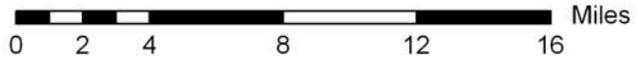
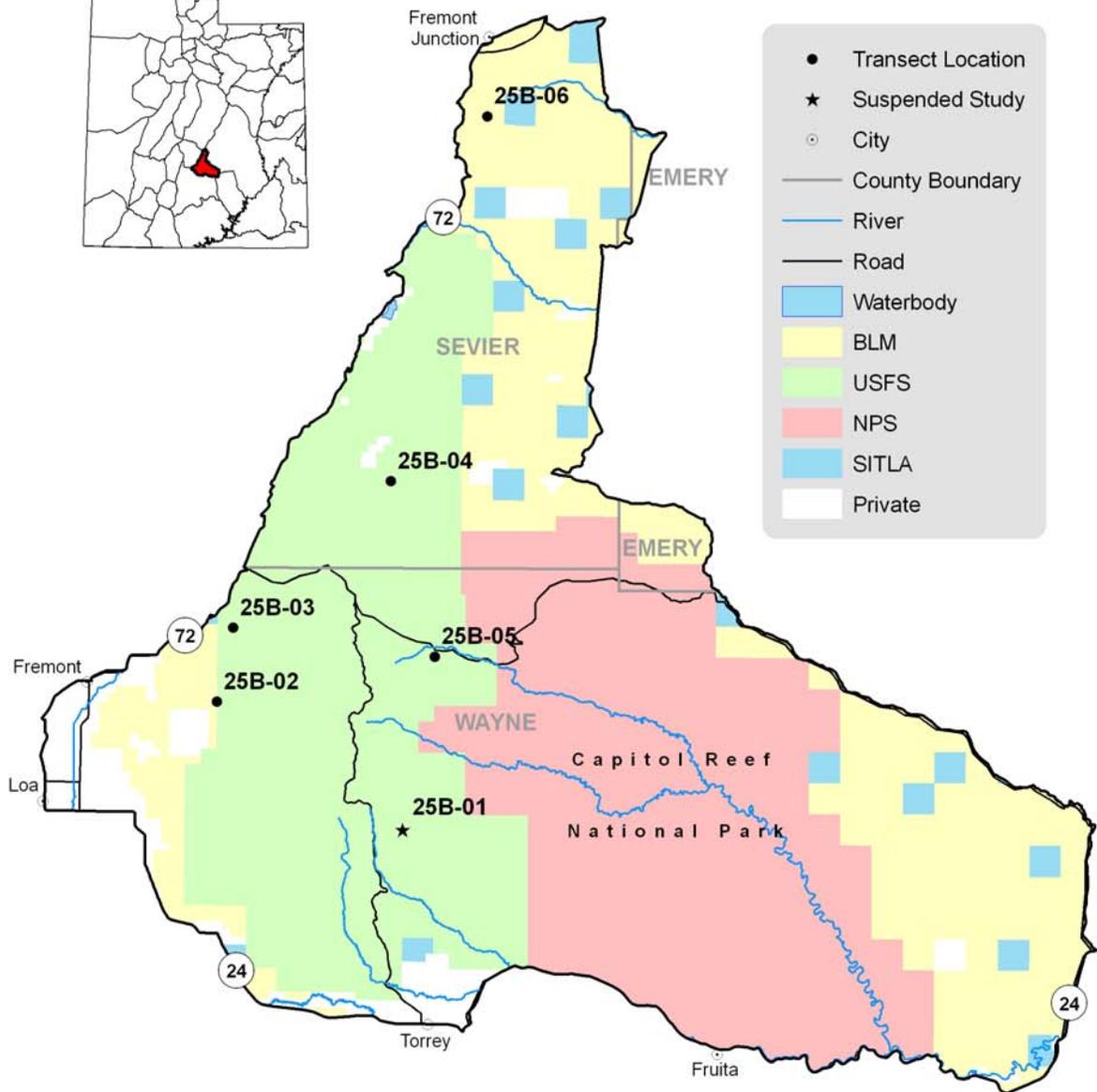


# Management Unit 25B



Unit Location



- Transect Location
- ★ Suspended Study
- City
- County Boundary
- River
- Road
- Waterbody
- BLM
- USFS
- NPS
- SITLA
- Private

## WILDLIFE MANAGEMENT UNIT 25B - PLATEAU, THOUSAND LAKES

### Boundary Description

**Wayne, Emery, and Sevier Counties** - Boundary begins at Highway SR-24 and Highway SR-72; north on SR-72 to Interstate 70; east on I-70 to Cainesville road; south on this road to SR-24; west on SR-24 to SR72 and beginning point.

