

**DEER HERD UNIT MANAGEMENT PLAN**  
**Deer Herd Unit # 28**  
**(Panguitch Lake)**  
**May 2015**

**BOUNDARY DESCRIPTION**

**Garfield, Iron and Kane Counties** - Boundary begins SR-14 and US-89; north on US-89 to SR-20; west on SR-20 to I-15; south on I-15 to SR-14; east on SR-14 to US-89.

**LAND OWNERSHIP**

**RANGE AREA AND APPROXIMATE OWNERSHIP**

Ownership	YEARLONG RANGE		SUMMER RANGE		WINTER RANGE		TOTAL ACRES
	Area (acres)	%	Area (acres)	%	Area (acres)	%	
Forest Service	3210	25 %	246285	75%	35427	17%	284922
Bureau of Land Management	4732	37 %	4458	2%	105564	52%	114754
Utah State Institutional Trust Lands	1003	8 %	1708	0%	12271	6%	14982
Native American Trust Lands	0		0	0%	47	0%	47
Private	3667	29 %	63930	19%	43680	22%	111277
Department of Defense	0		0	0%	0	0%	0
USFS Wilderness	0		7082	2%	0	0%	7082
National Parks	0		6007	2%		0%	6007
Utah State Parks	0		0	0%	0	0%	0
Utah Division of Wildlife Resources	0		504	0%	5100	3%	5604
<b>TOTAL</b>	<b>12652</b>	<b>100%</b>	<b>329972</b>	<b>100%</b>	<b>202088</b>	<b>100%</b>	<b>544675</b>

## **UNIT MANAGEMENT GOALS**

- Manage for a population of healthy animals capable of providing a broad range of recreational opportunities, including hunting and viewing.
- Balance deer herd impacts on human needs, such as private property rights, agricultural crops and local economies.
- Maintain the population at a level that is within the long-term capability of the available habitat to support.
  
- **POPULATION MANAGEMENT OBJECTIVES**
  
- Target Winter Herd Size – Manage for a 5-year target population of 10,000 wintering deer (modeled number) during the five-year planning period unless range conditions become unsuitable, as evaluated by DWR. Range Trend data coupled with annual browse monitoring will be used to assess habitat condition. If habitat damage by deer is occurring due to inadequate habitat, measures will be taken to reduce the population to sustainable levels. Change to the population objective is based on this population’s performance, improved range conditions, the amount of available habitat and the lack of range damage from deer.
  
- Herd Composition – This is a General Season unit and will be managed to maintain a three year average postseason buck to doe ratio of 18-20 according to the statewide plan. This unit typically exceeds the 20 bucks per 100 doe threshold post season. It is a difficult unit to obtain a large enough sample size for this analysis. Caution will be use when adjusting permits and trends will be considered.
  
- Harvest – General Buck Deer hunt regulations, using archery, Rifle, and Muzzleloader hunts. Antlerless removal will be implemented to achieve the target population size using a variety of harvest methods and seasons. It is recognized that buck harvest may fluctuate due to climatic and productivity variables. Buck harvest strategies will be developed through the RAC and Wildlife Board process to achieve management objectives.

## **POPULATION MANAGEMENT STRATEGIES**

### **Monitoring**

- Population Size - Utilizing harvest data, postseason and spring classifications, and mortality estimates, a computer model has been developed to estimate winter population size. The 2014 model estimates the population at 11,700 deer.
  
- Buck Age Structure - Monitor age class structure of the buck population through the use of checking stations, postseason classification, statewide uniform harvest surveys and bag checks.
  
- Harvest - The primary means of monitoring harvest will be through the statewide harvest survey and the use of checking stations.

Year	Buck harvest	Post-Season F/100 doe	Post-Season B/100 doe	Post-Season Population	Objective	% of Objective
2012	1168	70	18.7	9,200	8,500	108.2
2013	1146	63	19.8	11,700	8,500	137.6
2014	1093	58	19.3	11,700	8,500	137.6
3 Year Avg	1135	63.6	19.3			

