Hamlin Valley Habitat Restoration Project - Sagebrush

Project ID: 3686
Status: Current
Fiscal Year: 2017
Submitted By: N/A
Total Acres: 14,195

Project Manager: Dan Fletcher
PM Agency: Bureau of Land Management
PM Office: Cedar City
Lead: Bureau of Land Management
WRI Region: Southern

Description:

Hamlin Valley - Sagebrush Restoration (Year 2) would result in the immediate removal of pinyon /juniper from the sagebrush community on approximately 14,195 acres of BLM managed lands in crucial winter/summer/brood-rearing sage grouse habitat. The project has been Prioritized into 5 projects based on funding.

Location:

The project is located within Hamlin Valley, which is located north of Modena, Utah. Legal Description: Township 31 South, Range 18 and 19 West, Section(s) Numerous

PROJECT NEED

Need For Project:

The need to protect resources and rehabilitate vegetation communities within the Hamlin Valley Resource Protection and Habitat Improvement Project Area has been recognized for many years. This area continues to be a high priority area for vegetation resource enhancement, resource protection and fuels reduction. The Hamlin Valley Project is located within the Hamlin Valley Sage Grouse Management Area and also within the Hamlin Valley Priority Area for Conservation (PAC), which is part of the southern Great Basin (Nevada) population.

Multiple project areas and treatment methods have been identified for the Project Area (Year 2) are identified as follows:
1. Spanish George (Chaining - 4,085 acres)
2. Atchison Creek/Indian Peak Green Stripping (Bull Hog - 917 acres)
3. Indian Peak (Bull Hog - 2,754 acres (BLM - 2,497 acres and SITLA 256 acres)
4. Indian Peak (Chaining - 5,975 acres (BLM - 5,527 acres and SITLA 448 acres)
5. Atchison Creek (Bull Hog - WUI - 463 acres)

Proposed management prescriptions/strategies for the sagebrush vegetation management area are based on departure from the ecological site, the potential for the community to respond to various treatment methods, as well as the desired future condition of the sagebrush/steppe vegetative community. The excessive juniper and pinyon pine encroachment into areas that were once dominated by perennial grasses, forbs and shrubs according to the Ecological Site Description is of concern throughout the majority of the Project Area. The extensive juniper and pinyon pine encroachment has been detrimental to sage grouse and other wildlife habitat throughout the project area.

The implementation of Year 2 of the project would improve 14,195 acres of crucial sage grouse habitat. The project (Year 2) was flagged in Fall 2014 and Fall 2015. Year 2 of the project could be separated into multiple projects based on funding. Year 2 of the project would also tie into efforts that have been completed on SITLA and private lands within the project area over the last 10 years as well as ongoing efforts on SITLA and private lands. Currently, the NRCS is actively working with livestock permittees through the sage grouse initiative/farm bill to identify projects on SITLA and private lands that could be implemented at the same time as treatment on public lands in Year 2. To date $236,915 has been received by the permittee within the Spanish George chaining portion of the project.

Objectives:

The overall objective of this project is to remove pinyon pine and juniper and achieve a vegetation community that more closely resembles the sagebrush ecological site. The majority of the project is within a sagebrush ecological site and the project objectives are as follows:
1. Maintain adequate habitat components to meet needs of greater sage-grouse in nesting, brood-rearing, and winter habitats in accordance with current guidelines and in coordination with UDWR and SWARM while providing for other wildlife vaules.
2. Manage to maintain/create large, un-fragmented blocks of sagebrush habitat with a variety of seral stages which would meet the seasonal needs of sage-grouse.
3. Improve health, composition, and diversity of shrubs, grasses, and forbs in accordance with Rangeland Health Standards and Guidelines and the Ecological Site Description.

4. Reduce pinyon pine and juniper density by 100% or in accordance with what is described in the Ecological Site Description.
5. The Composition by air-dry weight would be approximately 45-55% grasses, 5-10% forbs, and 40-50% shrubs.
6. Vertical canopy cover for grasses/forbs would be 20-40%, shrubs would be 15-45%, and trees would be 0%.

Threats / Risks:

The project is focused on eliminating pinyon pine and juniper from the sagebrush ecological site. Improving this community and removing ladder fuels to minimize the potential for a sagebrush stand replacing fire. Historically it is expected that sage grouse in the area had a greater distribution and population. There is documentation by Mordo et. al. (2013) and others that have documented that sage grouse stop utilizing a lek with as little as 4% tree canopy cover. Lack of natural disturbances such as wildfire have favored pinyon and juniper expansion and a subsequent decline in sage grouse populations and sage grouse habitat. It is expected if the project does not occur that juniper and pinyon pine expansion will continue to occur in the project area further limiting sage grouse habitat.

Implementation of the project has risks/threats including annual precipitation fluctuations and invasive/noxious weed establishment; however, mitigation measures have been identified that will limit these threats/risks to the project area.

The project is located at an elevation of 6,000 feet, which is expected to help counteract the impacts of drought. Typically, rangelands at this elevation receive adequate precipitation to promote vegetative growth and viability in the short-term and long-term. In addition, recent research Roundy, et. al. (2014) has shown that mechanical treatments to remove pinyon and juniper increase time that soil water is available. This research indicates that even four years after treatment, treated areas showed from 8.6 days to- 18 days additional water availability at high elevation sites. Additional research by Young, et. al. (2013) also showed a relationship between tree removal and soil climates and wet days on these sites, which while providing more available moisture for desired vegetation could also provide moisture for weeds. Numerous studies have shown that increased infiltration rates and less overland flow improve both water quality and quantity.
The second phase of the Landscape Conservation Forecasting project will focus on climate change to determine the long-term viability of vegetation treatments within the project area considering impacts of climate change. This project is expected to be completed by June 2017.

In addition, extensive pre-monitoring vegetative data collection has occurred within the project area. This includes extensive Sage Grouse habitat Assessments, Rangeland Health assessments (basal gap, canopy gap, line point intercept, shrub height, Rangeland Health Assessments), nested frequency, utilization, Proper Functioning Condition, etc...

