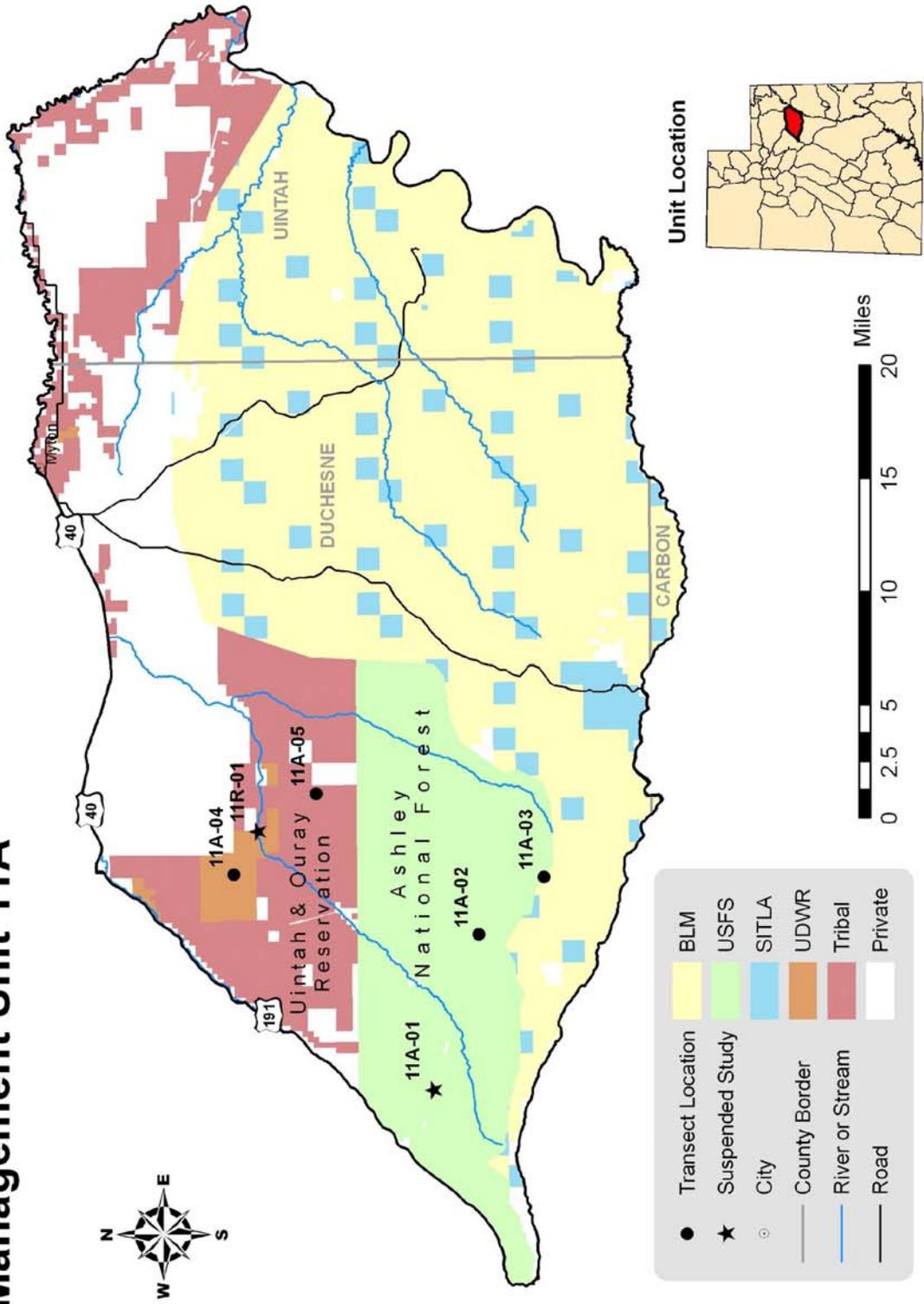


Management Unit 11A



MANAGEMENT UNIT 11A - NINE MILE, ANTHRO

Boundary Description

Duchesne and Uintah counties - Boundary begins at Duchesne and Highway US-191; then southwest on US-191 to the Argyle Canyon Road; southeast on this road to the Nine Mile Canyon Road; east along this road, to it's end near Bulls Canyon; south from the end of the road to Nine Mile Creek; east along this creek to the Green River; north along this river to the Duchesne River; northwest along this river to Highway US-40; west on US-40 to Duchesne and beginning point (excludes all Ute Indian Tribal lands within this boundary).

