

SCOPING/INFORMATION PACKAGE

ARS South Mountain Juniper Research

Owyhee Field Office

This information package summarizes a Bureau of Land Management (BLM) and Agricultural Research Service (ARS) joint effort to study hydrological response to juniper treatment in four watersheds of the Juniper Creek drainage in the South Mountain area. ARS has seven years of hydrologic and ecologic monitoring of the watersheds and is looking to study the impact juniper treatments would have on the hydrology, including the effect to snow distribution.

The purpose of this document is to inform interested and affected parties of the proposal, to solicit comments to assist with the review of the proposal. Analysis of the proposal is ongoing, and will be documented in an Environmental Assessment (EA) with an estimated completion date of July 2013. Comments received in response to this solicitation will be used to identify potential environmental issues related to the proposed action and to identify alternatives to the proposed action that meet the purpose of and need for the project.

Purpose and Need for Action

Western juniper (*Juniperus occidentalis* var. *occidentalis* Hook) currently dominates over 3.6 million hectares of rangeland in the northern Great Basin sagebrush steppe. Over 90% of the current distribution represents expansion from pre-settlement habitat. The Bureau of Land Management (BLM) Owyhee Field Office, and Boise District have previously established juniper management as a high priority need in southwestern Idaho in the Owyhee Resource Management Plan (1999). The 288,000 acre Juniper Mountain Restoration Area in western Owyhee County is specifically targeted for broad scale restoration of native sagebrush/bunchgrass habitat for multiple resource objectives, including: restoration of watershed health, improvement of biodiversity, enhancement of wildlife habitat and a sustainable forage base for livestock, and fuels reduction. Juniper treatment and recovery could have significant impacts on snow accumulation and redistribution, timing and amount of streamflow, and soil stability and health, that can only be evaluated at a watershed scale.

While the potential for recovery of grass and shrub habitat with western juniper control is fairly well documented in this region, the hydrologic impacts of western juniper, especially at the landscape scale are less well understood. To understand the potential effects of targeted restoration and resource objectives, in this area, watershed level evaluations need to be completed.

The purpose of this project is to evaluate the effects of juniper removal on snow accumulation and melt, streamflow and sedimentation, and vegetation recovery at the landscape scale in 4 study basins in the South Mountain area of Owyhee County. These watersheds have been monitored, since 2007, for weather inputs, streamflow, suspended sediment, snow accumulation and melt, and juniper distribution. The objective is to use realistic landscape-scale juniper treatments, specifically partial cutting and prescribed fire, to remove juniper from these watersheds, and to model and assess hydrologic and vegetative impacts. Juniper control will also be assessed in two treatment areas external to the watershed boundaries that may have an impact on snow drift accumulation inside the watershed

area. The data derived from pre and post-treatment monitoring will be used to test and validate landscape-scale models that can be used to predict potential treatment effects on water, vegetation and soil resources in other systems affected by juniper encroachment. The tools derived from this research and management collaboration can be used in subsequent NEPA analysis and will increase the efficiency and success of juniper control treatments throughout the Intermountain West.

Existing Condition

Juniper encroachment into sagebrush steppe occurs in three phases:

1. Phase I – tree cover expands, but shrubs and herbaceous plants remain the dominant cover and control on ecological processes;
2. Phase II – tree cover increases to 10-50%, shrub and herbaceous cover decline due to resource competition, bare ground area increases, and trees begin influencing key ecological processes;
3. Phase III – bare ground is extensive and tree cover stabilizes, is the dominant cover type (> 75% shrub mortality), and exerts the primary control on ecological processes.

Productive shrubs, herbaceous vegetation, and litter cover on intact sagebrush sites safely capture and store water and protect surface soils from erosion. Degradation of understory vegetation and surface soils on juniper-dominated hill slopes promotes rapid runoff generation and amplified downslope soil loss. The shift from intact sagebrush to juniper-dominated, degraded conditions represents a transition from a resource conserving state to one in which long-term soil erosion perpetuates site deterioration. This ecological change is considered difficult to reverse without intensive management action.

