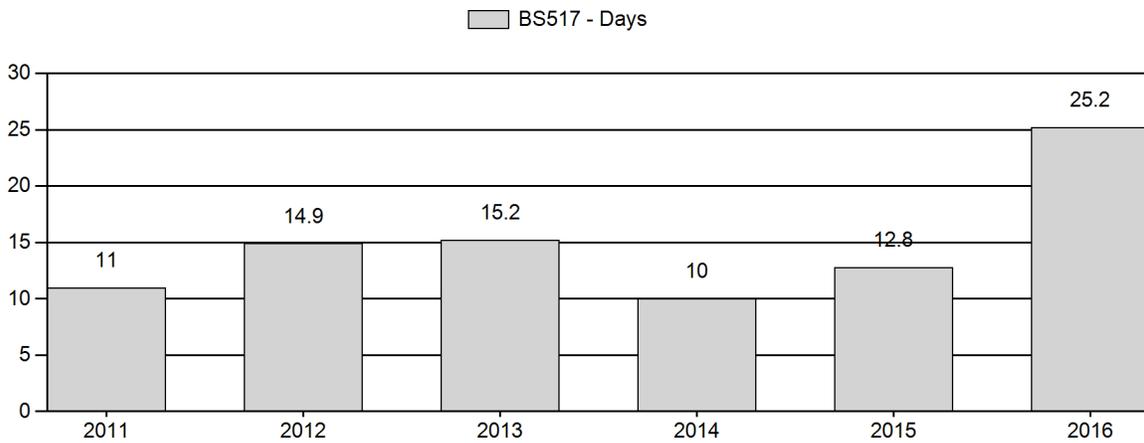
Harvest Success



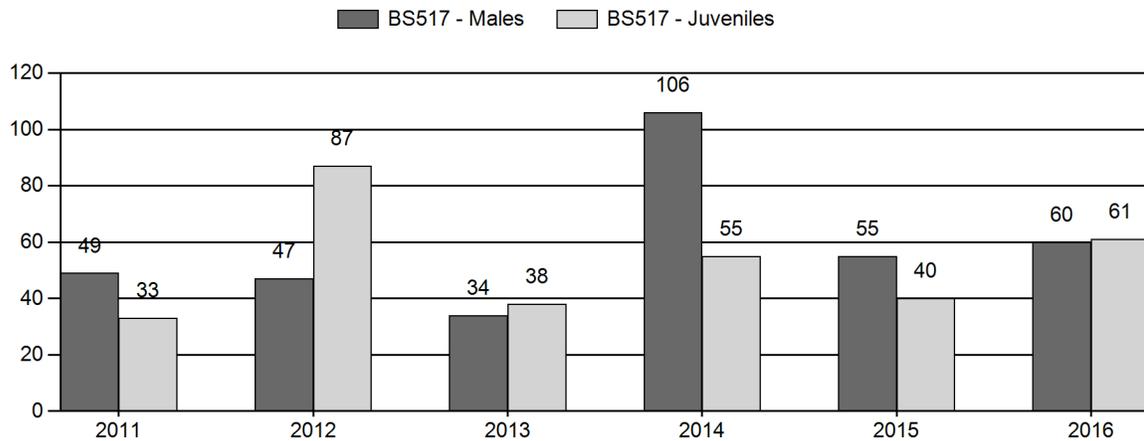
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



**2017 HUNTING SEASONS
LARAMIE PEAK BIGHORN SHEEP HERD (BHS517)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
19	1	Sept. 1	Oct. 31	8	Limited quota	Any ram

Special Archery Season Hunt Areas	Opening Date	Closing Date	Limitations
19	Aug. 15	Aug. 31	Refer to Section 2 of this Chapter

Hunt Area	Type	Quota change from 2016
19	1	0

Management Evaluation

Current Management Objective:

- 1) **5-year running average of $\geq 75\%$ hunter success- 82%**
- 2) **5-year running average age of harvested rams between 6 and 8 years of age- 2012-2016 Average Age: 6 years old**
- 3) **Documented occurrence of adult rams in the population~40 observed rams**

Management Strategy: Recreational

Herd Unit Issues

The management objective for the Laramie Peak Bighorn Sheep herd was a post-season population objective of 500 wild sheep. The management strategy is recreational management. The objective and strategy were last revised in 1978. The population objective was reviewed during the winter/spring of 2014. Based on department staff, landowner, and public comments the following population management alternative objectives were approved by the WGFD Commission:

- 1) 5-year running average of $\geq 75\%$ hunter success
- 2) 5-year running average age of harvested rams between 6 and 8 years of age
- 3) Documented occurrence of adult rams in the population