Management Unit Description

The Nine Mile, Anthro Management Unit is located south of Duchesne and Highway 40, extending south into the Anthro Mountains. Elevation ranges from about 9,200 feet along Upper Cottonwood Ridge to about 4,600 feet at the Green River. There is an estimated 367,000 acres classified as deer range on Unit 11A with 72% classified as winter range, 9% classified as summer range and 19% classified as year-long range. The Bureau of Land Management (BLM) managed lands comprise 29% of the range, U.S. Forest Service lands comprise 27%, Utah State Institutional Trust Lands (SITLA) comprise 5%, Native American Trust Lands comprise 18%, private lands comprise 19% and the Division of Wildlife Resources (DWR) administers 2% of the range. There is approximately 376,000 acres that are classified as elk range on Unit 11A with 42% classified as winter range, 16% as summer range and 42% classified as year-long range. Of the elk range, 38% is on BLM managed land, 27% is on Forest Service lands, 6% is on SITLA lands, 15% is on Native American Trust Lands, 13% is on private lands and 2% is on DWR lands.

There is a long and gradual northerly slope to the Anthro Mountain terrain, which lends itself to an abundance of winter range. The long slopes are covered by pinyon-juniper woodland with natural openings of sagebrush. Grassy openings are often found in the drainages. Some ridge tops are covered with black sagebrush. Summer range is limited with most of the high country being comprised of open sagebrush slopes and scattered patches of aspen. Most of the winter range in the unit is available even in severe winters. The upper limits for winter range are generally considered between 8,000 and 8,500 feet. The desert country below 5,000 feet is seldom used by migrating deer.

Cattle grazing is the major activity occurring on Forest Service managed lands within management unit 11A. Oil and gas exploration, and drilling, with their associated roads and year-round activity, are the prominent activities taking place on the lower ends of the ridges. These lands are administered by the BLM and Ute Tribe. Firewood cutting is also an important use on the Ute Tribal lands.

Range Trend Studies

Four interagency range trend studies were sampled in Unit 11A in the summer of 2010. Two of the studies [Wirefence (11A-2) and Chokecherry Canyon (11A-3)] were established in 1982. Both studies sample mountain big sagebrush communities near Anthro Mountain. Two further studies were established in the summer of 1988. One study [Cottonwood Canyon (11A-4)] samples a desert shrub community and one study [Nutters Canyon (11A-5)] samples a black sagebrush community. Two studies [Upper Cottonwood Ridge (11A-1) and Sowers (11R-1)] were suspended due to poor site locations and were not sampled in 2010. For further information on suspended studies, refer to past reports at <http://wildlife.utah.gov/range/>.

SUMMARY
WILDLIFE MANAGEMENT UNIT 11A - NINE MILE, ANTHRO

Community Types

Deer winter range within a unit is summarized into three categories based on ecological potentials which include low potential, mid-level potential and high potential. Low potential sites include desert shrub, Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*) and cliffrose (*Cowania mexicana* ssp. *stansburiana*) communities. Mid-level potential sites include mountain big sagebrush (*A. tridentata* ssp. *vaseyana*) communities. High potential sites include mountain brush communities. Black sagebrush (*A. nova*) and basin big sagebrush (*A. tridentata* ssp. *tridentata*) communities are placed within the low potential or mid-level potential scales based on precipitation and elevation. Deer summer range is summarized separately from winter range as a fourth category and typically includes aspen (*Populus tremuloides*) and high elevation mountain brush or mountain meadow communities. Four interagency range trend studies were sampled in Unit 11A during the summer of 2010. Two of the range trend studies in the unit, Cottonwood Canyon (11A-4) and Nutter’s Canyon (11A-5), are classified as low potential deer winter range sites and sample a desert shrub community and black sagebrush community, respectively. Both studies are also considered to be elk winter range. The other two studies, Wirefence Canyon (11A-2) and Chokecherry Canyon, are considered to be deer summer range within mountain big sagebrush communities. Both studies are also considered to be elk summer range. The Chokecherry Canyon study was part of a prescribed fire in 1977 and both studies were part of another prescribed fire project that took place in 2007, though the Wirefence Canyon study appeared to have not been burned. There were no studies in this unit that were considered to be high potential or mid-level potential winter range.

