2024

Statewide Habitat Restoration Annual Report for Mule Deer

PREPARED BY:

Daniel Eddington Utah Division of Wildlife Resources Habitat Conservation Coordinator

EDITED BY:

Danny Summers Utah Division of Wildlife Resources Assistant Habitat Section Chief



FISCAL YEAR 2024

HABITAT RESTORATION: Mule Deer by the Numbers





133,806

TOTAL ACRES RESTORED Proactive acres: 111,138 acres Fire rehabilitation: 22,668 acres \$38M

TOTAL FUNDING INVESTED

Federal = \$24,542,947 State = \$9,870,151 Conservation groups = \$2,806,802 Other = \$1,323,331



Mission

This document provides an overview of habitat restoration completed during fiscal year 2024 and highlights statewide efforts to improve habitat for mule deer in Utah. This work is a focus of the Utah Division of Wildlife Resources' Strategic Plan, as stated in the second objective of the plan's resource goal:

Maintain existing wildlife habitat and increase the quality of critical habitats and watersheds throughout the state.

The DWR administers <u>Utah's Watershed Restoration Initiative</u> and the <u>Habitat Council</u> to coordinate, facilitate and promote habitat restoration projects that improve the quality and quantity of habitats for terrestrial and aquatic wildlife. Through these programs, the DWR promotes partnerships and collaboration across all lands — regardless of ownership — and strives to improve habitats at a watershed scale.

Vision

- Protect and enhance wildlife habitats in Utah through proactive restoration.
- Promote, develop and facilitate partnerships across all landownerships and encourage watershed-level, large landscape projects.
- Provide innovative solutions and resources to resolve bottlenecks that limit restoration work.
- Coordinate efforts with land management agencies and provide timely resources for wildfire rehabilitation.



Utah's Mule Deer Statewide Plan (2025-2030) provides goals and objectives to guide restoration activities. The second habitat objective in the plan is to:

Improve the quality and quantity of vegetation for mule deer on a minimum of 600,000 acres of crucial range by 2030.

Habitat issues for mule deer in Utah

Utah's Mule Deer Statewide Plan (2025-2030) includes information about the habitat issues facing the state's deer populations. One of the major problems is that many of the ranges deer rely on are in areas with older vegetation that either has limited nutritional value or that crowds out other plants beneficial to mule deer. For example, many crucial deer winter ranges are covered with older shrubs — with little or no successful growth of young plants — or they are being replaced by annual grasses like cheatgrass, which increase the frequency and intensity of fire cycles.

Additionally, many aspen habitats are being replaced by pine and fir trees (conifers) that provide little forage for mule deer. For mule deer populations to thrive in Utah, it is essential that extensive habitat treatments be completed to revert sagebrush habitats back to young, vigorous, shrub-dominated communities, and to restore aspen communities to early seral stages. Habitat treatments vary by site, but they generally include chaining, bullhog use and pinyon-juniper lop-and-scatter projects on winter ranges and prescribed fire and logging on summer ranges.



In 2004, DWR and BLM crews removed pinyon pine and Utah juniper trees from 1,500 acres of land west of I-15 and south of Beaver. These trees were outcompeting the nutrient-rich plants that deer needed in important winter range habitat. After the tree removal, the area was seeded with more favorable types of grasses, flowering plants and shrubs. In December 2018, the same area was treated again to remove encroaching small trees. As you can see in the 2020 photo, the area now has plenty of vegetation that mule deer can feed on.

Habitat restoration expenses and partners

Many partners have been involved in habitat restoration for mule deer and have contributed funds to projects that focused on improving mule deer habitat. The following table lists funding partners and amounts spent in FY24 on mule deer projects.

In total, there are 50 funding partners that contributed to mule deer habitat work in FY24. Nonfundingrelated partners are not listed here. The DWR is grateful to its partners for their generosity and contributions to habitat restoration in Utah!

