

**DEER HERD UNIT MANAGEMENT PLAN**  
**Deer Herd Unit # 16BC**  
**Manti**  
**and**  
**Deer Herd Unit #12**  
**San Rafael**  
**September, 2020**

**BOUNDARY DESCRIPTION**

**Unit # 16B and 16C Central Mountains, Manti Subunit - Carbon, Emery, Sanpete, Sevier and Utah counties**—Boundary begins at the junction of US-6 and US-89 in Spanish Fork Canyon; southeast on US-6 to Price and SR-10; south on SR-10 to I-70; west on I-70 to US-89; north on US-89 to US-6 in Spanish Fork Canyon. USGS 1:100,000 Maps: Nephi, Price, Huntington, Manti, Salina. Boundary questions? Call the Springville office, 801-491-5678 or the Price office, 435-613-3700.

**Unit #12 San Rafael Unit - Carbon, Emery, Sanpete, Sevier and Utah counties**—Boundary begins US-6 and US-10 in Price; southeast on US-6 to Interstate 70; east on I-70 to the Green River; south along this river to the Colorado River; south along this river (and the west shore of Lake Powell) to SR-95; north on SR-95 to SR-24 (hunters may harvest deer within 2 miles south of SR-24 between SR-95 and the Notom Road); west on SR-24 to Caineville and the Caineville Wash road; north on this road to the Cathedral Valley road; northwest on the Cathedral Valley road to the Capital Reef National Park boundary; north and west on the CRNP boundary back to the Cathedral Valley road; west on this road to Rock Springs Bench and the Last Chance Desert road; north on this road to the Blue Flats road; north and east on this road to the Willow Springs road; north on this road to the Windy Peak road; north and west on this road to I-70; east on I-70 to US-10; north on US-10 to US-6 in Price. Excludes all CWMUs. USGS 1:100,000 Maps: Hanksville, Hite Crossing, Huntington, La Sal, Loa, Manti, Nephi, Price, Salina, San Rafael Desert. Boundary questions? Call the Price office, 435-613-3700.

**LAND OWNERSHIP**

**Unit 16BC Central Mountains, Manti**

<i>Ownership</i>	<b>Year Long Range</b>		<b>Summer Range</b>		<b>Winter Range</b>		<b>Spring/Fall Range</b>		<b>Winter/Spring Range</b>	
	<i>Area (acres)</i>	<i>%</i>	<i>Area (acres)</i>	<i>%</i>	<i>Area (acres)</i>	<i>%</i>	<i>Area (acres)</i>	<i>%</i>	<i>Area (acres)</i>	<i>%</i>
BLM	25	2%	4,935	1%	122,496	19%	1,067	1%	2,169	2%
Private	51	5%	86,277	17%	194,785	30%	22,256	10%	33,366	33%
SITLA	1,037	93%	4,796	1%	81,013	12%	28	<1%	703	1%
USFS	0	0%	416,093	81%	211,667	32%	189,142	88%	46,697	46%
UDOT	0	0%	0	0%	92	<1%	0	0%	2	<1%
UDNR	0	0%	2,125	<1%	49,960	7%	2,115	1%	18,107	18%
DOD	0	0%	0	0%	62	<1%	0	0%	16	<1%
<b>Total</b>	<b>1,113</b>	<b>100%</b>	<b>514,225</b>	<b>100%</b>	<b>660,075</b>	<b>100%</b>	<b>214,607</b>	<b>100%</b>	<b>101,060</b>	<b>100%</b>

**Unit 12 San Rafael**

Unit 12 San Rafael	Yearlong range		Winter Range	
	Area (acres)	%	Area (acres)	%
Bureau of Land Management	127012	69%	3650	54.3%
Utah State Institutional Trust Lands	12913	7%	79	1.2%
Private	22019	12%	3000	44.6%
National Parks	17426	9.5%	0	0%
Utah State Parks	0	0%	0	0%
Utah Division of Wildlife Resources	314	.2%	0	0%
National Recreation Area	4458	2.3%	0	0%
<b>TOTAL</b>	<b>184,141</b>	<b>100%</b>	<b>6,727</b>	<b>100%</b>