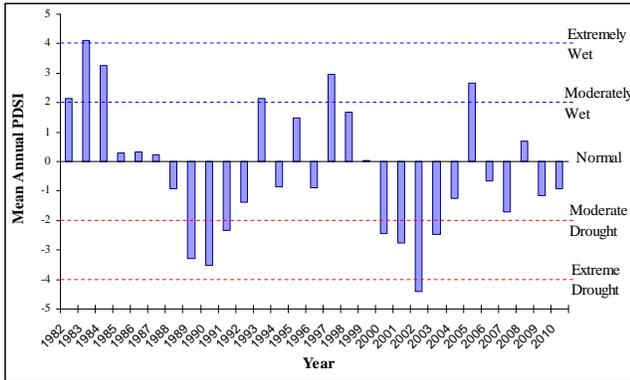


Figure 1. The 29 year mean annual Palmer Drought Severity Index (PDSI) for the Uintah Basin (Division 6). The PDSI is based on climate data gathered from 1895 to 2010. The PDSI uses a scale where 0 indicates normal, positive deviations indicate wet and negative deviations indicate drought. Classification of the scale is ≥ 4.0 = Extremely Wet, 3.0 to 3.9 = Very Wet, 2.0 to 2.9 = Moderately Wet, 1.0 to 1.9 = Slightly Wet, 0.5 to 0.9 = Incipient Wet Spell, 0.4 to -0.4 = Normal, -0.5 to -0.9 = Incipient Dry Spell, -1.0 to -1.9 = Mild Drought, -2.0 to -2.9 = Moderate Drought, -3.0 to -3.9 = Severe Drought and ≤ -4.0 = Extreme Drought (Time Series Data 2011).

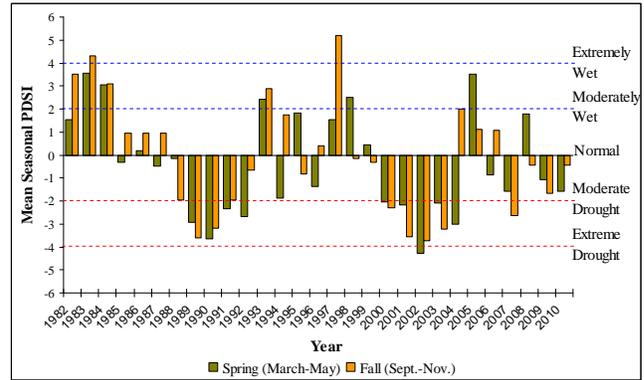


Figure 2. The 29 year mean spring (March-May) and fall (Sept.-Nov.) Palmer Drought Severity Index (PDSI) for the Uintah Basin (Division 6). The PDSI is based on climate data gathered from 1895 to 2010. The PDSI uses a scale where 0 indicates normal, positive deviations indicate wet and negative deviations indicate drought. Classification of the scale is ≥ 4.0 = Extremely Wet, 3.0 to 3.9 = Very Wet, 2.0 to 2.9 = Moderately Wet, 1.0 to 1.9 = Slightly Wet, 0.5 to 0.9 = Incipient Wet Spell, 0.4 to -0.4 = Normal, -0.5 to -0.9 = Incipient Dry Spell, -1.0 to -1.9 = Mild Drought, -2.0 to -2.9 = Moderate Drought, -3.0 to -3.9 = Severe Drought and ≤ -4.0 = Extreme Drought (Time Series Data 2011).

Precipitation

Vegetation trends are dependent upon annual and seasonal precipitation patterns. Precipitation and Palmer Drought Severity Index (PDSI) data for the unit were compiled from the National Oceanic and Atmospheric Administration (NOAA) Physical Sciences Division (PSD) as part of the Uintah Basin (Division 6). The Uintah Basin had a historic annual mean precipitation of 7.99 inches from 1895 to 2010. The mean annual PDSI of the Uintah Basin displays several prolonged drought periods, over the course of study years. Moderate to extreme wet years in the Uintah Basin included 1982-1984, 1993, 1997 and 2005, and moderate

to extreme drought years included 1989-1991 and 2000-2003 (Figure 1 and Figure 2). (Time Series Data 2011).

