BIGHORN SHEEP MANAGEMENT PLAN

DATA ANALYSIS UNIT RBS-14
Rampart Herd

GAME MANAGEMENT UNIT
S34

Prepared for:
Colorado Parks and Wildlife

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Date: April 2014

DAU RBS-14 (Rampart Bighorn Sheep)

EXECUTIVE SUMMARY

GMU: S34 **Tier Status: 2 (medium size, non-native herd resulting from accidental translocation)**
Land Ownership: 45% USFS, 34% Private, 19% Department of Defense, 3% City
Posthunt Population: **Previous Objective** 75 **2012 Estimate** 80 Recommended Objective 135 (120-150)
Posthunt Sex Ratio: **Previous Objective** 50 **2012 Estimate** 77 Recommended Objective: 60 (55-65)

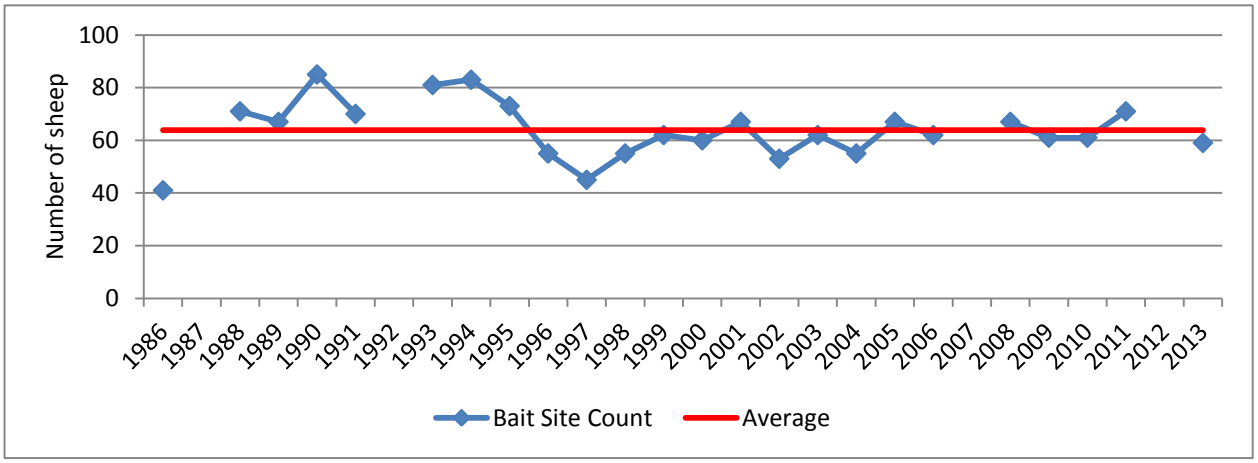

Figure 1. Annual high count of bighorn sheep observed at the Rampart bait site and long-term average number of sheep counted on the bait site from 1986-2013.

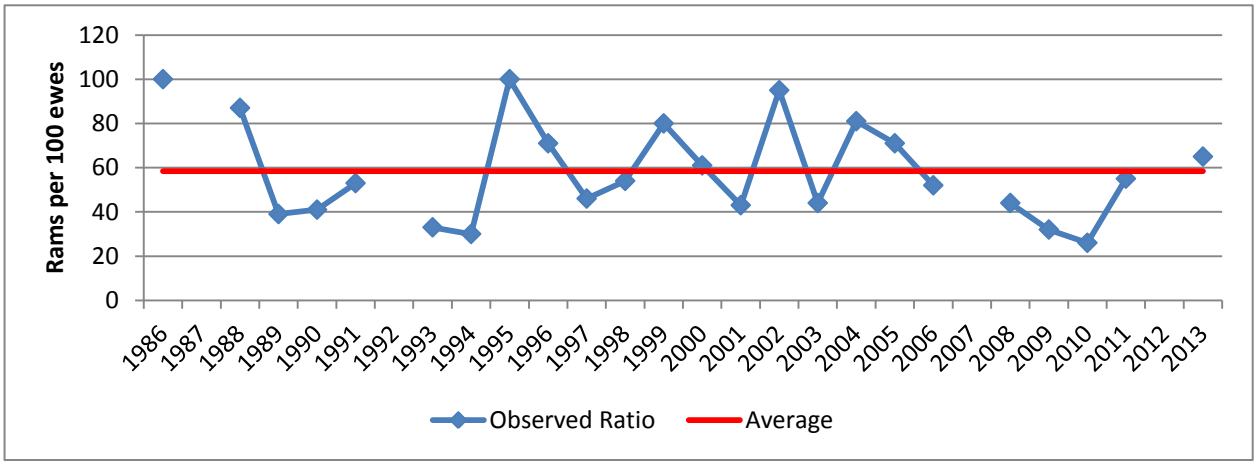

Figure 2. Annual sex ratio (rams per 100 ewes) calculated from counts at the Rampart bait site and long-term average sex ratio from 1986-2013.

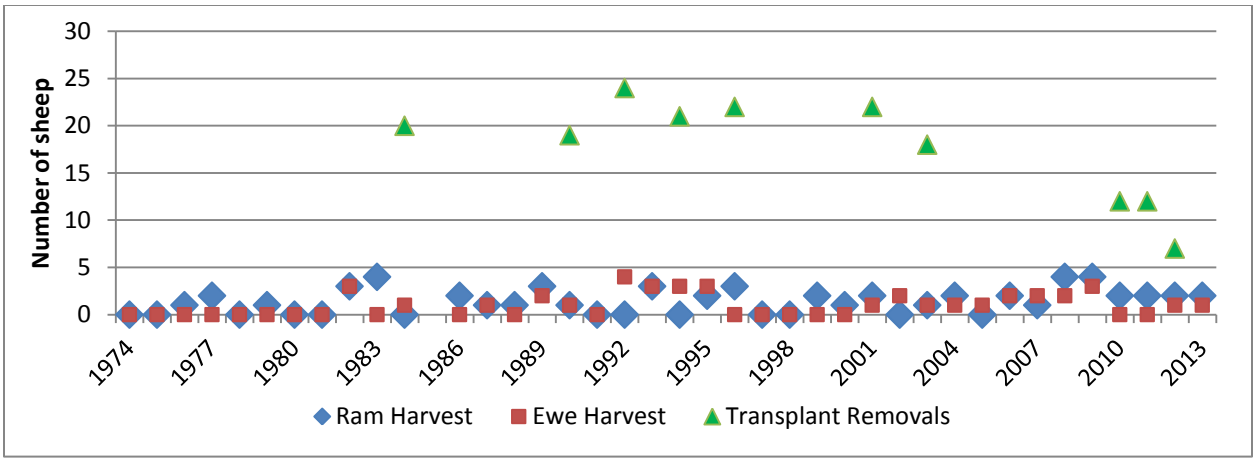

Figure 3. RBS-14 harvest and transplant removals from 1974-2013.

Background Information

The Rampart herd (Rocky Mountain Bighorn Sheep Data Analysis Unit RBS-14) is valued for its quality rams and as a source herd for transplants. It is a medium sized non-native herd that was established from an accidental translocation in 1946. As such, it is designated as a Tier 2 herd.

RBS-14 includes Game Management Unit (GMU) S34, which encompasses 93,000 acres in Teller and El Paso counties. Eighteen percent (16,600 acres) of the GMU is potential bighorn sheep habitat. However, the herd only uses a small fraction of the available habitat (~2,750 acres). Sheep distribution in the GMU was thought to be limited by advanced succession stage vegetation. However, the 2012 Waldo Canyon fire covered ~20% of the GMU, including 4,900 acres of potential sheep habitat that burned at a sufficient intensity to clear the advanced stages of vegetation.

The eastern boundary of RBS-14 is within the Colorado Springs city limits and sheep from the herd are often found in local attractions on the west side of the city (i.e., Garden of the Gods park or Glen Eyrie), which creates a watchable wildlife opportunity for residents and visitors. However, since the sheep are easily assessable, CPW personnel occasionally respond to reports of harassment by hikers and tourists. The herd is frequently on private property during the hunting season, which creates a challenge for sportsmen trying to access the herd.

The previous population objective for the Rampart herd was 75 and the population size of the herd has been near objective for the last 10-15 years. Population growth might have been limited by habitat because the herd consistently produces a high number of lambs and adult survival is high. Therefore, the herd might be able to expand in size due to the Waldo Canyon fire. During the initial scoping process for this DAU plan, stakeholders preferred an increase in the population objective, which could allow the herd to expand into new habitat created by the fire.