### Management Unit Description

The Thousand Lake Wildlife Management unit is part of the larger management unit 25 - Plateau. This unit is divided into three sub units, Fish Lake (25A), Thousand Lake (25B), and Boulder Mountain (25C). Management unit 25B was named after Thousand Lake Mountain, a lava-capped plateau with numerous small natural lakes. This mountain reaches an elevation of 11,295 feet and overlooks Capital Reef National Park and the desert country east of the unit. At the extreme southeastern corner of the unit is the lowest point in elevation in the herd unit at Cainesville (about 4,100 feet). The vegetation composition varies greatly throughout the unit with respect to topographical relief and elevation. Cainesville averages about 185 frost-free days and 5 to 6 inches of rainfall a year, while Thousand Lake Mountain receives 25 to 30 inches of rainfall a year and averages only 20 to 40 frost-free days.

The unit has good winter range with ample protective cover, large basins, draws, and open ridges. The upper limits of the normal winter range vary from 8,400 feet at the northern boundary to 9,000 feet on the south end of the mountain. The lower normal winter range limit is between 6,000 and 7,400 feet in elevation. At present, the winter range appears ample to support the deer and elk from the Thousand Lakes unit and also many wintering deer from the adjacent Fish Lake unit. Solomon Basin, Sage Flat, Horse Valley, Sand Flat, Paradise Flat, and Lyman Slopes are all winter concentration areas.

Several different estimates of the size of the unit's big-game ranges can be found. Many of these estimates are discussed here. Huff and Blotter (1964) conducted the original survey of the area's deer ranges and reported 90,489 acres of winter range. Jense et al. (1985) quoted this estimate but rounded it off. Mann (1985) used the same figure to arrive at an estimate of 3,800 acres that needs to be acquired from the private sector and maintained to help maintain the deer herd. In the deer herd unit management plan, Bogedahl (1983) gave markedly different estimates of the range sizes. This project planimetered the boundaries of the winter range as drawn on the original base map by Huff and Blotter to arrive at an estimate of 103,733 acres.

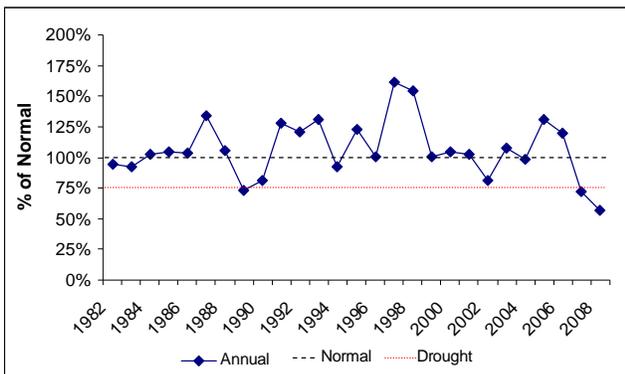
Huff and Blotter (1964) inventoried the vegetation on the winter range in 1963. They reported acreage and cover density for three major vegetative types. Pinyon-juniper made up 73% of the winter range with about 9% cover for desirable browse species. The sagebrush and mixed browse types accounted for 10% and 4% of the winter range and had 19% and 18% of the cover respectively for the key browse species. Ponderosa pine, with a healthy understory of antelope bitterbrush, is located along the upper edge of the winter range between Water Canyon and Sand Creek.

The condition of the spring and summer range is the current management concern. As the snow begins to recede in the spring, deer seek green grasses and forbs which are very scarce on the heavily overgrazed spring ranges. At this time, the early green-up in the alfalfa and grain fields on private land near Loa, Fremont, Lyman and Torrey are very attractive to wildlife and depredation problems become serious. The DWR has been working in cooperation with the BLM and Forest Service on revegetation projects immediately above these private lands to provide spring forage and alleviate this problem. Most of the big game summer range is in fairly good condition and adequate for present needs, but it is limited in size and should be managed carefully to insure that the necessary quality and quantity of summer range is maintained in order to maintain herds at current levels. Small sage flats on top of the mountain which have been sprayed with 2,4-D, have displayed increased summer use by deer as forb and grass production increases.

