

## 2015 - JCR Evaluation Form

SPECIES: Bighorn Sheep PERIOD: 6/1/2015 - 5/31/2016

HERD: BS121 - DARBY MOUNTAIN

HUNT AREAS: 24

PREPARED BY: GARY FRALICK

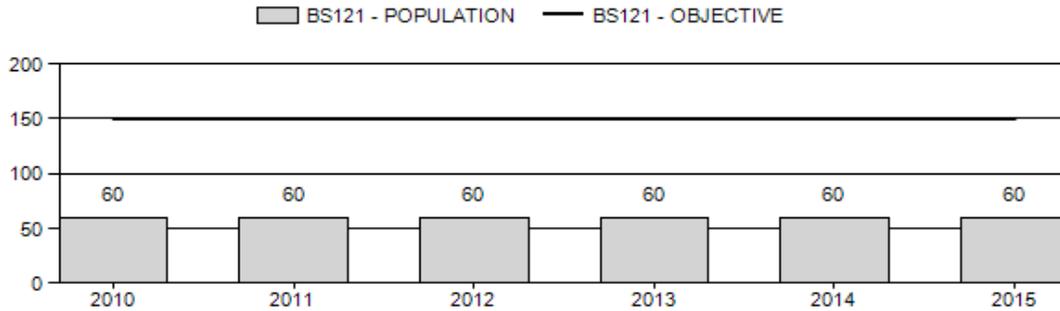
	<u>2010 - 2014 Average</u>	<u>2015</u>	<u>2016 Proposed</u>
Population:	60	60	75
Harvest:	0	0	1
Hunters:	1	0	1
Hunter Success:	0%	0%	100 %
Active Licenses:	1	0	1
Active License Success:	0%	0%	100 %
Recreation Days:	1	0	14
Days Per Animal:	0	0	14
Males per 100 Females	56	36	
Juveniles per 100 Females	50	61	

Population Objective (± 20%) :	150 (120 - 180)
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	-60%
Number of years population has been + or - objective in recent trend:	24
Model Date:	2/23/2016

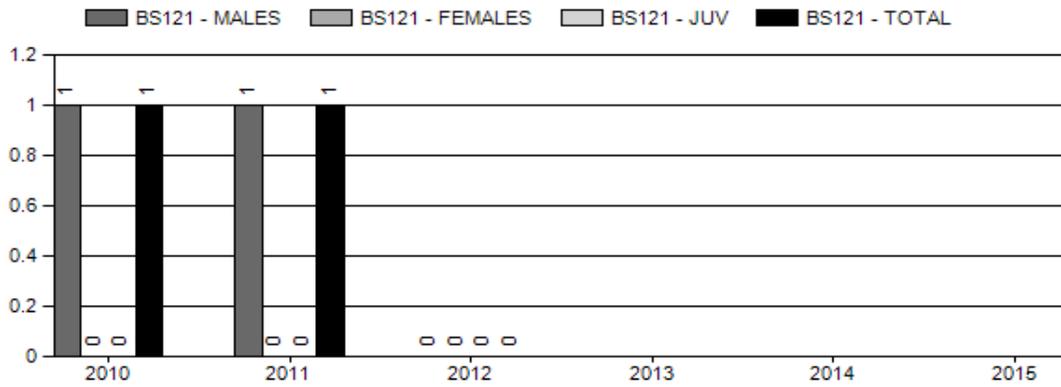
**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

	<u>JCR Year</u>	<u>Proposed</u>
Females ≥ 1 year old:	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%

