WILDLIFE MANAGEMENT UNIT 6 - CHALK CREEK

Boundary Description

Summit and **Duchesne** counties - Boundary begins at the junction of Interstates 84 and 80 near Echo; then northeast on I-80 to the Utah-Wyoming state line; south and east along this state line to Highway SR-150; south on SR-150 to Pass Lake and the Weber River Trail; west on this trail to Holiday Park and the Weber River road; west on this road to Highway SR-32; north and west on SR-32 to I-80 and Wanship; north on I-80 to I-84 near Echo.

Management Unit Description

An estimated 395,397 total acres (summer and winter ranges combined) of mule deer range are within management unit 6, 90% of which is on private land. An estimated 435,170 total acres of elk range are within the unit, 91% of which is on private land. Widespread private ownership leads to numerous management complications. Unregulated development and loss of habitat are some of the biggest problems. The discovery, development, and removal of oil throughout the unit, especially the Chalk Creek area, has led to increased road and housing developments. Agricultural projects on critical winter range also continue to increase depredation problems and further decrease the available big game range. Because of the preponderance of private land and the establishment of hunting clubs, access is severely restricted for trophy hunting on large areas. Private landowners are also less likely to undertake extensive rehabilitation projects to improve the value of the remaining range. More than any other unit in the state, this unit has a large acreage of land in need of acquisition for wildlife management purposes. Unfortunately, the high cost of the land would probably prevent the acquisition of this critical range.

The topography of the unit is influenced mainly by the Uinta mountains to the east, with their drainages flowing through long, gradual slopes down into the Weber River Valley. Other major drainages include Crandall Canyon, Chalk Creek, Echo Canyon, Hixon Canyon, Pecks Canyon, and Grass Creek. The southern exposures of these canyons are especially important winter ranges. The rest of the winter range is found in the low rolling foothills of the western and central areas of the unit. The upper limits of the winter range vary between approximately 6,800 and 7,200 feet (Giunta 1979).

Towns located in the valley along the Weber River include: Oakley, Peoa, Wanship, Hoytsville, and Coalville. Echo and Rockport Reservoirs, located on the west side of the unit on the Weber River, are both significant barriers to big game movement. Additionally, I-80 through Echo Canyon discourages big game movement and many deer deaths occur there during winter and spring.

In the 1977 range inventory, the winter range was classified into 12 distinct vegetation types (Giunta 1979). Of these, seven of the larger, more important types were sampled. The sagebrush-grass and oakbrush types were the most prevalent. The sagebrush-grass type is quite variable with basin big sagebrush, mountain big sagebrush, and Wyoming big sagebrush all occurring within the unit. The sagebrush-grass type is found on a variety of exposures, slopes, and elevations. In the 1977 inventory, it occupied 36% of the normal winter range and produced 33% of the total production. It was even more important on severe winter range, having occupied 43% of the available range. The oakbrush type, which covered 32% of the winter range, is the most productive type, but is largely unavailable in severe winters. This type intergrades with the sagebrush-grass and other types. Other important types are juniper, especially important for thermal cover, and mountain brush. Air dry production from the 1977 range inventory report are as follows: Aspen, 435 lbs/acre; juniper, 240 lbs/acre; sagebrush-grass, 383 lbs/acre; mountain brush, 510 lbs/acre; oakbrush, 580 lbs/acre; grassland, 285 lbs/acre.

Fires in recent years have destroyed large tracts of important range. Because of this habitat loss, increasing numbers of mule deer, elk, and moose tend to concentrate in the lower areas on agricultural land and at mouths of canyons, especially during severe winters.

