

SCOPING/INFORMATION PACKAGE

Project Title: United States Geological Survey Joint Fire Science Project. Quantifying and predicting fuels and the effects of fuel reduction treatments along successional and invasion gradients in sagebrush habitats in the Morley Nelson Snake River Birds of Prey National Conservation Area (NCA) - Four Rivers Field Office.

Principal Investigators: Douglas Shinneman, Robert Arkle, and David Pilliod, USGS

This information package summarizes information on a United States Geological Survey (USGS) and Bureau of Land Management (BLM) proposed project, in accordance with the Snake River Birds of Prey National Conservation Area (NCA) Resource Management Plan (RMP). Federal actions must be analyzed in accordance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations to determine potential environmental consequences.

The purpose of this report is to inform interested and affected parties of the proposal and solicit comments to assist with the proposal's NEPA review. Analysis is on-going, and will be documented in an Environmental Assessment (EA) estimated for completion in December 2011. Comments received in response to this solicitation would be used to identify potential environmental issues related to the proposed action and identify alternatives that meet the purpose of, and need for, the project.

Background and Need for Purposed Action

In the past thirty years, the NCA's vegetation has undergone a significant decrease in native Wyoming big sagebrush and winter fat community composition, due to a series of wildfire events. As of 2001, shrub communities had decreased to 37% of the NCA, and the remaining vegetation is currently comprised of invasive, exotic annual species or seedlings. The NCA's enabling legislation [16 United States Code (USC) 460iii-2; 107 Stat. 304] (Appendix 1) emphasizes the conservation, protection, and enhancement of raptor populations and habitat and values associated with the scientific, cultural, and educational resources of public lands in the NCA. Tied to this legislation are specific RMP (2008) objectives and goals, such as:

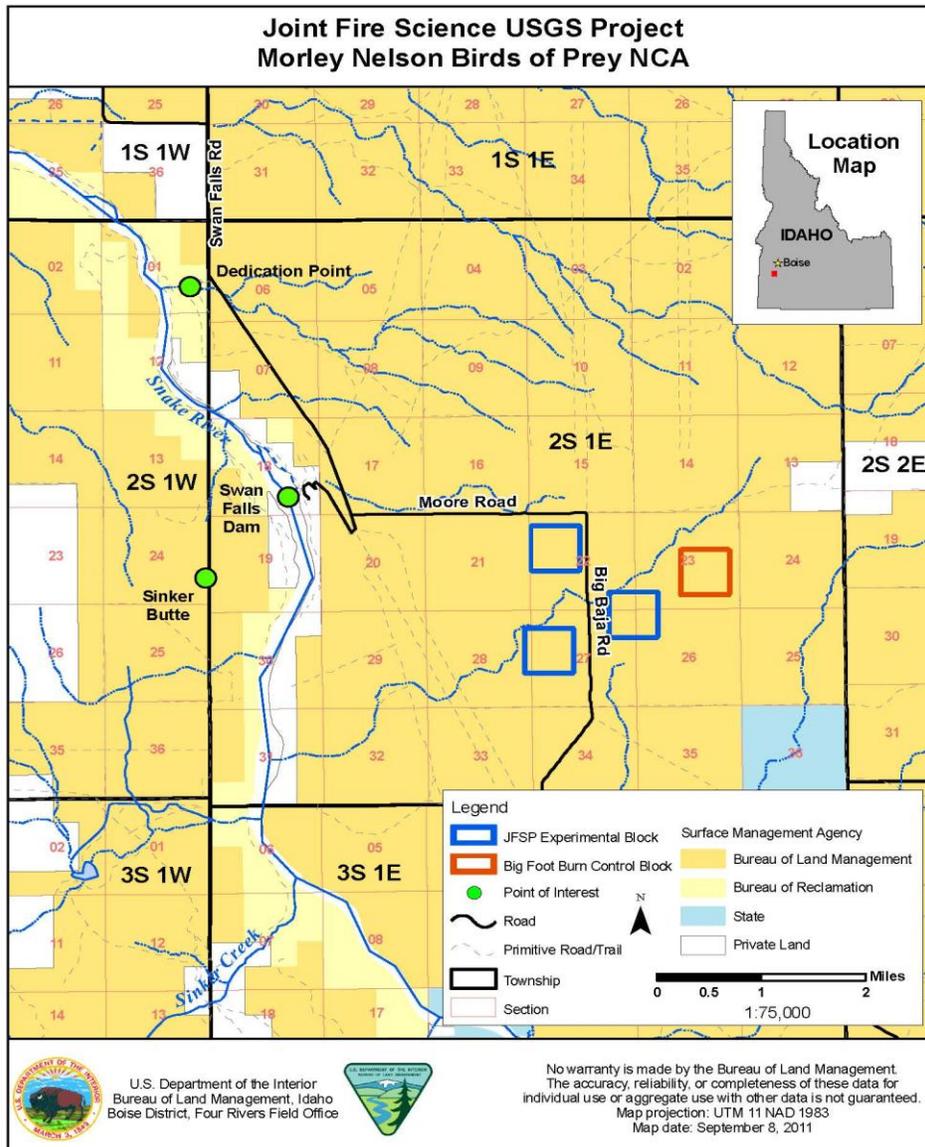
- Protection of remaining shrub communities through wildfire suppression
- Restoration of 130,000 acres of shrub habitat
- Completion of 100,000 acres of fuels management projects
- Designation of up to 5,000 acres for research purposes

