

## 2013 - JCR Evaluation Form

Species: Bighorn Sheep  
 Herd: BS106 - TARGHEE  
 Hunt Areas: 6

Period: 6/1/2013 - 5/31/2014

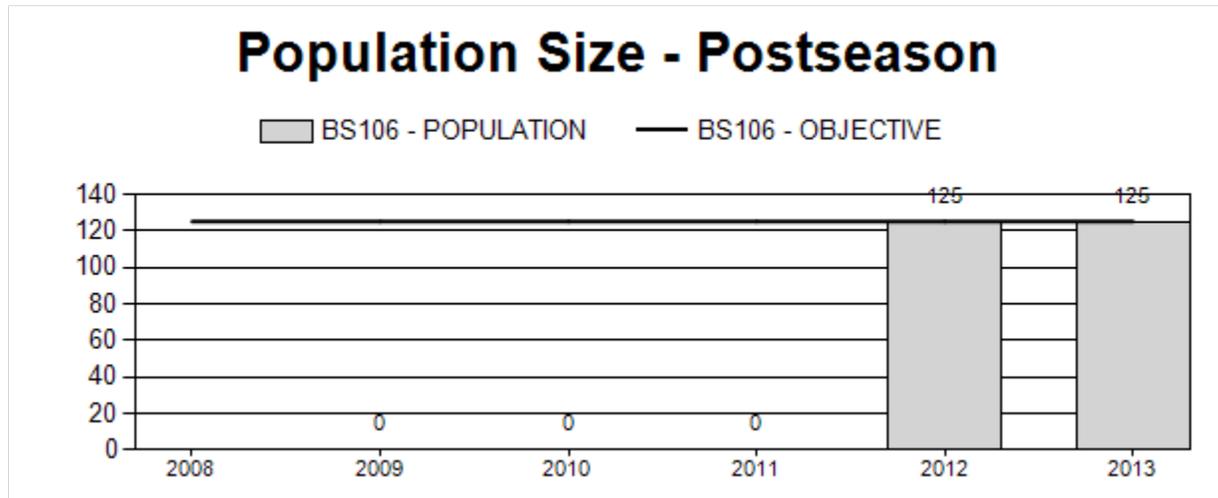
Prepared By: ALYSON  
 COURTEMANCH

	<u>2008 - 2012 Average</u>	<u>2013</u>	<u>2014 Proposed</u>
Population:	25	125	125
Harvest:	1	1	1
Hunters:	2	2	2
Hunter Success:	50%	50%	50%
Active Licenses:	2	2	2
Active License Percent:	50%	50%	50%
Recreation Days:	16	12	20
Days Per Animal:	16	12	20
Males per 100 Females	35	0	
Juveniles per 100 Females	33	0	

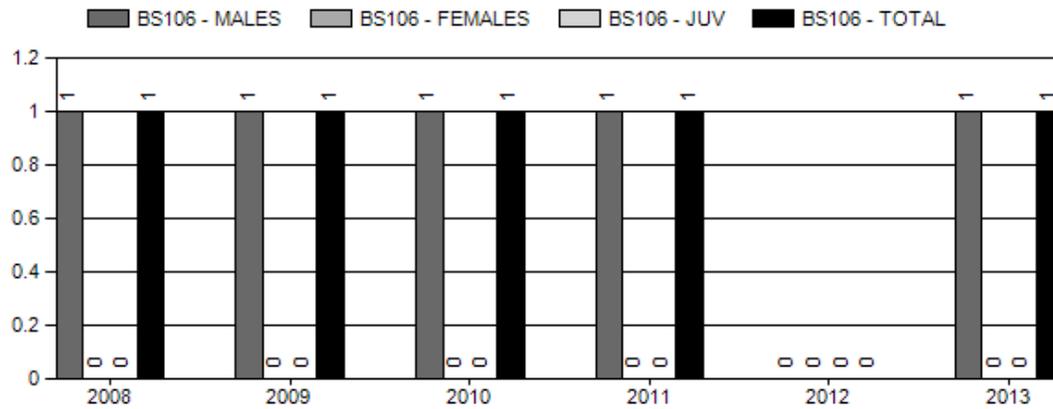
Population Objective: 125  
 Management Strategy: Special  
 Percent population is above (+) or below (-) objective: 0%  
 Number of years population has been + or - objective in recent trend: 0  
 Model Date: None

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

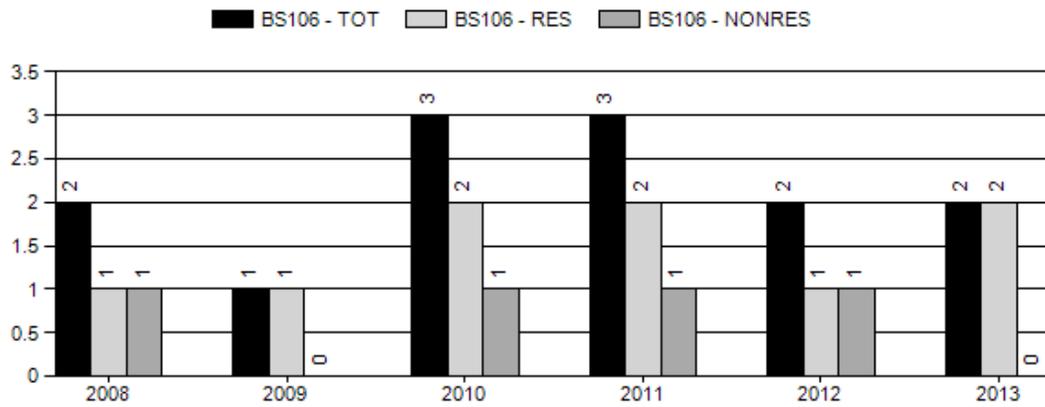
	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	na%	na%
Males ≥ 1 year old:	na%	na%
Juveniles (< 1 year old):	na%	na%
Total:	na%	na%
Proposed change in post-season population:	na%	na%



