

are met. If so, license levels will be based on the number of $\frac{3}{4}$ -curl rams observed during surveys.

Ewes: Not applicable at this time.

Rams: Harvest would initially be conservative with the number of either-sex licenses recommended equal to approximately 10% of the rams observed during aerial surveys.

DEEP CREEK, CASTLE REEF, GIBSON LAKE NORTH, FORD CREEK (SOUTHERN ROCKY MOUNTAIN FRONT ELK CREEK – TETON RIVER COMPLEX)

(Hunting Districts 421, 422, 423, 424)



Description: The Southern Rocky Mountain Front region, sheep Hunting Districts 421, 422, 423, and 424, represents 1,105mi² with 434mi² (42%) privately owned and the rest managed by several public land management agencies. In Montana, the Rocky Mountain Front extends from Glacier National Park approximately 155 miles in a southeasterly direction. Roughly 330mi² (30%) of these hunting districts are currently occupied by bighorn sheep during at least some portion of the year. Less than 10% of existing occupied sheep habitat is private land. Just over 450 square miles of this productive mosaic of mountain foothills and grasslands, forests and alpine vistas are managed by the U.S. Forest Service (USFS) – Lewis and Clark National Forest (NF). There are an additional 22mi² of foothills, predominated by grassland/shrubland vegetation, managed by the Bureau of Land Management (BLM). The private land portion of the area is mostly cattle and hay operations with a smaller amount of dryland grain on the eastern perimeter. The Teton and Sun Rivers along with Deep, Willow, Smith, Ford, and Elk Creeks drain eastward through the area from the mountain front and the Continental Divide.

Public Access: Hunting as well as many other forms of outdoor recreation occurs on private

and public lands throughout the Southern Rocky Mountain Front Complex. Bighorn sheep hunting access is mostly by foot or horseback on USFS trails. There is further access on BLM and private lands. Very little of the Lewis and Clark NF and adjacent BLM lands are authorized for motorized use. Access to private lands for bighorn hunting varies from limited to no access, with varying amounts of public use depending upon individual landowners. Currently, there are no Block Management areas in the area where bighorns reside. The majority of the bighorns in these hunting districts are available to the public during the hunting season. Most of the bighorn sheep on the Southern Front are migratory in nature, using mountain foothills for winter range habitat and backcountry subalpine and alpine territories for summer range. Popular areas for viewing bighorn sheep are along the Gibson Reservoir, Sun Canyon, Ear Mountain, Ford Creek along the Benchmark Road, and Willow Creek heading up to locales around Fairview Plateau.

Bighorn Sheep Populations: From a historical standpoint, the Southern Rocky Mountain Front sheep have for the most part been a healthy and numerous herd. The most recent large-scale disease die-off (due to a pneumonia/lungworm complex) occurred in 1983 to 1984. Other sheep die-off events were recorded between the 1920s and 1930s. Although some small herd segments stay within and between these hunting districts, bighorns frequently move to and from neighboring use areas. Bighorns occupy a variety of habitats within this region, including mountain foothills and meadows, steep, rocky ridges, avalanche chutes, and cliff faces. Historical survey and inventory records for these sheep date back to the middle part of the 20th century. Sheep habitats in these hunting districts are typically rugged and, in some areas, difficult to access for survey and inventory purposes. Traditional foot/horseback and some aerial surveys are conducted biannually (fall [rut] and spring) to monitor bighorn populations. Supplemental observations are recorded during other species survey efforts or summer survey efforts (mostly related to lamb recruitment). Animals are counted and classified by gender and number of lambs. Horn curl is used to classify ram age structure: $\frac{3}{4}$ -curl +, $\frac{3}{4}$ -curl, $\frac{2}{3}$ -curl, $\frac{1}{2}$ -curl and $\frac{1}{4}$ -curl.

Bighorn census figures from late fall/early winter surveys from as early as 1955 for each hunting district are enumerated below (Figures 1-4 and Tables 1, 3, 5, and 7). All four hunting districts are annually surveyed during late fall/early winter (December) and spring (April). Yearly late fall/early winter rut survey counts

typically best enumerate overall population size, especially in relation to overall ram numbers and age structure. The latter surveys vary from zero up to 389 sheep, depending on the hunting district. See below for summaries regarding sheep classification numbers, ram: ewe: lamb ratios, trapping and transplant information, and hunting and harvest information for each hunting district.

HUNTING DISTRICT 421

Hunting District 421 has traditionally seen lower sheep numbers compared to adjacent southern and western hunting districts. In 1998, 22 sheep (from the Bitterroot Mountains) were released between the North and South Forks of Deep Creek to help boost the population in this area. Traditional use areas include sections in and immediately around the North and South Forks of Deep Creek, farther north around the Ear Mountain Wildlife Management Area (WMA), and west on and around drainages associated with the Rocky Mountain and Headquarters Pass area. Conventional wintering areas include locations on and immediately adjacent to the foothills of the Rocky Mountain Front (Deep Creek north to the South Fork of the Teton River).

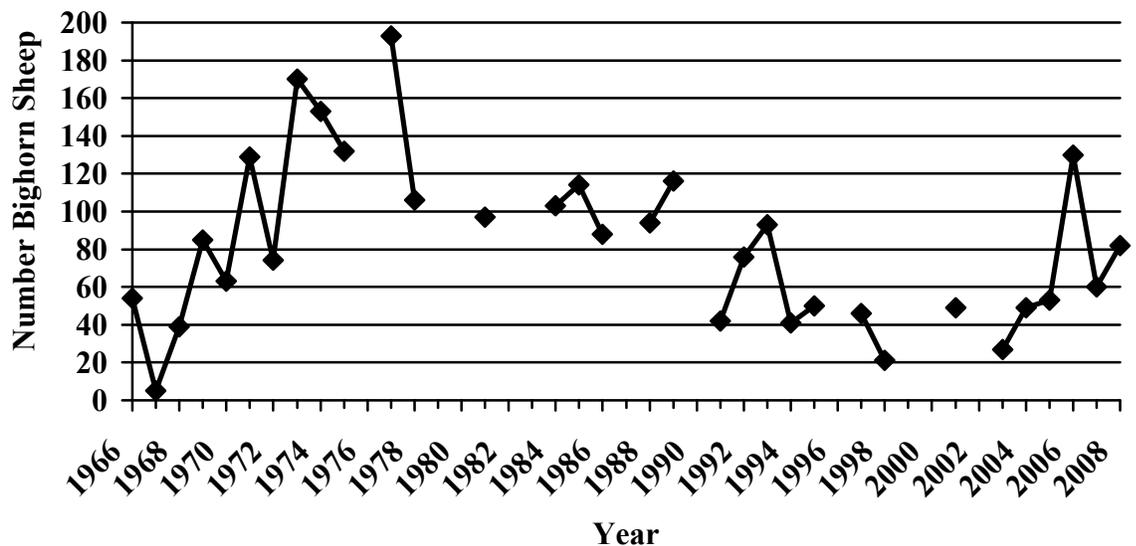
Based primarily on available, suitable habitat and concerns related to disease and die-offs, the population objective for this hunting district is 175 observed bighorns during early winter and spring surveys (assuming healthy ram age structure and lamb: ewe ratios). From 1966 to 2008, the average total number of sheep observed each year during late fall/early winter survey efforts was 82 (Figure 1 and Table 1). An average of 16 rams, 32 ewes, 11 lambs and 52 unclassified sheep have been observed each year. Average lamb production equals 47 per 100

ewes and observed rams $\frac{3}{4}$ -curl or greater have averaged eight since 1966.

Recreation Provided: Hunting District 421 provides some private land hunting, but public lands are generally accessible for day hunting from trailheads or extended camping trips into BLM, national forest and wilderness areas. Of the four hunting districts in this complex, Hunting District 421 likely possesses the most lands inaccessible to public sheep hunting and viewing. Outfitting is limited since harvest is controlled through a limited-entry drawing, which restricts the number of nonresident hunters.

From 1912 to 1952, there was no hunting season for bighorn sheep in the greater Sun River area (this includes Hunting District 421). Beginning in 1953 and up until 1974, ram hunting seasons were permitted (Bighorn Sheep Hunting District 42). Starting in 1974, permits were changed to either-sex (ES) hunting. It was not until 1976 that Hunting Districts 421, 422, 423, and 424 were established. For purposes of this document, Table 2 summarizes licenses offered and bighorn harvest since 1976 for Hunting District 421. From 1976 to 2008, 243 licenses have been allocated (147 ES and 96 ewe licenses), with 129 rams and 36 ewes harvested (88% success for ES licenses and 38% success for ewe licenses – there is typically less hunter effort for hunting ewes compared to ram hunting). The 33-year average harvest is four sheep from the either-sex licenses and one sheep from the adult ewe licenses, although ewe licenses were not allocated in some years. Average age of harvested rams from 1981 to 2008 is 7 1/2 years old.

Figure 1. Total number of bighorn sheep observed during aerial/ground trend surveys (late fall/early winter) in Hunting District 421, 1966-2008. For years in which no data are present, it is unknown as to whether no sheep were observed or no survey efforts were conducted and/or recorded.



Year	Ewes	Lambs	Rams (3/4 & 3/4+)	Unclassified	Total	Ram:Ewe:Lamb
1966	33	11	10(3)		54	30:100:33
1967		2		3	5	NA
1968	30	8	1		39	3:100:26
1969	53	25	24(4)		102	21:100:43
1970	35	18	10(3)		63	29:100:51
1971	68	33	25(3)	129	129	NA
1972	31	15	23(15)	5	74	65:100:48
1973	2	1	0	167	170	NA
1974	85	30	34(19)	4	153	40:100:35
1975				132	132	NA
1976						
1977	106	49	38(18)		193	36:100:46
1978	25	7	14(13)	60	106	56:100:28
1979						
1980						
1981	47	22	8(2)	20	97	17:100:47
1982						
1983						
1984	66	12	25(9)		103	38:100:18
1985	77	7	30(7)		114	39:100:9
1986	66	13	9(5)		88	14:100:20
1987						
1988	30	13	9(6)	42	94	30:100:43
1989			31(15)	85	116	NA
1990						
1991	19	6	17(12)		42	89:100:35
1992	36	18	22(4)		76	61:100:50
1993	38	21	34(20)		93	89:100:55
1994	12	11	18(12)		41	150:100:92
1995	18	8	24(10)		50	133:100:44
1997	26	7	10	3	46	38:100:27
1998			2(2)	19	21	NA
2001			3(1)	46	49	NA
2003	1			26	27	NA
2004	1		4(2)	45	49	NA
2005				53	53	NA
2006			15(7)	115	130	NA
2007	26	6	12(8)	16	60	46:100:23
2008	30	3	29(7)	20	82	97:100:10

Table 1. Annual observations of sheep during rutting/early winter period, Hunting District 421, 1966-2008. Counts represent those sheep believed to be unique sheep counted only once per survey. For years in which no data are present, it is unknown as to whether no sheep were observed or no survey efforts were conducted and/or recorded.

Table 2. Number and types of licenses issued and subsequent harvest, Hunting District 421, 1976-2008. Harvest totals are a combination of check station data, hunter questionnaire results, harvest surveys, and transportation forms.

