

**Total annual Little Snake Field Office budget:** Base budget of \$2.8 million per year throughout the life of the plan. 85% of that is labor, 15% is operational costs. [Then add/subtract costs for veg treatments, weed treatments, rec facilities]

Alternative A: **\$2.8 million**

Alternative B: +\$444,000/20 (\$22,200) for veg treatments + \$2,500 for TM costs = **\$2,824,700**

Alternative C: +\$13,000 for weed treatments, +\$100,000/20 (\$5,000) for veg treatments, + **\$20,250** for rec facilities = **\$2,838,250**

Alternative D: +\$13,000 for weed treatments +\$544,000/20 (\$27,200) for veg treatments, + **\$20,750** for rec facilities = **\$2,860,950**

## AUMs

### **RMP Revision Expected Changes in AUMs as a Result of Livestock Decisions**

12/16/05 – A.J. Minor

Assumptions:

- ❖ Acreage figures in all alternatives based on numbers in RMP vegetation section.
- ❖ Current and future production rates based on estimates (professional judgment).
- ❖ Current total permitted use is 149,503 AUMs, based on RAS Public Land Statistics for Billing Year 2005.
- ❖ Alternative B - Increases expected due to vegetative conversions, based on same acres as D, but expected increase in production due to being seeded with (possibly) non-native species, as opposed to allowing native vegetation to restore the area. All increases in AUMs would be available for livestock use.
- ❖ Alternative C - Increases expected due to vegetative conversions, based on acreages in Alternative C; areas will be allowed to revegetate with native range species with composition consistent with range site guides; expected increases will be available to livestock up to current permitted use; excess of permitted use will be designated for wildlife forage and watershed protection.
- ❖ Alternative D - Increases expected due to vegetative conversions, based on acreages in Alternative D (greater amount of acres than Alternative C); areas will be allowed to revegetate with native range species with composition consistent with range site guides; expected increases will be available to livestock up to current permitted use; excess of permitted use will be designated for wildlife forage and watershed protection.
- ❖ All alternatives – Approximately 78,963 AUMs are the baseline “actual use” of current production due to voluntary nonuse taken because of: conflicts with livestock or wild horses, drought, gut feeling that the full permitted use is not available, etc. This number is the mean of “Billed AUMs” from 1994 to 2003.
- ❖ If we used the 78,963 AUMs as the baseline for analyzing impacts rather than the permitted use of 149,503 AUMs, this is half the permitted AUMs. It is not atypical within BLM for the original adjudicated AUMs to exceed current production, as they were often overly optimistic. The assumption is that as we go through the permit renewal process, through monitoring, we are trying to bring permitted use in line with what the resource can actually produce. In some cases, we have increased permitted use as part of the permit renewal process. However, in most cases, where permitted use has been changed, it has involved a decrease. It is never expected that permitted use will match

exactly “actual use”, as monitoring will never be so exact. In addition “actual use” will always vary depending upon weather and corresponding forage production, market conditions, etc.

A. Will convert woodland types, currently producing at estimated 50ac/AUM to a more open woodland community, producing at 15 ac/AUM:

	<b>Alternative C</b>	<b>Alternative D</b>
From woodlands section (acres)		
Ponderosa pine	200 / year = 2000	400 / year = 4000
Lodgepole	50 / year = 500	100 / year = 1000
Aspen	50 / year = 500	200 / year = 2000
Pinyon-juniper	500/ year = <u>5000</u>	500 / year = <u>5000</u>
	8000	12,000
From veg treatment section (acres)		
Pinyon-juniper	1600/year = 16,000	3500 / year = 35,000
Total expected conversions over the course of 10 year plan:		
	24,000 acres	47,000 acres
24,000 ac @ 50 ac/AUM = 480 AUMs		47,000ac @ 50ac/AUM = 940 AUMs
24,000 ac @ 15 ac/AUM = 1600 AUMs		47,000 ac @ 15 ac/AUM = 3133 AUMs
<b>Net increase</b>	<b>1120 AUMs</b>	<b>2193 AUMs</b>

**Alternative B** - will convert 47,000 acres woodland types, currently producing at estimated 50ac/AUM to a more open grassland community, producing at 10 ac/AUM:

47,000ac @ 50ac/AUM = 940 AUMs  
 47,000 ac @ 10 ac/AUM = 4,700 AUMs  
**Net increase**                    **3760 AUMs**

B. Will convert sage & other non-specified communities currently producing at 30 ac/AUM, to Artemisia /grass communities producing at 10 ac/AUM

