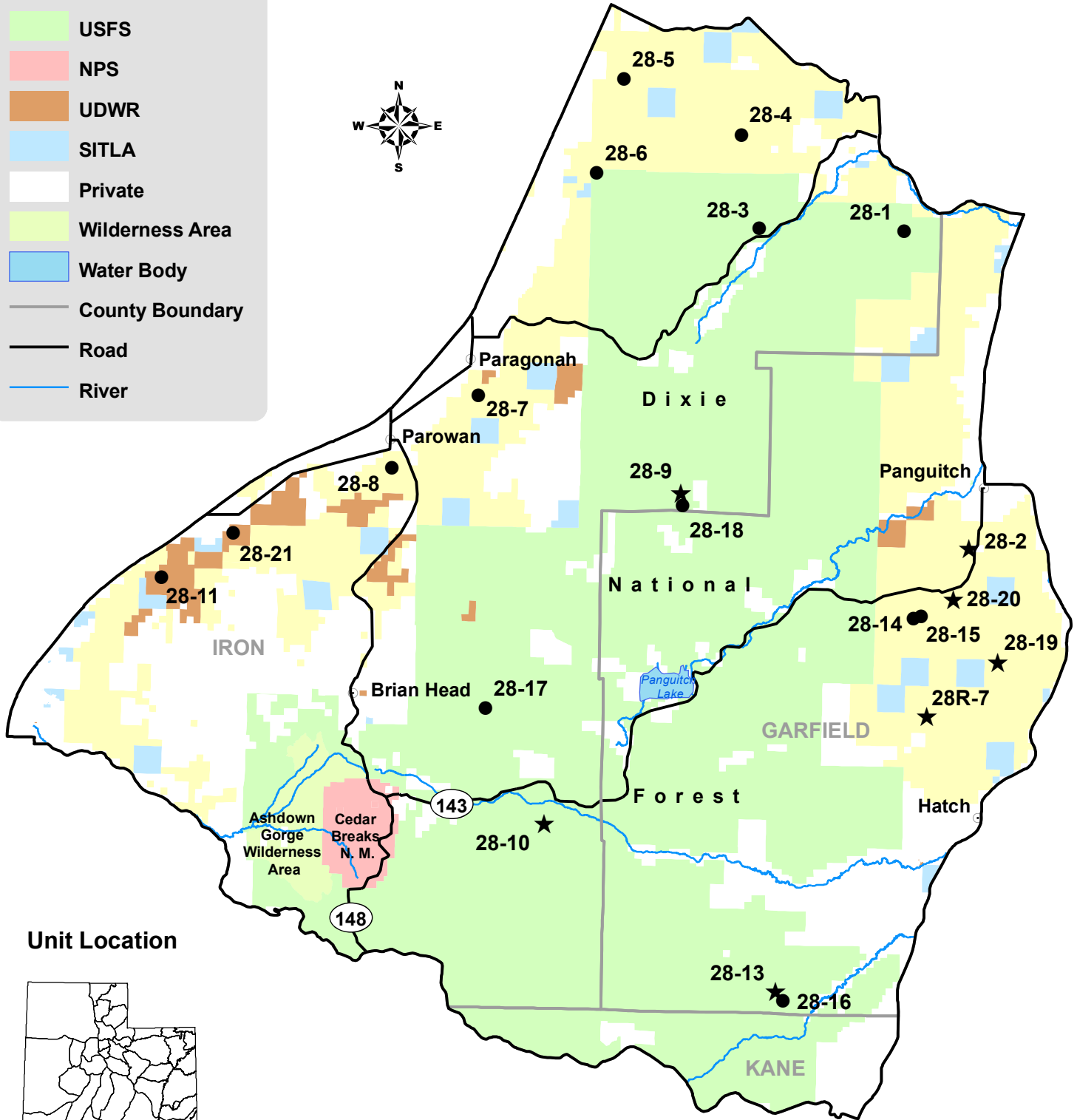
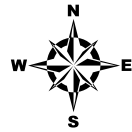
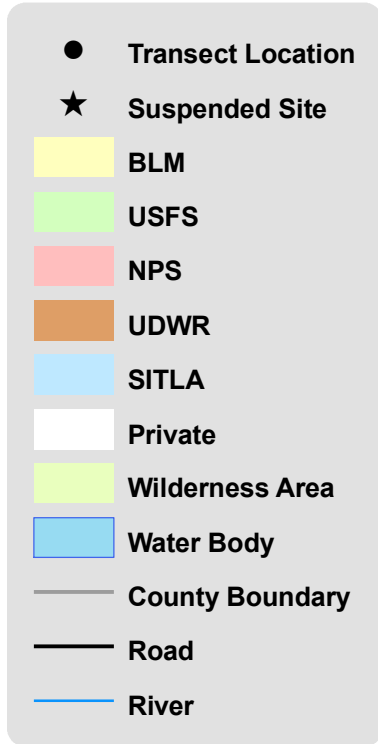
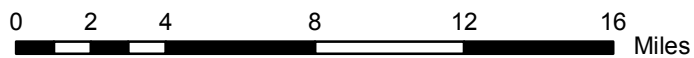
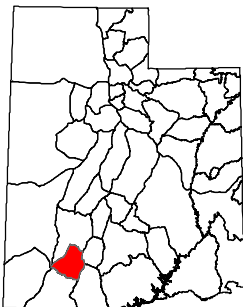