Year	Either-Sex Licenses	Either Sex Harvest	% Success	Ewe Licenses	Ewe Harvest	% Success
1976	10	8	80	15	2	13
1977	10	9	90	0	0	NA
1978	10	9	90	14	0	0
1979	10	9	90	4	0	0
1980	10	10	100	6	2	33
1981	10	9	90	10	7	70
1982	8	8	100	4	2	50
1983	10	8	80	10	9	90
1984	5	5	100	5	2	40
1985	5	2	40	0	0	NA
1986	5	5	100	0	0	NA
1987	5	4	80	0	0	NA
1988	5	3	60	0	0	NA
1989	5	5	100	NA	3	NA
1990	5	5	100	NA	1	NA
1991	5	4	80	10	1	10
1992	5	3	60	10	3	30
1993	2	2	100	2	1	50
1994	2	2	100	2	0	0
1995	2	2	100	2	1	50
1996	2	1	50	1	1	100
1997	2	2	100	1	1	100
1998	1	1	100	0	0	NA
1999	1	1	100	0	0	NA
2000	1	1	100	0	0	NA
2001	1	1	100	0	0	NA
2002	1	1	100	0	0	NA
2003	1	1	100	0	0	NA
2004	1	1	100	0	0	NA
2005	1	1	100	0	0	NA
2006	2	2	100	0	0	NA
2007	2	2	100	0	0	NA
2008	2	2	100	0	0	NA
Total	147	129	88	96	36	38

HUNTING DISTRICT 422

Hunting District 422 has traditionally been an area demonstrating robust sheep numbers. Because of this, the area has been one of the main focal points for sheep trapping and transplanting for the state of Montana. Since 1942, there have been 52 separate trapping and transplant efforts (sometimes multiple times per year) in this hunting district. Since 2009, a total of 944 sheep (34% of all recorded sheep transplants statewide) have been trapped out of this general area (includes Hunting Districts 422 and 423) and relocated to many parts of Montana, as well as other states. An old wooden sheep trap still stands below Castle Reef, evidence of trapping efforts from years ago. In 1944, one adult ram (from West Gallatin, Montana) was released in the Sun Canyon area. Traditional use areas in this hunting district include Hannan and Blacktail Gulches, Wagner Basin, and locales on and below Castle Reef. Conventional wintering areas include locations on and immediately adjacent to the foothills of Castle Reef, Wagner Basin, and Hannan Gulch.

Based on research related to available, suitable habitat and concerns regarding disease and die-offs, the population objective for this hunting district is 200 observed bighorns during early winter and spring surveys (assuming healthy ram age structure and ewe:lamb ratios). From 1955 to 2008, the average total number of sheep observed each year during late fall/early winter survey efforts was 194 (Figure 2 and Table 3). An average of 45 rams, 82 ewes, 37 lambs, and 62 unclassified sheep have been observed each year. Average lamb production equals 46 per 100 ewes and observed rams $\frac{3}{4}$ -curl or greater have averaged 15 since 1955.

Recreation Provided: Hunting District 422 provides some private land hunting, but public lands are generally accessible for day hunting from trailheads or extended camping trips into BLM and national forest lands. Of the four hunting districts in this complex, Hunting District 422 likely possesses some of the most easily accessible public sheep hunting and viewing. Outfitting is limited since harvest is controlled through a limited-entry drawing, which restricts the number of nonresident hunters. Good bighorn sheep hunting in this hunting district is readily accessible by sheep standards.

From 1912 to 1952, there was no hunting season for bighorn sheep in the Sun River area. Beginning in 1953 and up until 1974, ram hunting seasons were permitted (Bighorn Sheep Hunting District 42). Starting in 1974, permits were changed to either-sex (ES) hunting. It was not until 1976 that Hunting Districts 421, 422, 423, and 424 were established. For purposes of this document, Table 4 summarizes licenses offered and bighorn harvest since 1976 for Hunting District 422. From 1976 to 2008, approximately 580 licenses have been allocated (254 ES and 326 ewe licenses), with 233 rams and 248 adult ewes harvested (92% success for ES licenses and 76% success for adult ewe licenses). The 33-year average harvest is 7.3 sheep from the either-sex licenses and 7.8 sheep from the adult ewe licenses. Average age of harvested rams from 1981 to 2008 is 6 1/2 years old.

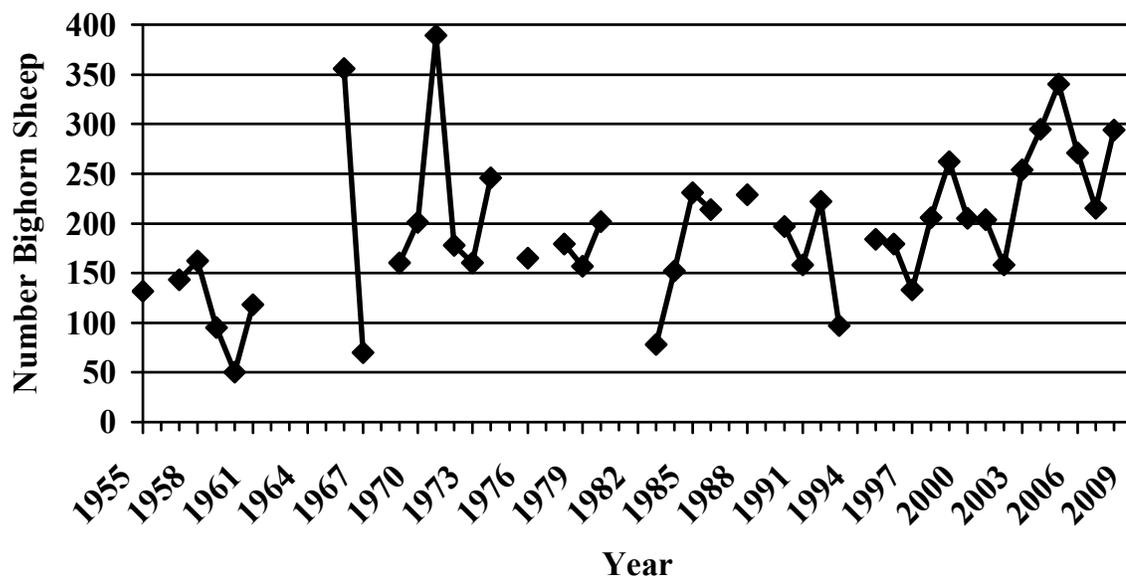


Figure 2. Total number of bighorn sheep observed during aerial and ground trend surveys (late fall/early winter) Hunting District 422, 1955-2008. For years in which no data are present, it is unknown as to whether no sheep were observed or no survey efforts were conducted and/or recorded.

Table 3. Annual observations of sheep during rut/early winter period, Hunting District 422, 1955-2008. Counts represent those sheep believed to be unique sheep counted only once per survey. For years in which no data are present, it is unknown as to whether no sheep were observed or no survey efforts were conducted and/or recorded. Year

Year	Ewes	Lambs	Rams (3/4 & 3/4+)	Unclassified	Total	Ram:Ewe:Lamb
1955	64	34	34 (9)		132	53:100:53
1957	69	29	42 (13)	3	143	60:100:42
1958	66	41	49 (11)	6	162	74:100:62
1959	38	13	20 (4)	24	95	52:100:34
1960	28	11	7 (1)	4	50	25:100:39
1961	66	24	14 (4)	14	118	21:100:36
1966 ¹	198	72	86 (22)		356	43:100:36
1967	39	17	4	10	70	NA:100:44
1968 ²	193	83	65(10)	20	361	34:100:43
1969	84	46	30		160	36:100:55
1970	106	57	38		201	36:100:54
1971 ¹				389	389	NA
1972	99	52	27 (2)		178	27:100:53
1973	85	34	41 (7)		160	48:100:40
1974	120	67	59 (11)		246	49:100:56
1975	102	59	51 (4)	2	214	50:100:58
1976	77	63	24 (9)	1	165	31:100:82
1978	79	37	11 (1)	52	179	14:100:47
1979	82	44	31 (2)		157	38:100:54
1980	88	59	55 (10)		202	63:100:67
1981	113	54	68 (10)		235	60:100:47
1982	103	64	66 (21)		233	64:100:62
1983	38	16	24 (2)		78	63:100:42
1984	87	20	45 (6)		152	52:100:23
1985				231	231	NA
1986	97	59	58 (11)		214	60:100:61
1988	96	56	62 (21)	15	229	65:100:58
1989	143	71	74 (36)		288	52:100:58
1990	82	52	63 (24)		197	77:100:41
1991	58	24	49 (3)	27	158	84:100:41
1992			27 (9)	195	222	NA
1993	40	12	22 (8)	23	97	55:100:30
1995	51	37	45 (15)	51	184	88:100:73
1996	93	23	63 (26)		179	68:100:25
1997	62	32	33 (18)	6	133	53:100:52
1998	93	38	68 (28)	7	206	73:100:41
1999	91	33	65 (25)	73	262	71:100:36
2000	70	37	47 (22)	51	205	67:100:53
2001	79	24	48 (20)	53	204	61:100:30
2002	60	30	19 (9)	49	158	32:100:50
2003	87	40	50 (24)	77	254	57:100:46
2004	103	35	32 (15)	125	295	31:100:34
2005	131	56	81 (31)	72	340	62:100:43
2006	125	21	96 (31)	28	271	77:100:17
2007	75	40	61 (37)	39	215	81:100:53
2008	128	34	97 (48)	35	294	76:100:27

¹ Includes Hunting Districts 422 and 423.

² Includes Hunting Districts 422 and 424.

Year	Either-Sex Licenses	Either Sex Harvest	% Success	Ewe Licenses	Ewe Harvest	% Success
1976	10	10	100	20	11	55
1977	10	10	100	0	0	NA
1978	10	9	90	20	12	60
1979	10	8	80	5	2	40
1980	10	10	100	18	18	100
1981	10	10	100	20	14	70
1982	6	6	100	12	11	92
1983	15	12	80	30	24	80
1984	5	5	100	5	5	100
1985	5	3	60	0	0	NA
1986	5	5	100	0	0	NA
1987	5	5	100	0	0	NA
1988	5	5	100	5	5	100
1989	10	10	100	20	16	80
1990	10	10	100	20	17	85
1991	10	9	90	20	16	80
1992	10	7	70	20	15	75
1993	5	4	80	5	3	60
1994	5	6	120	5	2	40
1995	5	5	100	5	3	60
1996	5	5	100	5	3	60
1997	8	8	100	5	5	100
1998	6	6	100	1	1	100
1999	8	8	100	0	0	NA
2000	10	10	100	0	0	NA
2001	10	10	100	0	0	NA
2002	10	NA	NA	NA	NA	NA
2003	5	5	100	1	1	100
2004	5	6	120	5	3	60
2005	5	5	100	14	13	93
2006	7	7	100	20	17	85
2007	7	7	100	20	NA	75
2008	7	7	100	25	16	64
Totals	254	233	92	326	248	76

Table 4. Number and types of licenses issued and subsequent harvest, Hunting District 422, 1976-2008. Harvest totals are a combination of check station data, hunter questionnaire results, harvest surveys and transportation forms.

HUNTING DISTRICT 423

While this hunting district has consistently demonstrated relatively good population numbers, it is on average a little less productive than Hunting Districts 422 and/or 424.

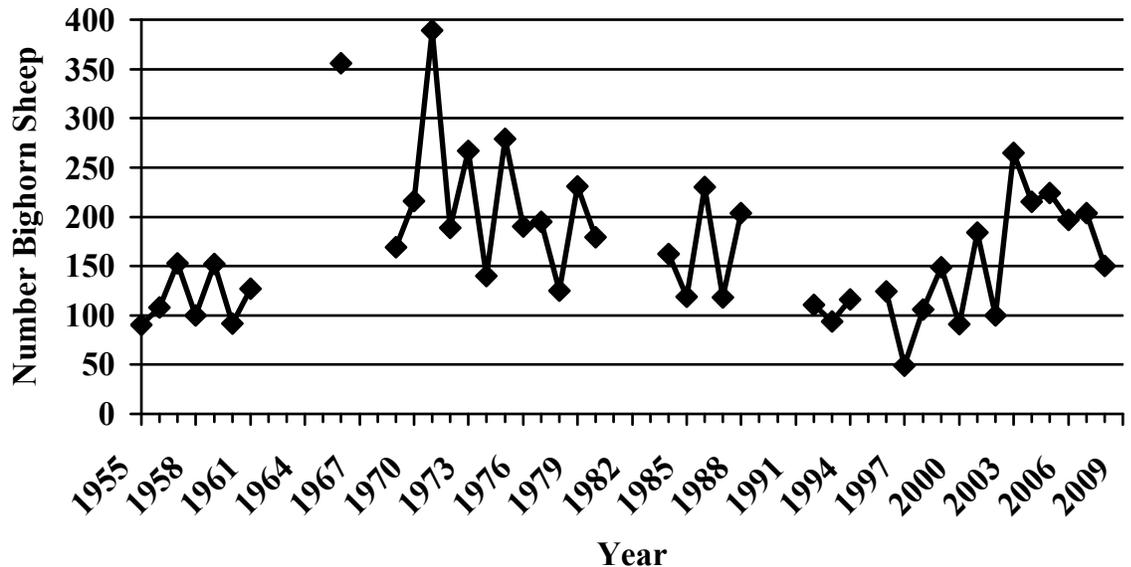
Trapping and transplanting has occurred in this hunting district, however, due to the proximity to Hunting District 422 and the relatedness of being Sun River sheep, during trap efforts there was often no recorded effort to distinguish between Hunting Districts 422 and 423 regarding from where and which sheep came from which hunting district (See Hunting District 422 for information related to numbers of sheep trapped). It is known that trap efforts (with use of ground-based wooden sheep traps) used to occur in the areas around Scattering Springs and Reclamation Flats. Traditional use areas in this hunting district include locales in and around Mortimer and Big George Gulches, Arsenic Creek, Reclamation Flats and Sheep Reef. Conventional wintering areas include most of these same locations, albeit typically at lower elevations.