GMU S34 is an archery-only unit that produces quality trophy rams. During the scoping process, stakeholders indicated that Colorado Parks and Wildlife (CPW) should continue to manage the herd for trophy rams and that the current ram to ewe ratio was acceptable.

Following the initial scoping process, we prepared a draft DAU plan which included three population and sex-ratio objective alternatives. Based on the results of the initial survey, we selected a preferred population objective alternative that, if realized, would result in a 50-75% increase in herd size. We also selected a preferred sex-ratio alternative that encompasses the herd's current sex ratio. The draft DAU plan was posted online for a 30-day public comment period. During this period, we received one comment in support of our preferred alternatives from a sportsman. The US Forest Service and Rocky Mountain Bighorn Society also supported our preferred alternatives.

Population Objective Alternatives

Preferred Alternative: Population target 135 sheep (range 120-150)
The herd would have to increase by 50-75% above the current size to reach this objective.

Alternative 2: Population target 80 sheep (range 70-90)
This alternative range includes the previous objective (75) and the current population estimate for the herd (80).

Alternative 3: Population target 160 sheep (range 145-175 sheep)
This population objective represents a 100% increase above the current population size.

Sex ratio Objective Alternatives

Preferred Alternative: 60 rams per 100 ewes (range 55-65)
This is the current sex ratio in the herd (based on a 3-year average).

Alternative 2: 70 rams per 100 ewes (range 65-75)
Under this alternative, we would have to decrease ram hunting opportunity.

Alternative 3: 50 rams per 100 ewes (range 45-55)
Under this alternative, we would increase ram hunting opportunity.

This DAU plan was approved by the Colorado Parks and Wildlife Commission on April 11, 2014

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INTRODUCTION AND PURPOSE

The Colorado Parks and Wildlife (CPW) manages big game for the use, benefit, and enjoyment of the people of the state in accordance with the CPW's Strategic Plan (2010-2020), and for bighorn sheep, with the Colorado Bighorn Sheep Management Plan (George et al. 2009). Bighorn sheep management is also determined by mandates from the Colorado Parks and Wildlife Commission (PWC) and the Colorado Legislature. Colorado's wildlife species require careful and increasingly intensive management to accommodate the many and varied public demands and growing human impacts. The CPW uses a "Management by Objective" approach to manage the state's big game populations (Figure 4).

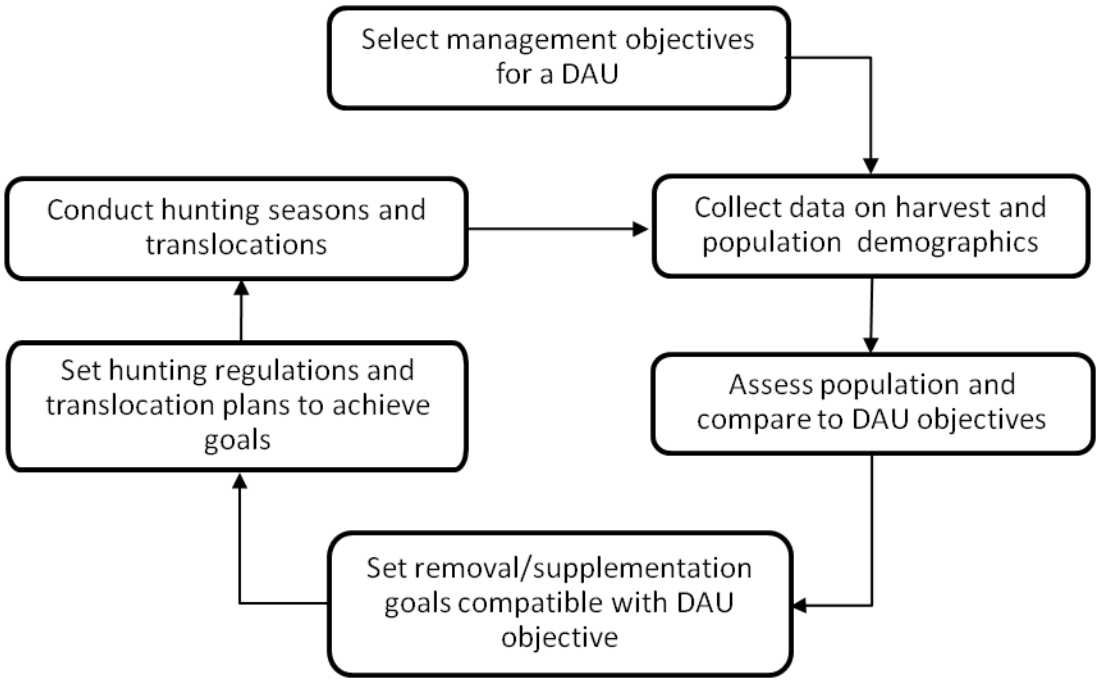

Figure 4. Management by Objective process used by the Colorado Parks and Wildlife to manage big game populations by Data Analysis Unit.

With the Management by Objective approach, big game populations are managed to achieve the population objective established for a Data Analysis Unit (DAU). A DAU is the geographic area that includes the year-round range of a big game herd. A DAU includes the area where the majority of the animals in a herd are born, live, and die. DAU boundaries are delineated to minimize interchange of animals between adjacent DAUs. A DAU may be divided into several Game Management Units (GMUs) in order to distribute hunters and harvest within a DAU.

Management decisions within a DAU are based on a DAU plan. The primary purpose of a DAU plan is to establish population and sex ratio (i.e., the number of males per 100 females) objectives for the DAU. The DAU plan also describes the strategies and techniques that will be used to reach these objectives. During the DAU planning process, public input is solicited and

collected through questionnaires, public meetings, and comments to CPW staff and the PWC. The intentions of the CPW are integrated with the concerns and ideas of various stakeholders including the United States Forest Service (USFS), the Bureau of Land Management (BLM), city and county governments, hunters, guides and outfitters, private landowners, local chambers of commerce and the general public. In preparing a DAU plan, agency personnel attempt to balance the biological capabilities of the herd and its habitat with the public's demand for wildlife recreational opportunities. DAU plans are approved by the PWC and are reviewed and updated every 10 years.

The DAU plan serves as the basis for the annual herd management cycle. In this cycle, the size and composition of the herd is assessed and compared to the objectives defined in the DAU plan. Removal goals are set. Based on these goals, specific removal strategies are made for the coming year to either maintain the population or move it towards the established objectives (e.g., license numbers and allocation are set, translocation plans are made). Hunting seasons and/or translocations are then conducted and evaluated. The annual management cycle then begins again (Figure 4).

The purpose of this DAU plan is to set population and sex ratio objectives for the Rampart bighorn sheep herd (RBS-14; GMU S34). The DAU plan will be in place from 2014-2024 with the expectation that is will be reviewed and updated in 2024.

DESCRIPTION OF DAU

Location, Boundaries, Land Management, and Physiography

The Rampart Bighorn Sheep DAU RBS-14, located in Teller and El Paso counties, includes GMU S34 and encompasses 145 square miles (93,000 acres). The primary landownership/management types are USFS (45%), private (34%), Department of Defense-US Air Force Academy (19%) and Colorado Springs (3%). It is bounded on the north by USFS Routes 393, 300, and 320, on the east by I-25, on the south and west by US highway 24. The eastern portion of the DAU is within the Colorado Springs city limits (Figure 5).

Elevations in the DAU range from 9,727 feet at Ormes Peak to approximately 6,000 feet where Fountain Creek flows under I-25. The 30-year average precipitation for the DAU is 16 inches which falls primarily as winter-spring snow fall and summer rains. Topography ranges from rolling hills just west of I-25 to steep slopes covered with oak brush, ponderosa pine, Douglas fir, and spruce trees. Major drainages include Monument Creek, Camp Creek, West Monument Creek, Deadmans Creek, Beaver Creek, and Douglas Creek.