The proposed action of this three-to-five year project would help meet portions of these restoration and fuels management goals. The proposed action would additionally assist in increasing the scientific knowledge of fuel conditions and restoration through long-term research plots.

The proposed action is to construct three experimental treatment blocks totaling 363 acres (4.5 miles of fence) and apply a range of fuel treatments within these blocks. Experimental blocks and associated nested treatment plots would be constructed using BLM fence specifications.

The project is located in Township 02 S, Range 01 E; Sections 22, 23, 26, 27, and 28 in Ada County (Figure 1). The project area is located on public land 20 miles southeast of Kuna, Idaho. The following pages provide project locational information, general experimental design layouts, and treatment types.

Figure 1. Location of the three primary experimental treatment blocks



The over-arching goal of the proposed study is to develop an approach to better quantify and predict fuel loads and the effects of fuels manipulations in sagebrush habitats. To accomplish this, USGS and BLM would address three primary questions: 1) What are current fuel loads along successional/invasion gradients in sagebrush ecological sites in the NCA?, 2) How do fuel reduction treatments and grazing practices influence fuels in invaded areas formerly dominated by sagebrush?, and 3) What are the fine-scale spatial patterns of fuels across landscapes, and how can management actions be used to alter these patterns?

Despite Federal mandates to restore degraded rangelands (Healthy Lands Initiative 2007) and reduce fire risk on public lands (National Fire Plan 2001; Federal Land Assistance, Management and Enhancement Act of 2009), there is often little information on how restoration treatments in sagebrush steppe actually influence fuel loads, despite the application of various methods. This cooperative project would provide the experimental framework and necessary replication to provide information on the efficacy of proposed treatments, such as mowing, grazing, herbicide application, and seeding with native species that demonstrate more competitive characteristics.

To determine the effects of these fuels treatments on below-ground resources, a tandem study would be conducted by Boise State University’s (BSU) Department of Biological Sciences principal investigator Marie-Anne DeGraaf. The questions posed by her research would focus on: 1) How do grazing and fire reduction treatments affect net soil sequestration and soil organic matter dynamics?, and 2) How do these treatments create a “legacy effect”, e.g. long-term changes in below-ground resources?

The following tables depict the proposed study design specifications.

Treatment Types and Block - Plot layout: In each of the three primary experimental blocks (outlined in blue in Figure 2), there would be four weed treatment, two grazing treatment, and two drill seed treatment types.

