

DEER HERD UNIT MANAGEMENT PLAN
Deer Herd Unit # 15
Henry Mountains
October 2015

BOUNDARY DESCRIPTION

Garfield, Kane and Wayne counties—Boundary begins on SR-95 at a point two miles south of Hanksville; south on SR-95 to Lake Powell; south along the west shore of Lake Powell to SR-276 at Bullfrog; north on SR-276 to the Burr Trail-Notom road; north on this road to the Capitol Reef National Park boundary; north on this boundary to the Burr Trail-Notom road at The Narrows and Divide Canyon; north on this road to a point two miles south of SR-24; east along a line that is two miles south of SR-24 to SR-95. EXCLUDES ALL NATIONAL PARKS. USGS 1:100,000 Maps: Escalante, Hanksville, Hite Crossing, Loa.

LAND OWNERSHIP

RANGE AREA AND APPROXIMATE OWNERSHIP

Ownership	Yearlong range		Summer Range		Winter Range	
	Area (acres)	%	Area (acres)	%	Area (acres)	%
Bureau of Land Management	26,714	80%	32,507	85%	263,516	88%
Private	3,848	11%	1,362	4%	6,492	2%
Utah State Institutional Trust Lands	3,029	9%	4,396	11%	31,001	10%
UDOT	0	0%	0	0%	27	<1%
TOTAL	33,591	100%	38,265	100%	100785	100%

UNIT MANAGEMENT GOALS

Maintain a healthy mule deer population at a level that is within the long term carrying capacity of the available habitat, based on winter range trend studies conducted by the DWR every five years.

Manage the deer population in a Premium Limited Entry unit capable of providing a broad range of recreational opportunities, including hunting and viewing.

Balance deer herd goals and objectives with impacts on human needs, such as private property rights, agricultural crops and local economies.

POPULATION MANAGEMENT OBJECTIVES

Target Winter Herd Size

Manage for a target population of 2,700 wintering deer (modeled number) during the five-year planning period unless range conditions become unsuitable, as evaluated by DWR. This population target is an increase of 700 deer from previous management plan objective and 500 above the 2014 estimate of 2200 wintering deer on the unit. Deer population estimates over the past 10 years indicate an increasing population. Fawn production and survival has been very good overall during this time period and remains high. Range trend data coupled with annual browse monitoring, used to assess the habitat condition, has been reviewed to support the increase in the population objective.

Herd unit management directives require deer populations to be managed according to range conditions based on DCI scores on winter ranges. Management toward the population objective should consider the following;

- Management efforts should focus on improving deer habitat and carrying capacity.
- Declines in winter range carrying capacity are currently not entirely a result of over utilization by deer.
- Population control (if needed) and habitat improvement projects should be focused on areas where range degradation is most prevalent.
- Biologists should closely monitor summer range on the unit which is the limiting habitat carrying capacity as well as winter range.

Herd Composition

Manage premium limited entry units for a 3-year average of 40-55 bucks per 100 does with greater than 40% of harvested deer being 5 years of age or older.

POPULATION MANAGEMENT STRATEGIES

Harvest

Premium Limited Entry - As outlined in the Statewide Deer Management Plan, hunting seasons will include three weapon types based on the following percentages: 20% archery, 20% muzzleloader, and 60% any weapon which includes a multi-season hunting opportunity that will allow 3% of the hunters to hunt all seasons. Baseline premium limited entry permits for the public draw will be recommended at the 2014 level of 48 PLE permits on the Henry Mountains. Buck to doe ratio trends will also be considered when determining permit numbers. If 40% of harvested bucks (3-year average) are 5 years of age or older, premium limited entry permits will be recommended at the 2014 baseline number.

Management Hunt - Continue to provide a management buck hunt to allow additional hunting opportunity with a minimum of 10 permits. If the 3-year average buck-doe ratio exceeds 55 bucks per 100 does, management buck permits will be increased to bring the population towards objective.

Additional strategies to increase the management buck harvest may need to be developed in order to lower the buck-doe ratio to the management objective. Other strategies may be considered to address perceptions of hunter crowding. The check-in requirement has created situations where conservation officers are regularly needed to determine if a harvested buck is a "management buck" by definition.

Monitoring

Population Size - A population estimate will be made based on fall and spring herd composition counts conducted by biologists, harvest surveys, and mortality estimates based on radio collar studies and range rides. These data will be used in a computer model to determine a winter deer herd population size.