Management Unit 28



Unit Location



WILDLIFE MANAGEMENT UNIT 28 - PANGUITCH LAKE

Boundary Description

Iron, Kane, and Garfield counties - Boundary begins at Highway SR-14 and Highway US-89; then north on US-89 to Highway SR-20; then west on SR-20 to Interstate 15; then south on I-15 to Highway SR-14; then east on SR-14 to US-89 and beginning point.

Management Unit Description

Total useable mule deer and elk range on this unit is 540,457 and 402,473 acres respectively (DWR 1998). Mule deer range consists of 63% summer and 37% winter range, while elk range is 78% summer and 22% winter range. Guinta (1982) presents a complete description of the summer and winter range on the Panguitch Lake unit. The winter range on the eastern portion of the unit is higher in elevation and experiences colder temperatures than on the Parowan side; and consequently, far fewer deer winter on the Panguitch side. Key areas that were identified on the winter range on the eastern side of the unit include the following: pinyon-juniper woodlands south of Panguitch, seeded range at the north end of Upper Bear Valley, the mixed brush type in Buckskin Valley, and the pinyon-juniper chainings in the Three Creeks drainage. These study sites range in elevation from 7,100 to 7,600 feet and represent key areas within the limits of normal winter range on the east side. The only severe winter range available on the unit is located on the pinyon-juniper slopes below the Hurricane Cliffs and on the sagebrush flats that extend from the slopes to I-15. During severe winters the deer on this herd unit are packed into the narrow area between the cliffs and the interstate. Habitat availability is effectively reduced by 80% during these severe winters. The key areas that were identified by the local interagency committee for this area include the Wyoming big sagebrush type west of Swayback Knoll, a Wyoming big sagebrush type in the mouth of Cottonwood Creek, a pinyon-juniper chaining east of Paragonah, a big sagebrush/ pinyon-juniper ecotone in Grass Valley south of Parowan, and a mountain big sagebrush/pinyon-juniper ecotone in Elliker Basin. The importance of each of these areas for deer has increased over the years as sagebrush flats have been converted to sprinkler irrigated agricultural lands; mainly from Highway U-20 to Parowan. Due to depredation problems, deer fences were constructed around many of these fields. In addition, the deer-proof fence along the I-15 corridor severely limits the winter range available to deer on the west side of the freeway. Urbanization of former winter range is continuing, especially in the Fiddler's Canyon area north of Cedar City. Of particular concern is the fact that much of the severe winter range from U-20 to Cedar City is privately owned. Additional habitat losses are to be expected on these privately owned parcels of land. Summer range is not considered a limiting factor for this deer herd. Summer range on the northern portion of the unit generally lies between 8,000 and 9,000 feet and consists largely of gentle rolling terrain. Summer ranges on the south side of the unit reach elevations of over 10,000 feet bordering Cedar Breaks National Park.