The Laramie Peak Herd Unit is comprised of 70% private land. The southern portion (south of WY Hwy 34) is over 90% private land. Hunters can expect to pay a trespass/trophy or outfitter fee to hunt on private land. There are two state sections that hunters can access that hold sheep throughout the season and have produced adult rams in past hunting seasons. A portion of occupied sheep habitat was within the 2012 Arapahoe fire that burned over 98,000 acres. This

affected sheep distribution post-fire, but above average summer/fall precipitation in 2013 and spring precipitation in 2014 resulted in increased vegetation production for pre-winter diets and early spring green up that will benefit parturition areas for pregnant ewes. The fire will have long-term benefits for wild sheep, but initially there has been a flush of noxious weeds (e.g. cheatgrass, Canada thistle) that land managers will need to address. A majority of wild sheep are harvested within the northern portion of the herd unit. The Laramie Peak Wildlife Habitat Management Unit is essential for sheep habitat and harvest where 200 plus sheep inhabit. In 2007 forty-two sheep were released in this area from the Perma-Paradise Herd in Montana. These sheep have thrived and improved the overall genetics and health of the existing herd.

During the winter of 2016/17 the WGFD will aerial capture 6 sheep that will be fitted with GPS radio collars and biological samples will be collected for disease surveillance.

Weather

Weather in this herd unit was relatively normal during the past bio-year. Precipitation amounts were above average at all elevations throughout southeast Wyoming during spring months then became dry and hot from July through November. Timing of precipitation and amounts received during key growth periods for cool season grasses and preferred transitional range and winter range shrub species was excellent. While early season growing conditions were optimal, late summer and fall precipitation were lacking. Generally speaking weather patterns most likely had a positive influence on all big game species. For specific meteorological information for the Laramie Peak herd unit the reviewer is referred to the following link:

<http://www.ncdc.noaa.gov/cag/>

Habitat

Forage availability continued to improve in 2016 with an increase in amounts of precipitation received and the timeliness of when it was received. Precipitation received in April, May, and early June resulted in excellent growth of cool season grasses and forbs, and above average leader growth on preferred key shrubs. Cheatgrass continues to be a major threat to native rangelands and big game ranges, particularly at all elevations below 6,500'. Its presence ties the hands of habitat managers limiting habitat enhancement options, and may result in reduced carrying capacities of rangelands if it is the predominant specie. This herd unit is comprised of a mix of native rangelands, CRP, dryland and irrigated croplands.

Cheatgrass prevalence at lower elevations such as Sybille Canyon and areas burned by the Arapaho Fire of 2012 is concerning to habitat managers. While wildfires have reduced conifer canopies in the Laramie Range, deemed to be largely conducive to bighorn sheep movements and migrations, the prevalence of cheatgrass is cause for concern. In Summer 2015, Colorado State University natural resource program scientists worked cooperatively with WGFD and USFS personnel to map cheatgrass infestations via satellite imagery and on-the-ground vegetation sampling efforts. This data showing cheatgrass prevalence will be available for habitat managers to utilize in 2016. Future herbicide applications to control cheatgrass will likely be largely based off of this data. With recent completion of an Environmental Assessment by the USFS, options have expanded greatly to control cheatgrass, including aerial application of herbicides.

A significant die-off of big sagebrush and antelope bitterbrush did occur in portions of the Laramie Range due to a rapid freeze event that occurred in November 2014. The die-off was widespread, from the Front Range of Colorado to the Eastern Plains of Montana. The severity of the die-off is unknown at this time, and whether or not the shrubs will recover. Affected shrubs did not show any significant signs of re-sprouting in Summer 2016.

Field Data

In 2016 there were 5 out of the 8 bighorn sheep harvested in with an average of 6 years old for a 62% success rate. The five-year age average is also 6 years old and the five-year running success average is 82%, which met the two alternative objective criteria.

Since 1964 there have been a total of 228 wild sheep released from two herd sources: Whiskey Mountain in Wyoming and Perma-Paradise in Montana (Table 1). These transplants have helped to supplement the herd and improve overall herd health.

Table 1. Transplant release data for the Laramie Peak Bighorn Sheep Herd.

Year	Number	Release Location	Source Herd
1964	40	North Laramie River Canyon	Whiskey Mountain Herd
1965	36	Labonte Canyon	Whiskey Mountain Herd
1966	21	Labonte Canyon	Whiskey Mountain Herd
1973	42	Duck Creek Canyon	Whiskey Mountain Herd
1982	27	Marshall	Whiskey Mountain Herd
1989	20	Marshall	Whiskey Mountain Herd
2007	42	Hay Canyon	Perma-Paradise- MT
Total	228		

Lamb recruitment continues to improve compared to ratios prior to the 2007 release. There were a total of 148 wild sheep classified in 2016 with lamb ratios (61 lambs:100 ewes) well above the 5-year average of 50 lambs:100 ewes.. Adult ram ratios were 45 rams:100, which was slightly below the 5-year average of 48 rams:100 ewes. Yearling ram ratios were similar to the 5-year average. Based on surveys there is a well represented number for each age class. Several 8+ old rams were observed in the Duck Creek sub-herd. Hunters reported seeing 75-100 bighorn sheep within the Duck Creek sub-herd and 30-45 of those were rams.