Based on research related to available, suitable habitat and concerns regarding disease and die-offs, the population objective for this hunting district is 200 observed bighorns during late fall/early winter and spring surveys (assuming healthy ram age structure and ewe:lamb ratios). From 1955 to 2008, the average total number of sheep observed each year during late fall/early winter survey efforts was 154 (Figure 3 and Table 5). An average of 32 rams, 66 ewes, 30 lambs, and 36 unclassified sheep have been observed. Average lamb production equals 47 per 100 ewes and observed rams $\frac{3}{4}$ -curl or greater have averaged 11 since 1955.

Recreation Provided: Hunting District 423 is comprised of nearly 100% public lands (Lewis and Clark NF). Compared to the other three hunting districts in this region, hunting in this district is much more of a backcountry experience. The most accessible starting point to access this hunting district is from the Mortimer Gulch trailhead at Gibson Reservoir. This trail wraps around the north side of the reservoir and gives way to several good locations for sheep hunting and/or viewing.

From 1912 to 1952, there was no hunting season for bighorn sheep in the Sun River area. Beginning in 1953 and up until 1974, ram hunting seasons were permitted (Bighorn Sheep Hunting District 42). Starting in 1974, permits were changed to either-sex (ES) hunting. It was not until 1976 that Hunting Districts 421, 422, 423, and 424 were established. For purposes of this document, Table 6 summarizes licenses offered and bighorn harvest since 1976 for Hunting District 423. From 1976 to 2008, a little more than 486 licenses have been allocated (205 ES and just over 281 adult ewe licenses), with an estimated 187 rams and 133 adult ewes harvested (91% success for ES licenses and 47% success for ewe licenses). The 33-year average harvest is 5.7 sheep from both the either-sex licenses and the adult ewe licenses. Average age of harvested rams from 1981 to 2008 is 7.3 years old.

Figure 3. Total number of bighorn sheep observed during aerial and ground trend surveys (late fall/early winter) in Hunting District 423, 1955-2008. For years in which no data are present, it is unknown as to whether no sheep were observed or no survey efforts were conducted and/or recorded.



Year	Ewes	Lambs	Rams (3/4 & 3/4+)	Unclassified	Total	Ram:Ewe:Lamb
1955	33	19	16 (11)	22	90	48:100:58
1956	30	10	12 (5)	56	108	40:100:33
1957	55	36	13 (7)	49	153	24:100:65
1958	51	26	16 (9)	7	100	51:100:31
1959	51	28	33 (6)	40	152	65:100:55
1960	47	30	15 (4)		92	32:100:64
1961	69	27	26 (12)	5	127	38:100:39
1966 ¹	198	72	86 (22)		356	43:100:36
1967	19	6	6		31	32:100:32
1969	61	29	29 (5)	50	169	48:100:48
1970	131	45	42 (3)		216	32:100:34
1971 ¹					389	NA
1972	97	52	40 (5)	5	189	41:100:54
1973	134	74	59 (7)		267	44:100:55
1974	71	32	29 (6)	8	140	41:100:45
1975	143	62	58 (11)	16	279	41:100:43
1976	79	55	41 (5)	15	190	52:100:70
1977	81	40	35 (9)	39	195	43:100:49
1978	63	23	30 (6)	9	125	48:100:37
1979	98	44	62 (13)	27	231	63:100:45
1980	114	50	15 (2)		179	13:100:44
1981	87	46	30 (3)		161	34:100:53
1982	127	57	63 (16)		247	49:100:45
1984	98	9	55 (14)		162	56:100:9
1985	48	36	2 (1)	33	119	6:100:75
1986	116	39	56 (15)	19	230	48:100:34
1987	72	13	33 (11)		118	46:100:18
1988	80	49	56 (27)		204	70:100:61
1989	81	44	63 (18)		188	78:100:54
1992	57	26	23 (6)	5	111	40:100:46
1993	43	21	30 (7)		94	70:100:49
1994	52	31	33 (21)		116	63:100:60
1996	65	18	30 (16)	11	124	46:100:28
1997	21	12	16 (11)		49	76:100:57
1998	51	23	23 (8)	9	106	45:100:45
1999	55	23	27 (12)	44	149	49:100:42
2000	32	21	19 (11)	19	91	59:100:66
2001	55	31	43 (18)	55	184	78:100:56
2002	44	23	17 (5)	16	100	39:100:52
2003	82	44	32 (19)	107	265	39:100:54
2004	90	32	40 (9)	53	215	44:100:36
2005	65	35	50 (25)	74	224	77:100:54
2006	56	11	51 (16)	79	197	91:100:20
2007	74	17	46 (25)	67	204	62:100:23
2008					150	NA

Table 5. Annual observations of sheep during rut/early winter period, Hunting District 423, 1955-2008. Counts represent those sheep believed to be unique sheep counted only once per survey. For years in which no data are present, it is unknown as to whether no sheep were observed or no survey efforts were conducted and/or recorded.

¹Likely includes Hunting Districts 422 and 423.

Table 6.
Number and types of licenses issued and subsequent harvest, Hunting District 423, 1976-2008. Harvest totals are a combination of check station data, hunter questionnaire results, harvest surveys and transportation forms.

Year	Either Sex Licenses	Either Sex Harvest	% Success	Ewe Licenses	Ewe Harvest	% Success
1976	10	9	90	30	10	33
1977	10	9	90	0	0	NA
1978	10	10	100	20	5	25
1979	12	12	100	5	0	0
1980	12	11	92	5	5	100
1981	10	10	100	2	1	50
1982	12	12	100	20	15	75
1983	12	9	75	20	13	65
1984	10	9	90	20	6	30
1985	12	4	33	0	0	NA
1986	5	5	100	0	0	NA
1987	5	5	100	0	0	NA
1988	5	5	100	NA	1	NA
1989	10	10	100	20	16	80
1990	10	9	90	20	9	45
1991	10	9	90	30	9	30
1992	10	10	100	30	12	40
1993	2	2	100	2	1	50
1994	2	2	100	2	1	50
1995	2	2	100	2	1	50
1996	1	1	100	1	0	0
1997	1	1	100	1	1	100
1998	1	1	100	0	0	NA
1999	1	1	100	0	0	NA
2000	2	2	100	0	0	NA
2001	2	2	100	0	0	NA
2002	3	3	100	2	NA	NA
2003	2	2	100	1	1	100
2004	2	2	100	5	4	80
2005	4	3	75	15	9	60
2006	5	5	100	10	7	70
2007	5	5	100	10	6	60
2008	5	5	100	10	0	0
Totals	205	187	91	281	133	47

HUNTING DISTRICT 424

Hunting District 424 has traditionally been a good area in regards to sheep productivity. Of the four hunting districts in this region, Hunting District 424 is the largest in size with sizable areas (mostly Lewis and Clark NF lands, but also some private lands) considered good sheep habitat. Due to often-robust numbers and good accessibility, this hunting district has been readily used for sheep trapping and transplanting. A sheep trap still stands near the Forest Service boundary near Ford Creek off the Benchmark road. Since 2009, a total of 298 sheep (10% of all recorded sheep transplants statewide) have been trapped out of this area and relocated to other parts of Montana, as well as other states. Traditional use areas in this hunting district include locales in and around Fairview Plateau/Mountain, Ford Creek, Sheep Sheds Mountain and McCarty Hill, and Scapegoat Mountain. Conventional wintering areas include most of these same locations, albeit typically at lower elevations.

Based on research related to available, suitable habitat and concerns regarding to disease and die-offs, the population objective for this hunting district is 200 observed bighorns during late fall/early winter and spring surveys (assuming healthy ram age structure and ewe:lamb ratios). From 1955 to 2008, the average total number of sheep observed each year during late fall/early winter survey efforts was 142. An average of 30 rams, 64 ewes, 25 lambs, and 52 unclassified sheep have been observed. Average lamb production equals 42 per 100 ewes and observed rams $\frac{3}{4}$ -curl or greater have averaged seven since 1955.

Recreation Provided: Being the largest of the four hunting districts in this complex, Hunting District 424 consists of a large portion

of both private and public lands. Much of the private land located in this hunting district is not considered good sheep habitat. However, bighorn sheep make use of some private lands, typically during the winter and early spring. The public land portion of this hunting district is primarily on Lewis and Clark NF lands. These lands provide year-round habitat for sheep, some of which are situated in remote locations, making survey/hunting efforts in these spots difficult at times.

From 1912 to 1952, there was no hunting season for bighorn sheep in the Sun River area. Beginning in 1953 and up until 1974, ram hunting seasons were permitted (Bighorn Sheep hunting district 42). Starting in 1974, permits were changed to either-sex (ES) hunting. It was not until 1976 that Hunting Districts 421, 422, 423, and 424 were established. For purposes of this document, Table 8 summarizes licenses offered and bighorn harvest since 1976 for Hunting District 424. From 1976 to 2008, a little more than 489 licenses have been allocated (235 either-sex licenses and ewe licenses), with an estimated 215 rams and 170 ewes harvested (91% success for either-sex licenses and 58% success for ewe licenses). The 33-year average harvest is 6.5 sheep from the either-sex licenses and 5.3 sheep from the adult ewe licenses. Average age of harvested rams from 1981 to 2008 is 8.2 years old.

Accomplishments: Due to the history and productivity of Sun River bighorn sheep, several notable accomplishments have transpired over the years. One of the main achievements for these sheep has been, and continues to be, their use as a quality source population for translocation efforts. Beginning in 1942 and continuing through 2009, sheep from the Southern Rocky Mountain Front Complex

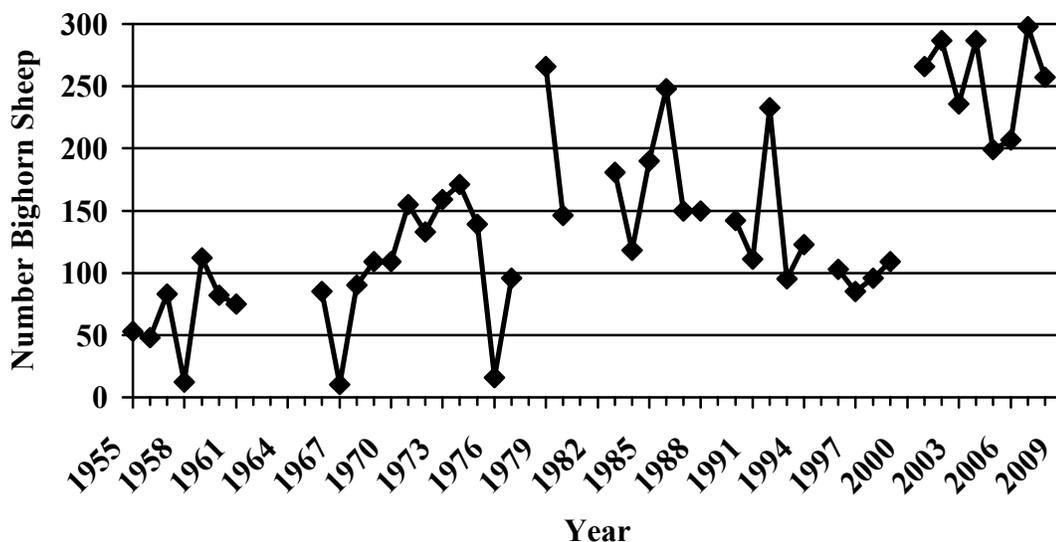


Figure 4. Total number of bighorn sheep observed during aerial and ground trend surveys (late fall/early winter) in Hunting District 424, 1955-2008. For years in which no data are present, it is unknown as to whether no sheep were observed or no survey efforts were conducted and/or recorded.

