Sage-Grouse Habitat Improvement Highlights

Bureau of Land Management

Idaho

2011 aerial view of aerial broadcast big sagebrush strip seeding conducted by BLM about 1985 near Crater Rings, Mountain Home, Idaho.

Note the re-colonization of big sagebrush between the strips. Note also the lack of big sagebrush outside of the seeded area, 25 years later.

BLM

Sage-Grouse Habitat Improvement Highlights

U.S. Department of the Interior, Bureau of Land Management

Introduction

Boise District

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Introduction

Recent BLM Idaho's Success in Maintaining and Restoring Greater Sage-Grouse Habitat

Idaho BLM has conducted re-vegetation efforts for many years. A major objective of these treatments has been to restore structure and function to fire damaged and weed dominated ecosystems.

The Greater Sage-Grouse inhabits much of Idaho's sagebrush-steppe communities and serves as an "umbrella species" for the many values provided by healthy sagebrush-steppe ecosystems. The 2010 decision by the U.S. Fish and Wildlife Service warranting the sage-grouse for listing has provided added emphasis on focusing vegetation efforts specific to this species.

The following narratives highlight some of BLM Idaho's recent successes in restoring and maintaining sage-grouse habitats impacted by wildfire, weed invasion and conifer expansion. Many of these successes are the result of collaborative efforts with external partners, which we have listed below. We are encouraged by these successes and hope to expand them after completion of the Greater Sage-Grouse Planning Strategy and subsequent Land Use Plan Amendments, which we plan to finish by Fall of 2014.

Partners in the Highlighted Sage-Grouse Habitat Improvement and Restoration Projects

Idaho Department of Fish and Game,
Idaho's County Weed Control Organizations and Cooperative Weed Management Areas
Private Landowners
U.S. Forest Service
Idaho Power Company
Natural Resource Conservation Service
Rocky Mountain Elk Foundation
The Nature Conservancy
Pheasants Forever
Nevada Department of Wildlife
Grazing Permittees

Boise District

Emergency Stabilization and Burned Area Rehabilitation Treatments in Greater Sage-Grouse Habitat

Coordinated Seedings and Plantings. In the last two years within the new sage-grouse Preliminary Priority Habitat (PPH) and Preliminary General Habitat (PGH) designations, the Boise District Emergency Stabilization and Burned Area Rehabilitation (ESR) program has treated 90,000 acres of sage-grouse habitat with aerial sagebrush seedings, seedling plantings and drill seedings. Through coordination and co-operative efforts with Idaho Fish and Game, U.S. Forest Service and Idaho Power, an additional 14,000 acres of non-BLM lands have been treated.

Snake One Seeding. **Abundant sagebrush in third growing season (but still small in stature) is found within seeded perennial grasses, 2005.**

70 Percent Success Rate. Over the past ten years (2003-2013), the Boise District ESR program has treated 463,000 acres of aerial seeding, seedling planting, and drill seeding in support of the overall sagebrush steppe habitat primarily within the Great Basin. Through coordination and co-operative efforts with Idaho Fish and Game, United States Forest Service, Idaho Power, Nevada Department of Wildlife, The Nature Conservancy, Rocky Mountain Elk Foundation and Idaho Power, an additional 20,000 acres of non-BLM lands have been treated. The treatments have occurred within the new PPH and PGH areas and outside to support overall ecosystem health and sagebrush connectivity. Monitoring results indicate suitable sites aerially seeded with sagebrush exhibit a 70 percent success rate across the Boise District on average, which is also true in PPH and PGH. Seedling survivorship has been more than 60-70 percent successful, overall. Drill seeding for perennial grass/forb understory has been 70 percent successful overall only varying with precipitation and climatic fluctuations.

Limiting Noxious Weeds. Limiting the spread of noxious weeds before they compete against native perennial grass/forb/shrub habitat following a wildfire disturbance, the ESR Noxious weed control program in tandem with aerial seeding, seedling plantings and drill seeding is an important component of habitat rehabilitation and maintenance. Weed treatments including herbicide application, mechanical methods and biological control are used by the Boise District Weeds Program to control existing populations of noxious weeds and to stem the spread of new infestations following wildfire events.

Crowbar fire seeding in Boise District 2010.

Successful bitterbrush seedling planting.

Boise District

Biological Noxious Weed Control on Sage-Grouse Habitat

450 Biological Control Releases. Several biological control measures have taken place in sage-grouse habitat, as well as numerous other locations across the sagebrush steppe not considered PPH or PGH within the Boise District. In areas where vast infestations of noxious weeds occur, classical biological control (i.e., insects) has been used to address the expansion of these weeds following disturbances such as wildfire. The primary targets for biological control in sage-grouse habitat are diffuse knapweed, spotted knapweed, Canada thistle, leafy spurge, Dalmatian toadflax, yellow toadflax and Russian knapweed. Approximately 450 biological control releases have been made from 1988 to 2013 totaling nearly one million insects.

