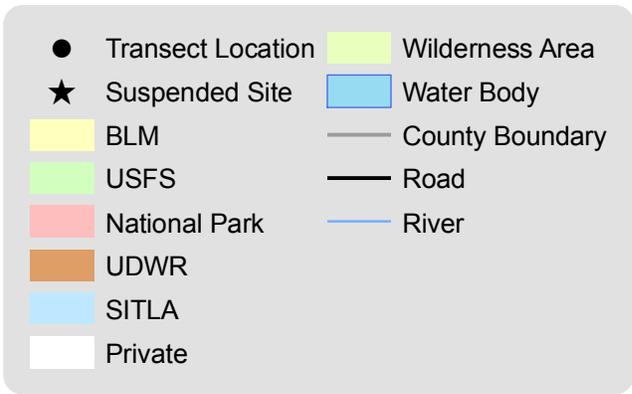
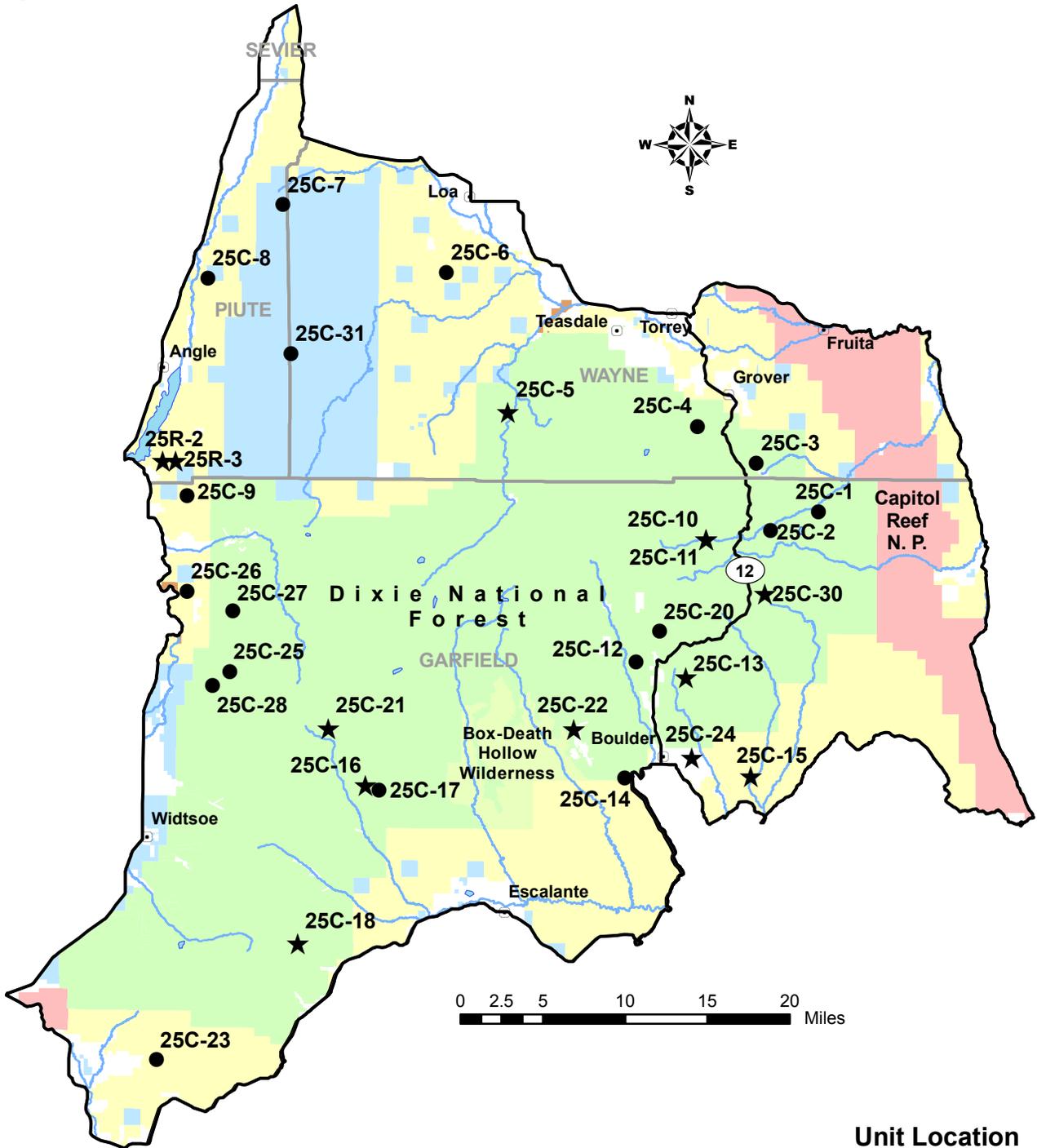
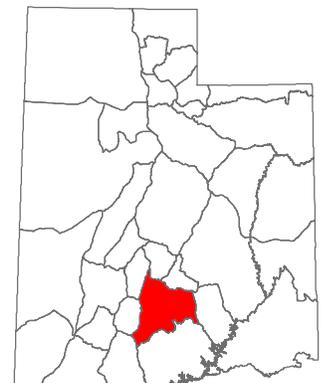


