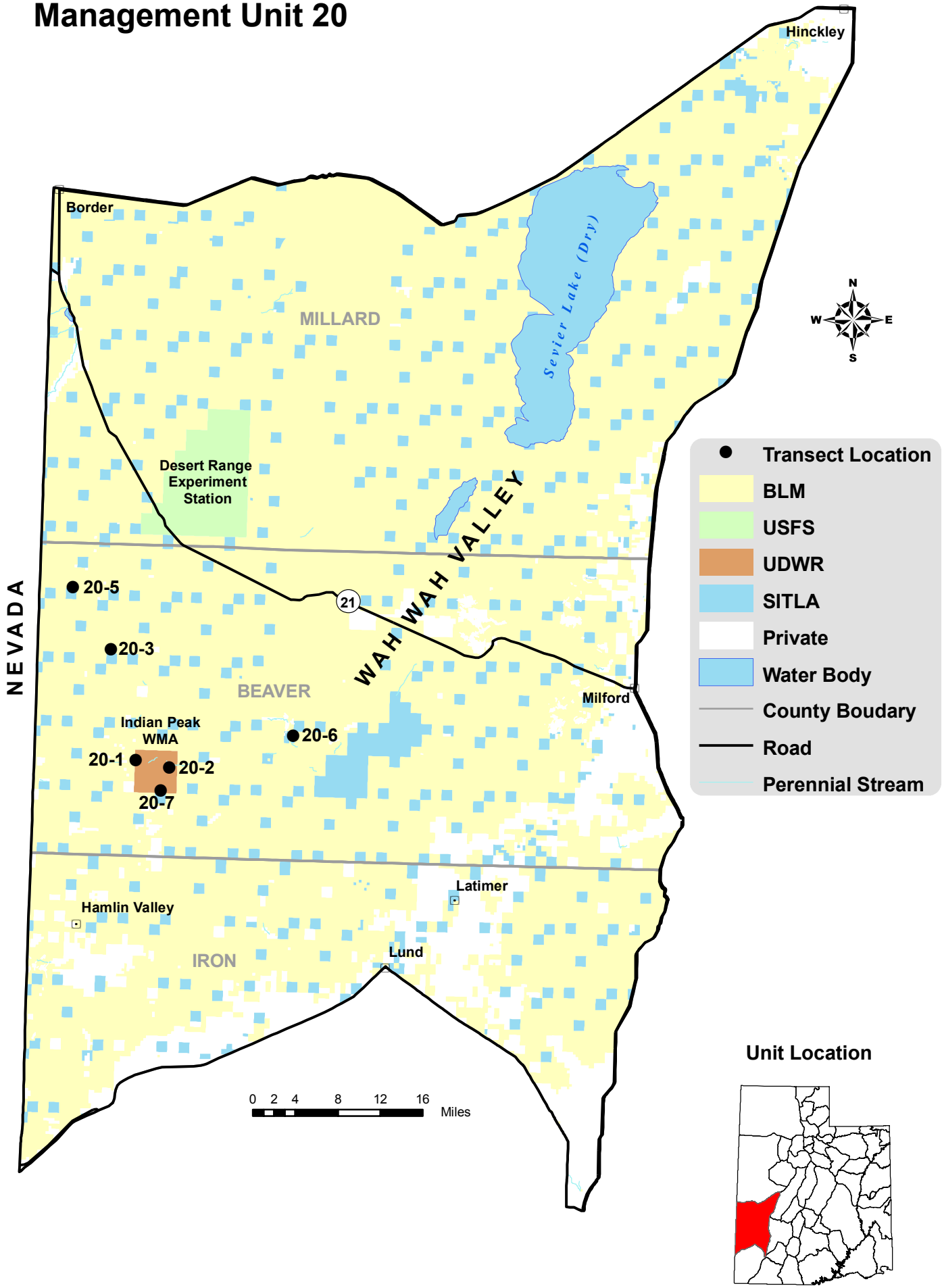
Management Unit 20



WILDLIFE MANAGEMENT UNIT 20 - SOUTHWEST DESERT

Boundary Description

Beaver, Iron and Millard counties - Boundary begins at US-50 (US-6) and the Utah-Nevada state line; east on US-50 (US-6) to SR-257; south on SR-257 to SR-21; south on SR-21 to SR-130; south on SR-130 to I-15; south on I-15 to SR-56; west on SR-56 to the Lund Highway; northwest on the Lund Highway to the Union Pacific railroad tracks at Lund; south on this railway to the Utah-Nevada state line; north on this state line to US-50 (US-6) and beginning point.