Harvest Data

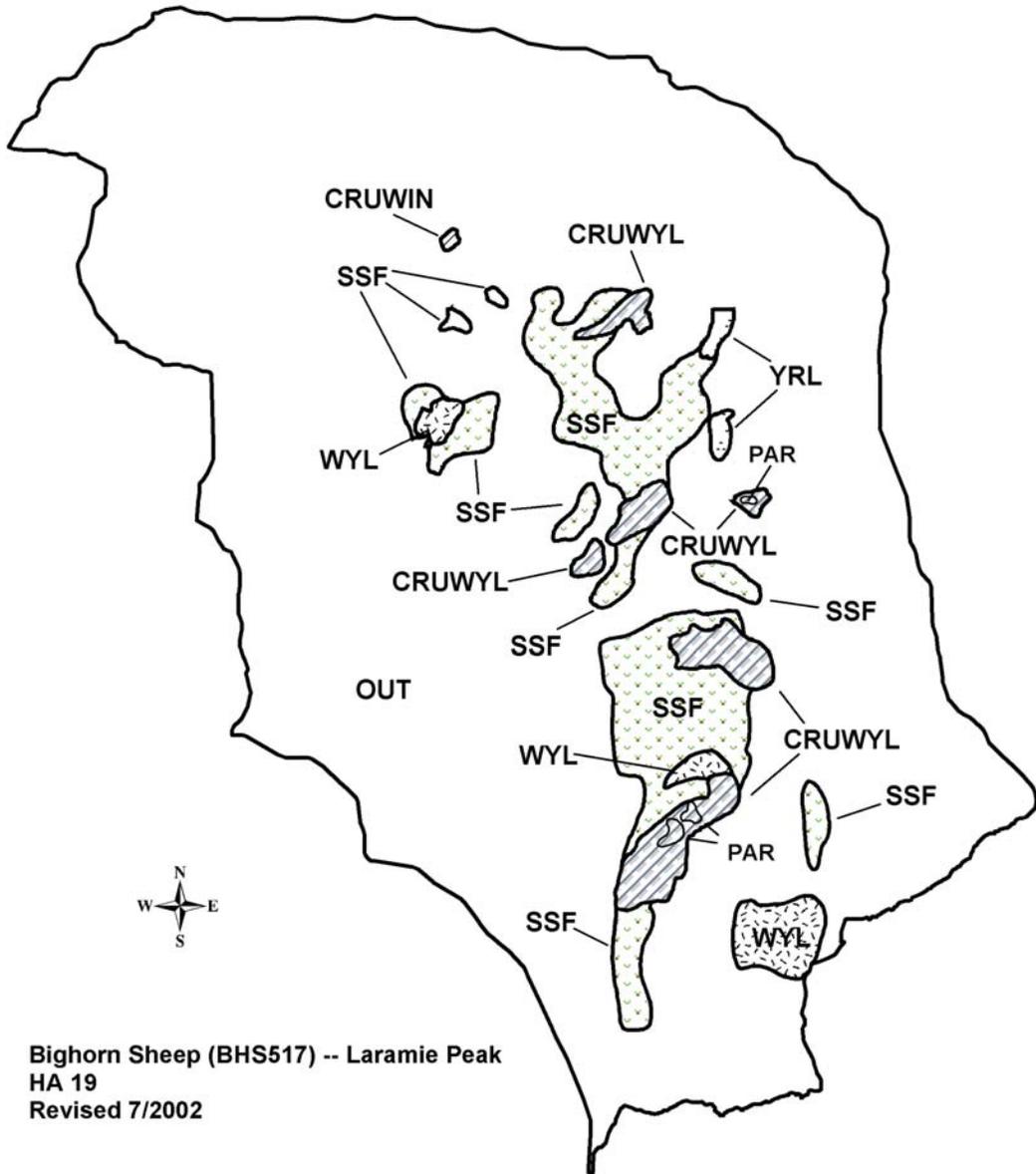
Success of 100% has not been reached since 2010. This last year active license hunters harvested 5 out of 8 rams, with a success rate of 62%. Hunters were not willing to hunt some of the more inaccessible areas which explains the decrease in success. Hunters who pre-scout and/or hire an outfitter typically harvest their ram within 3-5 days. This year the average hunter effort was 25.2 days, which is significantly higher than the five-year average of 12.7 days per harvest. Again, hunters hunted the fringe of occupied habitat therefore spent more days in the field looking for a ram. There is limited public land within occupied wild sheep habitat and overcrowding is an issue that results in pushing bighorn sheep onto private land, where there is no access. To maintain high harvest success no more than 8 licenses are issued. In the past when the quota was increased to 12, success decreased drastically.