**UNIT MANAGEMENT GOALS**

Expand and improve mule deer populations on the Manti unit considering available habitats and in other land uses. Set realistic and attainable population management objectives that are below biological carrying capacity

**POPULATION MANAGEMENT OBJECTIVES**

Target Winter Herd Size – Manage for a 5 year target population objective of 28,000 wintering deer on the Manti unit based on the best available model and as range conditions permit. This objective can be raised or lowered in future years if deer populations, range condition, and deer body condition suggest it is sustainable. Current research on survival, body condition, production data, cause specific mortality in combination with range trend data, annual browse monitoring, and past population model estimates will be used to set these objectives.

Data from the past 10 years suggest that during favorable environmental conditions the Manti deer population has reached between 25,000-27,000 deer (Table 1a) and that the previous population objective of 38,000 deer is likely no longer attainable. Range trend data indicate that many critical low elevation sagebrush winter ranges are in poor condition and are likely at or above carrying capacity. This is illustrated in Figures 1 and 2 by the distribution of winter range sites that are in poor or very poor condition. Figure 3 illustrates that browse cover in these important areas is in a downward trend over the past 25 years and has been reduced by approximately 50%. Furthermore, browse density (the number of shrubs/acre) has been reduced by nearly 75%. Browse utilization in these stands has steadily increased during this same time period. All these data suggest that while range conditions on mid and upper elevation winter ranges are adequate, crucial low elevation winter ranges would not be able to sustain the previous population objective.

Body fat data from captured deer on the Manti are relatively good and near statewide averages suggesting that overall, this herd has not reached or exceeded carrying capacity on summer range

and upper elevation winter ranges (Table 2). Range and body condition data combined suggest that the proposed objective is realistic, attainable and allows for herd growth of 4,000 deer over the next 5 years.

Manti Subunit Objective (1998-2019)	38,000 deer
Manti Subunit Objective (2020-2024)	<b>28,000 deer</b>
San Rafael Unit (1998-2019)	no population objective
San Rafael Unit (2020-2024)	no population objective

Population estimates and objectives will not be established for the San Rafael unit. Setting management objectives for San Rafael portion of the unit and obtaining sex-ratios would be unreliable due to small and isolated deer herds resulting in inadequate sample sizes. The majority of deer numbers are concentrated on the unit where there are agricultural corridors. Deer numbers along these corridors are not in decline and provide hunting opportunity to local hunters.

Herd Composition – Manage for a buck to doe ratio of 15 to 17 bucks/100 does. Biologists will take into account current year buck/doe ratio, 3 year average buck/doe ratio and trend as well as fawn and adult survival when making permit recommendations.

Harvest – General Season Unit by Unit buck deer hunt regulations, using archery, any weapon, and muzzleloader hunts. Buck permits will be adjusted to maintain buck/doe objectives. Antlerless permits will be issued to address specific localized crop depredation or range degradation concerns. In addition, antlerless harvest may be used if deer adult and fawn survival, fawn production, and deer body condition suggest the population is approaching carrying capacity.

## **POPULATION MANAGEMENT STRATEGIES**

### **Monitoring**

Population Size – A population estimate will be made based on fall and spring herd composition counts conducted by biologists, survival and body condition data from GPS collared deer, and hunter harvest data. These data will be used in a computer model to determine a winter deer herd population size. The modeled population estimate for the winter of 2020 was 24,300 deer on the Manti.

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 at check stations.

Harvest – Collect harvest data from hunter submitted harvest questionnaires.

Research – Continue to collect annual adult doe and fawn survival rates, body condition scores, and cause specific mortality on this unit from GPS collared deer. Continue research efforts to identify migration corridors and limiting factors for deer herd growth.