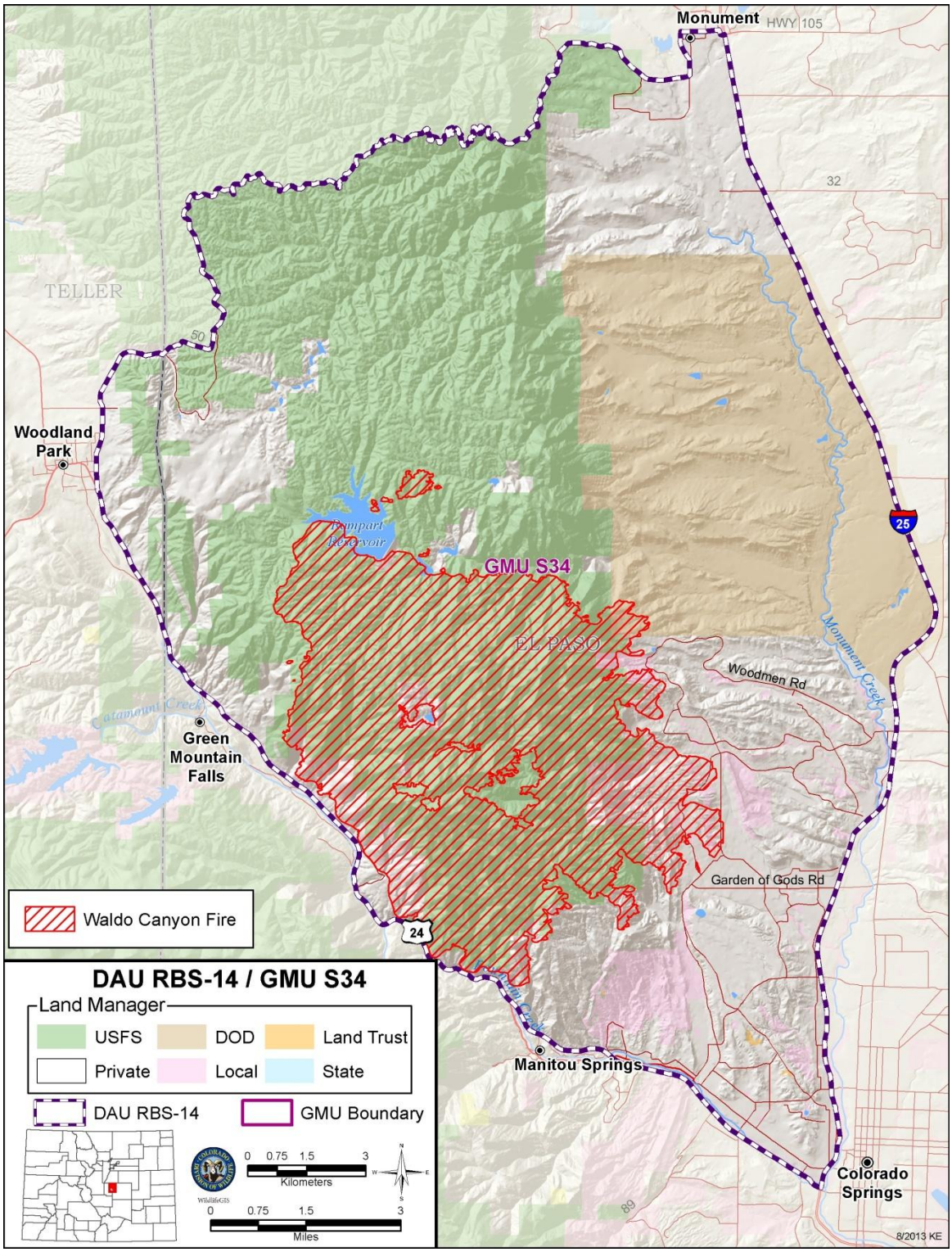

Figure 5. RBS-14 geography, GMU boundaries, landownership, and the boundaries of the Waldo Canyon fire.

DAU HERD HISTORY

Introduction and historic population monitoring

The Rampart bighorn sheep herd was the result of an accidental translocation (Bear and Jones 1973). In 1946, wildlife managers were attempting to move 14 sheep trapped near Tarryall to Pikes Peak. However, the vehicle transporting the sheep broke down in Green Mountain Falls along Highway 24 and the sheep were released on site.

After the initial release in 1946, the herd grew to approximately 40 animals by 1957. However, a pneumonia die-off, likely resulting from one or more bacteria in the *Pasterurella* family, occurred in the late 1950's. By 1970, the population size was down to ~20 animals. In 1978, the herd was supplemented with 20 animals from Trickle Mountain.

CPW personnel have baited sheep in the Rampart herd since the early 1970's. Bait site inventory records date back to 1986 and include a high of 85 sheep at the site in 1990 to a low of 41 sheep in 1986 (Table 1).

Translocations (to and from the DAU)

The herd grew in size following the supplementation in 1978. By 1984, the herd was sufficiently large to become a source herd for translocations to numerous areas of Colorado and surrounding states (Table 2). Between 1984 and 2012, 177 sheep were removed for translocations.

Hunting and harvest history

The first hunting season in S34 took place in 1957-1958 where 5 rams were harvested (Bear and Jones 1973). The herd suffered a die-off in 1958 and Bear and Jones (1973) suggested that the herd had not recovered sufficiently to allow for hunting at the time of their publication. The next documented records of a hunting season in S34 occurred in 1975 where an archery only season was implemented with a total of 4 ram licenses. From 1975 to present a hunting season has been conducted in S34 and the number of licenses has varied along with the percent of hunters having success (Table 3).

Historic distribution

Historically, the herd used habitat north of the Queens Canyon Quarry and far north as west of the United States Air Force Academy (USAFA). This included areas around Ormes Peak, Blodgett Peak, Mountain Shadows, and Stanley Canyon. Sheep also used the canyons to the southwest of the Queens Canyon Quarry including Waldo and Williams Canyons.

Table 1. Maximum counts, age & sex ratios of bighorn sheep at the Rampart bait site from 1986-2013.

Year	Maximum No. Sheep on Bait Site	Lamb:Ewe Ratio*	Ram:Ewe Ratio*	No. Days Baited
1986	41	73:100	100:100	22
1987	--	--	--	--
1988	71	50:100	87:100	18
1989	67	37:100	39:100	20
1990	85	65:100	41:100	27
1991	70	66:100	53:100	36
1992	--	--	--	--
1993	81	60:100	33:100	43
1994	83	50:100	30:100	55
1995	73	61:100	100:100	31
1996	55	58:100	71:100	42
1997	45	27:100	46:100	36
1998	55	58:100	54:100	42
1999	62	30:100	80:100	39
2000	60	69:100	61:100	48
2001	67	29:100	43:100	56
2002	53	62:100	95:100	27
2003	62	50:100	44:100	57
2004	55	31:100	81:100	36
2005	67	45:100	71:100	34
2006	62	96:100	52:100	15
2007	--	--	--	--
2008	67	85:100	44:100	30
2009	61	44:100	32:100	27
2010	61	34:100	26:100	35
2011	71	61:100	55:100	23
2012	--	--	--	--
2013	59	26:100	65:100	17

*Lamb:Ewe & Ram:Ewe ratio on day of maximum count

Table 2. Translocations to and from RBS-14 (GMU S34) 1946-2012

Date	Capture Site	Release Site	Ram	Ewe	Yrlg	Lamb	Total
2/1946	Tarryall Range	Rampart Range	2	10	0	2	14
3/8/1978	Trickle Mountain	Rampart Range	3	7	0	10	20
1/3/84	Rampart Range	Spanish Peaks West	3	10	0	7	20
1/22/90	Rampart Range	Badger Crk.	1	7	2	9	19
1/21/92	Rampart Range	Parkdale (Taylor Gulch)	3	7	0	11	21
1/21/92	Rampart Range	N. Fork S. Arkansas River	3	0	0	0	3
2/9/94	Rampart Range	Arizona	3	10	0	8	21
1/23/96	Rampart Range	West Elk, Soap Crk.	3	10	0	9	22
3/1/01	Rampart Range	Nebraska	0	12	4	6	22
2/14/03	Rampart Range	DeBeque Canyon	0	7	3	8	18
1/11&12/2010	Rampart Range	Tarryall Range	1	6	5	0	12
2/10&16/2011	Rampart Range	Tarryall Range	0	5	3	4	12
3/26&27/2012	Rampart Range	Tarryall Range	4	3	0	0	7

Table 3. Harvest history, including license numbers, harvest numbers, hunter numbers, and percent harvest success for the Rampart bighorn sheep herd (1974-2013).