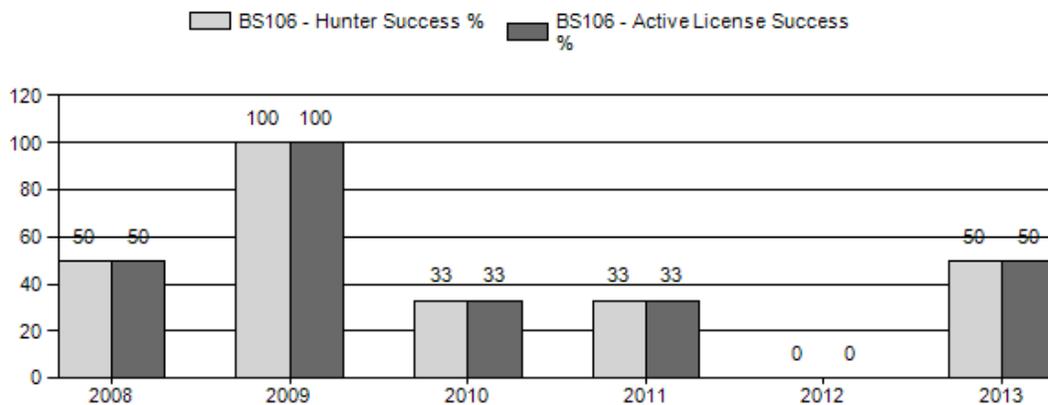
## Harvest



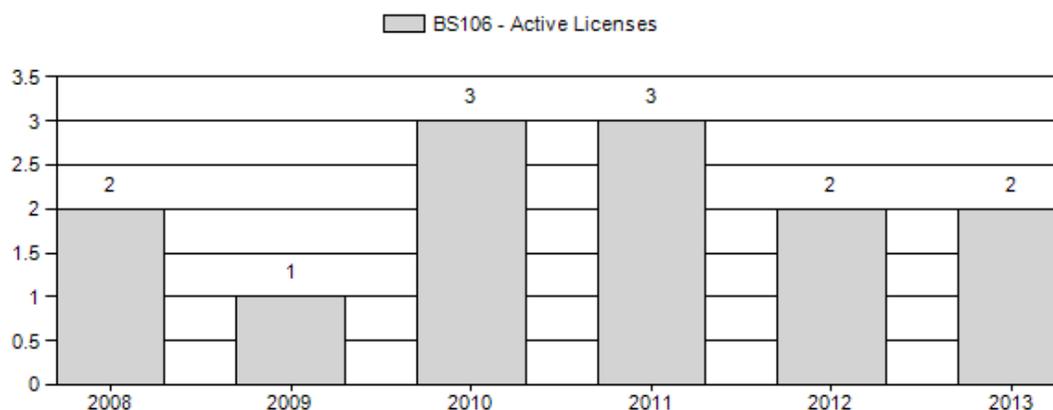
## Number of Hunters



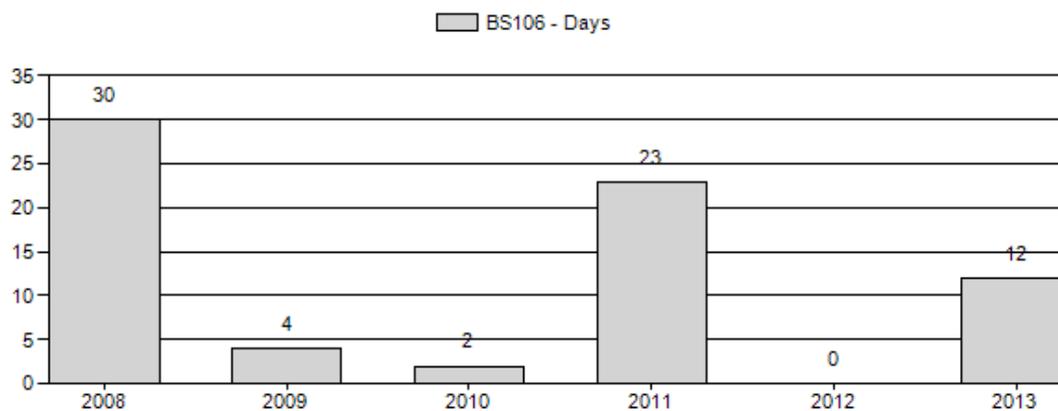
## Harvest Success



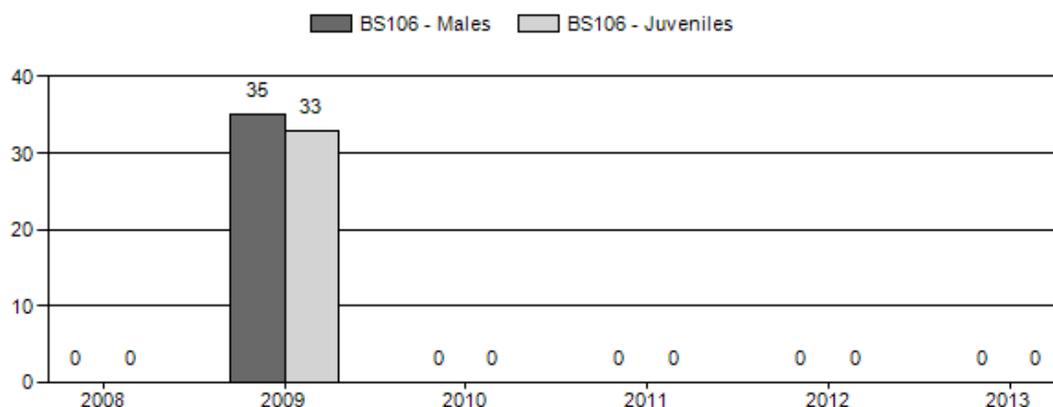
## Active Licenses



## Days per Animal Harvested



## Postseason Animals per 100 Females



## 2008 - 2013 Postseason Classification Summary

for Bighorn Sheep Herd BS106 - TARGHEE

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot CIs	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			YIng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2008	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0
2009	0	1	16	17	21%	48	59%	16	20%	81	0	2	33	35	± 0	33	± 0	25
2010	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0
2011	0	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0
2012	125	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0
2013	125	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	± 0	0	± 0	0

### 2014 HUNTING SEASONS TARGHEE BIGHORN SHEEP HERD (BS106)

Hunt Area	Type	Dates of Seasons		Quota	License	Limitations
		Opens	Closes			
6	1	Aug. 15	Oct. 31	2	Limited quota	Any ram (1 resident, 1 nonresident)

#### Summary of 2014 License Changes

Hunt Area	Type	Change from 2013
6	1	-1 resident, +1 nonresident

### Management Evaluation

**Current Postseason Population Management Objective: 125**

**Management Strategy: Special**

**2013 Postseason Population Estimate: ~125**

**2014 Proposed Postseason Population Estimate: ~125**

The management objective for the Targhee bighorn sheep herd unit is 125 sheep. Spreadsheet models developed for this herd do not appear to adequately simulate observed trends and therefore managers will develop a proposal using the mid-winter trend count as a benchmark for this population. The management strategy for this herd is designated as Special Management and will be reviewed in 2014.

### **Herd Unit Issues**

Current occupied habitat is located at high elevations year-round in the Teton Range, mostly in Grand Teton National Park. Bighorn sheep winter on high elevation, windswept ridgelines in upper Jensen Canyon, Mt. Hunt, Prospectors Mountain, Static Peak, Mt. Wister, Ranger Peak, Doane Peak, and Elk Mountain. Winter habitat is most likely the limiting factor for this population. Transitional and summer ranges also include Darby, Fox, Moose and Teton Creeks

on the Caribou-Targhee National Forest (CTNF). Historically, this population was migratory and wintered at low elevations around Jackson Hole and Teton Valley, Idaho. In the past, hunters have had a difficult time locating sheep that are outside of the GTNP boundary in CTNF. However, bighorn sheep have recently increased their use of habitats on CTNF due to the buy-out of domestic sheep allotments. In 1997 the revised Caribou-Targhee National Forest Plan called for the retirement of the domestic sheep allotments on the west side of the Tetons. Since 2004 when the fifth and final allotment was retired with bighorn sheep conservation funds, bighorn sheep have started using these areas.

Mountain goat sightings have been increasing north of Wyoming Highway 22 indicating that their distribution is expanding north from the Snake Range into the Teton Range. In 2008, the first confirmed sighting of a nanny with kids was reported, suggesting an establishing population. In the future, field managers may need to consider potential impacts of an expanding mountain goat population on this small, native bighorn sheep herd.

