The Buzzard Complex Fire Emergency Stabilization and Rehabilitation Plans

ENVIRONMENTAL ASSESSMENT

DOI-BLM-OR-B050-2014-0032-EA
DOI-BLM-OR-V040-2014-076-EA

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CHAPTER I: PURPOSE AND NEED FOR ACTION

A. Introduction

The Burns District and Vale District Bureau of Land Management (BLM) is proposing to implement emergency stabilization and burned area rehabilitation (ESR) actions on the Buzzard Complex fires located on the shared boundary between the two districts (See Map 1). Stabilization and rehabilitation actions would include treatments of invasive species, seeding of native and desirable non-native grass species, construction of temporary fences, repair of management fences and planting of shrub seedlings on key portions of the Buzzard Complex burned area. The Buzzard Complex consisted of the Buzzard Fire, the Riley Field Fire, the Bartlett Mountain Fire, the Beaver Creek Fire and the Saddle Draw Fire. Emergency stabilization and rehabilitation plans have been prepared for portions of the Riley Field (RF) Fire (H8G2: includes the Bartlett Mountain Fire), Beaver Creek (BC) Fire (H8A6) and the Saddle Draw (SD) Fire (H8BD). This EA addresses actions identified within each of the BLM ESR plans and analyzes their potential impacts on the human environment.

The Buzzard Complex fires were ignited by lightning on July 13, 2014, at multiple locations east of the Stinkingwater Mountains in Harney County, Oregon. The complex was contained on August 2, after burning a total of 398,596 acres. Of the total acres burned, 277,233 acres are in the Vale District (all ownerships, see Maps 2BC, 2RF and 2SD in Appendix A) and 118,514 are on the Burns District (all ownerships). The discussion in this EA will include analysis for actions proposed on portions of the complex within both the Burns District and the Vale District. Cumulative effects analysis is not limited by the above boundaries.

The progression of the Buzzard Complex fires was due in part, to fuel loading that was above average and continuous in the fire area. Portions of the fire that normally would not sustain fire spread seemed to allow fire to move through them without the need of high winds. Grass was abundant and tall enough in the fire area to carry fire through the brush fields. Topography varied from flat plateau tops, steep side slopes and valley bottoms. Narrow, broken volcanic formations and vents are common. Terrain conditions for a very large portion of the fire were extreme and very difficult to move in. Many areas could be moved through faster on foot than by vehicle. Fire spread rates were normally faster than the physical ability of equipment and personnel to move across the landscape. Fire behavior during the large growth days was extreme and wind driven with spread rates on July 17th exceeded seven mph. One sustained run moved approximately six miles in approximately 45 minutes.

Short range spotting added to the spread rates and spotting of up to ½ mile occurred in the juniper populated areas. On the 18th, a subsidence inversion set up over the fire area and


Map 1
Washington
Oregon
Idaho
Nevada
Boardman
Hermiston
Milton-Freewater
Troy
The Dalles
Pendleton
Pilot Rock
Elgin
Wallowa
Imnaha
Enterprise
Joseph
La Grande
Ukiah
Baker Resource Area (Vale District)
Baker City
Sumpter
Long Creek
Madras
Mitchell
Dayville
Prairie City
Unity
Ironside
Huntington
Midvale
Prineville
Weiser
Seneca
Willowcreek
New Plymouth
Vale
Brothers
Nyssa
Drewsey
Juntura
Hampton
Burns
Malheur Resource Area (Vale District)
Homedale
Riley
Riverside
Crane
New Princeton
Buzzard Complex
Wagontire
Three Rivers Resource Area (Burns District)
Diamond
Jordan Valley
Frenchglen
Burns Junction
Rome
Andrews Resource Area (Burns District)
Jordan Resource Area (Vale District)
Fields
Denio
McDermitt
OREGON
Buzzard Complex
Burns District
Vale District
Note: No warranty is made by the Bureau of Land Management as to the accuracy, reliability or completeness of these data for individual or aggregate use with other data. Original data was compiled from various sources and may be updated without notification.
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reduced the potential for extreme fire behavior. This allowed crews to take advantage and get control lines established.

The Buzzard Complex fires burned across the BLM districts and affected 30 separate grazing allotments. Ten of these allotments are classified as Fenced Federal Ranges (FFRs). Within the burned areas there is one Wilderness Study Area (WSA), one Area of Critical Environmental Concern (ACEC)/Research Natural Area (RNA) and three areas where wilderness character (LWC) has been identified as a potential value on public lands. The WSA is the Cedar Mountain WSA (4% burned). The Stockade Mountain RNA (1767 acres) is located entirely within the Saddle Draw Fire portion of the complex and was designated as an RNA for values provided by old growth western juniper woodlands. The Deadman Creek, Cold Springs and Clark Ranch LWC units occupy roughly 50,000 acres within the Saddle Draw portion of the Buzzard Complex.

The Buzzard Complex fires were wind driven and burned through low sagebrush (*Artemisia arbuscula*), mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*; in the upper elevations) and Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*; in the lower elevations) plant communities with understories composed of Thurbers's needlegrass (*Achnatherum thurberianum*), bottlebrush squirreltail (*Elymus elymoides*), Sandberg's bluegrass (*Poa sandbergii*), and bluebunch wheatgrass (*Pseudoroegneria spicata*). The fires burned through and adjacent to extensive stands of invasive annual grasses, medusahead rye (*Taeniatherum caput-medusae*, a listed noxious weed species) and cheatgrass (*Bromus tectorum*), that are especially dominant in the lower elevations (below 4600' mean sea level) of the burned area.

B. Purpose and Need for Action

The purpose of the actions is to stabilize and rehabilitate the area burned by the Buzzard Complex fires, including:

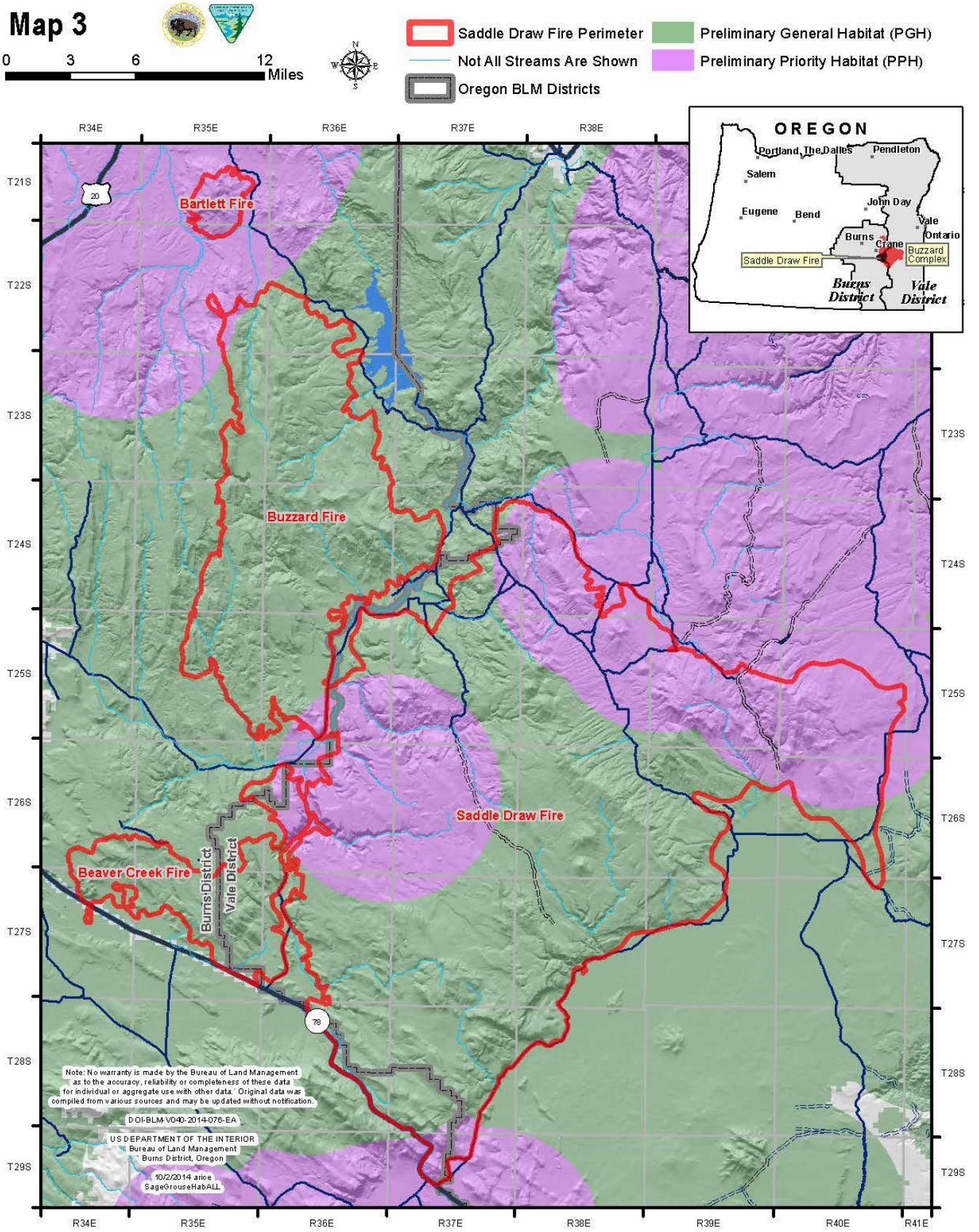
Stabilize designated critical habitat for federal/state listed, proposed, or candidate species. The greater sage-grouse was classified as warranted but precluded for ESA listing in 2010 and was designated a candidate species. Substantial acres of Greater Sage-Grouse habitat was impacted by the Buzzard Complex fires (Map 3). There is a need to stabilize habitat, rehabilitate the biological integrity of the sagebrush ecosystem, limit the expansion or dominance or invasive species and accelerate the recovery of native vegetation critical for sage-grouse habitat (WO-IM-2012-043). Nearly 100% of the Buzzard Complex burned areas is considered either preliminary priority habitat (PPH) or preliminary general habitat (PGH);

Minimize threats to life or property (rangeland and related range improvements; safety from potential flood and debris flows, etc.);

Protect cultural resources from looting or vandalism;

Stabilize soils and reduce offsite soil loss by establishing ground cover of desirable perennial vegetation in order to compete with invasive annual grasses and noxious

SAGE-GROUSE PRELIMINARY HABITAT



weeds, reduce the likelihood of new weed establishment, reduce the potential for accelerated soil erosion (both wind and water), reduce sediment deposition into fish bearing and other perennial streams, protect and allow for the recovery of riparian areas within the fire;;

Reduce the risk of noxious weed and annual grass infestations through Early Detection/Rapid Response (EDRR);

Protect road resources by preventing degradation and allowing continued water flow;

Reduce the risk of rock and soil movement from the burned area, downslope onto roadways;

Protect burned areas from livestock grazing until objectives are met.

Reduce fine fuels within the burned area to protect the area and wildlife habitat from future high intensity wildfire;

Repair or replace damaged facilities needed for management of livestock, including fences and spring developments; and continue to provide water sources for wildlife.

Protect remote infrastructure (power lines, power poles, wells, etc.) from future damage caused by wildfires.

There are numerous issues present in the areas burned by the Buzzard Complex fires. The need for the action is based upon the following issues:

1) Greater Sage-Grouse (*Centrocercus urophasianus*), a candidate for federal listing as threatened or endangered and a BLM Special Status Species (SSS), are found within the treatment areas. The area is densely populated by sage-grouse. Approximately 34% of the burned area is within Preliminary Priority Habitat (PPH) for sage-grouse and 66% of the area is classified as or Preliminary General Habitat (PGH). There are eleven known leks within the fire perimeters and two additional leks are within one half mile of the northern boundary of the Saddle Draw burned area.

2) The pervasive infestations of invasive annual grasses present in the lower elevations of the fire and adjacent lands present one of the most complex issues in this area. Documented pre-fire acres within the fire perimeter infested with medusahead are 7,000 acres while cheatgrass is ubiquitous across the land making it difficult to map. This estimate is likely below the actual acres infested. These species of invasive annual grasses displace desirable native and seeded vegetative species, compromises the ecological integrity of the watersheds, degrades habitat for sage-grouse and other important wildlife species and creates continuous fine-fuels which then lead to decreased fire-return intervals. Additionally, the fire made site resources readily available which the weeds, particularly the annual grasses, will capitalize on much more readily than the desirable vegetation. Prior to this fire, the whole area was categorized as either PPH or PGH sage-grouse habitat. Because management of

invasive annual grasses is difficult under the best circumstances, it is imperative that herbicide treatments begin as soon as possible to take advantage of the reduced seed crop from the fire activity to rehabilitate this critical habitat.

3) The fire burned through big sagebrush and low sagebrush sites. Fire kills big sagebrush plants and suppresses recovery because big sagebrush is not a root-sprouting shrub (Tisdale & Hironaka 1981). Post-burn recovery periods for big sagebrush can take years because it must reestablish from seed. In the shrub steppe environment, as is found above 4600' elevation in the Buzzard Complex, mountain big sagebrush stands may recover between 15 and 20 years after fire, while stands of Wyoming big sagebrush may not be fully recovered after 50 to 75 years (Blaisdell et. al. 1982, Bunting et al 1990 & 1987). Low sagebrush, which is an important habitat component for sage-grouse and pronghorn antelope, may take 100+ years to return to pre-fire cover conditions.

4) In areas of higher intensity, the fire removed most to all of the aboveground plant material exposing the soil surface to the forces of wind and water, increasing potential damage from future erosion events. Multiple drainages located within the fire perimeter are susceptible to water erosion due to the steep topography in those areas (Web Soil Survey 2012). Since the fire consumed soil organic matter and coarse debris in many parts of the burn, the potential for runoff generation from a given precipitation event has increased compared to the sites pre-fire potential.

5) Post-fire and depending on the year, during the dry, hot months of August and September and to a certain extent October, soils are susceptible to wind erosion with no vegetation or biological soil crusts to hold them in place. The location of the fire was adjacent to frequently traveled BLM administrated and county roads. Blowing dust and sand from the burned area as well as deposition of wind-blown sediments onto roadways could form berms creating a hazard to motorists traveling along these roads.

6) As the fall precipitation begins, generally starting in October, soils susceptible to water erosion become vulnerable to overland flow which transports valuable seed containing top soil away from the area. In areas with no vegetation to help capture water on the site, the amount of runoff post-fire is larger than pre-fire, increasing the potential for erosion to occur on the site and within drainages, taking with it soil and debris. In areas at high risk for water erosion, sediment may create dams causing ponding along roadsides and/or accumulate on or near roads, posing a risk to vehicles and human safety.

7) In addition to invasive annual grasses, medusahead and cheatgrass, there are currently thirteen species of noxious and invasive weeds known to occur in the area burned by the Buzzard Complex fires. These include Russian knapweed (*Rhaponticum repens*), whitetop (*Lepidium draba*), diffuse knapweed (*Centaurea diffusa*), Canada thistle (*Cirsium arvense*), bull thistle (*Cirsium vulgare*), Scotch thistle (*Onopordum acanthium),* Spotted knapweed (*Centaurea stoebe L.*), and Perennial pepperweed (*Lepidium latifoliaum L.)* Mediterranean sage (*Salvia aethopis),* Dalmatian toadflax

(*Linaria dalmatica),* halogeton (*Halogeton glomeratus*), black henbane (*Hyoscyamus niger*), and tamarisk (*Tamarix ramosissima*).

8) Depending on the intensity of fire and amount of vegetation lost (both above ground and remaining viable root mass) burned areas may need to be rested from livestock and wild horse grazing in order to allow perennial native vegetation to reestablish. (See Appendix B – Tables 1-3). Temporary fences are expected to be required to protect pastures in the Saddle Draw burned area that were not fully consumed by the fire. Any temporary fence constructed would remain in place until objectives are met. By constructing a temporary fence, the unburned portions of the pastures would be able to be utilized. Existing fences were damaged to varying extent as the fire burned through allotment boundary and pasture fences. These fences are needed to protect the area from grazing, as well as for management of livestock once grazing within the burned area is resumed.

9) Spring developments, troughs and pipelines were damaged to varying degrees. Livestock and wildlife, including sage-grouse, rely on manmade water sources in the area in order to make the naturally dry area suitable habitat.

10) There are 70 known cultural resource sites on BLM-managed land within the Buzzard Complex, including both historic and prehistoric sites. The extent to which they have been affected by the fire has not been fully assessed due to accessibility issues in some areas and the large geographic area within the fire perimeter. Since the fire removed ground covering vegetation, artifacts on the surface are easy to see for several years post-fire; therefore, there is a risk of illegal surface collection and acts of vandalism. Also, site deposits are vulnerable to accelerated wind and water erosion with no vegetative cover.

11) Numerous power lines and Right-of-Way (ROW) infrastructure areas exist within the fire perimeter. Protection against future fires for the ROW infrastructures is needed to provide continued electrical power and communication services to the surrounding communities and residences.

C. Resource Objectives

The following management objectives are from the **Three Rivers Record of Decision/Resource Management Plan** (ROD/RMP), date approved September 1992:

- Soil Management (RMP 2-15): SM1 - "Prevent deterioration of soil resources by ensuring the BLM-administered lands are in stable or upward observed apparent trend categories as outlined in BLM Handbook H1734-2." SM1.2 - "Rehabilitate burned areas where erosion hazard is high and/or natural revegetation potential is low." SM2 – "Rehabilitate areas with specific localized soil erosion problems and reduce accelerated (human influenced) sediment delivery to fluvial systems."
- Biological Diversity (RMP 2-20): BD1 - "Maintain viable populations of native plants and animals well distributed throughout their geographic range." BD3 - "Maintain

representative examples of the full spectrum of ecosystem's biological communities, habitats, and their ecological processes. Provide for the increase of scientific understanding of biological diversity and conservation."

- Grazing Management (RMP 2-33): GM1.2 - "…Stocking levels will be reviewed and adjusted, if necessary and in accordance with the results of monitoring studies…" GM1.3 - "Utilize rangeland improvements, as needed, to support achievement of multiple-use management objectives…"
- Wild Horses (RMP 2-43): WHB1 - "Maintain healthy populations of wild horses within the Stinkingwater Herd Management Area (HMA)."
- Vegetation (RMP 2-51): V1 - "Maintain, restore, or enhance the diversity of plant communities and plant species in abundance and distributions, which prevent the loss of specific native plant community types or indigenous plant species within the RA." V1.6 - Apply approved weed control methods including manual, biological, and chemical control methods…in an integrated pest management program to prevent the invasion of noxious weeds into areas presently free of such weeds and to improve the ecological status of sites which have been invaded by weeds…"
- Special Status Species (RMP 2-56): SSS2 - "Maintain, restore or enhance the habitat of candidate, State of Oregon listed and other sensitive species to maintain the populations at a level which avoid endangering the species and the need to list the species by either the State of Oregon or Federal Government." SSS3 - "Ensure that BLM-authorized actions within the RA do not result in the need to list SSS or jeopardize the continued existence of listed species…"
- Wildlife (RMP 2-66): WL2.4 - "Provide water in mule deer summer range where that habitat component is deficient." WL3 - "Manage forage production to support big game population levels identified by Oregon Department of Fish and Wildlife (ODFW)." WL7 - "Restore, maintain, or enhance the diversity of plant communities and wildlife habitat in abundances and distributions which prevent the loss of specific native plant community types or indigenous wildlife species habitat within the RA." WL7.5 - "Adjust overall grazing management practices as necessary to protect SSS and to maintain or enhance their habitat…" WL7.13 - "Provide water for wildlife species in areas where that habitat component has been specifically identified as deficient."
- Cultural Resources (RMP 2-152): CR1 - Protect the cultural and paleontological values in the RA from accidental or intentional loss, while providing special emphasis to high value sites and conserving those resources of overriding scientific or historic importance."

The following management objectives are from the **Southeastern Oregon Record of Decision/Resource Management Plan** (ROD/RMP), date approved September, 2002:

- Rangeland Vegetation (RMP-38): "Restore, protect, and enhance the diversity and distribution of desirable vegetation communities including perennial native and desirable introduced plant species. Provide for their continued existence and normal function in nutrient, water, and energy cycles"
- Rangeland Vegetation (RMP-40): "Manage big sagebrush cover in seedings and on native rangeland to meet the life history requirements of sagebrush-dependent wildlife.

- Rangeland Vegetation (RMP-41): "Control the introduction and proliferation of noxious weed species and reduce the extent and density of established weed species to within acceptable limits."
- SSS Plants (RMP-43): "Objective: Manage public land to maintain, restore, or enhance populations and habitats of special status plant species. Manage in order to conserve or lead to the recovery of threatened or endangered species."
- Water Resources (RMP-48): "Restore, maintain, or improve riparian vegetation, habitat diversity, and associated watershed function to achieve healthy and productive riparian areas and wetlands. "
- SSS (RMP-51): "Manage public land to maintain, restore, or enhance populations and habitats of special status animal species. Manage in order to conserve or lead to the recovery of threatened or endangered species."
- Wildlife (RMP-51): "Manage upland habitats in forest, woodland, and rangeland vegetation types so that the forage, water, cover, structure, and security necessary for wildlife are available on the public land."
- Rangeland/Grazing Use (RMP-56): "Provide for a sustained level of livestock grazing consistent with other resource objectives and public land use allocations."
- Wild Horses (RMP-55): "Maintain and manage wild horse herds in established herd management areas (HMA's) at appropriate management levels (AML's) to ensure a thriving natural ecological balance between wild horse populations, wildlife, livestock, vegetation resources, and other resource values. Enhance and perpetuate special and unique characteristics that distinguish the respective herds."
- Areas of Critical Environmental Concern (RMP-68): Designate areas of critical environmental concern (ACEC's)/research natural areas (RNA's) where relevance and importance criteria are met and special management attention is required to protect the values identified.
- Cultural Resources (RMP-106): "Protect and conserve cultural and paleontological resources."
- Cultural Resources (RMP- 107) "Increase the public's knowledge of, appreciation for, and sensitivity to cultural and paleontological resources."
- Cultural Resources (RMP-107): "Consult and coordinate with American Indian groups to ensure their interests are considered and their traditional religious sites, landforms, and resources are taken into account."
- Rangeland Vegetation (RMP-Appendix W-3), Monitoring Objective: "Restore, protect, and enhance the diversity and distribution of desirable vegetation communities, including perennial native and desirable introduced plant species. Provide for their continued existence and normal function in nutrient, water, and energy cycles."

D. Decision to be Made

The BLM will decide which, if any, burned area stabilization and rehabilitation activities will occur within or surrounding the Buzzard Complex fire perimeters.

E. Conformance with Land Use Plans

The proposed action is in conformance with the 1992 Three Rivers ROD/RMP and the 2002 Southeastern Oregon ROD/RMP. Even though ESR activities are not specifically provided for, they are consistent with the goals and objectives described as resource objectives above.

The proposed action also conforms to the 2005 Burns Interagency Fire Zone Fire Management Plan (Burns FMP). The Burns FMP on Page 114 states that "Emergency stabilization and rehabilitation process for fires on the Burns District of the BLM would follow current Department of Interior and BLM guidance (IM-IB-2004-008) and the BLM Emergency Fire Rehabilitation Handbook, H-1742-1 (USDI 2007." The proposed action is consistent with resource objectives of that plan and with other Federal, State, local, and tribal laws, regulations, policies, and plans to the maximum extent possible.

The proposed action conforms to the 2004 Vale District Fire Management Plan (BLM, 2004, FMP). The Buzzard Complex burned within the Owyhee West (Block B-2) and the Juntura (Block B-3) fire management units (FMU) as defined in the Vale District FMP. The Vale District FMP states that an objective for the Owyhee West FMU is to, "… use mechanical treatments combined with herbicides, planned ignitions, and seedings to convert annual types to more diverse perennial species less conducive to wildfire spread in appropriate areas." The Vale FMP goes on to state that all ESR activities must conform to the 2002 BLM Supplemental Emergency Stabilization and Rehabilitation Guidance and the applicable RMP.

F. Consistency with Other Laws, Regulations, and Policies

The Proposed Action has been designed to conform to the following documents, which direct and provide the framework for management of BLM lands within Burns and Vale Districts:

- Taylor Grazing Act (43 U.S.C. 315), 1934
- The NEPA (42 U.S.C. 4320-4347), 1970
- Wild Free-Roaming Horses and Burros Act (16 U.S.C. 1331-1340), 1971
- Handbook H-4700-1 Wild Horses and Burros Management Handbook 2010
- Federal Land Policy and Management Act (43 U.S.C. 1701), 1976
- Public Rangelands Improvement Act (43 U.S.C. 1901), 1978
- August 12, 1997 Standards for Rangeland Health and Guidelines for Livestock Management for Public Lands Administered by the BLM in the States of Oregon and Washington
- 2007 Vegetation Treatments Using Herbicides on BLM lands in 17 Western States ROD (National Veg. Final Environmental Impact Statement (FEIS))
- 2010 Vegetation Treatments Using Herbicides on BLM Lands in Oregon Record of Decision (ROD) (Oregon Veg. FEIS)
- Greater Sage-grouse and Sagebrush-steppe Ecosystems Management Guidelines (BLM-2000)
- BLM National Sage-grouse Habitat Conservation Strategy (2004)
- Clean Water Act (33 U.S.C. 1251 - 1376; Chapter 758; P.L. 845, June 30, 1948; 62 Stat. 1155)

- Clean Air Act, 42 U.S.C. 7470, et seq., as amended
- National Historic Preservation Act (16 U.S.C. 470)
- State, local, and Tribal laws, regulations, and land use plans
- Executive Order 12372, Intergovernmental Review
- Executive Order 13112, Invasive Species
- Executive Order 11990, Protection of Wetlands
- Executive Order 11988, Floodplain Management
- Archaeological Resources Protection Act (ARPA)
- Native American Graves Protection and Repatriation Act (NAGPRA)
- American Indian Religious Freedom Act (AIRFA)
- BLM Manual Section 8120: "Tribal Consultation under Cultural Resource Authorities
- Instruction Memorandum WO-2012-043, Greater Sage-Grouse Interim Management Policies and Procedures issued December 27, 2011.
- Instruction Memorandum WO IM-2014-114, Sage-Grouse Habitat and Wildland fire Management issued July 18, 2014.
- Wilderness Manual 6330
- National Technical Team Report, 2012
- USFW Listing

Other Authorities Specific to Burns District

- 1998 Burns District Noxious Weed Management Program EA (OR-020-98-05)

Other Authorities Specific to Vale District

- Vale BLM District Five Year Integrated Weed Control Plan EA (OR-030-89-19)

G. Public Involvement/Scoping

On September 9, 2014, the BLM hosted a field trip to the Burns District portion of Buzzard Complex Fire. The field trip included representatives from the Oregon Natural Desert Association (ONDA), ODFW, USDA Agricultural Research Service (ARS), USFWS(Ecological Services), Oregon State University Extension, Harney County, Burns Paiute Tribe and Oregon Cattlemen's Association. Participants were provided with a general idea of what rehabilitation efforts the BLM would plan for, including seeding areas, methods, and possible species. Concerns were voiced regarding proposed activities in WSAs and Lands with Wilderness Characteristics and the potential use of crested wheatgrass and forage kochia in the seed mixes, especially in sage-grouse habitat. Also discussed was the timing of herbicide use for the most effective control of invasive annual grasses and prioritization of seeding and treatment areas to rehabilitate wildlife habitat. Use of herbicide in traditional Native American use sites was brought up with the determination that most of the sites are in the upper elevations and not where the aerial herbicide treatments will be utilized. Questions regarding long term rehabilitation and restoration projects were discussed, but participants were informed that they were outside the scope of the short term ES&R plan and that the plan was only the first step in managing for the longer term. Contact information was provided if any members of the interested public had specific questions or comments.

On September 4, the BLM attended the annual Oregon State Weed Board meeting in Burns and led a field tour of the Riley Field portion of the Buzzard Complex. The timing of invasive annual grass treatments was discussed as well as the effectiveness of the treatment in regards to the chemistry of the herbicides. The overall discussion focused on the landscape scale issue of invasive annual grasses and the need for landscape scale treatments and options for minimizing fire in these compromised areas.

On August 28th, 2014, Vale District mailed a scoping letter to interested publics seeking comments concerning the burned areas, specifically for the Saddle Draw fire within the Buzzard Complex. Among other issues voluntarily raised by the public, Vale specifically identified the following issues for which public comments were welcome: Greater Sage-Grouse and its habitat, big game winter range, old growth bitterbrush, the Stockade Mountain ACEC/RNA, the Cold Springs HMA, invasive and noxious weeds and grazing management. Vale District received eight comment letters/electronic communications responding to the scoping letter, along with three additional letters from State agencies and the public prior to the comment period.

On August 11th, 2014 Vale District organized a conference call during preparation of the final ESR funding request (21-day plan) for the Saddle Draw Fire. It was attended by approximately 11 representatives of state agencies, US Fish and Wildlife Service, grazing permittees, the Burns Paiute and McDermitt Tribes, and ONDA. Comments were received regarding use of Imazapic, use of non-native species for stabilization or rehabilitation purposes and construction of fuel breaks.

On July 31, 2014 the Burns District met with affected Permittees in Crane, OR to discuss the potential ES&R treatments for the Burns portion of the Buzzard Complex. Discussions focused on fence maintenance (who was responsible), seed mixes and annual grass treatments for the fall of 2014. Other agencies were also on hand to discuss post-fire projects on private lands that could not be funding by Federal ES&R dollars. Overall, the ES&R plan was well received with the BLM being urged to move as quickly as possible in order to take advantage of current on the ground conditions for invasive annual grass treatments.

On July 29, 2014 the Burns district held a meeting with Cooperating Agencies, including US Fish and Wildlife Service (USFWS), Oregon Department of Fish and Wildlife (ODFW), Harney County, Oregon Department of Agriculture and the Harney County Soil and Water Conservation District (SWCD) to discuss the ES&R treatments proposed in the Riley Field and Beaver Creek ES&R Plans. The timing of medusahead treatments, seeding applications and seed mixes were the main topic of discussion. Overall, the proposed treatments/actions were well received by all cooperating agencies.

H. Issues Considered but not Analyzed Further

Greenhouse Gas Emissions and Climate Change

Greenhouse Gas Emissions and Climate Change will not be analyzed in this EA for the following reason:

The BLM has considered greenhouse gas emissions and climate change in several Allotment Management Plans (Cluster AMP page 6, 2011; Cottonwood Creek AMP page 9, 2011; and Chalk Hills AMP page 8, 2010) and all have concluded the emission does not merit reporting as they fall well below the threshold of 25,000 metric tons. Estimates for grazing cattle typically range from 80 to 101 kilograms of methane per year per animal (Environmental Protection Agency (EPA), 2009) or 6.7 to 9.2 kilograms of methane per month. This analysis will assume a methane emission rate of 8 kilograms of methane per Animal Unit Month (AUM). Assuming that methane has a global warming potential 21 times carbon dioxide (EPA 2009, p. ES-3), each AUM results in 0.168 metric tons of carbon dioxide equivalent. In order to meet or exceed the 25,000 metric ton threshold, over 148,809 AUMs would have to be authorized. The total permitted AUMs within the burned area, and any AUMs that may occur under temporary conditions, would fall well below this level.

Changes in greenhouse gas levels affect global climate. Forster et al. 2007, (pp. 129-234) reviewed scientific information on greenhouse gas emissions and climate change, and concluded that human-caused increases in greenhouse gas emissions are extremely likely to have exerted a substantial warming effect on global climate. The U.S. Geological Survey (USGS), in a May 14, 2008 memorandum to the USFWS summarized the latest science on greenhouse gas emissions and concluded that it is currently beyond the scope of existing science to identify a specific source of greenhouse gas emissions or sequestration and designate it as the cause of specific climate impacts at a specific location.

CHAPTER II: Alternatives Including the Proposed Action

A. Alternatives Considered but Eliminated from Detailed Analysis

1) Seeding with only native species

Analyzing alternatives that exclude desirable perennial non-natives would not be effective because research and land management experience have found that crested wheatgrass and forage kochia are better able to establish and/or grow in the presence of invasive annual grasses that are expected to become established on areas within the Buzzard Complex fire perimeters. Undesirable annual grasses are expected to increase and possibly dominate vegetative communities previously comprised of Wyoming big sagebrush and low sagebrush, which have low levels of annual precipitation. Research shows (and local experience concurs) that attempts to rehabilitate disturbed sites in Wyoming big sagebrush steppe using native species alone have poor success (Hulet et al. 2010; James et al. 2010). In most cases, these invasive species establish or reestablish in disturbed sites and fill niches of Wyoming big sagebrush steppe species within three years following failed rehabilitation efforts (Hulet et al. 2010). Desirable non-native species, such as forage kochia and crested wheatgrass, aid in vegetative restoration, soil stabilization, diversification, wildlife habitat restoration, and long-term suppression of invasive species in degraded Wyoming big sagebrush ecological sites (Monaco et al. 2003; Clements et al. 1997; Davies et al. 2010).

2) Exclusion of specified herbicides in the proposed action

Analyzing alternatives that exclude the specified herbicides in the proposed action would not be effective because invasive annual grasses and noxious weeds spread aggressively and establish homogenous exotic weed communities. Because a 1984 court injunction on federal lands restricted herbicide treatments to four specific chemicals to control noxious weeds, herbicides in the proposed action have not been used. The BLM has trend and photographic monitoring data in conjunction with scientific research that shows the decline in native perennial and annual plant communities specific to the Wyoming big sagebrush steppe (Davies, 2010). Research has found that treating noxious weeds and invasive annual grasses, such as medusahead rye and cheatgrass, with the proposed herbicides and revegetating the area with desirable plant species, can significantly increase a plant community's diversity, resilience to disturbance, and resistance to noxious weed spread and establishment (Davies 2010; Davies and Sheley 2011).

B. Project Design Features

Project Design Features (PDFs) were developed to aid in meeting project goals and objectives. These features are nonexclusive and are subject to change based on site-specific terrain characteristics (topography and vegetation). Changes, additions, or deletions would be made through coordination with appropriate BLM specialists and approved by the Three River and Jordan/Malheur Resource Area Managers. The Industrial Fire Precaution Levels (IFPLs) would be followed during construction, where appropriate.

1) Protect cultural resource values throughout the life of the project. Archaeological sites would be avoided within the drill seeding units and seedling planting areas. Class III surveys would be completed in these areas prior to activity implementation. An archaeologist would review burn plans prior to project implementation. Inventories would be in accordance with the State Protocol Agreement between the Oregon BLM and the Oregon State Historic Preservation Office (SHPO). All cultural resources would be recorded on agency approved site forms and plotted on maps. Resources, except those previously determined *Not Eligible* by the agency and SHPO would be flagged for avoidance during stabilization and rehabilitation activities. Flagged sites would be either hand seeded or seeded via All-Terrain Vehicle (ATV) during stabilization and rehabilitation activities. Flagging would be removed as soon as possible after stabilization and rehabilitation treatments to minimize the potential for looting and vandalism.

2) Should noxious weeds be found, appropriate control treatments would be performed in conformance with the 1998 Burns District Noxious Weed Program Management EA/DR OR-020-98-05, the Vale District Five Year Integrated Weed Control Plan EA/DR OR-030-89-19, or subsequent decision. Herbicide use would conform to federally approved manufacturers' herbicide labels as well as the streamside, wetland, and riparian habitat herbicide restrictions. Appropriate mitigation measures contained in the ROD and FEIS for Vegetation Treatments Using Herbicides on BLM Lands in Oregon (2010) and in Table 2 of the Final Vegetation Management EIS Environmental Report (ROD, October 2007), or its successor, would be utilized as a part of the project design.

The risk of noxious weed introduction would be minimized by ensuring all equipment (including all machinery, ATVs, and pickup trucks) is cleaned prior to entry to the sites, minimizing disturbance activities, and completing follow-up monitoring, to ensure no new noxious weed establishment occurs. Herbicide use would conform to federally approved manufacturers' herbicide labels as well as the streamside, wetland, and riparian habitat herbicide restrictions. Appropriate mitigation measures contained in Table 2 of the Final Vegetation Management EIS Environmental Report (ROD, October 2007), or its successor, would be utilized as a part of the project design. Herbicide use would conform to federally approved manufacturers' herbicide labels as well as the streamside, wetland, and riparian habitat herbicide restrictions. The Burns Tribal Council would be notified in advance of any herbicide spraying so individuals gathering roots in the area where the spraying had occurred would know they should stay clear of the area. Herbicide would not be used on any threatened, endangered, or SSS plant populations.

3) All proposed wire fences, constructed within 1.25 miles of a lek or known seasonal use area (i.e. spring exclosures), would include reflective markers on the wire to enhance visibility and reduce potential mortality from sage-grouse hitting the fence.

4) New proposed temporary fences would not be constructed within 0.6 miles of active sage-grouse leks or known seasonal use areas. Construction of temporary fence would not occur between March 1 and June 15 to avoid adverse effects to nesting birds.

5) Escape ramps would be repaired or installed in troughs to minimize accidental drowning by migratory birds and other wildlife.

6) All fences necessary for controlled livestock management would be reconstructed using original specifications and in good condition prior to livestock turnout. Metal posts would be used to replace wood posts as needed.

7) New temporary fences would be constructed to BLM specifications.

8) All seed would meet BLM standards for weeds, germination, and purity.

9) Monitoring to determine effectiveness of treatments, natural recovery, needs for additional stabilization and rehabilitation, and to determine if grazing can resume would occur for at least three years from the date of containment.

C. Alternative A: No Action

The No Action Alternative would let all portions of the burned area recover naturally without additional management actions beyond those currently authorized; for example, weed treatments would continue using the less effective herbicides currently authorized under the above mentioned EAs. All resources would be left to the unmanaged processes of erosion and revegetation (including invasive species establishment). No closures of the burned area to livestock grazing would occur. None of the treatments proposed in the Beaver Creek, Riley Field or Saddle Draw ESR Plans would be carried out unless they are provided for under other NEPA documents. Under the existing Burns District's Noxious

Weed Management Program EA and Vale District Five Year Integrated Weed Control Plan EA, the Burns and Vale Districts are not authorized to use the most effective herbicides to treat invasive annual grasses and other noxious and invasive weed species identified in the Vegetation Treatments Using Herbicides on BLM Lands in Oregon ROD (2010).

D. Alternative B (Proposed Action): Implementation of the Buzzard Complex ESR Plans

The Proposed Action was developed by the BLM ID Team in order to address identified resource concerns following the Buzzard Complex fires. The proposed action is a composite of actions proposed in the Riley Field, Beaver Creek, and Saddle Draw Emergency Stabilization and Rehabilitation plans. Table 1 summarizes the proposed action.

Table 1: Summary of Proposed Actions by ESR Planning Area

Treatment	Riley Field	Beaver Cr.	Saddle Draw	Total
Ground-based Seedings/Plantings				
Native Seed with Sagebrush			8,000	8,000
Non-Native Grass and/or forb Mix			2,000	2,000
Non-Native Mix	7078			7078
Native/ Non-Native Mix		1600		1600
Total Drill Seeding Acres				**18,678**
Bitterbrush (Cached Seed)	**2514**			
Aerial Seeding				
Native Seed (no sagebrush)			10,000	10, 000
Non-Native	14,362			14,362
Native/Non-native	6408	2800		9,408
Mountain Big Sage	6159			6,159
Total Aerial Seeding				**39,929**
Seedling Planting				
Sagebrush	4000		2,000	6,000
Bitterbrush			2,000	2,000
Noxious Weeds				
Inventory/Treatment	15000	3300	80,000	98,300
Aerial Application, Imazapic	75,000		47,000	122,000
Ground Application, other species-specific applications			1,140	1,140
Fencing				
Repair Existing	209 Miles	40 Miles	225 Miles	474
Temporary Construction			40 Miles	40
Cultural Stabilization	30 Sites	4 Sites	36 Sites	70
Facilities				
Hazard warning signs			3 Locations	3 Locations
Reservoirs	51	5		56
Developed Springs	19			19
Troughs	15	2		17
Waterholes	2			2
Pipelines	2.6 miles	2 miles		4.6 miles
Closures	Temporary rest of burned areas from livestock grazing	Temporary rest of burned areas from livestock grazing	Temporary rest of burned areas from livestock grazing	
Monitoring	• Effectiveness of Seedings/ Plantings • Cultural sites	• Effectiveness of Seedings/ Plantings • Cultural sites	• Effectiveness of Seedings/ Plantings • Cultural sites	

Proposed Emergency Stabilization and Burned Area Rehabilitation Treatments

1) Aerial Seeding

Approximately 40,000 acres within the Beaver Creek (BC), Riley Field (RF), and Saddle Draw (SD) burned areas would be aerially seeded (See Aerial Treatment Maps 4BC, 4RF, 4SD and Table No.1, Summary of Proposed Actions) for aerial seedings by burned area. The areas to be seeded are characterized by steep slopes and rough terrain that would prevent the effectiveness of drill carts. The goal of aerially seeding these areas would be to help stabilize the soils on slopes by establishing protective ground cover of perennial vegetation, protecting the soils from wind and water erosion, stabilizing hillsides, and reducing the potential for overland flow and increased erosion. The areas identified for aerially seed treatment are unsuitable for drill seeding due to topographic relief and soil characteristics. Seeding would be done utilizing aircraft, either fixed wing or helicopter in the late fall to early winter after the first snowfall, but before spring rains. Locations may vary due to site specific information determined on the ground.

Four different seed mixes were developed by the IDT and would be applied with aerial methods.

The first mix is comprised of native grass species that would be used in the higher precipitation zones at low risk of invasion by introduced annual grasses within the Saddle Draw burned area (See Map 3SD). This mix would include species such as bluebunch wheatgrass, Idaho fescue, Sandberg's bluegrass, bottlebrush squirreltail, and needle and thread grass. Approximately 10,000 acres would have this mix applied.

The second mix is comprised of native and desirable non-native species that would be applied to higher elevations in the Riley Field Fire with a moderate risk of the establishment and spread of invasive annual grasses (Map 4RF). This mix would include native species such as Shermans bluegrass, bluebunch wheatgrass, Idaho fescue and crested wheatgrass seed.

The third mix is a combination of native and desirable non-native species that would be applied to portions of the Beaver Creek (Map 4BC) burned area that are moderate – high risk for invasive annual grasses. This mix would include roughly equal amounts of native and desirable non-native grass species. A mix of the native species described for the other parts of the complex would be combined with equal amounts of immigrant forage Kochia (*Bassia prostrate*), crested wheatgrass, and ladak alfalfa (*Medicago sativa*) in order to stabilize the site from increasing densities of invasive annual grasses. Approximately 2800 acres of the Beaver Creek burned area would have this mix applied.

The fourth mix is composed entirely of desirable non-native grass species and it would be applied to a portion of the Riley Field burned area that is in the lower precipitation

zones, had a moderate to heavy pre-fire infestation of invasive annual grasses, and is now at higher risk for expansion of these species. This mix would include ladak alfalfa, immigrant forage kochia, and crested wheatgrass. Approximately 14,400 acres would have this mix applied.

Additionally, approximately 6,200 acres within Riley Field would be seeded aerially with mountain big sagebrush seed.

2) Non-Aerial Vegetation Seeding Treatments

Approximately 18,680 acres within the Beaver Creek, Riley Field, and Saddle Draw burned areas would be seeded using ground-based methods (see Maps 5BC, 5RF and 5SD). This treatment would consist of drill seeding identified units with mixes of native grass species, mixes of native and desirable non-native grass species, and mixes of desirable non-native grass species. The amount of a desirable non-native seed in a specific mix would generally be determined by the density of invasive annual grasses that were present prior to the fire and the estimated risk of future invasive annual grass expansion into the burned areas.

Ground based seeding methods would primarily include the use of rangeland drill carts pulled by tractors, dozers or heavy equipment. The areas to be seeded from the ground are characterized by gentle to rolling terrain with finer grained deeper soils that are conducive to drilling. The goal of seeding these areas with ground based equipment would be similar to those described under the aerial seeding treatment and to increase the amount of seed and soil contact so that the probability of treatment success is increased. The seeding would occur in late fall or early winter between 2014 and 2016 if the seeding follows an aerial herbicide treatment.

The first mix is comprised of only native grass species that would be used in the higher precipitation zones at low risk of invasion by introduced annual grasses within the Saddle Draw burned area. This mix would include a mix of only native species such as those described under the aerial seeding treatment. Wyoming big sagebrush or basin big sagebrush seed that is adapted to local conditions would also be included in this mix. Approximately 8,000 acres within the Saddle Draw burned area (Map 5SD) would have this mix applied.

The second mix is comprised of native and desirable non-native species that would be applied to approximately 1600 acres of the Beaver Creek burned area (Map 5BC) that are moderate – high risk for invasion by invasive annual grasses. This mix would include roughly equal amounts of native and desirable non-native grass species. A mix of the native species described for the other parts of the complex would be combined with equal amounts of immigrant forage kochia and crested wheatgrass in order to stabilize the site from increasing densities of invasive annual grasses. Wyoming big sagebrush seed would also be included with this seed mix.

The third mix is composed of desirable non-native grass species and it would be applied to identified portions of the burned area that is in the lower precipitation

zones, had a pre-fire infestation of invasive annual grasses, and is now at higher risk for expansion by invasive annual grasses (Maps 4RF and 4SD)). The combination of species in this mix differs between the Burns and Vale Districts, but would include one or more of the following: Siberian wheatgrass (*agropyron fragile)*, ladak alfalfa, immigrant forage kochia, and crested wheatgrass.

Additionally, antelope bitterbrush would be seeded into areas within the fire perimeter where it existed prior to the fire using ground-based methods. Bitterbrush would be seeded using a specialized hollow tube to simulate caching by borrowing animals. Approximately 9000 acres of the Riley Field and Saddle Draw burned areas would have this mix applied.

3) Seedling Planting

This treatment would consist of hand planting sagebrush seedlings and antelope bitterbrush seedlings on approximately 5000 acres within the Buzzard Complex. The IDT has identified potential areas for planting to occur, however, the exact location and size of these areas may be adjusted depending on specific on-the-ground conditions (Maps 5RF and 5SD). Seedlings would be planted in patches that vary between 500 – 2000 acres in area. The goal of planting sagebrush and bitterbrush seedlings would be to reduce the time necessary for burned areas to provide cover and browse to greater sage-grouse, mule deer, pronghorn antelope, and rocky mountain elk.

The currently proposed locations for sagebrush and bitterbrush seedling planting were selected by determining which sites would have the highest chance of success based on suitable soil conditions , site conditions (precipitation, aspect, etc.), opportunity for spread (slope), known vegetation present prior to the fire, ecological site descriptions, and on professional knowledge and observations of the area.

When possible, sagebrush and bitterbrush seed would be gathered locally and sent to a nursery for growing a portion of the seedlings. This would provide some site adapted plants available for reestablishment, increasing the potential for success. Seedlings would be planted with hand tools, by BLM staff, volunteers, and/or contractors in the spring. In addition, 15 miles of eight foot tall temporary fence would be constructed around the bitterbrush plantings on the Saddle Draw burned area. These structures would protect the seedlings from wildlife browsing. These fences would be removed once the seedlings have established well enough to withstand browsing by big game.

4) Aerial Application of Pre-Emergent Herbicide for Invasive Annual Grass Control

During the fall of 2014 through the fall of 2017, up to 95,100 acres of invasive annual grasses (including infestations within the fire perimeter and up to four miles outside the burn perimeter on public lands) would be treated in order to prevent the area from becoming dominated by invasive annual grasses (Maps 6RF and 6SD). Treatments would occur primarily as a pre-emergent, either by ground or aerially, using the

approved herbicide, Imazapic, at 6oz/acre along with appropriate adjuvants to achieve the most effective control at the time of application. Treatments may need to occur on the same areas in consecutive years to achieve the desired objectives.
Aerial Imazapic treatments would be done by commercially contracted helicopter or fixed wing aircraft. Aircraft used for specific portions of the work would depend on topography and availability of landing and reloading locations. Helicopter treatments would be necessary for areas with rough topography and other hazards that prevent the use of fixed wing application. Fixed wing aircraft would provide the broadcast application on areas with less topographic variation. The C-130's could be used for long runs where topography is relatively constant. The C-130 applications would occur in the early morning hours or at dusk to take advantage of less windy conditions. Where aerial application of herbicides is to be done by contract, the contractor would determine which type of aerial application is most appropriate for the site conditions. Application of Imazapic would occur from late summer to early fall to reduce potential impacts to the establishment and survival of seeded species, as well as desirable species currently present on the site.

Where aerial applications are determined to be the most appropriate treatment for the control of invasive annual grasses, its use would be in conformance with label instructions and the 2010 Vegetation Treatments Using Herbicides on BLM Lands in Oregon Record of Decision. All design elements, mitigations, and SOPs (Appendix E) described in the ROD would be used.

If subsequent monitoring shows that large areas are becoming dominated by invasive annual grasses such as cheatgrass or medusahead, they would be treated by broadcasting (on the ground or aerially) an application of Imazapic, using the same rates and project designs referred to above.

Areas of known infestations in the Beaver Creek and Riley Field burned areas are shown on Maps 7BC and 7RF. It is important to understand that this proposal is not to treat all acres within this boundary, but only treat areas of existing or new weed infestations.

5) Noxious Weed Herbicide Treatments- General

During the first year post-fire, the portions of the Riley Field, Beaver Creek, and Saddle Draw fires at the highest risk for noxious weed invasion would be inventoried. The majority of this inventory would be in the portion of the burned areas along the major roads. This inventory would determine the extent of noxious weeds expansion, and small areas would be spot treated with the appropriate approved herbicide or effective mechanical or manual treatment to prevent expansion when possible.

During the second and third year following the fire, the entire burn areas would be inventoried, with focus along roads, facilities, seeding, and planting locations. Primarily through an assistance agreement, the BLM would conduct Early Detection and Rapid Response (EDRR) for control of noxious weeds. This inventory would

focus on identifying areas of noxious weeds, as well as areas where it appears that undesirable annual grasses are becoming dominant. Large areas of noxious or invasive weeds and annual grasses, if found, would be identified and treated in subsequent years. Weeds specialists from BLM would work with crews to inventory and treat identified weed infestations. Small infestations would be spot treated using the best available methods, including the use of herbicides. Larger areas would be mapped for future ground or aerial treatments.

Where herbicide application is determined to be the most appropriate treatment for noxious weeds, use of herbicides would be in conformance with label instructions. Only treatments allowable on Oregon BLM lands in conformance with standard operating procedures and mitigation measures (Appendix C) would be used. Herbicides would be applied aerially or using ground-based sprayers. Herbicides, including the currently authorized suite of products that may be used to treat noxious weeds are listed in Table 2. Burns District has identified potential areas of ground-based weed treatments on Maps 8BC and 8RF. Vale District will inventory and monitor for weed infestations.

Throughout the BLM administered lands in the Buzzard Complex, standard operating procedure is that any areas burned by wildfire are monitored for at least two years post-fire. All BLM- managed lands within and adjacent to the burn perimeter of the Buzzard Complex Fire would be surveyed for noxious weeds. Any weeds found would be treated using the most appropriate methods.

Noxious weed inventory and treatment would help to control existing populations, help discover new populations, and reduce the risk of further establishment of noxious weeds. Initial treatments would begin in FY 2015. In FY 2015 and 2016, the noxious weeds inventory and treatment would be included as a rehabilitation treatment. Chemical treatment of noxious weed populations and closing the area to livestock would reduce the likelihood of their spread to new unoccupied areas and help to re-establish higher quality vegetation.

In addition to treatments of noxious and invasive weeds, sterilant would be used to treat the areas around power poles in order to prevent weeds from establishing in those disturbed sites and protect the power pole from burning if a future fire occurs. At this time, the formulations anticipated to be used are Weed Blast, a combination of bromacil and diuron, and SpraKil SK 26, a combination of tebuthiuron and diuron.

Herbicides, in addition to our currently authorized suite of products, to be used to treat noxious weeds include:

a. Imazapic (Plateau) at 6oz/acre (0.09375 pounds/acre of active ingredient imazapic) applied in the fall to treat invasive annual grasses. Application method would be by either low boom or aerial spray. Aerial spray treatments for invasive annual grasses would be used on infestations 50 acres or greater and/or on smaller infestations where ground equipment cannot access.

b. Chlorsulfuron (Telar XP) at 1.3 oz. /acre (0.061 pounds/acre of active ingredient Chlorsulfuron) applied during the growing season to treat mustards and thistles. Application method would be treated using ground equipment with either low boom or spot sprayed.

c. Clopyralid (Transline) at 1.3 pt./acre (0.5 pounds/acre of active ingredient Clopyralid), mixed with either:

- 2,4D at 1qt/acre (0.95 pounds/acre of active ingredient 2,4D) to treat Canada thistle and knapweed during the bud to bloom stage, or
- Chlorsulfuron at 1 oz./acre applied during the growing season to treat Canada thistle and knapweeds.
- Application method would be treated using ground equipment with either low boom or spot sprayed.

d. Sulfometuron methyl (Oust) at 0.5 oz/acre (0.38 pounds/acre of active ingredient sulfometuron methyl) to treat ROWs including roads and powerlines. Could be mixed with imazapic at 6 oz/acre to achieve a longer period of control along ROWs.

e. Bromocil + Diuron (Weed Blast) at 8 lbs active ingredient/acre (4 lbs ai bromacil and 4 lbs ai diuron). This product is applied as a dry granular product using a spreader or shaker type of applicator. It would be applied as a bare-ground treatment. Treatments would occur as annual "spot applications" in an approximate 15-foot radius around each power pole. That calculates to 0.02 ac/pole of treated area.

f. Tebuthiuron + Diuron (SpraKil SK-26) at 200 lbs of product/acre (4 lbs ai tebuthiuron and 12 lbs ai diuron). This product is applied as a dry granular product using a spreader or shaker type of applicator. It would be applied as a bare-ground treatment. Treatments would occur as annual "spot applications" in an approximate 15-foot radius around each power pole. Those calculate to 0.02 ac/pole of treated area.

Table 2: Herbicide Treatments

Herbicide & Rate	Season/Method of Application	Examples of Weed Species
Chlorsulphuron: Telar XP (1 oz./ acre; 0.047 lbs./acre of active ingredient Chlorsulphuron) + *2,4-D* (1 qt./acre; 0.95 lbs./acre of active ingredient 2,4D)	Typical application window is during rosette to early flower stage. Sometimes apply in fall on fall rosettes. Application method would be low-boom or spot spray.	Mediterranean Sage Biennial thistles
Chlorsulphuron: Telar XP (1 oz./ acre; 0.047 lbs./acre of active ingredient Chlorsulphuron) + *2,4-D* (1 qt./acre; 0.95 lbs./acre of active ingredient 2,4D)	Typical application window is full flower stage. Application method would be low-boom or spot spray.	White top
Chlorsulphuron: Telar XP (1 oz./ acre; 0.047 lbs./acre of active ingredient Chlorsulphuron) + *2,4-D* (1 qt./acre; 0.95 lbs./acre of active ingredient 2,4D)	Typical application window is full flower stage. Application method would be low-boom or spot spray.	Perennial pepperweed
Chlorsulphuron: Telar XP (1 oz./ acre; 0.047 lbs./acre of active ingredient Chlorsulphuron) + *2,4-D* (1 qt./acre; 0.95 lbs./acre of active ingredient 2,4D)	Typical application window is during rosette to early flower stage. Sometimes apply in fall on fall rosettes. Application method would be low-boom or spot spray.	Canada thistle
Clopyralid: Transline (1 pt./acre; 0.37 lbs./acre of active ingredient Clopyralid); may add *2,4-D* (1 qt./acre; 0.95 lbs./acre of active ingredient 2,4D); may add *Chlorsulphuron:* Telar	Typical application window for this type of treatment would be fall (late season) when desirable vegetation is least susceptible to damage. Application method would be low-boom or spot spray.	Canada Thistle Russian Knapweed
Imazapic: Plateau (6 oz/acre; .09375 lbs/acre of active ingredient) Could be used at 2-12 oz/acre, depending on the location and associated species at the treatment site.	Typical application window is as a pre-emergent in late summer/early fall.	Medusahead rye, cheatgrass, ventenata, and other annual invasive species
Sulfometuron methyl: Oust (0.5 oz/acre; 0.38 lbs/acre of active ingredient)	Typical application window is as a pre-emergent in late summer/early fall. This product is labeled for use on ROWs and could be used to enhance the efficacy and longevity of Plateau applications in those areas.	Medusahead rye, cheatgrass, ventenata, and other annual invasive species
Bromacil + Diuron (Weed Blast) at 8 lbs active ingredient/acre (4 lbs ai bromacil and 4 lbs ai diuron).	This product is applied as a dry granular product using a spreader or shaker type of applicator. It would be applied as a bare-ground treatment. Treatments would occur as annual "spot applications" in an approximate 15-foot radius around each power pole. That calculates to .02 ac/pole of treated area.	All vegetation
Tebuthiuron + Diuron (Spra-Kil SK26) at 200 lbs of product/ac (4 lbs ai tebuthiuron and 12 lbs ai diuron)	This product is applied as a dry granular product using a spreader or shaker type of applicator. It would be applied as a bare-ground treatment. Treatments would occur as annual "spot applications" in an approximate 15-foot radius around each power pole. That calculates to .02 ac/pole of treated area	All vegetation

6) Erosion Control Structures and Catchment Cleanouts

The Buzzard Complex burned to bare mineral soil across multiple major perennial and ephemeral drainages. Where accelerated erosion is observed, erosion control structures (hill slope or in channel treatments) would be constructed of natural materials such as weed-free straw, cut juniper or rock placed on the surface (no ground disturbance) and anchored with metal posts to resist movement if necessary. If used, contour wattles and straw bale check dams would be constructed according to Natural Resource Conservation Service (NRCS) guidelines. Contour wattles are also known as fiber rolls, bio-logs, or straw tubes. They are man-made cylinders of compressed, weed free straw or other fiber, are generally 8 to 12 inches in diameter and 20 to 25 feet long. The casing is jute, nylon, or other biodegradable materials. They are installed in a shallow trench forming a continuous barrier along the contour (across the slope) to intercept water running down a slope. Check dams and sediment basins are small dam structures used to slow down the flow of water and reduce sedimentation, while allowing increased water absorption into the soil. These structures would be located in critical areas of high risk where the threat of sedimentation would cause problems to downstream values. Check dams would only be placed in drainages (ephemeral or intermittent) with a channel gradient of less than 30%. They would not be placed in any incised drainages. Contour wattles would be placed on slopes 50% or less. Material, height, width, and position would depend on channel morphology and potential for water movement. Sediment basins would be installed in areas where road washout or over-run has historical precedent. These treatments would be accomplished during the winter of 2015. A BLM Hydrologist and/or riparian specialist would determine the locations and types of structures.

Existing catchment basins would be cleaned to remove collected sediment in preparation to receive newly deposited sediment and ash transported down slope by precipitation while plant cover increases enough to protect the site. There are 56 catchment basins present in the project area. A dozer or excavator would be utilized to clean and prepare the basins. Disturbance during cleaning would not be greater than what occurred during initial construction. No new catchment basins would be constructed. Cleanout would begin in winter 2015 and 2016. As catchment basins fill with sediment, they would be cleaned as needed, allowing them to continue to collect sediment and ash. Only catchment basins existing within the fire perimeter or downstream from the burned area would be cleaned. Based on past monitoring of catchment basins following a fire, it is estimated by the third year, approximately 30% of catchment basins would need to be cleaned a second time. No more than 56 catchment basin cleanout treatments (37 plus 30%) are expected to be necessary. The cleaning of catchment basins would only occur if needed due to sedimentation.

7. Temporary Fence Construction and Repair of Management Fence

The Buzzard Complex fires burned through multiple allotment and pasture boundary fences, which are critical for livestock management and may be needed to rest treated areas until objectives are met (Maps 9BC, 9RF and 9SD). Approximately 474 miles of 4-wire fence would be reconstructed as needed within the complex. Fence

reconstruction may be as minimal as replacing H-braces and rock cribs but may be as large as full fence replacement, depending on the severity of the damage caused by the fire. In all fence reconstruction, metal materials would be used to the fullest extent possible. Fences requiring full replacement would be reconstructed in the same location as the previous fence.

Approximately 40 miles of new temporary protection fence would be constructed to rest burned areas within the Saddle Draw fire from livestock grazing and protect planted seedling patches. Allotments and pastures which would be impacted by temporary fences are: South Star Mountain Allotment-East Chapman and Creston Brush Control pastures and Turnbull Allotment - Slaten pasture. The temporary fences would roughly follow the fire perimeter. An estimated five gates or cattleguards would be installed at road crossings to allow continued passage of vehicles while the fence is in place. Removal of the temporary protection fence would occur once resource objectives are met and the fence is no longer needed to protect seeded and rehabilitated areas from livestock grazing.

8. Stabilization of Known Archaeological Sites

The 70 known cultural resources within the boundaries of the Buzzard Complex burned areas would be assessed to determine immediate stabilization measures are needed. If necessary, low impact seeding would be implemented on these sites to minimize erosion of archaeological deposits and decrease visibility as protection against illegal artifact collection.

9. Spring Development Repair/Reconstruction

Up to forty-four spring developments were damaged to varying degrees during the wildfire (Maps 9BC, 9RF and 9SD). These facilities are important to wildlife and livestock in areas of limited water, especially in drought years. Repairing/replacing these developments would ensure well distributed and reliable water availability to wildlife and livestock (once grazing is resumed). These structures would be repaired or replaced, and returned to functioning condition. This would include repair or replacement of damaged spring boxes, pipelines, and troughs as needed. Spring exclosures would also be repaired to protect the spring sources from grazing.

10. Wild Horse Relocation and Emergency Gather

Burns District:
Wild horses would not be immediately relocated from the burned portion of the Stinkingwater HMA (Map 10RF). Relocation would occur if monitoring indicated wild horses caused "Light" (21-40%) utilization levels across 5% of the burned area in the HMA. Once the pasture fences have been surveyed and repaired, it may be necessary for the wild horses within the rehabilitation area to be relocated from the burned portion to the unburned portion of the HMA, using the helicopter drive method, to allow vegetation recovery in the burned areas. The relocation of wild horses from this area may require multiple flights to move and then relocate any wild

horses that manage to get back into the area. Relocation of wild horses would continue as long as monitoring indicated the need. Wild horses found outside the HMA boundary would be relocated to the HMA.

Vale District:
An emergency gather would be conducted in the Cold Springs HMA (Map 10SD) within the Saddle Draw burned area. Horses would be gathered from the HMA and held in the Burns Corrals until monitoring indicates the recovery of the rangelands, wild horse habitat, and priority sage-grouse habitat.

11. Livestock Closure

BLM-managed lands within the Buzzard Complex fire perimeters may be closed to livestock grazing until vegetation objectives are met.

Allotments in the Riley Field and Beaver Creek burned areas managed by the Burns District will be rested from grazing in all areas where treatments are proposed until objectives are met. Certain un-treated allotments or pastures may continue to provide livestock grazing if resource objectives under the Three Rivers RMP are met.

BLM allotments managed by the Vale District in the burned would be rested from grazing. The SEORMP resource objectives post-fire "…will be rested from grazing for one full year and through a second growing season at a minimum, or until monitoring data or professional judgment indicate that health and vigor of desired vegetation has recovered to levels adequate to support and protect upland vegetation" (SEORMP/ROD, p.40).

For all Buzzard Complex burned areas, photo, trend monitoring and areas of intact unburned vegetation would be used to determine when objectives are met. These objectives would be determined as met on a specific location basis (i.e. one pasture or use area may be reopened to grazing while another pasture or use area remains closed). If after two growing seasons objectives are not met, the probability of success would be reevaluated and new management actions would be considered following appropriate NEPA analysis. If objectives are not met due to site dominance by undesirable annual grasses, then the livestock grazing closure may be partially lifted to allow biological thinning to occur, as described below. Closures would be accomplished by temporary fence installation and fence reconstruction, as previously described. In addition, panels or electric fences may also be used to temporarily control livestock and enforce the livestock grazing closure. These would be fully removed when livestock grazing resumes.

