

**DEER HERD UNIT MANAGEMENT PLAN**  
**Deer Herd Unit # 27**  
**Paunsaugunt**  
**2020**

**BOUNDARY DESCRIPTION**

**Garfield and Kane counties** - Boundary begins at US-89A and the Utah-Arizona state line; north on US-89A to US-89; north on US-89 to SR-12; east on SR-12 to the Paria River; south along the Paria River to the Utah-Arizona state line; west along this state line to US-89A.

**LAND OWNERSHIP**

**RANGE AREA AND APPROXIMATE OWNERSHIP**

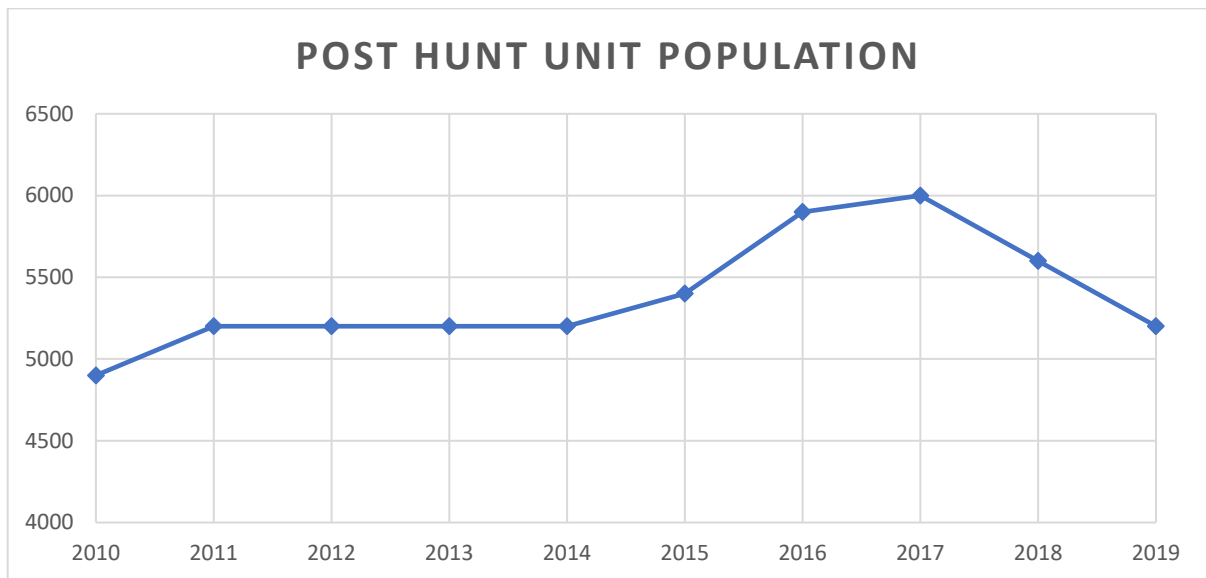
Ownership	YEARLONG RANGE		SUMMER RANGE		WINTER RANGE		TOTAL ACRES
	Area (acres)	%	Area (acres)	%	Area (acres)	%	
Forest Service	0	0%	122705	37%	8279	1%	130984
Bureau of Land Management	0	0%	76806	23%	502742	85%	579548
Utah State Institutional Trust Lands	0	0%	19551	6%	14011	2%	33562
Native American Trust Lands	0	0%	0	0%	0	0%	0
Private	0	0%	93122	28%	48189	8%	141311
Department of Defense	0	0%	0	0%	0	0%	0
USFWS Refuge	0	0%	0	0%	0	0%	0
National Parks	0	0%	17658	6%	15098	3%	32756
BLM Wilderness Area	0	0%	0	0%	3269	1%	3269
Utah Division of Wildlife Resources	0	0%	0	0%	0	0%	0
<b>TOTAL</b>	<b>0</b>	<b>0%</b>	<b>329841</b>	<b>100%</b>	<b>591587</b>	<b>100%</b>	<b>921430</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.
- Continue with limited entry hunting. Maintain cooperative DWR/landowner relationships, i.e. Paunsaugunt Landowners Association and Alton Cooperative Wildlife Management Unit.