Management Unit Description

The Southwest Desert unit covers a large arid area along the Nevada border, although much of this is cold-desert valley bottoms and is not suitable habitat for mule deer. The Wah Wah, Needle, and San Francisco ranges provide approximately 937,449 acres of summer range for deer. However, most is lower quality summer range consisting of mountain brush types. There is little quality summer range due to the lack of aspen (*Populus tremuloides*) on these mountains. Winter range is estimated at 251,382 acres. Summer range for elk is estimated at only 68,239 acres with 123,046 acres of winter range (DWR 1998). All three mountains run north and south, with their drainages flowing to the east and west. With similar steep and rugged topography, the upper areas are quite susceptible to erosion of unprotected soils from high intensity summer storms. Gentle rolling slopes, foothills, and benches dominate below 7,500 feet (2,286 m). The elevation on the unit ranges from 4,700 feet (1,433 m) at the hardpan in Wah Wah Valley to 9,790 feet (2,984 m) at Indian Peak.

Most of the unit (>80%) is administered by the BLM. The DWR manages the 10,240 acre Indian Peak Wildlife Management area. Private interests control 5% of the deer and elk summer range, and 4% and 8% of the deer and elk winter range, respectively. By far, the most prominent land use is livestock grazing. Cattle are grazed year-round in some areas and particularly the valley bottoms in winter. Additionally, pinyon nuts and Christmas trees are harvested and sold commercially. Mule deer are the dominant big game species, along with a herd of elk which is to be managed to achieve a population of 975 wintering animals. Pronghorn antelope are common in the valleys, while feral horses are present and overly abundant in localized areas north of Indian Peaks on the Needle Range.

The big game range was inventoried by Coles and Pederson (1970) in 1969. The whole area is considered only marginal deer habitat due to the lack of good summer range. The composition of vegetation of nearly all of the area classified as deer range is typical of winter ranges throughout the state. Of the four vegetation types, Coles and Pederson (1970) recognized pinyon-juniper woodland as the most prevalent, covering 74% of the deer range. Sagebrush was second, covering 19% of the range. The grass-shrub type and seeded areas cover 4% and 3% of the range, respectively. The grass-shrub type is the most productive and in the most demand by both livestock and deer. Despite a scarcity of forbs which makes it poor summer range, most deer use the browse-shrub type extensively year-round. Rehabilitation projects, covering 21,882 acres (8,856 ha) of former pinyon-juniper range, have increased overall production. This has been due mostly to the establishment of healthy stands of seeded perennial grasses. Livestock and elk populations have benefitted most from these seeded areas. Deer may also have benefitted, but to a lesser extent due to the limited success of forb and browse establishment. The best seeding treatments for deer have been in the Indian Peaks area, where bitterbrush is common.

Competition among feral horses, livestock, and big game for the herbaceous vegetation around seeps, springs, and creeks is a problem. Because the forbs and succulent grasses typical of the summer diet of mule deer and elk are scarce throughout the range, the limited riparian areas where they do occur are vital. Unfortunately, livestock and feral horses also prefer these areas and use them extensively. Feral horses are especially detrimental because of their tendency to trample vegetation and compact soils, which results in reduced forage production and erosion problems.

Range Trend Studies

Because of the limitations in this WMU as big game range, it had been given a low priority. Two permanent trend monitoring studies were established in 1985, Upper Indian Peak (20-1) and Lower Indian Peak (20-2). These studies were both on DWR lands in the Indian Peak Wildlife Management Area. Due to increasing competition with deer, elk, and wild horses, three additional trend studies were established in 1998 and one in 1999. These include: Mountain Home Seeding (20-3), Upper Hamblin Valley (20-5), Wah Wah Pass (20-6), and South Spring (20-7).

SUMMARY

WILDLIFE MANAGEMENT UNIT 20 - SOUTHWEST DESERT

Community Types

Six trend studies were sampled in 2008. One study sampled a mountain brush community (20-1), one sampled a pinyon-juniper chaining and seeding treatment (20-2), one sampled the reseeding of a previous pinyon-juniper treatment area (20-3), two sampled curlleaf mountain mahogany (*Cercocarpus ledifolius*) dominated communities (20-5 and 20-6), and one sampled a controlled burn on a mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*) community (20-7).