Table 7. Annual observations of sheep during rut/early winter period, Hunting District 424, 1955-2008. Counts represent those sheep believed to be unique sheep counted only once per year. For years in which no data are present, it is unknown as to whether no sheep were observed or no survey efforts were conducted and/or recorded.

Year	Ewes	Lambs	Rams (3/4 & 3/4+)	Unclassified	Total	Ram:Ewe:Lamb
1955	16	9	12 (6)	16	53	75:100:56
1956	26	15	7 (3)		48	27:100:58
1957				83	83	NA
1958				12	12	NA
1959	42	11	24 (10)	35	112	57:100:26
1960	33	25	15 (8)	9	82	45:100:71
1961	44	15	12 (1)	4	75	27:100:34
1966	58	15	12 (2)		85	21:100:26
1967		3	2	5	10	NA
1968 ¹	193	83	65(10)	20	361	34:100:43
1969	59	22	28 (9)		109	47:100:37
1970	54	30	10 (4)	2	109	18:100:56
1971				155	155	NA
1972	54	33	38 (11)	8	133	70:100:61
1973	76	35	47 (12)	1	159	62:100:36
1974	74	41	35 (7)	21	171	47:100:55
1975	80	18	41 (14)		139	51:100:23
1976	3	1	10 (4)	2	16	NA
1977	35	20	26 (7)	15	96	74:100:57
1979	62	16	30 (7)	158	266	48:100:23
1980	61	36	34 (3)	15	146	56:100:59
1983	87	43	51 (9)		181	59:100:49
1984	63	18	34 (7)	3	118	54:100:29
1985	122	56	12 (3)		190	10:100:46
1986	117	47	60 (13)	24	248	51:100:40
1987	75	38	41 (6)	4	150	55:100:51
1988	84	29	32 (5)	4	150	38:100:35
1990	62	25	34 (6)	21	142	55:100:40
1991	51	25	35 (6)		111	69:100:49
1992	94	52	64 (18)	23	233	68:100:55
1993	24	14	12 (10)	45	95	50:100:58
1994	19	9	23 (12)	72	123	121:100:47
1996	48	19	26 (11)	10	103	54:100:40
1997	41	10	27 (12)	7	85	66:100:40
1998	22	6	12 (6)	56	96	55:100:27
1999	53	23	23 (10)	10	109	43:100:43
2001	70	40	43 (16)	115	266	61:100:57
2002	126	35	50 (20)	79	287	40:100:28
2003	101	51	58 (22)	26	236	57:100:50
2004	126	35	50 (20)	76	287	40:100:28
2005	43	13	33 (19)	110	199	77:100:30
2006	58	17	20 (7)	112	207	34:100:29
2007	115	17	20 (7)	112	207	60:100:29
2008	114	20	56 (22)	67	257	49:100:18

¹ Includes Hunting Districts 422 and 424.

Year	Either Sex Licenses	Either Sex Harvest	% Success	Ewe Licenses	Ewe Harvest	% Success
1976	10	8	80	15	6	40
1977	10	10	100	0	0	NA
1978	10	9	90	5	0	0
1979	15	13	87	5	0	0
1980	15	15	100	7	2	29
1981	15	9	60	10	8	80
1982	10	12	120	20	17	85
1983	10	10	100	20	13	65
1984	5	4	80	10	8	80
1985	5	5	100	0	0	NA
1986	5	3	60	0	0	NA
1987	5	4	80	NA	1	NA
1988	5	4	80	5	5	100
1989	10	10	100	NA	15	NA
1990	10	11	110	NA	8	NA
1991	10	9	90	20	14	70
1992	10	10	100	20	14	70
1993	5	5	100	2	1	50
1994	5	5	100	2	2	100
1995	5	5	100	2	1	50
1996	5	5	100	2	2	100
1997	5	5	100	2	2	100
1998	3	1	33	3	1	33
1999	1	1	100	0	0	NA
2000	2	2	100	0	0	NA
2001	2	2	100	0	0	NA
2002	5	5	100	2	NA	NA
2003	5	1	20	5	1	20
2004	5	5	100	5	5	100
2005	5	5	100	15	9	60
2006	10	10	100	19	14	74
2007	6	6	100	20	9	45
2008	6	6	100	24	10	42
Totals	235	215	91	291	170	58

Table 8. Number and types of licenses issued and subsequent harvest, Hunting District 424, 1976-2008. Harvest totals are a combination of check station data, hunter questionnaire results, harvest surveys, and transportation forms.

have been used to either augment or begin new populations of sheep in numerous locations throughout Montana, as well as in four other states. Many of our more productive sheep populations in Montana have at one time or another been supplemented by Southern Rocky Mountain Front sheep. Through 2009, approximately 45% (1,242 sheep) of all Montana sheep relocations originated from locations within the Southern Rocky Mountain Front.

These areas also continue to be one of the more productive sheep hunting locations in Montana. Sheep management in these areas has evolved to provide trophy class rams as well as good ewe hunting opportunities. In addition, recreational public viewing of these sheep is also popular, due to their accessibility at certain times of the year.

Since the 1960s, there have been several research projects related to bighorn sheep populations and associated habitats in this region. Below are a few citations related to some of the work that has been completed:

- 1) Schallenberger, A.D. 1966. Food habits, range use and interspecific relationships of bighorn sheep in the Sun River area, west-central Montana. M.S. Thesis, Montana State University, Bozeman, MT.
- 2) Erickson, G.L. 1972. The ecology of Rocky Mountain bighorn sheep in the Sun River area of Montana with special reference to summer food habits and range movements. Federal Aid Wildlife Restoration Project. W-120-R-2 and R-3. Montana Fish and Game Department, Helena, MT.
- 3) Frisina, M.R. 1974. Ecology of bighorn sheep in the Sun River area of Montana during fall and spring. M.S. Thesis, Montana State University, Bozeman, MT.
- 4) Andryk, T.A. 1983. Ecology of Bighorn Sheep in Relation to Oil and Gas Development Along the East Slope of The Rocky Mountains, Northcentral Montana.. M.S. Thesis, Montana State University, Bozeman, MT.
- 5) Schirokauer, D. 1996. The Effects of 55 Years of Vegetative Change on Bighorn Sheep Habitat in the Sun River Area of Montana. M.S. Thesis, Montana State University, Bozeman, MT.

Management Challenges: The primary challenges related to bighorn sheep management in these hunting districts are habitat

maintenance and improvement and population management. Most of the sheep habitat in these hunting districts is on public lands (Lewis and Clark NF, BLM, and DNRC); however, there is also some good sheep habitat located on private lands on the foothills of the Front. As of yet, habitat disturbances as related to sheep habitat is either minimal or nonexistent. Oil and gas exploration and development matters have also recently been settled so that all public lands on the Rocky Mountain Front will not be exposed to such activities in the future. It will be important however, to continue to promote sheep habitat conservation efforts.

Another important aspect of bighorn sheep management is the possibility of domestic sheep interactions with wild bighorns and the threat of disease transmission. Fortunately, in recent times domestic sheep ranching along the foothills of the Front is currently very minimal, hence there is little anxiety related to the possibility of domestic/wild sheep interactions. However, it will be important to continue monitoring this area in case changes in ranching practices occur over time.

There also continues to be cooperation between the USFS and FWP in relation to habitat management plans (e.g., prescribed burns). Habitat manipulation, such as prescribed burns and/or livestock grazing allotments, will always play an important role in managing sheep numbers, distribution and migration patterns. Continued cooperation between public land management agencies and private landowners is important to help manage the habitats where bighorn sheep reside.

This region has a strong predator presence in the area including grizzly bears, black bears, mountain lions, wolverines, lynx, coyotes and wolves. It is likely that bighorn recruitment is and/or could be limited by predation, but no area research exists to verify this statement.

Population Monitoring: Sheep surveys are typically conducted twice a year for each hunting district. A late fall/early winter rut survey is conducted in December (sometimes January depending on weather conditions and scheduling) and early spring surveys are conducted in April. Rut surveys typically reveal how overall population numbers are doing, especially in relation to ram numbers and age structure. These surveys also portray how sheep are faring going into the winter season. Spring (April) surveys help enumerate overall herd size and herd health in relation to how animals wintered (e.g., lamb survival). Because sheep are usually fairly accessible, both survey efforts are typically conducted via ground (foot, horseback, or vehicle) efforts, so good classifications can

be made. Occasionally, surveys are completed aerially (fixed wing or helicopter) when permitted and necessary.

An annual summer (usually July) helicopter survey primarily looks for mountain goats and elk calf recruitment in certain parts of this complex, but sheep observations (to include lamb recruitment) are also noted due to their presence in similar habitats. Other observations for these sheep are recorded incidentally during other species survey efforts.

Summary of Public Comment

There is strong public support for maintaining robust bighorn sheep numbers as well as ram age structure for bighorn sheep in the Southern Rocky Mountain Front Complex. Whether through hunting, trapping and transplanting, or general wildlife viewing, this herd has established its importance both locally and nationally over the past several decades. Recent historical records indicate this herd is the largest in Montana and has consistently been used as a good source population for trapping and relocation efforts throughout Montana and other western states for nearly 60 years. Public desire reflects continuing the current management style with a limited number of either-sex licenses to maintain trophy class rams and ewe licenses to aid in population control as needed. There appears to be growing support for more opportunity for hunting ewes rather than relocation efforts. Continued balance between ewe hunter harvest and trapping and transplanting will be important in the future.

Management Goal

Manage for a healthy and productive bighorn sheep population of approximately 175 sheep in Hunting District 421 and 200 in each of Hunting Districts 422, 423, and 424. Maintain robust and diverse ram age structure, healthy ewe: lamb ratios, and good opportunity for hunters to harvest sheep. Utilize trapping and transplanting to assist with population management when hunter harvest is not having the desired effect.

Habitat Objectives

- 1) Develop cooperative programs that encourage public and private land managers to maintain or improve occupied bighorn sheep habitat for the benefit of bighorns, other wildlife species and other agency mandated uses.
- 2) Encourage maintenance and improvement of habitat conditions on publicly owned winter ranges

(primarily USFS) so that vegetation conditions on these winter ranges provide adequate forage for bighorns and other wildlife during the winter.

Habitat Management Strategies

- 1) Continue major efforts by public land management agencies and private landowners to control noxious weeds.
- 2) Work with land managing agencies and private landowners to properly manage stock and cattle grazing on bighorn sheep winter and year-round range.
- 3) Continue to work with the USFS and BLM to encourage prescriptive burning of selected habitat types to encourage bighorn forage utilization.

Game Damage Strategies

Game damage is at times a problem on private lands during winter and spring periods. While no specific, direct game damage assistance from FWP has occurred recently, there does seem to be some advocacy to do so at times. During high population years, continued ewe/ram harvest opportunities along with trapping and transplanting efforts seem to relieve most game damage assistance pressure.

Access Strategies

Based on the past and current distribution of bighorns during the hunting season, lack of hunter access to these sheep has, for the most part, not been an issue.

I. Population Objectives

Hunting District 421

- 1) Maintain the number of bighorn sheep observed during post-season surveys within 15% of 175 sheep (approximately 150 to 200).
- 2) Maintain a ram: 100 ewe ratio observed during post-season surveys of at least 50 rams: 100 ewes with at least 30% of the rams having a $\frac{3}{4}$ -curl.
- 3) Maintain the average age of 7 1/2 years for rams harvested on either-sex licenses.

Population Management Strategies

Strategies to manage bighorn sheep populations are being based, in part, on how bighorn populations respond demographically within five ecological regions across Montana.

Bighorn populations and therefore objectives for the various populations and subsequent monitoring programs vary across Montana and depend largely on the environment or ecological region where they occur. Hunting District 421 is located in the Prairie/Mountain Foothills Ecological Region (see discussion of ecological regions in Chapter 1) which includes areas in north-central Montana. This bighorn population is a relatively old population (with limited more recent augmentation) and is characterized as having moderate lamb production and recruitment rates, has recently been below population objectives, and has an average ram to ewe ratio. Bighorn numbers have recently been managed primarily through harvest of limited ram licenses along with natural mortality.

The population objective of 175 ($\pm 15\%$) observed bighorn sheep was derived by considering both the ability of public lands to provide forage for the majority of the wintering bighorn population and landowner tolerance for the remaining sheep that winter on private lands. Population management strategies will be directed at increasing bighorn numbers on public lands within forage allocations.