## POPULATION MANAGEMENT OBJECTIVES

- Target Winter Herd Size - Manage for a 5-year target population of 6,500 wintering deer (modeled number) during the five-year planning period unless range conditions become unsuitable, as evaluated by DWR. There is no change from the 2015 plan. The 10-year average population estimate is 5,400. 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.
- Herd Composition - The Paunsaugunt unit will be managed for a post-season buck to doe ratio for a 3-year average of **40–55** bucks/100D does. Continue to provide management buck hunts to provide additional hunting opportunity with a minimum of 10 permits. The definition of a management buck on the Paunsaugunt will be consistent with the definition provided in the statewide plan for premium limited entry units.
- Buck Harvest - In accordance with the state-wide mule deer management plan, baseline premium limited entry permits for the public draw will be recommended at current levels (2019) on the Paunsaugunt. If <40% of the harvested bucks (3-year average) are 5 years of age or older, premium limited entry permits will be recommended to be reduced as needed to achieve objective. If >40% of harvested bucks (3-year average) are 5 years of age or older, premium limited entry permits will be recommended at the baseline number.
- If the 3-year average buck:doe ratio exceeds 50/100, management buck permits will be increased to bring the population back to objective within 3 years.
- Provide cactus buck hunting opportunities if needed.



## POPULATION MANAGEMENT STRATEGIES

### Monitoring

- Population Size - Herd composition and population size will be monitored through computer modeling using data collected during post-season classification, hunter check stations, and hunter harvest surveys.

- Buck Age Structure - The age class structure of the harvest will be monitored through the submission of an incisor (tooth) from each buck harvested on the unit. Additional data on the age class structure of the population may be obtained through post-season classification, uniform harvest surveys and field bag checks.
- Harvest - The primary means of monitoring harvest will be through the statewide mandatory harvest survey. Buck harvest strategies will be developed through the RAC and Wildlife Board process to achieve management objectives for buck: doe ratios and the age objective for premium limited entry units.
- On appropriate limited entry and premium limited entry units, provide a multi-season hunting opportunity that will allow 3% of the hunters to hunt all seasons for an increased fee. The permits this hunt will be removed from the any weapon quota.

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

- Crop Depredation -Take all steps necessary to minimize depredation as prescribed by state law and DWR policy.
- Habitat - Based on 2018 DWR range trend study data, the general condition of deer winter range on the Paunsaugunt unit continues to decline. Range condition on 10 of the 13 winter range sites was rated as either poor or very poor with only the higher elevation Moon landing and Heaton sites rating good or excellent. Range condition worsened on 6 sites between 2003 and 2018, with the Buckskin Mountain study showing the greatest decline resulting from loss of sagebrush combined with an increasing amount of annuals such as cheatgrass. Range condition did improve slightly on two winter range study sites: Nephi Pasture I, and Five-mile Mountain. The Moon Landing and Heaton studies also showed improvement, but these sites are more characteristic of higher elevation transitional range.
- Predation - Follow DWR predator management policy.
  - Predator management may be conducted with assistance from USDA/Wildlife Services. To be most effective, control efforts should generally occur during and immediately prior to the fawning period.
  - Public hunting will be the primary means of managing cougar numbers on the Paunsaugunt unit. Harvest recommendations for cougar will be designed to benefit deer while maintaining the cougar as a valued resource in its own right.
- Highway Mortality - Continue to work with the Utah Department of Transportation in construction of highway fences, passage structures and warning signs etc.
  - In 2013 Utah Department of Transportation and Utah Division of Wildlife Resources worked together with multiple partners to create 12.5 miles of wildlife exclusion fencing (8 feet tall) from mile posts 36 in the east to 48.6 in the west, and three new wildlife crossing culverts along US 89 in the Grand Staircase Escalante National Monument. The goal of the project was to funnel the Paunsaugunt mule deer herd through these three new culverts and three existing culverts and one bridge in their movements north and south, and thus reduce mule deer-vehicle collisions along this stretch of road. A significant reduction in highway mortalities have been observed since the fence and crossings were installed.

Additionally, multiple illuminated warning signs have been placed along US89 in Garfield and Kane Counties.
- Illegal Harvest - If illegal harvest is identified as a significant source of mortality, an attempt to develop specific preventive measures within the context of an action plan will be developed in cooperation with the Law Enforcement Section.

- Cooperative Management - Approximately 25-30% of deer that summer on the Paunsaugunt Unit migrate south across the Utah/Arizona border to winter in Arizona. Continue cooperative program with Arizona Game and Fish Department for mutual harvest objectives.

