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BIGHORN SHEEP

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TABLE OF CONTENTS

STATEWIDE.....	1
CLEARWATER REGION.....	4
Climatic Conditions	4
GMUs 11, 13, 18.....	4
Abstract.....	4
Management Direction.....	5
Background	5
Population Surveys	6
Harvest Characteristics	7
Habitat Conditions	8
Capture and Translocation	8
GMUs 14, 17, 19, 20.....	9
Abstract.....	9
Management Direction.....	9
Background.....	9
Population Surveys	10
Harvest Characteristics	11
Habitat Conditions	12
Capture and Translocation	13
SOUTHWEST (NAMPA) REGION	23
GMUs 40, 41, 42.....	23
Abstract.....	23
Management Direction.....	23
Background	23
Population Surveys	24
Harvest Characteristics	24
Habitat Conditions	25
Capture and Translocation	25
Management Implications.....	25
SOUTHWEST (MCCALL) REGION.....	31
GMUs 19A, 20A, 26.....	31

TABLE OF CONTENTS (Continued)

Abstract31
Management Direction.....31
Background31
Population Surveys32
Harvest Characteristics32
Management Implications.....32
GMUs 22, 23, 31.....33
 Abstract33
 Management Direction.....33
 Background33
 Population Surveys33
 Harvest Characteristics33
 Management Implications.....33
MAGIC VALLEY REGION38
 GMUs 46, 47, 54, 55, 57.....38
 Abstract38
 Management Direction.....39
 Background39
 Population Surveys40
 Harvest Characteristics40
 Capture and Translocation40
 Management Studies.....41
 Management Implications.....41
LITERATURE CITED42
UPPER SNAKE REGION.....45
 GMUs 51 (PART), 58, 59A, 61, 64, 65, 6745
 Abstract45
 Management Direction.....45
 Climatic Conditions46
 Background46
 Population Surveys47

TABLE OF CONTENTS (Continued)

Capture and Translocation	47
Management Implications.....	47
SALMON REGION.....	51
GMUs 21, 21A, 27, 28, 29, 30, 30A, 36, 36A, 36B, 37, 37A, 50, 51	51
Abstract.....	51
Management Direction.....	51
Background	52
Population Surveys	53
Harvest Characteristics	53
Climatic Conditions	54
Habitat Conditions	54
Capture and Translocation	55
Disease	55
Management Implications.....	56
APPENDIX A.....	69

LIST OF TABLES

CLEARWATER REGION

Table 1. Bighorn sheep population data, GMUs 13 and 18, Clearwater Region, 1983-present.	14
Table 2. Bighorn sheep population data, GMU 11, Clearwater Region, 1992-present. Counts are not additive.	16
Table 4. Bighorn sheep harvest and drawing odds, Clearwater Region, 1982-present.	20
Table 5. Bighorn sheep population data, GMU 17, Clearwater Region, 1981-present.	21
Table 6. Bighorn sheep population data, GMUs 14, 19 and 20, Clearwater Region, 1981-present.	22
Table 1. Bighorn sheep population data, Southwest (Nampa) Region, 1985-2008.....	26
Table 2. Bighorn sheep harvest and drawing odds, Southwest (Nampa) Region, 1983-present.	27
Table 3. Bighorn sheep harvest and drawing odds by hunt area, Southwest (Nampa) Region, 1997-present.	28
Table 4. Bighorn sheep translocation, Southwest (Nampa) Region, 1963-2003.....	30

TABLE OF CONTENTS (Continued)

Table 1. Bighorn sheep population data, Southwest (McCall) Region, 1987-2009.35

Table 2. Bighorn sheep harvest and drawing odds by hunt area, Southwest (McCall) Region, 1997-present.36

Table 3. Bighorn sheep harvest and drawing odds, Southwest (McCall) Region, 1975-present.37

Table 1. Bighorn sheep translocations, GMUs 54 and 55, Magic Valley Region, 1986-2004.43

Table 2. Bighorn sheep population data, Jarbidge/Bruneau area (Hunt Area 46), Magic Valley Region, 1990-2006 (Obs = observed, Est = estimated).43

Table 3. Bighorn sheep harvest and drawing odds, Magic Valley Region, 1991-present.44

Table 1. Bighorn sheep population data, Upper Snake Region, 1992-present.49

Table 2. Bighorn sheep translocations, Upper Snake Region, 1976-1984.50

Table 1. Bighorn sheep population data, Salmon Region, 1983-present.57

Table 2. Bighorn sheep harvest and drawing odds by hunt area, Salmon Region, 1997-present.61

Table 3. Bighorn sheep harvest and drawing odds, Salmon Region, 1983-present.65

Table 4. Bighorn sheep mortality, Salmon Region, 1993-present.66

Table 5. Bighorn sheep translocation, Salmon Region, 1968-present.67

**PROGRESS REPORT
SURVEYS AND INVENTORY**

STATE:	<u>Idaho</u>	JOB TITLE:	<u>Bighorn Sheep Surveys and</u>
PROJECT:	<u>W-170-R-33</u>		<u>Inventories</u>
SUBPROJECT:	<u>2-7</u>	STUDY NAME:	<u>Big Game Population Status,</u>
STUDY:	<u>I</u>		<u>Trends, Use, and Associated</u>
JOB:	<u>4</u>		<u>Habitat Studies</u>
PERIOD COVERED: <u>July 1, 2008 to June 30, 2009</u>			

STATEWIDE

Bighorn sheep are one of Idaho's most prized trophy game animals. Idaho is home to 2 distinct populations of bighorn sheep. Rocky Mountain bighorns live in the central mountains from Hells Canyon on the west to the Montana border on the east. California bighorns occupy southern Idaho's Great Basin canyon and rangelands south of Interstate 84.

This report period was a time of great interest in bighorn sheep and their management statewide. The Appeal of the USDA Land Use Plan for the Payette National Forest has resulted in requests for compilation and analyses of much historic information, and stimulated collection of additional data, particularly pertaining to populations and movements of bighorn herds scattered along the Salmon and Snake Rivers in west-central Idaho. Idaho Governor Otter convened a multi-agency Working Group to develop Best Management Practices to aid the Fish and Game Commission in implementing statewide policy of bighorn management to maintain separation from domestic sheep. In May 2009 the Idaho legislature passed, and Governor Otter vetoed, a bill that would require removal of bighorn sheep from public lands in the vicinity of domestic sheep allotments; the legislature subsequently passed and Governor Otter signed a bill (SB 1232a) that directs the Idaho Department of Fish and Game (Department) to develop "Best Management Practices" for domestic sheep management in Idaho and directs the Department's Director to certify that those practices, if implemented, would hold domestic sheep operators harmless if disease transfer from domestic sheep to bighorns subsequently occurred. As of June 2009, Department personnel are working with 19 permittees managing domestic sheep allotments where risk of contact between bighorns and domestic sheep is deemed possible.

One significant outcome of the controversy regarding bighorn sheep management was the determination that bighorn sheep occupying Big Cottonwood Canyon in Game Management Unit (GMU) 54, where 50 California bighorn sheep were released during the period 1986-1993, would no longer be supplemented. A survey of this herd in February 2008 resulted in observation of only 12 remaining bighorns, and limited bighorn habitat is bounded by domestic sheep allotments.

Statewide analyses of bighorn sheep survey data (primarily aerial surveys of hunted herds, typically flown once every 5 years) indicates that bighorn sheep herds are declining statewide from population levels recorded in the early 1990s. While many herds have been affected

directly by disease, lamb recruitment following documented die-off events has been too low to allow for subsequent herd growth in many affected areas. When viewed from a statewide perspective, cause for some documented declines is unknown.

Increased statewide interest in bighorn sheep distribution and the potential for contact with domestic sheep resulted in improved documentation of bighorns outside of traditionally surveyed areas. During the report period, bighorns were observed in many areas not normally surveyed, including new areas in GMUs 11A, 14, 19A, 22, 23, 31, 33, 58, 59A, 61, 64, 65, and 67.

Legal protection of many portions of core habitat occupied by California bighorn sheep in southwestern Idaho was provided with Congressional approval of the Omnibus Public Land Management Act, signed into law by President Barak Obama on 30 March, 2009.

Public interest in bighorn sheep hunting continues to grow rapidly. The number of applications for a bighorn sheep hunting permit in Idaho total 2,226 in April 2009, nearly 3 times the number of applications received in 2000 (852), and double the number received in 2004 (1,174). More than half of the applications received annually come from outside of Idaho.

A total of 63 permits were offered for Rocky Mountain bighorn sheep by public drawing in fall 2008, and 2 additional permits (1 sold at auction, 1 available by lottery) were also used to hunt Rocky Mountain bighorns. Thirty-one hunters were successful (including the auction and lottery tag holders), for a hunter success rate of 48 percent. Successful hunters hunted an average of 9.8 days before they harvested a ram. Harvested rams averaged 6.8 years of age, down from 7.4 years of age in 2007. Horn measurements averaged 14.3 inches basal circumference and 31.8 inches in average length of the longest horn.

Twenty-two permits were made available for California bighorn sheep in fall 2008. A total of 17 hunters successfully harvested a ram, for a hunter success rate of 77 percent. Successful hunters hunted an average of 5.7 days before harvesting a ram, as compared with 3.6 days in 2007. Harvested rams averaged 7.1 years of age; horn measurements averaged 14.0 inches basal circumference and 30.5 inches in length.

During April 2009, 1,588 hunters applied for 63 Rocky Mountain bighorn sheep permits. Fifty-eight percent (923) of the applications were received from non-resident hunters. Of all applicants for a Rocky Mountain bighorn sheep permit, 8.7 percent of resident hunters (58) and 0.5 percent of non-resident hunters (5) received permits for the fall 2009 hunting season.

An additional 638 hunters applied for 22 permits for California bighorn sheep in April 2009. Of these, 44 percent (275) of the applications were submitted by non-resident hunters. Of all applicants, 5.3 percent of residents (19) and 1.1 percent of non-residents (3) were successful in obtaining a permit for the fall 2009 hunting season.

Regional personnel checked all successfully harvested bighorn sheep and completed data collections forms for all reported bighorn sheep known to have died during the year, whether

hunter-harvested or found dead due to other causes (27 in the Salmon Region alone). Horns of all rams were individually pinned for future identification.

A bighorn sheep management planning team was identified and began the process of preparing a revised statewide bighorn sheep management plan. Decisions by Idaho legislators and federal land management agencies will affect statewide management of bighorns. The plan is expected to be drafted and distributed for public review in mid-2010.

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CLEARWATER REGION

Climatic Conditions

The Clearwater Region experienced normal snow pack for the water year of 2008-2009 according to Natural Resources Conservation Service Idaho Basin Outlook Report. The Clearwater River Basin was 101% of the 30-year average of snow water (October through June). A unique weather phenomenon occurred in December providing record high snowfall at lower elevations and other valley locations in the Pacific Northwest. A record cold snap in mid- to late December left cold air trapped in the valleys. A moist warm front subsequently overran this cold air, resulting in abundant precipitation.

March was a cold, wintry month and the SNOTEL stations received 152% of average precipitation for the month, while the previous month had only 52% of average. March precipitation increased snowpack levels from 96% of average in the North Fork of the Clearwater River drainage, 99% of average in the Lochsa River drainage and up to 109% of average in the Selway River drainage. Snow depth was average for the basin with late snowfall at the higher elevations. Cool spring temperatures with average precipitation in the form of rain resulted in slow snowmelt.

GMUs 11, 13, 18

Controlled Hunt Area 11

Abstract

Interest and support by the Wild Sheep Foundation and other state and federal agencies has raised the level of involvement with bighorn sheep along the Snake River in GMUs 11, 13, and 18. Recent survey results suggest slight declines following several years of growth of the population in GMU 11. Disease concerns still exist in the Snake River Canyon. Hunt Area 11 was closed in 1997 after surveys indicated few legal rams remained in the population; however, the GMU was reopened in 1999 for limited harvest opportunity. A release of 16 bighorn sheep in GMU 13 in 1997 was supplemented with 6 additional bighorn sheep in 1999. A small population persists in GMU 18. Monitoring efforts continue and include continuation of work

on developing a sightability model for bighorn sheep in this area. Three rams were harvested in GMU 11 in 2008; there are currently no seasons in GMUs 13 and 18.

Management Direction

The Department plans to conduct helicopter surveys for bighorn sheep at least every 5 years to monitor population trends. In GMUs 11 and 13, an additional objective is to pursue cooperative land acquisitions with federal agencies to secure significant blocks of bighorn sheep habitat. The domestic sheep/bighorn sheep conflict in GMU 18 (Hells Canyon National Recreation Area) was reduced in 1996 with the removal of the last remaining Wallowa-Whitman National Forest grazing permit.

Background

Bighorn sheep occurred naturally in the Hells Canyon area of GMUs 11, 13, and 18, but were extirpated in the early part of the century. Translocations have been conducted in all 3 GMUs to reestablish populations.

The GMU 11 bighorn sheep population was reestablished onto the Craig Mountain Wildlife Management Area (CMWMA) in 1984 when 17 bighorn sheep (8 ewes, 9 rams) from Torrey Rim, Wyoming, were translocated into the area. Marked translocation stock from both Washington and Oregon were observed mixing with bighorn sheep from the Wyoming translocation and vice versa.

Reports of dead and dying bighorn sheep on the Washington side of the Snake River opposite GMU 11 in December 1995 prompted the removal of 72 bighorn sheep from this area in an attempt to prevent the spread of pneumonia to other bighorn sheep in the Snake River Canyon population. These bighorn sheep were transported to the Department's Wildlife Health Laboratory in Caldwell after a joint capture effort by Idaho, Oregon, and Washington personnel. Despite intensive treatment in captivity, all but 8 of these bighorn sheep died by June of 1996. Periodic aerial surveys were conducted through spring 1996 by Idaho, Oregon, and Washington personnel to monitor bighorn sheep status. The disease spread along the Snake River from north of the Grande Ronde River, Washington, to the Imnaha River, Oregon, and up the Grande Ronde River to the Wenaha River in Oregon. Some Idaho bighorn sheep appeared to exhibit symptoms, but no deaths were attributed to the Washington-Oregon outbreak.

Bighorn sheep were established in Big Canyon Creek in GMU 13 in December 1997 with a translocation of 12 ewes and 4 rams from Spences Bridge, British Columbia. The population was supplemented with 6 bighorn sheep (3 ewes, 3 rams) from the Cadomin coal mine in Hinton, Alberta, Canada, on 13 February 1999. In summer 2000, the population was estimated at 45 bighorn sheep.

The last-known native bighorn sheep in GMU 18 was observed in 1932. Speculation at that time attributed the loss of bighorn sheep to over-hunting by miners and disease outbreaks associated with domestic sheep contact. Bighorn sheep were reintroduced into Hells Canyon with translocations of Salmon River stock in 1975-1976 (11 ewes, 10 rams) and 1979 (7 ewes). The

population was augmented in 1990 with 30 bighorn sheep (20 ewes, 10 rams) from Whiskey Mountain, Wyoming.

A disease outbreak that occurred in 1983 resulted in a substantial decline in the GMU 18 bighorn sheep population. The outbreak was initially detected through the observation of a number of dead and sick bighorn sheep along the Snake River. Domestic sheep, bighorn sheep, elk, mule deer, mountain goats, and white-tailed deer were tested for a variety of diseases at that time. The testing detected the presence of *Pasteurella* spp., Parainfluenza III (PI-3), epizootic hemorrhagic disease, and *Chlamydia* in the bighorn sheep and PI-3 and *Chlamydia* in the domestic sheep.

Another disease outbreak was detected in April 1991. Several sick bighorn sheep and 2 dead ewes were reported in the vicinity of Granite Creek in Hells Canyon. A subsequent helicopter survey did not detect any bighorn sheep, but a fixed-wing radio location flight (26 Apr 1991) after the survey found 10 bighorn sheep and 1 active radio. Subsequent helicopter surveys in 1992, 1993, and 1996 indicated that few animals remained in the GMU 18 herd (Table 1). It is likely that domestic sheep have introduced 1 or more diseases to the bighorn sheep in GMU 18 and that the disease(s) have either caused or contributed to the decline of the population. The last remaining domestic sheep grazing permit offered by the Wallowa-Whitman National Forest in Hells Canyon has now been removed.

Population Surveys

Following the 1984 translocation, the GMU 11 herd grew at a moderate rate (Table 2). Frequency of bighorn sheep surveys in GMU 11 increased in 1996 to monitor mortality and survival of lambs and to develop a sightability model as part of a research effort focusing on the Snake River Hells Canyon complex. Lamb survival in 1996 was extremely low (7 lambs:100 ewes). This was presumably a residual effect of the 1995-1996 *Pasteurella* outbreak in Oregon and Washington. Since then, lamb survival has fluctuated with good survival in 1997, 1999, 2000, and 2002. Those years of good lamb survival, accompanied by high adult survival, resulted in a doubling of the population between 1997 and 2003. Lamb survival was poor from 1998 through 2008 when there were only 1.8 lambs per 100 ewes. Survival increased slightly to 14.3 lambs per 100 ewes in 2009. The low lamb survival rate in recent years has been accompanied by a population decline from 2003 to 2008. The population remained stable between 2005 and 2007 with further decline in 2008. The population count increased slightly from 92 in 2008 to 102 in 2009. The primary cause of mortality in recovered dead lambs is pneumonia. Several adults also died of pneumonia during winter 2006-2007. Some additional adult bighorn mortality has been attributed to the Chimney Creek Fire complex that burned across most of the Snake River side of GMU 11 in summer 2007. Department personnel discovered the remains of 7 adult rams and 3 ewes that perished on the CMWMA.

Following the reintroductions of bighorn sheep in 1997 and 1999, the GMU 13 population was estimated at 45 sheep in summer 2000 (Table 1). However, high levels of mortality, primarily due to scabies infection and pneumonia, resulted in a decline in bighorn numbers to 32 by March 2002. As of March 2008, GMU 13 bighorn numbers were at 17 (9 ewes, 8 rams), with no new recruitment of surviving lambs. In February of 2009, further decline was evident when only 16 sheep were observed (9 ewes, 6 rams, 1 lamb).

Aerial surveys indicated a sharp decline in the number of bighorn sheep in GMU 18 since the occurrence of disease outbreaks in 1983 and 1991 (Table 1); however, until 2004, bighorn sheep were regularly observed at Bernard Creek. On 25 May 1999, 4 adult ewes, 1 yearling ewe, 2 lambs, and 1 yearling ram were observed. A similar group (6 adult bighorn sheep and 2 lambs) was observed from the air on 16 June 1999. On 12 June 2000, 4 adult ewes, 1 yearling ewe, 3 lambs, and 1 yearling ram were observed at Bernard Creek. On 10 January 2001, 2 adult ewes, 1 yearling ewe, 2 lambs, and 1 yearling ram were observed. The yearling ewe was coughing. In March 2001, 4 ewes, 2 lambs, and 1 class II ram were observed, all at Bernard Creek. In June 2002, 6 ewes, 2 lambs, 1 class I ram, 1 class II ram, and 2 class III rams were observed. The total sheep observed in 2003 was 14. In 2007, 8 sheep were observed near Sheep Creek and 1 ram was observed near Three Creeks. In 2008, 6 ewes, 2 lambs, and 5 rams were observed at Steep Creek. In 2009, 8 ewes, 7 rams, and 0 lambs were counted.

Harvest Characteristics

Hunting was initiated in GMU 11 in 1993. A limited hunt with 2 permits was offered in 1993 and 1994. The likelihood of participation by the state auction or lottery tag holder in the GMU 11 hunt, as occurred from 1993-1996, led to a reduction in the number of permits offered in the GMU from 2 to 1 in 1995.

In 1997, the hunt was closed after surveys indicated few legal rams remained in the population (Table 3). The Idaho State record bighorn ram that probably died in 1996 was picked up in GMU 11 in 1997. Beginning in the late 1990s, the GMU has consistently produced some of the largest rams taken statewide. In 1999, the statewide lottery tag holder was allowed to hunt in GMU 11 and harvested a record book ram. In 2001, the season was opened for 1 general draw tag and the statewide auction tag buyer. Two record book rams were taken that year. They received the bronze and first honorable mention awards for the third and fourth largest Rocky Mountain bighorn rams taken by FNAWS members in 2001. In 2003, a record book ram was taken in GMU 11 with a muzzleloader. The largest ram ever harvested in Idaho was taken in the GMU in 2004. This ram received the silver award for the second largest ram taken by a FNAWS member in 2004. One additional permit was offered in 2005, raising the total to 3 including the statewide tag. All 3 permittees harvested sheep in GMU 11 in 2005, 2006, 2007, and 2008. Twenty rams have been harvested since 2000. Drawing odds for the GMU 11 hunt reached an all-time high of 1 in 345 in 2006, with many out of state applicants. Drawing odds for 2008 were 1 in 188.

No bighorn sheep hunt is offered at this time in GMU 13.

Hunting was initiated in GMU 18 in 1984. Permit and harvest levels were reduced in subsequent years and the odds of drawing a controlled hunt permit varied considerably (Table 4). Hunter success appeared to decline in the late 1980s and early 1990s concurrent with the population decline. Hunter success averaged 70% from 1984 through 1987, and 40% from 1988 through 1992. The hunt was closed in 1993.

