

DEER HERD UNIT MANAGEMENT PLAN
Deer Herd Unit # 28
Panguitch Lake
2020

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

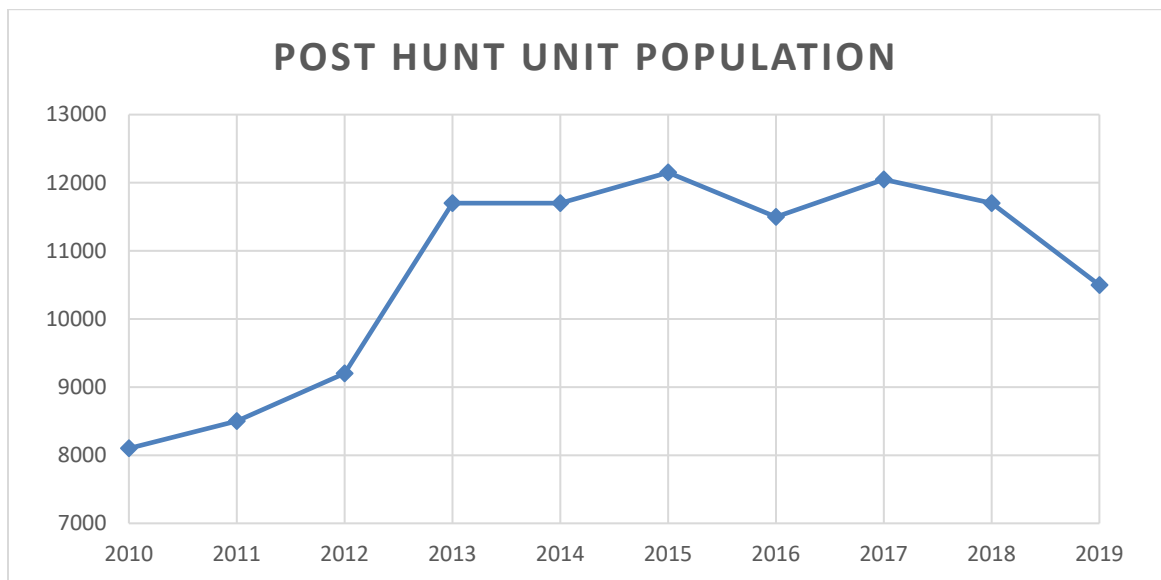
	YEARLONG RANGE		SUMMER RANGE		WINTER RANGE		TOTAL ACRES
	Area (acres)	%	Area (acres)	%	Area (acres)	%	
Ownership							
Forest Service	3210	25 %	246285	75%	35427	17%	284922
Bureau of Land Management	4732	37 %	4458	2%	105564	52%	114754
Utah State Institutional Trust Lands	1003	8 %	1708	0%	12271	6%	14982
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
TOTAL	12652	100%	329972	100%	202088	100%	544675

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 to review habitat boundaries and look for ways to improve boundaries that provide for better social and biological needs on the unit.

POPULATION MANAGEMENT OBJECTIVES

- 5 year Winter Herd Size – Manage for a 5-year target population of 11,000 wintering deer during the five-year planning period unless range conditions become unsuitable, as evaluated by DWR. This is an increase from the 2015 plan, which was 10,000. The 10-year average population estimate is 10,700. 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 – Managed to maintain a three year average postseason buck to doe ratio according to the statewide plan of **18-20** bucks per 100 does.
- Harvest – General season hunting will be used to maintain and work towards objectives on this unit. Hunting strategies will include 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.
- A Limited Entry muzzleloader hunt will also be offered on this unit in early November. Permits will be recommended up to 0.5% of the general-season draw permit total with a minimum of 5 permits on the unit.



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 2019 model estimates the population at 10,500.