Big Game Management Objectives

Management options are rather limited because of the prevalence of private land on both winter and summer ranges. The herd unit management plan in 1983 (Kearl 1983) stated a harvest objective of 2,500 to 3,000 bucks per year and outlined various management programs and numerous problems with possible solutions. In the 1998 management plan, annual buck harvest was expected to be about 1,600 under normal conditions, with a target population of 11,500 (9,500 in 2005) wintering animals (Hodson et al. 2000; Hersey and McLaughlin 2005). This is significantly lower than the 1983 plan. It is more practical to look at the regression of buck harvests since 1950 to get a better understanding of the overall trend. The analysis demonstrates an increased buck harvest since 1950, even with the great deal of variation for buck harvest, which began with 2,031 and increased to 2,323 in 1990. This variation can be further depicted by some low harvests in the 1950's, 60's, and 70's of around 900, and high harvests of over 3,000 in the mid-50's and early-80's. Management of the deer herd is further complicated by the presence of other big game species, migrations, excessive road kills on I-80, and many hunting restrictions. Elk management objectives in 1998 called for a target winter herd size of 1,900 animals, a postseason bull to cow ratio of 8:100, with at least 4 bulls being 2½ years or older. These objectives had not changed by 2006.

The composition of the herbaceous understory is poor in many areas due to an abundance of cheatgrass and other annual species. Understories that are dominated by annual species can prohibit sagebrush seedling establishment, especially during Utah's hot, dry summers. Another serious concern is the rapidly increasing loss of critical wintering habitat to urbanization. A DWR program to acquire additional land, and/or conservation easements, and landowner cooperation are necessary to help perpetuate the big game herds on this unit.

Range Trend Studies

A total of 12 trend studies are located in management unit 6. All of the studies established in 1984 were located on important big game winter ranges. Six of the 19 line-intercept transects established in 1977 were in areas considered important for continued monitoring. These transects were reread and replaced with new interagency trend studies. In addition, 1 new study was established in 1990, and another in 1996. All of the transects in this unit are located on private land, except the Hixon Canyon and Echo Canyon Rest Area studies, which are located on DWR property. All of the trend studies that were established in 1984 were reread in 1990. Project personnel attempted to reread all of the trend studies in both 1996 and 2001, but a few of the studies were not read due to difficulty getting permission and/or access to privately owned lands. In 1990, Upper Chalk Creek (6-11) was suspended and has not been reread. Spring Hollow Burn (6-3) was not read in 1996 and Hixon Canyon (6-6) and South Fork Chalk Creek (6-8) were not read in 2001. In 2006, 10 studies were reread; South Fork Chalk Creek (6-8) was not reread due to the lack of access on private land.

SUMMARY

MANAGEMENT UNIT 6 - CHALK CREEK

Of the 11 trend studies in this management unit, ten studies were reread in 2006, and one study, South Fork Chalk Creek (6-8), was not read because of a problem accessing the private land.

Vegetation trends are dependent upon annual and spring precipitation patterns. Precipitation data from this herd unit was compiled from the Echo Dam, Wanship Dam, and Coalville weather stations (Figures 1 and 2). In 2001 and 2002, the average precipitation values at the 3 weather stations were well below normal and below drought level in 2002 (75% of normal; Figure 1). Spring precipitation for the unit was below normal in 2005 and below 75% of normal from 2000 to 2002 (Figure 2). Spring precipitation is essential for the recruitment of browse seedlings and the establishment of native perennial grasses and forbs. It is likely that declining browse trends are a product of the period of drought in 2001 and 2002 (Figure 3).

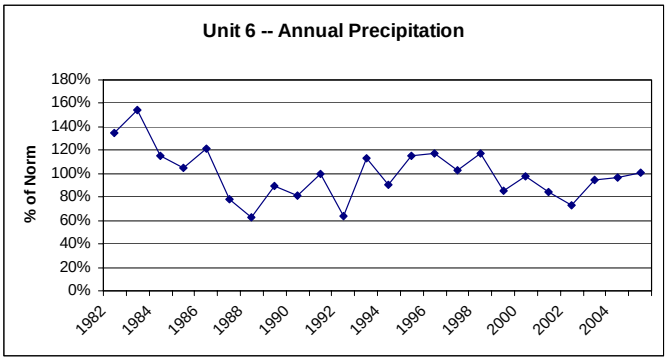

Figure 1. Annual precipitation for unit 6. Precipitation data was collected at Echo Dam, Wanship Dam, and in Coalville (Utah climate summaries 2006).