Livestock Grazing on Key Areas

The following discussion comes from the 1998 Range Trend Report and grazing information was current in 1998. Actual dates and numbers of grazing animals may have changed since.

Eastern Portion - Normal Winter Deer Range

The Three Creeks study site is located in the USFS Three Creeks Cattle Allotment. A rest-rotation grazing system is used to manage livestock on this unit. The allotment is grazed from 6/1 to 10/15, with use on the study site occurring during the spring. The Upper Bear Valley site is located within the USFS Red Creek Cattle Allotment. This area was grazed by sheep and cattle prior to 1940. Since then, cattle have used the area exclusively. A deferred-rotation grazing system is used to manage livestock on the allotment. The season of use is from 6/16 to 10/15. The Buckskin Valley site is located in the BLM administered Buckskin Mountain Allotment. The unit is grazed annually during the late spring by sheep and cattle. No grazing system is in use.

The active preference for livestock has been set at 582 AUMs.

Western Portion - Severe Winter Deer Range

The Swayback Knoll site lies within the BLM, Bone Hollow Cattle Allotment. Recently, a 3 pasture rotation system has been implemented on this unit. This is one of the few allotments in the area that permits winter grazing on crucial deer winter range. The Paragonah study site is in an unallotted area of BLM land. Use by cattle does occur since forage production has been enhanced by an old chaining and seeding project. No monitoring of livestock use is carried out by BLM on this area. The Cottonwood site is located in the same allotment as the Upper Bear Valley site. This site is located in a unit that is grazed during the spring in most years.

The Grass Valley study is located in the P-Hill Allotment and is used by cattle from spring to mid-summer. The allotment is used season-long on an annual basis with no provision for deferred or rested pastures. The Elliker Basin study is located on DWR land which was acquired by way of a trade from the BLM.

High Elevation - Summer Range

Cattle are managed on a deferred-rotation system in both allotments. The season of use runs from 7/6 to 9/20 on the Red Desert Allotment and from 6/1 to 10/15 in Little Valleys allotment. Suitable range appears to be twice as productive on the Little Valleys Allotment (5 acres/AUM) than on the Red Desert Allotment (11 acres/AUM). Asay Knoll, which was also suspended and replaced in 2003, occurs on the large Uinta Flat burn. It is located within the Buck Knoll pasture of the Asay Knoll Grazing Allotment. This area is allotted for 266 cattle for about one month beginning on June 16th. They are then moved to another pasture.

Herd Unit Management Objectives

The objective for this unit is to maintain winter deer herd size of 8,500 animals. Herd composition calls for 15 bucks/100 does with 30% of the bucks being 3-point or better. To achieve this level of harvest it will be necessary to maintain the amount of acreage providing severe winter deer range habitat on the west side of the unit (approximately 44,500 acres). As winter range habitat is lost to other land uses on private land, it will be necessary to increase the carrying capacity of key areas on public lands. Elk management objectives call for a target winter herd size of 900 animals with a bull to cow ratio of 20:100. At least half of the bulls are to be 2 ½ years of age or older. A more detailed discussion of deer and elk herd unit objectives can be found in the Division's big game management plans.

Trend Study Description

Range trend studies were initially established in 1987 and resurveyed in 1992, 1998, and 2003. Two additional studies were established in 1998 in the Sheep Hollow area south of Panguitch, and 5 studies were established in 2003 to replace 4 of the original trend studies that were suspended. 1 study, the South Summit WMA, was added in 2008.