Table 1a. Population Trends and Harvest for Unit 16BC Central Mountains, Manti

Year	Buck harvest	Permits	Fawn/Doe Ratio	Buck/Doe Ratio	Post-Season Population	Doe Survival	Fawn Survival
2010	1711	9101	73	14	19,900	87	39
2011	1406	7917	64	14	20,900	80	58
2012	2083	7458	72	16	23,600	77	93
2013	2168	8042	65	19	23,500	82	80
2014	2232	7754	67	23	25,100	83	69
2015	2215	8950	64	23	25,100	81	31
2016	2459	9225	64	16	25,700	88	37
2017	2141	8800	63	13	23,300	83	75
2018	2412	8600	65	17	25,700	83	39
2019	1685	8100	56	16	24,300		
<b>average</b>	<b>2051</b>	<b>8395</b>	<b>65</b>	<b>17</b>	<b>23,710</b>	<b>83</b>	<b>58</b>

Table 1b. Harvest Trends for Unit 12 San Rafael

	2015	2016	2017	2018	2019
Hunters Afield	1531	1492	1556	1601	1845
Harvest	421	341	534	381	430

**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 it is approaching carrying capacity.

Use antlerless harvest in combination with the Urban Deer Rule to reduce nuisance and depredation by deer.

**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.

**Private Lands Management**

Support programs that increase tolerance for deer on private lands including CWMU, landowner permits, 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 populations. Utilize Statewide CWD Plan objectives and strategies as they apply on this unit. The Manti subunit has been CWD positive for decades and shows an average minimal prevalence of 0.5%

### **CWD Strategies**

- Utilize rotational hunter harvest surveillance, targeting this unit once every several years.
- Consider compulsory testing of hunter harvested deer to increase sample size.
- Consider managing the unit toward the lower end of the buck/doe objective to minimize increase of the disease.
- Consider late season buck hunts in focal hotspots on the unit to minimize disease transmission.
- Educate public and enforce rules regarding carcass importation and disposal from CWD positive areas.

## **HABITAT MANAGEMENT OBJECTIVES**

Maintain or improve mule deer habitat on the unit by protecting, maintaining, and enhancing existing crucial habitats and mitigating losses due to natural and human impacts.

## **HABITAT MANAGEMENT STRATEGIES**

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

Continue to improve, protect, and restore sagebrush steppe and aspen habitats critical to deer.

Cooperate with federal and state land management agencies and private landowners in carrying out habitat improvements such as conifer removal, pinion-juniper removal, reseeding, controlled burns, grazing management, water developments, pond maintenance, etc. on public and private lands. Habitat improvement projects will occur through the WRI process.

Work with federal and state partners in fire management and rehabilitation on crucial deer habitat.

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

Continue to 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.

Continue to monitor permanent range trend studies on the unit.

Acquire additional crucial mule deer habitats through fee title or easement as opportunities arise.

Work with UDOT to develop measures that will minimize vehicle deer collisions.

Protect, maintain, and restore stream and riparian habitats to provide diverse foraging opportunities.

## **RECREATION OBJECTIVES**

Provide mule deer hunting that encourages a variety of hunting opportunities while maintaining population objectives.

## **RECREATION STRATEGIES**

Consider early rifle hunt opportunities as hunter crowding and other concerns dictate.

Evaluate areas where extended archery hunts or HAMS hunts could occur.

Work with land managers to maintain access during hunting seasons where appropriate.

**RANGE TREND SUMMARIES AND BODY CONDITION DATA**

Figure 1. Manti Deer Winter Range Desirable Components Index (DCI) Showing Proportions of Range Sites in each Condition Class (Poor, Fair, Good, etc.)

