

2016 - JCR Evaluation Form

SPECIES: Bighorn Sheep

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

HERD: BS201 - CLARKS FORK

HUNT AREAS: 1

PREPARED BY: DOUG
MCWHIRTER

	<u>2011 - 2015 Average</u>	<u>2016</u>	<u>2017 Proposed</u>
Population:	546	600	500
Harvest:	16	18	18
Hunters:	20	20	20
Hunter Success:	80%	90%	90 %
Active Licenses:	20	20	20
Active License Success:	80%	90%	90 %
Recreation Days:	194	166	175
Days Per Animal:	12.1	9.2	9.7
Males per 100 Females	31	0	
Juveniles per 100 Females	31	0	

Population Objective (± 20%) : 500 (400 - 600)

Management Strategy: Special

Percent population is above (+) or below (-) objective: 20%

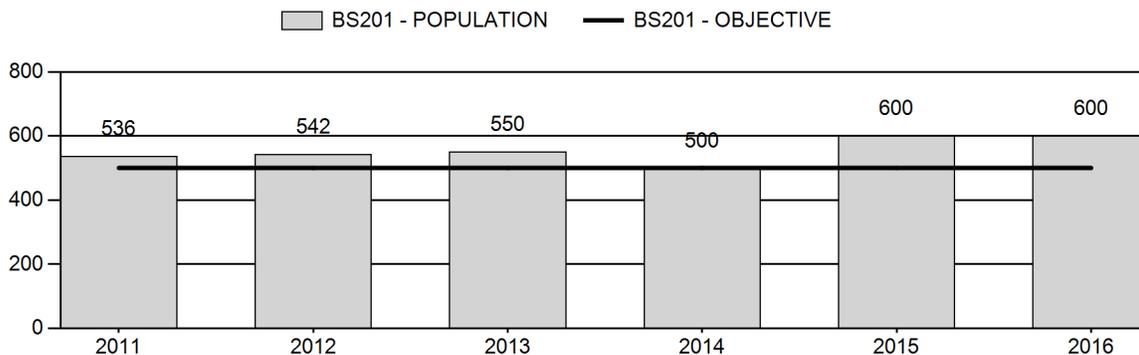
Number of years population has been + or - objective in recent trend: 1

Model Date: 02/11/2016

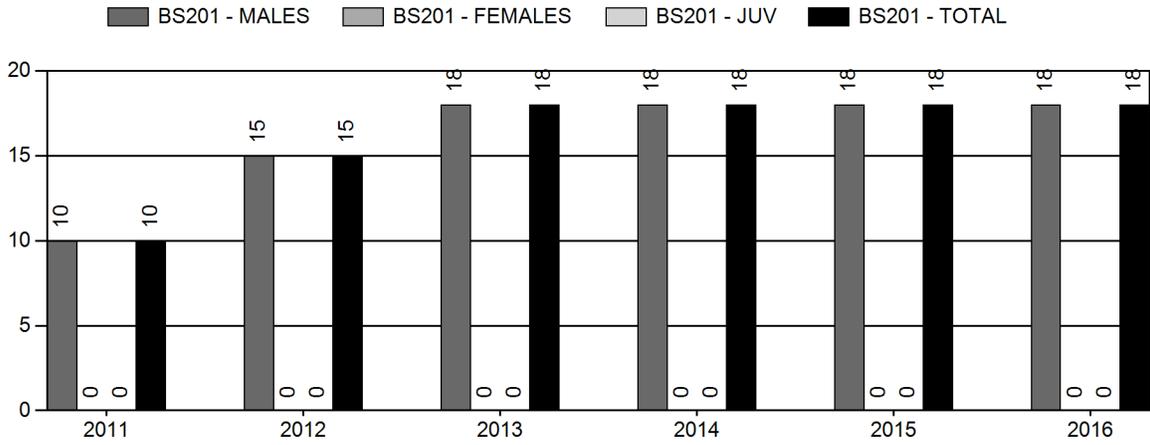
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	12.3%	12%
Total:	2.8%	2.5%
Proposed change in post-season population:	+3.5%	0%

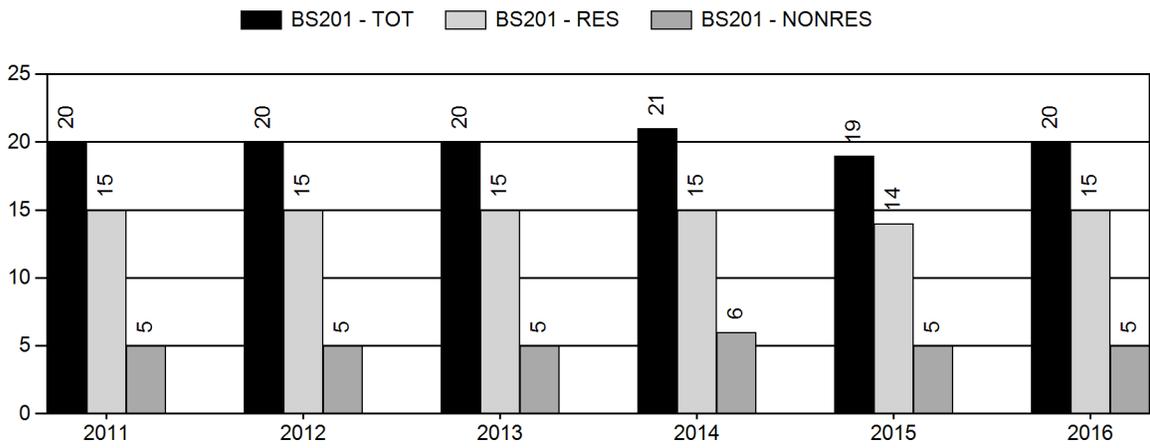
Population Size - Postseason



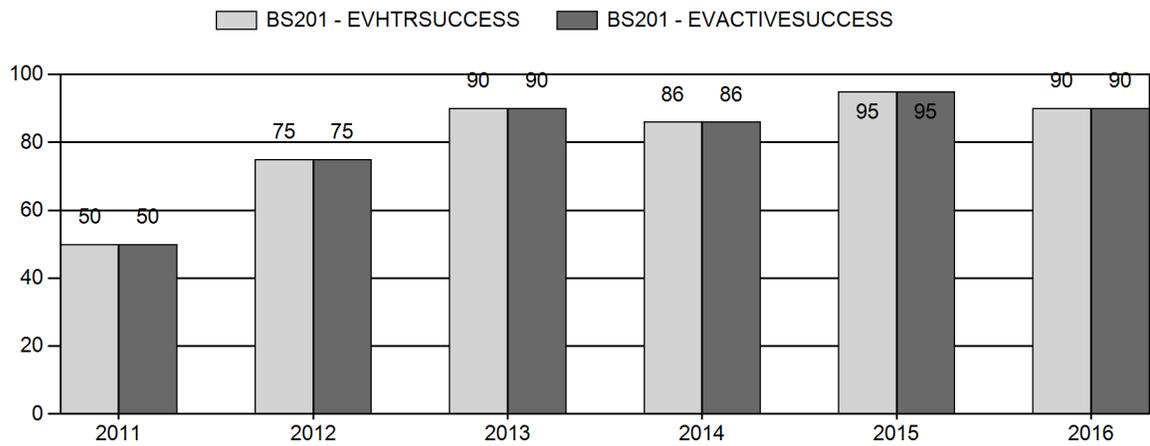
Harvest



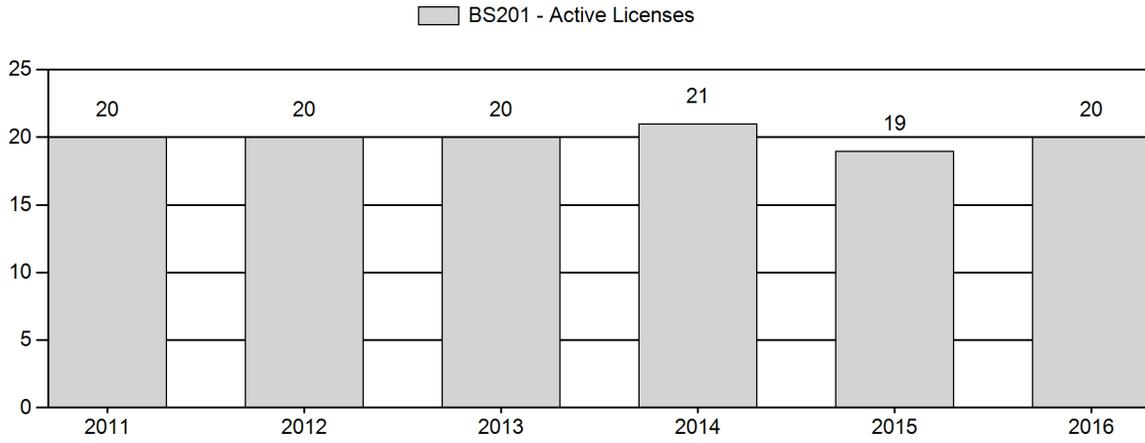
Number of Active Licenses



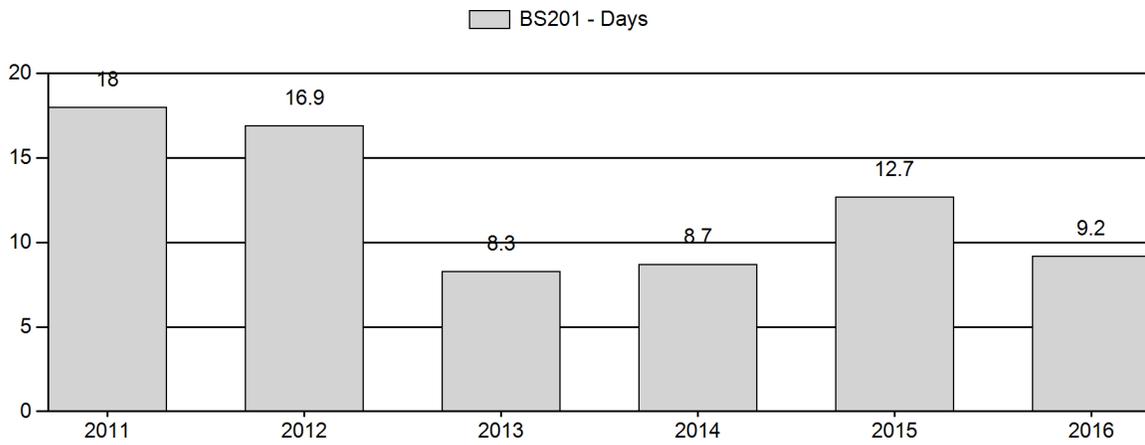
Harvest Success



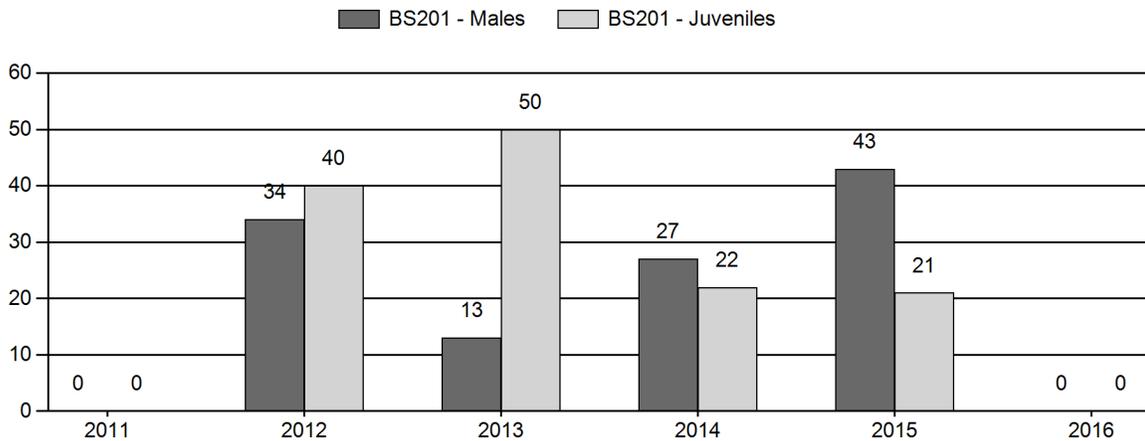
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2011 - 2016 Postseason Classification Summary

for Bighorn Sheep Herd BS201 - CLARKS FORK

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			YIng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2011	536	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0
2012	542	0	26	26	19%	77	57%	31	23%	134	274	0	34	34	± 9	40	± 10	30
2013	550	0	4	4	8%	30	61%	15	31%	49	289	0	13	13	± 9	50	± 19	44
2014	500	0	25	25	18%	91	67%	20	15%	136	274	0	27	27	± 7	22	± 6	17
2015	600	4	16	20	26%	47	61%	10	13%	77	302	9	34	43	± 14	21	± 9	15
2016	600	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0

**2017 HUNTING SEASONS
CLARKS FORK BIGHORN SHEEP HERD (BS201)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
1	1	Sep. 1	Oct. 31	20	Limited quota	Any ram

Special Archery Season Hunt Areas	Type	Season Dates		Limitations
		Opens	Closes	
1	1	Aug. 15	Aug. 31	Refer to Section 3 of this Chapter

Hunt Area	Type	Quota change from 2016
		No Changes
Total		No Changes

Management Evaluation

Current Postseason Population Management Objective: 500

2016 Postseason Population Estimate: 600

2017 Proposed Postseason Population Estimate: 500

Herd Unit Issues

Most sheep in this herd unit are found in the Absaroka Mountains, although a small number (currently less than 50) occupy the Beartooth Mountains year-round. Some Absaroka Mountains sheep from the northern portion of the sub-herd migrate into Montana, where they are subjected to hunting seasons there (currently an unlimited season with a harvest quota of 2). These sheep often end up wintering in the Wyoming portion of the Beartooth Mountains. In addition, perhaps 10%-15% of the sheep in this sub-herd reside (some seasonally, some year-round) in Yellowstone National Park (YNP). Both of these factors (Montana harvest and sheep unavailable for harvest in YNP) must be taken into account when managing this herd.

Periodic fixed-wing trend counts (and more recently helicopter classification/trend surveys) during summer have been used to assess population performance. Summer surveys are done because many sheep migrate into Montana to winter, and surveys were designed to more closely

monitor sheep while on Wyoming summer ranges. Classifications collected mid-summer are useful in tracking ram:ewe ratios, but allow little understanding of lamb survival as they are conducted so early in the year.

Weather

Weather conditions during the 2016 biological year were characterized by near normal precipitation during the growing season (April-June). Winter conditions; however, were relatively severe in most of the unit, with above average snowfall and colder than normal temperatures.

Habitat

No habitat monitoring data is collected in this sub-herd.

Field Data

Classification surveys were not flown in the winter of 2016-2017 (as of this time); however, samples from 2015 surveys reflect good lamb:ewe (51:100 – 65:100) and ram:ewe (42:100 – 56:100) ratios in most years surveyed (6 surveys over the last 11 years). Poor lamb:ewe ratios as seen in 2009 (32:100) do occasionally occur and can affect ram recruitment. Recent trend counts (401 sheep in 2006, 409 in 2009, 390 in 2011) also provide support that this herd is probably near the objective of 500 sheep.

Harvest Data

In 2016, 20 hunters took 18 rams for a success rate of 90.0%, which is among the better years seen since permits were increased to 20 in 2007. The average age of rams killed in 2015 was down to 6.5 years old, with only 22% of the rams killed being 8 years old and older.

