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**BUREAU OF LAND
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Draft Programmatic EIS for Fuels Reduction and Rangeland Restoration in the Great Basin

Volume 3: Appendices B through N



Estimated Lead Agency Total Costs
Associated with Developing and
Producing this EIS

\$2,000,000

The Bureau of Land Management's multiple-use mission is to sustain the health and productivity of the public lands for the use and enjoyment of present and future generations. The Bureau accomplishes this by managing such activities as outdoor recreation, livestock grazing, mineral development, and energy production, and by conserving natural, historical, cultural, and other resources on public lands.

Appendix B. Acronyms, Literature Cited, Glossary

B.I ACRONYMS

ACRONYMS AND ABBREVIATIONS

Full Phrase

ACHP	Advisory Council on Historic Preservation
AML	appropriate management level
ARMPA	Approved Resource Management Plan Amendment
BCR	bird conservation region
BLM	Bureau of Land Management
BSU	biologically significant unit
CEQ	Council on Environmental Quality
EIS	environmental impact statement
EPA	US Environmental Protection Agency
ESA	Endangered Species Act
ESR	emergency stabilization and rehabilitation
FIAT	Fire and Invasives Assessment Tool
FLPMA	Federal Land Policy and Management Act
FY	fiscal year
GHMA	general habitat management area
HMA	herd management area
IBA	important bird area
IHMA	important habitat management area
MBTA	Migratory Bird Treaty Act
MOU	memorandum of understanding
MtCO _{2e}	metric tons of carbon dioxide equivalent
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NIFC	National Interagency Fire Center
NRCS	National Resources Conservation Service
NRHP	National Register of Historic Places
NWCG	National Wildfire Coordination Group
OHMA	other habitat management area
OHV	off-highway vehicle

PAC	priority area for conservation
PEIS	Programmatic Environmental Impact Statement
PFYC	Potential Fossil Yield Classification
PHMA	priority habitat management area
PILT	payment in lieu of taxes
PM ₁₀ and PM _{2.5}	particulate matter, 10 and 2.5 microns or smaller
RCA	riparian conservation area
RMP	resource management plan
RMPA	resource management plan amendment
ROD	record of decision
ROS	Recreation Opportunity Spectrum
RSC	Recreation Setting Characteristics
SHPO	State Historic Preservation Office
SOP	standard operating procedure
SRP	special recreation permit
TCP	Traditional Cultural Property
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
WFM	wildland fire management
WUI	wildland-urban interface

B.2 LITERATURE CITED

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B.3 GLOSSARY

Advancing fire—A fire spreading or set to spread with the wind. Also called: head fire.

Airshed—A geographic area that, because of topography, meteorology, or climate, is frequently affected by the same air mass.

Anchor point—An advantageous location, usually a barrier to fire spread, from which to start constructing a fire line. Used to minimize the chance of being flanked by the fire while the line is being constructed (NWCG 2018).

Annual—A plant whose entire life cycle occurs within 1 year.

Adaptive management—A system of management practices based on clearly defined outcomes, monitoring to determine if management actions are meeting outcomes, and, if not, facilitating management changes that will best ensure that outcomes are met or re-evaluated. (BLM 2008).

Bearing tree—A marked tree used as a corner accessory; its distance and direction from the corner being recorded. Bearing trees are identified by prescribed marks cut into their trunks; the species and sizes of the trees are also recorded.

Biological soil crust—(Also known as cryptogamic, microbotic, cryptobiotic, or microphytic crusts). Communities of organisms living on the surface of the soil and are composed of cyanobacteria, blue-green algae, microfungi, mosses, liverworts, and lichens (Rosentreter et al. 2007).

Chaining—Vegetation treatment that involves pulling a large chain, most often a section of marine anchor chain, between 2 tractors. Vegetation is either pulled out of the ground by the roots or broken off at ground level.

Class I area—Defined by the Clean Air Act (see **Appendix C**), federal Class I areas include national parks larger than 6,000 acres and national wilderness areas larger than 5,000 acres that were in existence when the Clean Air Act was amended in 1977, national monuments, and wildlife refuges that have since been designated by federal regulation. All areas of the United States that are not designated as Class I are considered Class II.

Cooperating agency—Any federal, state, or local government agency or Native American tribe that enters into formal agreement with the lead federal agency to help develop an environmental analysis. Cooperating agencies and tribes work with the BLM, sharing knowledge and resources, to achieve desired outcomes for public lands and communities within statutory and regulatory frameworks.

Crown fire—A fire that advances from top to top of trees or shrubs more or less independent of a surface fire. Crown fires are sometimes classed as running or dependent to distinguish the degree of independence from the surface fire (NWCG 2018).

Ethnographic—Relating to the scientific study and description of peoples and cultures with their customs, habits, and mutual differences.

Ethno-habitat—The set of cultural, religious, subsistence, educational, and other services provided by intact, functioning ecosystems and landscapes.

Fireline—A linear fire barrier that is scraped or dug to mineral soil.

Fire frequency—A general term referring to the recurrence of fire in a given area over time.

Fire intensity—Refers to the rate at which a fire produces heat at the flaming front and should be expressed in terms of temperature or heat yield.

Fire regime—The spatial and temporal pattern, frequency, and intensity of fire and its impacts on the landscape characterized mainly by vegetation type and climate.

Fire-return interval—The number of years between two successive fires for a given area.

Fire severity—The effect of fire on the dominant overstory vegetation.

Flame length—The distance between the flame tip and the midpoint of the flame depth at the base of the flame (generally ground surface); it is an indicator of fire intensity (NWCG 2018).

Flanking fire—Rate or spread and intensity of a fire usually falling somewhere in between advancing and backing with spread lateral to the main direction of fire travel. Also called: lateral fire.

Fuel break—A strip or block of land on which the vegetation, debris and detritus have been reduced and/or modified to control or diminish the risk of the spread of fire crossing the strip or block of land (NRCS 2005). NWCG also defines a fuel break system as “[a] natural or manmade change in fuel characteristics which affects fire behavior so that wildfires burning into them can be more readily controlled” and as “[a] series of modified strips or blocks tied together to form continuous strategically located fuel breaks around land units” (NWCG 2018).

Fuel model—Simulated fuel complex for which all fuel descriptors required for the solution of a mathematical rate of spread model have been specified (NWCG 2018).

Fuels reduction—Manipulation, including combustion, or removal of fuels to reduce the likelihood of ignition and to lessen potential damage and resistance to control (NWCG 2018).

General habitat management area (GHMA)—BLM-administered greater sage-grouse habitat that is occupied seasonally or year-round and is outside priority habitat management areas.

Greenhouse gases—Compounds in the atmosphere that absorb infrared radiation from the earth’s surface and radiate a portion of it back to the surface.

Harrowing—A method for shallow cultivation of soil and care of agricultural crops. In comparison, plowing cultivates the soil at a deeper level. Harrowing is accomplished by toothed disks, tines, chains, or revolving hoes.

Head fire—A fire spreading or set to spread with the wind. Also called: advancing fire.

Historic vegetation conditions—Vegetation that may have been dominant on the landscape prior to Euro- American settlement.

Important habitat management area (IHMA)—BLM-administered land in Idaho that provides a management buffer for and that connects patches of PHMAs. IHMAs encompass areas of generally moderate to high habitat value or populations but that are not as important as priority habitat management areas.

Imprinting—Vegetation treatment involving a metal roller with steel angles welded to the surface in various configurations. The angled teeth of the imprinter cut through weeds and brush to form a mulch, while the teeth press seeds of grasses and other plants into the soil. The imprints remain stable for approximately two years. During that time, imprints funnel water toward seedlings, protect them from wind, and concentrate nutrients for plant growth.

Invasive plants—Plants that are not part of (if exotic), or are a minor component of (if native), the original plant community or communities that have the potential to become a dominant or co-dominant species on the site if their future establishment and growth is not actively controlled by management interventions, or are classified as exotic or noxious plants under state or federal law. Species that become dominant for only one to several years (e.g. short-term response to drought or wildfire) are not invasive plants (BLM 2008).

Jackpot burn— A prescribed fire to deliberately burn natural or modified concentrations (jackpots) of wildland fuels under specified environmental conditions, which allows the fire to be confined to a predetermined area and produces the fireline intensity and rate of spread required to attain planned resource Management Objectives (NWCG 2018).

Ladder fuel—Live or dead vegetation that allows a fire to climb up from the ground into the tree or shrub canopy.

Lateral fire—Rate or spread and intensity of a fire usually falling somewhere in between advancing and backing with spread lateral to the main direction of fire travel. Also called: flanking fire.

Manual treatment—The use of hand tools and hand-operated power tools to cut, clear, or prune herbaceous and woody species.

Mastication—A fuel treatment method that utilizes several different types of equipment to mulch, grind, chip, or break apart fuels such as brush, small trees and slash into small pieces. A masticator is similar to a wood chipper, it is mounted on an excavator type tractor, which moves through the forest to grind or chip trees and brush, leaving the chips behind.

Mean fire return interval—The average period between fires under the presumed historical fire regime in a designated area.

Mechanical treatment—The use of mechanized tools and equipment to cut, clear, or prune herbaceous and woody species.

Modified fuel breaks—Also known as mowed linear fuel breaks, this type of fuel break is used to compact and limit the vertical extent of the fuel bed, which may contain patches of intact sagebrush that can be retained. Vegetation is thinned such that fuel load is reduced without complete removal of vegetation. Such fuel breaks require regular mowing or targeted grazing to maintain the desired fuel height (Shinneman et al. 2018).

Native Species—Species that historically occurred or currently occur in a particular ecosystem and were not introduced.

Nonnative plant species—Plant species that are introduced to an area by humans either intentionally or unintentionally and compete with resident native (indigenous) species. These plants are also known as alien, exotic, introduced, and non-indigenous.

Noxious weed—A plant species designated by federal or state law as generally possessing one or more of the following characteristics: aggressive and difficult to manage; parasitic; a carrier or host of serious insects or disease; or non-native, new, or not common to the United States (BLM 2008).

Old growth pinyon and juniper woodlands—A forest that has achieved great age or maturity and thereby exhibits unique ecological features. In the Great Basin, old growth pinyon-juniper woodlands include trees established prior to 1870, prior to Eurasian settlement. As juniper and pinyon age, canopy morphology shifts from cone shaped to a rounded top. As age advances, the tree may also develop a combination of the following characteristics: broad nonsymmetric tops, deeply furrowed bark (primarily juniper), twisted trunks or branches, dead branches and spike tops, large lower limbs, trunks containing narrow strips of cambium (strip-bark) (mostly in juniper), hollow trunks (rare in pinyon), large trunk diameters relative to tree height (in western juniper), and branches covered with a bright yellow green lichen (*Letharia* sp.) in both juniper and pinyon. Western and Utah junipers can exceed 1,000 years in age and pinyon can exceed 600 years (Miller et al. 1999). For photos and physical characteristics of old growth pinyon and juniper, see also Sink (2003).

Other habitat management area (OHMA)—BLM-administered land in Nevada and Northeastern California, identified as unmapped greater sage-grouse habitat that contains seasonal or connectivity habitat areas.

Particulate matter—A mixture of microscopic solids and liquid droplets suspended in the air.

Perennial—A plant that lives more than 1 year.

Permitted grazing—The BLM issues permits and leases to public land ranchers to graze livestock on BLM-administered lands that has been divided into allotments. The permits and leases include terms and conditions for livestock grazing and generally cover a 10-year period. Permits and leases are renewable if the BLM determines that the terms and conditions of the expiring permit or lease are being met.

Pinyon-juniper successional phases—(see also Pyke et al. 2018 for phases of pinyon-juniper in-filling of sagebrush shrublands based on tree characteristics)

Phase I – Trees are present but shrubs and grasses are the dominant vegetation that influence ecological processes (hydrologic, nutrient, and energy cycles) on the site (Tausch et. al 2009). Trees make up less than 10 percent of the canopy cover.

Phase II – Trees are co-dominant with shrubs and herbs, and all three vegetation layers influence ecological processes on the site (Tausch et. al 2009). Trees makes up 10 to 30 percent of the canopy cover.

Phase III – Trees are the dominant vegetation and the primary plant layer influencing ecological processes on the site. Shrubs no longer dominate the understory (Tausch et. al 2009). Tree canopy cover is over 30 percent.

Pre-emergent herbicide—Herbicide that provides control of targeted plant species by inhibiting germination of seeds.

Prescribed fire—The application of fire as an ecological process, under specified conditions, in a designated area to achieve land management objectives. Prescribed fires are defined as any fire intentionally ignited by management action in accordance with applicable laws, policies, and regulations to meet specific objectives. A written approved prescribed fire plan must exist, and NEPA requirements be met, prior to ignition (NWCG 2018).

Primitive road—A linear route managed for use by four-wheel drive or high-clearance vehicles (e.g., two-track road). Primitive roads do not normally meet any BLM road design standards (BLM 2012).

Priority area for conservation (PAC)—An area identified in the USFWS Conservation Objectives Team report (USFWS 2013b) as essential for greater sage-grouse conservation.

Priority habitat management area (PHMA)—BLM-administered land identified as having the highest habitat value for maintaining sustainable greater sage-grouse populations. PHMAs largely coincide with PACs.

Rate of fire spread—The relative activity of a fire extending horizontally (NWCG 2018). It is expressed as the rate of increase of the total fire perimeter, as the rate of forward fire spread, or as fire intensity (flame length). Usually it is expressed in terms of chains per hour or acres per hour for a specific period in the fire's history.

Recreation—Use of leisure time to freely engage in activities in a variety of settings that provide personal satisfaction and enjoyment and contribute to the renewal and refreshment of one's body, mind, and/or spirit.

Recreation experience—Immediate state of mind resulting from participation in recreation opportunities that result in benefits.

Recreation opportunities—The ability to participate in recreation activities that facilitate experiences and benefits within a specific geographic area.

Recreation setting—The collective distinguishing attributes (recreation setting characteristics) of a landscape

Recreation setting characteristics—Derived from the recreation opportunity spectrum, these characteristics are categorized as physical, social, and operational components and are further subdivided into specific characteristics (attributes). These characteristics are categorized across a spectrum of classes that describe a range of qualities and conditions of a recreation setting, for example primitive to urban.

Replacement fuel breaks—Also known as a green strip, the goal of this type of fuel break is to replace more flammable and contiguous plant communities (particularly those dominated by nonnative annual grasses, such as cheatgrass) with perennial plants that retain moisture later into the growing season, often by using plants that grow as widely spaced, low-statured individuals that result in large, bare interspaces. Vegetation is typically first removed or altered with a plow, harrow, or chain, and often in combination with application of a broadly effective herbicide to control existing vegetation, with additional herbicide treatments to reduce invasive annual grasses. New species are then sown into the prepared strips, with ideal seeded species having relatively deep roots, forming persistent stands that provide some competitive pressure against nonnative annual invasion, and having relatively inexpensive seeds that germinate reliably (Shinneman et al. 2018).

Resistance—Sites that are able to retain their fundamental structure, processes, and functioning when exposed to stresses, disturbances, or invasive species (Chambers 2014).

Resilience—Sites that have the capacity to regain their fundamental structure, processes, and functioning when altered by stressors such as drought and disturbances such as inappropriate livestock grazing and altered fire regimes (Chambers 2014).

Restoration—Implementation of a set of actions that promotes plant community diversity and structure that allows plant communities to be more resilient to disturbance and invasive species over the long term (BLM 2008).

Right-of-way (ROW)—A type of easement granted or reserved over the land for transportation purposes, this can be for a highway, public footpath, rail transport, canal, as well as electrical transmission lines, oil and gas pipelines.

Road—A linear route declared to be a road by the owner. It is managed for use by low-clearance vehicles having four or more wheels and is maintained for regular and continuous use (BLM 2012).

Safe separation distance—The distance between firefighters and flames that is necessary to reduce the risk of burn injury.

Safety zone—An area cleared of flammable materials used for escape in the event the line is outflanked or in case a spot fire causes fuels outside the control line to render the line unsafe. In firing operations, crews progress so as to maintain a safety zone close at hand allowing the fuels inside the control line to be consumed before going ahead. Safety zones may also be constructed as integral parts of fuel breaks; they are greatly enlarged areas which can be used with relative safety by firefighters and their equipment in the event of blowup in the vicinity (NWCG 2018).

Sagebrush obligate—A species that requires sagebrush for at least part of its life cycle.

Smoke-sensitive Receptors—Areas that are sensitive to smoke, including population centers, recreation areas, hospitals, airports, transportation corridors, schools, nonattainment areas, Class I areas, and restricted areas (NWCG 2017).

Soil aggregate—A collection of soil particles that bind to each other more strongly than to adjacent particles.

