

**DEER HERD UNIT MANAGEMENT PLAN**  
**Deer Herd Unit # 4**  
**(Morgan-South Rich)**  
**October 2017**

**BOUNDARY DESCRIPTION**

**Morgan, Rich, Summit and Weber counties** – Boundary begins at the junction of I-80 and I-84 near Echo, Utah; east on I-80 to the Utah-Wyoming State line; north along this State line to SR-16; north on SR-16 to SR39 near Woodruff, Utah; west along SR-39 to SR-167 (Trappers Loop Road); south on SR-167 to SR-30 at Mountain Green, Utah; west on SR-167/SR-30 to I-84; east on I-84 to I-80.

**LAND OWNERSHIP**

**RANGE AREA AND APPROXIMATE OWNERSHIP\***

Ownership	Yearlong range		Summer Range		Winter Range	
	Area (acres)	%	Area (acres)	%	Area (acres)	%
Forest Service	0	0%	35,429	9%	3,217	2%
Bureau of Land Management	8,142	19%	4,695	1%	15,803	9%
Utah State Institutional Trust Lands	701	2%	5,876	2%	4,967	3%
Native American Trust Lands	0	0%	0	0%	0	0%
Private	34,386	79%	322,364	86%	133,812	80%
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	37	<1%	6,084	2%	11,322	6%
<b>TOTAL</b>	<b>43,266</b>	<b>100%</b>	<b>374,448</b>	<b>100%</b>	<b>169,121</b>	<b>100%</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 – Maintain a target population size of 16,000 wintering deer. This population objective remains both the short-term (5 year life of this plan) and long term, barring significant changes in range conditions.

Herd Composition – Maintain a minimum 3-year average postseason buck to doe ratio of 18-20:100 in accordance with the statewide plan.

### **Unit 4**

1994-2003 Objective:	10,750
2003 Objective:	12,500
2003-2013 Objective:	12,000
2013-2018 Objective:	18,000
2018-2020 Objective:	18,000
<u>2020-2023 Objective:</u>	<u>16,000</u>

## **POPULATION MANAGEMENT STRATEGIES**

### **Monitoring**

Population Size - Utilizing harvest data, postseason and spring classifications and mortality estimates, a computer model will be used to estimate winter population size. Annual mortality will be estimated based on survival of radio collared animals on a nearby representative unit.

Buck Age Structure - Estimates of the age class structure of the buck population will be determined primarily (directly) through the use of hunter harvested bucks at checking stations and field bag checks, and secondarily (indirectly) using post-season classification observations.

Harvest - The primary technique used to estimate harvest over the unit is the statewide uniform harvest surveys.

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

Crop Depredation - Address depredation issues as prescribed by state law and DWR policy. Some geographic populations may be maintained at lower levels than the range can support due to conflicts with crop production and private landscapes.

Habitat – Winter range condition is the major limiting factor on the Morgan-South Rich unit. Conditions range from Poor to Good depending on where you are on the unit. Limiting factors include habitat loss and degradation, increasing ungulate populations, and reduced browse by competition from introduced weedy species. Excessive habitat utilization will be addressed by hunter harvest.

Predation - Consistently high fawn/doe ratios seem to indicate that predation is not a primary limiting factor for deer on the Morgan/South Rich WMU. Coyote removal through a bounty system is currently underway and future fawn/doe ratios will be used to determine if the removal was effective.

Highway Mortality - Cooperate with the Utah Dept. of Transportation in construction of highway fences, passage structures and warning signs.

Illegal Harvest, Crippling Loss, Disease and Parasites - Although poaching losses appear insignificant on the Morgan-South Rich Unit, due primarily to a highly visible law enforcement effort, crippling losses are a concern, especially under buck-only hunting. Disease is very difficult to evaluate, but high mortality is often associated with disease and malnutrition. The animal disease diagnostic facility associated with

Utah State University acts as the laboratory to identify disease problems. Chronic Wasting disease is of further concern though it has not yet been detected on the unit. Surveillance will be implemented by testing hunter harvested animals as well as targeted surveillance of symptomatic animals.

Urban Deer - Continued development across this Unit has led to an increase in nuisance deer complaints. The Urban Deer Control Rule, R657-65, will be used to help municipalities address urban deer issues. Additional hunting opportunities outside of municipal boundaries will also be used to address nuisance complaints.