Buck Age Structure - Monitor age class structure of the buck population through the use of checking stations, postseason classification, uniform harvest surveys, field bag checks, and tooth analysis of harvested bucks.

Harvest - Monitor harvest through the state wide uniform harvest survey and field bag checks.

Harvest and Population Trends for the Henry Mountains

Year	PLE Buck Harvest	Mgt Buck Harvest	PLE Buck Avg Age	PLE Buck % Age 5+	Fawns/ 100 does	Bucks/ 100 does	Pop Est.	Pop Obj.	% of Pop Obj.
2012	45	28	4.9	64%	74	52	1900	2000	95%
2013	46	28	6.2	89%	60	55	1800	2000	90%
2014	47	28	6.6	63%	81	48	2200	2000	110%
3-Year Avg	46	28	5.9	72%	72	52			

Disease Management

Identify, understand, and monitor diseases that threaten mule deer, particularly Chronic Wasting Disease (CWD), Bluetongue and Epizootic Hemorrhagic Disease (EHD) as outlined in the State Mule Deer Management Plan.

Limiting Factors (may prevent achieving management objectives)

Crop Depredation - Take all steps necessary to minimize depredation as prescribed by state law and DWR policy. Depredation has not been a major factor on this unit.

Habitat - Quality summer range is more limiting than winter range on this unit. Sagebrush communities have persisted through the drought during the past decade on deer winter range.

Pinyon-Juniper encroachment - Maintenance on existing chainings began in 2007 to remove pinyon-juniper encroachment on both BLM and SITLA public lands. This work will enhance critical deer summer habitat for years to come.

Predation - The DWR predator management policy gives direction to managing predators on deer units:

- If the population estimate is less than 90% of objective and is stable or decreasing 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 will be implemented on that subunit. If the population trend is increasing the population must be below 65% of objective and meet the above criteria in order to initiate Predator Management for Coyotes. The Henry's deer population has an increasing trend with a higher fawn to doe ratio and does not meet the conditions set forth in the Predator Management Plan for coyote removal at this time.
- 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 would be implemented. Currently under the new objective the Henry's deer population is at 81% of objective but doe survival is above the threshold and does not meet the conditions set forth in the Predator Management Plan for coyote removal.

Highway Mortality - Highway vehicle collisions with deer are very low on this unit. As a result, the construction of highway fences, passage structures and new warning signs etc. is not being considered at this time.

Illegal Harvest - Should illegal kill become an identified and significant source of mortality, actions will be taken to develop specific preventive measures within the context of an action plan developed in cooperation with the Law Enforcement Section.

Elk - It is estimated that there are fewer than 30 elk on the unit. The elk population objective is zero animals. It is managed by hunter harvest to reach this objective. Elk do not pose a limiting factor to the deer herd on the Henry Mountain unit.

HABITAT MANAGEMENT OBJECTIVES

Protect, maintain, and/or improve deer habitat through direct range improvements to support and maintain herd population management objectives.

Work with private landowners and federal, state, and local governments to maintain and protect critical and existing ranges from future losses and degradation through grazing management and OHV and Travel Plan modifications.

Work with federal, private, and state partners to improve crucial deer habitats through the WRI process.

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

Maintain and protect critical winter range from future losses. Acquire critical winter range when the opportunity arises.

Minimize and mitigate impacts from energy development activities.

Minimize deer vehicle collisions along highways on the unit if vehicle collisions become common.

HABITAT MANAGEMENT STRATEGIES

Continue to improve, protect, and restore sagebrush steppe habitats critical to deer. Cooperate with federal land management agencies and private landowners in carrying out habitat improvements such as pinion-juniper removal, reseeding, controlled burns, grazing management, water developments etc. on public and private lands. Habitat improvement projects will occur on both winter ranges as well as summer range.

Continue to monitor UDWR permanent range trend studies located throughout the unit to evaluate deer habitat health and trend based on important deer use areas.

Winter Range - Continue using the Desirable Components Index (DCI) which was created as an indicator of the general health of big game (deer) winter ranges. The index incorporates shrub cover, density, and age composition as well as other key vegetation variables. Decreases in DCI can suggest that winter range capacity has decreased. The relationship between a decrease in DCI and the reduction of deer carrying capacity is difficult to quantify and is not known.