Funding partner	WRI/DWR amount spent	Other amount spent	In-kind amount spent
Box Elder County	\$0.00	\$0.00	\$5,000.00
Bureau of Land Management	\$10,750,012.13	\$269,822.95	\$141,600.00
Division of Water Quality (nonpoint source)	\$0.00	\$28,000.00	\$0.00
Ducks Unlimited	\$0.00	\$0.00	\$5,000.00
Eagle Mountain City	\$0.00	\$0.00	\$25,000.00
Elektron Solar, LLC	\$56 <i>,</i> 467.43	\$0.00	\$0.00
El Paso E&P Company, L.P.	\$27.08	\$0.00	\$0.00
Grand County, Noxious Weeds Department	\$0.00	\$0.00	\$5,177.50
Horseshoe Solar, LLC	\$56,467.44	\$0.00	\$0.00
Mule Deer Foundation	\$1,304,098.02	\$0.00	\$0.00
National Fish and Wildlife Foundation	\$70,000.00	\$0.00	\$0.00
National Forest Foundation	\$0.00	\$20,000.00	\$0.00
National Wild Turkey Federation	\$102,232.50	\$0.00	\$0.00
Natural Resources Conservation Service	\$2,631,494.90	\$166,581.80	\$20,000.00
Ogden City	\$0.00	\$50,000.00	\$4,000.00
Other	\$0.00	\$0.00	\$44,300.00
Pittman-Robertson Wildlife Restoration Act	\$568,651.58	\$0.00	\$0.00
Private	\$2,313.51	\$10,200.00	\$271,164.00
Recreational Trails Program	\$0.00	\$11,625.00	\$0.00
Rim to Rim Restoration	\$0.00	\$0.00	\$5,000.00
Rocky Mountain Elk Foundation	\$369,904.07	\$0.00	\$0.00
Rocky Mountain Power	\$48,086.33	\$0.00	\$0.00
Safari Club International	\$133,103.99	\$0.00	\$0.00
Sageland Collaborative	\$0.00	\$73 <i>,</i> 535.50	\$45,280.00
Sanpete County	\$0.00	\$0.00	\$28,000.00
Secure Rural Schools Program (U.S. Forest Service)	\$0.00	\$309,510.00	\$0.00
Sentinel Landscapes Initiative	\$0.00	\$30,366.00	\$0.00
Sportsmen for Fish and Wildlife	\$614,025.20	\$0.00	\$0.00
Summit County	\$0.00	\$28,515.00	\$17,000.00
Trails Foundation of Northern Utah	\$0.00	\$147,106.24	\$500.00
Trout Unlimited	\$0.00	\$0.00	\$2,000.00
U.S. Air Force	\$87,546.26	\$0.00	\$24,500.00

Funding partner	WRI/DWR amount spent	Other amount spent	In-kind amount spent
U.S. Bureau of Reclamation	\$0.00	\$104,547.78	\$0.00
U.S. Fish and Wildlife Service	\$808,671.78	\$9,500.00	\$102,100.00
U.S. Forest Service	\$5,060,273.26	\$1,212,300.00	\$3,033,630.45
Utah Archery Association	\$33,491.63	\$0.00	\$0.00
Utah Department of Agriculture and Food	\$50,000.00	\$76,200.00	\$4,340.00
Utah Division of Forestry, Fire and State Lands	\$681,766.17	\$213,443.33	\$88,400.00
Utah Division of Wildlife Resources	\$1,356,457.94	\$0.00	\$258,842.06
Utah Public Lands Policy Coordinating Office	\$188,902.32	\$0.00	\$0.00
Utah State University	\$0.00	\$30,893.00	\$10,000.00
Utah Trust Lands Administration	\$245,425.00	\$0.00	\$1,000.00
Utah Valley Trails Alliance	\$4,402.20	\$0.00	\$0.00
Utah Wild Sheep Foundation	\$232,509.04	\$0.00	\$0.00
Utah's Hogle Zoo	\$0.00	\$0.00	\$7,414.00
Utah's Watershed Restoration Initiative	\$6,067,830.24	\$0.00	\$0.00
Volunteers	\$0.00	\$0.00	\$37,240.20
Weber Basin Water Conservancy District	\$0.00	\$25,000.00	\$0.00
Wildlands Network	\$0.00	\$0.00	\$5,000.00
Wildlife Conservation Foundation	\$10,437.92	\$0.00	\$0.00
Sub Total	\$31,534,597.94	\$2,817,146.60	\$4,191,488.21
Grant Total	Ś	38,543,232.75	



Habitat restoration program accomplishments

Fiscal year	Sum of terrestrial acres	Sum of aquatic/riparian acres	Sum of stream miles	Easement acquisition acres
2020	139,403	2,886	220	
2021	193,735	2,382	227	
2022	127,920	1,165	120	
2023	110,991	1,469	76	8113*
2024	133,806	2,013	42	0
Grand total	705,855	9,915	685	8,113
Target objective for 2020–2024	500,000			

Total acres completed for mule deer (2020-2024)

*Purchase of Cinnamon Creek Wildlife Management Area

Restoration project highlights from FY24

Northeastern Region

Project name: Willow Watershed Improvements FY2024 (WRI #6585)

Background

The Winter Ridge area of the Book Cliffs is used by bison, elk, mule deer, wild horses and livestock. Forage availability appears to be limiting population growth for all these species, particularly during dry years. To address this issue, the Book Cliffs working group has prioritized vegetation treatments to improve the quality and quantity of available forage. This project will help provide additional forage resources in an area where there is high demand.