### **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. The relationship between DCI and the changes in deer carrying capacity is difficult to quantify and is not known.

#### **Habitat Protection 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.
- Work toward long-term habitat protection and preservation through the use of agreements with land management agencies and local governments, and through the use of conservation easements, etc. on private lands.
- Work with land management agencies to evaluate and develop motorized travel plans to reduce disturbance during times of high stress, such as winter and fawning.

#### **Habitat Improvement**

- 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 Pinyon-Juniper woodlands into sagebrush habitats and improve habitats dominated by Pinyon-Juniper woodlands by completing habitat restoration projects like lop & scatter, bullhog, and chaining.
- Cooperate with federal land management agencies and private land owners in carrying out aspen

regeneration and habitat improvement project.

- Cooperate with federal land management agencies and local governments in developing and administering access management plans for the purposes of habitat protection and escape or security areas.
- Future habitat work should be concentrated on the following areas.
  - Continue to reduce Pinyon and Juniper encroaching into shrubland, specifically on Hatch Bench, Buckskin, Kanab Ceek, Thompson creek and other areas in critical winter range.
  - Seek opportunities within upper elevation aspen habitats to remove encroaching conifer and implement aspen rejuvenation projects.
  - Seek opportunities to increase browse, perennial grasses and forbs and reduce annual invasive grasses in areas of critical winter; specifically on the Buckskin.