Habitat Conditions

Bighorn sheep habitat in GMUs 11, 13, and 18 consists of dry bunchgrass habitat types along the Salmon and Snake River breaks. Ownership in GMU 11 is primarily public along the Snake River including the Department's CMWMA. Land along the Salmon River is primarily privately owned, although Bureau of Land Management (BLM) manages much of the river corridor. The river breaks in GMU 13 are primarily under private ownership with isolated tracts of BLM lands and state lands. The Snake River corridor in GMU 18 is entirely under USFS ownership. Approximately 110 acres of the Snake River corridor in GMU 13 (Ragtown Bar) was acquired by a conservation group for transfer to USFS in 1998. Additionally, a conservation easement was acquired by BLM on several thousand acres in GMU 13 in the Salmon River drainage.

The acquisition of habitat in GMU 11 by the Department, subsequent reduction of cattle grazing, and an intensive weed control program will lead to improved habitat conditions in that area. Restoration from fire in the Hells Canyon ecosystem should also benefit bighorn sheep. In GMU 11, a wildfire burned approximately 400 acres along the Snake River between Captain John Creek and Billy Creek in 1996 and approximately 1,000 acres in the Tenmile Creek drainage in 1997. A prescribed fire burned additional acreage in Tenmile Creek in spring 1998, and BLM and Idaho Department of State Lands cooperated with the Department on a mosaic burn between Captain John Creek and Dough Creek in March 1998. In 2000, the Maloney Creek wildfire burned approximately 70,000 acres along the Snake and Salmon rivers between Maloney Creek on the Salmon River side and China Garden Creek on the Snake River. In GMU 18, wildfire burned approximately 16,100 acres of land managed by USFS near Sheep Creek and 425 acres near Hells Canyon Dam in 1996. In 2005, wildfire burned over 31,000 acres between Granite Creek and Sheep Creek. In 2007, the Chimney Creek Fire burned 51,580 acres between Madden Creek and Frenchy Creek along the Snake River. Much of this was prime sheep habitat. It appears there was some bighorn sheep mortality due to the fire based on people finding groups of sheep carcasses in burned areas. Portions of GMUs 13 and 18 along the Snake River also burned from wildfire in 2007.

Capture and Translocation

Twenty sheep (16 ewes, 4 rams) from the Missouri Breaks outside Havre, Montana, were released along the Snake River upriver of Kirkwood Creek in GMU 18 on 13 February 2002. All sheep released were radio-collared. By spring 2005, 1 ewe remained in Sheep Creek, Idaho. Ten ewes and 2 rams had moved across the Snake River to Oregon, the radio-collar had failed on 1 ram that probably remained in Idaho, and the remaining 7 sheep had died (1 road kill, 1 fence, 1 pneumonia, 1 cougar predation, and 3 unknown). Few lambs born to these ewes survived to 1 year of age in 2002-2007.

In December 2001, Oregon Department of Fish and Wildlife released 15 sheep (14 radio-collared) at Quartz Creek, Oregon. These sheep have moved between Hells Canyon Reservoir and Copper Creek on both the Idaho and Oregon sides of the Snake River.

GMUs 14, 17, 19, 20

Controlled Hunt Areas 17L, 19, 20-1, 20-2

Abstract

Bighorn sheep were hunted on a general-hunt basis in these GMUs until 1971. Hunting pressure in the Clearwater Region under a general season framework allowed more accessible populations to be overexploited. In 1971, all bighorn sheep hunts were placed on a controlled-hunt basis. More recent surveys in GMUs 17, 19, and 20 suggested a decline in total bighorn sheep numbers and lamb recruitment that may be related to similar declines in adjacent GMUs caused by diseases, primarily *Pasteurella* spp. The late hunts were dropped and permit levels were reduced substantially for the 1993-1994 hunts. Six rams total were harvested by 11 permittees on Hunts 17L, 19, 20-1, and 20-2 during the 2008 hunting season. Aerial survey results from GMU 17 since the late 1980s have suggested a low but stable population. Beginning in 2007, 1 permit has been issued for a new hunt in GMU 17.

Management Direction

The Department plans to conduct bighorn sheep surveys at least every 5 years to monitor population trend and recruitment. Conservative permit levels will be continued until lamb recruitment and population trends suggest that increases are appropriate. In terms of hunting recreation, the emphasis will be to provide a high-quality backcountry hunting experience. Because of the difficulty that hunters experience in locating legal rams in some GMUs, a somewhat lower success rate will be expected where access is limited.

Background

Rocky Mountain bighorn sheep populations are found in GMUs 14, 17, 19, and 20. The GMU 14 herd is limited to fewer sheep than in GMUs 19 or 20. Some of these sheep likely cross back and forth into GMU 19. At present, hunting is permitted only in the western portion of GMU 14, the southern portion of GMU 17, and in all of GMUs 19 and 20. Currently, these GMUs are further divided into 3 controlled hunt areas.

GMUs 14, 19, and 20 bighorn sheep populations reside within the Salmon River breaks. Bighorn sheep were translocated into 2 sites in GMU 17 in the Selway-Bitterroot Wilderness in 1988. Fifteen bighorn sheep (10 ewes, 5 rams) were released near Tango Bar and 14 bighorn sheep (13 ewes, 1 ram) were released at Elevator Mountain. Recent surveys have suggested that neither translocation was successful. Bighorn sheep have not been observed in the Tango Bar area since the translocation. Similarly, few animals have been observed in the Elevator Mountain area. The 1994 spring survey revealed the presence of 1 ewe on Elevator Mountain. A March 2007 observation near Watchtower Peak identified 25 bighorn sheep. Results of monitoring radio-collared bighorns in GMU 17 in the upper Selway River drainage indicated movements of this group of bighorns between Idaho and Montana.

Concern at the state level in how to respond to conflicts between bighorn and domestic sheep resulted in the endorsement by the Idaho Fish and Game Commission of the Interim Strategy for Managing Separation between Bighorn Sheep and Domestic Sheep in Idaho in February 2008. The strategy was developed by the Department in consultation with the Idaho Department of Agriculture. The goal of separation was later addressed by the Department in March 2008 with the development of the Strategy for Managing Separation between Bighorn Sheep and Domestic Sheep and Goats in the Salmon River Area in response to a request by the USFS during their evaluation of the Allison-Berg Grazing Allotment along the Salmon River in GMU 14. It was designed to be implemented at the allotment level for use during the 2008 grazing season. However, the USFS did not allow turn-out and no domestic sheep were allowed to graze in the allotment in 2008. In 2009, pursuant to Idaho Code § 36-106(e)(5)(E), the Department cooperatively developed “Best Management Practices For Separation between Domestic Sheep and Bighorn Sheep” for the Allison-Berg Allotment and those allotments to the south of the Salmon River that were used by Carlson Livestock Company. Despite this action, the Nez Perce Forest yielded a decision for “non-use of the Allison-Berg allotment for resource protection until the Forest can complete the requisite environmental analysis consistent with the NEPA and NFMA” that would incorporate new information on bighorn sheep movements.

Population Surveys

Bighorn sheep have usually been surveyed by helicopter coincidentally with elk sightability surveys in January and February. From 5-14 February 2001 and 17-24 January 2007, 15 hours were added to the elk survey flight time in GMUs 19 and 20 to allow total coverage of search GMUs where bighorn sheep have been observed in the past. In GMU 17, 8 bighorn sheep were observed on 8-9 February 2001 during a bighorn sheep capture effort in the upper Selway River east of Magruder Crossing. Spring surveys were most recently conducted in GMUs 19 and 20 during 1-3 May 1993 and in GMU 17 from 28-30 April 1994. Bighorns were again observed during GMU 17 elk surveys in January 2007 (Table 1).

A survey of bighorn sheep in GMU 14 was conducted coincident with elk surveys in January 2008. To increase the probability of observing bighorns during the survey, the contour interval between passes was reduced to 300 feet for the first 3 passes starting at the lowest contour elevation. Twelve bighorns were observed (5 ewes, 1 lamb, and 6 rams).

Total numbers of bighorn sheep observed during surveys have declined in GMUs 17, 19, and 20 since the early 1980s. From 99-121 bighorn sheep were observed in GMU 17 from 1982-1984, whereas only 37-52 bighorn sheep were observed on the last 3 surveys prior to 1995 (Table 5). The number of sheep observed in GMU 17 during 2003 (32), 2004 (34), and 2007 (26) indicate lower but stable sheep numbers. In GMU 19, 122 to 136 bighorn sheep were observed during 1983 and 1984 surveys, but only 52-60 were observed in 1992, 1993, and 1996 (Table 6). Although conducted with low sampling intensity, abundance of bighorn sheep observed in the 2001 survey in GMU 19 was within the expected range given recent levels. A January 2007 survey conducted coincident with helicopter counts for elk resulted in 40 sheep observed. Lower numbers may have resulted from the redistribution of sheep from wildfire in 2006 that burned the Salmon River breaks from Wind River upstream to Sheep Creek.

In GMU 20, 207-230 bighorn sheep were observed during 1986 and 1987; however, this number declined in surveys during 1993, 1994, and 1996 to a range of 66-87 (Table 6). Observed abundance in the GMU 20 survey was significantly lower in 2001. This may be related to the occurrence of large-scale fires that burned bighorn sheep habitat on both the north and south sides of the Salmon River during summer 2000. Of interest is the fact that the Three Bears Fire occurred throughout Hunt Area 20-2 and the Flossie Fire was south of the Salmon River, adjacent to Hunt Area 20-2. However, bighorn sheep numbers were “normal” in 20-2, and deficient in 20-1. Numbers of bighorns (19) observed during January 2007 elk surveys were the lowest counted in the past 20 years. There is concern that these most recent counts may not accurately reflect current bighorn population numbers in GMUs 19 and 20. As part of the process of rewriting the Bighorn Species Management Plan, discussions about bighorn population survey techniques will be desired to identify how these surveys can be improved to provide a more accurate picture of sheep status in these GMUs.

Lamb recruitment remained high in GMU 19 during 2001 (47 lambs:100 ewes) after rebounding in 1996 from lows in 1992 and 1993 of 5.3 and 0.0, respectively. However, the 2007 survey data revealed very low lamb survival (16 lambs:100 ewes). In February of 2009, a small survey of 3 out of 6 flight subunits along the Salmon River in GMUs 14 and 19 yielded a count of 101 sheep consisting of 65 ewes, 18 lambs, 5 class I, 6 class II, and 7 class III rams. Even though this was a partial survey, more sheep were counted than during previous full surveys (Table 6). Sightability of bighorn sheep was also estimated during this survey from a Hughes 500 helicopter. There was a total of 10 radio-collared groups composed of 57 sheep in the area and 7 groups composed of 36 sheep were observed for a sightability index of 63%.

In GMU 20, observed recruitment in 2007 was poor, falling to 9 lambs per 100 ewes from the 27 lambs per 100 ewes observed in 2001. Results from the 1994 and 1995 surveys in GMU 17 suggested favorable levels of lamb recruitment; however, only 1 lamb was observed in the 2007 survey (7 lambs:100 ewes).

Low recruitment rates and overall decline in bighorn sheep numbers over the long term in these GMUs may be caused by disease and habitat conditions. Diseases have apparently caused reduced lamb survival in adjacent herds along Salmon River. The most significant pathogen appears to be *Pasteurella* spp., which causes pneumonia. *Pasteurella* spp. has a significant effect on population dynamics through increased adult and lamb mortality. Lambs generally develop clinical infections once they are weaned and passive immunity through colostrum is lost. Additionally, the effects of recent wildfires on bighorn sheep populations in these areas is as yet unknown, but may affect adult survival and recruitment of young and alter habitat use patterns and distribution.

Harvest Characteristics

Beginning in 1952 and lasting until 1970, bighorn sheep hunting in Clearwater Region was offered on a general-hunt basis. From 1971-1981, permit levels and hunt boundaries remained the same with variations only in season length. In 1982, the 4 controlled hunts were expanded and the September-October season was split, creating 2 hunts within the same hunt boundary. In

1985, 1 permit each was added to the September portion of the 4 hunts along Salmon River (19-1, 20-1, 20-3, and 20-5).

The hunting season format was changed again beginning in 1991 to reduce the probability of hunters shooting bighorn sheep in the wrong hunt area, while continuing to provide the same amount of hunter opportunity on a statewide basis. As a result, Hunt 19-2 and portions of GMUs 19A and 20A were combined into 19-L, and Hunts 20-3 and 20-5 were changed to Hunts 20-2 and 20-3. Hunts 20-2, 20-4, 20-6, and portions of GMUs 21 and 20A were incorporated into Hunt 20-L. Additionally, Hunt 20-1 was expanded to include a portion of GMUs 17 and 21 beginning in 1991.

The hunting season structure was modified for the 1993-1994 hunting regulations to respond to the decline in total numbers and lamb recruitment. The late hunts, which had higher success rates, were discontinued. The number of permits offered for early hunts was reduced from 25 to 15. In 1995, further changes were made to the GMU 19 and 20 hunts to address population status concerns. Hunt Area 20-3 was added to Hunt Area 19 to become Hunt Area 19 with 6 permits. Permit numbers were reduced to 2 each in Hunt Areas 20-1 (-4 permits) and 20-2 (-1 permit).

In 2007, a new hunt was created with 1 permit in Hunt Area 17L. This late timeframe (13-31 Oct) was established to allow enough time for bighorns to move from their summering areas in Montana back into Idaho in the fall where they would be available to Idaho hunters. In 2008, 11 permittees killed 6 rams total in the GMU 17, 19, and 20 hunts for a success rate of 55% (Table 3).

Habitat Conditions

Bighorn sheep habitat in GMUs 14, 17, 19, and 20 consists of dry bunchgrass habitat types along the Salmon River breaks and in the upper Selway River drainage. Ownership throughout the area is primarily USFS with small in-holdings of private land.

Prior to 1995, drought conditions predominated leading to dry, hot summers and mild winters. These conditions may have led to increased winter survival but may also have limited lamb production and lamb survival during summer and fall. In fall 1992, numerous lightning-caused fires occurred along the Salmon River breaks in GMUs 14 and 19. Extensive burns resulted from wildfires during summer and fall 2000. In GMU 19, the Lone Sheep Fire burned about 300 acres in the Gospel Hump Wilderness. The Three Bears and Flossie fires burned a total of about 120,000 acres in the Frank Church River-of-No-Return Wilderness in GMU 20. As a result of wildfire, the western third of the GMU downstream from Sheep Creek was burned in 2006. This was followed by extensive fire activity in 2007 in that part of the GMU upstream from Sheep Creek. The western portion of GMU 20 also burned in 2007. Fire activity may have diminished short-term habitat potential but can be expected to improve habitat conditions for bighorns in the long term.

Capture and Translocation

As part of a statewide effort to monitor health in bighorn sheep populations, bighorn sheep were captured after immobilization with Carfentanil-filled darts to obtain throat and ear swabs and blood and fecal samples. During 2 trips up Salmon River by jet boat into GMU 19 in November and December 2000, a total of 15 bighorn sheep (3 rams, 12 ewes) were sampled and ear-tagged. Additionally in GMU 17, 3 bighorn sheep (1 ram, 2 ewes) were processed during a trip by snow machine into the upper Selway River area near Magruder Crossing at Sheep Creek 8-9 February 2001. Samples were taken from the ram, a 2½ year old, after it was observed from a helicopter being attacked and killed by a mountain lion.

In an effort to collect additional information on bighorn sheep in the upper Selway River drainage, 2 ewes in the upper reaches of the Watchtower Creek, Montana, drainage were immobilized with Carfentanil/Xylazine-filled darts in August 2006. Both were fitted with VHF radio collars and released at the capture site. Subsequent monitoring by fixed-wing aircraft confirmed the movement of 2 bands of sheep across the Bitterroot Divide into Idaho. These sheep wintered along the Selway River face from the Stewart Creek to the Indian Creek drainages, returning to the Divide in early summer.

In response to continued concerns over the effects of contact between bighorns and domestic sheep on the USFS Allison-Berg Allotment and in an effort to gain a better understanding of Salmon River bighorns, a joint Department-Nez Perce Tribe project was begun in fall 2007 to gain additional information on bighorn sheep in GMUs 14 and 19. As part of the project, 4 adult rams, 1 yearling ram, and 5 adult ewes were captured by chemical immobilization along the Salmon River in GMU 19 in November 2007. All were fitted with VHF collars and ear-tagged; 3 adult rams and 1 yearling ram were also equipped with GPS collars. Two additional capture efforts in 2008 resulted in the placement of radio-collars on 2 rams (by drive net on 18 Feb) above Manning Bridge and 2 rams (by darting from helicopter on 14 Mar) below the bridge. In November of 2008, 9 bighorns in GMU 19 and 3 in GMU 14 were captured and radio-collared. Locations of these sheep are being obtained regularly to document their movements.

Table 1. Bighorn sheep population data, GMUs 13 and 18, Clearwater Region, 1983-present.

GMU Year	Ewes	Lambs	Rams				Total class III/IV rams	Total sheep	Lambs: 100 ewes	Rams: 100 ewes
			I	II	III	IV				
13										
1997 ^{a,b}										
Dec.	12	0	4	0	0	0	0	16	0.0	33.0
1998										
10/20	12	8	0	2	0	0	0	22	66.7	16.7
1999 ^c										
3/22 ^b	14	7	3	2	0	0	0	26	50.0	35.7
12/17 ^b	17	12	4	2	2	0	2	37	70.6	47.1
2000										
6/13	21	16	4	2	2	0	2	45	76.2	38.1
12/4 ^b	18	2	3	2	2	1	3	28	11.1	44.4
2001										
3/24	16	1	2	3	2	1	3	25	6.3	50.0
12/19 ^b	15	7	2	3	5	0	5	32	50.8	66.6
2002										
3/23 ^b	16	7	0	3	6	0	6	32	43.8	56.3
2003 ^d										
3/15,16 ^b	20	0	1	5	6	0	6	32	0.0	60.0
2004										
3/19 ^b	7	2	2	2	8	0	8	21	28.6	171.4
2005										
3/21 ^b	7	2	0	2	4	2	6	17	28.6	114.3
2006										
3/11 ^{b,e}	9	0	0	0	0	0	0	9	0.0	0.0
2007										
3/16 ^b	10	5	0	0	2	0	2	17	50.0	20.0
2008										
3/10 ^b	9	0	3	0	1	4	5	17	0.0	88.9
2009										
2/25 ^b	9	1	1	2	2	1	3	16	11.1	66.7
18 ^f										
1983 ^b	28	15	4	10	3	2	5	62	53.6	67.9
1987 ^b	23	4	0	4	5	1	6	37	17.4	43.5
1990 ^b	16	0	3	2	1	0	1	22	0.0	37.5
1992 ^b	1	0	0	0	1	0	1	2	0.0	100.0
1993 ^b	5	0	0	0	0	0	0	5	0.0	0.0
1996	0	0	0	0	0	0	0	0	0.0	0.0
1998 ^b	3	3	1	0	1	0	1	8	100.0	67.0
1999 ^b	5	2	1	0	0	0	0	8	50.0	20.0
2000 ^b	5	3	1	0	0	0	0	9	60.0	20.0
2001 ^b	4	2	0	1	0	0	0	7	50.0	25.0

Table 1. Continued.

GMU Year	Ewes	Lambs	Rams				Total class III/IV rams	Total sheep	Lambs: 100 ewes	Rams: 100 ewes
			I	II	III	IV				
2002 ^b	6	2	1	1	2	0	3	12	33.3	67.7
2003 ^b	6	3	3	2	0	0	0	14	50.0	83.3
2004 ^b	3	1	0	0	1	0	1	5	33.3	33.3
2007	4	1	1	1	1	1	3	9	25.0	100.0
2008	6	2	1	2	2	0	2	13	33.3	83.3
2009	8	0	1	1	2	0	2	15	0.0	87.5

^a Translocation from British Columbia, Canada.

^b Survey data used for population trend analysis.

^c Translocation from Alberta, Canada, of 6 bighorn sheep.

^d Two class II rams dispersed into herd from 2002 translocation from Montana.

^e Eight legal rams observed during a telemetry relocation flight in May 2006 were not seen during the population survey.

^f Surveys during 1983, 1990, and 1992 were conducted during winter (Dec-Jan) incidental to mule deer and elk surveys; 1987, 1993, and 1996 surveys were conducted during spring (Mar-Apr). The 1998, 1999, 2000, 2002, and 2003 data were collected incidentally from the Snake River in May and June. The 2001 data were collected incidentally from the Snake River in March. The 2007 data were collected from aerial and ground observations of radio-marked and unmarked sheep February-April.

Table 2. Bighorn sheep population data, GMU 11, Clearwater Region, 1992-present. Counts are not additive.