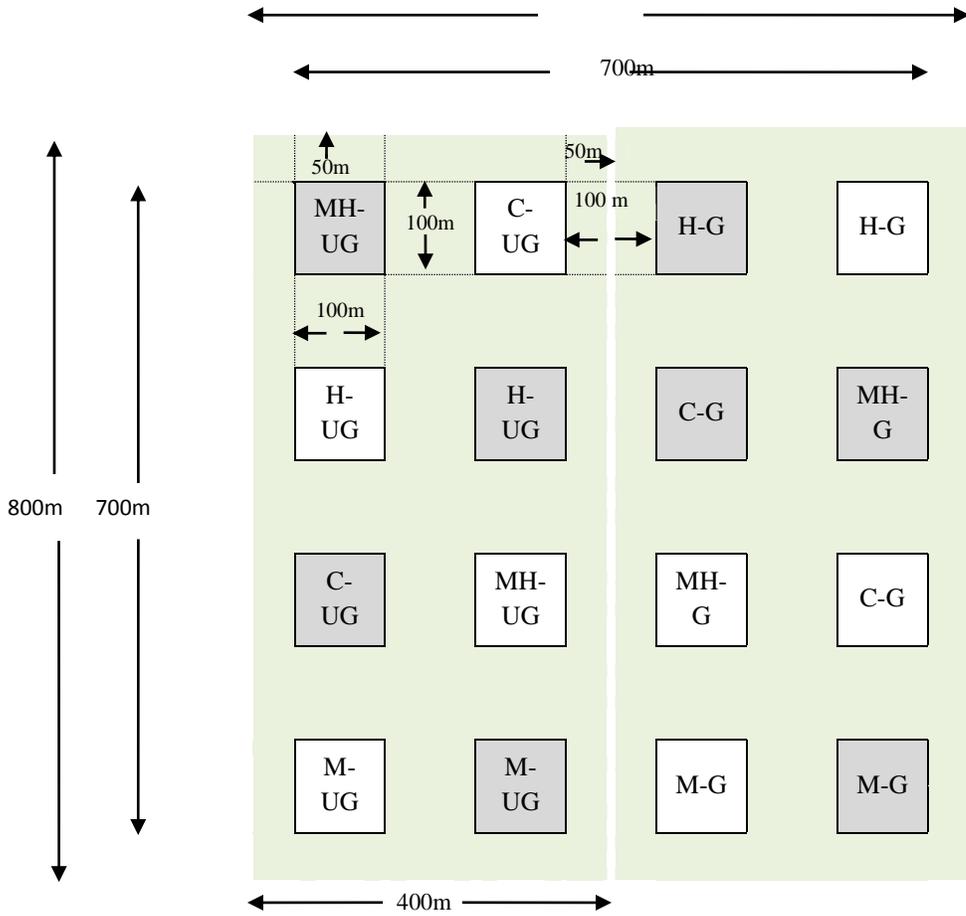
Table 1. Treatment types

Weed Treatment Types	Grazing Treatment Types	Seed Treatment Types
Mowed	Grazed	Seeded
Herbicide	Ungrazed (fenced control)	Not seeded (control)
Mowed and Herbicide		
No treatment (Control)		

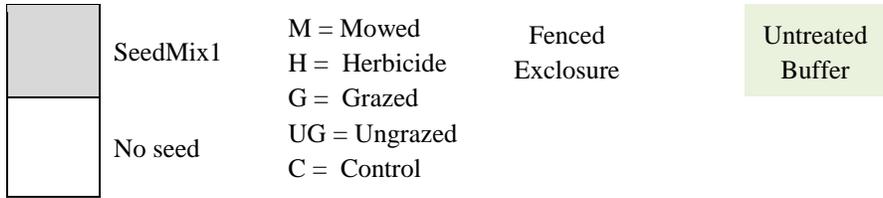
Table 2. Total treatment area for all three experimental blocks

Totals for entire study	Amount (number, area or length)		Years
	<u>acres</u>	<u>hectares</u>	
Number of blocks	3		
Number of plots (16 per block)	48		
	<u>acres</u>	<u>hectares</u>	
Area in plots	119	48	
Area in blocks	363	147	
Area in exclosures	237	96	
Area in vegetative treatment (mow)	59	24	2
Area in pre-herbicide mow	59	24	2
Area in vegetative treatment (herbicide)	59	24	2
Area seeded (1/2 of the plots)	59	24	1
Area in archeological/botanical surveys (entire block)	363	147	1
	<u>feet</u>	<u>meters</u>	
Length of fence	23,622	7,200	1

