

## WILDLIFE MANAGEMENT UNIT - 10 BOOK CLIFFS

### Boundary Description

Uintah and Grand Counties - Boundary begins at Interstate 70 and the Green River in Green River; northeast along the Green River to the White River; east along the White River to the Utah-Colorado state line; south along the Utah-Colorado state line to I-70; southwest along I-70 to the Green River and beginning point.

### Management Unit Description

This management unit includes both the North Book Cliffs and the South Book Cliffs. Of the entire land area of the Book Cliffs, about 2.1 million acres are classified as deer range. Of this 2.1 million acres, 66% is classified as deer winter range, 23% as deer summer range, and 11% as year-long range. Approximately 1.7 million acres in the Book Cliffs are classified as elk range with 50% of this being elk winter range, 27% elk summer range, and 23% year-long range. The Bureau of Land Management manages 58% of all the area classified as mule deer ranges, and 56% of all the area classified as elk ranges. State of Utah Trust Lands and Native American Trust Lands make up most of the remainder of deer and elk ranges on the Book Cliffs.

### Key Areas

On the North Book Cliffs, areas such as Lower McCook Ridge, Big Park, the Crows Roost, Sunday School Canyon, Indian Ridge, and Atchee Ridge all support concentrations of wintering deer. Elk utilize many of the same areas, especially McCook Ridge. The winter range is composed of several main vegetation types including: pinyon-juniper, salt desert shrub, and Wyoming big sagebrush. The consensus is that the quantity and quality of the summer range are the most limiting factors on this unit. Vegetation composition on the summer range is principally sagebrush-grass and mountain brush with isolated patches of conifer and aspen. During the late 1990's, the BLM completed several thousand acres of prescribed burning in the mountain big sagebrush and mountain brush zones to help improve herbaceous vegetation on summer ranges.

The South Book Cliffs is valuable mainly as deer winter range. With a maximum elevation of just over 9,000 feet, the unit contains only small amounts of fawning areas and summer range with few deer residing in the unit year-round. However, many deer that spend the summer on higher ranges in the northern portion of the unit, migrate annually to winter ranges in the southern portion of the unit. Terrain between the higher summer ranges and lower winter ranges in the south is steep and rugged and is used primarily as a travel corridor with limited migration occurring over a short period of time. The upper limits of the normal winter range are found normally between 8,000 and 8,500 feet, depending on the slope and exposure. During severe winters the upper limits are usually lowered to about the 7,000 feet. The lower limits of the winter range are bordered by the salt desert type at approximately 5,000 feet. There are concentrations of wintering deer at Horse Pasture, Nash Wash, Cottonwood Ranch, and the Pear Park area. Due to the steep, rough terrain at the upper elevations of the winter range, these lower critical areas have been historically over-utilized by livestock and game for a long period of time.

### Livestock Grazing

Pictographs and petroglyphs found in the unit historically indicate the presence of bighorn sheep, deer, buffalo, and elk in the area before settlement by Europeans. Large herds of cattle and sheep were brought into the area around Moab in the mid-1870's and the 1890's, livestock use on the South Book Cliffs was limited to the stock of local settlers. This changed in the 1920's when Colorado sheepman began wintering large herds on the South Book Cliffs. During this period, as many as 200,000 sheep were using the range each winter (Carter 1983). Wild horses are also found in the Winter Ridge and Hill Creek areas. In cooperation with local

ranchers, the BLM has been working on fences, water developments, and other improvements to encourage more uniform use of the range by livestock (Carter 1983).

The North Book Cliffs is broken up into several allotments including: Atchee Ridge, Sweetwater, Winter Ridge, Sunday School, and Book Cliffs Pasture. The Atchee Ridge and Sweetwater allotments are summer allotments with a deferred rest rotation grazing system for 1,500 to 1,800 cattle. The Winter Ridge and Book Cliffs Pasture allotments are summer allotments with a deferred grazing system. The Sunday School allotment is a winter allotment with a deferred rotation grazing system.