Soil horizon—A layer, approximately parallel to the surface of the soil, that is distinguishable from adjacent layers by a distinctive set of properties produced by the soil-forming processes. The term layer is used instead of horizon if the properties are inherited from the parent material, such as sedimentary strata. Horizons, in contrast, display the effects of pedogenesis, such as the obliteration of sedimentary strata and accumulation of alluvial clay.

Soil order—A single dominant characteristic affecting soils in a location, such as the prevalent vegetation (Alfisols and Mollisols) and the type of parent material (Andisols and Vertisols), or the climate variables, such as lack of precipitation (Aridisols) or the presence of permafrost (Gelisols). Also significant is the amount of physical and chemical weathering present (Oxisols and Ultisols) or the relative amount of soil profile development that has taken place (Entisols).

Soil quality—A soil's capacity to function. Healthy soils support plant and animal diversity and productivity, air and water quality, and human health (Soil Quality Institute 2001).

Spotting—Behavior of a fire producing sparks or embers that are carried by the wind and which start new fires beyond the zone of direct ignition by the main fire (NWCG 2018).

Stabilizer species—A grass species cultivated to rapidly establish at revegetation sites. Stabilizers are selected based on their seedling establishment, persistence, and seed production.

Stringer—Noncontiguous, narrow communities of predominantly ponderosa pine or pinyon-juniper that extend below their normal elevational distribution and persist where they naturally occur.

Supplemental feed—A feed which supplements the forage available from the public lands and is provided to improve livestock nutrition or rangeland management (43 CFR 4100.0-5).

Tilling—The mechanical manipulation of the soil for the purpose of crop production affecting significantly the soil characteristics such as soil water conservation, soil temperature, infiltration and evapotranspiration processes.

Targeted grazing—The application of a specific species, class, and age of livestock (to graze vegetation at a specific season, duration, and intensity to accomplish predefined vegetation objectives (Launchbaugh and Walker 2006).

Unvegetated fuel break—Also known as a brown strip, an unvegetated fuel break is a linear fuel break that is devoid of vegetation. It is typically installed along major thoroughfares (for example, paved highways) using a harrow or plow to clear or completely remove vegetation (that is, all fuels) down to bare mineral soil, typically in widths of 3– 6 m (and sometimes wider) (Shinneman et al. 2018).

Vegetation condition class (VCC)—A discrete metric that quantifies the amount of departure from the simulated historical vegetation reference conditions (historical fire regimes).

Vegetation state—Categories of vegetation used in this PEIS. Vegetation was partitioned into three common plant categories found within sagebrush communities: invasive annual grasses, perennial grasses and forbs, and sagebrush. Each category was further subdivided by percent cover. The vegetation cover classes were then aggregated into seven ‘vegetation states’ based on relative amounts of each cover class (dominant and subdominant cover types). See **Appendix F** for further information.

Wildland-urban interface (WUI)—The WUI is defined in the National Wildfire Coordinating Group (NWCG) Glossary as “the line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.” It describes an area in or next to private and public property where mitigation actions can prevent damage or loss from wildfire (NWCG 2018). WUI communities are the following (Forest Service et al. 2001):

Interface community—Exists where structures directly abut wildland fuels. There is a clear line of demarcation between residential, business, and public structures and wildland fuels. Wildland fuels do not generally continue into the developed area. The development density for an interface community is usually three or more structures per acre, with shared municipal services. Fire protection is generally provided by a local government fire department, with the responsibility to protect the structure from both an interior fire and an advancing wildland fire. An alternative definition of the interface community emphasizes a population density of 250 or more people per square mile.

Intermix community—Exists where structures are scattered throughout a wildland area. There is no clear line of demarcation; wildland fuels are continuous outside and in the developed area. The development density in the intermix ranges from those structures that are very close together to there being one structure per 40 acres. Fire protection districts funded by various taxing authorities normally provide life and property fire protection and may also have wildland fire protection responsibilities. An alternative definition of intermix community emphasizes a population density of between 28 and 250 people per square mile.

Occluded community—Generally exists in a situation, often in a city, where structures abut an island of wildland fuels, such as a park or open space. There is a clear line of demarcation between structures and wildland fuels. The development density for an occluded community is usually similar to those found in the interface community, but the occluded area is usually less than 1,000 acres. Fire protection is normally provided by local government fire departments.

Appendix C. Major Authorizing Laws and Regulations

Below is a list of major authorizing laws and regulations relevant to this PEIS. Note this is not a complete list and sources not listed may also be appropriate to reference.

C.1 LAWS AND EXECUTIVE ORDERS

American Indian Religious Freedom Act of 1978 – Protects the rights of Native Americans to exercise their traditional religions by ensuring access to sites, use and possession of sacred objects, and the freedom to worship through ceremonials and traditional rites.

Archaeological Resources Protection Act of 1979 – Provides for civil and criminal penalties for knowing excavations, removal, damage alteration or defacement of an archeological resource on public or Indian lands and on non-federal lands.

Clean Air Act of 1970 – Requires the Environmental Protection Agency to set health-based standards for ambient air quality, sets deadlines for the achievement of those standards by state and local governments, and requires the Environmental Protection Agency to set national emission standards for large or ubiquitous sources of air pollution, including motor vehicles, power plants, and other industrial sources. In addition, the Act mandates emission controls for sources of hazardous air pollutants, requires the prevention of significant deterioration of air quality in areas with clean air, requires a program to restore visibility impaired by regional haze in national parks and wilderness areas, and implements the Montreal Protocol to phase out most ozone-depleting chemicals.

Clean Air Act Amendments of 1990 – Changes to the Act in 1990 included provisions to (1) classify most nonattainment areas according to the extent to which they exceed the standard, tailoring deadlines, planning, and controls to each area's status; (2) tighten auto and other mobile source emission standards; (3) require reformulated and alternative fuels in the most polluted areas; (4) revise the air toxics section, establishing a new program of technology-based standards and addressing the problem of sudden, catastrophic releases of toxics; (5) establish an acid rain control program, with a marketable allowance scheme to provide flexibility in implementation; (6) require a state-run permit program for the operation of major sources of air pollutants; (7) implement the Montreal Protocol to phase out most ozone-depleting chemicals; and (8) update the enforcement provisions so that they parallel those in other pollution control acts, including authority for the Environmental Protection Agency to assess administrative penalties.

Clean Water Act of 1972 – Includes provisions which authorize federal financial assistance for municipal sewage treatment plant construction and establishes regulatory requirements that apply to industrial and municipal dischargers. Enforcement emphasis includes controlling discharges of conventional pollutants (e.g., suspended solids or bacteria that are biodegradable and occur naturally in the aquatic environment) and control of toxic pollutant discharges.

Endangered Species Act of 1973, as amended—The purpose of the Endangered Species Act is to ensure that federal agencies and departments use their authorities to protect and conserve endangered and threatened species. Section 7 of the Endangered Species Act requires that federal agencies prevent

or modify any projects authorized, funded, or carried out by the agencies that are “likely to jeopardize the continued existence of any endangered species or threatened species, or result in the destruction or adverse modification of critical habitat of such species.”

Federal Land Policy and Management Act of 1976 — States that “the public lands will be managed in a manner that protect the quality scientific, scenic, historic, ecological, environmental, air and atmospheric, water resource, and archeological values; that, where appropriate, will preserve and protect certain public lands in their natural conditions that will provide food and habitat for fish and wildlife and domestic animals; and that will provide for outdoor recreation and human occupancy and use.”

Fish and Wildlife Conservation Act of 1980 – Authorizes financial and technical assistance to the States for the development, revision, and implementation of conservation plans and programs for nongame fish and wildlife.

Healthy Forests Restoration Act of 2003 – Contains a variety of provisions aimed at expediting the preparation and implementation of hazardous fuels reduction projects on federal land and assisting rural communities, States and landowners in restoring healthy forest and watershed conditions on state, private and tribal lands. The Healthy Forests Restoration Act focuses on four types of land:

- The wildland-urban interfaces of at-risk communities,
- At-risk municipal watersheds,
- Where threatened and endangered species or their habitats are at-risk to catastrophic fire and where fuels treatment can reduce those risks, and
- Where windthrow or insect epidemics threaten ecosystem components or resource values.

Migratory Bird Treaty Act of 1918, as amended, and Executive Order 13186 (2001)—These federal laws identify the responsibilities of the federal agencies to protect migratory birds. In 2010, the BLM and US Fish and Wildlife Service signed BLM MOU-WO-230-2010-04 to promote the conservation of migratory birds. Specifically, the purpose is to strengthen migratory bird conservation by implementing strategies that promote conservation and avoid or minimize adverse impacts on migratory birds through enhanced collaboration between the parties: state, tribal and local governments. Among other commitments, the BLM shall “At the project level evaluate the effects of the BLM’s actions on migratory birds during the NEPA process, if any, and identify where take reasonably attributable to agency actions may have a measurable negative effect on migratory bird populations, focusing first on species of concern, priority habitats, and key risk factors.” Where the BLM finds negative impacts, it will implement approaches to lessen such take.

National Environmental Policy Act of 1970 – Established a national policy for the protection and maintenance of the environment. It guides the broad planning process that requires all federal agencies to ensure that the federal agency has considered the effects of its actions (including any action involving federal funding or assistance) on the environment before deciding to fund and implement a proposed action; and to make available environmental information to public officials and citizens before making decisions and undertaking actions. NEPA directs the federal agencies to thoroughly assess the environmental consequences of “major federal actions significantly affecting the environment.”

National Historic Preservation Act of 1966, as amended – Section 106 directs all federal agencies to account for the impacts of their undertakings (actions and authorizations) on properties listed on or

eligible for listing on the National Register of Historic Places. Eleven BLM states comply with section 106 according to a 1997 national programmatic agreement with the Advisory Council on Historic Preservation Office and National Conference of State Historic Preservation Officers. Section 110 of the National Historic Preservation Act sets inventory, nomination, protection, and preservation responsibilities for federally owned cultural properties.

Native American Graves Protection and Repatriation Act of 1990 – Provides for the ownership or control of Native American cultural items (human remains and objects) excavated or discovered on Federal or tribal lands.

Paleontological Resources Preservation Act of 2009 – Serves to preserve, manage, and protect paleontological resources on lands administered by the Bureau of Land Management, the Bureau of Reclamation, the National Park Service, and the U.S. Fish and Wildlife Service and ensure that these federally owned resources are available for current and future generations to enjoy as part of America's national heritage.

Public Rangelands Improvement Act of 1978 – Established and reaffirmed the national policy and commitment to inventory and identify current public rangeland conditions and trends; manage, maintain and improve the condition of public rangelands so that they become as productive as feasible for all rangeland values in accordance with management objectives and the land use planning process; charge a fee for public grazing use which is equitable; continue the policy of protecting wild free-roaming horses and burros from capture, branding, harassment, or death, while at the same time facilitating the removal and disposal of excess wild free-roaming horses and burros which pose a threat to themselves and their habitat and to other rangeland values.

Reciprocal Fire Protection Act of 1955 – Provides authority for Federal agencies to enter into mutual assistance agreements with foreign, State and local governments for combating wildfires, and to provide emergency assistance when no agreement exists.

Regional Haze Rule of 1999 – Promulgated by the EPA to protect and improve visual range in Class I areas. Without the effects of human-made air pollution, a natural visual range would be nearly 140 miles in the western United States; the current visual range is 35 to 90 miles (EPA 2018d). The law calls on states to establish goals for improving visibility in mandatory Class I areas and to develop long-term strategies for reducing emissions of air pollutants that impair the visibility in these areas.

Taylor Grazing Act of 1934 – Provides for regulated grazing on federal public lands (exclusive of Alaska) to improve range conditions and stabilize the livestock industry in the American West.

Timber Protection Act of 1922 – Authorizes the Secretary of Interior to protect timber on lands under the Department of Interior's jurisdiction from fire, disease and insects.

Wild Free-Roaming Horse and Burro Act of 1971 – Provides legislation to protect wild horses and burros. The Act prohibits the use of a motor vehicle to hunt, for the purpose of capturing or killing, any wild horse, mare, colt, or burro running at large on public lands. The Act also prohibited the pollution of watering holes on public lands for the purposes of trapping, killing, wounding, or maiming any of these animals.

Wilderness Act of 1964 – Directs the Secretary of the Interior, within 10 years, to review every roadless area of 5,000 or more acres and every roadless island (regardless of size) within National Wildlife Refuge and National Park Systems and to recommend to the President the suitability of each such area or island for inclusion in the National Wilderness Preservation System, with final decisions made by Congress. The Secretary of Agriculture was directed to study and recommend suitable areas in the National Forest System. In 1976, Congress directed the BLM to evaluate all of its land for the presence of wilderness characteristics, and identified areas became Wilderness Study Areas. The establishment of a Wilderness Study Area served to identify areas for Congress to consider for addition to the National Wilderness Preservation System.

Executive Order 12898 – Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations – To the greatest extent practicable and permitted by law, and consistent with the principles set forth in the report on the National Performance Review, each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States and its territories and possessions, the District of Columbia, the Commonwealth of Puerto Rico, and the Commonwealth of the Mariana Islands.

Executive Order 13175 – Consultation and Coordination with Indian Tribal Governments – Aims to strengthen the United States government-to-government relationships with Indian tribes. It establishes regular and meaningful consultation and collaboration with tribal officials in the development of Federal policies that have tribal implications.

Executive Order 13007 Indian Sacred Sites – Designed to protect and preserve Indian religious practices, this EO directs each federal agency that manages federal lands to “(1) accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and (2) avoid adversely affecting the physical integrity of such sacred sites.” This Executive Order also directs each federal agency to report to the President on “procedures implemented or proposed to facilitate with appropriate Indian tribes and religious leaders.”

C.2 HANDBOOKS

BLM Handbook H-1740-2 - Integrated Vegetation Management - Provides guidance on implementation of vegetation management planning and treatment activities to achieve the objectives set forth for the updated manual, 1740 Renewable Resource Improvements and Treatments.

BLM Handbook H-1742-1 - Burned Area Emergency Stabilization and Rehabilitation Handbook - Provides specific guidance for policies, standards, and procedures used in the Burned Area Emergency Stabilization and Rehabilitation programs.

BLM Handbook H-1780-1 – Improving and Sustaining BLM-Tribal Relations – This handbook addresses a broad range of legal authorities and agency programs of interest to tribes and also highlights BLM responsibilities. It incorporates current guidance derived from recent case law, new Secretarial orders and policies, Executive orders, and decades of experience working with tribes on a government-to-government basis.

BLM Handbook – H-6250 – National Scenic and Historic Trail Administration - Provides the BLM policy and program guidance on administering congressionally designated National Trails as assigned by the Department of the Interior within the National Landscape Conservation System and this manual describes the BLM's roles, responsibilities, agency interrelationships, and policy requirements for National Trail Administrators.

BLM Handbook H-8140 – Protecting Cultural Resources - Provides general guidance for protecting cultural resources from natural or human-caused deterioration; for making decisions about recovering significant cultural resource data when it is impossible or impractical to maintain cultural resources in a nondeteriorating condition; for protecting cultural resources from inadvertent adverse effects associated with BLM land use decisions, and for controlling unauthorized uses of cultural resources.

BLM Handbook H-8320-I – Planning for Recreation and Visitor Services - Assists in the planning and management of recreation and visitor services on public lands and adjacent waters. This handbook provides planning guidance at the land use plan and implementation level.

BLM Handbook H-8342 – Travel and Transportation Handbook - Provides specific guidance for preparing, amending, revising, maintaining, implementing, monitoring, and evaluating BLM land use and travel management plans.

BLM Handbook H-9200 – Fire Program Management - Provides consistent fire program management direction and guidance to BLM users and managers. The objective of this direction and guidance is to guide the philosophy, direction and implementation of fire management planning, activities and projects on BLM lands, and to ensure compliance with Federal wildland fire management policy.

BLM Handbook H-9211-I – Fire Planning Handbook - Provides guidance on how to meet the requirements of Federal Wildland Fire Management Policy, as well as BLM regulations and policy. It contains guidance on how to meet planning requirements and how to prepare fire management plans. This handbook recommends a course of action for accomplishing landscape-level fire planning and provides guidance supplemental to the BLM NEPA Handbook (H-1790-I) for fire management actions.

C.3 MANUALS

BLM Manual 1740 – Renewable Resource Improvements and Treatments - The purpose of this updated manual is for identifying objectives, policies and standards that are common and apply to planning, analyzing, constructing, maintaining, replacing and or modifying renewable resource improvements and treatments for the forestry, range management, riparian management, soil, water, air, fish, wildlife, threatened and endangered species, wild horse and burro, invasive species, hazardous fuels reduction, emergency stabilization, and burned area rehabilitation programs to achieve management objectives on BLM managed lands.

