

5-Year Plan Fire and Fuels Management in the Red Cliffs Desert Reserve



Prepared by Washington County HCP Technical Committee
July 23, 2024

Managing Agencies & Funding Sources

- Bureau of Land Management (BLM) – \$100,000 – 500,000 annually in base funding, infrastructure bill funding, national grants, US Fish and Wildlife Service grants, Landscape Conservation Forecasting funding from the Cedar City Field Office.
- Utah Department of Natural Resources (UDNR) – Watershed Restoration Initiative (WRI), awards vary based on project need and funding availability. While funding can be competitive, some projects have received up to \$500,000 in annual funding.
- Washington County HCP – \$5,000 – 15,000 annually. Primarily supports purchase of herbicides (Rejuvra) for project partners, but has flexible spending depending on needs and annual budget, up to \$500,000 over the life of the permit.
- Washington County Weeds – In-kind support for fuel break establishment and maintenance on all identified ROWs where time, funding and land access allow. The County Weeds Supervisor may also submit applications for Invasive Species Mitigation (ISM) grants, SITLA grants, and State Forestry and Fire grants.

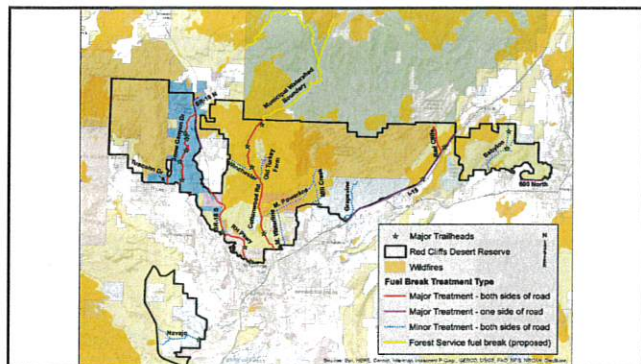
Managing Agencies & Funding Sources (continued)

- State Institutional Trust Lands Administration (SITLA) – \$5,000-10,000 through noxious weed fund.
- Utah Department of Transportation (UDOT) – Currently treats I-15 with Plateau each year extending 16 feet on each side of the ROW. The ROW is mowed at least once to twice annually. SR-18 is mowed annually in August/September.
- Snow Canyon State Park – Manages weeds along park roads and trailheads with a limited budget of \$1,000-2,000 annually. Park staff also performs tumbleweed (Russian Thistle) control within the main canyon and experimental Plateau treatments in the campground.
- US Forest Service (USFS) – Fuel break project in Dixie National Forest lands immediately north of the Reserve (proposed).

Objective 1. Establish, enhance and maintain fuel breaks within the RCDR to reduce spread of fire and to reduce dry fuels near ignition sources.



- Rejuvra every 3-5 years
- Treatments completed Dec 1 – Feb 14
- Trailheads, primary and secondary roads and ROWs in the Reserve
- 100-300 feet buffer for trailheads and primary roads
- 30 feet buffer on minor roads (each side)