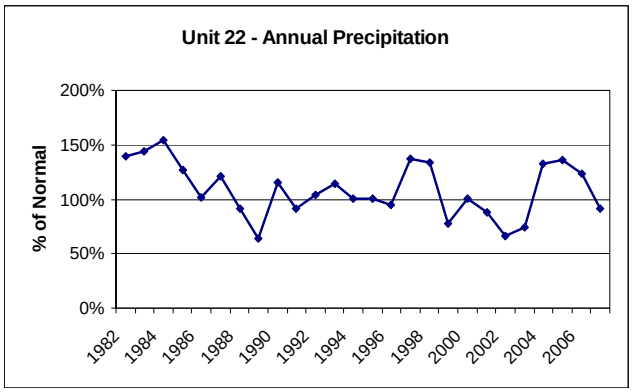


Figure 1. Annual precipitation for unit 20. Precipitation data were collected at the Milford, Wah Wah Ranch, Eskdale, and Modena weather stations (Utah Climate Summaries 2008).

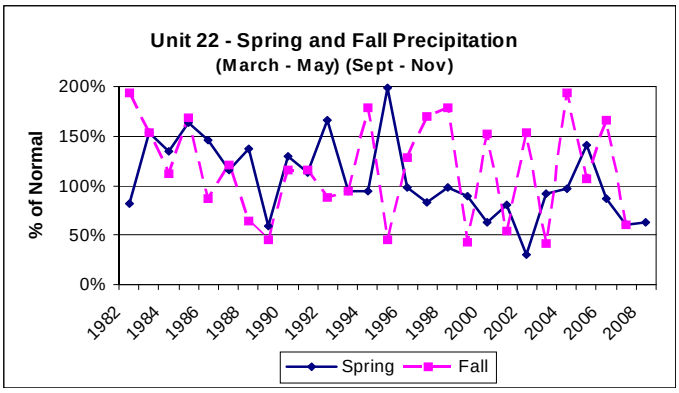


Figure 2. Spring and fall precipitation for unit 20. Precipitation data were collected at the Milford, Wah Wah Ranch, Eskdale, and Modena weather stations (Utah Climate Summaries 2008).

Precipitation

One factor for vegetation trends is annual and seasonal precipitation patterns. Precipitation data from this herd unit were compiled from the Milford, Wah Wah Ranch, Eskdale, and Modena weather stations (Figures 1 and 2). The unit annual precipitation average was below normal in 1986, 1989, 1992, 1996, 1999-2003, 2006, and 2007 (Figure 1). It was below 75% of normal (drought conditions) in 1989, 1999, 2002, and 2003, and near or below 50% of normal in 2006 and 2007 (Figure 1). Spring precipitation was below normal in 1982, 1984, 1987, 1989, 1993, 1997-2002, 2004, and 2006-2008 (Figure 2). It was below 75% of normal in 1989, 1993, and 1999, and near or below 50% of normal in 2002, 2007, and 2008 (Figure 2). Fall precipitation was below normal in 1984, 1988, 1989, 1992, 1993, 1995, 1999, 2001-2003, and 2005-2007. It was below 75% of normal in 1988 and 1992, and near or below 50% of normal in 1989, 1995, 1999, 2001, 2003, 2006, and 2007 (Figure 2). Spring precipitation is essential for the recruitment of browse seedlings and the establishment of native perennial grasses and forbs. Fall precipitation, however, benefits winter annual species, such as cheatgrass (*Bromus tectorum*) (Monsen 1994).

Browse

The average browse trend remained stable from 1985 to 2008 (Figure 3). Mountain big sagebrush was sampled on all of the studies in this herd unit except Upper Hamblin Valley (20-5). Its average density decreased 33% from 1998 to 2003 and increased 12% from 2003 to 2008 (Figure 4). Average mountain big sagebrush cover decreased from 10% in 1998 to 4% in 2003, and remained stable in 2008 (Figure 5). The decline in density and cover in 2003 was largely attributed to South

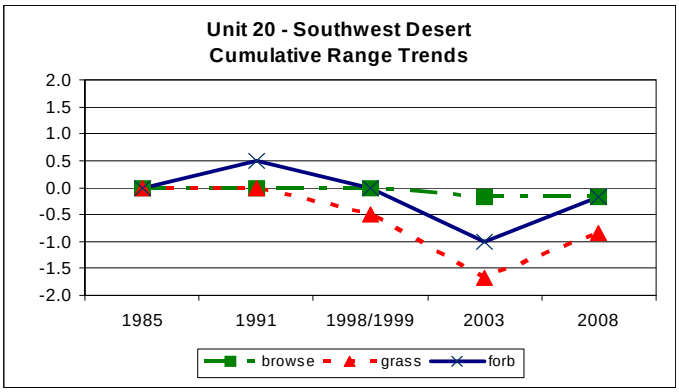


Figure 3. Cumulative range trends for unit 20.