SUMMARY

WILDLIFE MANAGEMENT UNIT 28 - PANGUITCH LAKE

Community Types

Fourteen trend studies were read in the Panguitch Lake unit in 2008. Three studies sampled higher elevation summer and summer/transitional range (28-16, 28-17, and 28-18). Six studies sampled winter range in mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*) communities (28-1, 28-3, 28-4, 28-8, 28-11, and 28-21), and two studies sampled Wyoming big sagebrush (*A. tridentata* ssp. *wyomingensis*) communities (28-5 and 28-6). Two studies sampled black sagebrush (*Artemisia nova*) and antelope bitterbrush (*Purshia tridentata*) mixed communities (28-14 and 28-15), and one study sampled a chained and seeded pinyon pine (*Pinus*

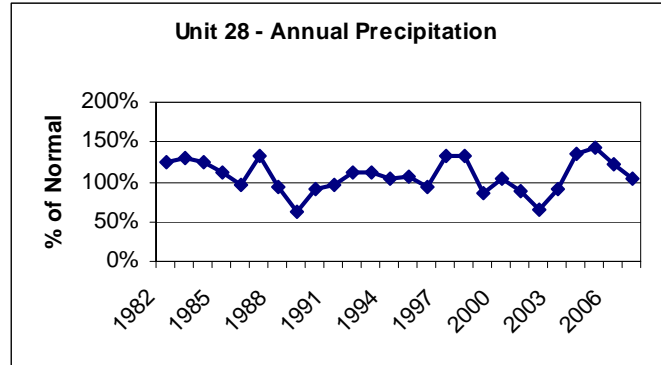


Figure 1. Annual average precipitation for unit 28, Panguitch Lake. Precipitation data were collected at the Hatch, Panguitch, Cedar City FAA Airport, and Circleville weather stations (Utah Climate Summaries 2008).

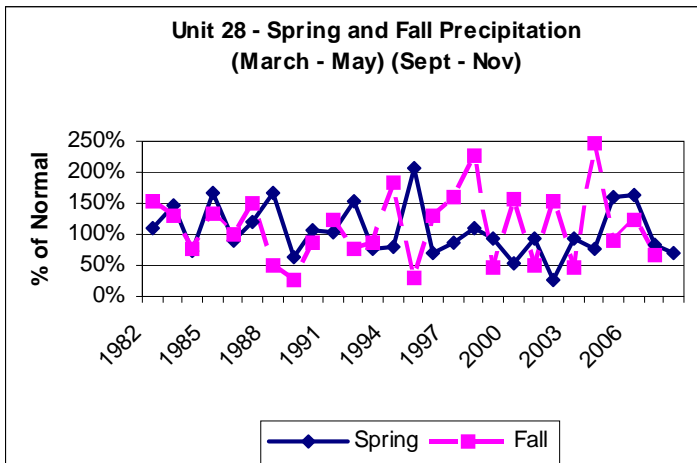


Figure 2. Annual average spring (March-May) and fall (Sept.-Nov.) precipitation for unit 28, Panguitch Lake. Precipitation data were collected at the Hatch, Panguitch, Cedar City FAA Airport, and Circleville weather stations (Utah Climate Summaries 2008).

was near or below 75% of normal in 1984, 1992, and 2007, near or below 50% in 1988, 1999, 2001, and 2003, and near or below 30% 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).

edulis) and Utah juniper (*Juniperus osteosperma*) community that is now a black sagebrush community (28-7).