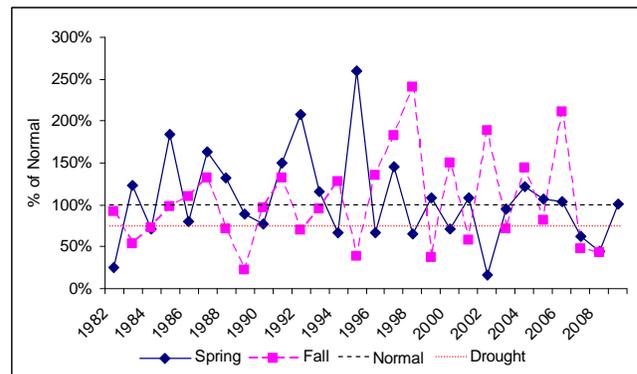
SUMMARY  
WILDLIFE MANAGEMENT UNIT 25B - PLATEAU, THOUSAND LAKES

**Community Types**

There were five Range Trend studies sampled in WMU 25B during the summer of 2009. Three of the studies [Horse Valley (25B-2), Sage Flat (25B-3) and Little Deer Peak (25B-6)] sampled Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*) communities that are all within crucial deer winter and substantial elk winter habitat. One study [Solomon Basin (25A-4)] samples a mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*) and black sagebrush (*A. nova*) community that is within crucial deer and elk winter habitat. One study [Polk Creek (25A-5)] samples a mixed mountain brush community that is crucial deer and elk winter habitat.



**Figure 1.** Percent annual precipitation based on the 27 year mean precipitation for WMU 25B, Plateau, Thousand Lakes. Precipitation data were collected at the Salina 24E, Capital Reef National Park and Loa weather stations (Utah Climate Summary 2009).



**Figure 2.** Percent annual precipitation based on the 27 year mean for spring (March-May) and fall (Sept.-Nov.) precipitation for WMU 25B, Plateau, Thousand Lakes. Precipitation data were collected at the Salina 24E, Capital Reef National Park and Loa weather stations (Utah Climate Summary 2009).

**Precipitation**

Vegetation trends are dependent upon annual and seasonal precipitation patterns. Precipitation data from this herd unit were compiled from the Salina 24E, Capital Reef National Park and Loa weather stations (Figures 1 and 2). The unit's 27 year annual mean was 9.47 inches, the 28 year spring (March to May) mean was 2.13 inches, and the 27 year fall (Sept. to Nov.) mean was 2.63 inches. The unit's annual precipitation was below 75% of the normal annual mean (drought conditions) in 1989, 2007 and 2008 (Figure 1). Spring precipitation was below 75% of normal in 1982, 1984, 1994, 1996, 1998, 2000, 2002, 2007 and 2008 (Figure 2). Fall precipitation was below 75% of normal in 1983, 1984, 1988, 1989, 1995, 1999, 2001, 2003, 2007 and 2008 (Figure 2) (Utah Climate Summary 2009).

**Browse**

The median browse trend (Figure 5). Three sagebrush species were sampled in the unit; Mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*), Wyoming big sagebrush (*A. tridentata* ssp. *wyomingensis*), and black sagebrush (*A. nova*). Wyoming big sagebrush was sampled at three study sites in the unit: 25B-2, 25B-3 and 25B-6. The mean density of Wyoming big sagebrush decreased slightly, but significantly from 1994 to 1999, then remained similar through 2009 (Figure 3a). The mean cover of Wyoming big sagebrush remained similar from 1994 to 2004 then decreased significantly from 2004 to 2009 (Figure 3b). The mean Wyoming big sagebrush population decadence remained similar from 1994 to 2004 then increased significantly from 2004 to 2009 (Figure 3c). Other units in this area experienced a decline in Wyoming big sagebrush populations in 2004 that was not represented by the studies in this unit. However, there was a general decline in Wyoming big sagebrush similar to the 2004 declines of the other units in 2009.