Monitoring at Over 150 Sites. Monitoring at over 150 sites occurring in sage-grouse habitat has shown the following: a 37 percent reduction in spotted knapweed, a 51 percent reduction in Canada thistle, a 38 percent reduction in leafy spurge, a 77 percent reduction in Dalmatian toadflax, a 4 percent reduction in yellow toadflax and a 24 percent reduction in Russian knapweed. Both yellow toadflax and Russian knapweed are new biological control targets with initial releases occurring for both species in 2009. It is highly likely, based on data from surrounding states, that the efficacy of these agents will increase with time.

Volunteers collecting Aphthona spp. in Leafy Spurge.

Boise District

Upper Castle Juniper Reduction

Fostering Diverse Species Composition. The BLM Boise District has been implementing the Upper Castle Creek Juniper Hand Cut Project (UCC) since 2007. The environmental assessment of the UCC project proposed two overall objectives that were taken directly from the 2006 Conservation Plan for the Greater Sage-Grouse in Idaho (Idaho Safe-Grouse Advisory Committee 2006). The first was to maintain, enhance or restore sage-grouse habitat and continuity of habitats at multiple spatial scales. The second was to manage Idaho's landscape to foster a dynamic sagebrush ecosystem that includes a diverse species composition of sagebrush, grasses and forbs, which incorporates structural characteristics that promote rangeland health in general and sage-grouse habitat requirements in particular.

Working in Parternship. The proposed action to move towards the above listed objectives is to cut (fell) with chainsaws, expanding seral juniper on 33,000 acres of designated key and conifer encroachment sage-grouse habitat within the Bruneau Field Office. Since the signature of the UCC Environmental Assessment, the Boise BLM in partnership with the Natural Resource Conservation Service and the Rocky Mountain Elk Foundation has treated 28,527 acres of public lands in the UCC project. In fiscal year 2014 the Boise District will be targeting 5,977 acres utilizing Fuels funding and 1,396 acres utilizing Natural Resources Conservation Service (NRCS) funding. Historically, overall project funding has primarily come from the BLM Fuels Program with acres also treated with NRCS funding to permitees through the EQIP funding mechanism. The Boise District will be looking to perform maintenance treatments on acres that have been previously been treated within 6 to 10 years after initial juniper treatments. These maintenance treatments will target new seedlings and stump re-sprout that may have been missed during the initial juniper cutting contracts. After one maintenance treatment no further juniper treatments are expected to be needed for the next 15 to 20 years.

This picture was taken in 2010 prior to juniper treatments on the Upper Castle Creek Project.

This picture is the same location as the picture to the left and was taken in 2013, three years after the juniper treatment.

Boise District

Pole Creek Juniper Reduction

Implementation begins this Fiscal Year. The BLM Boise District will begin implementing the Pole Creek Project in fiscal year 2014. The environmental assessment for the Pole Creek project proposed action is to use cutting and prescribed fire treatments over the next ten years to restore sagebrush steppe, aspen, and mountain shrub that is/has transitioned to juniper woodlands. Current fiscal year treatments will be specifically targeting 2,500 acres of preliminary general sage-grouse habitat within the project.

Funding from Healthy Lands Initiative. Treatment specifications for this current year funding will involve felling encroaching juniper and slashing to a height of surrounding vegetation. Slash will be left on site, and depending on the density, it could potentially be jackpot burned during the spring or fall. Jackpot burning would be confined to the individual tree debris zone, most patches will be small (less than two acres). Funding is coming exclusively from Healthy Lands Initiative and will be administered by Boise District Fuels personnel.

Pole Creek juniper treatments can be expected to be similar to the above photograph. This is an example of a hand treatment with chainsaws on low density juniper.

Boise District

Greenstripping along Interstate I-84

Seedlings Established in Dry Conditions. In 1989, BLM implemented a 300-foot wide seeding composed of crested wheatgrass, alfalfa and forage kochia adjacent to the west-bound lane of the interstate. Though conditions were dry, the seedlings established and created a greenstrip along the interstate. Six years later in 1993, BLM seeded another 200-foot wide, 270-acre greenstrip adjacent to a frequently used road within a mile west of the 1989 Interstate greenstrip. At the same time, BLM seeded grasses, forbs and sagebrush on 160 burned acres just north of the 200-foot wide greenstrip.

Prevented Wildfires from Growing. The combination of seedings and greenstrips have prevented wildfires from drastically increasing in size and subsequently burning sagebrush in the Crater II project area along the interstate corridor. As a result, the native shrub component within the Crater II site has both flourished and begun to expand.