Prescriptive Harvest Management

Ewes: Bighorn sheep populations are managed where necessary through limited-entry harvest of the female segment and/or trapping and relocation. In Hunting District 421, licenses are issued under the following prescriptions (Table 9):

Standard Regulation: Limited ewe licenses valid in the entire hunting district during the general season for bighorn sheep. The number of ewe licenses issued would be up to 15% of the number of ewes going into the fall season. The number of ewes going into the fall season would be based on the number of ewes observed during annual fall and spring surveys, assuming 5% mortality of adults, and adding recruitment of one-half the previous year's lambs.

The Standard Regulation will be recommended if: The total number of bighorns counted on the survey area is within 15% of the population objective and lamb recruitment is between 30 and 40 lambs: 100 ewes.

Restrictive Regulation: Fewer than five ewe licenses would be prescribed.

The Restrictive Regulation will be recommended if: The total number of bighorns counted on the survey area is more than 15% below the population objective and lamb recruitment is less than 30 lambs: 100 ewes.

Liberal Regulation: Limited ewe licenses valid in the entire hunting district during the general season for bighorn sheep. The number of ewe licenses issued would be up to 20% of the number of ewes going into the fall season. The number of ewes going into the fall season would be based on the number of ewes observed during the annual fall and spring surveys, assuming 5% mortality of adults, and adding recruitment of one-half the previous year's lambs,

OR if the number of ewes and rams is at least 25 sheep (minimum transplant number)

Table 9. Summary of regulation types under different population criteria for ewe harvest and population management in Hunting District 421.

PRAIRIE/MOUNTAIN-FOOTHILLS	No. Bighorns Counted on Survey Area	Recruitment Lambs: 100 Ewes	Regulation Types	Harvest Rates
Standard Regulation	$\pm 15\%$ of 175	Between 30-40	Limited Entry Ewes	Up to 15% of Ewes
Restrictive Regulation	More than 15% below 175	Less than 30	Fewer than 5 ewe licenses	Less than 10% of ewes
Liberal Regulation	Greater than 15% above 175	Greater than 40	Limited Entry Ewes or translocate if > 25 sheep including rams are available	Up to 20% of Ewes
Hunting/Transplant Regulation	Greater than 25% above 175	Greater than 40	Limited Entry Ewes and translocate as long as trapped numbers do not exceed twice the total ewe licenses.	Up to 15% of Ewes

above objective, the surplus could be used for transplanting.

The Liberal Regulation will be recommended if: The total number of bighorns counted on the survey area is greater than 15% above the population objective and lamb recruitment is greater than 40 lambs:100 ewes.

Hunting/Transplant Regulation: Limited-ewe licenses valid in the entire hunting district during the general season for bighorn sheep and trapping/translocation. The number of ewe licenses issued would be up to 15% of the number of ewes going into the fall season. The number of sheep relocated will not exceed more than twice the total allocated adult ewe licenses. The number of ewes going into the fall season would be based on the number of ewes observed during the annual fall and spring surveys, assuming 5% mortality of adults, and adding recruitment of one-half the previous year's lambs.

The Hunting/Transplant Regulation will be recommended if: The total number of bighorns counted on the survey area is greater than 25% above the population objective and lamb recruitment is greater than 40 lambs: 100 ewes.

Rams:

Standard Regulation: Limited-entry through issuing either-sex licenses with the number of either-sex licenses issued being up to 20% of the ¾-curl rams in the population.

The Standard Regulation will be recommended if: The population is within objective (+ 15% of 175), are 40 to 60 rams: 100 ewes, and at least 30% of the rams are at least ¾-curl (Table 10).

Restrictive Regulation: Limited-entry through issuing either-sex licenses with the number of either-sex licenses issued being up to 15% of the ¾-curl rams in the population.

The Restrictive Regulation will be recommended if: The population is more than 15% below the population objective of 175, there are less than 40 rams: 100 ewes, and less than 30% of the rams are at least ¾-curl.

Liberal Regulation: Limited-entry through issuing either-sex licenses with the number of either-sex licenses issued being up to 25% of the ¾-curl rams in the population.

The Liberal Regulation will be recommended if: The population is more than 15% above the objective of 175, there are more than 60 rams: 100 ewes, and more than 35% of the rams are at least ¾-curl.

II. POPULATION OBJECTIVES

Hunting Districts 422, 423, and 424:

- 1) Maintain the number of bighorn sheep observed for each hunting district during post-season surveys within 10% of 200 sheep (180 to 220).
- 2) Maintain a ram: 100 ewe ratio observed for each hunting district during post-season surveys of at least 60 rams: 100 ewes with at least 30% of the rams having a ¾-curl.
- 3) Maintain the average age of 7 1/2 years for rams harvested for each hunting district on either-sex licenses.

Population Management Strategies

Strategies to manage bighorn sheep populations are being based, in part, on how bighorn populations respond demographically within five ecological regions across Montana. Bighorn populations and therefore objectives for the various populations and subsequent monitoring programs vary across Montana and depend largely on the environment or ecological region where they occur. Hunting Districts

PRAIRIE/ MOUNTAIN- FOOTHILLS	Number of Either-Sex or Legal Ram Licenses is:	When the Herd Has		
		Population Size	Ram:100 Ewe ratio	% of Rams with ≥ ¾-curl
Standard Regulation	Up to 20% of the ¾-curl rams	± 15% of 175	40-60:100	≥ 30
Restrictive Regulation	Up to 15% of the ¾-curl rams	More than 15% below 175	< 40:100	< 30
Liberal Regulation	Up to 25% of the ¾-curl rams	Greater than 15% above 175	> 60:100	≥ 35

Table 10. Summary of potential ram harvest under different population parameters and criteria.

422, 423, and 424 are located in the Prairie/Mountain Foothills Ecological Region (see discussion of ecological regions in Chapter 1), that includes areas in North Central Montana. This bighorn population is a relatively old population (with some relatively high levels of trapping and translocation of sheep to other areas), characterized as having moderate lamb production and recruitment rates, has recently been at or above population objectives with relatively stable to increasing numbers, and has a relatively moderate to high average ram to ewe ratio. Bighorn numbers are typically managed through use of limited either-sex and adult ewe licenses, natural mortality, and trapping and transplanting efforts in high sheep population years.

The population objective of 200 ($\pm 10\%$) observed bighorn sheep for each hunting district (422, 423, and 424) was derived by considering both the ability of public lands to provide forage for the majority of the wintering bighorn population and landowner tolerance for the remaining sheep that winter on private lands. Population management strategies will be directed at increasing bighorn numbers on public lands within forage allocations.

Prescriptive Harvest Management

Ewes: Bighorn sheep populations are managed where necessary through limited-entry harvest of the female segment and/or trapping and relocation. In Hunting Districts 422, 423, and 424, licenses are issued under the following prescriptions (Table 11):

Standard Regulation: Limited ewe licenses valid throughout the hunting districts during the general season for bighorn sheep. The number of ewe licenses issued would be up to 15% of the number of ewes going into the fall season. The number of ewes going into the fall season would be based on the number of ewes observed during annual fall and spring surveys, assuming 5% mortality of adults, and adding recruitment of one-half the previous year's lambs.

The Standard Regulation will be recommended if: The total number of bighorns counted on the survey area is within 10% of the population objective and lamb recruitment is between 30 and 40 lambs: 100 ewes.

Restrictive Regulation: Fewer than five ewe licenses would be prescribed.

Table 11. Summary of regulation types under different population criteria for ewe harvest and population management in Hunting Districts 422, 423, and 424.

PRAIRIE/ MOUNTAIN- FOOTHILLS	No. Bighorns Counted on Survey Area	Recruitment Lambs:100 Ewes	Regulation Types	Harvest Rates
Standard Regulation	$\pm 10\%$ of 200	Between 30-40	Limited Entry Ewes	Up to 15% of Ewes
Restrictive Regulation	More than 10% below 200	Less than 30	Fewer than 5 ewe licenses	Less than 10% of ewes
Liberal Regulation	Greater than 10% above 200	Greater than 30	Limited Entry Ewes or translocate if > 25 sheep including rams are available	Up to 20% of Ewes
Hunting/Transplant Regulation	Greater than 25% above 200	Greater than 30	Limited Entry Ewes and translocate as long as trapped numbers do not exceed twice the total ewe licenses.	Up to 15% of Ewes

The Restrictive Regulation will be recommended if: The total number of bighorns counted on the survey area is more than 10% below the population objective and lamb recruitment is less than 30 lambs: 100 ewes.

Liberal Regulation: Limited ewe licenses valid throughout the hunting districts during the general season for bighorn sheep. The number of ewe licenses issued would be up to 20% of the number of ewes going into the fall season. The number of ewes going into the fall season would be based on the number of ewes observed during the annual fall and spring surveys, assuming 5% mortality of adults, and adding recruitment of one-half the previous year's lambs,

OR if the number of ewes and rams is at least 25 sheep (minimum transplant number) above objective, the surplus could be used for transplanting.

The Liberal Regulation will be recommended if: The total number of bighorns counted on the survey area is greater than 10% above the population objective and lamb recruitment is greater than 30 lambs: 100 ewes.

Hunting/Transplant Regulation: Limited ewe licenses valid in the entire hunting district during the general season for bighorn sheep and trapping/translocation. The number of ewe licenses issued would be up to 15% of the number of ewes going into the fall season. The number of sheep translocated will not exceed more than twice the total allocated adult ewe licenses. The number of ewes going into the fall season would be based on the number of ewes observed during the annual fall and spring surveys, assuming 5% mortality of adults, and adding recruitment of one-half the previous year's lambs.

The Hunting/Transplant Regulation will be recommended if: The total number of bighorns counted on the survey area is greater than

25% above the population objective and lamb recruitment is greater than 30 lambs: 100 ewes.

Rams:

Standard Regulation: Limited-entry through issuing either-sex licenses with the number of either-sex licenses issued being up to 20% of the ¾-curl rams in the population.

The Standard Regulation will be recommended if: The population is within objective (+ 10% of 200), there are 40 to 60 rams: 100 ewes, and at least 30% of the rams are at least ¾-curl (Table 12).

Restrictive Regulation: Limited-entry through issuing either-sex licenses with the number of either-sex licenses issued being up to 15% of the ¾-curl rams in the population.

The Restrictive Regulation will be recommended if: The population is more than 10% below the population objective of 200, there are less than 40 rams: 100 ewes, and less than 30% of the rams are at least ¾-curl.

Liberal Regulation: Limited-entry through issuing either-sex licenses with the number of either-sex licenses issued being up to 25% of the ¾-curl rams in the population.

The Liberal Regulation will be recommended if: The population is more than 10% above the objective of 200, there are more than 60 rams: 100 ewes, and more than 35% of the rams are at least ¾-curl.

PRAIRIE/ MOUNTAIN- FOOTHILLS	Number of Either-Sex or Legal Ram Licenses is:	When the Herd Has		
		Population Size	Ram: 100 Ewe ratio	% of Rams with ≥ ¾-curl
Standard Regulation	Up to 20% of the ¾-curl rams	± 10% of 200	40-60:100	≥ 30
Restrictive Regulation	Up to 15% of the ¾-curl rams	More than 10% below 200	< 40:100	< 30
Prescription 3	Up to 25% of the ¾-curl rams	Greater than 10% above 200	> 60:100	≥ 35

Table 12. Summary of potential ram harvest under different population parameters and criteria.

**NORTH FORK BIRCH CREEK
– TETON
(Hunting District 441)**



Description: Hunting District 441 encompasses the northeast corner of the Bob Marshall Wilderness and Lewis and Clark National Forest (NF), lying along the eastern slope of the Continental Divide in Teton and Pondera Counties. The area covers 598mi² of mountain foothills and prairie agriculture lands. The unit includes about 60% of private lands east of the Continental Divide stretching eastward to U.S. Highway 89, most of which are not bighorn habitat. The private land portion of the area is mostly cattle and hay operations, with a smaller amount of dryland grain on the eastern perimeter. Birch Creek, Dupuyer Creek, Blackleaf Creek, and the Teton River drain eastward through the area from the mountain front and the Continental Divide.

There are approximately 150 bighorns scattered from the North Fork of the Teton River to the North Fork of Birch Creek in several small herd segments: Jones Creek, Dupuyer Creek, Walling Reef, and upper Birch Creek. Sheep can occasionally be found on private lands in the Walling Reef–Swift Dam area and in the forks of Dupuyer Creek.

