

DEER HERD UNIT MANAGEMENT PLAN
Deer Herd Unit # 15
Henry Mountains
September 2020

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%	301,036	100%

UNIT MANAGEMENT GOALS

Expand and improve the Henry Mountain (HM) mule deer population within the available habitat while considering other land uses. Set a realistic and attainable population objective that is below biological carrying capacity.

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

POPULATION MANAGEMENT OBJECTIVES

Target Winter Herd Size - Population objective of 2700 wintering deer. This objective can be raised or lowered in future years depending on habitat and climate conditions, deer body condition, herd productivity, and overall survival.

Data from the 10 years previous to 2015 indicated an increasing population trend, and the population objective was raised by 500 deer in 2015 to 2700. Since 2015 there has been a decreasing population trend (Table 1).

Deer survival inputs in the HM model are based on research from the adjacent San Juan unit. Research to obtain deer survival data is expensive. Therefore, representative units are selected that have similar characteristics to surrounding units. Depending on available funding, future efforts to conduct deer survival research on the HM would help understand how this deer herd

performs under high buck-doe ratios.

Modeling wildlife populations takes years of sufficient data to develop an accurate working model. Additional years of data will help refine the HM population model resulting in a better population estimate.

The population objective does not affect management of buck deer harvest on the HM unit. In the Utah Mule Deer Statewide Management Plan, PLE draw permits are set and based upon the average age of harvested bucks. For purposes of understanding population size, deer survival research is important but it does not guide current buck harvest objectives on this unit.

Herd Composition - Manage premium limited entry units for a 3-year average of 40-55 bucks per 100 does.

Harvest - Set permit numbers as outlined in the Utah Mule Deer Statewide Management Plan. PLE permits will be adjusted to maintain 40% of the harvested deer are 5 years and age and older. Management buck permits will be adjusted to maintain the buck/doe objectives at a 3-year average of 40-55 bucks per 100 does. Antlerless permits will only be issued to address specific localized crop depredation or range degradation concerns if necessary.

POPULATION MANAGEMENT STRATEGIES

Harvest

Premium Limited Entry - 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 PLE permits for the public draw will be recommended at 49 PLE permits on the Henry Mountains. Reductions in permits will occur if <40% of the harvested bucks (3-year average) are 5 years of age or older to achieve the objective. And permit numbers will be returned to baseline numbers when the age objectives are being met.

Management Hunt - Provide a management buck hunt to allow additional hunting opportunity if the 3-year average exceeds the 40 bucks per 100 does. If the 3-year average buck-doe ratio exceeds 55 bucks per 100 does, management buck permits will be adjusted to bring the buck-doe ratio 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 using computer modelling based on fall and spring herd composition counts, harvest surveys, and mortality estimates. Current research from radio telemetry studies on the adjacent San Juan unit will be used as deer survival data for population models for this unit. The San Juan unit has similar topography, vegetation types, and weather patterns. Future efforts will be considered to conduct similar research on the Henry Mountains.

Buck/doe Ratios and Age Structure - Collect buck/doe and doe/fawn ratio data during fall and spring composition counts. Monitor age structure of bucks harvested by tooth analysis.

Harvest – Collect harvest data from the mandatory hunter harvest reporting surveys.

Research – Continue to collect annual adult doe and cause specific mortality on this unit from GPS collared deer. Continue research efforts to identify habitat use, migration corridors, and limiting factors for deer herd growth.

Table 1- Population Trends and Harvest for Unit 15 Henry Mountains

Year	PLE Buck Harvest	Mgt Buck Harvest	PLE Buck Avg. Age	PLE Buck % Age 5+	Fawns/ 100 does	Bucks/ 100 does	Post-Season Population	Doe Survival	Fawn Survival (San Juan)
2010	42	17	4.9	64%	62	59	1200	88	80
2011	44	29	5.0	63%	54	61	1400	76	83
2012	45	28	4.9	64%	74	52	1900	90	86
2013	46	28	6.2	89%	60	55	1800	86	79
2014	47	28	6.6	75%	81	48	2200	84	71
2015	43	25	6.2	76%	76	65	2400	80	71
2016	44	25	5.5	70%	65	47	2200	75	41
2017	50	25	5.3	68%	53	41	1900	73	6
2018	44	21	5.0	46%	38	44	1600	77	27
2019	46	9	5.3	54%	57	37	1000	-	-
average	45	24	5.5	67%	62	51	1760	81	60

Antlerless Harvest

Use antlerless harvest to locally reduce deer populations when range conditions, deer adult and fawn survival, fawn production, and deer body condition suggest the population is near carrying capacity.

