DEER HERD UNIT MANAGEMENT PLAN
Deer Herd Unit # 16BC, Manti
and
Deer Herd Unit #12, San Rafael
September, 2025

BOUNDARY DESCRIPTION

Unit # 16B and 16C 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.

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.

LAND OWNERSHIP

RANGE AREA AND APPROXIMATE OWNERSHIP OF MULE DEER HABITAT FOR UNIT 16BC- MANTI

Ownership	Area (acres)	Percentage (%)
Bureau of Land Management	130,144	8.72%
USDA Forest Service	864,000	57.91%
Utah State Institutional Trust Lands	87,367	5.86%
Private	337,820	22.64%
Department of Defense	78	0.01%
Utah Department of Natural Resources	72,335	4.85%
Utah Department of Transportation	125	0.01%
TOTAL	**1,491,869**	**100%**

RANGE AREA AND APPROXIMATE OWNERSHIP OF MULE DEER HABITAT FOR UNIT 12- SAN RAFAEL

Ownership	Area (acres)	Percentage (%)
Bureau of Land Management	436,450	60.89%
Utah State Institutional Trust Lands	47,813	6.67%
Private	30,515	4.26%
National Parks	196,118	27.36%
Utah Department of Natural Resources	5,839	0.81%
Utah Department of Transportation	21	0.00%
TOTAL	**6,727**	**100%**

UNIT MANAGEMENT GOALS

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

POPULATION MANAGEMENT OBJECTIVES

Target Winter Herd Size –Manage for a 5 year target population objective 38,000 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 a change is needed. 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 the objective.

New model parameters were used beginning in model year 2025. It was decided that it would be beneficial to use as much of the valuable data collected as possible (annual doe survival, annual fawn survival, and classification data) in developing population estimates. As a result of changing model parameters, population estimates for the past decade shifted up by as much as 4,000 deer over previous estimates. Much of the change in the population objective is a result of this upward shift of the population estimate using the new model parameters.

Using the new model parameters, data from the past 10 years suggest that the Manti deer population has varied between 23,000-33,000 deer (Table 1a). Long-term range trend data depicted in figures 1-3 suggest that browse cover, utilization and overall winter range health has slightly improved and is capable of sustaining at least the number of deer observed over the past decade.

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 8,000 to 10,000 deer over the next 5 years if precipitation patterns are favorable. It is recognized that climate conditions will be the primary driver of potential population growth or decline.

Manti Subunit Objective (1998-2019)	38,000 deer
Manti Subunit Objective (2020-2024)	28,000 deer
Manti Subunit Objective (2025-2029)	38,000 deer

San Rafael Unit (1998-2019)	no population objective
San Rafael Unit (2020-2024)	no population objective
San Rafael Unit (2025-2029)	no population objective

Population estimates and objectives will not be established for the San Rafael unit. Setting management objectives for the San Rafael portion of the unit and obtaining sex-ratios would be unreliable due to low deer densities and small, isolated deer herds resulting in inadequate sample sizes. The majority of deer are concentrated on the unit where there are agricultural corridors. Deer numbers along these corridors are not declining and provide hunting opportunities for 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 adult and fawn deer 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 herd composition counts conducted by biologists, survival and body condition data from GPS collared deer, and hunter harvest data. These data will be used to model the winter deer herd population size. The modeled population estimate for the winter of 2024 was 28,400 deer on the Manti.

Buck/doe ratios and Age Structure – Collect buck/doe and fawn/doe ratios data during fall composition counts. Monitor age class structure of the buck population through check stations, postseason classification, mandatory harvest surveys, and field bag checks.

Harvest – The primary means of monitoring harvest will be through statewide mandatory hunter harvest reporting.

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 Manti

Year	Population Objective	Previous Model Estimate	Updated Model Estimate	Permits	Harvest	Buck/Doe Ratio	Fawn/Doe Ratio	Doe Survival %	Fawn Survival %
2010	38000	19900	20600	9101	1711	14.2	72.6	90	54
2011	38000	10900	19800	7917	1406	14	63.6	87	39
2012	38000	23600	19800	8800	2083	15.6	72.2	80	58
2013	38000	23500	22200	8800	2168	18.7	65.4	77	93
2014	38000	25100	24700	8800	2232	22.8	66.5	82	80
2015	38000	25700	26200	8950	2231	23.3	64.1	83	69
2016	38000	23300	23600	9225	2462	15.6	63.7	81	31
2017	38000	23300	23900	8800	2142	13.3	62.8	88	37
2018	38000	25700	26300	8600	2418	16.7	65.2	83	75
2019	38000	25400	23300	8100	1689	16.3	56.4	83	39
2020	28000	24400	27400	8100	1800	15.5	68.1	71	73
2021	28000	26500	28900	7500	2222	20.1	63.5	82	48
2022	28000	28400	32600	7800	2461	22	59.5	90	58
2023	28000	26500	27200	7800	1953	18.9	58.3	74	18
2024	28000	28200	28400	8000	2316	19	66	83	52