In addition, a Landscape Forecasting project in cooperation with The Nature Conservancy has been completed. The objectives of this project are to 1. Develop maps of potential vegetation types and current vegetation classes within each biophysical setting by conducting remote sensing of satellite or aerial imagery. 2. Refine computerized predictive state-and-transition ecological models for the ecological systems by updating models or creating new models 3. Use computerized ecological models to forecast anticipated future condition of ecological systems under minimum management to quantify future threats 4. Use Return-on-Investment analysis to assess which strategies for which ecological systems yield the most advantageous results 5. Use computerized ecological models to forecast anticipated future condition of ecological systems under alternative management strategies 6. Determine current condition of all ecological systems (a broad scale measure of ecological system health) using the ecological departure using Fire Regime Condition metric and Fire Regime Condition Class. Ecological departure will be measured by comparing the current condition of vegetation to reference conditions. Additional metrics of ecological condition will be developed to describe either different desired future condition or special vegetation classes The vegetative monitoring data and the Landscape Forecasting will be utilized to verify ecological sites, identify treatment methods, determine cost effectiveness, etc... to ensure the success of future projects. The Landscape Forecasting project will be continued in 2016 to determine the effects of climate change on future vegetation projects within the area.

Sage grouse telemetry data has also been collected and will continue to be collected within the Project Area. This information will be utilized to identify future treatments and determine whether sage grouse are utilizing ongoing treatment areas. All of the information that has been collected will serve as a baseline to determine success/failure of the project for sage grouse and other wildlife within the project area on a short-term and long-term basis.

Wildlife monitoring data including Breeding Bird Surveys, Raptor Nest Surveys and General Wildlife Use Surveys has been collected throughout the Project Area that was initiated in Year 1.

Relation To Management Plan:

Hamlin Valley EA/FONSI/DR - June 2014
The EA/FONSI/DR recognized the importance of the Project Area with regard to improving the vegetation component within the Hamlin Valley Sage Grouse Priority Habitat Management Area. A variety of vegetation treatments were authorized that would improve/maintain Rangeland Health in accordance with the Ecological

Site Description. The focus for management within this area is to improve greater sage-grouse brood-rearing habitat while maintaining the dominant aspects of the sagebrush community to ensure adequate cover is available. High quality brood-rearing habitat has been identified as a limiting factor for sage grouse in the Hamlin Valley population area.

BLM Utah Greater Sage-Grouse Approved Resource Management Plan 2015
The project is consistent with the SGARMP (2015) goals, objectives and Management Actions that were identified in the Special Status Species section as follows:
Special Status Species Goal: Maintain and/or increase GRSG abundance and distribution by conserving, enhancing or restoring the sagebrush ecosystem upon which populations depend in collaboration with other conservation partners.

In addition, the Project Planning Areas (PPAs) in the Great Basin Fire and Invasive Assessment Tool (FIAT) have identified Hamlin Valley as a high priority for Conifer Focus (Removal). Through this process the top FIAT PPAs, including Hamlin Valley, had the highest priority for sagebrush restoration, protection and conservation within the 5 Great Basin FIAT assessment areas. The highest priority PPAs is those that contain Sagebrush Focal Areas (SFA), high breeding bird densities, conifer threats, wildfire and invasive species threats.
The Project Planning Areas (PPA) prioritization will be used to develop an integrated multi-year program of work for all fuels and vegetation management projects and other related activities aimed to protect, conserve and restore sagebrush and sage grouse habitat. The priority PPAs will be used to inform and influence funding decisions by the BLM.

Refer to the following Objectives and Management Actions in the SGRMPA (Objectives: SSS-3, SSS-4, SSS-5) and Management Actions (MA-SSS-4, MA-SSS-6, MA-SSS7)

The project is also consistent with the SGARMP (2015) objectives and Management Actions that were identified in the Vegetation section as follows: Refer to the following Objectives and Management Actions in the SGRMPA (MA-VEG-1, MA-VEG-2, MA-VEG-4, MA-VEG-5, MA-VEG-6, MA-VEG-8, MA-VEG-9, MA-VEG-10, MA-VEG-12 and MA-VEG-14).

The project is also consistent with the SGARMP (2015) Management Actions that were identified in the Fire and Fuels Management section as follows: Refer to the following Management Actions in the SGRMPA (MA-FIRE-1 and MA-FIRE-3)

The project is also consistent with the SGARMP (2015) Management Actions that were identified in the Livestock Grazing/Range Management section as follows: Refer to the following Management Actions in the SGRMPA (MA-LG-3, MA-LG-4, MA-LG-5, MA-LG-12, MA-LG-13, MA-LG-16 and MA-LG-17).

The Conservation Plan for Greater Sage-grouse in Utah was approved by the Governor in April 2013. The plan establishes incentive-based conservation programs for conservation of sage-grouse on private, local government, and School and Institutional Trust Lands Administration lands and regulatory programs on other state- and federally managed lands. The Conservation Plan also establishes sage-grouse management areas and implements specific management protocols in these areas.

The Utah Greater Sage-grouse Management Plan in 2009 identified threats and issues affecting sage-grouse management in Utah as well as goals, objectives, and strategies intended to guide UDWR, local working groups, and land managers efforts to protect, maintain, and improve sage-grouse populations and habitats and balance their management with other resource uses.

Southwest Desert Local Working Group Conservation Plan 2009. The local Working Group has developed a Conservation Plan detailing the natural history, threats, and mitigation measures for sage-grouse in each conservation plan area; and conservation guidelines for any activities occurring in the area.

The Utah State Wildlife Action Plan 2015-2025 (Draft) is a comprehensive management plan designed to conserve native species populations and habitats in Utah, and prevent the need for additional federal listings.

Pinyon Management Framework Plan (PMFP) (1983)
Although the Project Area was not specifically discussed in the RMP vegetation treatments were identified throughout the Field Office.