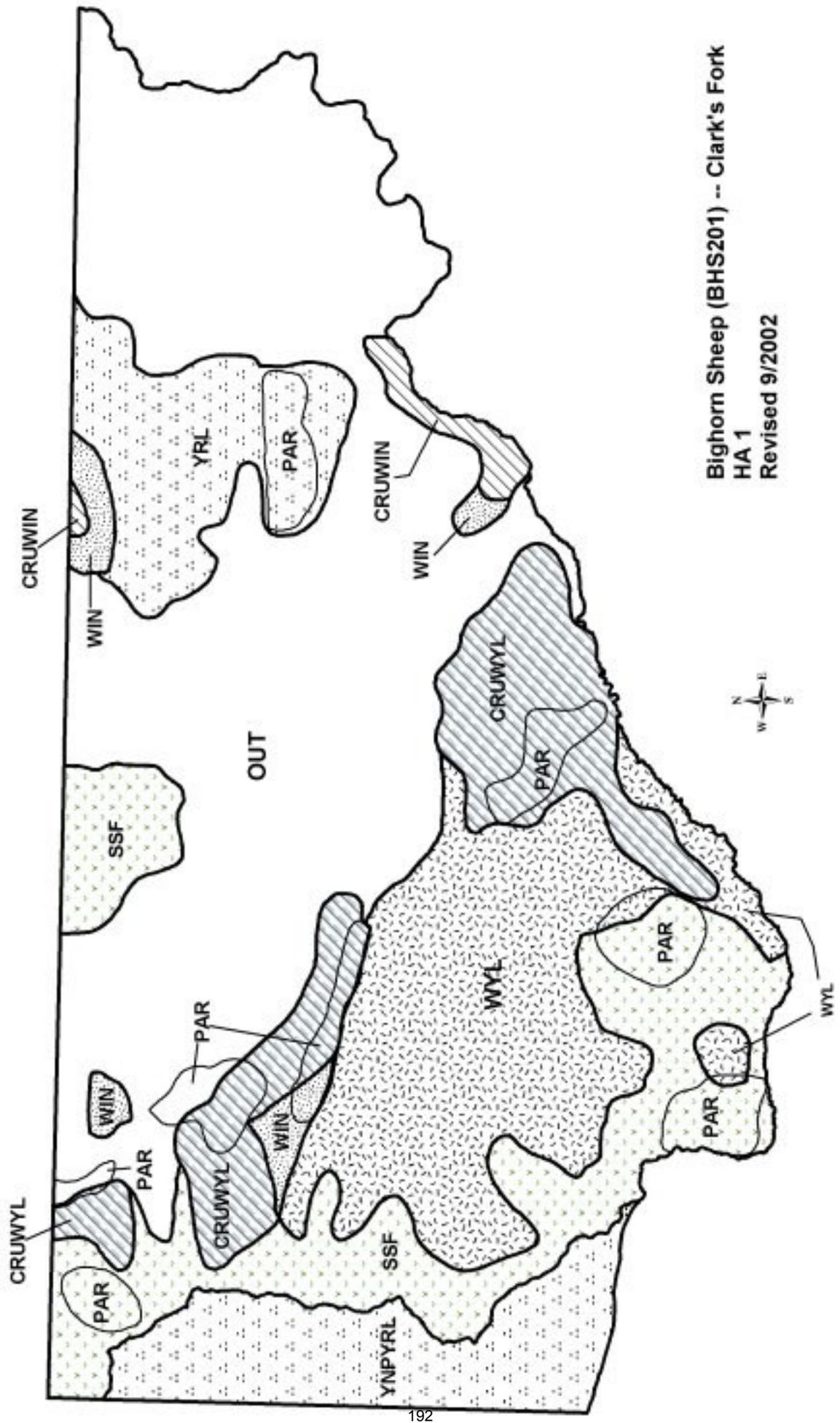
Population

The “Time Specific Juvenile – Constant Adult Mortality Rate” (TSJCA) spreadsheet model from 2016 was used to estimate the population of this herd. Although this model did not have the lowest relative AIC, the population estimate appears to be the most reasonable. The earlier trend projected by the model (early 1990s – early 2000s) is not felt to be entirely accurate, but estimates in the recent past appear reasonable. The postseason 2016 population is estimated to be approximately 600 sheep. Efforts will continue to improve this model and improve reliability. All indicators show good population performance, and an acceptable presence of mature rams. Therefore license numbers will remain at 20 for the 2016 season.

Harvest parameters for the Clarks Fork Bighorn Sheep Herd Unit, 1968-2016 (Wyoming portion only).

	1968-72	1973-91	1992-97	1998-2002	2003-2006*	2007-2014*	2015*	2016*
Permits	20	24	20	16	16	20	20	20
Harvest	7.4	11.9	10.7	10.6	14.3	14.0	19	18
% Success	49.0%	53.5%	52.9%	67.7%	90.3%	70.0%	95.0%	90.0%
Effort (days/ram)	6.8	16.7	17.7	16.7	10.3	17.0	12.7	9.2
Avg. Age	-	6.6	6.9	7.0	6.4	7.1	8.0	6.5
% Rams \geq 8 Yrs	-	31.7%	26.7%	32.0%	21.1%	37.8%	61.1%	22.2%
% Rams \leq $\frac{3}{4}$ Curl	-	-	-	-	15.9%	6.3%	5.6%	5.6%

* "any ram" regulation in place



Bighorn Sheep (BHS201) -- Clark's Fork
 HA 1
 Revised 9/2002

2016 - JCR Evaluation Form

SPECIES: Bighorn Sheep

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

HERD: BS202 - TROUT PEAK

HUNT AREAS: 2

PREPARED BY: DOUG
MCWHIRTER

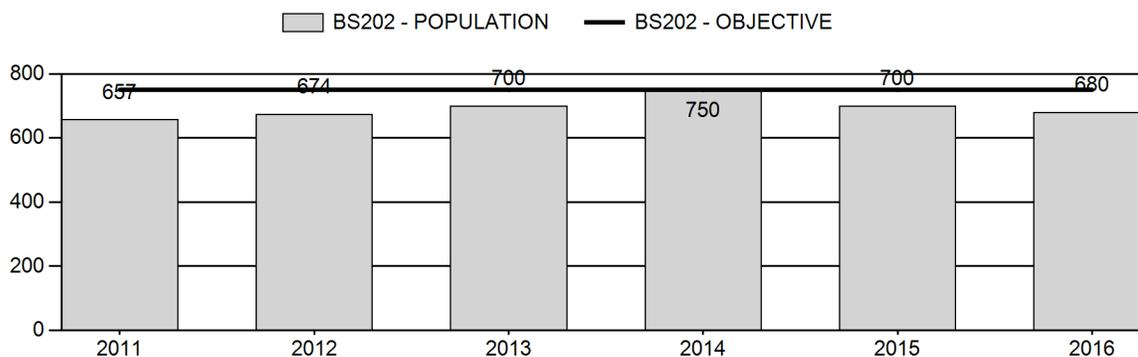
	<u>2011 - 2015 Average</u>	<u>2016</u>	<u>2017 Proposed</u>
Population:	696	680	700
Harvest:	19	21	19
Hunters:	25	28	20
Hunter Success:	76%	75%	95 %
Active Licenses:	25	28	20
Active License Success:	76%	75%	95 %
Recreation Days:	213	275	275
Days Per Animal:	11.2	13.1	14.5
Males per 100 Females	34	0	
Juveniles per 100 Females	28	0	

Population Objective (± 20%) :	750 (600 - 900)
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	-9.3%
Number of years population has been + or - objective in recent trend:	1
Model Date:	02/11/2016

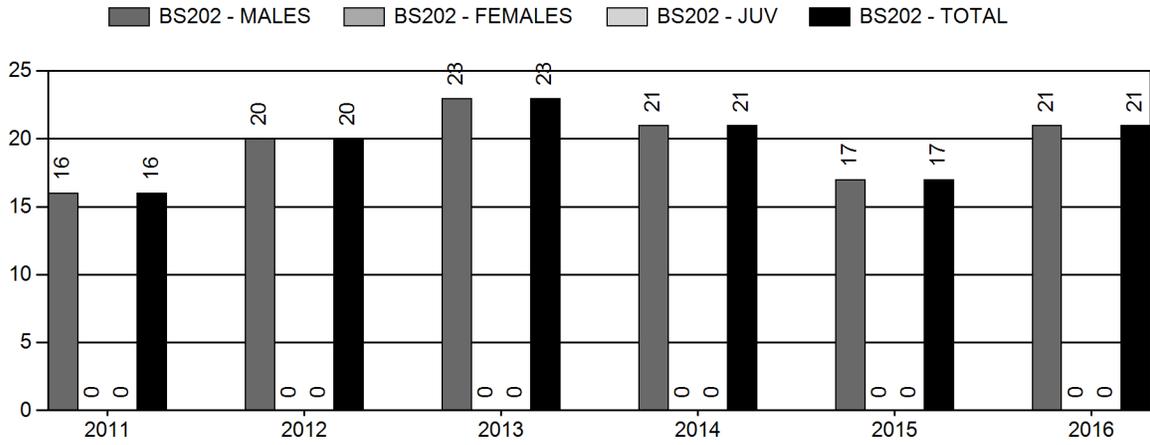
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	11.8%	12%
Total:	2.7%	2.5%
Proposed change in post-season population:	+2.8%	2.5%

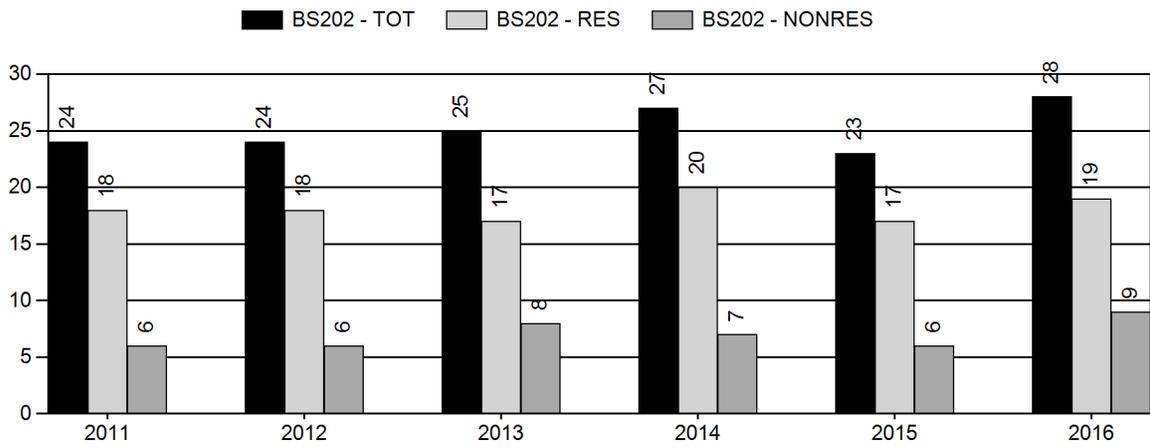
Population Size - Postseason



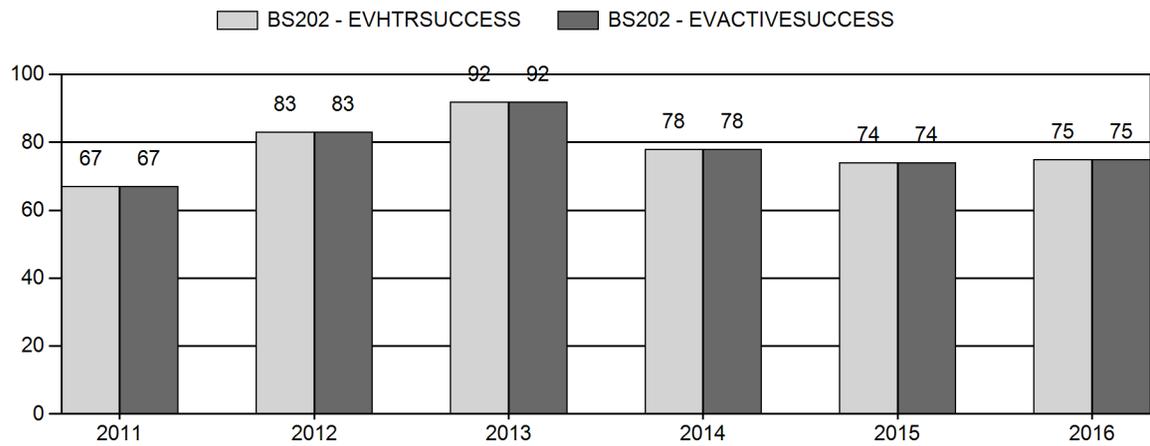
Harvest



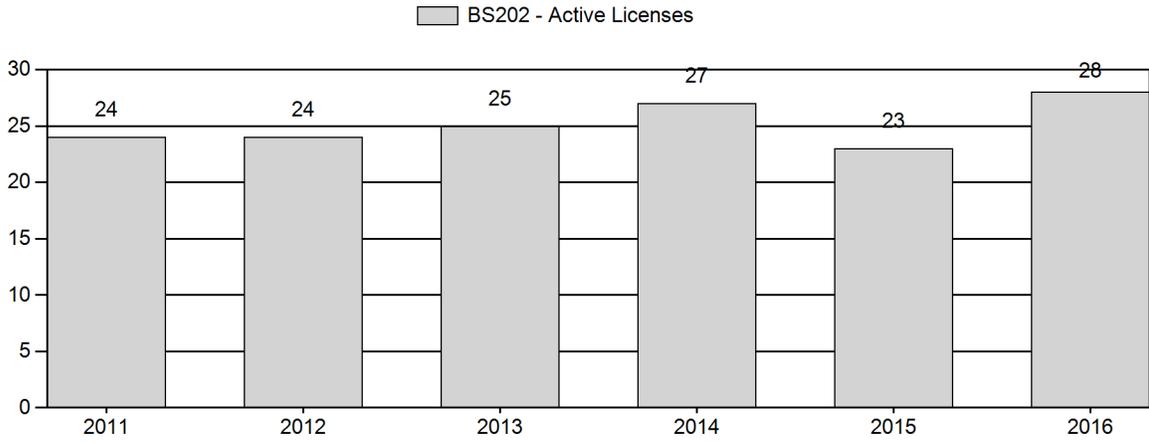
Number of Active Licenses



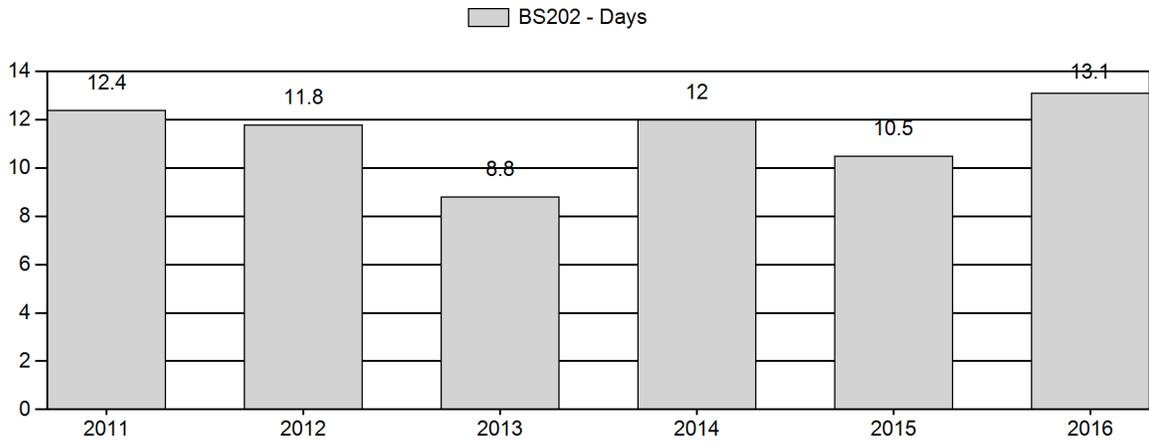
Harvest Success



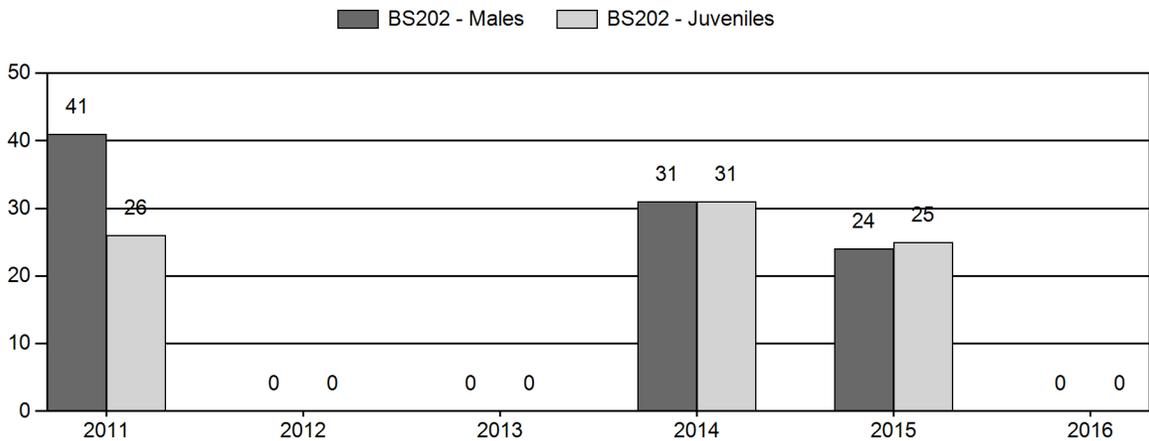
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2010 - 2016 Postseason Classification Summary

for Bighorn Sheep Herd BS202 - TROUT PEAK

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			YIng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2010	643	0	111	111	24%	273	60%	71	16%	455	0	0	41	41	± 3	26	± 2	18
2011	657	1	110	111	24%	273	60%	71	16%	455	338	0	40	41	± 3	26	± 2	18
2012	674	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0
2013	700	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0
2014	750	3	63	66	19%	216	62%	66	19%	348	325	1	29	31	± 4	31	± 4	23
2015	700	0	23	23	16%	96	67%	24	17%	143	325	0	24	24	± 6	25	± 7	20
2016	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0

**2017 HUNTING SEASONS
TROUT PEAK BIGHORN SHEEP HERD (BS202)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
2	1	Sep. 1	Oct. 31	24	Limited quota	Any ram

Special Archery Season Hunt Areas	Type	Season Dates		Limitations
		Opens	Closes	
2	1	Aug.15	Aug. 31	Refer to Section 3 of this Chapter

Hunt Area	Type	Quota change from 2016
2		No Changes
Total		No Changes

Management Evaluation

Current Postseason Population Management Objective: 750

2016 Postseason Population Estimate: 690

2017 Proposed Postseason Population Estimate: 700

Herd Unit Issues

The Trout Peak Herd Unit possesses some of the most difficult terrain in Wyoming, which is partially responsible for the wide variation in hunter statistics for which this herd is famous. A small percentage of sheep (presumably less than 10%) reside within Yellowstone National Park. Sheep can be found on low elevation winter ranges along the North Fork of the Shoshone River, but also occupy high elevation ranges throughout the hunt area.