Management Subunit 25C



Unit Location



WILDLIFE MANAGEMENT UNIT 25C - PLATEAU, BOULDER

Boundary Description

Wayne, Garfield and Piute counties - Boundary begins at the junction of Highway SR-62 and Highway SR-24; east on SR-24 to the Notom Road; south on the Notom Road to the Burr Trail; west on the Burr Trail to Highway SR-12 in Boulder; west on SR-12 to the Antimony-Widtsøe Road; north on this road to Highway SR-22; north on SR-22 to Highway SR-62; north on SR-62 to SR-24 and beginning point.

In 1991, herd unit 51A (North Boulder) and 51B (South Boulder) were combined and renamed deer herd unit 44 (Boulder) in 1993. The unit was enlarged slightly and again renamed in 1996 as 25C (Boulder), which is now a subunit of Wildlife Management Unit 25. The other two subunits in Wildlife Management Unit 25 are 25A Fishlake and 25B Thousand Lake. Herd Unit 51B formerly included the high country of the Aquarius Plateau, which is commonly known as Boulder Mountain. It slopes down to the south and west through variable desert terrain that makes up the major portion of the winter range in Unit 25C. Herd unit 51A formerly enclosed areas to the north including Parker Mountain (Awapa Plateau), Boulder Mountain, Miners Mountain, and portions of the Waterpocket Fold and Capitol Reef National Park. Parker Mountain is an open rolling plateau with a maximum elevation of 9,600 feet and northeast exposure. The Aquarius Plateau is a high, lava-capped mountain plateau rising to 11,322 feet in elevation on Boulder Mountain. Miners Mountain is a large anticline located in the northeast corner of the unit. A small section along the west side of Parker Mountain drains west into Otter Creek. The remainder of the unit drains to the north into the Fremont River. Unit 25C now encompasses approximately 752,000 acres of summer range which is managed entirely by the Forest Service, and 896,700 acres of winter range, about 70% of which is managed by the BLM (Jense et al. 1992).

Precipitation ranges between 5 to 7 inches at Capitol Reef, 10 to 12 inches at Boulder and Escalante on the southern border, and 25 to 30 inches on Boulder Mountain. Municipalities located along the unit boundaries are Koosharem and Antimony on the west; Loa, Lyman, Bicknell, Teasdale, and Torrey on the north; with Escalante and Boulder on the south side.

The private land is found in the valleys around the small communities of Antimony, Escalante, Boulder, and Bryce Valley. This land is used mainly for ranching, livestock grazing, and alfalfa production. Land uses on the federally managed winter range includes grazing and oil-gas exploration. Some areas receive heavy OHV and camping use. Impacts to management can also come from wilderness designation, the proposed CO₂ project for the Antone Flat-Death Hollow area, and road building associated with resource extraction projects, including logging.

Winter Range Description

The winter range is large enough to support all of the deer summering on the unit. With a few localized exceptions, it is in mostly good condition. Huff and Coles (1966) drew the upper limits of the winter range between 8,000 and 8,400 feet and the lower limits between 6,500 and 7,000 feet. The pinyon-juniper and sagebrush types with various combinations of the two, dominates the winter range. An exception is the Ponderosa pine-bitterbrush type which also reportedly receives a significant amount of deer use during mild winters. South of Boulder Mountain, there is abundant winter range. However, much of the country is slickrock canyons and mesas that support few deer. Most wintering takes place on the lower slopes and at the base of the mountain. The upper limits of the normal winter range are fairly uniform at 8,000 feet across the south slopes of the Boulder Mountain. Seven thousand feet is the usual upper limit during severe winter conditions. The lower limit for most wintering deer on the south side of the unit is Highway 12.