12. Road Stabilization and Maintenance

The treatment would stabilize intermittent segments of approximately 128 miles of roads within and adjacent to the burned areas which were subjected to frequent passage of fire suppression vehicles and equipment and are at risk of erosion. Stabilizing maintenance would be applied to damaged road segments within the

following local and resource roads: Warm Springs-Stinkingwater Access Road - 18 miles; Stinkingwater Access Road - 22 miles; Opie Homestead Road - 12 miles; South Warms Springs Creek Road - 8 miles; Beaver Tables Road - 13 miles; as well as spot maintenance in damaged segments within approximately 55 miles of other resource roads. Mileages listed include roads traversing both BLM and private lands.
Many of the roads throughout the burned area are characterized by a native or natural surface that can be susceptible to erosion when subjected to heavy vehicle use if left unmaintained. The combined damage from suppression activities along with the risk of wet-season water erosion following the fire can be expected to result in unsafe or impassible road conditions. Roads need to be evaluated and stabilized to prevent further deterioration of the roadbed and to protect adjacent resources. Unless otherwise specified, road stabilization would consist of spot maintenance and drainage repair conducted in a manner to mitigate future erosion damage. This may include grading/blading, shaping of the road surface, rolling, and the placement of spot rock to allow adequate runoff across the road to prevent erosion and/or washout conditions during future spring runoff and summer rain storms. Where necessary, roadside ditches would be spot cleaned in order to remove sediment and ash that accumulates within the ditches. Spot cleaning of ditches would be necessary to ensure runoff is unimpeded through ditches and culverts, reducing the probability of water pooling and damaging road surfaces. Repair and maintenance would occur on existing roads and within the existing disturbance limits. Monitoring would be ongoing to ensure adequate drainage is maintained and no pooling occurs in roadbeds or on roadsides, resulting in roadbed wash outs.

Stabilization and maintenance would help ensure roads would be returned to a condition similar to their pre-fire condition and would allow continued access for post-fire rehabilitation and monitoring activities throughout the resource stabilization process.

Table 3: Burns District Road Stabilization and Maintenance

Road Function Class	Maintenance Intensity Level	Road Miles Subject to Spot Maintenance and Stabilization
Local	3	40
Resource	Various	88

13. Biological Thinning

When an area is not grazed following a fire, or when grazing is occurring at low levels, fine fuels accumulate, putting an area at risk for a large scale wildfire. As noted in 43 CFR 4190.1 Effect of wildfire management Decision. "(a) Notwithstanding the provisions of 43 CFR 4.21(a)(1), when BLM determines that vegetation, soil or other resources on the public lands are at substantial risk of wildfire due to drought, fuels buildup, or other reasons, or at immediate risk of erosion or other damage due to wildfire, BLM may make a rangeland wildfire management decision

effective immediately…Wildfire management includes but is not limited to: (1) Fuel reduction or fuel treatment such as …biological thinning methods…; and (2) projects to stabilize and rehabilitate lands affected by wildfire." Under these regulations, biological thinning would be allowed to occur within the affected allotments in order to biologically thin (by removal) fine fuels and reduce the risk of wildfire.

Biological thinning may be authorized in areas where total utilization of above ground biomass of fine fuels is less than 40 percent after seed set when grasses become dormant, putting the site at risk of wildfire. Biological thinning may also be authorized in areas that become infested with annual grasses. Biological thinning would follow Smith et al. 2012 "Green and Brown" guide recommendations for using Ecologically-Based Invasive Plant Management, or as described in Schmelzer et.al. (2014). Specifically, biological thinning would occur when annual grasses are green and/or when perennial grasses are brown; it would not be allowed when perennial species enter the boot stage until perennial grasses leave the flowering and seed development stage. It would also be allowed in fall/winter with the use of protein supplementation to help focus livestock use on invasive annual grasses. Other recommendations within the guide would be followed as appropriate. While the "Green and Brown" guide is focused on annual grasses, the recommendations are made to protect perennial species and therefore, would generally be applicable to all biological thinning.

Biological thinning would only be authorized if it would not damage ecological processes, and had full IDT consensus and management approval. During periods of biological thinning, fuel in areas receiving treatment would be monitored on a weekly basis, at a minimum, to ensure no ecological damage is occurring and to monitor the percentage of fuel reduction that has occurred. Monitoring would consist of installing temporary utilization cages approximately 5 feet by 5 feet in the treatment area, which would not be treated. The Ocular Estimate Method of utilization would be used as described in BLM Technical Reference 1730, Rangeland Monitoring: Utilization Studies & Residual Measurements (1996) Rangeland Monitoring: Utilization Studies. Biological thinning would cease when monitoring shows above ground biomass of fine fuels is reduced by 50 percent (including any reduction caused by permitted livestock grazing and wildlife).

Biological thinning would be allowed using a cooperative agreement, outlining the terms and conditions mentioned in this document, as well as any other terms and conditions that may be needed depending on the specific site. The specific area where biological thinning is to occur would be identified on a map and included in the cooperative agreement. Supplements and water, if needed, would be allowed to be placed in these areas to help manage the movement of livestock while meeting their nutrient requirements. These would be placed in areas of existing disturbance such as reservoirs, roadways, and salting locations, to limit ground disturbance in WSAs. When placed outside of WSAs, hauled water and supplements may be placed outside of areas of existing disturbance, if such sites are not available within the treatment area. Cultural and botanical clearances would occur as needed and identified sites would be avoided. Any use occurring outside of the treatment area may be subject to

trespass actions. If trespass actions are carried out, that operator would no longer be authorized to participate in biological thinning treatments. If at any point the cooperative agreement is violated, biological thinning would immediately cease and that operator would no longer be authorized to participate in biological thinning treatments. Biological thinning permitting would occur under 43 CFR 4130.5(b)(1) which allows the authorized officer to authorize free use when the primary objective is "the management of vegetation to meet resource objectives…".

14. Sagebrush Research Plots

The USDA Agricultural Service (ARS) proposes to evaluate sagebrush restoration success of four different methods, as well as natural recovery at seven different elevations from 4,000' to over 6,000', using a randomized block design. Treatments would include: 1) natural recovery (control), 2) broadcast seeding of sagebrush, 3) broadcast seeding of sagebrush followed by roller-packing, 4) sagebrush seed pellets, and 5) planting sagebrush seedlings. All sagebrush used in the study would be Wyoming or mountain big sagebrush based on potential natural community.

At each elevation, each five block transect would contain five test plots measuring approximately 33x66 feet (7 different elevations x 5 treatments = 35 plots). The entire study area would cover approximately 10 acres total. Each plot would receive a randomly assigned treatment. In the seeding treatments, sagebrush would be seeded by broadcasting seed at a rate of one pound per acre in the fall.

The roller packer would be pulled either by hand or behind an ATV/UTV across the plot after seeding. Sagebrush seedlings would be hand planted at a density of one seedling per m^2. Sagebrush seedlings would be planted in the spring by digging a hole approximately 8.5 inches deep, placing the seedling in the hole, and pressing the soil around the roots of the seedlings. Half or more of the study plots would be located within WSAs.

Vegetation monitoring would be conducted for three years after treatments are applied, and would be done by the ARS. Shrub cover would be measured using the line-intercept method on three, 66 foot transects. The transects would be placed at 10, 15, and 25 foot points along the 33ft width of the treatment plot. Shrub density would be measured by counting all shrubs rooted inside the plot area. Average shrub height would be determined by measuring the height of 20 randomly selected plants per plot. Shrub biomass production would be estimated using height and two perpendicular diameter measurements of the sagebrush canopy (Davies et al. 2007) from 20 randomly selected shrub plants. Site characteristics would be measured at each block of plots. Elevation, longitude, latitude, slope, and aspect would be documented using non-ground disturbing tools. Precipitation would be determined from PRISM precipitation maps. Average, minimum and maximum temperatures, ecological site, and frost free days would be determined for each block using NRCS Soil Surveys. Resin membrane probes would be used to estimate plant available soil nutrients.

CHAPTER III: AFFECTED ENVIRONMENT AND ENVIRONMENT CONSEQUENCES

This Environmental Consequences Section presents the potential changes to the environment resulting from implementation of the alternatives. This chapter describes all expected effects including direct, indirect and cumulative on resources from enacting the proposed alternative. An interdisciplinary team (IDT) has reviewed and identified issues and resources affected by the alternatives. Table 4 summarizes the results of that review. Those resources which were identified as being affected by actions in either alternative are noted in bold text.

Direct and indirect effects plus past actions become part of the cumulative effects analysis; therefore, use of these words may not appear. The Reasonably Foreseeable Future Actions (RFFAs) for this site are continued livestock grazing, weed treatments, road stabilization, recreation activities and fire stabilization actions taken on state and privately held lands. Past actions and RFFAs vary under each resource because spatial and temporal scales address different variables such as wildlife set at a large scale versus upland vegetation set at a smaller scale where local management of the allotment has a direct affect.

Table 4: Elements Affecting the Human Environment

Elements of the Human Environment	Status	If Not Affected, why? If Affected, Reference Applicable EA Chapter
Areas of Critical Environmental Concern (ACECs) and Research Natural Areas (RNAs)	**Affected**	**Analyzed in Chap. III part A.6**
Air Quality (Clean Air Act)	Not Affected	Department of Environmental Quality (DEQ) is responsible for air quality permit requirements at facilities and for operations in Oregon. DEQ currently requires no air quality permit for existing operations in the project area. The dust produced from animal movement, drill seeding, range improvement construction, and vehicle use would be intermittent and not measurable.
American Indian Traditional Practices	**Affected**	**Analyzed in Chap. III Part A.1**
Cultural Heritage	**Affected**	**Analyzed in Chap. III Part A.2**
Environmental Justice (Executive Order 12898)	Not Affected	The Proposed Action and No Action alternatives would not have disproportionately high and adverse human health or environmental effects on minority populations and low-income populations; as such populations do not exist within the project area.
Farmlands (prime or unique)	Not Present	No concerns have been disclosed.
Flood Plain Management (Executive Order 11988)	Not Affected	According to the EO definition, floodplains are not an issue.
Grazing Management and Rangelands	**Affected**	**Analyzed in Chap. III Part A.3**

Elements of the Human Environment		Status	If Not Affected, why? If Affected, Reference Applicable EA Chapter
Hazardous or Solid Waste		Not present	No concerns have been disclosed.
Lands and Realty		Not Affected	Treatment of vegetation around right-of way structures and sites is currently covered in the Rights-of-Way grants/leases and site plans. The new products identified in the proposed action, if selected, would be available for treatment in addition to currently approved products. The normal operation and maintenance of these facilities would not be affected.
Migratory Bird Treaty Act (Executive Order 13186)		**Affected**	**Analyzed in Chap. III Part A.4**
Noxious Weeds (Executive Order 13112)		**Affected**	**Analyzed in Chap. III Part A.5**
Paleontology		Not Affected	No paleontological resources will be affected by either of the identified alternatives, and no alternative would have an affect beyond what has occurred in the past.
Recreation		Not Affected	The only affects would be under wildlife opportunities for hunting and viewing under the "No Action Alternative", see the wildlife section for affects. Other alternatives would not result in any permanent affects to recreation or visual resources.
Riparian Zones, Wetlands, Water Quality (Executive Order 11990), and Fisheries		**Affected**	**Analyzed in Chap. III Part A.7**
Social and Economic Values		**Affected**	**Analyzed in Chap. III A.8**
Soils and Biological Soil Crusts (BSCs)		**Affected**	**Analyzed in Chap. III A.9**
Special Status Species and Habitat	**Wildlife**	**Affected**	**Analyzed in Chap. III Part A.10**
	Plants	**Affected**	**Analyzed in Chap. III Part A.12**
	Fish	**Affected**	**Analyzed in Chap. III Part A.7**
Threatened or Endangered (T/E) Species or Habitat	Fish	Not Present	There are no T/E Fish Species or Habitat within the perimeter of the Buzzard Complex Fire.
	Wildlife	Not Present	There are no known T/E wildlife species found within the perimeter of the Buzzard Complex Fire.
	Plants	Not Present	There are no federally listed threatened or endangered plants or Habitat on BLM-managed land portion of the Buzzard Complex Fire.
Upland Vegetation		**Affected**	**Analyzed in Chap. III A.11**
Visual Resources		No Affect	The proposed action will have no permanent affect to Visual Resources within the burned area.

Elements of the Human Environment	Status	If Not Affected, why? If Affected, Reference Applicable EA Chapter
Wild Horse and Burro	**Affected**	**Analyzed in Chapter III A.14.**
Wild and Scenic Rivers (WSRs) / Wilderness	Not Present	There are no Wild and Scenic Rivers or Wilderness within the perimeter of the Buzzard Complex Fire.
Wilderness Study Areas	Not Affected	A small area of the Cedar Mountain WSA is within the Saddle Draw fire perimeter in the Vale District. The proposed actions do not occur within the WSA, allowing natural recovery.
Wilderness Characteristics	**Affected**	**Analyzed in Chapter III A.13**
Wildlife / Locally Important Species and Habitat	**Affected**	**Analyzed in Chap. III A.15**

Elements of the Human Environment that are not present or not affected by the actions in either alternative are not addressed in the Affected Resources section which follows.

A. Affected Resources

1) American Indian Traditional Practices

Affected Environment

Presently, consultation with the Burns Paiute Tribe has not resulted in the identification of any specific places within the Buzzard Complex that have been determined to be important for traditional Indian land-uses. The tribe has, however, expressed a concern regarding the population and distribution of culturally important plant species on all parts of the Burns and Vale Districts during previous consultation. Stream bottoms along the South Fork of the Malheur River, Swamp Creek, Coleman Creek and Beaver Creek provide habitat suitable for hardwood shrubs of interest to the tribe such as chokecherry, willow, and quaking aspen. Upland areas with thin and rocky soils may support key edible species such as bitterroot or biscuitroot. Hunting marmot and other game species may occur throughout the burned areas

Environmental Consequences

Alternative A: No Action

Under the no action alternative, floral and faunal resources that are important within the traditional practices of the Burns Paiute Indian tribe would remain in their present condition. Habitats that may be important to the continuation of Burns Paiute traditional practices in the area would remain in jeopardy of degradation

through expansion of medusahead rye and other invasive annual grasses. Expansion of exotic annual grasses within habitats utilized by the Burns Paiute for traditional purposes would decrease the fire return interval in those habitats. Decreasing the fire return interval within the burned area could reduce the quantity of culturally important plants available to tribal members in the future.

Alternative B: Proposed Action

Biological thinning treatments would have no effect beyond what has been analyzed under the resumption of normal grazing. Any of the proposed herbicides would reduce the number of acres of medusahead and other weeds and maintain or increase the number of acres of desirable species, including plant species important to Indian people, within the project area. This outcome is desirable in the long term because maintaining desirable plant species provides the opportunity for root and other plant gathering that otherwise may be lost. Even though these proposed herbicides have shown low risks to people, alerting tribal plant collectors of upcoming spray programs, so that they could avoid collecting plants in treatment areas, would occur and would limit exposure.

There would be no effect to American Indian Traditional Practices from aerial application of herbicide for annual grass control because of the tribal consultation conducted prior to the treatments and due to the project design elements described in the 2010 Vegetation Treatments Using Herbicides on BLM Lands in Oregon Record of Decision. Invasive annual grass treatments would largely occur in the fall; hence most, if not all non-target species would be dormant. Maps of proposed treatment areas would be provided to the Burns Paiute, thereby preventing potentially adverse effects to Tribal members gathering of traditional plants and root crops.

Other proposed actions would not have a measurable effect on American Indian Traditional Practices. Project Design Features include management requirements that will adequately protect surface cultural resources. The proposed action would implement emergency stabilization and rehabilitation actions to minimize adverse effects on cultural resources. Proposed fences would be temporary and localized, but would not restrict human access to areas of traditional importance.

2) Cultural Heritage

Affected Environment

The Buzzard Complex occurred approximately15 miles east of Malheur Lake. Malheur, Mud and Harney lakes formed an interconnected system of marsh and open water within a large structural depression surrounded by the Wagontire Mountains on the west, the Blue Mountains to the north and Steens Mountain to the southeast. The upper elevations collect precipitation that flows into the South Fork of the Malheur River to the west, Paiute Lake Bed, Turnbull Lake Bed and Duck Creek Lake Bed to the southeast and Crowley Creek to the northeast.

Aikens (1970) classified this region as the Northern Great Basin Region in Archaeology of Oregon and stated: "…a major focal point of human prehistory in the Northern Great Basin with occupation dates retuning to the end of the glacial age. Ethno-historically the Malheur region was the home range of the Wadatika Northern Paiute.

Upon the ignition of the Buzzard Complex a cultural file search was conducted by the Vale Archaeologist with the objective of providing the assigned Resource Advisor, protection measures of previously identified cultural resources within the active wildfire perimeter. A substantial buffer was imposed for suppression activities and potential wildfire migration, thus allowing sufficient time to implement structure protection measures, if needed.

A Class III Cultural Resources Inventory of the Saddle Draw Wildfire "Area of Potential Effect" (APE) is planned. The cultural survey design was created to provide cultural site data pertaining to:

- Physical evidence that includes: presence/absence, location, site density and type.
- Social, political spiritual and religious cultural factors
- Paleo land surfaces were included in the survey objectives.

Research on previous reports was completed utilizing the Oregon SHPO Bibliography which produced six previous surveys yeilding a total of 205 acres surveyed and locating two prehistoric sites within the surveyed areas. Previous cultural resource reports include:

Table 5: Previous Cultural Sites within the APE.

Report #	Year	Title	Author(s)	County	Township/Range
18864	2003	Ramsay Riparian Fence/Three Rivers Resource Area	Brian P. McCabe	Harney	25N/36E
18703	2003	A Cultural Resource Survey of Vischer Creek Fire Temporary Electric Fence	Diane H. Pritchard	Malheur	24-25S/37E
10587	1989	Bureau of Land Management, Vale District	Beth Walton	Malheur	25S/38E
7750	1985	State "Clean-Up" Land Exchange (VS 3)	Mark G. Plew	Malheur	25S/40E
10259	1985	Horse Trap, State Cleanup Land Exchange, Spook Reservoir, Little Basin Reservoir, Serpentine Reservoir,	Beth Walton	Malheur	25S/40E
10898	1989	Bureau of Land Management, Vale District	Beth Walton	Malheur	26S/38E

Subwatersheds located within the Saddle Draw Fire parimeter include: Beaver Creek, Camp Creek, Indian Creek, Lower Crane Creek, Pole Creek-South Fork Malheur River, South Fork Reservoir-South Fork Malheur River

Prehistory
The APE is located within the historic territory of the Burns Paiute Tribe; they have asserted their long-established presence in this region and continue to use the surrounding landscape for subsistence, economic, and spiritual practices.

During wet periods Malheur, Mud and Harney lakes form an interconnected system of marsh and open water within a large structural depression surrounded by the Wagontire Mountains on the west, the Blue Mountains to the north and Steens Mountain to the southeast. During the wet years of the 1980's Malheur Lake exceeded it's floodstage limits and expanded onto prehistoric terraces, inundating an area of more than 180,000 acres. When the waters receded in 1985 large numbers of ancient burials became exposed as a result of floodplain erosion processes. DNA of the majority of these burials dated between 600 and 1300 common era (CE), reaching back to Archaic times (C. Beck, G. Jones, 1997). For further elaboration of the prehistory of this area, please refer to C. Aikens, 1993, Archaeology of Oregon.

History
General historic information for Malheur County can be found in "Malheur County Historical Society Vol.11". The following is only a brief discussion on the history pertinent to the analysis area.

British and American trappers penetrated the Northern Great Basin early in the nineteenth century providing important information about the country and the indigious peoples encoutered along the route that became the Oregon Trail.

In 1871 the Malheur Indian Reservation was established, the reservation's boundary line came down the South Fork Malheur River. These coveted valleys were reserved for the use of the Paiutes until the reservation was open for settlement in 1883, at that time private ranching inindated the area. Early Harney and Malheur county ranches were huge livestock operations in terms of herd size, water rights, and acres. They were owned by distant investors and run by experienced junior partners or trusted employees on the scene. Pick Anderson arrived in the 1880s and developed one of the largest cattle-and-sheep spreads in the county. A bit further south, Tom Turnbull started up a large sheep ranch in Barren Valley during the same period.

The Malheur Valley Railroad managed to build 155 miles of track from the coast to the Cascades and 12 miles of grade in Malheur Canyon by 1889, but the Railroad declared bankruptcy the following year and no further progress was made. The Malheur Valley Railway commenced construction from the UP main line at Ontario to Vale in 1906. Rails pushed west of Vale in 1912 as part of the Oregon Eastern Railway, a proposed joint UP-SP network which was to extend from Ontario to Eugene and Klamath Falls. The U.S. Supreme Court split up the UP-SP alliance in 1913 and the Oregon Eastern project was subsequently abandoned.

Environmental Consequences

Alternative A: No Action

Direct and Indirect Effects of Alternative A
Implementation of the No Action Alternative would not directly affect cultural resources. Indirect effects from post-wildfire surface erosion processes on buried cultural material if no re-vegetation activities occur; increases artifact exposure, illegal collection and theft.

Cumulative Effects of Alternative A
Cumulatively, the recent Buzzard Complex wildfire effects, ongoing grazing, roads, recreation and other BLM activities would, over the short term (1-3 years) result in accelerated cultural resource erosion disturbance levels. Over the long term (3+ years) an increase in noxious weed establishment and encroachment areas will accelerate the soil erosion disturbance levels. Both short and long term cumulative effects identified would be the result of not implementing the reestablishment of native vegetation and other ground cover species and not aggressively managing noxious and invasive weeds.

Alternative B: Proposed Action

The Proposed Action has been identified as the preferred action alternative from a cultural standpoint. The project design features identified in Alternative B include management requirements that will adequately protect surface cultural resources. The proposed action would implement emergency stabilization and rehabilitation actions to minimize adverse effects on cultural resources.

Implementation of Alternative B would not directly affect cultural resources as a result of all eligible and potentially eligible cultural sites will be flagged for avoidance from the proposed ground disturbing activities which include: ground seeding of native species and Crested Wheatgrass, and sign placement.

The proposed monitoring activities will not directly or indirectly affect any eligible or potentially eligible cultural sites.

Indirect effects from the proposed re-vegetation activities identified in the emergency stabilization and rehabilitation actions benefit cultural resource management by establishing an adequate vegetative cover that will decrease artifact exposure, illegal collection and theft.

Most of the catchment basins developed on BLM managed lands were constructed decades ago and have not been inventoried for cultural resources prior to construction. Catchment basins at playa lakes and near permanent water sources indirectly affect cultural resource sites because livestock tend to loaf around these basins. These loafing or congregation areas can affect cultural resources, particularly buried sites,

through horizontal and vertical displacement of artifacts up to 18 inches deep, reduce vegetative ground cover thus accelerating wind and water erosion and artifact breakage. However, no new catchment basins would be constructed so it is not expected that new effects to cultural resources would occur. Cultural resource managers routinely inventory existing catchment basins that are located in playa lakes, near permanent water sources and at stream confluences.

Biological thinning would not directly affect cultural resources beyond what is currently occurring under annual permitted use, since annual grazing allows utilization of up to 50 percent current year's growth. The placement of water and supplements would not have any affect since they would be placed in currently disturbed areas, such as reservoirs, roadways, and existing salting locations. If water would be placed outside of a disturbed area, the location would be surveyed prior to placement, and would only be placed in areas where no cultural resources were found, resulting in no effect to cultural resources.

Cumulative Effects of Alternative B
Cumulatively: the recent Buzzard Complex wildfire effects, ongoing grazing, roads, recreation and other BLM activities in combination with the proposed action would; over the short term (1-3 years) result in a decrease of overland erosion because of the bare soil cover on cultural resource sites. Over the long term (3+ years) a decrease in noxious weed establishment and encroachment areas will diminish soil erosion disturbance levels.

The ARS study plots would not have any effect on cultural resources due to the location, small size of the study area and scale of the project (overall 10 acres).

3) Grazing Management and Rangelands

Affected Environment

The four Buzzard Complex fires burned parts of 33 grazing allotments, including 27 allotments managed by the Burns District and six allotments managed by the Vale District. The fires impacted a total of 68 pastures in the Burns District, including eight Fenced Federal Range (FFR) allotments. FFRs, in general, are dominated by privately owned land and as such, management is shared between landowners and the BLM. Public land portions of FFRs are managed to maintain or improve resource conditions. In the 90,303 acres of the BLM managed allotments, 41% were affected by the fire.

Forty-one Vale District managed pastures were impacted, primarily by the Saddle Draw fire. Five of the six allotments burned by the Saddle Draw fire in the Vale District were heavily impacted, with large percentages of the allotments within the burned area. Seven of the pastures are FFRs and two are custodial pastures which are predominately private land.

Typically, roads and trails within and adjacent to the Buzzard Complex are used by local landowners and those with grazing permits, in addition to other recreation related uses. These roads are important to provide access to private lands, as well as to properly manage livestock. On many of these roads, the ability to haul a stock trailer is important in livestock management.

Weeds and annual grasses often have little forage value due to the unfamiliarity of them and/or their being unpalatable. While cheatgrass has nutritive value and is palatable before seed ripe, forage value diminishes quickly following seed ripe. Medusahead is a poor forage species for both livestock, as well as wildlife, and has low palatability because of its high silica content. Medusahead rye is known to exist within all of the Buzzard Complex fires, as well as other adjacent ownerships, and the potential for invasion exists from roadways and other nearby sources. Annual grasses have also been shown to greatly increase fine fuels and shorten the fire return interval. Therefore, they increase the overall amount of time needed for recovery of the site, when livestock grazing needs to be limited.

Standards for Rangeland Health and Guidelines for Livestock Grazing Management were either met or were not present in all of the allotments located in the Burns district within the Buzzard Complex fire perimeters prior to the fire. The allotments located within the Vale District have not been assessed to determine whether or not Standards for Rangeland Health and Guidelines for Livestock Grazing Management are being met. The Saddle Draw fire was located entirely within the South Fork Malheur River/Stockades Geographic Management Area (GMA) which was prioritized in the Southeastern Oregon RMP as eighth out nine GMAs in the Malheur Resource Area to be assessed.

Grazing decisions that may be made in association with this document would affect federal land only; privately owned land would not be affected by any decision. Allotment descriptions, acres impacted, Animal Unit Months (AUMs), and utilization are described by District with administrative authority for the allotments in the following sections.

Burns District Allotments Impacted by the Buzzard Complex

Burns District allotments impacted by the fires are described below, beginning with Fenced Federal Range allotments. Appendix B-Table 1 lists acres burned by allotment.

All of these FFRs are considered to have custodial (C) selective management categories. Custodial (C) selective management categories are assigned when 1) present range condition is not a factor; 2) have low resource production potential and are producing near their potential; 3) limited resource-use conflicts/controversy exist; 4) opportunities for positive economic return on public investment do not exist or are constrained by technological or economic factors; and/or 5) present management appears satisfactory or is the only logical practice under existing conditions.

Catterson FFR (05203) contains 2,119 acres of BLM managed land; nearly 90% of which were measurably burned. There are 125 active use AUMs associated with this allotment. Grazing objectives for this allotment are to maintain/improve resources.

Hamilton FFR (02249) contains 199 acres of BLM managed land; approximately 20% of these acres were measurably burned. There are 20 active use AUMs associated with this allotment. Grazing management objectives for this allotment are to maintain/improve resources.

Ott FFR (05555) contains 635 acres of BLM managed land; approximately 2% of these acres were measurably burned. There are 5 active use AUMs associate with this allotment. Grazing objectives for this allotment are to maintain/improve resources.

Quier FFR (05602) contains 142 acres of BLM managed land; approximately 57% of these acres were measurably burned. There are 5 active use AUMs associated with this allotment. Grazing objectives for this allotment are to maintain/improve resources.

Riverside FFR (05527) contains 1,205 acres of BLM managed land; approximately 5% of these acres were measurably burned. There are 49 active use AUMs associated with this allotment. Grazing objectives for this allotment are to maintain/improve resources.

Stockade FFR (05206) contains 6,125 acres of BLM managed land; approximately 86% of these acres were measurably burned. There are 63 active use AUMs associated with this allotment. Grazing objectives for this allotment are to maintain/improve resources.

Thompson FFR (05217) contains 1,198 acres of BLM managed land; approximately 1% of these acres were measurably burned. There are 77 active use AUMs associated with this allotment. Grazing objectives for this allotment are to maintain/improve resources.

Wilber FFR (05561) contains 2,815 acres of BLM managed land; approximately 59% of these acres were measurably burned. There are 125 active use AUMs associated with this allotment. Grazing objectives for this allotment are to maintain/improve resources.

Alder Creek Allotment (05536) is made up of four pastures, one of which was affected by the fire. These pastures were comprised of 32,101 acres of BLM managed land; approximately 22% of these acres were measurably burned. This allotment has two grazing authorizations, with a season of use of 5/1-8/31, for 2,584 total permitted active use AUMs. There are also 225 AUMs for deer, 196 AUMs for elk and 13 AUMs for antelope allocated for this allotment. Average actual use from the three grazing seasons prior to the fire (2013, 2012, and 2011) is approximately 1,485AUMs. Alder creek allotment is on a rest graze defer rotation. This allotment is in the Improve (I) selective management category, which is defined as areas where 1) present range

condition is unsatisfactory; 2) allotments have moderate to high resource production potential and are producing low; 3) serious resource-use conflicts/ controversy exists; 4) opportunities exist for positive economic return from public investments; and/or 5) present management appears unsatisfactory (BLM 1992). Identified resource objectives for the Alder Creek Allotment include: 1) Improve surface water quality on public lands to meet or exceed quality standards for all beneficial uses as established by the DEQ, where BLM authorized actions are having a negative effect on water quality. 2) Improve and maintain big game habitat in satisfactory habitat condition. 3) Allocate forage to meet elk forage demands. 4) Improve and maintain riparian or aquatic habitat in good or better habitat condition. 5) Protect special status species or its habitat from impact by BLM authorized actions. 6) Maintain or improve rangeland condition and productivity through a change in management practices and/or reduction in active use.

Beaver Creek Allotment (05213) is made up of four pastures, all of which were affected by the fire. These pastures are comprised of 8,183 acres of BLM managed land; approximately 3% of these acres were measurably burned. This allotment has one grazing authorization, with a season of use of 4/1-8/31 and 9/15-12/20, for 1,018 permitted active use AUMs. There are also 9 AUMs for deer and 3 AUMs for antelope allocated for this allotment. Actual use from 2012 was approximately 778 AUMs. This allotment is on an early graze, defer treatment. Pastures are alternated through these methods to ensure use isn't occurring the same time every year and plants have the opportunity to restore root reserves and plant biomass. This allotment is in the Maintain (M) selective management category, which is defined as areas where 1) present range condition is satisfactory; 2) allotments have moderate or high resource production potential and are producing near their potential (or trend is moving in that direction); 3) no serious resource-use conflicts/controversy exist; 4) opportunities may exist for positive economic return from public investments; and/or 5) present management appears to be satisfactory (BLM 1992). Identified resource concerns for this allotment include 1) protect special status species or its habitat from impact by BLM authorized actions.

Buck Mountain Allotment (05537) is made up of eight pastures, all of which were affected by the fire. These pastures are comprised of 17,120 acres of BLM managed land; approximately 97% of these acres were measurably burned. This allotment has two grazing authorizations (one permittee), with a season of use of 4/1-10/31, for 1,519 total permitted active use AUMs. There are 25 AUMs for deer, 164 AUMs for elk, and 20 AUMs for antelope allocated for this allotment. Average actual use from the three grazing seasons prior to the fire (2013, 2012, and 2011) is approximately 1,777AUMs. This allotment is on an early graze, defer treatment. Pastures are alternated through these methods to ensure use isn't occurring the same time every year and plants have the opportunity to restore root reserves and plant biomass. This allotment is in the Maintain (M) selective management category. Identified resource concerns for this allotment include 1) Improve surface water quality on public lands to meet or exceed quality standards for all beneficial uses as established by the DEQ, where BLM authorized actions are having a negative effect on water quality. 2)

allocate forage to meet elk forage demands. 3) Improve and maintain riparian or aquatic habitat in good or better habitat condition. 4) Protect special status species or its habitat from impact by BLM authorized actions.

Coleman Creek Allotment (05201) is made up of six pastures, all of which were affected by the fire. These pastures are comprised of 5,088 acres of BLM managed land; approximately 71% of these acres were measurably burned. This allotment has one grazing authorization, with a season of use of 4/1-10/15, for 424 permitted active use AUMs. There are 9 AUMs for deer, 12 AUMs for elk, and 1 AUMs for antelope allocated for this allotment. Average actual use from the 2012 and 2011 seasons is approximately 362 AUMs. This allotment is on an early graze, rest treatment. Pastures are alternated through these methods to ensure use isn't occurring the same time every year and plants have the opportunity to restore root reserves and plant biomass. This is in the M selective management category. Identified resource concerns for this allotment include 1) Improve surface water quality on public lands to meet or exceed quality standards for all beneficial uses as established by the DEQ, where BLM authorized actions are having a negative effect on water quality. 2) Allocate forage to meet elk forage demands. 3) Improve and maintain riparian or aquatic habitat in good or better habitat condition. 4) Protect special status species or its habitat from impact by BLM authorized actions. 5) Maintains or improve rangeland condition and productivity through a change in management practices and/or reduction in active use.

East Davies Allotment (05223) is made up of four pastures, all of which were affected by the fire. These pastures are comprised of 1,947 acres of BLM managed land; approximately 95% of these acres were measurably burned. This allotment has one grazing authorization, with a season of use of 4/1-9/30 with 128 permitted active use AUMs. There are also deer and antelope AUMs allocated for this allotment. This allotment is on an early graze, defer treatment. Pastures are alternated through these methods to ensure use isn't occurring the same time every year and plants have the opportunity to restore root reserves and plant biomass. This is in the I selective management category. Identified resource concerns for this allotment include to maintain or improve rangeland condition and productivity through a change in management practices and/or reduction in active use.

Hamilton Allotment (05214) is made up of two pastures, both of which were affected by the fire. These pastures are comprised of 2,612 acres of BLM managed land; approximately 82% of these acres were measurably burned. This allotment has one grazing authorization, with a season of use of 5/15-8/31 with 270 permitted active use AUMs. There are also 9 AUMs for deer and 3 AUMs for antelope allocated for this allotment. Average actual use from the three grazing seasons prior to the fire (2013, 2012, and 2011) is approximately 418 AUMs. This allotment is on a graze/defer treatment. Pastures are alternated through these methods to ensure use isn't occurring the same time every year and plants have the opportunity to restore root reserves and plant biomass. This is in the I selective management category. Identified resource concerns for this allotment include protecting special status species or habitat from impact by BLM authorized actions.

Hunter Allotment (05202) is made up of one pasture which is comprised of 2,974 acres of BLM managed land and was 100% burned. This allotment has one grazing authorization, with a season of use of 5/1-6/15 with 453 permitted active use AUMs. There are also 10 AUMs for deer, 12 AUMs for elk, and 1 AUMs for antelope allocated for this allotment. Average actual use from the three grazing seasons prior to the fire (2013, 2012, and 2011) is approximately 316 AUMs. The allotment has a graze rotation set for the same time every year: 05/01-06/15. This is in the M selective management category. Identified resource concerns for this allotment include allocating forage to meet elk forage demands.

Lamb Ranch Allotment (05571) is made up of one pasture which is comprised of 2,305 acres of BLM managed land; approximately 4% of these acres were measurably burned. This allotment has one grazing authorization, with a season of use of 4/1-4/30 with 246 permitted active use AUMs. Average actual use from the three grazing seasons prior to the fire (2013, 2012, and 2011) is approximately 211 AUMs. This allotment is on an early use rotation and use occurs prior to 5/1 each year. This is in the I selective management category. Identified resource concerns for this allotment include 1) Improve surface water quality on public lands to meet or exceed quality standards for all beneficial uses as established by the DEQ, where BLM authorized actions are having a negative effect on water quality. 2) Protect special status species or its habitat from impact by BLM authorized actions. 3) Maintain or improve rangeland condition and productivity through a change in management practices and/or reduction in active use.

Mahon Ranch Allotment (05212) is made up of two pastures which are comprised of 3,577 acres of BLM managed land; approximately 46% of these acres were measurably burned. This allotment has one grazing authorization, with a season of use of 4/16-6/5 with 335 permitted active use AUMs. There are also 3 AUMs for deer and 3 AUMs for antelope allocated for this allotment. Average actual use from the three grazing seasons prior to the fire (2013, 2012, and 2011) is approximately 335 AUMs. This allotment is on a graze rest rotation between the two pastures. Pastures are alternated through in this manner to ensure each pasture is rested every other year. This is in the M selective management category. Identified resource concerns for this allotment include maintaining existing resources.

Mountain Allotment (05532) is made up of seven pastures which are comprised of 37,299 acres of BLM managed land, approximately 43% of these acres was measurably burned. This allotment has three grazing authorizations, with a season of use of 4/15-9/15 with 3,248 permitted active use AUMs total between the three permits. There are also 166 AUMs for deer, 352 AUMs for elk, 10 AUMs for antelope and 620 AUMs for horses allocated for this allotment. Average actual use from the three grazing seasons prior to the fire (2013, 2012, and 2011) is approximately 2,298 AUMs. This allotment is on an early graze, defer treatment. Pastures are alternated through these methods to ensure use isn't occurring the same time every year and plants have the opportunity to restore root reserves and plant biomass. This is in the I selective management category. Identified resource concerns for this allotment include 1)

Improve surface water quality on public lands to meet or exceed quality standards for all beneficial uses as established by the DEQ, where BLM authorized actions are having negative effect on water quality. 2) Improve and maintain big game habitat in satisfactory habitat condition. 3) Adjust allotment management including levels and areas or authorized use, seasons of use and grazing system as required by ACEC Management Plan. 4) Maintain healthy populations of wild horses and burros at appropriate management levels which will achieve a thriving natural ecological balance. 5) Allocate forage to meet elk forage demands. 6) Improve and maintain riparian or aquatic habitat in good or better habitat condition. 7) Protect special status species or its habitat from impact by BLM authorized actions. 8) Maintain or improve rangeland condition and productivity through a change in management practices and/or reductions in active use.

Riverside Allotment (05538) is made up of seven pastures which are comprised of 20,823 acres of BLM managed land; approximately 34% of these acres were measurably burned. This allotment has three grazing authorizations, with an overall season of use of 3/1-10/31 with 2, 045 permitted active use AUMs total between the three permits. There are also 27 AUMs for deer and 11 AUMs for antelope allocated for this allotment. Average actual use from the three grazing seasons prior to the fire (2013, 2012, and 2011) is approximately 2,025 AUMs. This allotment is on an early graze, defer treatment. Pastures are alternated through these methods to ensure use isn't occurring the same time every year and plants have the opportunity to restore root reserves and plant biomass. This is in the I selective management category. Identified resource concerns for this allotment include 1) Protect special status species or its habitat from impact by BLM authorized actions. 2) Incorporate recreation management objectives into overall allotment management system. 3) Maintain or improve rangeland condition and productivity through a change in management practices and/or reduction in active use.

Slocum Field Allotment (05593) is made up of four pastures which are comprised of 6,404 acres of BLM managed land all of which was burned in the fire. This allotment has one grazing authorization, with a season of use of 4/1-8/31 with 300 permitted active use AUMs and 563 Exchange of Use AUMs; totaling 863 permitted AUMs. Average actual use from the three grazing seasons prior to the fire (2013, 2012, and 2011) is approximately 592 AUMs. This allotment is on a graze/defer treatment. Pastures are alternated through these methods to ensure use isn't occurring the same time every year and plants have the opportunity to restore root reserves and plant biomass. This is in the M selective management category. Identified resource concerns for this allotment include maintaining existing resources.

Stinkingwater Allotment (05531) is made up of six pastures which are comprised of 24,827 acres of BLM managed land; approximately 9% of these acres were measurably burned. This allotment has three grazing authorizations, with a season of use of 4/16-9/20 and 12/1-2/28 with 2,857 permitted active use AUMs total between the three permits. There are also 23 AUMs for deer, 28 AUMs for elk, 15 AUMs for antelope, and 240 AUMs for horses allocated for this allotment. Average actual use from the three grazing seasons prior to the fire (2013, 2012, and 2011) is approximately 1,994

AUMs combined from all permitted use. This allotment is on an early graze, defer, and rest treatment. Pastures are alternated through these methods to ensure use isn't occurring the same time every year and plants have the opportunity to restore root reserves and plant biomass This is in the I selective management category. Identified resource concerns for this allotment include 1) Improve surface water quality on public lands to meet or exceed quality standards for all beneficial uses as established by the DEQ, where BLM authorized actions are having a negative effect on water quality, 2) Protect special status species or its habitat from impact by BLM authorized actions. 3) Improve and maintain big game habitat in satisfactory habitat condition. 4) Allocate forage to meet elk forage demands. 5) Adjust allotment management including levels and areas or authorized use, seasons of use, and grazing system as require by ACEC Management Plan. 6) Maintain healthy populations of horses and burros at appropriate management levels which will achieve a thriving ecological balance. 7) Improve and maintain riparian or aquatic habitat in good or better habitat condition.

Texaco Basin Allotment (05566) is made up of four pastures which are comprised of 14,558 acres of BLM managed land; approximately 41% of these acres were measurably burned. This allotment has one grazing authorization, with a season of use of 3/1-9/30 for 2,351 permitted active use AUMs. There are also 9 AUMs for antelope and 100 AUMs for horses allocated for this allotment. Average actual use from the three grazing seasons prior to the fire (2013, 2012, and 2011) is approximately 1879 AUMs. This allotment is on an early graze, defer, and rest treatment. Pastures are alternated through these methods to ensure use isn't occurring the same time every year and plants have the opportunity to restore root reserves and plant biomass. This is in the I selective management category. Identified resource concerns for this allotment include 1) Improve surface water quality on public lands to meet or exceed quality standards for all beneficial uses as established by the DEQ, where BLM authorized actions are having a negative effect on water quality. 2) Improve and maintain riparian or aquatic habitat in good or better habitat condition. 3) Improve wetlands habitat condition to satisfactory or better. 4) Incorporate recreation management objectives into overall allotment management system. 5) Maintain healthy populations of wild horses and burros at appropriate management levels which will achieve a thriving natural ecological balance. 6) Protect special status species or its habitat from impact by BLM authorized actions.

Upton Mountain Allotment (05565) is made up of three pastures which are comprised of 14,114 acres of BLM managed land; approximately 11% of these acres were measurably burned. This allotment has one grazing authorization, with a season of use of 4/1-11/30 for 1,615 permitted active use AUMs. There are also 6 AUMs for deer allocated for this allotment. Average actual use from the three grazing seasons prior to the fire (2013, 2012, and 2011) is approximately 1918 AUMs. Excess AUM's are a result of a targeted grazing project occurring in fall and winter. This allotment is on an early graze, defer treatment. Pastures are alternated through these methods to ensure use isn't occurring the same time every year and plants have the opportunity to restore root reserves and plant biomass. This is in the I selective management category.

Identified resource concerns for this allotment include 1) Improve and maintain erosion condition in moderate or better erosion condition. 2) Protect special status species or its habitat from impact by BLM authorized actions 3) Maintain or improve a rangeland condition and productivity through a change in management practices and/or reduction in active use.

Venator Allotment (05205) is made up of seven pastures which are comprised of 6,929 acres of BLM managed land; approximately 56% of these acres were measurably burned. This allotment has one grazing authorization, with a season of use of 3/1-2/28 for 320 permitted active use AUMs. There are also 3 AUMs for deer and 1 AUM for antelope allocated for this allotment. Average actual use from the three grazing seasons prior to the fire (2013, 2012, and 2011) is approximately 264 AUMs. Use in this allotment is early and deferred/winter use. This use allows pastures to remain ungrazed during the growing season and allows for plants to reach seed ripe prior to use each year. This is in the I selective management category. Identified resource concerns for this allotment include 1) Improve surface water quality on public lands to meet or exceed quality standards for all beneficial uses as established by the DEQ, where BLM authorized actions are having a negative effect on water quality. 2) Improve and maintain riparian or aquatic habitat in good or better habitat condition. 3) Protect special status species or its habitat from impact by BLM authorized actions. 4) Maintain or improve rangeland or improve rangeland condition and productivity through a change in management practices and/or reduction in active use.

West Davies Allotment (05221) is made up of two pastures which are comprised of 1,363 acres of BLM managed land, approximately 99% of these acres was measurably burned. This allotment has one grazing authorization, with a season of use of 3/1-2/28 with 143 permitted active use AUMs. Average actual use from the three grazing seasons prior to the fire (2013, 2012, and 2011) is approximately 133 AUMs. This allotment is on a early, graze, defer treatment. Pastures are alternated through these methods to ensure use isn't occurring the same time every year and plants have the opportunity to restore root reserves and plant biomass. This is in the I selective management category. Identified resource concerns for this allotment include to maintain/improve existing resources.

The burn intensity and severity of impacts varied across the fires. Appendix B – Table 3 provides the acres by severity level. Map 13 provides information on burn severity categories for the entire Buzzard complex.

Appendix B - Table 4 shows the utilization that has occurred within the affected Burns District allotments and pastures from 2004-2013. Utilization is calculated by determining which category vegetation falls into at any given point. The categories are No Use (0-5%), Slight (6-20%), Light (21-40%), Moderate (41-60%), Heavy (61-80%), and Severe (81-100%). Utilization is total utilization and includes wildlife and livestock. In concentrated areas around reliable, late-season water sources, monitoring results may show higher utilization. Since FFR allotments contain large amounts of private property, utilization is not regularly determined and therefore FFRs are not

included in the table. Pastures within allotments that are mostly private ownership have also been removed from the table due to lack of available information.

Vale District Allotments Impacted by the Buzzard Complex

Black Butte Allotment (00304) contains 73,174 acres of combined public, private, state and other federal land. The Saddle Draw fire burned 381 acres of the Riverside FFR pasture which encompasses .5% of the Black Butte allotment. Due to the high quantity of private property in this pasture, there is very little information available related to the pasture and it would not be included in the Saddle Draw fire rehab efforts.

McEwen Allotment (20603) contains 106,821 acres of combined public, private and state land, of which, nearly 40% is privately owned. This allotment is divided into nine pastures, including one fenced federal range (FFR) pasture and two custodial pastures (Andy Wilson and Hickey Creek). There is one grazing authorization on the allotment with a season of use from April 1 through October 31 for 6,008 active AUMs and 2,892 exchange of use AUMs. The average actual use for the last three years (2013, 2012 and 2011) is approximately 6,651 AUMs, to include use on the permittee's private property. The grazing schedule within this allotment is designed to provide periodic growing season rest to vegetation by utilizing rest and deferred rotation grazing systems. Approximately 96% of the total allotment was burned and over 80% of each pasture was consumed by the fire. This allotment is in the Maintain (M) category and the allotment management objective is to maintain the ecological condition of the upland vegetative communities (BLM 2002). The management considerations applicable to the burned area are habitat for Greater sage-grouse, deer, pronghorn antelope and elk.

North Star Mountain Allotment (00310) contains 106,212 acres of public, private and state land. Within the allotment there are seven pastures but only one pasture (Wildcat Coldspring) was within the Saddle Draw burn area. There are three grazing authorizations and two permittees with a total of 9,032 authorized AUMs. The current season of use is April 1 through October 31 and the grazing schedule is designed to provide periodic growing season rest to vegetation by utilizing rest and deferred rotation grazing systems. The average actual use for the past three years (2013, 2012 and 2011) is 6,445 AUMs. This allotment is in the Maintain (M) category with the following allotment management objectives: 1) improve the ecological condition of upland vegetative communities; 2) maintain the ecological condition of upland vegetative communities and 3) maintain/improve the condition of riparian vegetative communities (BLM 2002). The management considerations applicable to the burned area are habitat for Greater sage-grouse, deer, pronghorn antelope and elk. North Star Mountain Allotment contains a portion of the Saddle Draw burn area that falls within the Cold Springs HMA and contains bighorn sheep range.

South Star Mountain Allotment (00309) contains 71,641 acres of public and private land. The allotment is comprised of ten pastures, three of these pastures (Chapman, Creston and Granite) are FFRs and one is a research exclosure. The Saddle Draw fire burned over 80% of five (Atturbury, Hickey Basin Research Exclosure, Horse Queen, Road Canyon and West Chapman) of the ten pastures in the allotment. The remaining five pastures (Chapman FFR, Creston Brush Control, Creston FFR, East Chapman and Granite FFR) ranged from 2 to 40% burned. There are two grazing authorizations on the allotment with

a total of 5,389 permitted AUMs. The average actual use for the past three years (2013, 2012 and 2011) is 5,328 AUMs. The permitted season of use is April 1 through October 31 with extended use to December 31, permitted in the allotment management plan (AMP). The grazing schedule is designed to provide periodic growing season rest to vegetation by utilizing rest and deferred rotation grazing systems. This allotment is in the Maintain (M) category with the following allotment management objectives: 1) improve the ecological condition of upland vegetative communities; 2) maintain the ecological condition of upland vegetative communities and 3) maintain/improve the condition of riparian vegetative communities (BLM 2002). The management considerations applicable to the burned area are habitat for Greater sage-grouse, deer, pronghorn antelope and elk. Additionally, the area impacted by the Saddle Draw fire falls within bighorn sheep range.

Turnbull Allotment (00303) contains 106,943 acres of public and private land. The allotment is split into fourteen pastures, which includes one private land pasture and six FFR pastures (Fangollano, Copeland, Dowell, Seaburn, Rinehart Ranch and Frying Pan). Of these fourteen pastures, four (Dowell, Juniper Mountain, Fangollano and Whiskey Spring) were burned over 50% with the rest of the pastures ranging from 0 to19% burned. This allotment has two grazing authorizations with a year round permitted season of use and a total of 6,854 permitted AUMs. The average actual use from the last three years (2013, 2012 and 2011) is approximately 5,255 AUMs. The grazing schedule is designed to provide periodic growing season rest to vegetation by utilizing rest and deferred rotation grazing systems. This allotment is in the Maintain (M) category with the following allotment management objectives: 1) improve the ecological condition of upland vegetative communities and 2) maintain the ecological condition of upland vegetative communities (BLM 2002). The management considerations applicable to the burned area are habitat for Greater sage-grouse, deer, pronghorn antelope and elk. Additionally, the area impacted by the Saddle Draw fire falls within bighorn sheep range.

Venator Allotment (10605) contains 29,701 acres of public, private and state land. Within the allotment there are eight pastures and one research exclosure. All eight of the pastures and the research exclosure were burned in the Saddle Draw fire. In seven (Heifer, Homestead, Jake Hughes, North Deadman, North Field, South Deadman and Steer) of the eight pastures, over 90% of the pasture was burned and 55% of the Lower Field pasture burned. There is one grazing authorization on the allotment and the season of use is April 1 through October 31 with 2,308 authorized AUMs. The average actual use from the last three years (2013, 2012 and 2011) is approximately 2,149 AUMs. This allotment is in the Maintain (M) category with the following allotment management objectives: 1) improve the ecological condition of upland vegetative communities and 2) maintain the ecological condition of upland vegetative communities (BLM 2002). The management considerations applicable to the burned area are habitat for Greater Sage-Grouse, deer, pronghorn antelope and elk.

Appendix B – Table 2 provides acres impact by allotment and ownership.

Appendix B - Table 5 provides forage utilization that has occurred within the affected Vale District allotments and pastures from 2004-2013. Utilization is calculated by determining which category vegetation falls into at any given point. The categories are No Use (0-5 percent), Slight (6-20 percent), Light (21-40 percent), Moderate (41-60 percent), Heavy (61-80 percent) and Severe (81-100 percent). Utilization is total utilization and

includes wildlife, livestock and wild horse use. In areas where wild horses are known to congregate, utilization levels may be over 50 percent late in the year. In concentrated areas around reliable, late-season water sources, monitoring results may show higher utilization. Since FFR allotments contain large amounts of private property, utilization is not regularly determined and therefore FFRs are not included in the table. Pastures within allotments that are mostly private ownership have also been removed from the table due to lack of available information.

Management Common to Burns and Vale District Managed Allotments

Invasive annual grasses are known to be present within all impacted allotments and abundant in the western lowlands of the Stinkingwater Mountains along and within the eastern perimeter of the Riley Field Fire. Recent research suggests properly managed livestock grazing is an effective tool that can be used to maintain healthy plant communities while reducing vegetative impacts resulting from wildfires (Davies et al. 2010; Patton et al. 2007; McNaughton 1993). Fall/winter grazing can be used to reduce cheatgrass production and litter (Schmelzer et.al. 2014). Light to moderate livestock grazing can be used as a tool to decrease litter accumulation, indirectly preventing cheatgrass invasion by increasing the ability of the community to tolerate fire (Davies et al. 2009). Davies also found grazing exclusion decreases the ability of the native herbaceous community to tolerate fire due to the accumulation of fine fuels, which can result in increased mortality of desirable vegetation during fire events. Davies (2010) found wildfires that occur in areas without grazing would "increase the probability of post-fire exotic plant invasion by increasing the risk of fire-induced mortality of perennial bunchgrasses." In fact, livestock grazing, when properly managed at moderate levels, may help protect the sagebrush communities, which in turn helps the wildlife species dependent upon them (Davies et al. 2010). It is essential plant communities be managed in a way that maintains or improves plant health, vigor, and stability across a community (Anderson et al. 1990). Increased plant vigor means better protection of the soil surface, and assures greater root volume below the surface. The more rain that falls and enters the soil, the less is lost as runoff, and so more moisture is available for plant growth.

Anderson and McCuistion (2008) found grazing management, when upland birds are present, should be flexible, but limited to a light to moderate use (30-50% utilization), using deferred or rest-rotation grazing to limit grazing disturbances during critical bird life stages such as nesting. They concluded light to moderate use can increase forb quality and quantity since grazing can delay the maturation of forbs, extending their availability throughout the growing season (Anderson and McCuistion 2008). Adams et al. (2004) suggests grazing encourages the height and cover of sagebrush and other native species during nesting seasons, and light grazing is used to create patches in the vegetation, increasing the herbage of species preferred by sage-grouse, especially during nesting and brood-rearing. Sage-grouse often prefer the lightly grazed areas and desired grazing intensity should be light to moderate to meet their needs for litter and cover.

Appendix B -Table 3 provides acres by allotment of the severity of the burn intensity of the Saddle Draw fire on Vale District managed allotments.

Environmental Consequences:

The ARS study plots would not have any effect on grazing management due to the small size of the study area (10 acres).

Alternative A: No Action

Under the no action alternative the following actions would not occur: seeding of desirable species that help stabilize soils, fence maintenance and construction, temporary fence construction, grazing closures, catchment cleaning, road stabilization and maintenance, and construction of check dams would not take place. Existing authorized herbicide treatments for invasive and noxious weeds would continue, but proactive herbicide applications (Imazapic treatments) for invasive annual grasses would also not occur. All other additional stabilization and rehabilitation efforts identified under the proposed action would not take place.

Without seeding and Imazapic treatments to control invasive annual grasses these species may become dominant on the site. The no action alternative would result in a much smaller area of herbicide treatments of invasive annual grasses. Noxious weed treatment would continue using the less effective herbicides currently authorized under the existing Burns District's Noxious Weed Management Program EA and Vale District Five Year Integrated Weed Control Plan EA.

Non-native invasive annual grasses such as cheatgrass and medusahead increase in abundance and density after fire, resulting in increased fine and ladder fuels, creating a receptive environment for future fires and an increased seed bank for these species. As invasive annual grasses continue to invade and increase after each fire, the fire frequency increases reducing the ability of desirable native perennial grasses, forbs and shrubs to re-establish after fire eventually eliminating most of the native shrubs and trees from the landscape. Additionally the invasive annual grasses are winter annuals capable of growing earlier in the season thus outcompeting other species and depleting surface water prior to native species coming out of seasonal dormancy.

Under this alternative, the burned areas would not be closed to grazing by livestock. Animals would continue to be allowed to graze the area as they have in the past. Studies have found livestock prefer green vegetation to cured vegetation since it is more nutrient rich; cured stems have lower crude protein and digestibility levels (Ganskopp and Bohnert 2005). This behavior has been observed by both livestock and wild herbivores (Ganskopp et al. 1992). Herbel and Nelson (1966) found cattle would often graze plants with both green and dry portions, but they would try to select for the green portions and the dry portions would often drop out of their mouth. Ganskopp and Bohnert (2005) noted research shows cattle are aware of one cured stem within a green bunchgrass and that they are 40 percent more likely to reject grazing plants that have cured stems (considered wolfy) than those plants with no cured stems. They also found cattle were 2.3 times more likely to select areas of vegetation with mostly green stems (old growth had been previously removed) than areas with wolfy plants that had

mixtures of green and cured stems (Ganskopp and Bohnert 2005). In a study done by Ganskopp et al. (1992) cattle showed avoidance to plants that had as few as three cured stems which contributed to as low as 4% of the total plant biomass. Ganskopp et al. (1992) speculate cattle use visual cues to make these selections, which is why they found a lack of response during dormancy since current years' growth and previous years' growth are visually similar. This preference for green stems can result in livestock often grazing the same area year after year, and multiple times in the same grazing season, in order to take advantage of the higher quality forage, resulting in damage to the plants that are repeatedly graze, resulting in loss of vigor or decadence of the grazed species. Since the Buzzard Complex Fires removed all cured vegetation (with the exception of vegetation on unburned islands) livestock use would prevent full recovery of the burned area. Due to the decreased vigor this would also result in increased niches for weedy species. These factors would result in an even lower carrying capacity on the site. As monitoring shows decreases in carrying capacity, AUMs authorized would have to be reduced in order to prevent ecological damage.

Under the No Action Alternative, existing fences would not be repaired or replaced. Within the burn perimeter, there are eight FFR allotments in Burns District-managed allotments and three FFR pastures in Vale District-managed allotments. FFRs are dominated by privately owned land with management shared between BLM and local landowners. Each of these areas is fenced to provide a boundary such that management of rotational grazing can occur with a reasonable amount of certainty that utilization goals are met within a specific pasture within a time period stated in the management plan for each allotment. Without the maintenance of existing fences damaged by the fire, livestock use would be unmanageable beyond the rest period as management shifts back into the normal pre-fire rest-rotation system of use.

By not constructing the temporary protective fence that would keep livestock out of the burned portion of South Star Mountain and Turnbull allotments in the Saddle Draw fire area; the entire pastures would be open to livestock grazing. Between 7% and 33% of the three pastures (Creston BC, East Chapman and Slaten) burned measurably, and with largely low burn intensity.

Without the construction of sediment traps and catchment basin cleaning, livestock and wildlife watering sources would rapidly fill with sediment which then limits the water holding capacity of these facilities and therefore reduces available water across pastures. Once full, they would no longer function as catchment basins, and water that would have been caught, would become runoff, transporting sediment and seed containing top soil off site.

Road stabilization would not occur under Alternative A. Access for landowners and permittees would become limited or difficult, and in some instances, may become impossible, greatly reducing the ability of landowners and permittees to properly manage the land and their livestock.

No rangeland improvements (i.e., springs, troughs, pipelines etc.) would be repaired or cleaned. These important water sources would remain non-functioning and the spring

source unprotected, resulting in livestock trampling and grazing the spring source, damaging it in the process.

Alternative B: Proposed Action

Under the proposed action, seeding of desirable species that help stabilize soils, fence maintenance and construction, closures, catchment cleaning, and construction of sediment traps would take place. Seeding and spraying to control invasive species would stabilize soils in the burned area and ensure good range conditions continue. Carrying capacity for wildlife and livestock within the burned area would return to pre-fire levels as noxious weeds and annual grasses are controlled.

By maintaining existing fences damaged by the fire, management of livestock following the resumption of grazing could continue, as authorized prior to the fire. Also by maintaining fences of pastures adjacent to the burned area, unburned BLM and private land pastures could continue to be grazed as scheduled without livestock moving into the burned areas.

The 25 miles of temporary fence would protect burned portions of two allotments. Construction would allow permittees to continue to graze livestock in the unburned areas east of the fire perimeter while the adjacent areas within the fire perimeter are rested from livestock use. This would reduce the need for replacement of AUMs, while protecting ecological recovery of the burned area.

The construction of sediment traps and cleaning of catchment basins would capture runoff and sediment, reducing erosion from water and the loss of top soil off site. By constructing sediment traps and cleaning catchment basins, runoff would continue to be captured. By capturing runoff, these sites would also provide water necessary for livestock and wildlife throughout the year and aid in distribution across pastures.

The construction of check dams would not affect grazing management.

Since grazing would not be allowed until objectives are met, permittees would lose a significant level of grazing AUMs until grazing is allowed to resume. The affected permittees would be required to find alternative forage until the seeded areas have become established.

On allotments within the Burns district where closure to livestock grazing is needed, it would be done using cooperative agreements between BLM and affected permittees. Because Buzzard Complex was a large fire in several kinds of plant communities the proposed treatments and subsequent need for livestock closure vary. Where seeding occurs the target is three desirable perennial plants/meter2. When this target is achieved BLM would further assess the seeded areas to determine whether perennial grasses are adequately rooted to withstand grazing and not be pulled out of the ground. For areas that are not seeded the target is three desirable perennial plants/meter^2. Because these are established plants their root systems are intact. Higher elevation areas would be seeded in the first or second winter of ES/R. Lower, warm, dry areas

will be seeded post herbicide treatment. Treatment of invasive annual grasses is needed to give seeded species a better chance of establishment

Within the Vale district, grazing closures will also be completed through grazing closure agreements whenever possible. The seeded areas will be measured to determine if the target of three desirable perennial plants/meter^2 has been met. In addition to this goal, additional criteria to resume grazing will be established by an ID team and will be included in each grazing closure agreement. This additional criteria will apply to unseeded and seeded areas wherever applicable.

Under the Proposed Action, biological thinning would occur. Biological thinning using targeted grazing would be conducted when there was adequate invasive annual grass production for livestock to be attracted to it in areas where invasive annual grasses were the dominant or a significant component of the plant community. Biological thinning would not be authorized during the active growth period of native perennial grasses/plants. This would allow fine fuels to be removed up to 50 percent (above ground biomass and would reduce the risk of wildfire within the affected allotments. Fewer fires would result in reduced opportunities for weedy species to become established and dominate sites, while allowing desirable vegetation to become established, ensuring that livestock grazing would be able to continue to occur at levels permitted.

Weed treatments and road maintenance are temporary actions typically occurring once or a few times a year in an area, effectiveness may require re-treatments in subsequent years, and generally results in short-term (less than a day) impacts (e.g. displacement) animals in the immediate area of the treatment. Weed management helps control noxious and invasive weeds. These two activities would not cumulatively contribute measurable adverse impacts to livestock.

Impacts from selected herbicides are provided in Tables 7-13, Appendix B.

4) Migratory Birds

Affected Environment

The sagebrush steppe present prior to the wildfire supported several species of sagebrush obligate and facultative migratory birds, including sage thrasher (*Oreoscoptes montanus*), sage sparrow (*Amphispiza belli*), Brewer's sparrow (*Spizella breweri*), and loggerhead shrike (*Lanius ludovicianus*). Other species commonly occurring in sagebrush habitat in the area include mountain bluebird (*Sialia currucoides*), vesper sparrow (*Pooecetes gramineus*), horned lark (*Eremophila alpestris*) and western meadowlark (*Sturnella neglecta*). Bird species associated with western juniper include gray flycatcher (*Empidonax wrightii*), dusky flycatcher (*Empidonax oberholseri*), northern flicker (*Colaptes auratus*), and American robin (*Turdus migratorius*). Raptors found in or near the project area include, golden eagle (*Aquila chrysaetos*), red-tailed hawk (*Buteo jamaicensis*), ferruginous hawk (*Buteo regalis*), American kestrel (*Falco sparverius*), prairie falcon (*Falco mexicanus*), long-

eared owl (*Asio otus*) and short-eared owl (*Asio flammeus*). Species listed by the US Fish and Wildlife Service as Birds of Conservation Concern that occur in the area are golden eagle, ferruginous hawk, loggerhead shrike, sage thrasher, Brewer's sparrow, and sage sparrow (USFWS 2008).

The Buzzard Complex fire eliminated nearly all migratory bird habitat within the perimeter, with the exception of a few small islands of vegetation that did not burn. Migratory birds in the area may utilize these small islands, edges of the burn perimeter, and areas adjacent to water sources in search of forage, but most birds were displaced by the nearly complete loss of vegetation in the burned area.