1989 Greenstrip along I-84 slowed fire behavior in 2006

1991 Crater II Sagebrush population.

2006 Crater II Sagebrush population.

Twin Falls District

The 2003 Owinza Range Restoration Project and the 2012 Sid Crossing Fire

Restoring Critical Wildlife Habitat. The 18,000-acre Owinza Range Restoration project is located within the BLM Shoshone Field Office of the Twin Falls District. The purpose of the Owinza Range Restoration project was to restore critical habitat for sage-grouse, mule deer and antelope. The 1987 Wildhorse Greenstripping/Shrub Restoration Plan and Environmental Assessment (ID050-87-068) identified the Owinza area as a priority for shrub habitat restoration. The area was dominated by annual vegetation, cheatgrass and tumble mustard, which does not provide adequate habitat conditions for sage-grouse and big game. This condition provided abundant light fuels resulting in frequent large wildfires. High fire frequency contributed to the maintenance of annual vegetation and the loss of shrub habitat.

Treatments were Successful. The Owinza Range Restoration project was implemented in 2003. The proposed vegetation treatments were implemented utilizing Fuels program funds. Treatments included prescribed burning, herbicide application, drill seeding of grasses, forbs, and shrubs and aerial seeding of sagebrush. The treatments were successful in converting this area from an annual to a perennial dominated plant community that included grasses, forbs and shrubs, including bitterbrush and sagebrush.

Owinza Range Restoration Seeding.

Sid Crossing Fire.

Wildfire Burned Lightly. A portion of the Owinza project area burned in the 2012 Sid Crossing fire. The fire was lightning caused and started on July 26, 2102. The Owinza project area burned with low severity with many large unburned islands. Based upon the low severity burn there were no seeding treatments proposed under the Emergency Stabilization and Burned Area Rehabilitation (ESR) program.

No Need for Burned Area Rehabilitation. The Owinza Range Restoration project was successful in restoring habitat for sage-grouse and providing for long-term plant community resiliency. Because of the existing perennial plant community resiliency, there was no need to apply ESR treatments after the Sid Crossing fire. Recovery of herbaceous and shrub plant community should occur without further treatment. Successful Fuels/Restoration treatments such as the Owinza Range Restoration project provide for plant community resiliency, reduced wildfire severity, improved wildlife habitat and reduction of future wildfire rehabilitation costs.

Twin Falls District

Murphy Complex Sagebrush Restoration Project

Mark Fleming, IDFG Regional Habitat Biologist, monitoring the Murphy Complex sagebrush planting 4 years after treatment.

Focused on Areas of Risk. In 2007, the Murphy Complex Fire burned over 600,000 acres within the Jarbidge Field Office of the Twin Falls District. Much of the burned area was important wildlife habitat for sage-grouse and other sagebrush-steppe dependent species, as well as mule deer and pronghorn antelope fawning and winter habitat. Post-fire Emergency Stabilization and Rehabilitation treatments focused on re-establishment of grasses and forbs in areas at risk of invasive plant dominance and on restoration of sagebrush cover, which does not occur naturally post-fire. This was accomplished through aerial seeding and seedling planting treatments.

Mechanically Planted 15,000 Seedlings. The BLM cooperated with Idaho Department of Fish and Game's Magic Valley Regional Office in spring 2008 to implement a mechanical sagebrush planting project. This project supplemented aerial sagebrush seeding to increase plant density and diversify age-class structure in an area important for sage-grouse breeding. About 15,000 seedlings were planted using a tree planter over an area of about 160 acres. Shrubs were planted in rows in an area that was drill-seeded with grasses and forbs the previous fall.

Plant Community Well Underway. Monitoring in spring 2012 showed a plant community well on its way to becoming functional wildlife habitat. Sagebrush plants established via the mechanical planting project were reproductive and seedlings were observed around these plants. These plants, in addition to the well-established grass/forb seeding, are providing cover and food for wildlife. Subsequent observation in the area has documented sage-grouse use. Based on the success of this project, other shrub planting projects have been implemented in the Murphy Complex burn area through the Healthy Landscapes program to continue restoration efforts.

Twin Falls District

Walker Hollow Fire Rehabilitation Chaining Project

Wildfire Burned in Juniper Site. In 2011, the Walker Hollow wildfire started as a lightning strike on BLM lands within the Burley Field Office area. The fire burned a total of 367 acres. The elevation ranges from 5,180 to 5,480 feet. In general, the burned area's topography would be characterized as rolling hills dissected with some drainages and ridges. The fire burned primarily in low and black sagebrush habitat that was undergoing encroachment by Utah Juniper.