Expanding winter backcountry recreation also impacts available winter habitat for bighorn sheep. Recent research from the Wyoming Cooperative Research Unit indicates that Targhee bighorn sheep avoid backcountry ski routes, even if they are in otherwise high quality habitat. This further constricts available winter habitat for bighorn sheep. A final master's thesis for this project is expected to be finished in May 2014.

## **Weather**

Following an extremely dry summer and fall in 2012, weather conditions in 2013 were considerably wetter. The area received significant pulses of spring and fall moisture, which improved forage conditions for bighorn sheep and other ungulates. Winter precipitation was reported at 109% of normal by mid-February 2014. Please refer to the following web sites for specific weather station data. <http://www.ncdc.noaa.gov/temp-and-precip/time-series> and <http://www.ncdc.noaa.gov/oa/climate/research/prelim/drought/pdiimage.html>

## **Habitat**

There are no established vegetation transects in this herd unit. An upcoming habitat treatment is planned for this herd, in cooperation with Caribou-Targhee National Forest. The treatment will improve historical winter and transitional ranges in Teton Canyon and is tentatively scheduled for 2015. Please refer to the 2013 Annual Report Strategic Habitat Plan Accomplishments for Jackson Region habitat improvement project summaries (<http://wgfd.wyo.gov/web2011/wildlife-1000708.aspx>).

## **Field Data**

No field data were collected in the Targhee Herd Unit during the 2013 biological year.

## **Harvest Data**

Data from the 2013 harvest survey indicate that 1 hunter harvested a ram. The hunter spent 20 days in the field.

## **Population**

This population is thought to be near the post season management objective and the proposed mid-winter trend based on aerial surveys in 2008 and 2010.

## **Management Summary**

Two licenses will be available for this herd in 2014, 1 resident hunter and 1 nonresident hunter. This bighorn sheep population is distributed both within GTNP and along the boundary in remote steep terrain making it difficult for hunters to locate and stalk sheep. As a result, harvest levels have remained low and on some years no sheep are harvested. Given the limited number of ram-only licenses available and periodic harvest, hunting likely not having an impact on this population. Two licenses for any ram will be offered for future hunts until more sheep are observed occupying areas outside GTNP on CTNF lands.

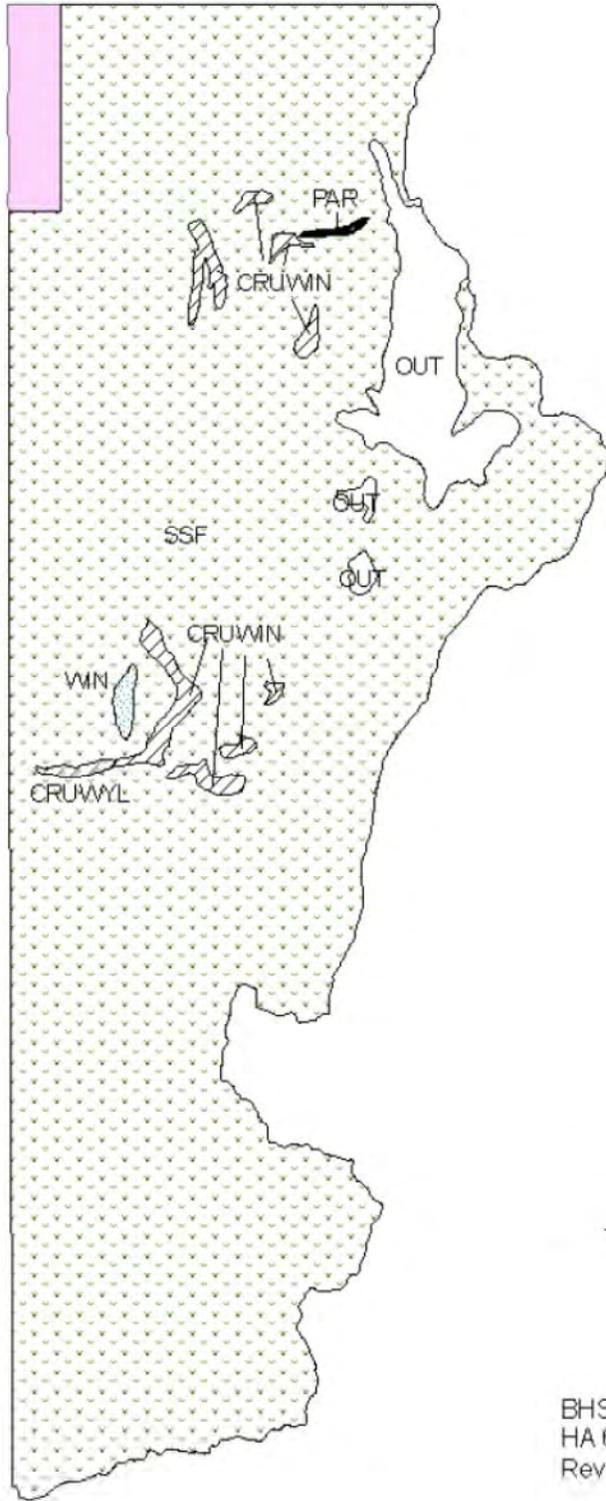
## **Bibliography**

Courtemanch, A.B. 2014. Seasonal habitat selection and impact of winter backcountry recreation on a formerly migratory bighorn sheep population in northwest Wyoming. M.S. Thesis. University of Wyoming, Laramie, WY, USA.

Fitzsimmons, N., S.W. Buskirk, and M.H. Smith. 1995. Population history, genetic variability and horn growth in bighorn sheep. *Conservation Biology* 9:314-323.

Kardos, M.D., S. Dewey, S.J. Amish, J. Stephenson, and G. Luikart. *In prep.* Strong fine-scale population structure of Grand Teton National Park bighorn sheep suggests important role of philopatry in bighorn population subdivision.

Whitfield, M.B. 1983. Bighorn sheep history, distributions and habitat relationships in the Teton Mountain Range, Wyoming. M.S. Thesis. Idaho State University, Pocatello, Idaho, USA.