Desert Shrub Communities (Low Potential Winter Range)

Browse: The low potential cumulative median browse trend decreased slightly in 2000, but increased slightly in 2010 (Figure 7a). The browse composition of the Cottonwood Canyon study was comprised primarily of shadscale (*Atriplex confertifolia*) and winterfat (*Ceratoides lanata*). The browse composition of the Nutter's Canyon Study is dominated by black sagebrush. Because the composition of the two studies is different, individual browse species were not summarized for the unit. For further information on browse on these studies, refer to the discussion section.

Herbaceous Understory: Despite a general downward trend in the low potential median cumulative grass trend since 1988 (Figure 7a), grasses on these studies appear to be in good condition. Grasses within these communities are abundant, though diversity is typically low. Both studies are dominated by the native perennial grass species needle-and-thread (*Stipa comata*). The annual species cheatgrass (*Bromus tectorum*) is very rare on the sites. The mean sum of nested frequency of perennial grasses decreased significantly in 2005 and remained lower in 2010 (Figure 3a). Mean cover of perennial grasses increased significantly in 2000 and increased steadily throughout the following sample years (Figure 3b). Much of the discrepancy between the mean trends of sum of nested frequency and cover of perennial grasses is due to a general increase in the dominant grass species, needle-and-thread, as other lower cover species decreased.

The low potential median cumulative forb trend for the unit has fluctuated slightly over the course of the study, but has remained relatively stable since 1988 (Figure 7a). Perennial forbs are not common on the two low potential studies within the unit and provide little usable forage. The mean sum of nested frequency of perennial forbs was significantly higher in 1995 than the remaining sample years (Figure 3a), but mean cover of perennial forbs was significantly higher in 2005 than any other sample year (Figure 3b).

Utilization: Pellet group transect data indicates that elk predominantly use the area. The mean elk days use/acre on the unit has been moderate, but with a marked decrease in use since 2005. The mean deer days use/acre has been mostly light, though there was a notable increase in use since 2005. Most of the increase in deer use was due to a large increase in use by deer on the Nutter's Canyon study (Figure 8a). Cattle use is minimal on the studies with no sign of cattle sampled on the Nutter's Canyon study in any sample year.

Deer Desirable Components Index (DCI): The low potential deer DCI decreased in 2000, but has increased in each subsequent sample year. The DCI has increased despite a decrease in preferred browse cover due to increases in perennial grass cover throughout the years. The ranking of the DCI has ranged from fair in 2000 to excellent in 2010 (Table 1 and Figure 6).

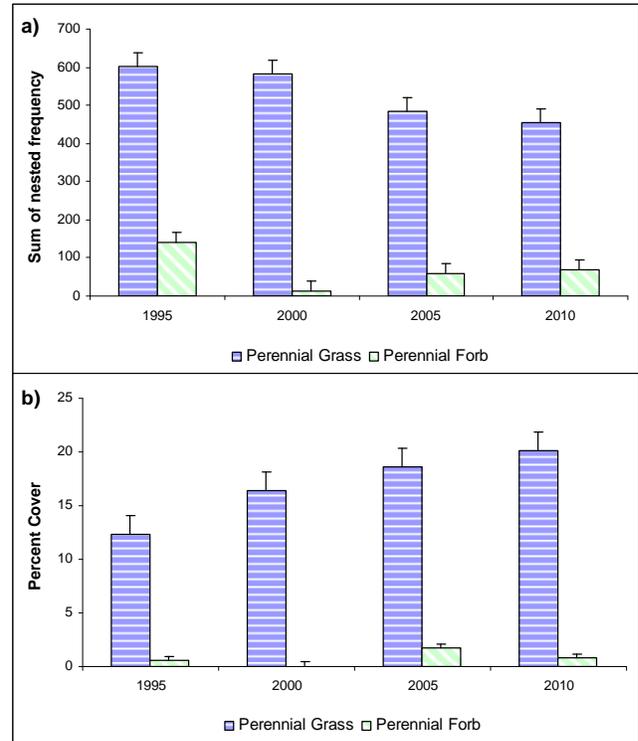


Figure 3. a) Low potential sites mean perennial grass and perennial forb sum of nested frequency (n=2) by year for WMU 11A, Nine Mile, Anthro. b) Low potential sites mean perennial grass and perennial forb cover (n=2) by year for WMU 11A.