The Buzzard Complex fire is the dominant factor influencing the affected environment for migratory birds, but other actions have helped shape the existing conditions. Other past and present actions affecting the area include road and fence construction, water developments, power line construction, facility construction, livestock and wild horse grazing, and recreation. These actions and events can have mixed effects on migratory birds and their habitat depending on the species. Livestock and wild horse grazing is the most widespread and long-term actions occurring within the affected environment; and is managed and monitored to facilitate sustainable multiple use, including maintenance of migratory bird habitat. Developed water sources are generally beneficial for migratory birds, and may have improved distribution or increased populations of some species in the area. Roads, fences, and power lines are a potential threat to migratory birds in the area due to collisions or loss or degradation of habitat. These structures may also provide advantageous singing or hunting perches or nesting structures that improve habitat for some species, such as ravens and golden eagles. Density of roads, fences, and power lines is relatively low across the project area compared to other areas. Effects of past wildfires, vegetation treatments, and weed control treatments are not as readily apparent since the Buzzard Complex fire, but these have also influenced the resiliency of the habitat and its ability to recover from the wildfire.

Environmental Consequences

Alternative A: No Action

This alternative would leave the entire burned area to recover without active management intervention. Grassland adapted migratory species may benefit during the first several years following the fire due to the substantially increased amount of habitat available. There would be no rest from livestock resulting in potentially severe damage to recovering native forbs and grasses, leading to poor quality forage over time, and less vegetative diversity within the burned area. These plant communities would not be expected to recover naturally, and would require extensive restoration effort before supporting suitable migratory bird habitat (Pyke 2011). Without active management, the area is at risk of invasion by noxious weeds and annual grasses, and even migratory bird species adapted to open grasslands would eventually be displaced from these degraded communities. Lack of active management would increase the risk of invasive species eventually becoming

dominant and altering the habitat potential from sagebrush-grass co-dominance to a herbaceous dominance with the main components being cheat grass and potentially medusa head rye. Under this scenario, healthy, native sagebrush steppe communities may not fully recover or would require a long time (potentially 100 years or more) to return to their former vigor and cover.

Authorized weed treatments (not the proposed action) would continue to occur as part of the normal BLM weed management strategy, but would be limited to the four currently authorized chemicals for treatment. The current restrictions on type of herbicides used may reduce the size of the area treated and the effectiveness of the treatment, leaving much of the burned area vulnerable to the negative effects of noxious weeds and other invasive species, relative to the proposed action. None of the currently authorized herbicides is selective for annual grasses, such as medusahead and cheat grass, which are two of the biggest threats to persistence of sagebrush steppe and its associated wildlife community (Hagen 2011). Establishment and spread of these invasives may contribute to a shortened fire return interval, which would slow or even prevent the full recovery of sagebrush steppe, a critical habitat component for several Birds of Conservation Concern. Selection of this alternative would not actively improve the rate or increase the success of habitat recovery for migratory birds.

Alternative B: Proposed Action

This alternative would implement the Buzzard Complex Fire Emergency Stabilization and Burned Area Rehabilitation Plan. The proposed actions would assist in mitigating some of the detrimental effects of the fire on habitat for migratory bird species. The wildfire severely reduced populations of migratory birds, as well as their habitat, in the burned area. Grassland adapted species may return and occupy burned areas next spring as herbaceous vegetation recovers, but sagebrush and shrub associated species would avoid the area until adequate patches of sagebrush steppe reestablish. Woodland dependent species would also avoid areas where juniper was burned in the fire. Juniper would not be in the same density for 50+ years so woodland species would move to other juniper stands in the vicinity of the fire. Effects of some of the proposed action (e.g. fence construction) may result in some potential direct effects (temporary displacement) to migratory birds, but implementation of many of the proposed actions would occur in the fall and winter when most migratory bird species and individuals are not present.

Drill seeding 18,678 acres and aerial seeding approximately 40,000 acres in the fall and early winter would increase the rate of establishment and recovery of perennial vegetation to protect the exposed soils from wind and water erosion. Seeding of selected uplands in the area would help to stabilize soils in strategic areas across the burn and help limit the spread of invasive species. The seed mixes selected would minimize the introduction and spread of invasive grasses, such as medusahead, and would reestablish sagebrush communities on several of the sites where it existed prior to the fire. Planting sagebrush and bitterbrush sagebrush seedlings would create patches of sagebrush habitat scattered throughout the burned area and encourage

movement across the landscape by some of the smaller bird species that prefer to make shorter flights and remain in close proximity to hiding cover.

This alternative would allow for the use of more selective herbicides that are effective at controlling noxious weeds and invasive annual grasses, while limiting collateral damage to native and desirable non-native plants. Non-target desirable plants may be harmed, but risk would generally be limited to vulnerable (depending on selected herbicide) plants in the immediate treatment area, and have no effect on overall abundance or diversity of migratory bird habitat. Application of the proposed herbicides using Standard Operating Procedures (SOPs) would not only improve the success of the seeding effort, it would help protect native plants that survived the fire. These native plants provide a valuable seed source adapted to the local environment, which further enhances the ability of the native plant community to recover (Leger 2008) and provide a more diverse habitat for migratory birds. Implementation of this alternative would result in maintenance or improvement and a more rapid recovery of more acres of migratory bird habitat compared to the No Action Alternative.
Migratory birds may be impacted through direct or indirect contact or ingestion of chemicals or exposed plant, water, or animals, including insects. The proposed herbicides have a wider treatment window, allowing more flexibility in timing of treatments in order to avoid vulnerable periods for birds, such as during the nesting period. Based on the findings of the Ecological Risk Assessments and following Standard Operating Procedures, the potential risk to birds from ingestion or direct contact would be negligible, especially at the population level. Sagebrush obligate migratory birds or birds strongly associated with sagebrush or shrub lands, such as sage thrasher and sage sparrow, are even less likely to be affected due lack of adequate habitat to support populations following the fire. This would be the same for those bird species associated with juniper woodlands.

Discussion and links to Ecological Risk Assessments for the proposed herbicides are available in the Vegetation Treatments Using Herbicides on BLM Lands in Oregon FEIS (Oregon Veg EIS, Appendix 8, pp. 605-608, Appendix 9, pp. 632, 633, 642) and the Vegetation Treatments Using Herbicides Programmatic Final Environmental Impact Statement (chlorsulfuron and Imazapic only, National Veg EIS, Appendix C). Imazapic and Chlorsulfuron had risk levels below the Level of Concern (LOC) for all evaluated wildlife under all scenarios (Oregon Veg. FEIS pp. 4-247-250). The risk assessment for clopyralid indicates there is little to no risk to terrestrial animals (SERA 2005, National Veg. EIS p 4-106). Bromocil + Diuron (Weed Blast) at 8 lbs active ingredient/acre (4 lbs ai bromacil and 4 lbs ai diuron). This product is applied as a dry granular product using a spreader or shaker type of applicator. It would be applied as a bare-ground treatment. Treatments would occur as annual “spot applications” in an approximate 15-foot radius around each power pole. That calculates to 0.02 ac/pole of treated area. Treatment on 200 poles equates to a total of 4 acres of area treated annually.

Erosion control structures would be placed in major drainages to help control runoff that would occur at these sites. Road and trail water diversions would be utilized to aid in this effort, as well as spot cleaning of ditches along roads. The proposed actions

to service catchment basins and water control structures and re-seed the upper slopes of the drainages would also help hold soil in place and prevent sedimentation and ash run-off. The proposed seeding and soil management actions would stabilize more sediment across the landscape providing a stable foundation for plants to root and grow. This would result in faster recovery of usable habitat for migratory birds in a shorter time than if the soil were allowed to be continually displaced by erosional mechanisms.

Fence, gate, and cattle guard maintenance and reconstruction would occur as needed to exclude livestock from the burned area until vegetation objectives are met. Approximately 474 miles of repair fencing, and 25 miles of temporary fencing would be constructed within and along the boundary of the fire. An unspecified number of gates would be maintained or reconstructed as needed. Fences create a collision hazard to migratory birds. Marking fences as proposed with reflective warning devices, may reduce the risk of collision in some areas. Even with the proposed new fences, the density across the project area would remain relatively low, compared to the average density of many places in the west. The majority of the burned area, including all seeded areas, would be closed to domestic livestock grazing until vegetation objectives are met. Protection from livestock grazing through fencing and rest would help allow for faster recovery of affected vegetative communities.

Approximately 17 troughs that were damaged in the fire would be repaired or replaced and 19 spring developments that were damaged or destroyed in the wildfire would be repaired or reconstructed. Water sources are critical to migratory birds in areas of limited water, such as the burned area, especially in drought years. Repairing or replacing these facilities and removing sediment from catchment basins would improve water storage capacity and availability for migratory birds, as well as other wildlife species.

Wyoming big sagebrush seedling (plugs) planting would occur on approximately 6000 acres where sagebrush mortality occurred due to the fire. Antelope bitter brush hand seeding planting and seedling plugs would be planted on about 4500 acres where mortality occurred during the fire. Locations selected for the plug plantings and hand seeding would maximize the chances of success, and are based on soil survey data, vegetative communities present prior to wildfire, and potential vegetative communities based on ecological site descriptions. Fire kills sagebrush plants and sagebrush seeds in the soil, and suppresses recovery because Basin, Mountain, and Wyoming big sagebrush are not root-sprouting shrubs (Tisdale & Hironaka 1981). Post burn recovery periods for these three big sagebrush taxa can be long, especially following large wildfires, because they must reestablish from seed. For example, Baker (2006, 2011) approximated post fire recovery for Mountain big sagebrush from 35–100 or more years and Wyoming big sagebrush from 50–120 years based on a combination of cover and density values from various studies. Planting plugs is expected to jumpstart this recovery effort because it typically has a higher survival rate than seeded sagebrush and decreases the period required to achieve reproductive maturity, resulting in less time needed for Wyoming big sagebrush to reach sufficient cover

percentages to begin to provide usable habitat for several species of migratory birds, including several Birds of Conservation Concern.

Cumulative effects of the proposed action in regards to migratory birds as a whole are expected to be beneficial in the long term (10+ years), with livestock grazing not occurring until vegetative objectives have been met. This is expected to allow for the recovery of the health and vigor of vegetation in burned and seeded areas, providing greater hiding and nesting cover and eliminating potential disturbance or trampling relative to the No Action alternative. Even with implementation of the Buzzard Complex Fire proposed actions, recovery of sagebrush habitat would be expected to require many years. Grassland adapted species would be expected to return to the Buzzard Complex Fire area due to the substantial increase in available open grassland habitat.

The Cumulative Effects Analysis Area (CEAA) for migratory birds extends ten miles beyond the fire perimeter to account for the regular movements of the wider ranging migratory birds. The total acreage of the fire area plus the CEAA is approximately 1,586,144 acres. Vegetation in the CEAA is also dominated by sagebrush steppe. Most migratory bird species have much smaller regular movements than ten miles; therefore, most effects to migratory birds or their habitat would occur within or immediately adjacent to the burned area, and would diminish over time and as the distance from the project area increases. Beneficial effects of habitat recovery would increase over time, but would be expected to require several decades or more to fully recover to conditions present prior to the fire. Past and present actions and events, such as those described in the Affected Environment, have also influenced the existing environment within the CEAA. Reasonably foreseeable future actions (RFFAs) or events within the CEAA include wild horse use, livestock grazing, weed management, road maintenance, wildfires, and recreation. Several of these are similar to actions and events in the project area, and general effects for most of these are described in the Affected Environment section for Migratory Birds and Special Status Species. RFFAs that may contribute to cumulative effects with this project are carried through analysis in the Environmental Consequences for each alternative, and include vegetation management associated with ongoing District weed treatments.

The ARS study plots would not have any effect on migratory birds due to the small size of the study area (10 acres).

5) Noxious Weeds

Affected Environment

Within the Buzzard Complex Fire, approximately 1,467 acres are infested with thirteen noxious weed species; these have been documented in BLM database or are verified by field experience, not including medusahead or cheatgrass. District databases and current monitoring data show that there are both noxious and invasive species within the fire perimeter. During ESR planning, a suspected site of *Ventenata dubia* (North African wire grass) was recognized by staff specialist. North African

Wire Grass was, recently listed as noxious by the Malheur County Court but the observation could not be confirmed because of its late senescence stage at time of discovery. Also reported by a local supporting firefighting group, but not confirmed, was a site of rush skeletonweed near Highway 78. See Table 6 for species and acres (excluding medusahead rye).

Table 6: Noxious Weeds in Buzzard Complex

Noxious/Invasive Weed Species	Documented Burns District Acres Present Pre-Fire	Estimated Vale District Acres Present
Russian Knapweed	0.209	25
White top	10.621	25
Diffuse Knapweed	1.030	0.5
Canada Thistle	2.360	1.0
Bull Thistle	251.281	1.0
Halogeton	422.257	NA
Black Henbane	0.001	NA
Perennial Pepperweed	19.032	640
Dalmation Toadflax	4.688	NA
Purple Loosestrife	0.006	NA
Scotch Thistle	52.624	10
Med sage	0.058	NA
Tamarisk	0.007	NA
Spotted Knapweed		0.1
Total	**764.174**	**702.6**

In addition to these documented weed sites, there is approximately 7,000 acres of documented medusahead; however this is estimated to be low. Actual acres are estimated to be in the tens of thousands. The expectation is that these infestations would expand into previously uninfested areas, moving this area closer to the annual grassland. At higher elevations, areas where cheatgrass dominates the landscape have not yet been determined and won't be known until post-fire regrowth of cheatgrass (estimated to be in excess of 15,000 acres) begins during the winter and spring of 2015. The high fire intensity resulted in severe fire effects. Plant mortality appears to be high in the burned area with invasive annual grasses as a plant community component. The burn was fueled to some level by exotic annual grasses and by perennial native grasses and sagebrush. In many areas within the fire, soils were reduced to bare mineral leaving a receptive seed bed for the expansion of invasive species from adjacent infested areas. In the absence of competition, the burn area is extremely vulnerable to expansion or invasion by one or a combination of highly competitive noxious and/or invasive annuals, biennials and perennial weed species. Weed control within the burn area would help prevent invasive/noxious species from dominating the site.

The Cumulative Effects Analysis Area (CEAA) for noxious weeds is the 1,586,072 acres, including a four-mile buffer surrounding the fire perimeter and suppression activities in conjunction with the Buzzard Complex Fire. The ongoing and RFFA impacts to noxious weeds and potential for further invasion on the BLM-managed land are livestock grazing, hunting and other recreational activities. All of these could act as vectors for transporting noxious weeds from existing weed sites to both burned areas. In addition to the burned areas, firebreaks surrounding components of nearby infrastructure are at risk for weed invasion due to surface disturbance and would be monitored and treated as necessary. Impacts by livestock would be temporarily mitigated by removal until objectives are met. Impacts by invasive species, in particular mat forming annual grasses, would decrease recovery and establishment of desirable native and desirable non-native plant species. Emergency stabilization measures would increase establishment rates of native and desirable non-native plant species which would occupy sites that would otherwise become occupied by annual grasses and noxious weeds.

The success of invasive species is based on their ability to outcompete native species with fewer or diminished resources. In many areas within the fire, the surface burned to mineral soil leaving a receptive seed bed for the expansion of invasive species. The combination of bare ground, ample nutrients, and sources of seeds means that the likelihood of noxious weed invasion into the burn is high particularly where there are healthy noxious weed seed sources near the fire perimeter or where there were existing infestations within the fire perimeter. Research and management have found ecological sites such as this to be vulnerable to invasive species. Since Medusahead was previously present in the fire area in varying amounts, it is expected that the seed bank would take advantage of the favorable conditions.

Within the perimeter of the Buzzard Complex Fire, noxious and invasive species have a high potential of spread within the burned area. Currently these infestations, excluding cheatgrass and Medusahead, are managed using the best available methods, including the use of herbicides. Larger areas would be identified for broadcast treatments. Herbicides and adjuvants would be used in compliance with label instructions. During the second and third year following the fire, the entire burn area would be inventoried, with focus along roads, facilities, seeding, and planting locations. This inventory would focus on identifying areas of noxious weeds as well as areas where it appears that annual grasses are becoming dominant.

Outside the burn, but within four miles of the burn perimeter, there are an additional 1,619 acres of documented noxious weeds in the Burns District portion of the burned areas, plus approximately 70,000 acres infested with Medusahead rye. Species located outside the burn perimeter have the potential to spread into the burned area via vehicle traffic, transport by wind and water, and by livestock and wildlife.

There are scattered populations of noxious weeds in the burn area, area roadsides, and general vicinity of the fire. Road corridors are natural conduits for noxious weeds from infested areas long distances outside of the perimeter of the Buzzard Complex

Fire. Multiple treatments of the identified noxious weeds have been made in the past along the main traveled roads.

Treatments that have occurred within 4 miles of the fire perimeter since 1999 are summarized in Tables 7 and 8, below.

Table 7: Burns District Weed Treatments (inside the fire perimeter and within 4 miles of the fire)

Year	Species	Acres Treated	Project Acres
2013	Russian knapweed, Scotch Thistle, Whitetop, Canada Thistle, Perennial Pepperweed, Bull Thistle, Purple Loosestrife, Salt Cedar, Halogeton, Black Henbane, Mediterranean Sage, Medusahead Rye Grass	2,192.13	~46,598
2012	Scotch Thistle, Whitetop, Canada Thistle, Bull Thistle, Diffuse Knapweed, Salt Cedar, Mediterranean Sage, Black Henbane, Puncturevine, Medusahead Rye Grass, Dalmatian Toadflax	3,322.44	~42,571
2011	Canada Thistle, Scotch Thistle, Bull Thistle, Diffuse Knapweed, Black Henbane, Perennial Pepperweed, Mediterranean Sage, Medusahead Rye Grass, Puncturevine, Whitetop	899.58	~37,503
2010	Canada Thistle, Scotch Thistle, Bull Thistle, Diffused Knapweed, Spotted Knapweed, Black Henbane, Purple Loosestrife, Medusahead Rye Grass, Morning Glory, Whitetop	647.92	~38,084
2009	Russian knapweed, Scotch Thistle, Whitetop, Canada Thistle, Perennial Pepperweed, Bull Thistle, Mediterranean Sage, Puncturevine, Diffused Knapweed, Spotted Knapweed, Black Henbane	298.92	~41,846
2008	Perennial Pepperweed, Russian Knapweed, Scotch Thistle, Whitetop, Dalmatian Toadflax, Diffused Knapweed, Spotted Knapweed, Canada Thistle, Bull Thistle, Mediterranean Sage, Puncturevine	88.55	~35,299
2007	Russian knapweed, Scotch Thistle, Whitetop, Canada Thistle, Bull Thistle, Diffused Knapweed, Spotted Knapweed, Perennial Pepperweed, Purple Loosestrife, Dalmatian Toadflax, Mediterranean Sage, Medusahead Rye Grass	151.96	~13,114
2006	Russian knapweed, Whitetop, Diffused Knapweed, Scotch Thistle, Canada Thistle, Dalmatian Toadflax, Mediterranean Sage, Perennial Pepperweed	65.16	~20,203
2005	Russian Knapweed, Scotch thistle, Canada Thistle, Diffused Knapweed, Whitetop, Perennial Pepperweed, Purple Loosestrife, Dalmatian Toadflax, Black Henbane, Mediterranean Sage	59.84	~8,986
2004	Whitetop, Diffused Knapweed, Spotted Knapweed, Dalmatian Toadflax, Perennial Pepperweed, Purple Loosestrife, Canada Thistle, Scotch Thistle, Puncturevine, Black Henbane	101.37	~8,231
2003	Whitetop, Diffused Knapweed, Scotch Thistle, Perennial Pepperweed, Russian Knapweed, Black Henbane	122.52	~6,537

Table 8: Vale District Weed Treatments (inside the fire perimeter and *within 4 miles of the fire)

Year	Species	Acres Treated	Project Acres
2013	Whitetop, Scotch thistle, Russian knapweed, Perennial Pepperweed	19.7	2700
2012	Diffuse knapweed	0.1	25
2010	Scotch thistle, Russian knapweed, Perennial Pepperweed	0.45	150
2009	Scotch thistle, Russian knapweed, Diffuse knapweed	2.7	1000
2008	Scotch thistle, Russian knapweed, Spotted knapweed	2.1	1200
2007	Scotch thistle, Russian knapweed, Diffuse knapweed, Perennial Pepperweed	5.1	1700

Invasive species that occur in the area include cheatgrass (*Bromus tectorum*), various annual mustards, including tumble mustard (*Sisymbrium altissimum*) and clasping pepperweed (*Lepidium perfoliatum*), and Russian thistle (*Salsola kali*)

Environmental Consequences: Noxious Weeds

Alternative A: No Action

Under Alternative A (No Action Alternative), inventory and treatment would occur however, only herbicides currently approved within the existing BLM noxious weed management plans would be used. These products are not effective on Medusahead, the primary noxious weed problem in the area and are minimally effective on many of the other species such as perennial pepperweed, white top, tamarisk, and purple loosestrife found throughout the burned area In addition, the objectives of the BLM's ESR program to mitigate the adverse effects of fire on the local resources in a cost effective and expeditious manner would not be met under this alternative.

Within the perimeter of the Buzzard Complex Fire, 764 acres of thirteen different noxious weed species previously existed, in addition to approximately 7,000 acres of documented medusahead in the Burns District burned area. Approximately 500 acres of medusahead is known to have existed prior to the fire in the Saddle Draw burned area. Burning of the existing vegetation opened up the site for weed invasion by burning to mineral soil, leaving a receptive seed bed for the expansion of invasive species, especially by species that were already present in or near the site. Without adequate intervention, it is expected that the areas surrounding these existing invasions would greatly increase in size unless treated prior to them becoming dominant on the site. Once becoming dominant on the site, even large broadcast treatments alone

would not be expected to return the site to functioning and desirable ecological condition.

The likelihood of noxious weeds increasing within the burned area is very high under the No Action alternative. Once established, noxious weeds are difficult and expensive to control or eliminate. An early seral plant community, such as a post-fire plant community, is much more susceptible to weed introduction and spread. The burned areas could also become a source of weed contamination for adjacent areas. The same weed vectors that transport noxious weeds into the burned area could distribute noxious weeds from the burn to other areas.

Alternative B: Proposed Action

The control of noxious weeds would help the successful establishment of seeded/planted species, break up fuel continuity, increase fire return intervals, and increase the vigor of existing native perennial plants contributing to the long-term ecological stability of the plant communities in this area.

The Vegetation Treatments Using Herbicides on BLM Lands in Oregon ROD October 2010 (Oregon Veg. ROD), Vegetation Treatments on BLM Lands in 17 Western States ROD September 2007 (National Veg. ROD), and the March 1, 2011 Order Amending Injunction [Case No. 83-cv-6272-AA (US District Court)] provide new information that enable BLM districts in Oregon to utilize 13 new active ingredients for the treatment of noxious weeds, in addition to the 4 active ingredients currently available (2,4-D, dicamba, glyphosate, and picloram) under the Burns District's Noxious Weed Management Program EA (OR-020-98-05) and the Vale District Five Year Integrated Weed Control Plan (OR-030-89-19).

Under the proposed action, herbicide treatments within the project area could include the currently available herbicides plus the following products: Plateau (Imazapic), Telar XP (chlorsulfuron), Transline (clopyralid), Oust (sulfometuron methyl), Weed Blast (bromacil+diuron), and SpraKil SK-26 (tebuthiuron + diuron). The product to be used on individual infestations would be determined based on weed species, phenology, type of location, status of desirable vegetation present and environmental conditions. (Appendix B – Table 5)

Appendix B - Tables 7-13 summarize the effects to all resources for the additional herbicides proposed for use in the ES/R plans.

On the Burns and Vale Districts, as part of standard operating procedure areas burned by wildfire are monitored for at least two years post-fire. Any weeds found are treated using the most appropriate methods. Treatment areas are monitored annually to document efficacy and determine additional treatment needs. Where herbicide treatments are necessary, using these new products, either alone or in combination with other currently available products, would provide us the best tools available to ensure effective, timely management of noxious weeds in this area. By controlling

noxious weeds, we enhance the potential for success of rehabilitation of the project area following the disturbances from the 2012 wildfires.

Aerial seeding would have no adverse impact on noxious and invasive weeds. This is a no-impact action and would not create ground disturbance, nor would it track in weed sources from outside the perimeter of the fire due to vehicle use. Establishing native and desirable non-native species would prevent the introduction and spread of weedy species by preventing access to limited resources.

Ground seeding has the potential to increase the number of noxious and invasive weed species within the perimeter of the fire. The ground disturbing nature of the activity creates a hospitable environment for weed seed to establish. The use of vehicles off road increases the potential of weed seed being transported into previously uninfested areas. Vehicles are vectors for weed infestation. The risk of introduction and spread of noxious and invasive weed species is negligible compared to the benefit resulting from establishing native and desirable non-native species. Following the project design features would mitigate the majority of the risk; however, the risk of spread would still exist.

Noxious and invasive weeds could be transported via the vehicles used to construct and/or place erosion control structures. The risk of introduction and spread of noxious and invasive weed species is negligible compared to the benefits to the safety of human life and property and the prevention of soil loss. Following the project design features would mitigate the majority of the risk; however, the risk of spread would still exist.

Road protection and maintenance could contribute to the introduction and spread of noxious and invasive weed species through vehicle during these activities. The risk of introduction and spread of noxious and invasive weed species is negligible compared to preventing unauthorized off road travel by vehicles that have not been cleaned and would therefore have a higher potential to introduce and spread noxious and invasive weed species. Following the project design features would mitigate the majority of the risk; however, the risk of spread would still exist.

Noxious and invasive weeds could be transported via the vehicles used to construct, repair or maintain fencing and other range improvements; however, the risk is negligible compared to the benefit of preventing unauthorized use by livestock and wild horses which could lead to over utilization and a further increase in the introduction and spread of noxious and invasive weed species. Following the project design features would mitigate the majority of the risk; however, the risk of spread would still exist.

Biological thinning via the use of livestock to reduce the vigor and quantity of noxious and invasive weed species (fine fuels from annual grasses), potentially can be synergistic with herbicide treatments because it decreases the amount of herbicide necessary to treat current and future infestations and decreases the risk to native species from herbicides. Livestock can be vectors for the introduction and spread of

noxious and invasive weed species, however, diminishing the vigor and quantity of Medusahead and cheatgrass outweighs the possibility of infestation. Monitoring and treatment on a regular basis for noxious and invasive weed species would occur on an annual basis further reducing the risk of establishment and spread.

Management of livestock moves and potential closures to grazing until objectives are met would prevent the spread of noxious and invasive weed species by allowing native and desirable non-native species time to establish and develop. Healthy, desirable vegetation is more competitive against weedy species than vegetation that is stressed due to utilization before it can properly establish.

The ARS proposed study plots and sagebrush/bitterbrush planting would not affect or be effected by treatment of noxious weeds. These sites, when identified would be avoided during treatments. ARS would be responsible for monitoring and treating weeds within and on routes leading to the sites.

The risk of noxious weed introduction would be minimized, during the infrastructure repair and replacement, by ensuring all equipment (including all machinery, ATVs, and pickup trucks) is cleaned prior to entry to the sites, minimizing disturbance activities, and completing follow-up monitoring, to ensure no new noxious weed establishment occurs. Should noxious weeds be found, appropriate control treatments would be performed in conformance with the 1998 Burns District Noxious Weed Program Management EA/DR OR-020-98-05, the Vale District 5 Year Integrated Weed Control Plan (OR-030-89-19), or a subsequent decision.

The CEAA for this analysis is the area within a four-mile distance of the perimeter of the Buzzard Complex Fire boundary. Livestock and permittees move from pastures outside the fire perimeter to areas within the fire perimeter. It is possible that wind-borne weed seeds could travel farther than that to land in areas burned during the wildfire. Recreational activities such as hunting occur throughout this area as well. The use of Off-Road Vehicles is widespread and has the potential to be a vector of invasive and noxious weeds in the burned area.

The combination of bare ground, ample nutrients, and sources of seeds means that the likelihood of noxious weed invasion into the burn is high; particularly where there are healthy noxious weed seed sources within the vicinity and directly adjacent to the burned areas or where the fire burned less intense and natives are stressed. Elevations below 5000’ tend to be more susceptible to invasion from invasive and noxious annual grasses and weeds.

Noxious weeds are the first plants to reestablish following a wildfire and take advantage of the vulnerability of the fire weakened and stressed desired species. In the Great Basin it has been found, by research and management, that once annual grasses ecologically dominate a plant community and establish shorter fire return intervals, the plant community is unlikely to return to a native plant community. Additionally, annual grass communities are known to transition to other noxious weed dominated communities. The objective of the noxious weed treatment and survey is to continue

treating previously known infestation sites and identify and treat new sites to halt the spread of noxious weeds in the burned area. The identified weeds are present in the burned area and if not treated, are expected to increase due to the removal of existing vegetation by the Buzzard Complex Fire. Past treatments in the area have been relatively successful and by continuing to inventory and treat infestation and introductory sites the frequency of noxious weeds is expected to be reduced.

The most likely sources of new noxious weeds are vehicles, people, animals, wind and water. An aggressive early detection-rapid response action is a priority for the BLM to ensure that other noxious weeds and annual grasses do not establish within the burn perimeter. Treating newly discovered noxious weed infestations would help the burned area recover with desirable vegetative species. Treatment of new, small, noxious weed infestations is more likely to be successful than treating large established infestations. Treating noxious weeds on the public lands is expensive. It only becomes more expensive as infestations are allowed to become established and expand. The BLM would use the most applicable approved herbicides to treat weed infestations. Herbicides and adjuvant would be used in compliance with label instructions.

Roads are particularly susceptible to new introductions of weeds and spread of existing infestations through normal vehicle traffic as well as traffic associated with suppression efforts on the fire. Treatments that keep the roads free of weeds should be a high priority. New introductions can spread quickly in disturbed areas infesting previously weed-free areas. Livestock and wildlife are known to spread weed seed as they move across the area. Areas where livestock and wildlife congregate, such as reservoirs and mineral sites, are in a state of constant disturbance and thus more susceptible to new weed introductions.

6) ***Areas of Critical Environmental Concern/Research Natural Areas***

Affected Environment

The Stockade Mountain Area of Critical Environmental Concern/Research Natural Area (RNA) is located within the Saddle Draw fire perimeter. The 1,767 acre RNA was designated for the vegetation plant cell of western juniper/big sagebrush/bluebunch wheatgrass and low sagebrush/Sandberg's bluegrass as well as wildlife habitat. There are a few small patches of western juniper remaining in the RNA, but the majority (90-95%) burned in the fire. RMP management direction for RNAs states, "Following wildfires, RNAs will be allowed to revegetate naturally. Small areas may be seeded with native species, if the relevant and important values of the RNA will be enhanced. Nonnative species will not be used in an RNA for vegetation rehabilitation." (RMP/ROD pg. 68)

Alternative A: No Action

If the no action alternative is implemented livestock grazing would continue within the fire perimeter including the Stockade Pasture for which the Stockade Mountain RNA is located. Animals would continue to be allowed to graze the area as they have in the past. Studies have found livestock prefer green vegetation to cured vegetation since it is more nutrient rich; cured stems have lower crude protein and digestibility levels (Ganskopp and Bohnert 2005). This behavior has been observed by both livestock and wild herbivores (Ganskopp et al. 1992). Herbel and Nelson (1966) found cattle would often graze plants with both green and dry portions, but they would try to select for the green portions and the dry portions would often drop out of their mouth. This preference for green stems can result in livestock often grazing the same area year after year, and multiple times in the same grazing season, in order to take advantage of the higher quality forage, resulting in damage to the plants that are repeatedly graze, resulting in loss of vigor or decadence of the grazed species. Since the Saddle Draw Fire removed all cured vegetation (with the exception of vegetation on unburned islands) livestock use would prevent full recovery of the burned area. Due to the decreased vigor this would also result in increased niches for weedy species.

In summary continued livestock grazing in the RNA would not allow the native bunchgrasses to recover naturally, reducing vigor and possibly allow for the introduction of invasive plants into the RNA. This would degrade the quality of the plant communities for which the RNA was designated.

Alternative B: Proposed Action

The proposed action would implement a temporary livestock grazing closure of two growing seasons or until objectives are met, in the Stockade pasture for which the Stockade Mountain RNA is located. This closure would allow the native vegetation to recover naturally, creating vigorous bunchgrasses that are resilient to the invasion of invasive plants. Through time native shrubs and western juniper will reestablish and the vegetation communities for which the RNA was designated would function naturally.

There are no other actions proposed in the vicinity of the Stockade Mountain RNA, thus there are no further affects from Alternative B. Alternative B, when compared to Alternative A, would be more beneficial to the Stockade Mountain RNA because it would have a quicker recovery of the native vegetation and create native vegetation communities more resilient to invasive plants.

Cumulative Effects

For the purposes of this analysis, the CEAA for the Stockade Mountain RNA is the RNA boundary. Past and present actions, and RFFA such as those described in Affected Environment, have influenced the existing environment within the CEAA.

RFFAs in the CEAA that may contribute to cumulative effects to the RNA include livestock grazing, wildlife use, hunting and other recreational pursuits, and wildfire.

7) Riparian Zones, Wetlands, Fisheries, Water Quality, and T&E Aquatic Species

Affected Environment

The Buzzard Complex Fire burned portions of the Upper Malheur, Lower Owyhee, Harney-Malheur Lakes and Alvord Lake subbasins.

For the purpose of this analysis, the CEAA for water quality, wetland/riparian areas, and special status species fish extends to the sub-watershed level around the Buzzard Complex Fire. This encompasses all of the following sub- watersheds (6^{th} field Hydrologic Unit Code (HUC)):

> Virginia Valley, Sunrise Valley, Quail Creek- Folly Farm Flat, Long Hollow, Warm Springs Reservoir, Winnemucca Creek-Malheur River, Camp Creek, Indian Creek, South Fork Reservoir-South Fork Malheur River, Deadman Creek, Pole Creek – South Fork Malheur River, Beaver Creek, Little Crane Creek, Lower Crane Creek, Swamp Creek, Rock Creek- South Fork Malheur River, Coleman Creek, McEwen Creek – South Fork Malheur River, Star Creek, Upper Stinkingwater Creek, Little Stinkingwater Creek, Middle Stinkingwater Creek, Lower Stinkingwater Creek, Cottonwood Creek – Malheur River, Gold Gulch – Malheur River, Lower Granite Creek, South Fork Malheur River, Upper Butte Creek, Wildcat Creek, Lower Butte Creek, Upper Crowley Creek, Lower Crowley Creek, Sutton Creek, Duck Creek, Turnbull Dry Lake, Piute Lake, Burnt Flat Creek, Road Canyon, Rock Creek – South Fork Malhuer River. This CEAA is 853,749 acres, of which 447, 520 acres are administered by the BLM. Of this, 211,953 acres are in the Burns District and 235,567 acres are in the Vale District

Within the CEAA, BLM manages 1,349 miles of ephemeral and intermittent streams (569 in Burns District and 780.3 miles in Vale District), and 41.3 miles of perennial streams (26.4 in Burns District and 14.9 miles in Vale District). In the Riley Field and Beaver Creek burned areas, the fire did not burn appreciably into the riparian zones of the perennial fish bearing streams with the exception of Little Stinkingwater Creek. Within the Saddle Draw burned area, riparian areas have not been assessed at this time. Riparian areas will be assessed in the future and will be evaluated for stabilization and rehabilitation needs.

Within the Buzzard Complex perimeter, BLM manages 647.3 miles of ephemeral and intermittent streams (187.5 in Burns District and 459.8 miles in Vale District). There are 18.3 miles of perennial streams, of which 7.5 miles are in the Burns District and 10.8 miles are in Vale District.

Riparian

The majority of perennial stream reaches on BLM-administered land in the CEAA that have been degraded in the past have been evaluated to determine Proper Functioning Condition (PFC). PFC (BLM 1998a) provides an assessment of the system potential to provide for water quality, fish and wildlife habitat, aesthetics, and forage. PFC is a qualitative assessment that considers hydrology, vegetation, and soil/landform attributes and rates riparian function as:

- PFC: *Riparian-wetland areas are properly functioning when adequate vegetation, landform, or large woody debris is present to dissipate stream energy associated with high waterflows, thereby reducing erosion and improving water quality, filter sediment, capture bedload, and aid in flood plain development; improve flood-water retention and ground-water recharge; develop root masses that stabilize streambanks against cutting action; develop diverse ponding and channel characteristics to provide the habitat and the water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses; and support greater biodiversity.*
- Functional At-Risk (FAR): *Riparian-wetland areas that are in functional condition, but an existing soil, water, or vegetation attribute makes them susceptible to degradation*. Stream reaches determined to be FAR are further assessed for Trend – upward, not apparent, or downward.
- Nonfunctioning: *Riparian-wetland areas that clearly are not providing adequate vegetation, landform, or large woody debris to dissipate stream energy associated with high flows, and thus are not reducing erosion, improving water quality, etc*.

PFC does not necessarily equate to potential natural community, advanced ecological status or desired future condition. Rather, PFC demonstrates the level of resilience required for system function that allows for maintenance and recovery of various values such (e.g., water quality and fish habitat). As shown in Table 21, 86 percent of the stream lengths assessed in the CEAA within Burns District boundary were PFC and contain the attributes necessary for riparian maintenance or recovery. The stream reaches assessed as FAR and Nonfunctional were characterized as limited by the type or amount of riparian vegetation. A Vale District riparian monitoring/evaluation has not been completed for streams within the Saddle Draw fire perimeter, with the exception of the South Fork of the Malheur River.

Table 9: PFC Assessment for Burns and Vale District BLM reaches of streams within the Riparian/Fish/Water Quality CEAA

Sub-Watershed (6th field HUC)	Stream	PFC (miles)	FAR/Trend (miles)	Nonfunctioning (miles)
Little Stinkingwater Creek	Little Stinkingwater Creek		0.6 – Not Apparent	
Little Crane Creek	Little Crane Creek	2.5		
Coleman Creek	Coleman Creek	5	0.25 - Upward	
Rock Creek -South Fork Malheur River	South Fork Malheur River	2.2		
Pole Creek – South Fork Malheur River	South Fork Malheur River	0.8		
Upper Malheur – Warm springs Reservoir	Warm Springs Creek	3.7	1.6 - Upward	
	Stockade Creek	1.3		

Fisheries

Six streams within the fire perimeter (Coleman Creek, Little Stinkingwater Creek, South Fork Malheur River, Warm Springs Creek, Swamp Creek and Deadman Creek) are considered habitat for Great Basin redband trout (Oncorhynchus mykiss ssp.), a Bureau tracking species and state sensitive-critical species in Oregon. One additional stream is found outside of the fire perimeter, but within the CEAA (0.86 miles of Stinkingwater Creek). The populations in Coleman and Swamp Creek are isolated from other redband trout in the South Fork Malheur River basin and it is a priority to maintain these populations. Redband trout prefer cold, clear, fast-flowing water with clean cobbles and gravels. These trout are adapted to the dry, hot summers of eastern Oregon and can withstand short periods of time at peak water temperatures of 24.0 to 27.0 °C (75.0 to 80.0 °F), which would be lethal to most other trout (Bowers, et al., 1979). Fish habitat data, beyond riparian assessments and water quality data has not been collected on the streams within the CEAA.

Water Quality

Water quality is monitored to assess whether the quality of the water resources in this BLM District are adequate for fish, recreation, drinking, agriculture, as well as other uses. The Oregon Department of Environmental Quality (ODEQ) has established the water quality standards for the State of Oregon that are designed to protect the most sensitive of these multiple uses. In this case redband trout is designated as the most sensitive use and to which the standards are based upon. The summer stream temperature standard for streams within the CEAA is 68˚ F.

Little Crane Creek: Water temperature data collected in 2010 indicates attainment of the standard for summer stream temperature, except at the lowest site, where Little Crane Creek leaves BLM administration, which slightly exceeded the standard during the week of June. The water temperature increase at this site presumably coincides with the peak runoff period in the watershed. During peak summer air temperatures, the standard was met.

Little Stinkingwater: Water temperature data were collected in 2010 and 2011 at three sites. Data collected at all three sites fell between 74.9˚ F and 76.2˚ F each year, exceeding the 68˚ F standard.

Coleman Creek: Temperature data was collected at elevations 4,920 feet, 4,120 feet and on an unnamed tributary of Coleman Creek at elevation 5,080 feet during the summer of 2005 and 2006. The data indicates exceedance in the tributary and at 4920 feet elevation. The temperature standard was met at the lowest site (elevation 4,120 feet) in 2005 and slightly exceeded the standard in 2006 during the week of July 21.

South Fork Malheur River: Stream temperature data was collected at two sites in 2008 and 2009. Data indicated exceedance well over the 68º F standard, with a maximum temperature reaching 80 ˚ F in 2009.

Warm Springs Creek: Temperature data was collected from 2002 to 2005. Data collected indicates the exceedance of water temperature standard in 2002, 2003, and 2005. In 2004, the site was dry by the end of April and the thermograph recorded air temperature.

Within the Saddle Draw fire perimeter there are 38.09 miles of stream identified on Public and non-federal lands by Oregon DEQ as water quality impaired (ODEQ, 2010). Approximately 18 miles are located on BLM and 20 miles on non-federal ownerships. These impairments were identified for flow and habitat modification. Streams identified as water quality impaired in the Upper South Fork Malheur River watershed (HUC 1705011608) are Deadman Creek, Pole Creek, and the South Fork of the Malheur River. The South Fork of the Malheur River reaches located in the Lower South Fork Malheur River watershed (HUC 170511610) are also listed as water quality impaired. Water temperature data is not available for Pole and Deadman Creeks or the South Fork of the Malheur River within the Saddle Draw fire perimeter.

Environmental Consequences

Alternative A: No Action

Objectives of the Bureau of Land Management's ESR program to mitigate the adverse effects of fire on the local resources in a cost effective and expeditious manner would not be met under this Alternative

Soils exposed after a fire are prone to erosion. The combination of vegetative loss in riparian areas along with upland vegetation loss could include compromising bank stability, down cutting, and channel migration in the lower less confined reaches. Displaced soils would be deposited within channels silting over gravelly areas that are important nesting spots for salmonid species. Increased stream temperatures caused by sediment absorption of light can reduce dissolved oxygen in water.

Wildfires also promote the spread annual grasses and noxious weeds. In the Buzzard Complex, Medusahead grass and cheat grass in particular promotes greater fire return intervals because it is highly flammable and increases fuel loads across the landscape. Under the no action alternative, annual grass would increase in dominance in and around the fire perimeters. Effects of increased annual grass populations to water quality and riparian zones would occur from multiple, repeated wildfire disturbances occurring over a broad timeframe. As fire frequencies increase across the landscape, potential impacts to water quality from increased erosion and turbidity would occur more frequently.

Roads damaged by firefighting equipment commonly are in close proximity to both perennial and intermittent streams occasionally intersecting at undeveloped locations. Unstable roads consist of loose soils and dust that are subject to transport via wind or water erosion resulting in deposition into nearby channels. Under the No Action Alternative, roads would not be evaluated and stabilized to prevent decay of the roadbed resulting in an increase in deposition into waterways.

Alternative B: Proposed Action

The herbicide application design features would minimize impacts to riparian vegetation and water quality. Impacts would be minimized in perennial and intermittent streams because they are protected by 10-foot (ground-hand), 25-foot (ground-vehicle), and 100- foot (aerial) buffers (1991 Vegetation Treatment on BLM Lands FEIS, p. 3-43). Impacts may occur, however, in ephemeral streams, which often do not have buffers. Herbicides applied directly to them usually are picked up in stream flow by the first storm large enough to create flow in the channels. The 2007 National Vegetation FEIS pp. 4-28, Table 4-9 quantifies the off-site movement potential of the chemicals incorporated in the Proposed Action. Even if a herbicide has runoff or leaching potential, the likelihood of it reaching a water body also depends on site characteristics. For example, if a persistent herbicide with a high potential for leaching to groundwater was used at a site with low annual precipitation, and the depth to groundwater was over 100 feet, the overall potential for that herbicide to reach groundwater before degrading would be quite low (2007 National Veg. FEIS, pp. 4-26). General site characteristics of the proposed project area coupled with current buffer protections help to minimize accidental direct application or drift at concentrations high enough to impair water quality.

Fisheries and water quality within and downstream of the Buzzard Complex Fire perimeter may be impacted through direct or indirect contact or ingestion of chemicals or exposed plant, water, or animals, including insects. However, the proposed herbicides have a wider treatment window, allowing more flexibility in timing of treatments in order to avoid vulnerable periods for wildlife. Based on the findings of the Ecological Risk Assessments, following Standard Operating Procedures, the potential risk to fishes from ingestion or direct contact or depreciation of water quality would be negligible, especially at the population or watershed level. Effects by herbicide on resources are identified in Table 7-13, Appendix B.

As long as standard operating procedures for stream buffering and chemical application are followed (See Appendix C for Standard Operating Procedures for herbicide application) there is no measurable risk to water resources and wetlands/riparian areas.

The proposed action aims to reduce upland erosion and sediment delivery caused or exacerbated by the Buzzard Complex wildfire by seeding both native and native/non-native seed mixes into the burned area then further protecting these areas with herbicide applications as needed. The seed mixes proposed would not compete with existing riparian vegetation and are not expected to inhibit the return of woody species in the effected riparian zones. To that end, the Proposed Action, in general, would minimize negative effects to water quality and riparian zones from the wildfire by taking action to reduce erosion. Benefits to riparian and aquatic environments would occur from the upland treatments designed to stabilize soil, minimize rill and gully erosion, and protect streambanks. The sooner perennial vegetation is established and the denser it is, the smaller the chances of an erosion event.

Road stabilization proposed as a result of the Buzzard Complex Fire includes placement of rock, blading, shaping, cleaning of ditches, and rolling. All of these activities are expected to increase the amount of loose soils and dust in the area, however, stabilization activities would be short term and localized. Additionally under the Proposed Action, these activities would be in concert with the installation of sediment trapping devices on roadsides, ditches and instream floodplains and channels. These devices would catch and store sediment limiting movement into streams. The proposed grade dips would allow water to pass through the road via very coarse stones set in the roadbed and overtopped with smaller rock and fine materials. These grade dips, installed on intermittent road crossings would also slow water flow reducing down cutting and trap sediments during spring runoff and summer thunderstorms.

Adding large wood into the stream and floodplains will aid in capturing and storing sediment, reducing downstream sedimentation and dissipating high stream flows. Large Wood (juniper) added to sites which are designated by a hydrologist or fish biologist to be appropriate for the given channel type, would slow the water velocities at the site, which in turn would lead to fine sediment depositing. The large wood debris would also encourage flows onto on the flood plain, further dissipating stream energy.

The lasting effects from the Proposed Action and RFFAs include improved hydrologic function of the watershed as the site becomes re-vegetated with desirable species. Treatments for soil stabilization would protect water quality by minimizing erosion and post-fire sediment delivery to stream channels.

Biological thinning, seeding, planting and other upland treatments would have no direct effects on fisheries riparian water quality, or floodplains.

Past, present and RFFAs in the CEAA that may contribute to cumulative effects to water quality, wetland/riparian areas and redband trout include livestock grazing, fishing, wildfire, sediment load from road crossings, prescribed burning, riparian planting, riparian exclosures, and rehabilitation seedings. Livestock grazing and wildfire are activities that are expected to occur over the long term (more than 20 years). Sediment loading from road crossings is planned to be addressed and corrected as funding allows. There are no current quantitative estimates through monitoring as to how much sediment is being delivered from these sources.

8) Social and Economic Values

Affected Environment: Social and Economic Values

Livestock raising and associated feed production industries are major contributors to the economy of Harney and Malheur counties. The highest individual agricultural sales revenue in Harney County is derived from cattle production (65 percent), which is inextricably linked to the commodity value of public rangelands. The cattle industry provided $54,553,000 in sales in Harney county in 2011 and $57,442,000 in 2012 [Oregon State University (OSU), Extension Service, 01/24/2014]. In Malheur County, livestock production accounts for 49% of total county agricultural commodity sales (OSU Extension Service, January 2011). Cattle industry sales increased from $134,966,000 in 2010 to $154,108,000 in 2012 (preliminary figures, report OSU, April, 2013), a majority of which is at least partially generated through public land grazing. Malheur County led the state of Oregon in production of number of head of cattle/calves (200,000 or 16% of the total Oregon production, Oregon Extension Service, 2012)

"Quality of life" is very individual when determining what is valued in a lifestyle and what features make up that lifestyle. Lifestyle features can be determined by historical activities of the area, career opportunities and the general cultural features of the geographical area. Quality of life issues are subjective and can be modified over time with exposure to other ways of living. Recreation is a component of most lifestyles in the area within and adjacent to the Buzzard complex fires and includes driving for pleasure, camping, backpacking, fishing, hunting, hiking, horseback riding, photography, wildlife viewing, and sightseeing. These activities contribute to the overall quality of life for residents. Primary recreation activities in the area are deer, chukar and antelope hunting, all-terrain vehicle (ATV) use, and camping. Other recreation activities are fishing, rock-hounding, photography, wildlife viewing, wild horse viewing and driving for pleasure.

In addition to local recreation use, the undeveloped, open spaces in the county are themselves a tourist attraction and contribute a "sense of place" for many. The attachment people feel to a setting, typically through a repeated experience, provides them with this sense of place. Attachments can be spiritual, cultural, aesthetic, economic, social or recreational.

Tourism also contributes revenue to local businesses. The Steens Mountain area is central to Harney County tourism. A 2007 study found local economic effects associated with recreation visits to Malheur National Wildlife Refuge totaled approximately 4.4 million dollars during 2006 (Carver and Caudill 2007). Hunting and other types of dispersed outdoor recreational experiences contribute to the local economy on a seasonal basis. Fee hunting and recreation alone contributed $110,000 to Harney County in 2009 (http://oain.oregonstate.edu, 2009).

The communities of Crane (Harney County) and Juntura (Malheur), Oregon are the nearest to the four Buzzard Complex fires. Both unincorporated communities are centers for the local, rural ranch and farm families and other residents. Crane provides a post office, service station, café and tavern and farm supply store. Juntura offers lodging and a restaurant, small store, and a post office. During the spring and summer, visitors enjoy hiking, camping, and wildlife viewing. During the fall hunting season, the region is a popular destination for hunters of several game species including deer, antelope, elk, quail, chukar, and big horn sheep.

Riverside, Oregon is a very small lotted community adjacent to the burned area, at the confluence of the South Fork and Mainstem Malheur rivers, and along the retired railroad. Riverside provides no services, but residents have been impacted by the 2014 fires.

The Oregon Department of Fish and Wildlife managed significant private lands along the Malheur River, down river from the burned areas. There is a small wayside rest area at the confluence of the South Fork and Mainstem Malheur rivers. ODFW managed State lands in the area for wildlife conservation, including small farmed pastures. The rest area is used for camping, fishing and boating down river. Fishing is popular just downstream from the Warm Springs Dam.

Currently affected allotments are licensed for approximately 25,000 AUMs among all allotments impacted by the fires at $1.35/AUM (subject to change on a grazing year basis).

Environmental Consequences: Social and Economic Values

Effects Common to both Alternatives:

The CEAA for this project is eastern Harney County and western Malheur County. RFFAs such as grazing, recreational pursuits, noxious weed treatments and prescribed burning to reduce hazards fuels and restore habitat would continue under both alternatives. It is expected that road maintenance would continue to occur on primary State, private and BLM routes. The Warm Springs dam management and maintenance is conducted throughout the year, particularly during the irrigation season. Warm Springs Irrigation District has proposed improvements to the dam for developing hydro power. Implementation of either of the alternatives in combination with the above listed RFFAs is not expected to measurably contribute to cumulative effects.

Alternative A: No Action

Under the No Action Alternative, the area affected by the Buzzard Complex fires would be left to reclaim naturally. If left to reclaim naturally, it is expected invasive species and noxious weeds such as Medusahead would establish and spread. Annual grasses such as cheat grass are fine fuels that are easily ignited and quickly spread. These traits lend to a shorter fire return interval which can reduce the multiple-use values of the area.

Invasive annual grasses were present in many areas of each of the four Buzzard Complex fires. Without treatment, the existing seed bank may out-compete remaining native bunchgrasses and displace forb and sagebrush recovery, further reducing the forage value for livestock production. Invasive annual grasses are among the earliest grass species to green up during the spring. Consequently, surface moisture typically used by native grasses is used by invasive annual grasses prior to native grasses coming out of dormancy.

Medusahead is a poor forage species for both livestock and wildlife. If not treated, range conditions would decline as this species begins to dominate native plant communities. Because of the low forage quality of Medusahead, carrying capacity for all demands, including wildlife, within the fire perimeters and beyond would decline as desirable species are replaced with aggressive noxious weeds. According to the FEIS for Vegetation Treatments using Herbicides on BLM Lands in Oregon, July 2010, livestock carrying capacity could be reduced by 35 to 90 percent from weed infestations lowering yield and quality of forage (page 321).

As a result of a shift in vegetative communities to more of an annual component, the potential exists for rangelands to move toward a downward trend. Poorer range conditions could lead to lower weaning weights or a reduction in overall cattle numbers, affecting the economics of the affected ranchers, as well as the chance of the BLM permanently reducing permitted AUMs on the allotments.

The Federal government would not collect grazing permit fees from the permittees until monitoring indicates livestock can resume grazing.

No construction supplies or proposed action-related services would be purchased from local vendors under this alternative; however, it is expected that local residents would be hired to augment the existing workforce in addition to opening other contracting opportunities.

At the same time, public lands in and around the burned areas would continue to contribute social amenities such as open space and recreational opportunities (including hunting, hiking, sightseeing, and camping). As the burned areas reclaim naturally, it is expected that an early reduction in recreation use would increase to preborn levels. These amenities enhance local communities and tourism, though the specific contribution of these allotments is not known.

Herbicides which were made available to apply on invasive annual grasses and noxious weed species on public lands (BLM, 2010) would not be allowed under the No Action alternative, leaving the area vulnerable to future wildfire events, particularly with regard to invasive annual grasses like cheatgrass and Medusahead. Without the use of effective chemicals to reduce these invasive plants, BLM and surrounding lands would be affected in a variety of negative ways. Infestations can reduce recreational land values and the spiny species can cause human health problems (FEIS, Vegetation Treatments Using Herbicides on BLM Lands in Oregon, 7/2010, page 321). In addition, invasive plants can have a negative effect on observation-based tourism, as the wildlife and wildflowers that people come to enjoy and photograph are crowded out by invasive plants (FEIS, page 321). Significant investment is being made on adjacent private and State lands, using the herbicide Imazapic to control infestations of cheatgrass and Medusahead. Under the No Action alternative, seed of these species are expected to germinate and subsequently drift to adjacent land ownerships, impacting productivity on these other ownerships.

Road maintenance proposed in the Riley Field and Buzzard burned areas in Burns District would not be implemented as aggressively as in the Proposed Action, impacting visitors and ranchers who rely on roads in the area. However, decreased access may be perceived by some members of the public as a benefit by adding to experiences of solitude.

Alternative B: Proposed Action

BLM employees and contractors executing the ESR plan would be expected to boost the local and broader regional economy for the three years that the plan is expected to require for completion.

Further, non-resident contractors would use facilities in the CEAA for supplies and lodging. Small economic increases during implementation of the proposed action are likely to occur for the more distant towns of Burns and Vale/Ontario. Both areas provide a broader range of services and supplies, including airports, and are anticipated to benefit from the ESR activities.

Under the proposed action seeding of desirable species that help stabilize soils and control invasive weeds would maintain good range condition, forage quality and carrying capacity for all demands.

This alternative could utilize contracts to rebuild existing fences and install temporary fencing, construct sediment traps, drill seed, aerially seed, and cleanout water catchments. To contract all rangeland improvements under this alternative the cost is estimated to be approximately $16,000,000. Contracting projects would provide economic opportunities for local contractors and suppliers.

The affected permittees would be required to find alternative forage for approximately 25,000 AUMs, until the seeded areas have met objectives and range improvements have been repaired. Replacement forage for 25,000 AUMs (Fair Market Value for

AUMs is between $17 and $25 [compared to BLM AUMs at $1.35/AUM]) which would cost approximately $425,000 using the lower AUM rate to replace the existing AUMs on an annual basis. Hay to replace the 25,000 AUMs would require approximately 6,250 tons (1 ton of hay per cow per 4 months or 0.25 ton per AUM). Current cost of hay is averaging $125 to $250/ton. The cost to feed hay to replace the AUMs would be approximately $781,250 to $1,562,500 plus labor on an annual basis.

No effects to a visitor's experience or opportunities are expected by implementing the Proposed Action.

Management of invasive plants affects the goods, services and uses provided by BLM lands (FEIS, page 321). The BLM would be perceived as a more equal partner in weed control efforts with the means to use a wider range of herbicides. Wildland fire-related costs could be reduced because of the additional invasive grass treatments (FEIS, page 325) and biological thinning. Biological thinning treatments would also foster partnerships between operators and the BLM.

Continued maintenance of roads would allow for continued enjoyment of driving for pleasure, hunting and grazing administration. However, some may feel the presence of roads within any area affects their solitude and their social values.

9) Soils and Biological Soil Crusts

Affected Environment

General Soils and Biological Crust Description – Buzzard Complex
With exposed soils due to loss of vegetation burned during the fire, the risk of soil loss due to wind or water erosion for all soil associations has increased. Rain events post fire have already produced rills and gullies on the steeper slopes.

Biological soil crusts (BSCs) such as mosses, lichens, micro fungi, cyanobacteria, and algae play a role in a functioning ecosystem, and are one of at least twelve potential indicators used in evaluating watershed function for uplands. In addition to providing biological diversity, BSCs contribute to soil stability through increased resistance to erosion and nutrient cycling (BLM Technical Reference 1730-2). Where native vegetation is dominant, BSCs are present and; conversely, where invasive, non-native species are present, especially mat forming annual grasses, BSCs are sparse or non-existent. Following wildfires, it has been documented that BSCs are reduced in abundance and occurrence (dependent on duration and intensity of the fire); however, when reseeded with native and/or desirable, non-native species, recovery and reestablishment would occur. When burned sites are invaded by invasive annual grass species such as cheatgrass and Medusahead, BSCs have been shown not to recover and reestablish (Hilty et. al. 2004).

Soils and Biological Crust within the Beaver Creek and Riley Field burned areas
Soils in the area are comprised mainly of five soil associations, Merlin-Observation-Lambring, Ninemile-Westbutte-Carryback, Raz-Braze-Anawalt, Felcher-Skedaddle and Gumble-Risnley-Mahoon. The Merlin-Observation-Lambring soil association consists of shallow to very deep soils with textures varying from very cobbly loam to extremely stony clay loams. They can be found on lava plateaus and hills, mountain and mountain back slopes with slopes of 0 to 70 percent and are the result of volcanic colluvium and residuum. These soil associations are well drained with very slow to moderate permeability which can lead to slight to moderate erosion due to water and slight erosion due to wind. The native vegetation associated with this association consists of: low sagebrush, big sagebrush, antelope bitterbrush, buckwheat, bluebunch wheatgrass, Idaho fescue, and Sandberg bluegrass. In areas where rock outcrop and extremely stony surfaces are present curl leaf mountain mahogany is the dominant plant. Maps 12BC and 12RF provide soil information in the burned areas in Burns District.

The Ninemile-Westbutte-Carryback soils are well drained, shallow and moderately deep soils that formed in residuum and colluvium and tend towards gravelly to very cobbly loams or stony to cobbly clays with areas of silty clay loam. They are found on plateaus, hills, and mountains that receive 12 to 16 inches of precipitation. Slopes range from 0-65 percent leading to a moderate hazard of water erosion. The associated native vegetation communities are mountain big sagebrush (*Artemisia tridentata vaseyana*) and low sagebrush (*Artemisia arbuscula*) with needlegrass species (*Achnatherum ssp)* and Idaho fescue (*Festuca idahoensis*).

The Raz-Brace-Anawalt association includes cobbly or stony loams that evolved on hills and tablelands. These soils are shallow to moderately deep, generally well drained, and have a low potential for wind erosion and low to moderate potential for water erosion. These soils of cold plateaus and uplands support native vegetative communities dominated by Wyoming big sagebrush, low sagebrush, needlegrass species ad bluebunch wheatgrass.

The Felcher-Skedaddle association consists of very shallow to moderately deep, well drained soils which formed in colluvium and residuum derived from andesite, basalt and volcanic rocks. Textures ranges from very stony clay loam to very cobbly loam. This series is found on mountains, hills and plateaus with slopes of 4 – 75 percent. Erosion potential is moderate for water and slight for wind. Native vegetation associated with this soil series includes: bluebunch wheatgrass, Thurber's needlegrass, Wyoming big sage, purple sage (*Salvia dorrii)* and squirreltail.

The Gumble-Risley-Mahoon soils association consists of shallow to moderately deep, well drained soils that range from very gravely and cobbly loams to very gravelly sandy loams. They are formed as a result of residuum and colluvium from tuffaceous siltstone and sedimentary rocks as well as from andesite, shale, sandstone and diatomaceous earth and are found on rock pediments, hills and tablelands. Slopes range from 2 to 50 percent. These soils have slow permeability with moderately low saturated hydraulic conductivity leading to moderate to very high surface runoff

making them highly susceptible to water erosion. Native vegetation associated with this soil series include: Wyoming big sagebrush, bluebunch wheatgrass, Thurber's needlegrass, Sandberg's bluegrass, squirreltail, basin wild rye.

Soils and Biological Crust within the Saddle Draw burned area

The burn area consists of soils typical of the arid lands region. No detailed soil survey data are available through a Natural Resource Conservation Service (NRCS) Soil Survey: however soil data are available for the BLM through a forth order soil survey developed by the Oregon State Water Resources Board and the Soil Conservation Service in 1969. The following information comes from, Oregon's Long-Range Requirements for Water General Soil information (State Water Resources Board, Malheur Drainage Basin, and Owyhee Drainage Basin 1969). Map 12SD provides general soil units in the burned area of the Vale District.

Within the fire perimeter 96 % (268,041 acres) of the soils consist of 5 classifications on all land ownerships within the Saddle Draw burned area. Unit 76 comprises 42% (117,855 acres), Unit 83 28% (77,441 acres), Unit 56 10% (28,820), Unit 84 8% (22,216 acres), and Unit 77 8 % (21,708 acres). A narrative of these soils is provided below The following classifications comprise less than 1% each within the fire and will not be detailed, Units 1, 30, 31, 41, 50, 55, 57, 75, 75L, 76L, 79, and S76 (see descriptions below). BLM lands comprised approximately 51% of the land. Of the BLM lands burned Unit 76 comprises 42% (60,467 acres), Unit 83 25% (35,505 acres), Unit 56 14% (19,453 acres), Unit 77 7% (9,376 acres), and Unit 84 9% (12,468 acres). Acreages were secured from BLM GIS sources.

UNIT 76 SOILS

42% of all lands within fire (117,855 acres)
42% of BLM lands (60,467 acres)

Unit 76 soils are shallow, clayey, very stony, well-drained soils over basalt, rhyolite, or welded tuff. They occur on gently undulating to rolling lava plateaus and some very steep faulted and dissected terrain. The native vegetation consists mostly of bluebunch wheatgrass, Sandberg bluegrass, big sagebrush and low sagebrush. Elevations range from 3,500 to 6,500 feet. Average annual precipitation is from 8 to 11 inches and mean annual air temperature centers around 45º F. Unit 76 soils are associated with Unit 55, 75, S75, 75L, S76, 76L, and 77 soils and Rock land. Unit 76 soils are used for range. Stones limit potential for rang seeding and they are too stony for irrigation.

UNIT 83 SOILS

28% of all lands within fire (77,441 acres)
25% of BLM lands (35,505 acres)

Unit 83 soils are shallow, very stony, well-drained soils over basalt, rhyolite or welded tuff. They occur on gently undulating to rolling lava plateaus with dome very steep faulted and dissected terrain. The vegetation consists mostly of Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass, low sagebrush, and bitterbrush. Unit 83

soils occur at elevations mostly above 5,000 feet but they occur as low as 4,000 feet on north slopes in northern Malheur County. Average annual precipitation is from 11 to 15 inches and mean annual air temperature centers around 43º F. Unit 83 soils are associated with Unit 75, 76, 82, and 84 soils. Unit 83 soils are used for range. They are too stony to be easily seeded and are unsuited for irrigation.