## 2013 - JCR Evaluation Form

Species: Bighorn Sheep  
 Herd: BS107 - JACKSON  
 Hunt Areas: 7

Period: 6/1/2013 - 5/31/2014

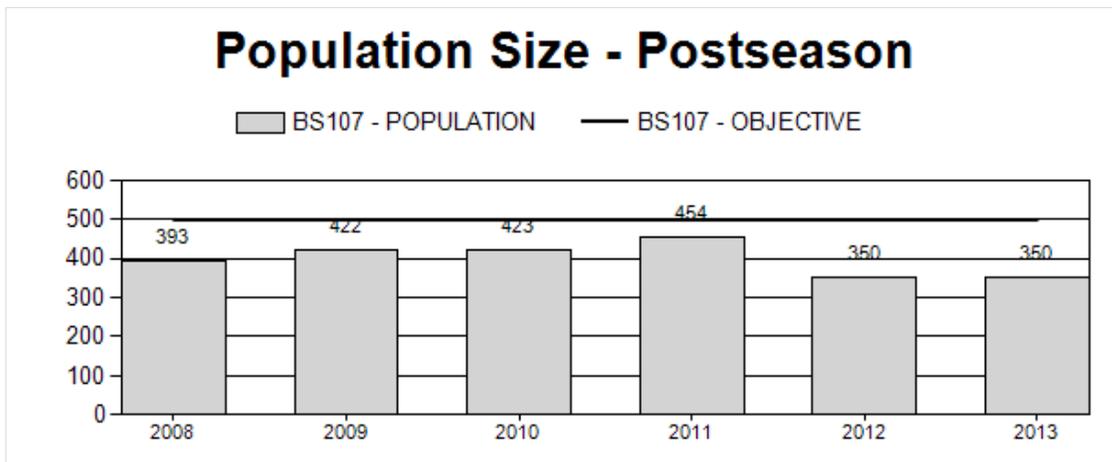
Prepared By: ALYSON  
 COURTEMANCH

	<u>2008 - 2012 Average</u>	<u>2013</u>	<u>2014 Proposed</u>
Population:	408	350	375
Harvest:	7	6	7
Hunters:	10	7	8
Hunter Success:	70%	86%	88 %
Active Licenses:	10	7	8
Active License Percent:	70%	86%	88 %
Recreation Days:	83	47	75
Days Per Animal:	11.9	7.8	10.7
Males per 100 Females	57	74	
Juveniles per 100 Females	34	33	

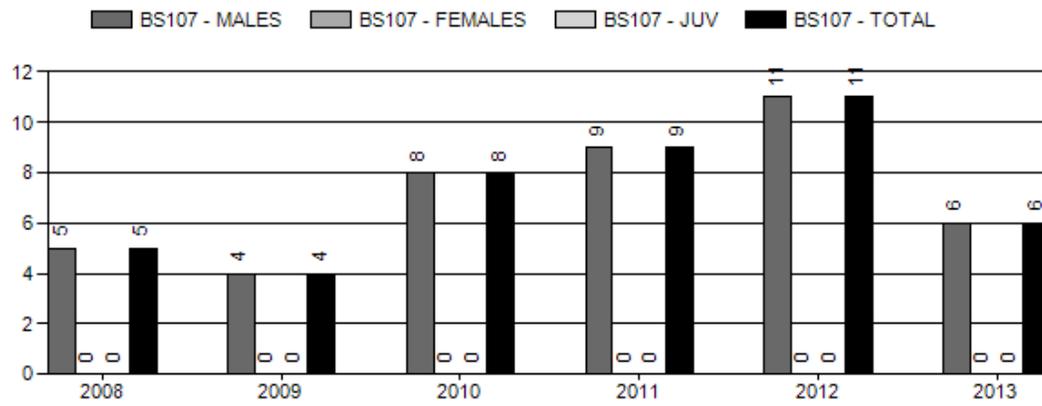
Population Objective:	500
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	-30%
Number of years population has been + or - objective in recent trend:	0
Model Date:	None

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

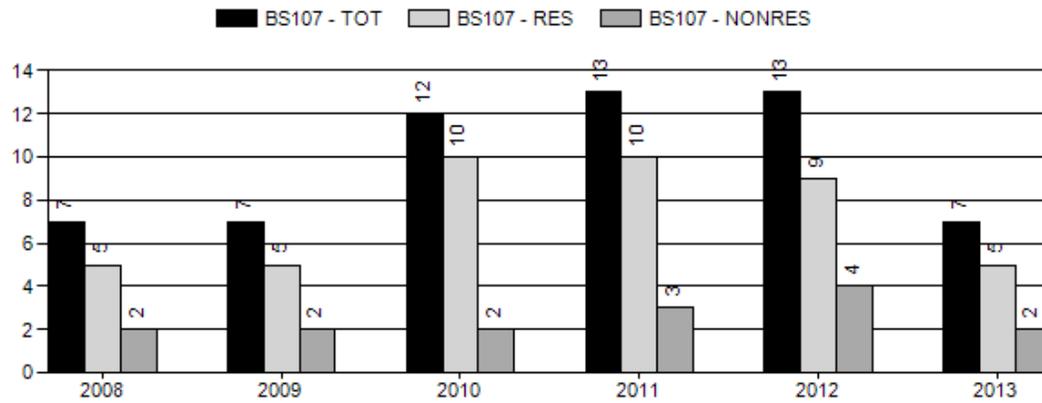
	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	na%	na%
Males ≥ 1 year old:	na%	na%
Juveniles (< 1 year old):	na%	na%
Total:	na%	na%
Proposed change in post-season population:	na%	na%