- Buck Age Structure - Monitor age class structure of the buck population through the use of checking stations, postseason classification, uniform harvest surveys and field bag checks.
- Harvest - The primary means of monitoring harvest will be through the statewide uniform harvest survey, checking stations, and field bag checks. Achieve the target population size by use of antlerless harvest using a variety of harvest methods and seasons. Recognize that buck harvest will be above or below what is expected due to climatic and productivity variables. Buck harvest strategies will be developed through the RAC and Wildlife Board process to achieve management objectives for buck: doe ratios
- **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 - 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.
 - Highway Mortality - Cooperate with the Utah Department of Transportation (UDOT) in construction of highway fences, passage structures, warning signs, etc.
 - 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.

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.
- Work with federal and state partners in fire rehabilitation and prevention on crucial deer habitat through the WRI process

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 local governments in developing and administering travel 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 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

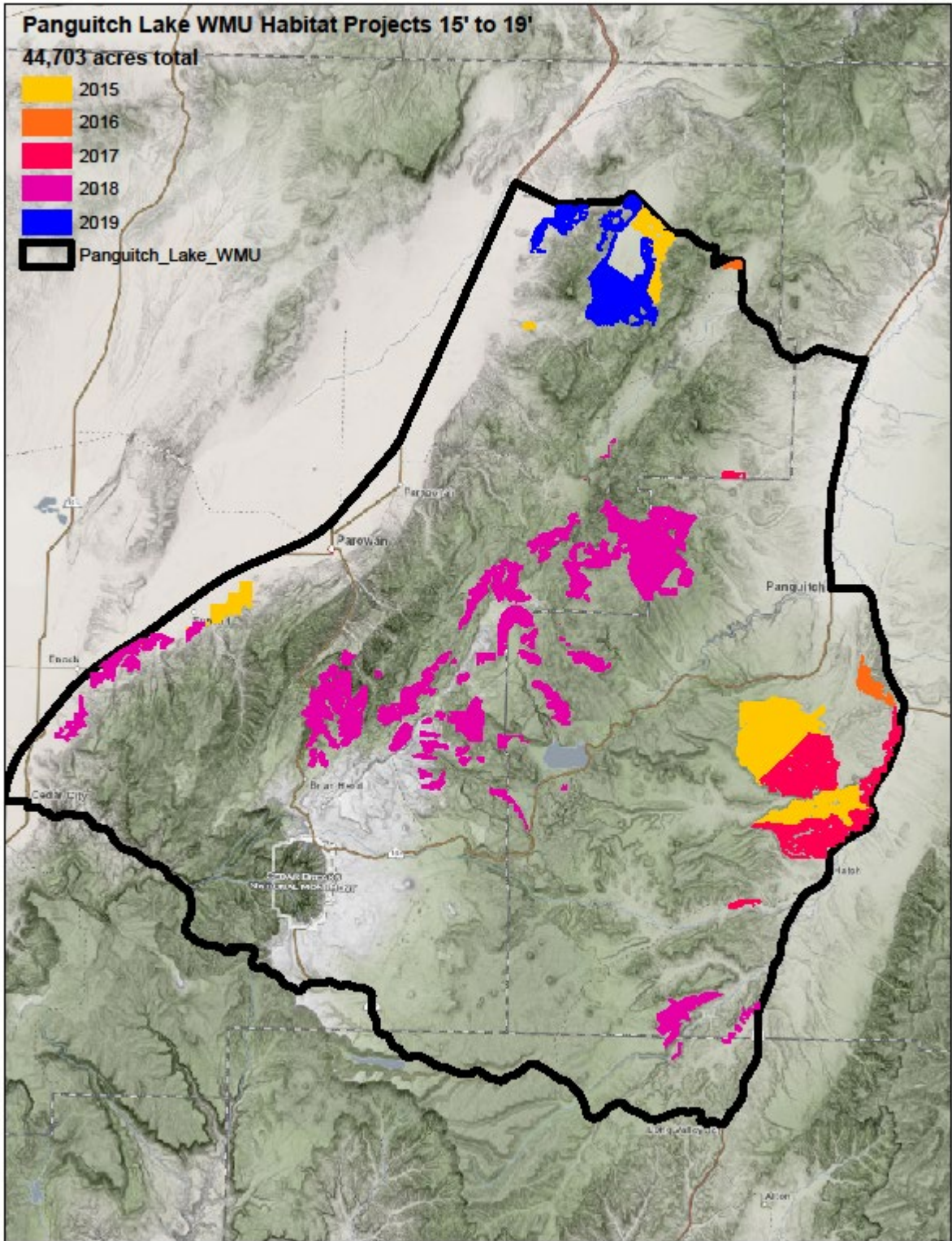
Treatments and Restoration Work

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 2018. Treatments frequently overlap one another bringing the total treatment acres to 77,476 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.