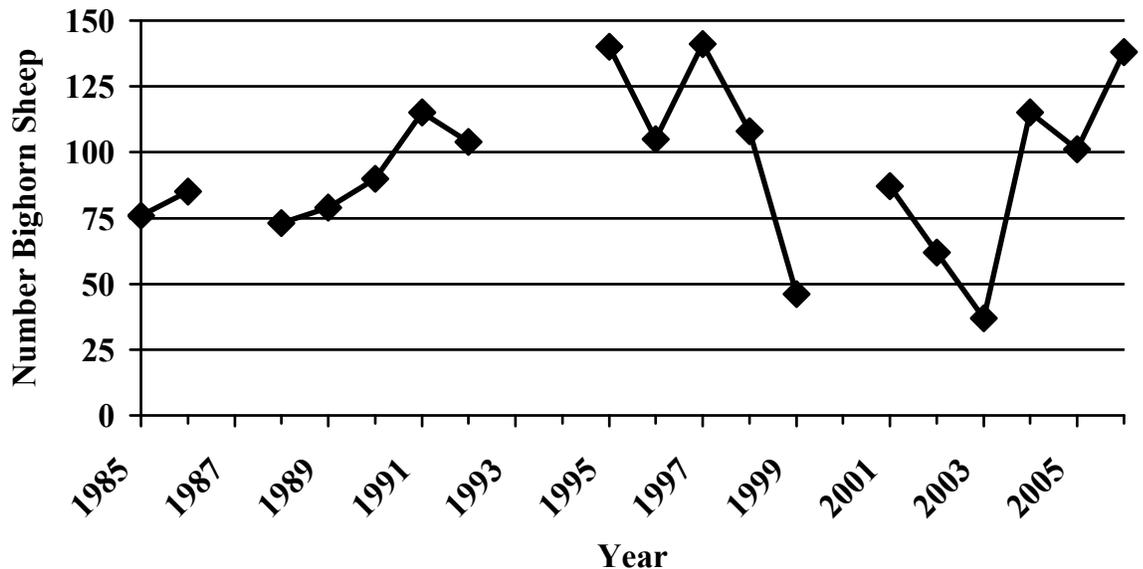
Public Access: Hunting and other forms of outdoor recreation occur on private and public lands throughout this portion of the Bob Marshall Wilderness Complex. Bighorn hunting access is mostly on foot or horseback on U.S. Forest Service (USFS) trails from trailheads along the Teton River, Blackleaf Canyon, Dupuyer Creek, and Birch Creek at Swift Dam. Very little of the NF and adjacent BLM lands are authorized for motorized use; however, both day trips and extended backcountry trips on foot or horseback are common from these trailheads. Access to private lands for bighorn hunting varies from limited to severely limited, with varying amounts of public use depending upon individual landowners. Fortunately, very little bighorn habitat exists on private lands in this hunting district. Hunting that does occur on private property is mainly day use, with little camping available. At present, only one FWP Block Management Area is established where bighorns occur.

Almost all of the bighorns in this hunting district are available to the public during the hunting season. Most hunters do not utilize outfitting services, even though some are available.

Bighorn Sheep Populations: Although several small herd segments stay in this hunting district, bighorns frequently move to and from neighboring use areas. Sheep habitat in this hunting district is extremely rugged and difficult to access for counting purposes. Bighorns occupy steep, rocky ridges and avalanche chutes and cliff faces, requiring helicopter use to get reliable census coverage.

Bighorn census figures since 1985 vary from 46 to 141 observed animals, with an average

Figure 1. Total number of bighorn sheep observed during aerial trend surveys in the North Fork Birch Creek–Teton population, Hunting District 441, 1985–2006.



count of 95 (Figure 1). For the 25-year period beginning in 1985, an average of 34 rams, 43 ewes, and 17 lambs have been observed (Table 1). The last count, in 2006, revealed 138 total sheep, with 45 rams, 72 ewes, and 21 lambs. Average lamb production equals 40 per 100 ewes, and observations of rams with ¾-curl or greater curl have averaged 17 since 1985, with 31 seen in 2006. The population objective for the hunting district is 200 bighorns.

Population augmentation has occurred three times since 1976. Thirty-nine bighorns from Sun River stock were released in 1976 in the Dupuyer Creek drainage. Thirty-two from the Lost Creek herd were introduced in February 1991 into Blackleaf Canyon. And, in December 1993, 15 bighorns were transported from Wildhorse Island to Blackleaf Canyon.

This area has a full complement of predators, including grizzly bears, black bears, mountain lions, wolverines, lynx, coyotes, and occasional wolves. It is likely that bighorn recruitment is limited by predation, but no area research exists to verify this statement.

Recreation Provided: Hunting District 441 provides limited private land hunting, but public lands are generally accessible for day hunting from trailheads or extended camping trips into the national forest and wilderness area. Hunting bighorns in this hunting district is considered a backcountry experience. Outfitting is limited since harvest is permit-only, and it doesn't appear to restrict public use in overlapping areas for other species.

Current Annual Bighorn Sheep Harvest:

Table 2 summarizes permits offered and bighorn harvest since 1982, when hunting was first allowed in the area. A total of 124 licenses (including 2007) have been allocated, with 88 rams harvested. Five either-sex permits have been offered since 1995 (average of 4.8 permits since 1982). Although licenses are either-sex, no ewes or lambs have been taken since the season was initiated. From 1982 to 2007, there has been an average of 3.5 sheep harvested annually, averaging 7.4 years old, with hunter success averaging 74%.

Accomplishments: Tim Andryk, a Montana State University graduate student, conducted population-monitoring studies, including radio telemetry work in the area from 1981 to 1983 (MS Thesis: Ecology of Bighorn Sheep in Relation to Oil and Gas Development Along the East Slope of The Rocky Mountains, Northcentral Montana, 1983).

Management Challenges: Habitat maintenance and improvement are continuing challenges in bighorn management. Fortunately, since most of the sheep habitat in this hunting district is on public land, much of which is designated wilderness, loss of habitat due to human development is not anticipated. Also, oil and gas exploration and development issues have recently been settled so that all of the public lands will not be exposed to such activities in the future.

Year	Total	Rams				Ewe	Lambs	Total Rams	Uncl	Lambs:100Ewes
		1/4	1/2	3/4	Full					
1985	76	0	7	5	2	29	20	27	13	70
1986	85	1	9	23	8	13	3	69	28	23
1988	73	3	0	0	0	25	5	43	4	20
1989	79	1	3	9	2	29	7	43	28	24
1990	90	9	13	14	5	37	12	41	0	32
1991	115	3	11	10	2	60	29	26	0	48
1992	104	5	8	21	2	45	23	36	0	51
1995	140	13	11	15	4	70	27	43	0	39
1996	105	6	7	3	5	53	31	21	0	58
1997	141	4	7	13	12	76	29	36	0	38
1998	108	4	6	11	5	51	31	26	0	61
1999	46	1	3	3	3	23	13	10	0	57
2001	87	4	7	6	1	52	17	18	0	33
2002	62	6	8	10	3	32	1	29	2	3
2003	37	0	9	15	6	4	2	31	1	50
2004	115	6	7	23	7	52	20	43	0	38
2005	101	5	7	10	8	51	21	30	0	41
2006	138	7	7	16	15	72	21	45	0	29

Table 1. Classification data from aerial surveys on the North Fork Birch Creek – Teton, Hunting District 441, 1985-2006.

Table 2.
Number of
licenses issued
and subsequent
Bighorn sheep
harvest, Hunting
District 441,
1982-2007.

Year	Number of Licenses	Harvest
1982	4	4
1983	4	2
1984	4	1
1985	4	3
1986	4	3
1987	6	5
1988	5	3
1989	5	4
1990	5	4
1991	5	4
1992	5	1
1993	5	4
1994	3	2
1995	5	5
1996	5	2
1997	5	5
1998	5	4
1999	5	5
2000	5	5
2001	5	2
2002	5	5
2003	5	5
2004	5	2
2005	5	5
2006	5	3
2007	5	

Population Monitoring: Helicopter surveys are conducted annually to monitor bighorn populations, mostly in summer or early winter. Animals are counted and classified by sex and number of lambs. Horn curl is used to classify rams: $\frac{3}{4}$ -curl +, $\frac{3}{4}$ -curl, $\frac{1}{2}$ -curl, and $\frac{1}{4}$ -curl.

Summary of Public Comment

Public comments regarding bighorn management in Hunting District 441 indicate support for the current season structure. Both hunters and non-hunters enjoy observing sheep in mountainous habitats.

Management Goal

Manage for a healthy and productive bighorn sheep population of up to 200 sheep, with an accompanying diverse age structure of rams. Cooperate with public land management agencies and private individuals in the management of bighorn habitats, and maintain good opportunity for bighorn sheep hunters to harvest sheep.

Habitat Objectives

- 1) Develop cooperative programs that encourage public and private land managers to maintain or improve occupied bighorn sheep habitat for the benefit of bighorns, other wildlife species, and other agency-mandated uses.
- 2) Encourage maintenance improvement of habitat conditions on publicly owned winter ranges (primarily USFS) so that vegetation conditions on these winter ranges provide adequate forage for bighorns and other wildlife during the winter.

Habitat Management Strategies

- 1) A major effort has been underway the past couple of years by public land management agencies and private landowners to control noxious weeds.
- 2) Work with the USFS to eliminate horse and mule grazing on bighorn winter and year-round range, especially in the Jones Creek area.
- 3) Continue to work with the USFS and BLM to encourage prescriptive burning of selected habitat types to encourage bighorn forage utilization.

Game Damage Strategies

Specific game damage problems have not occurred to date and are not anticipated.

Access Strategies

Based on the current distribution of bighorns during the hunting season, lack of hunter access to these sheep has not been an issue. In limited situations where sheep use private land during the hunting season, landowners either allow hunter access on their own or are enrolled in FWP's Block Management Program.

Population Objectives

- 1) Maintain or increase the number of bighorn sheep observed during post-season aerial surveys within 10% of 200 sheep (180 to 220).
- 2) Maintain a ram: 100 ewe ratio observed during post-season aerial surveys of at least 60 rams: 100 ewes with at least 30% of the rams having a $\frac{3}{4}$ -curl.

- 3) Maintain the average age of 7½ years for rams harvested on either-sex licenses.

Population Management Strategies

Strategies to manage bighorn sheep populations are being based, in part, on how bighorn populations respond demographically within five ecological regions across Montana. Bighorn populations and therefore objectives for the various populations and subsequent monitoring programs vary across Montana and depend largely on the environment or ecological region where they occur. Hunting District 441 is located in the Prairie/Mountain Foothills Ecological Region (see discussion of ecological regions in Chapter 1), which includes much of north-central Montana. This bighorn population is a relatively old population (with more recent augmentation) and is characterized as having moderate lamb production and recruitment rates, is currently below population objective with stable to increasing numbers, and has a relatively high ram to ewe ratio. Bighorn numbers are being managed primarily through harvest of the ram segment and natural mortality.

The population objective of 200 (± 10%, 180 to 220) observed bighorn sheep depends upon both the ability of public lands to provide forage for the majority of the wintering bighorn population and landowner tolerance for the remaining sheep that winter on private lands. Population management strategies will be directed at increasing bighorn numbers on public lands within forage allocations.

Prescriptive Harvest Management

Ewes: Bighorn sheep populations can be managed where necessary through limited-

entry harvest of the female segment. In Hunting District 441, however, all bighorn hunting is currently (and has been historically) regulated by either-sex licenses. Female harvest would be allowed according to the following prescriptions when population goals are exceeded (Table 3):

Standard Regulation: Limited ewe licenses valid in the entire hunting district during the general season until November 1 (similar to adjacent Sun River districts) for bighorn sheep in this district. The number of ewe licenses issued would be up to 15% of the number of ewes going into the fall season. The number of ewes going into the fall season would be based on the number of ewes observed during the annual survey, assuming 5% mortality of adults, and adding recruitment of one-half the previous year’s lambs.

The Standard Regulation will be recommended if: The total number of bighorns counted on the survey area is within 10% of the population objective and lamb recruitment is between 30 and 40 lambs: 100 ewes.

Restrictive Regulation: Fewer than five ewe licenses would be prescribed.