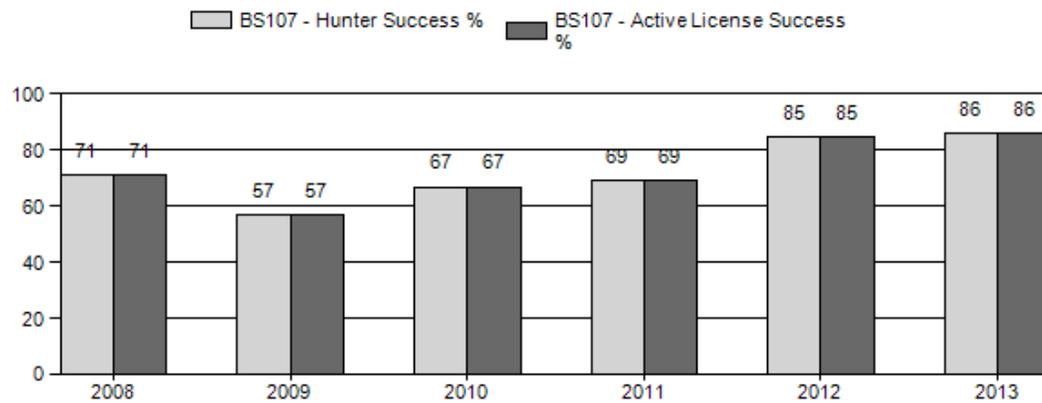
## Harvest



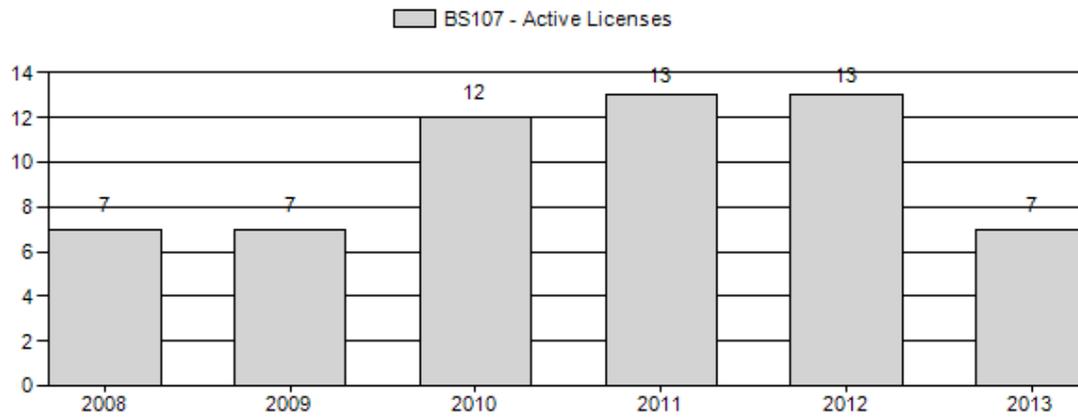
## Number of Hunters



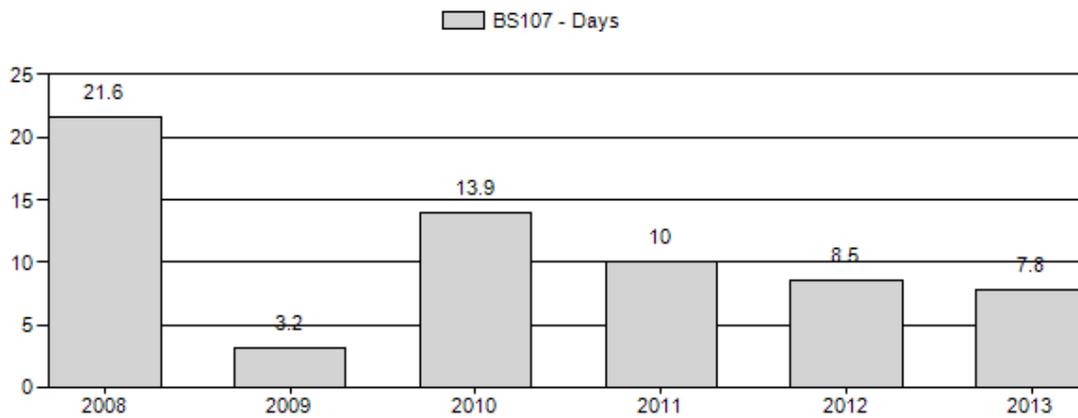
## Harvest Success



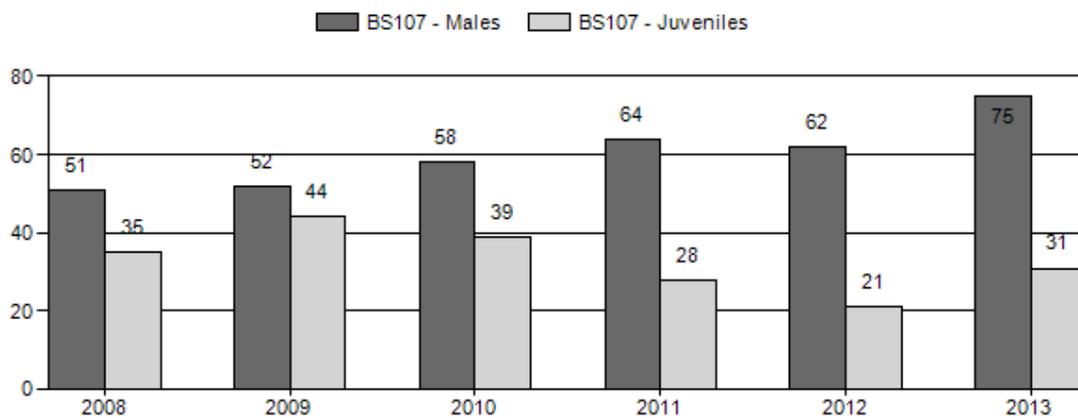
## Active Licenses



## Days per Animal Harvested



## Postseason Animals per 100 Females



## 2008 - 2013 Postseason Classification Summary

for Bighorn Sheep Herd BS107 - JACKSON

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2008	393	30	55	85	28%	166	54%	58	19%	309	277	18	33	51	± 0	35	± 0	23
2009	422	33	68	101	27%	194	51%	86	23%	381	312	17	35	52	± 0	44	± 0	29
2010	423	17	71	88	29%	152	51%	59	20%	299	298	11	47	58	± 6	39	± 4	25
2011	454	18	121	139	33%	217	52%	61	15%	417	349	8	56	64	± 3	28	± 1	17
2012	350	17	65	82	34%	133	55%	28	12%	243	256	13	49	62	± 6	21	± 3	13
2013	350	14	84	98	37%	130	49%	40	15%	268	292	11	65	75	± 6	31	± 3	18

### 2014 HUNTING SEASONS JACKSON BIGHORN SHEEP HERD (BS107)

Hunt Area	Type	Dates of Seasons		Quota	License	Limitations
		Opens	Closes			
7	1	Sep. 1	Oct. 31	8	Limited quota	Any bighorn sheep

### Special Archery Seasons

Hunt Area	Dates of Seasons	
	Opens	Closes
7	Aug. 15	Aug. 31

### Management Evaluation

**Current Postseason Population Management Objective: 500**

**Management Strategy: Special**

**2013 Postseason Population Estimate: ~350**

**2014 Proposed Postseason Population Estimate: ~375**

The management objective for the Jackson bighorn sheep herd unit is 500 sheep. Spreadsheet models developed for this herd do not appear to adequately simulate observed trends and therefore managers will develop a proposal using the mid-winter trend count as a benchmark for this population. The objective will be reviewed in 2015.

### **Herd Unit Issues**

This population is well below the post season management objective. The bighorn population likely experienced a pneumonia related die-off in 2002 and again in 2012. An estimated 30% of the population died during the latest pneumonia event. From 2011–2013, over 20 bighorn sheep were radio collared to monitor disease, herd demographics and migrations. There has also been an effort to survey for respiratory pathogens in the herd as a result of the pneumonia outbreak and to date, 26 bighorn sheep have been sampled.

## Weather

Following an extremely dry summer and fall in 2012, weather conditions in 2013 were considerably wetter. The area received significant pulses of spring and fall moisture, which improved forage conditions for bighorn sheep and other ungulates. At the time of the mid-winter survey, winter precipitation was reported at 109% of normal. Please refer to the following web sites for specific weather station data. <http://www.ncdc.noaa.gov/temp-and-precip/time-series> and <http://www.ncdc.noaa.gov/oa/climate/research/prelim/drought/pdiimage.html>

## Habitat

The Wyoming Game and Fish Department and Bridger-Teton National Forest (BTNF) initiated a project in 2012 to evaluate the short-term and long-term nutritional changes in bighorn sheep forage after wildfire. This project will track the nutritional content over 10 years of key forage species that burned at different fire severities during the Red Rock Fire in the Gros Ventre. Other than this project, there are no established vegetation transects in this herd unit.

The Bryan Flats Habitat Enhancement and Fuels Reduction Project is scheduled for implementation in fall 2014. This prescribed burn project is led by BTNF and will improve bighorn sheep habitat in the Hoback Canyon area. Please refer to the 2013 Annual Report Strategic Habitat Plan Accomplishments for Jackson Region habitat improvement project summaries (<http://wgfd.wyo.gov/web2011/wildlife-1000708.aspx>).

## Field Data

In the Gros Ventre drainage, approximately 40% of radio collared bighorn ewes died during 2012 and lamb ratios declined from a high of 50 lambs:100 ewes in late June to 15:100 by February 2013. Carcasses retrieved during the summer indicate that sheep likely died from pneumonia. Additional sampling in December and January (N=14) indicated that approximately 70% of the sheep were positive for *Mycoplasma ovipneumoniae*, and nine of the twelve (75%) had leukotoxin positive isolates. *Mannheimia haemolytica*, *Bibersteinia trehalosi*, and *Pasteurella multocida* were also found.