The Laramie Peak bighorn sheep season has been September 1-October 31 for the past 26 years. Prior to that, the season ran from September 1- October 14. The increased season length appears to provide adequate opportunity to harvest a ram, given this is typically a once in a lifetime license.

In 2012 there were several fires that burned within bighorn sheep occupied habitat. The Arapahoe, Cow Camp, and Russell's Camp fires burned over 112,000 acres, with the Arapahoe fire being the largest (98,000 acres). Throughout the area there is observed recovery in vegetation. Photo points have been established throughout the fire to document plant succession. Perennial forbs and grasses along with aspen have re-established post-fire.

There is not a reliable working model for this herd unit due to limited population data collected on an annual basis.

For the 2017 season, 8 licenses will be offered for any ram. Given previous harvest statistics hunters should have a high probability of harvesting a mature ram. To improve harvest success hunters will need to put more time into scouting and hunting if they are accessing public lands.



**Bighorn Sheep (BHS517) -- Laramie Peak
HA 19
Revised 7/2002**

2016 - JCR Evaluation Form

SPECIES: Bighorn Sheep

PERIOD: 6/1/2016 - 5/31/2017

HERD: BS519 - ENCAMPMENT RIVER

HUNT AREAS: 21

PREPARED BY: WILL SCHULTZ

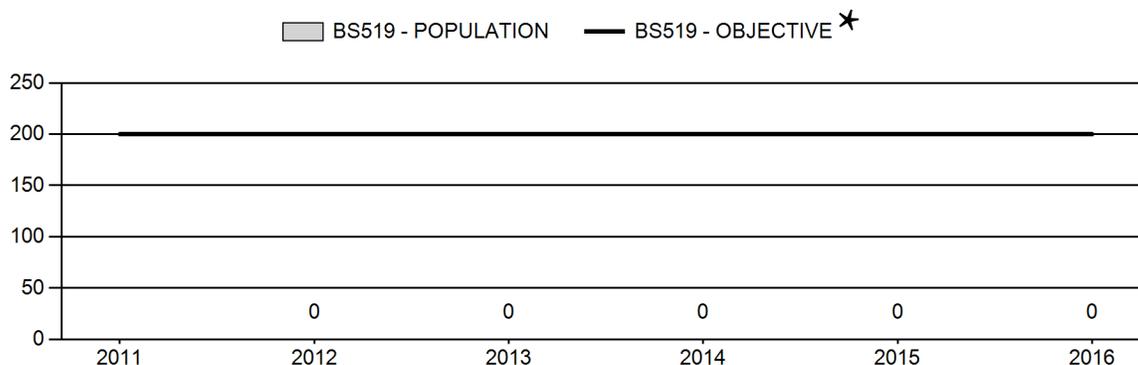
	<u>2011 - 2015 Average</u>	<u>2016</u>	<u>2017 Proposed</u>
Population:	0	N/A	N/A
Harvest:	0	2	0
Hunters:	0	2	0
Hunter Success:	0%	100%	0 %
Active Licenses:	0	2	0
Active License Success:	0%	100%	0 %
Recreation Days:	0	18	0
Days Per Animal:	0	9	0
Males per 100 Females	57	27	
Juveniles per 100 Females	35	27	

Population Objective (\pm 20%) :	200 (160 - 240)
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	N/A%
Number of years population has been + or - objective in recent trend:	38
Model Date:	None

Proposed harvest rates (percent of pre-season estimate for each sex/age group):

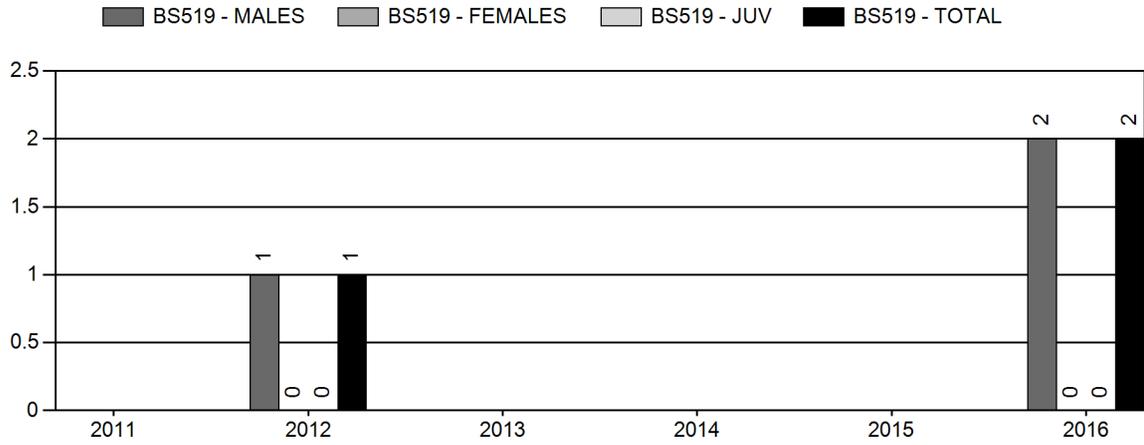
	<u>JCR Year</u>	<u>Proposed</u>
Females \geq 1 year old:	NA%	NA%
Males \geq 1 year old:	NA%	NA%
Total:	NA%	NA%
Proposed change in post-season population:	NA%	NA%