The average browse trend for the unit has steadily decreased since 1984 (Figure 3). Since 2001, mountain big sagebrush, basin big sagebrush, and low sagebrush populations have deceased in density (Figure 4). Mountain big sagebrush densities have decreased 356 plants/acre on average, while basin decreased 920 plants/acre, and low decreased 1,300 plants/acre. It must be noted that basin and low sagebrush were only sampled on one study (Anshutz Ranch), but mountain big sagebrush was sampled on the other 9 studies. Both basin big sagebrush and low sagebrush densities increased from 1996 to 2001, but returned to 1996 densities in 2006 (Figure 4). Mountain big sagebrush, on the other hand, has continually decreased for a net density decrease of 687 plants/acre since 1996 (a net loss of 45%). Part of the decrease in the average mountain big sagebrush density for the unit was a burn which nearly completely removed the sagebrush from the Echo Canyon Rest Area study (6-2) in 1999. The average sagebrush cover for the three species of sagebrush have not changed substantially since 2001 (Figure 5). The percentage of plants classified as decadent of low and basin big sagebrush decreased from 2001, but increased substantially for mountain big sagebrush (Figure 6). This increase in mountain big sagebrush decadence is likely tied to the decrease in density. It is interesting that, despite the decreases in the average mountain big sagebrush density across the unit, cover has not changed, which implies that sagebrush individuals are getting bigger (Figures 4 and 5).

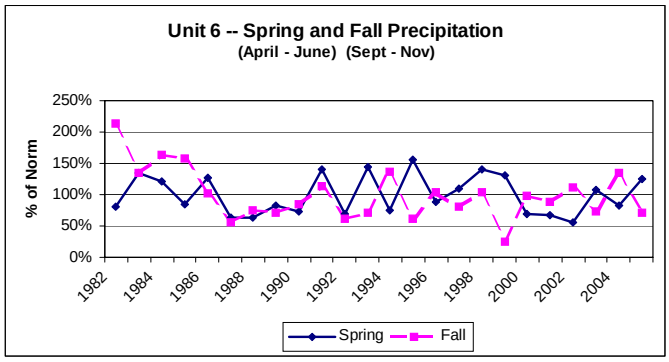

Figure 2. Spring and fall precipitation for unit 6. Precipitation data was collected at Echo Dam, Wanship Dam, and in Coalville (Utah climate summaries 2006).

No individual browse trends for the unit improved in

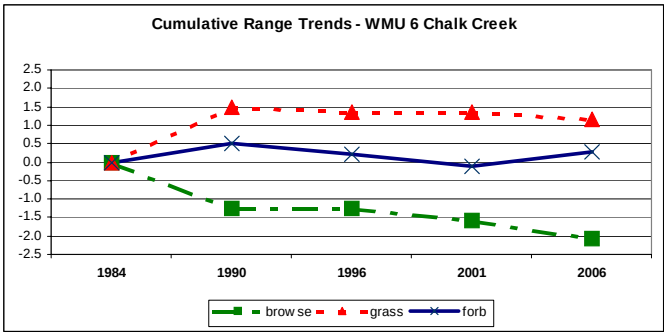

Figure 3. Cumulative range trends for unit 6, Chalk Creek.

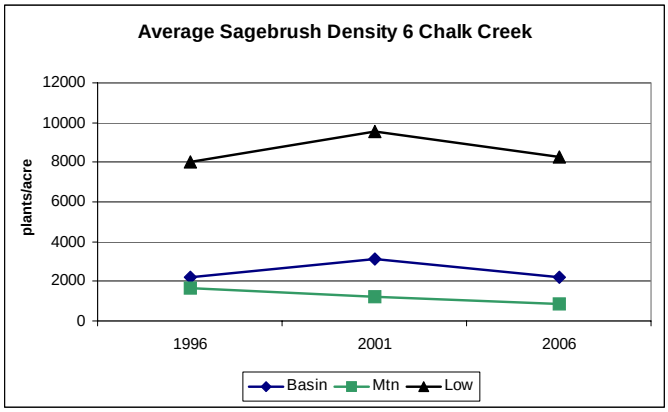

Figure 4. Average basin big sagebrush, mountain big sagebrush, and low sagebrush densities since 1996.