The Restrictive Regulation will be recommended if: The total number of bighorns counted on the survey area is more than 10% below the population objective and lamb recruitment is less than 30 lambs: 100 ewes.

Liberal Regulation: Limited ewe licenses valid in the entire hunting district during the general season until November 1 for bighorn sheep in this district. The number of ewe licenses issued would be up to 20% of the number of ewes going into the fall season. The number of ewes going into the fall season would be based on the number of ewes observed during the annual

PRAIRIE/MOUNTAIN-FOOTHILLS	No. Bighorns Counted on Survey Area	Recruitment Lambs: 100 Ewes	Regulation Types	Harvest Rates
Standard Regulation	± 10% of 200	Between 30-40	Limited Entry Ewes	Up to 15% of Ewes
Restrictive Regulation	More than 10% below 200	Less than 30	Fewer than 5 ewe licenses	Less than 10% of ewes
Liberal Regulation	Greater than 10% above 200	Greater than 40	Limited Entry Ewes or translocate if > 25 sheep including rams are available	Up to 20% of Ewes

Table 3. Summary of regulation types under different population criteria for ewe harvest and population management in Hunting District 441.

survey, assuming 5% mortality of adults, and adding recruitment of one-half the previous year's lambs,

OR if the number of ewes and rams is at least 25 sheep (minimum transplant number) above objective, the surplus could be used for transplanting.

The Liberal Regulation will be recommended if: The total number of bighorns counted on the survey area is greater than 10% above the population objective and lamb recruitment is greater than 40 lambs: 100 ewes.

Rams:

Standard Regulation: Limited-entry either-sex licenses with the number of either-sex licenses issued being up to 15% of the ¾-curl rams in the population.

The Standard Regulation will be recommended if: The population is within objective (+ 10% of 200), there are 40 to 60 rams: 100 ewes, and 30% of the rams are at least ¾-curl (Table 4).

Restrictive Regulation: Limited-entry through issuing either-sex licenses with the number of either-sex licenses issued being up to 10% of the ¾-curl rams in the population.

The Restrictive Regulation will be recommended if: The population is more than 10% below the population objective of 200, there are less than 40 rams: 100 ewes, and less than 30% of the rams are at least ¾-curl.

Liberal Regulation: Limited-entry through issuing either-sex licenses with the number of either-sex licenses issued being up to 20% of the ¾-curl rams in the population.

The Liberal Regulation will be recommended if: The population is more than 10% above the objective of 200, there are more than 60 rams: 100 ewes, and more than 30% of the rams are at least ¾-curl.

BEARTOOTH WILDLIFE MANAGEMENT AREA – GATES OF THE MOUNTAINS WILDERNESS AREA (Hunting District 455)



Description: The Beartooth Wildlife Management Area (WMA) – Gates of the Mountains Wilderness Area (Hunting District 455) is approximately 406 mi². The 260,000 acres is comprised of 162,000 acres of private land, 14,750 acres of Department of Natural Resources and Conservation (DNRC) land, 14,000 acres of Bureau of Land Management (BLM) land, 27,000 acres of FWP land, and 42,000 acres of U.S. Forest Service (USFS) land (Helena National Forest including the Gates of the Mountains Wilderness Area). Of the total, 62% is privately owned and 38% is managed by the various public land management agencies. This hunting district is part of the Big Belt Mountains and is located about 20 miles northeast of Helena. Approximately one-half (130,000 acres) of the district is currently occupied by bighorn sheep during some portion of the year. Thirty percent of the area occupied by bighorn sheep is private land and 70% is public land.

Public Access: The Big Belt Mountains provide a good diversity of hunting experiences for both motorized and nonmotorized users. Sheep hunting access is good throughout much of the inhabited range. Private landowners on the north end of the district have worked

Table 4. Summary of potential ram harvest under different population parameters and criteria for Bighorn Hunting District 441.

PRAIRIE/ MOUNTAIN- FOOTHILLS	Number of Either-Sex or Legal Ram Licenses Is	When the Herd Has		
		Population Size	Ram: 100 Ewe ratio	% of Rams with ≥ ¾ curl
Standard Regulation	Up to 15% of the ¾-curl rams	± 10% of 200	40-60:100	≥ 30
Restrictive Regulation	Up to 10% of the ¾-curl rams	More than 10% below 200	< 40:100	< 30
Liberal Regulation	Up to 20 % of the ¾-curl rams	Greater than 10% above 200	> 60:100	≥ 30

cooperatively with FWP for walk-in (foot and horseback) sheep hunting access since the district boundary was expanded to include that area in 2004. Access to public lands in the southern portion of the district is very good. The publicly owned and FWP-managed 32,320-acre Beartooth WMA is open to hunting and also provides an access route to the Gates of the Mountains Wilderness Area at the Willow Creek drainage.

Bighorn Sheep Populations: In the 1950s and 1960s, FWP and the USFS became interested in reestablishing the once native bighorn sheep population to the area, but several relocations of sheep into the Gates of the Mountains area during this period failed to create a new herd. Then in the early 1970s, a total of 112 bighorn sheep were relocated to the Beartooth WMA, and a viable sheep herd was established. Transplants began in 1971 with 49 sheep from the Sun River being released followed in 1973 with 5 more sheep from the Sun River and in 1975 with 58 additional sheep from the Sun River. Annual FWP surveys indicated the herd was growing rapidly, approaching 250 individuals by 1982. However, in the fall of 1983, FWP biologists noted a decrease in sheep numbers, and field investigations confirmed a pneumonia die-off. The die-off continued through the summer of 1984, and in October of that year, biologists could only locate 51 sheep.

Between the end of the die-off in 1984 until 1994, the bighorn sheep population stabilized at about 50 individuals. Although no large-scale die-offs occurred during this period, a lamb that died of pneumonia in 1991 suggested that disease continued to affect this sheep population. Augmentations of this population

occurred in 1995 with the transplant of 19 sheep from Perma and in 1996 with the addition of 20 sheep from Upper Rock Creek. In the mid-1990s, another transplant occurred, moving 39 bighorns to the Beartooth WMA. Sheep populations observed in Hunting District 455 have been slowly increasing since 1996 (Figure 1). The total count of 226 sheep in 1983 was the highest observed since surveys were initiated in 1978 (Table 1). In 2006 and 2007, surveys were conducted in the Sheep Creek area just north of the Beartooth WMA, where a satellite herd exists (Table 2). Lamb production was relatively good in the late 1970s and early 1980s. Since the die-off during the mid-1980s, however, lamb production has been very inconsistent. The production and recruitment of lambs has started to slowly increase the past few years.

Recreation Provided: Hunting of bighorn sheep in Hunting District 455 was initiated in the fall of 1978 with the issuance of two either-sex licenses. As the bighorn population increased, the number of licenses followed the trend, with three either-sex licenses in 1981. As populations continued to increase, 15 either-sex licenses were issued in 1984, which was the highest number issued in the district to date. The die-off in the late 1980s resulted in a closed season from 1994 to 2004. In 2005, Hunting District 455 was reopened and expanded to the north into the Sheep Creek area with one either-sex license issued.

The proximity of the Big Belt Mountains to population centers, combined with good access in much of the mountain range, has made the area popular for big game hunting and wildlife viewing throughout the year. Most of the bighorn sheep in this portion of the Big Belts are

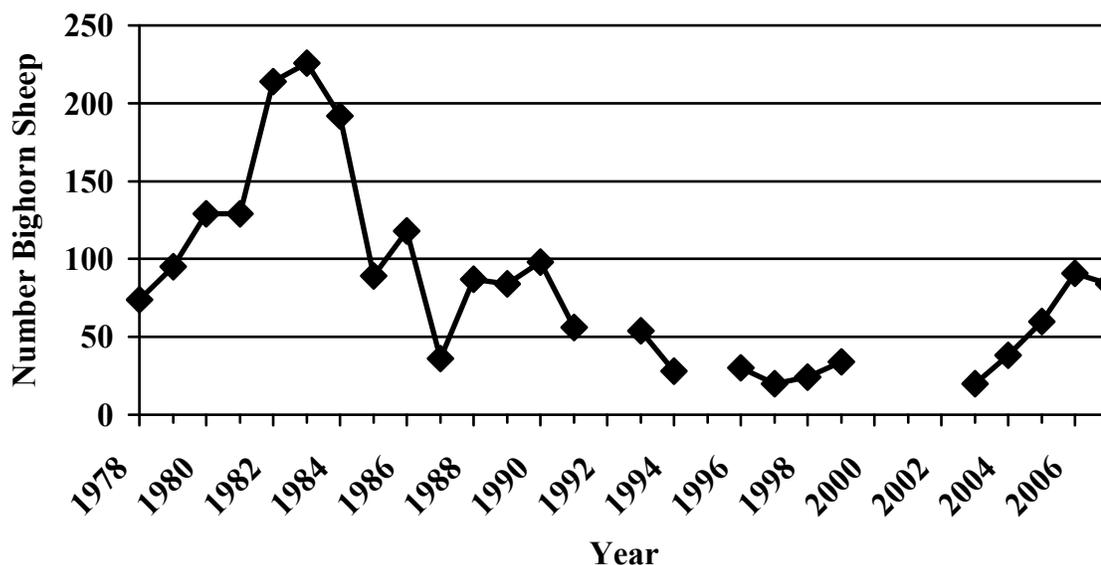


Figure 1. Total number of bighorn sheep observed during aerial and ground trend surveys in the Beartooth WMA and Gates of the Mountains Wilderness population, Hunting District 455, 1978–2008.

Table 1.
Classification
data from aerial
surveys on the
Beartooth WMA
and Gates of
the Mountains
Wilderness,
Hunting District
455, 1978-2008.

Year	Rams	Ewes	Lambs	Lambs: 100 Ewes	Total
1978	16	39	19	49	74
1979	23	43	29	67	95
1980	24	64	41	64	129
1981	29	55	45	82	129
1982	49	88	41	47	214
1983	36	128	67	52	226
1984	43	90	40	44	192
1985	13	64	12	19	89
1986	32	71	15	21	118
1987	7	22	7	32	36
1988	17	53	17	32	87
1989	16	62	6	10	84
1990	16	59	13	22	98
1991	3	48	5	10	56
1993	9	33	12	36	54
1994	1	19	8	42	28
1996	3	25	2	8	30
1997	1	10	6	60	20
1998	5	12	7	58	24
1999	8	19	7	37	34
2003 ¹	9	8	3	37	20
2004 ¹	14	13	11	84	38
2005 ¹	22	22	16	73	60
2006 ¹	22	18	8	44	48
2007 ¹	17	17	9	53	43
2008 ¹	6	12	6	50	24

¹Incidental observations only, no official survey conducted.

Table 2.
Classification
data from aerial
surveys in the
Sheep Creek
area, Hunting
District 455,
2006-2008.

Year	Rams	Ewes	Lambs	Lambs: 100 Ewes	Total	Total Entire Hunting District
2006 ¹	20	17	6	35	43	91
2007 ¹	33	12	9	75	54	97
2008 ¹	13	8	2	25	23	47

¹Incidental observations only, no official survey conducted.

nonmigratory and use habitats near their release site in the southeast portion of the mountain range and private lands in the northern portion of the district. The most popular area for viewing bighorn sheep is the Holter Lake area, where boaters view sheep on a consistent basis.

Current Annual Bighorn Sheep Harvest:

There was one either-sex license issued for the 2007 hunting season. From 2005 to 2007, one either-sex license was issued annually. This was the third year of hunting sheep since the district

was reopened in 2004. There have been 54 rams harvested in the district since 1978, having an average age of seven years. From 2005 to 2007, one either-sex license was issued annually. Table 3 details sheep harvest in Hunting District 455 from 1978 to 2006.

Accomplishments: Game management of this portion of the Big Belts has been very successful. In 1990, the Devil's Kitchen Working Group was established to address elk management after the 1990 Beartooth WMA wildfire. The Devil's

Year	# Licenses	Harvest (Rams)	% Success	# Aged	Avg. Age
1978	2	2	100%		
1979	2	2	100%		
1980	2	2	100%		
1981	3	3	100%	2	6.0
1982	3	3	100%	3	7.0
1983	5	5	100%	5	6.5
1984	15	14	93%	13	5.5
1985	5	3	60%	3	6.0
1986	6	6	100%	6	5.0
1987	3	1	33%	1	4.5
1988	3	1	33%	1	6.5
1989	4	3	75%	3	7.5
1990	2	2	100%	2	6.5
1991	2	2	100%	2	7.0
1992	2	2	100%	2	9.5
1993	2	1	50%	1	6.5
2005	1	1	100%	1	8.5
2006	1	1	100%	1	9.5
2007	1	1	100%	1	6.5

Table 3. Number of licenses issued and subsequent harvest of bighorn sheep, Hunting District 455, 1978-2007.