Population Size - Postseason

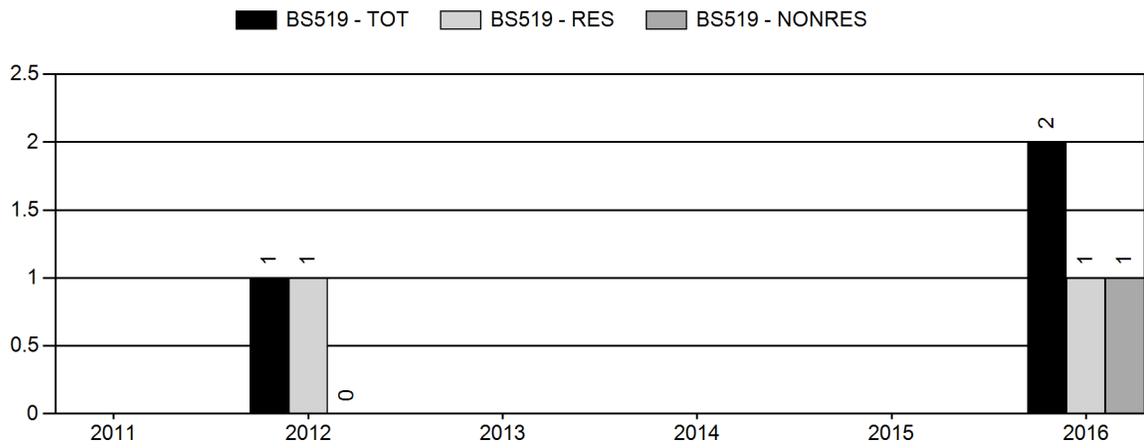


★ The management objective was reviewed in 2016 and changed from a postseason population objective to the bighorn sheep limited opportunity objective.