Figure 2. Treatment block design and dimensions (plot treatments for illustration only)

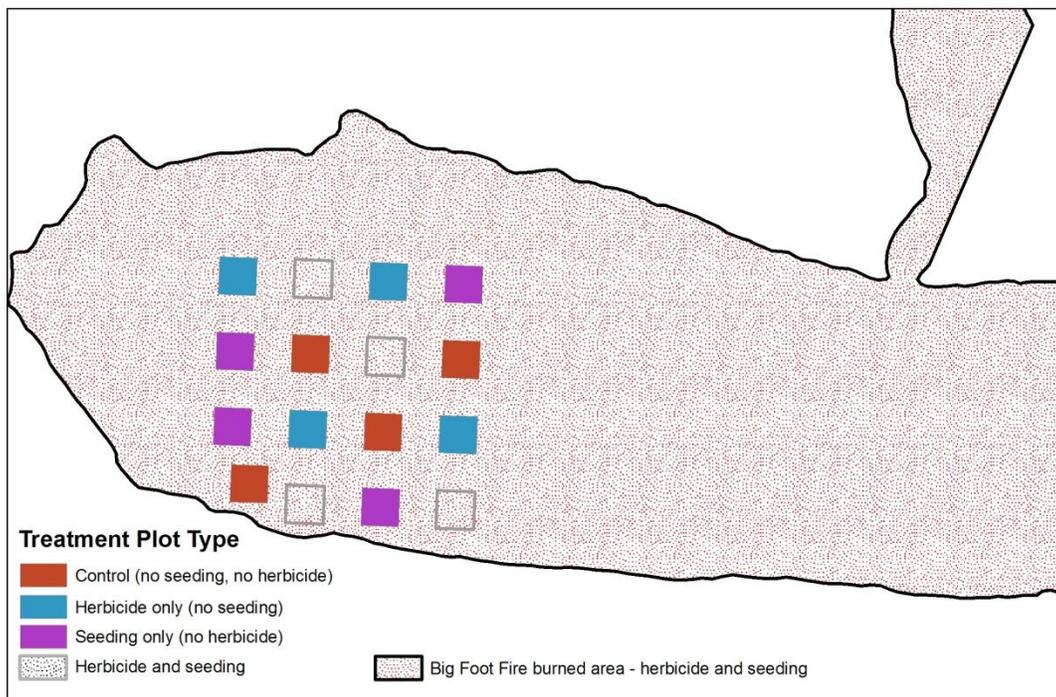


Treatment / Block Layout Legend:



The fourth experimental block location, which was burned in the August 8, 2011 Big Foot fire, would be fenced as part of Emergency Stabilization and Rehabilitation (ESR) treatments, which were analyzed in a separate EA (Big Foot F9BN 2011 ESR Plan). However, the herbicide and seeding treatments would be analyzed as part of this project's proposed action, and would include identical treatments as those described for the other three blocks, except for the grazing treatment.

Figure 3. Big Foot Burn (F9BN) and associated fourth block design, outlined in red in Figure 1



General Treatment Descriptions

Mowing: Mowing would involve above-ground removal of vegetation to a two-inch stubble-height, using a standard rubber-wheeled tractor and rotomower.

Figure 4. Image example of standard rotomower



Herbicides: The following herbicides would be used as site preparation treatments to increase seeding success. Herbicide treatments would include applications of:

- Four ounces/acre of glyphosate to control cheatgrass (*Bromus tectorum*) (Spring 2012)
- Twelve-sixteen ounces/acre of 2-4D to control anticipated release of Russian thistle (*Salsola tragus*) and tumble mustard (*Sisymbrium altissimum*) (Summer 2012)
- Two ounces/acre of Imazapic with a non-ionic surfactant to control germination of cheat grass in Spring 2013 (Fall 2012)

Herbicide would be applied using an all-terrain vehicle (ATV) and boom system. Application methods would strictly follow label specifications. These proposed herbicides are BLM approved herbicides, per the *Final Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement* (PEIS) (http://www.blm.gov/wo/st/en/prog/more/veg_eis.html).