On the west side of the Aquarius Plateau between Antimony and Widtsøe winter range is more restricted. The mountain drops off steeply from Griffin Top to the river valley. Deer can typically utilize vegetation up to

9,000 feet during normal winters, but are limited to an upper limit of around 8,000 feet during severe winters. The lower boundary for severe winters is the bottom of the valley on the Sevier River, which is approximately 6,500 feet.

Pinyon-juniper encroachment and deer depredation of alfalfa fields and haystacks in Grover, Teasdale, and Government Creek areas have been reported to be problems. Revegetation projects by both the Forest Service and BLM have helped reduce the depredation problems and provided another important source of winter and spring forage. Further improvements may be needed in Government Creek, Pine Creek, Birch Spring, Rabbitbrush Spring, Happy Valley, and Dry Bench.

Pinyon-juniper is the prevalent range type on most of the subunit. There are different subtypes depending on elevation. These vegetative types range from dense pinyon-juniper on mountain slopes to sparse pinyon-juniper-grass, sparse pinyon-juniper-sagebrush-grass, and pinyon-juniper-mountain brush on slickrock. The sparse pinyon-juniper-sage-grass type is most common. Ponderosa pine and mountain brush occupy the upper edges of the winter range. The amount of open sagebrush flats is limited, but they are especially critical during severe winters. Burned or chained and seeded areas provide important winter range. Most of these treatments were not completed before the initial range inventory in 1965.

Summer Range Description

Summer range is limited to specific areas on Parker Mountain and Boulder Mountain. Boulder Mountain contains approximately 50,000 acres above 10,500 feet (Christensen and Bogedahl 1983). This high summer range is unsuitable for fawning and receives only light deer use in late summer. Most fawning and summer use is concentrated underneath the lava rock rim where stands of aspen, fir, and spruce are interspersed with sage flats and meadows. As a result of fire suppression, the trend is toward a more dense spruce climax community. Logging and/or prescribed burns may help maintain this important habitat in a seral stage, which is more productive and more favorable to big game. Lower down the slopes, ponderosa pine with its associated mountain brush understory receives insignificant summer use. Summer range on Parker Mountain is more limited to the higher southern end, where aspen stands in association with big sagebrush and antelope bitterbrush provide excellent fawning areas.

Range Trend Studies

Interagency personnel, including Forest Service, BLM, and DWR employees met in Teasdale in July 1985 and in Escalante in July 1987 to select several sites for permanent range trend studies. These sites include areas used by antelope, elk, and deer and were considered critical areas for monitoring range trend. These studies include: Yergy (25C-1), Wildcat (25C-2), Happy Valley (25C-3), North Slope (25C-4), Terza Flat (25C-6), Cedar Grove (25C-7), South Narrows (25C-8), Dry Wash (25C-9), Nazer Draw (25C-12), New Home Bench (25C-14), Varney-Griffin Chaining (25C-17), Baldys (25C-20), Coal Bench (25C-23), Center Creek (25C-25), Black Canyon (25C-26), Poison Creek Bench (25C-27), and North Creek (25C-28). Each site was read during the summer of either 1985 or 1987 and most were read again in 1991, 1994, 1998, 2003, and 2008. One additional study, Parker Mountain Aerator (25C-31), was established in 2003 and reread in 2008 to monitor the recovery of a mountain big sagebrush community following a meadow aerator treatment. Most of these studies monitor winter or winter/transition habitat for big game, but four studies, Baldys, Center Creek, Poison Creek Bench, and Parker Mountain Aerator, monitor summer habitat. The Parker Mountain Aerator study also monitors important sage grouse habitat.

Suspended studies on the subunit include: Giles Hollow (25C-5), Pleasant Creek Enclosure Inside (25C-10), Pleasant Creek Enclosure Outside (25C-11), Short Neck (25C-13), Steep Creek Bench (25C-15), Whites Flat (25C-16), Allen Canyon (25C-18), Rock Bench (25C-19), Griffin (25C-21), Salt Gulch (25C-22), Black Ridge (25C-24), Pole Corral Draw (25C-30), Lower Meadow Estates (25R-2), and Upper Meadow Estates (25R-3).