Black sagebrush was sampled on three sites in the unit: 25B-3, 25B-4 and 25B-5. The mean density of black sagebrush has remained relatively similar over the sample years, though average cover decreased significantly from 1999 to 2004 and again from 2004 to 2009 (Figure 3a and 3b). The mean population decadence of black sagebrush has remained moderately low at less than 24% since 1994. There was a slight and significant increase in decadence from 1999 to 2004, but decadence decreased again in 2009 (Figure 3c).

Mountain big sagebrush was sampled on two studies in the unit, 25B-4 and 25B-5. There was little change in the mean density since 1994, though cover increased significantly from 1994 to 1999, remained similar from 1999 to 2004, then decreased significantly from 2004 to 2009 (Figure 3a and 3b). The mean mountain big sagebrush population decadence steadily increased from 1994 to 2009, and was significantly higher in 2004 and 2009 than in 1994 and significantly higher in 2009 than in 1999.

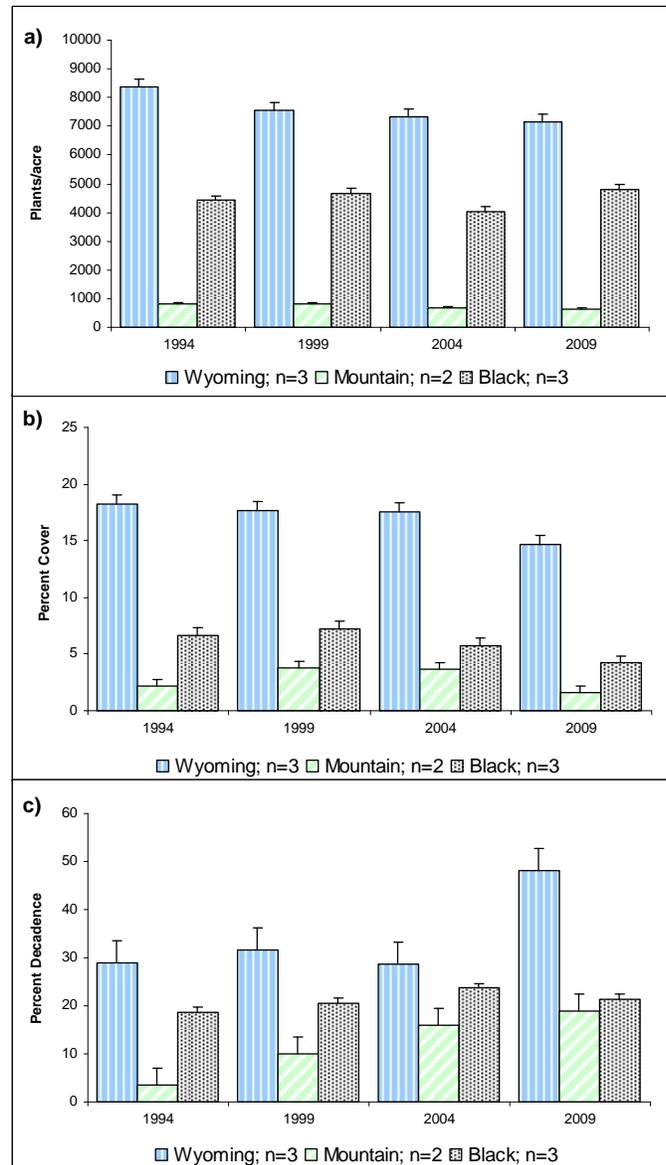
### Herbaceous Understory

The median grass trend (Figure 5). The mean perennial grass sum of nested frequency remained similar from 1994 to 1999, then decreased significantly from 1999 to 2004 and again from 2004 to 2009 (Figure 4a). The mean cover of perennial grass reflected this trend, though it increased significantly from 1994 to 1999 then decreased from 1999 to 2004, but not significantly. The mean cover of perennial grasses decreased again, but this time significantly, from 2004 to 2009 (Figure 4b).