Trend studies on the South Book Cliffs occur in 3 allotments, the Cisco, Floy Creek and Cisco Mesa allotments. Most of the trend studies occur within the Cisco allotment. It is grazed by sheep from December 1 through May 10. Cattle grazing occurs from November 1 through May 10. The Cisco Mesa allotment is a sheep allotment which is used from November 15 through May 15 for 2,628 AUM's. The Floy Creek allotment was a sheep allotment which was converted to cattle about 5 years ago to avoid disease problems with bighorn sheep. It currently is used from November 15 through May 15 for 958 AUM's on a 4-pasture deferred rotation.

### Big Game Management Objectives

Following the liberal hunting regulations of the late 1950's and 1960's, deer numbers were low and recovery has been slow. The buck only (1974-77) and 4-point-or-better (1978-84) restrictions have played a role in increases in deer numbers and hunter success. Between 1986 and 1993 however, the harvest of bucks slowly declined. Drought conditions and the harsh winter of 1992-93 had detrimental effects upon the deer population in the Book Cliffs and throughout the state. Deer hunting was closed in the mid-1990's due to low population numbers, and re-opened again in 1999 as a limited entry hunting area. Currently, both deer and elk hunting are on a limited entry basis. Pronghorn are also hunted on the Book Cliffs unit.

The most current deer herd management objectives for the Book Cliffs call for a target population of 15,000 wintering deer distributed in the following way: 10,000 wintering deer on the North Book Cliffs, and 5,000 wintering deer on the South Book Cliffs. Management objectives also call for a post-season buck to doe ratio of 25-30:100. The wintering population should result in an expected harvest of 1,000 bucks on the Bitter Creek and Little Creek portions of the unit (north), and 450 bucks on the southern portion of the unit.

Management objectives for elk herds call for 7,500 wintering animals with 6,500 of these being distributed in the north and 1,000 in the south. These population objectives will be evaluated on an ongoing basis as the population is allowed to grow. Range monitoring and elk utilization impacts will be used to determine the proper population level. Objectives established in the 2005 statewide elk plan revision call for harvested bull elk to be maintained in the 4 to 5 year-old interval on the Bitter Creek portion of the unit and in the 5 to 6 year-old interval for the Little Creek subunit.

Management concerns on Unit 10 principally revolve around low fawn production, summer range condition and/or quality (especially fawn rearing habitat), drought impacts on winter range browse species, and the increasing demands for oil and gas development with its associated habitat fragmentation. There is also the possibility at some later date that oil shale and tar sands will be developed.

### Study Site Description

Permanent range trend studies were initially established in the North Book Cliffs in 1982, with five studies established. Seven additional studies were established in 1998, and one more in 1995. At a local interagency meeting in Moab in May 1986, interagency personnel selected nine range trend study sites for the South Book Cliffs. Three additional studies were established in the Book Cliffs roadless area in 1990. The transects on the

North Book Cliffs were re-read during 1988, 1995, 2000, and 2005. Transects on the South Book Cliffs were re-read in 1995, 2000, and 2005. Most of these initial studies were placed on what was considered important winter ranges.

In addition to these regularly established trend studies, 31 additional range trend studies were established between 1997 and 1999 to address conflicts over elk and livestock use in the Book Cliffs. These sites were primarily placed on summer range areas to monitor use by both elk and livestock. Of the 56 total range trend studies in the Book Cliffs unit, 42 were re-read in 2000. Twenty-five of these occur on winter ranges, nine on transitional ranges, and eight on summer ranges.

Three studies were established in 2002 at a new exclosure near PR Spring to monitor use of a mountain brush community. In the south Book Cliff area a new study was established in 2000 near the Colorado border and in 2005 another new study was established near Cottonwood Canyon to have a more representative winter range site. The number of studies monitored in the north Book Cliff area was reduced in 2005 because the elk and livestock litigation had been resolved. All of the studies were evaluated and 32 studies were monitored in 2005, 7 in the south and 25 in the north. Suspended studies may be monitored again in the future, should the need arise. Site descriptions, maps, trend discussion, and data tables for each of the studies follows.