Recent research suggests that tree cutting and prescribed-burning of degraded, juniper-dominated rangelands can stimulate understory vegetation recovery, enhanced infiltration, and stabilize surface soils over time. For example, a study in eastern Oregon found soil erosion from simulated thunderstorms produced 85 times more soil erosion on Phase III juniper woodlands than on well-vegetated sites where junipers had been removed by cutting 10 years earlier. Restoration treatments at the proposed project area are expected to improve ecological function and substantially reduce long-term soil loss through understory vegetation recruitment and surface soil stabilization.

The western juniper woodlands in the proposed treatment area are primarily in the Phase III invasive stage. There are currently three main original plant communities that have been severely suppressed by juniper encroachment; mountain-big sagebrush-bitterbrush/Idaho fescue, mountain big sagebrush-mountain snowberry/Columbia needlegrass-Idaho fescue, and mountain big sagebrush/Letterman's needlegrass-bluebunch wheatgrass plant communities. Herbaceous cover currently ranges from 5-20% and shrub cover is only 1-12%. Juniper cover and densities vary according to site potential. Juniper cover ranges from 30-80% (53 ± 16 %) and densities of trees taller than 2 m ranges from 60 to 340 trees per acre (163 ± 9 trees/ac). Trees less than 2 m tall average 130 ± 17 trees/ac. Based on previous research, we anticipate that with juniper treatment, original plant communities will be able to recover without the need for reseeding.

Proposed Action

The Owyhee Field Office, in partnership with ARS, is proposing to treat juniper encroachment on 357 acres BLM land and 246 acres private land in an effort to study the hydrologic impacts of juniper

removal. The BLM will manage the treatments on BLM land and ARS will manage the treatments on private land. ARS has been gathering hydrologic and meteorological data since 2007 in four watersheds in the Juniper Creek drainage. The study area is approximately 20 miles south of Jordan Valley, Oregon and four miles northeast of Cliffs, Idaho on the Mud Flat Road in western Owyhee County and ranges in elevation from 5400 to 6200 feet above sea level. ARS research will examine the effects juniper management treatment, such as a combination of cutting/girdling and prescribed fire, would have on landscape scale juniper encroachment and watershed health.

Treatments will be initiated one watershed each year during the summer and fall seasons. Initiating juniper treatments sequentially in different years, allows the development of modeling datasets for pre and post treatment, and comparison of individual treated watersheds during the multi-year conversion. Requirements of the project are 100% juniper mortality across the watersheds and the treatment has to be the same across the entire study area. The proposed action would be completed in three steps:

1. Cut smaller diameter trees and girdle the larger diameter juniper.
2. Allow a year for stressed trees to dry out, and prescribe burn the watershed.
3. Cut, limb, and or remove standing trunks that remain after the prescribed fire. This last step impacts the snow distribution within the watershed.

The implementation of the phased approach, as described above, will reduce the intensity of fire on the surrounding sagebrush as well as reduce soil scorch.

Preliminary Issues

Having support of the private landowners for this project is important due to each of the four watersheds being a combination of BLM and private land. Other concerns are:

- Activities may affect potential sage grouse habitat by the removal of vegetation (especially during the burning phase),
- The removal of junipers may also remove potential raptor nest sites,
- Some aspen stands may be affected as a result of the burning phase,
- The preservation of sage steppe vegetation is a goal and objective of the project,
- The burning phase may increase soil scorch which affects the permeability and function of the soil in localized areas.

Preliminary Alternative Development

Aside from the No Action Alternative, there are no other alternatives proposed at this time. Other alternatives may be developed through scoping and public comment.

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 May 15, 2013 and are directly relevant to the proposal and project area. The BLM will not reject public feedback outside established public involvement timeframes; however, these comments may be considered secondary to comments received in a timely manner and may only be assessed to determine if they identify concerns

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that would substantially alter the assumptions, proposal, design, or analysis presented in the EA. Comments sent electronically should be sent to Courtney Wyatt, cwyatt@blm.gov with the title of this project in the subject line. Please identify whether you are submitting comments as an individual or as the designated spokesperson on behalf of an organization. Suggested actions, issues, or alternatives outside the scope of the project objectives as identified in the purpose and need would not be considered.

The primary contact for questions and comments for this analysis is Courtney Wyatt, Fuels Technician, 3948 Development Ave, Boise, ID, 83705, 208-384-3467.

MAP

ARS - South Mountain Project Area

