3.2.2 Fire Ecology

The science of fire ecology is the study of how fire contributes to plant community structure and species composition. A "fire regime" is defined in terms of the average number of years between fires under natural conditions (fire frequency), and the amount of dominant vegetation replacement (fire severity). Natural fire regimes have been affected throughout most of Nevada by twentieth century fire suppression policies. Large areas that formerly burned with high frequency but low intensity (fires more amenable to control and suppression) are now characterized by large accumulations of unburned fuels, which once ignited, will burn at higher intensities.

Big sagebrush is the most common plant community in Nevada with an altered fire regime, now characterized by infrequent, high-intensity fires. Sagebrush requires ten to twenty or more years to reestablish on burned areas. During the interim these areas can provide the conditions for establishment and spread of invasive species and in some cases inhibit sagebrush reestablishment. The most common invasive species that reoccupies burned areas in Nevada is cheatgrass.

3.3 Natural Resources and Critical Features Potentially at Risk

Critical features at risk of loss during a wildfire event can be economic assets such as agricultural and industrial resources or cultural features, such as historic structures, archaeological sites, and recreation-based resources.

3.3.1 Historical Registers

There are nine nationally protected areas in Clark County. The effects of fire on cultural and historical resources depend upon site-specific factors such as fuels, terrain, and cultural or historical buildings or resources present. Archeological sites and historic trails are not necessarily vulnerable to wildfire impacts. The historic resources that lie in the wildland-urban interface that could be negatively impacted by wildfire are:

- Desert National Wildlife Refuge (part)
- Humboldt-Toiyabe National Forest (part)
- Lake Mead National Recreation Area (part)
- Moapa Valley National Wildlife Refuge
- Red Rock Canyon National Conservation Area
- Sloan Canyon National Conservation Area
- Spring Mountains National Recreation Area (part)
- Toiyabe National Forest (part)
- Tule Springs Fossil Beds National Monument (part)

3.3.2 Natural Resources and Recreation

Clark County offers a wide range of outdoor recreation opportunities that depend on healthy rangelands and environments. Camping, fishing, hunting, touring, hiking and wildlife viewing are some of the outdoor activities that contribute to local economies.

Twenty official wilderness areas in Clark County are part of the National Wilderness Preservation System. Many of these are in, or partially in, one of the preceding protected areas, as shown below. Many are separate entities that are managed by the Bureau of Land Management (BLM):

- Arrow Canyon Wilderness (BLM)
- Black Canyon Wilderness (Nevada) (Lake Mead National Recreational Area [NRA])
- Bridge Canyon Wilderness (Lake Mead NRA)
- Eldorado Wilderness (Lake Mead NRA / BLM)
- Ireteba Peaks Wilderness (Lake Mead NRA / BLM)
- Jimbilnan Wilderness (Lake Mead NRA)
- Jumbo Springs Wilderness (BLM)
- La Madre Mountain Wilderness (BLM / Toiyabe National Forest [NF])
- Lime Canyon Wilderness (BLM)
- Meadow Valley Range Wilderness (BLM) mostly in Lincoln County, Nevada
- Mormon Mountains Wilderness (BLM) mostly in Lincoln County, Nevada
- Mount Charleston Wilderness (Toiyabe NF / BLM)
- Muddy Mountains Wilderness (BLM / Lake Mead NRA)
- Nellis Wash Wilderness (Lake Mead NRA)
- North McCullough Wilderness (part of Sloan Canyon NCA, which is managed by BLM)
- Pinto Valley Wilderness (Lake Mead NRA)
- Rainbow Mountain Wilderness (BLM / Toiyabe NF)
- South McCullough Wilderness (BLM)
- Spirit Mountain Wilderness (Lake Mead NRA / BLM)
- Wee Thump Joshua Tree Wilderness (BLM)

3.3.3 Sensitive Species

78 species are covered by the Multiple Species Habitat Conservation Plan (MSHCP's) Section 10(a)(1)(B) incidental take permit (14 reptiles, 1 amphibian, 8 birds, 4 mammals, 8 insects, 2 mollusks and 41 plants.) Of these, two are listed under the Federal Endangered Species Act, the threatened desert tortoise and the endangered Southwestern Willow Flycatcher. Conservation actions for the MSHCP focus on conservation of the habitat of covered species. Habitats for covered species are described and summarized within 11 ecosystem categories; alpine, bristlecone pine, mixed conifer, pinyonjuniper, sagebrush, blackbrush, salt desert scrub, Mojave desert scrub, mesquite/catclaw, and desert aquatic.