By removing trees and seeding the area with a variety of grasses and flowering plants, biologists hope to see migrating deer linger in the treatment area for longer. Providing additional high-quality forage for migrating deer should improve their fat reserves and increase their winter survival rates. The fawns born to those deer should have higher birth weights and a better chance of survival.

Many of the streams in the area have become highly incised, which means they've cut deep channels into the valley through erosion, and they are no longer connected to the flood plain. Installing low-tech structures — like beaver dam analogs — in degraded riverscapes has been shown to reverse incision and increase stream complexity.

Treatment methods

Habitat crews dropped seed onto the area from a fixed-wing aircraft. They mulched trees with mobile mulching bullhog machines. Contract specs indicated that trees over 12 inches diameter were to be left in place.

Another contractor performed maintenance on 60 beaver dam analog structures within Willow Creek and Meadow Creek. They used 8-foot posts and locally sourced material, including sagebrush, greasewood, dirt and rock. They also built an additional 10 structures in Meadow Creek.



These images from the Willow Watershed Improvements FY2024 project (WRI #6585) show the area before treatment (top left), a bullhog mulching smaller trees (top right), the growth of new vegetation in the treated area (bottom left) and one of the beaver dam analog structures in Willow Creek (bottom right).

Project name: Currant Creek WMA Aspen Enhancement (WRI #6212)

Background

Conifer species (including pines and firs) are crowding into the aspen stands, reducing production and their benefit to wildlife. The Currant Creek WMA is one of the few properties the DWR manages that has aspen/conifer high-elevation forest habitat. Many of the north-facing slopes are covered with thick conifer growth, which has fewer benefits for wildlife. There have been attempts to use prescribed fire in the area, but the conditions and topography make a burn very difficult to start and maintain.

Treatment method

A private contractor removed approximately 100 acres of conifer-encroached aspen stands within one polygon. The polygon was outlined with one bulldozer, and secondary lines were cut throughout the polygon at intervals of 250–300 feet. The parallel intervals were then used by two bulldozers pulling a large cable — which was held off the ground by a large drum — to cable fell the trees between the dozer lines. The felled trees were piled into rows within the treatment area. The Division of Forestry, Fire and State Lands will burn the piles of dead timber during the winter of 2024-2025.



These images from the Currant Creek WMA Aspen Enhancement project (WRI #6212) show a bulldozer in the project area (top left), and piles of felled trees in the remaining photos. Now that the conifer-crowded trees have been removed, new aspen growth can occur and be more beneficial for the area's wildlife.

Southeastern Region

Project name: Salina Creek Phase 5 (WRI #6498)

Background

Restoration in the Salina Creek and Old Woman Plateau areas is needed to not only address the significant decline of sagebrush, grasses and flowering plants (called forbs), but also to reduce the risk of catastrophic wildfire. Forage productivity has diminished greatly over the past century, and the annual expansion of pinyon pine and juniper trees continues to push into the more productive sagebrush/grass/forb and mountain brush communities. This expansion factor also contributes to the issue of big game animals moving closer to higher-elevation aspen and local agricultural crops in the valleys to find sustainable forage.

Treatment methods

Roughly 8,087 acres of prescribed fire was used on both U.S. Forest Service land (6,831 acres) and private land (1,256 acres). Ponderosa pine, mixed conifer/aspen, oak and pinyon-juniper fuel types were targeted throughout the area, with the objective of burning 60% (in a mosaic approach) and leaving 40% unburned. There were also 703 acres of chain harrow sagebrush treatments that occurred throughout the prescribed burn treatments on U.S. Forest Service land. Seed was applied on approximately 1,396 acres before a mastication contract began. (Mastication can help improve the success of seeding.) Seeding occurred during fall 2023 and mastication occurred in both fall 2023 and spring/early summer 2024. With the assistance of volunteers from the Rocky Mountain Elk Foundation, two wildlife guzzlers were installed on the Old Woman Plateau in summer 2023.