SUMMARY

WILDLIFE MANAGEMENT SUBUNIT 25C - PLATEAU, BOULDER

Community Types

Eighteen trend studies were sampled in 2008. Five studies sampled Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*) communities (25C-2, 25C-6, 25C-8, 25C-9 and 25C-14), one study sampled a community of hybridized Wyoming big sagebrush and black sagebrush (25C-26), four studies sampled mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*) and mountain brush communities. (25C-4, 25C-7, 25C-12, and 25C-28), three studies sampled pinyon-juniper chainings (25C-1, 25C-17, and 25C-23), one study sampled a logged ponderosa pine (*Pinus ponderosa*) community (25C-3), three studies sampled big game summer range (25C-20, 25C-25, and 25C-27), and one was established in 2003 to monitor sage grouse habitat (25C-31).

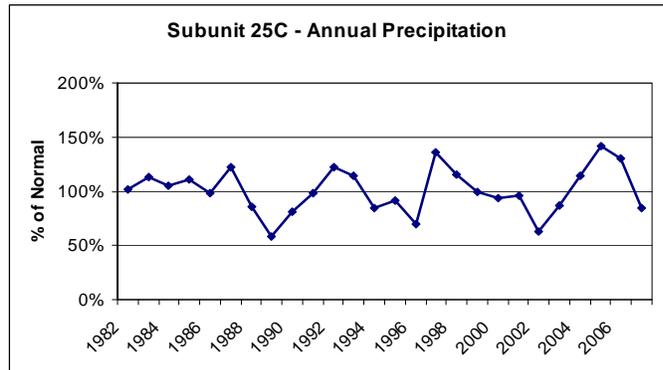


Figure 1. Average annual precipitation for subunit 25C. Precipitation data were collected at the Angle, Boulder, Escalante, Koosheram, and Capital Reef National Park weather stations (Utah Climate Summaries 2008).

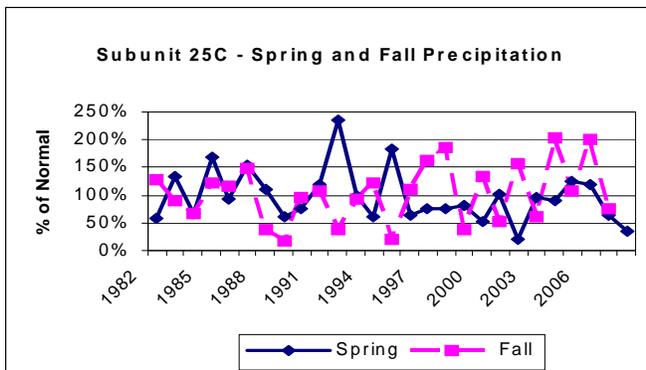


Figure 2. Annual spring (March - May) and fall (Sept. - Nov.) precipitation for subunit 25C. Precipitation data were collected at the Angle, Boulder, Escalante, Koosheram, and Capital Reef National Park weather stations (Utah Climate Summaries 2008).

precipitation was below 75% of normal in 1984 and 2003, near or below 50% in 1988, 1992, 1999, and 2001, and less than 25% of normal in 1989 and 1995 (Figure 2). Spring precipitation is essential for the recruitment of browse seedlings and the establishment of native perennial grasses and forbs. Fall precipitation benefits winter annual species, such as cheatgrass (*Bromus tectorum*) (Monsen 1994).

Precipitation

Vegetation trends are dependent upon annual and seasonal precipitation patterns. Precipitation data from this herd unit were compiled from the Angle, Boulder, Escalante, Koosheram, and Capital Reef National Park weather stations (Figures 1 and 2). The subunits total annual precipitation was lower than normal in 1986, 1988-1991, 1994-1996, 1999-2003, and 2007 (Figure 1). Annual precipitation was below 75% of normal (drought conditions) in 1989, 1996, and 2002 (Figure 1). Spring precipitation was below 75% of normal in 1982, 1984, 1989, 1994, 1996, 1998, and 2007, near or below 50% of normal in 2000 and 2008, and only 20% of normal in 2002 (Figure 2). Fall