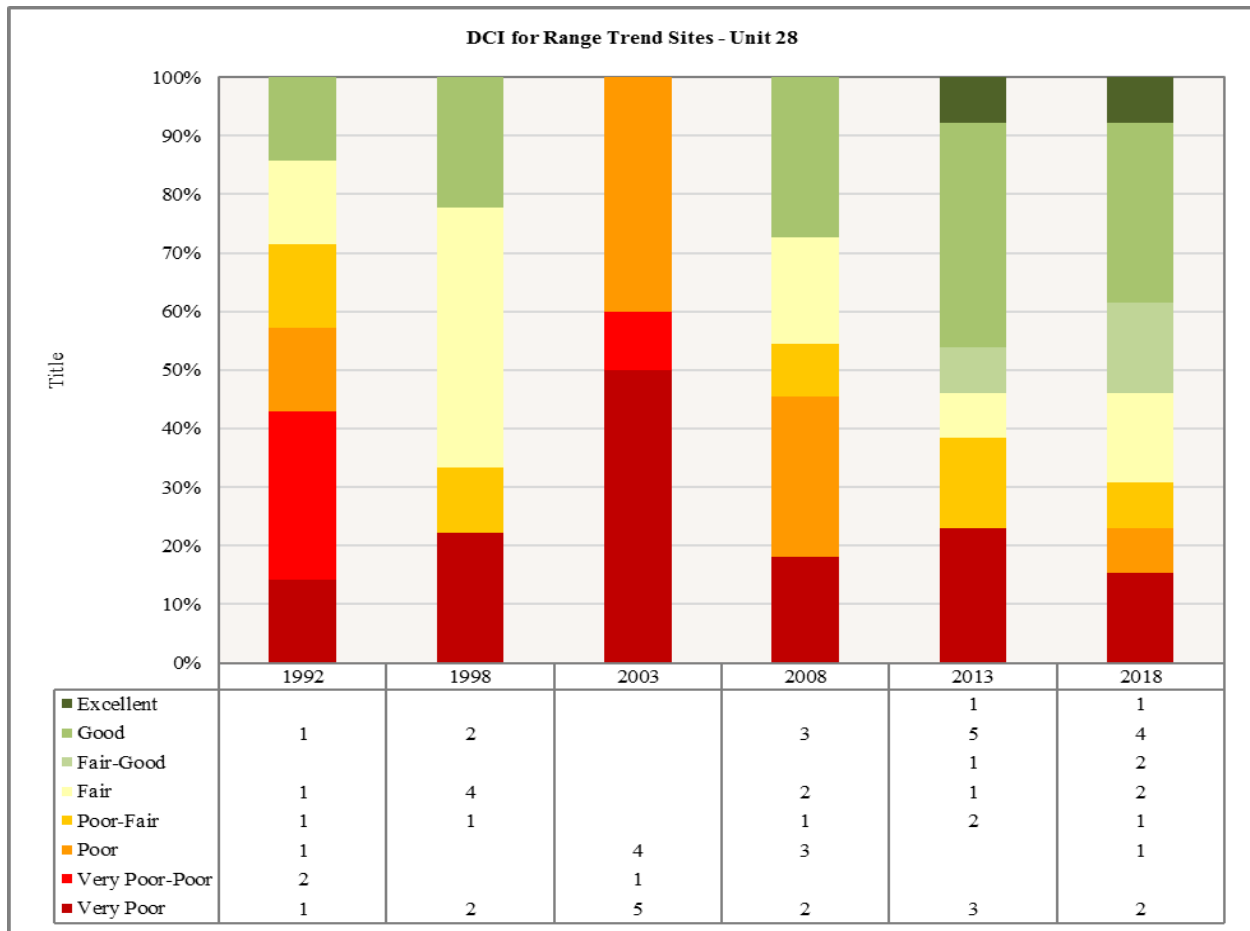
Treatments to reduce pinyon-juniper woodlands such as bullhog, chaining, prescribed fire, and lop-and-scatter are among the most common management practices. The use of seeding to supplement the herbaceous understory is also very common. Other common management practices are those to rejuvenate sagebrush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