## **HABITAT**

### **Habitat Description**

The Morgan-South Rich Management Unit 4 incorporates a section of Weber County southeast of Huntsville, the northern halves of Morgan and Summit counties, and the southern portion of Rich County southwest of Woodruff. The unit is dominated by private land in both summer and winter range areas.

Most deer winter range is located in the major drainages and on the slopes north of the Weber River. A detached, smaller wintering area is found on the south-facing slopes above Cottonwood Creek. These areas are becoming highly developed. Highways I-80 and I-84, which run through Echo Canyon and along the Weber River, form the unit's southern boundary. There are several towns along the highways. Surrounding Croydon, the majority of the Lost Creek bottoms have been converted to alfalfa fields. Two areas of land in the unit are managed by the Division of Wildlife Resources. The Round Valley WMA is north of I-84, just east of Morgan. The Henefer-Echo WMA is located east of Henefer and is managed primarily as a big game habitat. Controlled grazing, vehicle restrictions, and revegetation projects are major management tools in this area.

Earlier inventory studies described six vegetation types. The sagebrush type is most common and is found over the whole area. It forms part of a continuum, based on moisture conditions, between the mountain browse/sagebrush and mountain browse types. The lower elevation sagebrush and mountain browse/sagebrush types are productive and utilized heavily by deer, while the mountain browse type mostly provides cover and is unavailable in many winters. The other vegetation types occupy comparatively little area, but have the potential to increase. Burns occur frequently in the unit and, unless seeded, production of desirable species is very low. Deer use the burned areas infrequently, possibly because of lack of cover. A small population of mahogany is in Cottonwood Canyon, but it is important to wintering deer. The scattered juniper areas are also important in providing thermal cover, but provide little forage.

In severe winters, the area of available winter range is greatly reduced. The upper limit is 6,500 feet on most of the unit. The available acreage of all vegetation types, except agricultural land, is reduced during severe winters. All range trend studies in the unit were established on winter range. Most studies sample crucial and/or heavily used areas.

The Lost Creek, Weber River, and Echo Canyon areas are traditional deer wintering areas. There is considerable migration both from higher elevations in the unit and from other herd units to this area, especially during severe winters. The largest numbers of deer probably come from the East Canyon Unit, where deer summer on the east side of the Wasatch Mountains. Development in Morgan Valley is disrupting this migration route. Deer also come from the Ogden and Chalk Creek units which also have adequate summer range, but limited winter range.

### **Habitat Concerns**

The summer mule deer habitat is mostly at higher elevations across the unit. Many deer summer on the adjacent East Canyon, Chalk Creek and Ogden units.

Lower elevation winter range is the major limiting factor for mule deer populations on the Morgan-South

South-Rich Unit. The winter range areas are also those areas that are most at risk. Development and urbanization continues to be an ever increasing issue. Habitat loss in the Morgan County area is due to increased urbanization and home development. Most of the increase in home building is occurring on the foothills in what was historic deer winter range. More wide spread habitat concerns on the Morgan-South Rich Unit is the reduction in habitat quality due to the loss of critical browse species (sagebrush, bitterbrush etc). This loss has been attributed to a number of factors, fire, agriculture, drought etc. However, the abundance of weedy annual grass species, and the increase of the exotic, weedy, perennial grass bulbous bluegrass are the more likely causes of sagebrush decline. With the majority of the unit being private lands, conversion of browse to grass for cattle grazing has been a long standing effort. The grasses and other weedy species can form dense mats of cover that compete with seedling and young sagebrush plants, which limits establishment of new sagebrush plants into the population. As the sagebrush population matures, decadence increases and density decreases as old plants begin to die. Annual grass species such as cheat-grass can also increase fuel loads and increase the chance of a catastrophic fire event. One of the factors in re-establishment of browse species is dealing with an overabundance of introduced perennial grass species such as crested wheatgrass and intermediate wheatgrass. Due to grazing practices, the grasses tend to dominate an aggressively grazed area where they are present. Dealing with the perennials with herbicide seems to limit competition and aids in browse establishment. This challenge needs to be dealt with on projects where these grasses are present.