Predator Management

Manage predators according to the predator management policy (W1AG-04) where habitat is not limiting and predators are demonstrated to have negative impacts on the population. Indices such as doe and fawn survival, body condition scores, fawn production, and cause specific mortality will be used to determine if predator management is deemed necessary. This unit is currently under predator management for bighorn sheep.

Private Lands Management

Support programs that increase tolerance for deer on private lands including LOA, CWMU, and Walk-In Access programs.

Address all depredation problems in a timely and efficient manner.

Disease Management

Investigate and manage diseases that threaten mule deer: Chronic Wasting Disease (CWD), Epizootic Hemorrhagic Disease (EHD), and others as outlined in the State Mule Deer Management Plan.

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.

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.

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. Use GPS data to determine potential habitat improvement projects.

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.

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

Treatments/Restoration Work

A total of 8,253 acres of land have been treated within the Henry Mountain unit since the WRI was implemented in 2004 (Map 4). Treatments frequently overlap one another bringing the total completed treatment acres for this unit to 12,590 acres (Table 2). 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.

Table 2- Total Habitat Treatments since 2004

Treatment Action	Acres
Anchor chain	72
Bullhog	791
Harrow	2,171
Roller Chopper	325
Application	
Seeding (primary)	3,510
Veg handcrew removal	5,721
Total Treatment Acres	12,590

Permanent Range Trend Summaries

Big Game Habitat

An estimated 373,850 acres are classified as deer range in the Henry Mountains management unit with 81% classified as winter range, 10% as summer range, and 9% as year-long range (Map 1). Summer range is the limiting habitat factor on this unit and should be monitored for overall range health. Summer habitat improvements should be a priority to improve deer herd health and population numbers. Wildfire has shown to be a great benefit on the Henry's summer range. While few fires have occurred, the ones that have burned have been large (Map 2). The Bulldog fire of 2003 was the largest fire in the unit at 31,753 acres, followed by the Lonesome Beaver fire of 2003 at 4,555 acres. The Lonesome Beaver fire occurred mainly on deer summer range and bison year-long range while the Bulldog fire occurred on deer summer and winter range and bison year-long range. In 2004 the BLM and the Utah Division of Wildlife Resources/WRI and partners went to work preparing the landscape to reduce erosion and reseeded. Above average precipitation came providing the circumstances for a great flush of new growth and established vegetation which has greatly impacted the mule deer herd for almost 2 decades.

Deer Winter Range Condition Assessment

The condition of deer winter range within the Henry Mountain management unit has continually changed on the sites sampled since 1994. Severe drought through 2018 and again through the spring/summer/fall of 2020 has affected lower elevation habitat. Adequate 2019 winter precipitation and associated ground moisture from snow melt helped give plants needed nutrients for growth through spring 2020.

In 2019 the Desirable Components Index (DCI) indicates the condition of Range Trend sites across the unit having improved since 2004 (Figure 1, Map 3). The Desirable Components Index (DCI) 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.

RECREATION OBJECTIVES

Provide high-quality mule deer hunting that encourages a variety of hunting opportunities while maintaining population objectives. In association with high quality hunting, provide high-quality mule deer viewing opportunities.