In February 2014, classification surveys were flown over low elevation winter ranges in the Curtis Canyon, Flat Creek and Gros Ventre River areas. High elevation ranges were not surveyed this year. Bighorn sheep on Miller Butte and Camp Creek were classified from the ground. The overall trend in sheep numbers increased from last year's survey of the same areas. A total of 268 sheep were observed including 130 females, 40 lambs, 84 adult males and 14 yearling males. Herd unit ratios were 31 lambs:100 ewes, 65 adult rams:100 ewes and 11 yearling rams:100 ewes. The lamb ratio is higher than last year's ratio of 21:100, suggesting that the pneumonia outbreak may be ending. The low yearling ram ratio is likely due to the low lamb numbers observed in 2012.

## Harvest Data

Data from the 2013 harvest survey indicate that 7 hunters harvested 6 rams. One hunter took a medical deferral and plans to hunt in 2014. The median age of harvested rams in 2013 was 8.5 years. The number of licenses was reduced for the 2013 season from 13 to 8 in response to the

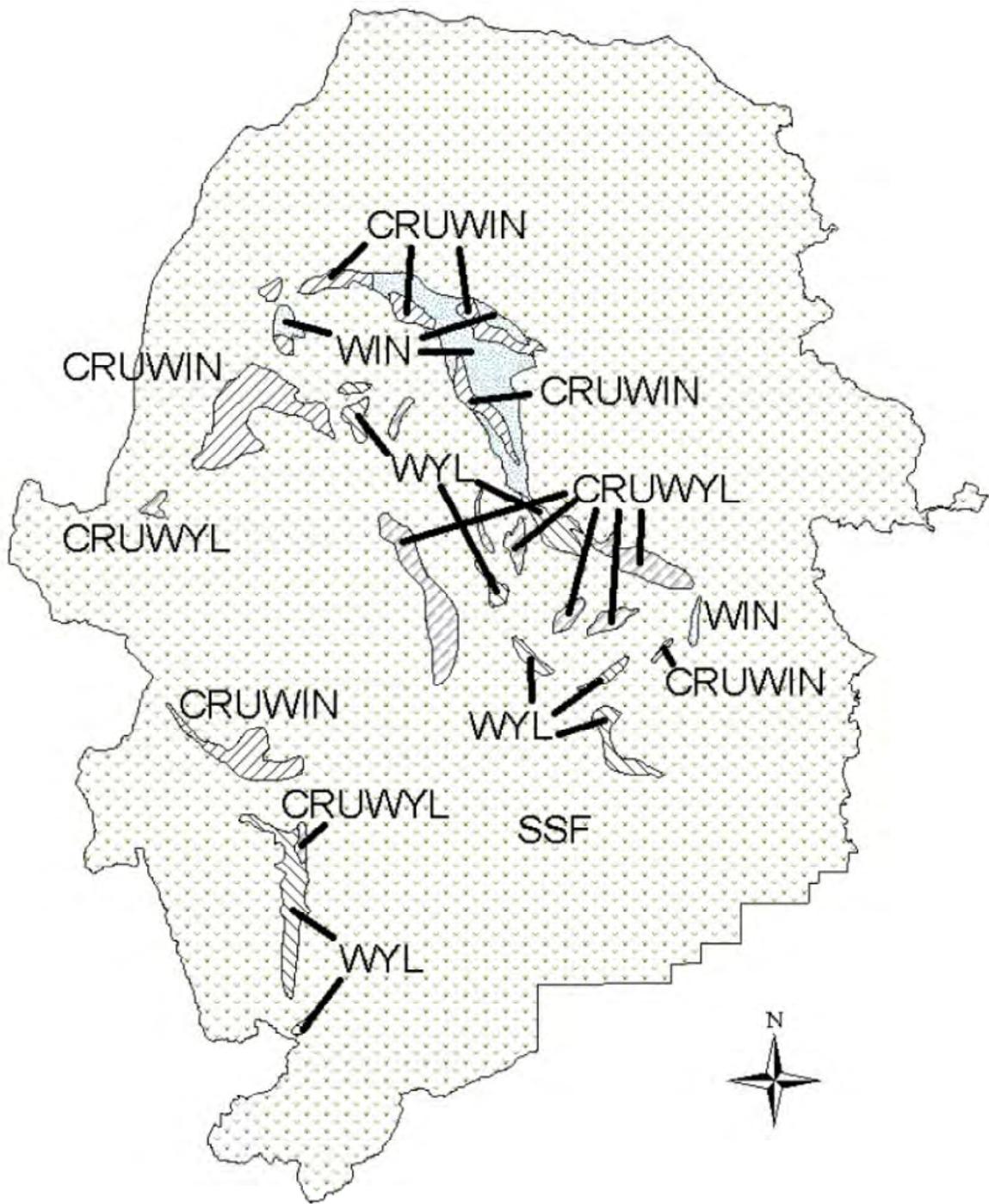
pneumonia outbreak. Based on classification surveys and the number of rams observed in 2014 (n=98), it is likely that this harvest has minimal effect on the overall population, even with the recent pneumonia outbreak. Ram ratios remain high. However given the recent population decline, managers plan to maintain 8 licenses for the 2014 season. If postseason classifications in winter 2015 indicate that the population continues to rebound after the outbreak, additional licenses will be considered.

## **Population**

This population is estimated to be below the post season management objective based on aerial surveys in 2013. Spreadsheet models developed for this herd do not appear to adequately simulate observed trends and therefore managers will develop a proposal using the mid-winter trend count as a benchmark for this population. The observed population trend indicates that this population was approaching winter range densities in 2012 similar to those observed in 2001 just before that pneumonia outbreak.

## **Management Summary**

There will be no changes for the 2014 season. If the lamb:ewe ratio continues to improve next year, additional licenses will be considered. Following the 2002 die-off this population had a three year period of low lamb production. It appears that the population may be rebounding more quickly from the 2012 die-off. The WGFD plans to continue to monitor the population using radio collars and disease sampling in the near future.



BHS107 - Jackson  
 HA 7  
 Revised 9/02

## 2013 Jackson Sheep Monitoring Annual Report Permit #798

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### Project Background

The Jackson bighorn sheep herd experienced a die-off during 2001-2002 in which approximately 50% of the population died. Since then bighorn sheep numbers have rebounded to a level that has again triggered concerns that an environmental event may pre-dispose the population to another pneumonia related die-off. Based on current sheep densities, disease monitoring in the Jackson herd is at a critical stage. During 2010, two male lambs were removed from Russold Hill in early March after it was observed that approximately 10% of the animals wintering on Russold Hill exhibited signs of pneumonia (e.g. coughing, runny nose etc.). Both lambs exhibited minor cases of pneumonia (~15% of lungs affected), but otherwise were in good health with moderate fat stores. The laboratory analysis indicated the two lambs had *Mycoplasma ovipneumoniae*, although *Bibersteinia (Pasteurella) trehalosi* (potential pathogen) and *Arcanobacterium pyogenes* were also identified from lung tissue. Lungworm (*Protostrongylus* spp.) were also identified from both animals.

Also in 2010, two adult ewes were captured near Camp Creek Inn to monitor sheep movements along the Hoback River. In 2011, eight bighorn ewes were captured on winter ranges north of Jackson and during 2012 ten additional sheep were captured and radio fitted with radio collars. During the 2012 biological year the Kaplan-Meier survival estimate was 78% for radio collared ewes.

### Results

During 2013, three additional radio collars were put on adult bighorn sheep ewes bringing the total radio collared sheep to eleven in the study area. Two of these sheep have not been located since June 2013 and one sheep (Sheep 500) was observed last spring with a malfunctioning radio collar. Sheep were captured on Miller Butte, Camp Creek and Lower Gros Ventre areas in 2013.