Summer Range - Develop an index/s to monitor trend on the unit's summer range such as a Bare Ground index.

Conduct cooperative seasonal range assessments to evaluate forage condition and utilization. Determining opportunities for habitat improvements will be an integral part of these surveys. This will also be pivotal in determining if antlerless harvest is necessary.

Work toward long term habitat protection and preservation through the use of agreements with federal agencies and local governments and the use of conservation easements, etc. on private lands.

Support, cooperate with, and provide input to land management planning efforts dealing with actions affecting habitat security, quality and quantity.

Work with land management agencies and energy companies to minimize and mitigate impacts of energy development activities.

Continue to monitor deer survival on this unit through radio telemetry studies. Use telemetry data to determine potential habitat improvement projects.

Manage vehicle access on Division of Wildlife Resources land to limit human disturbance during times of high stress, such as winter and fawning.

Manage riparian areas in critical fawning habitat to furnish water, cover and succulent forage from mid to late summer.

Protect deer winter ranges from wildfire by reseeding burned areas, creating fuel breaks and vegetated green strips and reseed areas dominated by cheat grass 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 like lop & scatter, bullhog, and chaining.

Seek opportunities to increase browse in burned areas of critical winter range.

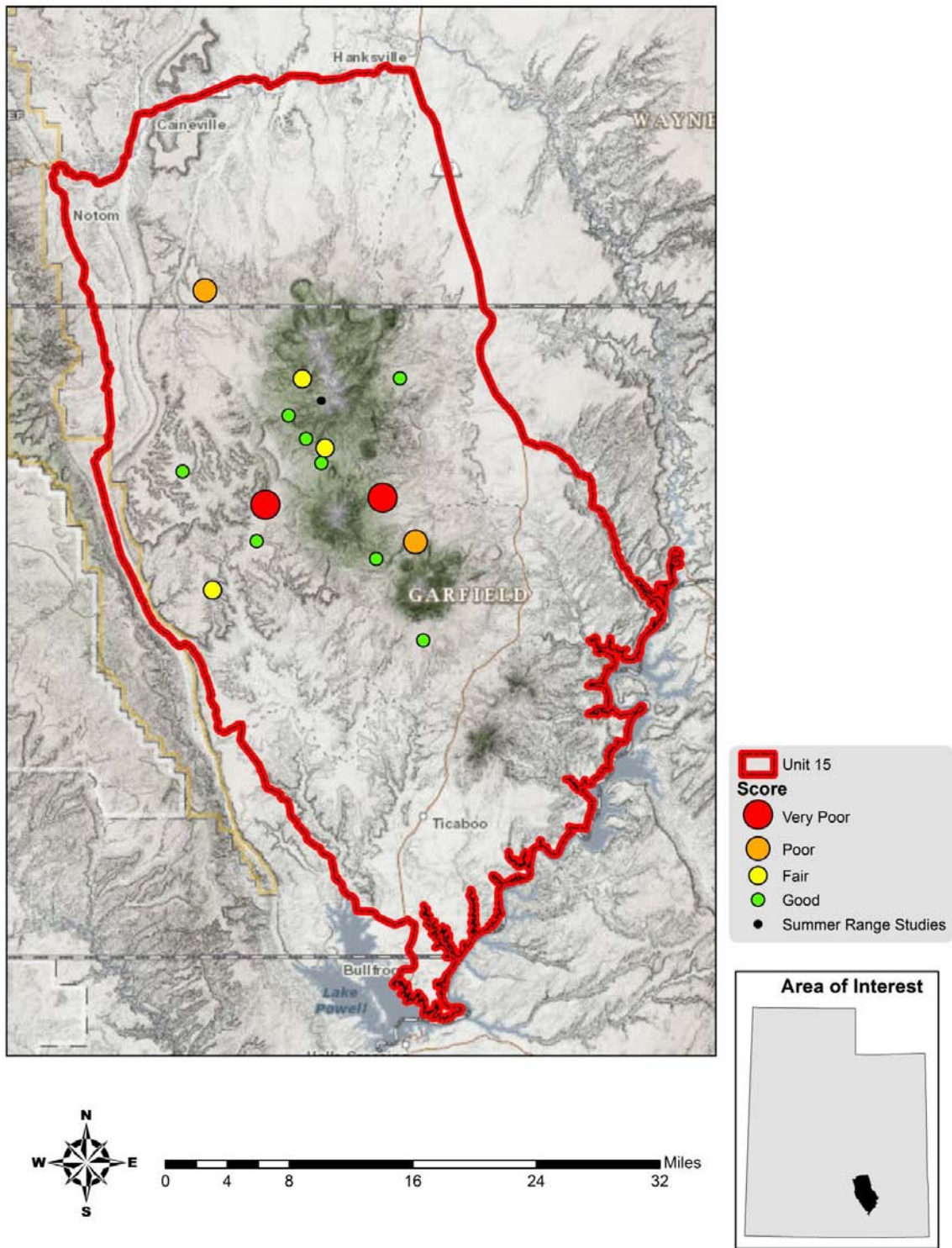
Utilize antlerless deer harvest to improve or protect forage conditions when vegetative declines are attributed to deer over utilization.