UNIT 56 SOILS
10% of all lands within fire (28,820 acres)
14% of BLM lands (19,453 acres)

Unit 56 soils are shallow, well drained soils with clayey subsoils and cemented pans. They occur on very extensive, gently sloping to moderately steep old fans on high terrace remnants. The native vegetation is big sagebrush, low sagebrush rabbitbrush, budsage, Atriplex spp., needlegrass, and squirreltail grass. Elevations range from 3,000 to 6,000 feet. Average annual precipitation is from 8 to 11 inches, and mean annual temperature centers around 47˚ F. Unit 56 soils are used for range. They have potential for range seeding, but irrigation suitability is limited by depth to hardpan, permeability, and slope. The temperature limitation is mostly strong, ranging to moderate near the Snake River to severe a higher elevations.

UNIT 77 SOILS
8% of all lands within fire (21,709 acres)
7% of BLM lands (9,376 acres)

Unit 77 soils are very shallow, very stony, rocky, well drained soils on undulating to rolling plateaus of basalt, rhyolite, or welded tuff. The native vegetation consists mostly of low sagebrush, big sagebrush, and Sandberg bluegrass. Elevations range from 3,500 to 6,000 feet. The average annual precipitation is from 8 to 11 inches, and mean annual temperature centers around 45˚ F. The average growing season (32˚) is from 50 to 100 days. Unit 77 soils are associated with Unit 75, and S75 soils and Rock land. Unit 77 soils are used for range. Depth and stoniness are main limitations. They have no potential for range seeding and are unsuited for irrigation. The temperature limitation is severe.

UNIT 84 SOILS
8% of all lands within fire (22,216 acres)
9% of BLM lands (12,468 acres)

Unit 84 soils are very shallow, very stony, rocky, well-drained soils over basalt, rhyolite, or welded tuff. They occur on gently undulating to rolling plateaus and very steep canyon lands and escarpments. The native vegetation consists mostly of low sagebrush, Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass, and juniper. Elevations are mostly above 5,000 feet, but they may range as low as 4,000 feet on north slopes in northern Malheur County. Average annual precipitation is from 11 to 15 inches and mean annual air temperature centers around 43º F. Unit 84 soils are associated with Unit 76, S76, 77, 82, and 83 soils. Unit 43 soils are used for range, but

their use is limited by stones, depth, and slope. They have little potential for range seeding and are unsuited for irrigation.

Environmental Consequences

The Cumulative Effects Analysis Area (CEAA) for soils and BSCs is the Buzzard Complex fire perimeter within the Burns and Vale Administrative Boundaries. The ongoing and RFFA impacts to soils and crusts on the BLM-managed land are livestock grazing, hunting and other recreational activities. Impacts by livestock would be temporarily mitigated by removal until objectives are met. Impacts by invasive species, in particular mat- forming annual grasses, would decrease recovery of BSCs and establishment of desirable native and non-native plant species. Emergency stabilization measures would increase establishment rates of native and desirable non-native plant species which would stabilize soils and increase the opportunity for BSCs to establish and/or expand.

After disturbance, BSCs can take anywhere from one year to more than 50 years to recover depending on the species. Mosses and cyanobacteria are the first to recover and/or reestablish (approximately 1-5 years), while soil lichens take longer, sometimes more than 50 years and may not recover or reestablish at all.

Alternative A: No Action

Under the No Action Alternative, soil stabilizing measures would not be performed leading to excessive erosion and loss of valuable top soil. Biological Soil Crusts would not have the opportunity to establish and/or expand from the remaining BSCs within the fire perimeter. With the loss of top soil and BSCs, there would be an increase in invasive and noxious weed species which could trend the site towards becoming annual grassland.

Alternative B: Proposed Action

Under the Proposed Alternative soil stability would be achieved through various measures. Soil stability would increase the potential for the reestablishment and expansion of biological soil crusts. Measures include:

a. Aerial Seeding

Beaver Creek and Riley Field Aerial Treatments
Aerial seeding on approximately 30,000 acres would occur at higher elevations (>4,700 ft.) and in areas where drill seeding is not possible due to terrain and accessibility. Mixes of native/desirable non-native grass species would be used, as would pure Mountain big sagebrush. Seeding would increase soil stability and prevent soil from becoming susceptible to over land flow and wind events by establishing ground vegetation and root systems. Increased soil stability and vigorous native vegetation would enhance the opportunity for

BSCs to reestablish by providing interspaces and allowing expansion from existing unburned sites within the fire perimeter.

Saddle Draw Aerial Treatments

Approximately 90% (8,285 acres) of the soils in the in the aerial seeding area are in the Unit 76, 64% (5,924 acres) and Unit 83, 25% (2,361 acres) soils classifications. Unit 76 soils are shallow, clayey, very stony, well-drained soils over basalt, rhyolite, or welded tuff. Unit 76 soils are less prone to erosion than other soils due to their clayey nature. Unit 76 soils are used for range. Stones limit potential for range seeding and they are too stony for irrigation. Unit 83 soils are shallow, very stony, well-drained soils over basalt, rhyolite or welded tuff. Due to the shallow nature of soils they are not as erosive as other soils. Unit 83 soils are used for range. They are too stony to be easily seeded and are unsuited for irrigation. Smaller percentages of soils in the classifications units 31, 75, 76, 77, and 84 are within the polygon.

b. Drill Seeding

Beaver Creek and Riley Field Drill Seeding Treatments

Drill seeding on approximately 8700 acres using a combination of native and desirable non-native species would increase vegetative establishment and stabilize soils. Stabile soils would allow the re-establishment and expansion of existing BSCs within the seeded area. BSCs occupy the same interspaces that annual grasses invade therefore, providing a hospitable environment for BSCs can prevent the spread of annual grasses into areas not previously affected. There would be some short term disturbance, 1-2 growing seasons depending on annual precipitation and annual vegetative growth, and loss to soils and BSCs with drill seeding; however, the short term losses are acceptable because the benefits resulting from the establishment of native and desirable non-native vegetation on soil stability and BSC establishment and spread would be long term, greater than 10 years.

Saddle Draw Drill Seeding Treatments

Eighty five percent of the Drill Seeding area is comprised of soils Units 56, 30% (3,121 acres) and 76, 55% (5,747acres). Unit 56 soils are shallow, well drained soils with clayey subsoils and cemented pans. They have potential for range seeding, but irrigation suitability is limited by depth to hardpan, permeability, and slope. Unit 76 soils are shallow, clayey, very stony, well-drained soils over basalt, rhyolite, or welded tuff. Clayey soils are less prone to erosion than other soils. Unit 76 soils are used for range. Stones limit potential for range seeding and they are too stony for irrigation.

c. Temporary Fence

Saddle Draw Burned area only

Temporary fence would be constructed to separate burned and unburned sections of 3 pastures in the two affected allotments, totaling approximately 15

miles. The fences would prevent extensive disturbance of soils and existing biological soil crusts within the burn perimeter while allowing grazing to occur on the unburned portions of these pastures. Soils and biological soil crusts within the burn perimeter are highly susceptible to disturbance through livestock use due to lack of stabile vegetation holding it in place so active management of livestock utilization is necessary until objectives are met.

While livestock become accustomed to the new barrier, there would be soil compaction and some loss of BSCs on the unburned side of the fence and within the pastures as new routes are established to access water and mineral sites. Soil compression resulting from livestock trailing would total less than one percent of the entire pasture and allotment area and is therefore an acceptable impact. An additional 25 miles of eight foot tall temporary fence would be constructed around the bitterbrush planting areas. These fences would protect the newly establishing bitterbrush from wildlife and livestock until they are no longer at risk from the impacts of browsing and/or grazing. Soils in these exclosures would not be subject to disturbance other than small rodents and would allow BSCs an opportunity to establish and/or expand from populations which escaped the impacts of the fire.

d. Catchment basin cleanout/Spring and trough repair/Fence, cattleguards, gate maintenance.

Buzzard Complex Area Maintenance

Maintenance of existing range improvements would have little to no lasting impact on soils or BSCs. In most instances, the areas where maintenance would occur would have already been disturbed through regular use, such as livestock and wildlife watering. Fence repair could have temporary impacts where vehicles are used to haul fencing and/or spring and trough supplies; however, these impacts would be short term (one to two growing seasons) while vegetation reestablishes.

Catchment basin cleanout would prevent the loss of soils through overland flow by allowing runoff to deposit sediment on site rather than downslope or across roads away from the where it is most needed. Areas around catchment basins are currently disturbed to the point where BSCs are generally not present. Impacts to crusts would only occur, if they were not lost in the fire, in the areas outside the existing disturbance. The impacts from vehicle traffic to and from catchment basins would outweigh the benefits of not allowing soil to leave the site.

e. Sagebrush Seedling Planting/Sagebrush Planting Experiments

Beaver Creek and Riley Field Sagebrush Treatments

Approximately 4000 acres of Wyoming big sagebrush is proposed for planting within the perimeter of the burned area. Methods include hand planting plugs, hand seeding, broadcast seeding followed by a roller and seeding encapsulated

sagebrush seed. Establishment of big sagebrush would improve soil stability and provide microhabitats for certain BSCs, specifically short and tall mosses. Soils would be disturbed during planting to varying degrees depending on the method chosen; however, these impacts would be negligible and unnoticeable within one growing season, or sooner depending on seasonal precipitation and sagebrush establishment. In most cases, BSCs would not be present in the seeding areas due to impacts from the fire therefore there would be negligible impacts to BSCs. Interspaces would be created providing the niches for other BSCs, such as collema, to reestablish and expand into from local (within 10 feet) unburned islands within the fire perimeter

Saddle Draw Sagebrush Treatments
Ninety percent (3,123 acres) of the soils in the sage planting area is within one soil Unit 76. Unit 76 soils are shallow, clayey, very stony, well-drained soils over basalt, rhyolite, or welded tuff. Clayey soils are less prone to erosion than other soils. Unit 76 soils are used for range. Stones limit potential for range seeding and they are too stony for irrigation.

f. Bitterbrush seeding

Beaver Creek and Riley Field Burned Areas
Approximately 2500 acres within the fire perimeter would be hand seeded with antelope bitterbrush in areas where it was present prior to the fire. Hand seeding this area would provide soil stability and provide microhabitats for BSCs, specifically tall and short mosses. Interspaces would be created providing niches for other BSCs, such as collema, to reestablish and expand into from local (within 10 feet) unburned islands within the fire perimeter. Soil stability would prevent overland flow and loss of soil.

g. Bitterbrush Planting

Saddle Draw Burned Area
Eighty seven percent of the soils within the bitterbrush planting area are comprised of two soils Units 56, 75% (4,743 acres) and Unit 76, 13 % (809 acres). Unit 56 soils are shallow, well drained soils with clayey subsoils and cemented pans. They have potential for range seeding, but irrigation suitability is limited by depth to hardpan, permeability, and slope. Unit 76 soils are shallow, clayey, very stony, well-drained soils over basalt, rhyolite, or welded tuff. Clayey soils are less prone to erosion than other soils. Unit 76 soils are used for range. Stones limit potential for range seeding and they are too stony for irrigation.

h. Weed Treatments – Other than Invasive Annual Grass Target species.

Weed treatments would provide another tool for soil stabilization by allowing native and non-native desirable vegetation an opportunity to establish which would assist in stabilizing soils and provide habitat for biological soil crusts.

Impacts to soils would be negligible from herbicides; however, there is very little information available which shows the impacts to biological soil crusts from use of herbicides. Any short term impacts to soils or biological soils crusts would be outweighed by the long term benefits of herbicides on noxious and invasive weeds by allowing native and non-native desirable vegetation to establish, stabilize soils and provide habitat. If sterilant is used along power line ROWs, soils would be more susceptible to erosion factors due to lack of vegetation to hold it in place. There is no research which shows impacts to BSCs; however, given the nature of a sterilant, it is reasonable to expect that if BSCs are present, they would be eliminated from the ROW.

i. Imazapic Treatments – Invasive Annual Grass Target

Weed treatments would provide another tool for soil stabilization by allowing native and non-native desirable vegetation an opportunity to establish which would assist in stabilizing soils and provide habitat for biological soil crusts. Impacts to soils would be negligible from herbicides; however, there is very little information available which shows the impacts to biological soil crusts from use of herbicides. Any short term impacts to soils or biological soils crusts would be outweighed by the long term benefits of herbicides on noxious and invasive weeds by allowing native and non-native desirable vegetation to establish, stabilize soils and provide habitat. If sterilant is used along power line ROWs, soils would be more susceptible to erosion factors due to lack of vegetation to hold it in place. There is no research which shows impacts to BSCs; however, given the nature of a sterilant, it is reasonable to expect that if BSCs are present, they would be eliminated from the ROW.

j. Check dams and Silt Basins. Installing soil stabilization mechanisms would prevent valuable topsoil from being redeposited across roadways and from being washed down drainages. Keeping soils on site to facilitate the recovery of native vegetation is a key component in post fire rehabilitation.

k. Road maintenance. Road maintenance within and directly adjacent to the fire perimeter would prevent unauthorized off road travel which would negatively impact fragile soils and BSCs and could increase erosion potential. Maintenance would occur within the boundary of the existing roadbed and would not impact soils within the constantly disturbed area. BSCs rarely survive in constantly disturbed areas such as regularly traveled roads and the roads within and directly adjacent to the Buzzard Complex fire are no exception. There would be no impacts to soil crusts as a result of road maintenance.

l. Closures. Closing of treatment areas within the burn perimeter would allow a rest period for soils and biological soil crusts during which they can begin to stabilize and re-establish. Closing the allotments, or portions thereof, would allow native vegetation to grow further stabilizing soils and providing habitat for biological soil crusts.

m. Biological thinning. Biological thinning would have minimal impacts on soils and would have long term benefits to biological soil crusts. Biological-thinning is another tool which can be utilized through the Burns District Weed Management EA which allows for integrated pest management. Utilizing livestock to reduce fine fuels and invasive and noxious weeds would increase native vegetation vigor in turn leading to soil stabilization and the establishment and/or expansion of BSCs. Livestock would be utilized at a time when impacts to soils and BSCs are minimal (when soils are not saturated and easily compacted). By utilizing biological thinning, invasive annual grass densities would be reduced and native vegetation, specifically bunch grasses, would have a greater opportunity to establish and provide the inner spaces necessary for the re-establishment of biological soil crusts.

n. Monitoring. Monitoring would have no impacts on soils or biological soil crusts.

o. ARS Research Plots. Impacts would be similar to those associated with sagebrush seedling planting and bitterbrush hand seeding.

The Cumulative Effects Analysis Area (CEAA) for soils and BSCs is the Buzzard Complex fire perimeter within the Burns and Vale Administrative Boundaries. The ongoing and RFFA impacts to soils and crusts on the BLM-managed land are livestock grazing, hunting and other recreational activities. Impacts by livestock would be temporarily mitigated by removal until objectives are met. Impacts by invasive species, in particular mat- forming invasive annual grasses, would decrease recovery of BSCs and establishment of desirable native and non-native plant species. Emergency stabilization measures would increase establishment rates of native and desirable non-native plant species which would stabilize soils and increase the opportunity for BSCs to establish and/or expand.

After disturbance, BSCs can take anywhere from one year to more than 50 years to recover depending on the species. Mosses and cyanobacteria are the first to recover and/or reestablish (approximately 1-5 years), while soil lichens take longer, sometimes more than 50 years and may not recover or reestablish at all.

10) Special Status Wildlife Species

Affected Environment

There are no known federally Threatened or Endangered species or federally designated Critical Habitat found within or in the vicinity of the Buzzard Complex (project area). The U.S. Fish and Wildlife determined that Greater Sage-Grouse (*Centrocercus urophasianus*) were warranted for listing, but precluded by higher priority listing actions (12-Month Finding) (Federal Register 75:55 (March 23, 2010) p. 13910). Greater sage-grouse (*hereafter* sage-grouse) are a Candidate species, and are managed under the BLM Special Status Species (SSS) direction guidance. The

BLM guidance is to conserve this SSS species and their habitats and shall ensure that actions authorized, funded, or carried out by the BLM do not contribute to the need for the species to become listed.

Several SSS occur or have potential habitat that was impacted by the wildfire and is in the project area, but only greater sage-grouse, a sagebrush obligate species, has documented occurrences and substantial acres of habitat lost due to the wildfire. In Land Mammals of Oregon (Verts and Carraway 1998, p. 129), the map of locations for museum specimens shows several locations that could be close to or within the fire perimeter. No dates or exact site descriptions are given for these collections. There have been no recent surveys within the Buzzard fire perimeter to indicate that pygmy rabbits are in the area. Changes in vegetation structure due to invasive annual grasses and more frequent fire may have caused pygmy rabbits to move from the area. The Buzzard fire may have reduced habitat so that any remaining rabbits would emigrate if close to the perimeter or be predated due to lack of vegetative cover for movements to suitable habitat adjacent to the fire. Due to the lack of sightings or negligible potential impact to their habitat, there would be no measurable effects to individuals or populations of pygmy rabbits and will not be carried forward in the analysis.

Pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), fringed myotis (*Myotis thysanodes*), and spotted bat (*Euderma maculatum*) are other SSS potentially occurring in the project area. However, these bat species have not been documented in the area, are not as strongly associated or solely dependent on sagebrush habitat, and typically roost in areas that are protected from fire. Additionally, these bat species are primarily active only at night, migrate out of the area in the fall, or some individuals may remain and hibernate through the winter; (Verts and Carraway 1998); therefore, SSS bats are not expected to be affected by the project and are not carried through for detailed analysis.

All (100%) of the project area is within Preliminary Priority (68.4%) or Preliminary General (31.6%) sage-grouse habitat, and there are 10 leks within the fire perimeter. Sagebrush is a critical habitat component for sage-grouse, especially in the winter when sagebrush constitutes more than 90% of their diet (Hagen 2011), (Weiss and Verts 1984). A few small, unburned "islands" of sagebrush within the fire perimeter may provide short-term refugia for some individuals, but the wildfire killed the vast majority of sagebrush plants. The burned area now provides virtually no cover and forage for this species. Most individuals that survived the fire and avoided predation immediately after the fire have been displaced into sagebrush steppe outside the fire perimeter. Sage-grouse may find limited forage near the edge of the fire, but most individuals are expected to avoid the area, especially during the winter months, until the sagebrush recovers to the extent it once again provides adequate hiding cover and forage. Sage-grouse have been observed returning to leks in burned areas in subsequent seasons, but the size of the area burned in the Buzzard Complex fire and distance to sagebrush cover would be expected to diminish or possibly eliminate use of existing leks in the burned area for several years or decades.

The "Greater Sage-Grouse Conservation Assessment and Strategy for Oregon" (Strategy) (Hagen 2011) has an action item to "Reduce negative impacts of wildfire on sage-grouse through prompt and appropriate habitat reclamation or rehabilitation." The Strategy recognizes the need for prompt and appropriate rehabilitation following a wildfire to prevent additional threats and damage to sage-grouse habitat and has the following conservation guidelines this rehabilitation from Page 101:

1) *Wildfires burning >10 acres of sage-grouse habitat should be evaluated to determine if seeding is necessary to recover ecological processes and achieve habitat objectives.*

    a) *If seeding is necessary, managers should use appropriate mixtures of sagebrush, native grasses and forbs and appropriate non-native perennials, that will increase the probability of recovering ecological processes and habitat features of the site.*

    b) *Wyoming big sagebrush sites should be re-seeded or planted with seedlings of Wyoming big sagebrush when available.*

    c) *Wildfires burning >10 acres of habitat that is at high risk of annual grass invasions should be seeded with an appropriate mixture to reduce the probability of cheatgrass establishment.*

2) *Although planting shrub species is more common now than in the past, sagebrush should be included in fire rehabilitation seeding mixtures or as seedlings as often as possible.*

3) *The seed supply of native species is generally limited when large acreages burn. Land managers should encourage development of native seed banks (both in the private and government sectors).*

4) *If native plant and sagebrush seed is unavailable crested wheatgrass can be planted in lieu of native species or as a mixture with native species, because it is readily available, can successfully compete with cheatgrass, and establishes itself more readily than natives.*

    a) *If crested wheatgrass is planted initially specific efforts or plans are needed to interseed native grasses, forbs and shrubs in the rehabilitation area. This might include an initial seed-mix of 1 to 2 lbs. per acre of crested wheatgrass mixed with natives.*

5) *If cheatgrass or other exotic plant species are present before a fire occurs, they are likely to become more dominant post-fire if the area is not properly rehabilitated (but see suppression activities above). Rehabilitation techniques that decrease the probability of cheatgrass invasion are needed.*

6) Drought can impact the success of a rehabilitation project. Post-treatment monitoring will be needed to determine if rehabilitation efforts need to be repeated if initial attempts fail.

These excerpts are not inclusive of all guidelines in the Strategy, but are the most pertinent to this document.

IM 2012-043 Greater Sage-Grouse Interim Management Policies and Procedures has the following to say about Wildfire Emergency Stabilization and Burned Area Rehabilitation:

- *In Emergency Stabilization and Burned Area Rehabilitation plans, prioritize re-vegetation projects to (1) maintain and enhance unburned intact sagebrush habitat when at risk from adjacent threats; (2) stabilize soils; (3)reestablish hydrologic function; (4) maintain and enhance biological integrity; (5) promote plant resiliency; (6)limit expansion or dominance or invasive species; and (7) reestablish native species.*

- *Increase post-fire activities through the use of integrated funding opportunities with other resource programs and partners.*

- *In areas burned within the past 5 years, ensure that effectiveness monitoring outlined in post-fire stabilization and rehabilitation plans continues and report the results as outlined in WO-IM-2010-195. Post-fire stabilization and rehabilitation monitoring should continue until post-fire objectives are met.*

These excerpts are not inclusive of all Interim Conservation Policies and Procedures in IM 2012-043, but are the most pertinent to this document.

The Buzzard Complex wildfire is the dominant factor influencing the affected environment for SSS, but other actions have helped shape the affected environment and its ability to recover from the wildfire. Other past and present actions that have influenced the affected environment to varying extents for sage-grouse include road and fence construction, water developments, power line construction, vegetation treatments, facility construction, livestock grazing, wild horse grazing, other wildfires, weed treatments, and recreation. Livestock grazing and wild horse grazing, and associated activities (e.g. spring and well development, reservoir construction, etc.) are the most widespread and ongoing activities across the affected environment, but both activities are managed and monitored to facilitate sustainable multiple use, including maintenance of sage-grouse and other SSS habitat. Roads and fences in the project area are at relatively low densities compared to other areas (Connelly et al. 2004). Effects of past wildfires, vegetation treatments, and weed control treatments are not as apparent following the Buzzard Complex fire, but have also influenced the affected environment and its resiliency to disturbances such as the wildfire.

Environmental Consequences

Effects Common to Both Alternatives:

For the purposes of this analysis, the Cumulative Effects Analysis Area (CEAA) considered for SSS extends up to ten miles beyond the fire perimeter to encompass the regular movements of wide-ranging sage-grouse. The Greater Sage-Grouse Conservation Assessment and Strategy for Oregon (State Strategy) (Hagen 2011) contains data for movement of sage-grouse that is site specific to the state of Oregon, with an overall average (6 studies) of 10.3 km (6.4 miles) with some outliers moving greater than 30 km (18.6 miles) during the extreme winter of 2008. The choice to use a 10 mile buffer for cumulative effects would be more than adequate to contain the average while accounting for a percentage of the outliers.

The ARS study plots would not have any effect on Special Status Species due to the small size of the study area (overall 10 acres) and no increase in infrastructure (fences).

The total acreage of the fire area plus the CEAA is approximately 1,586,144 acres. Vegetation in the CEAA is dominated by sagebrush steppe. Most effects to sage-grouse or their habitat in the CEAA would be limited to occur within or near immediately adjacent to the burned area, and would diminish over time and as the distance from the project area increases. Most disturbance effects would also occur during implementation or immediately after and then rapidly diminish over time. Beneficial effects of habitat recovery would increase over time, but would be expected to require several decades or more to fully recover to conditions present prior to the fire. Past, present, and reasonably foreseeable actions or events within this area include wild horse use, livestock grazing, weed management, fence and reservoir maintenance, road maintenance, wildfires, and various recreational use activities. Livestock grazing typically have more potential influence on sage-grouse habitat than disturbance effects on sage-grouse. However, livestock grazing are managed activities in this area, and are designed to prevent resource damage while providing for sustainability of sage-grouse and other wildlife populations. Livestock grazing strategies would be expected to result in measurable cumulative impacts within the area of the proposed treatments. Weed treatments and road maintenance are temporary actions that typically occur once or a few times a year in an area, and generally result in change in some areas of the CEAA in the short-term (e.g. displacement). Management objectives help to limit the spread of noxious weeds, which are a primary threat to habitat for sage-grouse and other wildlife species, and maintain grazing at or below levels that sustain multiple uses. These two activities are not cumulatively expected to contribute to measurable adverse cumulative impacts to SSS populations. Fences damaged in the fire would be rebuilt and developed water sources would be maintained to facilitate continued management of livestock grazing. Regularly scheduled road maintenance may lead to temporary disturbances to SSS or their habitat. These actions may result in short-term disturbances during implementation, but are temporary and would not result in additional habitat loss nor contribute to cumulative impacts to SSS.

Wildfires occurring since 1980 have directly impacted 31.3 percent of the CEAA, and sagebrush steppe in these areas is (or was) in varying stages of recovery. Most recreational use may cause displacement or altered behavior of some animals, but; however, due to the dispersed and temporary nature of most recreational activity in this area and limited off-road use in the area, it is not expected to contribute to cumulative effects on sage-grouse populations or habitat in this area. The State of Oregon manages hunting, and at proposed established bag limits, this activity is also not expected to have a cumulative effect on sage-grouse populations (Hagen 2011). RFFAs that may contribute to cumulative effects with this project are carried through analysis in the Environmental Consequences for each alternative, and include vegetation management associated with ongoing District weed treatments.

West Nile Virus (WNV) was documented in sage-grouse in Wyoming near coal bed methane wells (Naugle et al. 2004). Water in new ponds constructed at the well sites provided habitat for mosquitoes that carry WNV to live in areas that previously had little late season water. Sage-grouse mortality was 25 percent higher in these areas, versus control areas without late season water. In 2006, approximately 60 sage-grouse carcasses/feather piles were discovered in a meadow area near Burns Junction, Oregon. Only three carcasses had enough body tissue left to be tested for WNV, which was found in all three. While no instances of WNV have been documented in Harney County, in sage-grouse populations since 2006, Malheur County has had several cases of humans infected with WNV. The Sage-grouse National Technical Team (2011) addresses West Nile virus in "Appendix C. BMPs for how to make a pond that won't produce mosquitoes that transmit West Nile virus (from Doherty (2007))."; these measures were considered but discounted due to the other constraints (WSA etc.) already occurring on the landscape that would be in discordance with these measures; and the lack of West Nile virus documented to occur in Harney County.

The Greater Sage-grouse Conservation Assessment and Strategy for Oregon (State Strategy) (Hagen 2011) was reviewed for effects analysis, rehabilitation strategies, and conservation measures for this EA. The State Strategy considered and incorporated where appropriate the U.S. Fish and Wildlife's 12-Month Findings for Petitions to List the Greater Sage-Grouse (Federal Register 75:55 (March 23, 2010) p. 13910-14014) and the Greater Sage-Grouse: Ecology and Conservation of a Landscape Species and Its Habitats (Sage-grouse Monograph) (Knick and Connelly, eds. 2011). The Sage-grouse Monograph is recognized by USFWS as the primary source of science for the 12-Month Findings for Petitions to List the Greater Sage-Grouse referenced above. In addition, the Conservation Objectives Team (COT) report was reviewed to be consistent with objectives that were developed using the best scientific data available. Invasive weeds, fire, and juniper encroachment represent the greatest risks to sage-grouse in the Western Great Basin (USFWS 2013).

Alternative A: No Action

This alterative would leave the entire burned area to recover on its own without any form of active management intervention. This would increase the risk of invasive species establishment and spread, converting the habitat from sagebrush-grass co-dominance to an herbaceous dominance with the main components being cheat grass

and potentially medusahead rye. There would be no rest from livestock grazing, resulting in potentially severe impacts to recovering native forbs and grasses, leading to poor quality forage, less vegetative diversity within the fire area, and the greater likelihood of future fires. Under this scenario, sagebrush may not recover or would require a long time (potentially 100 years or more) to return to its former vigor and cover and once again provide usable habitat for sagebrush dependent species, such as sage-grouse. This would lead to a long-term (potentially >100 year) downsize in localized populations of sage-grouse, potentially contributing to the need for listing. Authorized weed treatments (not the proposed action) would continue to occur as part of the normal District weed management strategy, but would be limited to the four currently authorized chemicals for treatment. The current restrictions on type of herbicides used may reduce the size of the area treated and the effectiveness of the treatment, making the burned area more susceptible to noxious weeds and other invasive species, relative to the proposed action. Establishment and spread of these invasives may contribute to a shortened fire return interval, which may slow or even prevent the recovery of sagebrush habitat for sage-grouse. Selection of this alternative would not actively improve the rate or increase the success of habitat recovery to SSS or their habitat.

Alternative B: Proposed Action

This alternative would implement the Buzzard Complex Fire Emergency Stabilization and Burned Area Rehabilitation Plan. The proposed actions would assist in mitigating some of the detrimental effects of the fire on SSS. The wildfire severely reduced the population of sage-grouse, as well as their habitat, in the burned area; therefore, the potential effects of the proposed action would generally not directly affect individuals or habitat.

Drill seeding 18,678 acres and aerial seeding approximately 40,000 acres in the fall and early winter would increase the rate of establishment and recovery of perennial vegetation to protect the exposed soils from wind and water erosion. Seeding of selected uplands and the few riparian sites in the area would help to stabilize soils in strategic areas across the burn and help limit the spread of invasive species. This would minimize the introduction and spread of invasive grasses, such as cheat grass, and would reestablish mountain big sagebrush communities on several of the sites where it existed prior to the fire.

This alternative would allow for the use of more selective herbicides that are effective at controlling noxious weeds and invasive annual grasses, while limiting collateral damage to native and desirable non-native plants. Non-target desirable plants may be harmed, but risk would generally be limited to vulnerable (depending on selected herbicide) plants in the immediate treatment area, and have no effect on overall abundance or diversity of habitat. Application of the proposed herbicides using Standard Operating Procedures (Attachment B) would not only improve the success of the seeding effort, it would help protect native plants that survived the fire. These native plants provide a valuable seed source adapted to the local environment, which further enhances the ability of the native plant community to recover (Leger 2008) and

provide a more diverse habitat for wildlife species, including sage grouse. Implementation of this alternative would result in maintenance or improvement and faster recovery of more acres of SSS habitat compared to the No Action Alternative.

Sage-grouse may be impacted through direct or indirect contact or ingestion of chemicals or exposed plant, water, or animals, including insects. The proposed herbicides have a wider treatment window, allowing more flexibility in timing of treatments in order to avoid vulnerable periods for wildlife. Based on the findings of the Ecological Risk Assessments, following Standard Operating Procedures, and the likelihood of few or no sage-grouse occurring in the proposed treatment area due to loss of habitat from the fire, the potential risk to this species from ingestion or direct contact would be negligible, especially at the population level.

Discussion and links to Ecological Risk Assessments for the proposed herbicides are available in the Vegetation Treatments Using Herbicides on BLM Lands in Oregon FEIS (Oregon Veg EIS, Appendix 8, pp. 605-608, Appendix 9, pp. 632, 633, 642) and the Vegetation Treatments Using Herbicides Programmatic Final Environmental Impact Statement (chlorsulfuron and Imazapic only, National Veg EIS, Appendix C). Imazapic and Chlorsulfuron had risk levels below the Level of Concern (LOC) for all evaluated wildlife under all scenarios (Oregon Veg. FEIS pp. 4-247-250). The risk assessment for clopyralid indicates there is little to no risk to terrestrial animals (SERA 2005, National Veg. EIS p 4-106). Bromocil + Diuron (Weed Blast) at 8 lbs active ingredient/acre (4 lbs ai bromacil and 4 lbs ai diuron). This product is applied as a dry granular product using a spreader or shaker type of applicator. It would be applied as a bare-ground treatment. Treatments would occur as annual "spot applications" in an approximate 15-foot radius around each power pole. That calculates to 0.02 ac/pole of treated area.

Erosion control structures (hill slope or in channel treatments) would be placed in major drainages to help control runoff that would occur at these sites. Road and trail water diversions would be utilized to aid in this effort, spot cleaning of ditches along roads. The proposed actions to service catchment basins and water control structures and re-seed the upper slopes of the drainages would also help hold soil in place and prevent sedimentation and ash run-off. The proposed seeding and soil management actions would stabilize more sediment across the landscape providing a stable foundation for plants to root and grow. This would result in recovery of usable habitat for sage-grouse in a shorter time span than if the soil were allowed to be continually displaced by erosional mechanisms.

Fence, gate, and cattle guard maintenance and reconstruction would occur as needed to exclude livestock from the burned area until objectives are met. Approximately 424 miles of repair fencing would be reconstructed along identified portion of the fire, ten miles of new temporary fencing to control movement of livestock, two temporary cattle guards, and an unspecified number of gates would be maintained or constructed as needed. In addition, 15 miles of eight foot tall temporary fence would be constructed around the bitterbrush plantings on the Vale District to protect the seedlings from wildlife browsing. These fences would be removed once the seedlings

have established well enough to withstand browsing by big game. Fences create a collision hazard to sage-grouse, but marking fences as proposed with reflective warning devices is expected to alleviate much of the potential for this to occur. The entire area would be closed to domestic livestock grazing until vegetation objectives are met. Protection from livestock grazing would help to allow for faster recovery of affected vegetative communities.

IM 2012-043 Greater Sage-Grouse Interim Management Policies and Procedures has the following conservation guidelines for fencing:

1. *Evaluate the need for proposed fences, especially those within 1.25 miles of leks that have been active within the past 5 years and in movement corridors between leks and roost locations. Consider deferring fence construction unless the objective is to benefit Greater Sage-Grouse habitat, improve land health, promote successful reclamation, protect human health and safety, or provide resource protection. If the BLM authorizes a new fence, then, where appropriate, apply mitigation (e.g., proper siting, marking, post and pole construction) to minimize or eliminate potential impacts to Greater Sage-Grouse as determined in cooperation with the respective state wildlife agency.*

2. *To improve visibility, mark existing fences that have been identified as a collision risk. Prioritizing fences within 1.25 miles of a lek, fences posing higher risk to Greater Sage-Grouse as include those:*

    a) *On flat topography;*
    b) *Where spans exceed 12 feet between T-posts;*
    c) *Without wooden posts; or*
    d) *Where fence densities exceed 1.6 miles of fence per section (640 acres).*

The "Greater Sage-Grouse Conservation Assessment and Strategy for Oregon" (Strategy) (Hagen 2011) has an action item to "Promote vegetation that supports nesting, brood-rearing and winter habitats including maintenance or recovery of shrub and herbaceous (native grasses and forbs) cover. Retain residual cover adequate to conceal sage-grouse nests and broods from predation, and plant communities that provide a diversity of plant and insect food sources." The strategy recognizes that livestock management infrastructure can promote balanced grazing distributions and compatibility with sage-grouse needs and has the following conservation guidelines from Page 104:

1) *Construct new livestock facilities (livestock troughs, fences, corrals, handling facilities, "dusting bags," etc.) at least 1 km (0.6 mi.) from leks to avoid concentration of livestock, reduce collision hazards to flying birds, or eliminate avian predator perches.*

2) *Fences can be detrimental to local sage-grouse populations. Those fences identified as such or within 1.6 km (1mile) of an active lek or known seasonal use area should be marked with anti-strike markers.*

The purpose of the temporary fencing proposed in this rehabilitation plan is to control the movement of livestock to promote resource protection, and provide for vegetation to stabilize the soils and prevent erosion as a result of the Buzzard Complex Fire. These temporary fences would provide for long term benefit to sage-grouse by allowing the establishment of high quality, forb enriched, sagebrush habitat in the future; without these fences the areas would be expected to result in grazing of plants attempting to recolonize an area that was denuded by fire. These fences would also lessen the chance that the fire area would be invaded by cheat grass, as it would allow the seeded vegetation to establish and grow without the pressure of grazing.

All fences would be outside of the 0.6 mile distance from leks to reduce collision hazards to flying birds (sage-grouse) contained in the conservation guidelines in the Oregon Sage-Grouse Conservation Strategy (Hagen 2011). The fences would be marked with anti-strike markers as directed in the sage-grouse instruction memorandum (IM 2012-043). With these measures taken, fence-marking efforts can reduce collisions by up to 83 percent in high risk landscapes (Stevens et. al., 2010). Fence densities are 0.70 miles of fence per square within the Buzzard Complex Fire, and 0.72 miles of fence per square mile in the CEAA. This means that any fences outside of 1.25 mile of leks would not require anti-strike markers under the guidance of IM 2012-043.

Approximately 17 troughs that were damaged in the fire would be replaced and 19 spring developments that were damaged or destroyed in the wildfire would be repaired or reconstructed. Water sources are very important to wildlife in areas of limited water, such as the burned area, especially in drought years. Repairing or replacing these facilities and removing sediment from catchment basins would improve water storage capacity and availability for sage-grouse, as well as other wildlife species.

Wyoming big sagebrush seedling (plugs) planting would occur on approximately 6,000 acres where sagebrush mortality occurred due to the fire. Antelope bitter brush seedling planting would occur on about 2,000 acres where mortality occurred during the fire. Locations for the plug plantings would maximize the chances of success, and are based on soil survey data, vegetative communities present prior to wildfire, and potential vegetative communities based on ecological site descriptions. Fire kills sagebrush plants and sagebrush seeds in the soil, and suppresses recovery because Basin, Mountain, and Wyoming big sagebrush are not root-sprouting shrubs (Tisdale & Hironaka 1981). Post burn recovery periods for these three big sagebrush taxa can be long, especially following large wildfires, because they must reestablish from seed. For example, Baker (2006, 2011) approximated post fire recovery for mountain big sagebrush from 35–100 or more years and Wyoming big sagebrush from 50–120 years based on a combination of cover and density values from various studies. Planting plugs is expected to jumpstart this recovery effort because it typically has a higher survival rate than seeded sagebrush and decreases the period required to achieve reproductive maturity, resulting in less time needed for Wyoming big sagebrush to reach sufficient cover percentages to begin to provide usable habitat for sage-grouse and pygmy rabbit as both hiding/nesting cover and as a critical food source during the winter season.

Cumulative effects of the proposed action in regards to sage-grouse are expected to be beneficial in the long term (10+ years), with livestock grazing not occurring until vegetative objectives have been met. This is expected to allow for the recovery of the health and vigor of vegetation in burned and seeded areas, providing greater cover, and nutrient source, to nesting and fledging birds; in a shorter time period than the no action alternative. Some of the effects include temporary displacement or reduced use by sage-grouse in treated areas for a short period, but these treatments would result in fairly immediate and long-term beneficial effects through habitat maintenance and restoration. Even with implementation of the Buzzard Complex Fire proposed actions, recovery of sagebrush habitat would be expected to require many years to recover to the extent that it provides usable sage-grouse habitat.
Selection of this alternative would actively improve the rate or increase the success of habitat recovery, and would contribute cumulatively to the beneficial long-term effects of the fire to sage-grouse and their habitat. This may result in a lowered probability in the need for listing of the greater sage-grouse under ESA.

11) Upland Vegetation

Saddle Draw Affected Environment

The Saddle Draw Fire burned through three distinct ecological zones that were identified in the field by an ecological site inventory ecologist and a soil scientist in the fall following the fire. Three zones were delineated based upon elevation or precipitation zone, soil types, and residual existing vegetation within the Saddle Draw burned area. There is no existing ecological site inventory (ESI) data or fine-scale soil mapping that has been completed within the area of the Saddle Draw Fire.

All three of ecological zones examined during this effort were infested to some extent with the invasive non-native annual grasses medusahead rye (*Taeniatherum caput-medusae*) and cheatgrass (*Bromus tectorum*). The overall size and density of infestations generally decreases as elevation increases but these invasive grasses were present in disturbed areas throughout the burned area. Medusahead rye is a winter annual that has invaded and replaced dense stands of cheatgrass, particularly in response to fire (Harper, 1992 and Meyer, 1999) over large areas in California, Idaho, Oregon, and Washington during the past 40 years (Young and Evans 1977). It increases under frequent fires at the expense of native species. Cheatgrass is a winter annual that dominates approximately five million acres BLM administered lands in Oregon (USDI BLM 2010). Infestations of cheatgrass have increased dramatically within the last twenty years (Mosley et al 1999). Regionally, both cheatgrass and medusahead show signs of continuing on a successional trajectory toward permanent conversion of some rangeland communities to annual grassland in the absence of restorative management.

The lowest elevation ecological zone within the Saddle Draw burned area can be found along the northwestern edge of the Saddle Draw burned area at elevations below 4000 feet above mean sea level (amsl). Approximately 3452 BLM acres of this zone

are situated within the fire perimeter. The zone is characterized by Wyoming big sagebrush (*Artemisia tridentate* ssp. *wyomingensis*) and basin big sagebrush (*Artemisia tridentate* ssp. *tridentata* nuttall) shrubs. The understory contains bluebunch wheatgrass (*Pseudoroegneria spicata*) and Thurber's needlegrass (*Achnatherum thurberianum*) as climax grass species. Other grass species that were present in the understory of these communities include Sandberg's bluegrass (*Poa sandbergii*) and bottlebrush squirreltail (*Elymus elymoides*). Landforms in this zone include bottomlands with deeper non-restrictive soils supporting Great Basin wild rye (*Leymus cinereus*) and bottlebrush squirreltail.

This lower elevation ecological zone is highly susceptible to invasion by exotic annual grasses such as cheatgrass and medusahead rye. Soils in this precipitation zone (7 – 12" annual) that possess argillic properties are especially vulnerable to invasion by medusahead and this zone is the most at risk of conversion to exotic annual grassland. Recruitment and establishment of native perennial grasses and shrub species can be problematic in this zone (Roundy, 2005). Prior to the Saddle Draw Fire, it is estimated that cheatgrass and medusahead cover within this zone ranged between 10 – 15%. The middle elevation ecological zone is present between 4000 – 4600 feet amsl elevation within the fire perimeter. Approximately 39,695 acres of this zone are located within the fire perimeter. This zone is best characterized as a complex of big sagebrush and low sagebrush (*Artemisia arbuscula*) plant communities that correlate with soil type and depth across the landscape. Sites with soils that are shallow with moderate or higher argillic properties in the zone hold low sagebrush plant communities. Portions of the ecological complex with deeper less argillic soils would have supported stands of basin big sagebrush or Wyoming big sagebrush. Antelope bitterbrush (*Purshia tridentata*) was also occasionally present in the zone and would have occurred most frequently in the basin big sagebrush plant communities. Understories of both communities would have been composed of bluebunch wheatgrass and Idaho fescue (*Festuca idahoensis*) as climax grass species. Other grass species present would have included Sandberg's bluegrass and bottlebrush squirreltail. Forbs that were likely present in the communities would have included Hawksbeard (*Crepis spp*.), buckwheat (*Erigonum umbellatum*), and fleabane (*Erigeron* spp.).

This middle elevation ecological zone is not as vulnerable to invasion by exotic annual grasses as the ecological zone described in the lower elevations of the burned area. Argillic soils in this precipitation zone that are also situated on warmer aspects are the most at risk sites in the zone for cheatgrass or medusahead invasion. With average (10 – 13") to above average levels of annual precipitation, it would be expected that native perennial grasses would become established and generally outcompete introduced annual species within the zone. Prior to the Saddle Draw Fire, it is estimated that medusahead was present in isolated pockets on warmer shallow soiled sites. Cheatgrass was likely present in low densities in this ecological zone with foliar cover varying between 2-5%.

The upper elevation ecological zone occurs above 4600 feet amsl and covers the largest amount of area within the fire perimeter. This ecological zone includes the

rugged uplands of the Stockade Mountains, Swamp Creek Buttes, Dry Creek Buttes, and Star Mountain. It occupies an area of approximately 99,100 acres. Similar to the middle ecological zone, this zone is also characterized by a complex of sagebrush steppe plant communities. Stands of mountain big sagebrush (*Artemisia tridentata ssp. vaseyana*) and Wyoming sagebrush would have occurred in this zone in direct correlation with deeper less argillic soil types. Low sagebrush (*Artemisia arbuscula*) plant communities would have been coincident with the shallow soiled sites in the complex and are present in a higher proportion than similar sites in the middle ecological zone. Climax grass species in this zone would have included Idaho fescue and bluebunch wheatgrass. Secondary grasses (non-climax species) would have included Sandberg's bluegrass and bottlebrush squirreltail. A common forb that would have occurred in this zone is arrowleaf balsamroot (*Balsamorhiza sagittata*).

Antelope bitterbrush would have been present on the deeper soiled sites in the complex in densities higher than those documented in the middle elevation ecological zone. Western juniper trees were observed in stringers or pockets on ridge tops and encroaching into mountain big sagebrush plant communities to various extents. Many western juniper in the zone appear to have survived the fire.

Sagebrush steppe biotic communities occupying the more mesic precipitation zones (12-16" annual precipitation) are more resilient to wildfire disturbance and less prone to invasion by introduced annual grass species (Roundy, 2005). Recruitment and establishment of native perennial species tends to be the response of these communities with average amounts of annual precipitation. Prior to the Saddle Draw Fire, the presence of cheatgrass above 4600 feet elevation was likely limited to trace amounts near highly disturbed areas.

As annual species increase in density, the diversity of plant communities and the abundance of native species would decrease (Davies 2011). Following fires, resource availability increases on the site, including an increase in available nitrogen, which annual species are able to utilize quicker than perennial species (Davies et al. 2007, Stubbs and Pyke 2005, Blank et al. 1994, 1996, Monaco et al. 2003, Pellant 1996). This is especially true in the early spring since annual grasses begin actively growing while perennial species are still dormant or just beginning to initial growth (Pellant 1996).

All three of the ecological zones have medusahead or cheatgrass present to some extent and that affects their resilience to disturbance. Annual grass dominance alters ecosystem processes (D'Antonio and Vitousek 1992). Once annual grasses becomes dominant on a site, they create a bed of fine fuels, which can cause the fire cycle to increase to as often as every three to five years, perpetuating annual grass dominance and killing native perennial species (Whisenant 1990, Brooks and Pyke 2001, Brooks et al. 2004, Davies et al. 2009, Pellant et al. 2004, Knapp 1996, Chambers et al. 2007). The ecological zone most at risk to the impacts of the "annual grass-wildfire cycle" is the low elevation ecological zone although a low density of cheatgrass and isolated pockets of Medusahead throughout the middle elevation zone suggest that these communities are also at some risk of losing native perennial species and continuing a

trajectory toward converting to an annual grassland (Peters and Bunting 1994; Pellant 1990).

Riley Field and Beaver Creek Affected Environment

The Buzzard Complex Fire burned through low sagebrush, mountain big sagebrush, and some Wyoming big sagebrush plant communities with understories generally composed of Thurbers's needlegrass, bottlebrush squirreltail, Sandberg's bluegrass, and bluebunch wheatgrass and Idaho fescue.

These plant communities represent some of the driest sagebrush plant communities in southeastern Oregon; a condition exacerbated by an ongoing Aroga moth infestation in the southern end of Harney County that has further defoliated large tracts of sagebrush across the region. Although a majority of the plant communities throughout the burn were in good to excellent condition prior to the fire, the eastern perimeter, the lowest elevation, had an understory dominated by cheatgrass. This area is at the greatest risk of conversion from a big and/or low sagebrush dominated ecosystem to annual grassland. Maps 11RF and 11BC provide General Vegetation information and Appendix B - Table 13 for Major Ecological sites found in the Burns portion of the Buzzard Complex.

Fire has played a limited role in the development of these big and low sagebrush plant communities. Historic fire return intervals, average number of years between fire events, were probably between 35 and 50 years at higher elevations. This is in contrast to lower elevation sagebrush plant communities where fire return interval was more than 75 years. However, the increased fuel continuity provided by introduced annuals (cheatgrass) have also established and are just beginning to dominate or co-dominate the plant communities in the lower elevations increasing the frequency and intensity of fires.

The introduction of cheatgrass and Medusahead into the Great Basin and Upper Columbia River Basin has upset the ecological balance. Ecological processes such as energy flow, nutrient and hydrologic cycles, and structure and dynamics, result in fauna and flora having been adversely affected. In addition to the ecological implications associated with cheatgrass invasion, the impacts to land uses in the area are also significant (Pellant 1996). Cheatgrass was found by Knapp (1996) to dominate approximately one-fifth of the potential sagebrush-bunchgrass habitat. Secondary succession following disturbance is often caused by damage and destruction from lagomorphs (hares and rabbits) and rodent grazing (Knapp 1996), resulting in reduced competition for cheatgrass.

The biotic communities most at risk to the impacts of the "annual grass-wildfire cycle" are the Wyoming big sagebrush and more mesic salt desert shrub plant communities (Peters and Bunting 1994; Pellant 1990). Not only is cheatgrass adapting to new environments, it is now being invaded by other noxious weeds (Pellant 1996). In the western United States, big sagebrush (*Artemisia tridentata*) steppe communities dominate approximately 60 million hectares (148 million acres) and comprise the largest vegetation type (Wambolt and Hoffman 2001). However, due to the invasion of exotic plants, fire has become a driving force in the ecology and management of sagebrush

steppe communities. The high variability in cover and density of shrubs indicates the complexity of factors influencing recruitment and establishment of sagebrush from both natural populations and from artificial seeding (Lysne and Pellant 2004). If current sagebrush restoration efforts do not result in a more consistent establishment and persistence of this important shrub, large areas of sagebrush-steppe may be lost, and rehabilitation may no longer be a viable option (West 2000).

In 2007, it was estimated that more than 40 percent of sagebrush systems were at a moderate to high risk of becoming dominated by cheatgrass (Suring et al. 2005). Pellant and Hall (1992) considered annual grasses to be dominant and in a monoculture when they made up 60 percent or more of the species composition by weight.

Annual grass dominance alters ecosystem processes (D'Antonio and Vitousek 1992). Once annual grasses becomes dominant on a site, they create a bed of fine fuels, which can cause the fire cycle to increase to as often as every three to five years, perpetuating annual grass dominance and killing native perennial species (Whisenant 1990, Brooks and Pyke 2001, Brooks et al. 2004, Davies and Svejcar 2008, Pellant et al. 2004, Knapp 1996, Chambers et al. 2007).

As annual species increase in density, the diversity of plant communities and the abundance of native species would decrease (Davies 2011). Following fires, resource availability increases on the site, including an increase in available nitrogen, which annual species are able to utilize quicker than perennial species (Davies et al. 2007, Stubbs and Pyke 2005, Blank et al. 1994, 1996, Monaco et al. 2003, Pellant 1996). This is especially true in the early spring since annual grasses begin actively growing while perennial species are still dormant or just beginning to initial growth (Pellant 1996).

The risk of weed invasion increases in relation to increases in available resources (Sheley et al. 1999a, Sheley et al. 1999b, Davis et al. 2000, Svejcar 2003). In areas with Wyoming big sagebrush (low elevations), water availability is often very variable; cheatgrass is able to take grow and reproduce better than perennial species under these conditions (Suring et al. 2005). However, annual grasses are weak competitors against established perennial grasses (Chambers et al. 2007, Davies 2008, Humphrey and Schupp 2004). The establishment of perennial grasses in areas at risk for annual grass invasion, such as Wyoming big sagebrush sites, is essential to ensure ecological processes are maintained and prevent the site from becoming dominated by annual grasses (Davies 2008, Beyers 2004, Keeley 2004, Hunter et al. 2006, Davies 2008, James et al. 2008, Bates et al. 2005, Davies et al. 2009).

The amount and type of fuels on a site would influence the "risk, severity, continuity, and size, and the effectiveness of fire suppression efforts" of wildfire (Davies et al. 2010). In areas that do not receive grazing, the amount of fine fuels that accumulate is greater than on grazed rangelands; the more fine fuels, the larger the risk of wildfire (Davies et al. 2010). Research has shown that fine fuel accumulation as a product of grass production is positively correlated to an increase in fire occurrence and is an important component of fire spread (Miller and Urban 2000), and the reduction of these fuels is important in suppressing fire spread (Blackmore and Vitousek 2000).

Livestock grazing removes fine fuels from communities; therefore, when it is properly managed at moderate levels, it can decrease the risk of wildfires, as well as wildfire intensity and size, by decreasing the continuity of fine fuels, resulting in a decreased risk of annual grass invasion post-fire (Diamond et al. 2009, Davies et al. 2010a, Davies et al. 2009). This is expected due to moderate livestock grazing increasing the tolerance of the herbaceous species to fire, possibly due to the removal of litter from the plants crown which decreases the severity of the fire at the plants growing points (Davies et al. 2009, Davies et al 2010). When fires are of a low severity, they are less likely to result in annual grass invasion into the sagebrush communities (Davies et al. 2008, Davies et al. 2009). While heavy grazing can damage sagebrush communities, research has found that moderate levels of grazing, when it is not grazed during the growing season, do not negatively impact these communities (West et al. 1984, Courtois et al. 2004, Manier and Hobbs 2006).

The strategic use of livestock grazing can be used to provide opportunities to "suppress catastrophic wildfires or otherwise limit the spread of such fire events" (Davies et al. 2011). Research has demonstrated that using livestock to strategically graze annual grass communities could decrease the risk of a large, severe fire by reducing fine fuel loads and continuity of fine fuels to a point that fire would not carry across the strategically grazed area (Diamond et al. 2009).

In order for Wyoming big sagebrush to remain a dominant component of a community, it is important that there is a long interval between fires (Lesica et al. 2007). Davies et al. (2010) found that areas that are not grazed are "more likely to burn, burn with less patches of unburned within the burn perimeter, and produce fires that would be difficult to suppress." Davies et al. (2009) also determined that fuel reduction may need to occur on sites that are not accumulating fuels above historic levels in order to improve their resilience when impacted by more-severe disturbances. Livestock has been used to decrease fine fuel loads by the Idaho Fish and Game near Boise, Idaho, by the Idaho BLM, East Bay Regional Park District in San Francisco, California, in the Tahoe and Angeles National Forests in California, as well as in Arizona, New Mexico, and Texas (Davison 1996).

Livestock as a tool in biological thinning reduce fuels due to hoof incorporation of fine fuels into the soil, as well as fine fuel reduction due to ingestion (Nadar et al. 2007). Smith et al. (2012), while focused on grazing annual grasses, provides recommendations that would also work when applied to perennial grasses with the goal being fine fuel reduction. The major recommendation in the "Green and Brown" guide is to graze when grazing would not impact the ability of perennial grasses to complete their reproductive cycle; specifically, grazing in the spring prior to perennial species entering the boot stage, and/or in the fall after perennial grasses flower and develop seed (Smith et al. 2012). This works as a treatment for annual grasses while removing fine fuels related to annual grasses and for fine fuel reduction on perennial species since fine fuels are not a fire hazard until after seed development when the plants become dormant. In order for prescription grazing to be a useful biological thinning tool, it needs to result in damage to target species (annual grasses) and limit damage to desirable species (Frost and Launchbaugh 2003, Smith et al. 2012).

Alternative A: No Action

Under the No Action alternative, drill and aerial seeding would not occur. Without the imazapic treatments these areas would be left vulnerable to invasion from invasive annual grasses, including medusahead, which could trend the entire area within the burn perimeter towards becoming annual grassland thereby increasing the fire return interval. Hand planting of bitterbrush and Wyoming big sagebrush seedlings would not occur, thus contributing to the loss of a critical component to these ecological sites, as well as valuable components to wildlife habitat and survival particularly for sage-grouse. Soil stabilization measures would not be implemented leading to loss of soils through overland flow and wind erosion and preventing native vegetation from establishing with the vigor necessary to compete with noxious and invasive weeds. Road maintenance would not occur leaving existing, well-traveled roads in a state of disrepair leading to hazardous road conditions for those traveling in the area of the fire. Biological thinning would not occur leading to a greater opportunity for invasive species to fully establish and spread beyond their current locality. This could lead to an increased fire return interval which could trend the area within the fire perimeter and directly adjacent towards a fire intolerant system. Treatment for noxious weeds using currently authorized herbicides would still be permitted.

Alternative B: Proposed Action

Under the Proposed Alternative native and desirable non-native upland vegetation would afford the best opportunity to recover through various treatment measures. Established desirable upland vegetation recovery would trend the area within the fire perimeter back towards pre-fire conditions.

Measures include:

a. Aerial seeding. Aerial seeding native vegetation in areas difficult to drill seed due to steepness and accessibility issues would allow areas with little to no access to a native seed source to establish native vegetation which would compete with, and ideally out compete, invasive and noxious weed species. The expectation is that vegetation establishment at the highest elevations would provide a seed source for areas at lower elevations through gravity, animal transport and wind and water transport among other means. Seeding in these areas would also stabilize soils preventing valuable top soil from washing down onto roads within and directly adjacent to the fire perimeter. Reestablishing native species would provide habitat and food sources to the wildlife in the area.

b. Drill Seeding. Drill seeding would provide the same benefits as aerial seeding, however with a greater chance of success for establishment of desirable vegetation. Seeding would occur in those areas of the fire and in particular, the lower elevations (4600’ above mean sea level) of the burned areas, that have the largest and most dominant infestation of invasive annual grasses or have

the greatest risk of future infestation of noxious and invasive weeds. Mixes of native and desirable non-native seed would be proposed for sites with a moderate risk of introduced annual grass invasion. Native seed mixes were proposed in higher precipitation zones with less argillic soils where the risk of invasive annual grass expansion was estimated as much lower.

Wyoming big sagebrush would be seeded with three drill seed mixes described under the proposed action. Seeding would occur in areas where big sagebrush and/or bitterbrush occurred prior to the fire and have the greatest chance of survival. Impacts to newly established vegetation (grasses and forbs) would be negligible for all but the planting method that utilizes a roller pack following seeding. Use of the roller pack could damage newly established vegetation; impacts, however, would be acceptable because the benefits from re-establishing big sagebrush within the burn perimeter outweighs the impacts associated with the potential loss or damage to grasses and forbs.

c. Temporary Fence. Temporary fence would be constructed in the Saddle Draw portion of the complex to total approximately 25 miles. This fence would prevent impacts to newly emerging and establishing vegetation within the burn perimeter while allowing grazing to occur on the unburned portions of these pastures. Vegetation within the burn perimeter is highly susceptible to utilization by livestock which could decrease the vigor of newly emerging grasses and native perennials and annuals making the burned area more susceptible to invasion from invasive and noxious weeds.

While livestock become accustomed to the new barrier, there would be trampling of existing vegetation on the unburned side of the fence as well as throughout the pasture as new routes are established to water and mineral sites. Vegetation trampling from livestock trailing would total less than one percent of the entire pasture and allotment area and is therefore an acceptable impact.

d. Range Improvement Maintenance. Catchment basin cleanout, spring and trough repair and cattle guard, gate and fence repair would have overall negligible impacts to recovering upland vegetation. Access to range improvement sites is generally over existing roads and trails where vegetation pre-fire was already disturbed. Utilizing these same disturbed areas would minimize impacts to new, establishing vegetation while providing infrastructure for wildlife and livestock after they are allowed to return to the area.

e. Sagebrush and Bitterbrush Seedling Planting/Big Sagebrush Establishment Research. Planting Wyoming big sagebrush and bitterbrush seedlings as well as big sagebrush seed would improve establishment rates and decrease recovery times. Planting seedlings would occur in areas where big sagebrush and bitterbrush occurred prior to the fire and have the greatest chance of survival. Impacts to newly established vegetation (grasses and forbs) would be negligible for all but the planting method that utilizes a roller pack following

seeding. Big sagebrush is a key component to the survival of sage-grouse and other wildlife species. Bitterbrush is important as browse for big game wildlife species.

f. Bitterbrush seeding. Hand seeding bitterbrush would provide a greater establishment rate because rate and method (broadcast, cache, etc.) can be manipulated based on terrain and burn severity. Because this would be done over several years, there could be minor impacts to newly established vegetation, but because seed would be sown by hand, impacts can be minimized and areas avoided if necessary to prevent undue disturbance.

g. Weed Treatments. Weed treatments are designed and intended to facilitate vigorous growth by native and desirable non-native species by eliminating competition by noxious and invasive weed species. Crews conducting Early Detection/Rapid Response would be used to survey and treat smaller (5 acres or less) infestations of newly established and existing weed populations. Herbicide use could impact newly establishing vegetation - grasses, forbs and brush species; however, timing, method (aerial broadcast, ATV application, and back-pack) and rate of herbicide would all be evaluated prior to application in order to minimize impacts to native vegetation while maximizing impacts to noxious and invasive species. The risk of impacting a small percentage (<10%) of native vegetation is outweighed by the reduction and/or elimination of weed species which would allow native species to outcompete noxious and invasive species. If sterilant is used on power line ROWs, impacts would be the complete removal of vegetation from the ROW for the duration of the residual. Neither native, desirable non-native, nor invasive or noxious weeds would be present or allowed to establish.

h. Check dams, Silt basins, and Erosion Control Structures. Soil stabilization measures such as check dams and silt basins would prevent valuable seed laden top soil from leaving the site. Native seed persists in the soil and preventing its removal would only increase the establishment rate of native species and prevent the expansion of noxious and invasive weed species.

i. Road maintenance. Maintaining roads within and directly adjacent to the burn perimeter would prevent unauthorized off road travel which would negatively impact newly establishing vegetation. Regularly traveled roads, such as those within and directly adjacent to the Buzzard Complex Fire generally are not vegetated therefore routine maintenance would not directly impact vegetation.

j. Closures. Affects from closures would be similar to installing temporary fence. Removing livestock and wild horses from within the burn perimeter would allow vegetation objectives to be met sooner and prevent the spread of noxious and invasive weed species.

k. Biological Thinning. Integrated pest management is used to treat noxious and invasive weed species and can be utilized, in the same manner to reduce fine

fuels in order to prevent increased fire return intervals. Biological thinning is one tool in the integrated pest management toolbox which utilizes livestock to benefit rangeland health. Utilization of livestock to reduce fine fuels and noxious and invasive weed species would occur when impacts to native and desirable vegetation are minimized and impacts to weedy species and fine fuels are maximized. Reduction in fine fuels and weedy species would increase native vegetation vigor by eliminating competition for valuable, limited resources.

l. Monitoring. Monitoring would serve to evaluate whether or not treatments are successful and have met objectives (three desirable perennial plants/m^2); however, the activity of monitoring would have no direct impact on vegetation.

Cumulatively, these treatments would interact with past, ongoing, and reasonably foreseeable future actions to shape the biotic communities within the eastern half of the Buzzard Complex. Management actions that could be considered cumulative with the effects of the Buzzard Complex proposed action include:

a. Grazing Closures: Closures of grazing pastures affected by the Buzzard Complex fires would occur through agreements with individual grazing permittees. Grazing would not resume on pastures being rested for fire recovery purposes until monitoring indicated that it would not adversely affect seedings or natural recovery. The cumulative effect of closing pastures to grazing and implementing the treatments would be to increase the likelihood of treatment success (seedings, aerial application of Imazapic, etc.).

b. Aerial and Ground-based Applications of Imazapic on Private Inholdings: Treatments of invasive annual grasses on private lands within the Buzzard Complex would be cumulative with the aerial Imazapic treatments described in the proposed action. The cumulative effect of the BLM and private treatments would be to increase their effectiveness and reduce the overall footprint of invasive annual grasses across the landscape.

c. Aerial and Ground-based Applications of Imazapic on State of Oregon Lands: Treatments of invasive annual grasses on the lands administered by the state of Oregon in the southern portion within the Buzzard Complex would be cumulative with the aerial Imazapic treatments described in the proposed action. The cumulative effect of the BLM and state treatments would be to increase their effectiveness and reduce the overall footprint of invasive annual grasses across the landscape.

12) Special Status Plant Species

Affected Environment

The Saddle Draw Fire burned one population of *Collomia renacta* (Barren Valley collomia) on South Star Mountain on BLM land. *C. renacta* is an annual plant that is

a BLM sensitive plant, a Candidate for listing as Threatened by the state of Oregon, and is ranked as critically imperiled due to rarity both globally and in Oregon and Nevada. This species occurs in Malheur County, Oregon and Elko County, Nevada. The site on South Star Mountain was last visited in 2001, 200 plants were observed at that time. *C. renacta* populations fluctuate greatly from year to year, as do many annual plant species. The habitat for *C. renacta* is rocky south-facing slopes on lithosols with poorly developed soils that are subject to extreme heat and drought. The current status of site on South Star Mountain is not known.