Southwest Utah Support Area Fire Management Plan (May, 2006)
The SUSAFMP identifies the Black Mountains as a priority for conversion of encroached pinyon and juniper dominated communities to a sagebrush community with a diverse component of perennial grasses, forbs and shrubs. This would be consistent with the vegetative monitoring data that has been collected within the Project Area to identify the Ecological Site Description.

National Fire Plan (2000), BLM National Sage Grouse Habitat Conservation Strategy (2004)

The project is also consistent with the NFP. The goals and objectives of the NFP is to manage BLM-administered public land to maintain, enhance and restore sagebrush habitats while ensuring multiple use and sustained yield goals of FLPMA. Goals/Strategies identified in the NFP include the following:

1. Provide guidance to ensure integration of sage-grouse habitat conservation measures for actions provided through the management in land use planning process.
2. Issue mandatory guidance on management of sagebrush habitat for sage-grouse conservation.
3. Enhance knowledge of resource conditions and priorities in order to support habitat maintenance and restoration efforts.
4. Complete and maintain eco-regional assessments of sagebrush and sage-grouse habitats across the sagebrush biome.
5. Provide a consistent and scientifically based approach for collection and use of monitoring data for sagebrush habitats, sage-grouse and other components of the sagebrush community.
6. Identify, prioritize and facilitate needed research to develop relevant information for sage-grouse and sagebrush habitat conservation
7. Maintain, develop and expand partnerships to promote cooperation and support for all activities associated with sage-grouse and sagebrush conservation.
8. Effectively communicate throughout BLM and with current and prospective partners on steps BLM will take to conserve sage-grouse and sage-grouse and sagebrush habitats.
9. Facilitate the collection, transfer and sharing of information among all BLM partners and cooperators, as well as BLM program personnel.
10. Develop BLM state-level strategies and/or plans for sage-grouse and sagebrush conservation on BLM-administered public lands.

Southwest Desert Deer Herd Unit Management Plan (2012)
The management goal of the Southwest Desert Deer Herd Unit is to increase the unit deer population. Habitat management objectives that are applicable to the Hamlin Valley Resource Protection and Habitat Improvement Project are:

* Maintain or enhance forage production through direct range improvements on winter and summer deer range throughout the unit to achieve population management objectives.
* Maintain critical fawning habitat in good condition

Southwest Desert Elk Herd Unit Management Plan (2006)
The management goal of the Southwest Desert Elk Herd Management Plan is to achieve a variety of healthy vegetative communities within the herd unit to maintain a diverse elk population in balance with available habitat. Habitat management objectives that are applicable to the Project are:

* Maintain or enhance forage production through direct range improvements throughout the unit on winter and summer range to achieve population management objectives.
* Identify areas suitable for seasonal access management to encourage elk use in areas of low potential conflict.

Coordinated Implementation Plan for Bird Conservation in Utah (2005)
The priority habitat identified for this area was shrub-steppe, which was identified as a Priority A (High threat, high opportunity, and high value to birds statewide) habitat. Priority birds identified within this area include sage grouse, ferruginous hawk, sage sparrow, and Brewer's sparrow. Sagebrush restoration was identified as an opportunity within this area to address concerns with sagebrush die-off and potential for cheatgrass invasion.

Fire / Fuels:

The majority of the area is at moderate to extreme on the fire risk index. There have been several very large fires in the Hamlin Valley area, especially in the last 15 years.

The Fire Regime condition Class (FRCC) within the Project Area is classified as FRCC 3 (lands that are significantly altered from their historical range.

There is a large fuel loading build up in Hamlin Valley and an alteration in fuel types. Pinyon and juniper trees have expanded and moved into areas once dominated by shrubs, forbs, and grasses. Without this project, fuel conditions are such that a wildfire may be difficult to contain, leading to an increased risk to firefighter and public safety, suppression effectiveness and natural resource degradation. Fire Regime Condition Class (FRCC) within the project area is predominately FRCC 3 which is where fire regimes have been extensively altered and risk of losing key ecosystem components from fire is high.

Treatments identified within this proposal, including seeding with more fire resistant vegetation, would help reduce hazardous fuel loads, create fuel breaks, and reduce the overall threat of a catastrophic wildfire which could impact outlying residential properties and infrastructure.

Treatments in and around the sagebrush areas would break up continuous fuels and reduce the risk of wildfire entering these sensitive areas. Removing pinyon and juniper in a mosaic pattern would also break up continuous fuels and reduce the risk of a high intensity wildfire. Because there is a greater risk of conversion of shrublands to annual grasslands under a high intensity fire, managed, pro-active treatments proposed would

reduce the likelihood of cheatgrass invasion and help perennial grasses and forbs persist long-term.

One component of this project (Priority 2) is a firebreak that will provide protection to an adjacent community that is at a very high risk should a fire occur. This portion of the project is near some springs on the east side of the valley and will be done in a mosaic design leaving stringers of trees for deer and elk to use as hiding and thermal cover.

Water Quality/Quantity:

The Project Area is located at 6,000 feet above sea level; therefore, it is expected that the opportunity to restore native species to the composition and frequency appropriate to the area is high. As discussed, this area is dominated by pinyon pine and juniper (Phase 2 and Phase 3). There is noticeable soil erosion throughout the area due to the absence of perennial grasses, forbs and shrubs. The project is expected to improve herbaceous understory, which will reduce water runoff and decrease soil erosion while increasing infiltration.

Improvements to the Standards and Guidelines for Healthy Rangelands (Standard 1 and Standard 3) are expected through project implementation. It is expected that Standard 1 (Soils) -- will improve by allowing soils to exhibit permeability and infiltration rates that will sustain/improve site productivity throughout the area. This will be accomplished by making improvements to the Biotic Integrity of the community by converting areas that are dominated by pinyon pine and juniper to a diverse component of perennial grasses, forbs and shrubs that is consistent with Ecological Site Description. Indicators will include sufficient cover and litter to protect the soil surface from excessive water and wind erosion, limiting surface flow and limiting soil moisture loss through evaporation, which will promote proper infiltration.

As discussed, extensive Rangeland Health monitoring data has been collected throughout the project area. This monitoring data will be utilized as baseline data to determine the success of the treatment while providing for a scientific measurement of the indicators identified above.