Type	Completed Acreage	Current Acreage	Pending Completed Acreage	Proposed Acreage	Total Acreage
Anchor Chain	608	2,080	0	0	2,688
Ely (One-Way)	332	0	0	0	332
Ely (Two-Way)	276	2,080	0	0	2,356
Bullhog	15,738	2,085	0	1,690	19,513
Full size	14,083	1,928	0	1,690	17,701
Skid steer	1,655	157	0	0	1,812
Forestry practices	0	0	0	193	193
Thinning (commercial)	0	0	0	193	193
Harrow	1,380	0	0	0	1,380
≤15 ft. (One-Way)	456	0	0	0	456
≤15 ft. (Two-Way)	270	0	0	0	270
> 15 ft. (One-Way)	572	0	0	0	572
> 15 ft. (Two-Way)	82	0	0	0	82
Mowing	1,238	0	0	0	1,238
Brush Hog	1,112	0	0	0	1,112
Other	126	0	0	0	126
Prescribed Fire	3,528	0	0	0	3,528
Pile Burn	3,528	0	0	0	3,528
Seeding (Primary)	1,925	0	15,265	213	17,403
Broadcast (Aerial-Fixed Wing)	1,103	0	15,265	213	16,581
Broadcast (Aerial-Helicopter)	301	0	0	0	301
Drill (Rangeland)	21	0	0	0	21
Ground (Mechanical Application)	457	0	0	0	457
Hand Seeding	43	0	0	0	43
Seeding (Secondary/Shrub)	344	0	0	68	412
Hand Seeding	344	0	0	68	412
Vegetation Removal/Hand Crew	24,091	7,288	0	2,760	34,139
Lop & Scatter	23,990	7,183	0	1,906	33,079
Lop-Pile-Burn	101	105	0	854	1,060
Other	0	28	0	0	28
Road Decommissioning	0	28	0	0	28
Grand Total	48,852	11,480	15,265	4,924	80,521
* Total Land Area Treated	43,308	11,480	14,776	4,912	74,476

Table 7.1: WRI treatment action size (acres) for completed, current, and proposed projects for WMU 28, Panguitch Lake. Data accessed on 02/18/2019. *Does not include overlapping treatments.



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. 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. 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.

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 2012-2020. The mean annual PDSI displayed years of moderate to extreme wet years from 1982-1985, 1997-1998, 2005, and 2011 (Figure 7.1a). 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 7.1b) (Time Series Data 2018).