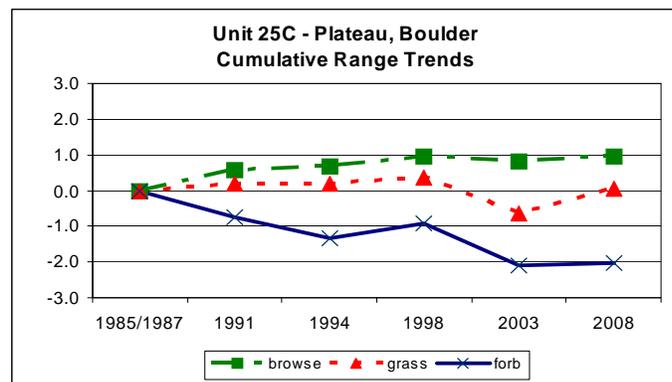


Figure 3. Cumulative range trends for subunit 25c, Plateau, Boulder (Sites 25C-27, 25C-28, and 25C-31 excluded).

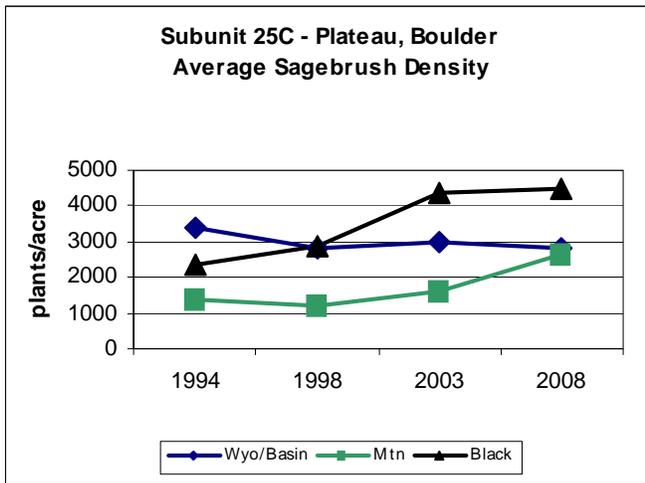


Figure 4. Average density of Wyoming/basin big, mountain big, and black sagebrush for subunit 25C, Plateau, Boulder (Sites 25C-27, 25C-28, and 25C-31 excluded).

Average density of Wyoming and Basin big sagebrush decreased slightly from 1994 to 1998, then stayed fairly constant through 2008 (Figure 4). The average cover of Wyoming and Basin big sagebrush increased from 7% in 1994 to 10% in 2003, then decreased to less than 7% in 2008 (Figure 5). Average decadence of Wyoming/basin big sagebrush increased from 15% in 1994 to over 42% in 2003 and 38% in 2008 (Figure 6).

Mountain big sagebrush was sampled at the North Slope (25C-4), Cedar Grove (25C-7), Varney-Griffin Chaining (25C-17), and Center Creek (25C-25) study sites, as well as the three excluded sites (25C-27, 25C-28, and 25C-31). The average density of mountain big sagebrush decreased slightly from

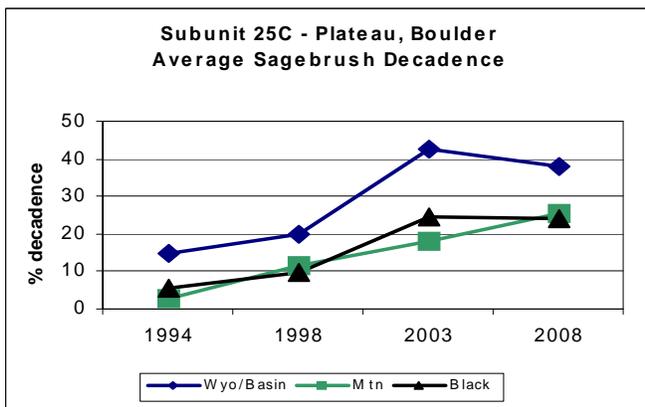


Figure 6. Average decadence of Wyoming/basin big, mountain big, and black sagebrush for subunit 25C, Plateau, Boulder (Sites 25C-27, 25C-28, and 25C-31 excluded).

1994 to 1998, then steadily increased to 2,635 plants/acre in 2008 (Figure 4). The average cover of mountain big sagebrush had a similar trend to the other browse species, increasing from 1994 to 2003, then slightly decreasing in 2008 (Figure 5). Average decadence of mountain big sagebrush steadily increased from 3% in 1994 to over 25% in 2008 (Figure 6).