Year	Preferred Browse Cover	Preferred Browse Decadence	Preferred Browse Young	Perennial Grass Cover	Annual Grass Cover	Perennial Forb Cover	Noxious Weeds	Total Score	Ranking
95	14.9	12.3	7.5	21.7	0.0	1.1	0.0	57.5	Good
00	12.7	1.5	0.9	26.4	0.0	0.1	0.0	41.6	Fair
05	10.5	9.5	7.2	30.0	0.0	3.5	0.0	60.7	Good
10	8.8	12.9	15.0	30.0	0.0	1.7	0.0	68.5	Excellent

Table 1. Low potential scale mean deer DCI scores (n=2) by year for WMU 11A, Nine Mile, Anthro. The deer DCI scores are divided into three categories based on ecological potentials which include low, mid-level and high.

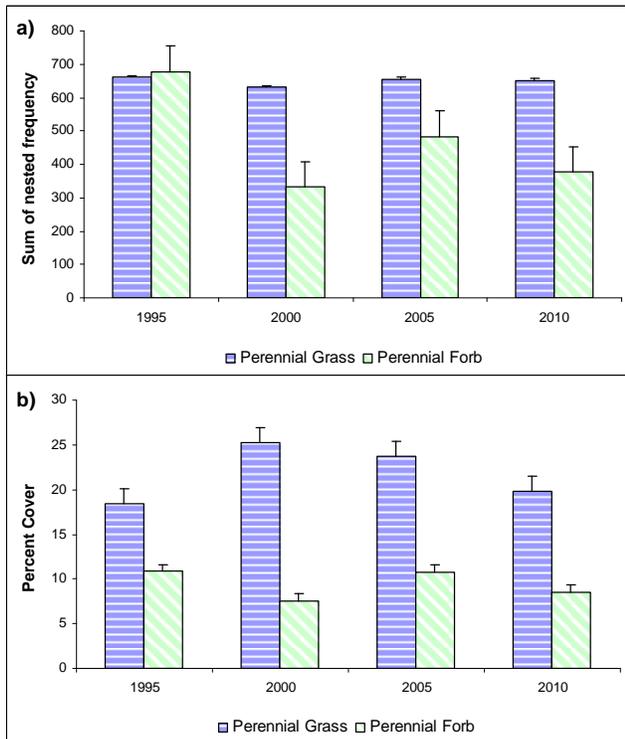


Figure 4. a) Summer range sites mean perennial grass and perennial forb sum of nested frequency (n=2) by year for WMU 11A, Nine Mile, Anthro. b) Summer range sites mean perennial grass and perennial forb cover (n=2) by year for WMU 11A.

Mountain Big Sagebrush Communities (Summer Range)

Browse: The summer range studies cumulative median browse trend increased from in 1988 and remained stable through 2000, but has decreased steadily since 2005 (Figure 7b). The dominant browse species on both of these studies is mountain big sagebrush with a substantial component of mountain low rabbitbrush (*Chrysothamnus viscidiflorus* ssp. *lanceolatus*). The mean density of mountain big sagebrush increased significantly in 2000 remaining similar in 2005, and mean cover of mountain big sagebrush increased steadily from 1995 to 2005. Both density and cover decreased significantly in 2010 (Figure 5a and Figure 5b) due to the prescribed fire that decreased browse on the Chokecherry Canyon