In addition, recent research Roundy, et. al. (2014) has shown that mechanical treatments to remove pinyon and juniper increase time that soil water is available. Even four years after treatment, treated areas showed from 8.6 days to- 18 days additional water availability at high elevation sites.

Additional research by Young, et. al. (2013) also showed a relationship between tree removal and soil climates and wet days on these sites, which while providing more available moisture for desired vegetation could also provide moisture for weeds. Numerous studies have shown that increased infiltration rates and less overland flow improve both water quality and quantity.

Compliance:

The NEPA/Final Decision documents were completed for the project area in June 2014.

The treatment would be rested from livestock grazing for a minimum of two years following project implementation to ensure adequate rest and seedling establishment.

The project was flagged in Fall 2014 and Cultural Clearances have been completed within the Spanish George (Chaining - 4,085 acres and the Atchison Creek/Indian Peak Green Stripping (Bull Hog - 917 acres) portion of the project area.

The Indian Peak (Bull Hog - 2,754 acres (BLM - 2,497 acres and SITLA 256 acres) and Chaining - 5,975 acres (BLM - 5,527 acres and SITLA 448 acres) and the (Atchison Creek (Bull Hog - WUI - 463 acres) was flagged Fall 2015. The cultural contract was issued in January 2016 and it is expected that the cultural clearances will be completed by early summer 2016.

Extensive monitoring data (upland and wildlife) has been collected to provide baseline data to determine the success of the treatments.

Methods:

The BLM has identified an ID Team and invited cooperating agencies (UDWR, NRCS, SWARM, etc.) to assess the current condition and formulate a vegetation management prescription that achieves the Desired Future Conditions, management intent, and management goals and objectives within the project area. BLM will provide overall project oversight. BLM will also refine flagging of the treatment area (i.e. leave islands (cultural and wildlife) in cooperation with UDWR and SWARM. All areas within Year 2 of the Project Area will be aerially seeded to meet wildlife habitat objectives in accordance with the Ecological Site Description. Seed will be requested through GBRC. Archeology clearances will be completed by DWR contract with project oversite provided by the BLM Fuels Archaeologist.

Juniper and Pinyon Pine Encroachment (Phase 2 and Phase 3 P/J Encroachment) Objective is present in the

following five Treatment Areas:

1. Spanish George Allotment (Chaining Treatment Method - 4,085 acres),
2. Atchison Creek - WUI (Bull Hog Method - 463 acres)
3. Indian Peak Allotment (Bull Hog Treatment Method - 2,754 acres)
4. Indian Peak/Atchison Creek Roads Green Stripping (Bull Hog Treatment Method- 917 acres)
5. Indian Peak Allotment (Chaining Treatment Method - 5,975 acres).

The majority of the Project Area is currently in Phase 2 and Phase 3 condition. Although sagebrush and perennial grasses are present in a portion of the Project Area that is currently in Phase 2 condition the species vigor, composition and production are well below what should be expected for the site as revealed by the Ecological Site Description. Chaining and Bull Hog Treatment Methods would be utilized to eliminate juniper and pinyon pine from the existing sagebrush and perennial grass community. Application of a diverse seed mix including perennial grasses, forbs and shrubs would be required throughout the project area. The project area is dominated by Juniper and Pinyon Pine; however, this is not consistent with what should be expected according to the ESD, which states that the site should be dominated by Wyoming big sagebrush and a diverse composition of perennial grasses and forbs.

The project areas has been flagged and BLM will provide overall project oversight in coordination with NRCS, DWR, SWARM, etc...

The Cultural Clearance will be completed by BLM contract with project over site provide by the BLM Fuels Archaeologist.

Monitoring:

Pre-monitoring within the Project Area has been ongoing since 2014. Monitoring will continue to be completed by BLM, which may include some support from UDWR or other cooperators. Standard surveys will include: Wildlife Use Pattern Surveys (i.e. Pellet Counts), Wildlife Population Surveys, Key Forage Utilization, Nested Frequency (Trend), Line Intercept (Shrub Cover and Age Class), Standards and Guidelines for Rangeland Health Assessment, Photo Points, OHV Monitoring (to determine if new roads are being created), Breeding Bird Surveys, Raptor Nest Surveys, General Wildlife Use Surveys and Noxious weed inventory / monitoring.

Pre and Post vegetation and wildlife monitoring data will be collected throughout the project area. This monitoring data will be compiled into an overall monitoring report that will help determine the level of success for the project in the short-term and long-term. This data will be utilized to support an Adaptive Management Strategy to determine if changes in treatment methods, seeding, etc... need to occur in order to meet measurable objectives.

Refer to the 2014 Spanish George Allotment Monitoring Report, Chokecherry/Spanish George Final Wildlife Report, Chokecherry/Spanish George Point Counts and Reports and the Chokecherry Allotment Monitoring Reports. In addition, Key Management Area Trend within the Chokecherry and Spanish George Allotments has been attached for reference.

There currently is inconclusive data to suggest that the sage grouse population size would increase if the treatments were completed in Hamlin Valley. The first vegetation treatments were completed in Fall 2015 within the Chokecherry and Spanish George areas. These vegetation treatments consisted of lop and scatter (1,623 acres) and bull hog (1,423 acres). The majority of recent treatments within Hamlin Valley in the past 5-10 years have occurred on private and SITLA lands.

Sage Grouse telemetry data has been collected since 2010 throughout Hamlin Valley. It is expected that this baseline data and future data will allow for correlation of whether sage grouse are utilizing treatment areas. Furthermore, it is expected that by improving Rangeland Land Health conditions and creating expansion sage grouse habitat through the elimination of pinyon and juniper in areas that should be dominated by perennial grasses, forbs and shrubs in accordance with the Ecological Site Description will lead to sage grouse habitat improvements and population increases. This will be verified through further data collection (telemetry, lek counts, RLH data, trend, utilization data, etc...). Similar treatments in others areas within the Color Country District Office indicate that sage grouse are utilizing the treatments almost immediately following the removal of pinyon and juniper. It is expected that this will also occur in Hamlin Valley.