### **Limiting Factors** (May prevent achieving management objectives)

- **Crop Depredation** - Strategies will be implemented to mitigate crop depredation as prescribed by state law and DWR policy.
- **Habitat** - At present, winter range is a limiting factor. Highway construction on the west side of the unit has limited the accessibility to winter range on the west side of I-15. This has created areas of heavy utilization and concentration north of Paragonah. Development has also reduced the amount of available winter range along the east side of I-15, especially in the Cedar City area. Excessive habitat utilization will be addressed through antlerless harvests and transplants from the unit.
- **Predation** - - Follow DWR predator management policy:
  - If the population estimate is less than 90% of objective and fawn to doe ratio drops below 70 for 2 of the last 3 years, or if the fawn survival rate drops below 50% for one year, then a Predator Management Plan targeting coyotes may be implemented.
  - If the population estimate is less than 90% of objective and the doe survival rate drops below 85% for 2 of the last 3 years or below 80% for one year, then a Predator Management Plan targeting cougar may be implemented.
- **Highway Mortality** - DWR will Cooperate with the Utah Dept. Of Transportation to construct highway fences, passage structures and warning signs etc if needed.
- **Illegal Harvest** - If illegal harvest is identified as a limiting factor, a unit specific action plan will be develop in cooperation with the Law Enforcement Section.

### **HABITAT MANAGEMENT OBJECTIVES**

- Maintain mule deer habitat throughout the unit by protecting and enhancing existing crucial habitats and mitigating for losses due to natural and human impacts.
- Seek cooperative projects to improve the quality and quantity of deer habitat.
- Provide improved habitat security and escapement opportunities for deer.

### **HABITAT MANAGEMENT STRATEGIES**

#### **Monitoring**

- Determine trends in habitat condition through permanent range trend studies, spring range assessments, pellet transects, and field inspections. Land management agencies will similarly conduct range monitoring to determine vegetative trends, utilization and possible forage conflicts.
- Range trend studies will be conducted by DWR to evaluate deer habitat health, trend, and carrying capacity using the deer winter range desirable component index (DCI) and other vegetation data. The DCI was created as an indicator of the general health of deer winter ranges. The index incorporates shrub cover, density and age composition as well as other key vegetation variables. Changes in DCI suggest changes in winter range capacity. However, the relationship between DCI and the changes in deer carrying capacity is difficult to quantify.

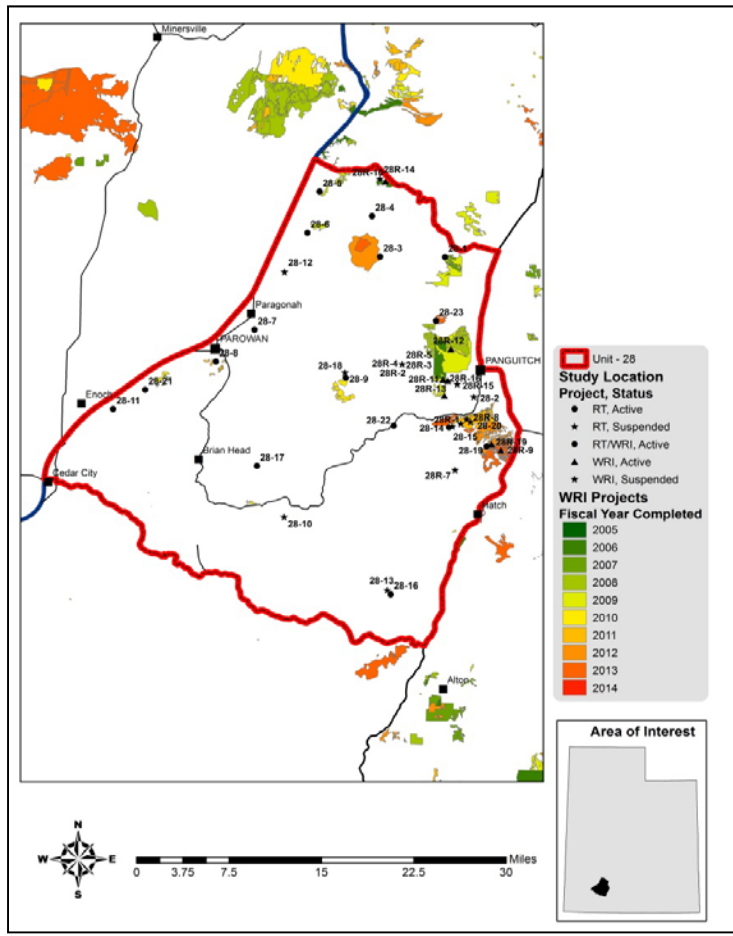
#### **Habitat Protection, Improvement and Maintenance**