Browse

Browse data from Poison Creek Bench (25C-27), North Creek (25C-28), and Parker Mountain (25C-31) were excluded due to recent fire (prescribed and wildfire) and shrub removal (meadow aerator) treatments which skewed the data. For more info on these sites browse trends, see the discussion section. The average browse trend increased slightly from 1985/1987 to 1991, then stayed fairly constant through sample year 2008 (Figure 3). Wyoming big sagebrush was sampled at the Wildcat (25C-2), Terza Flat (25C-6), South Narrows (25C-8), Dry Wash (25C-9), New Home Bench (25C-14), and Black Canyon (25C-26) study sites. Basin big sagebrush (*Artemisia tridentata* ssp. *tridentata*) was sampled only at the Yergy (25C-1) study site, so was grouped with Wyoming big sagebrush.

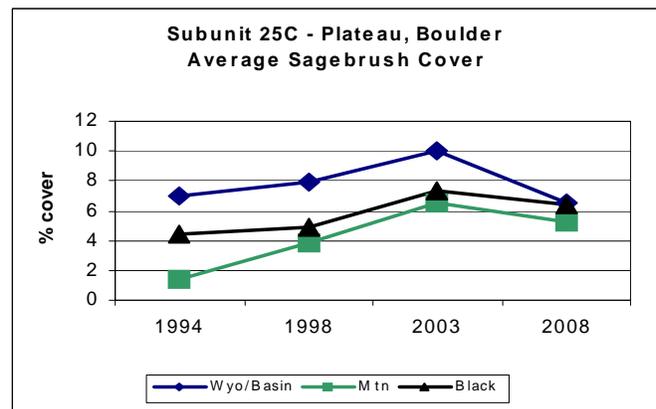


Figure 5. Average cover of Wyoming/basin big, mountain big, and black sagebrush for subunit 25C, Plateau, Boulder (Sites 25C-27, 25C-28, and 25C-31 excluded).

1994 to 1998, then steadily increased to 2,635 plants/acre in 2008 (Figure 4). The average cover of mountain big sagebrush had a similar trend to the other browse species, increasing from 1994 to 2003, then slightly decreasing in 2008 (Figure 5). Average decadence of mountain big sagebrush steadily increased from 3% in 1994 to over 25% in 2008 (Figure 6).

Black sagebrush was sampled in the Wildcat (25C-2), Happy Valley (25C-3), North Slope (25C-4), Terza Flat (25C-6), Cedar Grove (25C-7), Nazer Draw (25C-12), and Coal Bench (25C-23) study sites, as well as the three excluded sites (25C-27, 25C-28, and 25C-31). The average density of black sagebrush increased slightly from 1994 to 1998, then increased more drastically to about 4,400

(Figure 5). The average decadence of black sagebrush increased steadily to 2003 and was fairly stable between 2003 and 2008 (Figure 6).

Grass

The cumulative grass trend was relatively stable from 1985/1987 to 1994, was slightly down in 2003, and increased slightly again in 2008 (Figure 3). The average sum of nested frequency of perennial grasses had a similar trend. The sum of nested frequency was relatively stable from 1994 to 1998, decreased slightly in 2003, then increased again in 2008 (Figure 7). The average cover of perennial grasses increased from 12% in 1994 to 16% in 1998, decreased to 10% in 2003, and increased to 13% in 2008 (Figure 8). There was a small amount of cheatgrass on six study sites (25C-3, 25C-8, 25C-9, 25C-12, 25C-14, and 25C-28). The frequency and cover of cheatgrass was low in all years (Figures 7 and 8).

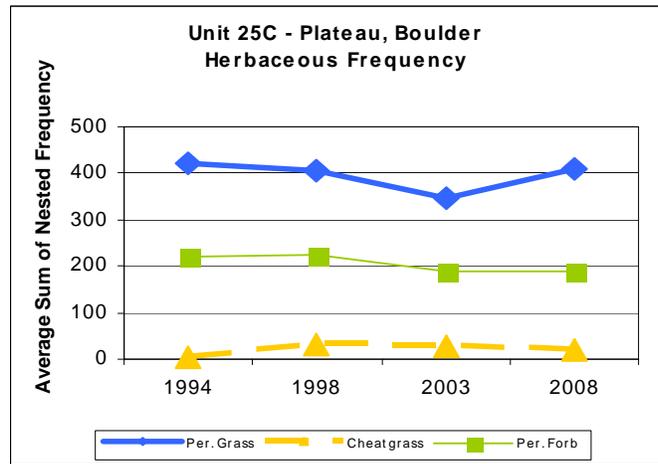


Figure 7. Average herbaceous sum of nested frequencies for subunit 25C, Plateau, Boulder.