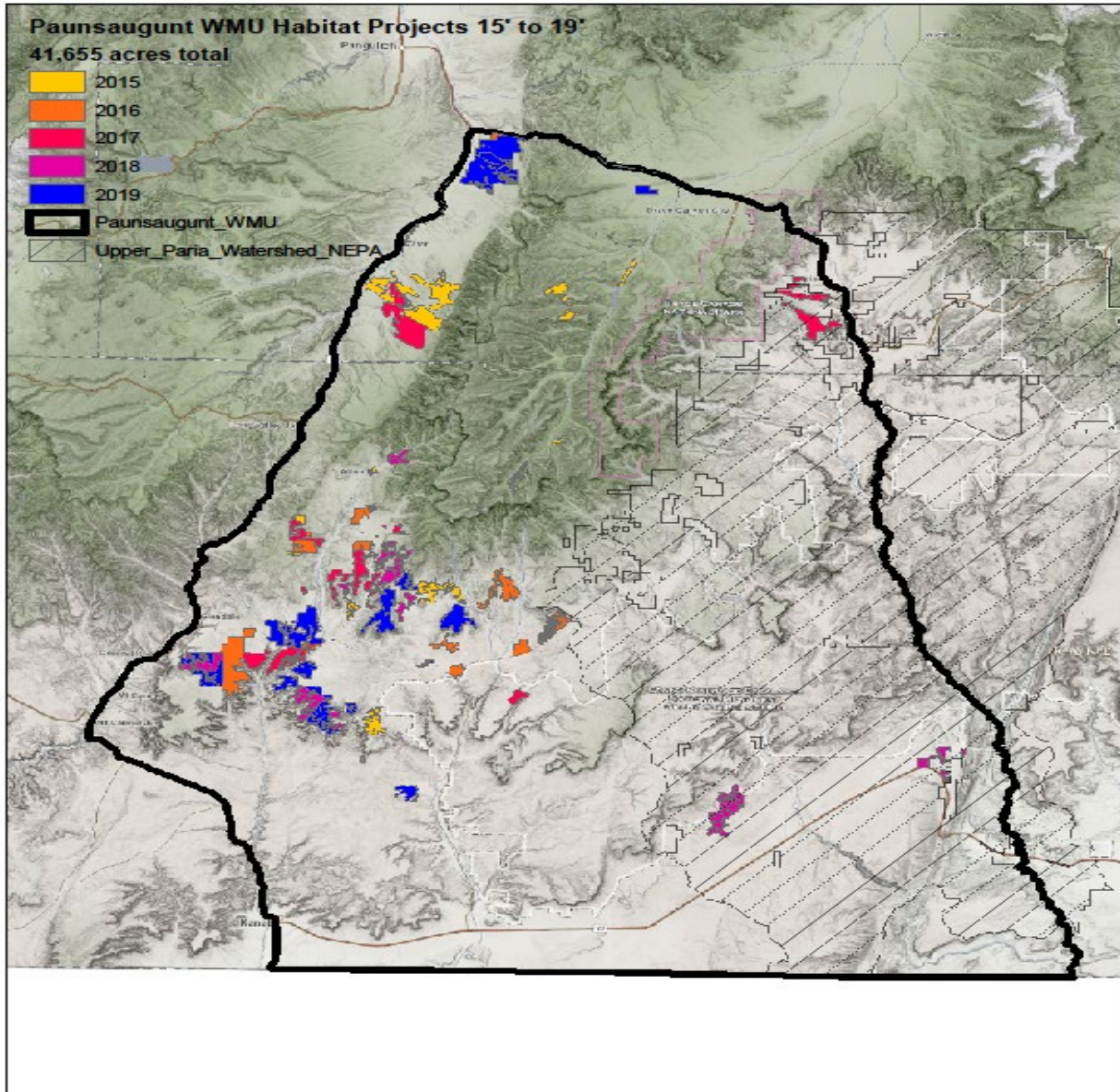
### **Treatments and Restoration Work**

There has been an active effort to address many of the limitations on this unit through the Watershed Restoration Initiative (WRI). A total of 65,021 acres have been treated within the Paunsaugunt unit since the WRI was implemented in 2018. 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.