GMU Year	Ewes	Lambs	Rams				Total class III/IV rams	Total sheep	Lambs: 100 ewes	Rams: 100 ewes
			I	II	III	IV				
1992 ^c	30	8	6		13		13	57	26.7	63.3
1993 ^c	25	4	6		10		10	45	16.0	64.0
1994 ^c	45	15	7		10		10	77	33.3	37.8
1995										
12/1 ^b	40	13	4	3	9	3	12	72	32.5	47.5
12/18	18	8	0	1	5	4	9	39	44.4	72.2
12/23 ^c	16	4	5		9		9	36	25.0	87.5
1996										
1/5 ^c	26	11	1		6		6	44	42.3	26.9
1/30	24	10	3	2	1	0	1	40	41.7	25.0
2/15	31	10	1	3	1	1	2	50	32.3	29.0
2/28	29	8	5	3	1	1	2	47	27.6	34.5
3/20 ^b	36	14	8	3	4	2	6	67	38.9	47.2
6/20	23	11	4	3	3	2	5	46	47.8	52.2
11/21	30	2	8	6	7	0	7	53	6.7	70.0
1997										
6/27 ^c	28	23	4		8		8	63	82.1	42.9
12/6 ^b	34	17	1	7	9	3	12	71	50.0	58.8
1998										
3/18	35	15	1	11	10	1	11	73	42.8	65.7
12/9 ^b	41	9	4	12	14	4	18	84	30.0	82.9
1999										
3/22 ^b	44	8	1	10	12	5	17	80	18.1	63.6
12/16	46	11	4	6	15	4	19	86	23.9	63.0
2000										
12/11 ^b	56	28	3	5	12	4	16	130	50.0	42.0
2001										
3/22 ^b	55	30	0	8	21	7	28	121	54.6	50.9
2002										
3/20	61	10	9	7	29	5	34	121	16.0	62.5
12/5-13 ^b	66	39	3	14	20	5	25	148	59.1	63.6
2004										
3/12-14 ^b	77	11	6	6	24	6	30	130	14.3	54.5
2005										
4/4 ^b	74	10	1	4	18	6	24	113	13.5	39.2
2006										
3/11-12 ^b	80	7	4	4	21	2	23	118	8.8	38.8
2007										
3/13-14 ^b	65	14	5	12	18	2	20	117	21.5	56.9
2008										

Table 2 continued

GMU Year	Ewes	Lambs	Rams				Total class III/IV rams	Total sheep	Lambs: 100 ewes	Rams: 100 ewes
			I	II	III	IV				
3/9 ^b	57	1	4	7	23	0	23	92	1.8	59.6
2009 2/17-19 ^b	63	9	1	4	23	2	25	102	14.3	47.6

^a Surveys prior to 1995 were conducted during December and January incidental to elk and mule deer surveys.

^b Survey data used for population trend analysis.

^c Survey data for rams combined into two groups, classes I/II and III/IV.

Table 3. Bighorn sheep harvest and drawing odds by hunt area, Clearwater Region, 1997-present.

Hunt area	Year	Permits	Harvest	Hunter success (%)	Days/hunter	First-choice applicants	Drawing odds
11	1998	Closed					
	1999 ^a	0	1	100	5.0	0	
	2000	Closed					
	2001 ^a	1	2	100	2.0	222	1:222.0
	2002 ^a	1	2	100	3.0	263	1:263.0
	2003 ^a	1	2	100	1.0	248	1:248.0
	2004 ^a	1	2	100	2.5	224	1:224.0
	2005 ^a	2	3	100	2.3	374	1:187.0
	2006 ^a	2	3	100	5.3	689	1:344.5
	2007 ^a	2	3	100	9.3	528	1:264.0
	2008 ^a	2	3	100	15.0	376	1:188.0
17L	2007	1	1	100	3.0	44	1:44.0
	2008	1	0	0	ND	15	1:15.0
19	1998	6	4	67	2.5	71	1:11.8
	1999	6	4	67	7.3	59	1:9.8
	2000	6	4	67	8.0	76	1:12.7
	2001	6	3	50	5.0	68	1:11.3
	2002	6	4	67	5.0	82	1:13.7
	2003	6	5	83	9.2	126	1:21.0
	2004	6	5	83	4.4	119	1:19.8
	2005	6	4	67	7.4	108	1:18.0
	2006	6	4	67	5.6	168	1:28.0
	2007	6	3	50	7.3	183	1:30.5
	2008	6	3	50	12.0	104	1:17.0
20-1	1998	2	2	100	8.0	22	1:11.0
	1999	2	0	0	ND	45	1:22.5
	2000	2	2	100	11.0	10	1:5.0
	2001	2	1	50	20.0	33	1:16.5
	2002	2	1	50	17.0	24	1:12.0
	2003	2	0	0	ND	17	1:8.5
	2004	2	2	100	17.0	28	1:14.0
	2005	2	1	50	8.0	18	1:9.0
	2006	2	1	50	16.0	27	1:13.0
	2007	2	2	100	7.0	17	1:8.5
	2008	2	1	50	30.0	26	1:13.0
20-2	1998	2	2	100	ND	16	1:8.0
	1999	2	1	50	30.0	14	1:7.0

Table 3 continued

Hunt area	Year	Permits	Harvest	Hunter success (%)	Days/hunter	First-choice applicants	Drawing odds
	2000	2	0	0	ND	10	1:5.0
	2001	2	1	50	14.0	19	1:9.5
	2002	2	1	50	15.0	7	1:3.5
	2003	2	1	50	9.0	20	1:10.0
	2004	2	1	50	2.0	12	1:6.0
	2005	2	0	0	3.0	16	1:8.0
	2006	2	1	50	16.0	11	1:5.5
	2007	2	1	50	10.0	21	1:10.5
	2008	2	2	100	2.0	13	1:6.5

^a The state auction or lottery tag holder hunted for bighorn sheep in GMU 11, raising participation by 1 permit.

Table 4. Bighorn sheep harvest and drawing odds, Clearwater Region, 1982-present.

Year	Permits	Harvest	Hunter success (%)	First-choice applicants	Drawing odds
1982	13	3	23	79	1:6.1
1983	13	3	23	64	1:4.9
1984	17	9	53	124	1:7.3
1985	19	5	26	73	1:3.8
1986	19	6	32	139	1:7.3
1987	19	9	47	107	1:5.6
1988	19	11	58	83	1:4.4
1989	19	8	42	108	1:5.7
1990	19	8	42	64	1:3.4
1991	31	11	35	202	1:6.5
1992	31	13	42	151	1:4.9
1993 ^a	18	6	33	173	1:10.2
1994 ^a	18	10	56	136	1:8.0
1995	11	5	45	146	1:13.3
1996 ^a	12	6	50	187	1:17.0
1997	10	6	60	97	1:9.7
1998	10	8	80	109	1:10.9
1999 ^a	11	6	55	118	1:11.8
2000	10	6	60	96	1:9.6
2001 ^a	11	7	64	342	1:31.1
2002 ^a	11	8	73	376	1:34.2
2003 ^a	11	8	73	411	1:37.4
2004 ^a	11	10	91	383	1:34.8
2005 ^a	12	8	62	516	1:43.0
2006 ^a	12	9	75	895	1:74.6
2007 ^a	13	10	77	749	1:62.4
2008 ^a	13	9	69	534	1:41.1

^a The state auction or lottery tag holder also hunted for bighorn sheep in GMU 11, raising participation above this value by 1 permit.

Table 5. Bighorn sheep population data, GMU 17, Clearwater Region, 1981-present.

Year ^a	Ewes	Lambs	Rams		Uncl.	Total sheep	Lambs: 100 ewes	Rams: 100 ewes
			I/II	III/IV				
1981	16	7	1	0	31	55	43.8	6.3
1982	84	29	8	0	0	121	34.5	9.5
1983	38	8	10	1	42	99	21.1	28.9
1984	56	26	18	9	0	109	46.4	48.2
1988	22	8	12	1	0	43	36.4	59.1
1991	37	7	6	2	0	52	21.2	24.2
1994	20	4	6	6	0	37	20.0	60.0
1995 ^b	22	11	5	5	0	43	50.0	45.5
2001 ^c	2	0	1	0	0	3	--	--
2003	10	6	2	0	14	32	60.0	--
2004	13	9	4	8	0	34	71.0	92.3
2007	21	1	3	1	0	26	6.6	26.6

^a The 1994 survey was conducted during spring (28-30 Apr). Other surveys were conducted during January and February coincident with elk surveys.

^b The 1995 data were analyzed using the current bighorn sheep sightability model.

^c The 2001 data were collected during a bighorn sheep capture effort in the upper Selway River east of Magruder Crossing.

Table 6. Bighorn sheep population data, GMUs 14, 19 and 20, Clearwater Region, 1981-present.

GMU Year ^a	Ewes	Lambs	Rams				Uncl.	Total class III/IV rams	Total sheep	Lambs: 100 ewes	Rams: 100 ewes
			I	II	III	IV					
14											
2008	5	1	2	1	2	1	0	3	12	20.0	120.0
2009 ^b	65	18	5	6	7	0	0	7	101	27.7	27.7
19											
1981	44	9	3	0	0	0	0	0	56	20.5	6.8
1982	76	14	4	3	2	1	0	3	100	18.4	13.2
1983	95	31	6	4	0	0	0	0	136	32.6	10.5
1984	92	25	1	2	2	0	0	2	122	27.2	5.4
1986	69	9	3	4	3	1	0	4	89	13.0	15.9
1987	68	20	2	0	0	0	0	0	90	29.4	2.9
1989	63	20	4	3	1	0	0	1	91	31.7	12.7
1992	38	2	1	4	7	0	0	7	52	5.3	31.6
1993	40	0	7	2	11	0	0	11	60	0.0	5.3
1996	32	14	5	0	2	3	0	5	56	44.8	31.3
2001	28	13	0	5	0	7	0	7	53	46.4	42.9
2007	31	5	1	1	0	0	0	0	40	16.1	6.5
2009 ^b	65	18	5	6	7	0	0	7	101	27.7	27.7
20											
1981	12	3	6	3	1	1	0	2	26	25.0	91.7
1982	78	19	3	8	15	6	0	21	129	24.4	41.0
1983	83	13	13	11	10	3	0	13	133	15.7	44.6
1984	107	29	6	15	14	6	0	20	177	27.1	38.3
1986	132	31	14	15	19	19	0	38	230	23.5	50.8
1987	113	25	16	12	30	11	0	41	207	22.1	61.1
1989	94	26	10	9	10	3	0	13	152	27.7	34.0
1992	68	13	3	8	10	4	0	14	106	19.1	36.8
1993	53	7	1	2	3	0	0	3	66	13.2	11.3
1994	49	11	10	3	12	2	0	14	87	22.4	55.1
1996	51	7	4	5	7	3	1	10	78	13.8	39.2
2001	22	6	10	0	13	0	0	13	51	27.3	104.6
2007	11	1	0	1	3	3	0	6	19	9.1	63.6

^a The 1993 survey was conducted during spring (May). All other surveys were conducted during January and February coincident with elk surveys. The 2001 data include sightability estimates with 90% bounds.

^b Survey covered only 3 of 6 subunits and included portions of GMUs 14 and 19 along the Salmon River from Allison Creek to Sheep Creek and from Shepp Ranch to Mackay Bar.

**PROGRESS REPORT
SURVEYS AND INVENTORY**

STATE:	<u>Idaho</u>	JOB TITLE:	<u>Bighorn Sheep Surveys and</u>
PROJECT:	<u>W-170-R-33</u>		<u>Inventories</u>
SUBPROJECT:	<u>3, Nampa</u>	STUDY NAME:	<u>Big Game Population Status,</u>
STUDY:	<u>I</u>		<u>Trends, Use, and Associated</u>
JOB:	<u>4</u>		<u>Habitat Studies</u>
PERIOD COVERED:	<u>July 1, 2008 to June 30, 2009</u>		

SOUTHWEST (NAMPA) REGION

GMUs 40, 41, 42

Controlled Hunt Areas 41, 42-1, 42-2

Abstract

Fifteen hunters harvested 13 California bighorn sheep during the 2008 hunting season. Two of 6 radio-marked ewes had lambs in GMU 41.

Management Direction

Maintain controlled hunt strategy and offer hunter opportunity consistent with management goals. Encourage bighorn sheep habitat improvement projects by land management agencies. Harvest and/or remove for transplant no more than 15-20% of the observed legal rams in a hunt GMU. Promote the non-consumptive value of bighorn sheep and consider such values in our management decisions.

The Department will continue to cooperate and coordinate management with Nevada and Oregon to ensure that adjacent bighorn sheep habitat is stocked with only the California subspecies; and increase permit levels as population status allows.

The 1991-1995 management goals for California bighorn sheep are to increase populations, establish new populations, increase harvest, and provide more recreation.

Background

GMUs 40, 41, and 42 are reserved for the California bighorn sheep subspecies. All other GMUs north of Interstate Highway 84 are designated as Rocky Mountain bighorn sheep habitat.

Four releases of California bighorn sheep from British Columbia into Owyhee County in the 1960s provided the nucleus for the original herds along portions of the Owyhee River and in Little Jacks Creek. As those herds grew, hunting seasons were initiated. Beginning in 1980,

50 bighorn sheep were transplanted into other parts of the Owyhee, Bruneau, and Jarbidge River drainages. An additional 12 bighorn sheep from British Columbia were released into Idaho's Jarbidge River Canyon in 1984 when deep snows prevented Nevada Department of Wildlife personnel from reaching their proposed release site in Nevada.

Population Surveys

The Little Jacks Creek/Shoofly Complex and Owyhee River areas have been surveyed regularly since 1983 (Table 1). The number of bighorn sheep observed in the Owyhee River drainage decreased dramatically from 669 in 1993 to 347 in 1994 (Table 1). Since 1990, the survey area has included the whole drainage from the Oregon border upstream to approximately 5 miles east of the point where the pipeline crosses the East Fork Owyhee River. Additionally, the Big Jacks drainage has been surveyed since 1990. The number of bighorn sheep counted in 1993 was an all-time high.

There are scattered pockets of bighorn sheep habitat in GMU 40. Small bands of bighorns exist in the Castle Creek area and Reynolds Creek/Salmon Creek area. Sheep are seen periodically in the vicinity of Sinker Creek as well. Additionally, a group of rams was reportedly seen on two occasions above the pump station near Swan Falls in the Snake River canyon this year. During a survey in July 2008, 24 rams (18 Class III and IV) were counted in GMU 40, but no ewes were located.

Nine female sheep have functioning radio collars in GMU 41, and monthly telemetry flights are conducted to monitor survival. These sheep were captured in 2001-2002 as part of a graduate student project. In May 2008, observers located 6 of the 9 collared sheep from the ground to document lamb production. One of 3 collared sheep had twin lambs in Big Jacks Creek, whereas one lamb was detected with 3 marked sheep in Little Jacks/Shoofly Creek area. One ewe in Big Jacks probably produced a lamb based on her molt, but had likely lost it prior to observation. These sheep were monitored again in September 2009 to determine lamb survival, and only the lamb in Shoofly was observed. Six lambs were documented with 13 radio-marked ewes in 2008, and 3 lambs had survived when monitored in September 2008, all in the Big Jacks drainage.

Harvest Characteristics

Fifteen permits were offered for California bighorn sheep in 3 hunt areas (41, 42-1, and 42-2) in 2008 (Appendix A). Four hundred thirty-six hunters applied for the 15 permits, resulting in drawing odds of 1:29 applicants. Fifteen hunters harvested 13 rams in 2008 for an 87% success rate (Tables 2 and 3).

For the 2007-2008 hunting seasons, Hunt 41 which included Big and Little Jacks and GMU 40 (3 permits), was separated into two separate hunts. Hunt 41-1 (2 permits) included Little Jacks, Shoofly, and GMU 40, whereas Hunt 41-2 (2 permits) included the Big Jacks drainage. For the 2009-2010 hunting seasons, GMU 40 was split into its own separate hunt with 2 permits available.

Habitat Conditions

These GMUs are characterized by large expanses of flat terrain dominated by sagebrush/grass vegetative types. The major drainage systems (Bruneau, Jarbidge, and Owyhee rivers) have formed steep canyons that provide the habitats preferred by California bighorn sheep. Grass-covered benches along these canyons provide foraging sites. Steepness of these canyons and isolation of some forage areas by rimrock reduces competition between bighorn sheep and cattle. Thus, bighorn sheep seldom compete with cattle for forage on those sites. However, the potential for bighorn sheep/livestock conflicts may exist adjacent to the canyons, or in portions of the canyons accessible to livestock as the numbers of bighorn sheep or cattle increase, or as availability of forage decreases in the canyons due to drought, grazing pressure, wildfire, or invasion of unpalatable exotic weed or grass species. Additionally, anecdotal observations of elk wintering along the E. Fork Owyhee below Deep Creek seem to be increasing, and elk may be competing with bighorns for forage in winter.

The BLM administers most of the habitats suitable for bighorn sheep within these GMUs. Some parcels of state-owned and private lands also contain suitable habitat. Most currently occupied sheep habitat had been under study by BLM for wilderness designation, and was incorporated in the Owyhee Canyonlands Wilderness proposal, which was finally signed into law in March 2009 as the Owyhee Initiative.

Capture and Translocation

A history of trapping and translocation activity in GMUs 40, 41, and 42 appears in Table 4. No capture or transplant activity took place in the Southwest Region during the current reporting period.

Management Implications

Prior to 1993, permit levels were held at a conservative level in accordance with the management plan that called for removal of no more than 20% of legal rams. Hunting seasons since 1995 have been modified in response to the 1994 and subsequent population survey results. These bighorn sheep populations need to be monitored very closely. Aerial surveys should be conducted regularly to monitor population trends, ram:ewe ratios, and lamb survival. The rate of bighorn sheep removal should be closely evaluated and adjusted in accordance with population trends and fluctuations.

Oregon Department of Wildlife transplanted sheep from the John Day River into Soldier Creek (near Three Forks) in December 2007. When the horse trailer door was opened, sheep scattered in all directions instead of heading for the canyon rim. Ten of the released sheep were equipped with VHF radio-collars. One ram was located in Leslie Gulch, OR in September 2008, and the head and collar was picked up by an Idaho lion hunter in Castle Creek in January 2009. This ram travelled over 100 air miles after its release. Another collared ram was observed in Shoofly Creek in March 2009, a distance of over 50 air miles from the release site.

Table 1. Bighorn sheep population data, Southwest (Nampa) Region, 1985-2008.

GMU	Year	Ewes	Lambs	Rams		Uncl.	Total sheep	Lambs: 100 ewes	Rams: 100 ewes
				Sub-legal	Legal				
41-Little Jacks Creek									
	1985 ^a	30	16	26	13	0	85	53.3	130.0
	1985 ^b	40	18	22	16	0	96	45.0	95.0
	1987 ^c	84	49	26	25	0	184	58.3	60.7
	1987 ^a	102	35	19	8	0	164	34.3	26.5
	1988	73	29	56	26	0	184	39.7	112.3
	1989	105	43	33	22	0	203	41.0	52.4
	1990	78	32	54	33	5	202	41.0	111.5
	1991	99	55	43	37	7	241	55.6	80.8
	1992	81	42	35	36	0	194	51.9	87.7
	1993	142	36	51	41	0	270	25.4	64.8
	1994	107	40	41	16	0	204	37.4	53.3
	1996	95	33	39	14	0	181	34.7	55.8
	2008 ^d	49	17	14	8	0	88	34.7	44.9
41-Big Jacks Creek									
	1990	14	10				38	71.4	
	1993	46	19	17	8	0	90	41.3	54.3
	1997	73	38	12	18	0	141	52.1	41.1
	2008 ^d	61	27	19	10	0	117	44.3	47.5
41-Big and Little Jacks Creek									
	1998	116	48	60	31	0	258	41.4	78.4
	2000	141	51	17	16	0	225	36.2	23.4
	2002 ^d	63	18	21	19	5	126	28.6	63.5
	2004 ^d	118	52	28	14	0	212	44.1	35.6
	2006 ^d	124	60	36	14	0	234	48.4	40.3
42									
	1985	124	71	57	21	0	273	57.3	62.9
	1987	140	70			0	329	50.0	85.0
	1990	339	183	71	46	0	639	54.0	34.5
	1991	400	175	60	114	4	753	43.8	43.5
	1992	323	142	101	54	0	620	44.0	48.0
	1993	406	81	125	57	0	669	20.0	44.8
	1994 ^c	179	73	51	42	2	347	40.8	52.0
	1994 ^d	177	63	61	35	0	336	35.6	54.3
	1996	202	96	52	51	0	401	47.5	51.0
	1998	204	76	24	26	4	334	37.3	24.5
	2000	198	60	29	22	0	309	30.3	25.8
	2002 ^d	164	50	25	9	1	249	30.5	20.7
	2004 ^d	135	48	46	28	5	262	35.6	54.8
	2006 ^d	184	81	53	37	0	355	44.0	48.9
	2008 ^d	149	62	37	56	0	304	41.6	62.4

^a August survey.

^b November survey.

^c June survey.

^d July survey.

Table 2. Bighorn sheep harvest and drawing odds, Southwest (Nampa) Region, 1983-present.