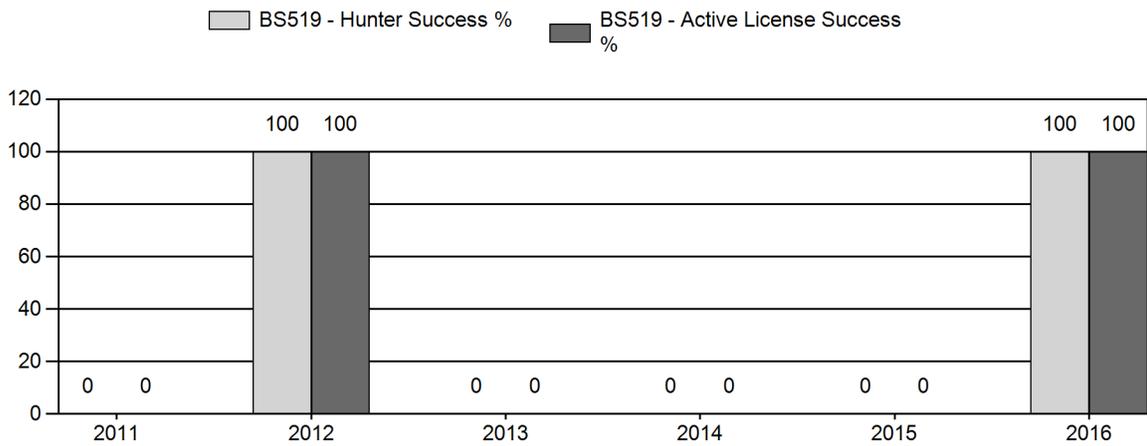
Harvest



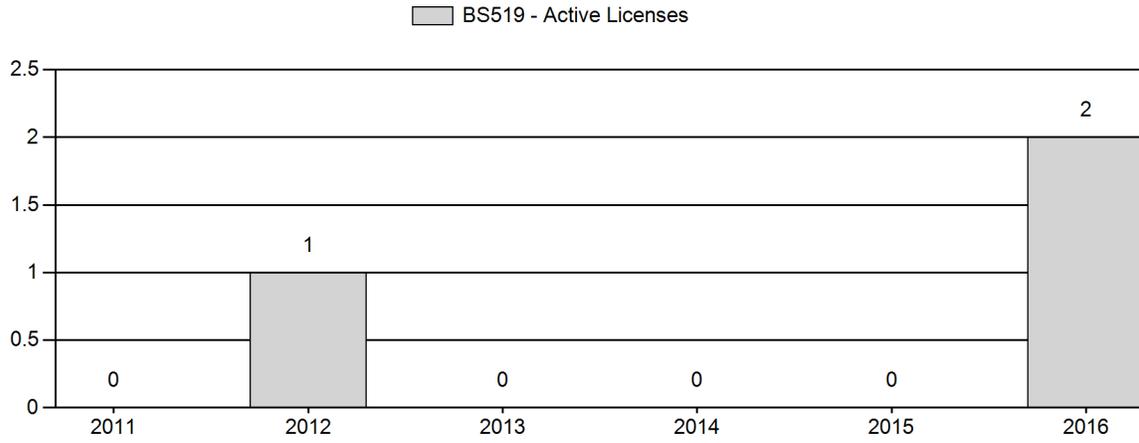
Number of Active Licenses



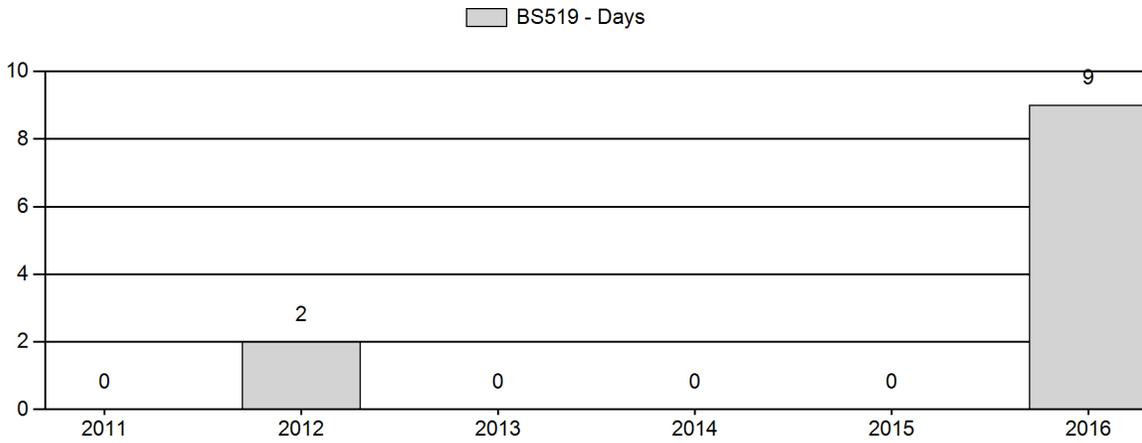
Harvest Success



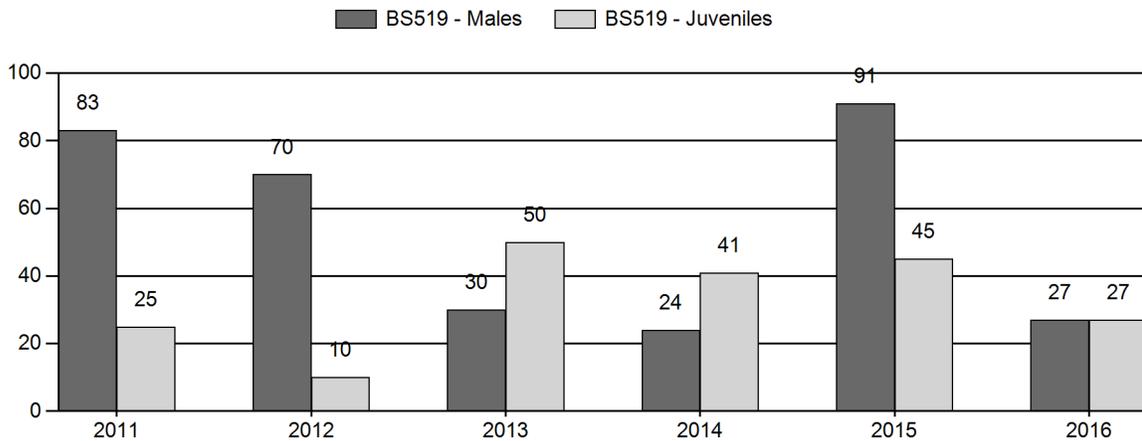
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2011 - 2016 Postseason Classification Summary