In addition to the continual stresses put on the winter range by development and loss of browse species to invasive weeds, elk are pioneering into available winter range increasing the threat of over use of available forage. As space that is available for winter habitat is reduced, overuse of available resources on remaining winter range is threatened to over browsing. This can lead to future concerns in health and productivity of vegetative browse species available on the winter range. In heavy winter years, these ranges may be over utilized by ungulate populations and may lead to higher winter mortality from malnutrition during years of heavy snow accumulation.

The Rich area of the Morgan-South Rich Unit shares the same summer range as the Cache area. The area around Randolph and Woodruff has not experienced significant development and is not likely to in the future.

Mule deer winter range habitat has seen a decrease in sagebrush density. Causes of sagebrush decline are varied and multiple causes may have compounded effects on the low potential studies in this unit. The moderate drought in recent years has likely caused increased stress on plants, and negatively impacted them. Sagebrush age structure across the area is generally old and one age class. The lack of regeneration of the stand through establishment of young sagebrush is a concern. Annual grass species are present but not prevalent through most of the areas. However, the range trend does show increases of weedy species such as cheat-grass and bulbous bluegrass in many of the low potential studies in this unit. Perennial grass and forb species have increased on many of the studies as browse species decline, and may compete with browse establishment. Grazing practices have an impact on browse species recruitment, both positive and negative. Working with private landowners and federal agencies to promote positive grazing practices that are appropriate to specific areas will be beneficial for browse re-establishment and enhancement. A diverse browse component is essential to healthy and productive winter mule deer habitat.

Crucial mule deer habitat in some areas on the Morgan-South Rich Unit is also being lost and degraded through Juniper expansion. In certain areas where juniper stands occur, the spread and invasion of young juniper have had a dramatic negative impact on existing browse and other understory species

### **Habitat Management**

Loss of critical winter ranges to development is the highest cause of loss of mule deer habitat in the Morgan/South Rich Unit. The loss of sagebrush and other browse species on the remaining winter range is important when considering habitat quality. Contributing factors to the loss of browse species such as the impact of the increase in weedy species, particularly annual grasses, juniper expansion, lack of browse regeneration and other variables are all of a concern in the habitat management of the

Morgan/South Rich Unit.

To address the direct loss of habitat, efforts will be made towards the protection and conservation of remaining mule deer habitat. Efforts must be made to work with counties, cities, private landowners and federal agencies to maintain and protect critical and existing winter range from future losses. Through existing partnerships and developing new conservation partners efforts are being made to identify and prioritize critical habitat areas. Efforts to develop conservation easements and possible DWR acquisitions is important to maintain critical habitat for mule deer. Conservation easements will be an important part of this effort. Other conservation efforts are ongoing throughout the unit.

To address habitat quality and degradation, habitat improvement projects have been and will continue to be planned throughout the unit. Habitat projects have been and are being done on UDWR Wildlife Management Areas, and private lands throughout the unit. The habitat projects are designed to address the specific issues within each project area. Recent past projects have included annual grass control and shrub plantings on the Henefer-Echo WMA.

Habitat projects addressing the encroachment of Juniper are critical to maintaining and increasing winter mule deer habitat. Tools such as chaining, bullhog, lop and scatter and tebuthiron (an herbicide) should be utilized in areas where they would be most beneficial. Planting of browse species such as black (*Artemisia nova*), Wyoming (*Artemisia tridentata Wyomingensis*) and Mountain (*Artemisia tridentata vaseyana*) sagebrush, Antelope Bitterbrush (*Purshia tridentata*) and Mountain Mahogany (*Cercocarpus ledifolious*, *Cercocarpus montanus*) are critical and should be used where the ecological site descriptions dictate their use.

The following are some of the areas that have been targeted for habitat projects within the unit over the next five years.

- Henefer-Echo WMA winter range rehabilitation and enhancements through scalping and hand planting browse species.
- Juniper removal on winter range in Rich county.

## **PERMANENT RANGE TREND SUMMARIES**

### **Purpose of Range Trend Studies**

The ability to detect changes in vegetation composition (range trend) on big game winter ranges is an important part of the Division's big game management program. The health and vigor of big game populations are closely correlated to the quality and quantity of forage in key areas.

The majority of the permanent range trend studies are located on deer and elk winter ranges. Range trend data are used for habitat improvement planning purposes.

### **Objective**

Monitor, evaluate, and report range trend at designated key areas throughout the state, and inform Division biologists, public land managers, and private landowners of significant changes in plant community composition in these areas.