These images from the Salina Creek Phase 5 project (WRI #6498) show the different treatment methods used. You can see one of the completed guzzlers (top left), mastication with a bullhog (top right), prescribed fire to thin out overcrowded conifers (bottom left) and the resulting mosaic landscape after trees were masticated and removed (bottom right). Now, there is more space for the growth of young sagebrush, grasses and flowering plants, which all serve as a nutritious food source for hungry wildlife.

Central Region

Project name: Twelve Mile Watershed Restoration Project FY 24 (WRI #6536)

Background

In 2020, the DWR began the process to improve big game habitat in the Twelve Mile Canyon area near Mayfield. Big game populations were below objective. The DWR, the U.S. Forest Service and conservation organizations joined together to improve the deer and elk populations in the Twelve Mile Canyon area.

Excessive conifer growth that crowded into the area's high-elevation aspen zones was reducing available forage for big game in the summer. Many wildlife species depend on the forage found in the aspen stands, in open meadows and in areas along streams and ponds. The key to the best possible watershed health and ideal big game habitat is to maximize vegetation diversity across the landscape.

Treatment methods

The U.S. Forest Service used an in-house feller buncher, a bullhog, and their own personnel to cut and pile large conifer trees within approximately 1,038 acres of high-elevation conifer and aspen stands. This created multiple age classes of remaining trees. The piled conifer trees will be burned in the winter of 2024-25. This work opened up the tree canopy, allowing more sunlight to reach the ground, and it reduced conifer competition with the aspen trees and other understory vegetation. This will greatly increase the amount of forage available for mule deer. Approximately 60 post-assisted log structures near the Pinchot Pond area were installed to reduce erosion of the stream channels, improve water storage capacity, increase forage and provide more water to wildlife.



These images from the Twelve Mile Watershed Restoration Project FY24 (WRI #6536) show conifer-thinning efforts and aspen regeneration work to improve mule deer summer range (top photos and bottom right photo). The bottom-left photo shows one of the post-assisted log structures, placed near the Pinchot Pond area to reduce erosion and improve water availability for wildlife.

Project name: <u>Wallsburg WMA Shrub Restoration FY-24 (WRI #6533</u>)

Background

The Wallsburg WMA is an important winter range for deer. Shrub-poor areas are increasing on the WMA as older sagebrush plants die and are not replaced by new plants. Some of this problem is caused by an abundance of nearby — mostly non-native — perennial grasses, including bulbous bluegrass. The older sagebrush has also been affected by voles, which gnaw all around the bark, disrupting the flow of nutrients and water. This project will help to increase diversity of shrubs on the WMA and create a multi-age class of preferred plants that will provide additional winter forage for big game.

Treatment methods

A bulldozer with a scalper attachment was used to remove competitive grasses and to distribute seed on 10 acres of the Wallsburg WMA in November 2023. Bitterbrush seed was planted about 2 inches deep (in the middle of the strips where grass was removed), while sagebrush, fourwing saltbush and forb/wildflower seeds were scattered in front of the dozer tracks. Approximately 6,400 shrub seedlings were planted in a nursery in March 2024, and then they were transplanted into the project area in December 2024.



These images from the Wallsburg WMA Shrub Restoration FY-24 project (WRI #6533) show the bulldozer with a scalper attachment removing strips of non-native grass from the WMA (top left) and an employee pouring seed into the dozer (top right). The bottom images show the shrub-planting work that occurred in the areas where grass was removed.

Northern Region

Project name: Bear River Watershed Resilience Phase 2 (WRI #5545)

Background

This project is located on the north slope of the Uinta Mountains, west of state Route 150. The purpose of this project is to improve forest health, forest and watershed resiliency, wilderness character and wildlife habitat — all at a landscape scale — throughout the West Fork Bear River Watershed (36,509 acres). This will be done by regenerating aspen trees that are crowded by conifers, creating landscapes with multiple age classes of trees and reducing hazardous fuel loads that are increasing due to the mountain pine beetle epidemic.

Treatment methods

A partnership of the U.S. Forest Service, the Mule Deer Foundation, the DWR, the Division of Forestry, Fire and State Lands, and other regional contributors completed fuels thinning, meadow enhancements, aspen regeneration and conifer treatments. The work occurred through a combination of lop-and-scatter projects (on 525 acres) and mastication (on 182 acres), for a total of 707 acres. This improved the aspens' benefits for big game, reduced hazardous fuel buildup, and helped ensure forest resiliency by creating multiple age classes of trees and diversifying vegetation. Additional treatments will continue in FY 2025.



