

DEER HERD UNIT MANAGEMENT PLAN
Herd Unit #21
(Fillmore)
May 2015

BOUNDARY DESCRIPTION

Millard, Sevier, Sanpete, and Juab counties: Boundary begins at I-70 and I-15; north on I-15 to the Black Rock road; west on the Black Rock road to SR-257; north on SR-257 to US-50 and 6; east on US-50 and 6 to US-6; north on US-6 to SR-132; east on SR-132 to SR-28; south on SR-28 to US-89; south on US-89 to I-70; west on I-70 to I-15.

LAND OWNERSHIP

RANGE AREA AND APPROXIMATE OWNERSHIP

OWNERSHIP	Year-Long Range		Summer Range		Winter Range	
	AREA (acres)	%	AREA (acres)	%	AREA (acres)	%
Forest Service	0	0%	325,288	85%	140,100	24%
Bureau of Land Management	2,995	1%	15,470	4%	188,601	32%
Utah State Institutional Trust Lands	17	82%	2,367	1%	34,616	6%
Native American Trust Lands	0	0%	0	0%	1,357	0%
Private	662	18%	40,623	11%	202,590	35%
Department of Defense	0	0%	0	0%	0	0%
USFWS Refuge	0	0%	0	0%	0	0%
National Parks	0	0%	0	0%	0	0%
Utah State Parks	0	0%	0	0%	0	0%
Utah Division of Wildlife Resources	0	0%	119	0%	14977	3%
TOTALS	3,674	100%	383,867	100%	582,241	100%

UNIT MANAGEMENT GOALS

- Combine subunits 21a and 21b to become one hunting unit, Fillmore Pahvant.
- 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

Target Winter Herd Size – Manage for a 5-year target population of 12,000 (10,00 east of I-15 and 2,000 west of I-15) 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.

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

Harvest – Combine general season hunt formats / regulations for subunits 21A (outside of the Forest Service boundary) and 21B, 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 mortality estimates, a computer model has been developed to estimate winter population size. The 2014 model estimates the population at 10,049 deer.
- Buck Age Structure - Monitor age class structure of the buck population through the use of checking stations, postseason classification, statewide harvest survey data and bag checks.
- Harvest - The primary means of monitoring harvest will be through the statewide harvest survey and the use of checking stations.

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 – The amount and condition of summer habitat on public lands, landowner acceptance and winter forage conditions will determine herd size. Excessive habitat utilization will be addressed through antlerless removal.
- 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.
 - This unit is currently under a Predator Management plan and coyotes are being targeted by contractors.

- Highway Mortality – DWR will Cooperate with the Utah Dept. Of Transportation to construct highway fences, passage structures and warning signs etc if needed. Currently, highway mortality is not a limiting factor on this unit.
- 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 or enhance forage production through direct range improvements on winter and summer deer range throughout the unit to achieve population management objectives.
- Maintain critical fawning habitat in good condition. Fawn recruitment is a major concern on this unit and may be the single greatest factor limiting the population.
- 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. 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.
- 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.
 - 21a
 - Seek opportunities to increase browse in burned areas of critical winter range.
 - 21b
 - WMA's.
 - Winter range along east side of unit.
 - Quaking Aspen forests unit wide.

Habitat Project Summary

Projects Fillmore, Oak Creek 2006-2014	# Projects	Acres
Pinyon-Juniper Projects	5	6755
Fire Rehab Projects*	9	124,356
*Clay Springs Fire Projects account for 26,008 acres		
*Milford Flat Fire Projects account for 95,202 acres		
Total	14	131,111

Projects Fillmore, Pahvant 2006-2014	# Projects	Acres
Pinyon-Juniper Projects	27	16,028
Fire Rehab Projects	2	7311
Drill Seeding	3	1141
Harrow	2	334
Plateau	3	2453
Total	37	27,267