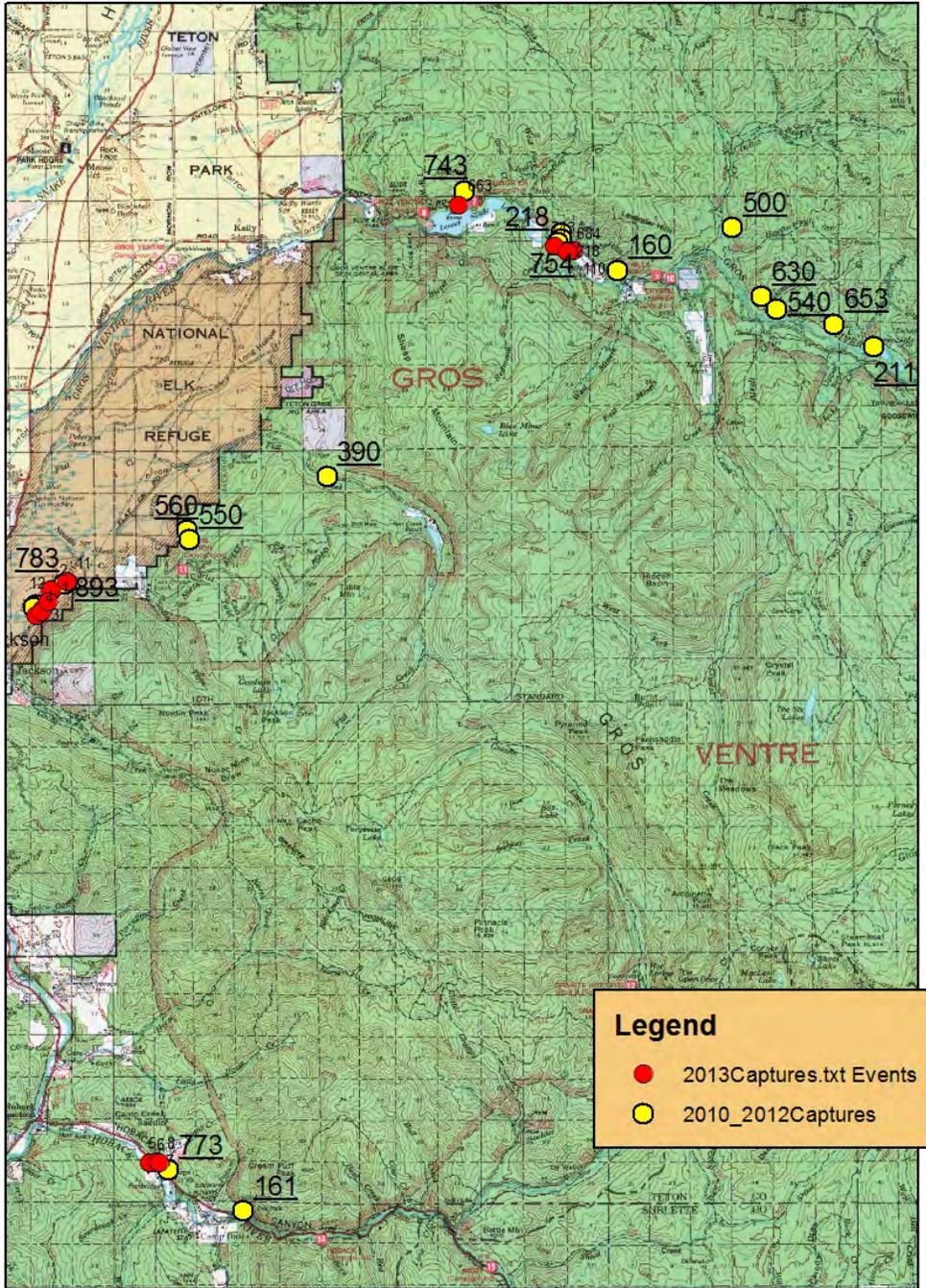


Figure 1. Capture locations for bighorn sheep captured in 2010-2013.

One radio collared sheep died during 2013, sheep 663 (150.550). This sheep died in the Miner Creek drainage and was detected on mortality during a flight on June 7, 2013.

Data from radio collars recovered during 2012 and 2013 were shared with the Greater Yellowstone Area Mountain Ungulate Project. This research is a collaborative research initiative to study the ecology and population dynamics of bighorn sheep and mountain goats throughout the Yellowstone ecosystem

(<http://gyamountainungulateproject.com/contact.html>). Data were also shared with the Wyoming Migration Initiative at the University of Wyoming.

Table 1. Bighorn sheep frequencies in the Jackson herd.

ID	GPSfreq	VHFFreq	Visibility	Comments	Status last heard
<b>211</b>		<b>150.263</b>			12/13/13 Grey Hills
<b>653</b>		<b>150.352</b>			1/4/2014
<b>684</b>		<b>150.482</b>			not found
<b>743</b>	<b>150.744</b>	<b>150.493</b>	Yellow #26	New Capture 4/11/13	1/4/2014
<b>893</b>	150.54	150.54		replaced old collar 12/10/12	1/4/2014
<b>390</b>	150.390	150.39	blue <b>7B</b>	blue <b>7B</b>	not found
<b>630</b>	150.63	150.63	white/yellow <b>6B</b>	New Capture Jan2013	1/4/2014
<b>410</b>	150.16	150.16	purple <b>1B</b>	Replaced old collar 3/5/13	12/14/13 FlatCk Lot NER
<b>218</b>		150.464	Yellow #27	Experimental GPS replaced with 150.464 on 4/17/13	9-Sep
<b>110</b>	149.11		Yellow #28	Experimental GPS captured on 5/1/13	1/4/2014
<b>500</b>	150.500	150.500	<b>green2B</b>	GPS quit transmitting fall 2012?	not found

On January 3 and 4, 2013 a total of twelve sheep were darted to assess herd health on Miller Butte and near Camp Creek Inn (Table 2). Most sheep sampled exhibited low to moderate levels of lung worm in their feces and two that were high (Appendix A). Eight of the twelve sheep (67%) were polymerase chain reaction (PCR) positive for *Mycoplasma ovipneumoniae*. Nine of the twelve (75%) had leukotoxin positive isolates but *Mannheimia haemolytica* was not found by PCR or culture. In early March a lamb was darted and euthanized near Miller Butte exhibiting signs of pneumonia. Laboratory cultures found signs of *M. ovipneumoniae* and *B. trehalosion*. Low lungworm counts were found in the feces. Also in March an adult ram was euthanized near Camp Creek after becoming entangled in a fence. Culture results were similar to the other sheep sampled in 2012 (Appendix A).

During June reproduction surveys, one of three radio collared ewes were observed with a lamb and 44 ewes were observed with 7 lambs. Overall Kaplan-Meier adult survival was estimated at 92% (censoring unfound sheep 390, 500 and 684) during the 2013 biological year. Additional effort will be made during mid winter big game flights to observe missing radio collared sheep.

Table 2. Bighorn sheep captures during 2013.