Year	Permits	Harvest	Hunter Success (%)	First-choice Applicants	Drawing Odds
1983	11	6	55	197	1:17.9
1984	18	14	78	205	1:11.4
1985	20	16	80	245	1:12.3
1986	22	13	59	363	1:16.5
1987	22	14	64	360	1:16.4
1988	22	14	64	331	1:15.0
1989	22	14	64	275	1:12.5
1990	22	19	86	300	1:13.6
1991	30	25	83	373	1:12.4
1992	30	26	87	457	1:15.2
1993	62	39	63	467	1:7.5
1994	62	40	65	685	1:11.0
1995	39	25	64	584	1:15.0
1996	39	23	59	558	1:14.3
1997	39	27	69	557	1:14.3
1998	39	29	74	636	1:16.3
1999	37	22	59	607	1:16.4
2000	37	21	57	483	1:13.1
2001	13	9	69	232	1:17.8
2002	13	4	31	233	1:17.9
2003	13	6	46	200	1:15.4
2004	13	6	46	190	1:14.6
2005	13	10	77	207	1:15.9
2006	13	12	92	342	1:26.3
2007	15	12	80	357	1:23.8
2008	15	13	87	436	1:29.0

Table 3. Bighorn sheep harvest and drawing odds by hunt area, Southwest (Nampa) Region, 1997-present.

Hunt Area	Year	Permits	Harvest	Hunter Success (%)	Days/Hunter	First-choice Applicants	Drawing Odds
41-1 ^a	1997	5	3	60	6.7	86	1:17.2
	1998	5	4	80	6.5	95	1:19.0
	1999	4	3	75	4.7	115	1:28.7
	2000	4	2	50	3.5	83	1:20.8
	2007	2	2	100		58	1:29.0
	2008	2	2	100		113	1:56.5
41-2 ^a	1997	5	3	60	1.3	57	1:11.4
	1998	5	2	40	12.5	72	1:14.4
	1999	4	3	75	4.7	82	1:20.5
	2000	4	4	100	4.0	53	1:13.3
	2007	2	2	100		76	1:38.0
	2008	2	2	100		76	1:38.0
41 ^a	2001	3	3	100		67	1:22.3
	2002	3	1	33	14.0	83	1:27.7
	2003	3	3	100	5.0	74	1:24.7
	2004	3	2	67	10.0	93	1:31.0
	2005	3	3	100	6.3	80	1:26.7
	2006	3	3	100	2.3	107	1:35.6
	2007	3	3	100	3.0	108	1:21.6
41-4 ^a	1997	5	3	60	3.0	108	1:21.6
	1998	5	5	100	3.6	110	1:22.0
	1999	3	2	67	2.0	43	1:14.3
	2000	3	3	100	6.3	38	1:12.7
41-5 ^a	1999	2	2	100	5.5	34	1:17.0
	2000	2	2	100	3.0	44	1:22.0
42-1	1997	10	6	60	5.3	93	1:9.3
	1998	10	7	70	6.6	144	1:14.4
	1999	10	3	30	2.3	149	1:14.9
	2000	10	2	20	7.0	77	1:7.7
	2001	5	3	60	6.3	76	1:13.3
	2002	5	3	60	6.0	72	1:14.4
	2003	5	1	20	1.0	76	1:15.2
	2004	5	1	20	10.0	61	1:12.2
	2005	5	3	60	2.7	62	1:12.4
	2006	5	4	80	4.0	84	1:16.8
	2007	6	5	83		139	1:23.2
42-2	1997	10	8	80	4.8	111	1:11.1
	1998	10	7	70	4.7	124	1:12.4
	1999	10	7	70	6.6	125	1:12.5
	2000	10	5	50	3.4	100	1:10.0
	2001	5	3	60		89	1:17.9

Table 3. Continued.

	2002	5	0	0		78	1:15.6
	2003	5	2	40	7.0	50	1:10.0
	2004	5	3	60	2.3	65	1:13.0
	2005	5	4	80	3.3	65	1:13.0
	2006	5	5	100	6.0	151	1:30.2
	2007	6	3	50		86	1:14.3
	2008	6	5	83		155	1:25.8
42-3 ^b	1997	2	2	100	1.0	46	1:23.0
	1998	2	2	100	5.0	58	1:29.0
	1999	2	1	50	2.0	32	1:16.0
	2000	2	1	50	2.0	45	1:22.5
42-4 ^b	1997	2	2	100	2.0	56	1:28.0
	1998	2	2	100	9.0	33	1:16.5
	1999	2	1	50	2.0	27	1:13.5
	2000	2	2	100	4.0	43	1:21.5

^a Hunts 41-1 and 41-2 were closed in 2001, and Hunts 41-4 and 41-5 were renamed Hunt 41.

^b Hunts 42-3 and 42-4 were eliminated in 2001.

Table 4. Bighorn sheep translocation, Southwest (Nampa) Region, 1963-2003.

Date	Capture site	Release site	Adult ^a		Lambs		Total
			Male	Female	Male	Female	
Oct 1963	Chilcotin, B.C.	E.F. Owyhee R	5	14			19
Nov 1965	Chilcotin, B.C.	E.F. Owyhee R	2	7			9
Nov 1966	Chilcotin, B.C.	E.F. Owyhee R	2	8			10
Oct 1967	Chilcotin, B.C.	Little Jacks Cr	4	8			12
Mar 1980	Little Jacks	Granite Mt, NV	1	4			5
Feb 1981	Little Jacks	Jarbidge R, NV	3	9			12
Dec 1982	E.F. Owyhee	Bruneau/Jarbidge	2	10			12
Mar 1984	Chilcotin, B.C.	Bruneau/Jarbidge	2	10			12
Dec 1984	E.F. Owyhee	Bruneau/Jarbidge	2	9			11
Jan 1985	Little Jacks	Bruneau/Jarbidge	1	0			1
Jan 1985	Little Jacks	S.F. Owyhee	2	7			9
Dec 1986	E.F. Owyhee	Snowcloud Mt, NV					7
Dec 1986	E.F. Owyhee	Cottonwood Cr	4	11			15
Dec 1987	Little Jacks	Cottonwood Cr	3	11			14
Feb 1988	Chilcotin, B.C.	Big Jacks Cr	3	11			14
Mar 1988	E.F. Owyhee	Big Jacks Cr	2	0			2
Nov 1988	Shoofly Cr	Cottonwood Cr	5	9			14
Nov 1988	Shoofly Cr	Nevada	2	11			13
Nov 1988	Battle Cr	Duncan Cr	9	15			24
Dec 1989	Little Jacks	W.F. Bruneau	3	9			12
Nov 1990	E.F. Owyhee	W.F. Bruneau	5	11	0	0	16
Nov 1990	E.F. Owyhee	North Dakota	6	17	0	0	23
Nov 1991	E.F. Owyhee	E.F. Dry Cr	3	10	2	1	16
Nov 1991	E.F. Owyhee	North Dakota	5	28	3	2	38
Nov 1991	E.F. Owyhee	Nevada	4	31	1	2	38
Dec 1993	E.F. Owyhee	Battle Mt, NV	3	20	1	1	25
Dec 1993	E.F. Owyhee	Deschutes, OR	6	25	2	2	35
Dec 1993	E.F. Owyhee	Bruneau/Jarbidge R & Big Cottonwood Cr					45
Mar 2003	E.F. Owyhee	Independence Pks, Id.	1	5			6

^a When the age of transplanted bighorn sheep is not available, all are listed as adult.

**PROGRESS REPORT
SURVEYS AND INVENTORY**

STATE:	<u>Idaho</u>	JOB TITLE:	<u>Bighorn Sheep Surveys and</u>
PROJECT:	<u>W-170-R-33</u>		<u>Inventories</u>
SUBPROJECT:	<u>3, McCall</u>	STUDY NAME:	<u>Big Game Population Status,</u>
STUDY:	<u>I</u>		<u>Trends, Use, and Associated</u>
JOB:	<u>4</u>		<u>Habitat Studies</u>
PERIOD COVERED: <u>July 1, 2008 to June 30, 2009</u>			

SOUTHWEST (MCCALL) REGION

GMUs 19A, 20A, 26

Controlled Hunt Areas 20A, 26, 26-L

Abstract

The bighorn sheep hunt areas in GMUs 20A and 26 were restructured during implementation of the 1991-1995 Bighorn Sheep Management Plan and again in 1997. Permits were lowered from 6 to 2 in Hunt Areas 20A and 26 beginning with the 2003-2004 regulation cycle. The 2006 population survey indicated there were ample legal rams to increase hunting opportunity. As a result, permits in Hunt Area 26 were increased from 2 to 4 for the 2007-2008 regulation cycle. Eight harvest permits were issued in 2008 among 3 separate hunt areas. Three rams were harvested for a 38% hunter success rate.

Management Direction

Allow and/or encourage population increases. Increase recreational opportunity. Develop and/or continue with reintroduction programs. Monitor populations via helicopter surveys every other year.

Background

Hunting seasons for bighorn sheep in GMUs 20A and 26 were restructured with the implementation of the 1991-1995 Bighorn Sheep Management Plan. Prior to this plan, there were 5 hunt areas (20A-1, 20A-2, 20A-3, 26-1, and 26-2) in these GMUs. Hunt Area 20A-1 remained unchanged. Hunt Area 20A-3 was incorporated into Hunt Area 20A-2. Hunt Areas 26-1 and 26-2 included all of GMU 26 and were stratified by season dates, but in 1992, a portion of Hunt Area 20A-2 was incorporated into Hunt Area 26-1 and a portion of 27-1 was incorporated into Hunt Area 26-2. The season dates for Hunt Areas 26-1 and 26-2 were made concurrent in 1991. Hunt Area 26-L was created in 1992 and incorporated portions of both Hunt Areas 26-1 and 26-2. This hunt was designed to provide a low-permit level, high-quality hunt close to the rut period. Hunt areas were restructured again in 1997 in response to declining

bighorn sheep survey numbers. Hunt Area 20A-1 was eliminated and Hunt Area 20A-2 became Hunt Area 20A. Hunt Areas 26-1 and 26-2 were combined and renamed Hunt Area 26 and permit levels were reduced from a combined total of 11 to a new total of 6. Permit levels were further reduced to 2 in Hunt Areas 20A and 26 in 2003. In 2007, permit levels were increased from 2 to 4 in Hunt Area 26, bringing the overall permit totals for these 3 hunt areas to 8. Population data in Table 1 reflect the new hunt area boundaries.

Population Surveys

Population surveys for Hunt Areas 20A, 26, and 26-L were conducted on 9 April 2009 (Table 1). A total of 162 sheep were observed. The ram:100 ewes:lamb ratio was 30:100:17.

Harvest Characteristics

Harvest data are generated from a mandatory hunter report regulation for all permit holders for bighorn sheep hunts. Successful permit holders must present their bighorn sheep horns to a Department office and complete a harvest report within 10 days of the date of kill. Unsuccessful permit holders must present and/or mail their unused bighorn sheep tag/permit to a Department office within 10 days of the close of the hunt for which the tag was valid.

A combined total of 8 permits were authorized for bighorn sheep Hunt Areas 20A, 26, and 26-L in 2008 (Tables 2 and 3). Three rams were harvested which represents a 38% (3 out of 8) hunter success rate.

Management Implications

The permit level in Hunt Areas 26-1 and 26-2 was reduced by 2 and 9, respectively, in 1993. This reduction was in response to continued recruitment problems in the Big Creek and Middle Fork Salmon River drainages. The low number of legal rams observed in Hunt Area 26-2, and the fact that no hunters were able to harvest a legal ram during the 1995 and 1996 seasons, indicated that management restrictions were necessary. In 1997, the permits for Hunt Area 26-2 were dropped, and Hunt Area 26-2 was combined with Hunt Area 26-1 to form new Hunt Area 26. The bighorn sheep population in Hunt Area 20A showed a similar trend, but permit levels remained constant. The 2006 bighorn sheep aerial survey indicated bighorn sheep recruitment may be poor and the overall population still appears static; however, ram numbers appear to be acceptable.

A research study conducted in April 2000 indicated that a highly virulent strain of *Pasteurella* spp. is present in the Big Creek bighorn sheep population. This evidence suggests that this population is not stable. In response to the disease status and less than desirable population performance, permit levels were reduced from 6 to 2 in both Hunt Areas 20A and 26 beginning with the 2003-2004 hunting seasons. However, the ram numbers observed during the 2006 survey indicated more harvest opportunity could be absorbed in this area. Permit levels in Hunt Area 26 were increased from 2 to 4 for the 2007-2008 regulation cycle. This bighorn sheep population will be monitored every other year as funding permits.

GMUs 22, 23, 31

Abstract

No hunting or population surveys for bighorn sheep occurred in this area during the 2008-2009 reporting period.

Management Direction

Follow statewide management direction. Continue to work with the USFS and livestock producers in the Hells Canyon National Recreation Area to minimize the potential for any disease transfer between domestic sheep and bighorn sheep. Coordinate with the Oregon and Washington departments to release Rocky Mountain bighorn sheep in Hells Canyon. Open additional hunts as transplanted populations become established and meet minimum population estimate criterion of 100. Complete inventories of potential release sites, assess status of recently established herds, and increase bighorn sheep numbers through transplants.

Background

GMUs 22, 23, and 31 represent the southern and western distribution of Rocky Mountain bighorn sheep habitat in Idaho. Until recently, the Granite Creek drainage and the area from Granite Creek south to Hells Canyon Dam represented the occupied bighorn sheep habitat in GMU 22. Sheep translocations on the Oregon side of Hells Canyon in the mid 1990s have supplied the source for animals now colonizing GMU 22 in the Dukes Creek and Limepoint Creek areas.

The opportunity for establishing huntable bighorn sheep populations in these GMUs is limited by the abundance and distribution of domestic sheep. There has never been bighorn sheep hunting authorized in these GMUs.

Population Surveys

No population surveys were conducted in these GMUs during the reporting period.

Harvest Characteristics

No bighorn sheep hunting was authorized during this reporting period.

Management Implications

Available habitat exists for the bighorn sheep population to expand into in GMU 22. However, the bighorns in GMU 22 are precariously close to domestic sheep allotments and pose a disease vector risk to other bighorn sheep in Hells Canyon. The Payette National Forest conducted a risk analysis of disease transmission between domestic sheep and bighorn sheep on the forest. They found a very high risk for disease transmission between domestic sheep and wild sheep in this area. Two stray domestic sheep were killed in bighorn sheep habitat in the Big Bar area of Hells

Canyon Reservoir in February 2007. Management recommendations for this area are dependent upon the status of domestic sheep grazing.

Table 1. Bighorn sheep population data, Southwest (McCall) Region, 1987-2009.

Hunt Area/ Year	Ewes	Lambs	Rams				Uncl.	Total legal rams	Total sheep	Lambs: 100 ewes	Rams: 100 ewes
			I	II	III	IV					
20A											
1989	76	13	5	8	6	8	0	14	116	17.1	35.5
1991	72	3	4	2	20	4	0	24	105	4.2	41.7
1992	80	7	4	7	11	7	0	18	116	8.8	36.3
1993	62	10	1	5	11	4	1	15	94	16.1	33.9
1994	63	11	4	1	7	7	0	14	93	17.5	30.2
1995	53	11	3	3	6	7	0	13	83	20.8	35.8
1996	38	6	1	4	1	8	0	9	58	15.8	36.8
1999	35	11	0	2	2	1	0	3	51	31.4	14.3
2002	35	14	1	2	3	3	0	6	58	40.0	25.7
2004	21	8	3	2	2	0	0	2	36	38.1	33.3
2006	48	9	5	1	4	1	0	5	68	18.8	22.9
2009	38	11	2	6	5	1	0	6	63	28.9	36.8
26 ^a											
1989	180	28	11	17	18	26	0	44	270	15.6	40.0
1991	93	4	5	8	20	6	0	26	136	4.3	41.9
1992	91	26	0	10	11	19	8	30	165	28.6	44.0
1993	108	22	3	3	11	18	0	29	165	20.4	32.4
1994 ^b	33	2	1	2	9	10	0	19	57	6.1	66.7
1995	95	10	3	3	7	9	0	16	131	10.5	23.2
1996	99	11	2	9	7	10	0	17	138	11.1	28.3
1999	88	23	5	12	10	8	0	18	146	26.1	39.8
2002	86	26	6	7	8	2	0	10	135	30.2	26.7
2004	90	23	10	9	9	3	0	12	144	25.6	34.4
2006	120	23	4	6	15	18	0	33	186	19.2	35.8
2009	72	8	0	5	10	4	0	14	99	11.1	26.4
26-L											
1987	114	19	5	9	11	10	0	21	177	16.7	30.7
1988	116	18	3	7	8	12	0	20	172	15.5	25.9
1989	122	19	7	13	15	24	0	39	200	15.6	48.4
1991	64	4	2	8	13	2	0	15	93	6.3	39.1
1992	62	20	0	5	6	14	0	20	107	32.3	40.3
1993	82	13	2	3	8	10	0	18	118	15.9	28.0
1994 ^b	22	1	1	2	7	5	0	12	38	4.5	68.2
1995	85	7	4	6	6	7	0	13	115	8.2	27.1
1996	73	9	1	7	4	7	0	11	101	12.3	26.0
1999	62	14	4	9	6	5	0	11	100	22.6	38.7
2002	50	16	3	6	5	1	0	6	81	32.0	30.0
2004	62	12	9	9	6	3	0	9	101	19.4	43.5
2006	78	17	2	4	14	18	0	32	133	21.8	48.7
2009	63	4	0	5	9	4	0	13	85	6.3	28.6

^a GMU 27 data not included.

^b Incomplete survey.

Table 2. Bighorn sheep harvest and drawing odds by hunt area, Southwest (McCall) Region, 1997-present.

Hunt area	Year	Permits	Harvest	Hunter success (%)	Days/hunter	First-choice applicants	Drawing odds	
20A	1997	6	5	83	3.6	41	1:6.8	
	1998 ^a	6	5	67		75	1:12.5	
	1999	6	3	50		46	1:7.6	
	2000	6	4	67		77	1:12.8	
	2001	6	1	17		57	1:9.5	
	2002	6	1	17		33	1:18.2	
	2003	2	1	50		13	1:6.5	
	2004	2	0	0		20	1:10.0	
	2005	2	0	0		16	1:8.0	
	2006	2	0	0		9	1:4.5	
	2007	2	2	100		15	1:7.5	
26	2008	2	0	0	4.6	10	1:5.0	
	1997 ^b	6	3	50		59	1:9.8	
	1998	6	5	83		13.2	67	1:11.2
	1999	6	3	50		84	1:14.0	
	2000 ^c	6	4	80		100	1:16.7	
	2001 ^d	7	2	29		69	1:11.5	
	2002	6	2	33		25	1:24	
	2003	2	0	0		27	1:13.5	
	2004	2	2	100		4.5	37	1:18.5
	2005	2	0	0		14	1:7.0	
	2006	2	2	100		23	1:11.5	
26-L	2007	4	2	50	6.0	34	1:8.5	
	2008	4	1	25		37	1:9.25	
	1997	2	2	100		28	1:14.0	
	1998	2	2	100		5.0	53	1:26.5
	1999	2	1	50		10.0	82	1:41.0
	2000	2	2	100		11.5	80	1:40.0
	2001	2	1	50		21	1:10.5	
	2002	2	1	50		48	1:24	
	2003	2	1	50		15	1:7.5	
	2004	2	2	100		2.5	38	1:19.0
	2005	2	1	50		23	1:11.5	
2006	2	2	100	15	1:7.5			
2007	2	2	100	64	1:32.0			
2008	2	2	100	236	1:118.0			

^a The auction tag permit holder harvested a bighorn sheep in Hunt Area 20A.

^b Hunt area restructured in 1997 to include former Hunt Area 26-2.

^c One permit holder opted for a rain-check tag in 2001 due to forest fire area closures during part of the 2000 season.

^d Includes 1 rain-check recipient from the 2000 hunting season.

Table 3. Bighorn sheep harvest and drawing odds, Southwest (McCall) Region, 1975-present.

Year	Permits	Harvest	Hunter success (%)	First-choice applicants	Drawing odds
1975	22	7	32		
1976	27	10	37		
1977	28	8	29		
1978	23	9	39		
1979	23	7	30		
1980	25	7	28		
1981	25	13	52		
1982	30	16	53		
1983	28	16	57		
1984	28	12	43		
1985	26	13	50		
1986	26	18	69		
1987	26	12	46		
1988	26	13	50		
1989	26	11	42		
1990	26	13	50		
1991	34	15	44		
1992	32	10	31	149	1:4.7
1993	21	10	49	135	1:6.4
1994 ^a	14	7	50	108	1:7.7
1995	14	8	57	136	1:9.7
1996	14	4	29	135	1:9.6
1997	14	10	71	128	1:9.1
1998 ^a	14	12	86	195	1:13.9
1999	14	7	50	212	1:15.1
2000	14	10	71	257	1:18.4
2001	15	4	27	147	1:9.8
2002	14	4	29	106	1:7.6
2003	6	2	33	55	1:9.2
2004	6	4	67	95	1:15.8
2005	6	1	17	53	1:8.8
2006	6	4	67	47	1:7.8
2007	8	6	75	113	1:14.1
2008	8	3	38	283	1:35.4

^a The auction tag permit holder harvested a bighorn sheep in Hunt Area 20A.