	<b>Alternative C</b>	<b>Alternative D</b>
Unspecified types from veg treatment section		
	3,030 / year = 30,300	7,570 / year = 75,700
Sagebrush	530 / year = <u>5,300</u>	2,000 / year = <u>20,000</u>
Total	35,600 acres	95,700 acres
35,600 ac @ 30 ac/AUM = 1187 AUMs		95,700 ac @ 30 ac/AUM = 3,190 AUMs
35,600 ac @ 10 ac/AUM = 3560 AUMs		95,700 ac @ 10 ac/AUM = 9,570 AUMs
<b>Net increase</b>	<b>2,373 AUMs</b>	<b>6,380 AUMs</b>

**Alternative B** - Will convert 95,700 acres of sage & other non-specified communities currently producing at 30 ac/AUM, to grass communities producing at 5 ac/AUM

95,700 ac @ 30 ac/AUM = 3,190 AUMs

95,700 ac @ 5 ac/AUM = 19,140 AUMs

**Net increase 15,950 AUMs**

C. Will convert mountain shrub communities, currently producing at 10 ac/AUM to more open shrub/grass community producing at 3 ac/AUM:

From veg treatment section

**Alternative C**  
Mountain shrub 100 ac/ year = 1000

**Alternative D**  
1000 ac/ year = 10,000

1,000 ac @ 10 ac/AUM = 100 AUMs

10,000 ac @ 10 ac/AUM = 1,000 AUMs

1,000 ac @ 3 ac/AUM = 333 AUMs

10,000 ac @ 3 ac/AUM = 3,333 AUMs

**Net increase 233 AUMs**

**2,333 AUMs**

**Alternative B** - Will convert 10,000 acres of mountain shrub communities, currently producing at 10 ac/AUM to more open shrub/grass community producing at 3 ac/AUM (same as Alternative D):

10,000 ac @ 10 ac/AUM = 1,000 AUMs

10,000 ac @ 3 ac/AUM = 3,333 AUMs

**Net increase 2,333 AUMs**

**Total expected increase under Alternative B = 22,043 AUMs**

**Total expected increase under Alternative C = 3,726 AUMs**

**Total expected increase under Alternative D = 10,906 AUMs**

**Booz Allen and CSU: For each alternative, Actual Use may increase by these amounts.**

If the additional AUMs are produced as a result of the treatments identified in all alternatives of the RMP, several questions arise:

1. How many of the permittees would actually increase their stocking rates, and consequently their “actual use” (as opposed to those that might opt for higher weaning weights of calves, rather than more calves)? *(The answer may be very site-specific. It could vary by individual operator, and will vary by expected increase, dependent upon how widespread the increases are, or how localized. Small increases for numerous operators are unlikely to result in increased stocking rates. )*
2. What are other factors that limit stocking rates now, besides forage production? *(Factors such as the cost of additional labor to manage cattle may discourage permittees from increasing the number of livestock they run.)*

3. How much of these AUMs would be available for livestock, how much for wildlife or watershed protection? *(The rule of thumb used in estimating forage production has been half for livestock and half for wildlife. This assumption could be applied here. Again, the reality is going to be site-specific. Some areas will have more wildlife to utilize additional AUMs. In some areas vegetation treatments are likely to become wildlife attractions, pulling more animals than normal to an area. Other areas are more likely to be used by livestock.)*
4. Why would this raise “actual use” and not permitted use? *(Since the overall “actual use” is half of permitted use, under no alternative would vegetation treatments make up this difference, and exceed it, on a field office-wide basis. This is assuming that all nonuse is taken due to lack of forage production and not because of any other factors. If all of these AUMs were produced on one or two allotments, then it is possible that permitted use could be exceeded. However, the likelihood of this is small. The proposed treatments are planned in a variety of habitat types across the field office. There are some allotments where treatments will not be appropriate.)*
5. If livestock are able to (and do) use the additional AUMs produced under Alternative D, is this inconsistent with the goals of D, which are wildlife and watershed protection? *(It is assumed that if additional forage is produced on an allotment, and the permittee has not been running his full permitted use, then he will expect to be able to use these additional AUMs to meet his permitted use.)*

## **Impact of oil and gas development on AUMs**

- 12/1/05 A.J. Minor

I looked at a variety of the most common soils types (corrected data) in Hiawatha/Canyon Creek (assuming this will be similar to Powder Wash and Vermillion Basin) as well as the Great Divide area. From these soil types I identified the associated range sites found on these soils (SCS Range Site Guides for Moffat County).