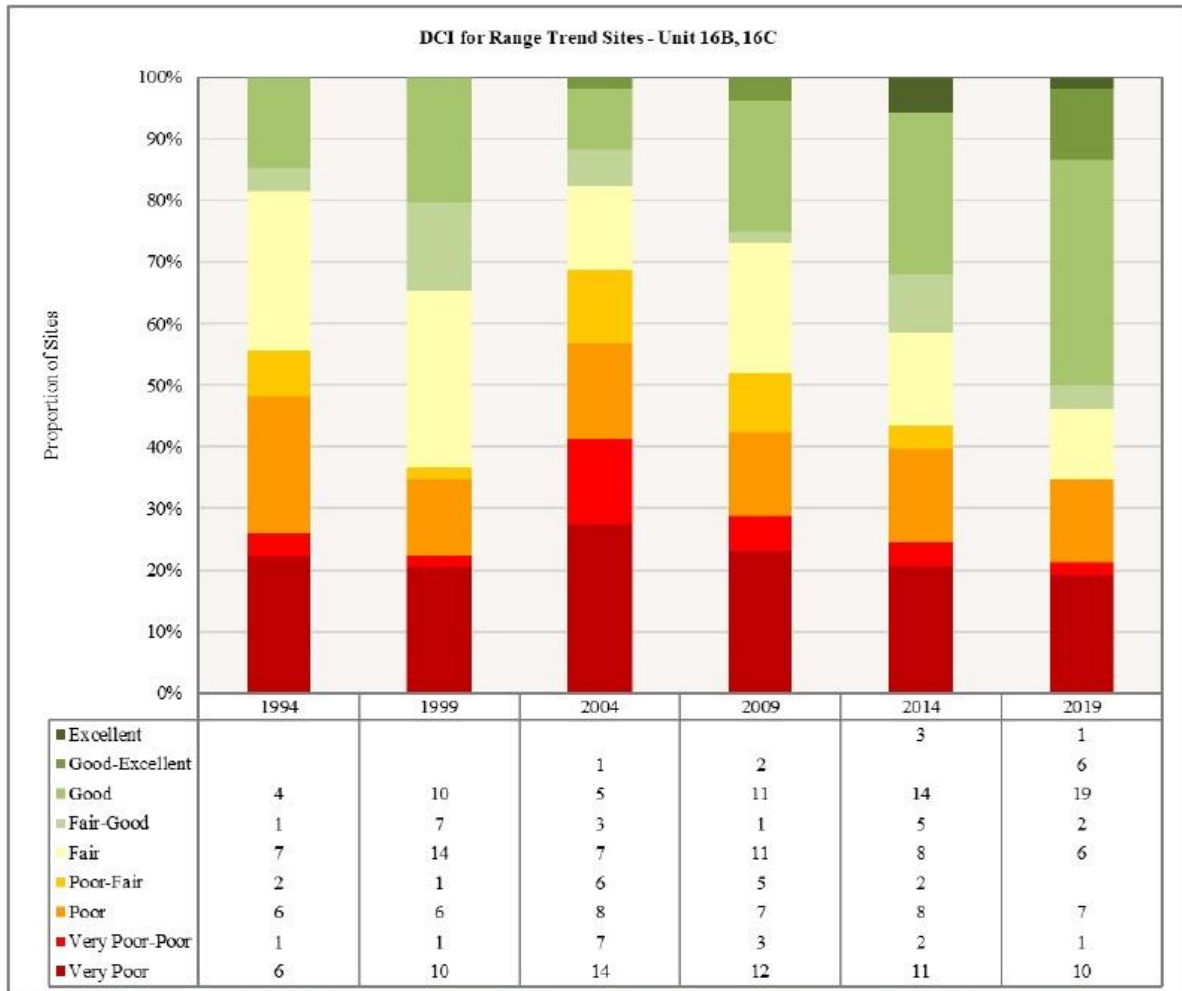
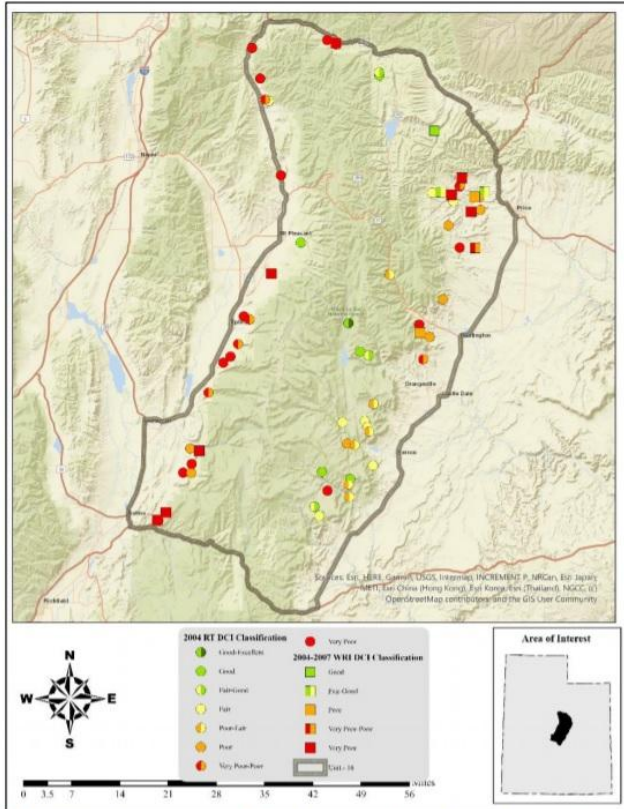