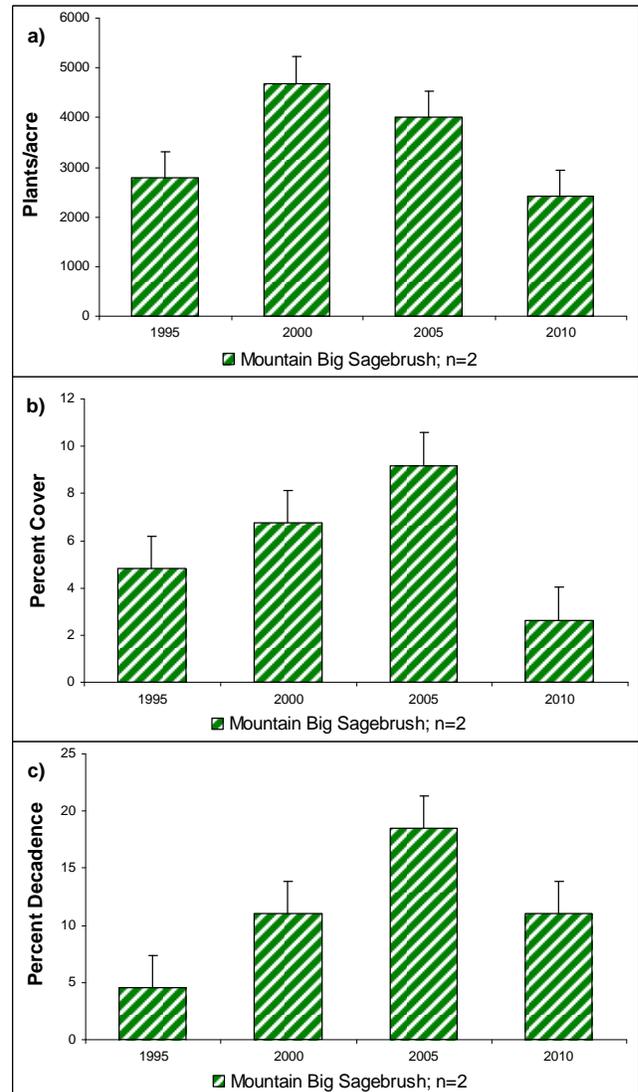


Figure 5. a) Summer range sites mean density of mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*) by year for WMU 11A, Nine Mile, Anthro. b) Summer range sites mean cover of mountain big sagebrush by year for WMU 11A. c) Summer range sites mean population decadence of mountain big sagebrush by year for WMU 11A.

study. The mean decadence of sagebrush followed a similar trend as cover, increasing to moderate levels by 2005, but decreasing significantly in 2010 (Figure 5c).

Herbaceous Understory: The summer range median cumulative grass trend has decreased slightly from 1988 to 2000, but increased slightly from 2005 to 2010 (Figure 7b). Grasses within these communities are diverse and very abundant. The mean sum of nested frequency of perennial grasses has remained similar throughout the sample years (Figure 4a). Mean cover of perennial grasses, however, was significantly higher in 2000 and 2005 than in 1995 and 2010 (Figure 4b).

The summer range median cumulative forb trend has fluctuated over the sample years with increases in 1995 and 2005 and decreases in 2000 and 2010 (Figure 7b). Perennial forbs are also diverse and fairly abundant within the sampled communities. The mean sum of nested frequency of perennial forbs was similar to perennial grasses in 1995, but was significantly lower in the subsequent sample years (Figure 4a). Mean cover of perennial forbs has not fluctuated as drastically as the sum of nested frequency, but cover was significantly higher in 1995 and 2005 than in 2000 and 2010 (Figure 4b).

Utilization: Pellet group transect data indicates that both deer and elk predominantly use these study areas, though rates vary between the two studies. Elk use is more prevalent on the Chokecherry Canyon study and deer use is more prevalent on the Wirefence Canyon study. Cattle use is fairly heavy on the Wirefence Canyon study, while there was little sign of cattle sampled at the Chokecherry Canyon study. The mean deer days use/acre on the unit has been mostly light, though there was a marked increase in use by deer to moderate levels in 2005. The mean elk days use/acre has steadily decreased over the sample years from moderately heavy levels in 2000 to light use in 2010. Cattle use has been fairly stable on the unit (Figure 8b).