BLM Manual 1780 – Tribal Relations - Defines the policies, roles and responsibilities, and standards for BLM tribal relations and government-to-government tribal consultation within a comprehensive framework of those legal authorities affecting this relationship.

BLM Manual 6100 – National Landscape Conservation System (NLCS) – Provides general policy to BLM personnel on managing public lands in the National Landscape Conservation System. The NLCS was established in order to “conserve, protect, and restore nationally significant landscapes that have

outstanding cultural, ecological, and scientific values for the benefit of current and future generations.” NLCS units are to be managed “in a manner that protects the values for which the components of the system were designated.” Section 1.8 of this manual lists the designations identified in the Act as components of the NLCS. The BLM has additional manuals addressing policy specific to National Monuments, National Conservation Areas and Similar Designations, Wilderness, Wilderness Study Areas, Wild and Scenic Rivers, and National Scenic and Historic Trails.

BLM Manual 6280 – Management of National Scenic and Historic Trails and Trails Under Study or Recommended as Suitable for Congressional Designation - This manual provides policy for the management of National Scenic and Historic Trails.

BLM Manual 6330—Management of BLM Wilderness Study Areas - This manual provides policy on the non-impairment standard to BLM personnel for use when managing Wilderness Study Areas.

BLM Manual 6400 – Wild and Scenic Rivers - Provides the line manager and program staff professional with policies and program guidance for conducting wild and scenic rivers studies within the land use planning process, environmental analysis, and legislative reporting and provides other related information. It also sets forth requirements for designated rivers, as well as river segments determined eligible or suitable for inclusion in the National Wild and Scenic Rivers System. It also expands upon the US Department of the Interior - US Department of Agriculture Final Revised Guidelines for Eligibility, Classification, and Management of River Areas.

BLM Manual 6840, Special Status Species Management - This manual establishes policy and guidance for management of species listed or proposed for listing pursuant to the Endangered Species Act and Bureau sensitive species which are found on BLM-administered lands.

BLM Manual 8270—General Procedural Guidance for Paleontological Resource Management - This manual provides uniform policy and direction for the BLM's Paleontological Resources Management Program. Its purpose is to assure adequate and appropriate consideration and protection of paleontological resources on public lands.

C.4 OTHER

Interim Air Quality Policy on Wildland and Prescribed Fires (EPA 1999) - Calls on states to develop smoke management programs and for federal land managers to participate in these programs (EPA 1998). Smoke management programs are intended to accomplish the following:

- Prevent the deterioration of air quality and the exceedance of national ambient air quality standards
- Address visibility impacts on Class I areas
- Mitigate nuisance and public safety impacts of prescribed fires

Appendix D. Design Features

¹ Resource codes:

GEN: General design feature that would benefit all resources
 AIR: Air quality
 CULT: Cultural, paleontological, and tribal resources

FF: Fire and fuels
 FW: Fish and wildlife
 LG: Livestock grazing
 REC: Recreation

SD: Special designations
 SOIL: Soil resources
 SSS: Special status species
 TM: Travel management

VEG: Vegetation resources
 VIS: Visual resources
 WR: Water resources
 WHB: Wild horses and burros

**Table D-1
 Fuels Reduction and Rangeland Restoration PEIS
 Design Features by Alternative**

#	Design Feature	Applicable Alternatives	Applicable Resources ¹
GENERAL			
1.	When applicable, monitor to determine if objectives are being met for any affected resources.	All action alternatives ²	GEN
2.	Prioritize the placement of equipment (e.g., vehicles and mechanical treatment equipment) in previously disturbed areas.	All action alternatives	GEN
3.	Apply restrictions and design features in applicable land use plans and land use plan amendments. Develop resource-specific buffer distances and apply seasonal restrictions based on site-specific conditions, best available science, applicable land use plan guidance, and professional judgement. If any design features in this PEIS conflict with state or local BLM guidance, defer to state or local guidance.	All action alternatives	GEN
4.	Use best available science when designing and implementing fuels reduction and rangeland restoration projects.	All action alternatives	GEN
5.	Install signs in treatment areas during activities for public safety.	All action alternatives	AIR, REC, TM
6.	Applicable Standard Operating Procedures and Mitigation Measures from the Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement and Record of Decision (BLM 2007, PEIS Table 2-8 and Record of Decision Appendix B) and the Final PEIS on using Aminopyralid, Fluroxypyr, and Rimsulfuron (BLM 2016, Table 2-5) would be required.	B, D	GEN

#	Design Feature	Applicable Alternatives	Applicable Resources ¹
7.	Consider on a project-by-project basis potential impacts on cultural resources from targeted grazing, including temporary fences, corrals, and watering sites, per Section 106 of the NHPA and other cultural resource authorities. Compliance may include tribal and SHPO consultations, an archaeological inventory, and mitigation.	All action alternatives	GEN
8.	Prior to project implementation, ensure a cadastral crew flags monument markers and identifies other cadastral features (e.g., bearing trees).	All action alternatives	GEN
PRESCRIBED FIRE			
9.	Prescribed fire operations would be conducted by qualified personnel when prescription parameters as defined in the burn plans are met.	B, D	GEN
10.	Ignite debris piles created during thinning treatments when soils are wet or frozen.	B, D	AIR, SD
11.	Through site-specific smoke analysis, the BLM would comply with their respective state department of environmental quality or other state air monitoring group to ensure that smoke emissions from treatments remain below the National Ambient Air Quality Standard for PM _{2.5} . The BLM would identify smoke-sensitive receptors at the site-specific project level.	B, D	AIR, SD
12.	Post warning signs on primary routes accessing the areas being burned to alert drivers of the potential for reduced visibility due to smoke.	B, D	AIR, SD
13.	Ensure atmospheric conditions are within prescriptions when a prescribed burn is ignited, and monitor smoke throughout the ignition.	B, D	AIR, SD
14.	If smoke threatens unacceptable impacts on transportation safety or communities, stop the ignition, provided burn control is not compromised.	B, D	AIR, SD
TARGETED GRAZING			
15.	<p>Before targeted grazing begins, complete a targeted grazing plan that optimizes successful reduction or control of the target nonnative species, while avoiding damaging native desired plants. The plan would include the following:</p> <ul style="list-style-type: none"> ● Objectives that specify target nonnative species, grazing duration, intensity, stocking level, type of livestock, and measurable outcomes ● A monitoring plan ● Stipulations, including the following: <ul style="list-style-type: none"> – To minimize the risk of introducing or spreading invasive plant species through livestock manure, a quarantine period may be needed before livestock are turned out into an area for targeted grazing and when they are removed from such an area. – Coordinate with applicable permittees, state agencies, or other landowners in advance of targeted grazing treatment. This is to identify and minimize any potential conflicts of targeted grazing with regularly permitted livestock grazing. In case-specific situations, rest from regularly permitted grazing may be necessary in order to accomplish targeted grazing objectives (Hendrickson and Olson 2006). 	B, D	FW, LG, SD, SOIL, SSS, VEG

#	Design Feature	Applicable Alternatives	Applicable Resources ¹
	<ul style="list-style-type: none"> – Construct all fencing using proper wildlife specifications contained in BLM handbook 1741-1 Fencing and applicable approved land use plans. – Use of domestic sheep or goats for targeted grazing would be avoided within 30 miles of bighorn sheep habitat. If targeted grazing is desired within this area, BLM would prepare a separation and response plan, included in the targeted grazing plan, coordinated with the appropriate state agency to provide sufficient separation to minimize the risk of contact and disease transmission of domestic sheep or goats from bighorn sheep. USFWS would be consulted if listed bighorn sheep may be affected. – Targeted grazing will not be implemented in treatment areas that have 20% or greater cover of perennial bunchgrass. Carefully consider using supplements for livestock during targeted grazing during site-specific planning. Supplements would be nontoxic to wildlife and would be placed to minimize impacts on wildlife and/or native vegetation. – Rely on portable water tanks and install wildlife escape ramps in temporary tanks to facilitate the use of and escape from livestock watering troughs by greater sage-grouse and other wildlife. <p>In drought years with little invasive annual grass production, grazing should not be used as it could create too much bare ground.</p> <p>Provide adequate rest from livestock grazing: to allow desired vegetation to recover naturally; in suitable habitat for threatened and endangered plants; and for seeded species in treated areas to successfully become established. All animals must be removed prior to growth by desired perennial plants. All new seedings of grasses and forbs should not be grazed until, at least, after the end of the second growing season, or until objectives are met (for example, 5 perennial plants per square meter), to allow plants to mature and develop robust root systems. This would stabilize the site, compete effectively against cheatgrass and other invasive annuals, and remain sustainable under long-term grazing management. Adjust other management activities to meet project objectives.</p>		
16.	Manage targeted grazing to conserve suitable habitat conditions for special status species, while implementing rangeland health standards and guidelines (BLM 2014).	B, D	SSS
17.	A Graduated Use Plan is presented after this table.	B, D	FW, LG, SD, SOIL, SSS, VEG
SURVEY REQUIREMENTS AND RESOURCE PROTECTION			
VEGETATION AND INVASIVE AND NOXIOUS WEEDS			
18.	All prescribed soil disturbance would need to incorporate noxious and invasive weed management, including pre-work evaluation or avoidance.	All action alternatives	CULT, FW, SD, SSS, VEG

#	Design Feature	Applicable Alternatives	Applicable Resources ¹
19.	Noxious weeds and invasive plants would be monitored to track changes in populations over time, and corrective action would be prescribed where needed, in accordance with local weed programs. Thresholds and responses for noxious weeds and invasive plants (particularly invasive annual grasses) will be included in monitoring plans.	All action alternatives	CULT, FW, SD, SSS, VEG
20.	Power wash all vehicles and equipment prior to allowing them to enter the project area and between sites where invasive and noxious weed species are different to minimize the introduction and spread of invasive plant species.	All action alternatives	CULT, FW, SD, SSS, VEG
21.	If revegetation is necessary, apply an appropriate mixture of locally adapted or genetically appropriate forbs and grass seed (adapted to the site) at jackpot burn sites and pile burn sites to facilitate vegetation establishment.	All action alternatives	SD, VEG, VIS
22.	Avoid removal or disturbance to trees with old growth characteristics, such as old growth pinyon or juniper.	All action alternatives	CULT, FW, SD, SSS, VEG
CULTURAL, TRIBAL, AND PALEONTOLOGICAL RESOURCES			
23.	Make cultural and paleontological inventories and consultations appropriate to the scale and level of disturbance in advance of project activities. Use the results early in project planning to determine the need for project redesign or other mitigation.	All action alternatives	CULT, SD
24.	If cultural or paleontological resources are encountered during project implementation, cease all ground-disturbing activity in the vicinity of the find until the resource is evaluated by the appropriate BLM resource specialist. The BLM would follow the procedures outlined in 36 CFR 800. If human remains or objects covered by the Native American Graves Protection and Repatriation Act are encountered, cease all work and contact the BLM Authorized Officer immediately by phone, with written follow-up. Follow other guidelines set forth in 43 CFR 10.	All action alternatives	CULT, SD
25.	Conduct archaeological inventories and assessments of potential significance under the National Historic Preservation Act (NHPA), in accordance with the National Programmatic Agreement between the Advisory Council on Historic Preservation (ACHP) and the BLM, state protocol agreements with respective State Historic Preservation Offices (SHPOs), guidelines set forth in BLM 8100 Manual and Handbook, and according to other relevant authorities listed in the above documents, including Section 106 of the NHPA.	All action alternatives	CULT, SD
26.	Avoid historic properties during ground-disturbing activities. A cultural resource specialist would identify avoidance areas before treatment and subsequent retreatments. If protection of resources compromises the effectiveness of a given treatment and life, safety, or other resources are threatened, maintain flexibility to allow for project redesign, while protecting cultural resources. If adverse effects cannot be avoided without significantly compromising the success of a treatment, minimize the effects, in consultation with SHPO, ACHP, tribes, or interested public, as applicable.	All action alternatives	CULT, SD

#	Design Feature	Applicable Alternatives	Applicable Resources ¹
27.	Consult with potentially affected tribes, according to guidance set forth in BLM Manual and Handbook 1780, and relevant authorities listed therein, before herbicide spraying or other treatments begin that are likely to affect the access or availability of resources or locations important to traditional lifeways, including subsistence, economy, ritual, and religion.	All action alternatives	CULT, SD, VEG
28.	Determine the need for paleontological inventory, based on criteria set forth in IM 2016-124 and using potential fossil yield classification, if available, or geologic characteristics and previous study data, if not. Ground-disturbing and chemical treatments in areas with paleontological resources would be addressed on a site-by-site basis. Project activities at significant paleontological sites would be coordinated with the regional BLM paleontologist to determine mitigation or monitoring needs in areas with a high potential for fossil resources. This is to minimize adverse effects per IM 2009-011, Assessment and Mitigation of Potential Impacts to Paleontological Resources.	All action alternatives	CULT, SD, VEG
SOIL AND WATER RESOURCES			
29.	Minimize ground-disturbing treatments in areas with highly erosive soils, as defined in Chapter 3.	All action alternatives	FW, SD, SOIL, SSS, VEG, WR
30.	For safety and to protect site resources, treatment methods involving equipment generally would not be applied on slopes exceeding 35 percent unless local land use plans require additional limitations.	All action alternatives	SD, SOIL
31.	Avoid or minimize potential ground-disturbing activities when soils are saturated.	All action alternatives	SOIL, SSS, VEG
32.	Soils, site factors, and timing of application must be suitable for any ground-based equipment used for treatments. This is to avoid excessive compaction, rutting, or damage to the soil surface layer. Equipment would be used on the contour, where feasible.	All action alternatives	SD, SOIL, VIS
33.	Use best management practices and soil conservation practices during project design and implementation to minimize sediment discharge into streams, lands, and wetlands from such treatments as mowing, disking, and seeding. This is to protect designated beneficial uses.	All action alternatives	FW, SSS
WILDLIFE AND SPECIAL STATUS SPECIES (WILDLIFE AND PLANTS)			
34.	If special status plant or animal populations and their habitats occur in a proposed treatment area, a qualified biologist will assess the area for habitat suitability and balance the need for treatment with the habitat needs of special status wildlife and plant species. Conduct appropriately timed surveys within suitable or potential habitats for federally listed, proposed, and BLM special status species prior to treatment in accordance with BLM Manual 6840. For plant species, appropriate timing may vary by species but is directly related to phenological stages (for example flowering or fruiting stages) that provide confidence in identification. Federally listed species with the potential to occur in the project area are presented in Chapter 3 ; the current BLM special status species list is found in Appendix J .	All action alternatives	SSS

#	Design Feature	Applicable Alternatives	Applicable Resources ¹
35.	Implement restrictions and conservation strategies for special status species, including federally listed, proposed, candidate, and BLM sensitive species, as contained in approved recovery and conservation plans, cooperative agreements, and other instruments in whose development the BLM has participated. If none are available, coordinate with the USFWS and/or state wildlife agencies to develop appropriate restrictions.	All action alternatives	SSS
36.	Avoid creating new barriers to big game movement in migratory corridors.	All action alternative	FW
37.	Prohibit treatments in sage-grouse breeding habitat during the breeding season.	C	SSS
38.	In sage-grouse Biologically Significant Units occurring within Priority and Important Habitat Management Areas, ensure that sagebrush treatments do not lead to a soft or hard trigger trip and are conservative relative to available sagebrush habitat in the Biologically Significant Unit.	All action alternatives	SSS
39.	Restrict activities in big game habitat during the following periods, unless short-term exemption is granted by the BLM field office manager, in coordination with the appropriate state wildlife agency (dates may be determined based on local conditions): big game wintering; elk/deer calving/fawning; pronghorn calving/fawning; and bighorn sheep lambing.	All action alternatives	FW
40.	Manage domestic sheep grazing to minimize contact between domestic sheep and bighorn sheep, using the currently accepted peer-reviewed modeling techniques and best available data, such as the Bighorn/Domestic Sheep Risk of Contact Model, in accordance with BLM Manual 1730, Management of Domestic Sheep and Goats to Sustain Wild Sheep.	All action alternatives	FW, SSS
41.	Treatments in mule deer winter range would not reduce the total area having shrub cover suitable for browse below 70% of site-specific winter range areas (Cox et al. 2009). Shrub treatments (such as mechanical treatments) could be implemented as long as they do not reduce cover below acceptable levels.	B, D	FW
42.	Complete surveys for migratory bird and raptor nesting activity and establish a seasonal buffer around raptor nests. Avoid treatments during the peak of the local nesting season in the project area for priority migratory land bird species (e.g., Birds of Conservation Concern, BLM sensitive species). Apply dates and buffer distances for seasonal restrictions contained in RMPs/LUPs or if not included they should be determined in coordination with the USFWS Migratory Bird Division and/or state wildlife management agency, and should be based on species, variations in nesting chronology of particular species locally, topographic considerations, such as an intervening ridge between the treatment activities and a nest, or other factors that are biologically reasonable.	All action alternatives	FW, SSS
43.	Aerial seeding treatments and aerial application of herbicides would be avoided within one mile of active American bald and ½ mile of active golden eagle nests during the nesting season. Avoidance distances would be determined by the amount of screening provided by vegetation or topographic features.	All action alternatives	SSS
44.	Avoid disturbance within 0.5 mile of communal bald eagle winter concentration sites during the winter roosting season.	All action alternatives	SSS