There is an additional population of *Collomia renacta* plus one population of *Trifolium owyhensee* (Owyhee cover) located on Oregon Department of Lands, for which BLM does not direct management, located within the Saddle Draw fire perimeter. This project does not proposed any actions on those lands thus the two populations will not be impacted by this project and they will not be discussed further in this document.

Environmental Consequences

Cumulative Effect Analysis Area (CEAA) for Special Status Plants is the Saddle Draw fire perimeter. Past, present, and future action in the CEAA that may contribute to the cumulative effects to special status plants include livestock grazing and wildfire. These activities are expected to occur over the long term (more than 20 years).

Alternative A: No Action

If the no action alternative is implemented livestock grazing would continue within the fire perimeter including the Road Canyon pasture for which the *Collomia renacta* is located. Effects of livestock grazing to this species are unknown. If livestock grazing was to continue the site could be trampled or grazed and not allow the population to recover naturally.

Alternative B: Proposed Action

The proposed action would implement a temporary livestock grazing closure of two growing seasons or until objectives are met, in the Road Canyon pasture. This closure would allow the population to recover naturally without the potential impacts from livestock grazing or trampling. The proposed action would provide a temporary benefit to the population of *C. renacta* on South Star Mountain.

There are no other actions proposed in the vicinity of the *C. renacta* population. Neither are there herbicide treatments are proposed in this vicinity, thus there are no further affects from Alternative B.

13) ***Wilderness Inventory Units and Wilderness Study Area***

The Saddle Draw Fire burned through a portion of one Wilderness Study Area, Cedar Mountain and through three Wilderness Character Inventory Units (LWC) that meet minimum Wilderness Act criteria: Clark Ranch, Cold Spring and Deadman Creek. See the following tables of a summary of the Wilderness Criteria and area that was burned.

Table 10: Summary of WSA and LWC Units within Saddle Draw Fire Perimeter

Name	Total Size	Wilderness Criteria Met?				
		Size	Naturalness	Recreation	Solitude	Supplemental Values?
WSA						
Cedar Mountain	31,440 acres	Y	Y	Y	Y	Y
Wilderness Character						
Clark Ranch	17,400	Y	Y	Y	Y	N
Cold Spring	31,221	Y	Y	N	Y	Y
Deadman Creek	28,043	Y	Y	N	Y	N

Table 11: Summary of Acres Burned within WSA and LWC Units

NAME	Acres	Acres Burned	% Burned
Cedar Mountain WSA	33,459	1509	4.5%
Clark Ranch	17682	71	0.40%
Cold Spring	312,213	21,923	70.0%
Deadman Creek	168,260	27,971	99.7%

Under the 1976 *Federal Land and Policy Management Act* (FLPMA), the BLM has numerous authorities to maintain inventories of all public lands and their resources, including wilderness characteristics, and to consider such information during the land use planning process. BLM Manual 6310 provides guidelines to assess public lands for wilderness characteristics that are not currently managed for such characteristics (that is, lands other than existing designated wilderness areas and wilderness study areas (WSAs)).

Such assessment is based on determining whether certain roadless tracts of public land meet minimum Wilderness Act criteria, as follows:

- At least 5,000 acres in size or adjacent to other existing designated wilderness areas or wilderness study areas, and contain the following wilderness characteristics
- Generally natural in appearance, and has either
- Outstanding opportunities for solitude, or
- Outstanding opportunities for primitive and unconfined recreation.

Additional supplemental values that are associated wilderness values are also recorded during the assessment but are not a determining factor for wilderness characteristic

findings. The assessment reflects current conditions and was used to update wilderness inventories.

The process entails the identification of wilderness inventory units, an inventory of roads and wilderness characteristics, and a determination of whether or not the area meets the minimum Wilderness Act criteria (listed above). Units found to possess such characteristics are being evaluated during the land use planning process in order to address future management. The following factors are documented for each WIU:

Naturalness — Lands and resources exhibit a high degree of naturalness when affected primarily by the forces of nature and where the imprint of human activity is substantially unnoticeable. An area's naturalness may be influenced by the presence or absence of roads and trails, fences or other developments; and the nature and extent of landscape modifications.

Outstanding Opportunities for Solitude or Primitive and Unconfined Types of Recreation — Visitors may have outstanding opportunities for solitude or primitive and unconfined types of recreation, when the sights, sounds, and evidence of other people are rare or infrequent; where visitors can be isolated, alone or secluded from others; or where the area offers one or a combination of exceptional non-motorized, non-mechanical recreation opportunities.

Supplemental Values — does the area contain ecological, geological, or other features of scientific, educational, scenic, or historical value?

Wilderness Inventory Updates

In February 2004, a citizen group provided the BLM Vale District with an inventory report containing maps, photos, and photo logs for 42 proposed new wilderness study areas (WSAs) or wilderness areas of critical environmental concern covering over 2.2 million acres of public land in the planning area (ONDA, 2004). The group later submitted supplemental sets of digital photos, photo logs, and geographic information systems spatial data with additional or edited versions of their original submission from between 2007-2012 the BLM Vale District conducted wilderness inventory updates for public lands outside of designated WSAs (approximately 1.3 million acres in the planning area), following current inventory guidance. Interdisciplinary (ID) teams reviewed the existing wilderness inventory information contained in the BLM's wilderness inventory files, previously published inventory findings, and citizen-provided wilderness information.

The BLM identified preliminary boundaries for Wilderness Inventory Units and reviewed existing pertinent information within the unit to determine if data updates or additional field inventory information was needed. Updates and inventories were

completed prior to conducting an evaluation of a given unit. Inventory unit boundaries are principally formed by public land boundaries and roads. The ID teams made final route and boundary determinations and, subsequently, evaluated wilderness characteristics in each unit. BLM staff compiled the new and existing photography, resource information, ID team discussion records, and route information into individual unit records. With this information, the ID teams then made draft wilderness characteristic determinations and provided these to BLM managers for final concurrence. This process is documented in further detail in USDI-BLM (2011c). Final wilderness character determinations have been made available to the public on the BLM Vale District website at:

http://www.blm.gov/or/districts/vale/plans/wce/malheur-index.php

Lands with Wilderness Character

Clark Ranch (Unit OR-034-060) inventoried area according to the wilderness criteria forms (available at www.blm.gov/districts/vale/plans/files/Clark Ranch_OR-34-060_ALL.pdf), meets the minimum of 5,000 acre size requirement. The unit is 17,670 acres. Vegetation is predominately of nonnative cheat grass, some native grasses and sagebrush. The nature of the complex topography distributed over much of the unit is flat to slightly rolling hills of very low profile. The unit has outstanding opportunities for primitive and unconfined recreation opportunities through its connectivity with WSAs. The unit has supplemental values because one sage-grouse lek is located within the unit.

Cold Spring (Unit OR-034-030) inventoried area according to the wilderness criteria forms (available at www.blm.gov/districts/vale/plans/files/Cold Spring_OR-34-061_ALL.pdf), meets the minimum of 5,000 acre size requirement. The unit is 31,221 acres. The terrain consists of rocky hills with multi-directional and typically short drainage patterns. Vegetation consists of predominately of sagebrush and both native and non-native grasses. The unit topographic dynamic and the unit's size offers solitude. The dispersed recreational opportunities are not considered outstanding in quality. The unit has supplemental values because three sage-grouse leks are located within the unit.

Deadman Creek (Unit OR-034-071) inventoried area according to the wilderness criteria forms (available at www.blm.gov/districts/vale/plans/files/Deadman Creek_OR-34-071_ALL.pdf), meets the minimum of 5,000 acre size requirement. The unit is 28,043 acres. Vegetation is predominately of sagebrush community with both native and non-native grasses. Juniper is found on some of the higher elevated features and in the upper shallow draws of Deadman Creek. The nature of the complex topography distributed over much of the unit with wider widths, in combination with the unit's size and configuration, provides outstanding opportunities for solitude. The unit does not have outstanding opportunities for primitive and unconfined recreation opportunities. The unit does not have supplemental values.

Hard copies of the final wilderness characteristics determinations are contained in the BLM Vale District files and have been made available to interested parties upon request. Pursuant to 40 CFR Section 1502.21, the BLM hereby incorporates, by reference, the entirety of its wilderness inventory update documentation into this analysis. During the SEORMP plan amendment process, the BLM will determine whether or not to administratively protect lands that have been found to contain wilderness characteristics.

Wilderness Study Area and Wilderness Inventory Units

Cedar Mountain – OR 3-47
The Cedar Mountain Wilderness Study Area (WSA) (OR-3-47) is located in Malheur County, Oregon, approximately 50 miles southwest of Vale and 30 miles northwest of Jordan Valley. It lays midway (approximately 25 miles) in a triangle between State Highway 78 and U.S. Highways 20 and 95. The WSA includes 31,440 acres of BLM lands and 2,160 acres of split-estate lands. In addition, there is one 80-acre parcel of private land inside the WSA. The shape of the WSA is irregular. The boundary consists of a fence line on the north, and BLM roads and private land on the remainder. The eastern boundary road and the dead-end road from Seaburn Ranch to Cook Stove Basin Reservoir are low standard dirt roads, while the remaining boundary roads are high standard dirt roads. Two dead-end roads which terminate at earthen reservoirs are excluded from the WSA and serve as part of its boundary. One, extending from the northern boundary to Cook Stove Basin Reservoir, is 4.5 miles long. The other, 0.5 miles in length, extends form the western boundary to North Gallagher Reservoir.

The WSA is comprised of Cedar Mountain and its slopes, with elevations in the WSA ranging from 3,940 feet to 5,560 feet. The base of the mountain is approximately at the boundary of the WSA. Cook Stove Basin contains a natural playa (shallow lake during wet years) and is located west of the summit along the crest of Cedar Mountain. Predominant vegetation in the WSA is Wyoming big sagebrush with an understory of grasses and forbs. Higher elevation portions of the WSA support western juniper in moderately dense stands. The recommendation for the Cedar Mountain WSA is to release the entire area for uses other than wilderness. Designation of the entire WSA as wilderness, with road closures and acquisitions, is the environmentally preferable alternative since it would result in the least change to the natural environment over the long term. However, the no wilderness recommendation would be implemented in a manner which would use all practical means to avoid or minimize environmental impacts. The value of the benefits to be gained by retaining development options for a power line, projects associated with intensive livestock management and enhancement of wildlife populations in the WSA is high as compared with the area's wilderness values. Projected activities, which would be allowed under the recommendation, include development of a proposed power transmission line through the western edge of the WSA to route a proposed 500- kV power line along a six-mile length within the WSA and the intensive management of livestock in the area through construction and maintenance of three proposed reservoirs and nine miles of fence. This would improve livestock distribution and management by providing for long-term improved growth

and vigor of vegetation, thereby improving the ecological status of vegetation in existing areas of livestock grazing. Present maintenance of numerous livestock facilities, including 13 reservoirs and 21 miles of fence, and associated motorized vehicle use of 18 miles of access roads and ways would be allowed to continue unconstrained. The recommendation also would allow motorized recreation use to continue on the 13 miles of ways and five miles of dead-end roads. This would maintain vehicle-oriented hunting opportunities in the area and allow access for day hiking which would provide for reasonable hiking distances for a day's outing through much of the area. Map 10SD displays the location of the WSA impacted by the Saddle Draw fire.

Environmental Consequences

Effects Common to all WSAs

The effects of restoring of the existing range improvement projects, seeding and treatments would have no negative effect to the above WSA and LWC units. The following table presents a summary of the proposed action.

Table 12: Proposed Action - Effects Common to all WSAs

WSA or LWC Name	Historically Seeded prior to LWC or WSA Inventory?	ESR Seeding/Treatment proposed?	Improvements for this ESR
Cedar Mountain	Yes	No	None
Clark Ranch	No	No	None
Cold Spring	Yes (chemical)	No	Seeding & Chemical treatment; Fence repairs & temporary fence installation
Deadman Creek	Yes	Yes	Seeding & Chemical treatment; Fence repairs & temporary fence installation

Treatments proposed in lands determined to have wilderness character were selected to maintain, protect and/or enhance values identified by BLM through the wilderness characteristics inventory. Proposed actions in lands found by BLM to have wilderness characteristics are consistent with actions that are authorized under Wilderness Manual 6330 which may occur in Wilderness Study Areas. All proposed actions are designed to have only short-term, if any, impact to wilderness characteristics. Proposed treatments were also designed to: minimize the risk of invasion of cheat grass or noxious weeds; incorporate seed mixes, including native species, to enhance the natural character of the area; and utilize methodologies that minimize the short term visual and aesthetic impacts to the area. The proposed actions will not have a permanent impact to either the size of the inventoried wilderness characteristics unit or the individual wilderness characteristics.

The BLM concludes that the proposed ESR actions will not have substantial or long term impacts on the wilderness characteristics and would not affect either the existing finding that a unit contains wilderness characteristics, diminish the size of the unit, or affect the eventual management direction made at the conclusion of the agreed-to RMP Amendment process to address lands with wilderness characteristics, and thus would not benefit from additional analysis.

Short term impacts could include diminished recreational and wilderness experience for users in the setting and introducing new access with limited or restricted admittance.

Indirect effects would include potential impacts on wilderness characteristics from vehicles of recreationists and those used for rehabilitation efforts, however, monitoring of these routes will occur and if needed the placement of signs will be used to avoid long-term effects.
Although the settlement agreement (ONDA v. BLM, 2010) prohibits actions that would cause an area, or portion thereof, to no longer meet the minimum wilderness criteria, the minimum impact techniques used in restoration that would temporarily reduce wilderness characteristics would not have long term effects to the LWC. For planning purposes, the values in the LWCs had at the time of the inventory determination (2009-2010) will be used in the RMP amendment, without consideration of any short-term impairment from ESR activities.

14) Wild Horses

Affected Environment

Burns District
Approximately 23,000 acres (25 percent) of the 92,130-acre Stinkingwater HMA were burned in the Buzzard Fire. Appropriate management level (AML) for the HMA is 40 – 80 wild horses. The current herd size is estimated at 84 wild horses within the HMA. Stinkingwater HMA encompasses four grazing allotments (Mountain, Texaco Basin, Stinkingwater and Miller Canyon), with the HMA boundary delineated by perimeter fences. Multiple fences divide these allotments although wild horses range across the HMA based upon climatic conditions and available resources.

Although the fire burned 25 percent of the HMA, this portion of the HMA is the home range to only a small number of wild horses. Few horses had been observed using this area prior to the fire. During the week following the fire 10 adults and one foal were observed in the burned area, in Texaco Basin Allotment/Warm Springs Pasture, during both ground counts and a flight. This is the same group of horses that was returned to the Little Stinkingwater Pasture following the 2010 gather and has made their home range in Warm Springs Pasture. Approximately 5-7 horses were observed in the Winnemucca Field, outside the HMA, during the fire but have not been seen since. The fire burned somewhat patchy and did not remove all the vegetation in the portion

of the HMA burned. Adequate forage remains in the burned area for the amount of wild horses remaining inside the pastures affected.

Vale District
Approximately 6,000 acres (20 percent) of the 29,877-acre Cold Springs HMA were burned in the Buzzard Fire. Due to some fencing of State and private lands within the HMA, the fire actually burned approximately 30% of the horse accessible acreage within the HMA. Appropriate management level (AML) for the HMA is 75 – 150 wild horses. The current herd size is estimated at ~200 wild horses within the HMA. Cold Springs HMA is located within North Star Mountain Allotment and is entirely in the Wildcat/Cold Springs Pasture.

The burned portion of the HMA is the core spring, summer, and fall habitat for the wild horses due to the presence of dependable water sources and desirable topography. In 2006, a wildfire burned the same area of the HMA. The decision was made to not remove wild horses in 2006 since it was a small percentage of the HMA. Monitoring since the 2006 fire has shown that the wild horses have been "camping" on these burned areas since 2006 resulting in heavy use of upland herbaceous vegetation. This has resulted in a dramatic increase of exotic annual weed species (cheatgrass and medusahead).

Environmental Consequences

Alternative A: No Action

Burns District
Under the no action alternative, vegetation within the burned portion of the Stinkingwater HMA would be left to recover naturally. Without the seeding of desirable plant species and herbicide treatments, it is expected the invasive annual grass species cheatgrass and medusahead rye would establish and replace native sagebrush steppe plant communities in these areas. Medusahead in particular is relatively unpalatable to most grazing species. Mature medusahead plants with high silica content have poor forage value, and heavy infestations can reduce rangeland livestock forage by 75 to 80% (Hironaka 1961; George 1994). In the short-term (0-5 years), the conversion of these areas to annual grass dominated plant communities would reduce the quantity and quality of forage and cover habitat for wild horses within the HMA. In the long-term (5-10 years) the establishment and spread of invasive annual grass communities may contribute to a shortened fire return interval, which would slow or even prevent the full recovery of sagebrush steppe habitat within the HMA.

Without the maintenance of fire damaged fences around the perimeter of the HMA, wild horses would eventually roam outside of the HMA boundary onto adjacent BLM and private lands, and would be required to be removed or relocated back into the HMA. Without the construction of sediment traps and catchment cleaning, reservoirs and waterholes within the HMA would rapidly fill with sediment the first two years

following fire. This would reduce storage capacity of these improvements, therefore reducing the quantity and quality of water available to sustain wild horses.

Vale District
Under the no action alternative, vegetation within the burned portion of the Cold Springs HMA would be left to recover naturally. Without the short-term removal or relocation of the wild horses from the burned portions of the HMA, horses would preferentially graze new growth of reestablishing herbaceous vegetation beginning the first growing season (Spring 2015). Because wild horses develop home ranges around preferred water and foraging habitat, repeated utilization of new regrowth would preclude seed and root development on recovering herbaceous vegetation. This would further promote the establishment and spread of less desirable annual grass dominated plant communities.

Without the herbicide treatments, it is expected the invasive annual grass species cheatgrass and Medusahead rye would establish and replace native sagebrush steppe plant communities in these areas. In the short-term (0-5 years), the conversion of these areas to annual grass dominated plant communities would reduce the quantity and quality of forage and cover habitat for wild horses within the HMA. In the long-term (5-10 years) the establishment and spread of invasive annual grass communities may contribute to a shortened fire return interval, which would slow or even prevent the full recovery of sagebrush steppe habitat within the HMA.

Alternative B: Proposed Action

Burns District
Under the proposed action, management activities would occur to rehabilitate wild horse habitat in Stinkingwater HMA. Aerial and ground based seeding of desirable perennial herbaceous, Wyoming big sagebrush and bitterbrush plant species would increase the likelihood of desirable perennial vegetation establishing in areas with the highest risk of conversion to annual grass dominated plant communities. Upon successful establishment, these seeded species would provide more nutritious and palatable forage habitat for wild horses compared to annual grass communities, therefore maintaining or improving carrying capacity for all demands within the HMA. Aerial and ground-based application of effective herbicides would reduce establishment of annual species, therefore improving the likelihood of establishing desired seeded and naturally recovering plant species.

Wild horses in the burned portion of the Stinkingwater HMA would not be immediately removed. If monitoring indicates wild horses are contributing to a "Light" (21-40%) utilization level across 5% of the burned area horses would then be relocated to the unburned portion of the HMA. Relocation of the wild horses would be done using the helicopter drive method. Relocation would be done to ensure vegetative recovery in the burned area. Because wild horses are territorial and establish their own home ranges, relocation may require multiple flights to move all wild horses and relocate any horses that manage to return to the burned area. Wild horses found outside the HMA boundary would also be relocated to the HMA via

helicopter drive method. Direct impacts to wild horses include the stress associated with being herded out of the burned perimeter. The intensity of these impacts varies by individual, and is indicated by behaviors ranging from nervous agitation to physical distress. When being herded by the helicopter, injuries sustained by wild horses may include bruises, scrapes, or cuts to feet, legs, face, or body from rocks, brush or tree limbs. Rarely, wild horses encounter barbed wire fences and receive wire cuts. The maximum distance wild horses would be driven out of the burned perimeter would be approximately seven miles.

Once herded to the unburned portion of the HMA, the reconstructed pasture fences with gates closed year-round would preclude wild horses and livestock grazing on the burned area until establishment of seeded species and rehabilitation objectives are met. This is anticipated to occur by the third growing season following the fire (spring 2017). Indirect impacts to wild horses include displacement of horses to areas outside of their home range within the HMA. However, once rehabilitation objectives have been achieved, pasture gates would remain open during times when livestock are not grazing and wild horses would eventually move back into the project area and establish home ranges equivalent to pre-fire.

The proposed aerial and ground-based seeding activities may cause temporary disturbance to wild horses ranging within or immediately adjacent to the treatment areas. The presence of vehicles/aircraft used in seeding could provoke a flight response and temporarily displace horses as they pass by, however these impacts would temporary and horses would return to their preferred ranges once activity subsides. Biological thinning would reduce fine fuels and help reduce the occurrence of annual grasses. The reduction in fine fuels would decrease the risk of large, habitat destroying wildfires. This would protect the HMA, ensuring that future fires are of a low intensity that would benefit the wild horse habitat not destroy it.

Effects of herbicides proposed for use for this resource are discussed in Appendix B – Tables 7-13 and Chapter III, A-5).

The research plots evaluating various methods of sagebrush restoration success would only benefit wild horses and their habitat by providing land managers insight to the most promising methods of restoration following future wildfire events.

Reconstruction of the pasture and HMA boundary fences would help to maintain horses within the HMA boundary and aid in future resource management. Road stabilization and maintenance would enable vehicles used for monitoring and gathering horses to continue to access the area as necessary. The repair or reconstruction of spring developments would continue to allow wild horses access to clean water.

Vale District

Under the proposed action, management activities would occur to rehabilitate wild horse habitat within Cold Springs HMA. Aerial and ground-based application of effective herbicides would reduce establishment of annual species, therefore

improving the likelihood of establishing desired seeded and naturally recovering plant species, therefore maintaining or improving carrying capacity for all demands within the HMA.

15) Wildlife

Affected Environment

Collectively, a large amount of wildlife species could utilize suitable habitat on the affected area on a seasonal or yearlong basis. There are many mammal species, and several reptile and amphibian species that can typically be found in sagebrush habitats, grasslands, and riparian areas within the affected area.

The Buzzard Complex fire eliminated nearly all wildlife habitats within the perimeter, with the exception of a few small islands of vegetation that did not burn. Wildlife such as mule deer (*Odocoileus hemionus*), pronghorn antelope (*Antilocapra americana*), and other ungulates in the area may utilize these small islands, edges of the burn perimeter, and areas adjacent to water sources in search of forage, but most ungulates were displaced by the nearly complete loss of vegetation in the burned area. Ungulates and many other generalist and grassland adapted wildlife species would be expected to be able to return the following spring as grasses and other herbaceous plants quickly recover to provide suitable habitat. Vegetation mortality represents only a temporary loss of cover and forage. A portion of this habitat would re-sprout and/or regenerate from the seed bank or plants that survived in areas where fire burn intensity was low. Many wildlife species, including mule deer and pronghorn, would be expected to gain some temporary benefit from the fires due to increased forage from higher proportions of grass and forb cover in burned areas. Sagebrush vegetation would be expected to require several decades or more to recover to the point where it once again provides adequate structure and diversity to provide thermal and hiding cover to various wildlife species that once inhabited the area. Two factors may limit small mammal populations after fire: 1) the loss of shrub cover may result in increased predation, and 2) thick stands of cheatgrass may impede small mammal movements which may affect breeding success and population size (Groves & Steenhof 1988). Because cheatgrass-dominated communities support fewer small mammals than shrub-dominated communities, predator species such as the gopher snake, coyote, badger, and raptorial birds are also affected by large-scale losses of shrub habitat (Gano & Rickart 1982, Kochert et al. 1999).

The Buzzard Complex fire is the dominant factor influencing the affected environment for wildlife species, but other actions have helped shape the existing conditions. Other past and present actions affecting the area include road and fence construction, water developments, power line construction, facility construction, livestock and wild horse grazing, and recreation. Livestock grazing is the most widespread and long-term actions occurring within the affected environment; and is managed and monitored to facilitate sustainable multiple use, including maintenance of grasses and forbs to provide for wild ungulates on the landscape. Developed water sources are generally

beneficial for ungulates and numerous other wildlife species, and may have improved distribution or increased populations of some species in the area. Roads and fences are a potential threat to wildlife species in the area due to collisions or fragmentation of habitat. Density of roads, fences, is relatively low across the project area compared to other areas. Effects of past wildfires, vegetation treatments, and weed control treatments are not as readily apparent since the Buzzard Complex fire, but these have also influenced the resiliency of the habitat and its ability to recover from the wildfire.

Mule deer are widespread throughout the fire and surrounding area; approximately 153,395 acres of mule deer habitat and 285,917 acres of elk habitat burned in the fire. The affected area provided both winter and summer range. The availability of winter range is a critical limiting factor for the affected mule deer and elk herds.

Environmental Consequences

Effects Common to All Alternatives

For the purposes of this analysis, the CEAA for wildlife extends up to 10 miles beyond the fire boundary to encompass regular movements of most animals that may be using the allotment. The total acreage of the burned area plus the CEAA is approximately 1,586,144 acres. Vegetation in the CEAA is dominated by sagebrush steppe. The CEAA does not incorporate the entire annual use area for some animals, such as pronghorn and mule deer, because this information is not available nor is it expected to change the analysis. Beneficial effects of habitat recovery would increase over time, but would be expected to require several decades or more to fully recover to conditions present prior to the fire.

Past and present actions and events, such as those described in the Affected Environment, have also influenced the existing environment within the CEAA. Reasonably foreseeable future actions (RFFAs) or events within the CEAA include livestock grazing, weed management, road maintenance, wildfires, and recreation. Several of these are similar to actions and events in the project area, and general effects for most of these are described in the Affected Environment section for Migratory Birds and Special Status Species. RFFAs that may contribute to cumulative effects with this project are carried through analysis in the Environmental Consequences for each alternative, and include ongoing District weed treatments.

The ARS study plots would not have any effect on wildlife due to the small size of the study area (overall 10 acres).

Alternative A: No Action

There would be no actions taken on BLM lands within the burned areas, resulting in no disturbance to wildlife species. With no active, large-scale management intervention, the risk of rapid introduction and spread of noxious weeds and invasive annual grasses would increase. Once these invasive species are established, they start to out-compete native vegetation and dominate small areas then expand into other disturbed areas within the fire perimeter. Eventually, these larger patches start to

expand into adjacent unburned habitat, increasing its susceptibility to wildfire occurrence. Plant communities dominated by invasive annual grasses increase the likelihood of more frequent wildfire occurrence, shortening the historic fire return interval. This shortened fire cycle reduces the potential for the area to recover to the shrub steppe habitat it was prior to the fire and achieving later seral stages necessary to provide adequate cover and forage for most wildlife species in the fire area. This plant community would not be expected to recover naturally, and would require extensive restoration effort before supporting suitable habitat for wildlife species.

Objectives of the Bureau of Land Management's ESR program to mitigate the adverse effects of fire on the local resources in a cost effective and expeditious manner would not be met under this Alternative. Erosion would occur unabated, and result in even longer time frames required for sagebrush and associated understory plant communities to return to the health and vigor present prior to the fire, resulting in lower diversity and density overall.

Treatments for noxious weeds using currently authorized herbicides would still be permitted. The currently authorized herbicides are less effective than the proposed herbicides at targeting specific weed species while minimizing damage to adjacent non-target plants that provide wildlife habitat. None of the currently authorized herbicides is selective for annual grasses, such as Medusahead rye and cheat grass, which are two of the biggest threats to persistence of sagebrush steppe and its associated wildlife community (Hagen 2011).

Alternative B: Proposed Action

Aerial seeding (40,000 acres) would not cause ground disturbance and it would not affect existing wildlife habitat (e.g. unburned islands) remaining after the fire. This treatment is expected to stabilize soils and improve burned habitat in areas not suitable for drill seeding. Potential noise and visual disturbance associated with aerial seeding may cause temporary displacement or alter the activity level or behavior of some wildlife species. Disturbance effects would primarily be limited to the treated areas, where planes or helicopters would be flying closest to the ground. Disturbance effects from aerial seeding would be negligible and discountable on wildlife populations due to the relatively small amount of area being treated within the burned areas, and the brief (few hours) amount of time required spreading the seed over the landscape. Most wildlife species would return to the area or resume activity once seeding is complete.

Ground seeding (18,678 acres) would occur primarily in lower elevation Wyoming or low sagebrush plant communities with a component or threat of Medusahead or cheatgrass. Fence, gate, and cattle guard maintenance and reconstruction would occur as needed to exclude livestock from the burned area until vegetation objectives are met. This would include approximately 474 miles of repair fencing, ten miles of new temporary fences to control movement of livestock and wild horses, temporary cattle guards, and an unspecified number of gates as needed. There is the potential for fences to create a collision hazard to wildlife, but most wildlife species can avoid the fences and either jump over or go under the fences. The majority of the burned area in

the Cold Springs HMA, including all seeded areas, would be temporarily closed to wild horses and the entire area would be closed to domestic livestock grazing until vegetation objectives are met. Protection from livestock grazing would help to allow for recovery of affected vegetative communities.

Approximately 15 troughs that were damaged in the fire would be repaired or replaced as necessary and 19 spring developments that were damaged or destroyed in the wildfire would be repaired or reconstructed. Water sources are very important to wildlife in areas of limited water, especially in drought years. Repairing or replacing these facilities would ensure water availability to wildlife in the area. Water troughs in the burned area would be inspected for presence and condition of escape ramps, and non-functioning or missing ramps would be maintained or replaced.

Wyoming big sagebrush seedling (plugs) planting would occur on approximately 6,000 acres where sagebrush mortality occurred due to the fire. Antelope bitter brush seedling planting would occur on about 2,000 acres where mortality occurred during the fire. Locations for the plug plantings were selected to maximize the chances of success, and are based on soil survey data, vegetative communities present prior to wildfire, and potential vegetative communities based on ecological site descriptions. In addition, 15 miles of eight foot tall temporary fence would be constructed around the bitterbrush plantings on the Vale District to protect the seedlings from wildlife browsing. These fences would be removed once the seedlings have established well enough to withstand browsing by big game. Fire kills sagebrush plants and sagebrush seeds in the soil, and suppresses recovery because Basin, Mountain, and Wyoming big sagebrush are not root-sprouting shrubs (Tisdale & Hironaka 1981). Post burn recovery periods for these three big sagebrush taxa can be long because they must reestablish from seed. For example, Baker (2006, 2011) approximated post fire recovery for Mountain big sagebrush at 35–100 or more years and Wyoming big sagebrush at 50–120 years based on a combination of cover and density values from various studies. Planting plugs should jumpstart this recovery effort resulting in less time needed for Wyoming big sagebrush to reach sufficient cover percentages to be useful for wildlife species as both hiding cover and as a food source during the winter season.

This alternative would allow for the use of more selective herbicides that are effective at controlling noxious weeds and invasive annual grasses, while limiting collateral damage to native and desirable non-native plants. Non-target desirable plants may be harmed, but risk would generally be limited to vulnerable (depending on selected herbicide) plants in the immediate treatment area, and have no effect on overall abundance or diversity of wildlife habitat. Application of the proposed herbicides using Standard Operating Procedures (SOPs) would not only improve the success of the seeding effort, it would help protect native plants that survived the fire. These native plants provide a valuable seed source adapted to the local environment, which further enhances the ability of the native plant community to recover (Leger 2008) and provide a more diverse habitat for wildlife species. A sterilant would be used around power poles within the fire perimeter to prevent the growth of plant materials that can cause damage to the poles from fire; this sterilant would remove biomass around the

poles in a total area of about four acres. Implementation of this alternative would result in maintenance or improvement of more acres of wildlife habitat compared to the No Action Alternative.

Cumulative effects of the proposed action in regards to wildlife species as a whole are expected to be beneficial in the long term (10+ years), with livestock not occurring until vegetative objectives are met. This is expected to allow for the more rapid recovery of the health and vigor of vegetation in burned and seeded areas by allowing plants to have the needed time to build root reserves and seed. This would also eliminate potential disturbance from livestock grazing and management activities associated with livestock grazing. Selection of this alternative would actively improve the rate and increase the success of habitat recovery for many wildlife species.

Cumulative Effects

As the Council on Environmental Quality (CEQ), in guidance issued on June 24, 2005, points out, the "environmental analysis required under NEPA is forward-looking," and review of past actions is required only "to the extent that this review informs agency decision-making regarding the Proposed Action." Use of information on the effects on past actions may be useful in two ways according to the CEQ guidance. One is for consideration of the Proposed Action's cumulative effects, and secondly as a basis for identifying the Proposed Action's effects.

The CEQ stated in this guidance that "[g]enerally, agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions." This is because a description of the current state of the environment inherently includes the effects of past actions. The CEQ guidance specifies that the "CEQ regulations do not require the consideration of the individual effects of all past actions to determine the present effects of past actions." Our information on the current environmental condition is more comprehensive and more accurate for establishing a useful starting point for a cumulative effects analysis, than attempting to establish such a starting point by adding up the described effects of individual past actions to some environmental baseline condition in the past that, unlike current conditions, can no longer be verified by direct examination.

The second area in which the CEQ guidance states that information on past actions may be useful is in "illuminating or predicting the direct and indirect effects of a Proposed Action." The usefulness of such information is limited by the fact that it is anecdotal only, and extrapolation of data from such singular experiences is not generally accepted as a reliable predictor of effects.

However, "experience with and information about past direct and indirect effects of individual past actions" have been found useful in "illuminating or predicting the direct and indirect effects" of the Proposed Action in the following instances: the basis for predicting the effects of the Proposed Action and its alternatives is based on the

general accumulated experience of the resource professionals in the agency with similar actions.

The environmental consequences discussion described all expected effects, including direct, indirect, and cumulative, on resources from enacting the proposed alternatives. Direct and indirect effects plus past actions become part of the cumulative effects analysis; therefore, use of these words may not appear. In addition, the Introduction Section of this EA, specifically the Purpose of and Need for Action, identifies past actions creating the current situation.

RFFAs, also relevant to cumulative effects, include those Federal and non-Federal activities not yet undertaken, but sufficiently likely to occur, that a Responsible Official of ordinary prudence would take such activities into account in reaching a decision. These Federal and non-Federal activities that must be taken into account in the analysis of cumulative impact include, but are not limited to, activities for which there are existing Decisions, funding, or proposals identified by the bureau. These RFFAs must fall within the geographic scope and timeframe of the analysis being prepared. Continued livestock grazing, weed treatments, road maintenance, recreation activities, and wild horse management are all RFFAs. The cumulative effects of these actions were thoroughly addressed throughout Chapter III, by resource, as applicable.

CHAPTER IV: CONSULTATION AND COORDINATION

A. Agencies, Tribes and Individuals Consulted

Bureau of Land Management
Burns Paiute Tribe
Fort McDermitt Paiute Shoshone Tribe
Burns District and Vale District grazing permittees
Oregon Department of Fish and Wildlife
U.S. Fish and Wildlife Service
USDA Agricultural Research Service
Tree Top Ranches
Malheur County, Oregon
Harney County, Oregon

B. BLM Interdisciplinary Teams

Burns District:

Lindsay Davies:	Natural Resource Specialist (*Fisheries, Water Quality, Wetlands/Riparian Zones*)
Matt Obradovich:	Wildlife Biologist *(Migratory Birds, SSS, Wildlife)*
Eric Haakenson:	Recreation Specialist (*Visual Resources*)
Lisa Grant:	Wild Horse and Burro Specialist (*Wild Horses*)
Caryn Burri:	NRS Botany *(Biological Soil Crusts, Vegetation, Burns District ESR Coordinator.)*
Lesley Richman:	District Weed Coordinator (*Noxious Weeds)*

Scott Thomas:	District Archaeologist *(American Indian Traditional Practices, Cultural Heritage)*
Carolyn Temple:	Archaeologist
Rachel Beaubien:	Natural Resource Specialist (Grazing Management and Rangelands)
Travis Hatley:	Natural Resource Specialist (Grazing Management and Rangelands)
William Dragt:	Supervisory Natural Resource Specialist (Grazing Management and Rangelands)
Tom Wilcox:	Wilderness Planner (*Wilderness Study Areas, Wilderness Characteristics)*

Vale District:

Donald Rotell:	Natural Resource Specialist – Vale District Lead Preparer (*Upland Vegetation, Proposed Treatments)*
Cheryl Bradford:	Archaeologist *(American Indian Traditional Practices, Cultural Heritage)*
Rebecca Evans:	Rangeland Management Specialist *(Grazing Management and Rangelands)*
Susan Fritts:	Jordan/Malheur Assistant Field Manager/Botanist (*ACEC/RNA, SSS Plants)*
Megan McGuire:	Wildlife Biologist (*Migratory Birds, SSS, Wildlife and Fisheries)*
Linus Meyer:	Natural Resource Specialist *(Soils, Water Quality, Wetlands/Riparian Zones*)
Kari Points:	Outdoor Recreation Planner (*Wilderness Study Areas, OHV, Travel Management, Wilderness Characteristics, Visual Resource Management)*
Lynne Silva:	Weed Specialist (*Noxious Weeds*)

C. Advisory

Burns District:

Stacy Fenton:	GIS Specialist
Travis Miller:	Natural Resource Specialist (*Grazing Management and Rangelands*)
Richard Roy:	Three Rivers Resource Area Field Manager
Holly Orr:	Planning and Environmental Coordinator

Vale District:

Ralph Falsetto:	GIS Coordinator
Brent Grasty:	Planning and Environmental Coordinator
Amanda Rice:	GIS Specialist
Thomas Patrick "Pat" Ryan:	Jordan/Malheur Resource Area Field Manager
Charlie Tackman	Ecologist – Ecological Site Inventory
Shannon Wolery:	Litigation Specialist

CHAPTER V: REFERENCES

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Appendix A – Maps


Map 1
Washington
Oregon
Idaho
Nevada
Boardman
Hermiston
Milton-Freewater
Troy
The Dalles
Pendleton
Pilot Rock
Elgin
Wallowa
Imnaha
Enterprise
Joseph
La Grande
Ukiah
Baker Resource Area (Vale District)
Baker City
Sumpter
Long Creek
Madras
Mitchell
Dayville
Prairie City
Unity
Ironside
Huntington
Midvale
Prineville
Weiser
Seneca
Willowcreek
New Plymouth
Vale
Nyssa
Brothers
Drewsey
Juntura
Hampton
Malheur Resource Area (Vale District)
Homedale
Burns
Riverside
Riley
Crane
New Princeton
Buzzard Complex
Wagontire
Three Rivers Resource Area (Burns District)
Diamond
Jordan Valley
Frenchglen
Burns Junction
Rome
Andrews Resource Area (Burns District)
Jordan Resource Area (Vale District)
Fields
Denio
McDermitt
OREGON
Buzzard Complex
Burns District
Vale District
Note: No warranty is made by the Bureau of Land Management as to the accuracy, reliability or completeness of these data for individual or aggregate use with other data. Original data was compiled from various sources and may be updated without notification.
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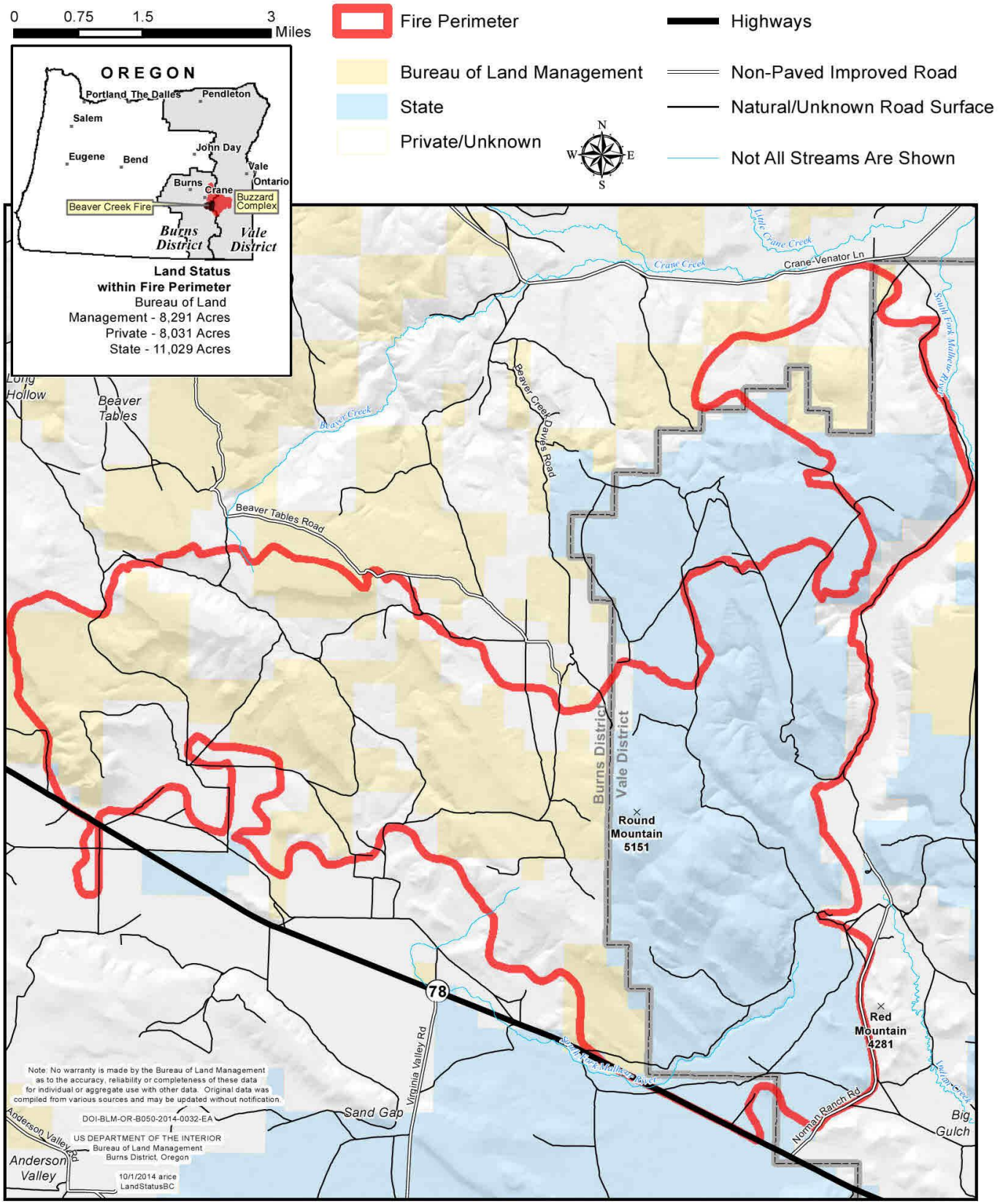
Map 2-BC

LAND STATUS

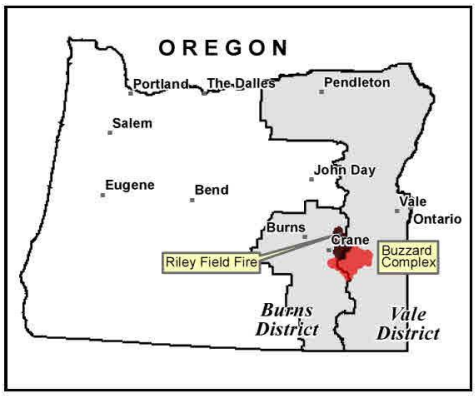


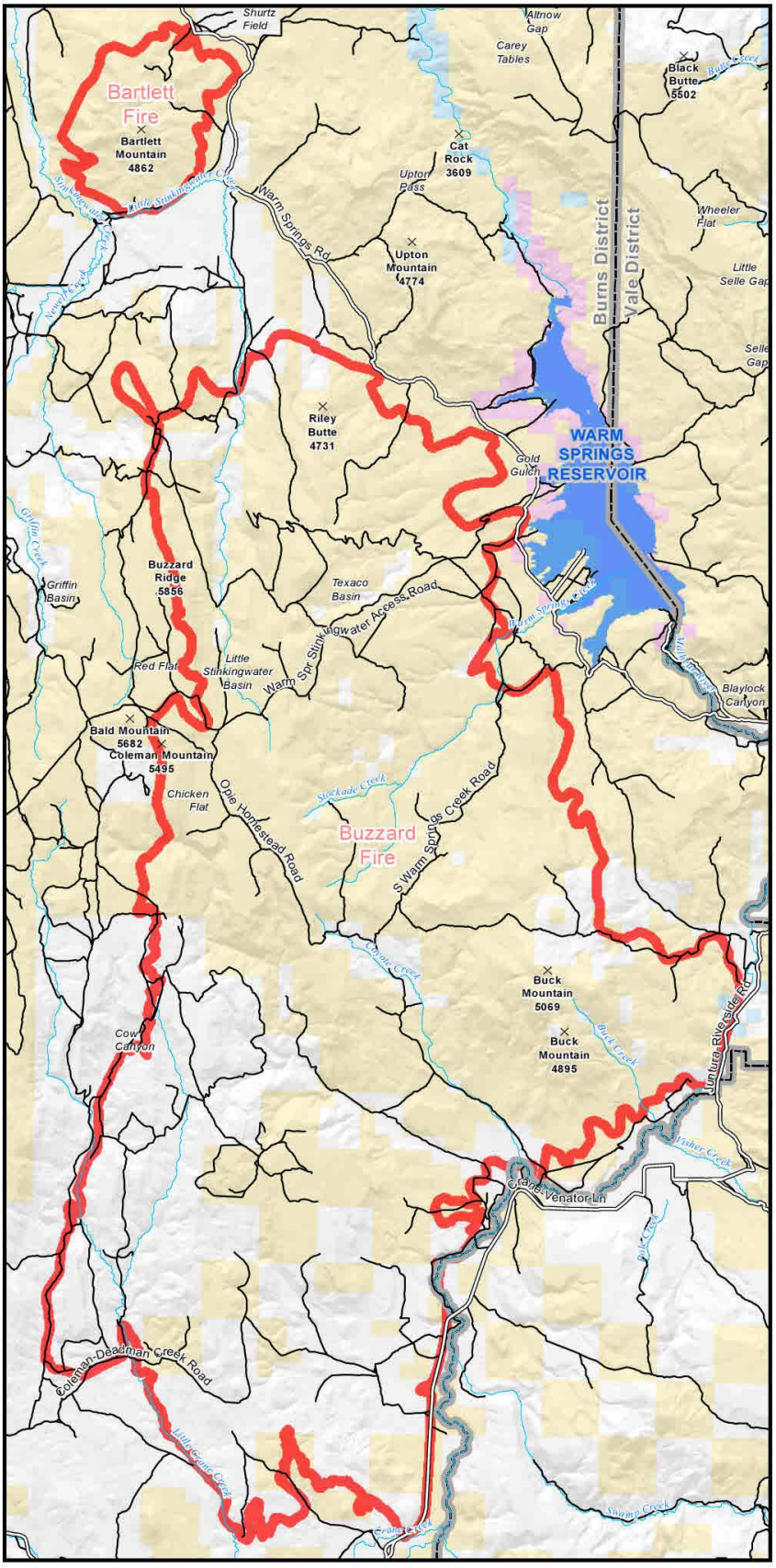
Map 2-RF

LAND STATUS

Land Status within Fire Perimeter
Bureau of Land Management - 61,872 Acres
Private - 29,248 Acres
Bureau of Reclamation - 4 Acres
State - 40 Acres

- Bureau of Land Management
- State
- Other Federal
- Private/Unknown
- Fire Perimeter
- Non-Paved Improved Road
- Natural/Unknown Road Surface
- Not All Streams Are Shown





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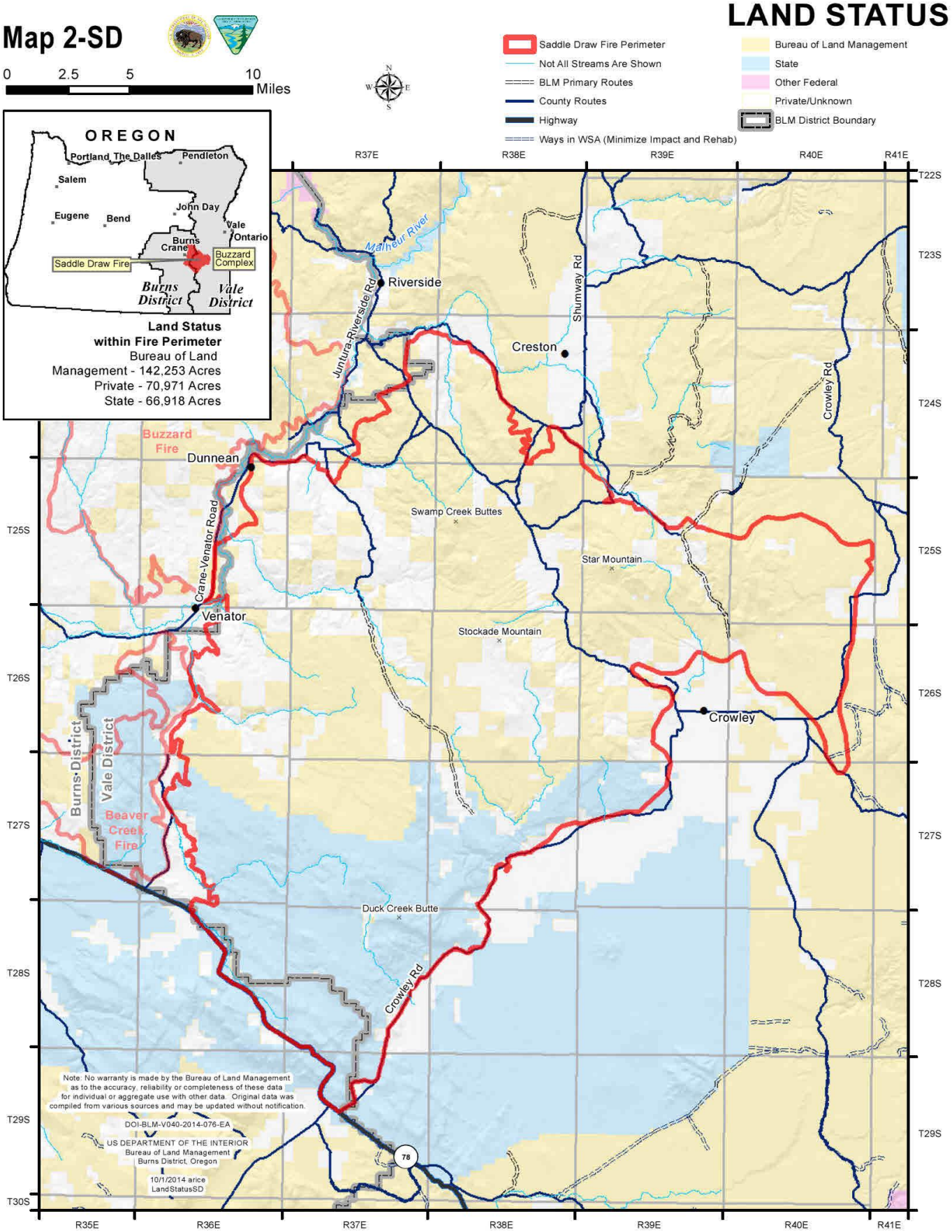
LandStatusRF


LAND STATUS
Map 2-SD
0 2.5 5 10 Miles
Saddle Draw Fire Perimeter
Not All Streams Are Shown
BLM Primary Routes
County Routes
Highway
Ways in WSA (Minimize Impact and Rehab)
Bureau of Land Management
State
Other Federal
Private/Unknown
BLM District Boundary
OREGON
Portland
The Dalles
Pendleton
Salem
John Day
Eugene
Bend
Vale
Ontario
Burns
Crane
Buzzard Complex
Saddle Draw Fire
Burns District
Vale District
Land Status within Fire Perimeter
Bureau of Land Management - 142,253 Acres
Private - 70,971 Acres
State - 66,918 Acres
R37E
R38E
R39E
R40E
R41E
T22S
T23S
T24S
T25S
T26S
T27S
T28S
T29S
T30S
Malheur River
Riverside
Juntura-Riverside Rd
Shumway Rd
Creston
Crowley Rd
Buzzard Fire
Dunnean
Swamp Creek Buttes
Star Mountain
Crane-Venator Road
Venator
Stockade Mountain
Crowley
Burns District
Vale District
Beaver Creek Fire
Duck Creek Butte
Crowley Rd
78
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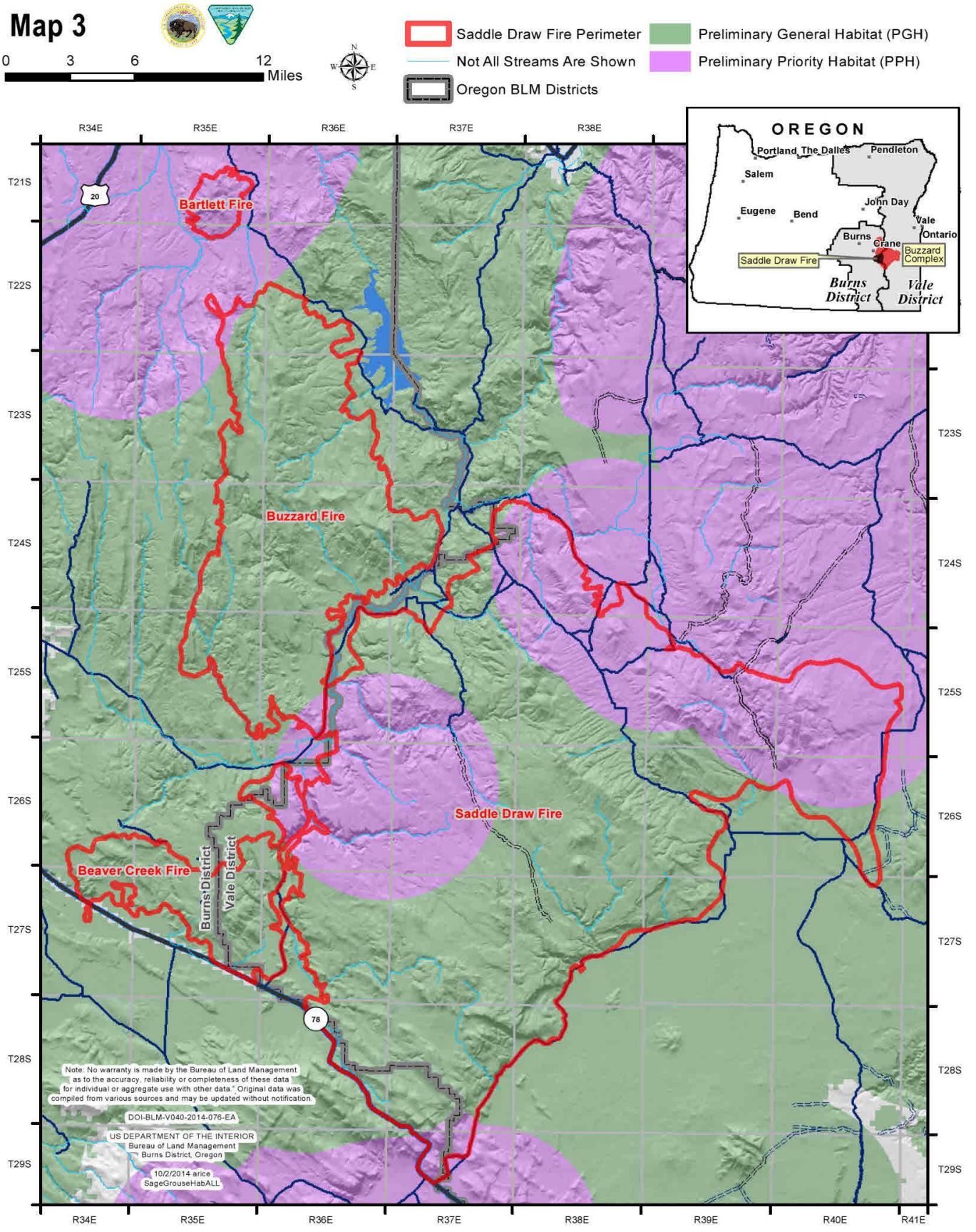
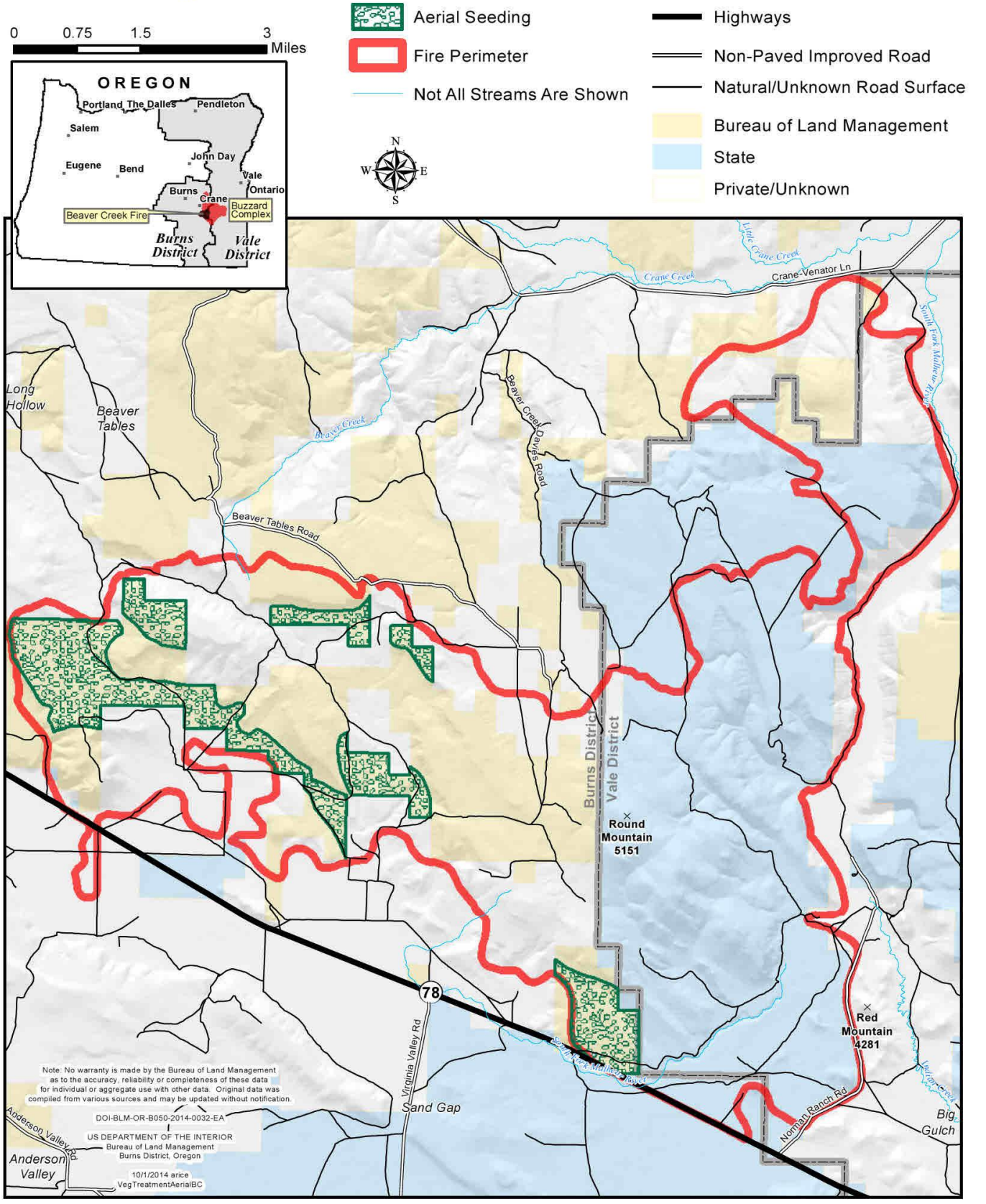
10/1/2014 arice
LandStatusSD