These images from the Bear River Watershed Resilience Phase 2 project (WRI #5545) show the mastication process (top right) and the remaining forest after some of the trees were thinned and removed (bottom images). The top left image shows deer in the project area, right after the treatment.

Project name: I-15 Wildlife Exclusion Fence (WRI #6042)

Background

Mule deer highway mortality numbers (obtained from data collected in 2017) documented 34 deer deaths (4.7 per mile) on I-15 from the Plymouth interchange to the Riverside interchange. It's possible that the data underestimates the actual kill by 3-5 times. This project will connect to an existing fence (completed several years ago) that runs from milepost 392 to the Idaho state line. The new fence should save roughly 100 animals in this section of road each year.

Treatment methods

The Utah Department of Transportation completed a total of 10 miles of wildlife exclusion fencing and wildlife escape ramps, and they also installed cattle guards by exit ramps along I-15 in northern Utah, from MP 387 to MP 392. This project directly reduces mule deer and elk roadkill in known hotspots. The DWR and UDOT continue to work together to monitor this area — and adjacent areas — to reduce wildlife-vehicle collisions and to improve highway safety.



These images from the I-15 Wildlife Exclusion Fence project (WRI #6042) show the completed fencing along I-15.

Southern Region

Project name: Lost Creek Collaborative Phase 2 (WRI #6496)

Background

The mountains in the Lost Creek area, west of Salina, have seen significant declines in the quantity and quality of their sagebrush, grasses and flowering plants (also called forbs). The rapid growth and expansion of pinion pine and Utah juniper trees are pulling water and nutrients away from the other plants, causing their decline. These conditions have resulted in negative impacts to Lost Creek, to the water quality of Sevier River tributaries and to numerous wildlife species — including mule deer — which are dependent upon this area and these ecosystems.

Treatment method

The Lost Creek Collaborative Project was completed in fall 2023, treating over 1,850 acres of pinyon and juniper trees with mastication equipment and then re-seeding portions of the Boobe Hole and Bald Mountains areas of central Utah. In addition, 2,811 acres of culture resource clearances were completed for implementation in fall 2024. Three big game guzzlers were also installed, providing critical water sources for wildlife within the Lost Creek project. This project was supported through a great collaborative effort. The DWR, Bureau of Land Management, U.S. Forest Service, U.S. Fish and Wildlife Service Partners Program, Utah Trust Lands Administration, private landowners and conservation groups worked together to improve and enhance wildlife habitat, specifically for mule deer, elk and turkeys. Both the quantity and quality of Utah's mule deer habitat is trending upward because of multi-landscape habitat restoration efforts like the Lost Creek Project.



These images from the Lost Creek Collaborative Phase 2 project (WRI #6496) show the areas where pinyon-juniper trees were cleared and thinned through mastication (top images). They also show the installation of a big game guzzler (bottom images). This project improved both forage and water availability for many species, including the area's mule deer.

Project name: Parowan Front Maple Hollow (WRI #5948)

Background

The Parowan Front project area is dominated by stands of pinyon and juniper trees. A high percentage of the younger trees are crowding into areas that hold sagebrush, bitterbrush, cliffrose and other shrubs. The pinyon-juniper growth is also causing a downward trend in the growth of grass and flowering plants.

The project area serves as an important winter and transition range for mule deer. The I-15 corridor severely diminishes the amount of winter range accessible to the Panguitch Lake deer herd (unit 28). This project will help address these issues by improving and adding critical high-quality transitional and winter range for mule deer and other species that rely heavily on sagebrush.

The success of this project is largely due to the partners involved. Staff from the DWR, Bureau of Land Management and Natural Resources Conservation Service — in addition to BLM grazing permittees — all worked together to plan and implement treatments. Funding for the projects came from Utah's Watershed Restoration Initiative, Habitat Council, Bureau of Land Management, Natural Resources Conservation Service, Sportsmen for Fish and Wildlife, Rocky Mountain Elk Foundation, Mule Deer Foundation and National Wild Turkey Federation. We are grateful for all the partners who have come together to help plan, fund and implement these projects.

Treatment methods

The Parowan Front herbicide and Maple Hollow projects were largely completed in fall and spring of 2023–2024. In Maple Hollow, approximately 976 acres were masticated and seeded, with an additional 1,063 acres treated with the lop-and-scatter method.