Key Habitat for Sage-Grouse and Deer. The majority of the burn area is considered key habitat for sage-grouse and mule deer winter range. Most of the burned area was not treatable by a rangeland drill because of the burned standing juniper skeletons. The fire intensity was high because of the high density juniper cover. Because of the high fire intensity and the lack of understory, the majority of the burn area was highly vulnerable to cheatgrass and noxious week conversion.

Chaining Covered Seed and Leveled Junipers. To prevent burn from being dominated by annual vegetation and noxious weeds, the area was aerially seeding with a mixture of native and introduced perennial grass species. After the aerial seeding was complete, two dozers pulling an Ely Chain covered the seed while leveling the standing burnt junipers. Low and black sagebrush seed was not readily available, but abundant sagebrush stands occurred along the fire perimeter as a seed source for natural reestablishment.

The Results were Effective. The results of the aerially seeding and chaining effort are demonstrated in the pictures below:

Walker Hollow directly after chaining.

Walker Hollow one year after chaining.

Areas identified as cultural sites that were not chained. Notice the cheatgrass (purple) and the lack of perennial grass. This is a good demonstration of why it was necessary to seed and chain the area.

Twin Falls District

Cottonwood Sage-Grouse Restoration Project

Partnership Enabling More On-the-Ground Work. The Twin Falls District Fire and Fuels program has partnered with the Natural Resources Conservation Service, Pheasants Forever, Idaho Department of Fish and Game and permittee allotment holders to treat portions of the Burley Field Office encroached by Utah juniper that is affecting sage-grouse habitat. The treatments are occurring under the 2010 Burley Landscape Sage-Grouse Habitat Restoration Environmental Assessment. To date, approximately 10,000 acres have been treated and another 22,000 acres are scheduled for treatment in the next three to five years. As a result of the numerous partnerships, as well as various funding types and in-kind services, the Twin Falls District Fire and Fuels program along with Healthy Lands Initiative funding have been able to accomplish more on-the-ground work than they any individual partner could have on their own.

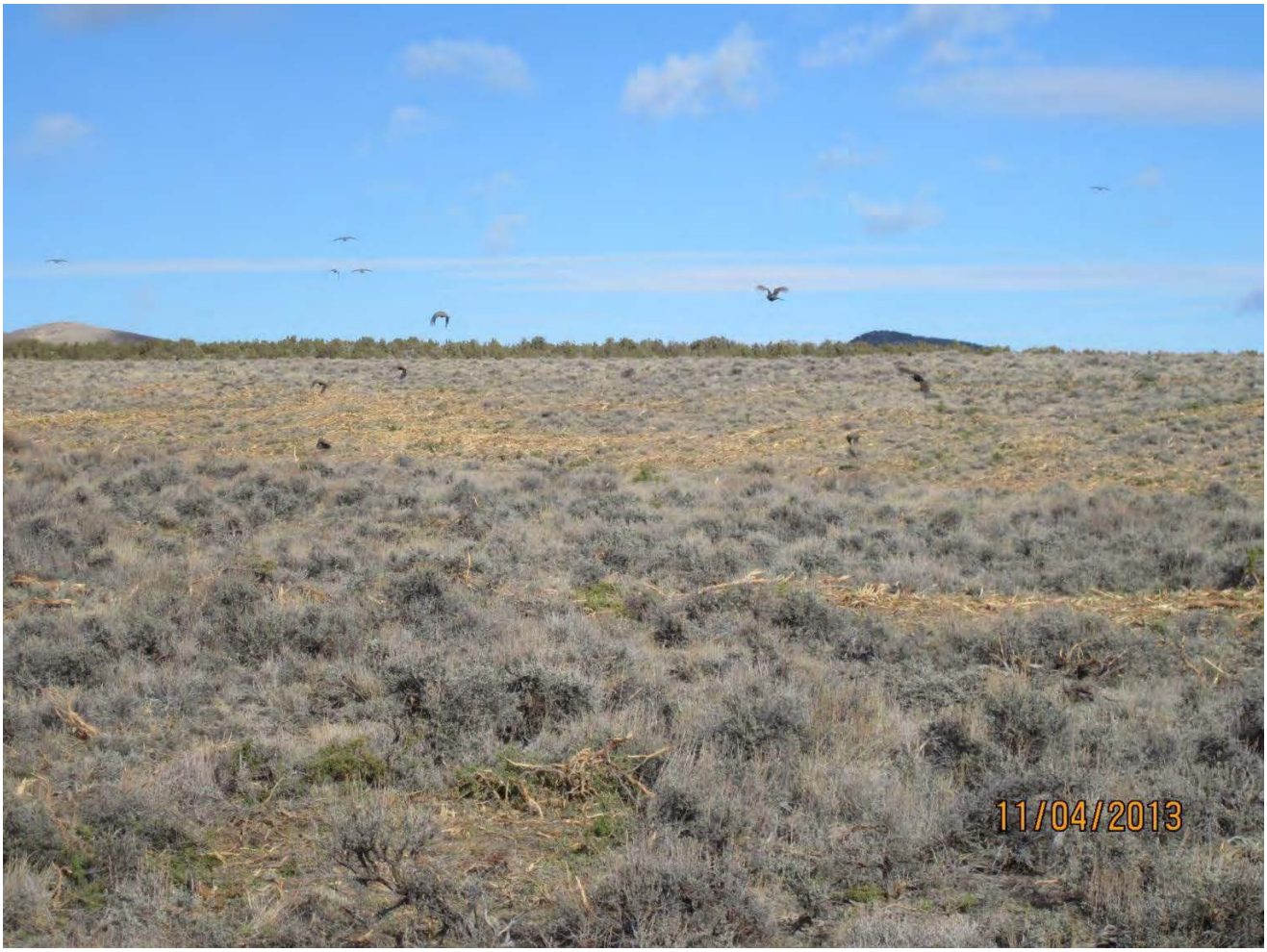
Mimicking Natural Disturbance Process. The purpose of the project is twofold. First, the purpose is to improve or maintain habitat at a landscape level for sage-grouse and other sagebrush obligate BLM sensitive wildlife species. Second, the purpose is to move the vegetation at a landscape scale to desired future conditions within the Burley Field Office by managing encroaching Utah juniper. The expansion of juniper is a natural process that under normal circumstances would be controlled by fire. However, fire suppression may have allowed expansion in areas not historically occupied by juniper.