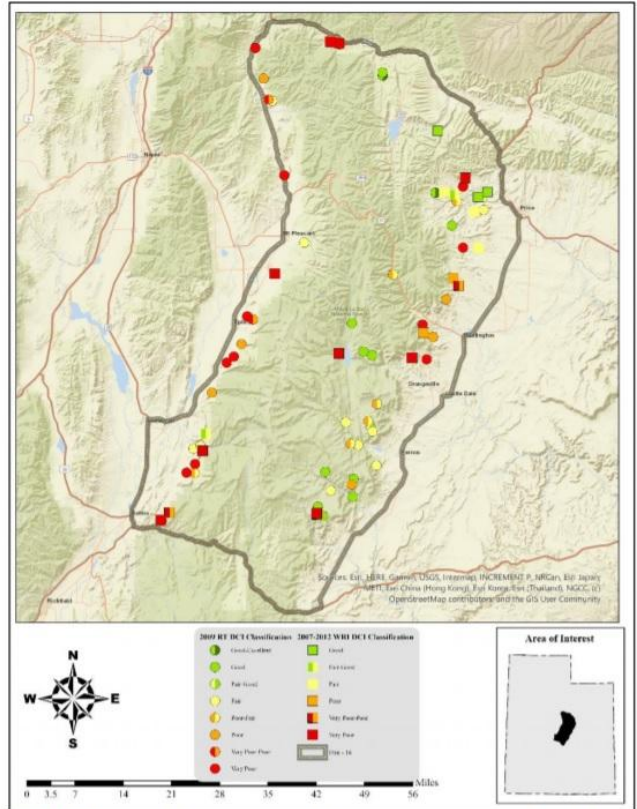