2006. The trends for Anshutz Ranch (6-1), Crandall Canyon (6-7), and Stag Canyon (6-12) were slightly down and the trend was down for North Oakley Bench (6-9); the trends for the other 7 studies were stable.

The low precipitation years mentioned above definitely played a role in the decreasing browse trends, but infestations of the sagebrush defoliator moth (*Aroga websterii*) are likely a cause of the decreasing browse trends, or at least the appearance of dying plants. At the Anshutz Ranch study (6-1), approximately 360 plants/acre of low sagebrush and 140 plants/acre of basin big sagebrush were infested or showed poor vigor that resembled the infestation. Approximately 540 plants/acre (46% of the population) were classified as being infested with the moth or of poor vigor at the North Oakley Bench study (6-9). The moth and spittle bug infested 600 plants/acre (15% of the population) at the Stag Canyon study (6-12). The moth was identified on the Spring Hollow Burn (6-3) study, but not sampled in the density measurements.

The herbaceous understory trends decreased on average across the unit from 2001 to 2006 and have steadily decreased since 1996. The average forb trends in 2006 increased slightly, but the grass trends decreased (Figure 2). The unit average perennial grass cover increased from 13% in 1996 to 16% in 2001 and 2006, but the perennial grass nested frequency unit average decreased from 2001 to 2006 (Figures 7 and 8). The perennial forb cover and nested frequencies unit averages have not changed since 1996 (Figures 7 and 8). The unit averages of cheatgrass cover and nested frequency decreased from 1996 to 2001 and have stayed at 2001 values (Figures 7 and 8). With the exception of the Echo Canyon Rest Area (6-2) and Stag Canyon (6-12) studies, cheatgrass cover and nested frequency remained low from 2001 to 2006. Bulbous bluegrass has been sampled on 6 studies since 1996. It has not changed much in cover nor nested frequency across the unit since 1996 and provides little cover on most studies (Figures 7 and 8). On 2 studies (North Oakley Bench and Mahogany Hills), it has increased in nested frequency and cover since 1996, and dominates at North Oakley Bench. Studies with increasing bulbous bluegrass cover and nested frequencies appear to have hindered cheatgrass growth. Stewart and Hull (1949) reported that bulbous bluegrass seed and bulbils distributed in established cheatgrass stands could reduce the cheatgrass densities.

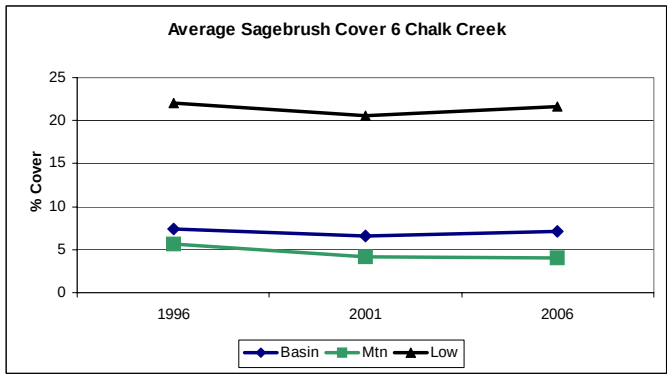

Figure 5. Average low sagebrush, basin big sagebrush, and mountain big sagebrush cover for unit 6.