SAGE-GROUSE PRELIMINARY HABITAT



Map 4-BC AERIAL VEGETATION TREATMENT



Map 4-RF

AERIAL VEGETATION TREATMENT

(High Priority) Mountain Big Sage

(High Priority) Native/Crested

(Low Priority) Crested/Kochia/Alfalfa

Fire Perimeter

Bureau of Land Management

State

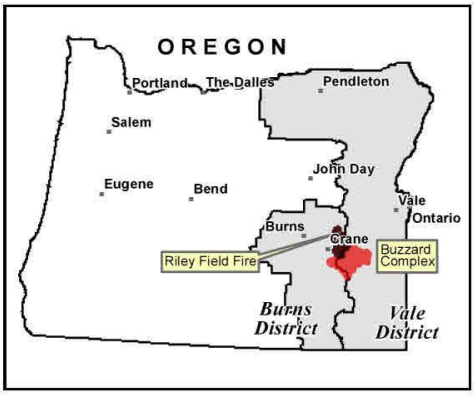
Other Federal

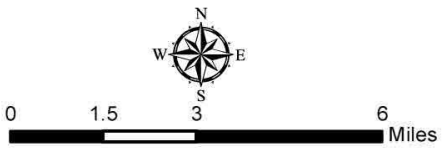
Private/Unknown

Non-Paved Improved Road

Natural/Unknown Road Surface

Not All Streams Are Shown





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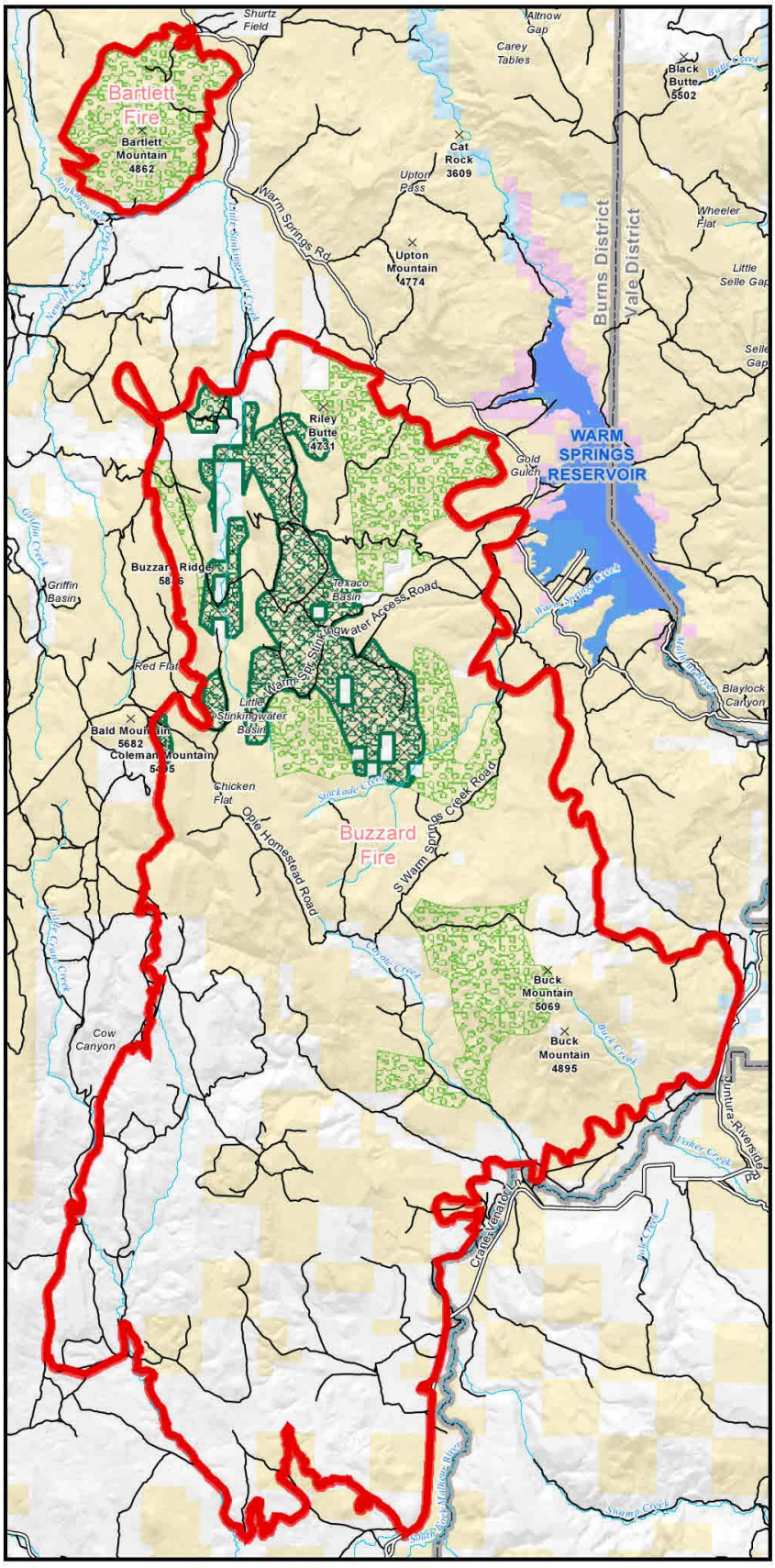
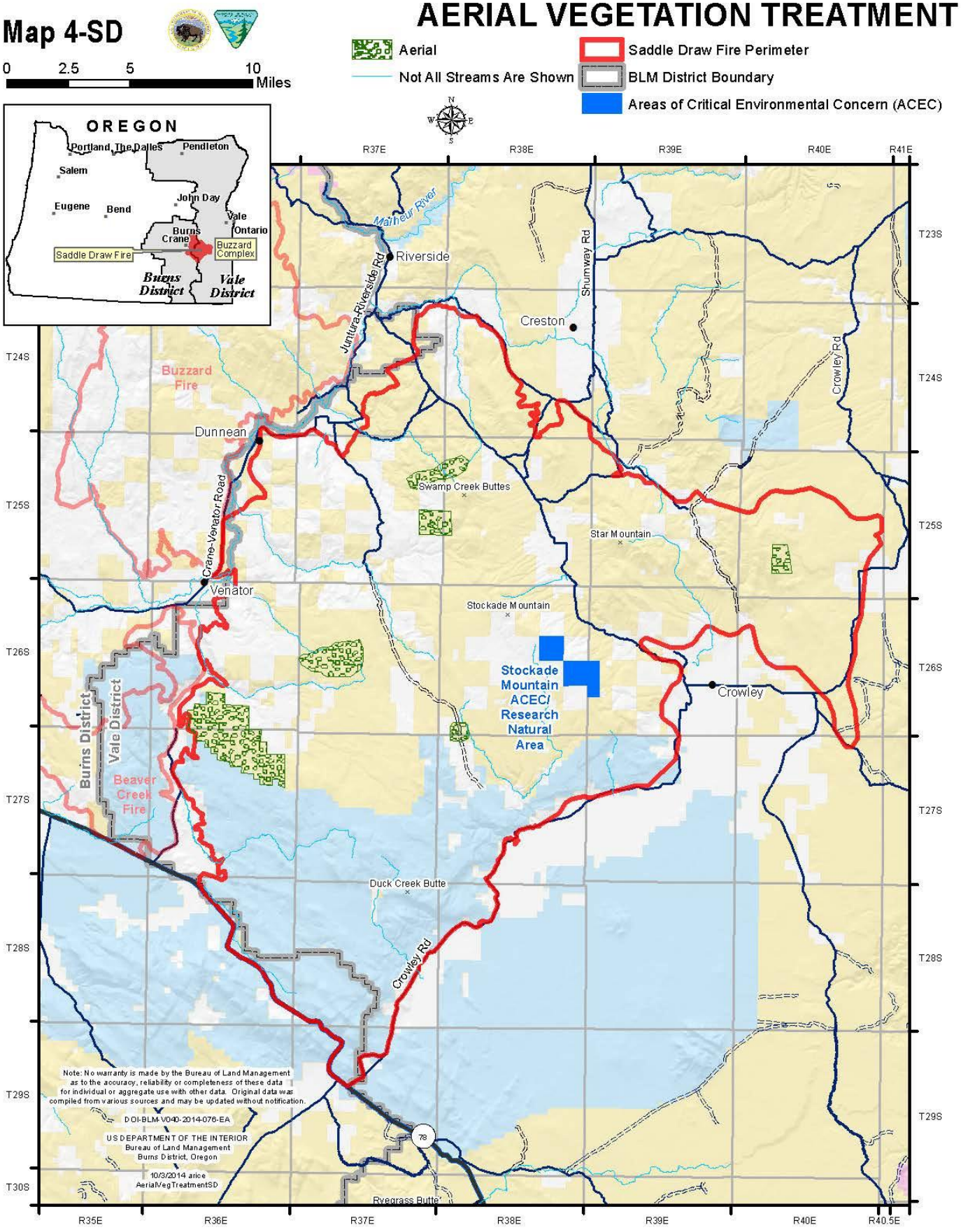
VegTreatmentAerialRF




Map 4-SD
AERIAL VEGETATION TREATMENT
0 2.5 5 10 Miles
Aerial
Not All Streams Are Shown
Saddle Draw Fire Perimeter
BLM District Boundary
Areas of Critical Environmental Concern (ACEC)
OREGON
Portland
The Dalles
Pendleton
Salem
John Day
Eugene
Bend
Vale
Ontario
Burns
Crane
Buzzard Complex
Saddle Draw Fire
Burns District
Vale District
R37E
R38E
R39E
R40E
R41E
T23S
T24S
T25S
T26S
T27S
T28S
T29S
T30S
Malheur River
Riverside
Juntura-Riverside Rd
Shumway Rd
Creston
Crowley Rd
Buzzard Fire
Dunnean
Swamp Creek Buttes
Crane-Venator Road
Star Mountain
Venator
Stockade Mountain
Stockade Mountain ACEC/ Research Natural Area
Crowley
Burns District
Vale District
Beaver Creek Fire
Duck Creek Butte
Crowley Rd
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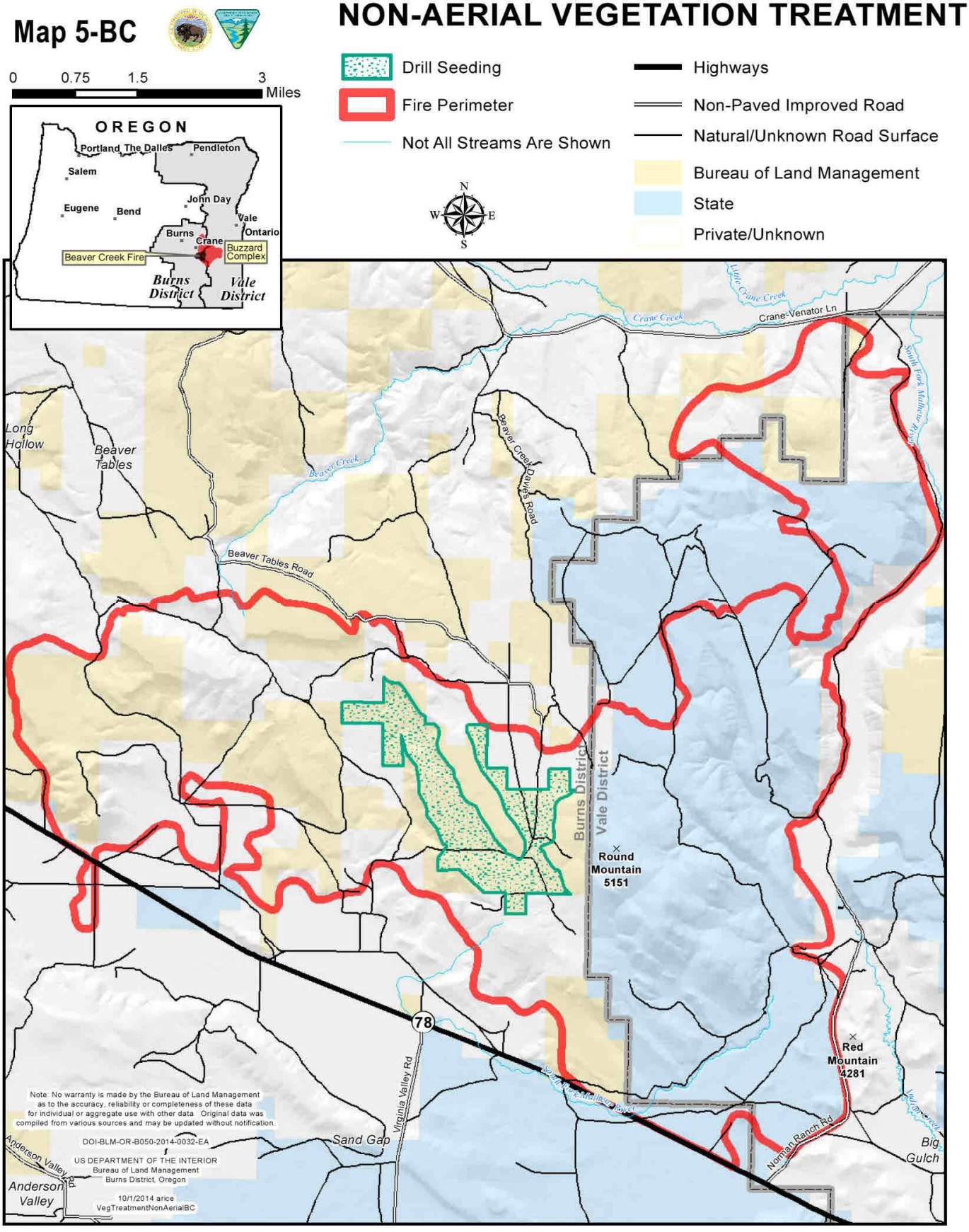
10/3/2014 arice
AerialVegTreatmentSD
78
Ryegrass Butte
R35E
R36E
R37E
R38E
R39E
R40E
R40.5E

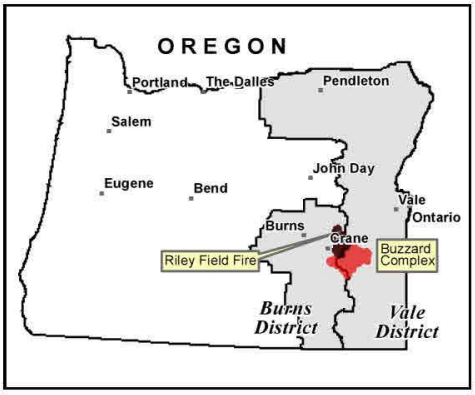
NON-AERIAL VEGETATION TREATMENT

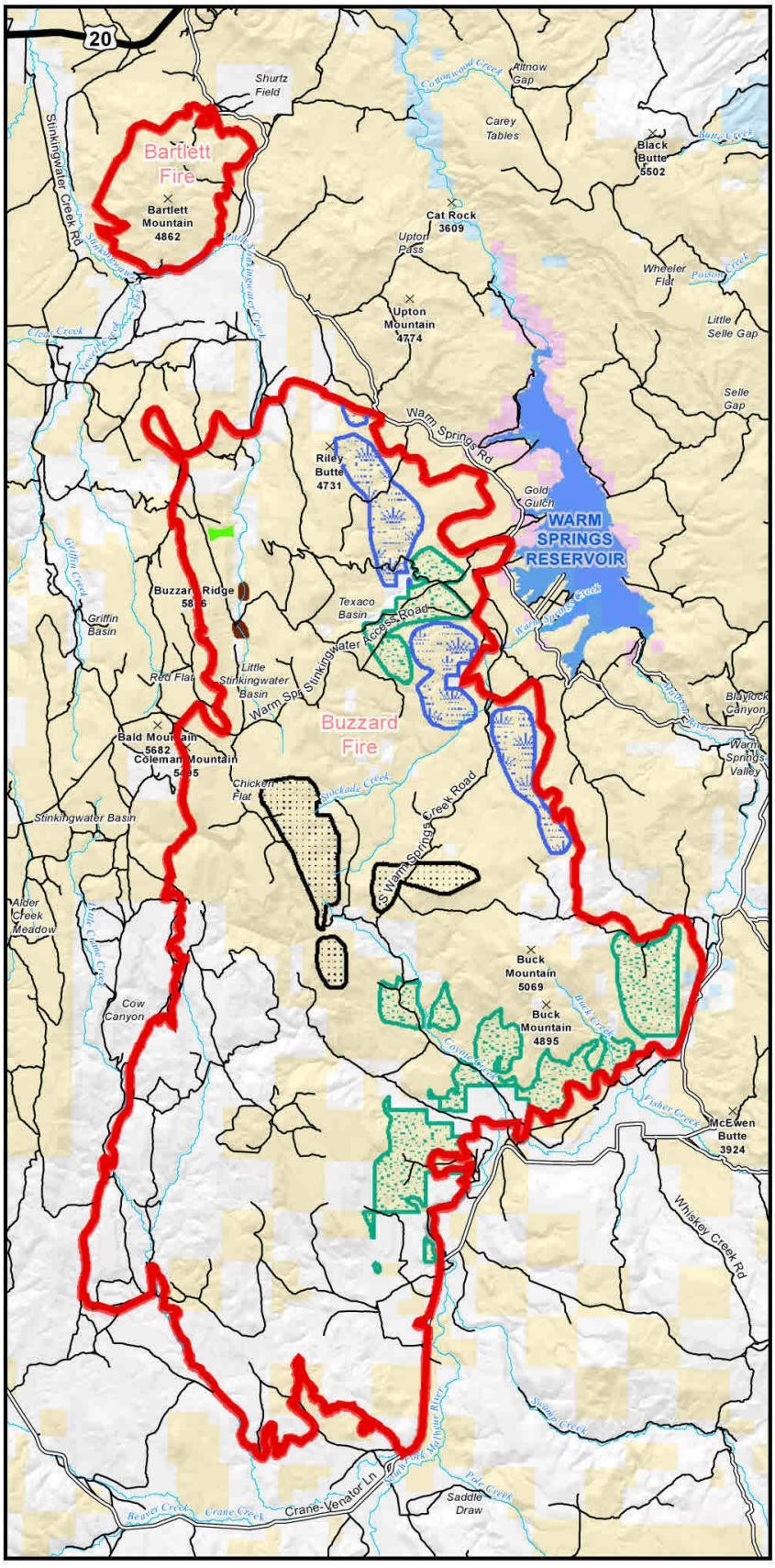


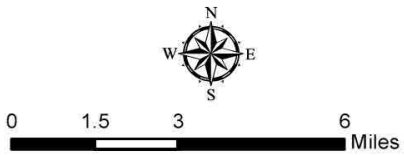
Map 5-RF

NON-AERIAL VEGETATION TREATMENT

- Juniper Cut For Sediment Trap
- Plant Bitterbrush
- Drill Crested/Kochia/Alfalfa
- Plant Cottonwood
- Wyoming Big Sage Plugs
- Fire Perimeter
- Bureau of Land Management
- State
- Other Federal
- Private/Unknown
- Non-Paved Improved Road
- Natural/Unknown Road Surface







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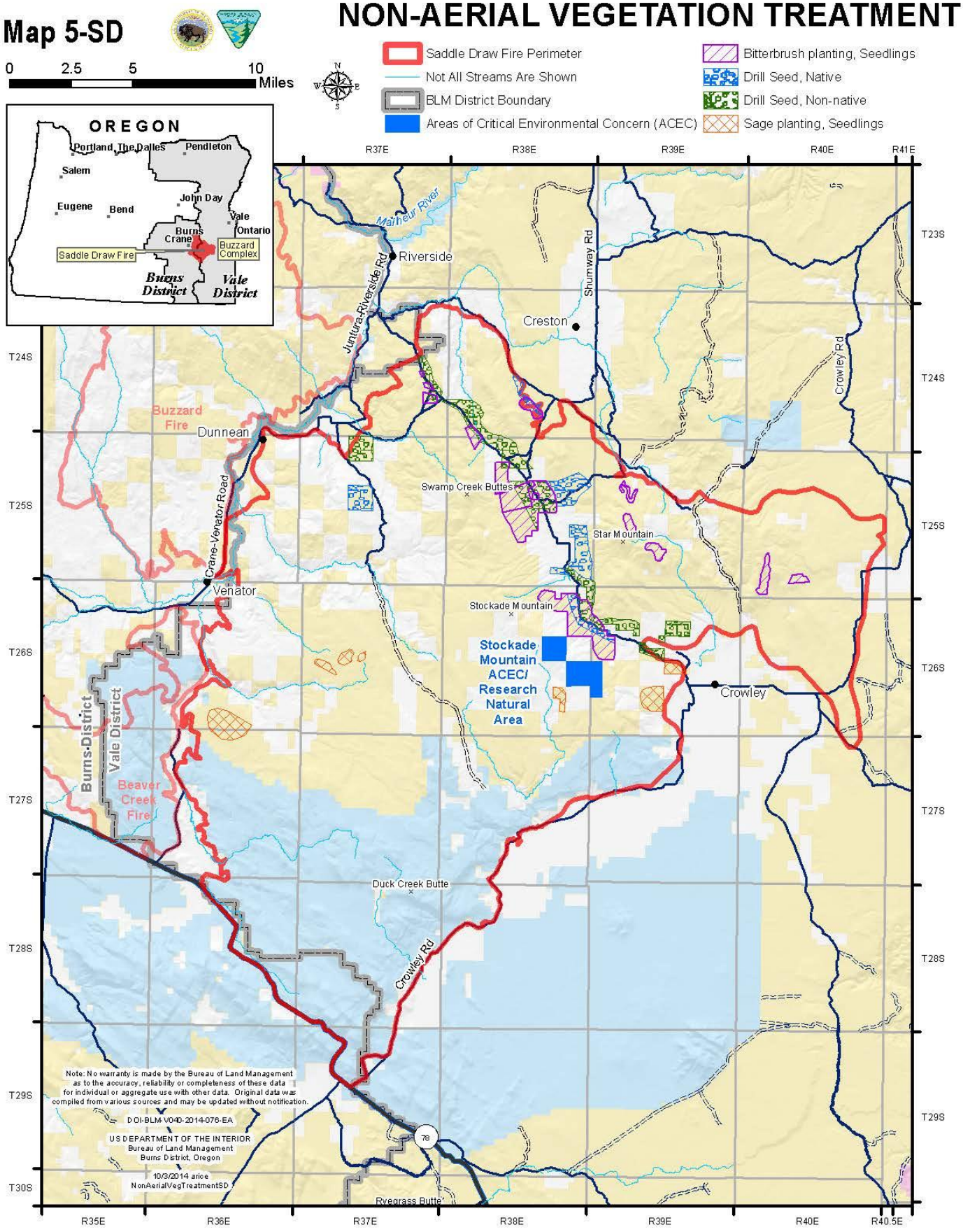
Burns District, Oregon

10/1/2014 arice
VegTreatmentNonAerialRF


NON-AERIAL VEGETATION TREATMENT
Map 5-SD
0 2.5 5 10 Miles
Saddle Draw Fire Perimeter
Not All Streams Are Shown
BLM District Boundary
Areas of Critical Environmental Concern (ACEC)
Bitterbrush planting, Seedlings
Drill Seed, Native
Drill Seed, Non-native
Sage planting, Seedlings
OREGON
Portland
The Dalles
Pendleton
Salem
John Day
Eugene
Bend
Vale
Ontario
Burns
Crane
Buzzard Complex
Saddle Draw Fire
Burns District
Vale District
R37E
R38E
R39E
R40E
R41E
T23S
T24S
T25S
T26S
T27S
T28S
T29S
T30S
R35E
R36E
R40.5E
Malheur River
Riverside
Juntura-Riverside Rd
Shumway Rd
Creston
Crowley Rd
Buzzard Fire
Dunnean
Swamp Creek Buttes
Star Mountain
Crane-Venator Road
Venator
Stockade Mountain
Stockade Mountain ACEC/ Research Natural Area
Crowley
Burns District
Vale District
Beaver Creek Fire
Duck Creek Butte
Crowley Rd
Ryegrass Butte
78
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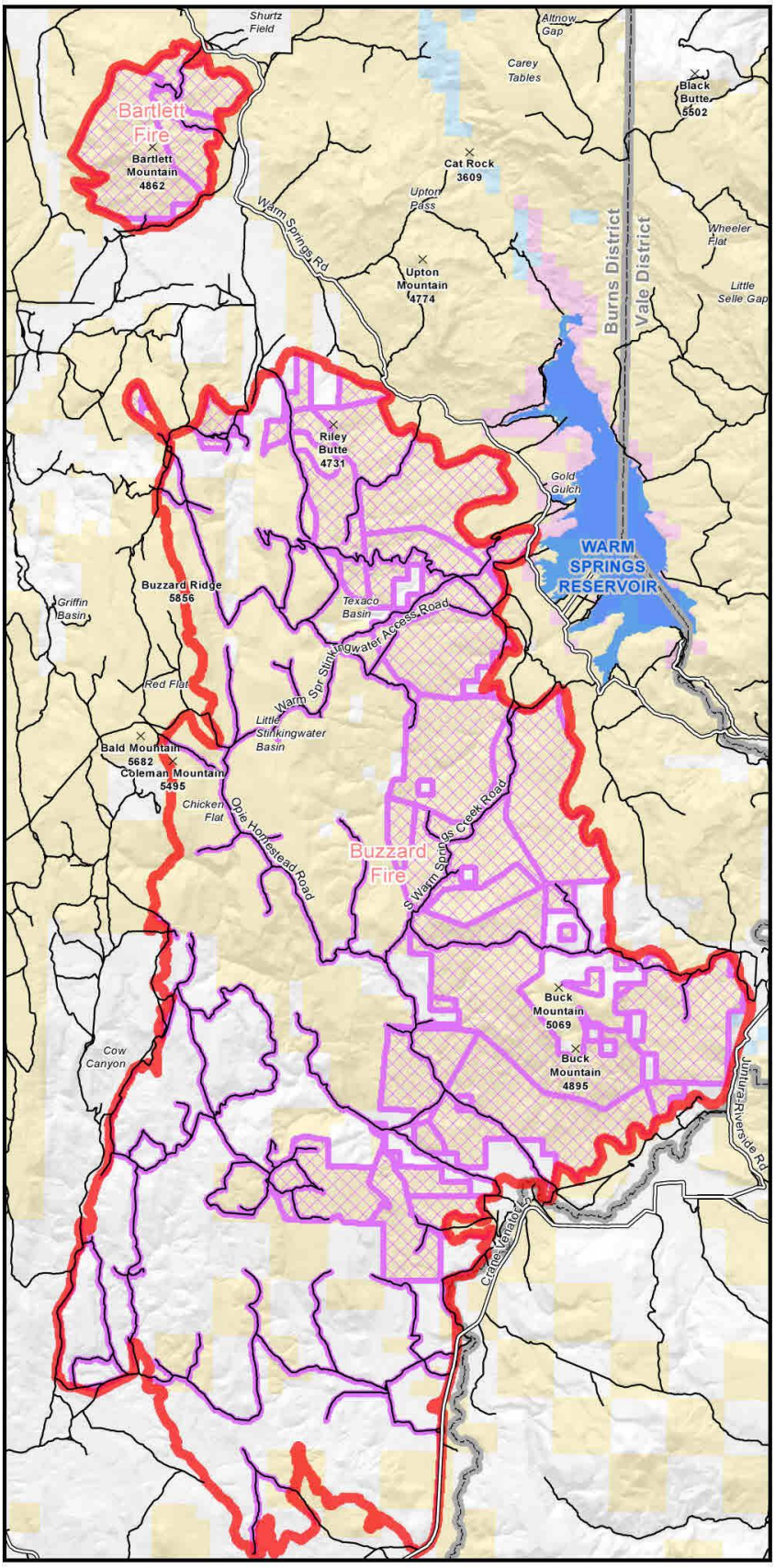
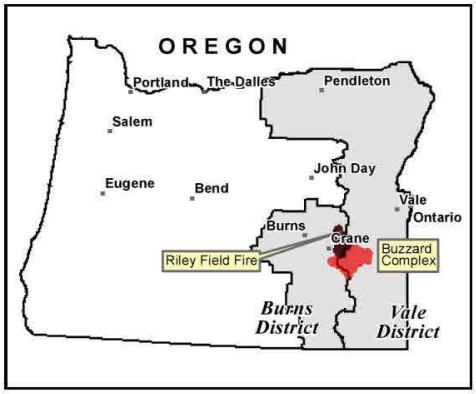
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Burns District, Oregon
10/3/2014 arice
NonAerialVegTreatmentSD

Map 6-RF

AERIAL WEED TREATMENT



- Aerial Herbicide Application
- Fire Perimeter
- Bureau of Land Management
- State
- Other Federal
- Private/Unknown
- Non-Paved Improved Road
- Natural/Unknown Road Surface



N W E S

0 1.5 3 6 Miles

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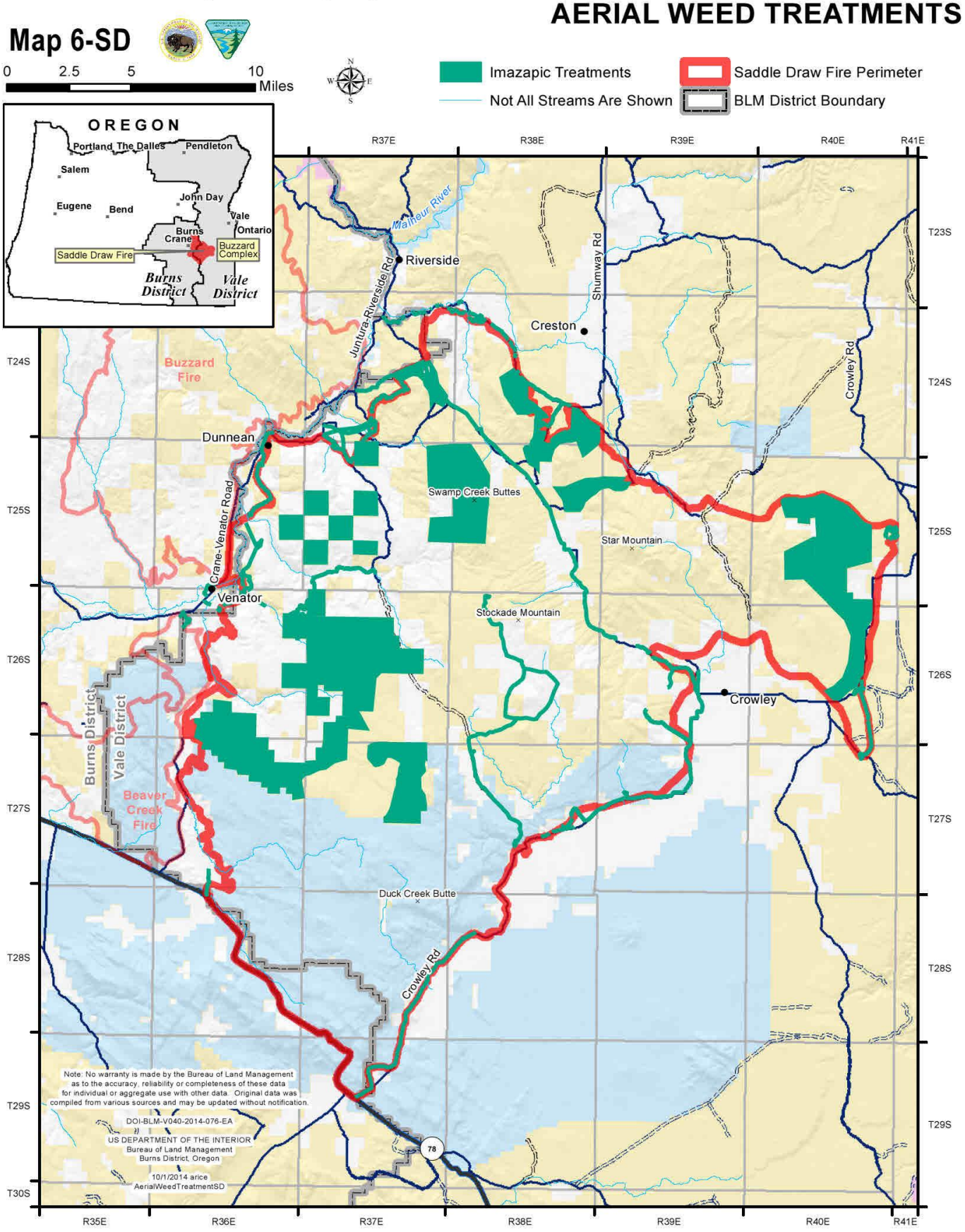
Bureau of Land Management
Burns District, Oregon

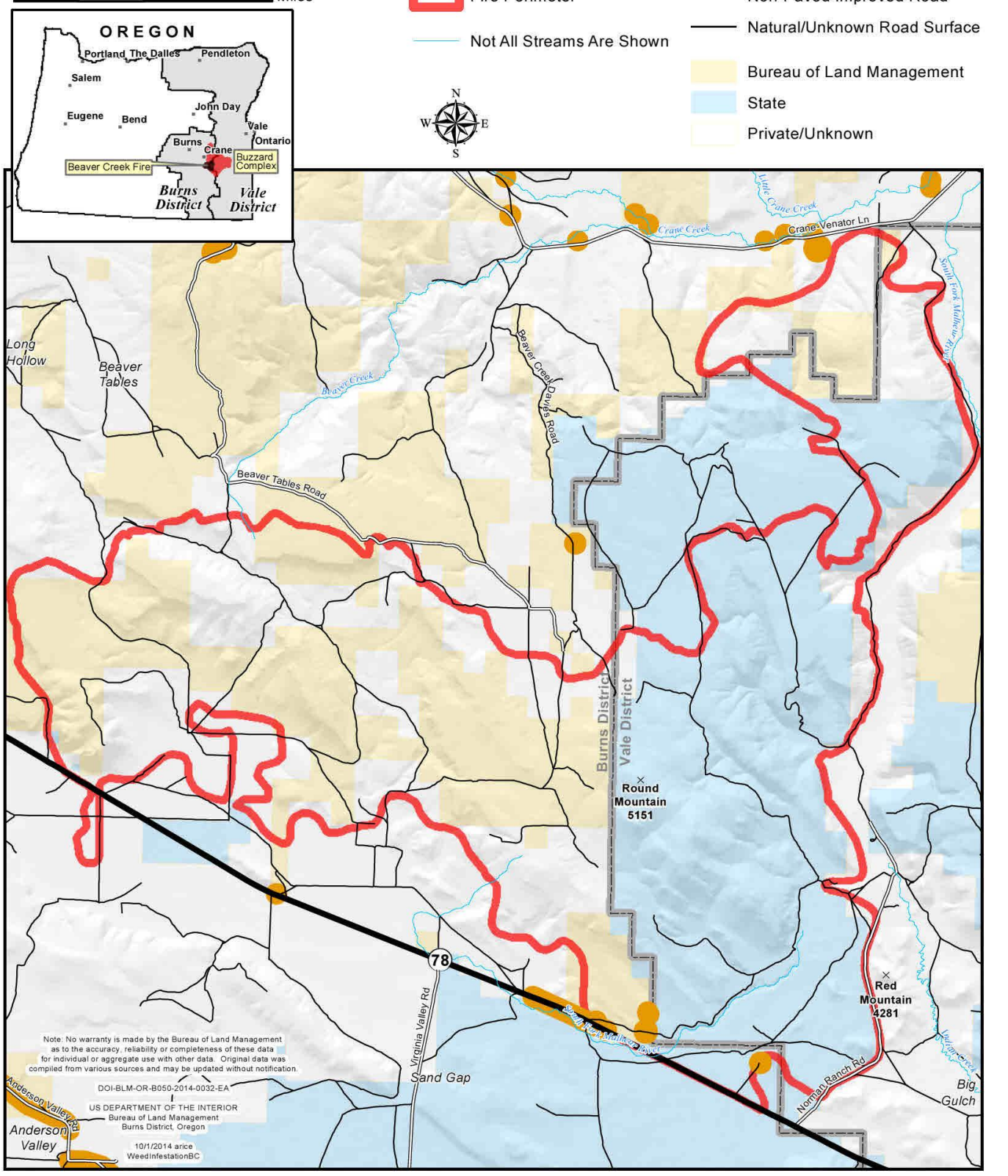
10/1/2014 arice
WeedTreatmentAerialRF

AERIAL WEED TREATMENTS



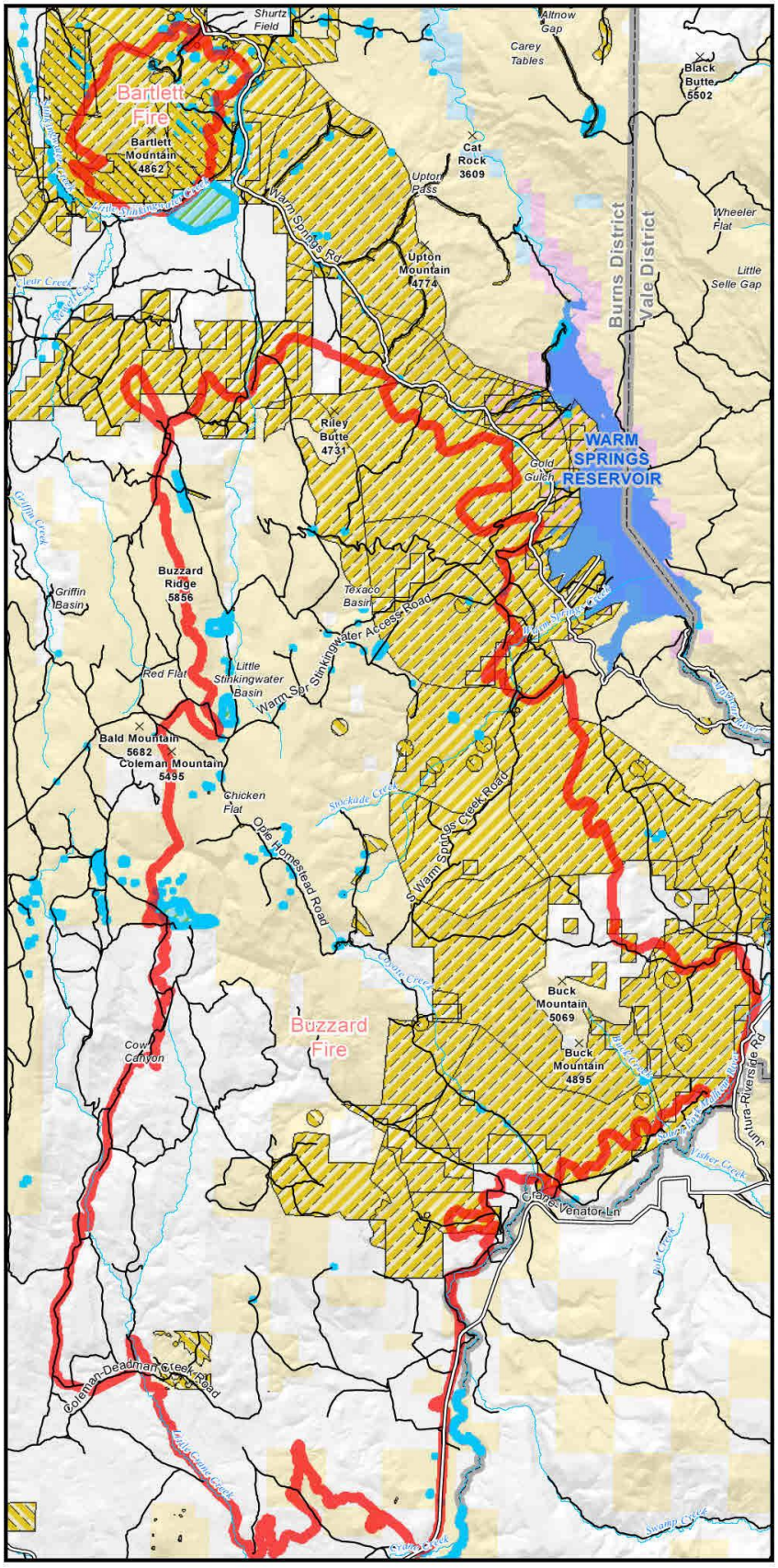
Map 7-BC

WEED INFESTATION



Map 7-RF

WEED INFESTATION



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Burns District, Oregon

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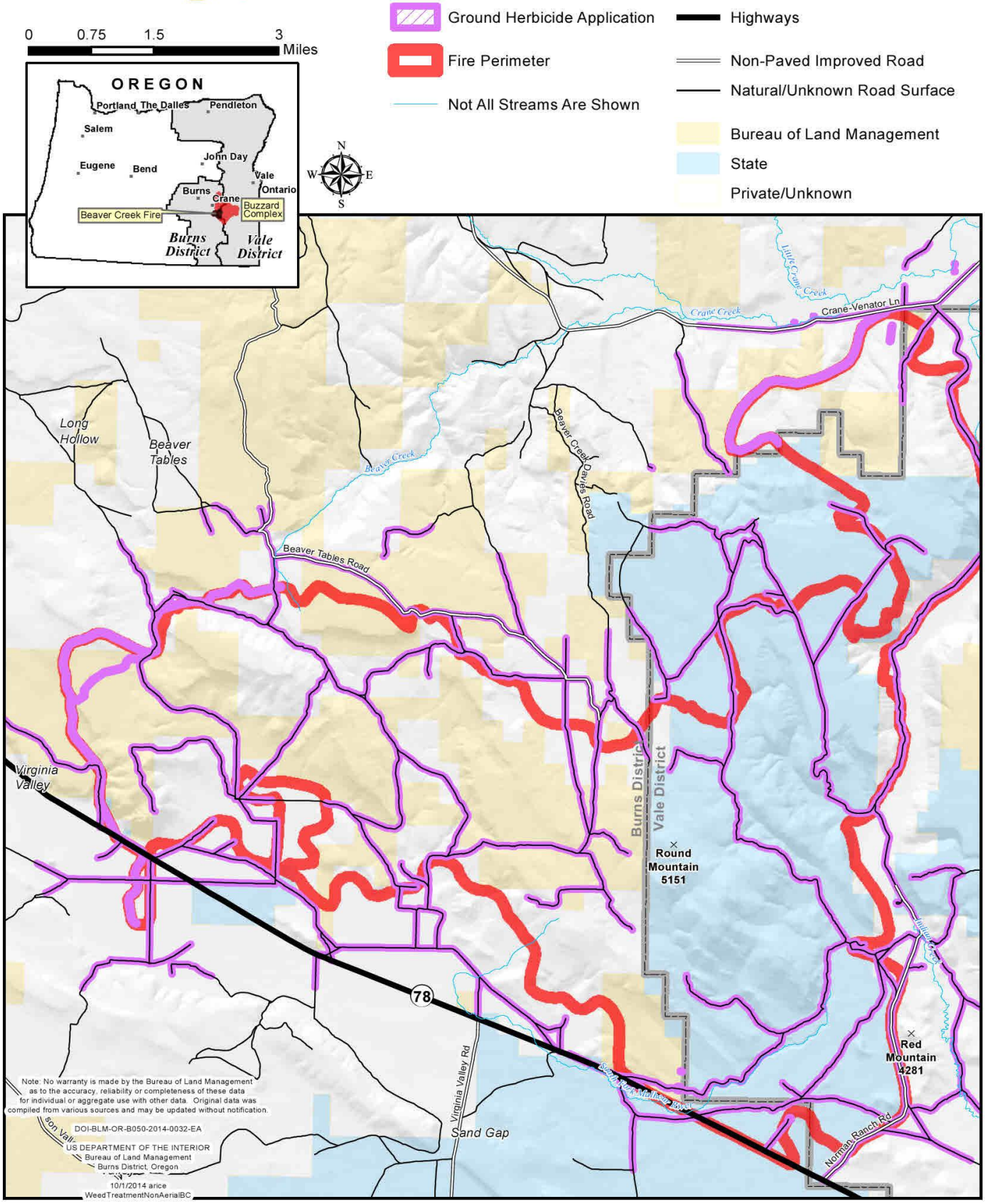
WeedInfestationRF

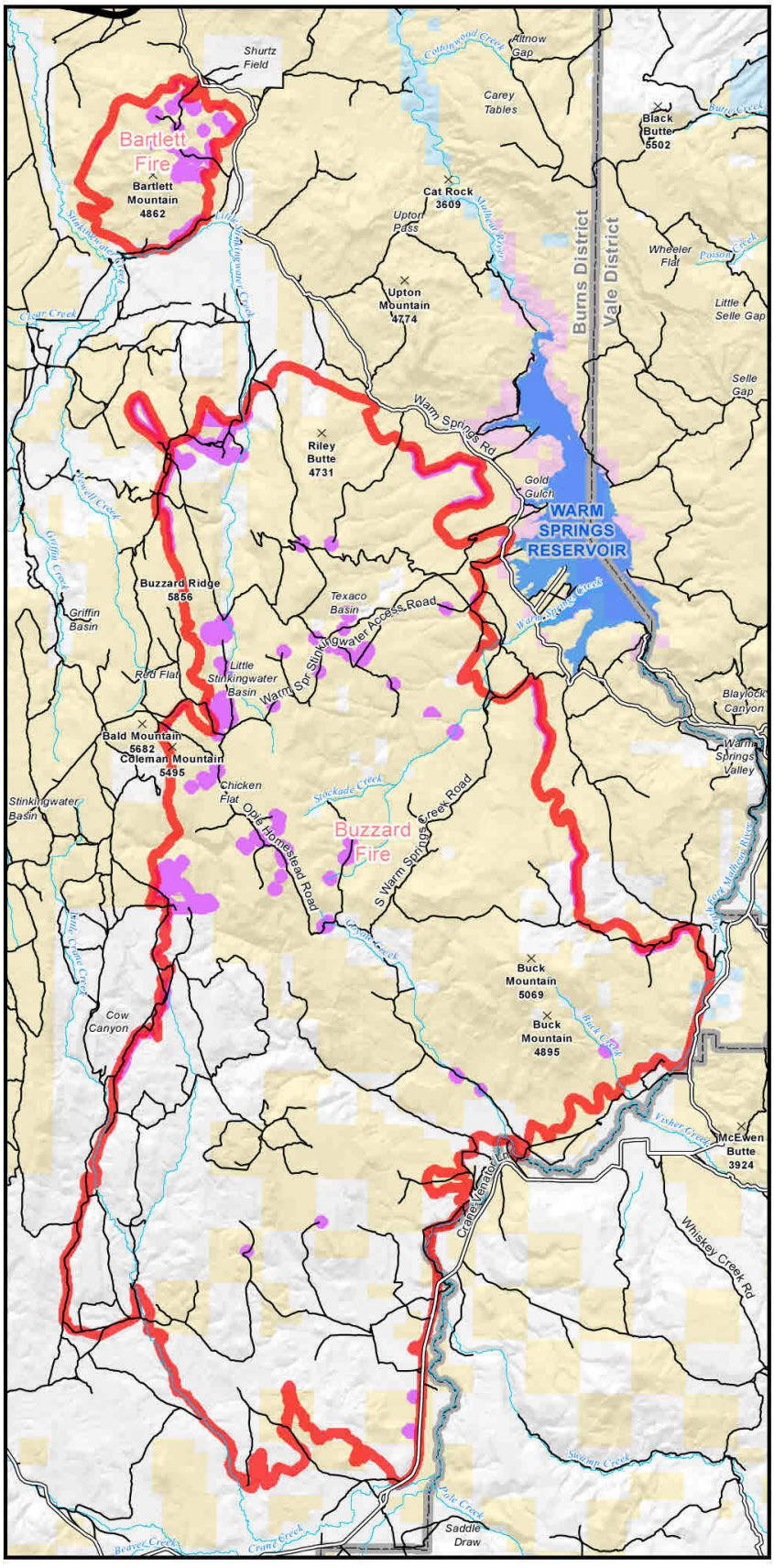
NON-AERIAL WEED TREATMENT

Map 8-BC



Map 8-RF

NON-AERIAL WEED TREATMENT



Ground Herbicide Application

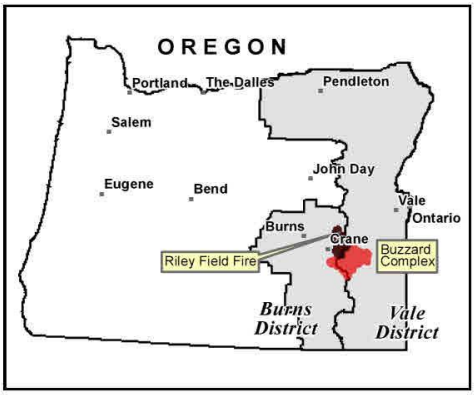
Fire Perimeter

Bureau of Land Management

State

Other Federal

Private/Unknown



N W E S

0 1.5 3 6 Miles

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Burns District, Oregon

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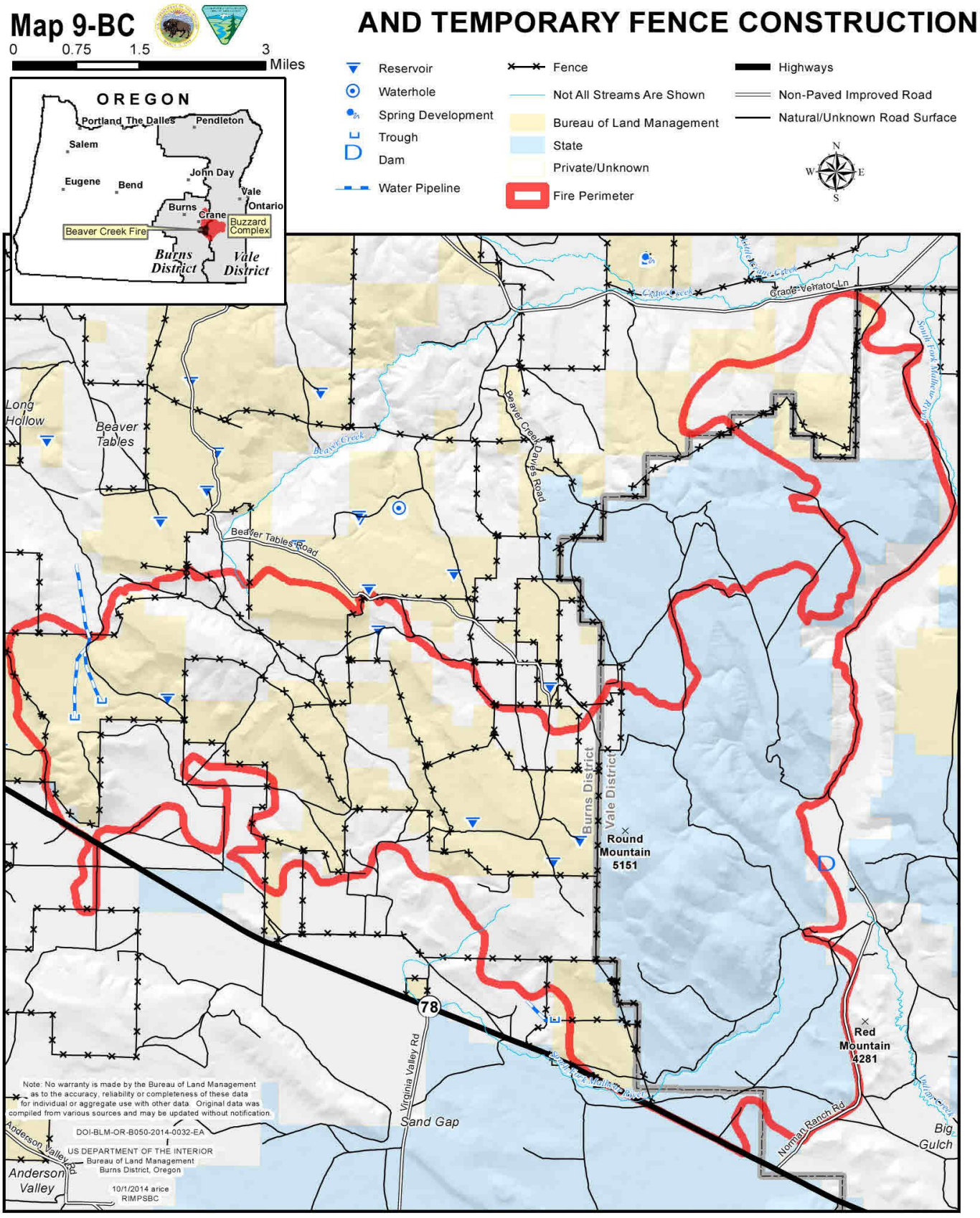
WeedTreatmentNonAerialRF

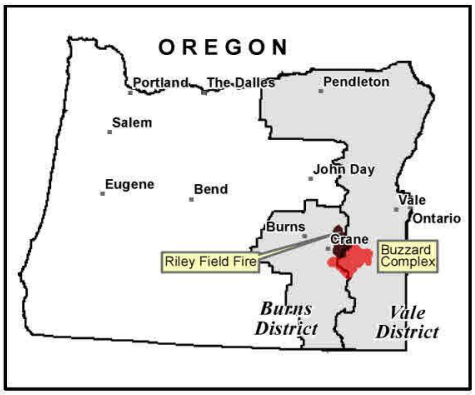
RANGE IMPROVEMENT RECONSTRUCTION AND MAINTENANCE AND TEMPORARY FENCE CONSTRUCTION



Map 9-RF

RANGE IMPROVEMENT RECONSTRUCTION AND MAINTENANCE

- Reservoir
- Waterhole
- Spring Development
- Trough
- Dam
- Fence
- Fire Perimeter
- Bureau of Land Management
- State
- Other Federal
- Private/Unknown
- Non-Paved Improved Road
- Natural/Unknown Road Surface
- Not All Streams Are Shown



N W E S

0 1.5 3 6 Miles

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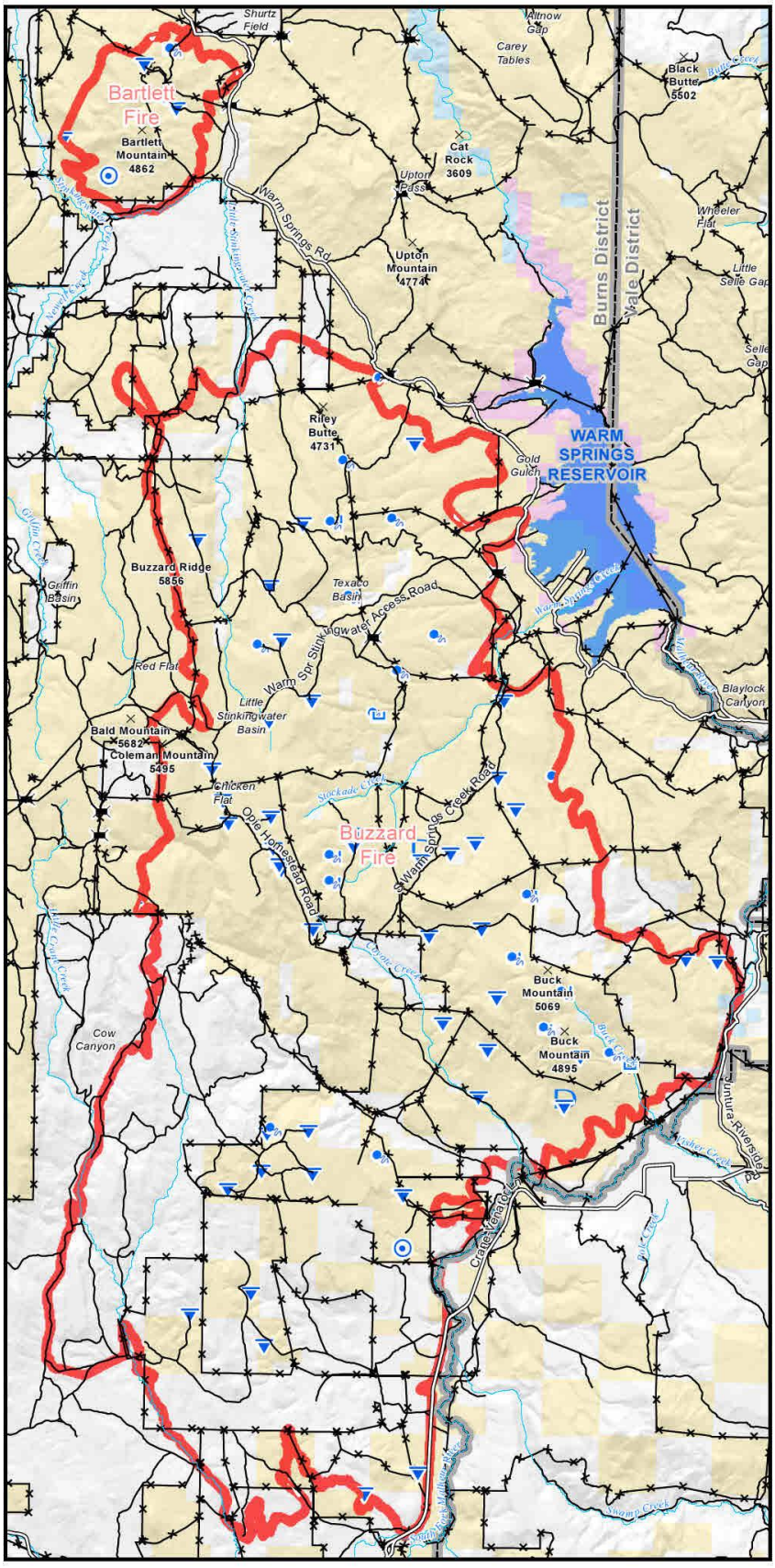
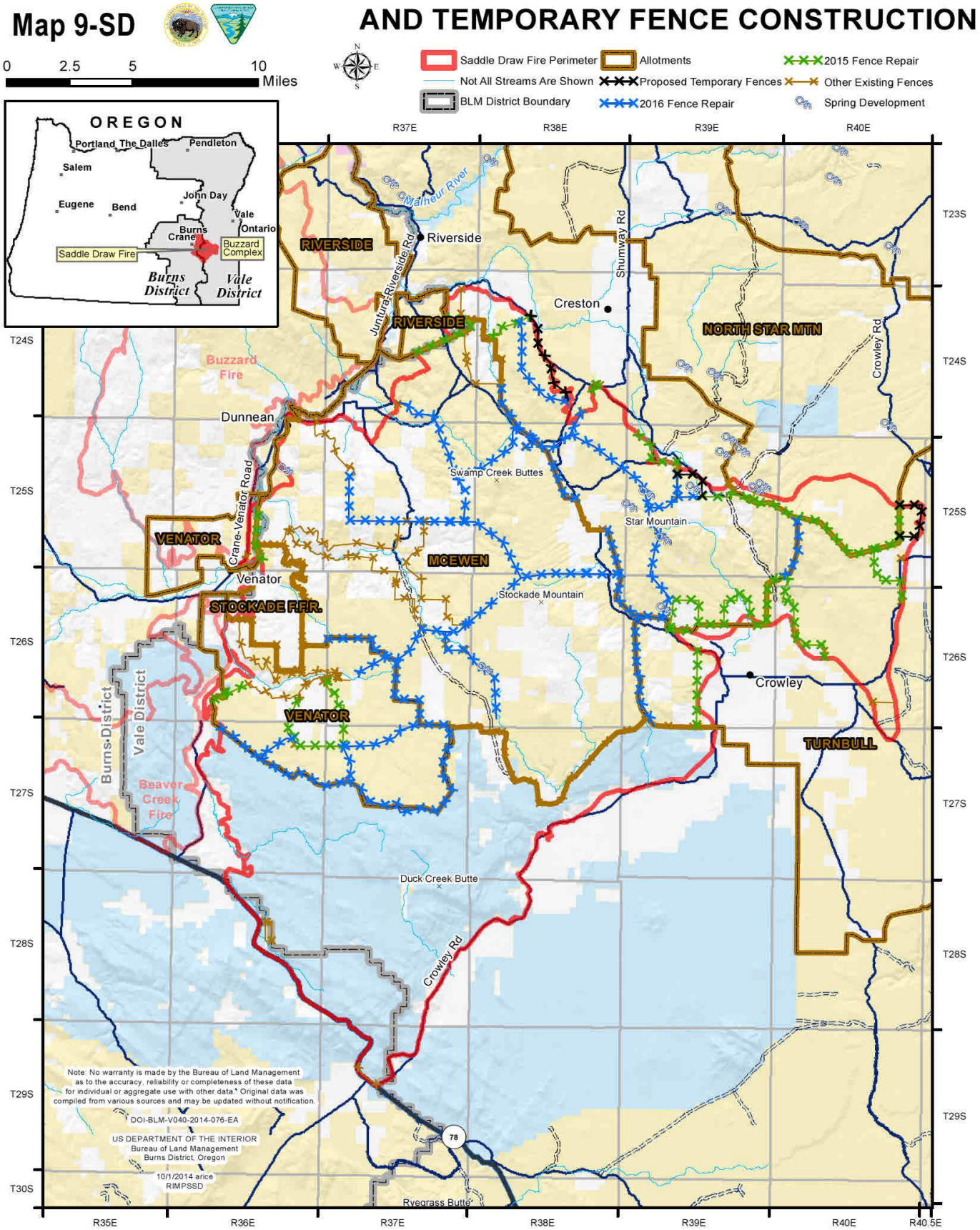
RIMPSRF



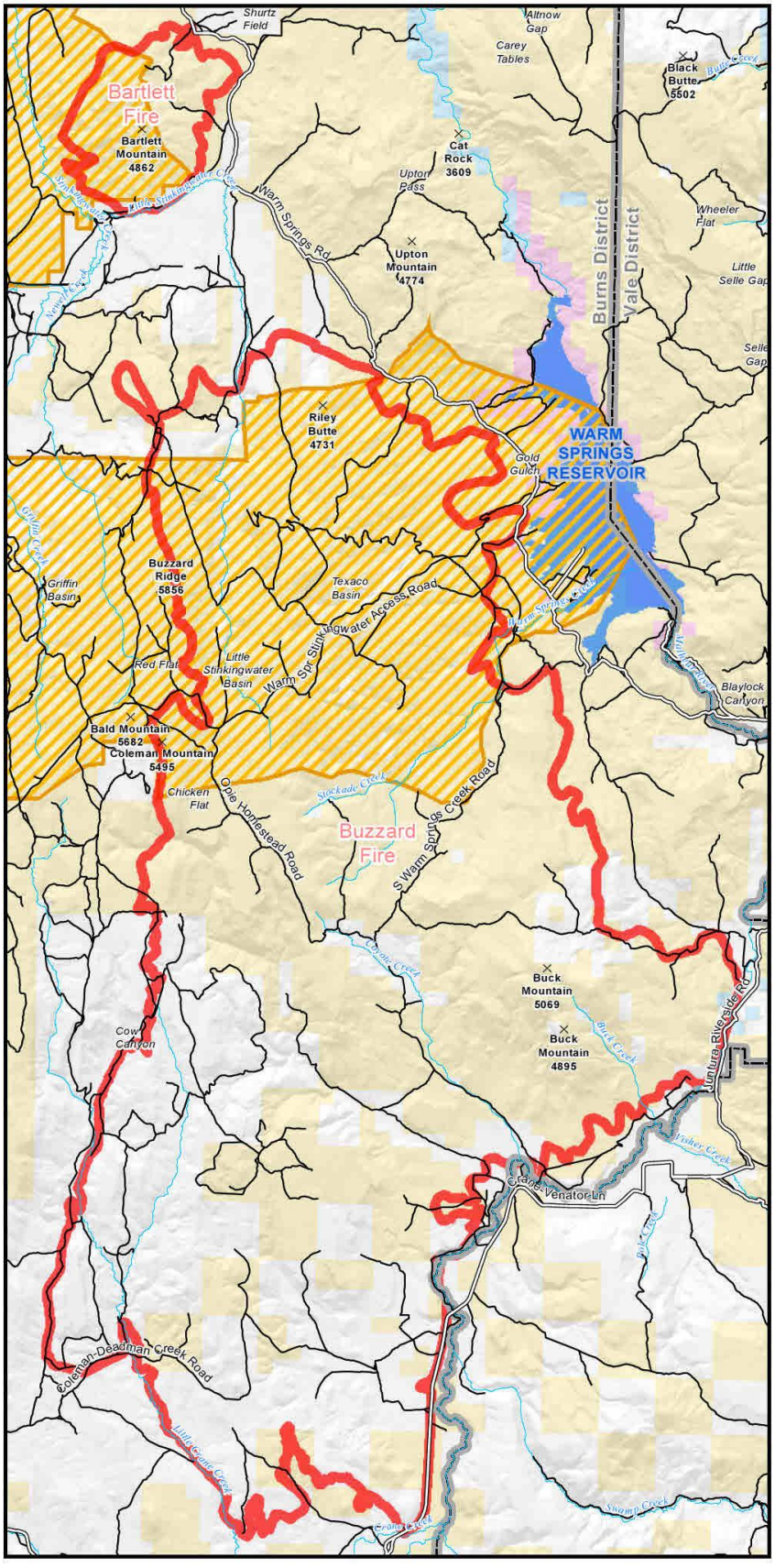
RANGE IMPROVEMENT RECONSTRUCTION AND MAINTENANCE AND TEMPORARY FENCE CONSTRUCTION

Map 9-SD



Map 10-RF

WILD HORSE AND BURRO HERD MANAGEMENT AREA



Stinkingwater Herd Management Area

Bureau of Land Management

State

Other Federal

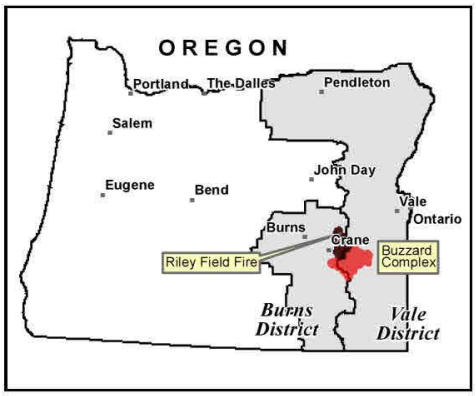
Private/Unknown

Fire Perimeter

Non-Paved Improved Road

Natural/Unknown Road Surface

Not All Streams Are Shown



N W E S

0 1.5 3 6 Miles

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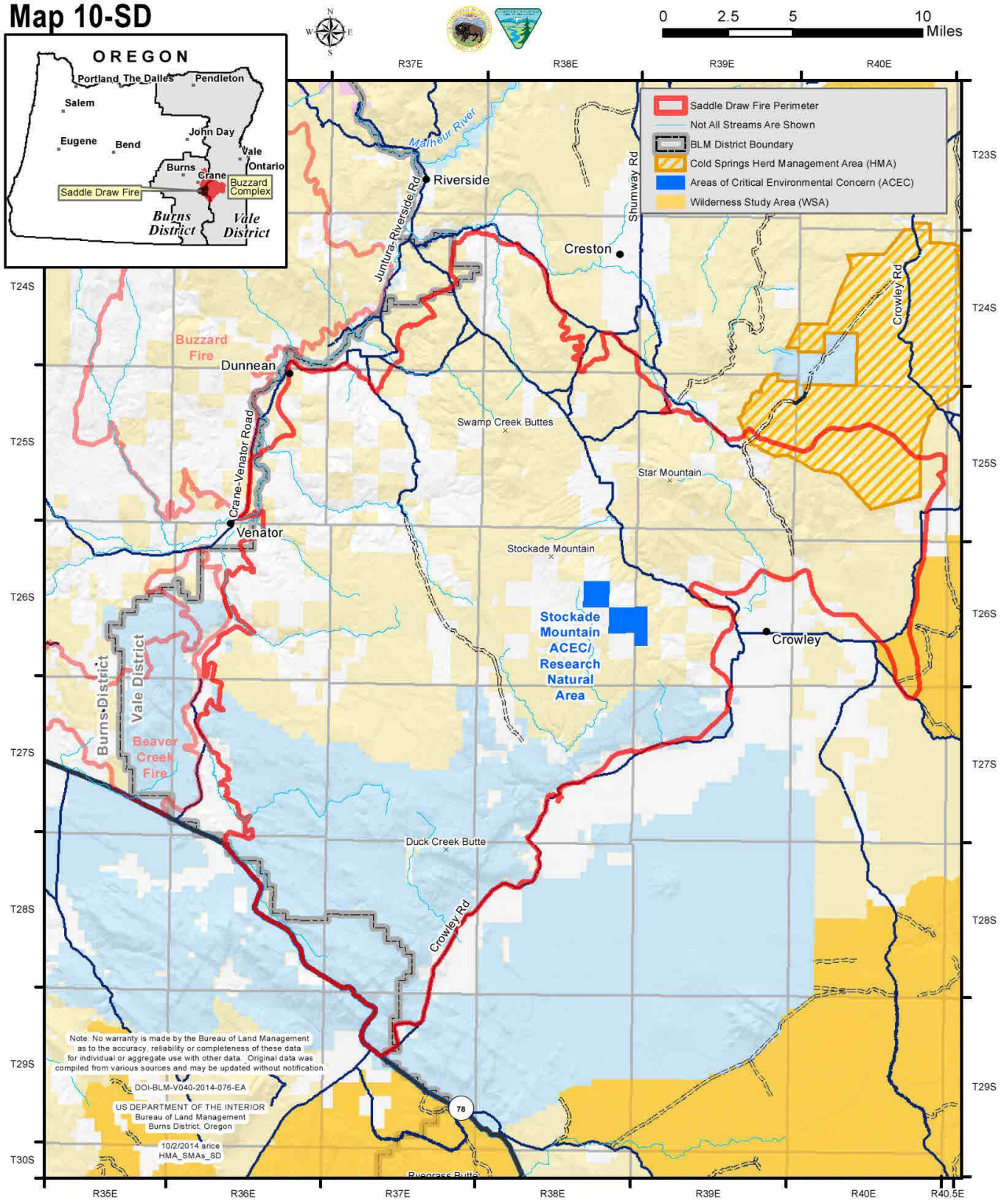
Burns District, Oregon