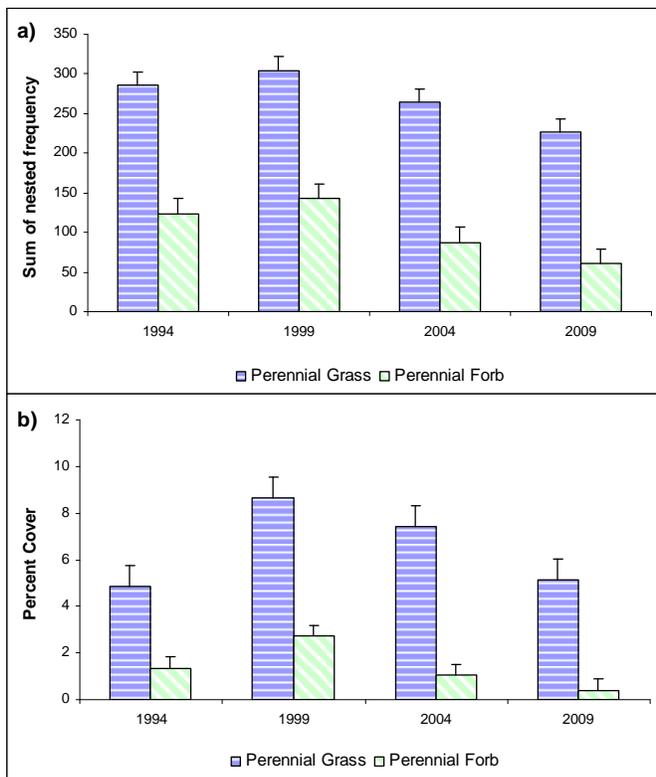
The median forb trend (Figure 5). Perennial forbs are not overly abundant on this unit and the mean perennial forb sum of nested frequency decreased significantly from 1999 to 2004. The sum of nested frequency decreased again from 2004 to 2009, but the decrease was not significant (Figure 4a). The mean cover of perennial forbs had a similar trend to the sum of nested frequency, though there was a significant increase in cover from 1994 to 1999 (Figure 4b). No noxious weeds were sampled on the studies in this herd unit.

### Desirable Components Index

Three studies in this herd unit sampled in 2009 are considered within the low potential scale for the deer Desirable Components Index (DCI): 25B-2, 25B-3 and 25B-6. The mean DCI ranking for these studies increased from fair-good in 1994 to good in 1999 and 2004, then decreased to fair in 2009 (Figure 6 and Table 1). Much of the change came from the Perennial Grass Cover and Preferred Browse Young plant recruitment (Table 1). The two remaining deer winter range studies, 25B-4 and 25B-6, are within the mid-level potential scale for the deer DCI. The mean DCI ranking for these studies increased from fair in 1994 to good in 1999,



**Figure 3.** a) Mean density of sagebrush (*Artemisia spp.*) by year for WMU 25B, Plateau, Thousand Lakes. b) Mean cover of sagebrush by year for WMU 25B. c) Mean population decadence of sagebrush by year for WMU 25B.



then decreased to fair again in 2004, and decreased further to poor in 2009 (Figure 6 and Table 2). Most of the change came from changes in the Perennial Grass Cover and Perennial Forb Cover scores (Table 2). No studies on this unit were considered to be within the high potential scale.

**Figure 4.** a) Mean perennial grass, perennial forb and cheatgrass sum of nested frequency by year for WMU 25B, Plateau, Thousand Lakes. b) Mean perennial grass, perennial forb and cheatgrass cover by year for WMU 25B.

| Year | Preferred Browse Cover | Preferred Browse Decadence | Preferred Browse Young | Perennial Grass Cover | Annual Grass Cover | Perennial Forb Cover | Noxious Weeds | Total Score | Ranking   |
|------|------------------------|----------------------------|------------------------|-----------------------|--------------------|----------------------|---------------|-------------|-----------|
| 94   | 22.9                   | 6.3                        | 8.3                    | 5.5                   | 0.0                | 1.5                  | 0.0           | <b>44.5</b> | Fair-Good |
| 99   | 22.5                   | 5.6                        | 8.5                    | 13.5                  | 0.0                | 2.7                  | 0.0           | <b>52.7</b> | Good      |
| 04   | 22.4                   | 6.5                        | 5.2                    | 12.8                  | 0.0                | 1.1                  | 0.0           | <b>47.9</b> | Good      |
| 09   | 18.5                   | 0.6                        | 2.0                    | 10.0                  | 0.0                | 0.3                  | 0.0           | <b>31.4</b> | Fair      |

**Table 1.** Low potential scale mean deer DCI scores (n=3) by year for WMU 25B, Plateau, Thousand Lakes. The deer DCI scores are divided into three categories based on ecological potentials which include low, mid-level and high.