Weather

Weather conditions during the 2016 biological year were characterized by near normal precipitation during the growing season (April-June). Winter conditions; however, were relatively severe in most of the unit, with above average snowfall and colder than normal temperatures.

Habitat

No habitat monitoring data is collected in this herd unit.

Field Data

Classification surveys have not been flown in the winter of 2016-2017 as of this time; however, seven surveys have been conducted over the last 11 years, resulted in samples ranging from 117 to 480 classified sheep. Lamb:ewe ratios have ranged from 15:100 to 31:100 over this time, while ram:ewe ratios have varied from 30:100 to 67:100. The most recent survey in 2015 resulted in only 143 sheep classified with the lamb:ewe ratio of 20:100, and ram:ewe ratio of 24:100.

Harvest Data

In 2016, 28 hunters took 21 rams for a success rate of 75%, which is essentially average for this herd unit since it has been managed with approximately 24 licenses. The average age of rams killed in 2015 was 8.3 years old, with 57.1% of harvested rams being 8 years old or older. One ram less than $\frac{3}{4}$ curl was killed in 2016. All indicators, plus good lamb:ewe and ram:ewe ratios from recent surveys, indicate good population performance, and an acceptable presence of mature rams.

Population

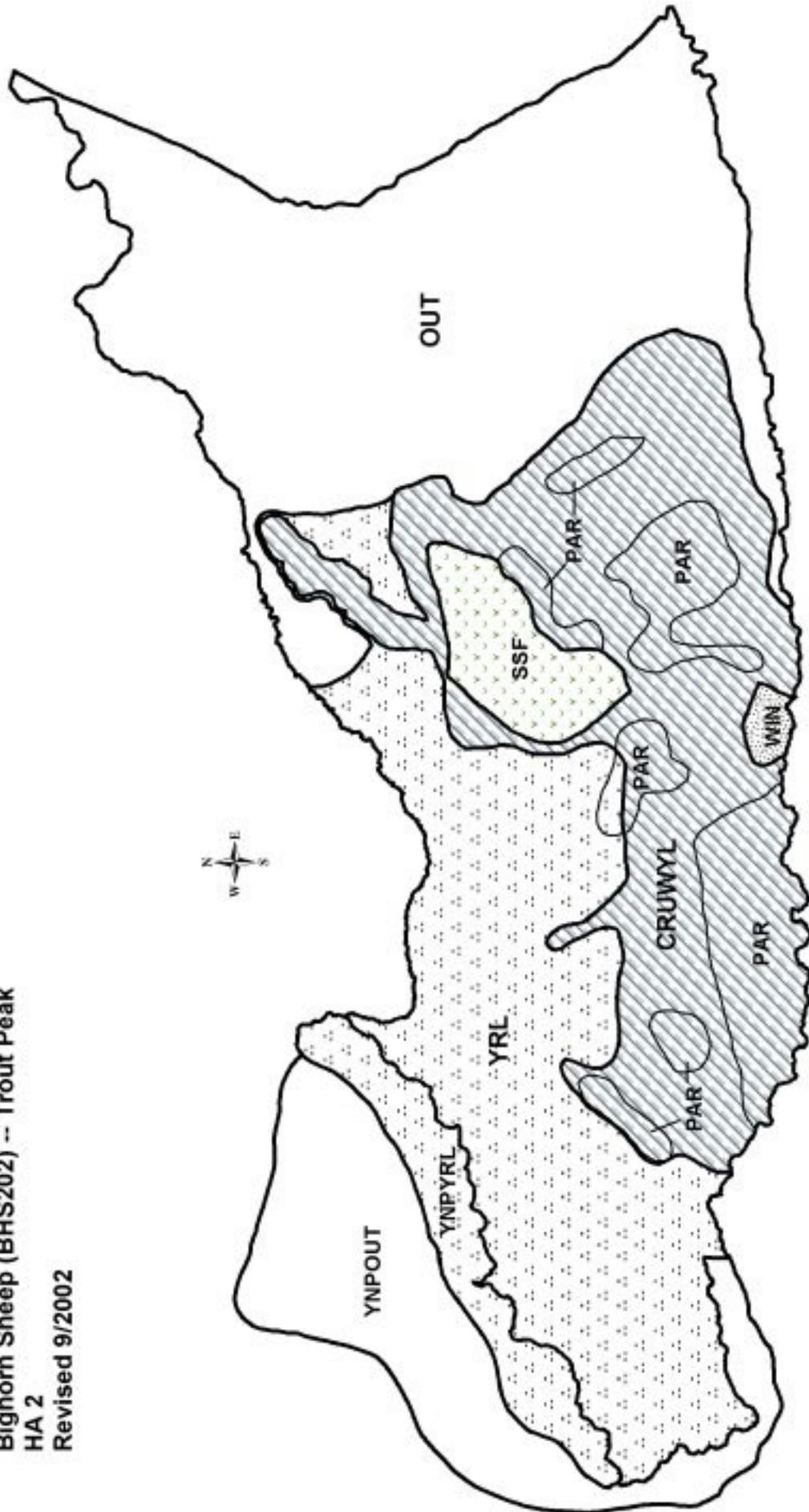
The “Time Specific Juvenile – Constant Adult Mortality Rate” (TSJCA) spreadsheet model from 2016 was chosen to use for the post season population estimate of this herd. Although this model did not have the lowest relative AIC, the population estimate and trend appears to be very reasonable. The postseason 2015 population is estimated to be 700 sheep. Efforts will continue to improve this model and improve reliability. Since adopting the any ram regulation in 2004, this herd unit has exhibited some of the variation in harvest parameters for which it has always been famous. When averaged over the last 8 years, however, harvest parameters are within desirable ranges. Therefore permit levels will remain at 24 licenses for the 2016 season. The predicted postseason 2016 population is estimated to be approximately 700 sheep.

Harvest parameters for HA 2 the Trout Peak Bighorn Sheep Herd, 1978-2016.

	1978-96	1997-2002	2003	2004-2014*	2015*	2016*
Permits	32	24	28	24 ⁺	24	28
Harvest	18.8	15.2	16	19.1	17	21
% Success	61.0%	63.8%	61.5%	78.7%	74%	75.0%
Effort	18.2	16.0	25.1	12.6	10.5	13.1
Avg. Age	5.9	6.7	6.6	7.1	7.3	8.3
% Rams \geq 8 Yrs	19.5%	25.6%	18.8%	33.1%	29.4%	57.1%
% Rams \leq $\frac{3}{4}$	-	-	-	4.0%	5.9%	4.8%

+ 25 permits were issued in 2006, 2007, and 15 and 28 permits were issued in 2008 and 2009, respectively due to the Gunbarrel Fire. *any ram regulation in place

Bighorn Sheep (BHS202) -- Trout Peak
HA 2
Revised 9/2002



2016 - JCR Evaluation Form

SPECIES: Bighorn Sheep

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

HERD: BS203 - WAPITI RIDGE

HUNT AREAS: 3

PREPARED BY: DOUG
MCWHIRTER

	<u>2011 - 2015 Average</u>	<u>2016</u>	<u>2017 Proposed</u>
Population:	970	850	850
Harvest:	35	32	35
Hunters:	42	40	40
Hunter Success:	83%	80%	88 %
Active Licenses:	42	40	40
Active License Success:	83%	80%	88 %
Recreation Days:	367	282	300
Days Per Animal:	10.5	8.8	8.6
Males per 100 Females	28	0	
Juveniles per 100 Females	23	0	

Population Objective (± 20%) : 1000 (800 - 1200)

Management Strategy: Special

Percent population is above (+) or below (-) objective: -15%

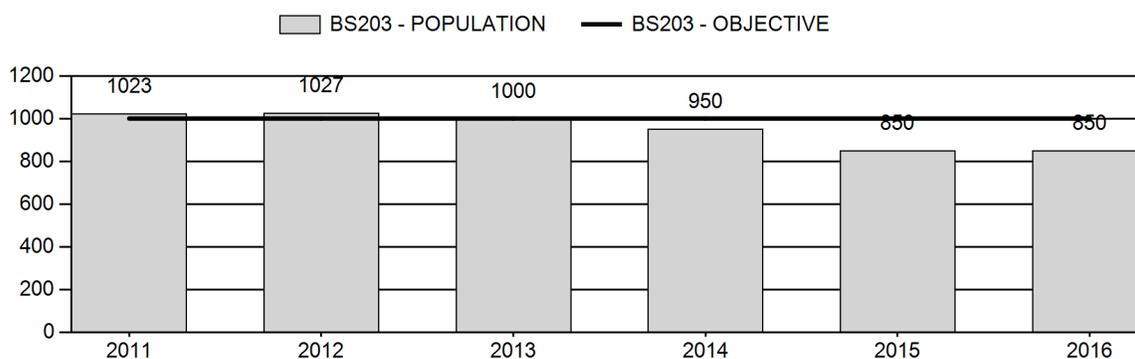
Number of years population has been + or - objective in recent trend: 2

Model Date: 2/11/2016

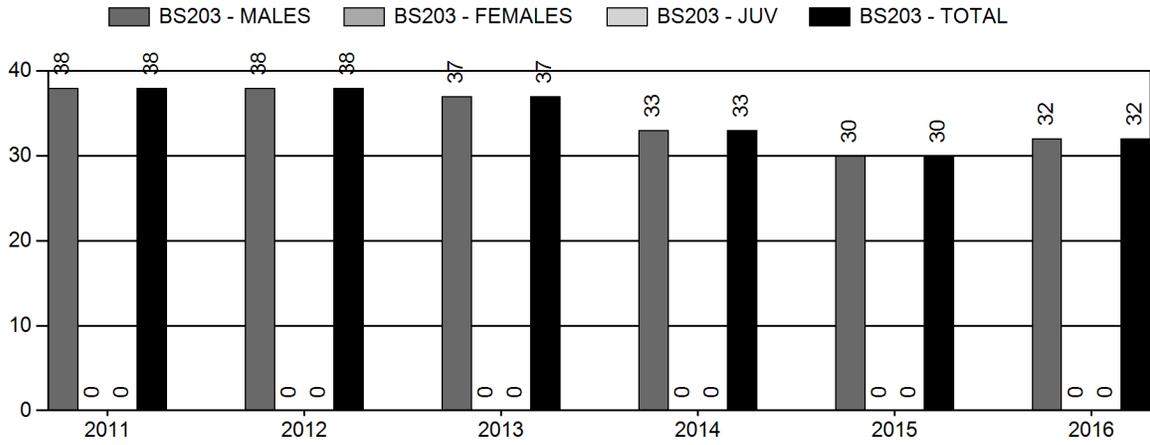
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	18.6%	15%
Total:	3.6%	2.5%
Proposed change in post-season population:	-0.8%	0%