These guides provide the expected production (air dry weight) for each site, in favorable, “normal” and unfavorable years. I used the figures for “normal” years. Often there is a percentage given for the amount of forage that is “unpalatable or out of reach”. If this number was not given, I used a figure for similar range sites. This number corrects for forage that is unavailable due to other vegetation, and/or accounts for the amount of vegetation provided by species unpalatable to livestock. I also applied a proper use factor of 50%, assuming that only 50% of this (palatable, available) forage should be consumed. I did NOT allow for wildlife use as part of this 50%, so the assumption is that all of the 50% will be used by livestock. This figure is the available lbs/ac. If this number is divided by 680 (680lbs of air dry forage/ AUM), you have the number of AUMs produced on an acre of this vegetation type.

For example:

In Hiawatha a Boltus-Beamton soil complex would have an expected ecological site of “Alkalai Upland”. This would be Gardners saltbush, Indian ricegrass, streambank wheatgrass, western

wheatgrass, and bottlebrush squirreltail. Normal year production would be 450 lbs/ac.; notes indicate 35% is unavailable/unpalatable (or 65% is available/palatable).

$$450 \times .65 = 292; 292 \times .5 = 146 \text{ lbs/ac}; 146/680 = 0.21 \text{ AUM/ac}$$

In Great Divide, a Berlake-Taffom-Gretdivid soil complex, 10-20% slopes would have the following expected ecological sites: deep loam, rolling loam and sandy land. Vegetation would be Wyoming big sagebrush, antelope bitterbrush, needleandthread, Indian ricegrass, Letterman's needlegrass, bluebunch wheatgrass, prairie Junegrass, western wheatgrass, and Nevada bluegrass.

“Deep Loam”: normal year production is 900 lbs/ac; assume 35% unavailable/unpalatable.

$$900 \times .65 = 585; 585 \times .5 = 292 \text{ lbs/ac}; 292/680 = 0.43 \text{ AUMs/ac}$$

“Rolling Loam”: normal year production is 800 lbs/ac; assume 35% unavailable/unpalatable.

$$800 \times .65 = 520; 520 \times .5 = 260 \text{ lbs/ac}; 260/680 = 0.38 \text{ AUMs/ac}$$

“Sandy Land”: normal year production is 850 lb/ac; 35% listed as unpalatable/unavailable

$$850 \times .65 = 552; 552 \times .5 = 276 \text{ lbs/ac}; 276 / 680 = 0.4 \text{ AUMs/ac}$$

A sample of common range sites indicates production in the Hiawatha-Canyon Creek area ranges from 0.21 to 0.38 AUMs/ac

A sample of common range sites indicates production in the Great Divide area ranges from 0.29 to 0.42 AUMs/ac.

**For the sake of having one number to plug in as an “overall” production figure, “0.33 AUMs/acre” was chosen.**

For a comparison number: According to the LSFO Landscape Assessment Acreage Summary there are a total of 1,299,292 public acres. According to Public Land Statistics for billing year 2005 (from RAS) there are 149,503 AUMs of active preference. The mean production, based on these figures, is 0.12 AUMs/ac.

**If one applies the “rule of thumb” that half of the available/palatable forage goes to wildlife, then the “0.33 AUMs/ac” used above becomes 1.65 AUMs/ac, which is more similar to the 0.12 figure in the preceding paragraph.**

The other assumption in using these figures to determine the expected loss in AUMs associated with oil and gas development is these figures only represent actual surface area disturbed and do not take into account loss in production due to weeds moving into adjacent areas, nor areas that become undesirable to livestock due to roads, vehicles and human presence. The “habitat fragmentation” concept works for livestock as well.

To account for both the loss to due to weeds, AND the expected recovery due to weed treatments identified in all alternatives, we are used the following assumptions:

- Assume 49,216 acres are disturbed by oil and gas development throughout the life of the plan. This includes well pads, roads, and facilities, and includes past disturbance as well as future disturbance. This the “gross surface disturbance” described in the LSFO RFD, p. 61. This number represents the total area in which AUMs would be lost, either due to direct surface disturbance, or weeds.
- Assume 23,030 acres are disturbed over the long-term (i.e., the life of the plan). This number represents surface disturbance after interim reclamation (2 of 4 acres for a well pad and 40% of roads are reclaimed after drilling). This the “long-term surface disturbance” described in the LSFO RFD, p. 5 and 62. This number represents the total area in which AUMs would be lost from only direct surface disturbance throughout the life of the plan.
- Assume the difference between gross disturbance (49,216 acres) and long-term disturbance (23,030 acres), which equals **26,186 acres**, is occupied by weeds after interim reclamation.
- AUMs are lost on acres occupied by weeds.
- However, assume half of the area occupied by weeds (half of 26,186 is 13,093 acres) will be successfully treated and weeds will be eradicated. Assume AUMs will not be lost in these areas.
- Therefore, total acres where AUMs are lost equals long-term disturbance (23,030) plus areas where weeds are not successfully eradicated (13,093), which equals **36,123 acres**.