PERMANENT RANGE TREND SUMMARIES

Units 21, Fillmore Pahvant units

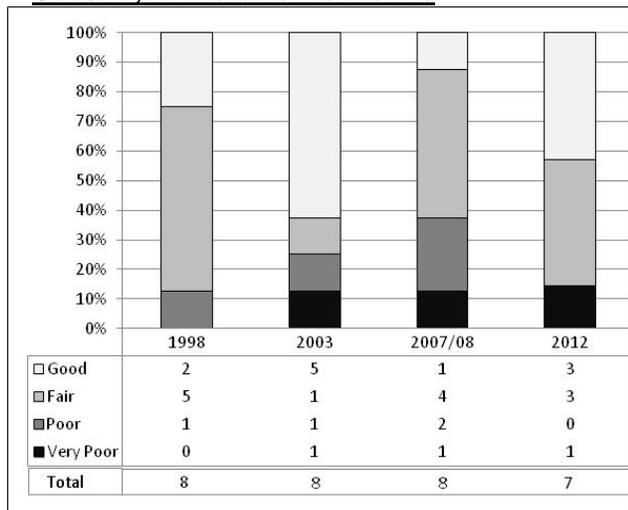


Figure 1: Deer winter range Desirable Components Index (DCI) summary by year of undisturbed sites for WMU 21ab, Fillmore Oak Creek and Fillmore Pahvant subunits.

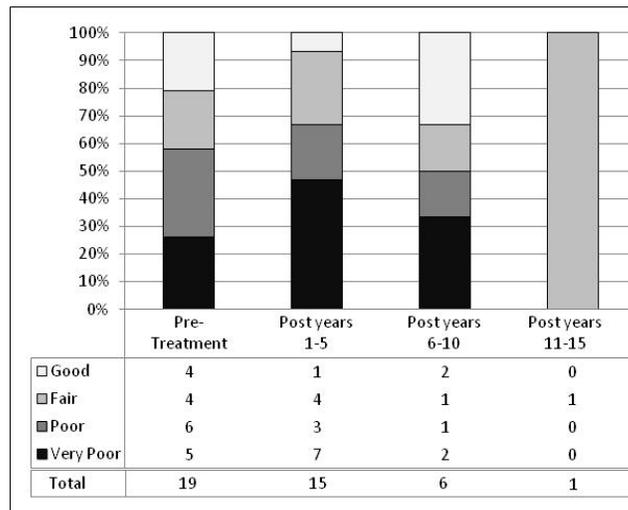


Figure 2: Deer winter range Desirable Components Index (DCI) summary by year of treated/disturbed sites for WMU 21ab, Fillmore Oak Creek and Fillmore Pahvant subunits.

DWR Winter Range Trend Assessment

The condition of deer winter range within the Fillmore Oak Creek and Fillmore Pahvant management units has remained similar on the study sites sampled since 1998. The majority of the undisturbed sites sampled within the unit are considered to be in good to fair condition with the exception of the Meadow Creek study site which has remained in very poor condition since 2003 (Figure 1). Cover of preferred browse species on the Meadow Creek study site has decreased with the site becoming dominated by pinyon pine (*Pinus edulis*) and Utah juniper (*Juniperus osteosperma*). The condition of disturbed and treated study sites typically improved with increased time after disturbance on this unit with the exception of study sites that burned in wildfires. The study sites that ranked as being in poor or very poor condition 6-10 years after disturbance or treatment are those burned by wildfire (Figure 2). Those sites are still lacking in available browse species, and typically have increased amounts of cheatgrass.

The abundance of weedy annual species cheatgrass (*Bromus tectorum*) and bulbous bluegrass (*Poa bulbosa*) is a particular concern on these sites. These weedy species can form dense mats of cover that compete with other more desirable herbaceous species and with seedlings and young shrubs which limits establishment of new plants into the population. Annual grass species can also increase fuel loads and increase the chance of a catastrophic fire event.

Fillmore Pahvant

There were 15 range trend sites sampled in 2012 of which 12 were on winter range. The remaining three sites were on sensitive summer range areas. Of the 11 winter range sites, five have had a major disturbance or treatment in the last 30 years. Three of the study sites were burned, one was bullhogged, and one was harrowed. Eleven additional study sites have been established to monitor habitat treatment projects.