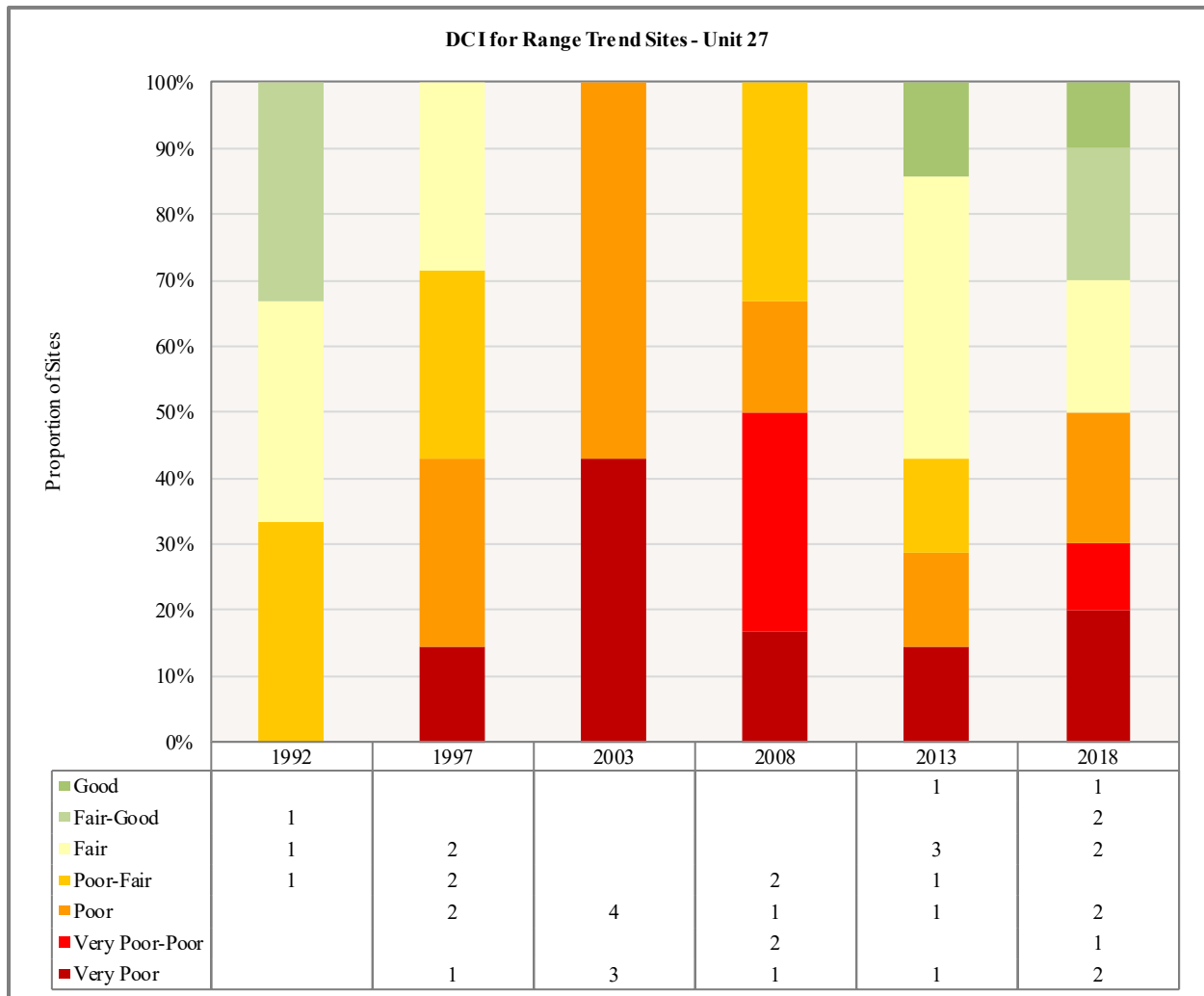
Type	Completed Acreage	Current Acreage	Pending Completed Acreage	Proposed Acreage	Total Acreage
<b>Anchor chain</b>	<b>12,312</b>	<b>1,566</b>	<b>0</b>	<b>0</b>	<b>13,878</b>
Ely (One-Way)	3,224	0	0	0	3,224
Ely (Two-Way)	8,790	1,566	0	0	10,356
Smooth (Two-Way)	298	0	0	0	298
<b>Bulldozing</b>	<b>911</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>911</b>
Tree Push	911	0	0	0	911
<b>Bullhog</b>	<b>16,299</b>	<b>1,910</b>	<b>620</b>	<b>2,848</b>	<b>21,677</b>
Full Size	13,679	1,910	620	2,848	19,057
Skid Steer	2,620	0	0	0	2,620
<b>Chain Harrow</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>152</b>	<b>152</b>
≤15 ft. (Two-Way)	0	0	0	152	152
<b>Disc</b>	<b>1,834</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,834</b>
Plow (One-Way)	1,038	0	0	0	1,038
Off-set (Two-Way)	796	0	0	0	796
<b>Forestry Practices</b>	<b>68</b>	<b>2,205</b>	<b>0</b>	<b>0</b>	<b>2,273</b>
Coppice Cutting	0	264	0	0	264
Group Selection Cuts	24	255	0	0	279
Thinning (Commercial)	44	260	0	0	304
Thinning (Non-Commercial)	0	1,426	0	0	1,426
<b>Harrow</b>	<b>4,100</b>	<b>0</b>	<b>0</b>	<b>628</b>	<b>4,728</b>
≤15 ft. (One-Way)	3,588	0	0	628	4,216
≤15 ft. (Two-Way)	512	0	0	0	512
<b>Herbicide Application</b>	<b>14</b>	<b>0</b>	<b>0</b>	<b>237</b>	<b>251</b>
Ground	14	0	0	0	14
Aerial (Fixed-Wing)	0	0	0	237	237
<b>Mowing</b>	<b>1,609</b>	<b>357</b>	<b>0</b>	<b>94</b>	<b>2,060</b>
Brush Hog	0	0	0	23	23
Other	1,609	357	0	71	2,037
<b>Prescribed Fire</b>	<b>1,477</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,477</b>
<b>Seeding (Primary)</b>	<b>3,854</b>	<b>1,554</b>	<b>0</b>	<b>0</b>	<b>5,408</b>
Broadcast (Aerial-Fixed Wing)	2,396	1,291	0	0	3,687
Drill (Rangeland)	1,219	0	0	0	1,219
Ground (Mechanical Application)	220	263	0	0	483
Hand Seeding	19	0	0	0	19
<b>Seeding (Secondary/Shrub)</b>	<b>1,248</b>	<b>0</b>	<b>0</b>	<b>1,353</b>	<b>2,601</b>
Broadcast (Aerial-Fixed Wing)	90	0	0	0	90
Ground (Mechanical Application)	1,158	0	0	0	1,158
Hand Seeding	0	0	0	1,353	1,353
<b>Skid-Steer Mounted Tree Cutter</b>	<b>1,018</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,018</b>
Hydraulic Shears	1,018	0	0	0	1,018