**PROGRESS REPORT
SURVEYS AND INVENTORY**

STATE:	<u>Idaho</u>	JOB TITLE:	<u>Bighorn Sheep Surveys and</u>
PROJECT:	<u>W-170-R-33</u>		<u>Inventories</u>
SUBPROJECT:	<u>4</u>	STUDY NAME:	<u>Big Game Population Status,</u>
STUDY:	<u>I</u>		<u>Trends, Use, and Associated</u>
JOB:	<u>4</u>		<u>Habitat Studies</u>
PERIOD COVERED: <u>July 1, 2008 to June 30, 2009</u>			

MAGIC VALLEY REGION

GMUs 46, 47, 54, 55, 57

Controlled Hunt Areas 46 and 55

Abstract

During this reporting period, Magic Valley Region wildlife personnel monitored reintroduced populations of California bighorn sheep in GMU 54 and evaluated opportunities to increase sheep hunting opportunity in the region. In the Jim Sage area, radio-monitoring bighorns from the 2000 and 2001 releases was discontinued as there are few, if any, functioning radio collars remaining. An aerial survey conducted during September 2006 resulted in an estimate of 80-100 individuals. In 2007 and 2008, 2 permits were authorized for GMU 55. The number of tags was decreased from 2 to 1 for the 2009 and 2010 hunting seasons.

Forty-eight bighorns from Oregon and Nevada were released in the Albion Mountains in 2003 and 2004. During both years, sheep began dispersing soon after release and presently no wild sheep are known to inhabit the area. Seventeen of 31 (48%) radio-collared sheep have died since the releases primarily to mountain lion predation. Documented dispersal includes movements to Jim Sage Mountain, Goose Creek, Birch Creek, Salmon Falls Creek Reservoir, and the Raft River Narrows.

The bighorn sheep population in GMU 54 has decreased to fewer than 15 bighorns. Disease is the suspected, but unverified, cause of the population decline. Plans for augmenting the existing population will be delayed unless potential conflicts with domestic sheep grazing can be resolved.

Aerial survey results from July 2006 suggest a stable to slightly upward trend in the Jarbidge/Bruneau (Hunt Area 46) bighorn sheep population. Hunting was reauthorized in this Hunt Area for the 2003 and 2004 seasons, and there have been 3 tags offered for this hunt since 2005.

Management Direction

Increase existing populations; reintroduce bighorn sheep into suitable historical habitats; conduct research on habitat use and population dynamics; and promote non-consumptive values.

Background

Bighorn sheep were extirpated from southern Idaho in the early 1900s. In 1963, the Department initiated a program to reestablish California bighorn sheep populations in the Owyhee River and Little Jacks Creek drainages in Owyhee County. These early releases were successful and bighorn sheep populations increased and expanded their range in southwest Idaho.

In Idaho, the area south and west of Interstate 84 within the Magic Valley and Southwest regions has been designated exclusively for the California bighorn sheep subspecies. In 1992, it was estimated there were more than 1,200 California bighorn sheep in Idaho. From 1980-1992, Idaho's healthy California bighorn populations provided a source for numerous reintroduction projects and 413 sheep were captured and moved to other locations in Idaho, Nevada, Oregon, and North Dakota. Population surveys in 1994 indicated a substantial decline in California bighorn populations in the East Fork Owyhee and Jacks Creek drainages and annual capture/translocation operations were discontinued. Surveys conducted from 1996-2007 indicate populations have not increased to pre-1994 levels.

GMUs 46, 47, and 41 (east) – From 1982-1993, the Department and Nevada Department of Wildlife (NDOW) released 93 California bighorn sheep into portions of the Jarbidge and Bruneau drainages (see Table 4 in the Southwest Region-Nampa section) with the objective of reestablishing a population in the Jarbidge Mountains. The bighorn sheep released by NDOW in 1982 and 1984 moved north into the Jarbidge River Canyon in Idaho. Bighorn sheep have also been released by the Department near the confluence of the Jarbidge and West Fork Bruneau Rivers, at Dorsey Creek, and near Black Rock Pocket on the West Fork Bruneau Canyon. Bighorn sheep are distributed throughout the Jarbidge and West Fork Bruneau canyons upstream from their confluence. Bighorns have been observed as far north in the Bruneau Canyon at Cave Draw and are occasionally observed in the Sheep Creek and Marys Creek drainages.

GMU 54 – Suitable habitat for bighorn sheep occurs in the Rock Creek, Dry Creek, and Big Cottonwood Creek drainages. However, reintroduction efforts are currently impractical due to the proximity of domestic sheep grazing allotments. From 1986-1993, 50 California bighorn sheep were released into the Big Cottonwood drainage and 24 bighorns were released into the East Fork of Dry Creek (Table 1). In 1989, the bighorns in Big Cottonwood experienced a die-off and 57% of the radio-monitored sheep died. Currently, fewer than 15 bighorn sheep persist in GMU 54.

GMU 55 – During 1999, domestic sheep grazing on federal grazing allotments in GMU 55 was eliminated, clearing the way for bighorn sheep releases. From 2000-2004, 93 bighorns were released into historic habitat on the Jim Sage and Albion mountains. The Jim Sage population has increased steadily to an estimated 80-100 bighorns. Two permits were authorized for the 2007 and 2008 hunting seasons. The Albion Mountain release was unsuccessful. Released

sheep began dispersing immediately from the habitat selected for them and no sheep are known to currently exist in the area.

GMU 57 – GMU 57 is currently considered unsuitable habitat because of domestic sheep grazing.

Population Surveys

GMUs 46, 47, and 41 (east) – Surveys conducted in 2002, 2003, and 2006 suggest the population has increased since 2000. A survey conducted in July 2006 indicated that the population may have stabilized over the past few years (Table 2).

GMU 54 – A helicopter survey of the Big Cottonwood Creek areas was conducted on 20 February 2008. A total of 12 bighorn sheep were observed (4 ewes, 1 lamb, and 7 rams).

GMU 55 – Graduate student Gretchen Fowles estimated the population to be between 48 and 59 sheep during summer 2002 (Fowles 2002), and Department surveys in 2004 suggested a population of at least 62 individuals (but likely 70-80 individuals). Surveys conducted in 2005 and 2006 suggest the population has continued to increase slowly. A total of 67 sheep were observed (29 ewes, 5 lambs, 11 sub-legal rams, 9 legal rams, 13 unclassified) on a September 2006 helicopter survey. Based on the number of collared animals observed, the total population is estimated to be somewhere between 80 and 100 individuals.

Harvest Characteristics

GMUs 46, 47, and 41 (east) – From 1991-2008, 69 hunters harvested 47 rams from the Jarbidge/Bruneau population (Hunt Area 46). Annual hunter success rates have ranged from 33% to 100% and averaged 68% (Table 3). Ages of harvested rams range from 4.5 years to 12.5 years with a mean of 7.25 years (SD = 1.76, $n = 47$) and a median of 7 years. The hunting season in the Jarbidge/Bruneau area was eliminated in 2001 and 2002 because of low bighorn sheep numbers. Based on results from aerial surveys in 2002 and 2003, the season was reopened in 2003 and 3 permits have been offered since 2005 (Appendix A). Drawing odds averaged 1:36.6 in 2003-2008.

GMUs 54 and 55 – There is no legal harvest of bighorn sheep in GMU 54. Beginning in 2007, 2 permits were offered in GMU 55. Drawing odds in 2007 were 1:98.5, and hunter success was 100%. The 2 harvested rams were 6.5 and 7.5 years old. In 2008, drawing odds were 1:27.0. Both hunters harvested 6.5 year-old rams.

Capture and Translocation

Jim Sage Mountains – Forty-five California bighorns, captured in Oregon, were released in the Jim Sage Mountains (GMU 55) in 2000 and 2001 (Table 1). All of the released sheep were radio-collared to provide data on survival rates and movements. Survival immediately following the 2000 release was poor. Eleven of 30 (37%) monitored bighorns died in the first 4 months following release. Nine of the 11 mortalities were attributed to mountain lion predation, 1 lamb

was killed by a coyote, and 1 ewe became entangled in a fence and died. Survival was good following the 2001 release with a loss of only 2 of 15 (13%) radio-monitored sheep in the first 6 months. During the 2007-2008 reporting period, 2 of 5 radio-monitored bighorns died: both were 10-year old rams that died of unknown causes. Causes of death for all post-translocation mortalities ($n = 35$) on Jim Sage include mountain lion predation (66%), coyote predation (3%), accidents (9%), illegal kill (3%), and unknown causes (20%). Many of the remaining radio-collars have failed due to age, and monitoring at this point is sporadic. To date, no movements away from Jim Sage Mountain by radio-monitored bighorns have been documented.

Albion Mountains – Following an investigation of habitat suitability that predicted adequate winter, lambing, and summer habitat for bighorn sheep (Fowles and Merrick 2003), the Department initiated a program to reintroduce sheep to the Albion Mountain Range (GMU 55). In 2003 and 2004, 48 bighorns from source populations in Oregon and Nevada, were released near Thunder Mountain, approximately 5-6 miles from Jim Sage Mountain (Table 1). Thirty-one sheep were radio-collared to provide data on survival and movements. In both years, sheep began dispersing immediately following release. Five ewes and a ram moved to Jim Sage Mountain and remained with the resident population there. Two ewes moved to Goose Creek, 1 ewe moved to Birch Creek, 1 ewe and a lamb traveled to Salmon Falls Creek Reservoir, 2 ewes moved to the Raft River Narrows, and radio contact was lost with 4 ewes. Presently, there are no radio-collared sheep in the vicinity of the release site. Seventeen mortalities of radio-collared individuals have occurred since release. Of these 17 mortalities, 12 were attributed to mountain lion predation, 2 were ruled accidents, and 3 were unknown.

Management Studies

GMU 55 – See discussion above under “Capture and Translocation.”

Management Implications

GMUs 46 & 47 – Population surveys in 1998 and 2000 indicated poor recruitment and a downturn in the Jarbidge/Bruneau bighorn population. The substantial and rapid decline of this sheep population suggested a disease die-off, although no conclusive evidence was available. Possible sources of disease for the Jarbidge/Bruneau herd were identified in the Marys Creek and Contact, Nevada, areas. The decline in bighorn sheep numbers prompted the closure of the hunting season in 2001 and 2002.

Results from a July 2006 aerial survey indicated a stable to increasing population estimated at 153 sheep with 12 legal rams. The observed ratio of 36.5 lambs:100 ewes also indicates a stable population. Based on these data, 3 permits will continue to be offered in this area.

GMU 54 – The future of the bighorn sheep population in GMU 54 is uncertain. It is believed there are currently fewer than 15 bighorn sheep remaining in the GMU. Disease is believed to be the cause of the decline, although we have no conclusive evidence. Wild bighorns were reported to have contacted domestic sheep on 2 occasions: once near Big Cottonwood Canyon, and once near Dry Creek. Characteristics of the subsequent population declines in both areas suggest that disease may have played a role. Further efforts towards establishing a viable wild sheep

population in GMU 54 will only be pursued if potential conflicts with domestic sheep grazing and motorized recreational users can be resolved.

During spring 2008, Department staff worked with representatives of the USFS, BLM, Idaho Department of Agriculture, and 2 domestic sheep permittees to craft the “Strategy for Managing Separation between Bighorn Sheep and Domestic Sheep and Goats in the South Hills”. All of the above parties endorsed the final plan, and aspects of the plan have been incorporated into annual operating instructions.

GMU 55 – The 2006 helicopter survey suggested that the population may be stabilizing at 80-100 individuals. This population may be nearing the carrying capacity of the existing habitat. From May – July 2008, 6 sets of horns from rams that died were picked up on Jim Sage Mountain raising concern about the status of the population. Consequently, the number of tags was decreased from 2 to 1 for the 2009 and 2010 hunting seasons. The population will be surveyed in 2009 or 2010 to further assess status and the appropriate harvest level.

The 2003 and 2004 releases of bighorn sheep on the Albion Mountains appear unsuccessful in establishing a new wild sheep population. Presently there are no known wild sheep remaining in the release area.

In light of the high rate of dispersal away from the Albion Mountains release sites, it is apparent that the bighorn sheep habitat model developed by Gretchen Fowles in the Jim Sage Mountains failed to accurately predict bighorn habitat in the Albion area. In addition, habitat differences between source locations and release locations may have exacerbated the unfamiliarity experienced by sheep in the new terrain. Specifically, the release site exhibited taller, shrubby vegetation than the source sites; this difference may have contributed to the rejection of the area by the translocated sheep.

Literature Cited

- Fowles, G. I. 2002. Habitat use and population characteristics of newly reintroduced California bighorn sheep (*Ovis canadensis californiana*) in south-central Idaho. Thesis, Idaho State University, Pocatello, USA.
- Fowles, G. I., and M. Merrick. 2003. Evaluation of bighorn sheep habitat on the Albion Mountains. Idaho Department of Fish and Game, Boise, USA.

Table 1. Bighorn sheep translocations, GMUs 54 and 55, Magic Valley Region, 1986-2004.

Date	Capture site	Release site (GMU)	Adults		Lambs		Total
			Male	Female	Male	Female	
12/17-20/86	E Fork Owyhee R	Big Cottonwood (54)	2	10	1	2	15
12/16/87	Little Jacks Ck	Big Cottonwood (54)	3	6	0	1	10
11/15/88	Poison/Shoofly Ck	Big Cottonwood (54)	5	8	0	1	14
12/6/91	E Fork Owyhee R	E Fork Dry Ck (54)	2	9	1	2	14
12/19/93	E Fork Owyhee R	Big Cottonwood (54)	3	8	0	0	11
12/20/93	E Fork Owyhee R	E Fork Dry Ck (54)	1	7	1	1	10
2/6-8/00	John Day R, OR	Jim Sage Mtn (55)	7	15	2	6	30
2/1/01	Hart Mtn NWR, OR	Jim Sage Mtn (55)	0	14	0	1	15
3/9/03	E Fork Owyhee/ Bruneau Rivers	Albion Mtns (55)	2	10	0	1	13
12/1/04	Diablo, OR	Albion Mtns (55)	2	8	0	1	11
12/3/04	Deschutes, OR	Albion Mtns (55)	1	3	0	0	4
12/16/04	Calico Mtns, NV	Albion Mtns (55)	3	16	1	0	20
Total			25	87	5	15	132

Table 2. Bighorn sheep population data, Jarbidge/Bruneau area (Hunt Area 46), Magic Valley Region, 1990-2006 (Obs = observed, Est = estimated).

Year	Ewes		Lambs		Sub-legal rams		Legal rams		Un-classified		Total	Est ±90%CI	Est. lambs: 100 ewes	Est. rams: 100 ewes
	Obs	Est	Obs	Est	Obs	Est	Obs	Est	Obs	Est				
1990	51		12		8		13		0		84		23.5	41.2
1993	51	79	8	13	39	53	16	20	0	0	114	165±37	16.5	92.4
1994	76	101	24	31	15	19	17	23	0	0	132	171±31	30.7	41.6
1996	102	147	33	43	14	20	15	22	5 ^a	7	169	239±44	29.3	31.3
1997	62	83	25	34	21	33	10	14	3	4	121	168±40	41.0	56.6
1998	85	138	18	29	26	41	6	11	0	0	135	220±44	21.0	37.7
2000	33	45	7	10	6	8	2	3	0	0	48	66±18	22.2	24.4
2002 ^b	49	73	17	22	8	10	3	3	0	0	77	108±34	30.0	17.8
2003	46	64	26	35	18	29	10	15	0	0	100	144±27	54.7	68.7
2006	63	87	21	32	15	19	10	12	2	2	111	153±29	36.5	36.0

^a Four were unclassified rams.

^b Only Jarbidge Canyon, approximately half of the area, was surveyed.

Table 3. Bighorn sheep harvest and drawing odds, Magic Valley Region, 1991-present.

Hunt area	Year	Permits	Harvest	Hunter success (%)	Days/hunter	First-choice applicants	Drawing odds	
46	1991	2	2	100	4.0	36	1:18.0	
	1992	2	2	100	7.0	34	1:17.0	
	1993	7 ^a	6	86	7.7	94	1:15.7	
	1994	6	2	33	6.4	91	1:15.2	
	1995	6	3	50	10.5	74	1:12.3	
	1996	6	4	67	6.5	75	1:12.5	
	1997	6	5	83	4.0	101	1:16.8	
	1998	6	4	67	2.8	90	1:15.0	
	1999	5 ^b	3	50	3.5	190	1:31.7	
	2000	7 ^b	3	43	9.0	76	1:12.7	
	2001	Closed						
	2002	Closed						
	2003	2	2	100	2.5	77	1:38.5	
	2004	2	2	100	3	85	1:42.5	
	2005	3	1	33	2	101	1:33.7	
	2006	3	2	67	13.5	110	1:36.7	
	2007	3	3	100	3.5	93	1:31.0	
2008	3	3	100	5.0	111	1:37.0		
55	2007	2	2	100	1.0	197	1:98.5	
	2008	2	2	100	9.5	54	1:27.0	

^a The winner of the lottery permit hunted here in addition to the 6 authorized permits.

^b A hunter successfully drawn for the 1999 season was given a rain-check to hunt in 2000

**PROGRESS REPORT
SURVEYS AND INVENTORY**

STATE:	<u>Idaho</u>	JOB TITLE:	<u>Bighorn Sheep Surveys and</u>
PROJECT:	<u>W-170-R-33</u>		<u>Inventories</u>
SUBPROJECT:	<u>6</u>	STUDY NAME:	<u>Big Game Population Status,</u>
STUDY:	<u>I</u>		<u>Trends, Use, and Associated</u>
JOB:	<u>4</u>		<u>Habitat Studies</u>
PERIOD COVERED: <u>July 1, 2008 to June 30, 2009</u>			

UPPER SNAKE REGION

GMUs 51 (part), 58, 59A, 61, 64, 65, 67

Abstract

Rocky Mountain bighorn sheep (*Ovis canadensis canadensis*) in the Lost River Range are reported by the Salmon Region. Bighorn sheep in the Lemhi and Beaverhead ranges are not hunted. The Lionhead bighorn sheep were hunted in Montana in 2008 but not 2009. The Lionhead bighorn sheep are not hunted in Idaho. There is not an established bighorn sheep herd in the Bighole Mountains.

No population survey was conducted during this reporting period. One bighorn sheep ewe was seen during mule deer herd composition counts near Reno Point. Four bighorn sheep, 2 ewes and 2 mature rams, were seen in GMU 58 during the elk sightability survey.

Management Direction

Previous management direction was to increase populations; increase recreational opportunity; maintain or increase harvest; revamp season framework; continue reintroduction program; attempt to manipulate 1 bighorn sheep population below carrying capacity to prevent periodic die-off; and investigate domestic sheep's (*Ovis aries*) role in disease transmission.

Current management of bighorn sheep in Idaho revolves around separation of bighorn sheep and domestic sheep due to concerns of disease transmission to bighorn sheep. The Governor mandated the development of the Interim Strategy For Managing Separation Between Bighorn Sheep and Domestic Sheep in Idaho. Senate bill 1232a requires the department to work with domestic sheep grazing permittees to write agreements that included best management practices (BMP) to maintain separation of the two species. There are currently no reintroductions or translocations planned. The most recent version of the Bighorn Sheep Species Management Plan is currently being written.

Climatic Conditions

Spring 2008 was moist, with significant snow pack at higher elevations and good green-up throughout the rest of the region. Summer through winter of 2008 could be categorized as average in the Upper Snake, with no exceptional moisture or drought and average snow pack and duration during the winter of 2008-2009. The spring and summer of 2009 was cool and wet and the region saw exceptional vegetation growth that continued through the summer, creating abundant forage in the region.

Background

The above GMUs in the Upper Snake Region supported Rocky Mountain bighorn sheep populations historically. By the early 1900s, bighorn sheep were eliminated from most of the area and severely reduced in the remaining habitats. Vegetative changes due to livestock use on winter ranges, loss to disease, and indiscriminate harvest by settlers and miners probably were the main causes of bighorn sheep declines.

Habitats are diverse, generally mountainous types with bighorn sheep summering mostly at higher elevations on alpine and sub-alpine ranges. The winter ranges are mostly sagebrush-grass or curleaf mountain mahogany types where snow depth is low. The USFS generally administers summer ranges, whereas both USFS and BLM manage winter ranges.

Subsistence and indiscriminate harvest of bighorn sheep by early settlers and pioneering travelers was greatly reduced after establishment of the Department in 1937. Some general bighorn sheep hunts were authorized through 1970, but since then, all bighorn sheep hunts have been by permit only. These restrictions, along with reductions in domestic sheep grazing, improved habitat conditions, and reintroductions have all contributed to increased bighorn sheep numbers in these GMUs. Improved grazing management, water developments, controlled burns on bighorn sheep ranges, and closing or changing domestic sheep allotments to eliminate domestic sheep contact with bighorn could further improve conditions for bighorn sheep in this area.

A small population of bighorn sheep occurs on the Idaho-Montana border in the Lionhead area of GMU 61. During the summer and fall months, 12-15 bighorn sheep can be seen in Idaho. Idaho authorized a 5 permit controlled hunt on this herd in 1962, 1964, 1965, and 1966. The history of the Montana hunts on these bighorn sheep has been to issue a few permits a year until the herd declines, close the hunt and let the herd rebuild, and then reopen it again for a few years. This herd has high non-consumptive value.