PERMANENT RANGE TREND SUMMARIES

Deer Winter Range Condition Assessment

The condition of deer winter range within the Henry Mountains management unit has remained fairly consistent on the sites sampled since 1994 (Map 1). The undisturbed sites sampled within the unit are considered to be in very poor to good condition as of the 2014 sampling year (Figure 1). Cave Flat was sampled in 1994, 1999, 2001, and 2014 and has remained in good condition; as was Copper Creek, which was added in 2014. Steven's Mesa has ranged from very poor to poor, Swap Mesa remained fair, and Cave Flat Chaining very poor all due to a lack of browse cover and density. Dugout Creek, which has been very poor to fair, was good in 2009 because of an increase in density as well as a diversification of sagebrush demographics. The treated study sites range from very poor to good (Figure 2). In general, the treated sites have improved as time since treatment increases. South Creek Chaining, Bates Knob, and Sidehill Spring all went from poor to good; Eagle Bench and Airplane Spring went from fair to good; and Box Springs Chaining went from very poor to fair. Tarantula Mesa Lop and Scatter, Quaking Aspen Spring, and Coyote Spring all remained good, poor, and very poor, respectively. It is possible given more time and continual monitoring that these sites will continue to improve.

Deer Winter Range Condition Assessment taken from Utah Big Game Range Trend Summaries 2014, Publication 15-10, page 106.



Map 1: Deer winter range Desirable Components Index (DCI) ranking distribution by study site of most current sample date as of 2013 for WMU 15, Henry Mountains. From *Utah Big Game Range Trend Summaries 2014*, Publication 15-10, page 107.

Desirable Components Index

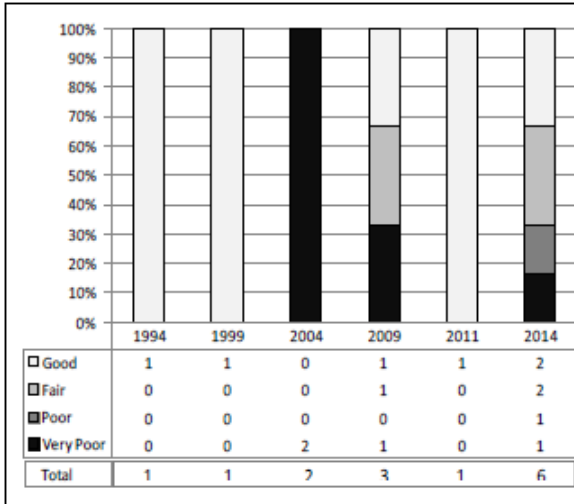


Figure 1. Undisturbed Range Trend sites*

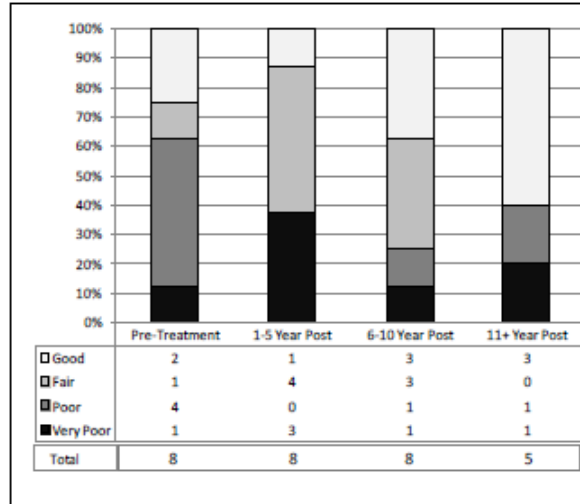


Figure 2. Treated/disturbed Range Trend sites*

DCI graphs taken from [Utah Big Game Range Trend Summaries 2014](#), Publication 15-10, page106