<b>Vegetation Removal/Hand Crew</b>	<b>25,962</b>	<b>3,764</b>	<b>0</b>	<b>7,793</b>	<b>37,519</b>
Lop & Scatter	25,320	3,764	0	7,793	36,877
Lop-Pile-Burn	642	0	0	0	642
<b>Other</b>	<b>482</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>482</b>
Road Decommissioning	482	0	0	0	482
<b>Grand Total</b>	<b>71,188</b>	<b>11,356</b>	<b>620</b>	<b>13,105</b>	<b>96,269</b>
<b>* Total Land Area Treated</b>	<b>59,562</b>	<b>11,119</b>	<b>620</b>	<b>13,089</b>	<b>84,390</b>

Table 6.7



**PERMANENT RANGE TREND SUMMARIES**



**Unit 27 Paunsaugunt**

The condition of deer winter range within the Paunsaugunt management unit has generally decreased from 1997/98-2008, but improved in 2013. The majority of sites sampled within the unit are considered to be in fair to good condition based on the most current sample data, and the proportion of sites classified as being in poor or very poor condition has decreased since 2008 (see figures below). The two undisturbed studies that are currently considered to be in poor condition are the Nephi Pasture Total Exclosure and Mustang Pond studies, which have a marginal herbaceous understory, but have fair browse components. The condition of disturbed and treated sites typically improves with increased time after disturbance on this unit with the exception of sites, which burned in wildfire. The majority of disturbed or treated study sites ranked as being in poor or very poor condition 1-5 years after disturbance are those burned by wildfire or had depleted shrub understory. These study sites generally are still lacking in available browse species

The high elevation aspen site, which was established to monitor an aspen improvement project, is in poor condition. Even though only one site monitors this community type, it has been observed that conifer encroachment is affecting the aspen community on the Paunsaugunt Plateau with aspen being severely encroached. The herbaceous and shrub layers are in poor condition and provide little cover. It is recommended that work to remove conifer from aspen stand should continue in these communities.

The higher elevation mountain sites, which support basin big sagebrush communities, are generally considered to be in good condition for deer winter range habitat on the Paunsaugunt management unit. This community support robust shrub population that provide valuable browse in mild winters, and good herbaceous and browse community during transitional and summer months. While in generally good condition, these sites appear to be prone to encroachment from pinyon and 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.