Bighorn sheep are occasionally observed during summer in the Bighole Mountain area of GMUs 64, 65, and 67. We believe these are pioneering bighorn sheep from Grand Teton National Park. Since we have no reports or observations of these bighorn sheep during winter and few summer observations in consecutive years, we assume there is no established herd in Idaho.

Population Surveys

Aerial counts of these populations have generally been made incidental with aerial surveys for other big game animals and, therefore, do not constitute complete population numbers or composition trends (Table 1). One bighorn sheep was observed in December 2008 during the Reno Point mule deer composition survey in GMUs 58 and 59A. Four bighorn sheep were observed in February 2009 during the Beaverhead elk survey in GMU 58.

Capture and Translocation

No capture or translocation of bighorn sheep occurred during this reporting period. Historically, 82 Rocky Mountain bighorn sheep have been released in GMUs 51 and 58 between 1976 and 1984 (Table 2). Bighorn sheep obtained from the Whiskey Mountain, Wyoming, herd were released in Badger and Uncle Ike creeks in GMU 51 during 1983 and 1984. Bighorn sheep captured from Panther Creek, Idaho, were released into Long, Skull, and Bloom canyons of GMU 58 in 4 translocations between 1976 and 1982.

Some employees of the Bureau of Reclamation have expressed interest in examining the feasibility of transplanting bighorn sheep into the Teton River Canyon area. The Department has concerns about contact with domestic sheep that are in the area, depredation issues, conflicts with development that is occurring near the canyon, and the amount of habitat remaining that could support a bighorn sheep population. The canyon is also heavily used by wintering mule deer, particularly in winters with average to above average snow depths.

Management Implications

Bighorn sheep populations in the Upper Snake Region do not occupy all potential habitats primarily because of conflicts with domestic sheep. Domestic sheep allotments have been closed on some USFS lands. However, active domestic sheep allotments still occur on USFS- and BLM-administered bighorn sheep range in GMUs 51, 58, 59A, and 63.

The greatest concern for the future of bighorn sheep in the region is interaction with domestic sheep. The Department worked with USFS and BLM to identify all the domestic sheep allotments that overlap with bighorn sheep range in the Lemhi and Beaverhead ranges. The Bernice, Mahogany Butte, Nicholia/Chandler, Snakey, Kelly, Crooked Creek, and Cedar Point/8 Mile domestic sheep allotments have the potential for interactions to occur between bighorn and domestic sheep. Domestic sheep on private land near the bighorn sheep habitat is also a concern as is domestic sheep allotments that occur on Idaho National Laboratory land. There is currently a BMP Agreement signed with the permittee on the Nicholia/Chandler winter and summer allotments and there is also a Bighorn Sheep Action Plan with the BLM for the Bernice Allotment. Comments were given to the BLM for the Bighorn Sheep Action Plan on the Crooked Creek domestic sheep allotment.

There may be occasion to coordinate management and hunter opportunity of the bighorn sheep in the Lionhead area of GMU 61 with Montana Fish, Wildlife, and Parks. This herd is small and currently provides limited hunter opportunity for Montana hunters. The Idaho Fish and Game

Commission has approved a cooperative agreement between the 2 state agencies allowing hunters to hunt in either state when a small herd of big game animals occurs on the state line. However, the Montana Commission has not approved a similar agreement. In the summer of 2009, a bighorn ram and ewe were repeatedly seen on Sawtell Mountain and Flat Rock near Macks Inn.

The bighorn sheep that are occasionally observed during summer months in the Bighole Range (GMUs 64, 65, and 67) are probably transients from Grand Teton National Park. Although this range historically supported bighorn sheep, domestic sheep grazing and plant community succession makes it unsuitable to support bighorn sheep today. Therefore, management is directed toward documenting bighorn sheep observations, protection of the bighorn sheep, and non-consumptive use. A young ram was observed in the Pine Creek drainage on multiple occasions in May and June 2008. After domestic sheep turn-out in mid June 2008, we did not receive any additional reports of this ram.

Table 1. Bighorn sheep population data, Upper Snake Region, 1992-present.

GMU	Year	Ewes	Lambs	Rams				Uncl.	Total legal rams	Total sheep	Lambs: 100 ewes	Rams: 100 ewes
				I	II	III	IV					
51												
	1993 ^a	14	7	0	5 ^b	0	0	0	0	26	50.0	35.7
	1995 ^a	11	7	0	4 ^b	0	4 ^b	0	4	26	63.6	72.7
	2000 ^c	4	1	0	2	0	0	0	0	7	25.0	50.0
	2000 ^d	5	2	1	5	3	0	0	3	16	40.0	180.0
	2003 ^a	10	5	0	3 ^b	0	1 ^b	0	4	20	50.0	40.0
	2005 ^d	6	3	0	2	2	1	0	3	14	50.0	83.3
	2006 ^a	3	2	0	1	0	1	0	1	7	66.7	66.7
	2007 ^a	1	1	0	0	0	0	7	0	9		
	2008 ^a									0		
	2009 ^a									0		
58												
	1992	11	6	5 ^b	0	0	1 ^b	0	1	23	54.5	54.5
	1993 ^e	14	8	0	0	0	0	12 ^f	0	34	57.1	85.7
	1995 ^a	27	16	0	6 ^b	0	11 ^b	0	11	60	59.3	63.0
	2000 ^a	8	0	0	0	0	0	6 ^f	0	14	0.0	75.0
	2001 ^a	4	0	7	0	6	0	0	6	17	0.0	325.0
	2002 ^a	7	0	0	5	1	0	13	1	26	0.0	85.7
	2003 ^a	3	0	0	2	0	0	0	2	5	0.0	40.0
	2005 ^a	6	2	1	3	4	0	1	7	17	33.3	133.3
	2007 ^{a,g}	2	5	1	0	0	0	17	5 ^h	30		
	2008 ^a									0		
	2009 ^{a,h}	3							2 ^h	5		

^a Incidental to aerial elk or mule deer surveys. The entire bighorn sheep winter range was not surveyed.

^b Rams classified to sub-legal and legal only.

^c Only the area from South Creek around to the first canyon east of East Creek was surveyed.

^d Incidental to helicopter mountain goat survey of the entire Lemhi range in August.

^e Ground classification of bighorn sheep coming onto bait - Goddard Face, winter 1992-1993.

^f Rams not classified, but some were legal.

^g Starting in 2007, all rams are legal ($\frac{3}{4}$ curl and 4-year-minimum rule discontinued). Two of the mature rams were observed in GMU 59A.

^h Number reported is mature (Class III and IV) rams.

Table 2. Bighorn sheep translocations, Upper Snake Region, 1976-1984.

GMU	Date	Capture site	Release site	Adults		Lambs		Total
				Male	Female	Male	Female	
51								
	1/5/83	Whiskey Mtn, WY	Badger Creek	3	11	1	4	19
	1/5/84	Whiskey Mtn, WY	Uncle Ike	3	12	3	4	22
	Total			6	23	4	8	41
58								
	1/15/76	Panther Cr, ID	Long Canyon	1	3	1	1	6
	1/18/78	Panther Cr, ID	Long Canyon	8	2	0	2	12
		Panther Cr, ID	Bloom Canyon	2	8	0	4	14
		Panther Cr, ID	Goddard Canyon	1	6	2	0	9
	Total			12	19	3	7	41

**PROGRESS REPORT
SURVEYS AND INVENTORY**

**PROGRESS REPORT
SURVEYS AND INVENTORY**

STATE:	<u>Idaho</u>	JOB TITLE:	<u>Bighorn Sheep Surveys and</u>
PROJECT:	<u>W-170-R-33</u>		<u>Inventories</u>
SUBPROJECT:	<u>7</u>	STUDY NAME:	<u>Big Game Population Status,</u>
STUDY:	<u>I</u>		<u>Trends, Use, and Associated</u>
JOB:	<u>4</u>		<u>Habitat Studies</u>
PERIOD COVERED:	<u>July 1, 2008 to June 30, 2009</u>		

SALMON REGION

GMUs 21, 21A, 27, 28, 29, 30, 30A, 36, 36A, 36B, 37, 37A, 50, 51

Controlled Hunt Areas 21, 27-1, 27-2, 27-3, 27-4, 27-L, 28-1, 28-2, 30, 36B, 37, 37A

Abstract

From 1989 to 1991, bighorn sheep populations in Salmon Region experienced major, rapid declines (30-50%), followed by several years of very low lamb recruitment. Recent aerial surveys suggest lamb production is still low (25 lambs/100 ewes). In general, bighorn sheep populations may be stabilizing after several years of decline, with some populations showing signs of increase.

During 2008 hunting seasons, 40 controlled hunt permits for bighorn sheep rams were authorized in 13 hunt areas. Permit holders harvested 19 rams (48% success). Average age of harvested rams was 7.2 years. Chances of being drawn from among 851 applicants for bighorn sheep permits in 2008 (4.7%) were lower than the previous 5-year average of 5.5%.

Management Direction

Follow statewide direction to increase bighorn sheep populations, harvest, and recreational opportunity. Continue to establish new herds via translocation where suitable habitat and conditions exist. Recognize non-consumptive values of bighorn sheep. Conduct bighorn sheep disease research. Conduct bighorn sheep survey flights on at least a 5-year rotation. Establish ≥ 1 hunt for female bighorn sheep. Attempt to manipulate 1 bighorn sheep population below carrying capacity to reduce risk of periodic die-offs. Maintain hunts where bighorn sheep population size is estimated to be ≥ 100 animals. Annually harvest $\leq 20\%$ of class III and IV rams observed during the most recent survey.

Background

Salmon Region contains approximately two-thirds of Idaho's Rocky Mountain bighorn sheep and offers two-thirds of the hunting opportunity. Habitats, bighorn sheep population characteristics, land management activities, and human access all vary considerably across the region, presenting a variety of bighorn sheep management situations.

GMU 27 contains bighorn sheep habitats of Middle Fork Salmon River drainages. Bighorn sheep populations in this area were protected from pressures of early settlement by the remote nature of the area and, thus, were better able to maintain viable population levels. Access into most occupied bighorn sheep habitats is limited. Herds are relatively stable, although annual fluctuations are commonly associated with varying winter losses and lamb survival rates.

GMU 27 is located in the Frank Church River-of-No-Return Wilderness Area, and managed by the USFS. Most bighorn sheep in the GMU winter along the river breaks corridor and migrate to sub-alpine habitats during summer. However, some bighorn sheep remain along the Middle Fork Salmon River during summer where they provide a valuable viewing resource for river float parties. Past grazing practices, especially on upper river winter ranges, changed some ranges from grassland to shrub-dominated habitats. However, recent range trends are back toward grass-dominated habitat types because of changes in livestock and fire management.

GMUs 21 and 28 contain bighorn sheep habitats of Panther Creek drainage and along the roaded portion of Salmon River below North Fork. Human access to major portions of bighorn sheep ranges and ongoing or planned development projects dictate special management considerations in this area. These GMUs are well roaded with potential for copper and cobalt mining, geothermal development, and timber harvest which could lead to even more development and roads. Increased roading can lead to high levels of unregulated harvest. However, viewing and photographing bighorn sheep along Salmon River and Panther Creek are popular recreational pastimes. We expect this type of non-consumptive use to increase in importance.

Bighorn sheep populations in GMUs 21 and 28 were considered high-quality herds, exhibiting high lamb production and herd growth through the 1970s. However, populations along Panther Creek experienced a decline in the early 1980s, probably due to weather-related mortality. The same herd suffered a major population decline (approximately 50%) during 1989-1990, possibly caused by pneumonia related to *Pasteurella haemolytica*. Low lamb recruitment followed the decline and persisted for ≥ 3 years.

The Panther Creek bighorn sheep population was the primary source of Rocky Mountain bighorn sheep for translocation to other sites; 125 were captured and moved between 1974 and 1985. During the 1981-1985 planning period, new trapping sites were developed in GMU 21 along the Salmon River. However, capture and translocation have been curtailed since populations and productivity declined. In 2003, Hunt Area 28 was split again and area 28-2 was enlarged.

Much of the remainder of Salmon Region (GMUs 21A, 30, 30A, 36, 36A, 37, 37A, 50, and 51) have supported Rocky Mountain bighorn sheep in the past. By the early 1900s, bighorn sheep were eliminated from most of the area and populations were severely reduced in remaining

habitat. Vegetative changes due to livestock use on winter ranges, disease losses, and indiscriminate harvest by settlers and miners probably were primary causes of bighorn sheep declines.

The modern bighorn sheep population in GMUs 37, 50, and 51 (Lost River Range) resulted from releases of 7 bighorn sheep from Morgan Creek in 1969, 24 bighorn sheep from Banff Provincial Park, Alberta, Canada, in August 1970, and 28 sheep from Whiskey Mountain, Wyoming, during 1978-1980. The first hunt in Hunt Area 37 was authorized in 1981 and the area has become very popular with hunters. By 1992, the Lost River Range population had suffered the same decline and persistent low recruitment as other bighorn sheep herds in the region. Permit numbers were correspondingly reduced from a peak of 19 permits in 1992 to 3 in 1995 and 2 in 2001. In an attempt to speed population increase, 62 sheep were translocated to the Lost River Range from Sun River, Montana, in 2005.

In January 1985, 22 bighorn sheep obtained from Oregon were released in GMU 30A near Leadore. The first hunt for these animals in GMU 30 was authorized in 2001 with 2 permits available. Since 1986, 54 bighorn sheep have been released in GMU 37A (2 sites) and an additional 17 have been released in GMU 30A. GMU 37A was opened to harvest for the first time in 2005.

Population Surveys

An aerial survey specifically for bighorn sheep was conducted in GMU 27 during the reporting period (Table 1). Bighorn sheep were counted incidental to other big game in portions of GMUs 21A, 30, and 36B. Approximately 441 individuals were observed across all survey efforts with 405 sheep counted in GMU 27. Compared to previous surveys in these areas, total bighorn sheep numbers for comparable survey effort were slightly higher. The region-wide lamb:100 ewes ratio in 2009 was 24.9 with a ratio of 23.6 in GMU 27, representing a decline in production compared to recent years.

Salmon Region bighorn sheep populations experienced major young and adult mortality (apparently disease-related) beginning in 1990 and very low lamb production for several years afterward (generally ≤ 10 lambs:100 ewes). Although lamb to ewe ratios were still somewhat low, recent surveys suggest that the trend of very low lamb production in recent years may be reversing.

Harvest Characteristics

Harvest and hunter information was compiled from Big Game Mortality Reports (BGMRs). Successful hunters must present bighorn sheep horns to a Department representative within 10 days of harvest and complete a BGMR. At the time of check-in, an identification pin is set in the right horn. Twelve controlled hunts with 40 permits were authorized for 2008 in Salmon Region. Hunters could harvest any male bighorn sheep. Among 40 permit holders, 19 harvested rams in 2008 (48% success) in the region (Tables 2 and 3). Bighorn sheep season structure has been essentially unchanged since 1991 (Appendix A). Of 542 total permits issued since 1995, 241 rams have been harvested (44% success).

Chances of drawing a Salmon Region bighorn sheep permit dropped sharply in the early 1990s, primarily because of severe reductions in permits. Chances have continued to decline steadily since the mid-1990s, from 10.4% in 1995 to 4.7% in 2008. Average chance of drawing a permit since 1995 was 6.7%.

Region-wide, non-hunting mortalities peaked during the suspected disease die-off period (1990-1992) and subsided afterward as mortality rates decreased and bighorn sheep numbers reached low ebb (Table 4). Under historic treaty rights, Shoshone-Bannock Indians from Fort Hall Indian Reservation are allowed to hunt bighorn sheep for subsistence uses. However, tribal bighorn sheep season dates, permit levels, and harvest data are generally not available to the Department.

Climatic Conditions

Rainfall during summer months in 2008 was below average, with some cool, moist weather during late spring followed by hot, dry conditions. Vegetative growth appeared average early in the season, but was poor during summer. Winter conditions were generally moderate, with normal temperatures and precipitation. In general, animals entered winter in average to below average body condition, then encountered an average winter, which should have produced moderate over-winter survival for adults. Snow-pack (as measured at higher elevations) was approximately 97% of average by late winter. Onset of spring weather and associated plant phenology was later than normal in 2009. Water-year precipitation through June 2009 has been approximately 100% of average at both higher elevations (Snotel sites) and low elevations (Salmon weather station). Spring and early summer conditions in 2009 were cool and slightly wetter than average.

Habitat Conditions

Habitats are diverse, generally mountainous types, with bighorn sheep summering primarily at higher elevations in sub-alpine ranges. Winter ranges are dominated by sagebrush and grassland systems where precipitation is low. Summer ranges are generally administered by the USFS, whereas the BLM primarily manages winter ranges. Recent changes in land management practices resulted in improved range conditions for bighorn sheep. Improved grazing management and controlled burns on bighorn sheep ranges could further improve conditions in other GMUs. There are several opportunities to increase existing bighorn sheep herds, and some possibilities for reintroductions.

Land management practices over the past 25 years have generally improved bighorn sheep habitat. Water developments and controlled burns have been directed toward improving bighorn sheep range. Grazing systems have been modified and range improvements for livestock have been beneficial to bighorn sheep. Although domestic sheep numbers are down dramatically from historic levels, there are continued occurrences of bighorn sheep coming in contact with domestic sheep.

Several major wildfires have occurred in the Frank Church River-of-No-Return Wilderness since 1979. Large fires on bighorn sheep ranges from Ship Island to Goat Creek, Tappan Gulch, Pole to Warm Springs Creek, Grouse Creek, Camas Creek, and Marble Creek have been beneficial to bighorn sheep and elk. Several wildfires occurred during summer 2000, burning parts of Pistol, Indian, Brush, Soldier, Sheep, Warm Springs, and Yellowjacket creeks in Middle Fork Salmon River drainage, as well as several tributaries in the lower half of Panther Creek. Several habitat rehabilitation projects were undertaken within burned areas. Habitat changes associated with wildfires and subsequent habitat work are expected to improve range conditions for bighorn sheep.

In early 2004, the Department entered a Memorandum of Understanding (MOU) with the BLM and USFS to foster enhanced management of bighorn sheep in the Lost River Range (GMUs 37, 50, and 51). The MOU was spurred by removal of domestic sheep from grazing allotments within and adjacent to occupied bighorn sheep range.

Capture and Translocation

Salmon Region had a very active capture and translocation program for a number of years (Table 5). Bighorn sheep were taken from GMUs 21, 28, 36A, and 36B for translocation to other parts of Idaho and to other states. Within the region, GMUs 28, 30A, 37/50, and 37A have all received bighorn sheep in attempts to reestablish extirpated herds. However, stagnant to declining bighorn sheep populations characterized by low productivity suggest that translocation from Salmon Region herds would be unwise in the near future. Some release sites are available in Salmon Region if an appropriate source population can be identified.

As part of the focused effort in Lost River Range, 62 sheep were translocated from the Sun River herd in Montana to 2 sites (Cedar Creek in GMU 50, Rock Spring Creek in GMU 37) during early January 2005. All adult ewes ($n = 50$) and yearling rams ($n = 4$) were equipped with radio collars and a monitoring protocol was established. Through October 2009, 30 radio-marked ewes and 3 rams died (61% of radio-marked animals). Ultimate cause of death included accidental falls ($n = 3$), pneumonia or other disease problems complicated by poor physical condition ($n = 10$), predation ($n = 2$), hunter harvest ($n = 2$), and unknown ($n = 16$). Observers reported a large portion of translocated sheep coughing during late winter and spring of 2008, an indication of potential pneumonia. Many translocated sheep remained in the vicinity of release sites through spring 2009.

Disease

During an apparent disease outbreak in winter 1988-1989, bighorn sheep in several areas of Salmon Region and adjacent regions were sampled for disease pathogens. Bighorn sheep tested positive for *Pasteurella multocida* and *P. haemolytica* (biotypes/serotypes A₁, A₁₁, T₃, T₄, and T₁₀). Both haemolytic and nonhaemolytic types of *P. haemolytica* were found. Antibody titers to Respiratory Syncytial Virus (RSV), parainfluenza (PI3), and brucellosis (*Brucella ovis*) are common. However, there does not appear to be a correlation between RSV/PI3 titers and sick bighorn sheep or *Pasteurella*-positive bighorn sheep. Lungworm (*Protostrongylus* spp.) loads tend to be high in Salmon Region bighorn sheep. Scabies (*Psoroptes* spp.) is occasionally

evident but rarely severe on any individual bighorn sheep. Poor population performance of Salmon Region bighorn sheep in recent years may well be an indication of residual disease problems.

Management Implications

Harvest of $\geq 3/4$ curl bighorn rams has no effect on total bighorn sheep populations when annual harvest is restricted to $\leq 20\%$ of observed legal rams. Unregulated bighorn sheep populations appear to periodically build to high densities followed by herd die-offs, which are probably related to disease outbreaks. The 1991-1995 bighorn sheep plan calls for ewe removals via capture and translocation or hunting to maintain bighorn sheep populations at lower densities, which may be less susceptible to die-offs.