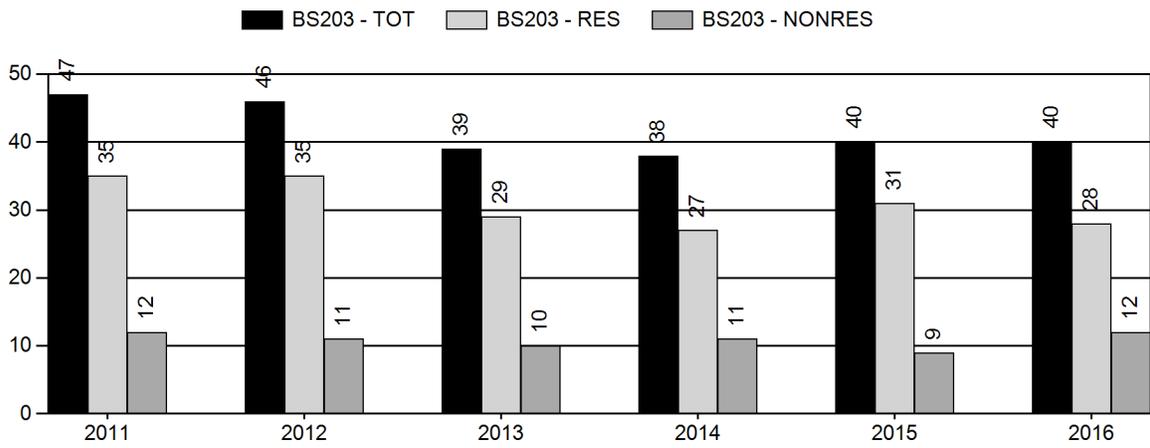
Population Size - Postseason



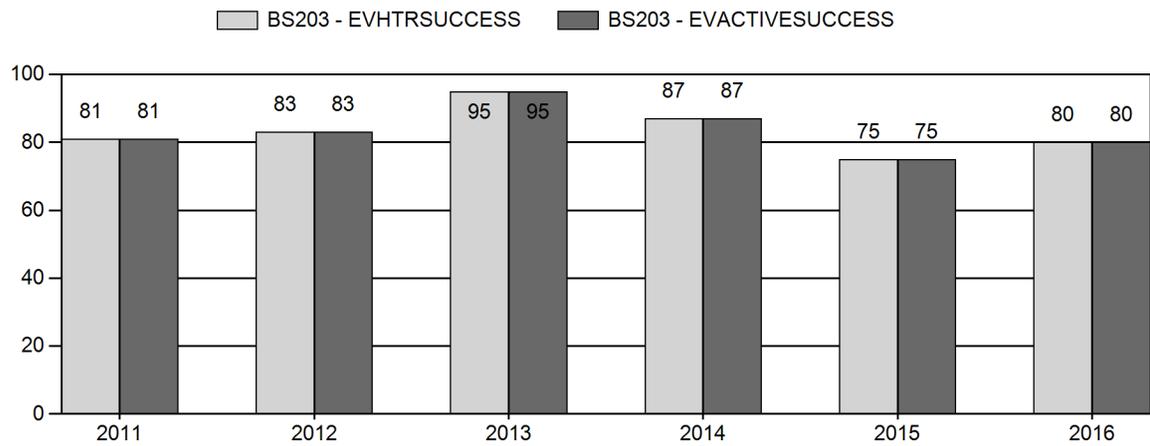
Harvest



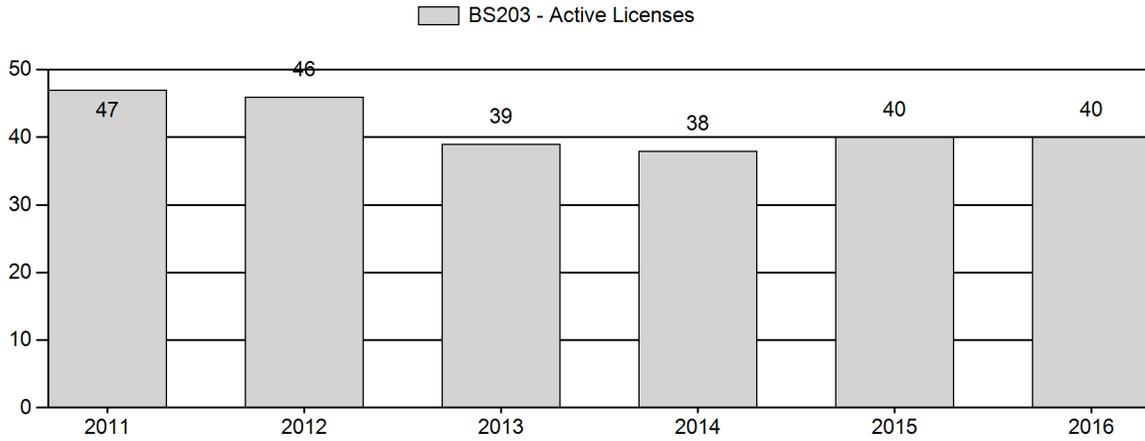
Number of Active Licenses



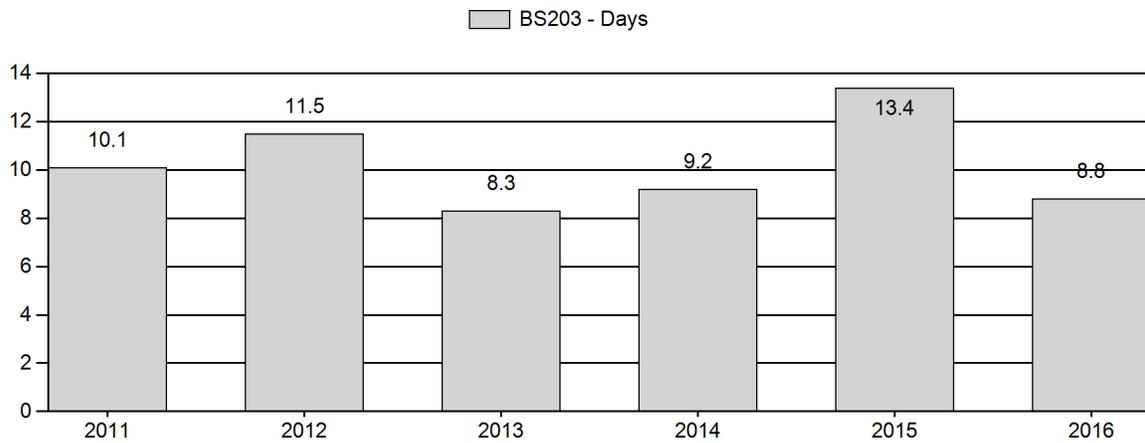
Harvest Success



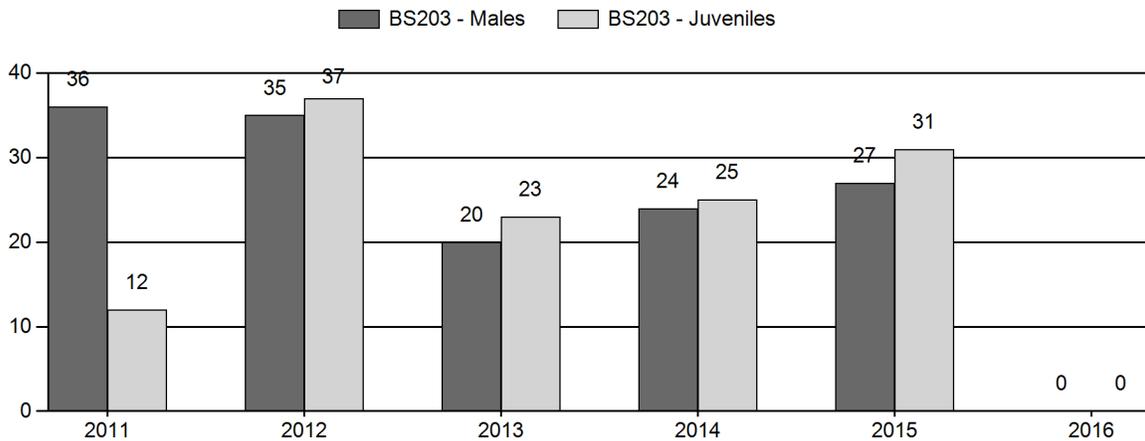
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2011 - 2015 Postseason Classification Summary

for Bighorn Sheep Herd BS203 - WAPITI RIDGE

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			YIng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2011	1,023	12	148	160	24%	446	67%	55	8%	661	415	3	33	36	± 3	12	± 1	9
2012	1,027	7	32	39	20%	111	58%	41	21%	191	392	6	29	35	± 8	37	± 8	27
2013	1,000	9	41	50	14%	246	70%	56	16%	352	378	4	17	20	± 3	23	± 3	19
2014	950	6	109	115	16%	487	67%	124	17%	726	363	1	22	24	± 2	25	± 2	21
2015	850	17	74	91	17%	339	63%	106	20%	536	363	5	22	27	± 2	31	± 3	25

**2017 HUNTING SEASONS
WAPITI RIDGE BIGHORN SHEEP HERD (BS203)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
3	1	Sep.1	Oct 31	40	Limited quota	Any ram

Special Archery Season Hunt Areas	Type	Season Dates		Limitations
		Opens	Closes	
3	1	Aug. 15	Aug. 31	Refer to Section 3 of this Chapter

Hunt Area	Type	Quota change from 2016
3	1	No Changes
Total	1	No Changes

Management Evaluation

Postseason Population Management Objective: 1,000

2016 Postseason Population Estimate: 850

2017 Proposed Postseason Population Estimate: 800

Herd Unit Issues

The Wapiti Ridge Herd Unit consists of sheep that occupy low elevation winter ranges along the North and South Forks of the Shoshone River, but also occupy high elevation ranges throughout the hunt area. A small percentage of sheep (presumably less than 10%) reside within Yellowstone National Park.

Weather

Weather conditions during the 2016 biological year were characterized by near normal precipitation during the growing season (April-June). Winter conditions; however, were relatively severe in most of the unit, with above average snowfall and colder than normal temperatures.

Habitat

No habitat monitoring data is collected in this herd unit.

Field Data

Classification surveys have not been flown in the winter of 2016-2017 as of this time; however, eight classification surveys were flown over the last 11 years with samples ranging from 315 to 914 classified sheep. Lamb:ewe ratios ranged from 12:100 to 37:100 over this time, while ram:ewe ratios have varied from 32:100 to 46:100. The most recent survey in 2015 resulted in 536 sheep observed, a lamb:ewe ratio of 31:100, and a ram:ewe ratio of 27:100, which is about average for this herd unit.

Harvest Data

In 2016, 40 hunters took 32 rams for a success rate of 80%, which is average for this sub-herd. The average age of rams killed in 2013 was 7.7 years old, with 59% of the rams killed being 8 years old and older, and three rams less than ¾ curl. Hunter expended 8.8 days per ram, which is about average for this sub-herd.

Population

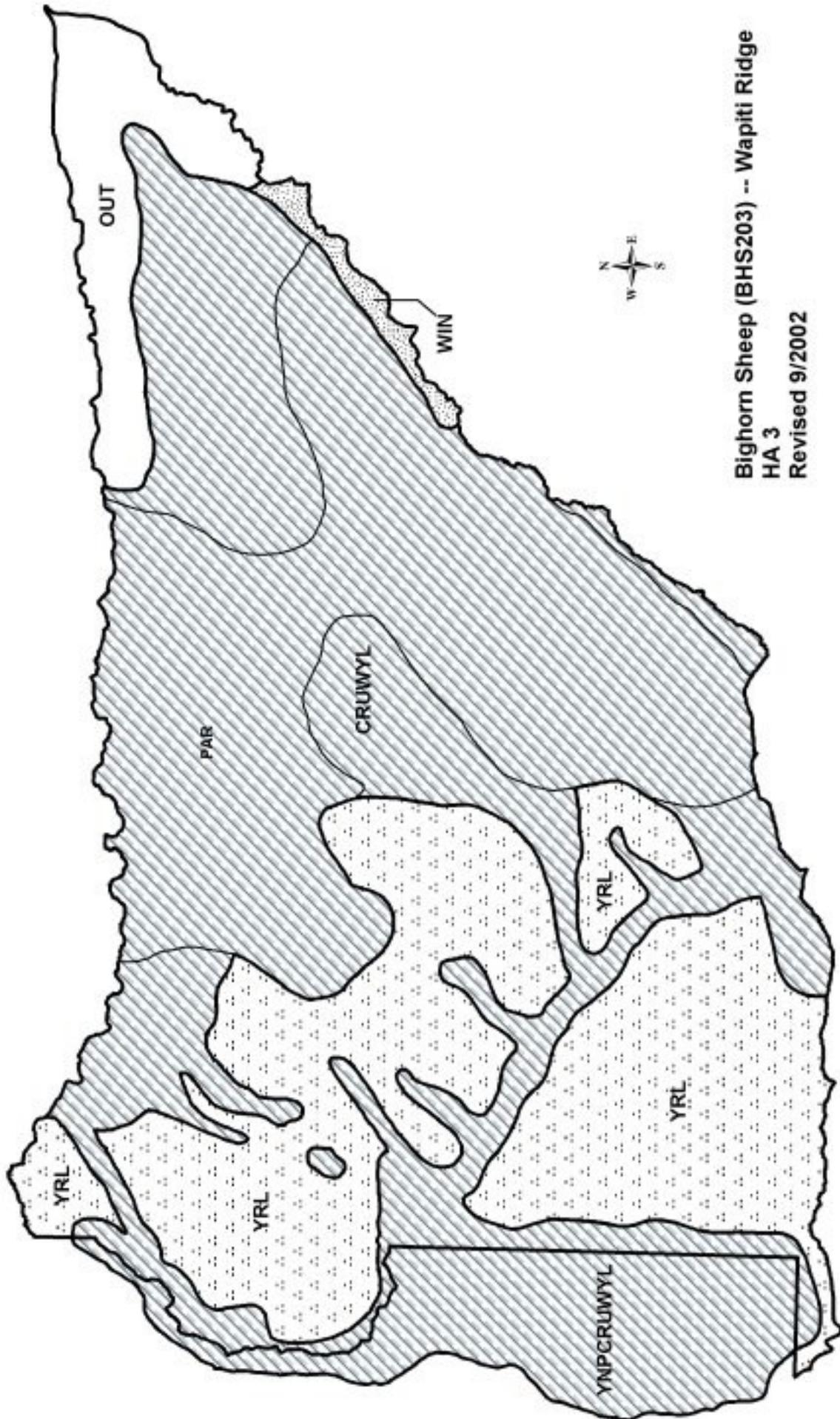
The “Time Specific Juvenile – Constant Adult Mortality Rate” (TSJCA) spreadsheet model from 2016 was chosen to use for the post season population estimate of this herd. Although this model did not have the lowest relative AIC, the population estimate appears to be reasonable. The rather steep decline produced by the model however, is not believed to entirely realistic. The postseason 2015 population is estimated to be 850 sheep with a slight decline expected. Efforts will continue to improve this model and improve reliability. Further permit reductions may be necessary in the near future to preserve or improve ram hunting opportunities, if surveys indicate this winter had a higher than normal mortality. Harvest statistics should be monitored closely to determine if such a situation is developing. License numbers were reduced to 40 for the 2013 season, and remained so for the 2014-2016 seasons. The postseason 2017 population is estimated to be approximately 850 sheep.

Harvest parameters for HA 3 the Wapiti Ridge Bighorn Sheep Herd Unit, 1978-2015.

	1978-83	1984-85	1986-92	1993-99	2000-04*	2005-12*	2013-14*	2015*	2016*
Permits	32	36	40	44	48	44+	40	40	40
Harvest	22.5	29.5	36.1	36.9	38.0	36.5	35.0	30	32
%	69.3%	81.2%	83.0%	79.0%	77.6%	81.4%	90.9%	75.0%	80.0%
Effort	11.3	9.3	8.6	9.0	9.8	10.3	8.75	13.4	8.8
Avg.	5.9	7.1	6.9	7.1	6.8	6.7	7.5	7.3	7.7
% Rams	12.8%	49.2%	41.5%	35.1%	31.0%	29.3%	50.3%	43.3%	59.4%
% Rams	-	-	-	-	8.4%	8.6%	7.1%	13.3%	9.4%

* “any ram” regulation in place

+ 46 licenses were issued in 2012 to achieve a 75:25 statewide split between residents and nonresidents



Bighorn Sheep (BHS203) -- Wapiti Ridge
HA 3
Revised 9/2002

2016 - JCR Evaluation Form

SPECIES: Bighorn Sheep

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

HERD: BS204 - YOUNTS PEAK

HUNT AREAS: 4

PREPARED BY: DOUG
MCWHIRTER

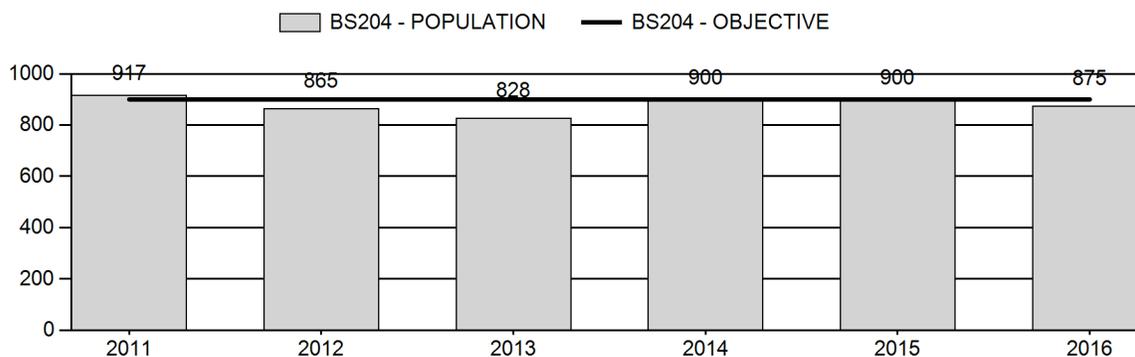
	<u>2011 - 2015 Average</u>	<u>2016</u>	<u>2017 Proposed</u>
Population:	882	875	875
Harvest:	17	19	21
Hunters:	25	21	23
Hunter Success:	68%	90%	91%
Active Licenses:	25	21	23
Active License Success:	68%	90%	91 %
Recreation Days:	205	160	175
Days Per Animal:	12.1	8.4	8.3
Males per 100 Females	42	0	
Juveniles per 100 Females	25	0	

Population Objective (± 20%) :	900 (720 - 1080)
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	-2.8%
Number of years population has been + or - objective in recent trend:	4
Model Date:	2/11/2016

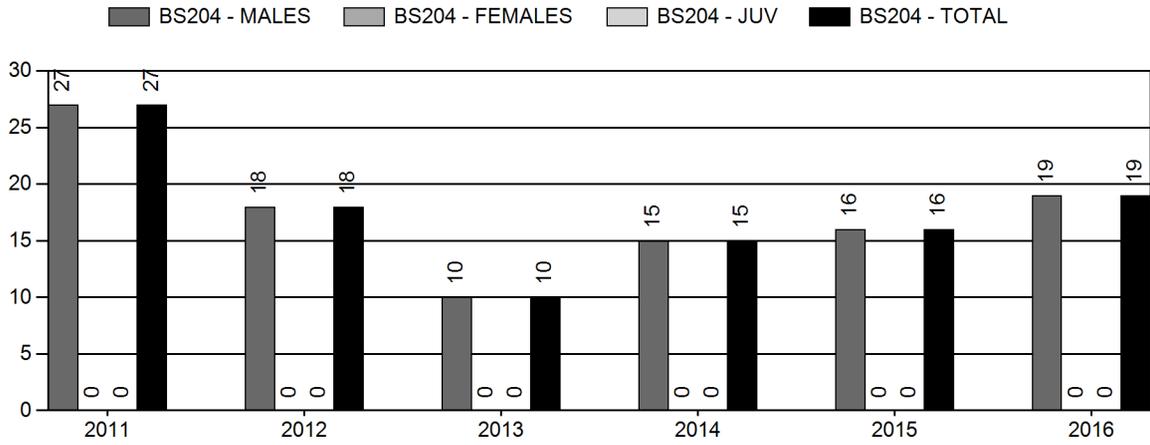
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	6.5%	7%
Total:	1.7%	1.5%
Proposed change in post-season population:	-0.1%	-1%