#	Design Feature	Applicable Alternatives	Applicable Resources ¹
45.	Aerial treatment applications will be avoided within 0.5 mile of bald eagle winter concentration sites during the winter roosting season.	B, D	SSS
46.	Surveys would take place in potential known Columbia Basin pygmy rabbit habitats. Select treatment locations with the least density of active burrows.	All action alternatives	SSS
47.	If special status plant species and their habitats occur in or are adjacent to a proposed treatment area, apply an appropriate mixture of locally adapted or genetically appropriate forbs and grass seed (adapted to the site) in accordance with standards outlined in Handbook 1740-2 and the National Seed Strategy.	All action alternatives	SSS
48.	Treatments would consider the habitat needs of sensitive wildlife species; input from local wildlife agencies would be solicited to ensure that the scale of treatments would maintain habitat at a level to support regional wildlife populations.	All action alternatives	FW, SSS
49.	Aerial herbicide treatments would be designed to avoid chemical drift into the riparian exclusion area or other aquatic species specific buffers.	All action alternatives	FW, SSS
50.	Comply with any additional conservation measures developed during ESA Section 7 consultation for this PEIS (see Section D.2 below).	All action alternative	SSS
VISUAL RESOURCES			
51.	During treatment design and implementation, for all visual resource classes, use careful location (e.g., use topography for project screening), minimal disturbance, and consideration of visual contrasts with the surrounding landscapes. For example, drill seed vegetation in a serpentine pattern or modify drilling, for example by using minimum-or-no-till drills, slick discs, and drag chain, so that drill rows are not apparent.	All action alternatives	SD, VIS
WILD HORSES AND BURROS			
52.	If necessary, erect temporary fences to exclude wild horses and burros from treated areas, particularly where restoration treatments occur in horse management areas (HMAs).	All action alternatives	WHB

¹ Resource codes:

GEN: General design feature that would benefit all resources
 AIR: Air quality
 CULT: Cultural, paleontological, and tribal resources
 FF: Fire and fuels
 FW: Fish and wildlife
 LG: Livestock grazing
 REC: Recreation

SD: Special designations
 SOIL: Soil resources
 SSS: Special status species
 TM: Travel management
 VEG: Vegetation resources
 VIS: Visual resources
 WR: Water resources
 WHB: Wild horses and burros

²The action alternatives are Alternatives B, C, and D.

D.1 CONSERVATION MEASURES FROM THE FUELS REDUCTION AND RANGELAND RESTORATION PEIS BIOLOGICAL ASSESSMENT

[*Note: Conservation measures are under development; the list below is a partial list of conservation measures for ESA-listed species.*]

- Avoid all treatments within 400 meters from the edge of bonytail chub, Colorado pikeminnow, humpback chub, razorback sucker, June sucker critical habitat or occupied habitat and Lahontan cutthroat trout occupied habitat.
- No targeted grazing would be allowed within grizzly bear habitat.
- Vegetation treatments would be designed and implemented to minimize noise disturbance or habitat modifications within one mile of wolf dens or rendezvous sites from mid April until the end of June.
- Proposed treatments within suitable Utah prairie dog habitat would be surveyed in accordance with USFWS protocols or in coordination with USFWS prior to implementation.
- All staging areas (e.g. vehicles, trailers, and materials) would be located outside of a 350-foot buffer of areas that were identified as mapped Utah prairie dog habitat.
- Project related vehicles would not exceed a speed of 15 miles per hour within mapped Utah prairie dog habitat.
- A qualified Utah prairie dog biologist, approved by BLM, would be required to be on-site during all work within mapped Utah prairie dog habitat. The biologist would document compliance with design features and any take that may occur and would have the authority to halt activities which may be in violation of these stipulations.
- All vehicle maintenance activities shall be conducted in maintenance facilities or in the event of emergency vehicle maintenance at least 350 feet from mapped Utah prairie dog habitat in previously disturbed areas. Precautions shall be taken to ensure that contamination of maintenance sites by fuels, motor oils, grease, etc. does not occur and that such materials are contained and properly disposed of off-site. Inadvertent spills of petroleum-based or other toxic materials shall be cleaned up and removed immediately or upon completion of the project. Habitat treatments within occupied Utah prairie dog habitat would occur during the extended active season (April 1st – September 30th) unless otherwise determined in coordination with USFWS and Utah Division of Wildlife Resources.
- All project employees shall be informed of the occurrence of the Utah prairie dog in the general area, and of the threatened status of the species. They shall be advised as to the definition of "take", and the potential penalties (up to \$200,000 in fines and one year in prison) for taking a species listed under the ESA. Project personnel will not be permitted to have firearms or pets in their possession while on the Project site. The rules on firearms and pets will be explained to all personnel involved with the Project.
- If a dead or injured Utah prairie dog is located, initial notification must be made to the Service's Division of Law Enforcement, Salt Lake City, Utah, at telephone 801-975-3330, to the Utah Division of Wildlife Resources at telephone number (435) 865-6100, and to the Authorized Officer at (435) 865-3000. Instruction for proper handling and disposition of such specimens would be issued by the Division of Law Enforcement. Care must be taken in handling sick or injured animals to ensure effective treatment and care and in handling dead specimens to preserve biological material in the best possible state.

- Use spot applications or low-boom broadcast applications for herbicides within Utah prairie dog habitat, where possible, to limit the probability of contaminating non-target food and water sources, especially vegetation over areas larger than the treatment area.

Appendix E. Additional Resources

Below is a list of additional resources that field staff can reference or tier to when undertaking fuels reduction and rangeland restoration projects. Note this is not a complete list and sources not listed may also be appropriate to reference.

E.1 NEPA DOCUMENTS

Bureau of Land Management (BLM). 2007. Final Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement. BLM, Nevada State Office, Reno, NV. June 2007. Available online at: <https://eplanning.blm.gov/epl-front-office/eplanning/planAndProjectSite.do?methodName=dispatchToPatternPage¤tPageId=103592>.

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Appendix F. Vegetation Framework and Methodology

This document shows the process used to develop vegetation states and conifer phases for the purpose of the two programmatic environmental impact statements, Fuel Breaks and Rangeland Restoration & Fuels Reduction. Each vegetation state relates to a relative amount of shrub, perennial grass/forb, and annual invasive grass foliar cover. The conifer phase relates to the successional stages of pinyon pine and juniper forests and areas of sagebrush that are adjacent to these forests (considered encroachment areas). This framework is expected to be useful for the PEIS NEPA analysis of the affected environment and environmental consequences of a variety of potential fuels treatments, fuels reduction and restoration, as well as for guiding project development at the field level. The vegetation states developed for the PEIS are for analysis purposes to describe the impacts that may occur within each vegetation state. More refined and site-specific data would be used to determine on-the-ground treatment actions.

F.1 METHODS FOR VEGETATION STATES

Vegetation was partitioned into three common plant categories found within sagebrush communities: invasive annual grasses (IAG), perennial grasses and forbs (PGF), and sagebrush (SB). The percent cover of each category was divided into low, moderate, and high cover classes for IAG and PGF; percent cover of SB was divided into low, intermediate, moderate, and high cover classes. The range for each cover class is identified in **Table F-1**. Percent cover breakpoints within each vegetation type were derived from the five invasion states listed in Meador et al. (2013) for IAG, Chambers et al. (2014) for PGF, and Connelly et al. (2000), Connelly et al. (2003), and Hagen et al. (2007) for SB. The following is a crosswalk depicting how the cover classes in this PEIS align with the Meador et al. (2013) cover classes:

- Invasion free 0%/Trace 1-5% = Low IAG 0-5%
- Mild 6-25% = Moderate 6-25%
- Moderate 26-50%/Invasion dominated state 51-100% = High 26%+

Table F-1
Sagebrush and Grassland Habitat Classes with Cover Breakpoints

Vegetation Type	Code	Percent Cover Class ¹
low sagebrush cover	LSB	0-5
intermediate sagebrush cover	ISB	6-14
moderate sagebrush cover	MSB	15-25
high sagebrush cover	HSB	26+
low invasive annual grass cover	LIAG	0-5
moderate invasive annual grass cover	MIAG	6-25
high invasive annual grass cover	HIAG	26+
low perennial grass & forb cover	LPGF	0-5
moderate perennial grass & forb cover	MPGF	6-19
high perennial grass & forb cover	HPGF	20+

Source: BLM interdisciplinary team input. The table is derived from the vegetation management protocol developed by the BLM that should guide the most appropriate conservation strategy under commonly occurring site conditions.

¹This column indicates the foliar cover ranges that characterize each vegetation type. Foliar cover is the percentage of ground covered by the vertical projection of the above ground portion of plants. It is distinguished from landscape cover, which is the proportion of a given area that is covered by the vegetation type.

GIS Datasets to support vegetation categories and treatment methods:

1. Historical vegetation layer from Landfire, called Biophysical Settings (BPS) was used to identify the extent of sagebrush by extracting the sagebrush and associated habitats that occurred historically on the landscape. This layer was chosen over the Existing Vegetation (EVT) in order to capture areas historically supporting sagebrush communities.
2. Vegetation cover was identified using the provisional USGS National Cover Database Shrubland products (Homer et al. 2015) which is a percentage-based set of raster datasets covering a majority of the project area. For the purposes of this exercise, percent sagebrush and two subsets of percent herbaceous (annual and perennial) were used to develop the vegetation categories. While other shrubs may add a few additional percentages of cover, the BLM used sagebrush cover alone because it is the most important shrub type for management purposes.

A newer version for the USGS National Cover Database Shrubland products has since been published which has a wider extent and different values for the percent cover. This is a result of an increase in plot data and a refinement in the model that determines cover estimates. The provisional dataset was the best available information at the time the Draft PEIS was prepared. While the newer dataset may yield slightly different acreages, the relative acreages of the vegetation states are not likely to change substantially given the scale of the project area. As such, and due to time limitations for the PEIS document, the process has not been repeated with the newer version to derive the vegetation states.

The IDT then aggregated the vegetation cover classes into seven ‘vegetation states’ based on relative amounts of each cover class (dominant and subdominant cover types). This was accomplished by creating a decision tree (**Figure F-1**) that combined the three classified layers and assigned a vegetation state to each of the possible combinations. The conclusions from **Figure F-1** are distilled in **Table F-2**. The GIS datasets do not separate perennial grass areas dominated by native versus nonnative plant material. As such, the vegetation states with perennial grasses include those dominated by both native and nonnative plant material.

**Table F-2
Description of the Vegetation States**

Vegetation State (Combine Classes)	Percent Cover by Vegetation Type			Description
	Shrub	Perennial Grass and Forb	Invasive Annual Grasses	
Other	0-5 (low)	0-5 (low)	0-5 (low)	Rock, playas and open water
Invasive Annual Grasses (IAG)	0-5 (low)	0-5 (low)	6+ (moderate to high)	Sites dominated by invasive annual grasses (may include poa spp.)

Vegetation State (Combine Classes)	Percent Cover by Vegetation Type			Description
	Shrub	Perennial Grass and Forb	Invasive Annual Grasses	
Invasive Annual Grasses and Shrubs (IAG/Shrub)	6-25 (low-moderate)	0-5 (low)	6+ (moderate to high)	Shrub overstory with invasive annual grass understory
Perennial Grasses and Forbs (PGF)	0-5 (low)	6+ (moderate to high)	0-5 (low)	Sites dominated by perennial grass and forbs (including nonnative seedings)
Perennial Grasses, Forbs, and Shrubs (PGF/Shrub)	6+ (intermediate to high)	6+ (moderate to high)	0-5 (low)	Intact vegetation and similar to reference state
Perennial Grasses, Forbs, and Invasive Annual Grasses (PGF/IAG)	0-5 (low)	6+ (moderate to high)	6+ (moderate to high)	Perennial grassland with invasive annual grasses filling interspaces
Shrubs, Perennial Grasses, Forbs, and Invasive Annual Grasses (Shrub/PGF/IAG)	6+ (intermediate to high)	6+ (moderate to high)	6+ (moderate to high)	Intact vegetation with invasive annual grasses filling interspaces
Shrub with Depleted Understory	15+ (moderate to high)	0-5 (low)	0-26+ (low to high)	Shrub-dominated vegetation

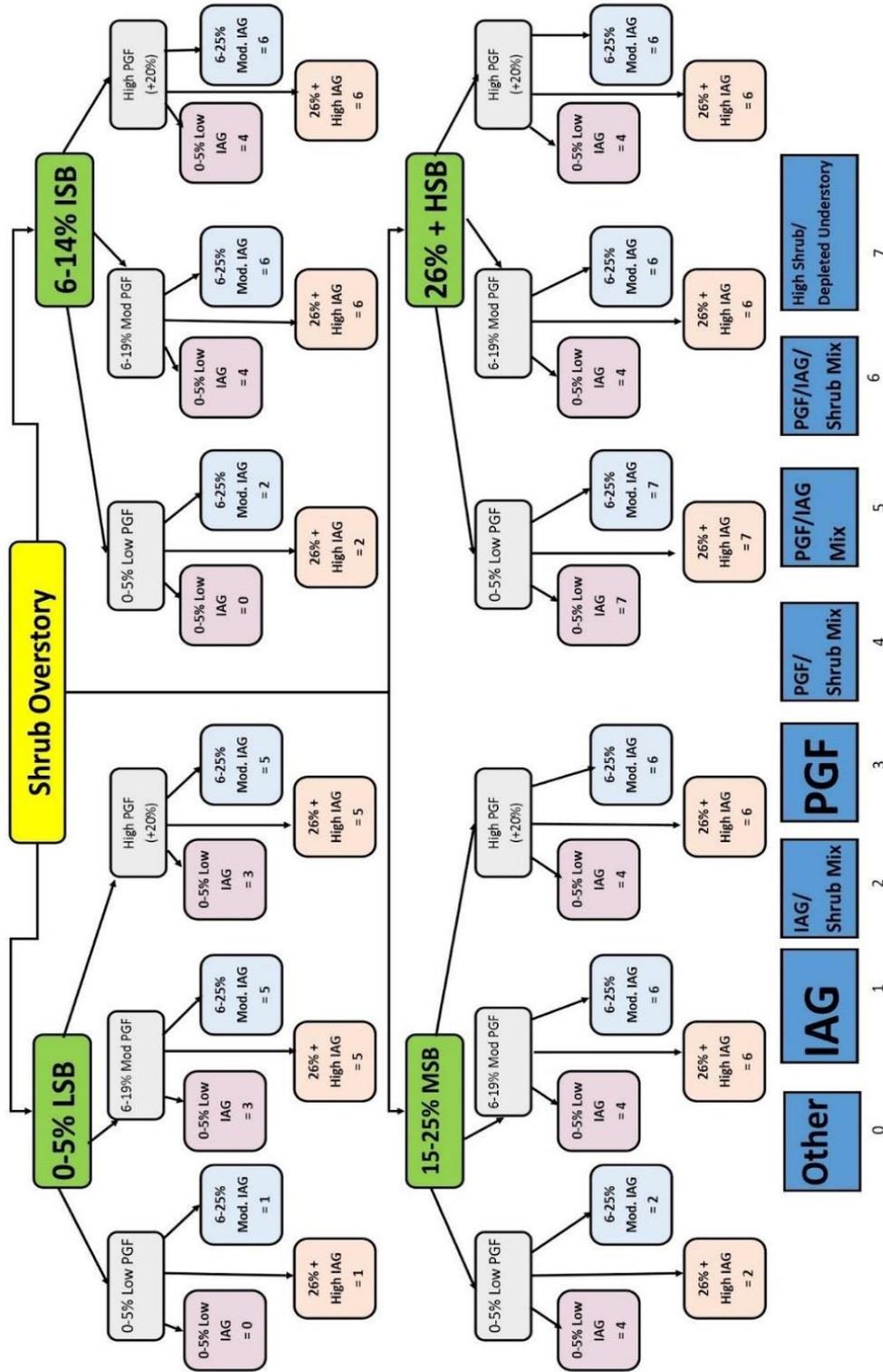


Figure F-1. This diagram shows the combinations of relative cover types resulting in each vegetation state. Abbreviations: LSB (low sagebrush), ISB (intermediate sagebrush), MSB (moderate sagebrush), HSB (high sagebrush), IAG (invasive annual grass), PGF (low perennial grass & forb).