- Work with public land management agencies to develop specific vegetative objectives to maintain the quality of important deer use areas.
- Continue to coordinate with land management agencies in planning and evaluating resource uses and developments that could impact habitat quality including but not limited to: oil and gas development, wind energy, solar energy, and transmission line construction.
- Coordinate with federal and state partners in designing projects that will improve fire resiliency and protect areas of crucial habitat.
- Work toward long-term habitat protection and preservation through agreements with land management agencies and local governments, the use of conservation easements, etc. on private lands and working toward blocking up UDWR properties through land exchanges with willing partners.
- Manage vehicle access on Division of Wildlife Resources land to limit disturbance critical times such as winter and fawning.
- Cooperate with federal land management agencies and private landowners in carrying out habitat improvement projects. Protect deer winter ranges from wildfire by reseeding wildfire areas, creating fuel breaks and vegetated green strips and reseed areas dominated by Cheatgrass with desirable perennial vegetation.
- Reduce expansion of Pinion-Juniper woodlands into sagebrush habitats and improve habitats dominated by Pinion-Juniper woodlands by completing habitat restoration projects.
- Cooperate with federal land management agencies and local governments in developing and administering access management plans for the purposes of habitat protection and to provide refuges.
- Future habitat work should be concentrated on the following areas.
  - Continue to reduce Pinyon and Juniper encroaching into shrubland, specifically in South Canyon, Five Mile Hollow, Buckskin Valley, Bear Valley and other areas within critical winter range.
  - Seek opportunities on reduce annual grasses and reestablish native perennial grasses, forbs and browse species in the Cottonwood, Swayback Knoll, and Buckskin Valley.
  - Seek opportunities to increase browse and perennial forbs in areas of critical winter range through mechanical treatment and reseeding

#### Treatments and Restoration Work

There has been an active effort to address many of the limitations on this unit through the Watershed Restoration Initiative (WRI). A total of 26,006 acres of land have been treated within the Panguitch Lake unit since the WRI was implemented in 2004. Treatments frequently overlap one another bringing the total treatment acres to 34,263 acres for this unit. Other treatments have occurred outside of the WRI through independent agencies and landowners, but the WRI comprises the majority of work done on deer winter ranges throughout the state of Utah.

Treatments to reduce pinyon-juniper woodlands such as bullhog, chaining, prescribed fire, and lop-and-scatter are among the most common management practices. The use of seeding to supplement the herbaceous understory is also very common. Other common management practices are those to rejuvenate sagebrush stands such as chaining, mowing, and harrow treatments.

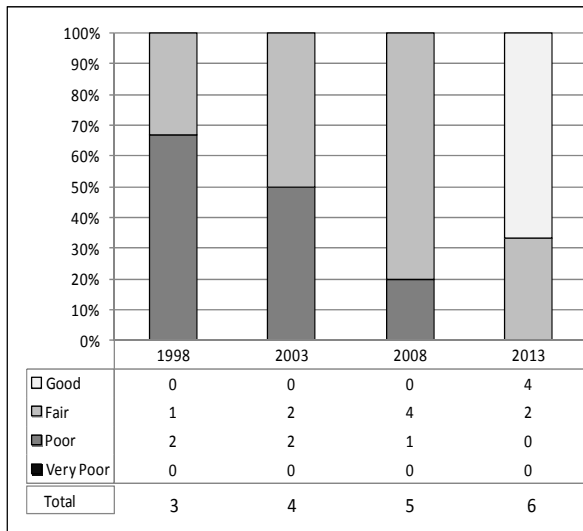


Treatment Action	Acres
Seeding (primary)	8,865
Chaining	940
Prescribed Fire	3,527
Bullhog	7,583
Mow	985
Harrow	1,942
Lop and Scatter	10,419
<b>*Total Land Area Treated</b>	<b>26,006</b>
<b>Total Treatment Acres</b>	<b>34,263</b>