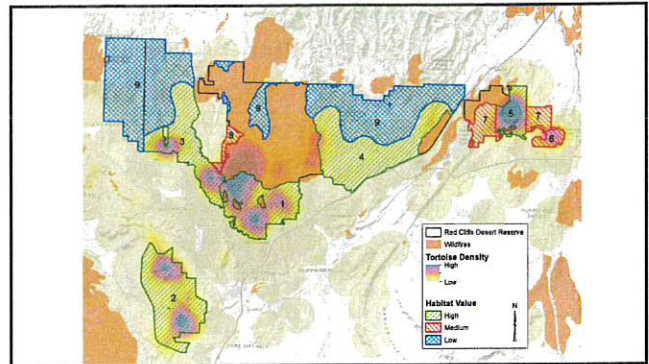


Treatment Areas *	Fuel Break Length (miles)**	Fuel Break Area (acres)	Treatment Area	Estimated Herbicide costs ***	Managing Agencies & Potential Funding Sources
Zone 2					
Burn Steep Dr	0	11	Both	\$1,490	Snow Canyon NP, UDOT, Iron City, BLM, County HCP & Weeds
Rejuvenation/Red Cliffs	0.03	4	Perimeter	\$1,000	
Trailhead Dr	0.1	3	Both	\$121	
Dr. H. North	3	11	One side	\$600	
Dr. H. South	1	203	Both	\$1,230	
Chickadee Road	1	32	Both	\$217	BLM SITLA, County HCP & Weeds, UDNR, B. Design City, Washington City, UDOT
Trailhead	0.01	3	Perimeter	\$161	
Zone 3					
Wetlands	0	13	Both	\$600	BLM SITLA, County HCP & Weeds, UDNR, B. Design City, Washington City, UDOT
Red Cliffs Parkway	4.3	16.7	Both	\$204	
Continental/Kathleen Run/Trailhead/Tony Park	25	73	Both	\$4,361	
44th Drive	1.8	12	Both	\$1,230	
44th Drive/Trailhead	7	38.5	Both	\$1,747	
Chickadee	0.2	23	Both	\$1,230	BLM SITLA, County HCP & Weeds, UDNR, B. Design City, Washington City, UDOT
41st	0	17	Both/both	\$1,747	
Red Cliffs Run/Trailhead	0.3	13.3	Both	\$750	
Trailhead	1	3.2	Perimeter	\$111	
Zone 4					
Rejuvenation/Red Cliffs/Chickadee	0	30	Both	\$1,800	BLM UDNR
Trailhead	0.2	0.7	Perimeter	\$61	
Zone 5					
44th Drive	1.8	12	Both/both	\$121	BLM County HCP & Weeds, Washington City
Zone 6					
Highway Dr & Washington Ave	0.3	11	Both	\$1,230	BLM SITLA, County HCP & Weeds, B. Design City
Iron City Pinyon Trailhead	0.4	0.2	Perimeter	\$91	
Total	18	361		\$13,000	

Objective 2. Protect unburned tortoise habitat in the RCDR through an annual herbicide treatment plan.



- Aerial treatments during winter (helicopter, plane or drone)
- Truck boom at urban edges
- Reserve split into 9 areas of unburned habitat
- Prioritized as High, Med, Low, based on # of tortoises, quality of habitat and vulnerability to fires
- Top priorities completed every 5-years, low priorities as funds permit



Unburned Area	Ownership & Managing Agencies	Description	Acres	Priority Level
1	BLM, UDWR, SG City, SITLA, County, Private	Zone 3, high tortoise density, large area	5,485	High
2	BLM, SITLA, County, Private	Zone 6, high tortoise density, large area	6,800	High
3	SCSP, BLM, Ivins City	Zone 2, high tortoise density, fragmented habitat	5,440	High
4	SITLA, BLM	Zone 3, medium tortoise density, large area	8,145	High
5	BLM	Zone 4, high tortoise density, small area	1,920	High
6	BLM	Zone 5, high tortoise density, but small isolated habitat	720	Medium
7	BLM	Zone 4, low tortoise density, medium size area	2,280	Medium
8	BLM, SCSP	Zone 3, medium tortoise density, fragmented by fire	605	Medium
9	BLM, SCSP, Private	Zone 1 and upland habitat of Zones 2-3, low tortoise density	21,360	Low

Estimated Costs of Plan / Year

Year	Treatment Areas	Acres	Estimated Costs
2025	1	≤ 5,485	\$131,640 - \$438,800
2026	2	≤ 6,800	\$163,200 - \$544,000
2027	3	≤ 5,440	\$130,560 - \$435,200
2028	4	≤ 8,145	\$195,480 - \$651,600
2029	5	≤ 1,920	\$46,080 - \$157,200
2030	6-8	≤ 3,600	\$86,400 - \$288,000

Thanks to TC Partners



Questions?



Appendix A.

5-Year Plan Fire and Fuels Management in the Red Cliffs Desert Reserve

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July 23, 2024

Background & Introduction

At the November 2023 Habitat Conservation Advisory Committee (HCAC) meeting, BLM, UDNR and County officials presented new information regarding fire prevention and restoration activities in the Reserve. Through its Watershed Restoration Initiative (WRI), and in collaboration with HCP funds, UDNR recently treated state lands with Rejuvra to reduce the threat of fire from Green Springs and east towards I-15. In December 2022, The BLM St. George Field Office completed a Programmatic Environmental Assessment (EA) and Integrated Weed Management Plan (IWMP) for the control and eradication of nonnative noxious and invasive plant species within the Beaver Dam Wash and Red Cliffs National Conservation Areas (NCAs), Utah. With new information and tools available, HCAC members felt inclined to address the ongoing fire threat by increasing fire management funds above the typical annual average. The purpose of additional funding was in support of greater fuels management across a broader landscape and in support of a long-term strategy that will complement the new BLM's IWMP for the NCAs. The TC was given the following assignment in support of this plan:

Develop a long-term strategy (5-10-year plan) to treat various sub-sections of the Reserve on an annual basis. Identify the potential best methods to reduce fuels, improve restoration success and estimate costs for desired treatments in each area. Consider how these activities can be integrated to utilize funds from WRI, BLM and HCP. Add this strategy as an appendix or as a separate chapter in RCDR Habitat Fire Management Plan.