ID	GPSfreq	VHFFreq	Visibility	CaptureDate	LocationEast	LocationNorthing	Comments
<u>110</u>	149.11		Yellow #28	5/1/2013	542339	4829978	New Capture Experimental GPS
<u>218</u>		150.464	Yellow #27	4/17/2013	542055	4829980	Recapture replace experimental GPS with a VHF collar 150.464
<u>743</u>	<u>150.74</u> 4	<u>150.493</u>	Yellow #26	4/11/13	541631	4830164	New Capture
<u>684</u>		150.48 2		3/7/2013	542091	4829922	Remove GPS collar
<u>410</u>	150.16	150.16	purple 1B	3/5/2013	521690	4815961	Removed Faulty GPS
<u>66</u> <u>3</u>	150.55	150.55	pink4B	2/21/2013	537939	4831747	Removed Faulty GPS
1	-	-	-	1/3/2013	522305	4816925	Disease Sampling Miller Butte
2	-	-	-	1/3/2013	522264	4816965	Disease Sampling Miller Butte
3	-	-	-	1/3/2013	521927	4816176	Disease Sampling Miller Butte
4	-	-	-	1/3/2013	521717	4815961	Disease Sampling Miller Butte
5	-	-	-	1/3/2013	526139	4794950	Disease Sampling Camp Creek
6	-	-	-	1/3/2013	526043	4794931	Disease Sampling Camp Creek
7	-	-	-	1/4/2013	526339	4794989	Disease Sampling Camp Creek
8	-	-	-	1/4/2013	526413	4794962	Disease Sampling Camp Creek
9, 10	-	-	-	1/4/2013	521875	4816109	Disease Sampling Miller Butte
11	-	-	-	1/4/2013	522860	4817264	Disease Sampling Miller Butte
12	-	-	-	1/4/2013	522132	4816508	Disease Sampling Miller Butte

## Discussion

Mortality rates observed in 2013 were lower compared to 2012 and it is likely that the pneumonia related die-off observed in 2012 has ended. Initial lamb:ewe ratios observed during summer surveys suggest reduced reproduction. Primary project objectives include collecting migration and disease information on the various wintering segments of the Jackson sheep herd. Radio collars on sheep captured in January 2012 will release March 15, 2014. An analysis of seasonal distribution and migration will be completed once the radio collars are retrieved. Preliminary monitoring indicates radio collared sheep from the NER used summer ranges north of Flat Creek and the sheep from the Gros Ventre moved to higher elevations north of Flat Creek and Crystal Creek. Bighorn sheep collared east of the NER spent summers south of Granite Creek near Pinnacle Peak.

During 2014 additional captures are proposed to evaluate the presence of disease and to continue monitoring animal movement patterns.

Appendix A 2013 Bighorn sheep Samples

ID	Species	Larvae	Rate	Larvae Species	Submitted	Comments
1	Bighorn		1778	Protostrongylus sp	1/7/2013	
2	Bighorn		168	rotostrongylus sp	1/7/2013	
3	Bighorn		230	rotostrongylus sp	1/7/2013	
4	Bighorn		194	rotostrongylus sp	1/7/2013	
5	Bighorn		860	rotostrongylus sp	1/7/2013	
6	Bighorn		677	rotostrongylus sp	1/7/2013	
7	Bighorn		176	rotostrongylus sp	1/7/2013	
8	Bighorn		1223	Protostrongylus sp	1/7/2013	
9	Bighorn		131	Protostrongylus sp	1/7/2013	
10	Bighorn		682	Protostrongylus sp	1/7/2013	
11	Bighorn		88	Protostrongylus sp	1/7/2013	
12	Bighorn		468	Protostrongylus sp	1/7/2013	
2775	Bighorn		353	Protostrongylus sp	3/8/2013	6F030813
3379	Bighorn		1464	Protostrongylus sp	3/18/2013	Camp Crk Fence mortality
4940	Bighorn		542	Protostrongylus sp	4/15/2013	
5241	Bighorn		163	Protostrongylus sp	4/18/2013	150.465
6343	Bighorn		98	Protostrongylus sp	5/3/2013	Sheep110

Animal ID's	Media	Culture Results *	PCR Results
1		NSI**	M.o.vi
2		NSI	M.o.vi
3		NSI	ND
4		NSI	M.o.vi
5		NSI	M.o.vi
6		NSI	ND
7		NSI	M.o.vi
8		NSI	M.o.vi
10		NSI	M.o.vi
		NSI	
11		NSI	M.o.vi
12		NSI	ND
14		NSI	ND

Animal ID's	Media	Culture Results *	PCR Results
1		+ 2 B. trehalosi	B.trehalosi Lkt +
2		+ 2 B. trehalosi	ND
3		+ 2 B. trehalosi	ND
4		+ 1 B. trehalosi, +2 P. multocida	B.trehalosi Lkt +
5		+ 2 B. trehalosi, +2 P. multocida	ND
6		+ 2 B. trehalosi	Mannheimia species Lkt +, B.trehalosi Lkt +
7		+ 1 B. trehalosi, +2 P. multocida	B.trehalosi Lkt +
8		+ 1 B. trehalosi, +1 P. multocida	Mannheimia species Lkt +, B.trehalosi Lkt +
10		+ 2 B. trehalosi, +1 P. multocida, +1 Mannheimia	Mannheimia species Lkt +, B.trehalosi Lkt +
11		+ 2 B. trehalosi	ND
12		+ 2 B. trehalosi	Mannheimia species Lkt +, B.trehalosi Lkt +
14		+ 2 B. trehalosi	B.trehalosi Lkt +

**Accession:** GF030813/13W2775

**Submitter:** D. Brimeyer

**Date Recei** 3/8/2013

Animal ID's	Media	Culture Results *	PCR Results
Tonsil	CBA	+2 B. trehalosi	No Lkt detected
Nasal 1	mod TSB-1	NSI	M.ovl
Nasal 2	mod TSB-1	+1 M. ovipneumoniae	M.ovl

**Accession:** GF031913

**Submitter:** D. Brimeyer

**Date Recei** 3/19/2013

Animal ID's	Media	Culture Results *	PCR Results
T1	CBA	+2 B. trehalosi	Lkt + Mannheimia species
T2	CBA	+2 B. trehalosi	Lkt + Mannheimia species

Animal ID's	Media	Culture Results *	PCR Results
N1	Mod TSB-1	NSI	M.ovl
N2	Mod TSB-1	NSI	M.ovl

Accession: GF041213/13W4940

Submitter:

Date Received:

**Pasteurella**

Animal ID's	Media	Culture Results Sheep*	Culture Results Hotel*	PCR Results
13-21	CBA	B. trehalosi, heam. B. tre.	B. trehalosi	Lkt-
<b>Mycoplasma</b>				
Animal ID's	Media	Culture Results Lab	PCR Results	PCR Results
13-21	mod-TSB1	NSI		ND

Accession:

6343

Submitter:

Date Received:

Animal ID's	Media	Culture Results *	PCR Results	Comments
110-T-1		Mannheimia spp.	Lkt+, not M. haem	Likely M. glucosida
110-T-2				
110-N-1	mod TSB-1	NSI	ND	
110-N-1	mod TSB-1	NSI	ND	

\* Culture ranked on amount of significant growth +1 (1-10 colonies), 2+ (11-100 colonies), +3 (101-300 colonies), +4 (>300 colonies);

NSI = no significant isolates

ND = not detected