Table 1b. Harvest Trends for Unit 12 San Rafael

	2015	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	***Ave.***
Hunters Afield	1531	1492	1556	1601	1845	1952	1375	1381	1652	886	*1527*
Harvest	421	341	534	381	430	394	275	442	363	192	*377*

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 2.2% over the past 4 years. CWD prevalence on the Manti in 2024 was 3%

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.

Urban Deer Management

Work with municipalities on localized urban deer control management actions. Work cooperatively with municipalities in developing urban deer management plans, within the guidelines set by state law and agency policies.

Poaching

While the effect of poaching on wildlife populations can be difficult to assess, the illegal take of wildlife is unacceptable. Law enforcement will continue to make mule deer protection a high priority by concentrating efforts on prioritized winter ranges. Success will only be achieved with vigilance and assistance from our conservation partners and the general public.

RECREATION OBJECTIVES

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

RECREATION STRATEGIES

Consider additional hunt opportunities such as early/late rifle, HAMSS or extended archery hunts as hunter crowding, disease issues and other concerns dictate.

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

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, reseedings, 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.

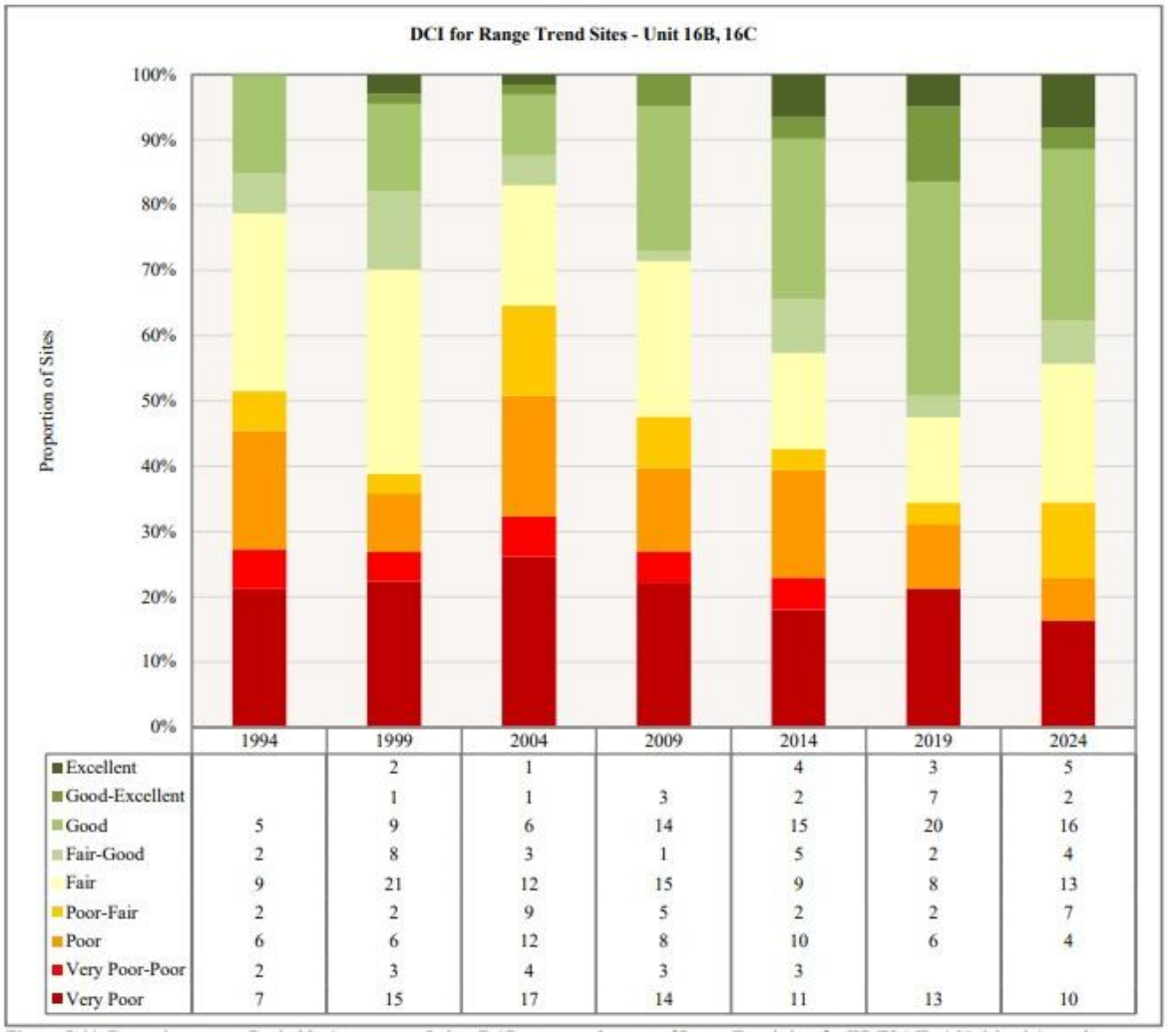
Continue to monitor permanent range trend studies on the unit.