This number applies to acres affected over the entire planning area, not only on BLM surface. Since AUMs are determined based on only BLM surface, we need an assumption as to how much of the 36,123 acres would occur on BLM surface.

The LSFO RFD, p. 57, shows that the industry estimated that 1,686 of 2,425 wells will be drilled on in the northwest region of the LSFO (Hiawatha, Powder Wash, Sand Wash areas). These areas are nearly exclusively federal mineral and BLM surface. Therefore, we assume 70% of the disturbance will occur on BLM surface. 70% of 36,123 is **25,286 acres**

Now, assuming there is .33AUMs/acre, a total of **8,344 AUMs** will be lost on BLM surface.

The next question is, “How many of these AUMs would have been used by livestock, as opposed to wildlife?” Using the “rule of thumb” that half of the AUMs produced are used by wildlife, it’s assumed that half of those lost would have been used by wildlife. (This is a gross assumption, as some areas are more important to wildlife than others. Also wildlife could presumably be more flexible in moving to other areas, whereas livestock are restricted to their permitted allotments.) So **4,172 AUMs** of livestock forage would be lost as a result of oil and gas development throughout the life of the plan.

The final question is “How much will these 4,172 AUMs affect livestock use, and will it be lost from permitted use, or actual use?” For analysis purposes, we assume that these AUMs will be subtracted from actual use as well as from permitted use. This could happen through a variety of ways, each resulting in reductions from both actual use and permitted use:

- 1) It is expected that as wells are developed and forage is lost, the impacted permittees will begin reducing the number of animals they run, or shorten the period of time on public land, thereby reducing their 'actual use'. As BLM monitors the allotment(s), the staff will compare AUMs consumed with utilization levels and in time reduce the permitted use based on this correlation.
- 2) BLM staff could directly calculate the expected decrease in forage based on the number of wells that were developed since the forage was adjudicated, as well as the number of expected wells, and calculate expected loss of forage on a more site-specific AUMs/ac figure. Permitted use would be decreased accordingly as development proceeds. "Actual use" would expect to decline accordingly.
- 3) BLM would proceed in 2) above, but instead BLM could require these AUMs be put in voluntary nonuse and adaptively manage as development continues.

If these AUMs were evenly distributed across the landscape, the effect on permittees would be negligible. However, the development tends to be concentrated in several areas, and the permittees in these areas are going to be impacted more. Therefore, in these areas where reduction in AUMs is more acute, this could be a significant impact to some livestock operations.

A final point: Although **4,172 AUMs** would be lost in Alternatives A, B, and C, this is not the case for Alternative D. We assumed there would be 25% less development in Alternative D because of large areas NSO and Closed to development. Carrying through this assumption, there would only be 75% of the total loss in Alternative D for a total of **3,129 AUMs**.

**AUMs: Conclusion:**

By combining the exercises estimating changes in AUMs as a result of livestock decisions and changes in AUMs as a result of oil and gas development, we can get a total change in AUMs by alternative:

Alternative A: 0 AUM increase in actual use from livestock decisions; 4,172 AUM reduction in actual use and permitted use from development. This equals a 4,172 AUM reduction in actual use and a 4,172 AUM reduction in permitted use.

Alternative B: 22,043 AUM increase in actual use from livestock decisions; 4,172 AUM reduction in actual use and permitted use from development. This equals a 17,871 AUM increase in actual use and a 4,172 AUM reduction in permitted use.

Alternative C: 3,726 AUM increase in actual use from livestock decisions; 4,172 AUM reduction in actual use and permitted use from development. This equals a 446 reduction in actual use and a 4,172 reduction in permitted use.

Alternative D: 10,906 AUM increase in actual use from livestock decisions; 3,129 AUM reduction in actual use and permitted use from development. This equals a 7,777 AUM reduction in actual use and a 3,129 AUM reduction in permitted use.

## Weed treatments

Estimated Cost/acre = \$13

Estimated acres treated by alternative:

Alternatives A & B (case-by-case):

- 1,500 acres/year treated by BLM (all costs by BLM, so \$19,500/year)
- 1,500 acres/year treated by O&G operators (no cost to BLM)
- 1,300 acres/year treated by Weed Partnership (BLM pays 10%, so \$1,690/year)
- 4,300 acres/year total (total cost to BLM = \$21,190)\*

Alternatives C & D (actively eliminate):

- 2,500 acres/year treated by BLM (all costs by BLM, so \$32,500/year)
- 1,500 acres/year treated by O&G operators (no cost to BLM)
- 1,300 acres/year treated by Weed Partnership (BLM pays 10%, so \$1,690/year)
- 5,300 acres/year total (total cost to BLM = \$34,190)\*

\* Assume \$21,190 is already being spent on weeds (as per No Action above), so this will not be added to the total BLM annual budget. However, \$13,000 will be added to the BLM annual budget in Alternatives C and D since this is above and beyond the current \$21,190.