## SUMMARY

### WILDLIFE MANAGEMENT UNIT - 10 BOOK CLIFFS

In 2005, 32 trend studies were monitored on the Book Cliffs. Of these, seven sites are located on the south of the Book Cliffs Divide and 25 are north of the divide. All of the studies south of the divide are lower elevation winter range sites. On the north end, 14 of the 25 studies monitored in 2005 are winter range sites. The other 11 studies are transitional or summer range sites.

#### Herbaceous trends

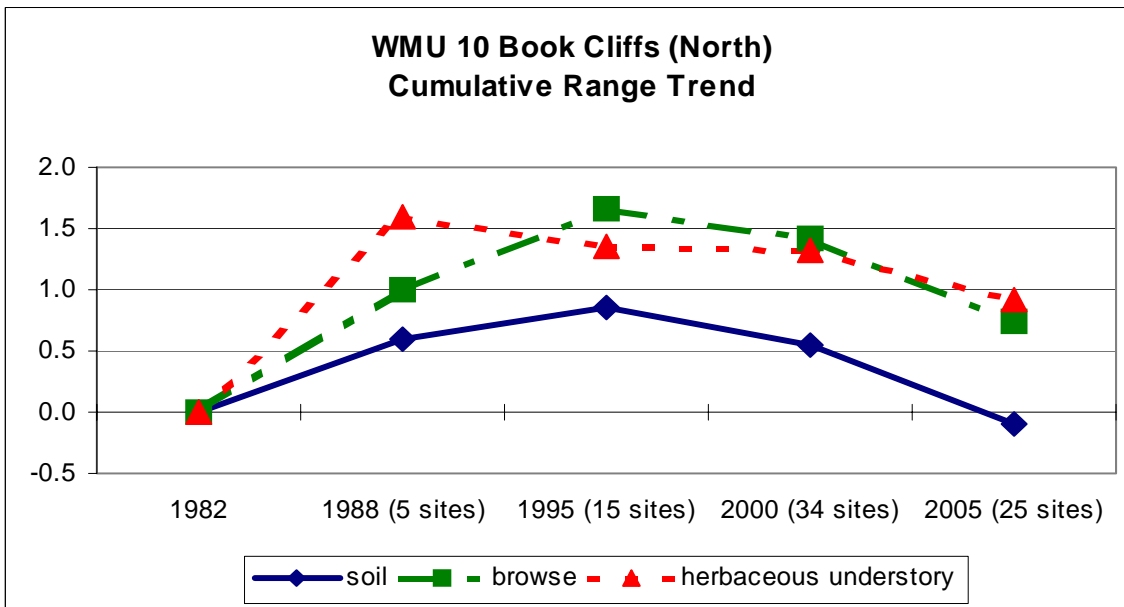
- All 15 studies under 7,000 feet have cheatgrass
- Only 2 studies over 7,000 feet have cheatgrass (Cherry Mesa and Saddle Horse)
- 69% of those with cheatgrass show a significant increase of cheatgrass nested frequency since 2000
- 58% of the sites show a substantial decline in the sum of nested frequency for perennial grasses and perennial forbs

#### Sagebrush trends

- 66% of the sagebrush sites had > 10% decline of sagebrush density since 2000
- 59% of sites show substantial increased percent decadence for sagebrush
- 62% of sites show more plants with poor vigor
- 52% have substantially fewer young plants than in 2000