		# of Licenses				# of Harvests				# of Hunters				% Success			
Year	Post Hunt Pop.	Ram	Ewe	E/S	Total	Ram	Ewe	E/S	Total	Ram	Ewe	E/S	Total	Ram	Ewe	E/S	Total
1974		5	0		5	0	0		0	NA	NA		NA	NA	NA		NA
1975		4	0		4	0	0		0	NA	NA		NA	NA	NA		NA
1976		5	0		5	1	0		1	5	0		5	20	0		20
1977		5	0		5	2	0		2	5	0		5	40	0		40
1978		5	0		5	0	0		0	NA	NA		NA	0	0		0
1979		5	0		5	1	0		1	5	0		5	20	0		20
1980		5	0	5	10	0	0	0	0	5	0	5	10	0	0	0	0
1981		5	5		10	0	0		0	5	5		10	0	0		0
1982		10	7		17	3	3		6	8	7		15	38	43		40
1983		10	10		20	4	0		4	10	8		18	40	0		22
1984		10	10		20	0	1		1	10	8		18	0	13		6
1985		10	5		15	NA	NA		NA	10	7		17	25	0		25
1986		10	4		14	2	0		2	9	4		13	22	0		15
1987		10	10		20	1	1		2	8	8		16	10	10		13
1988		10	9		19	1	0		1	10	7		17	10	0		6
1989		10	9		19	3	2		5	10	7		17	30	29		29
1990	150	11	10		21	1	1		2	10	8		18	10	13		11
1991	150	10	10		20	0	0		0	10	10		20	0	0		0
1992	225	10	10		20	0	4		4	10	9		19	0	44		21
1993	150	16	12		28	3	3		6	16	9		25	19	33		24
1994	175	16	15		31	0	3		3	15	12		27	0	25		11
1995	145	16	16		32	2	3		5	16	13		29	13	23		17
1996	130	16	16		32	3	0		3	13	6		19	23	0		16

1997	45	16	16	32	0	0		0	12	6	18	0	0	0
1998	60	2	2	4	0	0		0	2	2	4	0	0	0
1999	65	2	0	2	2	0		2	2	0	2	100	0	100
2000	65	2	2	4	1	0		1	2	2	4	50	0	25
2001	65	2	2	4	2	1		3	2	2	4	100	50	75
2002	65	2	2	4	0	2		2	2	2	4	0	100	50
2003	65	2	2	4	1	1		2	2	2	4	50	50	50
2004	65	2	2	4	2	1		3	2	2	4	100	50	75
2005	75	2	2	4	0	1		1	2	1	3	0	100	33
2006	75	4	2	6	2	2		4	4	2	6	50	100	67
2007	75	4	2	6	1	2		3	4	2	6	25	100	50
2008	70	4	2	6	4	2		6	4	2	6	100	100	100
2009	65	4	4	8	4	3		7	4	3	7	100	100	100
2010	75	2	1	3	2	0		2	2	1	3	100	0	67
2011	75	2	1	3	2	0		2	2	1	3	100	0	67
2012	80	2	1	3	2	1		3	2	1	3	100	100	100
2013	80	2	1	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

CURRENT HERD BIOLOGY & MANAGEMENT ISSUES

Distribution and summary of available movement data

The Rampart herd almost exclusively uses the Queens Canyon Quarry, Camp Creek, and the areas surrounding Glen Eyrie and Garden of the Gods. Most ewes lamb in the rugged parts of Queens Canyon. However, a limited number (~5-10) of ewes lamb on the southwestern side of the USAFA. The exact route used by these ewes to travel to the USAFA is unknown.

Interaction with other DAUs (metapopulation or other)

In general, the Rampart Range sheep herd is somewhat isolated from other sheep herds. However, in 2001 a six year old ram from the Pikes Peak/Dome Rock herd (DAU RBS-8) was present at the Rampart bait site. In the late 1980's, an unknown number of sheep for S34 established a small herd around Greenland in Douglas County.

Delineation and use of available habitat

Approximately 17% of the DAU (17,000 acres or 26.6 mi^2) is classified as bighorn sheep habitat (Eichhoff, unpublished). The quality and quantity of habitat in S34 varies. In general, the habitat in S34 can be considered a mountain shrub community associated with mountain mahogany, pinion/juniper, ponderosa pine and some artificial habitats. The artificial habitats include the re-vegetated Queens Canyon Quarry and landscape plantings in Glen Eyrie and neighboring subdivisions.

Based on telemetry locations collected from 2007-2011, ewes in the Rampart herd only used a small percentage of the available habitat (2,745 acres or 4.3 mi^2). Prior to 2012, pinion/juniper encroachment was thought to be a major factor restricting the distribution of sheep in the DAU. Advanced stages of pinion/juniper are considered to be poor habitat for bighorn sheep because they decrease the amount of available forage and visibility.

In June 2012, the Waldo Canyon fire burned 20% (19,000 acres or 29.7 mi^2) of the DAU, including 8,500 acres of bighorn sheep habitat (Figure 5 & 6). The intensity of the burn varied from low intensity ground fires to high intensity crown fires, which almost completely consumed all vegetation in the area. Of the 8,500 acres burned in bighorn sheep habitat, ~58% (4,940 acres or 7.7 mi^2) burned at a sufficient intensity to remove the advanced stages of vegetation. Therefore, the Waldo Canyon fire might have increased the amount of useable sheep habitat in the DAU. In 2013, CPW personnel placed GPS collars on four bighorn sheep from the Rampart herd (2 ewes and 2 rams) to monitor post-fire movements.

Recreational impacts

Increased recreational use of the Queens Canyon Quarry is a large concern for the Rampart sheep herd. Many people trespass through private property at the lower ends of the Quarry to access public land at the top of the Quarry. Many of the individuals have dogs off-leash and CPW personnel have witnessed dogs pursuing lambs. Private land owners are working with city and county officials to control these activities but the problem persists.

Disease and parasites

As with most sheep herds in the state, *Pasteurella* pneumonia is the primary disease management concern for S34 (George et al. 2009). Due to the proximity of this herd to suburban Colorado Springs and surrounding communities, hobby animals would be the likely vector of a *Pasteurella* pneumonia outbreak. The risks, however, are believed to be minimal.

Bighorn sheep can be infected by epizootic hemorrhagic disease (EHD) and bluetongue, two viral diseases that can be fatal in wild ruminants. These diseases are not thought to be limiting for bighorn sheep populations such as Rampart (George et al. 2009). However, the disease can cause individual mortalities. In the Rampart herd, one radio-collared ewe appears to have recovered from a past infection (i.e., abnormal hoof growth). In October 2013, a four-year old ram died from EHD.

Historically, the Rampart bighorn sheep herd has been treated for lungworm infections. From 2007-2010, CPW personnel investigated the efficacy of anthelminitics on 1) reducing larval lungworm levels in ewes and 2) increasing lamb recruitment. Anthelminitic treatments did not increase lamb recruitment in treated ewes and lungworm levels were higher 365 days post treatment in treated ewes versus control ewes (Stiver unpublished). Based on the results of this study, CPW has ceased lungworm treatments in the DAU.

Non-harvest mortality

Since 2007, CPW personnel have opportunistically collected data on bighorn sheep mortality in the Rampart herd. Nineteen animals have been found dead since 2007. Seven were killed by mountain lions, 4 died of unknown causes, 3 fell, 2 died as a result of injuries, 1 died from epizootic hemorrhagic disease, 1 died from an injected jaw/tooth, and 1 was hit by a car. One of the injured animals died from a punctured lung. The other injured animal died from an infection after becoming entangled in wire. Over the same time frame, 23 animals have been harvested and 31 animals were moved for transplant.