## Vegetation treatments

Assumptions:

- For all veg treatments, assume 75% labor and 25% materials.
- All mechanical treatments are contracted out. It is estimated that 1/3 of these projects go to bidders with the planning area. 2/3 goes to companies outside the planning area.
- All burning is done by local BLM staff.
- 1/3 of thinning projects are contracted; 2/3 are done internally. Of the 1/3 contracted, 1/3 of the projects go to local companies.

### Alternative A

530 acres sagebrush = \$53,000 (1/2 burn, 1/2 mechanical; 67% local, 33% outside)  
1,600 acres encroachment = \$100,000 (1/3 burn, 2/3 thinning; 85% local, 15% outside)  
80 acres bitterbrush = \$8,000 (1/2 burn, 1/2 mechanical; 67% local, 33% outside)  
100 acres mountain shrub = \$10,000 (1/2 burn, 1/2 mechanical; 67% local, 33% outside)  
200 acres Pondo = \$20,000 (all burn, 100% local)  
50 acres Lodgepole = \$25,000 (all thinning; 78% (7/9) local, 22% (2/9) outside)  
50 acres Aspen = \$5,000 (all burn, 100% local)  
500 acres P/J = \$50,000 (1/2 burn, 1/2 mechanical; 67% local, 33% outside)

**Total: 3,110 acres, \$271,000**

Total burned: 1,388 acres

### Alternatives B:

2000 acres sagebrush = \$200,000 (1/2 burn, 1/2 mechanical; 67% local, 33% outside)  
3500 acres encroachment = \$250,000 (1/3 burn, 2/3 thinning; 85% local, 15% outside)  
50 acres bitterbrush = \$5,000 (1/2 burn, 1/2 mechanical; 67% local, 33% outside)  
1000 acres mountain shrub = \$100,000 (1/2 burn, 1/2 mechanical; 67% local, 33% outside)

400 acres Pondo = \$40,000 (all burn, 100% local)  
100 acres Lodgepole = \$50,000 (all thinning; 78% local, 22% outside)  
200 acres Aspen = \$20,000 (all burn, 100% local)  
500 acres P/J = \$50,000 (1/2 burn, 1/2 mechanical; 67% local, 33% outside)  
**Total: 7,750 acres, \$715,000**  
Total burned: 3,542

Alternative C:

530 acres sagebrush = \$53,000 (1/2 burn, 1/2 mechanical; 67% local, 33% outside)  
1,600 acres encroachment = \$100,000 (1/3 burn, 2/3 thinning; 85% local, 15% outside)  
80 acres bitterbrush = \$8,000 (1/2 burn, 1/2 mechanical; 67% local, 33% outside)  
100 acres mountain shrub = \$10,000 (1/2 burn, 1/2 mechanical; 67% local, 33% outside)  
200 acres Pondo = \$20,000 (all burn, 100% local)  
50 acres Lodgepole = \$25,000 (all thinning; 78% local, 22% outside)  
50 acres Aspen = \$5,000 (all burn, 100% local)  
500 acres P/J = \$50,000 (1/2 burn, 1/2 mechanical; 67% local, 33% outside)  
1000 acres improve condition to meet Standards = \$100,000 (1/2 burn, 1/2 mechanical; 67% local, 33% outside)  
**Total: 4,110 acres, \$371,000**  
Total burned: 1,888 acres

Alternative D:

2000 acres sagebrush = \$200,000 (1/2 burn, 1/2 mechanical; 67% local, 33% outside)  
3500 acres encroachment = \$250,000 (1/3 burn, 2/3 thinning; 85% local, 15% outside)  
50 acres bitterbrush = \$5,000 (1/2 burn, 1/2 mechanical; 67% local, 33% outside)  
1000 acres mountain shrub = \$100,000 (1/2 burn, 1/2 mechanical; 67% local, 33% outside)  
400 acres Pondo = \$40,000 (all burn, 100% local)  
100 acres Lodgepole = \$50,000 (all thinning; 78% local, 22% outside)  
200 acres Aspen = \$20,000 (all burn, 100% local)  
500 acres P/J = \$50,000 (1/2 burn, 1/2 mechanical; 67% local, 33% outside)  
1000 acres improve condition to meet Standards = \$100,000 (1/2 burn, 1/2 mechanical; 67% local, 33% outside)  
**Total: 8,750 acres, \$815,000**  
Total burned: 4,042 acres

VISITOR RELATED INPUTS FOR CSU  
LITTLE SNAKE FO  
12/05

**Depending upon the level of restriction in special management areas, different types of recreation will be allowed. What will be the change in visitor days for each type of recreation allowed by the different alternatives?**

See below for discussion on SRMA's.