| Year | Preferred Browse Cover | Preferred Browse Decadence | Preferred Browse Young | Perennial Grass Cover | Annual Grass Cover | Perennial Forb Cover | Noxious Weeds | Total Score | Ranking |
|------|------------------------|----------------------------|------------------------|-----------------------|--------------------|----------------------|---------------|-------------|---------|
| 94   | 20.7                   | 9.8                        | 5.1                    | 13.9                  | 0.0                | 3.9                  | 0.0           | <b>53.5</b> | Fair    |
| 99   | 23.7                   | 9.8                        | 6.6                    | 21.1                  | 0.0                | 9.4                  | 0.0           | <b>70.6</b> | Good    |
| 04   | 23.5                   | 10.2                       | 4.9                    | 14.4                  | 0.0                | 3.6                  | 0.0           | <b>56.7</b> | Fair    |
| 09   | 18.6                   | 7.5                        | 6.9                    | 10.5                  | 0.0                | 1.6                  | 0.0           | <b>45.1</b> | Poor    |

**Table 2.** Mid-level potential scale mean deer DCI scores (n=2) by year for WMU 25B, Plateau, Thousand Lakes. The deer DCI scores are divided into three categories based on ecological potentials which include low, mid-level and high.

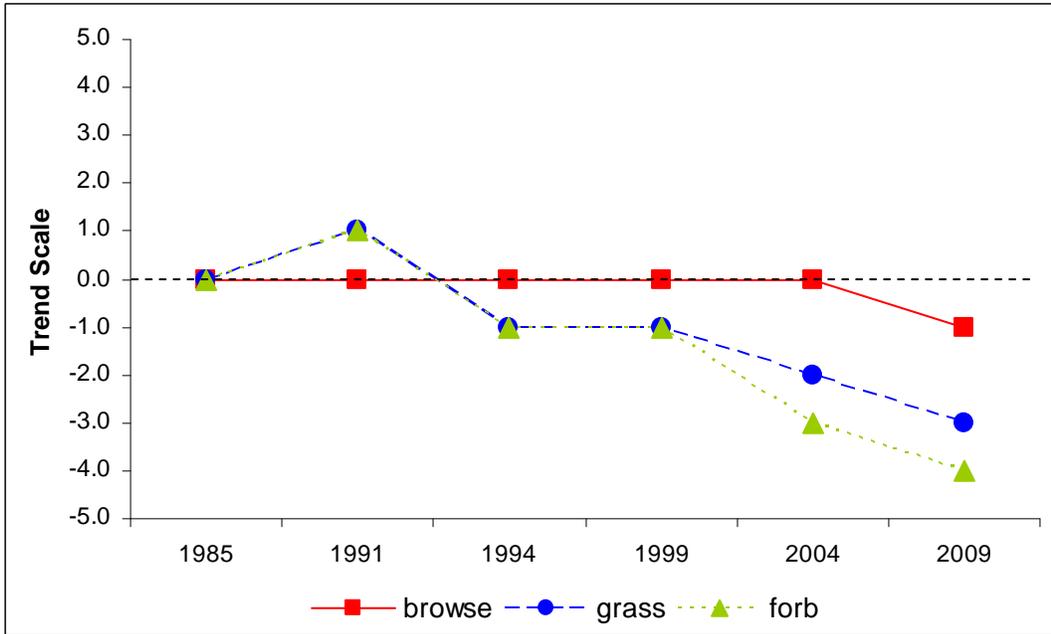


Figure 5. Cumulative median browse, grass and forb trends by year for WMU 25B, Plateau, Thousand Lakes.