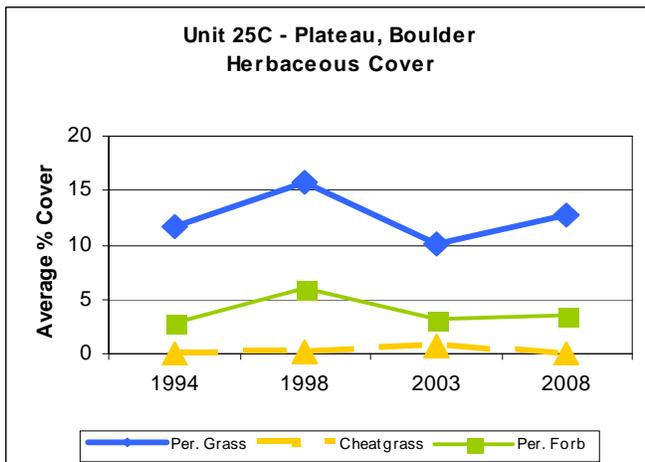


Figure 8. Average herbaceous cover for subunit 25C, Plateau, Boulder.

Forb

The cumulative forb trend decreased slightly from 1985/1987 to 1991 then remained fairly constant until 1998. The cumulative forb trend decreased again in 2003 and stayed low in 2008 (Figure 3). The average sum of nested frequency of perennial forbs was relatively stable from 1994 to 2008 (Figure 7). The average cover of perennial forbs increased from 3% in 1994 to 6% in 1998, decreased to 3% in 2003, and stayed fairly constant at slightly under 4% in 2008 (Figure 8).

Desirable Components Index

Seven studies in this herd subunit were considered to be in the low potential scale for the Desirable Components Index (DCI): Wildcat (25C-2), Terza

Flat (25C-6), South Narrows (25C-8), Dry Wash (25C-9), New Home Bench (25C-14), Coal Bench (25C-23), and Black Canyon (25C-26). The DCI rating was fair (38) in 1994, increased slightly to fair-good (45) in 1998, and decreased to fair (37 and 36) in 2003 and 2008, respectively (Figure 9). The seven remaining winter range studies were in the mid-level scale for the DCI: Yergy (25C-1), Happy Valley (25C-3), North Slope (25C-4), Cedar Grove (25C-7), Nazer Draw (25C-12), Varney-Griffin Chaining (25C-17), and North Creek (25C-28). The average DCI rating was fair (62) in 1994, increasing to good (71) in 1998, and decreasing to fair (55 and 57) in 2003 and 2008, respectively (Figure 9).

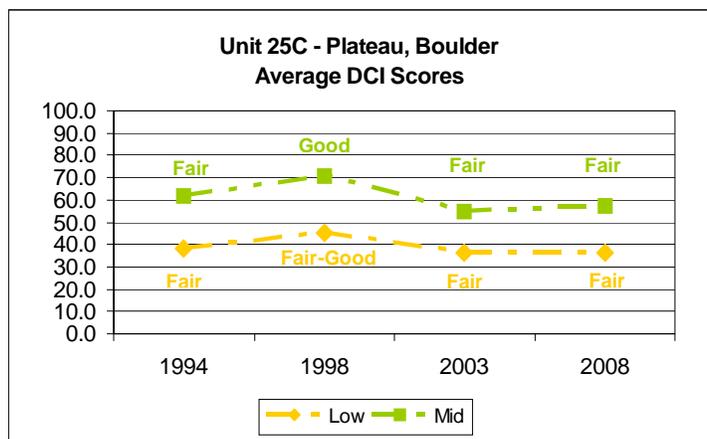


Figure 9. Subunit 25C, Plateau, Boulder, average Desirable Components Index (DCI) scores by year. The DCI scores are divided into three categories based on ecological potentials, which include low, mid-level, and high. No high potential sites are sampled in this unit.