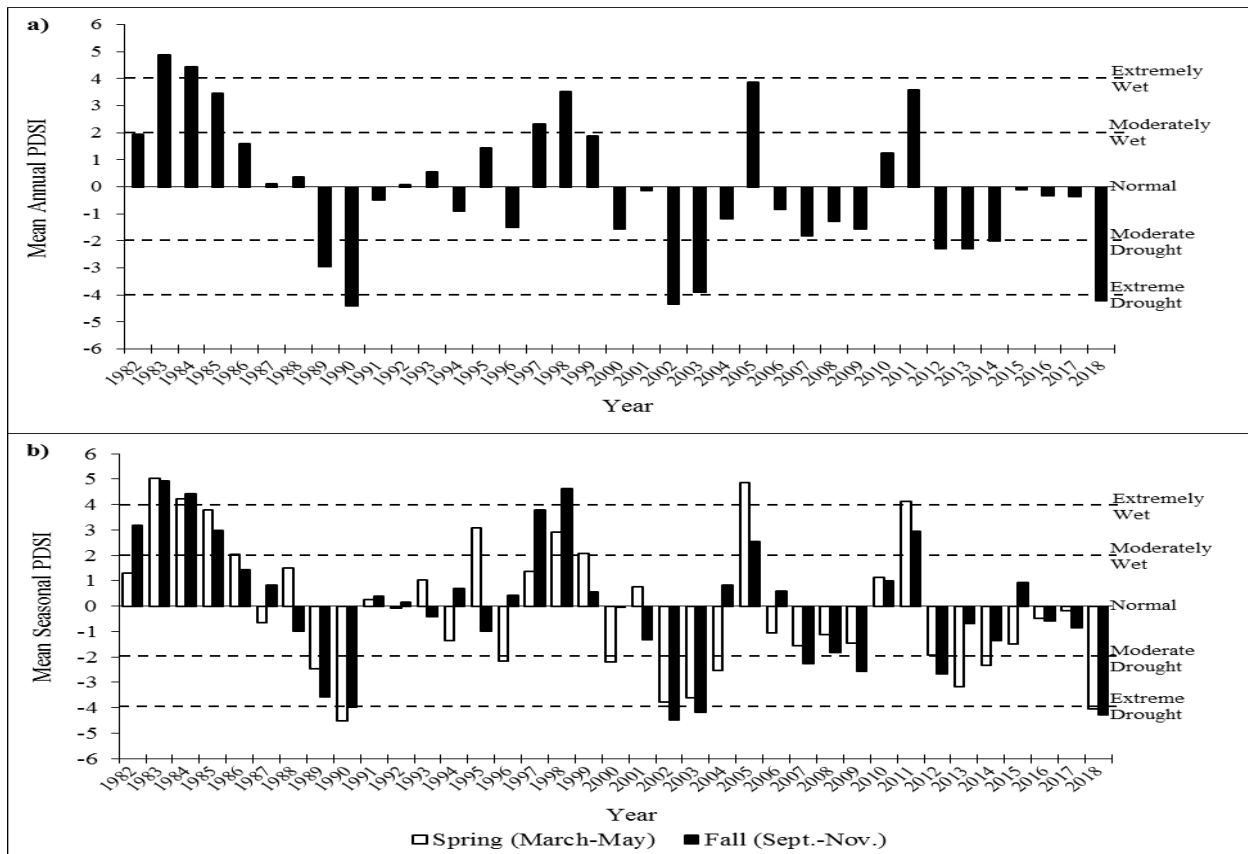
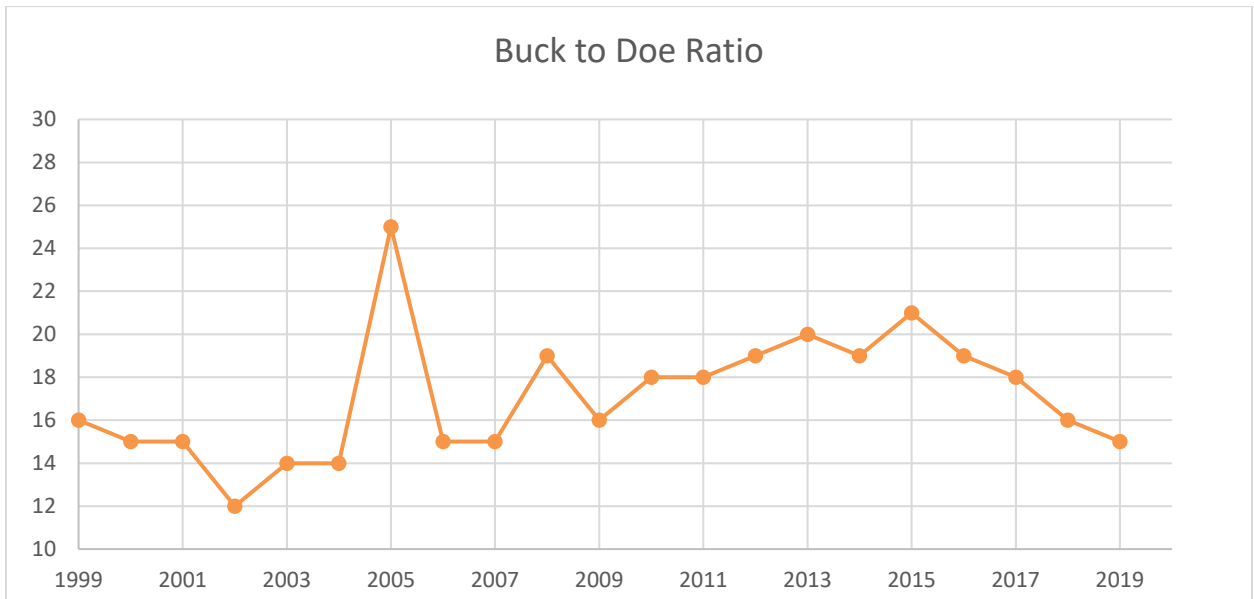
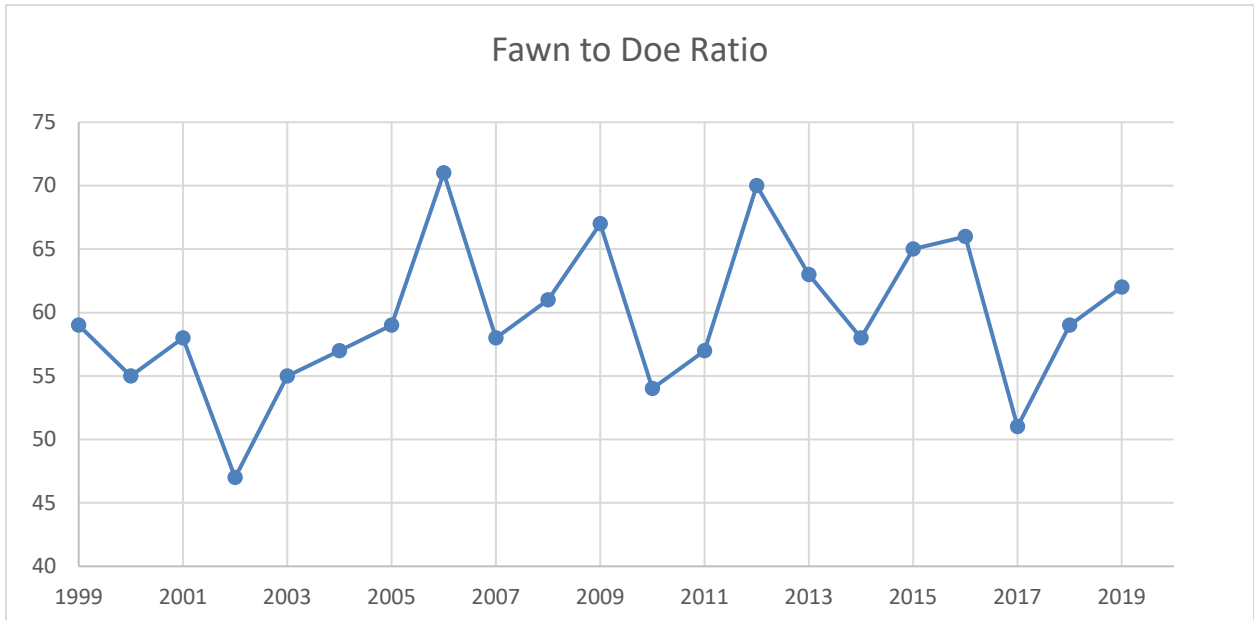


Figure 7.1: The 1982-2018 Palmer Drought Severity Index (PDSI) for the South Central division (Division 4). The PDSI is based on climate data gathered from 1895 to 2013. The PDSI uses a scale where 0 indicates normal, positive deviations indicate wet and negative deviations indicate drought. Classification 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 2019). a) Mean annual PDSI. b) Mean spring (March-May) and fall (Sept.-Nov.).



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.