There is still a water-development portion of the project that needs to be completed. It was started in fall 2024 and will be finished in spring 2025. It includes the redevelopment of Maple Spring, the installation of more than 6 miles of new pipeline and 7 tire troughs.

The Parowan Front herbicide project used Plateau Herbicide (imazapic) on BLM lands and the herbicide Rejuvra (indaziflam) on state lands to treat cheatgrass from previous phases of the Parowan Front projects (totaling 2,766 acres).



These images from the Parowan Front Maple Hollow project (WRI #5948) show a spring collection development (top left) and multiple area after the pinyon-juniper trees were thinned (top right and bottom images). Mule deer were seen in the project area after the work concluded (bottom right).

Restoration highlights of past treatments

Habitat restoration projects can take years to fully mature after treatments have been completed. Utah's Watershed Restoration Initiative has been an active program since 2006 and has several examples of how active restoration can restore and enhance mule deer habitat.

After a treatment occurs, many of the grasses and flowering plants (called forbs) can respond and mature fairly quickly (3-5 years), but the shrubs (like sagebrush and bitterbrush) can take 15-20 years to establish and mature. Highlighted below are examples of restoration project areas that were treated at the beginning of the WRI program and are now providing excellent habitat for mule deer. The DWR's <u>Big</u> <u>Game Range Trend program</u> monitors many restoration treatments and provides long-term data.

Project name: Bowler Chaining (WRI #563) - Range Trend Report (20R-03)

This project is in Hamlin Valley (Iron County). An anchor chain dragged between two D-9 bulldozers was used to remove juniper trees and prepare the soil for seeding on 854 acres. After the initial chaining in October 2006, grass and forb seeds were dropped from a fixed-wing aircraft. The area was back-chained to cover the seed and ensure good removal of juniper trees. The 2011 and 2022 images below show the substantial growth of shrubs, grasses and leafy plants after the thick stands of juniper trees were removed. That diverse vegetation provides more nutritious forage for the area's deer herds.



BOWLER CHAINING

Project name: South Canyon Year 2 (WRI# 2027) - Range Trend Report 28R-19

The South Canyon project area, near Panguitch, was dominated by thick stands of pinyon and juniper trees. A high percentage of the younger trees were crowding into sagebrush areas, causing a downward trend in the amount and diversity of other plant cover. Some areas within the site had little to no remaining sagebrush, grasses or flowering plants. The goal of the project was to improve 1,900 acres of sage-grouse habitat, mule deer winter range, elk range and pronghorn range. A secondary goal was to reduce hazardous fuels by mechanically mulching pinyon and juniper trees and conducting aerial seeding. Work began in October 2011 and was completed by January 2012. By 2023, most of the vegetation in the project area included plants beneficial to mule deer and other wildlife.



SOUTH CANYON

Project name: <u>Wildcat Canyon Pinyon-Juniper Removal</u> (WRI #32) – <u>Range Trend</u> <u>Report 16R-16</u>

This project area, west of Helper, had stands of Wyoming big sagebrush that gradually deteriorated, with a distinct die-off in the spring of 2003. Big game animals, especially mule deer, rely on the sagebrush stands extensively during winter. This area also had thick growth of pinyon and juniper trees, which outcompeted and limited the growth of shrubs, grasses and forbs.

In October 2007, the project area was seeded using a fixed-wing aircraft, which dropped a seed mixture of grasses, forbs and shrubs. The pinyon and juniper trees were pushed over and uprooted with a D-8 bulldozer that had an attached roller chopper, which was used to crush the trees. Brush, shrubs and grasses now make up the majority of the vegetation within the project area.

WILDCAT PUSH

% Cover	2005	2014	2023
Perennial Grass	3.1	18.6	24.0
Preferred Shrubs	0.2	1.5	6.8
Pinyon & Juniper	16.4	1.3	3.6

Future plans for habitat restoration for mule deer

Utah has taken a proactive approach toward improving mule deer habitat over the last 20 years. With that said, there is still much work to be done to ensure healthy ecosystems for Utah's mule deer populations. The state's winter, transition and summer ranges all need continual improvement to sustain and grow mule deer populations.