Coordinate with counties and other partners to 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.

RANGE TREND SUMMARIES AND BODY CONDITION DATA



	1994	1999	2004	2009	2014	2019	2024
Excellent		2	1		4	3	5
Good-Excellent		1	1	3	2	7	2
Good	5	9	6	14	15	20	16
Fair-Good	2	8	3	1	5	2	4
Fair	9	21	12	15	9	8	13
Poor-Fair	2	2	9	5	2	2	7
Poor	6	6	12	8	10	6	4
Very Poor-Poor	2	3	4	3	3		
Very Poor	7	15	17	14	11	13	10

Figure 1. Manti Deer Winter Range Desirable Components Index (DCI) Showing Proportions of Range Sites in each Condition Class (Poor, Fair, Good, etc.) 1994-2024

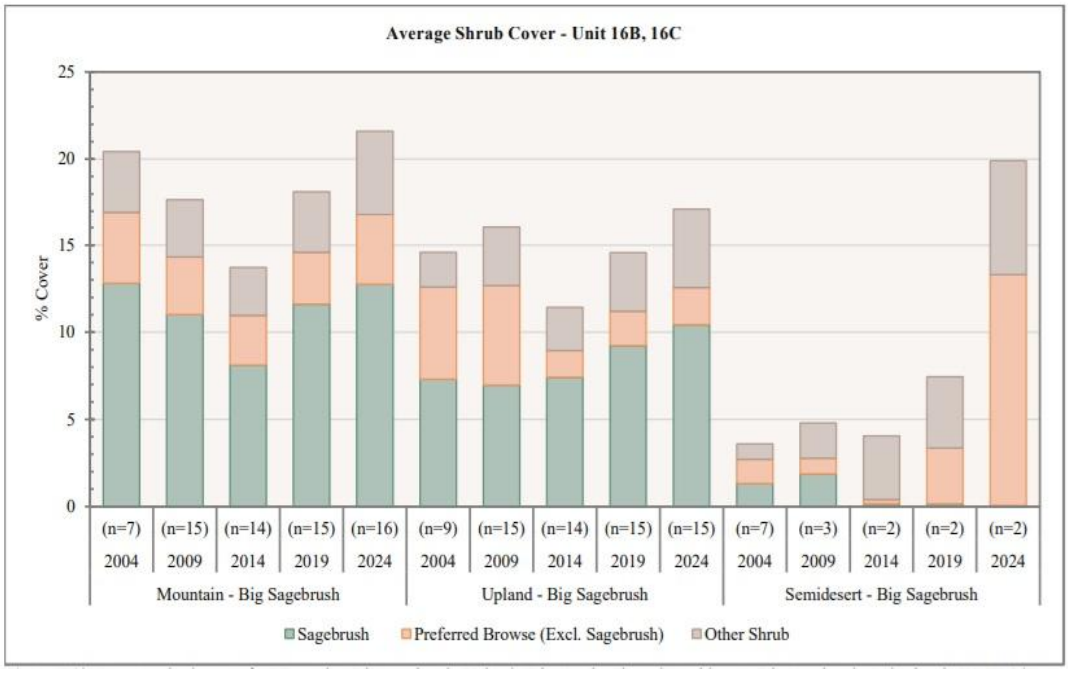


Figure 2. Trends in Browse Cover on Low and Mid Elevation Winter Ranges on the Manti Unit, 2004-2024.