### **Expected Results and Benefits**

Range trend studies are resurveyed every five years, and vegetation condition and trend assessments are made for key areas.

## **Summary and Excerpts of 2016 Range Trend Result**

### **Unit 4 Morgan/South Rich**

Range Trend studies have been sampled within WMU 4 on a regular basis since 1984, with studies being added or suspended as was deemed necessary. Due to changes in sampling methodologies, only data collected following the 1992 sample year is included in this summary. Monitoring studies of WRI projects began in 2004, when possible; WRI monitoring studies are established prior to treatment and sampled on a regular basis following treatment. Due to the long-term nature of the studies, many of the Range Trend and WRI studies have had some sort of disturbance or treatment prior to or since study establishment.

### **Deer Winter Range Condition Assessment**

The condition of deer winter range within the Morgan-South Rich Management Unit has continually changed on the sites sampled since 1996. The Range Trend sites sampled within the unit are considered to be in very poor to good condition as of the 2016 sample year. Shell Hollow improved from very poor-poor to poor condition, Echo Canyon and Tank Canyon remained in poor condition, and Scott Rees Ranch and Wheatgrass Hollow improved from fair to good condition. Heiner's Creek and Chapman Canal remained in good condition, Deseret Main Gate went from good to fair condition, and Woodruff Creek South went from fair to poor. Finally, the Owen's Canyon, Deseret Burn, Harris Canyon, and Above Toon Ranch studies are considered to be in very poor-poor condition generally due to the lack of browse cover, sagebrush diversity, and the presence of annual grasses. The treated study sites range from very poor to good. The treated sites have generally improved as time since treatment has increased; the exception to this is the Claypit South Slope study which has remained in very poor condition. Tank Canyon, Owen's Canyon, and Deseret Burn are also considered to be Range Trend sites and are discussed above. Harris Canyon Dixie was sampled prior to treatment and was in very poor condition. Claypit North Slope improved from fair-good to good and Croydon Cemetery remained in fair condition. It is possible given more time and continual monitoring that these sites will (continue to) improve.

**Desirable Components Index:** The desirable components index (DCI) for deer was created as a tool to address condition and/or value of winter ranges for mule deer. This index was designed to score mule deer winter range based upon several important vegetation components (i.e., preferred browse cover, shrub decadence, shrub young recruitment, cover of perennial grasses, cover of perennial forbs, cover of annual grasses and cover of noxious weeds). Although the index may be useful for assessing habitat for other species (i.e. sage grouse and elk), the rating system was devised to specifically address mule deer winter range requirements.

This index is used primarily to determine if a particular site has the vegetation components necessary to be a good winter range for mule deer. It can also be used to identify areas where habitat restoration projects may be needed and assist land managers in determining possible rehabilitation options. Because it does not take into account factors such as soil stability, hydrologic function, and other environmental factors, it should not be used to assess a sites function and/or condition as typically used by the Federal land management agencies. Desirable mule deer winter range provides 12-20% of preferred browse cover, 20% or less shrub decadency, and 10% or more of the shrub population is young. The herbaceous understory contains 8-15% perennial grasses cover, 5% perennial forb cover, and less than 5% annual grass cover.

Deer winter range Desirable Components Index (DCI) summary by year of Range Trend sites for WMU 4, Morgan-South Rich.

	1996	2001	2006	2011	2016
■ Excellent	0	0	1	0	0
■ Good	2	5	2	3	4
■ Fair-Good	1	0	1	0	0
■ Fair	3	4	1	3	1
■ Poor-Fair	2	2	1	0	0
■ Poor	2	1	4	4	4
■ Very Poor-Poor	1	0	2	1	2
■ Very Poor	3	2	1	2	2

Number of Study Sites

More detailed information regarding Range Trend data, results, trends, tables and summaries can be found at the Utah's Big Game Range trend Studies web site at <https://wildlife.utah.gov/range-trend.html>

**CURRENT POPULATION STATUS**

Year	Buck Harvest	Post-Season F/100 D	Post-Season Buck/100 D	Post-Season Population	Population Objective	% of Objective
2013	815	50	27	15,300	18,000	85%
2014	888	67	33	15,500	18,000	86%
2015	923	62	42	18,100	18,000	101%
2016	997	61	33	15,900	18,000	88%

**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.