A joint sage grouse telemetry project is being developed. In addition, CCFO is coordinating with SFO (Ely, NV) on their future vegetative treatment projects immediately adjacent to Hamlin Valley. This coordination is expected to continue to provide for habitat connectivity across jurisdictional boundaries

Through the Landscape Conservation Forecasting (LCF) project that was completed by The Nature Conservancy extensive ecological system data collection and modeling was completed.

Through this project Twenty-six ecological systems were identified in the Hamlin Valley Project Areas, and they and their component vegetation classes were mapped to a high degree of accuracy and precision via interpretation of satellite imagery. Eleven of the ecological systems were selected for detailed modeling analyses based on their size, current and likely future condition (degree of ecological departure).

Most of the poor ecological conditions (high departure values) in ecological systems can be attributed to the encroachment by juniper and pinyon pine trees within the Project Area. The Return on Investment within Black Sagebrush and Wyoming Big Sagebrush (According to the ESD) is the highest with the exception of the Utah Serviceberry. This appears to be the highest because the amount of acreage of Utah Serviceberry is minimal compare to other ecological systems.
The following is an excerpt from the final report: "The relatively high ROI values of three sagebrush systems -- Black, Wyoming, and Montane -- generally reflect a combination of problems that are severe at present, and/or are predicted to become or remain so under MINIMUM MANAGEMENT. Predicted improvements under PREFERRED MANAGEMENT are moderate to substantial, though for very large costs. These three sagebrush systems are by far the costliest in both Project Areas, yet their ROI values are relatively high because their considerable costs are spread across their extensive areas -- these sagebrush systems are also the three largest in both Project Areas."

Refer to the attached Landscape Conservation Forecasting Final Report

Partners:

Utah State University Extension, NRCS, The Nature Conservancy, DWR, SWARM, Intergovernmental Internship Cooperative - Southern Utah University, Schell Field Office (Ely, Nevada), livestock permittees, private landowners (homeowners)

Future Management:

Livestock grazing within the Atchison Creek, Bennion Spring, Indian Peak and Spanish George Allotments has been assessed through the permit renewal process.

The Atchison Creek Allotment has authorized livestock grazing from July 1st - August 15th on an annual basis. The Atchison Creek Allotment is deferred until after the completion of the critical growing period.

The Bennion Spring Allotment has authorized livestock grazing from February 1st - November 30th on an annual basis. A livestock grazing management system that incorporates twelve pastures has been identified within the allotment to eliminate repeated livestock grazing during the critical growing period.

The Indian Peak Allotment has authorized livestock grazing on a year round basis; however, there are eight pastures within the allotment. A livestock grazing management system that incorporates the pastures has been identified within the allotment to eliminate repeated livestock grazing during the critical growing period.

The Spanish George Allotment has authorized livestock grazing from May 16th - June 30th (Year 1) and from August 16th - November 30th (Year 2). A two year livestock grazing management system has eliminated repeated livestock grazing during the critical growing period.

All areas seeded would be rested for a minimum of two complete growing seasons or until the seedlings become established and set seed. Once seeding establishment has been confirmed, BLM may authorize grazing according the Utah Fundamentals of Rangeland Health and Guidelines for Grazing Management. Vegetation treatments would continue to be monitored for utilization, cover and trend. Following the two year rest period, the grazing management system identified during the grazing permit renewal process would be resumed.

Key Management Areas are typically established in grazing allotments to monitor trend where there is livestock use. The trend sites that have been established in the Project Area will provide for baseline monitoring data so that short-term and long-term treatment success can be monitored. Because trend within the treatment area that has been collected is baseline data trend will be determined in subsequent years as data is collected. Trend will be collected at these sites for 3 years following treatment and then these sites will be incorporated into the overall range vegetative monitoring schedule and be collected every 3-5 years. The current trend at these Key Management Areas would be expected to be static to downward based on pinyon and juniper expansion within the Project Area.

Future maintenance projects to protect investments made by UWRI/NRCS/BLM have been addressed and allowed through the project planning document (NEPA). Adaptive management has been allowed for in the NEPA/Decision document. A large variety of treatment methods have been identified and authorized for use within the Project Area.

Domestic Livestock Benefit:

As discussed, the majority of the project area is in Phase 2 and Phase 3 condition. The project is expected to improve health, composition, and diversity of shrubs, grasses, and forbs in accordance with Rangeland Health Standards and Guidelines and the Ecological Site Description, which will be beneficial to livestock grazing. Furthermore, the project will be proactive in Improving vegetative communities and removing ladder fuels within areas that are dominated by pinyon and juniper, which will minimize the potential for a catastrophic wildfire throughout the area, which would be detrimental to livestock grazing.

It is expected that the vegetative treatments will result in increased forage production that are consistent or greater to what has been identified in the Ecological Site Description.

BUDGET	WRI/DWR	Other	Budget Total	In-Kind Total	Grand Total
	$4,839,277.40	$195,085.00	$5,034,362.40	$69,600.00	$5,103,962.40