The majority of the winter browse on this subunit is provided by cliffrose (*Cowania mexicana* ssp. *stansburiana*), bitterbrush (*Purshia tridentata*), and big sagebrush (*Artemisia tridentata*). Cover of sagebrush has remained relatively stable on the majority of the sites. Two studies have had substantial decreases in sagebrush cover that can be attributed to a fire in the Dameron Canyon and the harrow treatment in the Fillmore Cemetery East study. The Meadow Creek study has steadily decreased in sagebrush cover since the outset of the study due to the encroachment of pinyon and juniper. Occurrence of bitterbrush and cliffrose are relatively stable, but availability and cover are decreasing and lacking due to a large majority of the plants being in older successional classes with low recruitment of young plants.

Apart from the areas impacted by wildfire, the winter range within the subunit appears suitable to support planned deer population objectives. The abundance of cheatgrass and bulbous bluegrass on the subunit is a concern because cheatgrass can increase fuel loads and increases the chance of a catastrophic fire event and bulbous bluegrass can compete with species that are more desirable. Encroachment of pinyon and juniper trees into shrub winter ranges is also a concern in some areas across the subunit. Encroachment of pinyon and juniper can reduce desirable shrub and herbaceous cover.

The west side of the unit has been heavily impacted by fire and much of the winter range has seen a conversion of the browse component to annual and perennial grasses. With the large expanse of area affected by wildfires within this subunit, winter range is in poor condition across much of the unit and may have an effect on winter survival of mule deer.

Precipitation

Vegetation trends are dependent upon annual and seasonal precipitation patterns. Precipitation and 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 South Central division had a historic annual mean precipitation of 15.7 inches from 1895 to 2014. The mean annual PDSI of the South Central division displays a pattern of drought years with a few periods of wet years over the course of study years (Figure 3a and Figure 3b) (Time Series Data 2015).

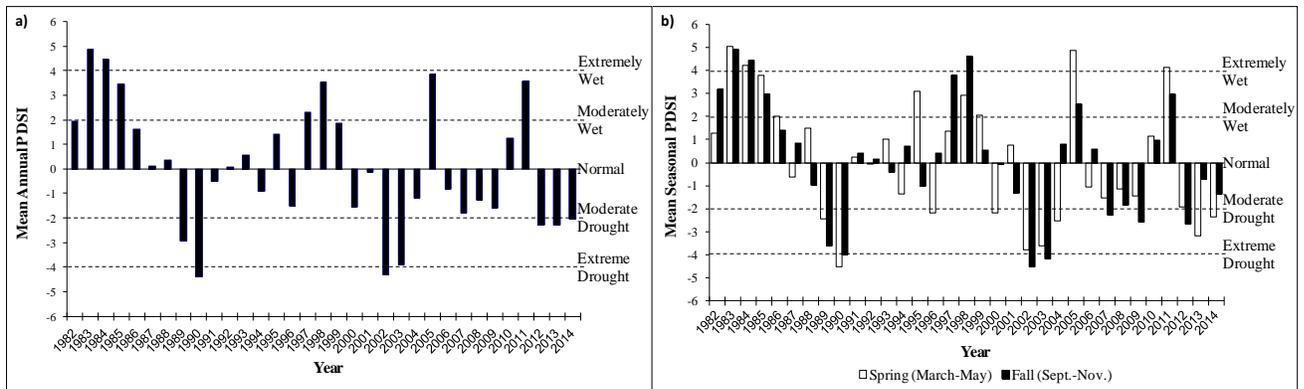


Figure 3: The 1982-2014 Palmer Drought Severity Index (PDSI) for the South Central division (Division 4). The PDSI is based on climate data gathered from 1895 to 2014. The PDSI uses a scale where 0 indicates normal, positive deviations indicate wet and negative deviations indicate drought. Classification 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 2014). a) Mean annual PDSI. b) Mean spring (March-May) and fall (Sept.-Nov.) (Time Series Data, 2015).

Works Cited

Time Series Data. (2015). *National Oceanic and Atmospheric Administration Earth System Research Laboratory Physical Science Division*. Retrieved January 2015, from <http://www.esrl.noaa.gov/psd/data/timeseries/>