Sage-Grouse Found Days After Treatment. The most recent treatment is the 2,800-acre Cottonwood Project Area, completed in 2013. Treatment types for this project included mastication, lop and scatter, and cut and pile. Approximately 1,500 acres of encroaching Utah juniper were masticated. Within two days following the treatment, sage-grouse were found within a previously dense stand of juniper. Because of the mastication treatment, juniper was reduced and pre-existing grasses, forbs and sagebrush were left untouched and intact, creating instant suitable sage-grouse habitat.

A section of the Cottonwood treatment area before treatment. Sage grouse avoid dense juniper habitat.

Masticators working in the Cottonwood treatment area.

Cottonwood treatment area after mastication.



Sage-grouse observed in the Cottonwood treatment area days after treatment.

Idaho Falls District

Sagebrush Seedling Planting on the Ten Mile Pass Fire

Wildfire Killed the Sagebrush. On June 29, 2012, the Ten Mile Pass Fire burned approximately 1,735 acres, of which 48 acres were on public lands, all of which were within preliminary general sage-grouse habitat**.** The fire killed all of the sagebrush within the burned area thereby removing the seed source for new populations.

IDF&G Donated the Shrubs. The Pocatello Field Office submitted its Post Fire Recovery Plan on July 20, 2012. The plan included an emergency stabilization treatment to plant sagebrush seedlings within 25 acres of the burned area. The Pocatello Field Office partnered with the Idaho Department of Fish and Game (IDF&G) to complete this treatment. The IDF&G donated 10,500 shrubs (700 bitterbrush and 9,800 sagebrush). The Pocatello Field Office facilitated the contract for hand planting of these shrubs within the treatment area. It is estimated that the shrubs were hand planted at a rate of 400 plants per acre and planted approximately 28 acres.

Seedlings had a High Survival Rate. Four monitoring transects were established at the time of planting and revisited during the summer of 2013. The monitoring data indicated that the sagebrush seedlings had a 76 percent survival rate. These sites will be re-evaluated in 2014 and 2015.

Monitoring transect established in 2012 while contract crew continues to plant shrubs on the 10 Mile Pass Fire. Sagebrush seedlings are located in a line on the right side of the tape. Karen Kraus, PFO Range Technician.

Idaho Falls District

Aerial Application of Sagebrush Seed Following State Fire

Fire Intensity was High. The State Fire started on August 8, 2013 from a lightning strike in Utah. The fire spread into Idaho and burned approximately 30,631 acres in total, 15,964 of which were public lands within Idaho. The fire burned across the majority of the land mass within the Samaria Mountains, removing all vegetation for large swaths of land in some areas and leaving other large patches completely untouched. Fire intensity on the east flank was high and contiguous therefore removing the seed source for new populations of sagebrush.