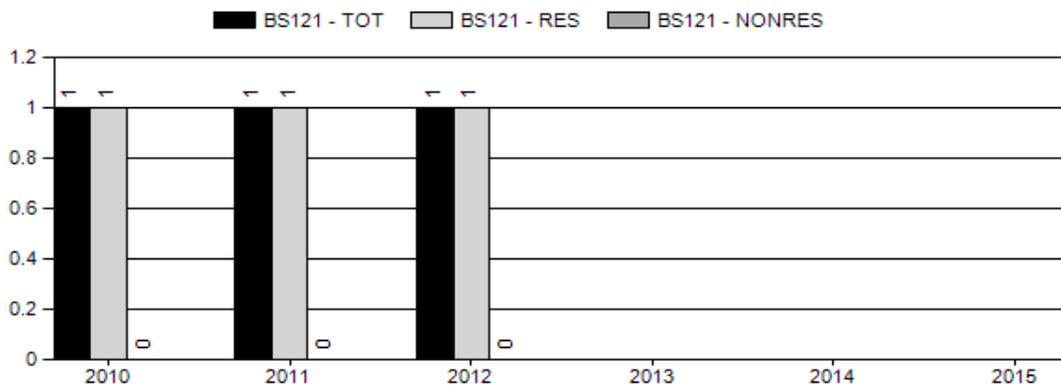
## Population Size - Postseason



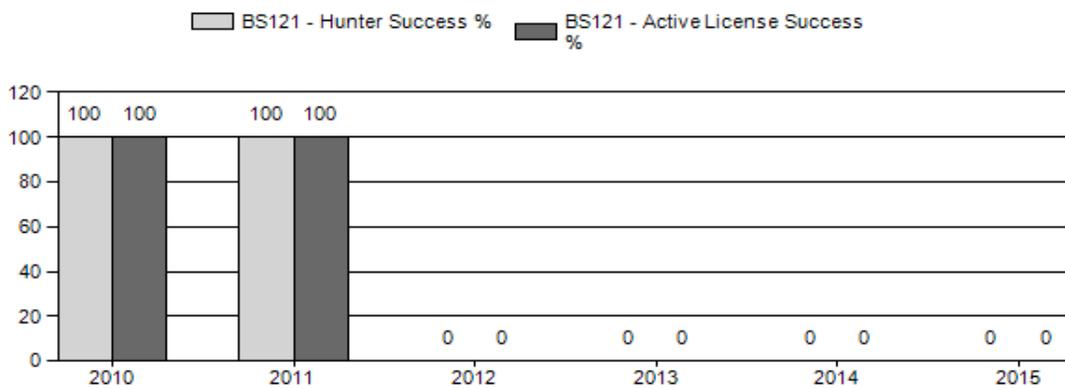
## Harvest



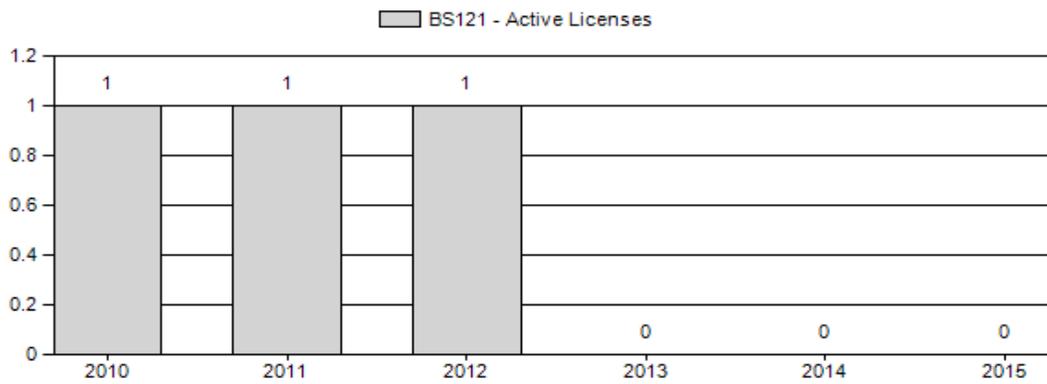
## Number of Hunters



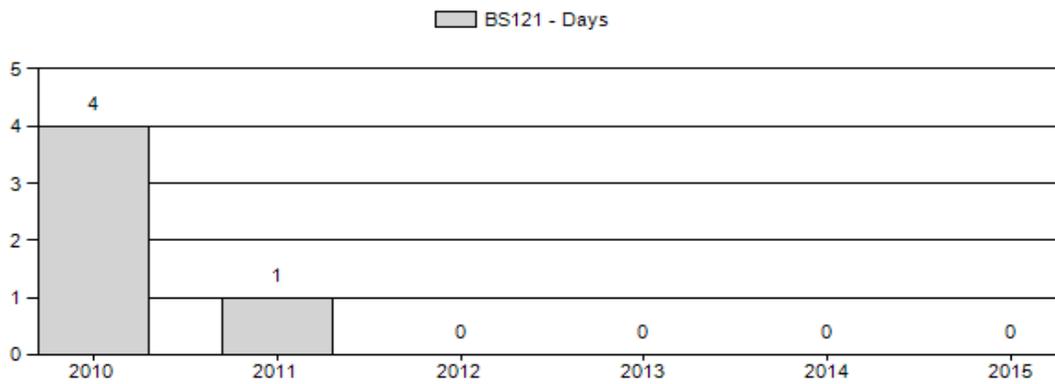
## Harvest Success



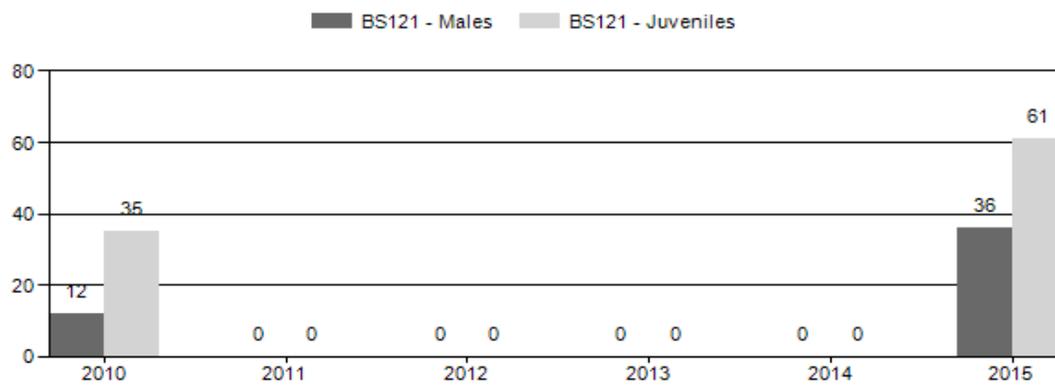
## Active Licenses



## Days Per Animal Harvested



## Preseason Animals per 100 Females



**2010 - 2015 Postseason Classification Summary**

for Bighorn Sheep Herd BS121 - DARBY MOUNTAIN

Year	Post Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females			Conf Int	Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			YIng	Adult	Total		100 Fem	Conf Int	100 Adult
2010	60	1	1	2	80%	17	68%	6	24%	25	0	6	6	12	±0	35	±0	32
2011	60	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	±0	0	±0	0
2012	60	0	5	5	100%	0	0%	0	0%	5	0	0	0	0	±0	0	±0	0
2013	60	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	±0	0	±0	0
2014	60	0	0	0	0%	0	0%	0	0%	0	0	0	0	0	±0	0	±0	0
2015	75	3	7	10	18%	280	51%	17	31%	55	0	11	25	36	±0	61	±0	45

**2016 HUNTING SEASON  
DARBY MOUNTAIN HERD UNIT - BHS121**

Hunt Area	Type	Season Dates		Quota	License	Limitations
		Opens	Closes			
24	1	Sep. 1	Oct. 31	1	Limited quota	Any ram
		Aug. 15	Aug.31			Archery only; REFER TO SECTION 4

**SUMMARY OF PROPOSED CHANGES BY LICENSE NUMBER**

Area	License Type	Change from 2015
24	Limited Quota Type 1	Change from Closed Season to Issuance of one (1) Type 1 license valid for any ram
Herd Unit Total	Net Change	+ 1 Limited Quota license for any ram

## **Management Evaluation**

**Current Postseason Population Management Objective: 150**

**Management Strategy: Special**

**2015 Postseason Population Estimate: 60**

**2016 Proposed Postseason Population Estimate: 75**

The Darby Mountain bighorn sheep herd population objective is 150 sheep. This objective was established in 1991, and will be reviewed in 2016 (Appendix A).

The 2016 hunting season will be the first year of hunting since the season was closed in 2012. During this time period the season was closed due to concerns over the general absence of trophy class rams in the population.

On-ground and aerial surveys were conducted in April through July 2015. The 2015 surveys resulted in a minimum of 55 different sheep being observed.