3.3 Previous Fire Hazard Reduction Projects

3.3.1 Multi-Agency Collaborative Fuel Reduction Treatments

Nevada Shared Stewardship

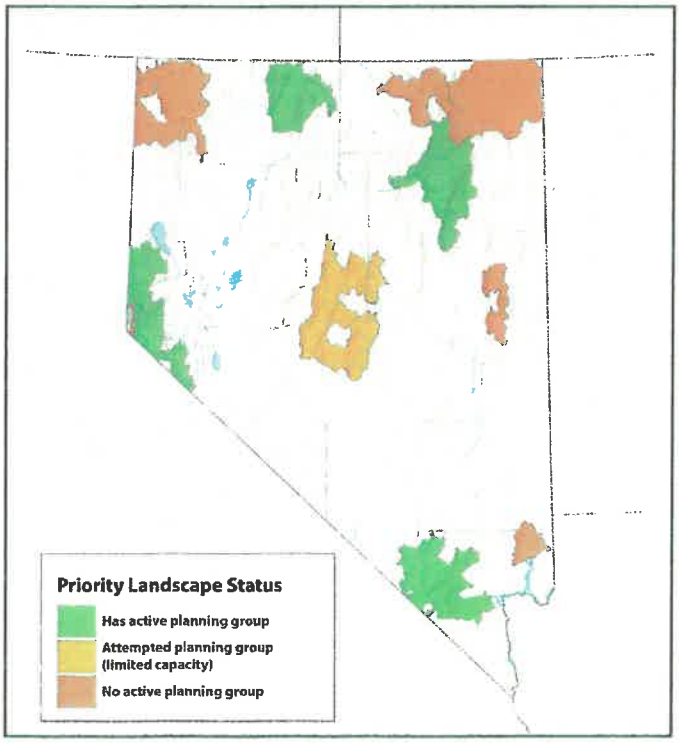
2022 Accomplishments

Background

In 2019, the State of Nevada and multiple federal agencies signed the Nevada Shared Stewardship Agreement to establish a framework to reduce wildfire threats across high-risk forests and rangelands (priority landscapes) throughout Nevada.

This five-year agreement provides a model for multi-agency collaboration to increase the pace and scale of critical landscape restoration work by sharing resources, equipment, labor, and expertise across state, federal, and private lands.

Priority Landscape Status



Goals

1. Identify priority landscapes where work will occur
2. Improve data sharing and create interagency planning groups for each individual landscape
3. Create comprehensive statewide strategic and landscape-specific 5-year plans of work
4. Increase annual acres treated across jurisdictions by 50 percent by 2025

Since 2019, Shared Stewardship partners have successfully completed many of these goals to ensure a more fire-resistant and resilient Nevada. Together, multi-agency partners have identified 13 high-risk landscapes to carry out critical conservation work, such as removing dry grasses and dense vegetation, targeted grazing, and building fuel breaks. Notably, Nevada recently received $57 million from the US Forest Service to restore high-risk landscapes across the Sierra and Elko fronts, and accomplish mutual goals.

Treatment Types and Acreage

Priority Landscape	Number of Treatments	Acres Treated
Basin and Range	16	205
Elko-Spring Creek-Lamoille-South Rubies	36	20,526
Paradise	11	28,577
Sierra Front-Carson-Walker	56	8,076
Spring Mountains-Pahrump	52	455
Totals	*171*	*57,840*

Progress in 2022

Acres Treated and Treatment Types

In 2022, numerous multi-agency planning groups treated 57,840 acres across 171 high-risk areas. This represents approximately a 350% increase compared to 2021.