RECREATION STRATEGIES

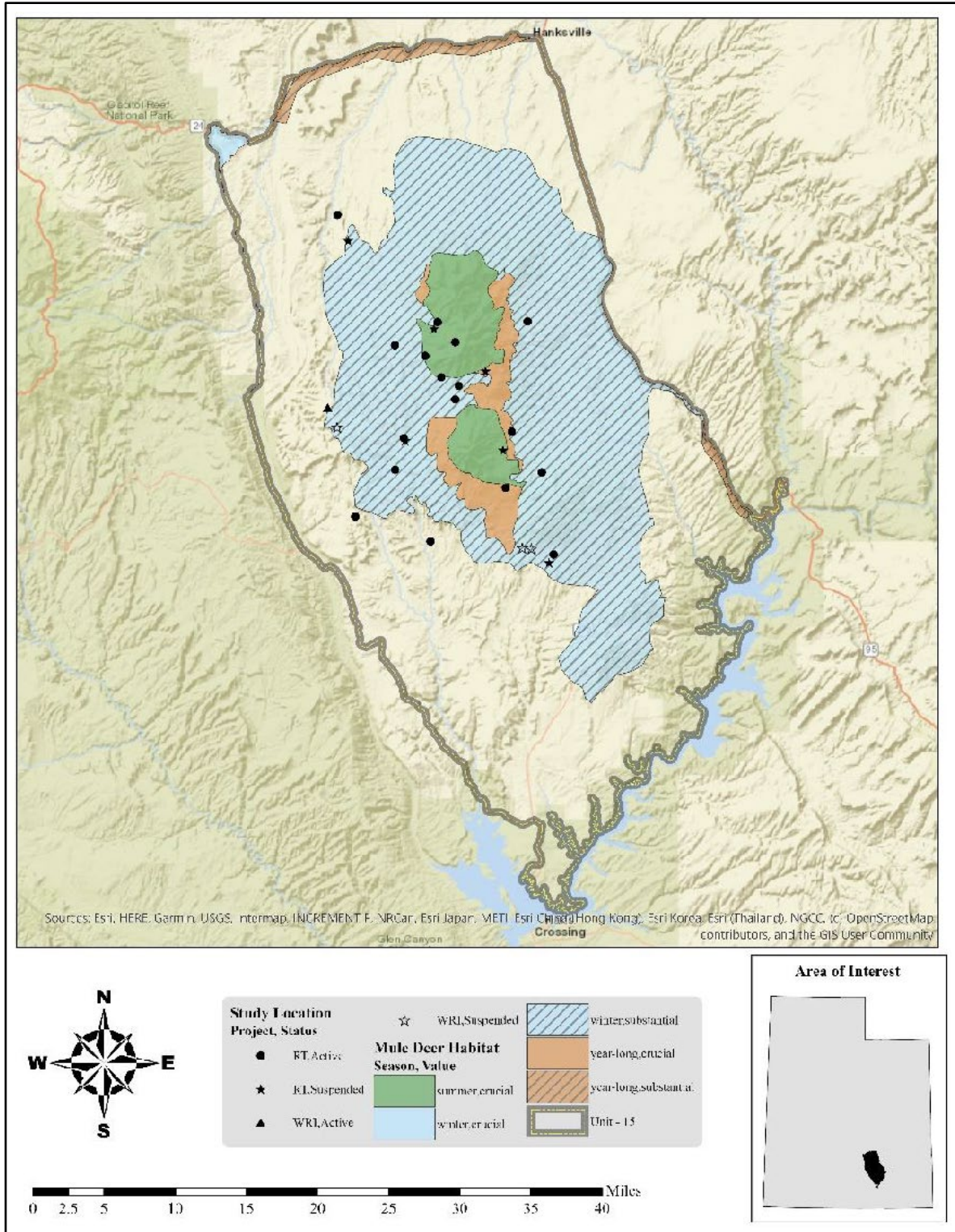
Recommend permits for archery 20%, muzzleloader 20%, and any weapon 60%. Alter these percentages when necessary to help achieve buck-to-doe ratio objectives.

Provide 3% opportunity for multi season hunting.

Recommend season lengths that provide adequate hunting opportunities.

Support outreach efforts to educate on mule deer management and conservation.

Map 1- Estimated mule deer habitat by season and value showing Range Trend Locations for WMU 15, Henry Mountains.



Map 2- Land coverage of fires by year from 2000-2019 for WMU 15, Henry Mountains (Geosciences and Environmental Change Science Center (GECSC) Outgoing Datasets, 2020).