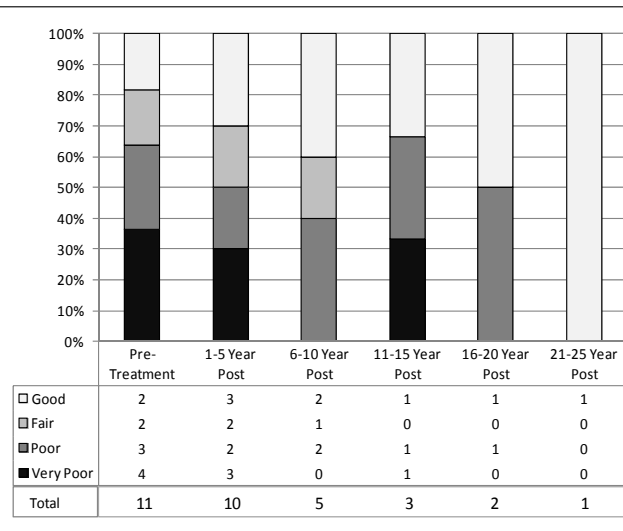
## PERMANENT RANGE TREND SUMMARIES

### Unit 28 Panguitch Lake

The condition of deer winter range within the Panguitch Lake management unit has generally improved on the study sites sampled since 1998. The majority of the undisturbed sites sampled within the unit are considered to be in poor to fair condition with the exception of the most current sample data in which the sites are considered to be in fair to good condition (Figure ). The treated study sites are more variable due in part to the steady decrease in sites included in the figure as time since treatment increases (Figure). There are three studies, Swayback Knoll, Threemile Creek, and Panguitch Creek that were in very poor condition at the last reading. Both Panguitch Creek and Threemile Creek were treated with a bullhog and chain, respectively, and have low browse and herbaceous cover. Panguitch Creek was in very poor condition pretreatment and has remained even after treatment; there is no pretreatment data for Threemile Creek. Swayback Knoll experienced a fire and went from fair to very poor due to a drastic reduction in browse cover as well as an increase in annual grass cover.



**Figure 7.38** Deer winter range Desirable Components Index (DCI) summary by year of undisturbed sites for WMU 28 Panguitch Lake.



**Figure 7.39** Deer winter range Desirable Components Index (DCI) summary by year of treated/disturbed sites for WMU 28, Panguitch Lake

The high elevation high mountain site supports a silver sagebrush community and is generally considered to be in good condition for deer and elk summer range. This community supports a diverse herbaceous understory that provides valuable forage during the summer months. When reseeding is necessary to restore herbaceous species, care should be taken in species selection and preference should be given to native grass species when possible.

The higher elevation upland and mountain sites, which support mountain big sagebrush communities, are generally considered to be in good condition for deer winter range habitat on this unit. These communities support robust shrub populations that provide valuable browse in mild and moderate winters. While in generally good condition, these sites appear to be prone to encroachment from pinyon-juniper trees, which can reduce understory shrub and herbaceous health if not addressed. It is recommended that work to reduce pinyon-juniper encroachment (e.g. bullhog, chaining, lop and scatter, etc.) should continue in these communities. When reseeding is necessary to restore herbaceous species, care should be taken in species selection and preference should be given to native grass species when possible.

The mid elevation upland site supports a pinyon-Utah juniper community and is generally considered to be in very poor condition for deer winter range habitat on this management unit. This community is dominated by pinyon and juniper trees that provide good cover, but offer little to no browse or forage opportunities. This community is prone to infilling from pinyon-juniper trees which can reduce understory shrub and herbaceous cover if not addressed. It is recommended that work to reduce pinyon-juniper cover (e.g. bullhog, chaining, lop and scatter, etc.) should continue in this community. Depending on initial tree cover and residual species, reseeding may be necessary to restore herbaceous understory.

The mid elevation upland Wyoming big sagebrush communities are generally considered to be in fair condition for deer winter range habitat on this unit. These communities support robust shrub populations that provide valuable browse in moderate to severe winters. These communities are prone to encroachment from pinyon-juniper trees, which can reduce understory shrub and herbaceous cover if not addressed. Also, introduced perennial grasses can dominant the herbaceous component on some of these study sites. It is recommended that work to reduce pinyon-juniper encroachment should continue

in these communities. Care should be taken in selecting treatment methods that will not increase annual grass loads. When reseeding is necessary to restore herbaceous species, care should be taken in species selection and preference should be given to native grass species when possible. Treatments to reduce annual grass may be necessary on some sites. Work to diminish fuel loads and create firebreaks should continue in order to reduce the threat of catastrophic fire.

The mid elevation upland black sagebrush communities are generally considered to be in good condition for deer winter range habitat on this unit. It is recommended that work to reduce pinyon-juniper encroachment should continue in these communities. Care should be taken in selecting treatment methods that will not increase annual grass loads. Work to diminish fuel loads and create firebreaks should continue in order to reduce the threat of catastrophic fire.