Virtually all Salmon Region bighorn sheep populations have recently experienced poor population performance, particularly low lamb production. In some GMUs (37, 50, 51) productivity has been low for several years while in others (36A), low productivity did not appear until 1991. However, in most of the region, declines were first noted during winter 1989-1990. In all cases, low lamb:ewe ratios continued through at least 1992. Permit levels in many hunts were reduced and remained low as several years of reduced ram recruitment continued to impact absolute ram numbers. Aerial surveys suggest lamb recruitment is improving in most GMUs. However, overall lamb:ewe ratios are still somewhat low compared to historical levels. Salmon Region bighorn sheep herds probably will not produce surplus animals for translocation in the near future. Small lamb crops have resulted in fewer rams available to hunters, but continued improvements in lamb crops should yield increases in harvestable surplus within a few years. Four- to 8-year-old rams comprise the bulk of hunter harvest.

Table 1. Bighorn sheep population data, Salmon Region, 1983-present.

Area Year	Ewes	Lambs	Rams				Uncl.	Total legal rams	Total sheep	Lambs: 100 ewes	Rams: 100 ewes
			I	II	III	IV					
GMU 21											
1989	93	49	14	11	9	22	0	31	198	52.7	60.2
1990	41	4	6	4	7	10	0	17	72	9.8	65.9
1991	60	5	10	8	2	2	0	4	87	8.3	36.7
1992	72	8	1	13	14	5	0	19	113	11.1	45.8
1993	97	24	14	10	10	3	0	13	158	24.7	38.1
1996	62	20	10	12	8	9	1	17	122	32.3	62.9
2000 ^a	47	5	1	11	8	2	0	10	74	10.6	46.8
2001	40	16	5	11	9	4	0	13	85	40.0	72.5
2002 ^a	10	7	0	6	3	0	0	3	26	70.0	90.0
2003 ^a	13	6	8	0	0	0	0	0	27	46.2	61.5
2005 ^a	48	9	7	9	9	2	0	11	84	18.8	56.3
2006 ^a	18	6	2	2	0	0	0	0	28	33.3	22.2
2007 ^a	17	8	4	1	3	0	0	3	33	47.0	47.0
2008 ^a	78	19	6	7	4	0	0	4	114	24.4	21.8
GMU 21A											
1998 ^a	9	3	1	0	1	0	0	1	14	33.3	22.2
2000	5	4	0	1	0	0	0	0	10	80.0	20.0
2002 ^b	7	6	2	1	2	0	0	2	18	85.7	71.4
2003	5	3	2	1	0	0	0	0	11	60.0	60.0
2005 ^a	13	2	3	1	1	0	0	1	20	15.4	38.5
2008 ^a	6	3	2	4	0	0	0	0	15	50.0	100.0
2009 ^a	3	0	0	0	0	0	1	0	4	0	0
Hunt area 27-1											
1989	77	39	3	9	29	12	3	41	172	50.6	68.8
1991	108	3	5	12	19	6	0	25	153	2.8	38.9
1993	90	14	5	1	5	14	0	19	129	15.6	27.8
1995 ^{a,c}	58	13	6	12	6	3	0	9	98	22.4	46.6
1999	56	14	7	8	13	5	0	18	103	25.0	58.9
2001	80	13	5	2	10	6	0	16	116	16.3	28.8
2002 ^{a,c}	45	9	11	7	16	3	0	19	91	20.0	82.2
2003 ^{a,c}	64	21	8	6	2	1	0	3	102	32.8	26.6
2004	100	24	7	8	19	5	0	24	163	24.0	39.0
2005 ^{a,c}	47	16	16	3	4	2	0	6	88	34.0	53.2
2006 ^a	50	16	7	9	12	6	0	18	100	32.0	68.0
2008 ^a	5	0	1	1	1	1	0	2	9	0	80.0
2009	102	21	17	18	5	9	0	14	172	20.6	48.0
Hunt area 27-2											
1989	57	19	3	10	4	2	38	6	133	33.3	33.3
1990	43	5	2	6	7	12	0	19	75	11.6	62.8
1991	60	2	3	2	4	2	0	6	73	3.3	18.3
1993	36	2	1	7	4	4	0	8	54	5.6	44.4
1995 ^{a,c}	16	4	0	3	1	0	0	1	24	25.0	25.0
1999	54	16	7	8	5	1	0	6	91	29.6	38.9
2002 ^{a,c}	28	8	0	3	9	1	0	10	49	28.6	46.4

Table 1. Continued.

Area Year	Ewes	Lambs	Rams				Uncl.	Total legal rams	Total sheep	Lambs: 100 ewes	Rams: 100 ewes
			I	II	III	IV					
2004	44	9	4	1	3	6	0	9	67	20.5	31.8
2006 ^a	23	14	4	2	4	1	0	5	48	60.9	47.8
2009	61	20	3	7	5	2	1	7	99	32.8	27.9
Hunt area 27-3											
1989	80	35	7	9	11	11	1	22	154	43.8	47.5
1991	88	7	2	10	13	3	0	16	123	8.0	31.8
1993	62	17	7	4	8	11	0	19	109	27.4	48.4
1995 ^{a,c}	30	3	1	1	3	2	0	5	40	10.0	23.3
1999	67	12	3	8	9	3	0	12	102	17.9	34.3
2001 ^c	34	7	0	3	1	0	0	1	45	20.6	11.8
2002 ^{a,c}	31	4	6	3	7	4	0	11	55	12.9	64.5
2003 ^{a,c}	24	1	5	0	3	1	0	4	34	4.2	37.5
2004	57	13	4	6	11	3	4	14	98	22.8	42.1
2005 ^{a,c}	58	24	10	11	7	1	0	8	111	41.4	50.0
2006 ^a	31	11	4	6	9	0	7	9	68	35.5	61.3
2009	41	5	8	4	6	5	1	11	69	12.2	56.1
Hunt area 27-4											
1989	28	11	1	9	0	2	0	2	51	39.3	42.9
1991	36	3	5	8	5	1	0	6	58	8.3	52.8
1993	29	12	2	4	2	0	1	2	50	41.4	27.6
1995 ^{a,c}	3	0	0	1	0	1	0	1	5	0.0	66.7
1999	2	0	1	1	6	8	0	14	18	0.0	800.0
2001 ^c	10	1	0	0	0	0	0	0	11	10.0	0.0
2002 ^{a,c}	26	5	2	2	4	0	1	4	40	19.2	30.8
2004	12	8	1	1	1	1	0	2	24	66.7	33.3
2006 ^a	10	5	0	2	6	3	0	9	26	50.0	110.0
2009	33	10	6	5	5	6	0	11	65	30.3	66.7
West Lower Panther Creek											
1989	62	24	7	6	5	7	2	12	113	38.7	40.3
1990	34	7	3	3	3	5	0	8	55	20.6	41.2
1991	31	7	2	9	7	5	0	12	61	22.6	74.2
1992	17	8	0	3	3	3	0	6	34	47.1	52.9
1996	29	6	5	1	1	1	0	2	43	20.7	27.6
1999 ^a	22	7	4	4	2	0	0	2	39	31.8	45.5
2001 ^a	15	2	0	0	7	2	0	9	26	13.3	60.0
2002 ^a	10	5	0	0	2	0	0	2	17	50.0	20.0
2004 ^{a,c}	13	7	4	2	1	0	0	1	27	53.9	53.9
2005 ^{a,c}	10	3	4	3	2	0	0	2	22	30.0	90.0
2006 ^a	4	3	1	0	0	0	0	0	8	75.0	25.0
2008 ^a	8	3	1	1	0	0	0	0	13	37.5	25.0
East Lower Panther Creek											
1989	93	30	9	5	14	23	1	37	175	32.3	54.8
1990	36	4	1	8	7	12	0	19	68	11.1	77.8
1991	51	9	2	13	9	17	0	26	101	17.6	80.4
1992	66	2	2	3	12	3	0	15	88	3.0	30.3
1996	57	7	5	5	2	3	0	5	79	12.3	26.3

Table 1. Continued.

Area Year	Ewes	Lambs	Rams				Uncl.	Total legal rams	Total sheep	Lambs: 100 ewes	Rams: 100 ewes
			I	II	III	IV					
1999 ^a	71	23	10	3	8	5	0	13	120	32.4	36.6
2001	49	11	4	6	3	2	0	5	67	22.4	30.6
2002 ^a	50	11	6	2	12	1	0	13	82	22.0	42.0
2004 ^{a,c}	11	10	0	0	0	0	0	0	21	90.9	0.0
2005 ^a	47	11	6	9	1	0	1	1	75	23.4	34.0
2006 ^a	6	3	1	1	0	0	0	0	11	50.0	33.3
2007 ^a	14	2	1	2	0	0	0	0	19	14.3	21.4
2008 ^a	14	1	0	3	1	0	0	1	19	7.1	28.6
Iron Creek to Perreau Creek in GMU 28											
1991	8	4	2	7	2	0	0	2	23	50.0	137.5
1996	11	3	0	3	5	0	0	5	22	27.3	72.7
1999 ^a	9	2	2	5	3	1	0	4	22	22.2	122.2
2001 ^a	27	9	4	5	4	0	0	4	49	33.3	48.1
2005 ^a	28	8	4	5	2	3	0	5	50	28.6	50.0
2008 ^a	51	10	0	10	6	4	0	10	81	19.6	39.2
GMUs 30 & 30A											
1992	19	2	3	6	2	0	0	2	32	10.5	57.9
1997	3	5	1	5	5	7	0	12	26	166.7	600.0
1999	29	9	3	5	1	3	0	4	50	31.0	41.4
2000 ^a	23	2	0	8	12	4	3	16	52	8.7	104.3
2001 ^a	18	9	5	2	9	1	0	10	44	50.0	94.4
2002 ^a	15	4	1	7	9	1	0	10	37	26.7	120.0
2003 ^a	22	8	0	3	4	3	0	7	40	36.4	45.5
2004 ^a	37	9	3	1	7	4	0	11	61	24.3	40.5
2005 ^a	25	6	4	1	9	4	0	13	49	24.0	72.0
2006 ^a	17	1	4	5	1	0	0	1	28	5.9	58.8
2007 ^a	26	0	0	1	6	1	0	7	34	0	30.8
2009 ^a	11	5	0	0	0	0	0	0	16	45.5	0
GMU 36A											
1990	98	47	2	13	20	8	3	28	191	48.0	43.9
1991	84	7	5	11	12	9	0	21	128	8.3	44.0
1992	85	3	3	8	10	7	0	17	116	3.5	32.9
1993	63	5	4	6	10	7	0	17	95	7.9	42.9
1994	65	2	4	6	6	8	0	14	91	3.1	36.9
1996	61	7	1	1	3	5	0	8	78	11.5	16.4
1997	53	2	0	1	2	3	0	5	60	3.8	11.3
2000 ^a	34	5	7	5	1	1	0	2	53	14.7	41.2
2001	27	7	1	2	0	0	0	0	37	25.9	11.1
2004 ^a	20	11	4	0	3	0	0	3	38	55.0	35.0
2007 ^a	20	0	6	10	3	0	0	3	39	0	95.0
2008	33	5	4	12	11	3	0	14	68	15.2	90.9
Morgan Creek area, GMU 36B											
1990	66	10	11	18	12	13	0	25	130	15.2	81.8
1991	89	18	9	16	13	14	0	27	159	20.2	58.4
1992	75	10	10	11	16	6	1	22	129	13.3	57.3

Table 1. Continued.

Area Year	Ewes	Lambs	Rams				Uncl.	Total legal rams	Total sheep	Lambs: 100 ewes	Rams: 100 ewes
			I	II	III	IV					
1993 ^{c,d}	47	9	1	14	7	4	0	11	82	19.1	55.3
1994 ^{c,d}	54	3	1	6	14	4	0	18	82	5.6	46.3
1996	66	13	12	6	7	1	0	8	105	19.7	39.4
1997	61	19	2	5	7	3	0	10	97	31.1	27.9
2000 ^a	32	16	2	7	11	4	0	15	72	50.0	75.0
2001	77	10	6	8	21	5	3	26	130	13.0	51.9
2002 ^a	17	3	0	1	6	5	0	11	32	17.6	70.6
2005 ^a	76	18	16	10	11	2	0	13	133	23.7	51.3
2008	61	18	4	6	12	7	0	19	108	29.5	47.5
Birch Creek area, GMU 36B											
1991	23	4	0	1	2	4	0	6	34	17.4	30.4
1993 ^{c,d}	27	4	1	5	6	4	0	10	47	14.8	59.3
1994 ^{c,d}	7	3	0	0	2	0	0	2	12	42.9	28.6
1996	30	0	0	0	6	1	0	7	37	0.0	23.3
1997	29	3	2	2	1	1	0	2	38	10.3	20.7
2000 ^a	14	2	2	4	1	0	0	1	23	14.3	50.0
2001	21	2	2	3	4	0	0	4	32	9.5	42.9
2002 ^a	5	0	0	5	11	1	0	12	22	0.0	340.0
2003 ^a	22	6	0	2	4	0	0	4	34	27.3	27.3
2005 ^a	13	4	1	0	4	1	0	5	23	30.8	46.2
2006 ^a	20	3	0	1	4	1	0	5	29	15.0	30.0
2007 ^a	8	1	1	5	2	0	0	2	17	12.5	100.0
2008	8	6	0	2	4	2	0	6	22	75.0	100.0
2009 ^a	6	3	2	1	2	0	2	2	16	50.0	83.3
Hunt area 37											
1983	90	16	14	7	7	2	0	9	136	17.8	33.3
1987	100	22	7	8	17	6	4	23	164	22.0	38.0
1992	38	1	2	3	3	0	0	3	47	2.6	21.1
1994	54	4	5	8	7	6	0	13	84	7.4	48.1
2000	38	8	3	2	4	0	0	4	55	21.1	23.7
2005 ^e	82	17	11	8	9	4	0	13	131	20.7	39.0
2006 ^c	68	23	5	10	10	1	0	11	117	33.8	38.2
GMU 37A											
1992	36	2	1	2	5	3	1	8	50	5.6	30.6
1998 ^{a,c}	11	4	6	4	3	2	0	5	30	36.4	136.4
2003	35	15	3	3	3	0	0	3	59	42.9	25.7
2007	68	19	2	9	9	5	0	14	112	27.9	36.8

^a Incidental to deer and/or elk surveys.

^b Ground count.

^c Partial count.

^d Incidental to other surveys.

^e Includes 38 animals recently translocated from Montana.

Table 2. Bighorn sheep harvest and drawing odds by hunt area, Salmon Region, 1997-present.

Hunt area	Year	Permits	Harvest	Hunter success (%)	Days/hunter	First-choice applicants	Drawing odds
21	1997	3	3	100		34	1:11.3
	1998	3	2	67	10.7	43	1:14.3
	1999	3	3	100	8.7	51	1:17.0
	2000 ^a	3	1	50	1.0	44	1:14.7
	2001 ^a	4	4	100	5.7	60	1:20.0
	2002	3	2	67	8.5	105	1:35.0
	2003	3	0	0		60	1:20.0
	2004	3	3	100	4.0	79	1:26.3
	2005	3	2	67	4.5	59	1:19.7
	2006	3	2	67	2.5	106	1:35.3
	2007	3	2	67	8.5	88	1:29.3
	2008	3	2	67	11.5	45	1:15.0
	27-1	1997	12	4	33		63
1998		12	0	0		58	1:4.8
1999		12	2	17	11.0	60	1:5.0
2000 ^b		12	1	13		51	1:4.3
2001 ^b		16	3	19	6.0	38	1:3.2
2002		12	2	17	10.5	61	1:5.1
2003		12	2	17	5.5	39	1:3.3
2004		12	3	25	3.0	42	1:3.5
2005		15	5	33	6.6	75	1:5.0
2006		15	2	13	7.0	75	1:5.0
2007 ^f		9 ^e	2	22	8.0	29	1:3.6
2008		8	0	0		44	1:5.5
27-2		1997	6	1	17		83
	1998	6	3	50	5.0	42	1:7.0
	1999	6	1	17	10.0	99	1:17.0
	2000 ^a	6	3	60	4.5	64	1:10.7
	2001 ^a	7	5	71	10.8	43	1:7.2
	2002	6	0	0		58	1:9.7
	2003	6	2	33	7.0	43	1:7.2
	2004 ^c	7	4	57	5.0	35	1:5.8
	2005	6	0	0		48	1:8.0
	2006 ^c	7	2	29	9.0	48	1:8.0
	2007 ^f	6	4	67	12.5	53	1:8.8
	2008	6	4	67	21.8	88	1:14.7
	27-3	1997	2	1	50		30
1998 ^c		2	2	67		27	1:13.5
1999		2	1	50	9.5	36	1:18.0
2000 ^{a,c}		2	1	50	1.0	51	1:25.5
2001 ^b		3	0	0		21	1:10.5
2002		2	2	100	6.5	15	1:7.5

Table 2. Continued.

Hunt area	Year	Permits	Harvest	Hunter success (%)	Days/hunter	First-choice applicants	Drawing odds	
27-4	2003	2	1	50	7.0	29	1:14.5	
	2004	2	2	100	18.0	29	1:14.5	
	2005 ^c	5	3	60	8.0	41	1:10.3	
	2006	4	3	75	6.7	69	1:17.3	
	2007 ^f	4	1	25	8.0	91	1:22.8	
	2008	4	1	25	1.0	54	1:13.5	
	1997	3	1	33		22	1:7.3	
	1998	3	2	67		36	1:12.0	
	1999	3	2	67	2.0	36	1:12.0	
	2000	3	1	33	1.0	22	1:7.3	
	2001	3	1	33	4.0	56	1:18.7	
	2002	3	2	67	5.0	53	1:17.7	
	2003	3	3	100	6.3	67	1:22.3	
	2004	3	2	67	4.5	104	1:34.7	
	2005	3	1	33	16.0	98	1:32.7	
27-L	2006	3	1	33	9.0	116	1:38.7	
	2007 ^f	4 ^e	2	50	2.5	40	1:13.3	
	2008	3	2	67	1.5	45	1:15.0	
	1997	2	1	50		63	1:31.5	
	1998	2	1	50		106	1:53.0	
	1999	2	1	50		98	1:49.0	
	2000	2	2	100	5.0	88	1:44.0	
	2001	2	2	100	6.0	80	1:40.0	
	2002	2	0	0		74	1:37.0	
	2003	2	1	50	9.0	61	1:30.5	
	2004	2	1	50	1.0	55	1:27.5	
	2005	2	1	50	6.0	19	1:9.5	
	2006	2	1	50	6.0	29	1:14.5	
	2007 ^f	2	1	50	4.0	25	1:12.5	
	28-1	2008	2	2	100	8.5	43	1:21.5
1997		2	0	0		13	1:6.5	
1998		2	1	50		11	1:5.5	
2003		2	1	50	2.0	47	1:23.5	
2004		2	0	0		29	1:14.5	
2005		2	0	0		18	1:9.0	
2006		2	1	50	17.0	18	1:9.0	
2007		2	0	0		16	1:8.0	
2008		2	0	0		20	1:10.0	
28-2		1997	3	2	67		33	1:11.0
		1998	3	2	67		37	1:12.3
		2003	2	2	100	1.5	128	1:64.0
		2004	2	1	50	2.0	112	1:56.0
		2005	2	1	50	9.0	63	1:31.5

Table 2. Continued.

Hunt area	Year	Permits	Harvest	Hunter success (%)	Days/hunter	First-choice applicants	Drawing odds	
28	2006	2	1	50	1.0	52	1:26.0	
	2007	1	1	100	3.0	49	1:49.0	
	2008	1	1	100	1.0	53	1:53.0	
	1999	3	0	0		41	1:13.7	
	2000 ^d	3	0	0		37	1:12.3	
	2001 ^d	5	2	40	11.0	36	1:12.0	
	2002	3	2	67	17.5	10	1:3.3	
30	2001	2	2	100	7.0	96	1:48.0	
	2002	2	1	50	2.0	43	1:21.5	
	2003	2	2	100	14.5	78	1:39.0	
	2004	2	2	100	2.0	58	1:29.0	
	2005	2	2	100	5.0	110	1:55.0	
	2006	2	2	100	4.5	97	1:48.5	
	2007	2	2	100	6.5	79	1:39.5	
	2008	2	2	100	13.0	71	1:35.5	
36A	2007 ^c	2	2	100	3.0	40	1:40.0	
36B	2008	1	1	100	11.0	41	1:41.0	
	1997	4	2	50		65	1:16.2	
	1998	4	2	50		57	1:14.2	
	1999	4	4	100	14.0	50	1:12.5	
	2000 ^d	4	1	50	7.0	57	1:14.3	
	2001 ^d	6	5	83	9.6	61	1:15.3	
	2002	4	4	100	9.3	74	1:18.5	
	2003	4	3	75	5.7	85	1:21.3	
	2004	4	4	100	8.3	86	1:21.5	
	2005	4	4	100	5.3	185	1:46.3	
	2006	4	3	75	4.0	172	1:43.0	
	2007	4	4	100	15.3	133	1:44.3	
	2008	4	1	25	1.0	203	1:50.8	
	37	1997	3	1	33		55	1:18.3
		1998	3	2	67		61	1:20.3
		1999	3	1	33	4.0	69	1:23.0
		2000	3	3	100	6.0	85	1:28.3
		2001	2	2	100	5.5	60	1:30.0
		2002 ^c	3	3	100	4.3	82	1:41.0
		2003	2	1	50	2.0	85	1:42.5
2004		2	1	50	2.0	67	1:33.5	
2005		2	2	100	7.0	70	1:35.0	
2006		2	2	100	9.0	94	1:47.0	
2007		3	3	100	11.3	122	1:40.7	
2008		3	2	67	9.0	99	1:33.0	
37A		2005	1	1	100	1.0	178	1:178.0

Table 2. Continued.