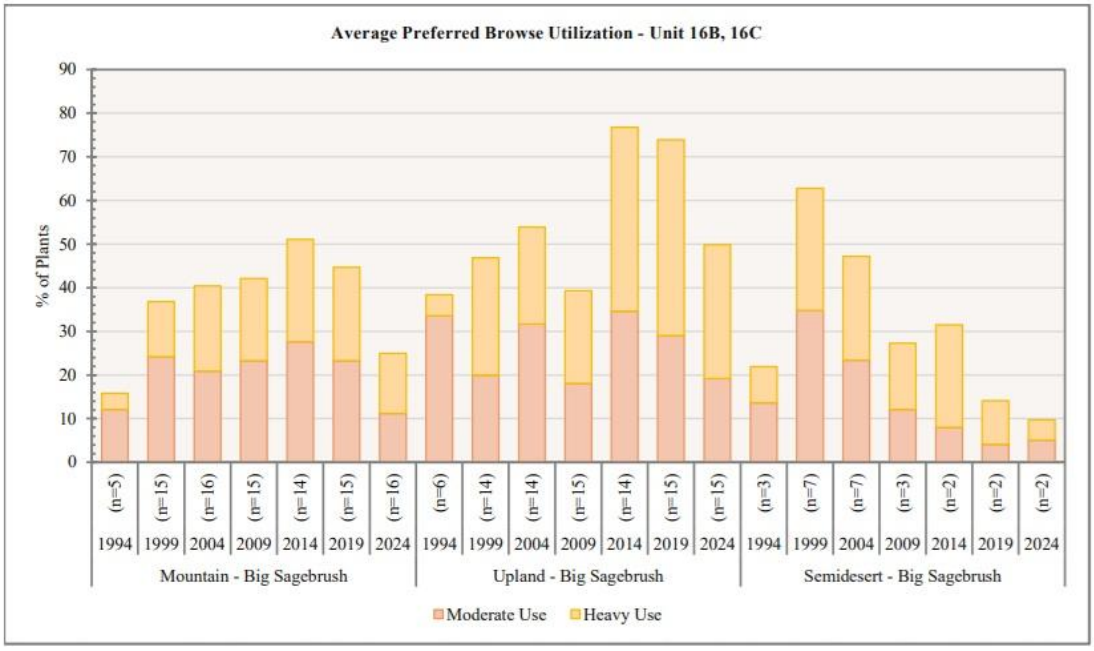


Figure 3. Trends in Browse Utilization across Low and Mid Elevation Winter Ranges on the Manti Unit, 2004-2024.

Table 2. Body Fat Comparisons of Captured Deer, 2014-2024 (Manti deer highlighted in red)

Percent (%) Ingesta Free Body Fat (IFBF)											
Unit	Dec 2014	Dec 2015	Dec 2016	Dec 2017	Dec 2018	Dec 2019	Dec 2020	Dec 2021	Dec 2022	Dec 2023	Dec 2024
Box Elder						8.79	9.3	12.42			
Cache		11.02	9.59	13.65	10.32	13.71	12.13	12.88	10.44	14.4	12.4
Morgan							8.84	10.84		14.97	
Antelope Island						9.99					
North Slope					8.59						10.06
South Slope	11.31	9.46	9	9.56	7.24	9.9	8.52	12.18	8.65	11.02	9.11
Oquirrh-Stansbury	10.52	8.43	9.56	8.79	7.39	8.46	8.26	10.91	9.91	10.02	10.43
Chalk Creek/Kamas					7.19	11.02	10.75				
Wasatch-Manti		8.76	9.22	10.23	9.32	11.11	8.97	10.28	9.4	12.02	9.53
Wasatch East						11.51	12.26	10.78			
Wasatch-West											12.3
Southeast Manti			8.87			9.42	9.25	10.89	8.03		
Southwest Manti							7.3				
Nebo-Tintic								12.67	8.88	12.61	9.33
Book Cliffs				7.56	6.35	8.8	7.13	8.88		6.65	8.84
Range Creek									8.48	11.25	8.58
West Desert					6.33	8.04					
Monroe	8.1	8.98	8.23	9.53	6.5	10.37	8.56	11.28	8.4	12.23	8.59
Beaver						7.75	8.44	9.67			
Boulder						8.54	5.96			10.05	10.9
Kaiparowits							5.88				
Panguitch					8.76	8.64					
Pine Valley		7.42	6.68	6.54	6.91	6.86	6.77	7.71	7.25	8.92	6.89
Southwest Desert											7.28
Zion					8.48	9.04				7.21	8.36
LaSal						8.63		7.61	8.91	11.46	6.64
San Juan		9.35	9.25	7.6	7.77	9.5	8.11	8.79	7.97	9.22	7.36
Statewide	9.98	9.06	8.8	9.18	7.78	9.48	8.61	10.52	8.76	10.86	9.16
Statewide_7_Units	9.98	9.01	8.71	9.72	7.95	10.07	8.87	10.87	9.01	11.12	9.19