### **Herd Unit Issues**

In 1981 the Wyoming Game and Fish Department and U.S. Forest Service reintroduced bighorn sheep (*Ovis canadensis*) into the Wyoming Mountain Range, west of Big Piney, Wyoming. The last wild sheep occupied this range in the early 1960s. Competition with domestic sheep and illegal harvest were believed responsible for their extirpation. Prior to the transplant, domestic sheep were removed from allotments on Fish Creek and Darby Mountain, which provided the best historic bighorn sheep habitat. In January 1981, 35 Rocky Mountain sheep were transplanted from the Whiskey Basin Habitat Unit near Dubois, Wyoming to Fish Creek Mountain. In January 1987, another 25 bighorn sheep were transplanted from Whiskey Basin to the Fish Creek Mountain site. Funding assistance for this relocation effort was provided by the Foundation for North American Wild Sheep (FNAWS).

The estimated herd size in mid-winter 1988 was 110 sheep. However, the actual count on 20 February 1988 was 70 sheep and poor weather prevented completion of the survey. A comprehensive on-ground and aerial survey was conducted from 20 June - 14 July 1988 in approximately a 90 square mile area around Fish Creek Mountain. These surveys resulted in a post-lambing count of a minimum of 124 sheep consisting of 56 ewes, 28 lambs and 40 rams in the herd. In 1988 the first hunt was conducted in Hunt Area 24, based primarily on the results of the previous survey. Four permits were issued with 3/4 curl restrictions and four rams were harvested. The population is estimated to have increased to approximately 150 sheep in 1994. The department continued to issue four permits for 3/4 curl rams from 1988 through 1997.

Forage production and availability studies on Fish Creek and Darby Mountain winter ranges, (prior to the 1981 re-introduction) suggested a combined capacity for 150 to 175 sheep in most winters. Other potential wintering sites were identified north and east of Fish Creek Mountain. Since 1981 individuals and small groups of sheep that typically number less than 15 individuals have been observed wintering near Star Hill, above the

Middle Piney Creek summer homes, the hydrographic divide between the Greys River and Green River drainages in Box Canyon Creek in Greys River drainage, and the windblown ridge tops in the Straight Creek drainage west of Mount Schidler. Fish Creek Mountain and Darby Mountain continue to support the largest concentrations of wintering sheep.