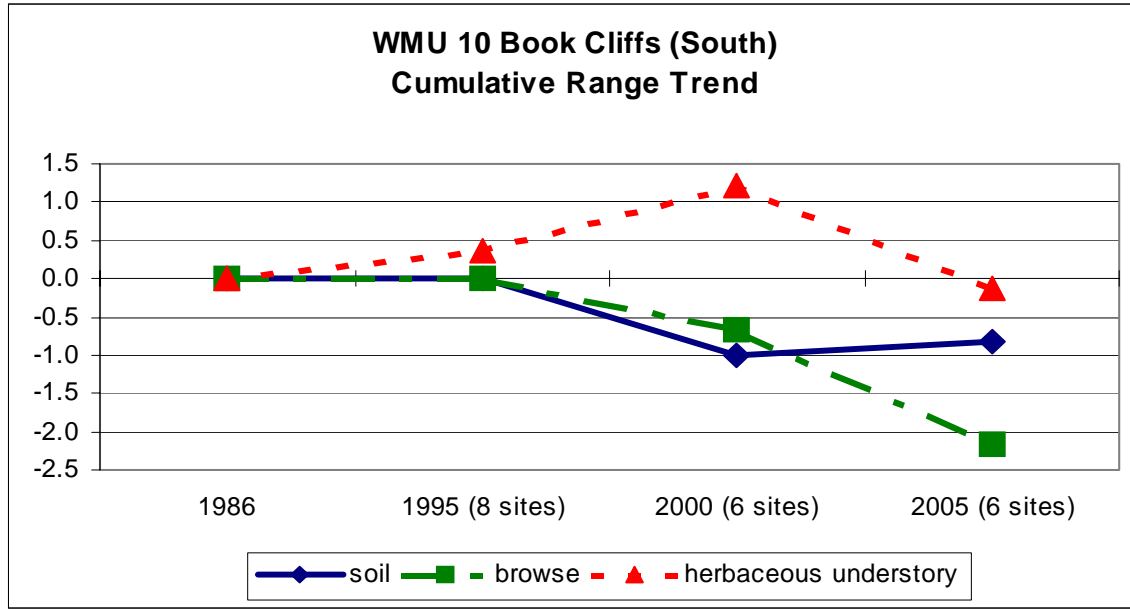
#### Cumulative Trends—WMU 10 Book Cliffs (North)

|            | 1982 | 1988 | 1995 | 2000 | 2005 |
|------------|------|------|------|------|------|
| Soil       | 0.0  | 0.6  | 0.9  | 0.5  | -0.1 |
| Browse     | 0.0  | 1.0  | 1.7  | 1.4  | 0.7  |
| Herbaceous | 0.0  | 1.6  | 1.4  | 1.3  | 0.9  |



Cumulative Trends–WMU 10 Book Cliffs (South)

|            | 1986 | 1995 | 2000 | 2005 |
|------------|------|------|------|------|
| Soil       | 0.0  | 0.0  | -1.0 | -0.8 |
| Browse     | 0.0  | 0.0  | -0.7 | -2.2 |
| Herbaceous | 0.0  | 0.4  | 1.2  | -0.1 |



TREND SUMMARY

|                                   | Category              | 1982 | 1988 | 1995 | 1997 | 2000 | 2005 |
|-----------------------------------|-----------------------|------|------|------|------|------|------|
| 10-1<br>Indian Ridge              | soil                  | est  | 0    | 0    | NR   | 0    | -1   |
|                                   | browse                | est  | 0    | +2   | NR   | -1   | -1   |
|                                   | herbaceous understory | est  | +1   | -2   | NR   | -1   | +1   |
| 10-2<br>McCook Ridge<br>Exclosure | soil                  | est  | +1   | +1   | 0    | 0    | -1   |
|                                   | browse                | est  | +2   | 0    | -1   | 0    | -2   |
|                                   | herbaceous understory | est  | +1   | +2   | 0    | +2   | -1   |
| 10-3<br>McCook Ridge<br>Chaining  | soil                  | est  | +1   | 0    | NR   | 0    | 0    |
|                                   | browse                | est  | -1   | +2   | NR   | -1   | -1   |
|                                   | herbaceous understory | est  | +2   | +2   | NR   | -2   | -1   |
| 10-4<br>Wirefence Point           | soil                  | est  | +1   | 0    | 0    | -1   | -1   |
|                                   | browse                | est  | +2   | 0    | -1   | 0    | 0    |
|                                   | herbaceous understory | est  | +2   | 0    | 0    | -1   | -2   |
| 10-5<br>Willow Flat               | soil                  | est  | 0    | 0    | NR   | -1   | 0    |
|                                   | browse                | est  | +2   | +2   | NR   | +1   | 0    |
|                                   | herbaceous understory | est  | +2   | 0    | NR   | -1   | -2   |
|                                   | Category              |      | 1988 | 1995 | 1997 | 2000 | 2005 |
| 10-6<br>Little Jim Canyon         | soil                  |      | est  | 0    | NR   | 0    | NR   |
|                                   | browse                |      | est  | -1   | NR   | 0    | NR   |
|                                   | herbaceous understory |      | est  | -2   | NR   | -1   | NR   |
| 10-7<br>Cherry Mesa               | soil                  |      | est  | 0    | 0    | -1   | 0    |
|                                   | browse                |      | est  | +1   | 0    | 0    | -2   |
|                                   | herbaceous understory |      | est  | -1   | 0    | -1   | 0    |
| 10-8<br>Black Horse               | soil                  |      | est  | +1   | NR   | 0    | 0    |
|                                   | browse                |      | est  | +1   | NR   | 0    | 0    |
|                                   | herbaceous understory |      | est  | 0    | NR   | 0    | 0    |