Acres Treated

Within these landscapes, agency planning groups and a variety of stakeholders implemented the following projects to restore natural ecosystems and habitats, while helping to prevent catastrophic wildfire.

Treatment Types

Treatment	Acreage	
	2021	2022
Broadcast burning	-	76
Fuel Breaks/Green Stripping	1,343	34,469
Seeding/Planting/Rx Fire	20	2,181
Targeted Grazing	-	8,205
Thinning/Piling/Burning	1,005	1,639
Weed Control/Management	10,560	11,270
Total Acreage Treated	*12,927*	*57,840*

Learn more about Shared Stewardship in Nevada.

Collaboration

Planning groups and stakeholder collaboration grew significantly last year, resulting in plans and implemented projects with shared equipment, funding, labor and other resources.

Shared Stewardship partners consist of federal agencies (4), state agencies (7), local governments (14), non-profit organizations (5), tribes, private companies, contractors, and private landowners that were involved in accomplishing the activities reported for 2022. In addition to creating healthy landscapes, a significant amount of public outreach and coordination has contributed to the increased awareness of the public's role and supportive actions in ecosystem restoration and wildfire management. Through a combination of traditional and new media, along with in-person and virtual outreach events, Shared Stewardship partners engaged more than 50,000 Nevadans in fire prevention education in 2022.

Next Steps

1. Complete 5-year programs of work for all landscapes that have active planning groups and communicate treatment support needs to the Executive Committee.
2. Coordinate with landscape planning groups to apply Bipartisan Infrastructure Law and Inflation Reduction Act funding to shared priorities.
3. Continue working to establish a formal landscape planning group for the Basin and Range Priority Landscapes with required capacity.
4. Seek additional opportunities and resources to establish planning groups in landscapes that lack them.
5. Establish a strategic communication and outreach plan to publicize accomplishments, increase awareness, and promote cooperator and public participation in shared stewardship efforts.

NRCS · NDA Nevada Department of Agriculture · Nevada Department of Conservation & Natural Resources

Spring Mountain Priority Landscape

Shared Stewardship Project Narrative:
Bulleted summary of project.

- Bulleted narrative summary including project goals/objectives
- What management actions will be implemented
- Where (land ownership, county, district)
- Implementation Timeline
- Basic geospatial file(s) of the project
- Project lead(s), contact information, agency
- Basic outline of measurement units expected as deliverables

Southern Nevada Bureau of Land Management
Clark County Wetlands Park Mastication and Machine Pile

- Goals and Objectives: Manage hazardous fuels accumulation of riparian vegetation to reduce risk and aide in fire suppression response. Life Safety, Park infrastructure, visitor experience
- Management Actions: Mastication, prescribed fire once air curtain burner is approved, and disposal through removal.
- Where: Clark County Wetlands Park/BOR
- Implementation Timeframe: Outside of breading seasons, typically fall/winter.
- Project Lead: Frank Rice frice@blm.gov (702) 515-5285
- Deliverables: 6.7 acres treated

City of Pahrump Fuels Reduction

- Goals and Objectives: Fuels reduction on private land within the city of Pahrump performed by NDF crews, funded through Good Neighbor Authority by SND BLM.
- Management Actions: Hand cut and chip tamarisk
- Where: Private property, Nye County, City of Pahrump
- Implementation Timeframe: Fall/Winter
- Project Lead: Frank Rice frice@blm.gov (702) 515-5285
- Deliverables: 15 Acres

Early Detection and Rapid Response of Puncture Vine (Tribulus Terrestris)

- Goals and Objectives: Manage populations of Puncture Vine
- Management Action: Pull if seed heads are present or spray if seed heads haven't formed.
- Where: Red Rock and Pahrump Fire Stations, the Red Rock loop area, Late Night Trail Head, and Mule Springs.
- Implementation Timeframes: Plant germination - typically late summer after monsoon precipitation events.
- Project Lead: Tarl Norman tnorman@blm.gov (702) 515-5295
- Deliverables: 60 Acres

Misc. Tamarisk removal

- Fuel reduction & habitat improvement projects on various small acreage private parcels
- Hand removal and on-site chipping