In the past 15 years, much of the emphasis has been on winter range habitat and great improvements have been made. More recent research — conducted through the <u>Utah Wildlife Migration Initiative</u> — suggests that additional work needs to be completed in summer range habitat. In the last 5-10 years, many more summer range (aspen) projects have occurred, and that focus will continue to increase. Future mule deer habitat projects in Utah are already being planned:

- Each year, the Habitat Council and Watershed Restoration Initiative will continue to review hundreds of proactive projects that address threats to mule deer habitat.
- DWR and Watershed Restoration Initiative regional teams will continue working closely with partners to find shared goals and objectives related to mule deer habitat.
- All of the DWR's regional habitat teams are developing five-year restoration priorities for their respective mule deer herd units.
- Utah's Watershed Restoration Initiative will continue to prioritize rehabilitating mule deer habitat that is lost due to wildfires.

List of completed FY24 habitat restoration projects for mule deer

For more information on each project (details, photos, budgets, etc.), please visit <u>Utah's Watershed</u> <u>Restoration Initiative</u> (wri.utah.gov) database and search for the project using the WRI project number or title.

WRI #	Title	Region
4396	Monroe Mountain Aspen Ecosystems Restoration Project Phase 3	Southern
4552	Boulder Mountain Landscape Health Improvement Project NEPA Request	Southern
4735	East Canyon (Monticello Gunnison Sage-Grouse Habitat Restoration phase 1)	Southeastern
4833	Billingsly Creek Stewardship Project	Southern
4944	Ranch Canyon/Bear Creek - Riparian Enhancement	Southern
5010	Three Creeks Private Lands Inclusion Fence	Northern
5114	Cook Canyon WUI Bullhog	Northern
5223	Government Creek P/J Reduction - Phase I	Southern
5238	Hans Pumpernickle Habitat Restoration Shared Stewardship	Southern
5385	Annabella WMA Upland Habitat Improvement Project Phase III	Southern
5447	Monroe Mountain Aspen Ecosystems Restoration Project Phase 6	Southern
5499	2020 Turkey Farm Road ESR	Southern
5503	2020 Cottonwood Trail ESR	Southern
5529	Pine Valley Fuel Break 2021	Southern
5543	Teasdale Front Fuels Reduction Treatment Phase I	Southern
5545	Bear River Watershed Resilience Phase 2	Northern
5573	Moab field office Cheatgrass Control	Southeastern
5581	Upper Provo Watershed Restoration Phase 6	Northern
5588	Upper Santa Clara Watershed Restoration and Defensible Fire Space project Phase I	Southern
5619	Lake Canyon Watershed Project Phase III	Northeastern
5625	Stansbury Mountains Winter Range Improvement and Solar Farm Mitigation	Central
5631	Hamlin Valley Wash Sage Steppe Habitat Improvement	Southern
5637	Zion Migration Corridor Habitat Improvement Phase II	Southern
5658	South Manti Big Game Summer Range Restoration	Central
5665	Escalante Municipal Watershed Phase 1 and Hungry Creek NEPA	Southern
5722	Sevier plateau guzzlers	Southern
5744	UKC-Mill Creek/Lick Creek	Southern
5754	East Fork Sevier brush removal	Southern
5779	Fremont River Ranger District Ponds	Southern
5829	Devil Creek Bullhog	Central
5884	Yellowjacket (Rosy Canyon)	Southern
5885	Parley's Canyon Watershed Restoration FY23	Central
5889	Kane Spring Vegetation Treatment FY2023	Southern