Grazing: Livestock would be herded by a BLM livestock permittee through the experimental “grazing treatment” plots as a fuel reduction treatment. This treatment would occur as regular fall/winter grazing use, per an existing BLM grazing permit in the Sunnyside Allotment.

Seeding: A native and native/cultivar seed mix would be applied using a minimum till drill. Table 3 provides a list of species that would be planted, depending on seed availability.

Table 3. Sample species that would be used for the drill seeding treatment. Seeding rates and amounts will depend on species availability

Plant Species	Common Name
Shrubs	
<i>Artemisia tridentata</i> ssp. <i>wyomingensis</i>	Wyoming big sagebrush
<i>Ericameria nauseosa</i>	rubber rabbitbrush
<i>Krascheninnikovia lanata</i>	winterfat
Perennial Grasses	
<i>Poa secunda</i>	Sandberg's bluegrass and associated cultivars
<i>Elymus elymoides</i>	bottlebrush squirreltail and associated cultivars
<i>Elymus wawawaiensis</i>	Snake River wheatgrass
Forbs	
<i>Achillea millefolium</i> var <i>occidentalis</i>	Western yarrow and associated cultivars
<i>Eriogonum umbellatum</i>	Sulphur buckwheat
<i>Lomatium dissectum</i>	fern-leaf biscuitroot
<i>Penstemon acuminatus</i>	sharp-leaf penstemon

Figure 5. Example of till depth of minimum till drill



Soil sampling: Within each treatment block, nine cores per subplot (100meters x100meters), in each of the three blocks, would be sampled every three months throughout the duration of the three year study, using a standard hand operated soil auger. The cores would be 4.2 centimeters (cm) in diameter with a 15 cm depth.

Figure 6. Example of a hand-held soil auger



Existing Condition

General

Soils

The majority of the project area soils are representative of a Shallow Loamy 8” to 10” ecological site (Ada/Elmore County, Natural Resources Conservation Service soil survey maps). The predominantly loess soils, which are formed in alluvium and residuum derived from sedimentary materials and basalt, occur on nearly level to moderately sloping basalt plains and alluvial terraces. These soils have moderate to high erosion potentials without vegetative cover. Plant communities associated with these soil types are discussed in the vegetation section below.

Vegetation

Prior to European settlement, the NCA was dominated by three principal vegetation communities: Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*), winter fat (*Krascheninnikovia lanata*), and four-wing saltbush (*Atriplex canescens*), each with a complex understory of perennial grasses and forbs. These communities were often found as complexes, e.g. Wyoming big sagebrush/winter fat, which now comprise less than one percent of the proposed project area. Biological crusts consisting of lichens, algae, and mosses were another important part of the understory, and still exist in more intact portions of the NCA. By the 1980s, these vegetation communities became highly altered by fire.

Most of the proposed project area has burned at least once since 1956. The entire project area burned most recently in 1996, and was drill seeded, chained, and seeded with generic rangeland seed mixes to provide site stabilization. However, commensurate with these treatments were impacts to the soil matrix integrity, including removal of biological soil crusts, extant native bunchgrasses, and mixing of soil profiles which alter biophysical and biological soil properties. In addition, the seeded plants are of limited ecological value for raptor prey base species and general above- and below-ground ecological function group diversity. Currently, the project area consists of an annual dominated site with remnant seeded species, such as Boizoisky wild rye.

Some pockets of residual blue grass persist as well. Only one portion (Block 4) of the study area was re-burned on August 8, 2011. Prior to burning, the vegetation composition was similar to the other project area blocks.

Threatened and Endangered and Special Status Plant Species

No occurrences, potential habitat, suitable habitat or proposed critical habitat of slickspot peppergrass (*Lepidium papilliferum*), a federally listed threatened species, exists in the proposed project area. No other Special Status plant species are known, based on surveys completed by Orchard Training Area (OTA) Idaho Army National Guard (IDARNG) biologists on June 17, 2011 and during August 2011.