Cold Creek Hazardous Fuel Removal

- Fuel reduction and forest health improvement project to reduce stand density
- Primarily Juniper and cliff rose thinned from stand
- Hand thinning with slash chipped and distributed on site

Diffley Bristlecone-Pine Restoration

- Thinning and forest health improvement to open space for Bristlecone pine to increase local abundance
- Hand thinning of trees and brush and removal of all dead, dying, or diseased trees
    - No removal of Bristlecone pine
    - Used cut poles and chips for installation of erosion control measures

Potosi Pine project

- Fuel reduction and forest health improvement project to reduce stand density
- Hand thinning with slash chipped and distributed on site

Clark County

September 14, 2022 conducted Fire Safety and Defensible Space space briefing to the Mountain Springs Town Board meeting held at Bronco Off-Road. Partnered with NDF Fire Adapted Community Coordinator and USFS for this messaging. We are waiting for a homeowner to be the community lead to organize the fire adapted community effort in the community. The town board has a vacancy and hasn't been able to meet since this meeting.

- Next meeting the effort to make progress on this topic will continue.

- Fall 2022 Worked with NDF to conduct Community Risk Assessments across the rural towns as an initial data point for community risk reduction justification for both fire adapted community effort and wildfire protection capability of the volunteers.

Mount Charleston Fire Protection District

Project Name	Estimated/Actua	Estimated/ Actual Co	Treatment Status	Treatment Type (1)	Treatment Type (2)	Treatm	Treatm	Treatment	Comme	Funding Source (1)	Funding Acres		Values/Benefits	Needs	Risks Mitigated
Project X	1/1/2023	8/1/2023	Planned	Aerial Herbicide	Aspen Restoration	Fuel Bri	Conifer	N/A		FEMA Grant	State Gr	100.5	None	None	None
McFarland Butterfly Habitat Improver	9/1/2023	3/1/2027	Implementation	Thinning and Pile Building	Pile Burning	Mastice	Seedlin	N/A		SNPLMA		378	Fuels reduction to improve wildlife ha	pile burning personnel	Hazardous fuels, invasive plants
Mud Springs Habitat Improvement	9/1/2023	3/1/2027	Implementation	Thinning and Chipping	Seedling Planting			N/A		SNPLMA		323	Fuels reduction to improve wildlife habitat and along USFS roadways		Hazardous fuels
Wheeler Habitat Improvment	9/1/2023	3/1/2027	Implementation	Thinning and Pile Building	Pile Burning	Mastice	Seedlin	N/A		SNPLMA		1444	Fuels reduction to improve wildlife ha	pile burning personnel	Hazardous fuels
Foxtail Butterfly Habitat Improvemen	9/1/2023	3/1/2027	Implementation	Thinning and Pile Building	Yarding & Biomass Removal	Mastic	Seedlin	N/A		SNPLMA		70	Fuels reduction to improve wildlife ha	Tree thining and yarding persc	Hazardous fuels
District Wide Pile Burning	1/1/2023	3/31/2025	Implementation	Pile Burning						USFS-Hazardous Fuels		560	Fuels reduction to improve wildlife ha	Pile burning personnel	Hazardous fuels
SMNRA WUI Noxious Weeds	3/1/2024	3/1/2029	Implementation	Herbicide- Hand/backpack						SNPLMA		956	Invasive plants reduction in WUI		Invasive plants
SMNRA Highway Hazard Tree	9/1/2023	12/15/2028	Implementation	Fuels Reduction	Yarding & Biomass Removal					USFS-Hazardous Fuels		300	Snag removal within State highway corridor		Hazardous fuels