F.2 METHODS FOR CONIFER PHASES

Priority areas for conifer treatment were first identified using a 6.2-mile buffer on sage-grouse leks and mule deer winter habitat. Tree-encroached sagebrush habitats were divided into classes based on tree density and fire history (Miller et al. 2014) (**Table F-3**). A tree canopy layer was obtained from the National Land Cover Database website to determine break points by phase.

Table F-3
Conifer Habitat Classes with Cover Breakpoints

Classes	Percent Foliar Cover¹
Phase I (unburned)	0-9
Phase I (recently burned) ²	0-9
Phase II	10-30
Phase III	31+

Source: Miller et al. 2014

¹ the percentage of ground covered by the vertical projection of the above ground portion of plants. It is distinguished from landscape cover, which is the proportion of a given area that is covered by the vegetation type.

² may reflect a Phase II or Phase III stand with limited understory.

The percent tree canopy layer does not differentiate tree species, therefore Landfire EVT was used to parse out where pinyon pine and juniper (PJ) communities are located. Additional phase I areas were added to this layer from a conifer encroachment dataset obtained from the Landscape Approach Data Portal website. This encroachment layer includes other plant communities besides PJ, mainly sagebrush communities that are adjacent to conifers. Finally, BLM fire history (using burn years 2008-2017) was overlaid with the phases to identify the recently burned phase I areas.

F.3 CONCEPTS OF RESISTANCE AND RESILIENCE

Improving BLM's ability to manage for resilience to disturbance and resistance to invasive species is fundamental to achieving long-term outcomes as described in this EIS. As described in Chambers et al. (2014), resilient ecosystems have the capacity to regain their fundamental structure, process, and function when altered by stressors like drought and disturbances like inappropriate livestock grazing and altered fire regimes. Species resilience, on the other hand, refers to the ability of a species to recover from stressors and disturbances. It is thus closely linked to ecosystem resilience. Resistant ecosystems have the capacity to retain their fundamental structure, process, and function when exposed to stresses, disturbances, or invasive species. Resistance to invasion by nonnative plants like cheatgrass is increasingly important in sagebrush ecosystems.

In general, species are likely to be more resilient if large populations exist in large blocks of high-quality habitat across the full breadth of environmental variability to which the species is adapted (Chambers 2014). Accordingly, to achieve the long-term outcomes of this PEIS, a strategic approach that integrates both landscape prioritization and site-scale decision tools is needed.

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Appendix G. Impact Topics with Less than Significant Impacts

Table G-1
Impact Topics with Less than Significant Impacts

Impact Topic	Not Present	Present, Not Affected	Present, May be Affected (+/-)	Rationale
Visual Resources			- +	<p>Visual Resource Management (VRM) classes are established through the RMP process for all BLM-administered lands. Visual management objectives are established for each class. Objectives for VRM classes are as follows:</p> <ul style="list-style-type: none"> • Class I Objective. The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention. • Class II Objective. The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape. • Class III Objective. The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape. • Class IV Objectives. The objective of this class is to provide for management activities which require major modifications of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements. <p style="text-align: right;">The objectives for the VRM classes provide the visual management standards for the design and development of future projects and for rehabilitation of existing projects.</p>

Impact Topic	Not Present	Present, Not Affected	Present, May be Affected (+/-)	Rationale
Visual Resources <i>(continued)</i>	<i>(see above)</i>	<i>(see above)</i>	<i>(see above)</i>	<p>Treatments would be excluded in VRM Class I and would be allowed in VRM Classes II through IV. BLM will not perform vegetation treatments in areas that do not meet class objectives. The visual resource contrast rating process (Manual Section 8431) provides a systematic means to evaluate proposed site-specific projects and determine whether these projects conform with the approved VRM class objectives. It also provides a means to identify mitigating measures that can be taken to minimize adverse visual impacts. The VRM system, therefore, provides a means to provide timely inputs into proposed surface disturbing projects to ensure that these objectives are met.</p> <p>At the site-specific level, the visual resource contrast rating process (Manual Section 8431) is used as a visual design tool in project design and as a project assessment tool during environmental review. Contrast ratings are required for proposed projects in highly sensitive areas or high impact projects but may also be used for other projects where it would appear to be the most effective design or assessment tool. The visual resource contrast rating process needs to be performed at the site-specific level, because it is necessary to know the specific landscape characteristics at the proposed treatment location and the VRM class(es) for that location, the specific type of proposed treatment, and the process for implementing the proposed treatment.</p> <p>Short-term impacts on visual resources could occur from fuels reduction and rangeland restoration projects applied in VRM Classes II, III, and IV. Visual design considerations shall be incorporated into all surface-disturbing projects regardless of size or potential impact. Emphasis shall be placed on providing these inputs during the initial planning and design phase so as to minimize costly redesign and mitigation at later phases of project design and development. Project monitoring efforts include timely and thorough compliance evaluations, especially during the construction phase, to ensure that visual management provisions are effectively carried out. Design features can be developed at the field office level if needed.</p>

Impact Topic	Not Present	Present, Not Affected	Present, May be Affected (+/-)	Rationale
Noise Resources		X	-	<p>The only impact that fuels reduction and rangeland restoration projects would have on noise resources will occur during construction, which, in some cases, will involve sound generated from mechanical treatment methods like chainsaws and mowers. Additionally, the intensity of noise generally dissipates as it travels away from the source, resulting in a decrease in loudness. Generally, a doubling of distance from the noise source results in an approximately 6-decibel reduction in sound pressure level. If a chainsaw has a typical sound intensity of 100 dBA, the sound will attenuate to moderate levels (around 60dBA) at 0.3 miles (American Academy of Audiology 2013). Accordingly, potential impacts on noise resources will be localized, temporary, and short-term.</p> <p>In addition, areas available to these projects generally have higher acceptable noise levels given the expected impacts from other ambient noises like traffic. Generally, the difference in noise levels between automobile traffic and lawn and power tools is small (according to the American Academy of Audiology, the difference is around 20 dBA (2013)).</p> <p>Accordingly, the potential maximum noise level generated during fuels reduction and rangeland restoration treatments will only occur in areas with expected higher noise levels such that impacts, if any, will not have a significant effect on noise resources.</p> <p>Thus, impacts on noise resources, if any, are likely to be localized, short-term, and temporary such that they will not be significant.</p>
Wilderness		X		No effects on Wilderness are expected because no fuels reduction or rangeland restoration projects are proposed in Wilderness in this PEIS.
Wilderness Study Areas		X		No effects on wilderness study areas are expected because no fuels reduction or rangeland restoration projects are proposed in Wilderness Study Areas (WSAs) in this PEIS.
National, Scenic, and Historic Trails		X		No effects on National, Scenic, and Historic Trails are expected, since no fuels reduction or rangeland restoration projects are proposed in these corridors in this PEIS.
Lands with Wilderness Characteristics Managed to Protect those Characteristics		X		No effects on lands with wilderness characteristics managed to maintain or enhance those characteristics are expected, since no fuels reduction or rangeland restoration projects are proposed in these areas in this PEIS.

Impact Topic	Not Present	Present, Not Affected	Present, May be Affected (+/-)	Rationale
Wild and Scenic Rivers		X		No effects on Wild and Scenic Rivers are expected, since no fuels reduction or rangeland restoration projects are proposed within 0.25 mile from Wild and Scenic Rivers in this PEIS.
Areas of critical environmental concern		X		<p>Areas of critical environmental concern are areas where it has been determined that special management attention is required to protect relevant and important values. Relevant and important values are described on BLM Manual 1613, Areas of Critical Environmental Concern (Section 1). Management of ACECs is provided in the applicable RMP or ACEC activity plan. While no specific management direction is provided in BLM policy, it is assumed that all management for ACECs would maintain or enhance relevant and important values.</p> <p>It is assumed that the BLM would only conduct actions that maintain the relevant and important values for which the ACEC is designated. Treatments may cause short-term impacts on relevant and important values, but design features identified in Appendix D would reduce these impacts to less than significant. Effects to resources that may be relevant and important values for an ACEC are described in Chapter 4. However, effects to a particular ACEC would be analyzed at the site-specific level and additional design features could be developed as necessary. Over the long term, fuel breaks and fuels reduction and rangeland restoration projects would enhance ACECs.</p>
Other Special Designations Areas		X		The Fuels Reduction and Rangeland Restoration PEIS does not propose treatments in NCAs or National Monuments. It is assumed that most of these areas have management direction regarding treatments and ground disturbance and therefore this PEIS does not propose treatments in those areas.

Impact Topic	Not Present	Present, Not Affected	Present, May be Affected (+/-)	Rationale
Lands and Realty		X		<p>The FLPMA of 1976 directs the BLM to manage public lands to protect their resource values, and to develop resource management plans consistent with those of state and local governments. Management actions on BLM-administered lands are guided by land use plans, which establish goals and objectives for resource management. The BLM's Lands and Realty Program manages a wide range of public land transactions, such as purchases and acquisitions; sales and exchanges; withdrawals; leases and permits; and right-of-way authorizations. Land authorizations in the decision area include those for roads, electrical transmission lines, water facilities, communication sites, and oil and gas distribution lines.</p> <p>This PEIS is a regional-level programmatic analysis. It contains broad regional descriptions of resources, provides a broad environmental impact analysis, and provides Bureau-wide decisions on fuels reductions and rangeland restoration. Impacts on land uses have not been identified at the programmatic level on purchases and acquisitions; sales and exchanges; withdrawals; leases and permits; and right-of-way authorizations.</p>
Water Resources		X		<p>No significant effects on water quality or water quantity are expected, since this PEIS does not propose treatments within riparian conservation areas, and buffers would protect water resources from sedimentation. Treatments in other areas may cause short-term impacts on water quality, but buffers and best management practices would reduce these impacts to less than significant. Over the long term, fuels reduction and rangeland restoration projects would improve water quality by reducing the impacts from large-scale fire events.</p>
Livestock grazing		X		<p>No significant effects on livestock grazing are expected, since this PEIS does not propose any changes to permitted grazing. Fuels reduction or restoration treatments may require short-term exclusions of livestock grazing from certain areas, but best management practices would reduce these impacts to less than significant. Over the long term, fuels reduction and rangeland restoration would reduce impacts to livestock forage from large-scale fire events. See below for more information regarding livestock grazing in the project area.</p>
Wild horses and burros		X		<p>No significant effects on wild horses and burros are expected, since this PEIS does not propose any changes to Herd Management Areas or to the management of wild horses and burros. Fuels reduction or restoration treatments may require short-term exclusions of wild horses from certain areas, but best management practices would reduce these impacts to less than significant. Over the long term, fuels reduction and rangeland restoration projects would reduce impacts to wild horse and burro forage from large-scale fire events. See below for more information regarding wild horses and burros in the project area.</p>

Impact Topic	Not Present	Present, Not Affected	Present, May be Affected (+/-)	Rationale
Comprehensive Travel and Transportation Management		X		No effects on comprehensive travel and transportation management are expected, since this PEIS would be in conformance with Field Office guidance and travel planning. This PEIS does not propose changes to travel management.

¹ Indicates whether effects would be beneficial or adverse. If both “-” and “+” are shown, there may be some beneficial and some adverse effects.

G.1 LIVESTOCK GRAZING

Management of livestock grazing is authorized and enforced through both permits and leases and is commonly carried out through the development and implementation of allotment management plans or terms and conditions of the grazing permit or lease. Allotment management plans further outline how livestock grazing is managed to meet multiple use, sustained yield, and other needs and objectives, as determined through land use plans.

Grazing permits and leases outline the kind and number of livestock allowed, the period of use (seasonal), the allotment to be used, and the amount of use in animal unit months (AUMs). An AUM is the amount of forage necessary for the sustenance of one cow or its equivalent for 1 month, and an allotment is an area of land designated and managed for grazing of livestock (43 CFR 4100.0-5).

Table G-2, below, identifies the total number of AUMs assigned for each state in the project area.

Table G-2
AUMs by State in the Project Area

State	AUMs
Idaho	1,050,237
Nevada	1,245,897
Northeast California	134,218
Oregon and Washington	852,948
Utah	703,289

Sources: BLM 2017; BLM GIS 2018

Grazing success depends on the quality and amount of forage available during the grazing season. Wildland fire removes potential forage in the short term and can change forage composition in the long term, leading to inefficient grazing. In particular, wildland fire alters sagebrush habitat. Sagebrush can take years or decades to regenerate, and invasive annual grasses, such as cheatgrass, are adapted to frequent wildfire. In the absence of a robust perennial grass component, invasive annual grasses are likely to dominate these systems following wildfire (NTT 2011).

G.2 WILD HORSES AND BURROS

The BLM protects, administers, and controls wild horses in accordance with the Wild Free-Roaming Horses and Burros Act of 1971 (Public Law 92-195, as amended). The act's purpose is to "manage wild horses and burros within herd management areas (HMAs) designated for their long-term maintenance, in a manner designed to achieve and maintain a thriving natural ecological balance and multiple use relationships."

The FLPMA directs the BLM to administer wild horses and burros as one of numerous multiple uses. Under the Wild Free-Roaming Horses and Burros Act, the BLM identified herd areas as places used as habitat by a herd of wild horses at the time the act was passed. To carry out its duties under the act, the BLM evaluated each herd area to determine if it had adequate food, water, cover, and space to sustain healthy and diverse wild horse and burro populations over the long term. It then designated the areas that met those criteria as HMAs, where horses or burros can be viably managed as a component of the BLM-administered lands.

The BLM designated an appropriate management level (AML) for each HMA. An AML is defined as the number of adult horses or burros (expressed as a range, with an upper and lower limit) to be managed within an HMA (BLM 2010). It is based on available forage and other resources necessary to sustain the horse or burro populations, as well as resource objectives and other designated uses of the BLM-administered lands.

Wild horse herds grow at an average rate of 20 percent annually. The BLM carefully controls horse and burro populations so that their numbers do not exceed the carrying capacity of the land. This is done primarily by gathering animals periodically so that numbers are near the AML. Fertility control is being used in some HMAs as a means to reduce the population growth rate. When horse and burro populations begin to exceed the AML, excess animals are gathered and offered to the public through periodic adoption.

Table G-3, below, identifies the total number of allotments, acres, and AUMs assigned for each state in the project area.

Table G-3
Herd Management Areas

State	Total Number of HMAs	Acres	Estimated Population ¹	High AMLs
Idaho	6	383,895	580 (h)	617
Nevada	83	14,032,947	40,394 (h), 3,623 (b)	11,987 (h) 824(b)
Northeast California	13	1,206,400	5,336 (h) 487 (b)	1,513 (h) 116(b)
Oregon and Washington	18	2,733,5777	4,682 (h) 49 (b)	2,666 (h) 24 (b)
Utah	19	2,154,458	4,848 (h) 344 (b)	1,786 (h) 170 (b)

Sources: BLM 2018; BLM GIS 2018

¹ (h) = wild horse; (b) = burro

G.3 REFERENCES

BLM. 2010. BLM Handbook H-4700-1 Wild Horse and Burros Management Handbook. Washington, DC. June 2010.

_____. 2017. Public Land Statistics Report. March 1, 2018. Internet website: <https://www.blm.gov/sites/blm.gov/files/PublicLandStatistics2017.pdf>.

BLM GIS. 2018. GIS data created to support the Fuel Breaks and Fuels Reduction and Rangeland Restoration PEISs, created April 2018. BLM Idaho State Office.

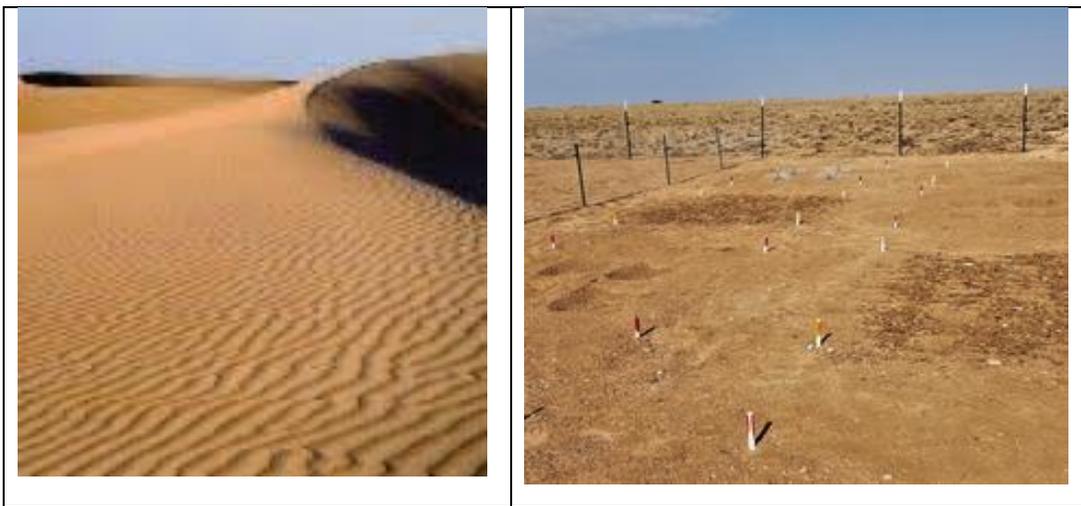
National Technical Team (NTT). 2011. National Greater Sage-Grouse Conservation Measures/Planning Strategy. December 21, 2011. Internet website: https://eplanning.blm.gov/epl-front-office/projects/lup/9153/39961/41912/WySG_Tech-Team-Report-Conservation-Measure_2011.pdf.