This document is intended to complement existing documents that already guide habitat management efforts in the RCDR, including the RCDR Habitat/Fire Management Plan, and BLM's IWMP for the NCAs. The strategies and associated funding mechanisms identified here are intended to provide further guidance under the framework of those existing plans. While this plan estimates costs and potential funding sources, the amount available each year to implement projects is unknown due to variability in annual agency budgets and grant availability.

Managing Agencies and Potential Funding Sources

Funding each year is unknown due to varying budgets, grant availability and success rate in getting grant awards. We expect annual funding may fluctuate between \$300,000 – 800,000. Below is a list of potential funding sources to help implement this plan:

- Bureau of Land Management (BLM) – \$100,000 - 500,000 annually in base funding, infrastructure bill funding, national grants, US Fish and Wildlife Service grants, Landscape Conservation Forecasting funding from the Cedar City Field Office.
- Utah Department of Natural Resources (UDNR) – Watershed Restoration Initiative (WRI), awards vary based on project need and funding availability. While funding can be competitive, some projects have received up to \$500,000 in annual funding.
- Washington County HCP – \$5,000 – 15,000 annually. Primarily supports purchase of herbicides (Rejuvra) for project partners, but has flexible spending depending on needs and annual budget, up to \$500,000 over the life of the permit.
- Washington County Weeds – In-kind support for fuel break establishment and maintenance on all identified ROWs where time, funding and land access allow. The County Weeds Supervisor may also submit applications for Invasive Species Mitigation (ISM) grants, SITLA grants, and State Forestry and Fire grants.
- State Institutional Trust Lands Administration (SITLA) – Noxious weed fund is \$70-80,000 statewide funding per year. Realistic annual funding for our area would likely be \$5,000-10,000. Grants are generally awarded through the County Weed Supervisor. Stewardship funding may also be available.
- Utah Department of Transportation (UDOT) – Currently treats I-15 with Plateau each year extending 16 feet on each side of the ROW. The ROW is mowed at least once to twice annually. SR-18 is mowed annually in August/September.
- Snow Canyon State Park – Manages weeds along park roads and trailheads with a limited budget of \$1,000-2,000 annually. Park staff also performs tumbleweed control within the main canyon and experimental Plateau treatments in the campground.
- US Forest Service (USFS) – Manages Dixie National Forest lands immediately north of the Reserve. The Pine Valley Ranger District recently proposed a watershed fuel break project which will create a fuel break along Forest System Roads and private property boundaries to increase community safety, create defensible safe space for firefighting personnel, and increase the likelihood of effective fire suppression to reduce fire spread into the Reserve. The general location of this project is Forest Service Road (FSR) 033 from the private boundary north of the Blake Gubler Trailhead south to the FSR 031 intersection and spur FSR 322 (Figure 1).

Objective 1. Establish, enhance and maintain fuel breaks within the RCDR to reduce spread of fire and to reduce dry fuels near ignition sources.

Methods

Establishing and maintaining effective fuel breaks is the top priority of this plan. As a result, each fuel break listed in Table 1 should be assessed annually each December -February to determine if herbicide treatment is needed that year. Treatments should be preventative and prioritized before areas are overgrown and fuel breaks are compromised. We expect that Rejuvra treatments may be effective for approximately 3-5 years, while areas treated with Plateau will last 1 year. As a result, the cost estimates reported below in Table 1 are only expected to occur every 3-5 years depending on the treatment intensity and duration of its effectiveness.

Fuel break treatment areas include all major trailheads in tortoise habitat, primary and secondary roads and right-of-ways in or adjacent to the Reserve. Trailheads should be treated with a truck boom or by manual hand sprayers approximately 100-300 feet surrounding the trailhead. Minor roads/right-of-ways should be treated with a vehicle sprayer or by hand approximately 30 feet on each side of the road, while 100-300 ft of aerial treatments is recommended along primary/secondary roads and right-of-ways. Treatments should be conducted primarily during the tortoise less active season (December 1 to February 14) when tortoises are in underground burrows or dens for the winter and their above-ground activity is reduced. Exceptions could be made if summer or fall precipitation results in invasive fuels growing out of control.