Item	Description	WRI	Other	In-Kind	Year
Contractual Services	Priority 1 - Spanish George Allotment Costs - Mechanical equipment contract (i.e. 2 Way Chaining) 4,085 acres @ $100.00/acre and Aerial Seeding (2 applications) 4,085 acres @ $15/acre. NRCS has committed $236,915.	$531,050.	$195,085.	$0.00	2017
Personal Services (permanent employee)	Cedar City Field Office will provide one permanent employee who will coordinate project design, layout, and oversee monitoring and inventory completed by seasonal employees and project inspection. Pre-monitoring has been ongoing since 2013.	$0.00	$0.00	$25,000.0	2017
Archaeological Clearance	Cultural Clearance completed on 5,825 acres of the Spanish George Chaining. Additional 10,102 of cultural clearance at $23.70/acre (Total $239,417.40) has been committed and funded by the BLM. This $ is already at WRI.	$239,417.	$0.00	$0.00	2016
Personal Services (seasonal employee)	Cedar City Field Office will provide a seasonal wildlife biologist to assist with monitoring and inventory for federally listed and BLM/State Sensitive Species prior to implementation. Two seasonal employees for 3 months @ $4,100/month	$0.00	$0.00	$24,600.0	2017
Personal Services (seasonal employee)	The Cedar City Field Office will provide seasonal employees to assist with vegetative monitoring (pre and post treatment) identified in the monitoring section. The pre-monitoring has been ongoing since 2013.	$0.00	$0.00	$20,000.0	2017
Seed (GBRC)	Priority 1 - Spanish George Seeding (4,085 acres) at $100/acre for a total of $400,000 acres. This will include a native seed mix and a sagebrush seed mix.	$408,500.	$0.00	$0.00	2017
Contractual Services	Priority 4 - Greenstrip Bull Hog (Atchison Creek/Indian Peak Roads) - WUI Costs - Mechanical equipment contract (i.e. Bull Hog) 917 acres @ $400.00/acre and Aerial Seeding (2 applications) 4,085 acres @ $15/acre.	$489,350.	$0.00	$0.00	2017
Seed (GBRC)	Priority 4 - Greenstrip Bull Hog (Atchison Creek/Indian Peak Roads) - WUI Seeding (917 acres) at $100/acre for a total of $91700 acres. This will include a native mix and a sagebrush seed mix.	$91,700.0	$0.00	$0.00	2017
Contractual Services	Priority 2 - Atchison Creek Bull Hog - WUI Costs - Mechanical equipment contract (i.e. Bull Hog) 463 acres @ $400.00/acre (Total - $185,200) and Aerial Seeding (2 applications) 463 acres @ $15/acre (Total - $13,890).	$199,090.	$0.00	$0.00	2017
Seed (GBRC)	Priority 2 - Atchison Creek Bull Hog - WUI Seeding (463 acres) at $100/acre for a total of $46,300 acres. This will include a native mix and a sagebrush seed mix.	$46,300.0	$0.00	$0.00	2017

Item	Description	WRI	Other	In-Kind	Year
Contractual Services	Priority 3 - Indian Peak Bull Hog Mechanical equipment contract (i.e. Bull Hog) 2,754 acres @ $400.00/acre (Total - $1,101,600) and Aerial Seeding (2 applications) 2,754 acres @ $15/acre (Total - $82,620)	$1,184,22	$0.00	$0.00	2017
Seed (GBRC)	Priority 3 - Indian Peak Bull Hog Seeding 2,754 acres @ $100/acre (Total - $275,400)	$275,400.	$0.00	$0.00	2017
Contractual Services	Priority 5 - Indian Peak Mechanical equipment contract (i.e. Chaining) 5,975 acres @ $100.00/acre (Total - $597,500) and Aerial Seeding (2 applications) 5,975 acres @ $15/acre (Total - $179,250)	$776,750.	$0.00	$0.00	2017
Seed (GBRC)	Priority 5 - Indian Peak Chaining Seeding at 5,975 acres @ $100.00/acre (Total - $597,500). This will include a native mix and a sagebrush seed mix.	$597,500.	$0.00	$0.00	2017

FUNDING

WRI/DWR	Other	Funding Total	In-Kind Total	Grand Total
$1,508,086.37	$450,000.00	$1,958,086.37	$69,600.00	$2,027,686.37

Source	Phase	Description	Amount	Other	In-Kind	Year
Habitat Council Account			$30,000.0	$0.00	$0.00	2017
Allocation			Percent of Total			
Big Game			100%			
Upland Game			0%			
Waterfowl			0%			
Sport Fish			0%			
Nongame Fish			0%			
Nongame Wildlife			0%			
BLM Fuels (Color Country)	N646		$210,521.	$0.00	$0.00	2017
NRCS	N666		$236,915.	$0.00	$0.00	2017
RMEF			$3,000.00	$0.00	$0.00	2017
BLM RL			$1,027,65	$0.00	$69,600.0	2017
NRCS		NRCS = $450,000. Chaining and seeding on 1,750 acres. 1750 acres ($65.38 acre) seeding and 1750 acres ($70.00 acre) chain. NRCS funding received to construct a fence and grazing management following the treatment.	$0.00	$450,000.	$0.00	2017

EXPENSE

WRI/DWR	Other	Expense Total	In-Kind Total	Grand Total
$0.00	$0.00	$0.00	$0.00	$0.00

Source	Phase	Description	Amount	Other	In-Kind	Year
Habitat Council Account		N/A	$0.00	$0.00	$0.00	
Allocation			Percent of Total			
Big Game			100%			
Upland Game			0%			
Waterfowl			0%			

Source	Phase	Description	Amount	Other	In-Kind	Year
Allocation			Percent of Total			
Sport Fish			0%			
Nongame Fish			0%			
Nongame Wildlife			0%			
BLM Fuels (Color Country)	N646	N/A	$0.00	$0.00	$0.00	
NRCS	N666	N/A	$0.00	$0.00	$0.00	
RMEF		N/A	$0.00	$0.00	$0.00	
BLM RL		N/A	$0.00	$0.00	$0.00	
NRCS		N/A	$0.00	$0.00	$0.00	

SPECIES

Species	"N" Rank	HIG/F Rank
Mule Deer		1
Threat		Impact
Inappropriate Fire Frequency and Intensity		High
Elk		2
Threat		Impact
Not Listed		NA
Greater Sage-grouse	N3	1
Threat		Impact
Data Gaps - Future Effects of Greater Temperature Variability under		NA
Droughts		Medium
Inappropriate Fire Frequency and Intensity		Very High
Problematic Plant Species – Native Upland		High
Domestic Livestock		N/A
Threat		Impact
Not Listed		NA
Golden Eagle	N5	N/A
Threat		Impact
Data Gaps - Impacts on Migrating Birds		NA
Data Gaps - Persistent Declines in Prey Species		NA
Inappropriate Fire Frequency and Intensity		Medium
Ferruginous Hawk	N4	N/A
Threat		Impact
Droughts		High
Problematic Plant Species – Native Upland		Medium
Pygmy Rabbit	N4	N/A
Threat		Impact
Inappropriate Fire Frequency and Intensity		High