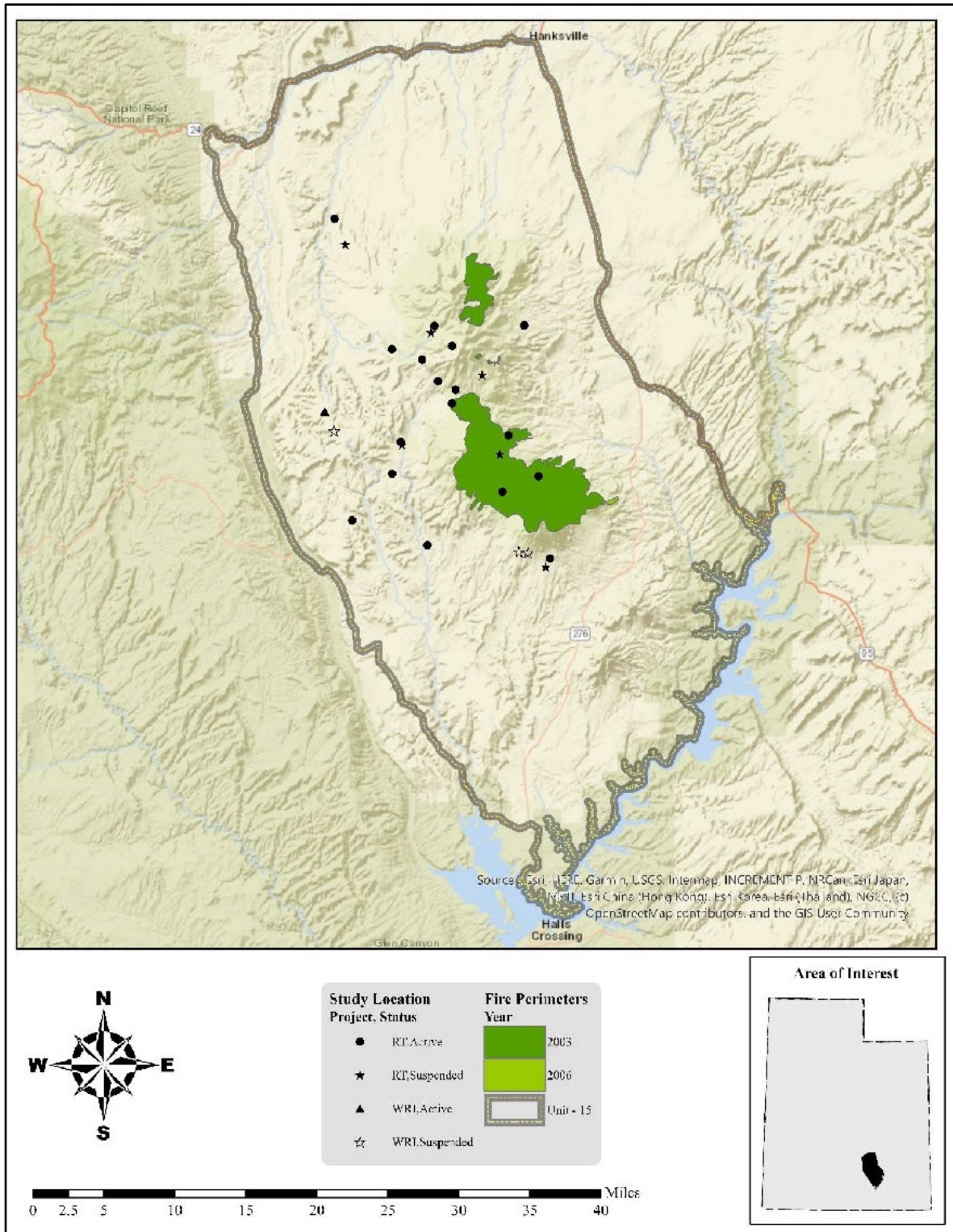
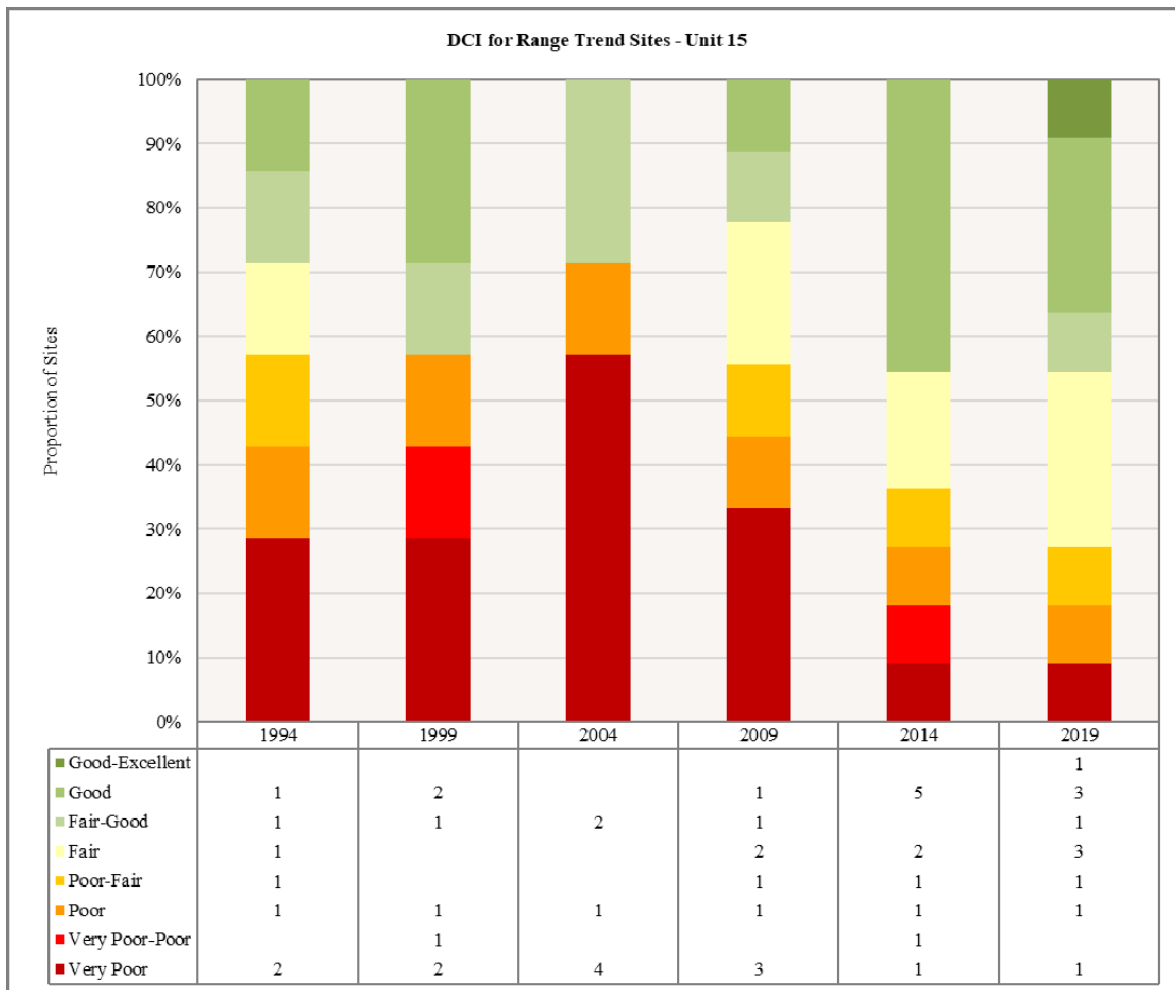
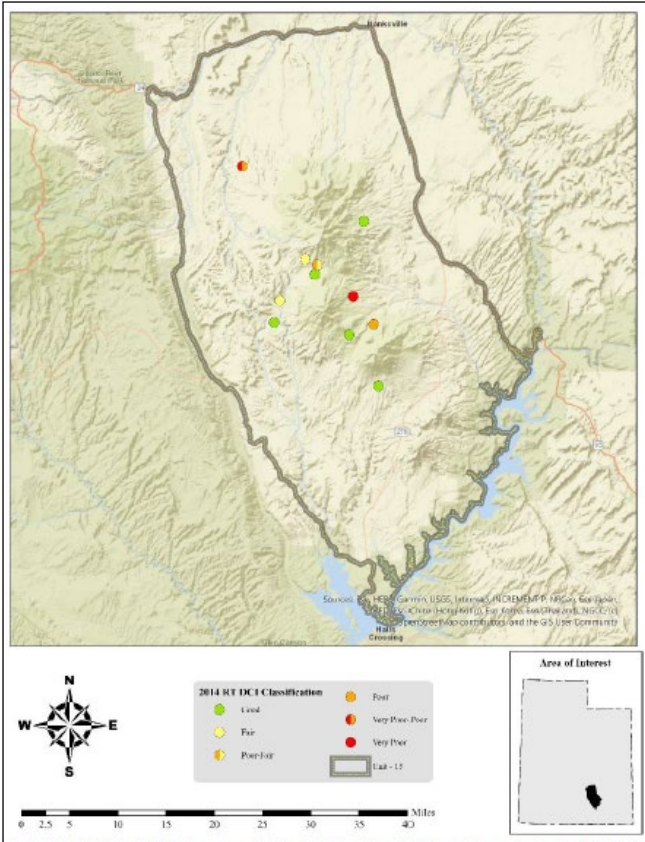