Figure 1. Fuel break treatment areas within the Red Cliffs Desert Reserve, Washington County, Utah.

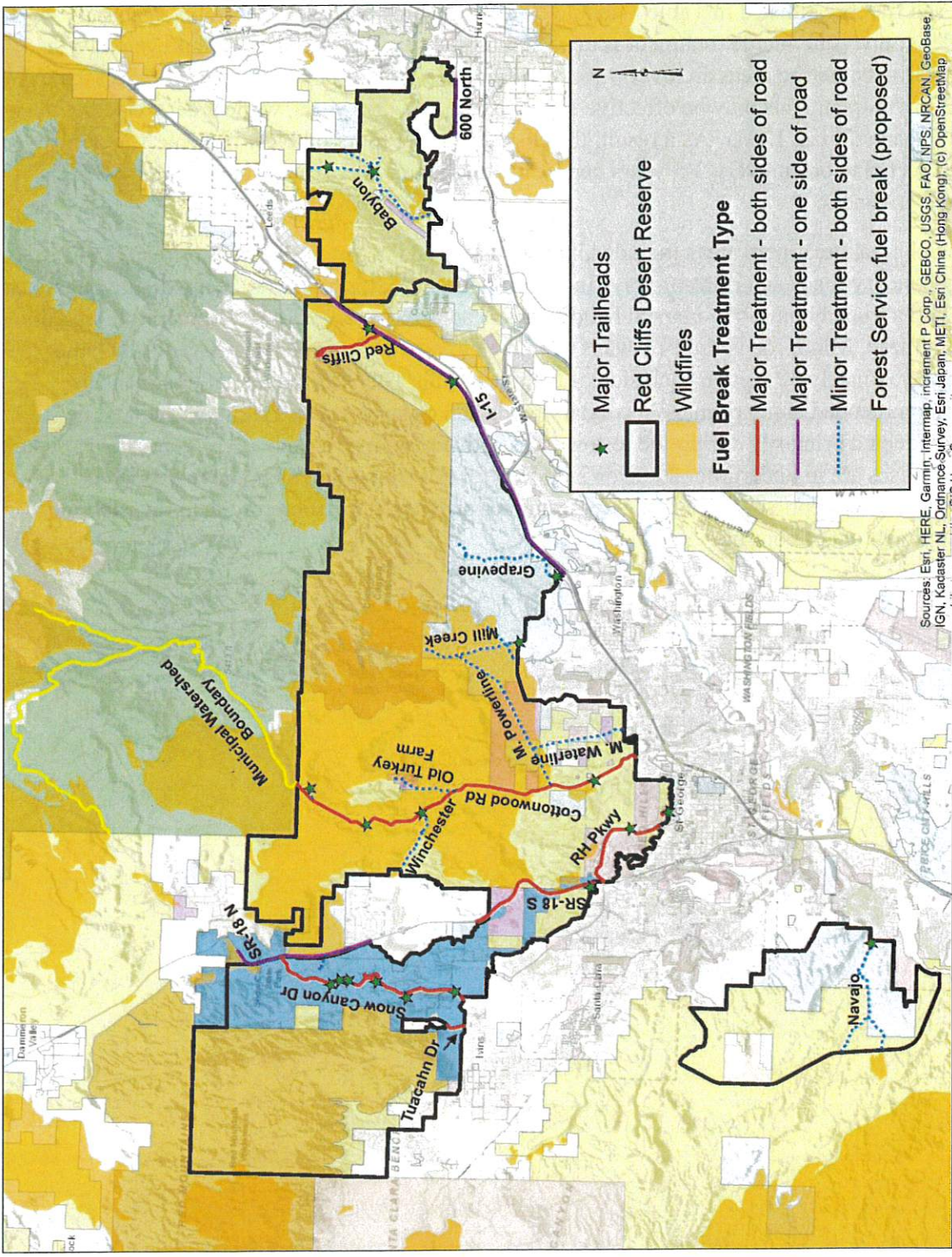


Table 1. Location, description and estimated costs of fuel breaks within the Red Cliffs Desert Reserve, Washington County, Utah. Treatment area includes both sides of road (Both), west side of road (West side), and perimeter of trailhead (Perimeter).