(-2) = down, (-1) = slightly down, (0) = stable, (+1) = slightly up, (+2) = up, est = site established, NR = site not read

|                              | Category              | 1988 | 1995 | 1997 | 2000 | 2005 |
|------------------------------|-----------------------|------|------|------|------|------|
| 10-9<br>Agency Draw          | soil                  | est  | +1   | NR   | 0    | -1   |
|                              | browse                | est  | +1   | NR   | -1   | -2   |
|                              | herbaceous understory | est  | +1   | NR   | 0    | +2   |
| 10-10<br>Sunday School       | soil                  | est  | 0    | NR   | -2   | -2   |
|                              | browse                | est  | 0    | NR   | 0    | -1   |
|                              | herbaceous understory | est  | -2   | NR   | +2   | 0    |
| 10-11<br>Park Ridge          | soil                  | est  | 0    | NR   | -1   | NR   |
|                              | browse                | est  | 0    | NR   | -1   | NR   |
|                              | herbaceous understory | est  | -1   | NR   | 0    | NR   |
| 10-12<br>Wolf Den            | soil                  | est  | 0    | NR   | -1   | 0    |
|                              | browse                | est  | 0    | NR   | 0    | 0    |
|                              | herbaceous understory | est  | 0    | NR   | +1   | -1   |
| 10-13<br>Moon Ridge Burn     | soil                  |      | est  | +1   | +2   | NR   |
|                              | browse                |      | est  | 0    | -2   | NR   |
|                              | herbaceous understory |      | est  | 0    | -2   | NR   |
|                              | Category              | 1986 | 1995 | 1997 | 2000 | 2005 |
| 10-14<br>East Floy Bench     | soil                  | est  | 0    | NR   | -1   | 0    |
|                              | browse                | est  | 0    | NR   | -1   | 0    |
|                              | herbaceous understory | est  | -2   | NR   | +2   | -1   |
| 10-15<br>East Thompson Bench | soil                  | est  | 0    | NR   | -1   | -1   |
|                              | browse                | est  | +1   | NR   | -1   | -2   |
|                              | herbaceous understory | est  | 0    | NR   | 0    | -1   |
| 10-16<br>West Horse Pasture  | soil                  | est  | 0    | NR   | -1   | +1   |
|                              | browse                | est  | 0    | NR   | -1   | -2   |
|                              | herbaceous understory | est  | +1   | NR   | +1   | -2   |
| 10-17<br>East Calf Canyon    | soil                  | est  | 0    | NR   | -1   | 0    |
|                              | browse                | est  | +1   | NR   | 0    | -1   |
|                              | herbaceous understory | est  | 0    | NR   | -1   | -1   |