Cultural Resources

Anticipating a review of Section 106 of the National Historic Preservation Act, the Cultural Resource Management and Environmental Management crews of the IDARNG conducted Class III Cultural Resource Surveys over the proposed project parcels. Since no historic properties were located within the area of potential effect (APE), the OTA Archaeologist recommended that the project proceed as planned. The survey report has been reviewed by the NCA Archaeologist, who will coordinate with the Idaho State Historic Preservation Office to complete Section 106 compliance.

Invasive and Non-native Species

Invasive species, such as cheatgrass, tumble mustard, Russian thistle, and bur buttercup, are common throughout the proposed project area, but no known noxious weed populations were identified there.

Wildlife/Special Status Animals

The NCA was established to conserve, protect, and enhance the most densely known nesting population of raptors, and their supporting habitat, in North America. The Piute ground squirrel is the most important prey species for migrant, wintering, and breeding raptors; ravens; and some mammalian predators and reptiles. The greatest population density of Piute ground squirrels is found in sagebrush grasslands, and can be abundant following years of above-average precipitation in many habitat types, including exotic grasslands. However, severe population declines have been observed in annual grass areas following below-normal precipitation years.

There are no known threatened, endangered, or candidate animals or their habitat within the proposed project area. Due to fragmented sagebrush and winter fat cover and lack of riparian habitat, the project area provides limited habitat for sagebrush-dependent species, including three bat species (Townsend big-eared bat, spotted bat, and fringed myotis), five special status bird species (prairie falcon, ferruginous hawk, loggerhead shrike, Brewer's sparrow, and sage sparrow), and three special status reptile and amphibian species (Mojave black-collared lizard, longnose snake, and western ground snake). The golden eagle, though not a special status species, is protected under the Bald Eagle and Golden Eagle Act and could forage over the area, though prey species are limited due to fragmented habitat. Wildlife clearances were conducted by OTA staff on June 17, 2011 and during August 2011.

Livestock Grazing

Sheep and cattle grazing occurs annually in the fall/winter. The Sunnyside Winter (00826) Allotment is grazed from December-February. The current authorized AUM allocation for the allotment is 11, 280. The permittees primarily use the same pastures annually during the fall/winter.

Proposed Action Alternatives

The proposed alternatives were developed through internal and project cooperators (U.S. Geologic Survey and Idaho National Guard) scoping.

Alternative A (Proposed Action): The USGS and BLM propose construction of experimental blocks and sub-plots, along with mowing, herbicide application, targeted grazing, and soil sampling, per treatment prescriptions and replications. Monitoring would continue up to a minimum of three years following treatment implementation.

Alternative B: Implementation of all treatments would be identical to Alternative A, but glyphosate would replace the use of 2-4D and Impazapic.

Alternative C: No Action. The proposed action would not be implemented.

Decision Process

The NCA Manager is the authorized officer responsible for the decision regarding this project. Based on the results of the NEPA analysis, the NCA Manager would issue a decision document that includes a determination of the significance of the environmental effects and whether an environmental impact statement (EIS) would be required. If the NCA Manager determines that it is not necessary to prepare an EIS, the Manager would decide which management actions, mitigation measures, and monitoring requirements would be required for the project.

Public Input Needed

Comments are specifically requested on the proposed action, preliminary issues, and alternatives. Comments made on this proposal would be most helpful if they are received by November 28, 2011 and are directly relevant to the proposal and project area.

When sending comments electronically, use the title of this project in the subject line. Please identify whether you are submitting comments as an individual or as the designated spokesperson of an organization. Issues that are outside the scope of the proposal will not be addressed at this planning level.

The primary contact for questions and comments for this analysis is Anne Halford, Restoration Ecologist, Morley Nelson Snake River Birds of Prey NCA – Four Rivers Field Office, (208) 384-3335; 3948 Development Ave., Boise Idaho, 83705. Email: ahalford@blm.gov