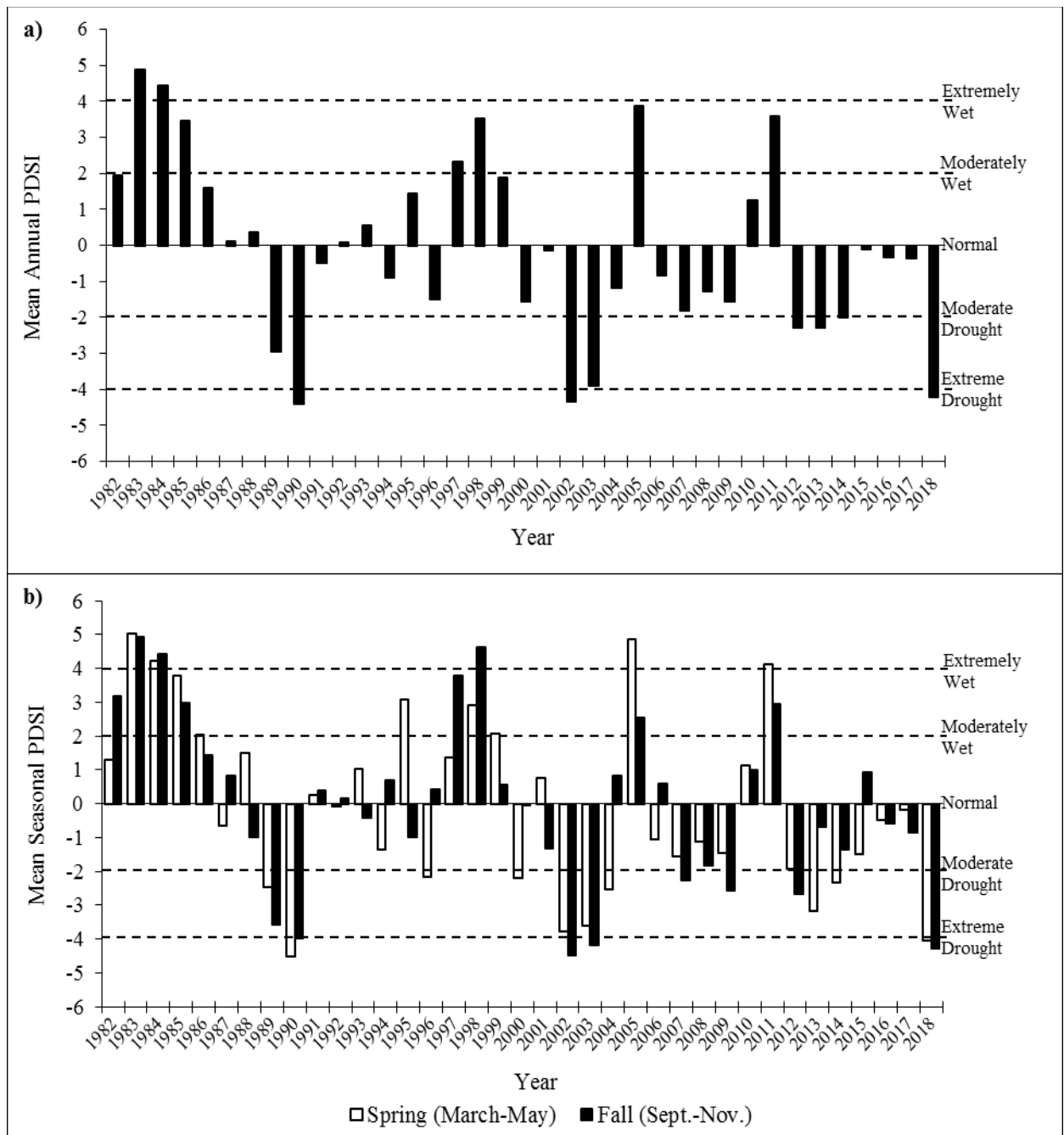
The mid elevation sites which support basin big sagebrush communities are generally considered to be in good condition for deer winter range habitat on the Paunsaugunt management unit. These communities support robust shrub populations that provide valuable browse in mild and moderate winters. While in generally good condition, these sites appear to be prone to encroachment from pinyon-juniper trees. On many of these sites, pinyon and juniper have increased in cover and density over the sampled years. 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 The mid elevation upland cliffrose communities that have not been disturbed are generally considered to be in fair condition for deer winter range habitat on the unit. These communities support robust shrub populations that provide valuable browse in moderate to severe winters. However, these communities are prone to wildfire and those studies, which have burned since 2006, are typically in poor to very poor condition. If wildfires occur 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 prone to encroachment from pinyon-juniper trees, which can reduce understory shrub and herbaceous health if not addressed. Annual grass, primarily cheatgrass, can also be an issue within these communities. Increased amounts of cheatgrass can increase fuel loads and increase the threat of wildfire within these communities. 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. 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 lower elevation semidesert Wyoming big sagebrush and black sagebrush communities are generally considered to be in fair condition for deer winter range habitat on the unit. These communities support robust shrub populations that provide valuable browse in moderate to severe winters. However, these communities are prone to wildfire and if wildfires occur 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. These communities are prone to encroachment from pinyon-juniper trees, which can reduce understory shrub and herbaceous health if not addressed. 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.