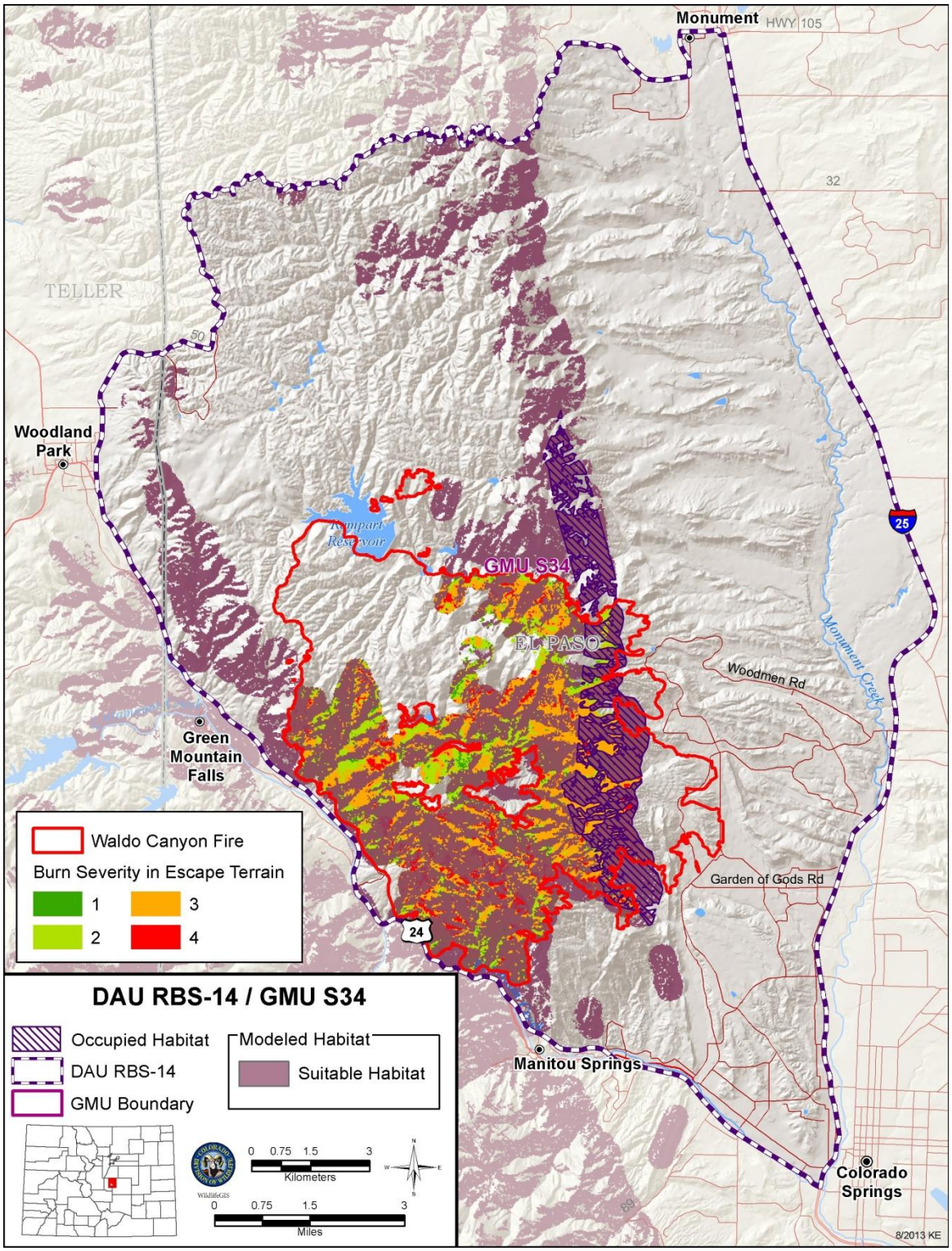

Figure 6. Waldo Canyon Fire burn severity in areas mapped as bighorn sheep suitable habitat. Burn intensities of 3 and 4 removed advanced successional stage vegetation (Waldo Canyon Burned Area Reflectance Classification (BARC) data, USFS, 2012).

ISSUE SOLICITATION PROCESS

Online Survey

CPW personnel solicited feedback on the management of the Rampart bighorn sheep herd through an online survey (Appendix A). In the survey, we asked stakeholders a series of questions to determine their preferences for population and sex ratio objectives. We also specifically asked stakeholders if the Rampart bighorn sheep herd should be managed as a trophy unit for rams. To inform stakeholders of the survey, we mailed out postcards to sportsmen who had applied for a S34 tag between 2009 and 2013 (Appendix A; n=203 sportsmen). We asked the Rocky Mountain Bighorn Society for help advertizing the survey, and they placed a link to the survey on their website. The Gazette newspaper in Colorado Springs also published information about the survey.

Sixty-four individuals responded to the survey. The majority of respondents (78%; n=50) favored a population alternative that, if realized, would result in a small increase of the herd size (50-75% increase). Most respondents (67%; n=42) preferred a sex ratio alternative that would maintain the current ram hunting opportunity in the unit. Respondents also want to see the unit managed for trophy rams, with 78% (n=50) of individuals reporting that they "strongly agree" or "somewhat agree" that CPW should manage GMU S34 as a trophy unit for rams. Detailed results from the survey can be found in Appendix A.

30-Day Comment Period

Based on the results of the online survey, we prepared a draft DAU plan which included three population and sex-ratio objective alternatives. We selected a preferred population objective alternative that, if realized, would result in a 50-75% increase in herd size. We also selected a preferred sex-ratio alternative that encompasses the herd's current sex ratio. The draft DAU plan was posted online from 27 November 2013 through 30 December 2013. We also mailed the draft plan to the Rocky Mountain Bighorn Society (RMBS) and the Pikes Peak Ranger District of the USFS.

During the comment period, we received one email, supporting our preferred alternative, from a sportsman (Appendix B). Terry Meyers, president of RMBS, contacted Julie Stiver directly to discuss the group's recommendations. RMBS was supportive of our proposed increase in population size, maintaining the current sex ratio, and retaining the archery-only designation for DAU. They also asked if we planned to move sheep within the DAU to encourage use of new habitats. If the sheep do not expand their range, we might consider moving sheep within the DAU during the winters of 2015 or 2016.

The USFS sent us a letter supporting our DAU plan and the preferred alternatives (Appendix B). The USFS has designated bighorn sheep as a sensitive species and they are directed to work cooperatively with CPW to manage for the species. They supported the preferred population alternative because the strategy to increase the herd was in-line with their conservation goals. They also would use the strategy to help refine vegetation management prescriptions to benefit bighorn in the Upper Monument Creek Ecosystem.

MANAGEMENT RECOMMENDATIONS

Source herd for translocations

The Rampart herd has been a primary source for translocations throughout the state for multiple reasons. First, this herd is one of the most productive in the state so it has recovered well following removals. Second, the herd is easily accessible due to its proximity to Colorado Springs. Third, animals from Rampart typically do well following translocation. Therefore, we recommend a long term objective of managing this herd as a source for translocations.

However, in the near-term (≤5 years), we recommend against using this herd for translocations. We would like to see whether the herd responds to new habitats created by the Waldo Canyon fire by expanding their range and /or increasing in numbers. This could provide valuable case study of bighorn herd response to wildfire.

Population objective range

Preferred Alternative: Population target 135 sheep (range 120-150)

The majority of survey respondents (78%) favored a population objective that would result in an increase of 50-75% above the current herd size. In 2013, CPW estimated that there were 80 sheep in the Rampart herd. A population objective of 135 sheep represents an increase of 67.5% above current numbers. If achieved, this population objective may allow sheep to expand into new habitats created by the Waldo Canyon fire. The herd was thought to be at this level in the early- to mid-1990's (Table 3) so this population size is realistic for the DAU. This objective would ultimately lead to an increase in license numbers, especially if sheep move away from the Queens Canyon Quarry during hunting season.

Alternative 2: Population target 80 sheep (range 70-90)

This alternative range includes the previous objective (75) and the current population estimate for the herd (80). This is a sustainable population size for the herd since it has been in the population range for the past 10-15 years. This population objective would allow us to maintain harvest at current levels. Eight of 65 (12%) of survey respondents favored this objective.

Alternative 3: Population target 160 sheep (range 145-175 sheep)

This population objective represents a 100% increase above the current population size. If achieved, we would expect sheep to expand into habitat created by the Waldo Canyon fire. It would allow for long term increases in the number of licenses available each year but could decrease the quality of rams in the unit. Higher densities in bighorn sheep herds are also thought to increase disease risk for wild sheep. Six of 65 (9%) respondents favored this alternative.

Harvest objectives and management

The Rampart DAU provides archery hunters with an excellent opportunity to harvest a trophy ram (Pope and Young score ≥ 140). The unit is popular among archery hunters and we recommend managing Rampart as a trophy unit (as opposed to an opportunity unit). The majority of survey respondents (78%) wanted to see this unit managed for trophy rams.