Kitchen area is a wildlife-rich complex of private and publicly owned lands, including large working cattle ranches south of Cascade, the Gates of the Mountains Wilderness Area, and the Beartooth WMA. The group is comprised of individuals from a variety of interests, including area landowners, sportspeople, agencies such as the BLM, DNRC, USFS, and FWP, and private organizations including the Montana Land Reliance. The group meets approximately three times a year to discuss game management, land and habitat issues, public access strategies, and many other topics.

Management Challenges: One issue regarding bighorn sheep management in this district is maintaining separation of wild sheep and domestic sheep to avoid transmission of disease between the two species. There are a few domestic sheep herds located in the Big Belt Mountains on ranches and hobby farms. Contact between domestic sheep and wild sheep has not occurred since the mid-1980s when bighorn populations were at all-time highs. Across the Missouri River in neighboring sheep Hunting District 381, a disease die-off occurred in 2006 due to contact with domestic sheep and goats. It has yet to be seen if any of the transmission has moved to the Beartooth WMA-Gates of the Mountains herd. Bighorn sheep use of private land and maintaining public

hunting access to sheep may be an ongoing issue, as currently some of these ranches are commercially outfitted for deer and elk.

Population Monitoring: To monitor the bighorn population, aerial and ground surveys are conducted annually. Typically, aerial surveys are in combination with deer and elk surveys via fixed-wing aircraft and helicopters. Currently, no aerial surveys are conducted specific to sheep in the district. Surveys are conducted in winter to early spring. Lamb surveys are typically done via ground and/or boat observations during summer months. Bighorns are counted and classified by age and sex, and rams are classified by horn class. Aerial surveys are documented by GPS, noting survey track log and observation locations.

Summary of Public Comment

Public comments regarding the bighorn sheep population and its management in Hunting District 455 indicate a high level of support for the current season structure and management. The Devil's Kitchen Working Group and the Russell Country Sportsmen Group have been longtime supporters of big game management in the area. Both hunters and non-hunters enjoy seeing bighorn sheep in this area.

Management Goal

Manage for a healthy and productive bighorn sheep population within objective numbers and with having a diverse age structure of rams. Cooperate with public land management agencies and private landowners in the management of bighorn habitats and hunter access. Maintain hunting and viewing opportunities for bighorn sheep enthusiasts.

Habitat Objectives

- 1) Develop cooperative programs that encourage public and private land managers to maintain and/or enhance occupied bighorn sheep habitat for the benefit of big game and other wildlife species.
- 2) Encourage maintenance and improvement of habitat conditions on publicly owned winter ranges (USFS and FWP) to provide adequate forage for big game, including bighorns, especially during winter.

Habitat Management Strategies

- 1) FWP has worked in cooperation with private landowners in the Beartooth WMA area on rest-rotation grazing systems totaling about 23,000 acres to enhance vegetative conditions for wildlife, especially big game. The 2007 Meriwether Wildfire, which burned approximately 42,500 acres in the Gates of the Mountains Wilderness Area and the Beartooth WMA, will greatly enhance habitat conditions in the area for bighorns.
- 2) Noxious weed control is an annual effort by many landowners in the Devil's Kitchen area. Noxious weed control efforts are a priority in habitat and vegetation management on the Beartooth WMA.
- 3) In 1971, six vegetation transects were initiated on the Beartooth WMA and are visited every three to five years. These transects will continue to be monitored over time to assess percent cover, plant species composition, percent usage, and other pertinent information.
- 4) Recommendations regarding habitat and big game management are made by the Devil's Kitchen Working Group and are evaluated annually by landowners and agencies involved. Some of these recommendations cover hunting season regulations, which

would help direct future management of big game, including bighorn sheep.

Game Damage Strategies

Specific game damage problems have not occurred to date and are not anticipated. Bighorn numbers in the district can be managed through hunting and trapping and transplanting as they approach or are at population objectives.

Access Strategies

FWP has actively pursued access to private lands for sheep hunting. Based on the current distribution of bighorns during the hunting season, lack of hunter access to these sheep has not been an issue. Where sheep use private land during hunting seasons, private landowners have been very cooperative in allowing sheep hunting access since the district boundary was expanded to incorporate these private lands in 2004. Access to public lands is also good in the district.

Population Objectives

- 1) Maintain the number of bighorn sheep observed during post-season aerial surveys within 10% of 250 sheep (225 to 275), including 150 sheep in the Beartooth WMA–Gates of the Mountains and 100 in the Sheep Creek area.
- 2) Maintain a ram: 100 ewe ratio observed during post-season aerial surveys of at least 60 rams: 100 ewes with at least 30% of the rams having a $\frac{3}{4}$ -curl.
- 3) Maintain the average age of 7½ years for rams harvested on either-sex licenses.

Population Management Strategies

Strategies to manage bighorn sheep populations are being based, in part, on how bighorn populations respond demographically within five ecological regions across Montana. Bighorn populations and therefore objectives for the various populations and subsequent monitoring programs vary across Montana and depend largely on the environment or ecological region where they occur. Hunting District 455 is located in the Prairie/Mountain Foothills Ecological Region (see discussion of ecological regions in Chapter 1), which includes much of southwest Montana. This bighorn population is a relatively recently established population

and is characterized as having moderate lamb production with fair recruitment rates, is currently below population objective with stable numbers, and has a relatively high ram to ewe ratio. Since numbers are below objectives, management is through either-sex licenses with no ewe harvest. Another option for managing this population is the use of these sheep as transplant stock should populations become greater than 10% above 250.

The population objective of 250 ($\pm 10\%$) observed bighorn sheep was derived by considering both the ability of public lands to provide forage for the majority of the wintering bighorn population and landowner tolerance for the remaining sheep that winter on private lands. Population management strategies will be directed at maintaining bighorn numbers consistent with landowner tolerance as well as maintaining the number of sheep wintering on public lands within forage allocations established in allotment management plans.

Prescriptive Harvest Management

Ewes: Bighorn sheep populations are managed where necessary through limited-entry harvest of the female segment. In Hunting District 455, licenses are issued under the following prescriptions (Table 4):

Standard Regulation: Limited ewe licenses valid in the entire hunting district during the general season for bighorn sheep. The number of ewe licenses issued will be up to 15% of the number of ewes going into the fall season, which is based on the number of ewes observed during the annual survey, assuming 5% mortality of adults, and adding recruitment of one-half the previous year's lambs.

The Standard Regulation will be recommended if: The total number of bighorns

counted on the survey area is within 10% of the population objective and lamb recruitment is between 30 and 40 lambs: 100 ewes.

Restrictive Regulation: Fewer than five ewe licenses would be prescribed.

The Restrictive Regulation will be recommended if: The total number of bighorns counted on the survey area is more than 10% below the population objective and lamb recruitment is less than 30 lambs: 100 ewes.

Liberal Regulation: Limited ewe licenses valid in the entire hunting district during the general season for bighorn sheep. The number of ewe licenses issued will be up to 20% of the number of ewes going into the fall season, which is based on the number of ewes observed during the annual survey, assuming 5% mortality of adults, and adding recruitment of one-half the previous year's lambs,

OR if the number of ewes and rams is at least 25 sheep (minimum transplant number) above objective, the surplus could be used for transplanting.

The Liberal Regulation will be recommended if: The total number of bighorns counted on the survey area is greater than 10% above the population objective and lamb recruitment is greater than 40 lambs: 100 ewes.

Rams:

Standard Regulation: Limited-entry through issuing either-sex licenses with the number of either-sex licenses issued being up to 15% of the $\frac{3}{4}$ -curl rams in the observed population.

The Standard Regulation will be recommended if: The population is within objective ($+ 10\%$ of 250), there are 40 to 60 rams: 100 ewes, and 30% of the rams are at least $\frac{3}{4}$ -curl (Table 5).

PRAIRIE/ MOUNTAIN FOOTHILLS	Observed Totals	Recruitment = Lambs: 100 Ewes	Regulation Types	Harvest Rates
Standard Regulation	$\pm 10\%$ of 250	Between 30-40	Limited Entry Ewes	Up to 15% of Ewes
Restrictive Regulation	More than 10% below 250	Less than 30	Fewer than 5 ewe licenses	Less than 10% of ewes
Liberal Regulation	Greater than 10% above 250	Greater than 40	Limited Entry Ewes or translocate if > 25 sheep including rams are available	Up to 20% of Ewes

Table 4 .
Summary of
regulation types
under different
population
criteria for ewe
harvest and
population
management.

Table 5. Summary of potential ram harvest under different population parameters and criteria.

PRAIRIE/ MOUNTAIN- FOOTHILLS	Number of ES or Legal Ram Licenses Is	When the Herd Has		
		Population Size	Ram: 100 Ewe ratio	% of Rams with ≥ ¾ curl
Standard Regulation	Up to 15% of the ¾-curl rams	± 10% of 250	40-60:100	≥ 30
Restrictive Regulation	Up to 10% of the ¾-curl rams	More than 10% below 250	< 40:100	< 30
Liberal Regulation	Up to 20% of the ¾-curl rams	Greater than 10% above 250	> 60:100	≥ 30

Restrictive Regulations: Limited-entry through issuing either-sex licenses with the number of either-sex licenses issued being up to 10% of the ¾-curl rams in the population.

The Restrictive Regulation will be recommended if: The population is more than 10% below the population objective of 250, there are less than 40 rams: 100 ewes, and less than 30% of the rams are at least ¾-curl.

Liberal Regulation: Limited-entry through issuing either-sex licenses with the number of either-sex licenses issued being up to 20% of the ¾-curl rams in the population.

The Liberal Regulation will be recommended if: The population is more than 10% above the objective of 250, there are more than 60 rams: 100 ewes, and more than 30% of the rams are at least ¾-curl.

BOULDER (Hunting District 500)



Description: Hunting District 500 begins nearly 40 miles south of Big Timber, contains approximately 159,479 acres (250mi²) of terrain, and is in the Southern Mountains Ecological Region. With the exception of several small mining claims totaling less than 718 acres, the district is managed by the Gallatin National Forest as part of the Absaroka-Beartooth Wilderness. The headwaters of the Main Boulder River and Slough Creek as well as tributaries of the Stillwater River originate within the district. Numerous mountain peaks ranging from 9,000 to 11,000 feet rise above cirque lake basins and scattered forests of

whitebark pine and spruce. Bighorn sheep range over a large portion of the district from lower-elevation habitat to high-elevation ridges and saddles in the summer and fall. Sheep are restricted to high-elevation windblown ridgetops and mountain peaks during the harsh winters.

While the winter range for the Stillwater bighorns is found outside the hunting district boundary, it will be described here because it contributes rams to the Hunting District 500 hunt area. The Stillwater winter range is the only low-elevation winter range in the Beartooth Mountains, lying between 5,200 feet and 5,800 feet in elevation. It is located along the Stillwater River about five miles southwest of Nye. This winter range is in the Chinook zone where nearly constant winds keep the ground free of snow. Traditionally the winter range was a bluebunch wheatgrass/Idaho fescue type. However, in recent years the native range has been abandoned in favor of reclaimed mining land belonging to Stillwater Mining Company (SMC). Some satellite winter ranges occur along the West Fork of the Stillwater and on Sheep Mountain.

Public Access: Hunting District 500 provides a good diversity of hunting experiences, including limited motorized hunting access on ATV trails with walk-in or horseback hunting in the interior.

Bighorn Sheep Populations: Sheep from three different populations may be found within the boundary of Hunting District 500 during summer and fall, including rams from the Stillwater herd; the Monument Peak herd, which is resident to the upper Boulder area; and sheep associated with Yellowstone National Park winter ranges, who spend part of the summer and fall months within the hunting district. The Monument and Yellowstone herd units are composed entirely of native sheep and have never been augmented with transplanted sheep from other areas. The Stillwater herd was augmented twice with rams. In 1970, two rams were relocated from the Sun River herd.