Alternatives A and B would have the fewest restrictions, especially for OHV's, which would be a draw to OHV user over the life of the RMP. Overall recreation use would increase about 50% (80% MV, 20% NMV).

Alternative C would allow for an increase in managed OHV use and other restrictions would have little effect on increasing or decreasing recreation. Some increase in hiking would occur as there would be more backcountry areas. Overall recreation use would increase about 60% (60% MV, 40% NMV) over the life of the plan.

Alternative D would be the most restrictive on recreation use, especially OHV use. Hiking use would increase as there would be more areas dedicated to this use, but overall recreation use would increase 20% (20% MV, 80% NMV).

Overall, hunting use would decrease as this use is decreasing nationally, and there will be fewer hunting licenses issued by the Colorado DOW as they get closer the next few years to reaching big game population objectives. **Unless otherwise estimated, 50% of the all increases above and below would be from destination recreation users.**

**How would visitor use change with the inclusion or exclusion of areas as SRMA's in each alternative?**

Serviceberry and Fly Creek: These areas currently provide non-motorized hunting opportunities. Because of their relatively small size, they are about at capacity for providing a quality horse and foot access hunting experience. By capacity, it is meant that there are enough hunters in these areas that it takes the big game (deer and elk) a few days to move out of the area due to hunting pressure. A very small amount of non-motorized use occurs in these areas outside of the big game hunting seasons. If OHV use is allowed (Alt B), the game would move out of these areas within the first day or two of each rifle season, diminishing hunter success and enjoyment.

Alternatives C and D would manage these areas as SRMA's for backcountry hunting (ie closed to OHV). The Colorado DOW manages the number of licenses issued in the Game Management Units's (GMU's) where these areas exist, and issues enough licenses in these GMU's that leaving these areas closed to OHV's will have no impact on the amount of hunting pressure and hunter experiences. As word spreads about the non-motorized opportunities in these areas outside of hunting season, a small (10%) increase of backcountry use would occur in

these areas above the local population changes that would affect such use, over the life of the plan.

Trail, trailhead and camping facilities would cost about \$50,000 (60% materials, 40% labor)

Little Yampa Canyon/Juniper Mtn.: The area is currently managed as a SRMA for river related use and big game hunting. The expansion of this SRMA in Alt. C and D is proposed to better manage hunting related camping to provide campsite amenities and reduce resource impacts. There would be no change to the use in Alt. C. In Alt. D, the areas closed to OHV use would see a decrease (15%) in hunting use from current levels. A small increase (10%) of non-motorized use could occur in these closed areas outside of the fall hunting seasons, due to non-motorized opportunities.

Trail, trailhead and camping facilities and travel management signing would cost about \$75,000 (60% materials, 40% labor)

Cedar Mtn.: Designating the area as a SRMA in Alternative C would have no change in use from the existing situation. Alternative B would also not change the use in the area from the existing situation. Alternative D would prohibit hunting, so all such use would be eliminated. The area is popular for big game hunters due to its close proximity to Craig, and the fact that it is one of the only areas of Public Land that is legally accessible to the public in GMU 301.

No additional costs would be associated with any alternative.

South Sand Wash: Alternative B would manage South Sand Wash the same as the existing situation. However, as Alt. B would result in the LSRA being one of the few areas of Public Lands in Colorado with expanses of land open to OHV use, destination OHV use would likely increase steeply over the life of the plan (50% increase in destination users and a 50% increase in local users).

No additional costs for Alternative B.

Alternative C would retain areas open to OHV use, but less than the existing situation. Signed trail systems and staging and camping facilities would likely increase the user satisfaction of the area, combined with the open OHV areas could result in an increase of OHV use in the area by 50% over the life of the plan.

Trail, trailhead and camping facilities and travel management signing would cost about \$125,000 (60% materials, 40% labor)

Alternative D would seasonally close the foaling areas to OHV use from March 2 to June 30, which is when 80% of the current use occurs. This closure would likely reduce OHV use in the Sand Wash area by 40% from the current levels. Some OHV users would continue to use the Sand Wash area outside of the foaling areas, but the foaling areas are the most popular OHV areas currently.