Aerial Application Needed. The Pocatello Field Office submitted its Post Fire Recovery Plan on September 9, 2013. The plan included an emergency stabilization treatment to aerially apply sagebrush seed to 1,200 acres within mule deer winter range (east flank). This same area is also considered preliminary general sage-grouse habitat. Aerial application was necessary due to the steep, uneven terrain within the targeted area. The Pocatello Field Office coordinated with Idaho Department of Fish and Game (IDF&G) and together determined the area for application. In addition, the IDF&G contributed funds to the project allowing the project area to grow from 1,200 acres to 3,000 acres.

3,000 Acres Seeded. On March 12, 2014 a contractor aerially applied sagebrush seed to approximately 3,000 acres of mule deer winter range and preliminary general sage-grouse habitat. Pocatello Field Office personnel were scattered throughout the targeted area and established monitoring plots. These plots will be visited repeatedly for the next 3 years to determine germination and survival rates.

Previous Success. The Pocatello Field Office has had success with the aerial application of sagebrush seed following wildfire. A combination of Bluebunch wheatgrass, and Mountain Sagebrush seed was aerially applied to the Drive-In Fire (GAR8). Two years post treatment monitoring results reported 500 shrubs per acres within seeded units compared to 92 shrubs per acre in untreated units.

Sagebrush seedlings germinating on the Drive-In Fire during the first growing season following initial treatment. Karen Kraus, PFO Range Technician, 3/13/2014.

The photo at left is of the contract helicopter applying sagebrush seed on the State Fire.

The photo at left is of the contract helicopter applying sagebrush seed on State Fire. The arrow is pointing to the cloud of seed behind the helicopter.

Idaho Falls District

Cox's Well Fire/Big Desert Fuel Breaks

Reducing Fire and Increasing Safety. In the spring of 2012, the BLM Upper Snake Field Office implemented its first phase of the Big Desert Fuel Breaks Project as identified in the March 2012 Environmental Assessment (EA) of the Big Desert Roads Fuel Breaks Project EA# DOI-BLM-ID-I010-2011-0014-EA. The intent of the plan was to reduce the spread potential and intensity of fires adjacent to road corridors in order to protect the remaining intact sagebrush habitat within the Field Office area as well as improve firefighter safety. The initial treatment phase of this plan consisted of mowing approximately 30 miles (1,130 acres) of vegetation adjacent to strategic road corridors throughout the Big Desert resource area. Fuel break construction, which was initiated on April 30, 2012, consisted of roto-mowing the existing vegetation to a height of roughly 8 inches at a distance between 100 and 150 feet from the centerline, creating fuel breaks 200 to 300 feet in width. Additionally, the new plan allowed for areas previously treated under the 2002 Big Desert Fuel Break Plan EA# ID-074-2002-0008 to be retreated either mechanically or with approved herbicides to reduce shrub densities and reduce fuel continuity by removing annual grasses from within the interspaces. To date, approximately 230 acres have been retreated using the chemical method.

Cox's Well Fire Ignites. The Cox's Well Fire ignited on the afternoon of July 10, 2012 within the National Park Service's (NPS) Craters of the Moon National Monument and Preserve (CMNMP). Daytime temperatures during the fire ranged between 85-98°F, while live herbaceous fuel moistures averaged 78 percent, which correlated to an extreme fire behavior potential. Fuels within the area of the fire were classified as a GS2 (Moderate load, dry climate grass-shrub) and Fire Regime Group IV (35-100 year frequency, replacement severity). Vegetation consisted mainly of Wyoming big sagebrush and bluebunch wheatgrass. Due to the passage of numerous thunderstorms, fire activity was erratic, resulting in the fire actively burning on multiple flanks. Strong, gusty winds and hot, dry conditions allowed the fire to quickly spread to the north, east and south through the CMNMP/Upper Snake BLM boundary resulting in the consumption of approximately 4,575 acres of public lands administered by the BLM's Upper Snake Field Office and 3,225 acres of BLM Monument lands located within the CMNMP.

Aided in Fire Suppression. Suppression operations of the Cox's Well Fire began around 13:30, with initial attack crews attempting to anchor and tie the fire into the Great Rift within the BLM Monument Lands. When direct attack failed to produce results, crews backed out to the Arco/Minidoka Road and started improving the road grade and back-burning off the road. Consequently, portions of the Arco/Minidoka Road were treated during the spring of 2012 for the purpose of fuel break establishment and ultimately aided in suppression operations. During firing operation of the Arco/Minidoka Road flame lengths in the treated fuels compared to the untreated fuels were substantially lessened, averaging a height of approximately two foot flame lengths. While the fuel breaks were never tested to the full extent for which they were created (running head fire), they did provide an area for suppression crews to safely and effectively implement a back burn operation.

Overview of the fuel breaks size and vegetative height and distribution.

Overview of the burned and unburned portions of the fuel breaks following the Cox's Well Fire.