WRI #	Title	Region
5892	La Sal/Abajo Rx and Mx FY23	Southeastern
5901	Strawberry Ridge Watershed Restoration Project FY 23	Central
5909	Greenville Bench - Stewart Spring	Southern
5910	Weber River Watershed Restoration and Forest Resilience - FY23	Northern
5922	Indian Creek Pine Creek	Southern
5926	North Sheeprocks Watershed Restoration FY 23	Central
5932	Greenville Bench-Lee Springs	Southern
5936	West Northwest D1 Wildlife Habitat Project- Phase 1	Northeastern
5939	Stansbury Mountains Big Game Habitat Improvement FY23	Central
5942	Sanpitch Mountains Collaborative Phase I	Central
5948	Parowan Front Maple Hollow	Southern
5955	Levan WMA Shrub Planting Project FY-23	Central
5956	Timpanogos WMA Fire Rehabilitation and Access Management Project - FY- 23	Central
5957	Wallsburg WMA Shrub Restoration Project FY-23	Central
5960	Little Meadows Habitat Improvement Project	Southern
5966	Nebo Unit 16A Big Game Winter Habitat Improvement FY 23	Central
5967	Sheepcreek (Wasatch Mtns Unit) Big Game Winter Habitat Improvement FY 23	Central
5971	Lower San Rafael & Price River Riparian Corridor Habitat Improvement, Phase 3	Southeastern
5973	Highway 40 (Miners, Deadman, Coalmine) Fuel Break	Northeastern
5975	Buckskin Overlook Guzzler Enlargement/Replacement	Southern
5986	Yellow Fork Canyon Habitat Improvement FY23	Central
6024	Rabbit Gulch WMA Fencing Phase II	Northeastern
6031	Thousand Lakes Habitat Improvement Phase II	Southern
6042	I-15 Wildlife Exclusion Fence	Northern
6044	Central Utah Habitat Maintenance Project Phase III	Southern
6048	Zion Migration Corridor Habitat Improvement Phase III	Southern
6052	Anadarko Phase I	Northern
6058	Mud Springs ponderosa	Southern
6060	Little Valley Sagebrush and Wet Meadow Habitat Restoration	Southern
6066	UTTR Habitat Restoration 2023 (FY24)	Northern
6081	Riparian Exclosures - CCFO	Southern
6113	Long Hill Vegetation Treatment FY24	Southern
6179	Henrie Knolls North	Southern
6200	Crystal K Ranch Re-seeding	Southern
6208	Northern Region Riparian Restoration FY 24	Northern
6212	Currant Creek WMA Aspen Enhancement	Northeastern
6474	Mahogany Ridge Bullhog Phase II	Northern
6465	Dodge Spring Fire ESR	Southern
6483	Little Valley Hollow	Southern
6488	South Creek Road Stewardship Seeding	Southern

WRI #	Title	Region
6496	Lost Creek Collaborative Phase 2	Southern
6497	Gooseberry East Phase 3	Southern
6506	North Zone Aspen Restoration- Surveys	Northern
6528	Logan Canyon Juniper- Botany Surveys	Northern
6530	Eagle Mountain Wildlife Migration Corridor Preservation FY24	Central
6536	Twelve Mile Watershed Restoration Project FY 24	Central
6544	Colorado River Riparian Side Canyon Restoration	Southeastern
6545	Weber River Watershed Restoration and Forest Resilience - FY24	Northern
6557	Central Region Riparian Restoration FY24	Central
6567	Southern Region Riparian Restoration FY24	Southern
6575	West Desert Vegetation Management	Southern
6585	Willow Watershed Improvements FY2024	Northeastern
6595	Parker Mountain Spike Treatments phase II	Southern
6605	Dolores River Restoration 7.0 - Cottonwood Gallery Restoration	Southeastern
6622	Three Knolls Phase 1	Southern
6632	Kyune Creek Slashing	Southeastern
6639	Lower Bear River Watershed Health Improvement - Phase 1 (FY24)	Northern
6643	Lower Bowns Habitat Improvement	Southern
	Aquatic and Riparian Improvement on the Lower Beaver River near	
6648	Minersville Reservoir - FY24	Southern
6650	Nebo Water System Repair - Helicopter lift Project - FY24	Central
6656	Poverty Flat Herbicide Project Phase II	Southern
6661	Hans Pumpernickle Shared Stewardship Phase 2	Southern
6677	Little Creek Ridge WMA material stocking	Northeastern
6681	Fillmore WMA Habitat Improvement Project Phase I	Southern
6687	Currant Creek WMA Fencing	Northeastern
6694	Anthro/Avintaquin Lop and Scatter	Northeastern
6698	Indian Peaks WMA Mule Deer Habitat Improvement Project Phase IV	Southern
6711	Death Valley Guzzler Replacement	Northeastern
6734	Kevin Conway Habitat Improvements	Northeastern
6737	Mineral Range Water Development Project	Southern
6807	Upper Otter Creek Wet Meadow and Wetland Restoration	Southern
6815	Buckhorn Flat - Chaining (Phase 2)	Southern
6816	Upper Kanab Creek SITLA section Harrow	Southern
6845	Crab Creek Discretionary Seed Project FY- 24	Central
6793	Neck Drift Seeding/Plateau (Adams Weil - Monument and Minersville 3 - West Native) - Phase 2	Southern
6819	Thompson Ridge Fire Rehab Project	Southern
6821	Rocky Fire Rehabilitation (Ibanah) FSR	Central
6832	Bettridge Fire Rehabilitation (Pilot Mtn) FSR	Northern
6836	Sunny Cove Wildfire Rehab- Seeding	Northeastern
6839	Monument Wildfire rehab - Seeding	Northeastern
6840	Lighthouse Fire FY24	Southeastern
6840	Lighthouse Fire FY24	Southeastern