Precipitation

Vegetation trends are dependent upon annual and seasonal precipitation patterns. Precipitation data from this herd unit were compiled from the Hatch, Panguitch, Cedar City FAA Airport, and Circleville weather stations and averaged since sampling began in 1982 (Figures 1 and 2). The units annual precipitation was below 75% of normal (drought conditions) in 1989 and 2002 (Figure 1). Spring precipitation for the unit was at or below 75% of normal in 1984, 1989, 1996, 2004, and 2008, near 50% of normal in 2000, and near 25% of normal in 2002 (Figure 2). Fall precipitation

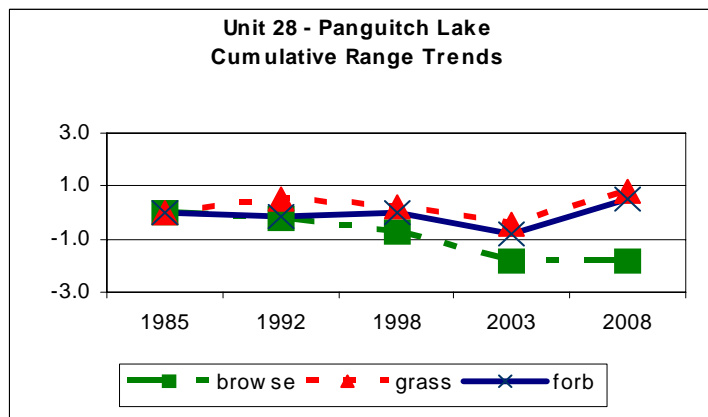


Figure 3. Cumulative range trends for unit 28, Panguitch Lake.

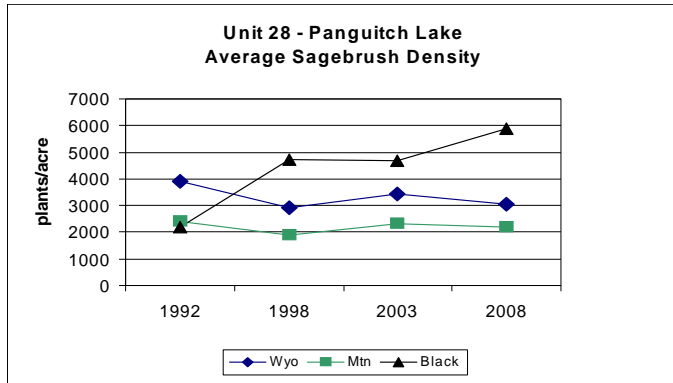


Figure 4. Average density of Wyoming big (Wyo), mountain big (Mtn), and black sagebrushes for unit 28, Panguitch Lake.

high of 2,418 plants/acre in 1992 and a low of 1,898 plants/acre in 1998 (Figure 4). Average cover of mountain big sagebrush increased slightly from 1992 to its high of 10% in 2003, but declined to just under 7% in 2008 (Figure 5). Average decadence of the population of mountain big sagebrush has fluctuated greatly declining from 1992 to 1998, before increasing to around 40% in 2003 and 2008 (Figure 6).

Black sagebrush was the next most common sagebrush species sampled on the management unit, sampled on Three Creeks, Paragonah, Sheep Hollow West, and Sheep Hollow East studies. Average density of black sagebrush increased markedly from 1992 to 1998, remained similar in 2003, then increased again to a high of 5,895 plants/acre in 2008 (Figure 4). Average cover of black sagebrush showed similar trends (Figure 5). Average decadence of black sagebrush increased slightly, but steadily, from 1992 before leveling off at a moderate level in 2003 and 2008 (Figure 6).

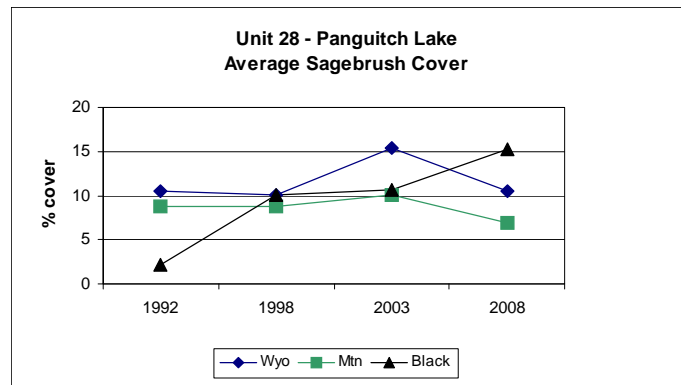


Figure 5. Average cover of Wyoming big (Wyo), mountain big (Mtn), and black sagebrushes for unit 28, Panguitch Lake.