Treatment Areas *	Fuel Break Length (miles)**	Fuel Break Area (acres)	Treatment Area	Estimated Herbicide costs ***	Managing Agencies & Potential Funding Sources
Zone 2					
Snow Canyon Dr	9	33	Both	\$1,980	Snow Canyon SP, UDOT, Ivins City, BLM, County HCP & Weeds
Headquarters/CG/Sand Dunes	0.85	3	Perimeter	\$180	
Tuacahn Dr	0.8	3	Both	\$180	
SR-18 North	3	11	West side	\$660	
SR-18 South	6	20.5	Both	\$1,230	
Overlook Road	1	3.5	Both	\$215	
Trailheads	0.85	3	Perimeter	\$180	
Zone 3					
Winchester	3	11	Both	\$660	BLM, SITLA, County HCP & Weeds, UDWR, St. George City, Washington City, UDOT
Red Hills Parkway	4.5	16.5	Both	\$984	
Cottonwood Rd/Mesa Rim turnoff/ Turkey Farm	20	73	Both	\$4,380	
Mill Creek	5.5	20	Both	\$1,200	
Middleton Powerline	7	25.5	Both	\$1,530	
Grapevine	5.5	20	Both	\$1,200	
I-15	8	29	North side	\$1,740	
Red Cliffs Rec Area/CG	3.5	17.5	Both	\$760	
Trailheads	1	3.5	Perimeter	\$210	
Zone 4					
Babylon Rd/Road to Sand Cove Campground	8	30	Both	\$1,800	BLM, UDWR
Trailheads	0.2	0.7	Perimeter	\$43	
Zone 5					
600 North	1.2	4.4	North side	\$264	BLM, County HCP & Weeds, Hurricane City
Zone 6					
Navajo Dr & Bloomington Cave	5.5	20	Both	\$1,200	BLM, SITLA, County HCP & Weeds, St. George City
Bear Claw Poppy Trailhead	0.4	1.5	Perimeter	\$90	
Total	95	350		\$ 20,686	

* Zone 1 fire management is conducted primarily by the City of Ivins and Kayenta.

** Linear mileage doubled for roads treated on each side.

*** Cost per acre estimated at \$60/acre assuming treatment with both Rejuvra and Plateau.

Objective 2. Protect unburned tortoise habitat in the RCDR through an annual herbicide treatment plan.

Methods

Conduct aerial treatments by helicopter, plane or drone throughout unburned areas with possibility of truck boom at roads or drivable urban edges. Conduct treatments at edges of existing burned areas and adjacent edges of unburned habitats to reduce dry fuel loads, with the objective of reducing or slowing spread of fire from burned to unburned habitats. Coordinate with US Forest Service to reduce fire danger on Dixie NF north of the RCDR and with UDOT to reduce fires from adjacent highways.

Below is a tentative plan to treat up to 9 different areas over a 5-year period. They are prioritized into “High,” Medium,” and “Low” categories based on the density of tortoises, quality of habitat, and vulnerability to fires (e.g., proximity to human populations, recreational use, etc.). Prioritization of these areas may be adjusted annually under adaptive management to reassess their priority based on emerging threats, past success/failure, or funding limitations. In no more than 5 years, the plan will be updated to consider past achievements and to re-establish goals for another 5-year period.

Figure 2. Unburned habitat herbicide treatment areas (1-9) within the Red Cliffs Desert Reserve, Washington County, Utah.