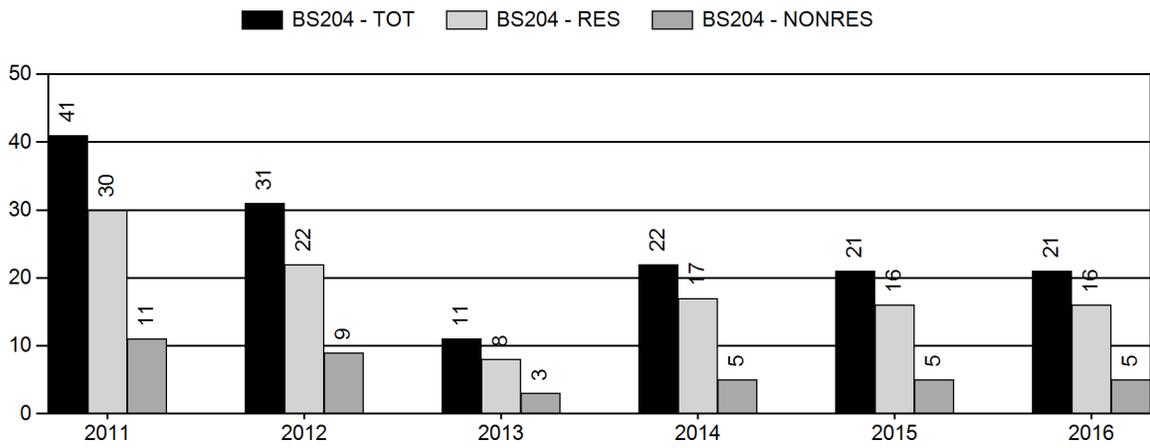
Population Size - Postseason



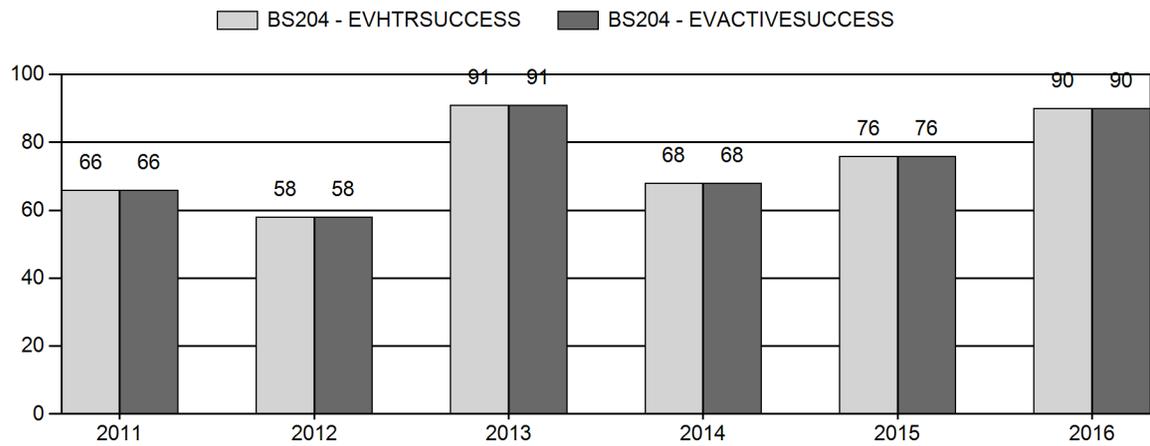
Harvest



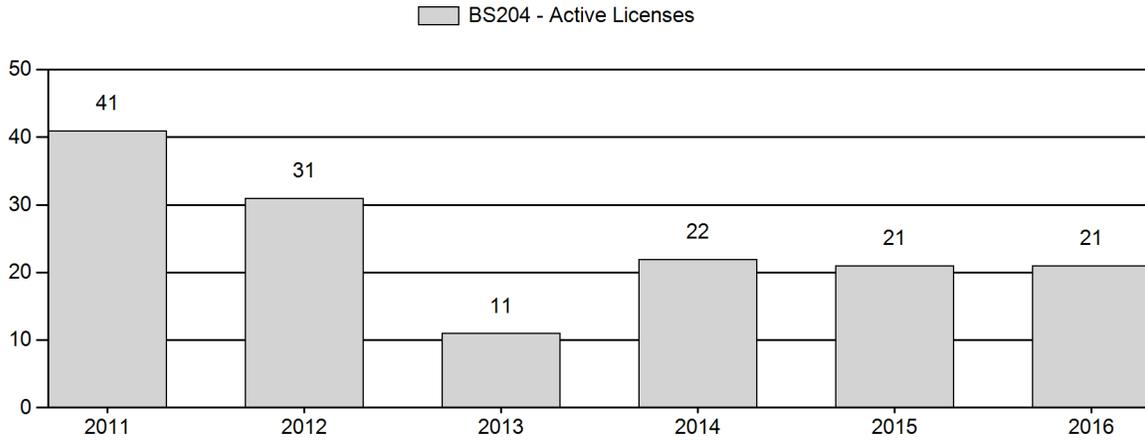
Number of Active Licenses



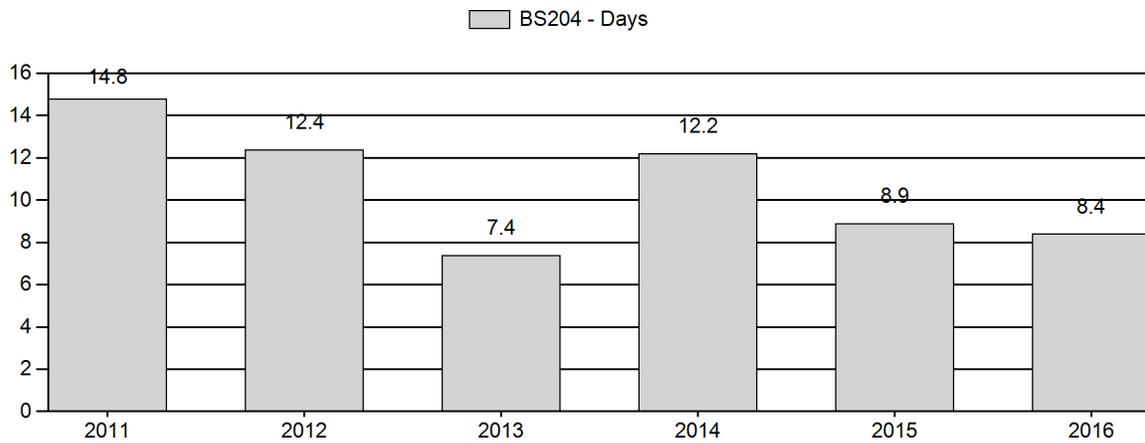
Harvest Success



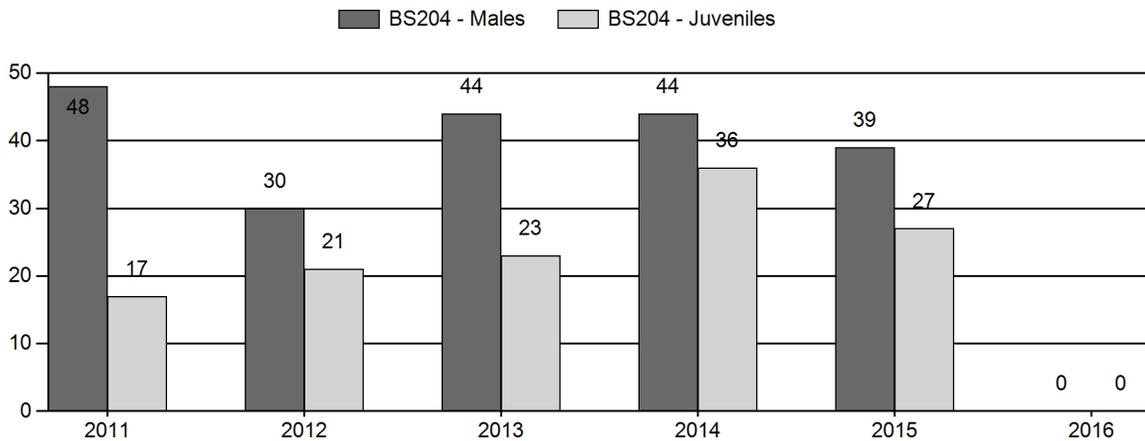
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2011 - 2016 Postseason Classification Summary

for Bighorn Sheep Herd BS204 - YOUNTS PEAK

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			YIng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2011	917	21	126	147	29%	305	60%	53	10%	505	386	7	41	48	± 4	17	± 2	12
2012	865	0	46	46	20%	155	67%	32	14%	233	345	0	30	30	± 5	21	± 4	16
2013	828	4	115	119	26%	269	60%	63	14%	451	345	1	43	44	± 4	23	± 3	16
2014	900	10	100	110	24%	252	56%	91	20%	453	355	4	40	44	± 5	36	± 4	25
2015	900	9	64	73	24%	186	60%	50	16%	309	363	5	34	39	± 6	27	± 4	19
2016	875	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0

**2017 HUNTING SEASONS
YOUNTS PEAK BIGHORN SHEEP HERD (BS204)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
4	1	Sep. 1	Oct. 31	23	Limited quota	Any ram (17 residents, 6 nonresidents)

Special Archery Season Hunt Areas	Type	Season Dates		Limitations
		Opens	Closes	
4	1	Aug. 15	Aug. 31	Refer to Section 3 of this Chapter

Hunt Area	Type	Quota change from 2016
4	1	+2
Total	1	+2

Management Evaluation

Postseason Population Management Objective: 900

2016 Postseason Population Estimate: 900

2017 Proposed Postseason Population Estimate: 875

Herd Unit Issues

The Younts Peak Herd Unit is characterized by sheep that live at extremely high elevation year-round. This subjects many of them to occasionally heavy winter losses, which occurred in 1995, 1996, and 2010-13.

Weather

Weather conditions during the 2016 biological year were characterized by near normal precipitation during the growing season (April-June). Winter conditions; however, were relatively severe in most of the unit, with above average snowfall and colder than normal temperatures.

Habitat

No habitat monitoring data is collected in this herd unit.

Field Data

Classification surveys have not been flown in the winter of 2016-2017 as of this time; however, seven surveys were flown over the last 10 years, resulted in samples ranging from 233 to 536

classified sheep. Lamb:ewe ratios have ranged from 17:100 to 36:100 over this time, although 5 of these surveys produced lamb:ewe ratios of 17:100, 21:100, 22:100, and 23:100. Ram:ewe ratios have varied from 30:100 to 54:100. The most recent complete survey in 2015 resulted in 309 sheep observed, a lamb:ewe ratio of 27:100 (which is slightly above average), and a ram:ewe ratio of 34:100, which is slightly below average for this herd unit. Survey data from the Dubois portion of the herd unit in 2015 yielded a lamb:ewe ratio of 21:100 and a ram:ewe ratio of 51:100.

Harvest Data

A total of 21 hunters took 19 rams in 2016 for a success rate of 90%. The average age of rams killed in 2016 was 8.8 years old, with 68% of the rams killed being 8 years old and older. One ram less than $\frac{3}{4}$ curl was killed in 2016. Hunter effort was 8.4 days per ram harvested. These figures represent a return to harvest success previously seen, but with fewer licenses.

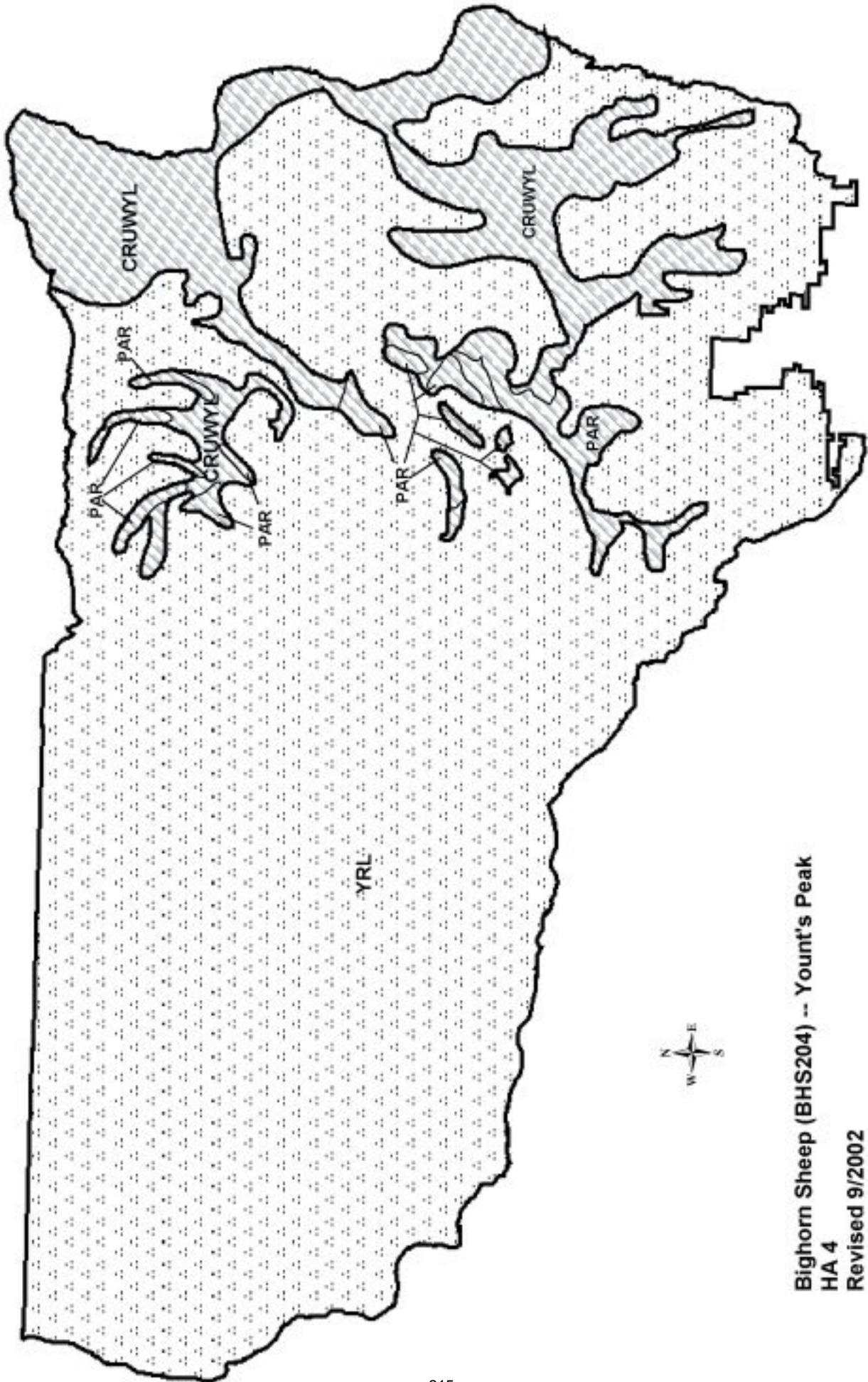
Population

The “Semi-Constant Juvenile – Semi-Constant Adult Mortality Rate” (SCJSCA) spreadsheet model from 2016 was chosen to use for the post season population estimate of this herd. Although this model did not have the lowest relative AIC, the population trend is much more reasonable than other models. The postseason 2015 population is estimated to be 900 sheep. Efforts will continue to improve this model. With the extremely poor lamb production experienced recently, it is likely that the availability of rams will not recover rapidly in this herd unit in coming years as lambs from these cohorts enter mature ram age classes. Maintenance of reduced ram hunting opportunities may be necessary in the near future to preserve or improve ram hunting opportunities. Ram:ewe ratios, average age of harvested rams, and the percentage of rams at least 8 years of age and older should be monitored closely to determine if such a situation is developing. License numbers were reduced to 20 for the 2013-15 seasons and will remain there for the 2016 season. The postseason 2016 population is estimated to remain at be approximately 900 sheep.