Most summer observations have occurred within the 90 square mile core area around Fish Creek Mountain. However, since 1994 a few sub legal rams and small ewe-lamb groups have been observed on summer range outside the core area. Summer dispersal of bighorn sheep have been documented along the crest of the Wyoming Mountain Range in the vicinity of the headwaters of South Cottonwood Creek, McDougal Peak, Gunsight Pass, Middle Piney Creek, Straight Creek, North Piney Creek and Roaring Fork drainages as well. This dispersal has resulted in bighorn sheep and domestic sheep mingling on summer ranges in several active sheep allotments.

## **Weather**

Weather conditions during the 2015 were ideal for forage production beginning in early spring and continuing through fall. By late summer the moisture regime had changed frequent precipitation scenario that persisted into the fall hunting season. Drought conditions in the early portion of the summer abated by late fall as persistent snow storms began to deposit snowpack in the Wyoming and Salt Mountain Ranges. By mid winter snow conditions on winter ranges had changed significantly. Little to no snow had accumulated on core winter ranges. These conditions persisted throughout the remainder of the winter. By late winter 2016 snowpack in western Wyoming watersheds were estimated to be at or slightly above normal. For additional weather and precipitation data please visit the following websites: <http://www.ncdc.noaa.gov/temp-and-precip/time-series> and <http://www.ncdc.noaa.gov/oa/climate/research/prelim/drought/pdiimage.html>.

## **Habitat**

Winter range browse plants have been measured each spring and fall to assess production and utilization since the late 1990s. Growing conditions improved in 2015 on winter ranges because of moisture regimes in early spring and throughout the growing seasons. Improved growing conditions were due to spring and summer rains which have a different effect on shrubs than winter snowpack due to rates of infiltration. Leader production on Wyoming big sagebrush and black sagebrush were the species most notably improved compared to the 2013 and 2014 leader growth. However, average leader growth was still less than a half inch for Wyoming big sagebrush sites and less than two inches for mountain shrubs. For additional site specific information, please refer to the 2015 Annual Report Strategic Habitat Plan Accomplishments, for Pinedale Region habitat improvement project summaries ( <http://wgfd.wyo.gov/web2011/wildlife-1000708.aspx>).

## **Field Data**

### **2015 Survey**

An aerial survey was conducted on April 2, 2015 from a Bell 47 Turbine helicopter. The primary survey area encompassed the crest of the Wyoming Mountain Range and Bighorn Sheep Hunt Area 24. The objective of the survey was to document the location and age/sex characteristics of bighorn sheep.

The survey was initiated on the north at Mount McDougal and terminated on the south along the crest of the Wyoming Range at Cheese Pass and Fish Creek and Darby Mountains. All suitable bighorn sheep habitat was surveyed within the required budgetary constraints and as weather conditions permitted safe fly conditions. Incidental observations of other species were recorded as noted. No mountain goats (*Oreamnos americanus*) were observed along the Wyoming Range crest during this survey. Approximately 6 hours of survey time were completed.

A total of 55 sheep were observed. The age/sex classes were: 7 adult rams; 3 yearling rams; 28 ewes, and 17 lambs were observed. The observed age/sex ratios were noted as follows: 36 rams:100 ewes:61 lambs.

Bighorn sheep were observed in three primary locations. Those locations were: the crest of the Wyoming Range from Marten Creek south to Box Canyon Creek; Fish Creek Mountain to include Middle Piney Creek; and, Darby Mountain. A total of three (n=3) sheep were observed in Marten Creek and 16 sheep observed in Box Canyon Creek. Two rams (n=2) were observed in Straight Creek and one ewe and one lamb were observed in Middle Piney Creek. A total of 27 sheep were observed on Fish Creek Mountain, while five adult rams were noted on Darby Mountain.

### **Harvest**

One license valid for any ram was issued annually during the period from 2008 to 2012. A total of four rams were harvested from 2008 – 2011. In 2012, the one licensed hunter observed very few sheep and could not find a mature ram older than 5 years of age after 15 total days of hunting. The lack of mature rams observed by the hunter is consistent with Department field surveys over the past five years.

### **Population**

The population has stabilized at approximately 60 - 75 sheep. Systematic surveys, typically conducted from a helicopter in winter, have resulted in fewer than 60 sheep observed. Summer on-ground surveys conducted in August have identified the Box Canyon and Fish Creek Mountain areas as locations that typically support the highest aggregations of sheep.

### **Management Summary**

The 2016 bighorn sheep hunting season for Hunt Area 24 will be re-opened to hunting. A total of one (1) limited quota license will be issued valid for any ram. This hunting season will result in the harvest of one adult ram 2+-years old. The population estimate will remain at approximately 75 sheep.