Species	"N" Rank	HIG/F Rank

Threat	Impact
Problematic Plant Species – Native Upland	Low

HABITATS

Habitat

Lowland Sagebrush

Threat	Impact
Droughts	High
Habitat Shifting and Alteration	High
Inappropriate Fire Frequency and Intensity	Very High
Problematic Plant Species – Native Upland	Medium
Soil Erosion / Loss	Medium

Mountain Sagebrush

Threat	Impact
Droughts	High
Habitat Shifting and Alteration	Medium
Inappropriate Fire Frequency and Intensity	Medium
Problematic Plant Species – Native Upland	Very High

PROJECT COMMENTS

Comment 01/25/2016 Type: Project Commenter Chase Jaros

This is a great project. I will help all species living in the area. PJ in Hamblin Valley needs to be greatly reduced.

Comment 02/19/2016 Type: Project Commenter Dan Fletcher

Chase - Thanks for the comment.

Comment 02/11/2016 Type: Project Commenter Michael Golden

Wow. Big project. Well put together proposal. Same questions as 1-4 and 6 on your Upper Long Hollow project. Additionally, on a project of this scale do you have a projection on what the increase in future forage production might be. Also it looks like a lot of Big Game range trend studies have been set up in or around the project area. How have you/will you make use of them?

Comment 02/19/2016 Type: Project Commenter Dan Fletcher

Mike - Thanks for the comments. I will work on incorporating the comment responses into the final project proposal. Comment responses are as follows:

Comment - 1) A little unclear as to how this project alleviates the drought WAP threat...is the intimation that increasing residence time for soil moisture will extend plant life during a drought?

Comment Response:
The project is located at an elevation of 6,000 feet, which is expected to help counteract the impacts of drought. Typically, rangelands at this elevation receive adequate precipitation to promote vegetative growth and viability in the short-term and long-term. In addition, recent research Roundy, et. al. (2014) has shown that mechanical treatments to remove pinyon and juniper increase time that soil water is available. This research indicates that even four years after treatment, treated areas showed from 8.6 days to-18 days additional water availability at high elevation sites. Additional research by Young, et. al. (2013) also showed a relationship between tree removal and soil climates and wet days on these sites, which while

providing more available moisture for desired vegetation could also provide moisture for weeds. Numerous studies have shown that increased infiltration rates and less overland flow improve both water quality and quantity.

The second phase of the Landscape Conservation Forecasting project will focus on climate change to determine the long-term viability of vegetation treatments within the project area considering impacts of climate change. This project is expected to be completed by June 2017.

COMMENT 2) My recollection of the Mordo et. al. (2013) publication was that the 4% tree canopy cover issue pertained to lekking not use.

Comment Response:
Agreed the text was changed in the Threats/Risks section.

Comment 3) You discuss that a lot of data has been collected for the area but what does it say? What is the trend for habitat use and population size for UPD and sage grouse? Does it indicate that use/populations size will be expanded if you conduct the treatments?

Comment Response:
Please refer to the 2014 Spanish George Allotment Monitoring Report, Chokecherry/Spanish George Final Wildlife Report, Chokecherry/Spanish George Point Counts and Reports and the Chokecherry Allotment Monitoring Reports. In addition, Key Management Area Trend within the Chokecherry and Spanish George area monitoring data has been attached for reference.

There are no UPDs or identified UPD habitat within the project area.

There currently is inconclusive data to suggest that the sage grouse population size would increase if the treatments were completed in Hamlin Valley. The first vegetation treatments were completed in Fall 2015 within the Chokecherry and Spanish George areas. These vegetation treatments consisted of lop and scatter (1,623 acres) and bull hog (1,423 acres). The majority of recent treatments within Hamlin Valley in the past 5-10 years have occurred on private and SITLA lands.

Sage Grouse telemetry data has been collected since 2010 throughout Hamlin Valley. It is expected that this baseline data and future data will allow for correlation of whether sage grouse are utilizing treatment areas. Furthermore, it is expected that by improving Rangeland Land Health conditions and creating expansion sage grouse habitat through the elimination of pinyon and juniper in areas that should be dominated by perennial grasses, forbs and shrubs in accordance with the Ecological Site Description will lead to sage grouse habitat improvements and population increases. This will be verified through further data collection (telemetry, lek counts, RLH data, trend, utilization data, etc...). Similar treatments in others areas within the Color Country District Office indicate that sage grouse are utilizing the treatments almost immediately following the removal of pinyon and juniper. It is expected that this will also occur in Hamlin Valley.

Comment - 4) Similarly has the TNC forecasting been completed for the area and what does it indicate regarding current condition and ecological departure, as well as potential return on investment for the treatments you are proposing?

Comment Response:
Twenty-six ecological systems were identified in the Hamlin Valley Project Area, and they and their component vegetation classes were mapped to a high degree of accuracy and precision via interpretation of satellite imagery. Eleven of the ecological systems were selected for detailed modeling analyses based on their size, current and likely future condition (degree of ecological departure).

Most of the poor ecological conditions (high departure values) in ecological systems can be attributed to the encroachment by juniper and pinyon pine trees within the Project Area. The Return on Investment within Black Sagebrush and Wyoming Big Sagebrush (According to the ESD) is the highest with the exception of the Utah Serviceberry. This appears to be the highest because the amount of acreage of Utah Serviceberry is minimal compare to other ecological systems.

The following is an excerpt from the final report: "The relatively high ROI values of three sagebrush systems -- Black, Wyoming, and Montane -- generally reflect a combination of problems that are severe at present, and/or are predicted to become or remain so under MINIMUM MANAGEMENT. Predicted improvements under PREFERRED MANAGEMENT are moderate to substantial, though for very large costs. These three sagebrush systems are by far the costliest in both Project Areas, yet their ROI values are relatively high because their considerable costs are spread across their extensive areas -- these sagebrush systems are also the three largest in both Project Areas."