Figure 4.47: Deer winter range Desirable Components Index (DCI) summary by year of Range Trend sites for WMU 16B, 16C, Manti Central Mountains.

Figure 2. Map of Range Trend Sites in 2014 and 2019 Showing DCI Condition for Each Site



Map 4.11: 2004 Desirable Components Index (DCI) ranking distribution by study site for WMU 16B, 16C, Manti Central Mountains.

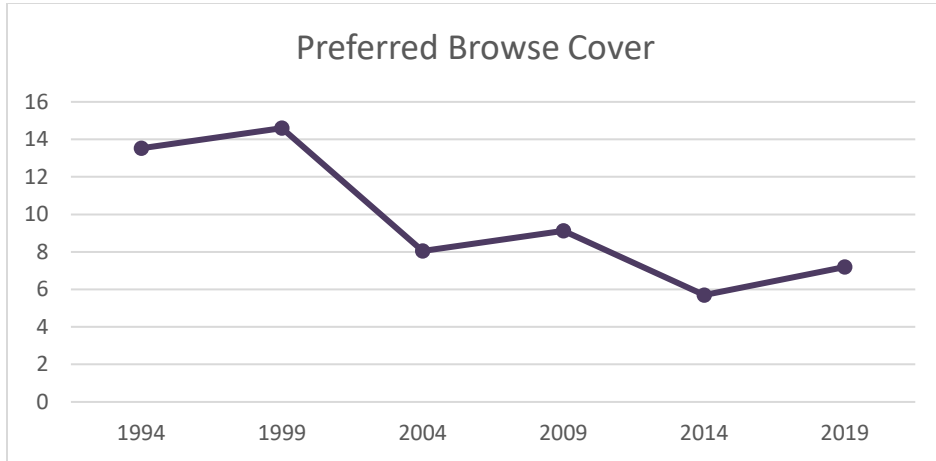


Map 4.12: 2009 Desirable Components Index (DCI) ranking distribution by study site for WMU 16B, 16C, Manti Central Mountains.

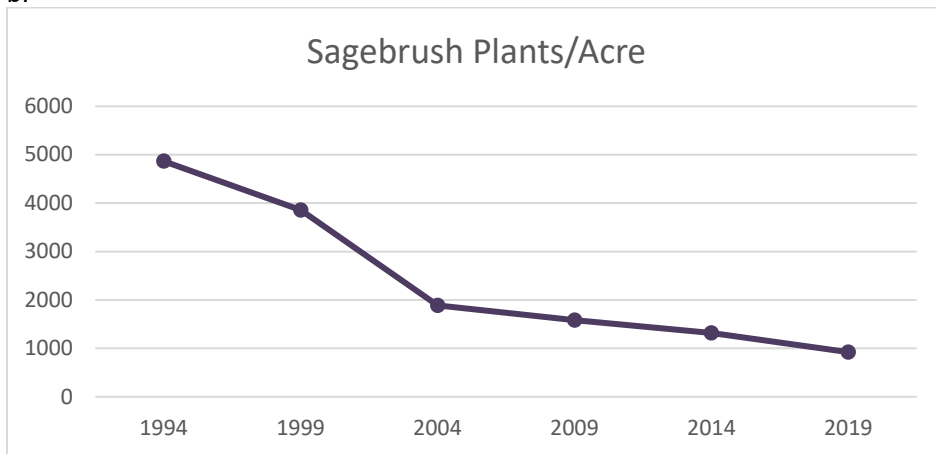


Figure 3a-c. Trends in Browse Cover (a), Density (b), and Utilization (c) on 8 Crucial Low Elevation Big Sagebrush Range Trend Sites on the Central Mountains, Manti Unit, 1994-2019.

a.



b.



c.

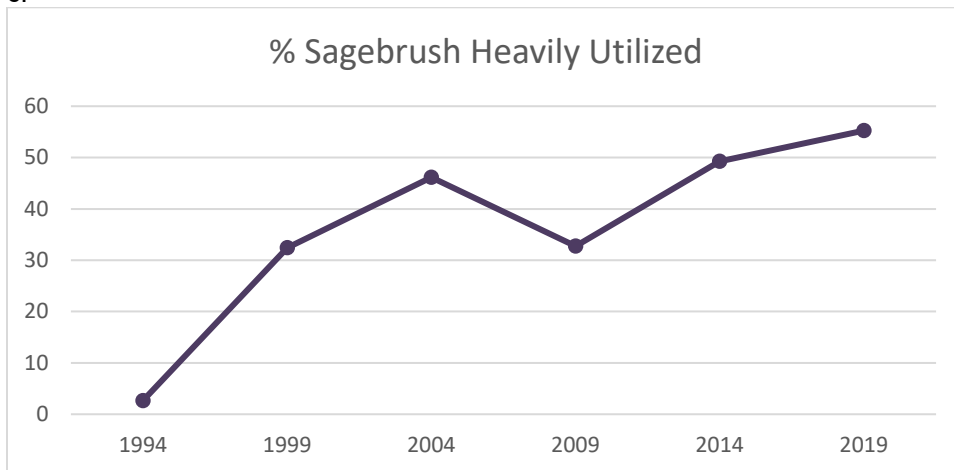


Table 2. Body Fat Comparisons of Captured Deer, 2014-2019 (Manti deer highlighted in red)

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
<i>South Manti</i>			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