## **DARBY MOUNTAIN BIGHORN SHEEP HERD AND POPULATION OBJECTIVE REVIEW**

**Prepared by:** Gary L. Fralick, Thayne & Big Piney Wildlife Biologist

### **POPULATION OBJECTIVE REVIEW**

In 1981 the Wyoming Game and Fish Department and U.S. Forest Service reintroduced bighorn sheep (*Ovis canadensis*) into the Wyoming Mountain Range, west of Big Piney, Wyoming (Figure 1). The Wyoming Range is historical bighorn sheep range with observations dating back to the 1920s. The last wild sheep occupied this range in the early 1960s. Competition with domestic sheep and illegal harvest were believed responsible for their extirpation. Prior to the transplant, domestic sheep were removed from allotments on Fish Creek and Darby Mountain, which provided the best historic bighorn sheep habitat. In January 1981, 35 Rocky Mountain sheep were transplanted from the Whiskey Basin Habitat Unit near Dubois, Wyoming to Fish Creek Mountain. In January 1987, another 25 bighorn sheep were transplanted from Whiskey Basin to the Fish Creek Mountain site. Funding assistance for this relocation effort was provided by the Foundation for North American Wild Sheep (FNAWS).

The estimated herd size in mid-winter 1988 was 110 sheep. However, the actual count on 20 February 1988 was 70 sheep and poor weather prevented completion of the survey. A comprehensive on-ground and aerial survey was conducted from 20 June - 14 July 1988 in approximately a 90 square mile area around Fish Creek Mountain. These surveys resulted in a post-lambing count of a minimum of 124 sheep consisting of 56 ewes, 28 lambs and 40 rams in the herd. As a result of this survey, the first hunt was held in Hunt Area 24, with four permits issued. The population is estimated to have increased to a maximum of approximately 150 sheep in 1994. The department continued to issue four permits for 3/4 curl rams from 1988 through 1997.

Forage production and availability studies on Fish Creek and Darby Mountain winter ranges (prior to the 1981 re-introduction) suggested a combined capacity for 150 to 175 sheep in most winters. Other potential wintering sites were identified north and east of Fish Creek Mountain. Since 1981 individuals and small groups of sheep (less than 10 individuals) have been observed wintering near Star Hill, above the Middle Piney Creek summer homes, the hydrographic divide between the Greys River and Green River drainages in Box Canyon Creek in Greys River drainage, and the windblown ridge tops in the Straight Creek drainage west of Mount Schidler. Fish Creek Mountain and Darby Mountain continue to support the largest concentrations of wintering sheep.

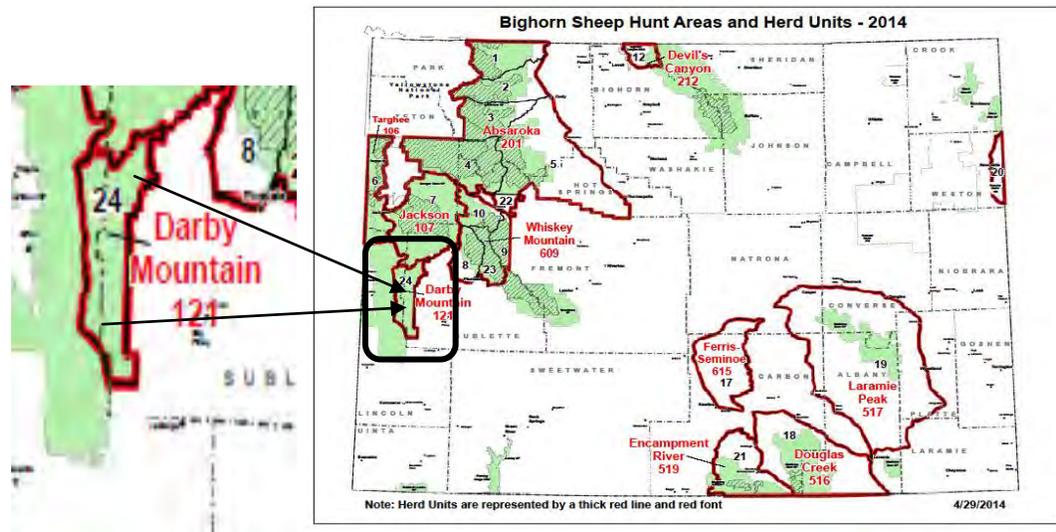


Figure 1. Darby Mountain bighorn sheep herd, Hunt Area 24, Wyoming.

### Bighorn Sheep Harvest Strategies

The first legal hunting season was established in 1988. Four licenses were issued which were valid for greater than or equal to  $\frac{3}{4}$  curl rams. The last hunting season was in 1997. During the 10-years that hunting seasons were in place, the following number of rams were legally harvested: 1988- 4 rams; 1989- 2 rams; 1990 and 1991- 2 rams each year; 1992-3 rams; 1994- 4 rams; 1995- 2 rams; 1996-3 rams; and, 1997 – 0 rams harvested.