* Two undisturbed range trend sites, *Stevens Mesa (Very Poor)* and *Swap Mesa (Fair)*, were established to assess bison habitat and trend specifically for bison management and are not used for analyzing deer winter range in this plan. **Excluding these two sites from the 2014 Deer DCI, results in three sites in the Fair to Good category and one in the Poor category.**

* One treated range trend site, *Coyote Spring (Very Poor)*, was established to assess bison habitat and trend specifically for bison management and are not used for analyzing deer winter range in this plan. **Excluding this site from the 2014 Deer DCI, the results are three sites in the Good category and one in the Poor category.**

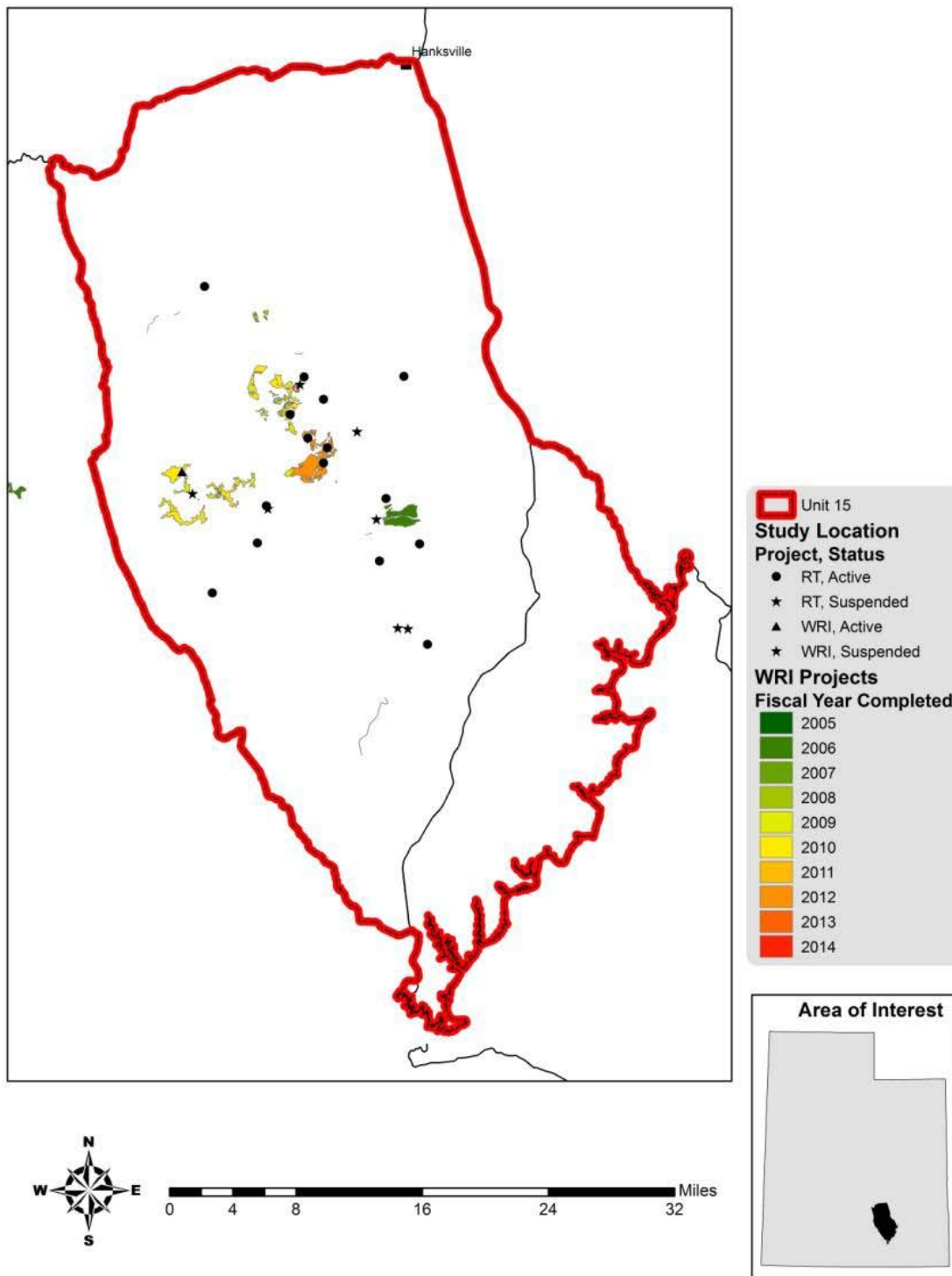
Treatments/Restoration Work

There has been an active effort to address many of the limitations on this unit through the Watershed Restoration Initiative (WRI). A total of 6,613 acres of land have been treated within the Henry Mountains unit since the WRI was implemented in 2004. Treatments frequently overlap one another bringing the total treatment acres to 9,199 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 (Map 2).

The use of an aerator to diversify sagebrush demographics is the most common management practice in this unit. Seeding to augment the herbaceous understory is also very common. Other management practices include harrow, hand crews, anchor chain, and other similar vegetation removal techniques (Table 1).

Treatment Action	Acres
Aerator	3,180
Anchor chain	919
Bullhog	132
Harrow	1,296
Herbicide Application	17
Seeding (primary)	1,926
Vegetation removal/hand crew	1,729
*Total Land Area Treated	6,613
Total Treatment Acres	9,199

Table 1. WRI treatment action size (acres) for WMU 15, Henry Mountains.
*Does not include overlapping treatments



Map 2 : WRI treatments by fiscal year completed for WMU 15, Henry Mountains.
 From Utah Big Game Range Trend Summaries 2014, Publication 15-10, page 89.

Discussion and Recommendations

Summer Range Habitats

Summer habitats at high elevations on this unit include mixed conifer (ponderosa pine, limber pine, douglas-fir, spruce, subalpine fir, and white fir), aspen, and mountain shrub summer habitat types. The mixed conifer and aspen areas are generally considered to be in good condition for deer summer range habitat. This community supports a diverse herbaceous understory that provides valuable forage during the summer months. While in generally good condition, major concerns include conifer encroachment into aspen stands, an abundance of introduced aggressive perennial grasses, and noxious weeds. All of which have an impact on the quality and quantity of forb species important to mule deer.