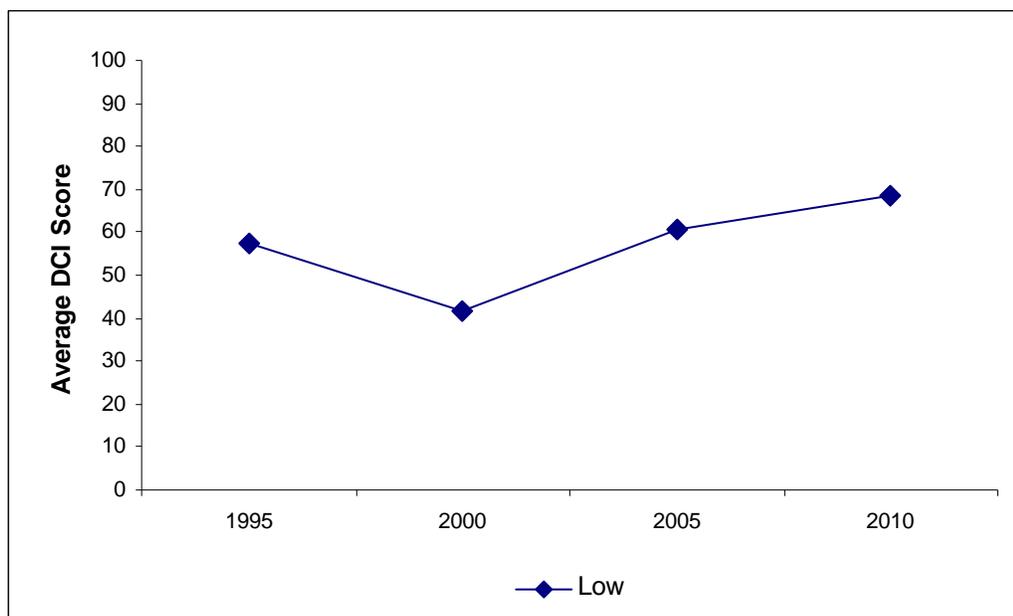


Figure 6. Mean low (n=2) potential scale deer DCI scores by year for WMU 11A, Nine Mile, Anthro. The deer DCI scores are divided into three categories based on ecological potentials which include low, mid-level and high. There were no mid-level or high potential studies were sample on WMU 11A.

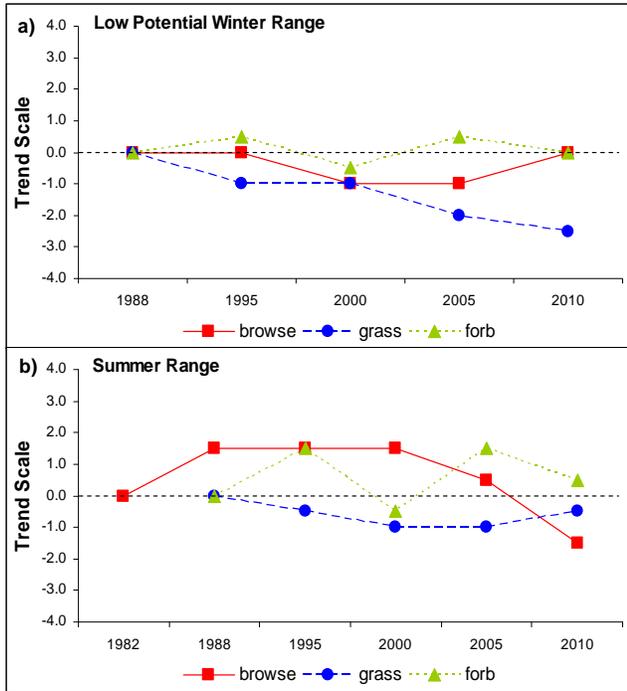


Figure 7. a) Low potential sites (n=2) cumulative median browse, grass and forb trends by year for WMU 11A, Nine Mile, Anthro. b) Summer range sites (n=2) cumulative median browse, grass and forb trends by year for WMU 11A.

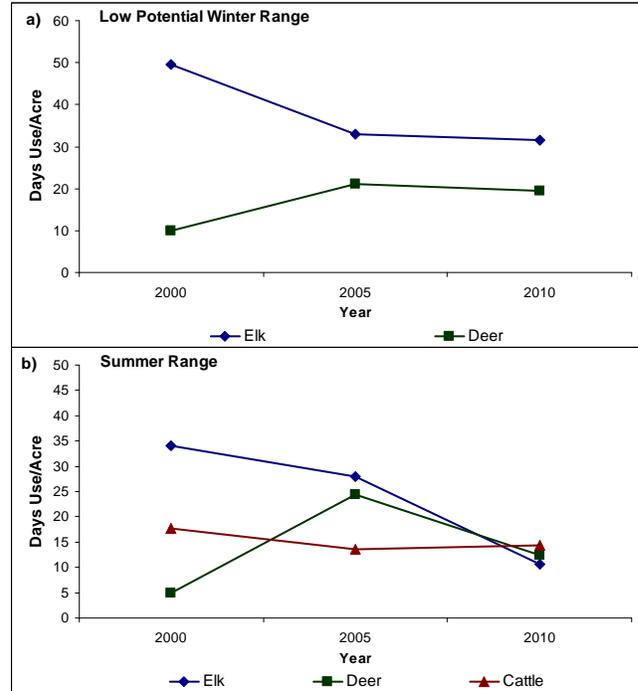


Figure 8. a) Low potential sites (n=2) mean animals days use/acre by year for WMU 11A, Nine Mile, Anthro. b) Summer range sites (n=2) mean animal days use/acre by year for WMU 11A.