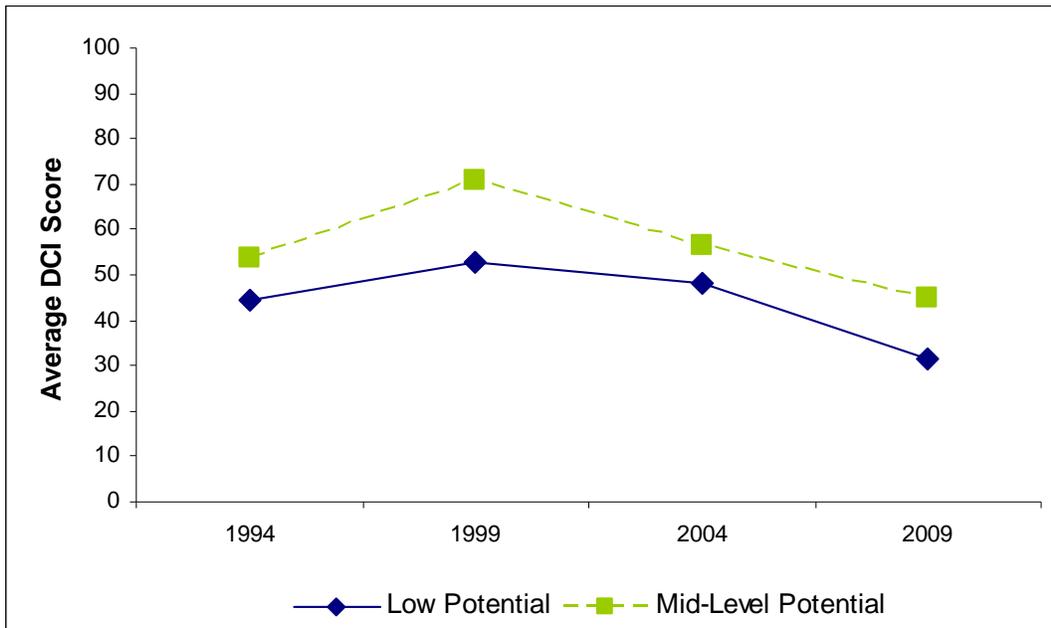


Figure 6. Mean low (n=3) and mid-level (n=2) potential scale DCI scores by year for WMU 25B, Plateau, Thousand Lakes. The deer DCI scores are divided into three categories based on ecological potentials which include low, mid-level and high.

Grazing, uranium exploration, and logging are the three uses that have had the most impact on the Thousand Lakes unit. Grazing of cattle, horses, and sheep commenced with the settlement of the region in the 1860's. The range was open to anyone and was used from the time the snow melted enough in the spring to get livestock on the mountain, until the snow drove them off in the fall. Much of the east side, especially the Solomon Basin area, was used year-round by cattle. Because of the plentiful, well-dispersed water sources, the relatively flat mountain top was also heavily grazed each summer. This overgrazing resulted in soil compaction and soil loss at water sources, erosion problems, decreased water quality, and a decrease of the valuable grass-forb component in the vegetative community until nearly monotypic shrub types remained. The Forest Service has gradually increased grazing restrictions in order to allow the range to recover. Currently many areas are beginning to show improvements, but it will take a long time for the land to recover naturally.

Uranium prospectors have also left their mark on the land. Four-wheel drive vehicles and heavy equipment tracks crisscross the unit and are still quite visible.

Stands of ponderosa pine, Douglas-fir, and Engelmann spruce are found on the mountain with many areas having been logged in the past. Fire suppression has helped to accelerate succession of the high mountain aspen-meadow parklands toward climax stands of Engelmann spruce. Canopy closure in these spruce forests nearly eliminates all understory species, resulting in a significant loss of forage production.

Despite human impacts, portions of Thousand Lake Mountain are under consideration for wilderness designation. However, gas and oil exploration is an ongoing activity and coal deposits in the Last Chance area have drawn proposals for both underground and strip mining. Also, Highway U-72 which forms the western boundary, has been paved and is maintained for year-round use. This will tend to encourage more recreation and tourism through the area.

### **Range Trend Studies**

Forest Service, BLM, and DWR personnel met in August, 1985 to discuss range trend studies and to select crucial areas of big game range where trend should be monitored. Four sites were chosen for permanent range trend studies on the herd unit were established and have been monitored consistently through 2009. Three of these studies [Horse Valley (25B-2), Sage Flat (25B-3) and Solomon Basin (25B-4)] sample sagebrush-grass communities and one study [Polk Creek (25B-5)] samples a mixed mountain brush community. Another site, Little Deer Peak (25B-6), has been added to the Thousand Lake unit and samples a sagebrush-grass community. It originally was from a neighboring unit, but was switched to Thousand Lake unit with the latest alignment of the management unit boundaries. In 2004, the Thousand Lake (25B-1) study was suspended due to poor access.