Idaho Falls District

Upper Snake Habitat Restoration Projects

Approach Modified in Recent Years. Since the late 90's, wildfires have impacted approximately 452,760 acres (25 percent) of BLM public lands within Upper Snake Field Office (USFO), with most of the large fires occurring between the 1999 and 2001 fire seasons. These wildfires have resulted in substantial reductions in sagebrush cover on approximately 406,940 acres of sagebrush steppe habitat leading to the conversion of the once shrub dominated rangelands to perennial grasslands. In an effort to accelerate the recovery process, an array of restoration projects was implemented with varying degrees of success. These projects included drill seedings, aerial seedings and the hand planting of containerized and bare root shrubs over hundreds of thousands of acres. Many of these projects were completed under Emergency Stabilization and Rehabilitation (ESR) plans and subsequent funding. In recent years, due to shortfalls in funding inconsistencies with aerial sagebrush seeding success, the approach used to reestablish sagebrush within the USFO has been modified with more emphasis placed on utilizing specialized seed drills and nursery grown seedlings.

Treatments Result in Success. While these methods do not result in large scale treatment acres, they can be implemented in a manner that facilitates the expansion of sagebrush once the initial seedings/seedlings have established and reached reproductive maturity. Through the use of specialized seed drills, such as the Truax® Rough Rider seed drill, sagebrush seed is drilled at a rate of one pound per acre in strips that are spaced between 50-300 feet apart and are perpendicular to the prevailing winds. Once the sagebrush have established, their placement to the prevailing winds allows the now mature plants to, over time, fill in the interspaces between the initial drill rows. The same concept has also been employed with the seedlings, where seedlings are hand planted at a rate of 100 seedlings per acre with the use of gas powered earth augers within areas containing good soil depth and moisture. In both cases, treatment success has been favorable over the last five years, resulting in as much as 80 percent plant survivability.

Streamlining the Process. In an effort to reduce the downtime spent compiling the necessary information and composing the required NEPA documents, the USFO is finalizing a programmatic environmental assessment (EA) that would allow the Field Office to streamline the NEPA requirements for rehabilitation efforts that fall outside of the ESR treatment timeframe. In doing so, treatments would be analyzed under the more streamlined Documentation of Land Use Plan Conformance and NEPA Adequacy (DNA) as opposed to an EA. The programmatic EA for the Upper Snake Habitat Restoration Project is slated to be released later this spring.

2000 Mule Butte Aerial Sagebrush Seeding Project. Seed was applied at 0.7 lb/ac over snow-covered ground in the winter following the Mule Butte and Grandview fires. These fires consumed a total of 163,186 acres in the summer of 1999.

2010 Jefferson Sagebrush Drill Seeding Project. Seed was applied at 1 lb/ac with a Truax rangeland drill in the fall following the Jefferson Fire and prior to any substantial precipitation event. The Jefferson Fire consumed 108,855 acres in the summer of 2010.

2012 Table Butte Restoration Project. Locally collected sagebrush seed was used to produce bare root seedling for the purpose of reintroducing sagebrush within the Camas and Camas Creek fire boundaries, which consumed a total of 8,400 acres in the summer of 2000.

These fires were initially aerially seeded in the winter of 2000; however, monitoring revealed that the seedings never established. Initial monitoring data shows that seedling survivability following the 2012 treatment was approximately 80 percent.