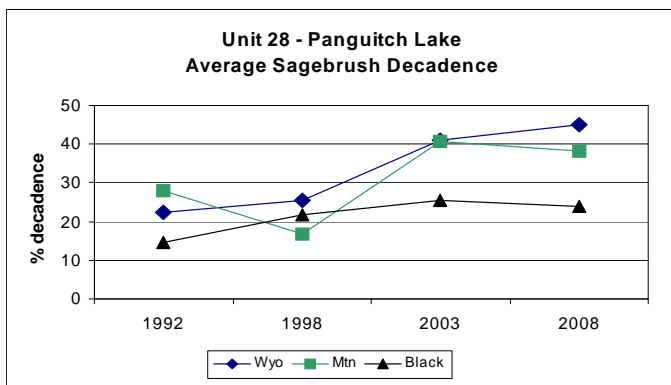


Figure 6. Average decadence of Wyoming big (Wyo), mountain big (Mtn), and black sagebrushes for unit 28, Panguitch Lake.

Wyoming big sagebrush was only sampled on two study sites, Swayback Knoll (28-5) and Cottonwood (28-6), but a summary average was still done for the species. Wyoming big sagebrush average density had its greatest decline from 1992 to 1998. Average density of Wyoming big sagebrush ranged from a high of 3,910 plants/acre in 1992 to a low of 2,900 plants/acre in 1998 (Figure 4). The average cover of Wyoming big sagebrush was around 10%-11% in all measured sample years except 2003 when it increased to around 16% (Figure 5). The average decadence of Wyoming big sagebrush has increased from a low of 23% in 1992 to a high of 45% in 2008, with the greatest increase between the 1998 and 2003 (Figure 6) sample years. Basin big sagebrush was sampled on four study sites, Three Creeks, Sheep Hollow West, Sheep Hollow East, and South Summit WMA, but was found at such low densities that a summary was not done on the species.

Browse

The cumulative trend for browse on the Panguitch Lake management unit declined steadily from 1985 to 2003, then stayed down but relatively similar in 2008 (Figure 3). Mountain big sagebrush was the most common sagebrush sampled in the unit and was sampled on the Three Creeks (28-1), Bear Valley (28-3), Buckskin Valley (28-4), Paragonah (28-7), Grass Valley (28-8), Elliker Basin (28-11), Sheep Hollow West (28-14), Sheep Hollow East (28-15), Asay Bench (28-16), and South Summit WMA (28-21) studies. Average density of mountain big sagebrush has only had minor fluctuations over the measured sample years with a

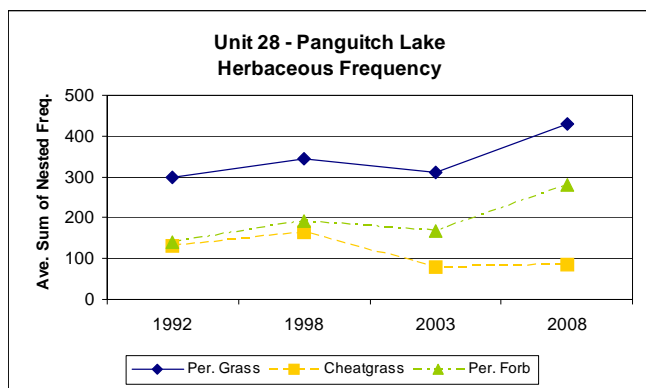


Figure 7. Average herbaceous sum of nested frequency for unit 28, Panguitch Lake.