Appendix H. Fuel Models, Fire Regimes, and Vegetation Departure in the Project Area

H.1 PROJECT AREA FUEL MODELS

The general fuel models in the project area are the following (Scott and Burgan 2005 and Stebleton and Bunting 2009):

- Bare Ground (NB9)—Land devoid of enough fuel to support wildland fire spread. These areas may include gravel pits, arid deserts with little vegetation, sand dunes, or rock outcroppings.



- Grass I (GR1)—Short, Sparse, Dry Climate Grass. The primary carrier of fire is sparse grass with small amounts of fine dead fuel. Grass is generally short, either naturally or from being grazed, and may be sparse or discontinuous.



- Grass 2 (GR2)—Low Load, Dry Climate Grass. The primary carrier of fire is grass, though small amounts of fine dead fuel may be present. Fuel loading is greater than GR1, and the fuel bed may be more continuous. Shrubs, if present, do not affect fire behavior.



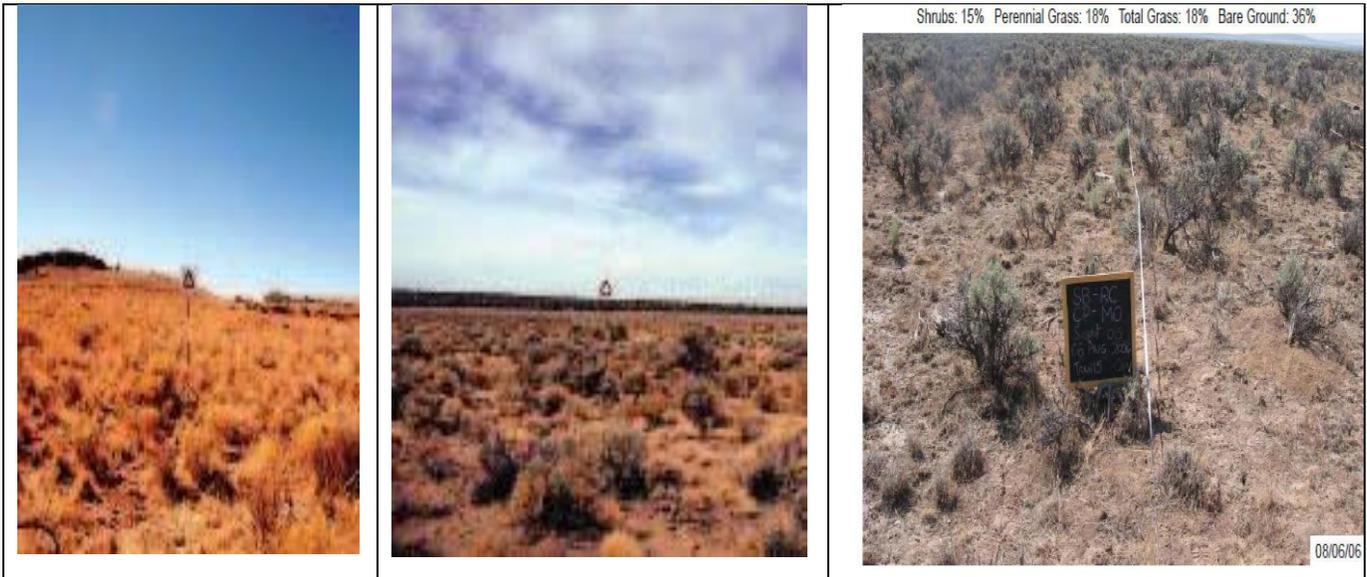
- Grass 4 (GR4)—Moderate Load, Dry Climate Grass. The primary carrier of the fire is continuous, dry climate grass. Load and depth are greater than GR2; the fuel bed is about 2 feet deep.



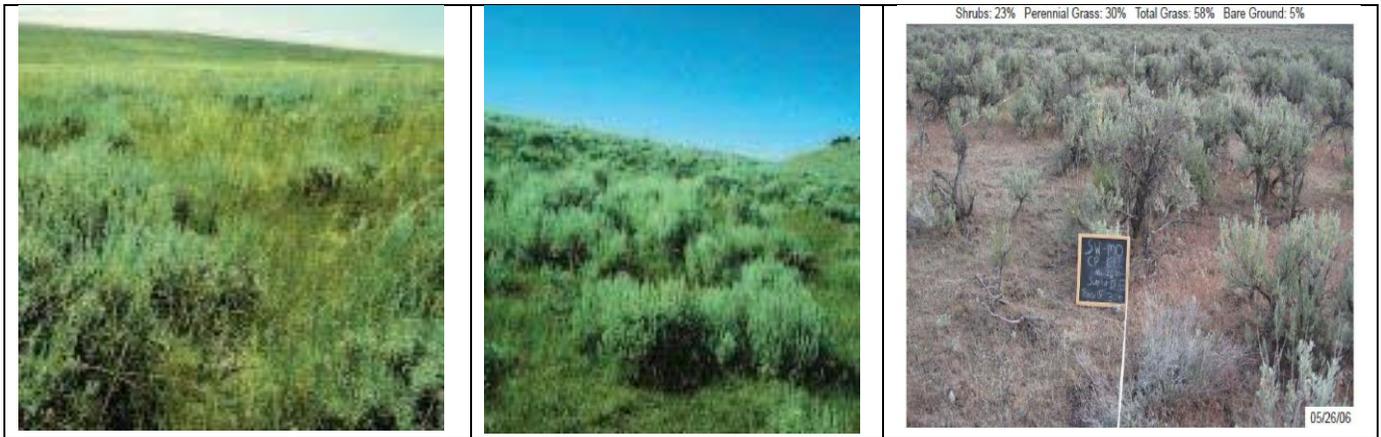
- Grass 7 (GR7)—High Load, Dry Climate Grass. The primary carrier of fire is continuous dry climate grass. Load and depth are greater than GR4. Grass is about 3 feet tall.



- Grass-Shrub I (GSI)—Low Load, Dry Climate Grass-Shrub. The primary carrier of fire is grass and shrubs combined. Shrub cover is up to 50 percent. Shrubs are about 1 foot high and grass load is low.



- Grass-Shrub 2 (GS2)—Moderate Load, Dry Climate Grass-Shrub. The primary carrier of fire is grass and shrubs combined. Shrub cover is up to 50 percent. Shrubs are 1 to 3 feet high and grass load is moderate.



- Shrub 1 (SH1)—Low Load, Dry Climate Shrub. The primary carrier of fire is woody shrubs and shrub litter. Shrub cover is greater than 50 percent. Low shrub fuel load and fuel bed is about 1 foot deep; some grasses may be present.



• Shrub 2 (SH2)—Moderate Load, Dry Climate Shrub. The primary carrier of fire is woody shrubs and shrub litter. Moderate fuel load (higher than SH1), fuel bed is about 1 foot deep, and no grass fuel is present.



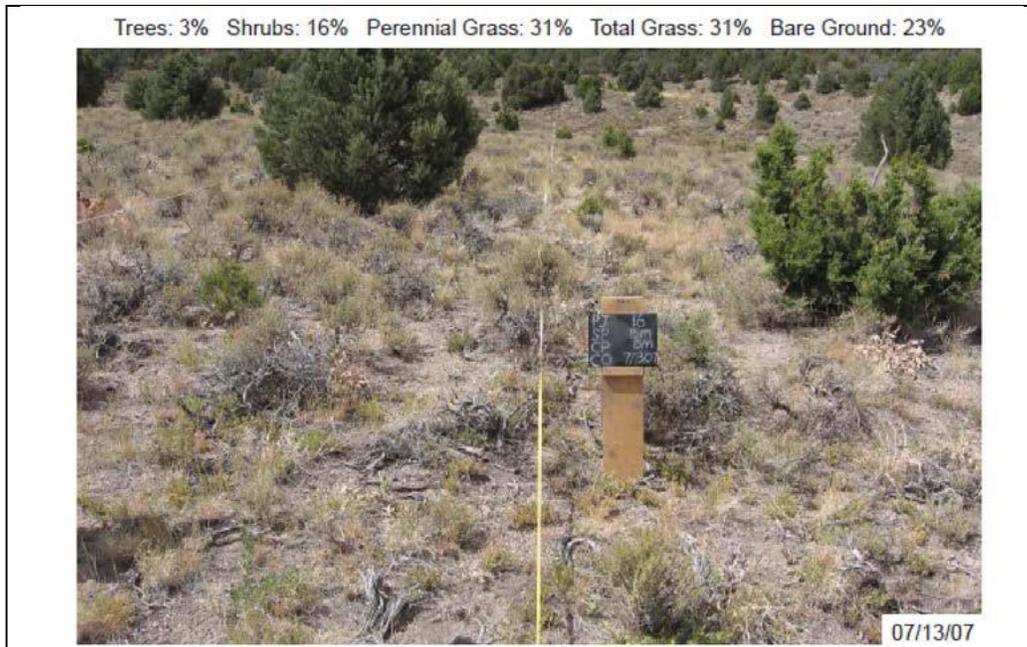
• Shrub 5 (SH5)—High Load, Dry Climate Shrub. The primary carrier of fire is woody shrubs and shrub litter. Shrubs are between 4 and 6 feet high and cover is over 50 percent, grass is sparse to nonexistent.



- Shrub 7 (SH7)—Very High Load, Dry Climate Shrub. The primary carrier of fire is woody shrubs and shrub litter. Shrubs are between 4 and 6 feet high and cover is over 50 percent, grass is sparse to nonexistent. Conditions are similar to SH5, but SH7 has a higher fuel loading.



- Timber-Understory I (TUI)—Low Load, Dry Climate, Timber-Grass Shrub. The primary carrier of fire is low load grass or shrub with litter or both.



Timber-Understory I (TUI); Phase I Pinyon-Juniper Woodland



Timber-Understory I (TUI): Phase II Pinyon-Juniper Woodland



Timber-Understory I (TUI): Phase III Pinyon-Juniper Woodland

H.2 FIRE BEHAVIOR

Fire Behavior can be described adjectively (**Table H-1**) as very low, low, moderate, high, very high, and extreme, in correlation of flame lengths and rates of spread. Surface fire flame lengths influence fire suppression activities, as described in **Table H-2**.

**Table H-1
Adjective Class Definitions for Predicted Fire Behavior**

Adjective Class	Rate of Spread (Chains¹per Hour)	Flame Length (Feet)
Very Low	0-2	0-1
Low	2-5	1-4
Moderate	5-20	4-8
High	20-50	8-12
Very High	50-150	12-25
Extreme	>150	>25

¹The length of one chain is equivalent to 66 feet
Source: Scott and Burgan 2005

**Table H-2
Fire Suppression Interpretations of Flame Length**

Flame Length (Feet)	Interpretation
<4	<ul style="list-style-type: none"> • Fires can generally be attacked at the head or flanks by persons using hand tools. • Hand line should hold the fire.
4-8	<ul style="list-style-type: none"> • Fires are too intense for direct attack on the head by persons using hand tools. • Hand line cannot be relied on to hold the fire. • Equipment such as dozers, pumpers, engines, and retardant aircraft can be effective.
8-11	<ul style="list-style-type: none"> • Fires may present serious control problems-torching out, crowning, and spotting. • Control efforts at the fire head will probably be ineffective.
>11	<ul style="list-style-type: none"> • Crowning, spotting, and major fire runs are probable. • Control efforts at head of fire are ineffective.

Source: Andrews and Rothermel 1982; Andrews, Heinsch, and Schelvan 2011

H.3 FIRE REGIME GROUP DESCRIPTIONS

H.3.1 Big Sagebrush Fire Regime III

Inter-Mountain Sagebrush Steppe and Shrublands

Inter-Mountain Basins Big Sagebrush Steppe can be found within the Columbia Plateau, northern Great Basin and in north central Washington, Pasco Basin and similarly low-lying areas of the Columbia Plateau in Washington, and likely occurs in northern Oregon along the Columbia and Snake rivers. It is also found in the mountainous areas of Utah.

Wyoming big sagebrush is the dominant type with basin big sagebrush intermixed, while mountain sagebrush is the dominant vegetation in higher elevation. Sagebrush cover varies between 3- 25% in the mature stage, but averages around 12%. Other shrubs associated with sagebrush are green and gray rabbitbrush, antelope bitterbrush and horsebrush. Low sagebrush may be present as an inclusion. Perennial bunchgrasses and forbs predominate. The cover of herbaceous plants will vary between 10-45%, with most sites 20-30%, except in mountainous areas of Utah where herbaceous cover is moderate to abundant ranging from 40-85%. Typical grass species include bluebunch wheatgrass, Thurber's needlegrass, Sandberg's bluegrass, slender wheatgrass, needle and thread, basin wildrye, squirreltail, and western wheatgrass. In north central Washington, Pasco Basin and the low lying areas of the Columbia Plateau and northern Oregon along the Columbia and Snake Rivers the large bunch grasses are generally absent. The forb component can be quite rich with over 200 different species identified over the range of this type and native annual forbs may dominate the community following disturbance, but at lower elevations (below 5,000 ft.) forbs are typically sparse. Forbs include phlox, hawksbeard, bird's beak, blue bell, lupine, and buckwheat. A non-vascular plant layer, comprised principally of moss, occurs under the shrub canopy. Moss cover ranges from 3% to 15%, averaging around 7%. Otherwise, the interspaces are largely bare soil and rock.

Fire played a role in the disturbance history of these sites although the dry nature and inherently low productivity of these plant communities limits the fire occurrence. Fires may have occurred as frequently as every 10 years to as infrequently as every 150 years. Fire occurrence is linked to rainfall over a series of years. The size of fires would also be related to existing fuel loading and burning conditions. The smaller sized fires served to "poke holes" in the general canopy of denser stands, preserving an overall average canopy closure that is considered open. Mixed severity fire was probably present where fuels were discontinuous. Fuels may be continuous resulting in spread throughout patches; larger fires were usually driven by very strong winds. Disturbance size therefore probably resembles the patch size of the vegetation and was further limited by the variation of topographical features and vegetation types. The major proportion of the fires would be less than 100 acres; however, fires that were wind-driven could have been greater than 10,000 acres. The historical average fire return interval was 30-60 years.

Invasive annual grasses have taken over patches of varying size. Cheatgrass has fueled larger and more frequent fires than occurred historically and is resulting in a type conversion. The lack of fire and grazing probably contributed to a greater proportion of the late-seral closed canopy class in shrubs than would have occurred in the past and increased the proportion of rabbit brush, along with a reduction of perennial grasses and native bunchgrasses. Shrub canopy closure of over 40% indicates an uncharacteristic condition. Juniper encroachment is starting to become widespread. Crested wheatgrass seedlings, some quite large, are interspersed throughout.

Much of this type has been lost due to land clearing for agriculture or due to frequent fire and domestic grazing converted to a cheatgrass.

The table below shows the distribution of the succession phases of the ecological system described above. Ranges are wide in some phases due to the vast area that this ecological system is found. More site-specific information can be found at the local level.

**Table H-3
Historic Succession Distribution of Succession Phases in Inter-Mountain Sagebrush Steppe and Shrublands**

Succession Phase	A: Grass	B: Open Shrub	C: Closed Shrub	D: Open Tree	E: Closed Tree
Historic Succession Distribution	15-20%	30-35%	25-40% 50% (Columbia Plateau, Northern Great Basin 3,000-7,000 ft.)	10-30% 0% (Columbia Plateau, Northern Great Basin 3,000-7,000 ft.)	0%

Montane Sagebrush Steppe

Montane sagebrush steppe occurs throughout foothills and at higher, cooler elevations of the Boise, Salmon River, Seven Devils mountains, and central Idaho.