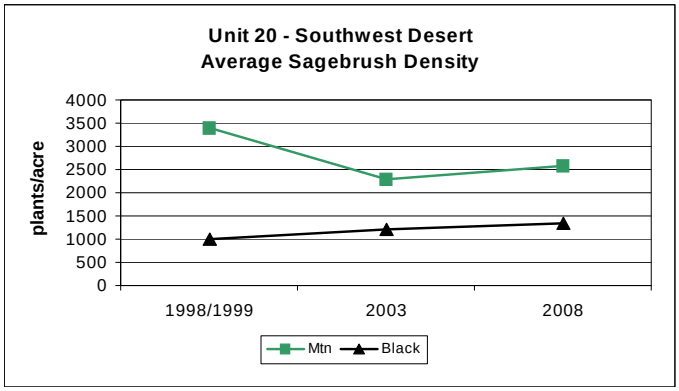


Figure 4. Average mountain big and black sagebrush density for unit 20.

Spring (20-7), which was burned, eliminating almost the entire sagebrush population. Average mountain big sagebrush population decadence decreased from 23% in 1998 to 9% in 2003, then increased slightly to 10% in 2008 (Figure 6). Black sagebrush (*Artemisia nova*) was sampled on two studies: Lower Indian Peak (20-2) and Upper Hamblin Valley (20-5). Density steadily increased a total of 33% from 1998 to 2008 (Figure 4). Average black sagebrush cover increased slightly from 1% in 1998 to 3% in 2003, and remained stable in 2008 (Figure 5). Average population decadence increased substantially from 10% in 1998 to 37% in 2008 (Figure 6).

Grass

The average grass trend was stable from 1985 to 1991, declined substantially until 2003, and increased in 2008 (Figure 3). Average perennial grass nested frequency decreased 36% from 1998 to 2003, and increased 36% in 2008 (Figure 7). Average perennial grass cover decreased from 13% in 1998 to 5% in 2003, and increased to 8% by 2008 (Figure 8). Consistently low annual and spring precipitation between 1999 and 2002 may have contributed to the loss of perennial grasses in 2003 (Figures 1 and 2). Cheatgrass was sampled on all of the studies in this herd unit except Upper Indian Peak (20-1). Its average nested frequency decreased 69% from 1998 to 2003, and increased four-fold in 2008 (Figure 7). Average cheatgrass cover remained low at less than 1% in 1998 and 2003 and 1% in 2008 (Figure 8). The only increases in cheatgrass nested frequency and cover occurred on Lower Indian Peak (20-2) and South Spring (20-7), both of which were disturbed by treatments. Bulbous bluegrass (*Poa bulbosa*) was only sampled on one study, Lower Indian Peak (20-2). Its nested frequency and cover remained low on this study (Figures 7 and 8).

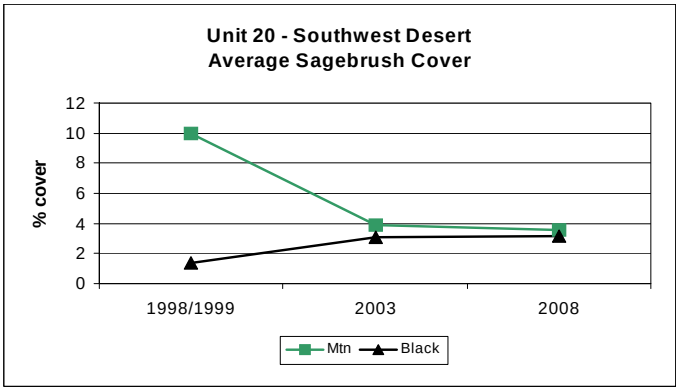


Figure 5. Average mountain big and black sagebrush cover for unit 20.

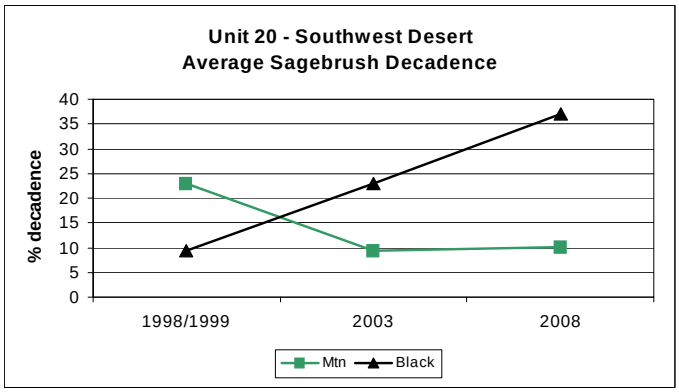


Figure 6. Average mountain big and black sagebrush decadence for unit 20.