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|                             | Category              | 1986 | 1995 | 1997 | 2000 | 2005 |
|-----------------------------|-----------------------|------|------|------|------|------|
| 10-18<br>East Horse Pasture | soil                  | est  | 0    | NR   | -1   | +1   |
|                             | browse                | est  | +1   | NR   | 0    | -2   |
|                             | herbaceous understory | est  | +1   | NR   | +2   | -1   |
| 10-19<br>Lower Cottonwood   | soil                  | est  | 0    | NR   | NR   | NR   |
|                             | browse                | est  | -1   | NR   | NR   | NR   |
|                             | herbaceous understory | est  | +1   | NR   | NR   | NR   |
| 10-20<br>Upper Cottonwood   | soil                  | est  | 0    | NR   | -1   | NR   |
|                             | browse                | est  | 0    | NR   | -1   | NR   |
|                             | herbaceous understory | est  | +1   | NR   | +1   | NR   |
| 10-21<br>East Sulfur Bench  | soil                  | est  | 0    | NR   | NR   | NR   |
|                             | browse                | est  | -2   | NR   | NR   | NR   |
|                             | herbaceous understory | est  | +1   | NR   | NR   | NR   |
| 10-22<br>Bryson Draw        | soil                  | est  | 0    | NR   | NR   | NR   |
|                             | browse                | est  | +1   | NR   | NR   | NR   |
|                             | herbaceous understory | est  | 0    | NR   | NR   | NR   |
| 10-23<br>Bogar-She          | soil                  | est  | 0    | NR   | NR   | NR   |
|                             | browse                | est  | N/A  | NR   | NR   | NR   |
|                             | herbaceous understory | est  | 0    | NR   | NR   | NR   |
| 10-24<br>Turner Canyon      | soil                  | est  | +2   | NR   | 0    | NR   |
|                             | browse                | est  | 0    | NR   | 0    | NR   |
|                             | herbaceous understory | est  | 0    | NR   | -1   | NR   |
| 10-25<br>Little Ridge       | soil                  | est  | 0    | NR   | NR   | NR   |
|                             | browse                | est  | N/A  | NR   | NR   | NR   |
|                             | herbaceous understory | est  | 0    | NR   | NR   | NR   |
| 10-26<br>Bitter Creek       | soil                  |      |      |      | est  | 0    |
|                             | browse                |      |      |      | est  | -2   |
|                             | herbaceous understory |      |      |      | est  | -2   |

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|                      | Category              | 2005 |
|----------------------|-----------------------|------|
| 10-27<br>Long Canyon | soil                  | est  |
|                      | browse                | est  |
|                      | herbaceous understory | est  |

|                                       | Category              | 1997 | 2000 | 2005 |
|---------------------------------------|-----------------------|------|------|------|
| 10R-2<br>Lone Spring                  | soil                  | est  | 0    | NR   |
|                                       | browse                | est  | +2   | NR   |
|                                       | herbaceous understory | est  | 0    | NR   |
| 10R-3<br>Burnt Timber                 | soil                  | est  | 0    | NR   |
|                                       | browse                | est  | -2   | NR   |
|                                       | herbaceous understory | est  | 0    | NR   |
| 10R-4<br>Two Water WMA                | soil                  | est  | 0    | 0    |
|                                       | browse                | est  | +1   | 0    |
|                                       | herbaceous understory | est  | 0    | 0    |
| 10R-5<br>Lower Tom Patterson<br>Point | soil                  | est  | 0    | 0    |
|                                       | browse                | est  | -1   | 0    |
|                                       | herbaceous understory | est  | 0    | 0    |
| 10R-6<br>Sweet Water Canyon           | soil                  | est  | 0    | NR   |
|                                       | browse                | est  | 0    | NR   |
|                                       | herbaceous understory | est  | 0    | NR   |
| 10R-7<br>Monument Ridge               | soil                  | est  | -1   | -1   |
|                                       | browse                | est  | 0    | 0    |
|                                       | herbaceous understory | est  | -1   | 0    |
| 10R-8<br>Upper Tom Patterson<br>Point | soil                  | est  | -2   | NR   |
|                                       | browse                | est  | -2   | NR   |
|                                       | herbaceous understory | est  | -2   | NR   |