Since 1996 the hunting season has been opened and closed during two separate periods. The 1996 hunting season was the last time a legal ram was harvested in this hunt area since hunting was first initiated in 1988. Four license holders harvested three legal rams in that year. The 1997 hunting season was the last year that legal hunting was permitted. No legal rams were harvested. Hunters reported observing very few sheep and no legal rams. The hunting season remained closed from 1998 – 2007. The hunting season was re-opened in 2008 and remained open through the 2012 hunting season.

It is likely that this population has stabilized at approximately 60 sheep (Figure 2). Systematic surveys, typically conducted from a helicopter in winter, have resulted in fewer than 60 sheep observed. Summer on-ground surveys conducted in August have identified the Box Canyon and Fish Creek Mountain areas as locations that typically support the highest aggregations of sheep.

## Population Size - Postseason

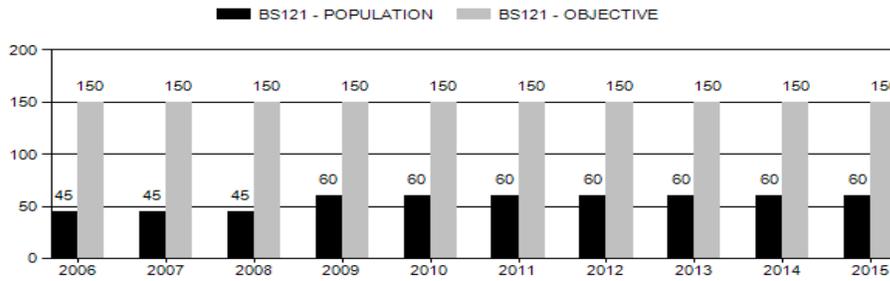


Figure 2. A posthunt population summary of the Darby Mountain bighorn sheep herd, Wyoming, 2006 – 2015.

Most summer observations have occurred within the 90 square mile core area around Fish Creek Mountain. However, since 1994 a few sub-adult rams and small ewe-lamb groups have been observed on summer range outside the core area. Summer dispersal of bighorn sheep have been documented along the crest of the Wyoming Mountain Range in the vicinity of the headwaters of South Cottonwood Creek, McDougal Peak, Gunsight Pass, Middle Piney Creek, Straight Creek, Box Canyon Creek, North Piney Creek and Roaring Fork drainages as well. In 2009, sub-adult bighorn rams were reported in Three Forks Creek (Greys River). This dispersal has resulted in bighorn sheep and domestic sheep co-mingling on summer ranges in several active sheep allotments.

### Current Management Strategy

Since 1996, bighorn sheep hunting seasons were implemented from 2008 – 2012 (Figure 3). Since 2012 the season has been closed due to the lack of mature rams, low lamb numbers and poor recruitment of sheep from juvenile to older age classes. The hunting season will be re-opened in 2016 for the first time since 2012 because a sufficient number of mature rams documented during spring and summer surveys conducted in 2015.

## Active Licenses

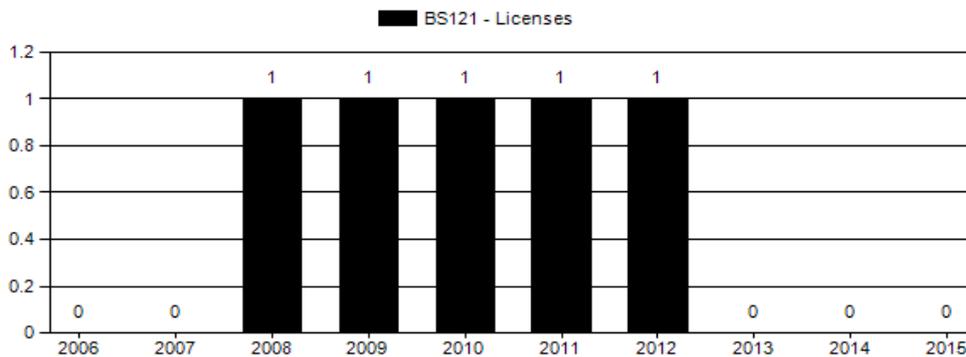


Figure 3. A summary of active licenses issued, 2006 – 2015, Darby Mountain bighorn sheep herd, Wyoming.

An aerial survey was conducted on April 2, 2015 from a Bell 47 Turbine helicopter. The primary survey area encompassed the crest of the Wyoming Mountain Range and Bighorn Sheep Hunt Area 24. The objective of the survey was to document the location and age/sex characteristics of bighorn sheep.

The survey was initiated on the north at Mount McDougal and terminated on the south along the crest of the Wyoming Range at Cheese Pass and Fish Creek and Darby Mountains. All suitable bighorn sheep habitat was surveyed within the required budgetary constraints and as weather conditions permitted safe fly conditions. Incidental observations of other species were recorded as noted. No mountain goats (*Oreamnos americanus*) were observed along the Wyoming Range crest during this survey. Approximately 6 hours of survey time were completed.