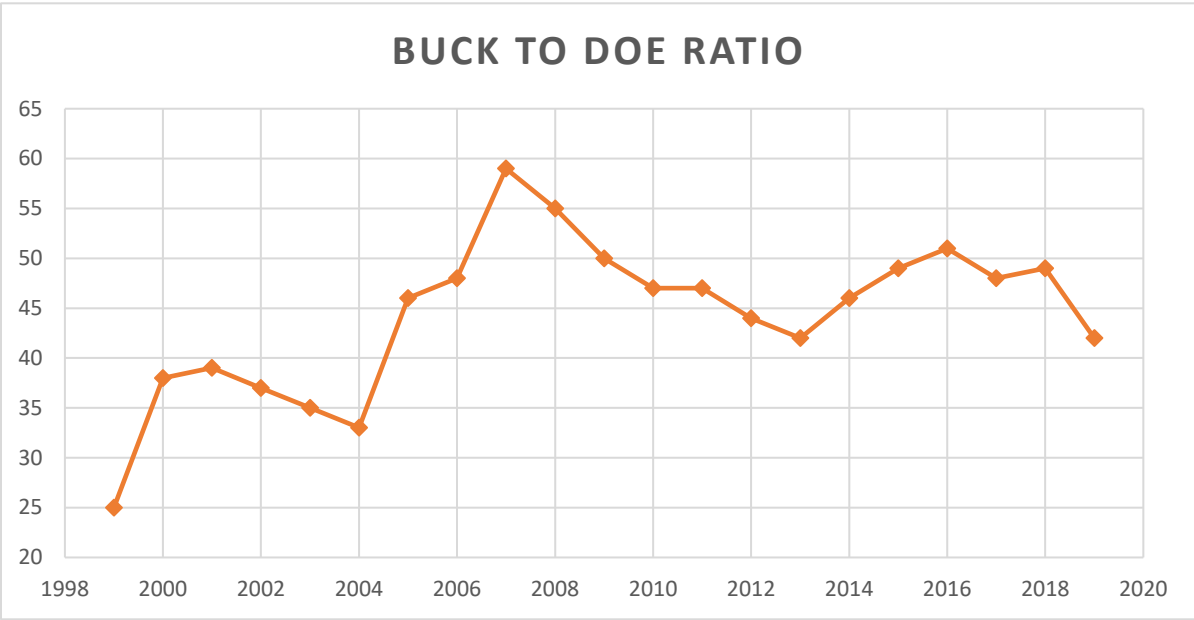
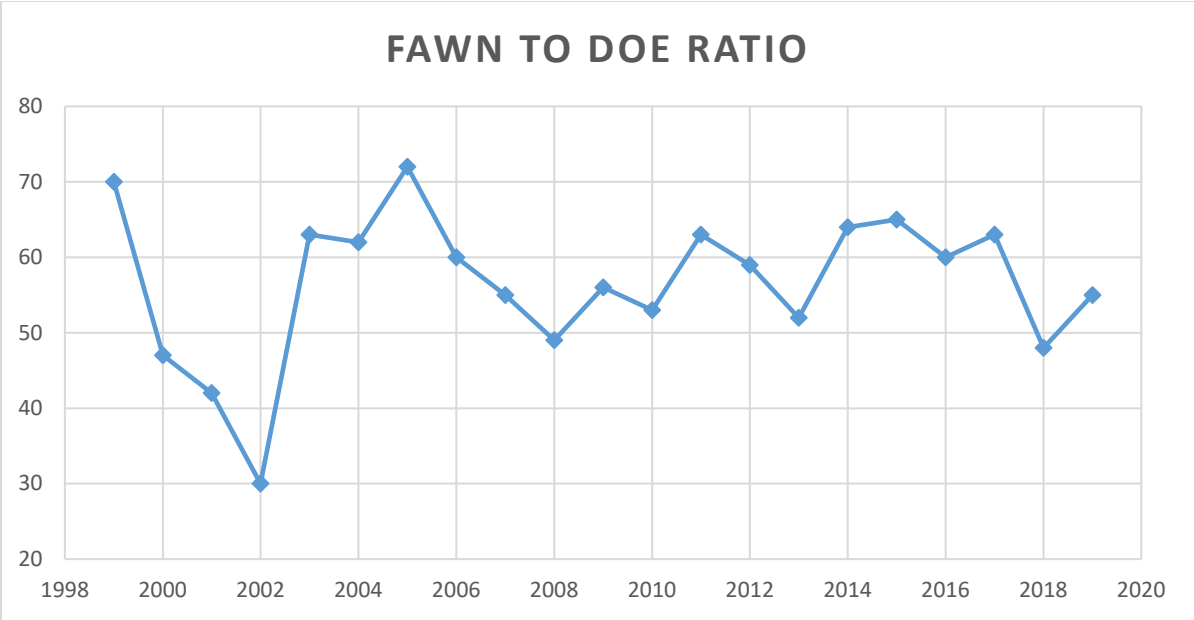
### **Precipitation**

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 2012-2020. The mean annual PDSI displayed years of moderate to extreme wet years from 1982-1985, 1997-1998, 2005, and 2011 (Figure 6.1a). 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 (Figure 6.1b) (Time Series Data, 2018)





**Figure 6.1:** The 1982-2018 Palmer Drought Severity Index (PDSI) for the South Central division (Division 4). The PDSI is based on climate data gathered from 1895 to 2018. 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. a) Mean annual PDSI. b) Mean spring (March-May) and fall (Sept.-Nov.) (Time Series Data, 2019).



**Duration of Plan**

This unit management plan was approved by the Wildlife Board on \_\_\_\_\_ and will be in effect for five years from that date, or until amended.