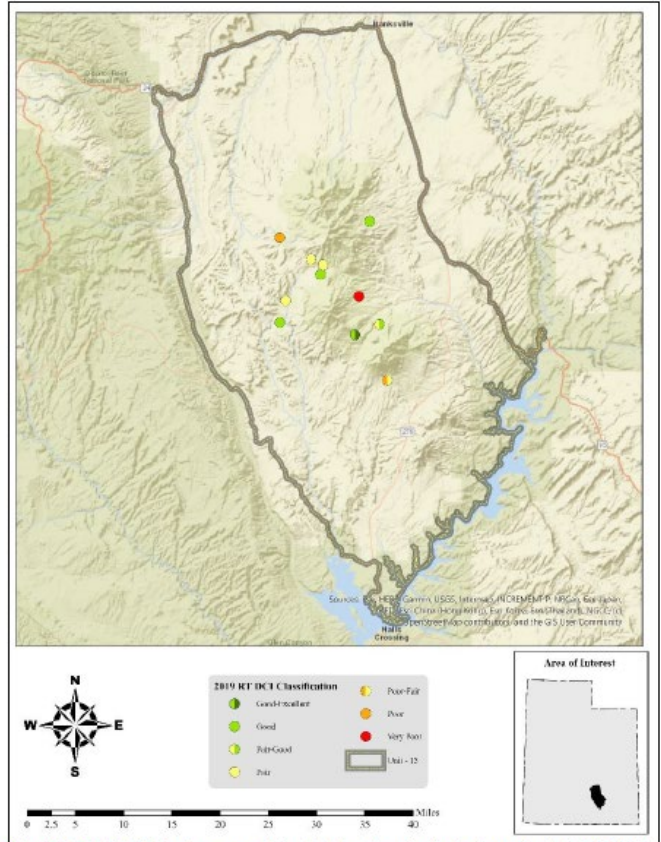
Figure 1. Henry Mountains Deer Winter Range Desirable Components Index (DCI) Showing Proportions of Range Sites in each Condition Class (Poor, Fair, Good, etc.) Overall the the condition of the sites have improved since 2004.