Sex ratio objectives

Preferred Alternative: 60 rams per 100 ewes (range 55-65)

This is the current sex ratio in the herd (based on a 3-year average). The majority of online survey respondents (67%) preferred an alternative that would maintain the current sex ratio and ram hunting opportunity. If selected, this alternative would provide hunters with a comparable number of mature rams in the future.

Alternative 2: 70 rams per 100 ewes (range 65-75)

Under this alternative, we would have to decrease ram hunting opportunity. There are currently two ram licenses, spread between two seasons, offered in the unit. Under this alternative, we would likely have to eliminate one of the seasons. This would increase the number of preference points required to draw a license but would also result in a higher number of rams for hunters to choose from. This alternative was preferred by 14% of survey respondents.

Alternative 3: 50 rams per 100 ewes (range 45-55)

Under this alternative, we would increase ram hunting opportunity. This could decrease the number of rams relative to the number of ewes in the herd, increase hunter crowding, and reduce the age of rams. However, this would allow more hunters to draw a permit each year. This alternative was favored by 17.5% of online survey respondents.

Ewe harvest (including translocation removals)

In 2010, the number of ewe licenses in the unit was decreased from four to one due to the translocation of sheep from Rampart to 4 Mile State Trust Land (Table 2). Since the 2010 season, one archery ewe tag has been offered in the DAU. After finishing the translocations, we recommended retaining a low number of ewe tags in the unit because the portion of the DAU open for hunting can be difficult to access due to the mixture of public and private land in the area as well as National Forest closures resulting from Waldo Canyon fire.

We recommend retaining ewe harvest in the DAU regardless of which population objective alternative is adopted. The herd is highly productive with a long term (1986-2013) lamb to ewe ratio of 53 lambs per 100 ewes making ewe harvest sustainable, even if the objective is to allow the population to grow (Table 3). From 2010 to 2012, we removed 31 sheep including 14 ewes from the herd for the translocation. Over the same period, six rams and one ewe were harvested in the unit. Despite these removals (which do not include other forms of mortality), the population size of the herd has remained stable.

Additionally, high densities of ewes have been shown to reduce horn size in rams as well as the number of 2-year old ewes producing lambs (Jorgenson et al. 1993 and 1998). These authors found that a stable population of bighorn sheep could be achieved through an annual removal of 12-24% of ewes (or 5-10% of the total adult population). Therefore, ewe harvest might be integral component of managing this unit as a trophy DAU.

Methods of take, season structure and timing

Since the herd is almost always within or near the Colorado Springs city limits, the DAU is designated as an archery-only unit for sheep hunting. Hunters can only harvest sheep on National Forest land out of the city limits. We recommend retaining archery as the method of take. However, we might reconsider this recommendation if the herd starts to use Forest Service land away from the city limits.

There are currently two seasons offered for S34: October 15-31 and December 1-15. Currently, ram and ewe licenses are offered in the October season while December is a ram-only license. During the scoping process for this plan, we discussed this season structure with some of the sportsmen who had recently hunted in S34. The sportsmen suggested we move the opening and closing dates of the first ram season back by one week for two reasons. First, the rams remain on private land until the later part of the season so moving the season back would allow the ram hunter a better opportunity to harvest a ram. Second, moving the season back would reduce competition between the ram and ewe hunter. We acknowledge that these are valid concerns. However, the success rate for ram hunters has been 100% in S34 for the past five seasons so we recommend retaining the current season structure.

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APPENDIX A-Outreach Survey

Hunter Outreach Survey Postcard

Dear Colorado Sheep Hunter:

Wildlife managers at Colorado Parks & Wildlife are currently developing the bighorn sheep management plan for the Rampart herd (GMU S34). As a sportsman interested in hunting bighorn sheep in this unit, we would like your input on bighorn management in the area. We are gathering input through a short online survey.

The survey is available at: https://www.research.net/s/RampartBHS.
Please note the **/s/** between the .net and RampartBHS in the address above.

If you would like to provide input but do not have internet access, please leave a message with your name and address at (719) 227-5280 so we can mail you a paper copy of the survey. Surveys must be completed by October 21, 2013.

Thank you,
Colorado Parks and Wildlife

Rampart S34 Bighorn Sheep Management Plan
Outreach Survey

Colorado Parks and Wildlife (CPW) is interested in your input on the management of the Rampart bighorn sheep herd, which covers Game Management Unit (GMU) S34 in El Paso and Teller Counties (see map below).

In Colorado, bighorn sheep populations are managed within specific geographic areas with a bighorn sheep management plan. Management plans describe population and sex ratio objectives and actions CPW will take to manage bighorn sheep for a 10 year period in that particular area.

CPW is interested in incorporating the concerns and desires of the public with the biological characteristics of the Rampart bighorn sheep herd in the management plan it is developing for the next 10 years. Public input is a very important part of the planning process.

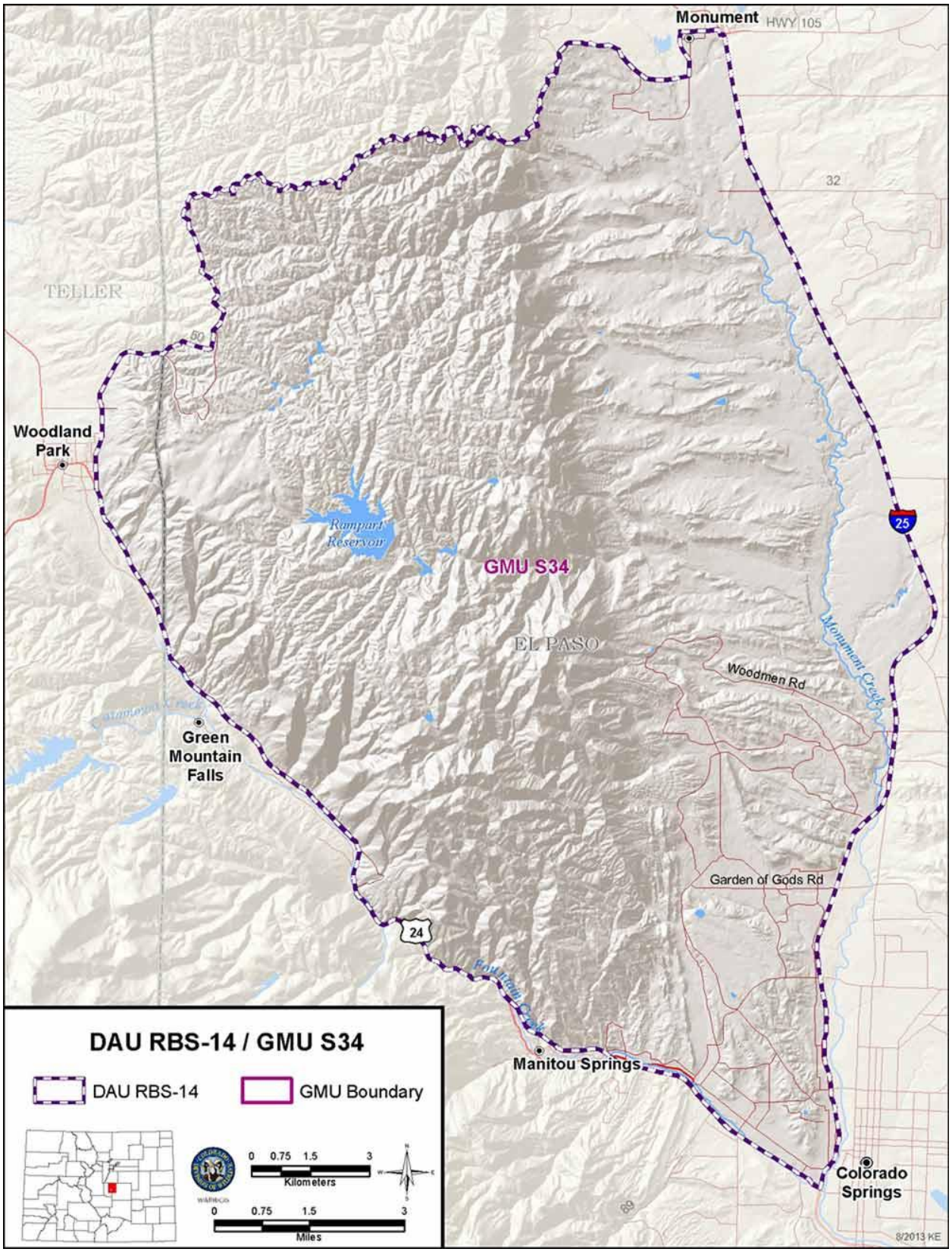
Filling out the following survey will help us learn what you think about bighorn sheep in the Rampart herd and how you interact with bighorn sheep in this area. The information you provide will help CPW develop objectives and management actions for the bighorn sheep herd in this GMU.