Harvest parameters for HA 4, Younts Peak Bighorn Sheep Herd Unit, 1978-2016.

	1984-91	1992-95	1996-00*	2001-04*	2005-08*	2009-11*	2012*	2013-14*	2015*	2016*
Permits	60	48	32	36	40	44 ⁺	28	20	20	21
Harvest	33.1	28.3	22.6	32.3	34.0	32.7	18	16.5	16	19
% Success	59%	62%	74%	87%	83.3%	75.4%	58.1%	79.5%	76%	90.5%
(days/ram)	18.6	15.0	8.4	7.9	8.2	10.5	12.4	9.8	8.9	8.4
Avg. Age	6.6	6.5	6.7	7.3	7.3	7.5	7.2	7.9	8.3	8.8
% \geq 8 Yrs	24.1%	17.5%	33.3%	44.1%	32.7%	47.6%	22.2%	61.7%	68.8%	68.4%
% $\leq \frac{3}{4}$ Curl	-	-	11.9%	15.0%	7.2%	5.9%	5.6%	11.7%	9.1%	5.3%

* “any ram” regulation in place



**Bighorn Sheep (BHS204) -- Yount's Peak
 HA 4
 Revised 9/2002**

2016 - JCR Evaluation Form

SPECIES: Bighorn Sheep

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

HERD: BS205 - FRANCS PEAK

HUNT AREAS: 5, 22, 999

PREPARED BY: BART KROGER

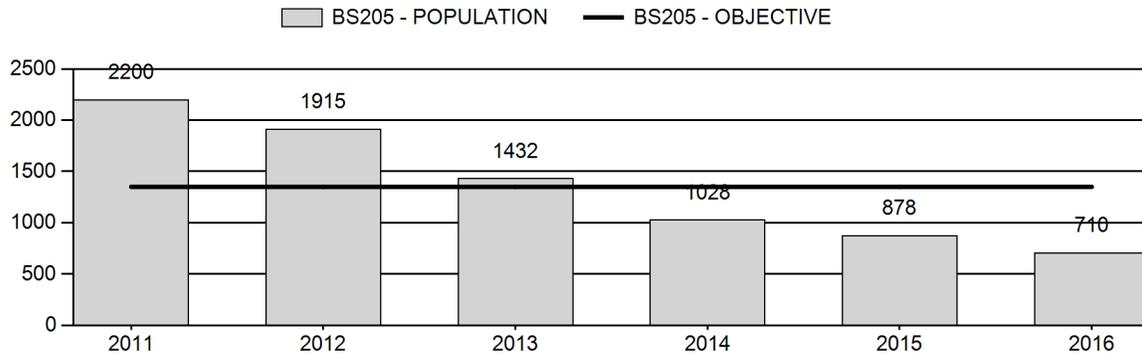
	<u>2011 - 2015 Average</u>	<u>2016</u>	<u>2017 Proposed</u>
Population:	1,491	710	689
Harvest:	64	41	48
Hunters:	80	50	58
Hunter Success:	80%	82%	83%
Active Licenses:	80	50	58
Active License Success:	80%	82%	83%
Recreation Days:	547	378	400
Days Per Animal:	8.5	9.2	8.3
Males per 100 Females	56	50	
Juveniles per 100 Females	23	20	

Population Objective ($\pm 20\%$) :	1350 (1080 - 1620)
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	-47.4%
Number of years population has been + or - objective in recent trend:	5
Model Date:	05/15/2017

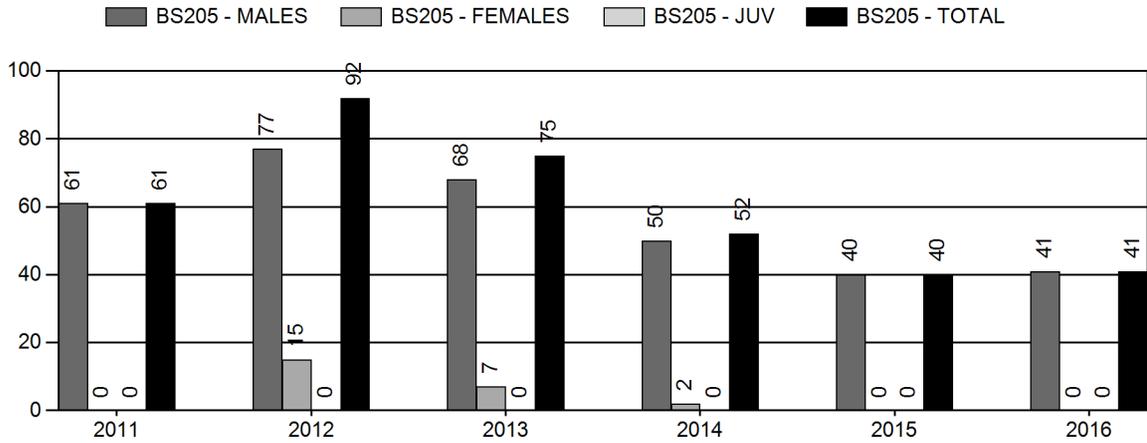
Proposed harvest rates (percent of pre-season estimate for each sex/age group):

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	21%	29%
Total:	5%	6%
Proposed change in post-season population:	-19%	-2%

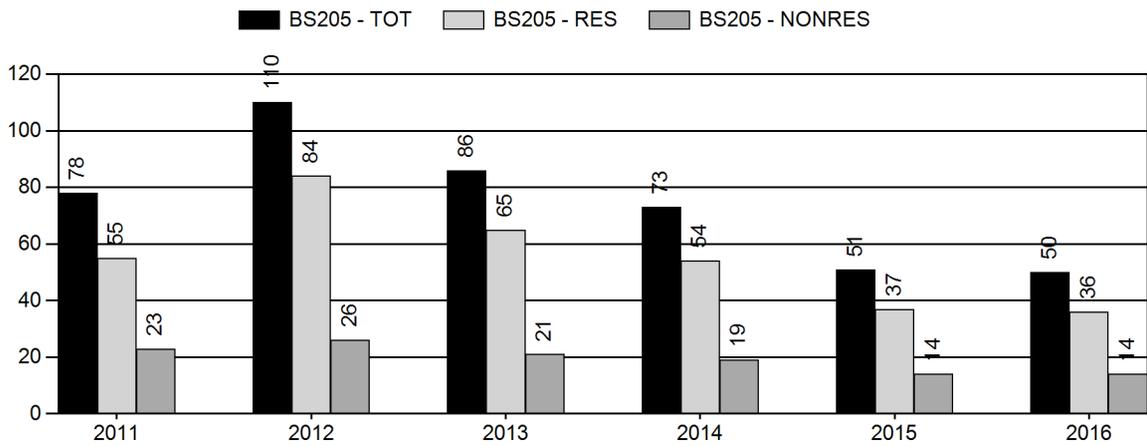
Population Size - Postseason



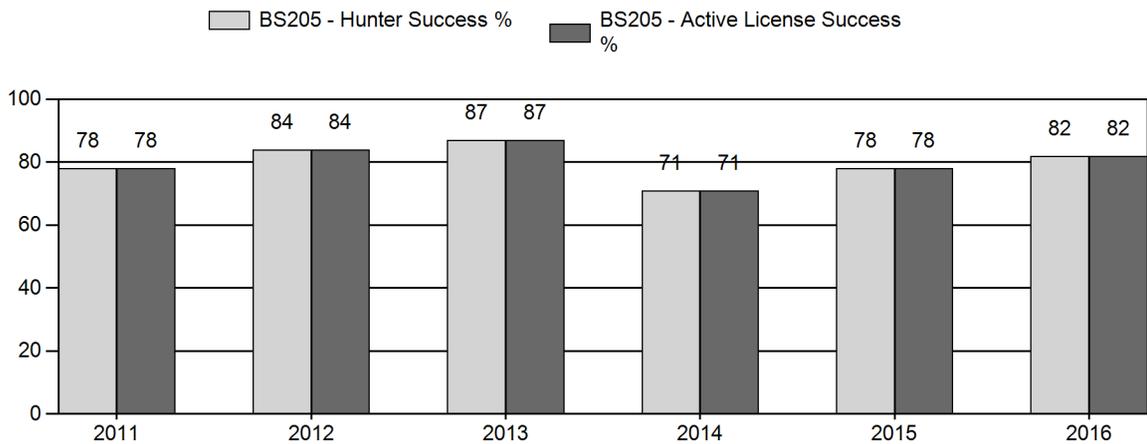
Harvest



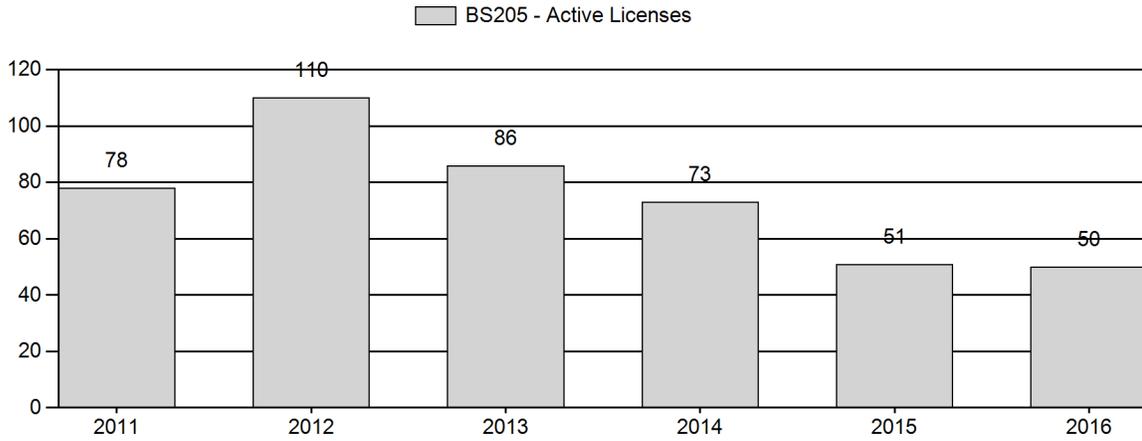
Number of Active Licenses



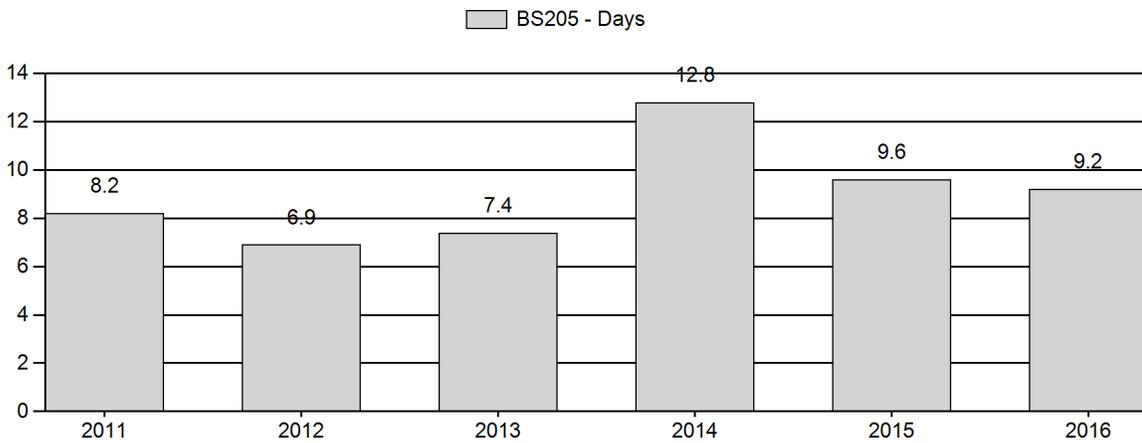
Harvest Success



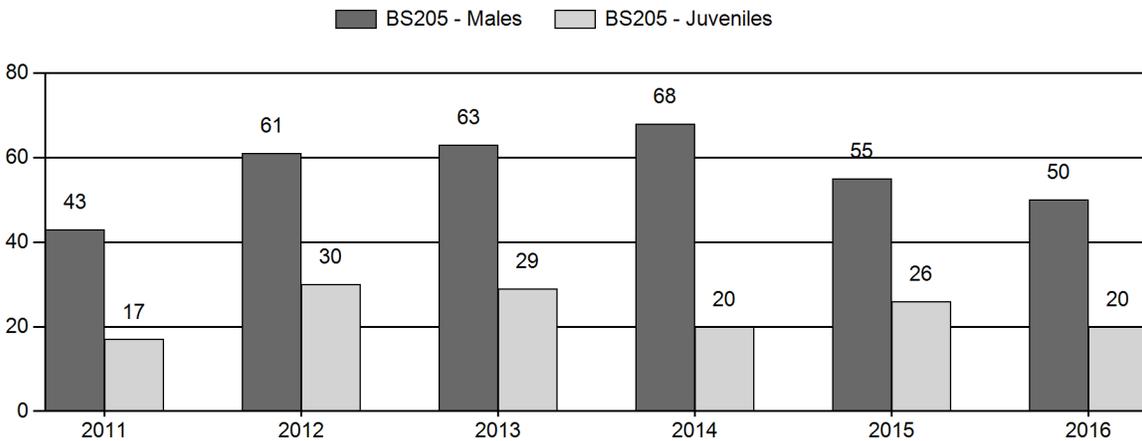
Active Licenses



Days per Animal Harvested



Postseason Animals per 100 Females



2011 - 2016 Postseason Classification Summary

for Bighorn Sheep Herd BS205 - FRANCS PEAK

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			YIng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2011	2,200	0	0	172	27%	400	62%	68	11%	640	445	0	0	43	± 4	17	± 2	12
2012	1,915	0	140	140	32%	228	52%	68	16%	436	802	0	61	61	± 7	30	± 5	18
2013	1,432	0	144	144	33%	230	52%	66	15%	440	584	0	63	63	± 7	29	± 4	18
2014	1,028	0	135	135	36%	200	53%	41	11%	376	490	0	68	68	± 8	20	± 4	12
2015	878	0	0	103	30%	188	55%	48	14%	339	352	0	0	55	± 7	26	± 4	16
2016	707	0	182	182	29%	362	59%	73	12%	617	435	0	50	50	± 2	20	± 1	13

**2017 HUNTING SEASONS
FRANCS PEAK BIGHORN SHEEP HERD (BS205)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
5	1	Sep. 1	Oct. 31	40	Limited quota	Any ram
22	1	Sep. 1	Oct. 31	4	Limited quota	Any ram
22	1	Oct. 1	Oct. 31		Limited quota	Any ram, also valid in Area 5
999	1	Oct. 1	Nov. 30	12	Limited quota	Any ram, WRR/OCM

Special Archery Season Hunt Areas	Type	Season Dates		Limitations
		Opens	Closes	
5, 22	1	Aug. 15	Aug. 31	Refer to Section 3 of this Chapter

Hunt Area	Type	Quota change from 2016
5	1	+8
HU Total	1	+8

Management Evaluation

Current Postseason Population Management Objective: 1,350

Management Strategy: Avg. age of harvested rams from 6-8 years

2016 Postseason Population Estimate: 700

2017 Proposed Postseason Population Estimate: 700

Herd Unit Issues

This bighorn sheep herd consists of hunt area 5, 22 and that portion of the Owl Creek Mountain hunt area of the Wind River Reservation (WRR). Because of limited data collection on the WRR, most discussion in this report focuses on hunt areas 5 and 22. The herd objective and management strategy was revised and approved in 2013 for this sheep herd. The management strategy is to maintain an average age of harvested rams between 6-8 years old, along with a hunter success of >80%. Lamb ratios are also monitored closely to anticipate potential changes in age classes of rams. After the 2010/11 winter, this population started showing declines, likely because of late winter snow storms, along with potential disease issues. Since then the population has declined by 40-50%. Hunter success dropped to 71% in 2014 and 78% in 2015, the two lowest since year 2000.

Weather

The winter of 2010/11 appeared to have been severe enough to cause some die-off as well as reduced lamb production. The extreme dry conditions of 2012 resulted in some changes to the distribution of sheep on their summer range, likely because of reduced forage production and condition. The winter of 2013/14 was more severe than normal, with mainly deep snow at higher elevations. The summer of 2014 and 2015 were exceptional for moisture, and the winters appeared to be mostly normal. The 2016/17 winter has been above normal for snow fall, but

during classification flights in early January, most high elevation (8,000-11,000') wind-blown ridges were mostly clear of snow, thus most sheep groups appeared to be wintering in good conditions.