The mountain shrub habitat is generally considered to be in fair condition for deer winter range habitat on this unit. This community supports robust shrub populations that provide valuable browse in mild and moderate winters. This community can be susceptible to invasion from annual grasses, primarily cheatgrass. Increased amounts of cheatgrass can boost fuel loads and increase the threat of wildfire in these communities. The mountain shrub community is also prone to encroachment from pinyon-juniper trees, which can reduce understory shrub and herbaceous health if not addressed.

It is recommended that monitoring of summer range habitats continue. Habitat projects that promote aspen and forb communities as well as a diverse age structure of the forest are recommended. Such projects may include: prescribed fire, timber management, mechanical treatment, and grazing management. If reseeding is necessary to restore herbaceous species, care should be taken in selecting treatment methods that will not increase annual grass loads. When reseeding, species selection and preference should be given to native grass species when possible. It is recommended that work to reduce pinyon-juniper encroachment (e.g. bullhog, chaining, lop and scatter, etc.) should continue in these communities. Additional actions may be necessary to reduce the presence of noxious weeds within this community type. Monitoring should also continue in order to watch for the presence of noxious weeds within this community type followed with appropriate actions when discovered.

Winter Range Habitats

Winter range habitats include mid to low elevation areas and include Wyoming big sagebrush, black sagebrush, four-wing saltbush, and shadscale semidesert communities. The mid elevation semidesert communities of Wyoming big sagebrush and black sagebrush are considered to be in good condition. Lower elevation semidesert communities of four-wing saltbush is considered to be in fair condition and the shadscale community is considered to be in poor condition. These semidesert communities support shrub populations that provide valuable browse in moderate to severe winters but are susceptible to invasion from annual grasses, primarily cheatgrass. Increased amounts of cheatgrass can increase fuel loads and increase the threat of wildfire within these communities. 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. This ecological site is also 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 should continue in these communities. Moreover, 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. 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.