Refer to the attached Landscape Conservation Forecasting Final Report

Comment - 5) Do you know what FRCC is for the project area because the layer on the WRI

web site does not indicate that majority of the area is at moderate to high on the fire risk index?

Comment Response:
The Fire Regime condition Class (FRCC) within the Project Area is classified as FRCC 3 (lands that are significantly altered from their historical range.

Comment - 6) So it would appear that range trend is static or downward here. Did the recent permit renewal process for the affected allotments change management to address any issues? How will the current management Plan maintain improvements subsequent to treatment?

Comment Response:
Key Management Areas are typically established in grazing allotments to monitor trend where there is livestock use. The trend sites that have been established in the Project Area will provide for baseline monitoring data so that short-term and long-term treatment success can be monitored. Because trend within the treatment area that has been collected is baseline data trend will be determined in subsequent years as data is collected. Trend will be collected at these sites for 3 years following treatment and then these sites will be incorporated into the overall range vegetative monitoring schedule and be collected every 3-5 years. The current trend at these Key Management Areas would be expected to be static to downward based on pinyon and juniper expansion within the Project Area.

Grazing permit renewal has been completed for all allotments throughout the Hamlin Valley Project Area. Grazing management systems that identified livestock numbers, season of use and AUMs were identified through this process. For example a two year grazing management system that defers livestock use in the Spanish George Allotment until after the completion of the critical growing period occurs every other year has been identified through the permit renewal process. In addition, utilization has been collected on a continual basis within the allotment. Livestock and wild horse use have been well within established utilization parameters on a consistent basis. Refer to the Spanish George Allotment Monitoring Report for further information.

It is expected that the vegetative treatment will result in forage production increases that are consistent or greater to what has been identified in the Ecological Site Description. Big game range trend studies are located outside the project area; however, this data has been added to the overall vegetative monitoring file for consideration and comparison to existing data that has been collected by the Cedar City Field Office.

Comment - 7) Anything going on next door in Nevada and any coordination with them?

Comment Response:
Yes a joint sage grouse telemetry project is being developed. In addition, CCFO is coordinating with SFO (Ely, NV) on their future vegetative treatment projects immediately adjacent to Hamlin Valley. This coordination is expected to continue to provide for habitat connectivity across jurisdictional boundaries.

Comment - 8) Don't you think that BLM's commitment to sage grouse and the amendment to your RMP will help to drive future management of this area?

Comment Response:
Yes -- The Project Planning Areas (PPAs) in the Great Basin Fire and Invasive Assessment Tool (FIAT) have identified Hamlin Valley as a high priority for Conifer Focus (Removal). Through this process the top FIAT PPAs, including Hamlin Valley, had the highest priority for sagebrush restoration, protection and conservation within the 5 Great Basin FIAT assessment areas. The highest priority PPAs is those that contain Sagebrush Focal Areas (SFA), high breeding bird densities, conifer threats, wildfire and invasive species threats.

The Project Planning Areas (PPA) prioritization will be used to develop an integrated multi-year program of work for all fuels and vegetation management projects and other related activities aimed to protect, conserve and restore sagebrush and sage grouse habitat. The priority PPAs will be used to inform and influence funding decisions by the BLM.

Comment 02/11/2016 Type: Project Commenter Michael Golden

OK I missed a couple. Anything going on next door in Nevada and any coordination with them? Don't you think that BLM's commitment to sage grouse and the amendment to your RMP will help to drive future management of this area?

Comment 02/19/2016 Type: Project Commenter Dan Fletcher

Refer to previous comments for response.

Comment 02/19/2016 Type: Project Commenter Keith Day

Dan, FEHA will only benefit from this project if you leave PJ nesting and sentinel trees and make certain you are not taking out existing nesting habitat. I am concerned about PYRA in Hamlin Valley as they seem to be in low numbers and scattered about. PJ removal will be beneficial as long as the associated sagebrush understory is left intact and relatively undisturbed. I advise pre-project surveys for both species.

Comment 02/19/2016 Type: Project Commenter Dan Fletcher

Keith - Thanks for the comments. Agreed extensive surveys for FEHA and PYRA will occur prior to treatment. PJ nesting trees, sentinel trees, leave islands, etc... will be identified prior to project implementation based on wildlife monitoring data that has been and will be collected prior to the treatment (Refer to Wildlife Monitoring Data Reports and the Hamlin Valley Wildlife Monitoring Plan and Protocols).

Comment 02/29/2016 Type: Project Commenter Jimi Gragg

I'm really glad to see this proposal. I hope you all can get a lot more pre, during, and post photos up. This would also be a great (though logistically challenging) field trip destination, where we could discuss some of the wildlife (game & nongame) issues brought up here. Thanks for the proposal!

Comment 03/14/2016 Type: Financial Commenter Monson Shaver

The first cultural resources contractor has rejected this project at 15$/acre. The next contractor bid 9,993 acres @ 25.80$ if over 10,000 acres 23.70$. M.

COMPLETION

Start Date:

End Date:

FY Implemented:
2017

FY Completed:

Final Methods:
N/A

Project Narrative:
N/A

Future Management:
N/A

Map Features

ID	Feature Category	Action	Treatment/Type
4956	Terrestrial Treatment Area	Bullhog	Full size
4956	Terrestrial Treatment Area	Seeding (primary)	Broadcast (aerial-fixed wing)

ID	Feature Category	Action	Treatment/Type
4958	Terrestrial Treatment Area	Anchor chain	Ely (2-way)
4958	Terrestrial Treatment Area	Seeding (primary)	Broadcast (aerial-fixed wing)
4960	Terrestrial Treatment Area	Bullhog	Full size
4960	Terrestrial Treatment Area	Seeding (primary)	Broadcast (aerial-fixed wing)
5023	Terrestrial Treatment Area	Anchor chain	Ely (2-way)
5023	Terrestrial Treatment Area	Seeding (primary)	Broadcast (aerial-fixed wing)
5024	Terrestrial Treatment Area	Bullhog	Full size
5024	Terrestrial Treatment Area	Seeding (primary)	Broadcast (aerial-fixed wing)