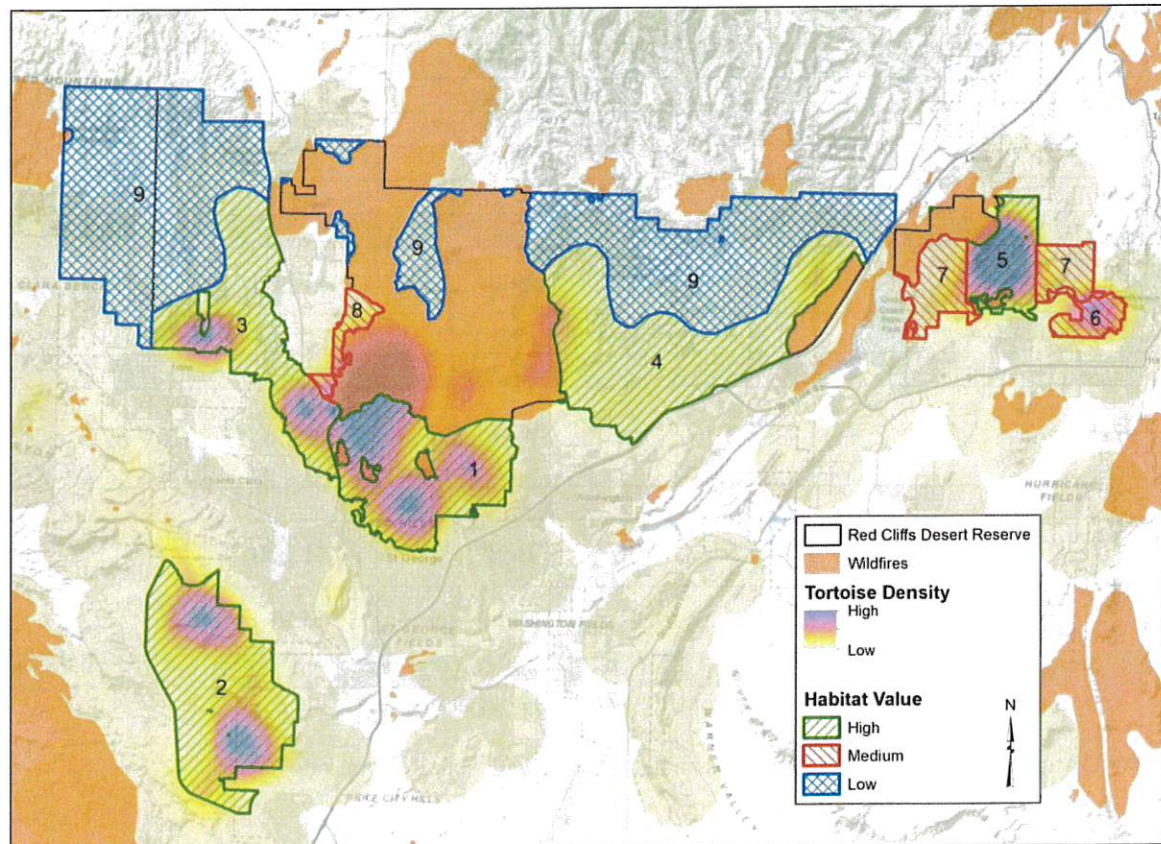


Table 2. Description and ranking of priority herbicide treatment in unburned areas, Red Cliffs Desert Reserve, Washington County, Utah.

Unburned Area	Ownership & Managing Agencies	Description	Acres *	Priority Level
1	BLM, UDWR, SG City, SITLA, County, Private	Zone 3, high tortoise density, large area	5,485	High
2	BLM, SITLA, County, Private	Zone 6, high tortoise density, large area	6,800	High
3	SCSP, BLM, Ivins City	Zone 2, high tortoise density, fragmented habitat	5,440	High
4	SITLA, BLM	Zone 3, medium tortoise density, large area	8,145	High
5	BLM	Zone 4, high tortoise density, small area	1,920	High
6	BLM	Zone 5, high tortoise density, but small isolated habitat	720	Medium
7	BLM	Zone 4, low tortoise density, medium size area	2,280	Medium
8	BLM, SCSP	Zone 3, medium tortoise density, fragmented by fire	605	Medium
9	BLM, SCSP, Private	Zone 1 and upland habitat of Zones 2-3, low tortoise density	21,360	Low

* Acres listed are total amount within the treatment area and represent a maximum effort. Due to limited funding, it is unlikely that the maximum acreage amount listed will be treated each year.

Table 3. Estimated costs for treating unburned habitat in 2025-2030, Red Cliffs Desert Reserve, Washington County, Utah. Method of chemical application could include helicopter, plane, truck boom, or drone.

Year	Treatment Areas *	Acres	Estimated Costs **
2025	1	≤ 5,485	\$131,640 - \$438,800
2026	2	≤ 6,800	\$163,200 - \$544,000
2027	3	≤ 5,440	\$130,560 - \$435,200
2028	4	≤ 8,145	\$195,480 - \$651,600
2029	5	≤ 1,920	\$46,080 - \$157,200
2030	6-8	≤ 3,600	\$86,400 - \$288,000

*Treatment Area 9 would only be treated after 1-8 are complete and if sufficient funds are available.

** Range of cost estimates are based on helicopter-only treatments of \$15-20/acre without chemical plus an additional \$9-60/acre with chemical. Low end of estimate is for Plateau-only treatments at 6 oz/acre plus Herbimax 16 oz/acre. High end of estimate adds Rejuvra at 6 oz/acre plus Rejuvra and Herbimax. Costs are estimates as of June 2024 and are subject to change.