SMNRA Eastsdie Fuels NEPA	3/1/2024	12/31/2026	NEPA Planning	Fuels Reduction	Habitat Improvement		Tree Planting			SNPLMA		11,000	Fuels reduction to improve wildlife habitat and along NV SR Highway		Hazardous fuels
SMNRA WUI Prescribed Fire	3/15/2024	9/1/2025	NEPA Planning	Fuels Reduction						SNPLMA		250	Fuel break maintenance using prescibed fire in WUI		Hazardous fuels
SMNRA Eastside Hazardous Fuels	1/1/2026	1/1/2031	Implementation	Thinning and Pile Burning	Lop and Scatter	Broadc	Seedling Planting			SNPLMA		4596	Fuels reduction to improve wildlife ha	Prescribed Fire personnel	Hazardous fuels
SMNRA Hazardous Fuels	1/1/2025	1/1/2030	Implementation	Thinning and Pile Burning	Mastication	Lop anc	Broadcast Burning			SNPLMA		994	Fuels reduction to improve wildlife ha	Prescribed Fire personnel	Hazardous fuels
Lee Canyon Blue Butterfly Habitat Im	1/20/2025	1/1/2030	Implementation	Thinning and Pile Burning	Broadcast Burning	Seedling Planting				SNPLMA		569	Fuels reduction to improve T/ES butterfly habitat		Hazardous fuels
NV Energy Powerline Hazardous Fuels	5/1/2023	5/1/2028	Implementation	Fuels Reduction	Yarding & Biomass Removal	Herbick	Road Improvement			NV Energy	FEMA	500	Fuels and hazard reduction to protect powerline corridor		Hazardous fuels, invasive plants
Clark Canyon Restoration	10/1/2023	12/31/2027	Implementation	Broadcast Burning						USFS-Hazardous Fuels		1340	Fuels Reduction to improve wildlife a	Prescribed Fire personnel	Hazardous fuels
SMNRA Roaddways Hazardous Fuels I	1/1/2025	1/1/2030	NEPA Planning	Fuels Reduction	Broadcast Burning		Tree Pl	Road Improvement		SNPLMA		2000	Fuels reduction along USFS roads to establish fuel breaks for anchor		Hazardous fuels and roadway improv
Spring Mountains West Fuels Manage	10/1/2022	9/30/2023	NEPA Planning	Fuel Break	Fuels Reduction					SNPLMA		10000	Hazardous fuel treatments to reduce wildfire risk to protect wildlanc		Hazardous fuels
Red Rock EDRR	10/1/2023	9/30/2024	Implementation	Herbicide- Hand/backpack						BLM-Hazardous Fuels		1000	Fuels reduction and invasive vegetati	Weed identification personnel	Hazardous fuels, invasive plants
Red Rock Canyon Fuel Reduction EA	10/1/2022	9/30/2023	NEPA Planning	Fuels Reduction	Fuel Break					BLM-Hazardous Fuels		66,740	Protect, maintain, and restore the landscape to be more resilient t		Hazardous fuels
Clark County Wetlands Park Masticati	10/1/2022	9/30/2023	Implementation	Fuels Reduction	Mastication	Pile Bur	Yarding	Masticate and burr		BLM-Hazardous Fuels		15	Reduce community threat in WUI	Redeuce wildfire hazard	Hazardous fuels
Pahrump Fire Station Chem	10/1/2022	9/30/2023	Implementation	Herbicide- Hand/backpack						BLM-Hazardous Fuels		5	Invasive weed control	Invasive weed control	Invasive weed control
Red Rock Fire Station Chem	10/1/2022	9/30/2023	Implementation	Herbicide- Hand/backpack						BLM-Hazardous Fuels		5	Invasive weed control	Invasive weed control	
Sloan Fuel Break	10/1/2022	9/30/2023	Implementation	Fuels Reduction	Yarding & Biomass Removal					BLM-Hazardous Fuels		500	Invasive weed control		
Wetlands Park BIL Funded	10/1/2022	9/30/2023	Implementation	Fuels Reduction						BLM-Hazardous Fuels		11	Fuels reduction		
Red Rock Canyon Fuel Reduction Disa	10/1/2022	9/30/2023	Implementation	Fuels Reduction	Herbicide- Hand/backpack					BLM-Hazardous Fuels	Disaster	1200	RR Fuels Reduction		