If you have any questions about this plan, please contact me, Julie Stiver, at (719) 227-5225 or by email at julie.stiver@state.co.us.

Thank you for your interest in Colorado's wildlife.

Sincerely,

Julie Stiver
Wildlife Biologist
Colorado Parks and Wildlife
Colorado Springs


Monument
HWY 105
32
TELLER
50
Woodland Park
Rampart Reservoir
GMU S34
EL PASO
25
Monument Creek
Woodmen Rd
Green Mountain Falls
Garden of Gods Rd
24
Fountain Creek
Manitou Springs
Colorado Springs
89
8/2013 KE
DAU RBS-14 / GMU S34
DAU RBS-14
GMU Boundary
0 0.75 1.5 3
Kilometers
0 0.75 1.5 3
Miles

1. What is your zip code? ***(n=63 responses; n=1 skipped question)***

2. Have you hunted bighorn sheep in Colorado in the past? (Please check one.) ***(n=64 responses; n=0 skipped question)***

□ Yes ***(42.2%; n=27)*** □ **No** ***(57.8%; n=37)***

3. Have you applied for a bighorn sheep hunting licenses in GMU S34 in the past? (Please check one.) ***(n=65 responses; n=0 skipped question)***

□ **Yes** ***(70.3%; n=45)*** □ No ***(29.7%; n=19)***

4. Which of the following activities do you participate in that may affect your in bighorn sheep in S34? (Please check all that apply.) ***(n=64 responses; n=0 skipped question)***

□ **Hunting** ***(85.6%; n=55)***
□ Wildlife watching ***(60.9%; n=39)***
□ Hiking or other outdoor recreation ***(54.7%; n=35)***
□ Own land or work for a landowner in or near bighorn sheep range ***(4.7%; n=3)***
□ Other (please specify) ***(9.4%; n=6)***

1	Colorado Youth Outdoors
2	nothing
3	Participated for 14 years as volunteer in early sheep counts
4	photographing wildlife
5	photography
6	Watching the DOW guy keep us away from the sheep, telling us we interrupt breeding, while he and "hunters" drive all over their range "hunting" these near tame G of Gods critters. Listening to him tell us that populations are low because we scare them (they actually follow us) while hunters kill the best of the breed.

5. Which of the following groups BEST represents your interest in bighorn sheep in GMU S34? (Please check only one.) ***(n=64 responses; n=0 skipped question)***
□ Landowner ***(n=0)***
□ Guide or outfitter ***(n=0)***
□ **Hunter or sportsperson** ***(78.1%; n=50)***
□ Hiker or other recreational use of the Rampart Range ***(9.4%; n=6)***
□ Member of an environmental or conservation organization ***(3.1%; n=2)***
□ Wildlife watcher ***(6.3%; n=4)***
□ Other (please specify) ***(3.1%; n=2)***

1	Human being who can see the self-serving hypocrisy and general BS of sheep hunters.
2	Veterinarians

6. How important are wild bighorn sheep to you? (Please check one.)
(n=64 responses; n=0 skipped question)

□ **Very important** ***(93.8%; n=60)***
□ Somewhat important ***(6.3%; n=4)***
□ Neither important nor unimportant ***(n=0)***
□ Somewhat unimportant ***(n=0)***
□ Very unimportant ***(n=0)***
□ I am not sure ***(n=0)***

7. How important is it to you that there continue to be wild bighorn sheep in Colorado in the future? (Please check one.)
(n=64 responses; n=0 skipped question)

□ **Very important** ***(100%; n=64)***
□ Somewhat important ***(0%; n=0)***
□ Neither important nor unimportant ***(0%; n=0)***
□ Somewhat unimportant ***(0%; n=0)***
□ Very unimportant ***(0%; n=0)***
□ I am not sure ***(0%; n=0)***

8. To what extent do you agree with the statement below? (Please check one.)

I believe that CPW is currently doing an adequate job of managing bighorn sheep in GMU S34 ***(n=64 responses)***

□ Strongly agree ***(32.8%; n=21)***
□ **Somewhat agree** ***(46.9%; n=30)***
□ Neither agree nor disagree ***(9.4%; n=6)***
□ Somewhat disagree ***(1.6%; n=1)***
□ Strongly disagree ***(1.6%; n=1)***
□ I am not sure ***(7.8%; n=5)***

9. To what extent do you agree with the statement below? (Please check one.)

I believe that CPW should manage GMU S34 as a trophy unit for rams. ***(n=64 responses)***

□ **Strongly agree** ***(45.3%; n=29)***
□ Somewhat agree ***(32.8%; n=21)***
□ Neither agree nor disagree ***(6.3%; n=4)***
□ Somewhat disagree ***(4.7%; n=3)***
□ Strongly disagree ***(7.8%; n=5)***
□ I am not sure ***(3.1%; n=2)***

10. Which of the following alternatives would you prefer to guide CPW's decisions about ram harvest and sex ratio in the next 10 years in GMU S34? (Please check one.) ***(n=63 responses; n=1 skipped question)***

□Increase ram hunting opportunity, which would decrease the number of rams in the herd. This may increase hunter crowding and reduce the age of rams harvested, but would allow more hunters to draw a permit each year. ***(17.5%; n=11)***

□**Maintain the current ram hunting opportunity. This limits crowding and maintains the current age structure of rams in the herd.** ***(66.7%; n=42)***

□Decrease ram hunting opportunity. This would lead to the least crowding and greatest harvest of older rams, but would require the largest number of preference points to draw a permit. ***(14.3%; n=9)***

□I am not sure. ***(1.6%; n=1)***

11. Which of the following alternative would you prefer to guides CPW's decisions about the number of bighorn sheep in GMU S34 in the next 10 years? (Please check one.) ***(n=64 responses; n=0 skipped question)***

□Maintain the current population size: This may require the use of translocations to stabilize the population at its current level. ***(12.5%; n=8)***

□**Small increase in population: Small increase in the number of bighorn sheep (75%), which may allow the sheep to expand into new habitats created by the Waldo Canyon fire. This ultimately could lead to an increase in license numbers and the opportunity to view more wild sheep.** ***(78.1%; n=50)***

□Large increase in population: Increase wild sheep numbers by 100%, which will allow for long term increases in the number of hunting licenses available each year for rams and ewes but may decrease the quality of rams in the unit and could increase the risk of disease among wild sheep. ***(9.4%; n=6)***

□I am not sure ***(0%; n=0)***

12. How did you hear about this survey? ***(n=64 responses)***

- CPW postcard ***(62.5%; n=42)***
- CPW website ***(3.1%; n=2)***
- CPW employee ***(1.6%; n=42)***
- Other (please specify) ***(32.8%; n=21)***:

Other Source	Number of Responses
Colorado Springs Gazette (newspaper)	9
Rocky Mountain Bighorn Society Website	6
Through a friend	5
Safari Club International, Colorado Chapter	1

13. Please use the space below to write any additional comments or observations about bighorn sheep management in GMU S34 that you would like to share. ***(n=28 responses)***

Written Responses to Online Survey

1	Although I would like to see expansion of this herd, creating greater opportunity for all stake holders and taking advantage of the Waldo Canyon burn habitat increase, I would like to see S34 remain an archery only unit. Please continue to address lion predation in this area as in the country to the north around the Hayman burn. Thank you Julie, for your commitment to sheep in Colorado and the opportunity to comment!
2	Close the December hunt. It was far too easy. It did not do justice to the species. You will have to figure out how to get the rams out of the private property. The early season struggles greatly with waiting for the rams to come out of Queens canyon. I hear they get there ram on the last day often.
3	Do not know (beyond a few newspaper articles) too many details about CPW's management of the sheep population, thus could not say whether you are doing a good job or not.
4	Good Job
5	Great genetics and the best opportunity for a bowhunter to harvest a large mature ram. I only hunted it in the early 90's but back then it was awesome. Try to mirror what the herd was doing back then and I think you would be on the right track.
6	Hope I get a license sometime in the future.
7	I believe GMU S34 can support a much larger herd of sheep.
8	I harvested a ram in 2011 in S34 so am unlikely to draw a tag to hunt there again. I would still like to see larger rams in the unit for wildlife viewing and photography while still providing others hunting opportunities in the unit.
9	I hunted Rams in 2010 and harvested one in the first season. Access to the scar through the green gate was OK at the time but I am not sure how it is now. It came down to if