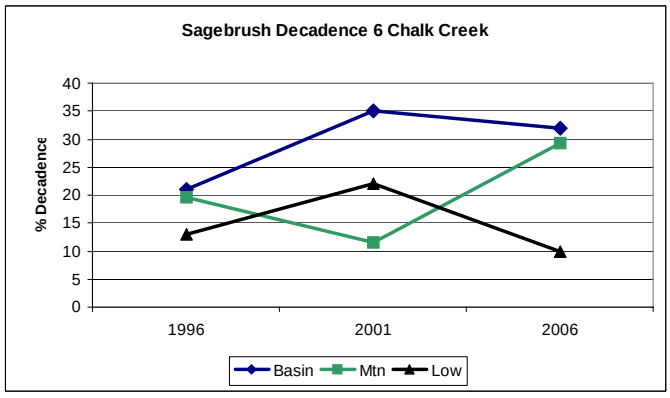

Figure 6. Average percent decadence for low sagebrush, mountain big sagebrush, and basin big sagebrush in unit 6.

The unit-wide Desirable Components Index (DCI) scores have remained fair for the High potential studies and have fluctuated between poor and fair in the Mid-level potential studies (Figure 9). The DCI scores of the Mid-level potential studies are poor because 5 of the 10 studies in the unit have very low

sagebrush cover (less than 1%) and one study has less than 2% cover. The good perennial grass cover across the unit prevents the DCI scores at these studies from being very poor.

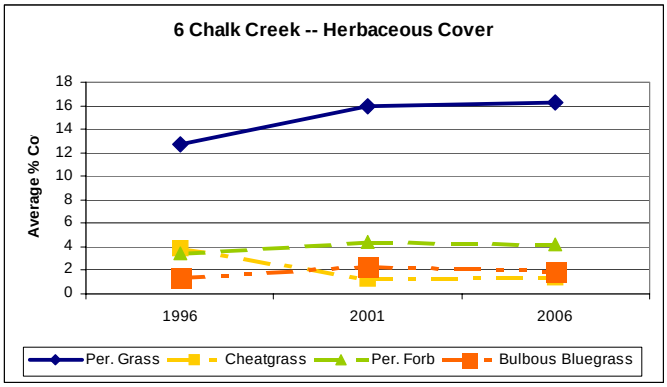

Figure 7. Unit 6 herbaceous understory cover averages.

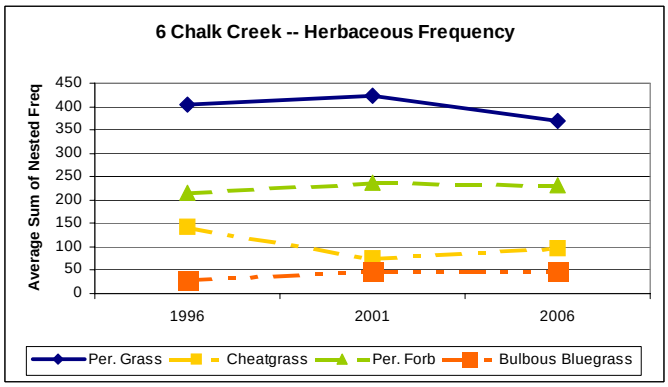

Figure 8. Unit 6 herbaceous understory nested frequency averages.

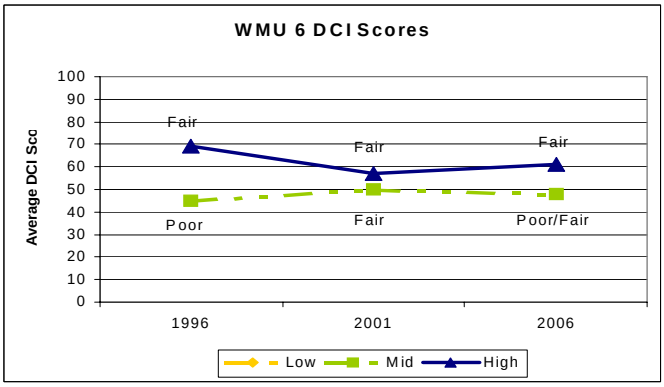

Figure 9. Unit 6 average Desirable Components Index (DCI) scores by year. The DCI ratings are divided into 3 categories based on different ecological potentials. These are: Low, Mid-level, and High.