Hunt area	Year	Permits	Harvest	Hunter success (%)	Days/hunter	First-choice applicants	Drawing odds
	2006	1	1	100	19.0	29	1:29.0
	2007	1	0	0		20	1:20.0
	2008	1	1	100	9.0	45	1:45.0

^a One permit deferred until 2001 season.

^b Four permits deferred until 2001 season.

^c The state auction or lottery tag holder hunted for bighorn sheep in Salmon Region, raising participation by 1 permit.

^d Two permits deferred until 2001 season.

^e Includes 1 rain-check permit from 2006.

^f Season extended (30 Aug – 31 Oct) because of wildfires.

Table 3. Bighorn sheep harvest and drawing odds, Salmon Region, 1983-present.

Year	Permits	Harvest	Hunter success (%)	First-choice applicants	Drawing odds
1983	79	30	38	591	1:7.5
1984	79	30	38	492	1:6.2
1985	92	37	40	495	1:5.4
1986	92	37	40	622	1:6.8
1987	117	36	31	680	1:5.8
1988 ^a	118	35	30	751	1:6.4
1989	130	61	47	658	1:5.1
1990 ^a	131	48	37	751	1:5.7
1991 ^a	136	47	35	830	1:6.1
1992 ^b	137	55	40	681	1:5.0
1993	68	26	38	433	1:6.4
1994	69	20	29	475	1:6.9
1995	45	17	38	430	1:9.6
1996	45	16	36	461	1:10.2
1997	40	16	40	461	1:11.5
1998 ^a	41	17	42	478	1:12.0
1999	38	15	39	540	1:14.2
2000 ^{a,c}	38	13	46	499	1:13.1
2001 ^c	50	26	52	551	1:14.1
2002 ^a	39	18	46	575	1:14.7
2003	40	18	45	722	1:18.1
2004 ^a	41	23	56	696	1:17.4
2005 ^a	47	22	47	964	1:21.0
2006 ^a	47	21	45	905	1:19.7
2007 ^{a,d, e}	42	24	57	745	1:19.1
2008	40	19	48	851	1:21.3

^a The state auction or lottery tag holder hunted for bighorn sheep in Salmon Region, raising participation by 1 permit.

^b Both the state auction and lottery tag holders hunted for bighorn sheep in Salmon Region, raising participation by 2 permits.

^c Eleven of these permits were deferred until 2001 season because of wildfires.

^d Two of these permits were rain checks from the 2006 season because of wildfires.

^e Seasons for all hunts in GMU 27 extended (30 Aug - 31 Oct) because of wildfires.

Table 4. Bighorn sheep mortality, Salmon Region, 1993-present.

Year	Controlled harvest	Native American harvest ^a	Illegal kill	Other	Total
1993	26	0	0	30	56
1994	20	5	0	23	48
1995	17	3	0	38	58
1996	16	1	0	17	34
1997	16	2	0	28	46
1998	17	1	2	26	46
1999	15	1	1	24	41
2000	13	2	0	23	38
2001	26	0	1	26	53
2002	18	4	0	28	50
2003	18	0	0	25	53
2004	23	3	1	33	60
2005	22	0	0	24	46
2006	21	1	0	36	58
2007	24	1	0	27	52
2008	19	0	0	26	45

^a Native American harvest information has not been consistently available and is incomplete.

Table 5. Bighorn sheep translocation, Salmon Region, 1968-present.

Year	Capture site		Release site		Adults		Lambs		Total
	GMU/State	Location	GMU/State	Location	M	F	M	F	
1968-69	36B	Morgan Cr.	37	Mahogany Cr.	1	4	1	1	7
1969-70	Canada	Banff Park	37	Mahogany Cr.	5	19	0	0	24
1974-75	28	Burnt Gulch	18	Granite Cr.	1	10	2	0	13
1975-76	28	Pretty Gulch	18	Granite Cr.	5	10	4	2	21
	28	Bacon Ranch	58	Blue Dome	1	3	1	1	6
1977-78	28	Burnt Gulch	58	Long Canyon	2	8	0	2	12
1978-79	28	Burnt Gulch	Oregon	Imnaha R.	5	9	1	0	15
	28	Burnt Gulch	18	Bernard Cr.	0	7	0	0	7
1979-80	Wyoming	Whiskey Mt.	50	Elbow Canyon	3	10	2	2	17
	Wyoming	Whiskey Mt.	50	Jaggles Canyon	2	5	2	2	11
1981-82	28	Clear Cr.	36B	Birch Cr.	2	3	0	3	8
	28	Clear Cr.	58	Goddard Canyon	1	3	2	0	6
	28	Pretty Gulch	58	Goddard Canyon	0	3	0	0	3
	28	Burnt Gulch	58	Bloom Canyon	2	8	0	4	14
1983-84	28	Pretty Gulch	Oregon	Imnaha R.	3	8	0	0	11
	Oregon	Lostine R.	21	Shoup Bridge	3	7	3	3	16
1984-85	28	Burnt Gulch	Oregon	Grande Ronde R.	5	5	0	1	11
	21	Cove Cr.	Oregon	Grande Ronde R.	1	10	3	2	16
	Oregon	Lostine R.	30A	Rocky Canyon	3	14	3	2	22
1985-86	21	Ebenezer Bar	Oregon	Minam R.	2	9	1	0	12
	Oregon	Lostine R.	37A	Falls Cr.	4	11	1	2	18
1987-88	36A	E. Fk. Salmon R.	37A	Morse Cr.	3	9	1	0	13
	36B	Morgan Cr.	30A	Cedar Gulch	4	11	2	0	17
	36B	Morgan Cr.	28	Williams Cr.	2	4	0	0	6
1988-89	36B	Morgan Cr.	37A	Falls Cr.	2	18	2	1	23
	36B	Morgan Cr.	17	Tango Bar	5	9	1	0	15
	36B	Morgan Cr.	17	Elevator Mt.	2	11	0	1	14
	1991-92	36B	Morgan Cr.	Wyoming	Bighorn Mts.	2	16	2	2
2004-05	Montana	Sun R.	37, 50	Lost River Range	4	50	1	7	62

APPENDIX A
IDAHO
2008 SEASON
BIGHORN SHEEP RULES

Moose, Bighorn Sheep and Mountain Goat

Controlled Hunt Seasons 2007 and 2008



Photos courtesy of Rick Martin, Camie Hugo, and Billie Lee.



- **Controlled Hunt application period: April 1 - April 30.**
- **Persons applying for controlled hunts MUST submit tag and application fees. See pages 7 - 8.**
- **New information is highlighted.**

Major changes highlighted in yellow.

You may refer to this link for laws pertaining to this rule book:

Administrative Procedures Act:

<http://adm.idaho.gov/adminrules/rules/idapa13/13index.htm>



RULES

2007 and 2008

**NEW
FORMAT!**

SPECIES

MAPS

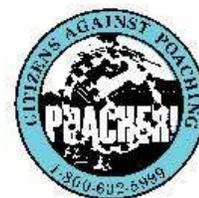
INCLUDE

BOUNDARIES

FOR EACH

CONTROLLED

HUNT!



2007 & 2008 BIGHORN SHEEP HUNTING SEASONS

MANDATORY CHECK AND REPORT REQUIREMENTS

Any hunter killing a bighorn sheep ram must present the horns to an IDFG regional office within 10 days of the date of the kill. IDFG's headquarters office is not equipped to check in bighorn sheep. In the Boise area, these animals can be checked at the IDFG Regional Office in Nampa (3101 S. Powerline Rd, 208-465-8465) between the hours of 8 a.m. and 5 p.m. or by appointment at the Garden City facility, 109 W. 44th St., 208-327-7099. **Successful hunters must complete a big game mortality report, available at IDFG regional offices, within 10 days of the date of the kill.**

A hunter may authorize another person to comply with the above report requirements if that person complies with those requirements and possesses the necessary information to accurately complete the form.

Unsuccessful permittees must present or mail their unused tags to an IDFG office within 10 days after the close of the season for which the tag was valid. Cancelled tags will be returned to the hunter upon request. Failure to report may result in future ineligibility in bighorn sheep drawings.

2007 & 2008 BIGHORN SHEEP CONTROLLED HUNTS - RAMS ONLY

ALL 5000 SERIES HUNTS ARE FOR ROCKY MOUNTAIN BIGHORNS;
ALL 7000 SERIES HUNTS ARE FOR CALIFORNIA BIGHORNS.
84 TOTAL PERMITS INCLUDING SPECIAL LOTTERY AND AUCTION TAG

SHEEP

Rocky Mountain Bighorn Rams: North of Interstate Highway 84 56 Permits			
Hunt No.	Controlled Hunt Area	Permits	Season Dates
5001	11	2	Aug 30-Oct 13
5002	19*	8	Aug 30-Oct 13
5003	20-1*	2	Aug 30-Oct 13
5004	20-2	2	Aug 30-Oct 13
5005	20A	2	Aug 30-Oct 13
5006	21	3	Aug 30-Oct 13
5007	26*	4	Aug 30-Oct 13
5008	27-1	8	Aug 30-Oct 13
5009	27-2	6	Aug 30-Oct 13
5010	27-3*	4	Aug 30-Oct 13
5011	27-4*	3	Aug 30-Oct 13
5012	28-1	2	Aug 30-Oct 13
5013	28-2	1	Aug 30-Oct 13
5014	30*	2	Aug 30-Oct 13
5015	36A*	1	Aug 30-Oct 13
5016	36B*	4	Aug 30-Oct 13
5017	37*	3	Aug 30-Oct 13
5018	37A	1	Aug 30-Oct 13

Rocky Mountain Bighorn Rams Late Controlled Hunts North of Interstate Highway 84 5 Permits			
Hunt No.	Controlled Hunt Area	Permits	Season Dates
5019	17L	1	Oct 13-Oct 31
5020	26L	2	Oct 13-Oct 31
5021	27L*	2	Oct 13-Oct 31

California Bighorn Rams: South of Interstate Highway 84 21 Permits			
Hunt No.	Controlled Hunt Area	Permits	Season Dates
7001	41-1*	2	Aug 30-Oct 8
7002	41-2*	2	Aug 30-Oct 8
7003	42-1*	6	Aug 30-Sep 14
7004	42-2*	6	Sep 22-Oct 8
7005	46*	3	Aug 30-Oct 8
7006	55*	2	Aug 30-Oct 8

* See controlled hunt area descriptions. This hunt includes other units or parts of other units.

HUNT AREA DESCRIPTIONS

SHEEP

Hunt Area 11 — That portion of Unit 11 that drains into the Snake River downstream from the mouth of the Salmon River to, but excluding, the Tenmile Creek Canyon drainage.

Hunt Area 17 — That portion of Unit 17 east of the Selway River upstream from and including the Whitecap Creek drainage and north of the Deep Creek Road (Forest Service Road 468).

Hunt Area 19—Those portions of Units 14, 19 and 20 from the Red River Ranger Station-White Water Ranch Road (Forest Service Road 421) downstream to and including the Wind River drainage.

Hunt Area 20-1—That portion of Unit 20 upstream from Sabe Creek, that portion of Unit 21 downstream from the Horse Creek Trail (Forest Service Trail 159) and Reynolds Creek Trail (Forest Service Trail 067) and that portion of Unit 17 upstream from the Witter Ridge Trail (Forest Service Trail 75) and the Thompson Flat-Wood Hump-Surprise Creek Trail (Forest Service Trail 031).

Hunt Area 20-2—That portion of Unit 20 downstream from the Nez Perce-Bitterroot Forest boundary along Sabe Creek to the Red River Ranger Station-White Water Ranch Road.

Hunt Area 20A—Those portions of Unit 20A upstream from and including the Butts Creek drainage to the Middle Fork of the Salmon River, and within the Middle Fork of the Salmon River drainage upstream to Papoose Creek-Papoose Lake-Coyote Springs.

Hunt Area 21—That portion of Unit 21 downstream from the Spring Creek Road (Forest Service Road 038) to the Horse Creek Trail (Forest Service Trail 159) and Reynolds Creek Trail (Forest Service Trail 067).

Hunt Area 26—All of Unit 26 and that portion of Unit 20A within the Middle Fork of the Salmon River drainage upstream from Papoose Creek-Papoose Lake-Coyote Springs and that portion of Unit 27 on the west side of the Middle Fork of the Salmon River from Big Creek upstream to and including the Brush Creek drainage.

Hunt Area 26-L—All of Unit 26.

Hunt Area 27-1—That portion of Unit 27 west of the Middle Fork of the Salmon River upstream from, but excluding, the Brush Creek drainage to and including the Indian Creek drainage.

Hunt Area 27-2—That portion of Unit 27 east of the Middle Fork of the Salmon River upstream from its mouth to the Waterfall Creek Trail (Forest Service Trail 045).

Hunt Area 27-3—That portion of Unit 27 east of the Middle Fork of the Salmon River upstream from the Waterfall Creek Trail (Forest Service Trail 045) to and including the Camas Creek drainage on the north side of Camas Creek, and that portion of Unit 28 within the Camas Creek drainage north of Camas Creek and west of the Silver Creek-Meyers Cove Road (Forest Service Road 108).

Hunt Area 27-4—That portion of Unit 27 within the Loon Creek drainage; that portion of Unit 27 east of the Middle Fork of the Salmon River, south of Camas Creek, and northwest of Fly Creek Trail (Forest Service Trail 124); that portion of Unit 36 within the Yankee Fork drainage.

Hunt Area 27-L—That portion of Unit 20A within the Middle Fork of the Salmon River drainage, and that portion of Unit 27 on the west side of the Middle Fork of the Salmon River downstream from but excluding the Pistol Creek drainage and the east side of the Middle Fork of the Salmon River downstream from but excluding the Camas Creek drainage.

Hunt Area 28-1—That portion of Unit 28 west of Panther Creek downstream from and including Big Deer Creek drainage.

Hunt Area 28-2 — That portion of Unit 28 east of Panther Creek, and north of the Hat Creek drainage.

Hunt Area 30 — All of Units 30 and 30A.

Hunt Area 36A — All of Unit 36A and that part of Unit 36 south and east of State Highway 75.

Hunt Area 36B—All of Unit 36B; that portion of Unit 28 south of and including the Hat Creek drainage; that portion of Unit 28 west of the Panther Creek Road and south of the Silver Creek-Meyers Cove Road, and that portion of Unit 27 southeast of Fly Creek Trail (Forest Service Trail 124) and northeast of the Sleeping Deer Road (Forest Service Road 086).

Hunt Area 37—All of Unit 37 and that portion of Unit 50 east of U.S. Highway 93 and that portion of Unit 51 west of the Howe-Goldburg Road.

Hunt Area 37A — All of Unit 37A.

Hunt Area 41-1 — That portion of Unit 41 in the Little Jacks Creek and Shoofly drainages and all of Unit 40.

Hunt Area 41-2 — That portion of Unit 41 in the Big Jacks Creek drainage.

Hunt Areas 42-1 and 42-2— All of Unit 42 and that portion of Unit 41 within the East Fork and South Fork of the Owyhee River drainages outside the Duck Valley Indian Reservation boundary.

Hunt Area 46 — Those portions of Units 41, 46 and 47 within the Bruneau and Jarbidge River drainages upstream from and including Sheep Creek drainage.

Hunt Area 55 — All of Unit 55.

Submitted by:

Jay Crenshaw
Regional Wildlife Manager

Steve Nadeau
Regional Wildlife Manager

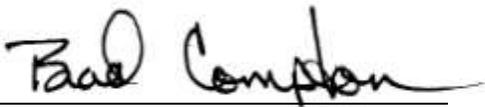
Jeff Rohlman
Regional Wildlife Manager

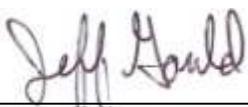
Randy Smith
Regional Wildlife Manager

Daryl Meints
Regional Wildlife Manager

Tom Keegan
Regional Wildlife Manager

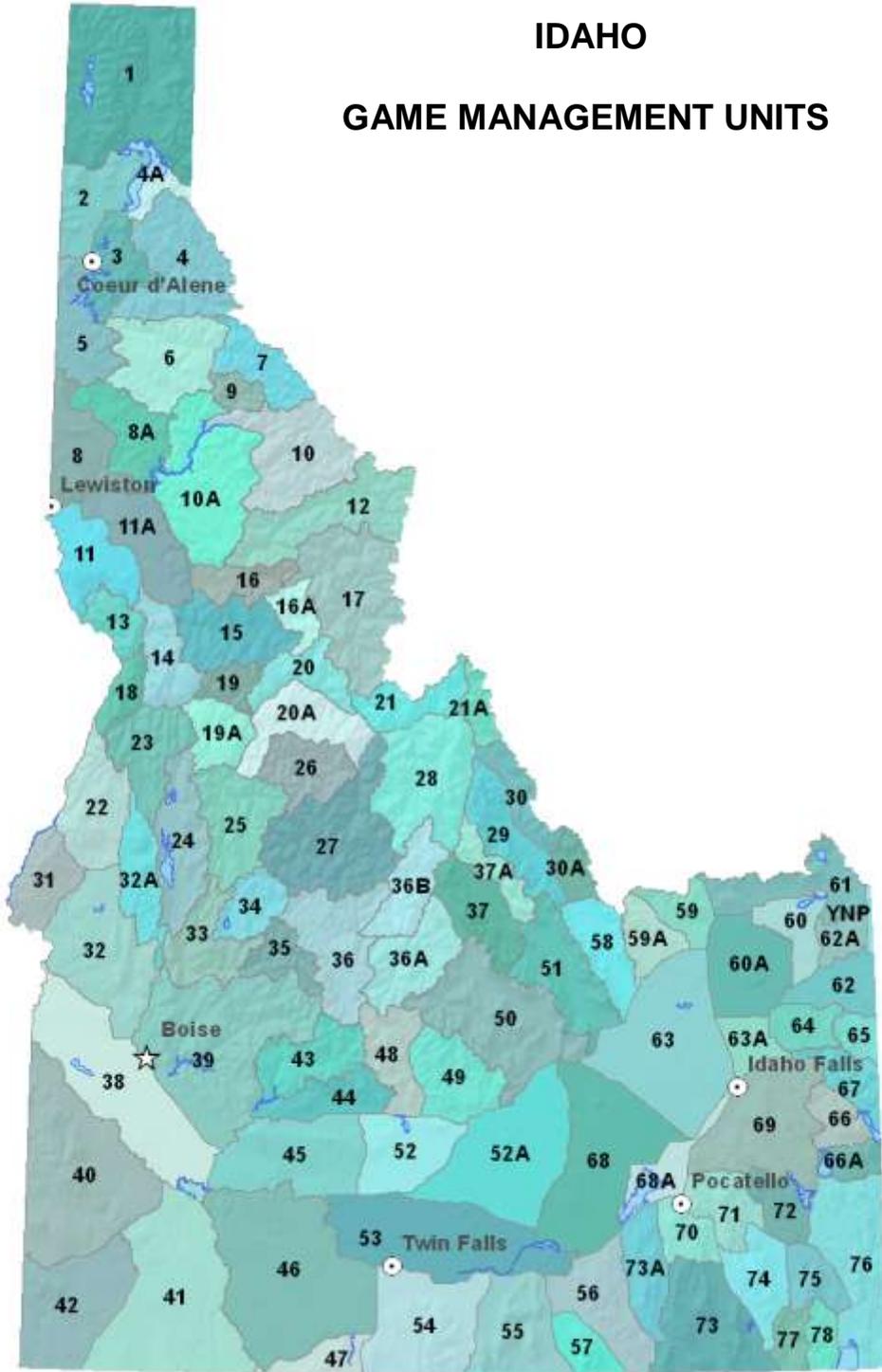
Approved by: IDAHO DEPARTMENT OF FISH AND GAME


Brad Compton, Asst. Chief
Bureau of Wildlife


Jeff Gould, Chief
Bureau of Wildlife

IDAHO

GAME MANAGEMENT UNITS



FEDERAL AID IN WILDLIFE RESTORATION

The Federal Aid in Wildlife Restoration Program consists of funds from a 10% to 11% manufacturer's excise tax collected from the sale of handguns, sporting rifles, shotguns, ammunition, and archery equipment. The Federal Aid program then allots the funds back to states through a formula based on each state's geographic area and the number of paid hunting license holders in the state. The Idaho Department of Fish and Game uses the funds to help restore, conserve, manage, and enhance wild birds and mammals for the public benefit. These funds are also used to educate hunters to develop the skills, knowledge, and attitudes necessary to be responsible, ethical hunters. Seventy-five percent of the funds for this project are from Federal Aid. The other 25% comes from license-generated funds.