Trail, trailhead and camping facilities and travel management signing would cost about \$90,000 (60% materials, 40% labor)

Alternative D Backcountry SRMA's (Vermillion, Cold Spgs, Dinosaur North) would be managed as SRMA's in this alternative. Recreation use in these areas is low, with the majority of the use being big game hunting in the fall and OHV riding and antler collecting in the spring. The SRMA's would be closed to OHV use and this use, though small, would not occur. About 70% of the use in these areas is from local users. With this SRMA designation, the use would be replaced with mostly destination users (80%) for hiking, horseback riding and primitive camping. Based on experience with use in the currently closed areas in the western part of the LSRA (limited hunting licenses), about 10% increase in use could be expected through the life of the RMP.

Trail and trailhead facilities and travel management signing would cost about \$50,000 (60% materials, 40% labor)

**How much OHV visitor use would be affected by alternatives due to acres open, restricted to existing roads/trails and close to OHV.**

OHV use on the LSRA would likely increase 100% over the life of the plan under Alternative B from primarily destination users (70%) as the LSRA would be one of the few areas of Public Lands open to OHV use. OHV use would increase about 50% in Alternative C from equal amounts of local and destination users. Alt. D would likely result in no increase of OHV use over the life of the plan, with a small decrease (10%) during the first 5 to 8 years due to the reduction of open areas and other areas managed to provide OHV recreation. Local OHV users would be displaced from Sand Wash and Vermillion under Alt D, and other more scenically attractive areas on the LSRA would also be closed or limited to OHV use. This displacement would result in OHV users looking for new riding areas on the LSRA, and not finding areas of equal scenic and riding quality would result in a short term reduction of OHV use followed by a slight increase of use over time (25%). The degree of travel Management compliance and enforcement would have a substantial effect on OHV use changes in Alternative D.

Not including above SRMA costs:

Alt B travel mgmt costs (planning and signing): \$50,000 (60% materials, 40% labor)

Alt C travel mgmt costs (planning and signing): \$125,000 (60% materials, 40% labor)

Alt D travel mgmt costs (planning and signing): \$100,000 (60% materials, 40% labor)

**What is the belief regarding use of the eligible Wild and Scenic Rivers if Alt B were to occur?**

No change.

**Would development occur and reduce recreation use (Resource Area-wide costs above)?**

Some oil and gas developments would occur but would not noticeably affect recreation use of the Yampa river.

**Cedar Mtn. How would Alt A reduce current use in the future?**

Use will continue to increase, mostly from local users and hunters (easy hunting for semi-domesticated deer) in the fall, consistent with use increases there in the past 10 years.

**How would Alt B including Cedar Mtn in an ERMA reduce use from current estimate?**

Use will continue to increase, mostly from local users and hunters in the fall, consistent with use increases there in the past 10 years.

**How would Alt C and D of making Cedar Mtn a SRMA affect current visitor use?**

See above section on SRMA's. Recreation use outside of the fall hunting seasons will primarily increase in the future (50%) consistent with rise in Craig area population. Hunting would be eliminated in Alt D, which would result in an initial decrease in use of about 10% overall.

**South Sand Wash Alternatives/HMA foaling areas:**

See above section on SRMA's.

**Developed Recreation Sites: Alternatives C and D provide for increased numbers of interpretive sites and viewing pullouts. How much of an increase in visitor use would this bring about?**

About 10% total in Alt C and about 15%r in Alt D.

Alt C interpretive pullout costs: \$30,000 (70% materials, 30% labor).

Alt D interpretive pullout costs: \$50,000 (70% materials, 30% labor).

**Alternatives C and D provide additional recreation facilities such as campgrounds, boat launch and picnic sites at SRMA's. How much additional use or percentage change in use would be associated with these new facilities?**

See above SRMA costs.

Alternative D would substantially impact one of the two main recreation uses in the LSRA, that being OHV use. The facilities alone would account for a 5% increase in recreation use, but that increase would be more than offset by the diminished OHV use.

**Big game crucial winter range and production areas would be closed to OHV use during December 1 to April 30?**

No impact to OHV recreation. Most OHV use starts towards the end of this restriction, and OHV users would learn to avoid these areas when the restrictions are in effect.

Cost assumptions:

Labor includes planning costs

About 25% of the material costs would be from outside grants.