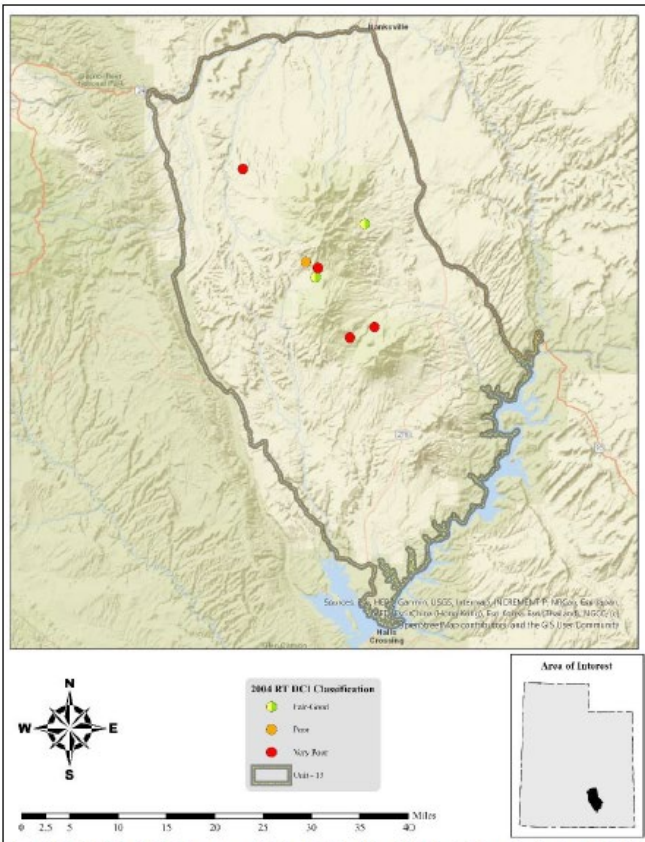
Map 3- Map of Range Trend Sites from 2004 to 2019 Showing DCI Condition for Each Site