Figure 4. Wildfires Occurring on Mule Deer Habitat, Central Mountains, Manti unit 2006-18

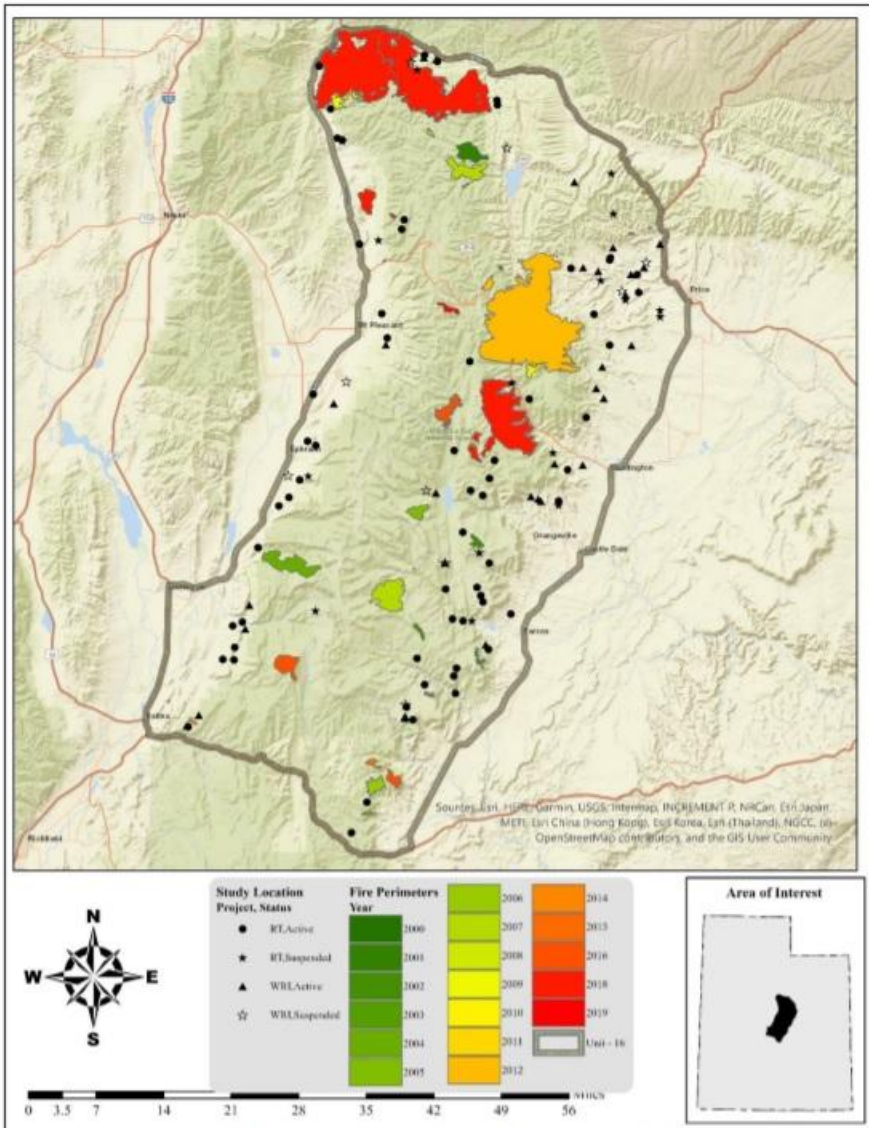


Figure 5. Mule Deer habitat treatment projects, Central Mountains, Manti 2006-18.