Wetlands Park Masication	10/1/2023	9/30/2024	Implementation	Fuels Reduction	Mastication					BLM-Hazardous Fuels		10	Reduce Homeless Ecampment Fires		
Sloan Fuel Break	10/1/2023	9/30/2024	Implementation	Fuels Reduction	Herbicide- Hand/backpack					BLM-Hazardous Fuels		500	Fuel deuction near a shooting range		
Red Rocks EDRR	10/1/2023	9/30/2024	Implementation	Fuels Reduction	Herbicide- Hand/backpack					BLM-Hazardous Fuels		1000	Fuels reduction in a recreation area		
Red Rocks Canyon Fuel Reduction	10/1/2023	9/30/2024	Implementation	Fuels Reduction	Herbicide- Hand/backpack					BLM-Hazardous Fuels		1200	Fuel reduction at Red Rocks		
RRCNCA Hand Pile FY25	10/1/2024	9/30/2025	Implementation	Pile Building				Pinyon /Juniper rer		BLM-Hazardous Fuels		50	Reduce community threat in WUI	Reduce wildfire hazard	Hazardous fuels
RRCNCA Mastication FY25	10/1/2024	9/30/2025	Implementation	Mastication				Pinyon /Juniper rer		BLM-Hazardous Fuels		100	Reduce community threat in WUI	Reduce wildfire hazard	Hazardous fuels
RRCNCA Pile Burn FY25	10/1/2024	9/30/2025	Implementation	Pile Burning				Pinyon /Juniper rer		BLM-Hazardous Fuels		50	Reduce community threat in WUI	Reduce wildfire hazard	Hazardous fuels
RRCNCA Seeding FY25	10/1/2024	9/30/2025	Implementation	Habitat Improvement				Seeding		BLM-Hazardous Fuels		50	Increase resilience	Reduce wildfire hazard	Hazardous fuels, invasive plants
RRCNCA Thinning FY25	10/1/2024	9/30/2025	Implementation	Mechanical Thinning				Pinyon /Juniper rer		BLM-Hazardous Fuels		50	Reduce community threat in WUI	Reduce wildfire hazard	Hazardous fuels
Hidden Valley Fuel Reduction FY25	10/1/2024	9/30/2025	Implementation	Herbicide- Hand/backpack	Invasive Species Eradication			Treating invasive a		BLM-Hazardous Fuels	BIL	10000	Restoration of Desert Tortoise habita	Habitat restoration	Hazardous fuels, invasive plants
Clark County Wetlands Park Masticati	10/1/2025	9/30/2026	Implementation	Mastication	Riparian Woodland Restoration			Clark County Hazar		BLM-Hazardous Fuels		15	Reduce community threat in WUI	Reduce wildfire hazard	Hazardous fuels, invasive plants
Clark County Wetlands Park Thinning	10/1/2025	9/30/2026	Implementation	Mastication	Riparian Woodland Restoration			Clark County Hazar		BLM-Hazardous Fuels		20	Reduce community threat in WUI	Reduce wildfire hazard	
Clark County Wetlands RX FY26	10/1/2025	9/30/2026	Implementation	Pile Burning				Air Curtain Burner		BLM-Hazardous Fuels		15	Reduce community threat in WUI	Reduce wildfire hazard	
SNV Fuel Reduction FY26	10/1/2025	9/30/2026	Implementation	Mechanical Thinning				NDF Good Neighbc		BLM-Hazardous Fuels		50	Reduce community threat in WUI	Reduce wildfire hazard	Hazardous fuels
SNV Chipping Fuel Reduction	10/1/2025	9/30/2026	Implementation	Mechanical Thinning				NDF Good Neighbc		BLM-Hazardous Fuels		50	Pahrump Community	Reduce wildfire hazard	
Red Rock Fuel Reduction FY26	10/1/2025	9/30/2026	Implementation	Mastication	Invasive Species Eradication			RRCNCA		BLM-Hazardous Fuels	BIL	500	Reduce community threat in WUI	Habitat restoration	Hazardous fuels, invasive plants
Red Rocks Canyon NCA	10/1/2025	9/30/2026	Implementation	Herbicide- Hand/backpack	Invasive Species Eradication			Fuel Redduction ar		BLM-Hazardous Fuels	BIL 312	5000	RR Infrastructure & Desert Tortise Ha	Habitat restoration	Hazardous fuels, invasive plants