10/1/2014 arice
SMARF

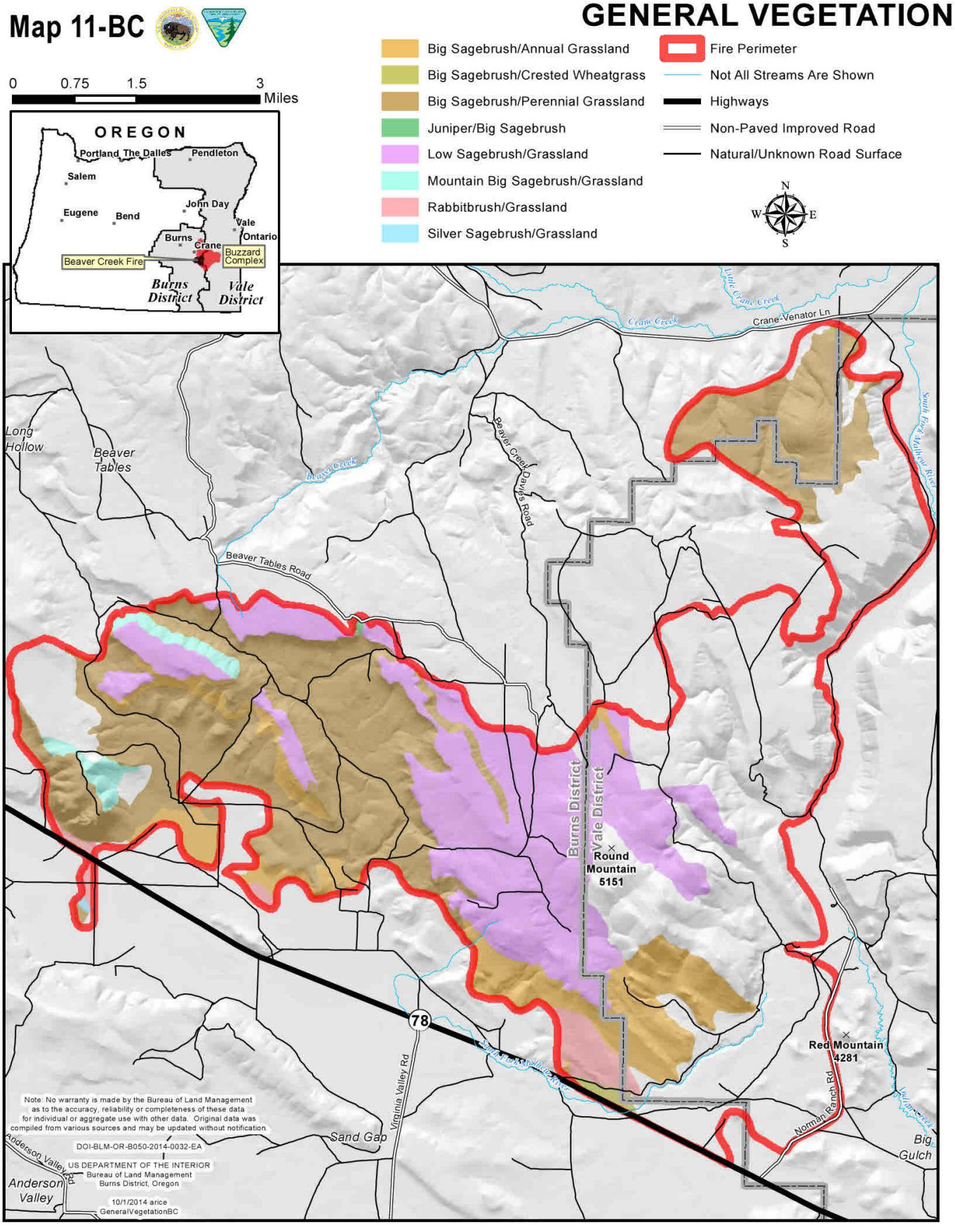
WILD HORSE AND BURRO HERD MANAGEMENT AREAS AND SPECIAL MANAGEMENT AREAS

Map 10-SD



Map 11-BC

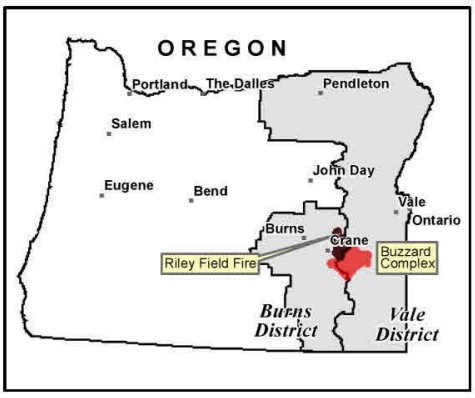
GENERAL VEGETATION

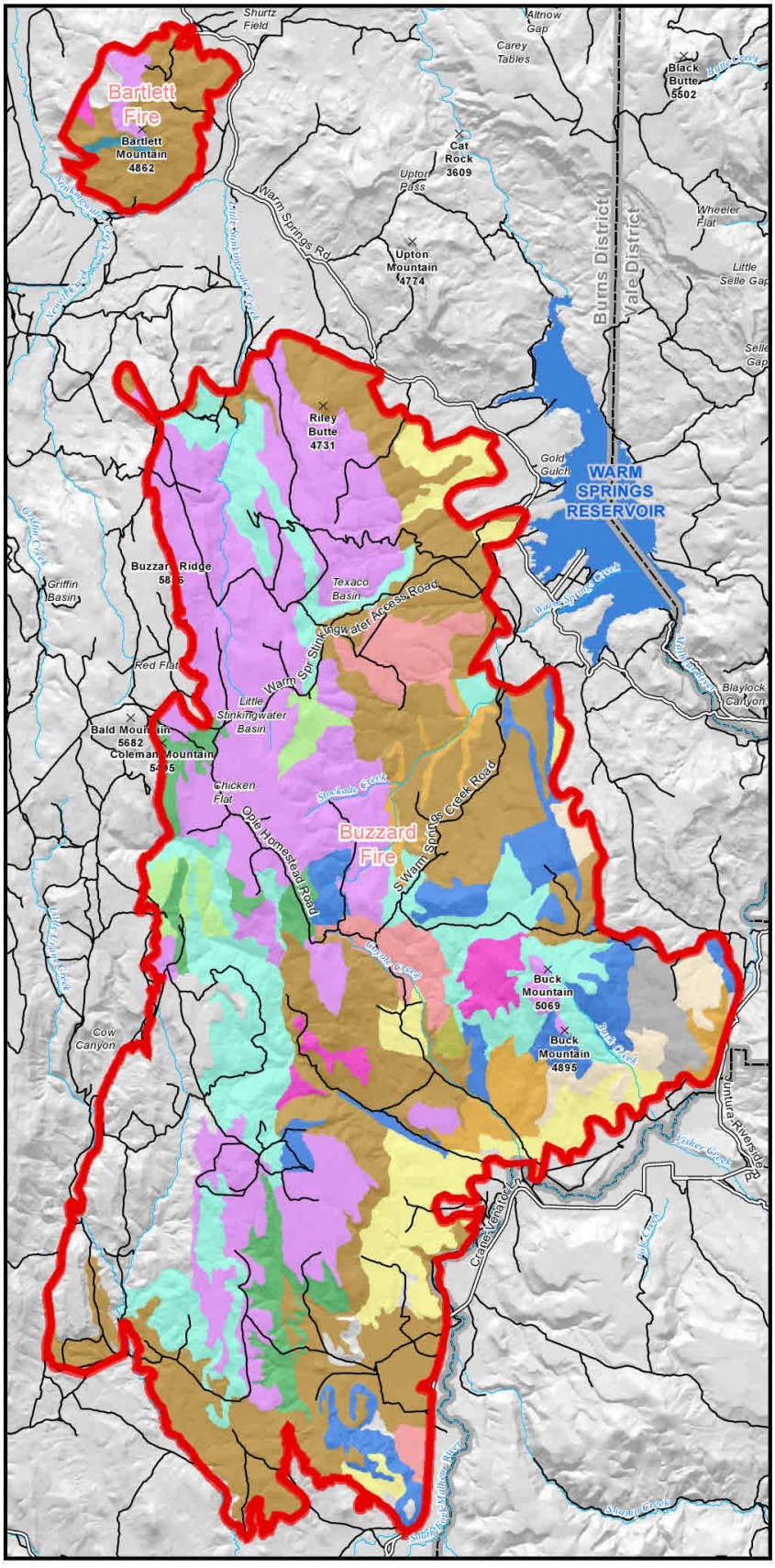


Map 11-RF

GENERAL VEGETATION

- Annual Grassland
- Big Sagebrush/Annual Grassland
- Big Sagebrush/Crested Wheatgrass
- Big Sagebrush/Perennial Grassland
- Crested Wheatgrass
- Juniper/Big Sagebrush
- Juniper/Low Sagebrush
- Low Sagebrush/Grassland
- Mountain Big Sagebrush/Grassland
- Mountain Shrub/Grassland
- Native Perennial Grassland
- Rabbitbrush/Grassland
- Salt Desert Shrub/Grassland
- Stiff Sagebrush
- Fire Perimeter
- Non-Paved Improved Road
- Natural/Unknown Road Surface
- Not All Streams Are Shown





N
W E
S

0 1.5 3 6 Miles

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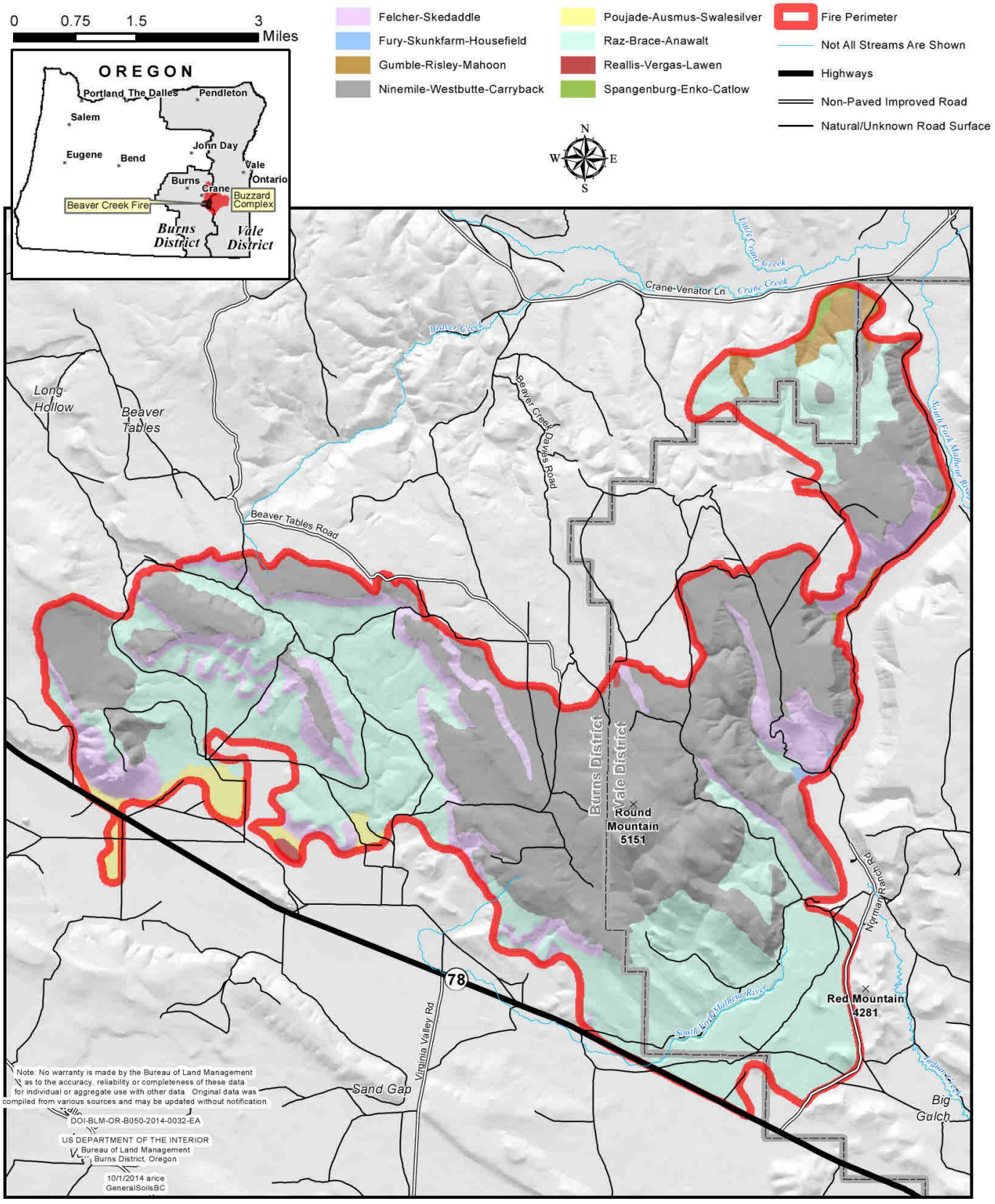
Bureau of Land Management
Burns District, Oregon

10/1/2014 arice
GeneralVegetationRF

GENERAL SOILS

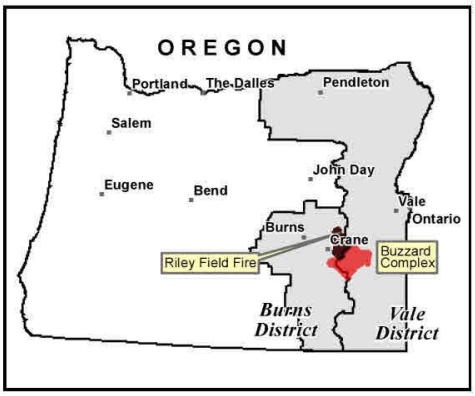
Map 12-BC



Map 12-RF

GENERAL SOILS

- Felcher-Skedaddle
- Fury-Skunkfarm-Housefield
- Gumble-Risley-Mahoon
- Merlin-Observation-Lambring
- Ninemile-Westbutte-Carryback
- Poujade-Ausmus-Swalesilver
- Raz-Brace-Anawalt
- Spangenburg-Enko-Catlow
- Fire Perimeter
- Non-Paved Improved Road
- Natural/Unknown Road Surface
- Not All Streams Are Shown



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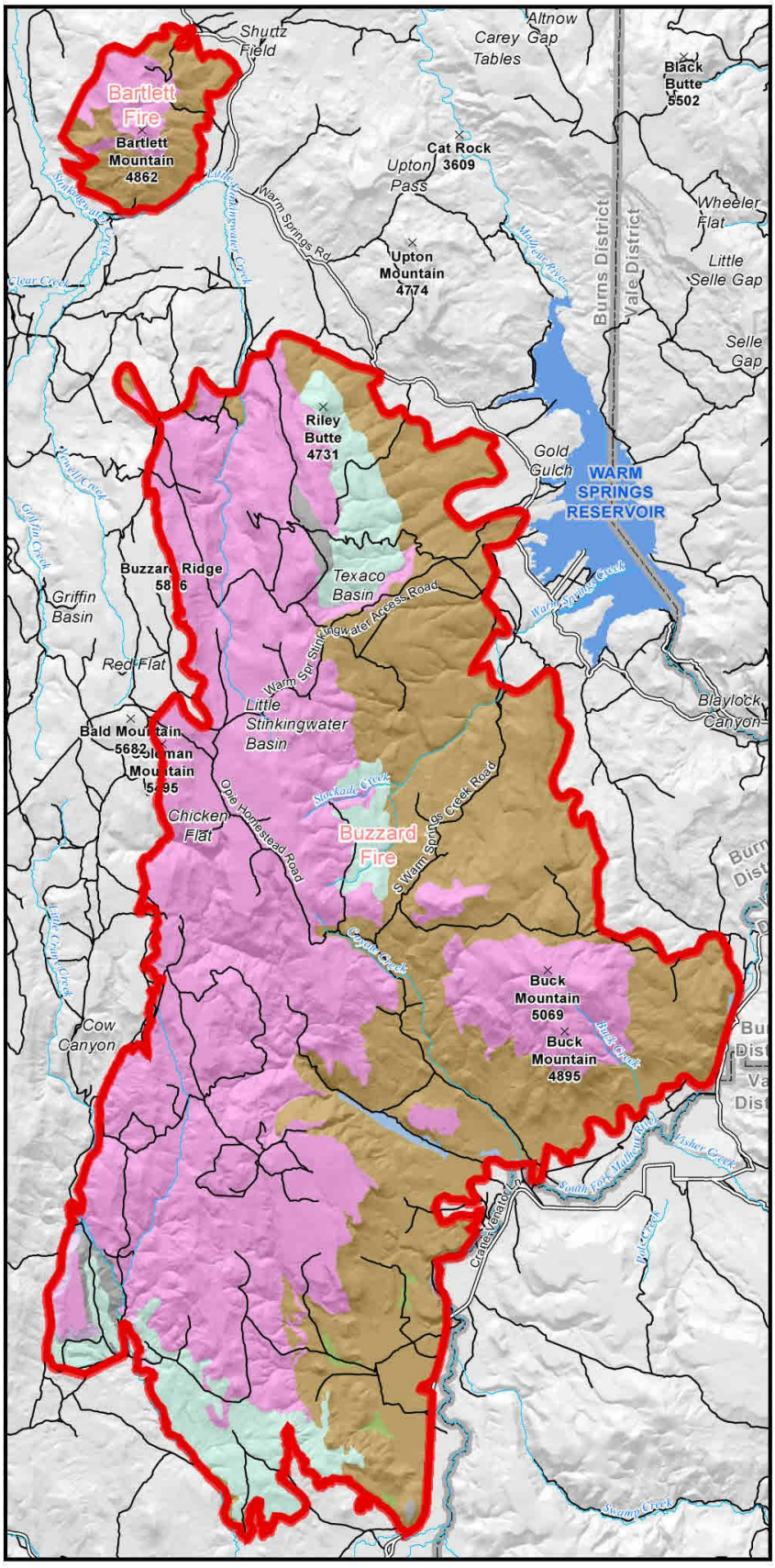
DOI-BLM-OR-B050-2014-0032-EA

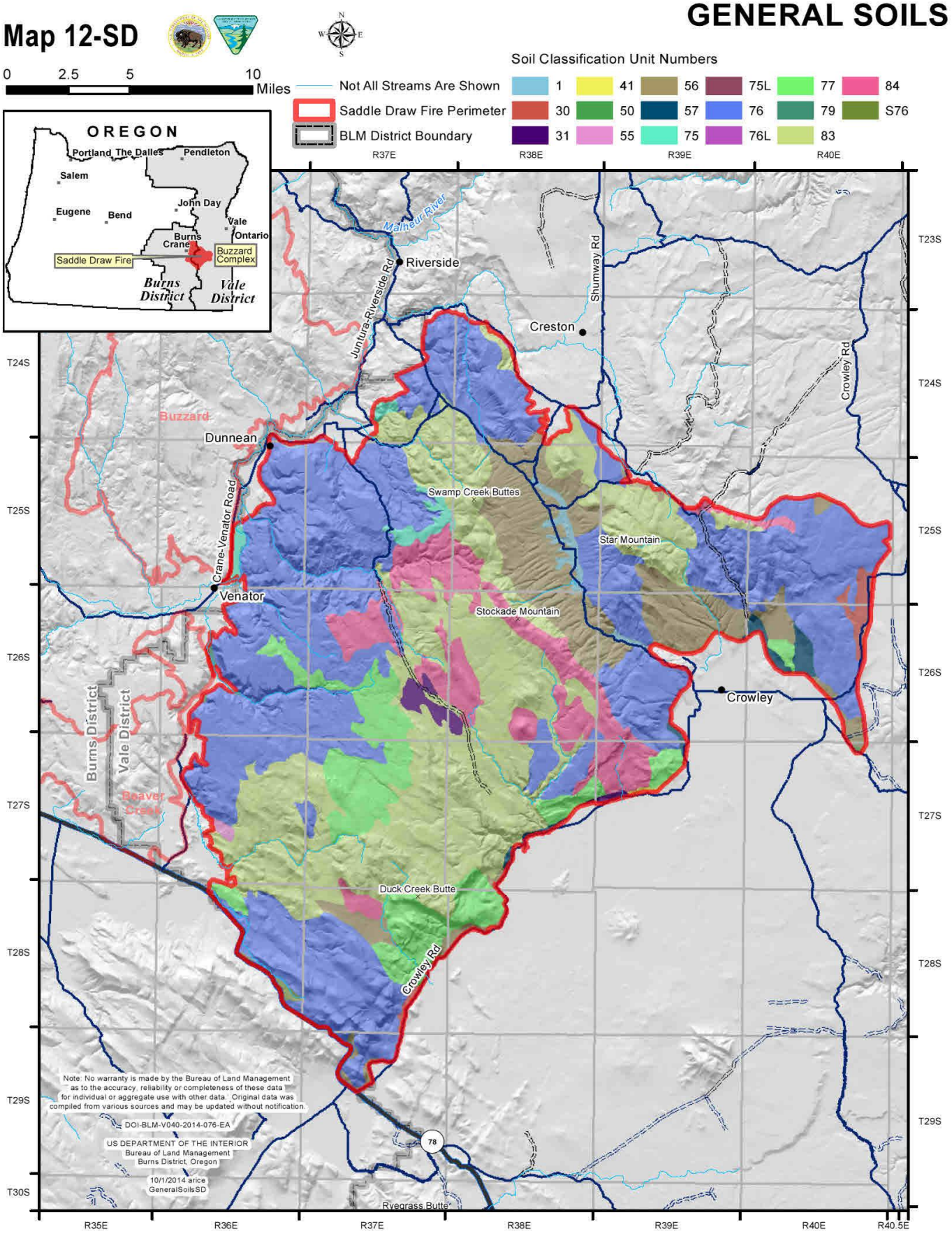
US DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Burns District, Oregon

10/1/2014 arice
GeneralSoilsRF

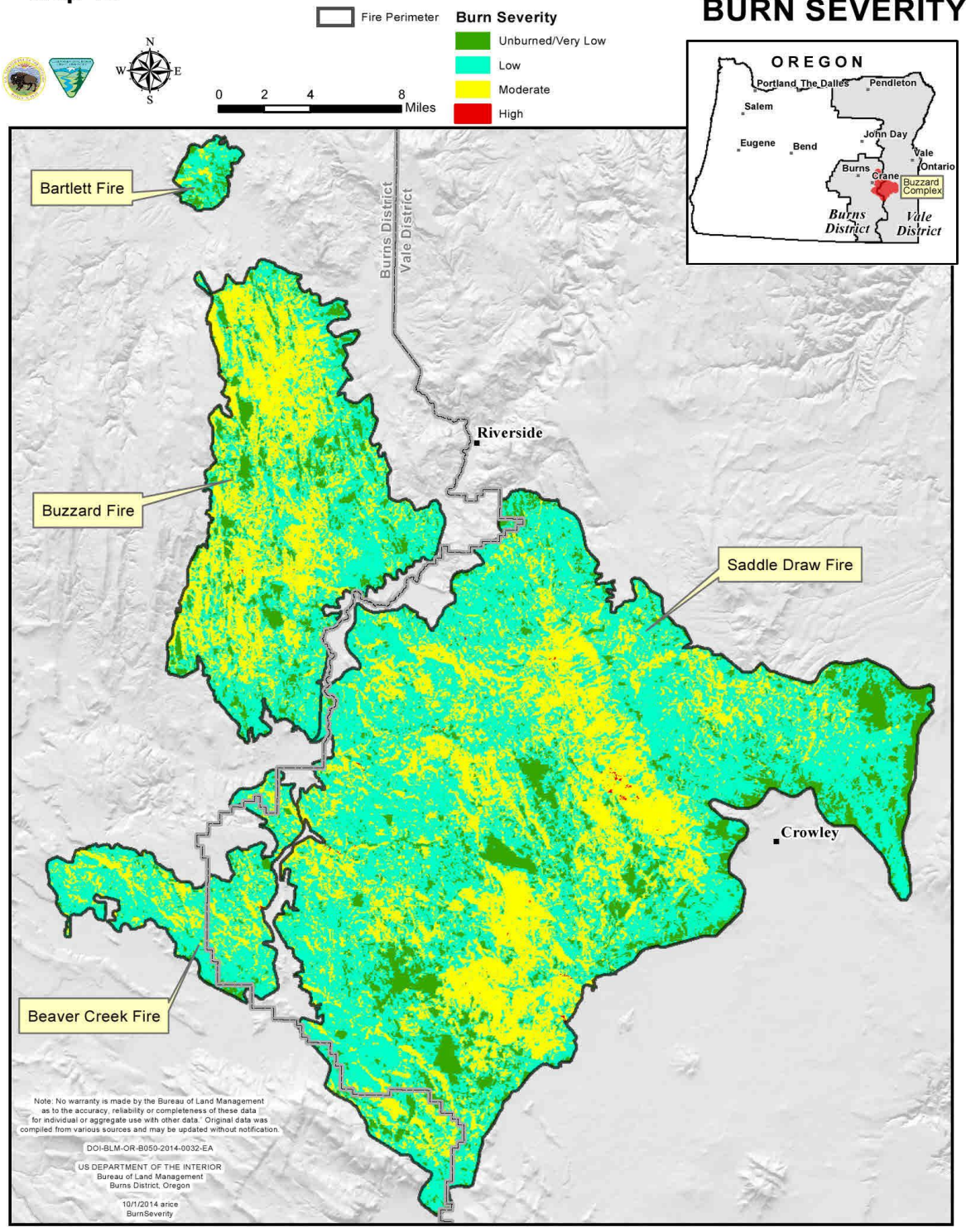


GENERAL SOILS

Map 12-SD



Map 13 **Buzzard Fire Complex Emergency Stabilization and Rehabilitation EA**



Appendix B – Tables

Appendix B - Table 1: Burns District Managed Allotment and Pasture Acreages within Buzzard Complex

	Fire Name	Allotment name	BLM Acres	BLM AUMS impacted	BLM acres burned	% BLM ac burned	# of affected permittees
Burns	Riley Field	Stinkingwater	24,827	81	2,278	9.18%	1
Burns	Riley Field	Upton Mountain	14,114	26	1,565	11.09%	1
Burns	Riley Field	Wiber FFR	2,815	74	1,669	59.29%	1
Burns	Riley Field	Mountain	37,299	1,382	15,876	42.56%	1
Burns	Riley Field	Texaco Basin	14,558	961	5,952	40.88%	1
Burns	Riley Field	Riverside	20,823	703	7,162	34.39%	3
Burns	Riley Field	Buck Mountain	17,120	1,476	16,682	97.44%	2
Burns	Riley Field	Alder Creek	32,101	574	7,130	22.21%	1
Burns	Riley Field	Coleman Creek	5,088	301	3,610	70.95%	1
Burns	Riley Field	Hunter	2,974	453	2,974	100.00%	1
Burns	Riley Field	Slocum Field	6,404	300	6,404	100.00%	1
Burns	Riley Field	Venator	6,929	180	3,894	56.20%	1
Burns	Riley Field	Catterson FFR	2,119	112	1,899	89.62%	1
Burns	Riley Field	Riverside FFR	1,205	2	56	4.65%	1
Burns	Riley Field	Luce Field	467	13	234	50.10%	1
Burns	Riley Field	Ott FFR	635	0.12	15	2.36%	1
Burns	Riley Field	Stockade FFR	6,125	54	5,287	86.31%	1
Burns	Riley Field	Lamb Ranch	2,305	9	85	3.68%	1
Burns	Riley Field	Home Ranch	2,727	4	105	3.85%	1
Burns	Beaver Creek	Mahon Ranch	3,577	154	1,639	46	1
Burns	Beaver Creek	West Davies	1,363	143	1,348	99	1
Burns	Beaver Creek	East Davies	1,947	256	1,850	95	1
Burns	Beaver Creek	Hamilton	2,612	844	2,151	82	1
Burns	Beaver Creek	Beaver Creek	8,183	1	305	3	1
Burns	Beaver Creek	Hamilton FFR	199	1	40	20	1
Burns	Beaver Creek	Quier FFR	142	72	81	57	1
Burns	Beaver Creek	Thompson FFR	1,198	1	12	1	1
		Totals:	219,856	8,177	90,303		30

Appendix B - Table 2: Vale District Managed Allotment and Pasture acreages within Buzzard Complex

ALLOTMENT	PASTURE	ACRES			OWNERSHIP (Acres)			
		ALLOT/ PASTURE TOTALS	WITHIN PERIMETER	% BURNED	PRIVATE ACRES	% PRIVATE	PUBLIC ACRES	% PUBLIC
BLACK BUTTE (00304)		**73,174**	**381**	**0.5%**				
	RIVERSIDE FFR	10,082	381	11.3	134	4	246	7.3
McEWEN (20603)		**106,821**	**102,265**	**95.7**	**41039**	**38.4**	**60939**	**57**
	HICKEY	11,070	9011	81.4	94	0.85	8917	80
	VISCHER	13487	11650	86	7152	53	4498	33
	LOWER SWAMP	10223	9562	93.5	5401	52.8	4161	40.7
	DUCK POND	12484	12484	100	3088	24.7	9397	75.3
	EAST SWAMP CREEK	7686	7686	100	2701	35.1	4985	64.9
	SWAMP CREEK FFR	4499	4499	100	4302	95.6	197	4.4
	HUGHES	9665	9665	100	3729	38.6	5937	61.4
	BIG FLAT*	7064	7064	100	1947	27.6	5101	72.2
	STOCKADE*	28631	28631	100	10749	37.5	17611	61.5
	ANDY WILSON CUSTODIAL	302	302	100	294	97.4	8	2.6
	HICKEY CREEK CUSTODIAL	1710	1710	100	1582	92.5	128	7.5
NORTH STAR MOUNTAIN (00310)		**106,212**	**6684**	**6.3%**				
	WILDCAT COLDSPRING	29645	6408	21.6	360	1.2	6048	20.4
	BUNYARD FIELD	676	276	40.9	170	25.1	106	15.7
SOUTH STAR MOUNTAIN (00309)		**71,641**	**39,929**	**55.7%**				
	ATTURBURY	9634	9634	100	1707	17.7	7926	82.3
	CHAPMAN FFR	480	102	39.7	87	18.1	15	3.1
	CRESTON BC	5243	1814	34.6	69	1.3	1744	33
	CRESTON FFR	4873	1933	21.2	1554	31.9	379	7.8
	EAST CHAPMAN	7734	1012	13.1	463	6	549	7.1
	GRANITE FFR	9224	3	-	-	-	-	-
	HICKEY BASIN RES EXCLOSURE	5	5	100	-	-	5	100
	HORSE QUEEN	4662	4512	97	24	0.5	4489	96.3
	ROAD CANYON	16067	15873	99	3416	21.2	12457	77.5
	WEST CHAPMAN	6118	5042	82.4	97	1.6	4945	80.8
		106,943	**23,735**	**22.2%**				

ALLOTMENT	PASTURE	ACRES			OWNERSHIP (Acres)			
		ALLOT/ PASTURE TOTALS	WITHIN PERIMETER	% BURNED	PRIVATE ACRES	% PRIVATE	PUBLIC ACRES	% PUBLIC
TURNBULL (00303)	CLARK FLAT	26317	705	2.7	-	-	704	2.7
	DOWELL	1213	930	76.7	232	19.1	697	57.5
	FANGOLLANO FFR	848	848	100	650	76.7	198	23.3
	FRYING PAN FFR	1799	171	9.5	105	5.8	66	3.7
	JUNIPER MTN	25667	12936	50.4	46	0.2	12890	50.2
	PRIVATE LAND PASTURE*	12169	1443	11.9	1076	8.8	367	3.0
	SLATEN	5055	945	18.7	178	3.5	767	15.2
	WHISKEY SPRING*	6007	5758	95.9	2793	46.5	2965	49.4
VENATOR (10605)		**29,701**	**27,679**	**93.2%**				
	DEADMAN RES EXCLOSURE	2	2	100	-	-	2	100
	HEIFER*	3990	3951	100	541	13.6	3381	84.7
	HOMESTEAD	2975	2975	100	2351	79	624	21
	JAKE HUGHES	2472	2472	100	201	8.2	2270	91.8
	LOWER FIELD*	4596	2615	56.9	1894	41.2	653	14.2
	NORTH DEADMAN	4998	4998	100	415	8.3	4585	92.0
	NORTH FIELD	1066	1066	100	457	42.8	609	57.1
	SOUTH DEADMAN*	6937	6937	100	14	0.2	6561	94.6
	STEER*	2664	2664	100	8.3	0.3	2553	95.8
Vale District TOTALS		**494,492**	**200,673**	**40.6%**				

***:** Certain allotments/pastures contain state lands located within the burned areas.

- : These acres are not included in the table.

Appendix B - Table 3:Percentage of Burn Severity by Burns and Vale Managed Allotments

ALLOTNAME	Severity	Acres	Percent Burned
ALDER CREEK	Unburned	24,744	77.08%
	Low/Unburned	1,275	3.97%
	Low	2,908	9.06%
	Moderate	3,172	9.88%
	High	1	0.00%
ALDER CREEK Total		**32,101**	**100.00%**
BEAVER CREEK	Unburned	12,716	84.63%
	Low/Unburned	930	6.19%
	Low	1,044	6.95%
	Moderate	336	2.24%
BEAVER CREEK Total		**15,025**	**100.00%**
BECKLEY HOME	Unburned	3,049	81.36%
	Low/Unburned	581	15.50%
	Low	109	2.90%
	Moderate	9	0.23%
BECKLEY HOME Total		**3,748**	**100.00%**
BLACK BUTTE	Unburned	72,738	99.41%
	Low/Unburned	198	0.27%
	Low	236	0.32%
	Moderate	1	0.00%
BLACK BUTTE Total		**73,174**	**100.00%**
BUCK MOUNTAIN	Unburned	170	0.99%
	Low/Unburned	2,242	13.10%
	Low	9,064	52.95%
	Moderate	5,642	32.96%
	High	2	0.01%
BUCK MOUNTAIN Total		**17,120**	**100.00%**
CATTERSON F.F.R.	Unburned	44	2.07%
	Low/Unburned	328	15.47%
	Low	1,035	48.86%
	Moderate	712	33.60%
CATTERSON F.F.R. Total		**2,119**	**100.00%**
COLEMAN CREEK	Unburned	1,141	22.42%
	Low/Unburned	770	15.13%
	Low	1,995	39.21%
	Moderate	1,182	23.22%
	High	1	0.01%
COLEMAN CREEK Total		**5,088**	**100.00%**

ALLOTNAME	Severity	Acres	Percent Burned
COYOTE CREEK	Low/Unburned	46	96.87%
	Low	1	2.80%
	Moderate	0	0.33%
COYOTE CREEK Total		**48**	**100.00%**
EAST DAVIES	Unburned	502	8.96%
	Low/Unburned	1,249	22.31%
	Low	3,170	56.59%
	Moderate	680	12.14%
EAST DAVIES Total		**5,601**	**100.00%**
HAMILTON	Unburned	114	3.88%
	Low/Unburned	316	10.77%
	Low	1,516	51.66%
	Moderate	988	33.69%
HAMILTON Total		**2,934**	**100.00%**
HAMILTON FFR	Unburned	706	51.07%
	Low/Unburned	114	8.23%
	Low	360	26.06%
	Moderate	202	14.64%
HAMILTON FFR Total		**1,382**	**100.00%**
HOME RANCH ENCLOSURE	Unburned	2,216	81.27%
	Low/Unburned	439	16.09%
	Low	61	2.23%
	Moderate	11	0.41%
HOME RANCH ENCLOSURE Total		**2,727**	**100.00%**
HUNTER	Low/Unburned	476	16.01%
	Low	1,085	36.47%
	Moderate	1,412	47.48%
	High	1	0.03%
HUNTER Total		**2,974**	**100.00%**
LAMB RANCH	Unburned	2,052	89.02%
	Low/Unburned	175	7.61%
	Low	56	2.44%
	Moderate	21	0.92%
LAMB RANCH Total		**2,305**	**100.00%**
LUCE FIELD	Unburned	118	25.35%
	Low/Unburned	139	29.75%
	Low	196	41.89%
	Moderate	14	3.01%
LUCE FIELD Total		**467**	**100.00%**

ALLOTNAME	Severity	Acres	Percent Burned
MAHON RANCH	Unburned	1,194	38.15%
	Low/Unburned	301	9.63%
	Low	1,223	39.08%
	Moderate	411	13.14%
MAHON RANCH Total		**3,129**	**100.00%**
MCEWEN	Unburned	3,858	3.61%
	Low/Unburned	9,405	8.80%
	Low	53,100	49.71%
	Moderate	40,351	37.77%
	High	108	0.10%
MCEWEN Total		**106,822**	**100.00%**
MOUNTAIN	Unburned	19,877	53.29%
	Low/Unburned	3,266	8.76%
	Low	3,980	10.67%
	Moderate	10,172	27.27%
	High	4	0.01%
MOUNTAIN Total		**37,299**	**100.00%**
NORTH STAR MTN	Unburned	97,976	92.24%
	Low/Unburned	4,476	4.21%
	Low	3,276	3.08%
	Moderate	485	0.46%
NORTH STAR MTN Total		**106,213**	**100.00%**
OTT F.F.R.	Unburned	601	94.67%
	Low/Unburned	11	1.80%
	Low	9	1.45%
	Moderate	13	1.99%
	High	1	0.09%
OTT F.F.R. Total		**635**	**100.00%**
POLLOCK ALLOTMENT	Unburned	80,812	99.87%
	Low/Unburned	92	0.11%
	Low	10	0.01%
POLLOCK ALLOTMENT Total		**80,914**	**100.00%**
POLLOCK FFR	Unburned	2,187	94.18%
	Low/Unburned	135	5.82%
POLLOCK FFR Total		**2,322**	**100.00%**
QUIER F.F.R.	Unburned	156	49.11%
	Low/Unburned	62	19.50%
	Low	99	31.04%
	Moderate	1	0.34%
QUIER F.F.R. Total		**318**	**100.00%**

ALLOTNAME	Severity	Acres	Percent Burned
RIVERSIDE	Unburned	11,978	57.52%
	Low/Unburned	2,874	13.80%
	Low	4,774	22.92%
	Moderate	1,197	5.75%
RIVERSIDE Total		**20,823**	**100.00%**
RIVERSIDE F.F.R.	Unburned	1,122	93.06%
	Low/Unburned	50	4.12%
	Low	30	2.53%
	Moderate	4	0.29%
RIVERSIDE F.F.R. Total		**1,205**	**100.00%**
SLOCUM FIELD	Low/Unburned	699	10.92%
	Low	2,709	42.31%
	Moderate	2,991	46.71%
	High	4	0.06%
SLOCUM FIELD Total		**6,404**	**100.00%**
SOUTH STAR MTN	Unburned	28,729	40.10%
	Low/Unburned	6,578	9.18%
	Low	28,252	39.44%
	Moderate	8,079	11.28%
	High	2	0.00%
SOUTH STAR MTN Total		**71,641**	**100.00%**
STINKINGWATER	Unburned	22,347	90.01%
	Low/Unburned	719	2.89%
	Low	1,369	5.51%
	Moderate	392	1.58%
STINKINGWATER Total		**24,827**	**100.00%**
STOCKADE F.F.R.	Unburned	58	0.95%
	Low/Unburned	762	12.44%
	Low	3,736	60.96%
	Moderate	1,568	25.58%
	High	4	0.07%
STOCKADE F.F.R. Total		**6,128**	**100.00%**
TEXACO BASIN	Unburned	6,374	43.78%
	Low/Unburned	2,091	14.37%
	Low	3,178	21.83%
	Moderate	2,914	20.02%
	High	1	0.00%
TEXACO BASIN Total		**14,558**	**100.00%**
THOMPSON F.F.R.	Unburned	6,587	89.60%
	Low/Unburned	570	7.75%

ALLOTNAME	Severity	Acres	Percent Burned
THOMPSON F.F.R.	Low	136	1.85%
	Moderate	59	0.80%
THOMPSON F.F.R. Total		**7,352**	**100.00%**
TURNBULL	Unburned	77,631	72.59%
	Low/Unburned	10,935	10.22%
	Low	15,462	14.46%
	Moderate	2,914	2.73%
	High	1	0.00%
TURNBULL Total		**106,943**	**100.00%**
UPTON MOUNTAIN	Unburned	11,674	82.71%
	Low/Unburned	1,077	7.63%
	Low	1,210	8.57%
	Moderate	154	1.09%
UPTON MOUNTAIN Total		**14,115**	**100.00%**
VENATOR	Unburned	1,995	5.45%
	Low/Unburned	4,230	11.55%
	Low	20,734	56.60%
	Moderate	9,665	26.38%
	High	6	0.02%
VENATOR Total		**36,630**	**100.00%**
WEST DAVIES	Unburned	2	0.07%
	Low/Unburned	88	3.57%
	Low	1,667	67.23%
	Moderate	719	28.99%
	High	4	0.15%
WEST DAVIES Total		**2,479**	**100.00%**
WILBER F.F.R.	Unburned	849	30.16%
	Low/Unburned	460	16.35%
	Low	649	23.06%
	Moderate	857	30.43%
WILBER F.F.R. Total		**2,816**	**100.00%**
Grand Total		**820,384**	

Appendix B - Table 4: Burns District – Forage Utilization in Fire Affected Pastures (2004-2013)

ALLOTMENT	PASTURE	Utilization %									
		2013	2012	2011	2010	2009	2008	2007	2006	2005	2004
ALDER CREEK (5536)	ALDER CREEK #1	29	ND	15	ND	7	18	ND	3	ND	39
	COLEMAN CREEK #2	ND	ND	ND	36	ND	ND	8	ND	12	ND
	CRANE CREEK #3	ND	ND	ND	10	ND	20	24	30	25	43
	MOUNTAIN #4	55	ND	ND	25	ND	23	4	ND	15	35
BEAVER CREEK (5600)	UPPER BEAVER CREEK #1	19	36	ND	49	38	ND	ND	48	21	42
	CRANE CREEK #2	40	ND	25	43	28	ND	ND	ND	ND	ND
	TABLE #3	34	10	24	ND	47	29	ND	ND	46	50
	LOWER BEAVER CREEK #4	ND	55	8	ND	ND	53	66	63	49	ND
BUCK MOUNTAIN (5537)	COYOTE CREEK #1	ND	ND	ND	21	ND	ND	17	22	18	26
	MOUNTAIN #2	ND	ND	ND	34	39	ND	ND	40	12	16
	STOCKADE #3	ND	ND	ND	ND	31	ND	ND	35	25	46
	WARM SPRINGS #4	ND	ND	24	26	58	25	ND	9	7	
	HOLE #5	ND	ND	21	50	50	48	53	37	31	40
	OPIE #6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	HOMESTEAD #7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	EXCLOSURE #8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
COLEMAN CREEK (5592)	LOWER #1	ND	ND	15	51	ND	ND	ND	56	8	66
	RIM#2	ND	ND	ND	63	63	ND	ND	48	43	57
	HOT SPRINGS #3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	CREEK#4	ND	ND	ND	ND	ND	ND	28	32	36	ND
	LOWER N. RIVER #5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	SWAMP CREEK #6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EAST DAVIES (5223)	RESERVIOR #1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	BALKAN BASIN #2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	LOWER #3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	HEAD OF BEAVER CR #4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	UNALLOTTED #99	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

ALLOTMENT	PASTURE	Utilization %									
		2013	2012	2011	2010	2009	2008	2007	2006	2005	2004
HAMILTON (5601)	WEST #1	ND	ND	ND	58	51	34	53	62	44	61
	SOUTH #2	ND	ND	ND		49	35	59	60	55	56
		ND	ND	ND	48	54	25	59	57	46	49
HUNTER (5202)	HUNTER #1	ND	ND	ND	ND	ND	23	46	54	36	40
LAMB RANCH (5571)	LAMB RANCH #1	ND	ND	ND	ND	ND	28	ND	ND	43	ND
MAHON RANCH (5599)	NORTH #2	ND	ND	ND	ND	ND	ND	62	ND	21	32
	SOUTH #3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MOUNTAIN (5532)	WEST #1	37	17	18	ND	31	24	44	23	26	38
	CROW CAMP #2	5	ND	ND	34	ND	42	43	ND	44	42
	LITTLE STINKINGWATER #3	40	ND	13	44	30	ND	22	33	27	ND
	EAST #4	ND	ND	43	ND	ND	42	ND	ND	23	57
	RED FLAT #5	32	19	33	ND	30	17	53	ND	34	ND
	STINKINGWATER #6	22	ND	ND	ND	ND	ND	ND	ND	28	ND
	RIPARIAN #7	35	ND	ND	ND	ND	ND	ND	ND	ND	ND
RIVERSIDE (5538)	VALE #1	ND	ND	ND	ND	ND	ND	ND	9	26	51
	RANCH #2	ND	ND	ND	70	ND	ND	49	33	19	50
	SOUTH SLOPE 33	ND	ND	ND	ND	ND	ND	46	37	22	ND
	WINNEMUCCA FIELD #4	ND	57	ND	51	49	56	13	45	23	49
	RESERVIOR #5	ND	ND	ND	47	54	57	43	37	21	61
	UPPER #6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	NORTH SLOPE #7	ND	ND	ND	ND	ND	70	37	50	22	44
STINKINGWATER (5531)	CONLY BASIN #1	31	40	ND	45	36	34	ND	17	ND	ND
	CLEAR CREEK SDG #2	ND	27	ND	ND	ND	ND	ND	ND	41	ND
	BARTLETT MOUNTAIN #3	17	ND	ND	19	ND	ND	ND	28	D	ND
	STINKINGWATER SDG #4	57	ND	ND	ND	29	ND	ND	66	ND	49
	STINKINGWATER PASS #5	42	22	48	ND	ND	19	ND	ND	ND	ND
	WELL #6	53	ND	22	ND	30	ND	ND	ND	ND	ND

ALLOTMENT	PASTURE	Utilization %									
		2013	2012	2011	2010	2009	2008	2007	2006	2005	2004
TEAXACO BASIN (5566)	BREAD SPRINGS #1	44	38	26	ND	61	52	50	47	31	68
	WARM SPRINGS #2	67	ND	30	ND	50	47	ND	60	ND	69
	RESERVIOR #3	ND	ND	ND	ND	ND	22	66	63	ND	ND
	ALKALI SPRINGS #4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UPTON MOUNTAIN (5565)	UPTON MTN #1	30	ND	ND	ND	38	ND	ND	ND	27	ND
	N BARTLETT MTN #2	31	13	ND	29	ND	ND	ND	62	36	38
	S BARTLETT MTN #3	21	29	16	ND	ND	ND	ND	42	ND	57
WEST DAVIES (5221)	LUPER #1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	QUIER #2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

ND – Utilization Data not available

Appendix B - Table 5: Vale District – Forage Utilization in Fire Affected Pastures (2004-2013)

Allotment	Pasture Name	Utilization %									
		2013	2012	2011	2010	2009	2008	2007	2006	2005	2004
McEwen (20603)	HICKEY	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	VISCHER	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	LOWER SWAMP	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	DUCK POND	ND	11.1	ND	ND	ND	ND	ND	ND	ND	ND
	EAST SWAMP CREEK	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	HUGHES	ND	5	ND	ND	ND	ND	ND	ND	ND	ND
	BIG FLAT	ND	0	ND	ND	ND	ND	ND	ND	ND	ND
	STOCKADE	ND	10.9	ND	30	ND	ND	ND	ND	ND	ND
North Star Mountain (00310)	SLAUGHTER GULCH	24	0	13	36.3	ND	ND	ND	ND	ND	ND
	COTTONWOOD BASIN	ND	ND	ND	52	ND	ND	ND	ND	ND	ND
	MONUMENT	ND	29	23	50	ND	ND	ND	ND	ND	45
	WILDCAT COLDSPRING	ND	14	30	ND	ND	ND	ND	ND	ND	70
	BASQUE	ND	ND	ND	14.6	ND	ND	ND	ND	ND	ND
	UPPER MEADOW SEEDING	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	MOSQUITO CREEK SEEDING	52	9.8	13	ND	13	ND	ND	ND	ND	ND
South Star Mountain (00309)	ATTURBURY	ND	23.8	46	ND	ND	ND	ND	ND	20	ND
	CRESTON BC	ND	63	36	25	ND	ND	ND	ND	62	56.2
	EAST CHAPMAN	ND	36	ND	54.6	ND	ND	ND	ND	ND	ND
	HORSE QUEEN	ND	12.5	53	52.5	55	ND	ND	27	ND	ND
	ROAD CANYON	ND	12.2	ND	34	ND	ND	ND	ND	ND	ND
	WEST CHAPMAN	ND	13	20	30	ND	ND	ND	ND	ND	66
Turnbull (00303)	CLARK FLAT	ND	ND	5	ND	ND	20	ND	26	43	42
	JUNIPER MTN	ND	23.2	ND	ND	ND	ND	ND	36	ND	ND
	SLATEN	ND	34	31	34.1	ND	ND	ND	39	53	60
	WHISKEY SPRING	ND	22.1	ND	47	ND	ND	ND	ND	22	ND
	DESERT	ND	ND	ND	ND	ND	ND	ND	34	41	ND
	JACKSON CREEK	ND	ND	ND	ND	ND	ND	7	ND	ND	16
	SAND BASIN	ND	21.2	25	ND	ND	48	20	ND	37	ND
Venator (10605)	NORTH FIELD	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	JAKE HUGHES	ND	ND	ND	28	ND	ND	ND	ND	ND	8.8
	STEER	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	NORTH DEADMAN	ND	ND	18.8	ND	ND	ND	ND	ND	ND	ND
	SOUTH DEADMAN	ND	ND	ND	ND	ND	ND	ND	ND	ND	60
	HEIFER	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Appendix B - Table 6: Potential Herbicides and Application Rates By Weed Species

Weed Species	Herbicide(s)	Rate	Timing of Application
Medusahead rye, cheatgrass, ventenata, and other annual invasive species	*Imazapic*: Plateau *Sulfometuron methyl:* Oust	2-12 oz./acre 0.14 - 0.5 oz/acre	Best application window is as a pre-emergent in late summer/early fall
Perennial Mustards (perennial pepperweed, white top), invasive annual broad-leaves	*Chlorsulfuron:* Telar XP May add *2,4-D*	1-1.3 oz/acre 1-2 qts/acre	Best application window is full flower stage.
Dalmatian toadflax	*Chlorsulfuron:* Telar XP May add *2,4-D*	1-1.3 oz/acre 1-2 qts/acre	Best application window is fall regrowth stage but full flower stage works too.
Black henbane, Biennial thistles (Scotch, bull, musk) Mediterranean sage, Halogeton, puncturevine	*Chlorsulfuron:* Telar XP May add: *2,4-D* May add: *Clopyralid*	1-1.3 oz/acre 1-2 qts/acre 1-1.33 pts/acre	Best application window is rosette to bolt stage.
Canada thistle	*Chlorsulfuron:* Telar XP May add *2,4-D:* various May add *Clopyralid*: Transline	1-1.3 oz/acre 1-2 qts/acre 1-1.33 pts/acre	Best application window is fall regrowth stage but bud stage works too.
Knapweeds (diffuse, spotted, Russian)	*Clopyralid:* Transline May add *2,4-D:* various	1-1.33 pts/acre 1-2 qts/acre	Best application window is rosette to bolt stage for diffuse, bud to flower for spotted, and bud or fall regrowth stage for Russian.
Purple Loosestrife	*Triclopyr*: Garlon 3A	6-8 qts/acre	Best application window is full flower stage.
Bare Ground (power poles, ROWs, Structure Protection)	*Bromacil + Diuron:* various esp "Weed Blast" *Tebuthiuron + Diuron*: SraKil SK 26	8 lbs/ac + 8 lbs/ac 2.6 lbs + 8 lbs	Best application window is as a pre-emergent either spring or fall

Appendix B - Table 7: Summary of Environmental Effects of Use of Chlorsulfuron

Resource	Proposed Herbicide: Chlorsulfuron	Target Vegetation	Target Areas
Soils **(BLM 2010a, p. 182)**	*Chlorsulfuron* would be stable in neutral soils throughout the area. As with most biodegradation rates, the higher the pH, the slower the herbicide breaks down. The higher the temperature, soil moisture, organic matter content, and microbial biomass, the faster it breaks down. Chlorsulfuron is only mildly toxic to terrestrial microorganisms and effects are short term (transient) (SERA 2004a). Chlorsulfuron has high soil mobility (low soil adsorption), a 40 day half-life, and is moderately persistent in soil. Degradation is affected by soil pH (high pH translates to slower herbicide degradation) and has potential longevity on alkaline soils. The herbicide can remain active for more than a year, particularly on the slightly (pH 7.4-7.9) and moderately (pH 7.9- 9.4) alkaline soils within the Aridisols, Mollisols, Inceptisols, and Entisols soil orders (Sarmah *et al*. (1999)). Chlorsulfuron has a label advisory for wind erosion. It is registered for use on all land types except forest and where applications are applied directly to water, where surface water is present, or to intertidal areas below the mean high water mark.	Thistles, Mediterannean sage, black henbane, poison hemlock, Dalmatian toadflax, perennial pepperweed, puncturevine, whitetop, and invasive annual broadleaf plants.	Roadsides, Rangelands ROW, Reservoirs, meadows, riparian areas.
Water Quality, Riparian, and Wetlands (BLM 2010a, pp. 196 & 212)	*Chlorsulfuron* is persistent and mobile in some soils. In aquatic environments, the environmental fate of chlorsulfuron is related to pH and temperature. Hydrolysis rates are fastest in acidic waters and slower in more alkaline systems (Sarmah and Sabadie 2002). As hydrolysis rates drop, biodegradation becomes the mechanism affecting the breakdown of chlorsulfuron. Aquatic dissipation half-lives from 24 days to more than 365 days have been reported (ENSR 2005c), with a shorter time reported for flooded soil (47 to 86 days) than anaerobic aquatic systems (109 to 263 days; SERA 2004a). Chlorsulfuron is not known to be a groundwater contaminant, but has a high potential to leach into the groundwater. It is effective at low concentrations. Chlorsulfuron could be used to the water's edge in riparian and wetland areas. It will not be used where it could contact the water; therefore the adverse effect would be low to none on water quality. Chlorsulfuron would be an especially effective control for the noxious perennial mustards that are invading the area, such as perennial pepperweed and hoary cress.		

Resource	Proposed Herbicide: Chlorsulfuron	Target Vegetation	Target Areas
Fish and Other Aquatic Resources **(BLM 2010a, p. 224)**	Chlorsulfuron is a selective, ALS-inhibitor herbicide. It is not registered for use in aquatic systems. Chlorsulfuron's physical and chemical properties suggest that it is highly soluble in water, and is likely to remain dissolved in water and runoff from soils into water bodies. In addition, this herbicide has a long half-life inponds, but is not likely to bioconcentrate in aquatic wildlife. However, none of the evaluated scenarios, including accidental direct spray and spill of chlorsulfuron, poses any risk to fish in streams and ponds.		
Wildlife and Special Status Wildlife Species **(BLM 2010a, p. 248)**	*Chlorsulfuron* is an ALS-inhibitor; a group of herbicides that has the lowest risk to all groups of wildlife of the herbicides evaluated. All likely application scenarios are below the LOCs for wildlife groups under tested scenarios, even under spill or off-site drift scenarios. It is unlikely to cause any adverse effect on aquatic animals (Table 3-14). No studies on amphibians or reptiles were found (SERA 2004a).		
Grazing **(BLM 2010a, p. 261 & 269)**	*Chlorsulfuron* risk quotients for mammals for all modeled scenarios were below the conservative LOC of 0.1, indicating that direct spray and ingestion of sprayed vegetation is not likely to pose a risk to livestock (Table 3-14; ENSR 2005c). Based on label directions, there are no restrictions on livestock use of treated areas which is also applicable to wild horses.		
Special Status Plant Species and Upland Vegetation **(BLM 2010a, p. 145-146)**	*Chlorsulfuron*, an ALS-Inhibitor and sulfonylurea, works by inhibiting the activity of an enzyme called acetolactate synthase (ALS), which is necessary for plant growth. Chlorsulfuron is effective at very low dosages (half ounce to a few ounces per acre). Because of its high potency and longevity, this herbicide has potential to pose a particular risk to non-target plants. Off-site movement of even small concentrations of this herbicide could result in extensive damage to surrounding plants, and damage to non-target plants has potential to result in concentrations lower than those reportedly required to kill target invasive plants (Fletcher et al. 1996). ALS-inhibiting herbicides can quickly confer resistance to certain weed populations.		

Appendix B - Table 8: Summary of Environmental Effects of Use of Clopyralid

Resource	Proposed Herbicide: Clopyralid	Target Vegetation	Target Areas
Soils **(BLM 2010a, p. 182-184)**	*Clopyralid* is unstable in soil and is considered moderately persistent based on its half-life. Leaching potential within the area would be low since the majority of the soils are loams and clay, although there are some coarser-textured pockets. Biodegradation would be rapid in soil and thus the potential for leaching or runoff is low. Clopyralid can persist in plants and therefore can be introduced into the soil when plants die.	Thistles knapweeds	Roadsides, ROWs, dry meadows, and rangelands
Water Quality, Riparian, and Wetlands (BLM 2010a, pp. 196 & 213)	*Clopyralid* does not appear to bind tightly to soil and will leach under favorable conditions. However, leaching and subsequent contamination of groundwater appear to be minimal (SERA 2004b), which is consistent with a short-term monitoring study of clopyralid in surface water after an aerial application (Rice et al. 1997a cited in SERA 2004b). Clopyralid is not known to be a common groundwater contaminant, and no major off-site movement has been documented. Clopyralid does not bind with suspended particles in water; biodegradation in aquatic sediments is the main pathway for dissipation. The average half-life of clopyralid in water has been measured at 9 and 22 days (Dow AgroSciences 1998). *Clopyralid* is relatively non-toxic to aquatic plants. Overall, effects to non-target wetland and riparian vegetation from normal application of clopyralid are likely to be limited to susceptible plant species in or very near the treatment area, and could be avoided by maintaining an adequate buffer between the treatment area and wetland and riparian areas (SERA 2004b). Clopyralid is not likely to affect aquatic plants via off-site drift or surface runoff pathways unless spilled. More effective noxious weed control would lead to better vegetation cover, which in the long term could assist with better water infiltration.		
Fish and Other Aquatic Resources **(BLM 2010a, p. 224)**	No effects would occur as no treatment will take place with this herbicide directly to water or areas where surface water is present within riparian areas or wetlands or where soils have rapid to very rapid permeability throughout the profile (such as loamy sand to sand) .		

Resource	Proposed Herbicide: Clopyralid	Target Vegetation	Target Areas
Wildlife and Special Status Wildlife Species **(BLM 2010a, p. 248)**	*Clopyralid* is useful in treating starthistle, thistles, and knapweeds, which are noted as damaging to wildlife habitat. Clopyralid is unlikely to pose risk to terrestrial mammals. All of the estimated mammalian acute exposures are below the acute NOEL; mammalian chronic exposures are below the chronic NOEL. It is relatively "harmless" to earthworms (Dow AgroSciences 1998) and 14 of 17 insect parasites and predatory mites (Hassan et al. 1994 cited in SERA 2004b). There was no mortality to bees at relatively high doses. Four of 18 direct spray scenarios resulted in exposure levels below the estimated NOEL. Large and small birds have some risk of ingestion of contaminated food but hazard quotients are below the level of concern for all exposure scenarios. No studies on amphibians/reptiles were found. Clopyralid is one of the herbicides with lower toxic risks (SERA 2004b).		
Grazing **(BLM 2010a, p. 262)**	*Clopyralid*: Large mammals face low acute risks from direct spray and from consumption of contaminated grass at the typical and maximum application rates. The maximum application rate also poses a low chronic risk to large mammals consuming on-site contaminated vegetation. All risks identified fall within the lowest risk category; adverse effects to livestock are unlikely with expected exposure scenarios. According to label directions, there are no restrictions on grazing or hay harvest following application at labeled rates, but livestock should not be transferred from treated grazing areas to susceptible broadleaf crop areas without first allowing for 7 days of grazing on untreated pasture. Clopyralid would allow for more effective weed control, which could increase the carrying capacity of the treated allotments.		
Special Status Plant Species and Upland Vegetation **(BLM 2010a, p. 145)**	*Clopyralid* is a selective herbicide that limits enzyme activity, and focuses on broadleaf weeds and grasses. Clopyralid is more selective and less persistent than picloram. Clopyralid is relatively non-toxic to aquatic plants; however, accidental spills have potential to result in temporary growth inhibition of aquatic plants. Many of our important, desirable tree and shrub species are tolerant of clopyralid. Clopyralid has little effect on grasses and members of the mustard family. Overall effects to non-target plants from normal application of clopyralid would likely be limited to susceptible plant species in or very near the treatment area. Removal of noxious weeds would improve the upland vegetation and allow for more habitats for special status plant species.		

Appendix B - Table 9: Summary of Environmental Effects of Use of Imazapic

Resource	Proposed Herbicide: Imazapic	Target Vegetation	Target Areas
Soils (BLM 2010a, p. 182-184)	*Imazapic* is moderately persistent in soils and has not been found to move laterally with surface water. Most imazapic is lost through biodegradation. Sorption to soil increases with decreasing pH and increasing organic matter and clay content. The project area has relatively high pH and clay content.	Medusahead rye, Cheatgrass, African wiregrass (Ventenata)	Roadsides, Rangelands, ROWs
Water Quality, Riparian, and Wetlands (BLM 2010a, pp. 197 & 212, and 224)	Imazapic has low potential to leach into the groundwater. Imazapic would have very high water solubility and negligible to slight potential for transport in surface runoff, due to its adsorption potential with soil and organic matter. In addition, imazapic is rapidly degraded by sunlight in aqueous solution, with a half-life of one or two days. In aquatic systems, imazapic rapidly photodegrades with a half-life of 1 to 2 days (Tu et al. 2001). Aquatic dissipation half-lives have been reported from 30 days (water column) to 6.7 years in anaerobic sediments (SERA 2004c). Little is known about the occurrence, fate, or transport of imazapic in surface water or groundwater (Battaglin et al. 2000). However, according to the herbicide label for Plateau, in which imazapic is the active ingredient, it is believed to be a groundwater contaminant (BASF 2008). *Imazapic* risk to aquatic plants from accidental spills of imazapic is moderate to high at the maximum application rate and low to moderate at the typical application rate (there is no acute risk to aquatic plants in standing water at the typical application rate). Aquatic plants are generally not at risk from off-site drift of imazapic, except when applied aerially at the maximum application rate with a buffer of 100 feet or less. *Imazapic*, an ALS-inhibitor, is a selective, systemic herbicide. It would not be used for treatment of aquatic vegetation, but could be used in riparian areas. Due to these characteristics and the SOPs that would be employed, impacts to water resources impacts are not anticipated to be significant from proposed imazapic applications.		
Fish and Other Aquatic Resources (BLM 2010a, p. 225)	*Imazapic* would be moderately toxic to fish, but is not proposed for aquatic use. The average half-life for imazapic in a pond is 30 days, and this herbicide has little tendency to bioaccumulate in fish (Barker et al. 1998). According to the manufacturer's label, imazapic has a high runoff potential from soils for several months or more after application. Accidental direct spray and spill scenarios generally pose no risk to fish when imazapic is applied at either the typical or maximum application rate. Risk Assessments show fish are not at risk from off-site drift or surface runoff of imazapic. No treatment will take place directly to water, or to areas where surface water is present with this herbicide. Adjuvants will be used to minimize drift and help bind the herbicide to the site of application.		