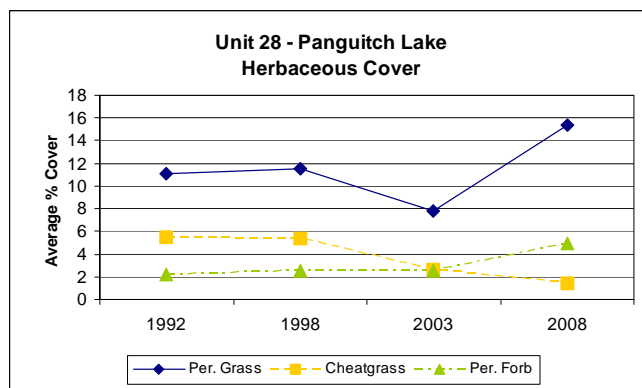


Figure 8. Average herbaceous cover for unit 28, Panguitch Lake.

Grass

The overall trends of grasses showed upward signs in 2008. The cumulative trend for grasses remained fairly constant from 1985 to 1998, declined slightly in 2003 likely due to drought conditions, then increased in 2008 (Figure 3). The average sum of nested frequency of perennial grasses was similar from 1992 to 2003, before increasing markedly in 2008. The average sum of nested frequency of cheatgrass increased to a high in 1998, but decreased in 2003, and stayed similar in 2008 (Figure 7). The trend of average cover for perennial grasses declined from 1998 to 2003, but showed a marked increase in 2008. Average cover of cheatgrass steadily declined from 1998 to 2008 (Figure 8). Bulbous bluegrass (*Poa bulbosa*), a short-lived perennial grass with a life cycle similar to that of cheatgrass, was sampled at a moderate frequency and cover on the Grass Valley study site, and limited frequency and cover on the Elliker Basin study site. For further details on this species refer to the discussion section.

Forb

The cumulative trend of forbs was similar to the grasses with the increases in the average sum of nested frequency and cover of perennial forbs in 2008 (Figure 3, Figure 7, and Figure 8).

Desirable Components Index

Four studies in this unit were considered to be in the low potential scale for the Desirable Components Index (DCI); Swayback Knoll, Cottonwood, Paragonah, and South Summit WMA. The average DCI of the low potential scale sites has remained fair over the sampled years (Figure 9). Eight study sites were considered to be in the mid-level potential scale for the DCI; Three Creeks, Bear Valley, Buckskin Valley, Grass Valley, Elliker Basin, Sheep Hollow West, Sheep Hollow East, and Asay Bench. The average DCI of the mid-level potential scale sites showed up and down fluctuations, likely due to precipitation patterns (Figure 9).

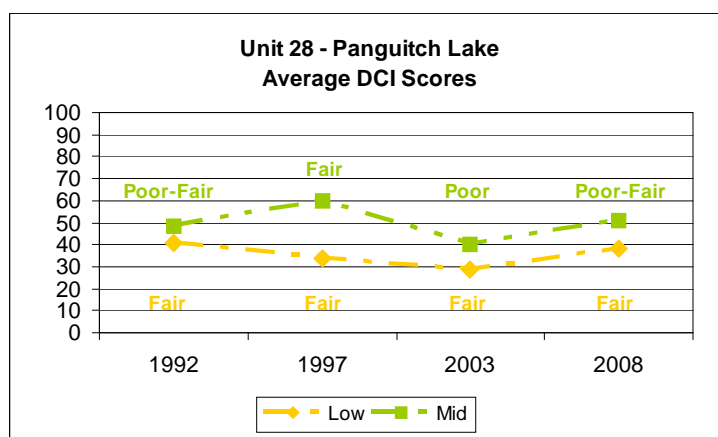


Figure 9. Unit 28, Panguitch Lake, desirable components index (DCI) scores by year. DCI scores are divided into three categories based on ecological potentials, which include low, mid-level, and high. No high potential sites are sampled on this unit.