Forbs

The average forb trend increased slightly from 1985 to 1991, decreased steadily until 2003, and increased in 2008 (Figure 3). Average perennial forb nested frequency decreased 35% from 1998 to 2003, and increased 33% in 2008 (Figure 7). The decrease in 2003 may be attributed to drought conditions in 1999, 2002 and 2003 (Figure 1). Average perennial forb cover declined slightly from 5% in 1998 to 4% by 2008 (Figure 8). No noxious weeds were sampled in this herd unit.

Desirable Components Index

All of the studies in this herd unit are considered within the mid-level potential scale for the Desirable Components Index (DCI), except Wah Wah Pass (20-6), which is considered high potential. The average DCI rating for mid-level potential studies was fair in 1998 and 1999, very poor-poor in 2003, and poor in 2008 (Figure 9). The main reasons for the low DCI scores on these studies were low preferred browse and perennial herbaceous cover. The DCI ratings for Wah Wah Pass (20-6) were fair-good in 1998, poor-fair in 2003, and poor in 2008 (Figure 9). This decline in habitat quality was attributed to decreasing preferred browse cover and young recruitment, as well as low perennial grass cover.

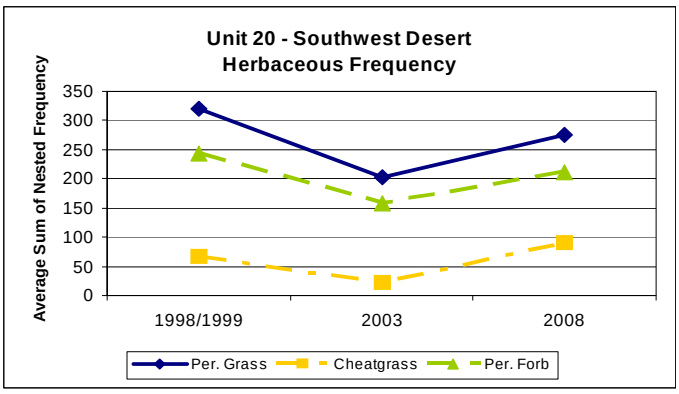


Figure 7. Average herbaceous nested frequency for unit 20.

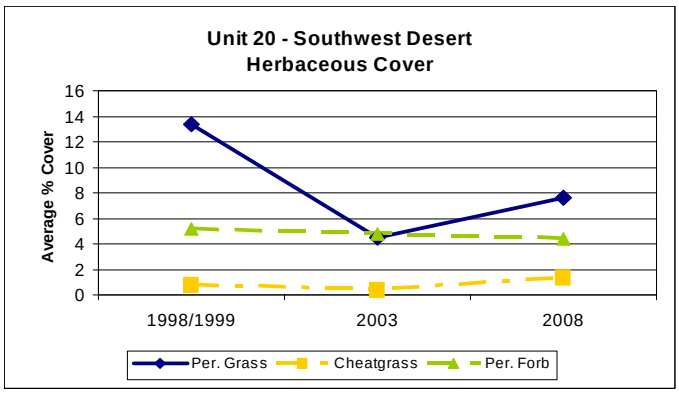


Figure 8. Average herbaceous cover for unit 20.

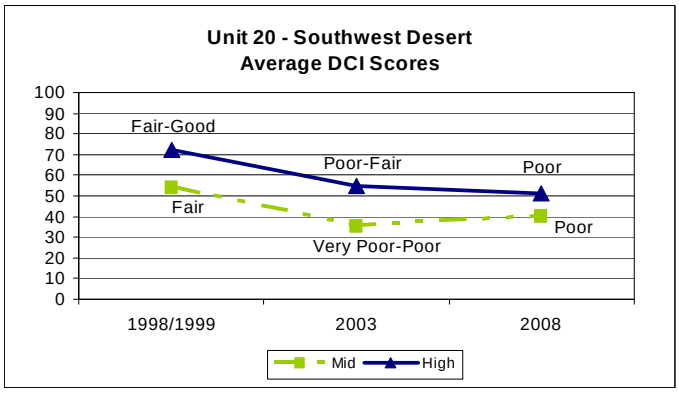


Figure 9. Unit 20 Desirable Components Index (DCI) scores by year. The DCI scores are divided into three categories based on ecological potentials, which include low, mid-level, and high. No low potential sites are sampled in this unit.