for Bighorn Sheep Herd BS519 - ENCAMPMENT RIVER

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot CIs	CIs Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2011	0	0	10	10	40%	12	48%	3	12%	25	0	0	83	83	± 0	25	± 0	14
2012	0	0	7	7	39%	10	56%	1	6%	18	0	0	70	70	± 0	10	± 0	6
2013	0	0	3	3	17%	10	56%	5	28%	18	0	0	30	30	± 0	50	± 0	38
2014	0	1	3	4	14%	17	61%	7	25%	28	0	6	18	24	± 0	41	± 0	33
2015	0	2	8	10	38%	11	42%	5	19%	26	47	18	73	91	± 0	45	± 0	24
2016	0	1	3	4	17%	15	65%	4	17%	23	0	7	20	27	± 0	27	± 0	21

**2017 HUNTING SEASON RECOMMENDATIONS
Encampment River Bighorn Sheep (BS519)**

Season Dates						
Hunt Area	Type	Opens	Closes	Quota	License	Limitations
18,21	1				Limited quota	CLOSED

Hunt Area	License Type	Quota change from 2016
18, 21	1	-2
Herd Unit Total	1	-2

Management Evaluation

Current Management Objective: Bighorn Sheep Limited Opportunity

Secondary Management Objectives:

- a) **5-year running average of >75% hunter success**
- b) **5-year running average age of harvested rams between 6 and 8 years of age**
- c) **Documented occurrence of adult rams in the population**

Management Strategy: Special

Bighorn sheep in the Encampment River herd unit are managed toward a postseason population objective of 200. A population model has not been constructed for the herd unit. The herd is managed under the bighorn sheep special management strategy. The management objective was reviewed in 2016 and changed to the bighorn sheep limited opportunity objective.

Herd Unit Issues

Bighorn sheep numbers in this herd unit appeared to peak in the late 1970s, not long after reintroduction efforts. Bighorn sheep numbers have been in decline since the early 1980s. The lack of a rebound in numbers has been attributed to decadent habitat. Domestic sheep in grazing on the west slope of the Sierra Madres and farm flock in the herd unit also pose a disease concern for managers. The population is now at such a low number it is assumed natural recovery is limited. Harvest opportunities have been offered every other year for the past decade in combination with the Douglas Creek bighorn sheep herd unit.

In 2013, the State of Wyoming, and thus the Wyoming Game and Fish Department, intervened on behalf of the U.S. Forest Service, in the U.S. District Court case, BIODIVERSITY CONSERVATION ALLIANCE vs. BUTCH BLAZER, et al. This case continues to await a ruling, and may affect future management of bighorn sheep in this herd unit.

Weather

Temperature and precipitation data was obtained for the National Oceanic and Atmospheric Administration’s (NOAA) climatic Division 10 (Upper Platte), <https://www.ncdc.noaa.gov/cag/> to illustrate weather conditions thus far, during bio-year 2016 (Figures 1 and 2). These figures also include data from January - May of bio-year 2015 to describe the weather conditions immediately preceding bio-year 2016. Monthly mean temperatures in bio-year 2016 were slightly warmer than the 50-year monthly means during some months but otherwise similar to the 50-year monthly means. Precipitation in April of 2016, primarily received in the form of very moist snow was 174% of the 50-year monthly mean. Following the wetter than average spring of bio-year of 2015, the summer of bio-year 2016 was drier than average. Otherwise, relatively favorable weather conditions were experienced in Division 10 throughout the remainder of bio-year 2016.

Figure 1. January 2016 - January 2017 mean monthly temperatures and 50-year monthly means for NOAA climatic Division 10, Wyoming.