A total of 55 sheep were observed. The age/sex classes were: 7 adult rams; 3 yearling rams; 28 ewes, and 17 lambs were observed. The observed age/sex ratios were noted as follows: 36 rams:100 ewes:61 lambs (Figure 4).

Bighorn sheep were observed in three primary locations. Those locations were: the crest of the Wyoming Range from Marten Creek south to Box Canyon Creek; Fish Creek Mountain to include Middle Piney Creek; and, Darby Mountain. A total of three (n=3) sheep were observed in Marten Creek and 16 sheep observed in Box Canyon Creek. Two rams (n=2) were observed in Straight Creek and one ewe and one lamb were observed in Middle Piney Creek. A total of 27 sheep were observed on Fish Creek Mountain, while five adult rams were noted on Darby Mountain.

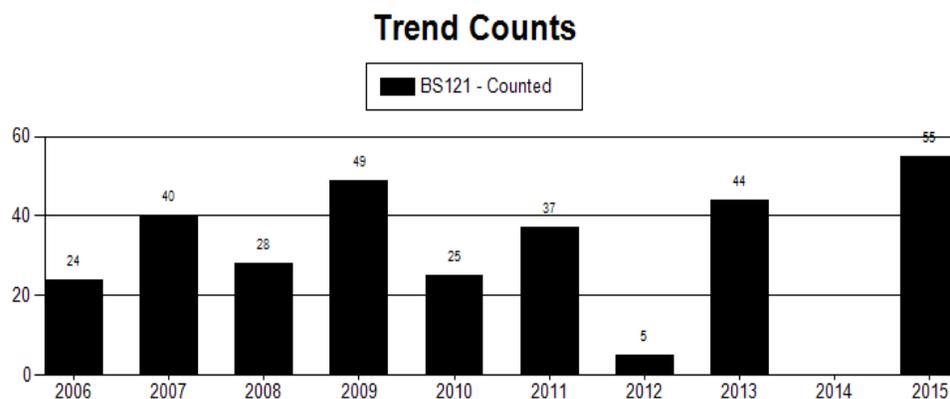


Figure 4. A summary of bighorn sheep observed during the annual trend counts, 2006 – 2015, Darby Mountain bighorn sheep herd, Wyoming.

Since 2006, four rams have been harvested in Hunt Area 24 (Figure 5) during years of open hunting seasons, 2008 – 2012. The licensed hunter in 2012 did not harvest a ram. Licensed hunters have focused efforts primarily on harvesting rams at least 5-years old. Since the hunt was initiated in 2008 – 2012, several trophy class rams were taken in the Darby Mountain herd.

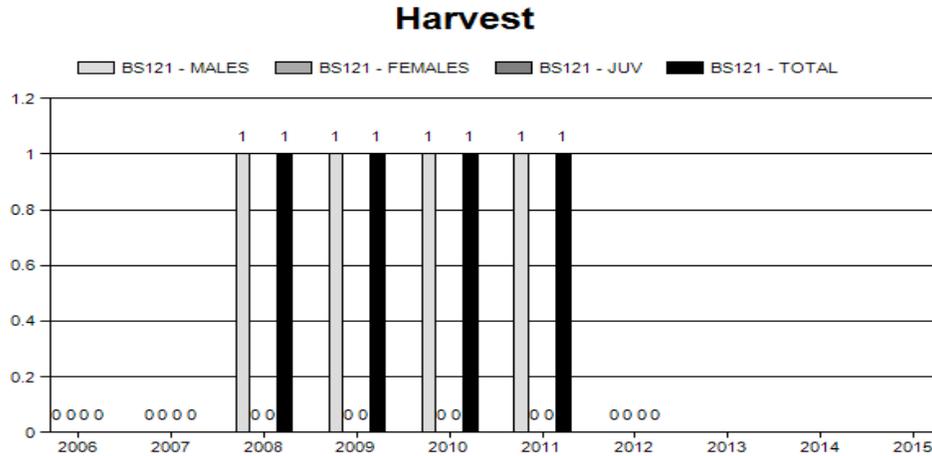


Figure 5. A summary of sex and age harvest characteristics, 2006 – 2015, Darby Mountain bighorn sheep herd, Wyoming.

**PROPOSED PRIMARY AND SECONDARY OBJECTIVE FOR THE DARBY MOUNTAIN BIGHORN SHEEP POPULATION AND SPECIAL MANAGEMENT STRATEGY**

A revised population objective review is warranted for the Darby Mountain bighorn sheep herd. A revision is based on the inability to approach within 20% of the current population objective of 150 sheep since 1991. The last population objective review was conducted in 1988.

*Primary Objective*

The primary objective for the Darby Mountain bighorn sheep herd is to manage for a summer trend objective of 65 bighorn sheep. The trend objective will be based on the average of the most recent three years of surveys of all known summer ranges occupied by the Darby Mountain bighorn sheep herd. Trend data will be analyzed using a 3-year running average to assess the variation between trend counts. The trend count objective will encompass a range of  $\pm 20\%$  ( $\pm 13$  animals, 52 – 78 sheep) of the target value.