Mountain big sagebrush, mountain snowberry, and bitterbrush dominate with a grass and forb understory. Other common shrubs include serviceberry, wild cherry, rose and currant; low sagebrush and basin big sagebrush may be present, forming mosaics with mountain big sagebrush. Herbaceous cover is moderate to abundant ranging from 40-85%. Common grasses include the following: Idaho fescue, bluebunch wheatgrass, squirreltail, slender wheatgrass, needle-and-thread, rough fescue, Junegrass and Sandberg’s bluegrass. Forbs include buckwheat, pussytoes, arrowleaf balsamroot, lupines, delphinium, paintbrushes, geraniums, and milk vetch.

There is a limited amount of information available on fire regimes and reference conditions in sagebrush due to modern overgrazing and the herbaceous component is severely impacted. Fires likely burned in patchy mosaics and the majority of fires were likely stand-replacing. Some mixed severity fire may have occurred but were likely small in area. The mosaic burn pattern created several age classes across the larger landscape that shifted from place to place. There were probably also portions of this system that never carried fire because of sparse fuel. Historic fires likely occurred during the summer months and were wind-driven events. Information on fire return intervals is limited but based on research may lie somewhere between 40-60 years.

Mountain big sagebrush does not re-sprout following fire and recolonization of burned areas must come from either a short-lived seed bank or seed dispersed by plants in unburned patches or adjacent stands.

Juniper encroachment may occur on this vegetation type and greater than 10% canopy cover by conifers can be considered uncharacteristic. Potential causes of encroachment include lack of fire and livestock grazing.

The table below shows the distribution of the succession phases of the ecological system described above. More site-specific information can be found at the local level.

Table H-4
Historic Succession Distribution of Succession Phases in Montane Sagebrush Steppe

Succession Phase	A: Grass	B: Open Shrub	C: Closed Shrub	D: Open Tree	E: Closed Tree
Historic Succession Distribution	20%	15%	65%	0%	0%

H.3.2 Big Sagebrush Fire Regime IV

Inter-Mountain Basins Big Sagebrush Steppe

This ecological system is found in the Columbia Plateau and northern Great Basin. The sagebrush steppe landscape is a mosaic of shrub-dominated and herbaceous-dominated phases. Perennial grasses and forbs (over 25% cover) with basin big sagebrush, Wyoming big sagebrush, and/or antelope bitterbrush dominating or co-dominating the open to moderately dense (20-80% cover) shrub layer. In southern Idaho and northern Utah, Wyoming big sagebrush largely dominates the landscape as can mountain big sagebrush. Basin big sagebrush is not part of this system in Nevada. Also, bitterbrush is not found in much of north central Nevada. Shadscale, rabbit brush, or horsebrush may be common, especially in disturbed stands. The herbaceous layer is usually well represented, but bare ground may be common in particularly arid or disturbed occurrences. Grasses include Indian rice grass, thick spike wheatgrass, Idaho fescue, mountain rough fescue, Thurber's fescue, sheeps fescue, squirreltail, tufted hairgrass, oat grass, needlegrass, western wheatgrass, mountain brome, slender wheatgrass, junegrass, Sandberg's bluegrass and bluebunch wheatgrass. Common forbs are spiny phlox, sandwort, paintbrush, potentilla, fleabane, phlox, lupines, wild buckwheats, arrowleaf balsamroot, yarrow, sulphur flower buckwheat, and strawberry.

Although Wyoming big sagebrush communities have low forb diversity, they are important habitat for greater

and other sagebrush obligate species.

Fire ignition and spread in big sagebrush is largely a function of herbaceous cover. Historically, fire was the principal disturbance within this vegetation type, with an average fire return interval of 50-75 years. Fire size likely ranged from small (less than 10 acres) to large (over 10,000 acres) depending on conditions, time since last ignition, and fuel loading. Based on research the average patch size is 250 acres.

Invasion of cheatgrass has transformed this ecological system into large areas of uncharacteristic annual grasslands and shrublands with understories where annual grasses replaced perennial grasses.

The table below shows the distribution of the succession phases of the ecological system described above. Ranges are wide in some phases due to the vast area that this ecological system is found. More site-specific information can be found at the local level.

**Table H-5
Historic Succession Distribution of Succession Phases in Inter-Mountain Basins Big Sagebrush Steppe**

Succession Phase	A: Grass	B: Open Shrub	C: Closed Shrub	D: Open Tree	E: Closed Tree
Historic Succession Distribution	20%	50%	15-30%	0	0

Inter-Mountain Basins Big Sagebrush Shrubland

This ecological system is found in eastern California, central Nevada, and Utah and in east central Idaho and is distinct from sagebrush steppe (Inter-Mountain Basins Big Sagebrush Steppe) found on the Columbia Plateau.

Basin big and/or Wyoming big sagebrush sites have fewer understory species relative to other big sagebrush types and canopy cover generally ranges from 5-25%. Where Wyoming big sagebrush is the dominant mid to late-seral species, it can have greater than 60% canopy cover, but on drier sites, canopy cover may not exceed 50%. Rubber rabbitbrush is codominant. Perennial forb cover is usually less than 10% with perennial grass cover reaching 20 - 25% on the more productive sites. Bluebunch wheatgrass or Sandberg’s bluegrass may be a dominant species. Bottlebrush squirreltail, Indian ricegrass, James galleta or sandy needle and thread grasses are common as are wheat grasses. Common forbs are hawksbeard, delphinium, phlox, and paintbrush. Percent cover and species richness of understory are determined by site limitations.

Pinyon and juniper may be present, occasionally reaching 50-90% canopy cover in areas that have escaped fire.

In central Nevada, basin big sagebrush is dominant with rabbitbrush codominant and shadscale subdominant. Shrub cover in these regions is reduced, with the herbaceous understory consisting of Indian rice grass, bottlebrush squirreltail, and Great Basin wildrye. Throughout much of east central Idaho, basin big sagebrush subspecies form a mosaic of patches. Understory grasses include bluebunch wheatgrass, Thurber needlegrass, needle and thread, basin wildrye, squirreltail, and western wheatgrass. Forbs include hawksbeard, bird’s beak, blue bell, Rocky mountain aster, phlox species, lupine, and buckwheat. Basin big sagebrush grows in association with Wyoming big sagebrush, mountain big sagebrush and desert shrub communities.

Wyoming big sagebrush semi desert is important habitat for the greater sage-grouse and many sagebrush obligates.

This ecological system is characterized by replacement fires where shrub canopy exceeds 25% cover or where grass cover is over 15% and shrub cover is over 20%. Mixed severity fires with an average fire return interval of 500 years occurs where shrub cover ranges from 10-20%. Surface fires occur where shrub cover is less than 10% and is generally uncommon with an average fire return interval of 200 years. Where pinyon or juniper has encroached after 100 years without fire, the fire return interval increases from 100 to 125 years. With an average fire return interval of 60-100 years.

Historic fire size ranged from 10-10,000 acres with the average fire size of 500 acres.

Post-settlement conversion to cheatgrass is common and results in a more frequent fire return interval and vegetation dynamics. Fire suppression can lead to pinyon-juniper encroachment with subsequent loss of shrub and herbaceous understory. Cheatgrass now dominates the herbaceous layers of many big sagebrush communities. Juniper invasion into big sagebrush systems is occurring in some locations.

Much of this type has been lost due to land clearing for agriculture or converted to a cheatgrass monoculture.

The table below shows the distribution of the succession phases of the ecological system described above. Ranges are wide in some phases due to the vast area that this ecological system is found. More site-specific information can be found at the local level.

**Table H-6
Historic Succession Distribution of Succession Phases in Inter-Mountain Basins Big Sagebrush Shrubland**

Succession Phase	A: Grass	B: Open Shrub	C: Closed Shrub	D: Open Tree	E: Closed Tree
Historic Succession Distribution	15-25%	45-50% 20-30% (In east central Idaho)	25% 50% (In east central Idaho)	0-10%	0-5%

Inter-Mountain Basins Montane Sagebrush Steppe

This ecological system is found within the western US in eastern Oregon and Washington and the mountains of Nevada, western Utah, and southern Idaho.

Vegetation types within this ecological system are usually less than 1.5 m tall and dominated by big sagebrush species. At lower elevations, mountain big sagebrush typically intermixes with Wyoming big sagebrush or threetip sagebrush. At lower elevations mountain big sagebrush occurs where pinyon, juniper, and ponderosa pine are present. At mid-level elevations, mountain sagebrush intermingles with black sagebrush and low sagebrush. Mountain big sagebrush occupies drier sites at higher elevations. A variety of other shrubs such as antelope bitterbrush, rabbitbrush, serviceberry and mountain snowberry can be found, but are seldom dominant. Shrub canopy cover is usually between 20-80%.

The herbaceous layer is usually well represented, but bare ground may be common in particularly arid or disturbed occurrences. Grass that can be abundant include Idaho fescue, Thurbers fescue, sheeps fescue, squirreltail, tufted hairgrass, intermediate oatgrass, oatgrass, red-joint wheatgrass, mountain brome, slender wheatgrass, Junegrass, bluebunch wheatgrass, nodding brome, needle grass, mutton grass, or Sandberg’s bluegrass. Forbs are often numerous and an important indicator of health. Forb species may include paintbrush, prairie smoke, potentilla, fleabane, phlox, milk vetch, lupines, and buckwheat, arrowleaf balsamroot, yarrow, sticky geranium, bloodwort, pussytoes, wild strawberry, mugwort, and owls’ claws.

Fire ignition and spread in big sagebrush is largely a function of herbaceous cover and created a mosaic burn pattern. Mountain big sagebrush communities were historically subject to stand replacing fires with a mean fire return interval ranging from 10 years with the presence of ponderosa pine, 40 or more years with the presence of Wyoming big sagebrush and up to 80 years in areas with a higher proportion of low sagebrush. The mosaic burn pattern created several age classes across the larger landscape that shifted

from place to place. Fire return interval for stand replacement fire was 40-100 years. Historical fire size was between 10-10,000 acres with an average of 100-300 acres.

Recovery rates for shrub canopy cover vary widely in this type, depending on post fire weather conditions, sagebrush seed-bank survival, abundance of resprouting shrubs (e.g., snowberry, bitterbrush), and size and severity of the burn. Threetip sagebrush can resprout following fire, yet mountain big sagebrush does not resprout following fire and recolonization of burned areas must come from either a short-lived seed bank or seed dispersed by plants in unburned patches or adjacent stands.

This ecological system is important summer habitat for greater sage-grouse. Moreover, resprouting bitterbrush in mountain big sagebrush types is potentially important to wildlife in early stand development.

At lower elevational limits there is a high potential for cheatgrass invasion/occupancy where the native herbaceous layer is depleted. Also, when this ecological system occurs adjacent to pinyon or juniper woodlands, it is readily invaded by conifers due to fire exclusion. Encroachment in some locations is so extensive that areas may be confused as juniper woodlands.

Loss of the understory on steeper slopes also results in significant erosion and decreases in site potential. Greater than 10% juniper tree cover and herbaceous canopy cover less than 40% would indicate an uncharacteristic condition. Dominance by cheatgrass and knapweeds and other perennial invasive plants is occurring at a rapid pace. Restoration problems in these areas are approaching insurmountable.

The table below shows the distribution of the succession phases of the ecological system described above. Ranges are wide in some phases due to the vast area that this ecological system is found. More site-specific information can be found at the local level.

Table H-7
Historic Succession Distribution of Succession Phases in Inter-Mountain Basins Montane Sagebrush Steppe

Succession Phase	A: Grass	B: Open Shrub	C: Closed Shrub	D: Open Tree	E: Closed Tree
Historic Succession Distribution	20%	15-50%	15-35%	10-20%	5-10%

H.3.3 Low Sagebrush Fire Regime III

Columbia Plateau and Colorado Plateau Sagebrush Steppe

This ecological system occurs in central, southeast and eastern Oregon, central and western Nevada, and southern Idaho, as well as the Colorado Plateau, Tavaputs Plateau and Uinta Basin.

The potential native plant community is dominated by low sagebrush and low gray sagebrush and in some cases, early sagebrush replaces low sagebrush. Black sagebrush or bigelow sagebrush dominate areas located in the Colorado Plateau, Tavaputs Plateau and Uinta Basin. Although these types do not usually grow in combination, they do share similar fire regimes. There is potential for pinyon or juniper establishment. Generally, these areas have relatively low fuel loads with low growing and cushion forbs and scattered bunch grasses such as Idaho fescue and bluebunch wheatgrass, Thurber's needlegrass, bottlebrush squirreltail, Sandberg's bluegrass, Indian ricegrass, and prairie junegrass. On the Colorado

Plateau, Tavaputs Plateau and Uinta Basin, scattered semi-arid grasses such as Indian ricegrass, purple three-awn, blue grama, needle and thread grass, James galleta, or muttongrass can be found. A variety of forbs are usually present including phlox, biscuitroot or Indian parsley, hawksbeard, buckwheat, fleabanes, paintbrushes, goldenweed, bighead clover, globemallows, and lupine.

Fires do not carry well but may be possible after a couple of wet years and combined with high wind conditions. Mixed severity fires are common with an average fire return interval of 75-140 years. Stand replacing fires with an average fire return interval of 200-250 years can occur in this type when successive years of above average precipitation increases the herbaceous layer and are followed by a dry winter and dry spring and high winds are present. The average fire return interval is 80-110 years.

Bare ground acts as a micro-barrier to fire spread between low stature shrubs and fires may or may not be wind driven and only cover small areas. Disturbance patch size for this type is not well known but is estimated to be 10 -100 acres due to the limited potential for fire spread. Where these sites exist in a more herbaceous state, fire expands readily where there is continuity of fine fuels to carry it to the extent that there is wind in a low intensity burn. Fire sizes over 100 acres are possible in situations like this.

Low sagebrush regenerates slowly after fire. Cheatgrass and medusahead grasses are less likely to invade undisturbed sites in good condition as well as after disturbance. Some stands have seen reductions in large perennial bunchgrasses and forbs as a result of past grazing history.

The table below shows the distribution of the succession phases of the ecological system described above. Ranges are wide in some phases due to the vast area that this ecological system is found. More site-specific information can be found at the local level.

**Table H-8
Historic Succession Distribution of Succession Phases in Columbia Plateau and Colorado Plateau Sagebrush Steppe**

Succession Phase	A: Grass	B: Open Shrub	C: Closed Shrub	D: Open Tree	E: Closed Tree
Historic Succession Distribution	10-15%	40-70%	15-50%	10%	0

H.3.4 Low Sagebrush Shrublands, Steppe, and Scablands Fire Regime V

Columbia Plateau Scabland Shrubland

There are two habitat types within this ecosystem that are very similar in species composition, but distribution throughout the successional phases differs greatly. Open dwarf-shrub canopy including stiff sagebrush along with desert buckwheats are the most common species found on the scablands of the Columbia Plateau. The primary grass is Sandberg’s bluegrass with larger bunchgrasses scattered and infrequent. The forb layer tends to be rich in species but low in cover and frequency. Common forbs are bitterroot, hawksbeard, phlox, biscuitroot, yarrow, giant onion, pussytoes, arrowleaf balsamroot and agoseris. Low sagebrush may be present as well. Annuals may be seasonally abundant. Lichens and mosses may reach high cover on the rocks or undisturbed areas.

Fire does not spread in this ecological system, therefore fire plays only a minor role in this type as it rarely contains enough continuous fuel to carry a fire due to the low stature of shrubs. Fires burning through

adjacent vegetation types may burn into the edges of this vegetation type but cannot carry through. In very unusual wet years, enough grasses may be present to allow fire to finger through areas with more continuous fuels. Replacement fire with a mean fire return interval of 250-1,000 years.

The tables below show the distribution of the succession phases of the ecological system described above. More site-specific information can be found at the local level.

**Table H-9
Historic Succession Distribution of Succession Phases in Columbia Plateau Scabland Shrubland**

*For the succession phase distribution which primarily occurs in the channeled scablands of the Columbia Plateau in Washington

Succession Phase	A: Grass	B: Open Shrub	C: Closed Shrub	D: Open Tree	E: Closed Tree
Historic Succession Distribution	5%	5%	90%	0	0

**Table H-10
Historic Succession Distribution of Succession Phases in Columbia Plateau Scabland Shrubland**

*For the succession phase distribution that is found in the Columbia Plateau region of northeastern Washington and Idaho

Succession Phase	A: Grass	B: Open Shrub	C: Closed Shrub	D: Open Tree	E: Closed Tree
Historic Succession Distribution	20%	80%	0%	0%	0%

Inter-Mountain Basins Montane Sagebrush Steppe

This ecosystem type occurs in montane and subalpine elevations in eastern Oregon and Washington and has low, black, and occasionally silver sagebrush. Although these types do not usually grow in combination, they do share similar fire regimes and are considered high-elevation dwarf sagebrushes. Dwarf sagebrushes generally have relatively low fuel loads with low growing and cushion forbs and scattered bunch grasses such as bluebunch wheatgrass, needle grasses, Sandberg's bluegrass and Indian ricegrass. Forbs often include buckwheats, fleabanes, phloxs, paintbrushes, globemallows and lupines.