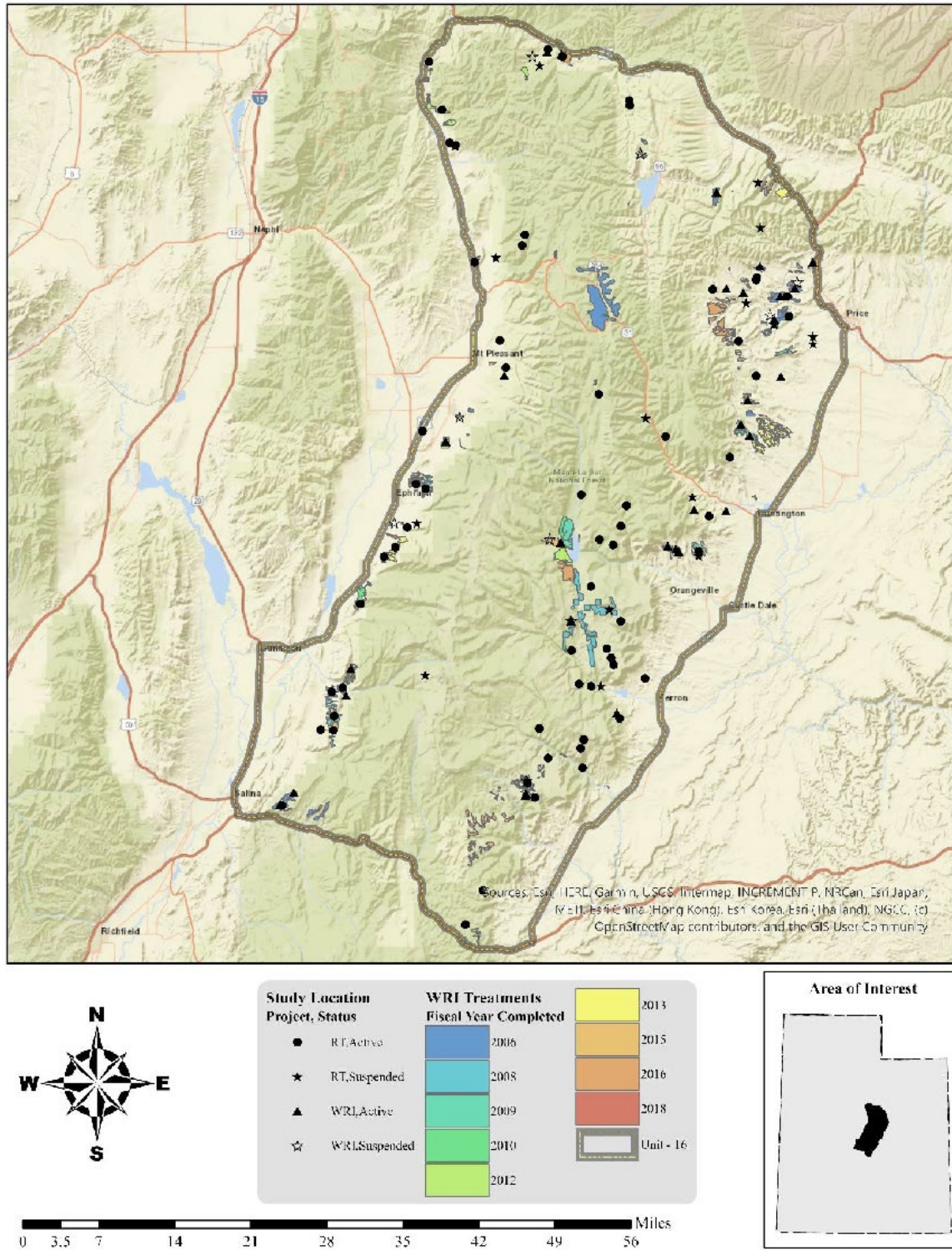


Table 3. Mule Deer Habitat Projects Completed, Underway, and Proposed 2006-18

Treatment Type	Completed Treatment Acreage	Current Projects	Proposed Treatments	Total Treated Acres
Mechanical Treatment	35,510	3,104	4,903	43,517
Forestry Practices	0	352	88	440
Herbicide Application	8,222	423	871	9,516
Prescribed Fire	1,848	0	16,367	18,215
Seeding/Planting	30,678	2,769	12,649	46,096
Hand Crew (Lop and Scatter)	15,283	2,206	7,924	25,413
Other	18	0	0	18
<b>Grand Total</b>	<b>91,559</b>	<b>8,854</b>	<b>42,802</b>	<b>143,215</b>