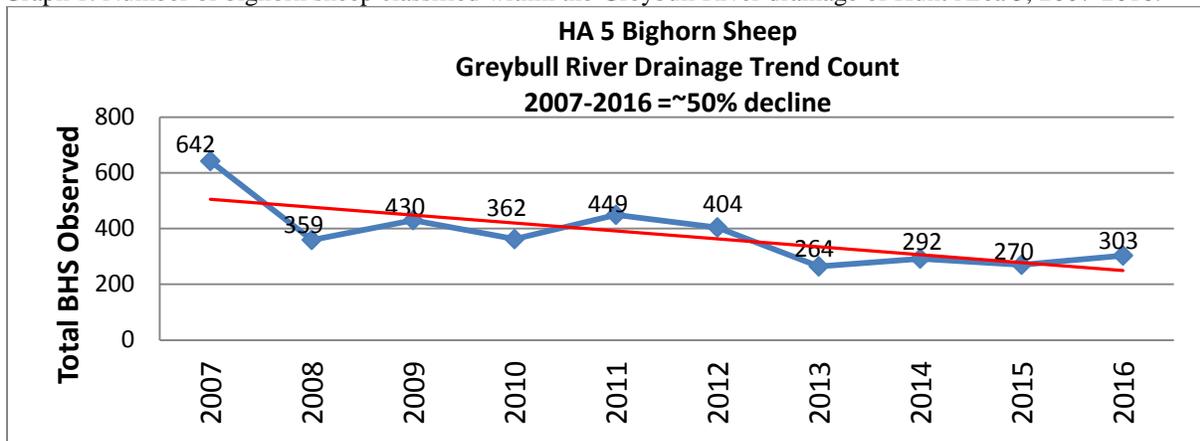
Habitat

Habitat conditions for the most part are considered good to excellent in this herd unit. The Little Venus fire in 2006 and the Norton Point fire in 2011 improved overall forage availability and production in Hunt Area 5. The drought conditions in 2012 did cause lower than normal forage production. Higher than normal precipitation in 2014, 2015 and 2016 were favorable for spring green up and winter forage.

Field Data

Aerial classifications surveys from areas 5 and 22 are used in obtaining post-season lamb and ram ratio for this sheep herd. On average about 500-600 sheep are classified annually, except for the past four years where the average has been about 400 sheep. Lamb:ewe ratios have remained mostly favorable, with an average ratio of 24:100. Lamb ratios in 2011, 2014 and 2016 were $\leq 20:100$, thus contributing to slower growth in the population. Ram:ewe ratios typically exceed 50:100. Since 2005, a commonly flown flight path has been used during classification surveys within the Greybull River drainage. The number of sheep observed on these annual flights has been used to track relative population trends within the Greybull River. Over the past 10 years the number of sheep observed on average has declined by 50% (Graph 1).

Graph 1. Number of bighorn sheep classified within the Greybull River drainage of Hunt Area 5, 2007-2016.



Harvest Data

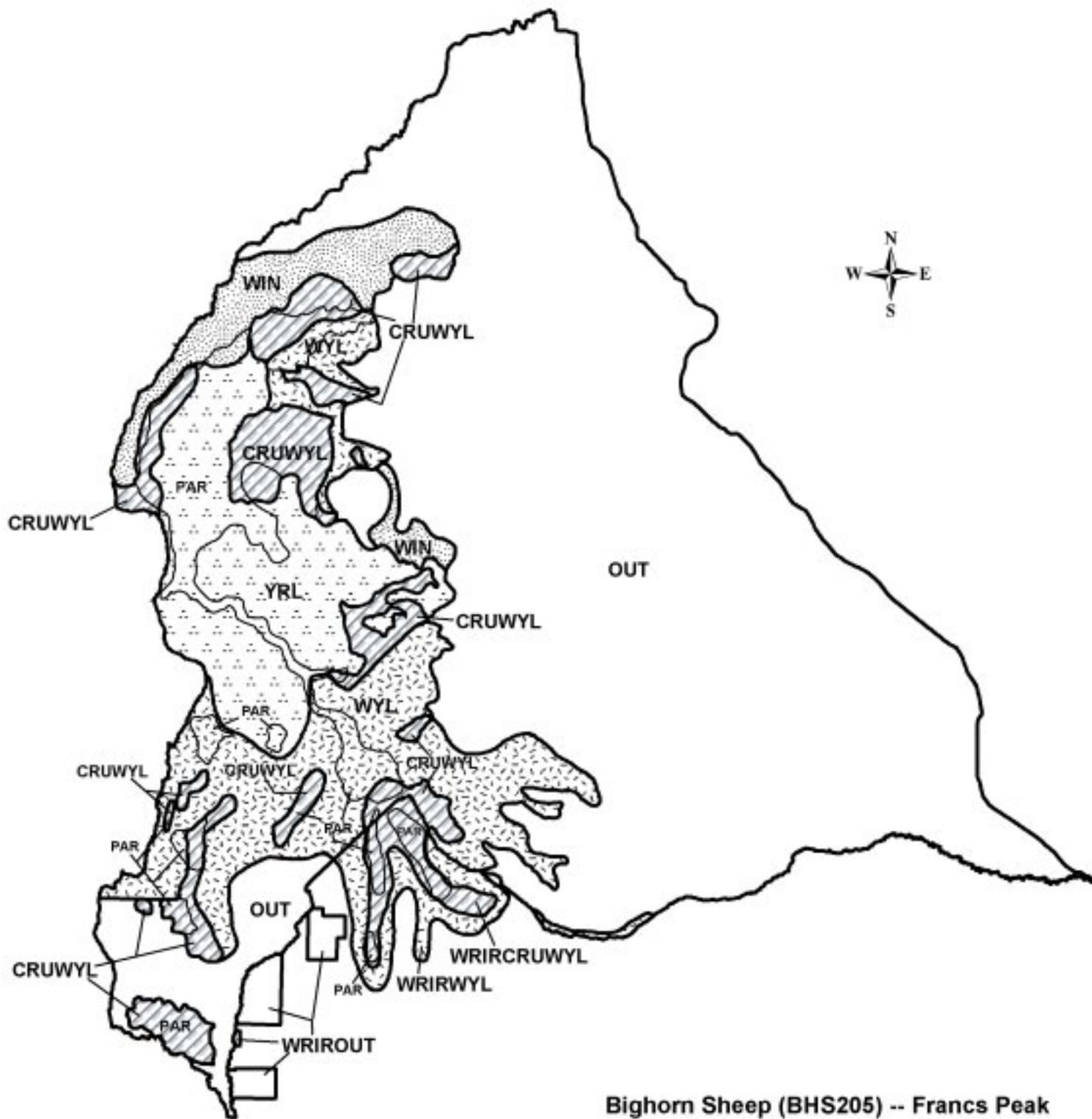
Since 2012 license quotas in area 5 have been reduced by 60% because of declines in sheep numbers. Typically in area 5 hunter success is usually around 90%, with an average hunter effort of about 7 days/ram. Starting in 2014 hunter success dropped to 77% and hunter days increased to 13.2. In 2015 hunter success increased slightly to 81%, while hunter effort improved to 10.1 days. The 2016 harvest again showed improving trends with a hunter success of 91% and a hunter effort of 8.7 days. The average age of harvested rams has been maintained between 7-8 years. Hunt area 22 annually has a harvest of 1-2 rams, and the area 999 of the WRR will harvest about 8 rams annually for a hunter success of about 67%.

Population

The semi-constant juvenile & semi-constant adult survival (SCJ, SCA) spreadsheet model was chosen to represent this herd because it reflects a fair representation of recent year trends (2011-2016) in the population. However, the continuing decline in the population in 2015 and 2016 does not mirror that of harvest data, winter trend count data and field personnel perceptions that this population has likely stabilized and may be increasing slightly. The model supports an AIC value at 210. Because of this, the overall model is considered mostly poor.

Management Summary

The low lamb ratios in 2011 (17:100), 2014 (20:100) and 2016 (20:100) are a future concern for this sheep herd. However, with recent year improvements in harvest along with an increased number of sheep observed during classification surveys, a slight increase in the area 5 license quota is warranted. Area 22 will again support 4 licenses, and the Wind River Reservation of the Owl Creek Mountains will likely support 12 licenses. The projected 2017 harvest for the herd unit is roughly 48 rams. The 2017 post-season population estimate will be around 700 sheep.



**Bighorn Sheep (BHS205) -- Francs Peak
 HA 5, 22, WRIR
 Revised 9/2002**

2016 - JCR Evaluation Form

SPECIES: Bighorn Sheep
 HERD: BS212 - DEVIL'S CANYON
 HUNT AREAS: 12

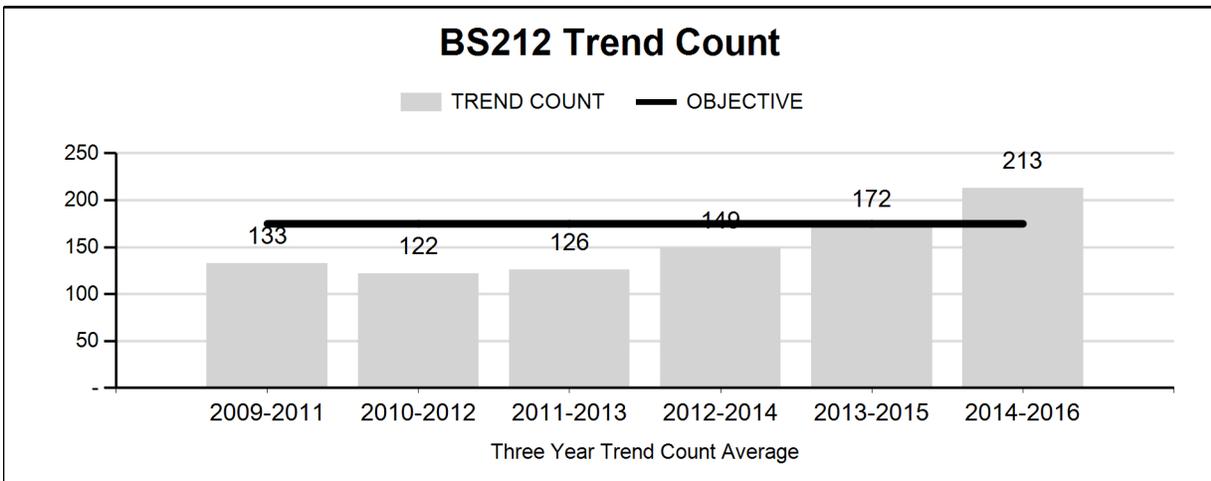
PERIOD: 6/1/2016 - 5/31/2017
 PREPARED BY: LESLIE SCHREIBER

	<u>2011 - 2015 Average</u>	<u>2016</u>	<u>2017 Proposed</u>
Trend Count:	151	263	220
Harvest:	2	6	6
Hunters:	2	6	6
Hunter Success:	100%	100%	100 %
Active Licenses:	2	6	6
Active License Success	100%	100%	100 %
Recreation Days:	11	51	50
Days Per Animal:	5.5	8.5	8.3
Males per 100 Females:	44	36	
Juveniles per 100 Females	63	46	

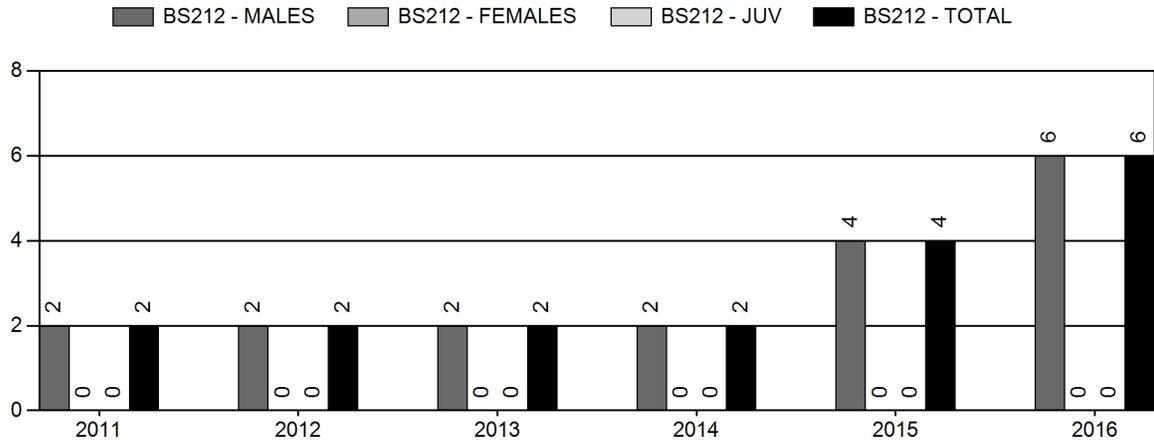
Trend Based Objective (± 20%) 175 (140 - 210)
 Management Strategy: Special
 Percent population is above (+) or (-) objective: 50%
 Number of years population has been + or - objective in recent trend: 1

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

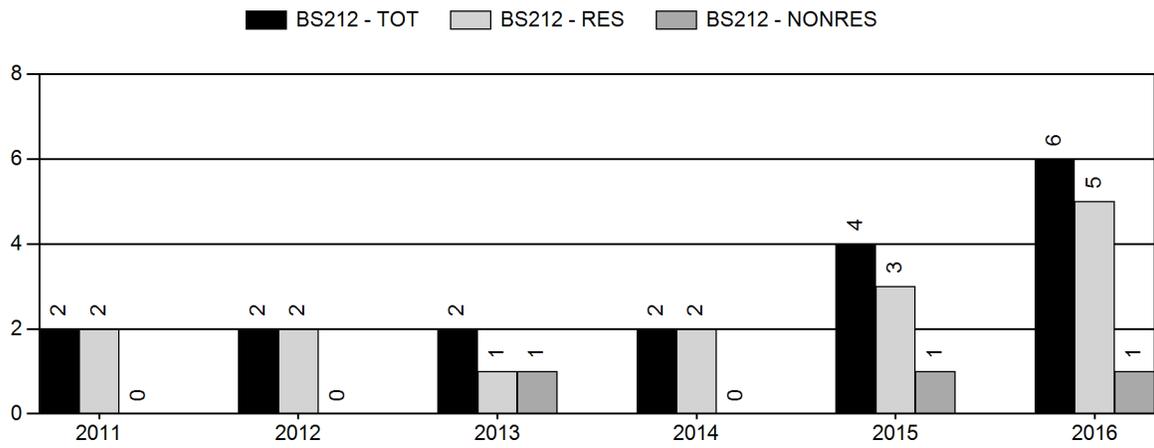
	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	0%	0%
Males ≥ 1 year old:	12%	12%
Juveniles (< 1 year old):	0%	0%