The lower elevation semidesert Wyoming big sagebrush community that has not been disturbed is generally considered to be in fair condition for deer winter range habitat on the unit. These communities are prone to wildfire and the study, which has burned since 1998, is in very poor condition. If wildfire occurs within these communities, they lose most of their value as deer winter range and reestablishment of valuable browse species is typically slow. These communities are susceptible to invasion from annual grass, primarily cheatgrass. Increased amounts of cheatgrass can increase fuel loads and increase the threat of wildfire on within these communities. Encroachment from pinyon-juniper trees is not typically an issue within these communities. Areas along I-15 maybe susceptible to heavy browsing due to I-15 limiting deer migration. It is recommended that work to diminish fuel loads and create firebreaks should continue within these communities in order to reduce the threat of catastrophic fire. Treatments to establish and increase browse species more rapidly following wildfire should also be implemented, and treatments to increase browse species on historic fires should be considered. If a treatment to rejuvenate sagebrush occurs, care should be taken in selecting treatment methods that will not increase annual grass loads. Treatments to reduce annual grass may be necessary on some sites.

The lower elevation semidesert basin big sagebrush community has not been disturbed is generally considered to be in good condition for deer winter range habitat on the unit. However, this community is prone to wildfire. If wildfire occurs within this community, they lose most of their value as deer winter range and reestablishment of valuable browse species is typically slow. This community is susceptible to invasion from annual grass, primarily cheatgrass. Increased amounts of cheatgrass can increase fuel loads and increase the threat of wildfire on within this community. Encroachment from pinyon-juniper trees is not typically an issue within this community.

It is recommended that work to diminish fuel loads and create firebreaks should continue within these communities in order to reduce the threat of catastrophic fire. Treatments to establish and increase browse species more rapidly following wildfire should also be implemented, and treatments to increase browse species on historic fires should be considered. If a treatment to rejuvenate sagebrush occurs, care should be taken in selecting treatment methods that will not increase annual grass loads. Treatments to reduce annual grass may be necessary on some sites.

## Precipitation

Vegetation trends are dependent upon annual and seasonal precipitation patterns. 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 South Central division (Division 4). The mean annual PDSI of the South Central division displayed years of moderate to extreme drought from 1989-1990, 2002-2003, and 2012-2013. The mean annual PDSI displayed years of moderate to extreme wet years from 1982-1985, 1997-1998, 2005, and 2011 (Figurea). The mean spring (March-May) PDSI displayed years of moderate to extreme drought in 1989-1990, 1996, 2002-2004, and 2013; and displayed years of moderate to extreme wet years in 1982-1985, 1993, 1995, 1999, 2001, 2005, and 2011. The mean fall (Sept.-Nov.) PDSI displayed years of moderate to extreme drought in 1989-1990, 2002-2003, 2007, 2009 and 2012; and displayed years of moderate to extreme wet years in 1982-1985, 1997-1998, 2008 and 2011 (Figureb) (Time Series Data 2014).

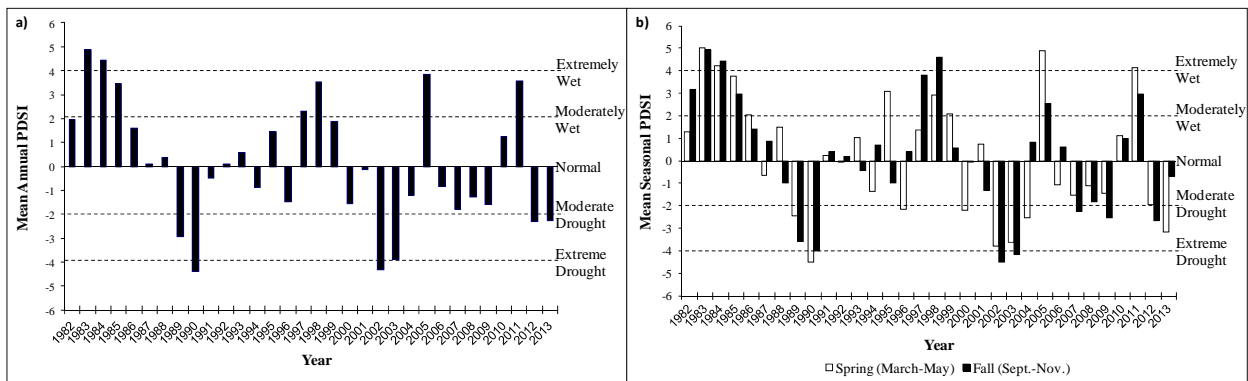


Figure 7.1: The 1982-2014 Palmer Drought Severity Index (PDSI) for the South Central division (Division 4). The PDSI is based on climate data gathered from 1895 to 2013. The PDSI uses a scale where 0 indicates normal, positive deviations indicate wet and negative deviations indicate drought. Classification of the scale is  $\geq 4.0$  = 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  $\leq -4.0$  = Extreme Drought (Time Series Data 2014). a) Mean annual PDSI. b) Mean spring (March-May) and fall (Sept.-Nov.).