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|   | Category              | 1997 | 2000 | 2005 |
|---|-----------------------|------|------|------|
| 10R-9<br>Winter Ridge<br>Exclosure Out        | soil                  | est  | 0    | -1   |
|   | browse                | est  | -1   | -2   |
|   | herbaceous understory | est  | 0    | -1   |
| 10R-10<br>Winter Ridge<br>Livestock Exclosure | soil                  | est  | 0    | 0    |
|   | browse                | est  | 0    | 0    |
|   | herbaceous understory | est  | -1   | +1   |
| 10R-11<br>Winter Ridge Total<br>Exclosure     | soil                  | est  | +1   | -1   |
|   | browse                | est  | 0    | 0    |
|   | herbaceous understory | est  | 0    | 0    |
| 10R-12<br>Horse Ridge                         | soil                  | est  | 0    | -1   |
|   | browse                | est  | 0    | -1   |
|   | herbaceous understory | est  | -1   | 0    |
| 10R-13<br>McCook Ridge<br>Livestock Exclosure | soil                  | est  | 0    | -1   |
|   | browse                | est  | 0    | -1   |
|   | herbaceous understory | est  | +2   | 0    |
| 10R-14<br>McCook Ridge Total<br>Exclosure     | soil                  | est  | 0    | -2   |
|   | browse                | est  | 0    | -2   |
|   | herbaceous understory | est  | +2   | -2   |
|   | Category              | 1998 | 2000 | 2005 |
| 10R-15<br>Saddle Horse                        | soil                  | est  | 0    | -1   |
|   | browse                | est  | 0    | 0    |
|   | herbaceous understory | est  | -2   | -2   |
| 10R-17<br>Railroad Canyon                     | soil                  | est  | -2   | NR   |
|   | browse                | est  | -2   | NR   |
|   | herbaceous understory | est  | +1   | NR   |
| 10R-19<br>Lower South Canyon                  | soil                  | est  | 0    | NR   |
|   | browse                | est  | 0    | NR   |
|   | herbaceous understory | est  | 0    | NR   |

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|  | Category              | 1998 | 2000 | 2005 |
|--|-----------------------|------|------|------|
| 10R-20<br>Dick Canyon                      | soil                  | est  | 0    | NR   |
|  | browse                | est  | +1   | NR   |
|  | herbaceous understory | est  | +1   | NR   |
| 10R-22<br>Rathole Ridge                    | soil                  | est  | -1   | 0    |
|  | browse                | est  | +1   | 0    |
|  | herbaceous understory | est  | +1   | 0    |
| 10R-23<br>South Rathole                    | soil                  | est  | 0    | NR   |
|  | browse                | est  | 0    | NR   |
|  | herbaceous understory | est  | +1   | NR   |
| 10R-24<br>Upper Tent Canyon                | soil                  | est  | 0    | NR   |
|  | browse                | est  | 0    | NR   |
|  | herbaceous understory | est  | +1   | NR   |
|  | Category              | 1999 | 2000 | 2005 |
| 10R-28<br>Indian Ridge #2                  | soil                  | est  | NR   | NR   |
|  | browse                | est  | NR   | NR   |
|  | herbaceous understory | est  | NR   | NR   |
| 10R-29<br>Massey Junction                  | soil                  | est  | NR   | -2   |
|  | browse                | est  | NR   | -1   |
|  | herbaceous understory | est  | NR   | -2   |
|  | Category              |      | 2002 | 2005 |
| 10R-32<br>PR Spring Total<br>Exclosure     | soil                  |      | est  | 0    |
|  | browse                |      | est  | -1   |
|  | herbaceous understory |      | est  | 0    |
| 10R-33<br>PR Spring Livestock<br>Exclosure | soil                  |      | est  | 0    |
|  | browse                |      | est  | 0    |
|  | herbaceous understory |      | est  | 0    |
| 10R-34<br>PR Spring Exclosure<br>Outside   | soil                  |      | est  | 0    |
|  | browse                |      | est  | 0    |
|  | herbaceous understory |      | est  | 0    |

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