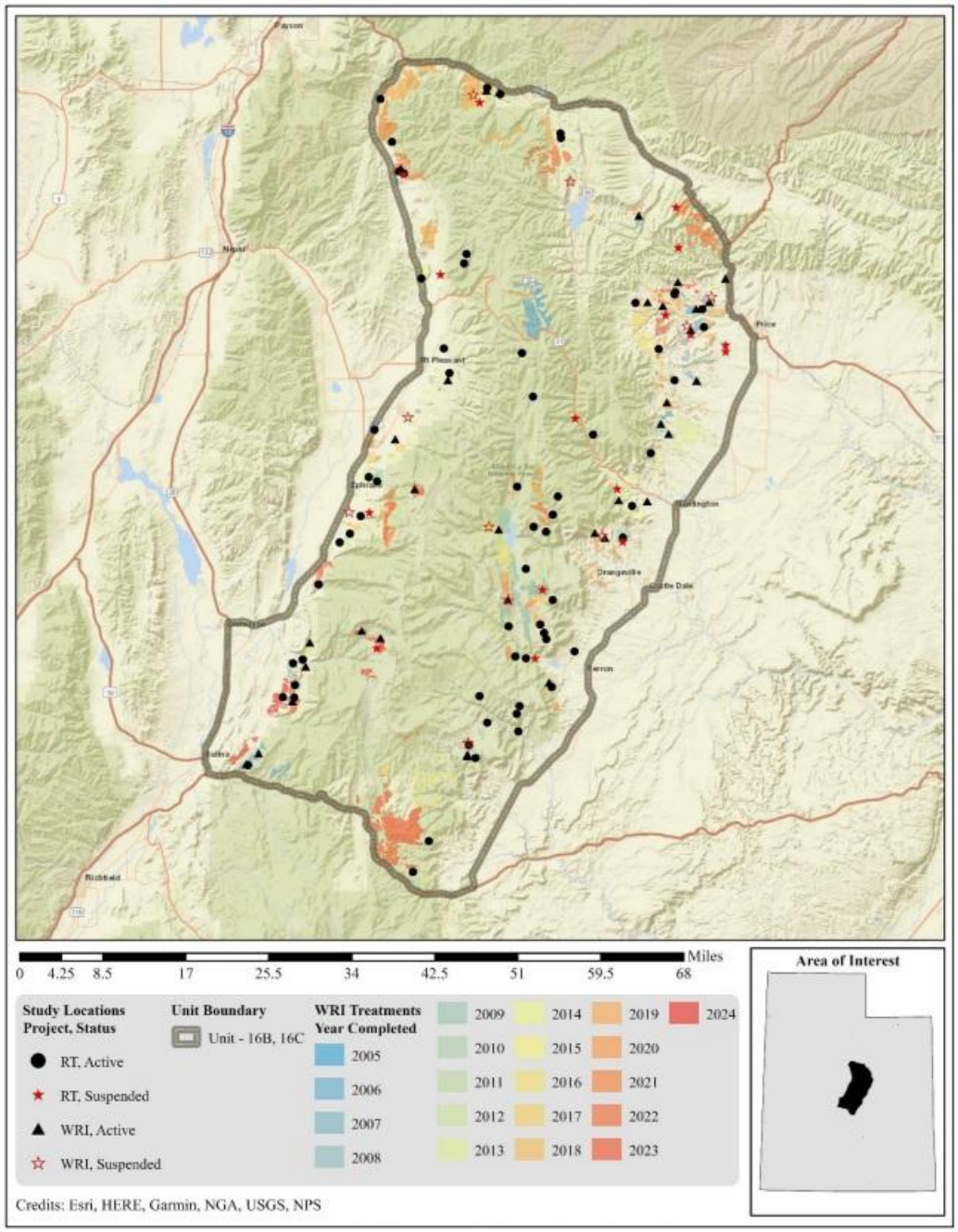


Figure 4. Mule Deer habitat treatment projects, Manti 2005-24.

DURATION AND AUTHORITY OF PLAN

After approval by the Utah Wildlife Board this unit plan will be in effect for five years, or until amended. Unit deer plan goals, objectives and strategies are constrained within the sideboards set in the statewide deer plan, which supersedes unit plans. It is possible that changes to the statewide deer plan may affect unit plans. Additionally, changes to Utah State Code and/or Administrative Rules may also affect deer unit plans.