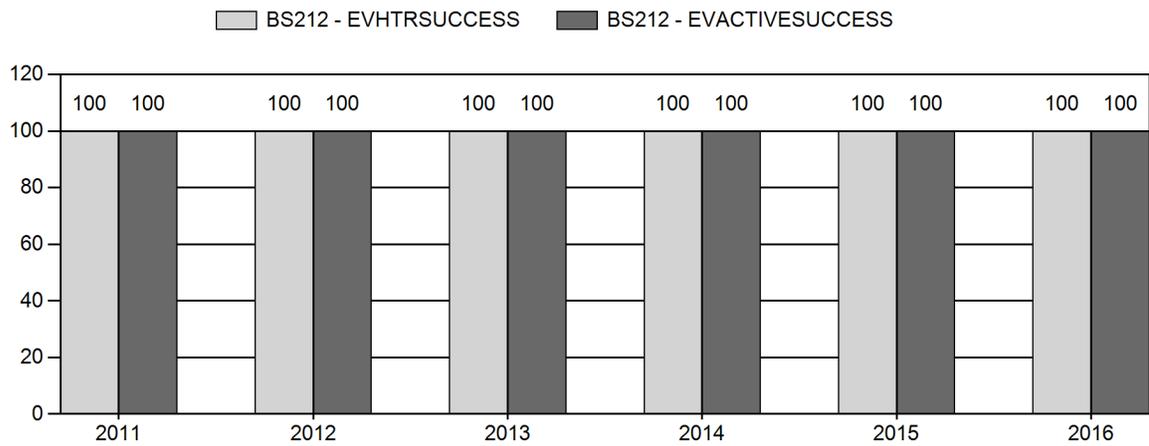
Harvest



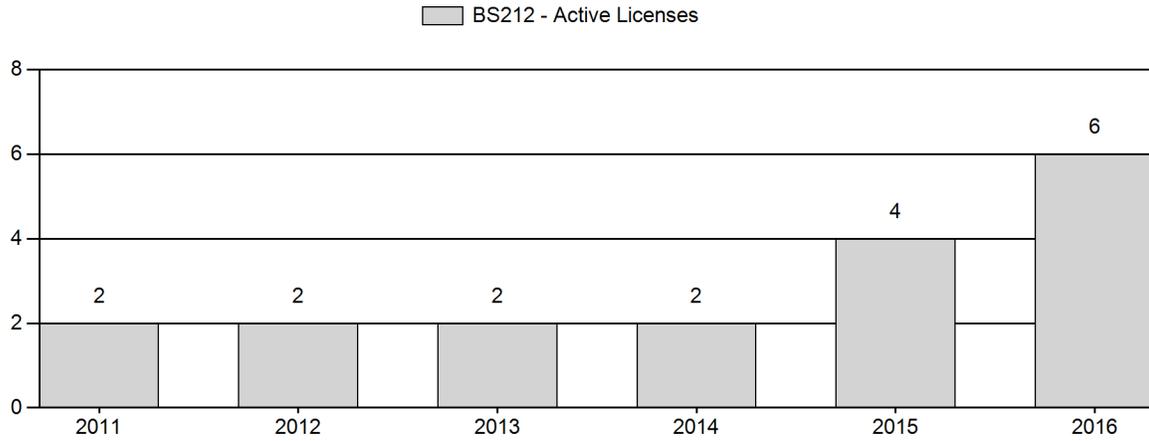
Number of Active Licenses



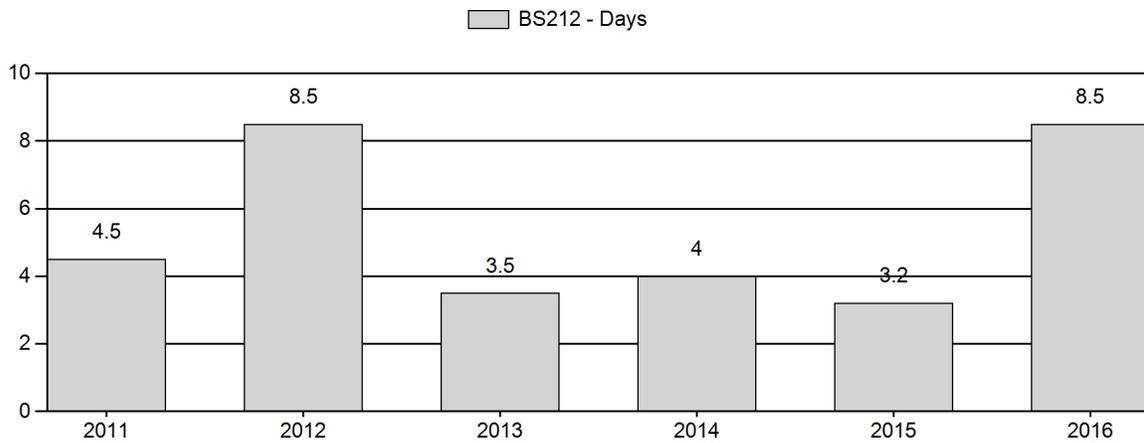
Harvest Success



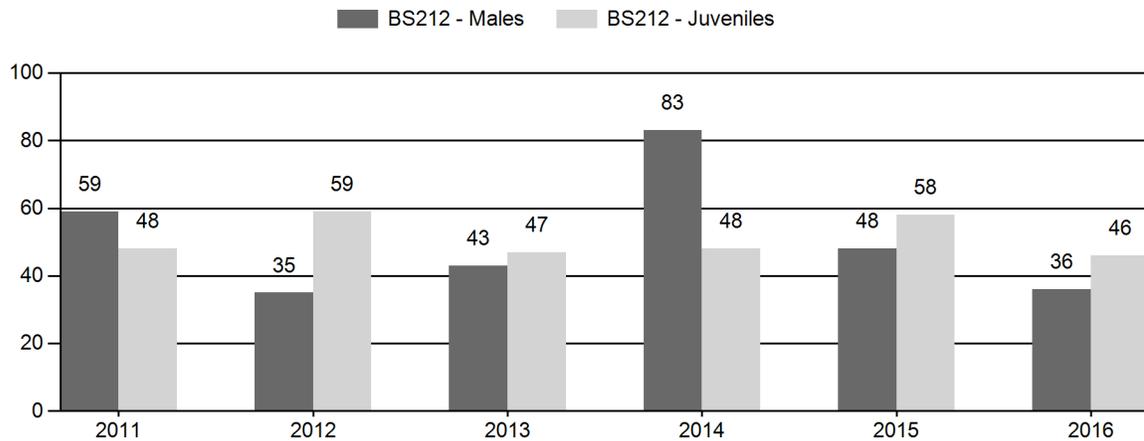
Active Licenses



Days Per Animal Harvested



Preseason Animals per 100 Females



2011 - 2016 Preseason Classification Summary

for Bighorn Sheep Herd BS212 - DEVIL'S CANYON

Year	Pre Pop	MALES				FEMALES		JUVENILES		Tot CIs	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Yng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2011	0	0	41	41	29%	69	48%	33	23%	143	141	0	59	59	± 0	48	± 0	30
2012	0	0	12	17	18%	49	52%	29	31%	95	142	0	24	35	± 0	59	± 0	44
2013	0	0	32	32	23%	74	52%	35	25%	141	143	0	43	43	± 0	47	± 0	33
2014	0	0	76	76	36%	92	43%	44	21%	212	136	0	83	83	± 0	48	± 0	26
2015	0	0	0	38	23%	80	49%	46	28%	164	167	0	0	48	± 0	58	± 0	39
2016	0	0	52	52	20%	145	55%	66	25%	263	152	0	36	36	± 0	46	± 0	34

**2017 HUNTING SEASONS
DEVIL’S CANYON BIGHORN SHEEP HERD (BS212)**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
12	1	Aug. 15	Oct. 15	6	Limited quota	Any ram (4 residents, 2 nonresident)

Special Archery Season Hunt Areas	Type	Season Dates		Limitations
		Opens	Closes	
12	1	Aug. 1	Aug. 14	Refer to Section 3 of this Chapter
	Hunt Area	Type	Quota change from 2016	
	12	1	0	
	Total	1	0	

Management Evaluation

Current Trend Count Management Objective: 175

Management Strategy: Special

2016 Trend Count: 263

Most Recent 3-year Running Average Trend Count: 213

2016 Hunter Satisfaction: %Satisfied, %Neutral, % Dissatisfied

Herd Unit Issues

Prior to the first transplant into the Devil’s Canyon area in 1973, an informal goal of 200 bighorn sheep was established. That population objective was carried over following the more recent transplants in 2004 from Oregon and 2006 from Montana. In 2015, a formal objective of 175 bighorn sheep based on a summer aerial trend count, calculated on a 3-year running average was established during the public herd unit review process. The management goals for this sheep herd are three-fold: provide a disease-free source stock for in-state transplant while providing ram hunting opportunity and limiting comingling with domestic sheep.

The Devil’s Canyon herd occurs mostly on BLM lands, which are designated a “cooperative review area” by the Wyoming State-wide Bighorn/Domestic Sheep Interaction Working Group. Bighorn National Forest lands are designated a “non-emphasis” area by the same group. To keep separation between wild and domestic sheep, an agreement was reached where any wild sheep in and south of Cottonwood Canyon would be removed by WGFD personnel. The WGFD conducts clearance flights when flight money is available each spring before domestic sheep trail up the Highway 14A stock trail. In addition, USFS and WGFD personnel do ground surveys before sheep trailing in the spring and fall to ensure no comingling occurs. The Bighorn National Forest will be reviewing its Sheep Risk Assessment in Summer 2017.

Weather

Climatic conditions probably have the most influence on productivity and survival of this population. Temperatures were well below average in December and January, moderating in February. Precipitation was above normal to normal during December and January. December ranked 8th highest in precipitation levels over the last 122 years. Increased fall and winter precipitation, combined with prolonged periods of below average temperatures may have increased lamb mortalities this winter.

Habitat

Good growing conditions were documented 2014-2017. Cheatgrass has become established on some sites. No anthropogenic development currently affects this population or habitat. There is limited farming (irrigated pastures) on a small portion of private land. Bighorn sheep are attracted to those pastures especially during drought years. The landowners have commented on the concentration of sheep on those pastures, but have not requested management to remove or reduce their numbers so far.

Field Data

Total number of sheep observed during pre-season classification surveys gives the most consistent population trend estimate. However, some surveys prior to 2012 were not conducted across all areas used by bighorns and effort (flight time, aerial vs. ground) has been consistent only in recent years. During the July 2016 classification survey, personnel counted a total of 263 bighorn sheep, of which 145 were ewes. We observed 52 rams (11 class I rams, 12 class II rams, 20 class III rams, and 9 class IV rams) for a ratio of 36 rams:100 ewes. We observed 66 lambs for a ratio of 46 lambs:100 ewes. Flight time and area surveyed in 2016 did not differ greatly from the previous 4 years.

Four GPS collars (Telonics Globalstars) were deployed on rams near Bighorn Lake on February 22, 2017. The main herd of bighorn sheep typically range above the confluence of Porcupine, Deer, and Trout Creeks. Consistent observations of rams to the west near Bighorn Lake in the Armpit Cabin area suggest the distribution of sheep is expanding. GPS collars were deployed to better understand the movements of these rams, and document any intermingling with either the main herd or with Montana bighorn sheep.

Harvest Data

Harvest statistics provide little information about this population's trend. Only 1-2 licenses were issued each year from 2008-14 with 100% hunter success. Four licenses were issued in 2015, and 6 were issued in 2016 with 100% hunter success. Recreation days and days per harvested animal vary depending on the amount of time each hunter allocated to his/her hunt. Similarly, average age of harvested rams does not indicate a trend, because only 1-6 rams were harvested each year. Furthermore, ram genetics from recent transplants allowed for more horn growth of young rams. For example, a Devil's Canyon ram with Missouri River breaks, Montana genes was harvested as a 6-year old and scored >180 Boone and Crockett points. Thus, average age of harvested rams could decrease even though larger rams are being harvested.

Population

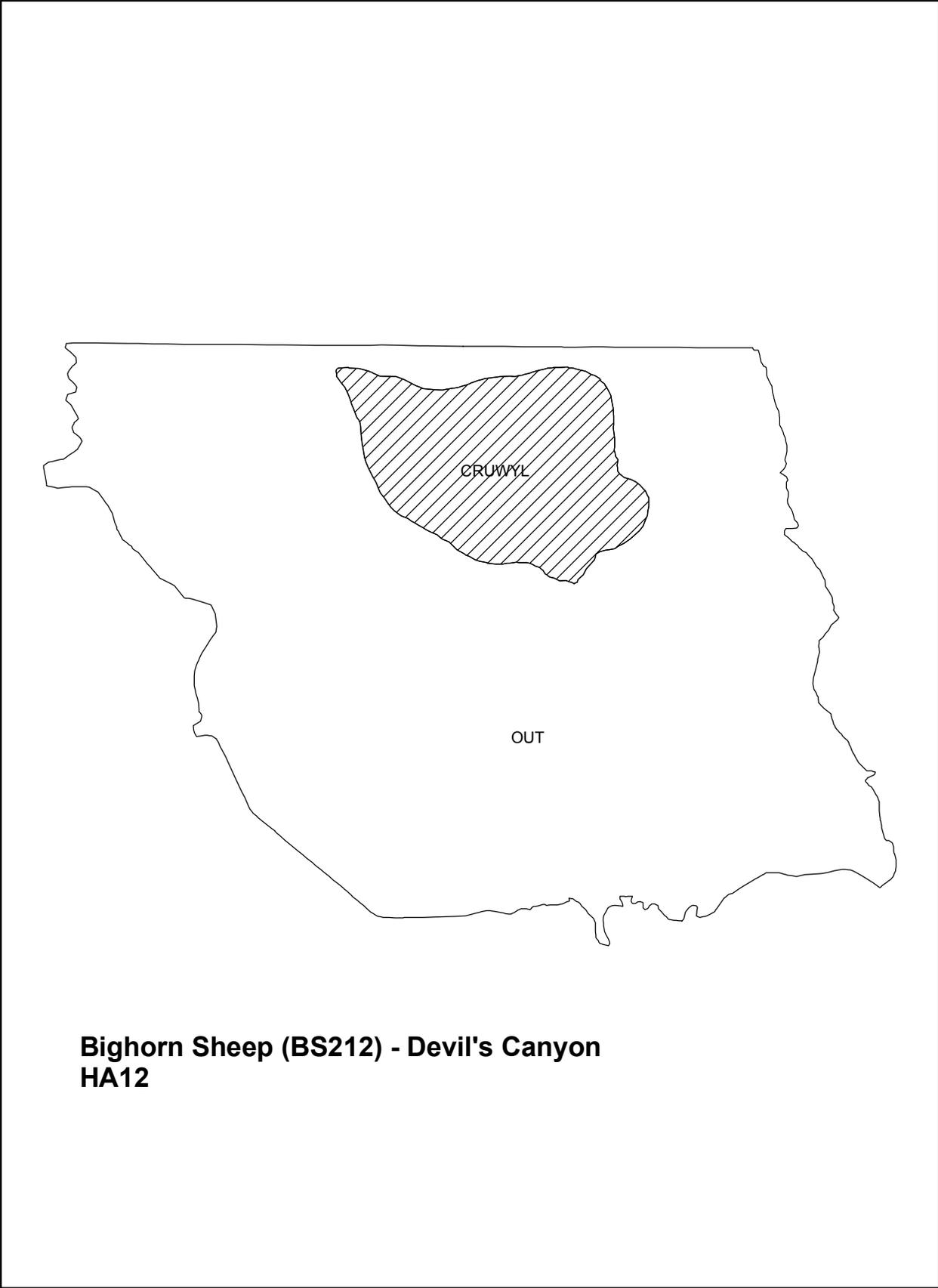
One landowner controls key access to the area where most bighorns occur in Devil's Canyon and has traditionally requested a low number of ram licenses each year, because of hunter crowding concerns. We have worked closely with the landowner to develop acceptable management and

consequently the number of ram licenses increased to 6 in 2016. Devil's Canyon sheep occupy a relatively small area, where rams are highly visible and are habituated to human activity so there is a high chance for conflict among hunters. During the 2016 hunting season, conflicts were minimal and the landowner was satisfied, therefore we are keeping 6 ram licenses for 2017.

WGFD planned to capture 40 bighorn sheep from Devil's Canyon to translocate to the Ferris Mountains. With high lamb production in this herd, transplants are necessary in keeping the Devil's Canyon herd at objective. The transportation of 40 sheep was split into 2 capture events. The first capture took place on February 18, 2016 with 24 bighorn sheep (3 rams, 1 ram lamb, 20 ewes) captured, sampled, and fitted with radio-collars. One ewe died of capture myopathy, one ewe died from a broken pelvis, and 22 were released in the Ferris Mountains. After release, we suspect another ewe died from delayed capture myopathy. WGFD delayed the 2nd capture event to confirm the cause of death was capture myopathy and not an undocumented disease. By the time the 2nd capture event was approved, the ewes were into the late stages of pregnancy, necessitating the cancellation of sheep capture until winter 2017/18. WGFD personnel will review and evaluate the protocol associated with handling sheep at transplants in an attempt to reduce mortality related to capture myopathy.

Management Summary

Our current management strategy in Hunt Area 12 is to use translocations of ewes and lambs to keep the population at objective, which decreases the likelihood of wandering Devil's Canyon sheep comingling with domestic sheep. Translocations in 2015, 2016, and 2017 of about 25 sheep each year assisted in this goal. We plan to translocate more sheep during the winter of 2017/18 to push this herd towards objective. Further, maintaining a good working relationship with the landowner is a high priority, and critical for successful management of this herd, especially when allocating hunting licenses. With 6 licenses, Hunt Area 12 will oscillate between 1 and 2 nonresident licenses each year.



**Bighorn Sheep (BS212) - Devil's Canyon
HA12**