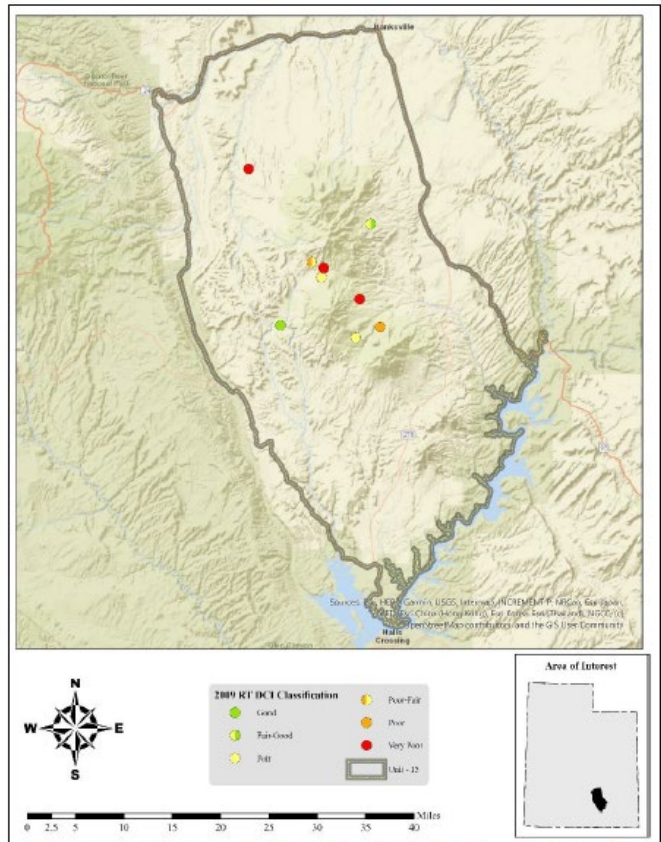
Map 3.14: 2014 Desirable Components Index (DCI) ranking distribution by study site for WMU 15, Henry Mountains.



Map 3.15: 2019 Desirable Components Index (DCI) ranking distribution by study site for WMU 15, Henry Mountains.



Map 3.12: 2004 Desirable Components Index (DCI) ranking distribution by study site for WMU 15, Henry Mountains.



Map 3.13: 2009 Desirable Components Index (DCI) ranking distribution by study site for WMU 15, Henry Mountains.

Mule Deer Body Condition Data

Table 3- Body Fat Comparisons of Captured Deer, 2014-2019. Gold cell is low and blue high. Use the San Juan mule deer unit for reference, highlighted in **red**. The San Juan unit is the unit that is most like the Henry Mountain unit where body condition data is being researched.

Unit	Percent (%) Ingesta Free Body Fat (IFBF)					
	Dec 2014	Dec 2015	Dec 2016	Dec 2017	Dec 2018	Dec 2019
Box Elder						8.79
Cache		11.02	9.59	13.65	10.32	13.71
North Slope					8.59	
South Slope	11.31	9.46	9.00	9.56	7.24	9.90
Oquirrh-Stansbury	10.52	8.43	9.56	8.79	7.39	8.46
Chalk Creek/Kamas					7.19	11.02
<i>Wasatch-Manti</i>		8.76	9.22	10.23	9.32	11.11
Wasatch East						11.51
South Manti			8.87			9.42
Book Cliffs				7.56	6.35	8.80
West Desert					6.33	8.04
Monroe	8.10	8.98	8.23	9.53	6.50	10.37
Beaver						7.75
Boulder						8.54
Panguitch					8.76	8.64
Pine Valley		7.42	6.68	6.54	6.91	6.86
Zion					8.48	9.04
LaSal						8.63
San Juan		9.35	9.25	7.60	7.77	9.50
Statewide	9.98	9.06	8.80	9.18	7.78	9.45

Map 4- WRI treatments by fiscal year completed for WMU 15, Henry Mountains