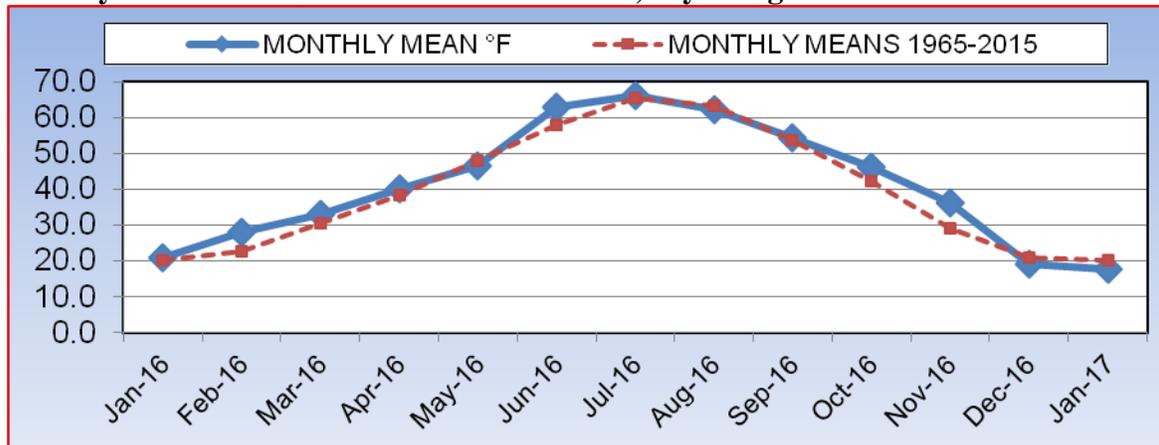
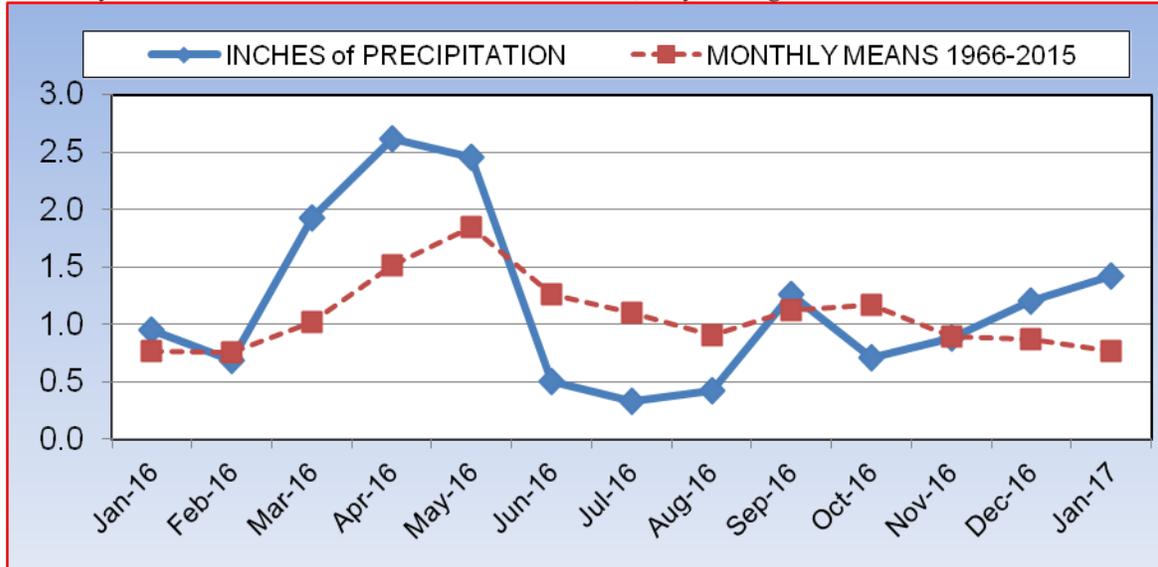


Figure 2. January 2016 - January 2017 mean monthly precipitation and 50-year monthly means for NOAA climatic Division 10, Wyoming.



Habitat

Positive trends in habitat conditions were observed in bio-year 2016 due to adequate amounts of late spring precipitation being received in this herd unit. The limited number of habitat transects that have been established within this herd unit do not provide sufficient data to make reliable inferences about habitat quantity or quality. Most bighorn sheep habitat in this herd unit is decadent. Conifer encroachment and invasive plants and noxious weeds are a serious concern in most of the currently occupied habitat.

Field Data

Adequate classification data for this herd has been difficult to collect. 2016 postseason classification observations were obtained from the ground in November of 2016. The classification results were 3 adult rams, 1 yearling ram, 15 ewes, and 4 lambs. Past postseason classification efforts generally have located a slightly greater sample size of bighorn sheep than what was observed in 2015. We received several reports of a group of approximately 25 ewes and lambs, and approximately 7 rams, in the Miner Creek area during the summer of 2016 but we were unable to locate this amount during classifications later in the fall and winter.

Population

A population model has not been constructed for this herd unit due to limited classification and no annual survival information. Based on the trend of classification data and casual observations, a reasonable estimate of 30-50 bighorn sheep should be considered for this herd unit. In 2016 we reviewed the management objective and changed it to the bighorn sheep limited opportunity objective. Secondary management objectives include: a) 5-year running average of >75% hunter success; b) 5-year running

average age of harvested rams between 6 and 8 years of age; and c) documented occurrence of adult rams in the population.

Harvest Data

In 2016, the hunting season was open in conjunction with the Douglas Creek herd unit. Two (2) licenses were offered for this hunting opportunity; 1 resident and 1 nonresident. Both hunters harvested trophy quality rams in the Encampment River herd unit.

Management Summary

The hunting season will be closed in 2017 for this herd unit. We will consider offering two Type 1 licenses again in 2018 for this herd unit in conjunction with the Douglas Creek herd unit.

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