	(9 continued) Flying W ranch wanted to give you a key or not. CPW should provide hunters a key to this gate for access and have them sign a liability form. This would assure access. The early season is difficult and I feel should be moved back 1 week. Oct.22nd or so and let it go into the 1st week of November. Rams stayed in Glen Eyrie and finally only one arrived on Oct. 29th. It was close... 2nd season is fine - Hunters usually get one on the first or second day. 1 or 2 rams per year should be the limit to encourage larger rams to be harvested. Archery only. Ewes are fine at 2 or 3 I think. A moderate increase in herd size would be good I think. May need to get some new Ram/Ewe blood in the herd from another area of Colorado. It is a great opportunity and one that will hopefully be available for a long time to come.
10	I hunted sheep in this unit several years ago when I was a resident. I did not harvest a ram. I moved out of Colorado in 2010 and am no longer a resident. Living out of state makes it impossible for me to monitor the sheep in this unit as I did when I lived in Colorado Springs...so I am not sure how useful my information can be.
11	I love hunting that area, but have not done so for thirty years. With the fires, I am very concerned about the bighorns, but feel that it may help overall (in the long run). I would love to hunt that area once again.
12	I respect the DOW (I don't support the new name) and support it about 80% of the time. Do what's right for the wildlife not politics.
13	I was lucky enough to harvest my first ram in this unit back in 1993 when there were 7 hunters. The season dates now, the low number of tags, and the lack of mining on the "scar" seem to have made this a better hunt for harvest, but it seems to be an easier hunt as most of the rams hang down lower in the unit. I think two additional tags with the same season structure would provide a little more opportunity and keep the herd healthy. Most hunters just are looking for opportunity with sheep, not necessarily trophy quality.
14	It seems that non-native plants (cheat grass) has taken over after fires and made it difficult for native plants to re-establish themselves. So, in unit 34 every effort should be made to get native plants, especially those Bighorn Sheep like and need the most in hard winters, be given the advantage first. I would think that Bighorns will need to go outside Unit 34 in the winter in the next few years This could be a real chance to see if high quality feed means fast horn growth and a healthy herd able to stand hard winters?
15	It would be nice as a resident to at least have an opportunity to hunt sheep once every 3-5 years.
16	Nice trophy rams, would like to see it stay as and archery only, trophy unit. Would be great if sheep would relocate into other areas (Waldo, Williams) like they were in years past. Hunting on the quarry scar is not the greatest challenge.
17	Relocating sheep to keep populations down seems extreme unless there are new areas that could support sheep to which they would be transplanted. There are already "opportunity" areas for sheep S-9 comes to mind where tags are easier to draw and quality not as high. I like the idea of a primitive weapons only unit for sheep.
18	Since it is so difficult to draw a ram tag, I would prefer a nice/uncrowded hunting experience once a tag is drawn.

19	Thank you for all your hard work! Sheep hunting in Colorado is very important and I would like to see populations as well hunting opportunities expand. CPW needs to open a season in S42 waterton caynon similar to the S34 hunts.
20	Thank you for allowing us to comment while recognizing that we are nowhere close to being experts in the field of game management. Above all - please preserve our herds in this area, on Pikes Peak and the river road to Salida.
21	Thank you for doing a great job managing the wonderful resource of sheep in our state.
22	Thanks for the opportunity to express opinions...
23	The biggest problem I have seen is not with the quality of the Ram or the sheep herd but more the access. I work in the Hunting industry and know several people who have drawn the tags the last 6 years. Seems everyone hunts on or near the "scar" or Queens Canyon. The best access is Navigators and Flying W, neither seem too interested in helping us and in fact I think Navigators is anti hunting, my opinion after hearing what a friend had to go through to park and walk up a road. I think the DOW has done well but if better access could be obtained and that info shared with the hunters lucky enough to draw it would be a huge help. If the DOW added a RAM or two I think we would still be ok but I am not the expert so that is speculation.
24	There are relatively few bighorn sheep in the area. There is pretty much no excuse for trophy hunting. It has diminished buck, bull and ram size across the state. It makes no ecological sense to kill males. If you are really trying to control populations, you kill females, which eliminates future progeny. Hunters will still hunt, and still pay. Severely limit tags for buck/bull/ram. Specify size range that will allow the best to breed. The animals on the quarry are nearly tame. I have pictures of 8 rams side buy side taken from 50 yards. Pretty tough hunt!
25	This is a trophy unit. Please keep it that way.
26	This is the only unit I apply for. (ram)
27	This particular herd seems healthy and well-balanced. CPW appears to be doing a great job in maintained a healthy, beautiful herd of Bighorns. If you know where to go in this area, you can usually find a small herd grazing. Hopefully, a benefit of Waldo Canyon fire will be increased grazing areas for the bighorn. I would recommend cautious overseeing of the herd(s) over the next ten years to see if the grazing areas are increased and if the size of the herd increases as well. So far, it seems we have some thoughtful, caring and smart CPW employees working with this herd. Keep it up!
28	Would still like to be able to participate as volunteer in future endeavors involving the sheep herd

APPENDIX B-Responses to 30 Day Comment Period

Figure 7. Email in support of preferred alternatives from a citizen.

STATE OF COLORADO

RBS-14 DAU Comments

Dennis Doerr <traditionaldoerr@gmail.com>
To: julie.stiver@state.co.us

Thu, Nov 28, 2013 at 10:44 AM

Hello,
My name is Dennis Doerr and I'm a resident of Thornton, Colorado. I currently like the objective plans to expand the rampart herd. My one concern is what does the development plans look like for the Waldo fire area, an how will this effect the plans.

Thank You,
Dennis Doerr

Figure 8. Letter of support for the USFS.

United States Department of Agriculture
Forest Service
Pike and San Isabel National Forests Cimarron and Comanche National Grasslands
Pikes Peak Ranger District
601 S. Weber
Colorado Springs, CO 80903
(719) 636-1602
Fax (719) 477-4233
www.fs.usda.gov/psicc

File Code: 2610
Date: January 9, 2014

Julie Stiver
Wildlife Biologist
Colorado Parks and Wildlife
4255 Sinton Road
Colorado Springs, CO 80907

Ms. Julie Stiver,

Thank you for the opportunity to comment on the Draft Bighorn Sheep Management Plan for the Rampart Herd (Data Analysis Unit RBS-14, Game Management Unit S34). I have reviewed the document and support the efforts of the Colorado Parks and Wildlife to manage bighorn sheep populations.

Rocky Mountain bighorn sheep are classified as a Sensitive species by Region 2 of the Forest Service. These are species for which population viability is a concern, as evidenced by significant current or predicted downward trends in population numbers or density, or in habitat capability that would reduce a species existing distribution. Forest Service directives emphasize working cooperatively with state agencies for the management and conservation of populations and/or the habitat of sensitive species.

The "Management by Objective" process utilized by the Colorado Parks and Wildlife to manage big game populations employs well-established adaptive measures to successfully attain desired long-term objectives for big game population levels and sex ratios. This management approach will provide the best opportunity for the Rampart herd to be maintained at a sustainable level capable of functioning as a source population for translocation.

I support the "Preferred Alternatives" of this Management Plan for the population and sex ratio objectives for the Rampart bighorn sheep herd. This strategy is a reasonable approach to determine if the changed habitat conditions resulting from the Waldo Canyon fire will facilitate an increase in abundance and/or an expansion in the range of the Rampart herd. In addition, this strategy may help refine vegetation management objectives and treatments associated with the proposed Upper Monument Creek Ecosystem Restoration Project, which may also promote bighorn sheep expansion within this DAU. A larger, more dispersed herd would be a more resilient population that would be less susceptible to disease, human disturbance, and interactions with domestic animals. The proposed management of the bighorn sheep population, combined with targeted vegetation treatments, would have a mutual benefit to the Forest Service and the Colorado Parks and Wildlife in achieving goals for the conservation of this species.

For more information concerning this letter, please contact Felix Quesada, Wildlife Biologist, at (719) 636-1602, or e-mail fquesada@fs.fed.us.

Sincerely,

ALLAN D. HAHN
District Ranger