Input provided by: Rob Schmitzer, Jim McBrayer, Jeremy Casterson, and David Blackstun – 12/05

**Recreation facilities cost by alternative:**

Serviceberry and Fly Creek:

Alt C & D: Trail, trailhead and camping facilities would cost about \$50,000 (60% materials, 40% labor)

Little Yampa Canyon/Juniper Mtn

Alt C & D: Trail, trailhead and camping facilities and travel management signing would cost about \$75,000 (60% materials, 40% labor)

South Sand Wash:

Alt A & B: No facilities

Alt C: Trail, trailhead and camping facilities and travel management signing would cost about \$125,000 (60% materials, 40% labor)

Alt D: Trail, trailhead and camping facilities and travel management signing would cost about \$90,000 (60% materials, 40% labor)

Alternative D Backcountry SRMA's

Alt D only: Trail and trailhead facilities and travel management signing would cost about \$50,000 (60% materials, 40% labor)

Travel management costs by alternative:

Not including above SRMA costs:

Alt B travel mgmt costs (planning and signing): \$50,000 (60% materials, 40% labor)

Alt C travel mgmt costs (planning and signing): \$125,000 (60% materials, 40% labor)

Alt D travel mgmt costs (planning and signing): \$100,000 (60% materials, 40% labor)

Interpretive sites:

Alt C interpretive pullout costs: \$30,000 (70% materials, 30% labor).

Alt D interpretive pullout costs: \$50,000 (70% materials, 30% labor).

**Totals:****Alternative A: No additional costs for rec facilities****Alternative B: \$50,000 = \$2,500/year****Alternative C: \$405,000 = \$20,250/year****Alternative D: \$415,000 = \$20,750/year****Oil and Gas:**

What percentage of the 3,031 wells will be vertically drilled and what percentage will be directionally drilled?

From the RFD: “Horizontal drilling activity within the LSFO is limited to 19 wells, all producing from the Niobrara Formation.” “Directional drilling in the LSFO occurs in only 42 wells. This technique is usually used to access reservoirs from locations that are not directly over the reservoir. Such cases may involve locating wells on mesa tops instead of steep slopes or canyon (riparian) bottom areas. Lease line locations and spacing can also force a directional drilling situation.”

This is a total of 61 wells drilled in the last 20 years that are using a technique that is not vertical drilling. Over the past 20 years a total of 594 wells were drilled. Using this historical data it is calculated that about 10% of the wells drilled over the last 20 years were directional or horizontal. This historical ratio can be used to project that **10%** of the 3031 wells forecasted to be drilled will be some form of deviated wellbores ( $3031 \times .10 = 303$  wells will be other than vertical wellbores).

This would be the same in each alternative based on Fred’s rationale:

Under alternative D, I would not assume more wells will be directional drilled. Directional drilling can only feasibly be done for limited distances based on the average well depth in the area. The cost of such wells will be higher and under alternative D leases near large closed areas will have less interest and value. The areas may be leased up to the closed area boundary but the lessees will do this to lock up resources on the unclosed side and will most likely ignore the closed areas. This is especially true in the Vermillion Basin area that is slated for closure under alternative D, since this is such a wildcat area and thus has higher risk compounded by closure and direction drilling requirements.

**Salable Minerals**

Basically we have several county gravel pits and a limestone quarry operation. The rest is negligible.

I'd estimate that over the past 10 years, Moffat Co. has removed approx. 6,667 cubic yards per year, or 10,000 tons per year of gravel to use for road maintenance.

The limestone quarry produces about 40,000 tons of limestone per year as a salable commodity, and another 50,000 tons/year as a locateable commodity for use at the power plant.

Are their actions in the alternatives that would cause this to change by alternative?

## **Coal**

Coal production for the last 10 year period 1995 to 2005 averaged **16,000,000 tons per year**. This production was made up by an average of 65% Federal coal and 35% State land and Fee coal. About **7,500,000 tons per year** were supplied to the local electric generating stations and the remainder was shipped out of the valley (5,500,000 tons Tri-State Generation in Craig and 2,000,000 tons at the Hayden station).

*Note: Seneca Mine by Hayden is shutting down in January of 2006, but 20-Mile Mine has increased production to offset this. The average 16,000,000 tons per year takes this into account.*

This trend should continue for the next 8-10 years. But beyond that it is hard to determine what the coal market will do (price of coal, cost of production increasing, transportation cost increasing). The 7,500,000 tons of coal used by the electric generating stations would most likely be produced locally. None of the local mines were willing to speculate on the coal market for the next 20 years.

To maintain the 16,000,000 tons per year all the local mines would need to develop existing leases that haven't been produced from yet and lease additional Federal, State and private coal lands. The amount of additional leasing will all depend on the prevailing coal market at the time.

I don't have any information on cost of production; however the local mine's employee about **1000** people **180 staff** and **820 hourly**. The labor cost could be calculated, I am sure CSU has an average labor cost by industry.