*Secondary Objective*

The management criterion for the Darby Mountain bighorn sheep herd is Special Management. Parameters for the Special Management designation are proposed as secondary objectives and include:

- a. Maintain a mean age of hunter-harvested males of  $\geq 5$  years of age;
- b. Maintain a 5-year average hunter success of  $\geq 75\%$  ; and,
- c. Document at least 10 rams annually that exhibit horn characteristics of  $\geq \frac{3}{4}$  curl in length, or are estimated at least 7 years of age.

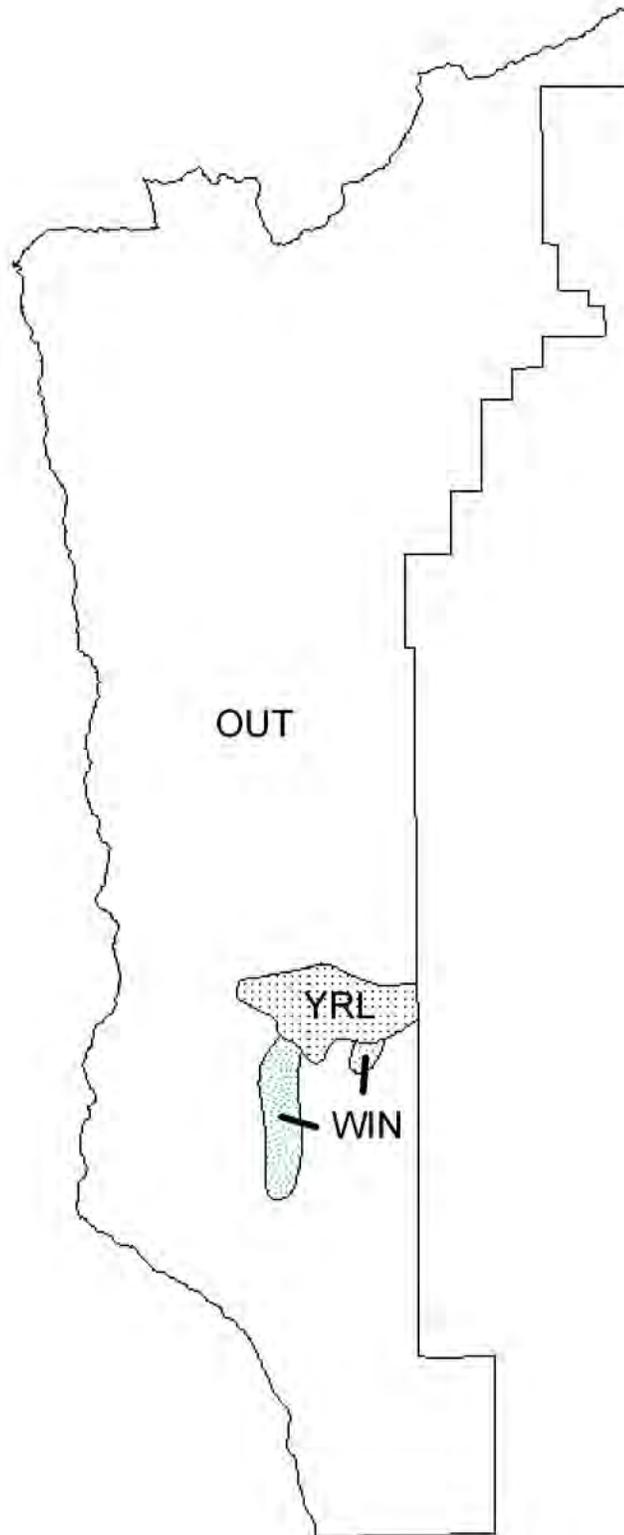
## **LANDOWNER, AGENCY AND PUBLIC INVOLVEMENT**

On March 2, 2016, the Department presented a preliminary assessment of proposed 2016 Big Game Hunting Seasons to the Jackson Hole Outfitters and Guides Association. Included in this presentation was a brief discussion of the Darby Mountain bighorn sheep herd management, proposed 2016 hunting seasons, and the upcoming review of the Darby Mountain population objective in March – May, 2016. Approximately 30 outfitters and guides were in attendance.

The Darby Mountain population objective was presented to the Bridger-Teton National Forest personnel during the annual WGFD/USFS coordination in Jackson on March 17, 2016.

During 2016 big game hunting season public meetings and open houses in Marbleton (March 14; 2 people), Thayne (March 15; 17 people), Pinedale (March 16; 14 people), and Jackson (March 17; 35 people) the Darby Mountain bighorn sheep population objective review was presented for public review.

Additional big game population review public meetings were held in Jackson and Pinedale on April 25, 2016.



BHS 121- Darby Mtn.  
HA 24  
Revised 7/02