Wildlife and Special Status Wildlife Species (BLM 2010a, p. 249)	*Imazapic* is an ALS-inhibitor that rapidly metabolizes and does not bioaccumulate. It is effective against medusahead, leafy spurge, and cheatgrass, which adversely affect wildlife habitat. Imazapic is not highly toxic to most terrestrial animals. Mammals are more susceptible during pregnancy and larger mammals are more susceptible than small mammals. Imazapic has low toxicity to honeybees. No adverse short-term exposure risks to birds were noted for imazapic, but some chronic growth reduction was noted. None of the risk categories for susceptible or non-susceptible shows any ratings that exceed the LOC. Imazapic is one of the lowest toxic risks to wildlife of herbicides evaluated in this EIS along with other ALS-Inhibitors (SERA 2004c). The use in rangeland and other wildlife habitat areas would benefit wildlife by controlling invasive plant species, especially annual grass species. And would promote the establishment and growth of native plant species that provide more suitable wildlife habitat and forage.		
Grazing (BLM 2010a, p. 261)	*Imazapic*: Risk quotients for terrestrial animals were all below the most conservative LOC of 0.1, indicating that direct spray or drift of imazapic would be unlikely to pose a risk to livestock (Table 3-14; ENSR 2005h). Based on label directions, there are no restrictions on livestock use of treated areas. Imazapic will typically be applied in the fall as a pre-emergent, minimizing potential ingestion and therefore effects to the livestock that use the allotment.		
Special Status Plant Species and Upland Vegetation (BLM 2010a, p. 145)	*Imazapic*, an ALS-Inhibitor and sulfonylurea, works by inhibiting the activity of an enzyme called acetolactate synthase (ALS), which is necessary for plant growth. Imazapic would be applied at a very low dose (6-8 ounces per acre). Because of the high potency and longevity, this herbicide can pose a particular risk to non-target plants. Off-site movement of even small concentration of this herbicide can result in extensive damage to surrounding plants. Since imazapic would be applied early fall most of the native vegetation would be dormant. The key grass species found in the project area are Blue-bunch wheatgrass (*Pseudoroegneria spicata)*, Thurbers needlegrass *(Achnatherum thurberianum)*, squirreltail *(Elymus elymodies)*, Sandberg's bluegrass *(Poa sandbergii)*, Idaho fescue *(Festuca idahoensis)*, crested wheatgrass (*Agropyron cristatum*), basin wildrye *(Elymus cinereus)*, and Inland saltgrass *(Distichlis stricta).* These species would be tolerant to imazapic up to a rate of 12 ounces per acre (which is much higher than the rate we would be applying in the project area).		

Appendix B - Table 10: Summary of Environmental Effects of Use of Sulfometuron Methyl

Resource	Proposed Herbicide: Sulfometuron Methyl	Target Vegetation	Target Areas
Soils (BLM 2010a, p. 182-184)	*Sulfometuron methyl* is broken down through hydrolysis and biodegradation. The half-life is short (Table 4-14). It has been found to move readily through coarse textured soils such as sand and sandy loams under field conditions, but Trubey *et al*. (1998) demonstrated it is immobile under field conditions and would not pose a threat to groundwater. Little is known about the effects to soil organisms; however, Busse *et al*. (2004) demonstrated that this herbicide would not alter the capability of mycorrhizal fungi to infect roots even at concentrations detrimental to seedling growth.	cheatgrass, medusahead rye, annual broad-leaved invasive plants	Upland Roadsides & ROWs
Water Quality, Riparian, and Wetlands (BLM 2010a, pp. 198 & 213-214)	*Sulfometuron methyl* degrades quickly by hydrolysis in acidic water, but is stable in neutral water. Biodegradation and photolysis are major loss pathways in aquatic systems, where hydrolysis rates generally are slow. Aquatic dissipation half-lives are estimated at 1 to 3 days to 2 months in aerobic systems, and several months in anaerobic sediments (Extoxnet 1996c). Sulfometuron methyl is not known to be a groundwater contaminant. *Sulfometuron methyl* poses a high risk to aquatic plants from accidental direct spray and spills, and a high risk to susceptible and aquatic plants from drift. It poses a low risk to terrestrial plants from drift. Aquatic plants in standing water are typically at low to moderate risk for adverse effects from surface runoff scenarios. Sulfometuron methyl should not be applied during high winds, as drift could cause extensive damage to vegetation at a substantial distance from the application site.		
Fish and Other Aquatic Resources (BLM 2010a, p. 224)	*Sulfometuron methyl*, an ALS-inhibitor, is a broad-spectrum, pre- and post-emergent herbicide. It is not approved for use in aquatic systems, but could be used to treat weeds associated with riparian systems if the application was made far enough from water to ensure that the active ingredient did not get into the water. Sulfometuron methyl has a relatively low residence time in aquatic systems, and bioaccumulation in aquatic organisms has not been detected (Extoxnet 1996c). According to Ecological Risk Assessments, there would be no risks to fish associated with the use of sulfometuron methyl under any of the evaluated scenarios.		
Wildlife and Special Status Wildlife Species (BLM 2010a, p. 249)	*Sulfometuron methyl* is an ALS-inhibitor. Sulfometuron methyl could be used to control weeds in riparian areas when no water exposure is likely. It is highly toxic to aquatic plants. The Ecological Risk Assessments indicated no risks to aquatic invertebrates from any scenario. All scenarios indicate no rating that exceeded the LOC, although it may be moderately toxic to amphibians. Sulfometuron methyl has the lowest risk to all groups of wildlife of the herbicides evaluated (with other ALS-inhibitors). The intended use is in uplands so any impacts to species in riparian areas are unlikely.		

Grazing (BLM 2010a, p. 258-268)	*Sulfometuron methyl*: This herbicide is relatively non-selective and would be used on rights-of-way, but it is not registered for sites that are grazed. Risk quotients for terrestrial animals were all below the most conservative LOC of 0.1, indicating that direct spray or drift of sulfometuron methyl would be unlikely to pose a risk to livestock (Table 3-14; ENSR 2005j). Sulfometuron methyl would only be used in areas that are not areas with grazing potential (ie roads).		
Special Status Plant Species and Upland Vegetation (BLM 2010a, p. 144-146)	*Sulfometuron methyl* would be used as a broad spectrum pre- and post- emergent herbicide that inhibits cell division that focuses on grasses and broadleaf weeds. Sulfometuron methyl, an ALS-Inhibitor and sulfonylurea, works by inhibiting the activity of an enzyme called acetolactate synthase (ALS), which is necessary for plant growth. Sulfometuron methyl is effective at very low dosages (half ounce to a few ounces per acre). Because of its high potency and longevity, this herbicide has potential to pose a particular risk to non-target plants. Off-site movement of even small concentrations of this herbicide has potential to result in extensive damage to surrounding plants, and damage to non-target plants has potential to result in concentrations lower than those reportedly required to kill target invasive plants (Fletcher et al. 1996). ALS-inhibiting herbicides can quickly confer resistance to certain weed populations. To prevent off site movement from sulfometuron methyl applications, the applicable SOPs will be followed. This herbicide would be used to control stubborn roadside weed species including medusahead rye, in rotation with other herbicides.		

Appendix B - Table 11: Summary of Environmental Effects of Use of Bromacil

Resource	Proposed Herbicide: Bromacil	Target Vegetation	Target Areas
Soils (BLM 2010a, p. 182-184)	*Bromacil* is applied to soil where it binds, or adsorbs, only slightly to soil particles, is soluble in water, and is moderately to highly persistent. It's half-life is about 60 days, but may be as much as 8 months in aerobic soils (Wauchope et al, 1992). Soil persistence is longer in soils with high organic matter (National Library of Medicine 2002, Extoxnet 1993). Leaching is dependent on the soil type and the amount of rainfall or irrigation water. The potential for bromacil to leach and contaminate groundwater is greatest in sandy soils. In normal soils, it can be expected to leach to a depth of 2-3 feet (National Library of Medicine 2002), depending on moisture. There is limited research on the toxicity to most soil organisms. However, one soil bacteria isolate that can biodegrade bromacil has been identified (Chaudhry and Cortez, 1988).	Bare ground	Upland Roadsides, ROWs, Power poles
Water Quality, Riparian, and Wetlands (BLM 2010a, pp. 196 & 212)	No effects would occur as no treatment will take place with this herbicide within riparian areas or wetlands. However, *Bromacil* is mobile in soil and is a known groundwater contaminant. It can be persistent in most aquatic environments because it is stable to hydrolysis, and photodegradation occurs rapidly only under alkaline conditions (ENSR 2005b). The environmental hazards section of current product labels includes a groundwater advisory warning users not to apply bromacil in areas with permeable soils in order to protect water quality. Biodegradation is a major loss mechanism in aerobic and anaerobic aquatic systems. Bromacil is not expected to partition to suspend particles or sediments in aquatic systems, but will remain dissolved in the water column and has a high potential to leach into the groundwater. *Bromacil* is not selective, and accidental exposure could injure riparian shade trees and other non-target wetland and riparian vegetation. Bromacil is mobile and has the ability to persist in wetland environments.		
Fish and Other Aquatic Resources (BLM 2010a, p. 224)	*Bromacil* is a non-selective, broad-spectrum, systemic herbicide that can be persistent in aquatic systems. It is not registered for use in riparian and aquatic systems. Bromacil does not tend to bioconcentrate appreciably in fish tissue. Bromacil poses a low to moderate risk to fish in streams and ponds under typical and accidental direct spray and spill scenarios. Off-site drift of bromacil generally does not pose a risk to fish in streams or ponds (Table 3-14). Surface runoff poses no risks to fish in streams, but could pose a low acute and chronic risk to fish in ponds (there is a low chronic risk associated with the typical application rate, in watersheds with sand or loam soils and 10 to 50 inches per year of precipitation). Because bromacil has a higher affinity for water than organic carbon, it is likely to run off from soils into water bodies. Because of the non-selective nature of bromacil and its likelihood for runoff, it is not normally applied near water bodies, especially ponds.		

Wildlife and Special Status Wildlife Species (BLM 2010a, p. 248)	*Bromacil* is an herbicide often used where maintenance of bare ground is desired. It poses a low toxicity hazard to terrestrial mammals, birds, and honeybees. It poses zero to low toxicity risk to mammals that ingest treated vegetation over time under plausible treatment scenarios, assuming they remain in the treatment area, and alternate food is unavailable. BLM's application scenario reduces the risks of herbivore ingestion. There is practically no risk to invertebrates (ENSR 2005b).		
Grazing (BLM 2010a, p. 258-268)	*Bromacil* does not present a risk to small mammals via direct spray or indirect contact with foliage after direct spray (Table 3-14; ENSR 2005b). These scenarios are very conservative because they assume 100 percent absorption and because small mammals have a relatively large surface area for absorption of herbicide. Therefore, it is unlikely that bromacil would affect larger livestock under these scenarios. Low chronic risk for large mammal ingestion at the typical rate, and low acute and moderate chronic risks for ingestion scenarios at the maximum application rate suggest direct spray of bromacil onto rangeland could pose a risk to livestock consuming sprayed vegetation, particularly if applied over large areas. However, bromacil is a non-selective herbicide that is not registered for application on rangelands or other livestock grazing areas where some vegetative cover is desired, suggesting that under typical use bromacil would not affect livestock. Any risk would come from off-site transport of bromacil to livestock grazing areas or treatment of vegetation in accessible rights-of-way. Use of bromacil in spot applications or over small areas is not likely to affect livestock. Based on label directions, there are no restrictions on livestock use of treated areas.		
Special Status Plant Species and Upland Vegetation (BLM 2010a, p. 146)	*Bromacil* kills target plants by disrupting photosynthesis. Bromacil is a non-selective, broad-spectrum systemic herbicide, which is lethal to all plants. Bromacil poses a high risk to non-target plant species in the immediate vicinity of the treatment area.		

Appendix B - Table 12: Summary of Environmental Effects of Use of Diuron

Resource	Proposed Herbicide: Diuron	Target Vegetation	Target Areas
Soils (BLM 2010a, p. 182-184)	*Diuron* is a moderately persistent herbicide with low to moderate mobility in soil, depending upon the level of organic matter available for it to adhere to. Decomposition is principally through biodegradation and occurs in both anaerobic and aerobic conditions. As degradation occurs, the breakdown product 3,4-DCA also persists and exhibits higher toxicity to some receptors32. Waterfleas are negatively affected but it is unknown if it affects soil crustaceans. Bacteria and fungi have been found to degrade this herbicide and population levels within the soil may increase. Thus, effects to them may be positively correlated. One study found adverse effects on bacteria diversity at concentrations of 25 mg/L and diversity seemed to decrease in soil treated with diuron (Giacomazzi and Cochet 2004). According to the European Food Safety Authority's Conclusion on the Peer Review of Diuron (EFSA 2005), the risk from label applications to bees, non-target arthropods, and soil micro- and macro-organisms including earthworms is considered low for diuron and its metabolites.	Bare ground	Upland Roadsides, ROWs, and Power poles
Water Quality, Riparian, and Wetlands (BLM 2010a, pp. 196 & 213)	*Diuron* is a known surface water and groundwater contaminant. Under the Risk Assessment's accidental direct spray and spill scenarios, diuron is a high risk to aquatic plants. Off-site drift typically poses low to moderate risk to aquatic plants at the typical and maximum rate respectively (ENSR 2005f).		
Fish and Other Aquatic Resources (BLM 2010a, p. 224)	*Diuron* is a broad-spectrum herbicide with a relatively short half-life and little to no impact on measured water quality variables (Perschbaucher et al. 2004). It would not be used in riparian or aquatic habitats. Previous studies suggest that diuron tends to remain in the soil rather than moving into groundwater or running off into water bodies (Mueller-Warrant and Griffith 2005). Diuron has a low to moderate tendency to bioaccumulate in aquatic organisms (National Library of Medicine 2002). Accidental direct spray and spill scenarios pose a moderate to high risk to fish (Table 3-14). When applied at the typical or maximum application rate, off-site drift of diuron poses no to low risk to fish. At the maximum application rate, off-site drift of diuron poses low risk to fish in streams and ponds under most application scenarios with a buffer distance of 100 feet or less. According to the Ecological Risk Assessment, surface runoff poses low risk to fish in ponds in the majority of scenarios.		
Wildlife and Special Status Wildlife Species (BLM 2010a, p. 249)	*Diuron* is approved for ditch banks, but will not be used in riparian areas. It has a low to moderate tendency to bio-accumulate (Extoxnet 1996a). Acute direct spray risks on food were low for most mammal and bird scenarios, but exceeded the LOC for all scenarios at the maximum rate. Some chronic scenarios presented a high risk. Diuron has low to moderate risks to pollinators at typical and maximum rates respectively, and moderate to high risk for aquatic invertebrates. Diuron was listed as a risk under most direct spray and ingestion of contaminated food scenarios (ENSR 2005f).		

Grazing (BLM 2010a, p. 258-268)	*Diuron*: There were no acute risks but low to moderate chronic risk if food was directly sprayed at the typical application rate; there would be low acute risk and moderate to high chronic risk if food was sprayed at the maximum application rate (Table 3-14; ENSR 2005f). However, because diuron is a non-selective herbicide not likely to be broadcast where vegetation is desired, and not registered for use on rangelands, exposure to livestock would be limited. Any exposure would likely be limited to rights-of-way use, off-site drift, or surface runoff. Based on label directions, there are no restrictions on livestock use of treated areas.		
Special Status Plant Species and Upland Vegetation (BLM 2010a, p. 144-146)	*Diuron* kills target plants by disrupting photosynthesis. Diuron is a non-selective, broad-spectrum systemic herbicide, which is lethal to all plants. Diuron poses a high risk to non-target plant species in the immediate vicinity of the treatment area.		

Appendix B - Table 13: Summary of Environmental Effects of Use of Tebuthiuron

Resource	Proposed Herbicide: Tebuthiuron	Target Vegetation	Target Areas
Soils (BLM 2010a, p. 184)	*Tebuthiuron* is resistant to abiotic degradation and biodegradation. Its field half-life ranges from 2 weeks to over 33 months making it a highly persistent herbicide. It has a low adsorption affinity to soil, with some adsorption occurring as organic matter and clay content increase. It is mobile in soil and has been detected in groundwater. Soil organisms (mycorrhizal spore density) have been reduced initially after applications in Utah under a soft brome vegetation type (Allen and West 1993). However, Mostafa and Helling (2003) found no affect to such spores 6 months after herbicide application.	Bare ground	ROWs and Power poles
Water Quality, Riparian, and Wetlands (BLM 2010a, pp. 198 & 213)	*Tebuthiuron* persists in the environment and has been found as a groundwater contaminant. It has a low sorption to soil. In a study of 71 streams, it was detected in 16 percent of 134 samples but not detected in groundwater (Battaglin et al. 2000). Tebuthiuron degrades slowly in aquatic systems. *Tebuthiuron* poses a high risk of adverse effects to aquatic plants under Risk Assessment spill scenarios, and potentially a high risk for adverse effects from direct spray scenarios. Aquatic plants are not at risk for adverse effects under scenarios involving off-site drift of tebuthiuron; however, surface runoff typically poses a risk to submerged aquatic plants for herbicide treatments at the maximum application rate, and at the typical application rate in sandy soils. Tebuthiuron is resistant to hydrolysis and photolysis in aquatic systems; however, some photodegradation has been reported at alkaline conditions (pH=9), and tebuthiuron is expected to biodegrade slowly in aquatic systems.		
Fish and Other Aquatic Resources (BLM 2010a, p. 224)	*Tebuthiuron* is a relatively non-selective herbicide absorbed by plant roots through the soil. Tebuthiuron has little tendency to bioaccumulate in aquatic organisms (National Library of Medicine 2002), but may have a moderate residence time in water bodies (over 1 year in anaerobic conditions).		
Wildlife and Special Status Wildlife Species (BLM 2010a, p. 249)	*Tebuthiuron:* Direct spray of tebuthiuron at the typical rate is not likely to pose risks to small mammals, although there are some risks to birds at typical and maximum rates—primarily due to ingestion of contaminated food. It has low acute toxicity to insects and direct spray is not a concern to aquatic invertebrates. Off-site drift issues related to tebuthiuron are unlikely to affect aquatic wildlife, but accidental spray exceeded LOC for aquatic invert risk in ponds or streams. At low rates, tebuthiuron can help restore ecological mosaics in sagebrush ecosystems important to sage-grouse and pygmy rabbits (Crawford et al. 2004, ENSR 2005k).		

Grazing (BLM 2010a, p. 262-273)	<u>*Tebuthiuron:*</u> Direct spray of tebuthiuron at the typical rate is not likely to pose risks to small mammals, although there are some risks to birds at typical and maximum rates—primarily due to ingestion of contaminated food. It has low acute toxicity to insects and direct spray is not a concern to aquatic invertebrates. Off-site drift issues related to tebuthiuron are unlikely to affect aquatic wildlife, but accidental spray exceeded LOC for aquatic invert risk in ponds or streams. At low rates, tebuthiuron can help restore ecological mosaics in sagebrush ecosystems important to sage-grouse and pygmy rabbits (Crawford et al. 2004, ENSR 2005k).		
Special Status Plant Species and Upland Vegetation (BLM 2010a, p. 144-146)	*Tebuthiuron* is relatively non-selective against broadleaf plants, woody plants, and grasses. Tebuthiuron can be selective at low rates of application where it is used to thin sagebrush stands allowing more herbaceous species to thrive in the interspaces. Only the highest application rates of tebuthiuron produced an effect on non-target mycorrhizal fungi but there was no measurable effect of any level of tebuthiuron on germination of spores collected after six months (Allen and West 1993).		

Appendix B - Table 14: Major ecological sites found within the Burns portion of the Buzzard Complex Fire

ESIDNO	RANGESITE	DOMINANT VEGETATION	Precip Zone
010XC050OR;010XC039OR;010XB029OR	CLAYEY 9-12;VERY SHALLOW 9-12;CLAYPAN 9-12	AGSP/;/ARRI2/POSE/	9-12
010XB080OR;010XB082OR	MT CLAYPAN 12-16;SHRUBBY MT CLAYPAN 12-16	AGSP/;JUOC/PUTR2/AGSP/	12-16
023XY214OR;010XC038OR	CLAYPAN 10-12;VERY SHALLOW 9-12	ARAR8/AGSP/;/ARRI2/POSE/	9-12
023XY214OR;010XC036OR	CLAYPAN 10-12;MT SHALLOW 9-12	ARAR8/AGSP/;/ARTRW/AGSP/	9-12
010XB080OR;010XC037OR	MT CLAYPAN 12-16;MT SHALLOW 12-16	ARAR8/FEID/;/ARTRV/FEID/	12-16
010XB080OR;010XC066OR	MT CLAYPAN 12-16;MT NORTH 12-16	ARAR8/FEID/;/ARTRV/FEID/	12-16
010XB080OR	MT CLAYPAN 12-16	ARAR8/POSE/	12-16
023XY214OR	CLAYPAN 10-12	ARAR8/POSE/	10-12
023XY216OR	CLAYPAN 12-16	ARAR8/POSE/	12-16
010XB080OR;010XC039OR	MT CLAYPAN 12-16;MT VERY SHALLOW 12-16	ARAR8/POSE/;/ARRI2//	12-16
010XB029OR;010XC039OR	MT CLAYPAN 12-16;MT VERY SHALLOW 12-16	ARAR8/POSE/;/ARRI2/POSE/	12-16
010XB080OR;010XC032OR	MT CLAYPAN 12-16;MT CLAYEY 12-16	ARAR8/POSE/;/ARTR2/POSE/	12-16
010XC039OR;010XB080OR	MT VERY SHALLOW 12-16;MT CLAYPAN 12-16	ARRI2/POSE/;/ARAR8/AGSP/	12-16
010XC039OR;010XC032OR	MT VERY SHALLOW 12-16;MT CLAYEY 12-16	ARRI2/POSE/;/ARTR2/POSE/	12-16
010XC021OR;010XC039OR;010XB029OR	CLAYEY 9-12;VERY SHALLOW 9-12;CLAYPAN 9-12	ARTR2/AGCR/;/ARRI2/POSE/	9-12
010XC021OR	CLAYEY 9-12;MISC LAND TYPE	ARTR2/AGSP/	9-12

ESIDNO	RANGESITE	DOMINANT VEGETATION	Precip Zone
010XC050OR	SHALLOW SOUTH 9-12	ARTR2/AGSP/	9-12
010XC065OR;010XC050OR	MT NORTH 9-12;SHALLOW SOUTH 9-12	ARTR2/AGSP/;//AGSP/	12-16
010XC047OR;010XC066OR	MT SOUTH 12-16;MT NORTH 12-16	ARTR2/AGSP/;/ARTRV/FEID/	12-16
010XC018OR;010XC021OR	ADOBELAND 9-12;CLAYEY 9-12	ARTR2/ELCI2/;/ARTRT//LEPE2	9-12
010XC021OR;010XC035OR;010XC057OR	CLAYEY 9-12;SHALLOW 9-12;SHALLOW ESCARPMENT 9-12	ARTRT/POSE/;/ARTRW/POSE/	9-12
010XC032OR;010XB080OR;010XC039OR	MT CLAYEY 12-16;MT CLAYPAN 12-16;MT VERY SHALLOW 12-16	ARTRV/AGSP/;/ARAR8/AGSP/	12-16
010XC047OR	MT SOUTH 12-16;MISC LAND TYPE	ARTRV/BRTE/	12-16
010XC066OR	MT NORTH 12-16;MISC LAND TYPE	ARTRV/FEID/	12-16
010XC066OR;010XC032OR	MT NORTH 12-16;MT CLAYEY 12-16	ARTRV/FEID/	12-16
010XC066OR;010XB080OR;010XC047OR	MT NORTH 12-16;MT CLAYPAN 12-16;MT SOUTH 12-16	ARTRV/FEID/;/ARAR8/AGSP/	12-16
010XC021OR;010XC065OR	CLAYEY 9-12;MT NORTH 9-12	ARTRW/AGSP/	9-12
010XC035OR	SHALLOW 9-12	ARTRW/AGSP/	9-12
010XC057OR;010XC035OR	SHALLOW ESCARPMENT 9-12;SHALLOW 9-12	ARTRW/AGSP/	9-12
023XY300OR	SOUTH SLOPES 8-12	ARTRW/AGSP/	8-12
023XY300OR;023XY308OR	SOUTH SLOPES 8-12;NORTH SLOPES 10-12	ARTRW/AGSP/	8-12
010XC043OR;010XC065OR	CLAYEY SOUTH 9-12;MT NORTH 9-12	ARTRW/AGSP/;/ARTRW/AGSP/ERIOG	12-16

ESIDNO	RANGESITE	DOMINANT VEGETATION	Precip Zone
010XC021OR;010XC035OR	CLAYEY 9-12;SHALLOW 9-12	ARTRW/AGSP/;/ARTRW/POSE/	9-12
010XC013OR	SWALE 9-12	ARTRW/BRTE/	9-12
010XC065OR;010XC043OR	MT NORTH 9-12;CLAYEY SOUTH 9-12	ARTRW/BRTE/	9-12
010XC050OR;010XC065OR	SHALLOW SOUTH 9-12;MT NORTH 9-12	ARTRW/BRTE/;/ARTRW/FEID/	9-12
010XC065OR	MT NORTH 9-12	ARTRW/POSE/	9-12
023XY212OR	LOAMY 10-12	ARTRW/POSE/	10-12
010XC021OR;010XB029OR	CLAYEY 9-12;CLAYPAN 9-12	ARTRW/POSE/;/ARAR8/POSE/	9-12
010XC021OR;010XC038OR;010XB029OR	CLAYEY 9-12;VERY SHALLOW 9-12;CLAYPAN 9-12	ARTRW/POSE/;/ARRI2/POSE/	9-12
010XY005OR	LOAMY BOTTOM	CHVI8/BRTE/	10-12
010XC032OR	MT CLAYEY 12-16	JUOC/ARTRV/FEID/	12-16
010XC032OR;010XB080OR	MT CLAYEY 12-16;MT CLAYPAN 12-16	JUOC/ARTRV/FEID/;/ARAR8/FEID/	12-16
010XC054OR	MT SHALLOW SOUTH 12-16;MISC LAND TYPE	PUTR2/AGSP/	12-16

Appendix B - Table 15: Buzzard Complex Hydrology and Fish Bearing Streams – Vale District

STREAM NAME / Flow Type	TOTAL MILES	PUBLIC LAND STREAMS		PRIVATE LAND STREAMS		STATE LAND STREAMS		PER/INT/UNK/N/A Flow %	WATERSHED	Red Band
		Public Miles	Public %	Private Miles	Private %	State Miles	State %			
Baker Creek	**1.04**	**1.04**	**100.00**		**0.00**		**0.00**		**Upper Dry Creek** 1705011004	
Intermittent	1.04	1.04						100.00		
Browns Feed Canal	**0.58**		**0.00**		**0.00**	**0.58**	**100.00**		**Upper South Fork Malheur River** 1705011608	
N/A	0.49					0.49		83.93		
Perennial	0.09					0.09		16.07		
Burnt Flat Creek	**0.39**	**0.39**	**100.00**		**0.00**		**0.00**		**Crowley Creek** 1705011003	
Intermittent	0.39	0.39						100.00		
Cedar Creek	**4.05**	**3.80**	**93.93**	**0.25**	**6.07**		**0.00**		**Crowley Creek** 1705011003	
Intermittent	4.05	3.80		0.25				100.00		
Cobb Creek	**3.72**	**0.45**	**12.03**	**3.27**	**87.97**		**0.00**		**Lower South Fork Malheur River** 1705011610	
Intermittent	3.72	0.45		3.27				100.00		
Couch Creek	**0.98**		**0.00**	**0.61**	**61.99**	**0.37**	**38.01**		**Crowley Creek** 1705011003	
Intermittent	0.98			0.61		0.37		100.00		
Crane Creek	**0.00**	**0.00**	**100.00**		**0.00**		**0.00**		**Lower South Fork Malheur River** 1705011610	
Intermittent	0.00	0.00						100.00		
Crowley Creek	**14.44**	**6.53**	**45.20**	**7.91**	**54.80**		**0.00**		**Crowley Creek** 1705011003	
Intermittent	13.68	6.53		7.15				94.74		
Perennial	0.76			0.76				5.26		
Deadman Creek	**7.70**	**2.83**	**36.80**	**4.86**	**63.20**		**0.00**		**Upper South Fork Malheur River** 1705011608	X
Intermittent	2.67	2.27		0.40				34.72		
Perennial	5.02	0.56		4.46				65.28		
Dick Creek	**3.37**		**0.00**	**0.98**	**29.07**	**2.39**	**70.93**		**Crowley Creek** 1705011003	
Intermittent	2.61			0.98		1.63		77.49		
Perennial	0.76					0.76		22.51		
Dry Creek	**1.34**		**0.00**		**0.00**	**1.34**	**100.00**		**Upper South Fork Malheur River** 1705011608	
Intermittent	1.34					1.34		100.00		
Duck Creek	**6.01**	**0.20**	**3.40**	**1.84**	**30.58**	**3.97**	**66.01**		**Crowley Creek** 1705011003	
Intermittent	4.76			0.79		3.97		79.16		
Perennial	1.25	0.20		1.05				20.84		
East Swamp Creek	**5.43**	**1.96**	**36.15**	**3.47**	**63.85**		**0.00**		**Lower South Fork Malheur River** 1705011610	
Intermittent	5.43	1.96		3.47				100.00		

STREAM NAME	TOTAL MILES	PUBLIC LAND STREAMS		PRIVATE LAND STREAMS		STATE LAND STREAMS		PER/INT/UNK/N/A Flow %	WATERSHED	Red Band
Hickey Creek	**8.57**	**4.41**	**51.43**	**4.16**	**48.57**		**0.00**		**Lower South Fork Malheur River** 1705011610	
Intermittent	6.85	4.37		2.48				79.96		
Perennial	1.72	0.04		1.68				20.04		
Indian Creek	**6.61**		**0.00**	**0.15**	**2.20**	**6.47**	**97.80**		**Upper South Fork Malheur River** 1705011608	
Intermittent	5.25			0.15		5.10		79.39		
Perennial	1.36					1.36		20.61		
Juniper Creek	**3.31**	**1.67**	**50.50**	**1.64**	**49.50**		**0.00**		**Crowley Creek** 1705011003	
Intermittent	3.29	1.67		1.62				99.61		
Perennial	0.01			0.01				0.39		
Little Crowley Creek	**5.45**	**3.00**	**54.99**	**2.45**	**45.01**		**0.00**		**Crowley Creek** 1705011003	
Intermittent	2.50	0.58		1.92				45.96		
Perennial	2.94	2.41		0.53				54.04		
Loveland Creek	**1.33**	**1.33**	**100.00**		**0.00**		**0.00**		**Crowley Creek** 1705011003	
Intermittent	1.33	1.33						100.00		
McEwen Creek	**4.84**	**4.84**	**100.00**		**0.00**		**0.00**		**Lower South Fork Malheur River** 1705011610	
Intermittent	4.82	4.82						99.49		
Perennial	0.02	0.02						0.51		
Meadow Creek	**1.42**	**0.28**	**19.90**	**1.14**	**80.10**		**0.00**		**Crowley Creek** 1705011003	
Intermittent	1.42	0.28		1.14				100.00		
Mud Creek	**5.77**	**4.80**	**83.13**	**0.97**	**16.87**		**0.00**		**Upper Dry Creek** 1705011004	
Intermittent	5.66	4.77		0.89				98.06		
Perennial	0.11	0.03		0.08				1.94		
Piute Creek	**1.90**		**0.00**	**0.66**	**34.90**	**1.23**	**65.10**		**Crowley Creek** 1705011003	
Intermittent	0.36			0.26		0.10		19.25		
Perennial	1.53			0.40		1.13		80.75		
Pole Creek	**5.29**	**1.25**	**23.67**	**4.04**	**76.33**		**0.00**		**Lower South Fork Malheur River** 1705011610 and **Upper South Fork Malheur River** 1705011608	
Intermittent	5.13	1.25		3.88				96.98		
Perennial	0.16			0.16				3.02		
Rapid Creek	**2.29**	**1.07**	**46.65**	**1.22**	**53.35**		**0.00**		**Crowley Creek** 1705011003	
Intermittent	1.40	1.07		0.33				61.22		
Perennial	0.89			0.89				38.78		
Robinson Creek	**2.42**	**1.86**	**76.60**	**0.57**	**23.40**		**0.00**		**Upper South Fork Malheur River** 1705011608	
Intermittent	1.55	1.26		0.29				63.84		
Perennial	0.88	0.60		0.28				36.16		
Soldier Creek	**6.22**	**3.42**	**54.94**	**2.80**	**45.06**		**0.00**		**Crowley Creek** 1705011003	
Intermittent	3.82	2.34		1.48				61.40		
Perennial	2.40	1.08		1.32				38.60		

STREAM NAME	TOTAL MILES	PUBLIC LAND STREAMS		PRIVATE LAND STREAMS		STATE LAND STREAMS		PER/INT/UNK/N/A Flow %	WATERSHED	Red Band
South Fork Malheur River	**5.45**	**1.35**	**24.75**	**4.10**	**75.25**		**0.00**		**Lower South Fork Malheur River** 1705011610 and **Upper South Fork Malheur River** 1705011608	X
Intermittent	1.57			1.57				28.78		
Perennial	3.88	1.35		2.53				71.22		
SOUTH FORK VISHER CREEK	**4.15**	**1.93**	**46.62**	**2.21**	**53.38**		**0.00**		**Lower South Fork Malheur River** 1705011610	
Intermittent	4.10	1.89		2.21				98.84		
Perennial	0.05	0.05						1.16		
STAR CREEK	**0.33**		**0.00**	**0.33**	**100.00**		**0.00**		**Lower South Fork Malheur River** 1705011610	
Intermittent	0.33			0.33				100.00		
STOCKADE CREEK	**8.64**	**2.45**	**28.36**	**6.19**	**71.58**	**0.01**	**0.06**		**Crowley Creek** 1705011003	
Intermittent	7.44	2.43		5.00		0.01		86.07		
Perennial	1.20	0.02		1.18				13.93		
SUTTON CREEK	**1.33**		**0.00**	**0.68**	**51.18**	**0.65**	**48.82**		**Crowley Creek** 1705011003	
Intermittent	1.33			0.68		0.65		100.00		
SWAMP CREEK	**13.07**	**1.14**	**8.76**	**11.92**	**91.24**		**0.00**		**Lower South Fork Malheur River** 1705011610	X
Intermittent	1.71	1.14		0.57				13.11		
Perennial	11.35			11.35				86.89		
VISHER CREEK	**4.10**	**2.59**	**63.14**	**1.51**	**36.86**		**0.00**		**Lower South Fork Malheur River** 1705011610	
Intermittent	2.70	1.96		0.74				65.79		
N/A	0.45	0.45						11.03		
Perennial	0.95	0.18		0.77				23.17		
VISHER FEED CANAL	**0.89**	**0.71**	**79.43**	**0.18**	**20.57**		**0.00**		**Lower South Fork Malheur River** 1705011610	
N/A	0.88	0.70		0.18				98.85		
Perennial	0.01	0.01						1.15		
UNNAMED REACHES	**785.30**	**417.96**	**53.22**	**235.78**	**30.02**	**131.56**	**16.75**		**Various Watersheds**	
Intermittent	764.71	413.14		223.11		128.46		97.38		
N/A	4.87	0.16		2.38		2.33		0.62		
Perennial	15.38	4.63		9.98		0.77		1.96		
Unknown	0.34	0.03		0.31				0.04		

Appendix C – Standard Operating Procedures and Mitigation Measures (Excerpted from *the Vegetation Treatments Using Herbicides on BLM Lands in Oregon, FEIS/ROD* (2010); pp. 457-467)

Standard Operating Procedures and Mitigation Measures

Excerpted from the Vegetation Treatments Using Herbicides on BLM Lands in Oregon FEIS/ROD (2010) (pp. 457-467)

Introduction

The following Standard Operating Procedures and Mitigation Measures have been adopted from the Record of Decision for the PEIS. Minor edits have been made to some Standard Operating Procedures and Mitigation Measures to clarify intent.

Standard Operating Procedures (identified below with SOP) have been identified to reduce adverse effects to environmental and human resources from vegetation treatment activities based on guidance in BLM manuals and handbooks, regulations, and standard BLM and industry practices.1 The list is not all encompassing, but is designed to give an overview of practices that would be considered when designing and implementing a vegetation treatment project on public lands (PER: 2-29)2. Effects described in the EIS are predicated on application of the Standard Operating Procedures, that a site-specific determination is made that their application is unnecessary to achieve their intended purpose or protection, or that if the parent handbook or policy direction evolves, the new direction would continue to provide the appropriate environmental protections.

For example, the Standard Operating Procedure to "complete vegetation treatments seasonally before pollinator foraging plants bloom" would not be applied to treatments not likely to have a significant effect on pollinators.

PEIS Mitigation Measures (identified below with MM) were identified for all potential adverse effects identified in the PEIS. They are included in, and adopted by, the Record of Decision for the PEIS. Like the SOPs, application of the mitigation measures is assumed in this EIS. However, for PEIS Mitigation Measures, site-specific analysis and/or the use of Individual Risk Assessments Tools (see Chapter 3), or evolution of the PEIS Mitigation Measures into handbook direction at the national level, would be permitted to identify alternative ways to achieve the expected protections (PEIS:4-4).

Although not displayed here, Standard Operating Procedures for non-herbicide treatments (from regulation, BLM policy, and BLM Handbook direction) also apply (PER: 2-31 to 44).

Standard Operating Procedures and Mitigation Measures for Applying Herbicides

Guidance Documents

BLM Handbook H-9011-1 (*Chemical Pest Control*); and manuals 1112 (*Safety*), 9011 (*Chemical Pest Control*), 9012 (*Expenditure of Rangeland Insect Pest Control Funds*), 9015 (*Integrated Weed Management)*, and 9220 (*Integrated Pest Management*).

1) Manual-directed standard operating procedures and other standing direction may be referred to as best management practices in resource management and other plans, particularly when they apply to water.

2) The PER includes Standard Operating Procedures for the full range of vegetation treatment methods. Only those applicable to herbicide application are included in this appendix.

General

- Prepare an operational and spill contingency plan in advance of treatment. *(SOP)*
- Conduct a pretreatment survey before applying herbicides. *(SOP)*
- Select the herbicide that is least damaging to the environment while providing the desired results. *(SOP*
- Select herbicide products carefully to minimize additional impacts from degradates, adjuvants, other ingredients, and tank mixtures. *(SOP)*
- Apply the least amount of herbicide needed to achieve the desired result. *(SOP)*
- Follow herbicide product label for use and storage. *(SOP)*
- Have licensed or certified applicators or State-licensed "trainees" apply herbicides, or they can be applied by BLM employees under the direct supervision of a BLM-certified applicator. *(SOP)*
- Use only USEPA-approved herbicides and follow product label directions and "advisory" statements. *(SOP)*
- Review, understand, and conform to the "Environmental Hazards" section on the herbicide product label. This section warns of known herbicide risks to the environment and provides practical ways to avoid harm to organisms or to the environment. *(SOP)*
- Consider surrounding land use before assigning aerial spraying as a treatment method and avoid aerial spraying near agricultural or densely populated areas. *(SOP)*
- Minimize the size of application area, when feasible. *(SOP)*
- Comply with herbicide-free buffer zones to ensure that drift will not affect crops or nearby residents/ landowners. *(SOP)*
- Post treated areas and specify reentry or rest times, if appropriate. *(SOP)*
- Notify adjacent landowners prior to treatment, if appropriate. *(SOP)*
- Keep a copy of Material Safety Data Sheets (MSDSs) at work sites. MSDSs are available for review at http:// www.cdms.net/. *(SOP)*
- Keep records of each application, including the active ingredient, formulation, application rate, date, time, and location. *(SOP)*
- Avoid accidental direct spray and spill conditions to minimize risks to resources. *(SOP)*
- Avoid aerial spraying during periods of adverse weather conditions (snow or rain imminent, fog, or air turbulence). *(SOP)*
- Make helicopter applications at a target airspeed of 40 to 50 miles per hour (mph), and at about 30 to 45 feet above ground. *(SOP)*
- Take precautions to minimize drift by not applying herbicides when winds exceed >10 mph (>6 mph for aerial applications), or a serious rainfall event is imminent. *(SOP)*
- Use drift control agents and low volatile formulations. *(SOP)*
- Conduct pre-treatment surveys for sensitive habitat and SSS within or adjacent to proposed treatment areas. *(SOP)*
- Consider site characteristics, environmental conditions, and application equipment in order to minimize damage to non-target vegetation. *(SOP)*
- Use drift reduction agents, as appropriate, to reduce the drift hazard to non-target species. *(SOP)* Turn off application equipment at the completion of spray runs and during turns to start another spray run. *(SOP)*
- Refer to the herbicide product label when planning revegetation to ensure that subsequent vegetation would not be injured following application of the herbicide. (SOP)
- Clean OHVs to remove plant material. *(SOP)*

The BLM has suspended the use of the adjuvant R-11.

Air Quality

See Manual 7000 (*Soil, Water, and Air Management*)

- Consider the effects of wind, humidity, temperature inversions, and heavy rainfall on herbicide effectiveness and risks. *(SOP)*
- Apply herbicides in favorable weather conditions to minimize drift. For example, do not treat when winds exceed 10 mph (>6 mph for aerial applications) or rainfall is imminent. *(SOP)*
- Use drift reduction agents, as appropriate, to reduce the drift hazard. *(SOP)*
- Select proper application equipment (e.g., spray equipment that produces 200- to 800-micron diameter droplets [spray droplets of 100 microns and less are most prone to drift]). *(SOP)*
- Select proper application methods (e.g., set maximum spray heights, use appropriate buffer distances between spray sites and non-target resources). *(SOP)*

Soil

See Manual 7000 (*Soil, Water, and Air Management*)

- Minimize treatments in areas where herbicide runoff is likely, such as steep slopes when heavy rainfall is expected. *(SOP)*
- Minimize use of herbicides that have high soil mobility, particularly in areas where soil properties increase the potential for mobility. *(SOP)*
- Do not apply granular herbicides on slopes of more than 15 percent where there is the possibility of runoff carrying the granules into non-target areas. *(SOP)*

Water Resources

See Manual 7000 (*Soil, Water, and Air Management*)

- Consider climate, soil type, slope, and vegetation type when developing herbicide treatment programs. *(SOP)*
- Select herbicide products to minimize impacts to water. This is especially important for application scenarios that involve risk from active ingredients in a particular herbicide, as predicted by risk assessments. *(SOP)*
- Use local historical weather data to choose the month of treatment. (*SOP*)
- Considering the phenology of target aquatic species, schedule treatments based on the condition of the water body and existing water quality conditions. *(SOP)*
- Plan to treat between weather fronts (calms) and at appropriate time of day to avoid high winds that increase water movements, and to avoid potential stormwater runoff and water turbidity. *(SOP)*
- Review hydrogeologic maps of proposed treatment areas. Note depths to groundwater and areas of shallow groundwater and areas of surface water and groundwater interaction. Minimize treating areas with high risk for groundwater contamination. *(SOP)*
- Conduct mixing and loading operations in an area where an accidental spill would not contaminate an aquatic body. *(SOP)*
- Do not rinse spray tanks in or near water bodies. (*SOP*)
- Do not broadcast pellets where there is danger of contaminating water supplies. *(SOP)*
- Minimize the potential effects to surface water quality and quantity by stabilizing terrestrial areas as quickly as possible following treatment. *(SOP)*
- Establish appropriate (herbicide-specific) buffer zones for species/populations (Tables A2-1 and A2-2). (*MM*)

- Areas with potential for groundwater for domestic or municipal use shall be evaluated through the appropriate, validated model(s) to estimate vulnerability to potential groundwater contamination, and appropriate mitigation measures shall be developed if such an area requires the application of herbicides and cannot otherwise be treated with non-herbicide methods. (*MM*)
- Use appropriate herbicide-free buffer zones for herbicides not labeled for aquatic use based on risk assessment guidance, with minimum widths from water of 100 feet for aerial, 25 feet for vehicle, and 10 feet for hand spray applications. *(SOP)*
- Maintain buffers between treatment areas and water bodies. Buffer widths should be developed based on herbicide and site-specific conditions to minimize impacts to water bodies. *(SOP)*

Wetlands and Riparian Areas

- Use a selective herbicide and a wick or backpack sprayer. *(SOP)*
- Use appropriate herbicide-free buffer zones for herbicides not labeled for aquatic use based on risk assessment guidance, with minimum widths from water of 100 feet for aerial, 25 feet for vehicle, and 10 feet for hand spray applications. *(SOP)*
- See mitigation for Water Resources and Vegetation. (*MM*)

Vegetation

See Handbook H-4410-1 (*National Range Handbook*), and manuals 5000 (*Forest Management*) and 9015
(*Integrated Weed Management*)

- Refer to the herbicide label when planning revegetation to ensure that subsequent vegetation would not be injured following application of the herbicide. *(SOP)*
- Use native or sterile plants for revegetation and restoration projects to compete with invasive plants until desired vegetation establishes. *(SOP)*
- Use weed-free feed for horses and pack animals. Use weed-free straw and mulch for revegetation and other activities. *(SOP)*
- Identify and implement any temporary domestic livestock grazing and/or supplemental feeding restrictions needed to enhance desirable vegetation recovery following treatment. Consider adjustments in the existing grazing permit, to maintain desirable vegetation on the treatment site. *(SOP)*
- Minimize the use of terrestrial herbicides (especially bromacil, diuron, and sulfometuron methyl) in watersheds with downgradient ponds and streams if potential impacts to aquatic plants are identified. (*MM*)
- Establish appropriate (herbicide-specific) buffer zones (Tables A2-1 and 2) around downstream water bodies, habitats, and species/populations of interest. Consult the ecological risk assessments (ERAs) prepared for the PEIS for more specific information on appropriate buffer distances under different soil, moisture, vegetation, and application scenarios. (*MM*)
- Limit the aerial application of chlorsulfuron and metsulfuron methyl to areas with difficult land access, where no other means of application are possible. (*MM*)
- Do not apply sulfometuron methyl aerially. (*MM*)
- When necessary to protect Special Status plant species, implement all conservation measures for plants presented in the *Vegetation Treatments on Bureau of Land Management Lands in 17Western States Programmatic Biological Assessment* (see Appendix 5). (*MM*)

Pollinators

- Complete vegetation treatments seasonally before pollinator foraging plants bloom. *(SOP)*
- Time vegetation treatments to take place when foraging pollinators are least active both seasonally and daily. *(SOP)*
- Design vegetation treatment projects so that nectar and pollen sources for important pollinators and resources are treated in patches rather than in one single treatment. *(SOP)*
- Minimize herbicide application rates. Use typical rather than maximum rates where there are important pollinator resources. *(SOP)*
- Maintain herbicide free buffer zones around patches of important pollinator nectar and pollen sources. *(SOP)*
- Maintain herbicide free buffer zones around patches of important pollinator nesting habitat and hibernacula. *(SOP)*
- Make special note of pollinators that have single host plant species, and minimize herbicide spraying on those plants and in their habitats. *(SOP)*

Fish and Other Aquatic Organisms

See manuals 6500 (*Wildlife and Fisheries Management*) and 6780 (*Habitat Management Plans*)

- Use appropriate buffer zones based on label and risk assessment guidance. *(SOP)*
- Minimize treatments near fish-bearing water bodies during periods when fish are in life stages most sensitive to the herbicide(s) used, and use spot rather than broadcast or aerial treatments. *(SOP)*
- Use appropriate application equipment/method near water bodies if the potential for off-site drift exists. *(SOP)*
- For treatment of aquatic vegetation, 1) treat only that portion of the aquatic system necessary to meet vegetation management objectives, 2) use the appropriate application method to minimize the potential for injury to desirable vegetation and aquatic organisms, and 3) follow water use restrictions presented on the herbicide label. *(SOP)*
- Limit the use of diquat in water bodies that have native fish and aquatic resources. (*MM*)
- Limit the use of terrestrial herbicides (especially diuron) in watersheds with characteristics suitable for potential surface runoff that have fish-bearing streams during periods when fish are in life stages most sensitive to the herbicide(s) used. (*MM*)
- To protect Special Status fish and other aquatic organisms, implement all conservation measures for aquatic animals presented in the *Vegetation Treatments on Bureau of Land Management Lands in 17 Western States Programmatic Biological Assessment* (see Appendix 5). (*MM*)
- Establish appropriate herbicide-specific buffer zones for water bodies, habitats, or fish or other aquatic species of interest (Tables A2-3 and A2-4, and recommendations in individual ERAs). (*MM*)
- Consider the proximity of application areas to salmonid habitat and the possible effects of herbicides on riparian and aquatic vegetation. Maintain appropriate buffer zones around salmonid-bearing streams. (*MM*)
- At the local level, consider effects to Special Status fish and other aquatic organisms when designing treatment programs. (*MM*)

Wildlife

See manuals 6500 (*Wildlife and Fisheries Management*) and 6780 (*Habitat Management Plans*)

- Use herbicides of low toxicity to wildlife, where feasible. *(SOP)*
- Use spot applications or low-boom broadcast operations where possible to limit the probability of contaminating non-target food and water sources, especially non-target vegetation over areas larger than the treatment area. *(SOP)*
- Use timing restrictions (e.g., do not treat during critical wildlife breeding or staging periods) to minimize impacts to wildlife. *(SOP)*
- To minimize risks to terrestrial wildlife, do not exceed the typical application rate for applications of dicamba, diuron, glyphosate, hexazinone, tebuthiuron, or triclopyr, where feasible. (*MM*)
- Minimize the size of application areas, where practical, when applying 2,4-D, bromacil, diuron, and Overdrive® to limit impacts to wildlife, particularly through contamination of food items. (*MM*)
- Where practical, limit glyphosate and hexazinone to spot applications in grazing land and wildlife habitat areas to avoid contamination of wildlife food items. (*MM*)
- Do not use the adjuvant R-11 (*MM*)
- Either avoid using glyphosate formulations containing POEA, or seek to use formulations with the least amount of POEA, to reduce risks to amphibians. (*MM*)
- Do not apply bromacil or diuron in rangelands, and use appropriate buffer zones (Tables A2-1 and 2) to limit contamination of off-site vegetation, which may serve as forage for wildlife. (*MM*)
- Do not aerially apply diquat directly to wetlands or riparian areas. (*MM*)
- To protect Special Status wildlife species; implement conservation measures for terrestrial animals presented in the *Vegetation Treatments on Bureau of Land Management Lands in 17Western States Programmatic Biological Assessment* (See Appendix 5) (*MM*)

Threatened, Endangered, and Sensitive Species

See Manual 6840 (*SSS*)

- Provide clearances for SSS before treating an area as required by SSS Program policy. Consider effects to SSS when designing herbicide treatment programs. *(SOP)*
- Use a selective herbicide and a wick or backpack sprayer to minimize risks to Special Status plants. *(SOP)*
- Avoid treating vegetation during time-sensitive periods (e.g., nesting and migration, sensitive life stages) for SSS in area to be treated. *(SOP)*

Livestock

See Handbook H-4120-1 (*Grazing Management*)

- Whenever possible and whenever needed, schedule treatments when livestock are not present in the treatment area. Design treatments to take advantage of normal livestock grazing rest periods, when possible. *(SOP)*
- As directed by the herbicide product label, remove livestock from treatment sites prior to herbicide application, where applicable. *(SOP)*
- Use herbicides of low toxicity to livestock, where feasible. *(SOP)*
- Take into account the different types of application equipment and methods, where possible, to reduce the probability of contamination of non-target food and water sources. *(SOP)*
- Avoid use of diquat in riparian pasture while pasture is being used by livestock. *(SOP)*

- Notify permittees of the herbicide treatment project to improve coordination and avoid potential conflicts and safety concerns during implementation of the treatment. *(SOP)*
- Notify permittees of livestock grazing, feeding, or slaughter restrictions, if necessary. *(SOP)*
- Provide alternative forage sites for livestock, if possible. *(SOP)*
- Minimize potential risks to livestock by applying diuron, glyphosate, hexazinone, tebuthiuron, or triclopyr at the typical application rate where feasible. (*MM*)
- Do not apply 2,4-D, bromacil, dicamba, diuron, Overdrive®, picloram, or triclopyr across large application areas, where feasible, to limit impacts to livestock, particularly through contamination of food items. (*MM*)
- Where feasible, limit glyphosate and hexazinone to spot applications in rangeland. (*MM*)
- Do not apply bromacil or diuron in rangelands, and use appropriate buffer zones (Tables A2-1 and 2) to limit contamination of off-site vegetation, which may serve as forage for wildlife. (*MM*)

Wild Horses and Burros

- Minimize using herbicides in areas grazed by wild horses and burros. *(SOP)*
- Use herbicides of low toxicity to wild horses and burros, where feasible. *(SOP)*
- Remove wild horses and burros from identified treatment areas prior to herbicide application, in accordance with herbicide product label directions for livestock. *(SOP)*
- Take into account the different types of application equipment and methods, where possible, to reduce the probability of contaminating non-target food and water sources. *(SOP)*
- Minimize potential risks to wild horses and burros by applying diuron, glyphosate, hexazinone, tebuthiuron, and triclopyr at the typical application rate, where feasible, in areas associated with wild horse and burro use. (*MM*)
- Consider the size of the application area when making applications of 2,4-D, bromacil, dicamba, diuron, Overdrive®, picloram, and triclopyr in order to reduce potential impacts to wild horses and burros. (*MM*)
- Apply herbicide label grazing restrictions for livestock to herbicide treatment areas that support populations of wild horses and burros. (*MM*)
- Where practical, limit glyphosate and hexazinone to spot applications in rangeland. (*MM*)
- Do not apply bromacil or diuron in grazing lands within HMAs, and use appropriate buffer zones identified in Tables A2-1 and 2 to limit contamination of vegetation in off-site foraging areas. (*MM*)
- Do not apply 2,4-D, bromacil, or diuron in HMAs during the peak foaling season (March through June, and especially in May and June), and do not exceed the typical application rate of Overdrive® or hexazinone in HMAs during the peak foaling season in areas where foaling is known to take place. (*MM*)

Cultural Resources and Paleontological Resources

See handbooks H-8120-1 (*Guidelines for Conducting Tribal Consultation*) and H- 8270-1 (*General Procedural Guidance for Paleontological Resource Management*), and manuals 8100 (*The Foundations for Managing Cultural Resources*), 8120 (*Tribal Consultation Under Cultural Resource Authorities*). See also: *Programmatic Agreement among the Bureau of Land Management, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers Regarding the Manner in Which BLM Will Meet Its Responsibilities Under the National Historic Preservation Act.*

- Follow standard procedures for compliance with Section 106 of the National Historic Preservation Act as implemented through the *Programmatic Agreement among the Bureau of Land Management, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers Regarding the Manner in Which BLM Will Meet Its Responsibilities Under the National Historic Preservation Act* and State protocols or 36 Code of Federal Regulations Part 800, including necessary consultations with State Historic Preservation Officers and interested tribes. *(SOP)*
- Consult with tribes to locate any areas of vegetation that are of significance to the tribe and that might be affected by herbicide treatments; work with tribes to minimize impacts to these resources. *(SOP)*
- Follow guidance under Human Health and Safety in the PEIS in areas that may be visited by Native peoples after treatments. *(SOP)*
- Do not exceed the typical application rate when applying 2,4-D, bromacil, diquat, diuron, fluridone, hexazinone, tebuthiuron, and triclopyr in known traditional use areas. (*MM*)
- Avoid applying bromacil or tebuthiuron aerially in known traditional use areas. (*MM*)
- Limit diquat applications to areas away from high residential and traditional use areas to reduce risks to Native Americans. (*MM*)

Visual Resources

See handbooks H-8410-1 (*Visual Resource Inventory*) and H-8431-1 (*Visual Resource Contrast Rating*), and manual 8400 (*Visual Resource Management*)

- Minimize the use of broadcast foliar applications in sensitive watersheds to avoid creating large areas of browned vegetation. *(SOP)*
- Consider the surrounding land use before assigning aerial spraying as an application method. *(SOP)*
- Minimize off-site drift and mobility of herbicides (e.g., do not treat when winds exceed 10 mph; minimize treatment in areas where herbicide runoff is likely; establish appropriate buffer widths between treatment areas and residences) to contain visual changes to the intended treatment area. *(SOP)*
- If the area is a Class I or II visual resource, ensure that the change to the characteristic landscape is low and does not attract attention (Class I), or if seen, does not attract the attention of the casual viewer (Class II). *(SOP)*
- Lessen visual impacts by: 1) designing projects to blend in with topographic forms; 2) leaving some low-growing trees or planting some low-growing tree seedlings adjacent to the treatment area to screen short-term effects; and 3) revegetating the site following treatment. *(SOP)*
- When restoring treated areas, design activities to repeat the form, line, color, and texture of the natural landscape character conditions to meet established Visual Resource Management (VRM) objectives. *(SOP)*

Wilderness and Other Special Areas

See handbooks H-8550-1 (*Management of Wilderness Study Areas (WSAs)*), and H-8560-1 (*Management of Designated Wilderness Study Areas*), and Manual 8351 (*Wild and Scenic Rivers*)

- Encourage backcountry pack and saddle stock users to feed their livestock only weed-free feed for several days before entering a wilderness area, and to bring only weed-free hay and straw onto BLM lands. *(SOP)*

- Encourage stock users to tie and/or hold stock in such a way as to minimize soil disturbance and loss of native vegetation. *(SOP)*
- Revegetate disturbed sites with native species if there is no reasonable expectation of natural regeneration. *(SOP)*
- Provide educational materials at trailheads and other wilderness entry points to educate the public on the need to prevent the spread of weeds. *(SOP)*
- Use the "minimum tool" to treat noxious weeds and other invasive plants, relying primarily on the use of ground-based tools, including backpack pumps, hand sprayers, and pumps mounted on pack and saddle stock. *(SOP)*
- Use herbicides only when they are the minimum treatment method necessary to control weeds that are spreading within the wilderness or threaten lands outside the wilderness. *(SOP)*
- Give preference to herbicides that have the least impact on non-target species and the wilderness environment. *(SOP)*
- Implement herbicide treatments during periods of low human use, where feasible. *(SOP)*
- Address wilderness and special areas in management plans. *(SOP)*
- Control of weed infestations shall be carried out in a manner compatible with the intent of Wild and Scenic River management objectives. *(SOP)*
- Mitigation measures that may apply to wilderness and other special area resources are associated with human and ecological health and recreation (see mitigation measures for Vegetation, Fish and Other Aquatic Resources, Wildlife Resources, Recreation, and Human Health and Safety). (*MM*)

Recreation

See Handbook H-1601-1 (*Land Use Planning Handbook, Appendix C*)

- Schedule treatments to avoid peak recreational use times, while taking into account the optimum management period for the targeted species. *(SOP)*
- Notify the public of treatment methods, hazards, times, and nearby alternative recreation areas. *(SOP)*
- Adhere to entry restrictions identified on the herbicide product label for public and worker access. *(SOP)*
- Post signs noting exclusion areas and the duration of exclusion, if necessary. *(SOP)*
- Mitigation measures that may apply to recreational resources are associated with human and ecological health (see mitigation measures for Vegetation, Fish and Other Aquatic Resources, Wildlife Resources, and Human Health and Safety). (*MM*)

Social and Economic Values

- Consider surrounding land use before selecting aerial spraying as a treatment method, and avoid aerial spraying near agricultural or densely-populated areas. *(SOP)*
- Post treated areas and specify reentry or rest times, if appropriate. *(SOP)*
- Notify grazing permittees of livestock feeding restrictions in treated areas, if necessary, as per herbicide product label instructions. *(SOP)*
- Notify the public of the project to improve coordination and avoid potential conflicts and safety concerns during implementation of the treatment. *(SOP)*
- Control public access until potential treatment hazards no longer exist, per herbicide product label instructions. *(SOP)*
- Observe restricted entry intervals specified by the herbicide product label. *(SOP)*
- Notify local emergency personnel of proposed treatments. *(SOP)*

- Use spot applications or low-boom broadcast applications where possible to limit the probability of contaminating non-target food and water sources. *(SOP)*
- Consult with Native American tribes to locate any areas of vegetation that are of significance to the tribes and Native groups and that might be affected by herbicide treatments. *(SOP)*
- To the degree possible within the law, hire local contractors and workers to assist with herbicide application projects and purchase materials and supplies for herbicide treatment projects (including the herbicides) through local suppliers. *(SOP)*
- To minimize fears based on lack of information, provide public educational information on the need for vegetation treatments and the use of herbicides in an integrated vegetation management program for projects proposing local use of herbicides. *(SOP)*

Rights-of-way

- Coordinate vegetation treatment activities where joint or multiple use of a ROW exists. *(SOP)*
- Notify other public land users within or adjacent to the ROW proposed for treatment. *(SOP)*
- Use only herbicides that are approved for use in ROW areas. *(SOP)*

Human Health and Safety

- Establish a buffer between treatment areas and human residences based on guidance given in the HHRA, with a minimum buffer of ¼ mile for aerial applications and 100 feet for ground applications, unless a written waiver is granted. *(SOP)*
- Use protective equipment as directed by the herbicide product label. *(SOP)*
- Post treated areas with appropriate signs at common public access areas. *(SOP)*
- Observe restricted entry intervals specified by the herbicide product label. *(SOP)*
- Provide public notification in newspapers or other media where the potential exists for public exposure. *(SOP)*
- Store herbicides in secure, herbicide-approved storage. (*SOP*)
- Have a copy of MSDSs at work site. *(SOP)*
- Notify local emergency personnel of proposed treatments. *(SOP)*
- Contain and clean up spills and request help as needed. *(SOP)*
- Secure containers during transport. *(SOP)*
- Follow label directions for use and storage. *(SOP)*
- Dispose of unwanted herbicides promptly and correctly. *(SOP)*
- Use the typical application rate, where feasible, when applying 2,4-D, bromacil, diquat, diuron, fluridone, hexazinone, tebuthiuron, and triclopyr to reduce risk to workers and the public. (*MM*)
- Avoid applying bromacil and diuron aerially. Do not apply sulfometuron methyl aerially. (*MM*)
- Limit application of chlorsulfuron via ground broadcast applications at the maximum application rate. (*MM*)
- Limit diquat application to ATV, truck spraying, and boat applications to reduce risks to workers; limit diquat applications to areas away from high residential and subsistence use to reduce risks to the public. (*MM*)
- Evaluate diuron applications on a site-by-site basis to avoid risks to humans. There appear to be few scenarios where diuron can be applied without risk to workers. (*MM*)
- Do not apply hexazinone with an over-the-shoulder broadcast applicator (backpack sprayer). (*MM*)

Individual Herbicide Summaries

The following information about each of the 18 herbicides has been compiled for reference from information within the EIS. More information, including comparisons with other herbicides, can be found at the following locations:

- Examples of product names used on BLM lands can be found in this Appendix (Appendix 9);
- Species that an herbicide is effective on is contained in Appendix 7;
- Estimated Annual Treatment Acres is from Table 3-3 (Chapter 3);
- Selected Risk Categories includes data from Table 3-12 through 3-21 (Chapter 3), which summarizes the Risk Assessment information in (uncirculated) Appendix 8. H (High), M (Moderate), L (Low), and 0 (no risk) risk categories are defined in the Chapter 3 tables;
- Leaching, persistence and half-life information can be found in:
  - Table 3-1 (*The 18 Herbicides* section in Chapter 3)
  - Table 4-14 (*Soil Resources* section in Chapter 4)
  - Table 4-17 (*Water Resources* section in Chapter 4)
  - Table 4-20 (*Wetlands and Riparian Areas* section);
- PEIS Mitigation Measures and Standard Operating Procedures can be found in Appendix 2; and,
- All other information can be found in *The 18 Herbicides* section in Chapter 3.