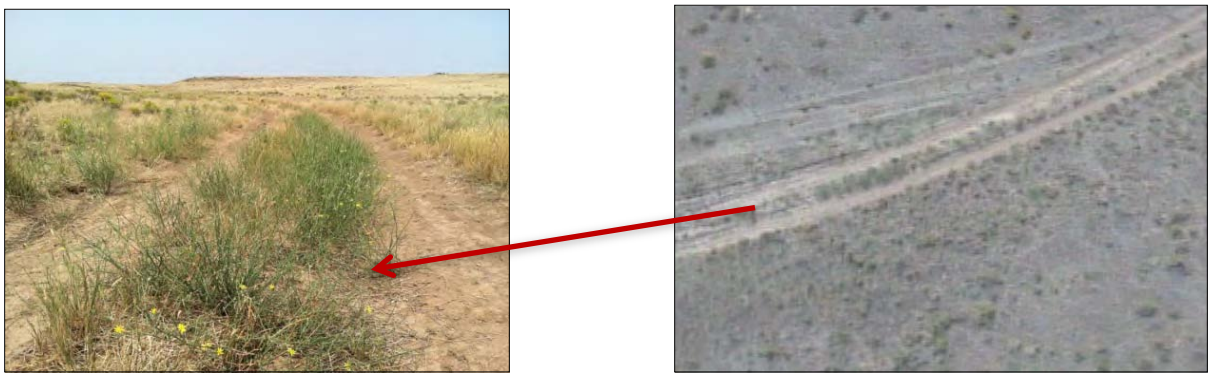
Idaho Falls District

Maintaining Sage-Grouse Habitat through Noxious Weed Control

An Extensive Ongoing Effort: The BLM Upper Snake Field Office manages 1.8 million acres within 13 counties in Eastern Idaho, of which 87 percent consists of Priority Sage-Grouse Habitat. The Field Office has operated an active weed control program since 1996 and is a member of five Cooperative Weed Management Areas. Nineteen noxious weed species infest approximately 30,000 acres, with a majority consisting of leafy spurge, rush skeletonweed and Canada thistle. Herbicide applications occur on about 1,500 acres and bio-agent releases at 60 locations per year. Typically, the Field Office employs a four- to eight-person seasonal crew during the core summer work months and funds seven county assistance agreements that provide significant support in helping maintain the expansion of weeds on BLM lands. Management objectives consist of protecting the un-infested intact sage-grouse habitat with an early detection and rapid response approach, following by containing large infestations and controlling the spread by treating transportation corridors and the outlining borders of the infestations. Bio-control agents are distributed where sensitive environmental aspects occur or when the infestation is too vast or unfeasible to eradicate. The Field Office has also established local insectaries for collection and re-distribution for leafy spurge, Canada thistle and spotted knapweed. All areas treated are mapped with GPS units and incorporated into the National Invasive Species Information Management System (NISIMS).

Unmanned Aerial Vehicles Expected to Provide Efficiencies: Rush skeleton weed is a relatively new invader which has spread throughout large portions of the Big Desert following the 2006 Crystal Fire, threatening important sage-grouse habitat. Skeleton weed occurrences vary throughout this large area, complicating inventory and control efforts. However, because skeleton weed is one of the only plants remaining green late into the summer, the use of an unmanned aerial vehicle (UAV) system is expected to provide geo-referenced images of rush skeletonweed over large areas, providing a potentially cost effective method for determining infestation extent. In 2012, the Field Office tested capabilities of the Raven UAV at various altitudes for mapping rush skeletonweed. The aircraft is hand-launched, negating the need for landing areas. With ground observers, the Raven is capable of flying up to 1.5-mile distances and ranges from 50-400 feet in elevation. It can remain airborne for 60-90 minutes and uses various optical packages. A pre-survey site visit was conducted with appropriate Field Office staff to discuss and work out on-the-ground concerns and logistics. The UAV was tested first over a known rush skeletonweed infestation to determine the best elevation for the remaining flights.

Lessons Learned: Although the Raven's low resolution video sensor made distinguishing between the native vegetation and rush skeleton weed difficult, areas that had a known target placed next to the plant were identifiable. The Field Office plans to retest this system this year with high resolution fixed imaging cameras, such as GoPro modification. These enhancements may also enable adjusting flying heights to cover a larger ground surface area per flight line.



Idaho Falls District

West Rattlesnake Integrated Weed Management Project

Integrated Treatment Strategy: The remote Ashton Hills' area in eastern Idaho is comprised of deep canyons and intermittent streams draining south into Ashton Reservoir. This area provides prime sage-grouse habitat and important migration corridors for elk, deer and moose. Noxious weed invasion, particularly leafy spurge, is a serious threat to this area. It is widespread in the canyon bottoms and scattered in the upland areas. A partnership was established with the BLM, the Targhee National Forest, Fremont County and private land owners to implement an integrated treatment strategy. Inaccessibility of the canyons have limited successful techniques to biological control and targeted grazing.

Over One Million Beetles Released: Implementation began the summer of 2008 where a three-year cycle of targeted goat grazing, followed by deployment of two classical bio-agents occurred on 600 acres. Much was learned upon the first year of goat grazing, including the extent of leafy spurge was far greater than expected. GPS units were used to map the infested areas and provide locations for future bio-agent releases and targeted grazing. The goats in 2009 and again in 2010 grazed more than 1,100-acres of leafy spurge. Over one million leafy spurge flea beetles were released via horseback or by helicopter throughout the project area. Five, one-meter by one-meter goat exclosures were constructed and photographed to provide visual representation of effectiveness. Also established is a 20-meter permanent vegetation sampling transect using statewide protocol for biological monitoring. Herbicide applications were conducted by the BLM and Fremont County Weed Control in 2009 and 2010 using ATV's focusing on satellite infestations in the upland areas.

Funding Expanded Project to 5,800 Acres: BLM funding supplemented with the American Recovery and Reinvestment Act enabled the project area to be expanded to 5,800 acres. The original BLM three year project funding has diminished but the need to continue weed management and monitoring efforts in Ashton Hill's area remains.