Bare ground acts as a micro-barrier to fire between low statured shrubs, therefore high elevation low sagebrush burns infrequently and burn sizes are small. Low sagebrush is very sensitive to fire. Stand-replacing fires with an average fire return interval of 200-240 years can occur in this type when successive years of above average precipitation are followed by an average or dry year under windy conditions. Stand replacement fires dominate in the late successional class where the herbaceous component has diminished. Average fire return interval for all fires is 215 years. Disturbance patch size for this type is not well known but is estimated to be in the 100's of acres due to the limited potential for fire spread.

The table below shows the distribution of the succession phases of the ecological system described above. More site-specific information can be found at the local level.

Table H-11
Historic Succession Distribution of Succession Phases in Inter-Mountain Basins Montane Sagebrush Steppe

Succession Phase	A: Grass	B: Open Shrub	C: Closed Shrub	D: Open Tree	E: Closed Tree
Historic Succession Distribution	10%	35%	55%	0%	0%

H.3.5 Pinyon and Juniper Fire Regime III

Pinyon and Juniper Woodlands

This ecological system occurs in dry sites on mountain slopes, mesas, plateaus, ridges and foothills of the Colorado Plateau region of Utah and dry mountain ranges of the Great Basin.

Utah Juniper dominates the tree canopy and single-leaf pinyon may be present. Pure or nearly pure occurrences of single-leaf pinyon pine or woodlands dominated solely by Utah Juniper can also occur. Understory layers are variable and may be dominated by shrubs and grass or be absent all together. Associated species include manzanita, black sagebrush, big sagebrush, little leaf mahogany, mountain mahogany, blackbrush, cliffrose, bitterbrush, Gambel oak, or Sonoran scrub oak. Grasses include needle-and-thread, Idaho fescue, bluebunch wheatgrass, Great Basin wildrye, blue grama, James galleta, or mutton grass.

Fire occurrence may be caused by importation from adjacent shrub and grassland dominated vegetation. Lightning ignitions may have been common, yet the resulting fires only rarely spread to affect more than a few trees. The fire regime is characterized by somewhat frequent mixed severity fire with an average fire return interval of 100-500 years. Replacement fires of a scale beyond a few trees were uncommon to rare with an average fire return interval of 100-700 years and occurred primarily during extreme fire behavior conditions and during long droughts. Surface fires were rare too and occurred at low frequency, on average every 200 years, and likely only in the more productive sites during years where understory grass cover was high, providing adequate fuel. While lightning ignitions in this ecological system may have been common, the resulting fires rarely spread to affect more than a few trees. The average fire return interval for all fire types is 170 years. The most common disturbance in this type is very small scale, either single-tree or small groups. If the conditions are just right, then it will have replacement fires that burn stands up to 1,000's of acres or may also have mixed-severity fires of 10-100s of acres.

Due to livestock removal of grasses, competition of tree seedlings, and fire exclusion for more than a century, pinyon-juniper stands have experience densification. Older trees (over 300 years) are surrounded by younger trees as encroachment occurs into the sagebrush matrix. This vegetation change to more of a young-mid aged woodland burns more intensely than the former sagebrush matrix. These canopy closures allow fires to crown and kill older trees. Frequent fire return intervals and spread of invasive plant species (especially cheatgrass), have led to non-equilibrium vegetation dynamics for this ecological system. Sites with a heavy cheatgrass component in the understory experience greater fire frequency and will respond differently to fire.

The table below shows the distribution of the succession phases of the ecological system described above. Ranges are wide in some phases due to the vast area that this ecological system is found. More site-specific information can be found at the local level.

Table H-12
Historic Succession Distribution of Succession Phases in Pinyon and Juniper Woodlands

Succession Phase	A: Grass	B: Open Shrub	C: Closed Shrub	D: Open Tree	E: Closed Tree
Historic Succession Distribution	5-10%	5-20%	20-25%	35%	10-35%

Pinyon and Juniper Woodland and Savanna

This ecological system is found throughout eastern Oregon, and in adjacent western Idaho, northeastern California and northwestern Nevada. It is most abundant in central and south-central Oregon. These woodlands are generally restricted to rocky areas where fire frequency is low.

Vegetation is characterized by an open stand of western juniper as the main tree species, although ponderosa pine or Jeffery pine may be present in some stands. Tree cover rarely exceeds 10%. Tree density is also very low, less than 30 individuals per acre. There are old-growth western juniper woodlands with trees and stands often over 1,000 years old with fairly well-spaced trees with rounded crowns. Low sagebrush is the most common shrub with big sagebrush present to common; other shrub species present are bitterbrush, rubber rabbitbrush, yellow rabbitbrush, currant, and horsebrush. Grasses may be found primarily beneath the trees in a halo restricted to the drip line of the canopy. In other areas grasses may be found in the interspace as well as the canopy area. Grasses include threadleaf sedge, Idaho fescue, Sandberg's bluegrass, and bluebunch wheatgrass.

This system is distinguished by infrequent replacement fire while being surrounded by ecological systems with more frequent fire regimes (e.g., ponderosa pine) that affect the size and dynamics of juniper savannas. Replacement fire drives juniper savannas—not mixed or surface fire. The average fire return interval of replacement fire varied between 200 and 500 years and occurs in all vegetation classes. Mixed severity fire did occur with an average fire return interval of 100-500 years. Mixed severity fire was more likely to occur when there was an increase in shrub cover but decreased under older trees. Surface fire was infrequent with an average fire return interval of 200 years and occurred only under older trees. The average fire return interval for all fires is 100 years.

Juniper is expanding into Wyoming and mountain big sagebrush steppe and perennial bunchgrass dominated areas at a fairly rapid rate, with young, pointed-crowned trees growing slowly together. Western juniper continues to expand due to fire suppression or removal of fine fuels by grazing, which have reduced the fire return interval and allowed seedlings to colonize in the understory of these older stands or encroach into the shrub-steppe and grasslands. Currently, disturbance in this type drives the system to a dominance of rabbitbrush and cheatgrass.

The table below shows the distribution of the succession phases of the ecological system described above. More site-specific information can be found at the local level.

**Table H-13
Historic Succession Distribution of Succession Phases in Pinyon and Juniper Woodland and Savanna**

Succession Phase	A: Grass	B: Open Shrub	C: Closed Shrub	D: Open Tree	E: Closed Tree
Historic Succession Distribution	2-5%	5%	15%	35%	40-43%

Juniper Savanna

This ecological system is found in Nevada and western Utah and southern Idaho at lower elevations of mountain slopes, hills, plateaus, basins, and flats often where juniper is expanding into semi-desert grasslands and steppe. It can also occur in local, geologically confined, badland environments and is limited in its distribution. The ecological system also occurs at the lower altitudinal limits for tree species, below the pinyon-juniper woodland type but at or above sagebrush.

The vegetation is typically open savanna, although there may be inclusions of denser juniper woodlands. This savanna is typically dominated by Utah Juniper trees with sparse cover of black sagebrush and perennial bunch grasses and forbs, with bluebunch wheatgrass, Sandberg’s bluegrass, squirreltail, Indian ricegrass, blue grama, junegrass, needle-and-thread grass, and James galleta being most common. Pinyon trees are typically not present.

Lightning-ignited fires typically did not affect more than a few individual trees and fires were very infrequent in this ecotype with inherently low productivity. Fire occurrence was primarily determined by fire occurrence in the surrounding matrix vegetation. The fire regime is characterized by mixed severity fire with an average fire return interval of 100-500 years. Replacement fires were rare, with an average fire return interval of greater than 300-1,000 years and occurred primarily during extreme fire behavior conditions, particularly when preceded by wetter years associated with high herbaceous production. Surface fire could occur in stands where understory grass cover was high and provided adequate fuel with an average fire return interval of 100-500 years. Average fire return interval for all fires is 65-150 years. Average fire size is 5-10 acres.

Due to fire suppression or livestock grazing, the surrounding matrix vegetation has changed to young-mid aged woodlands that burn more intensely than the former sagebrush matrix as encroachment has occurred during the last century. These younger juniper woodlands are often confused with true woodland sites dependent on naturally fire-protected features. Also occurring under post-settlement management of woodlands (both fire exclusion and the reduction of grasses that would prevent woody establishment) is the uncharacteristic growth of younger trees amongst older trees. These canopy closures allow fires to crown and kill older trees (over 200 years).

The table below shows the distribution of the succession phases of the ecological system described above. Ranges are wide in some phases due to the vast area that this ecological system is found. More site specific information can be found at the local level.

Table H-14
Historic Succession Distribution of Succession Phases in Juniper Savanna

Succession Phase	A: Grass	B: Open Shrub	C: Closed Shrub	D: Open Tree	E: Closed Tree
Historic Succession Distribution	2-5%	2-5%	6-15%	25-35%	40-65%

Shrublands

This ecological system is found on rocky mesa tops and slopes on the Colorado Plateau and consists of stunted tree shrublands along the low-elevation margins of taller pinyon-juniper woodlands. The vegetation is dominated by dwarfed (usually less than 3m tall) two-needle pinyon pine or Utah juniper trees forming extensive tall shrublands. Other shrubs, if present, may include black sagebrush, Wyoming big sagebrush, yellow rabbitbrush, or blackbrush. Herbaceous layers are sparse to moderately dense and are typically composed of xeric grass.

Fire regime was primarily determined by fire occurrence in the surrounding matrix vegetation. Lightning ignited fires were common but typically did not affect more than a few individual trees. Mixed severity fire return interval averaged 100-500 years and affected small patches of vegetation. Replacement fires were uncommon to rare with an average fire return interval of 100-500 years and occurred primarily during extreme fire behavior conditions. Surface fires could occur in stands where understory grass cover is high and provides adequate fuel, with an average fire return interval of 100 years. Average fire return interval for all fires is 65 years and historical average fire size was 10-50 acres.

The table below shows the distribution of the succession phases of the ecological system described above. More site-specific information can be found at the local level.

Table H-15
Historic Succession Distribution of Succession Phases in Shrublands

Succession Phase	A: Grass	B: Open Shrub	C: Closed Shrub	D: Open Tree	E: Closed Tree
Historic Succession Distribution	5%	5%	10%	35%	45%

H.3.6 Steppe and Grasslands Fire Regimes I, II, IV

Grassland Fire Regime I

These grasslands occur in Utah in lowland and upland areas and may occupy swales, playas, mesa tops, plateau parks, alluvial flats and plains. When they occur near foothill grasslands they will be at lower elevations.

Grasslands within this system are typically characterized by a sparse to moderately dense herbaceous layer dominated by medium-tall and short bunch grasses. The dominant perennial bunch grasses and shrubs within this system are all very drought-resistant plants. These grasslands are typically dominated or co-dominated by Indian ricegrass, purple threeawn, blue grama, needle-and-thread, muhly, or James galleta and may include scattered shrubs and dwarf shrubs of species of sagebrush, saltbrush, blackbrush, broomweed, or winterfat.

This system is maintained by frequent fires and fire most often occurred in these sites when adjacent shrublands burned. Fires were typically mixed severity with an average fire return interval of 37 years and stand replacement average fire return interval of 75 years. Most species respond favorably to fire. The scale of historic fire is unknown.

Many of these sites were impacted by introduced grazing animals during post-European settlement and have been converted to shrub dominated or invasive annual dominated systems due to altered disturbance regimes with livestock grazing and changes in fire return interval. Due to soil compaction problems, there has been an increase in tap-rooted forb species.

The table below shows the distribution of the succession phases of the ecological system described above. More site-specific information can be found at the local level.

**Table H-16
Historic Succession Distribution of Succession Phases in Grassland Fire Regime I**

Succession Phase	A: Grass	B: Open Shrub	C: Closed Shrub	D: Open Tree	E: Closed Tree
Historic Succession Distribution	5%	70-73%	20-23%	2-5%	0%

Grassland Fire Regime II

There are 2 distinctly different ecosystem types within this fire regime, and each is described individually below.

The first occurs in the Blue Mountains, Zumwalt Prairie, Umatilla Plateau and Hells Canyon.

This ecological system is typically dominated by one or more perennial bunchgrasses such as Idaho fescue or rough fescue, prairie junegrass, bluebunch wheatgrass, and Sandberg’s bluegrass. It may contain a strong forb component including prairie smoke, houndstongue, hawkweed, and lupines.

Grasslands retain little evidence of historic fire regimes, but it is likely that fuel conditions and weather were important drivers of historic fire regimes. Stand replacement fire is estimated to have an average

fire return interval of 45 years and a mixed severity fire return interval of 115 years with an average historical fire return interval for all fires is 32 years. No information is available regarding fire size.

Many of the soils are suitable for agriculture and approximately 56% of the dry grass zone has been converted to agriculture or urban use (Quigley and Arbelbide 1997).

The table below shows the distribution of the succession phases of the ecological system described above. More site-specific information can be found at the local level.

**Table H-17
Historic Succession Distribution of Succession Phases in Grassland Fire Regime II**

*For the succession phase distribution in the Blue Mountains, Zumwalt Prairie, Umatilla Plateau, and Hells Canyon

Succession Phase	A: Grass	B: Open Shrub	C: Closed Shrub	D: Open Tree	E: Closed Tree
Historic Succession Distribution	2%	80%	18%	0%	0%

The second ecosystem type occupies river valleys, including the Salmon, Snake and Clearwater Rivers in Idaho and Washington on uplands below lower treeline in small pockets where cold air drainage or shallow soils inhibit conifer growth.

Dominated by bluebunch wheatgrass with Idaho fescue and rough fescue as dominant associates. Bluebunch wheatgrass is more prevalent in drier areas. Additional species include needle and thread, Sandberg's bluegrass and a variety of forbs including showy cinquefoil, sticky geranium, phlox, lupine and yarrow.

This type has frequent replacement fires. Most species in this type are fire adapted and respond favorably to fire. Fire frequency will be strongly influenced by the surrounding forest's fire regime (e.g., 10-20 years). Where these systems occur below lower treeline, fire frequencies may be longer (e.g., 20-30 years). In large valleys, fires may have been expansive historically, up to thousands of acres. Average historical fire return interval for all fire types is 17 years.

Nonnative species present today can include cheatgrass, spotted knapweed, yellow star thistle and leafy spurge.

The table below shows the distribution of the succession phases of the ecological system described above. More site-specific information can be found at the local level.

**Table H-18
Historic Succession Distribution of Succession Phases in Grassland Fire Regime II**

*For the succession phase distribution that occurs in river valleys and on uplands below lower treeline

Succession Phase	A: Grass	B: Open Shrub	C: Closed Shrub	D: Open Tree	E: Closed Tree
Historic Succession Distribution	5%	25%	70%	0%	0%

H.3.7 Steppe and Grassland Fire Regime IV

There are 2 distinctly different ecosystem types within this fire regime, and each is described individually below.

Columbia Plateau Steppe and Grassland

There are 3 distinctly different habitat types within this ecosystem type, and each is described individually below.

The first occurs in eastern Washington, eastern Oregon, western Idaho and northern Nevada in sagebrush steppe habitats where fire has removed the sagebrush and local seed sources. Grassland dominated by bluebunch wheatgrass, Idaho fescue, Sandberg’s bluegrass, and Thurber’s needlegrass. These are in a mosaic with shrub steppe vegetation.

In the early 1900s, heavy sheep and cattle grazing led to an increase of shrubs into much of the area.

Fire is the primary disturbance factor. Historically, fire resulted in local removal of sagebrush, creating a mosaic pattern of grasslands within shrub steppe vegetation. The historic frequency was 30-100 years.

Repeated, high frequency fire has eliminated the sagebrush and the seed sources of sagebrush, creating extensive grasslands. Cheatgrass and other introduced grasses invaded these habitats after fire and currently dominate these habitats. Too much fire has turned this ecological system into annual grasslands in many areas.

The table below shows the distribution of the succession phases of the ecological system described above. More site-specific information can be found at the local level.

**Table H-19
Historic Succession Distribution of Succession Phases in Columbia Plateau Steppe and Grassland**

*For the succession phase distribution that occurs in eastern Washington, eastern Oregon, western Idaho and northern Nevada

Succession Phase	A: Grass	B: Open Shrub	C: Closed Shrub	D: Open Tree	E: Closed Tree
Historic Succession Distribution	5%	80%	15%	0%	0%

The second occurs throughout much of the Columbia Plateau, Idaho and Oregon, Nevada, and Utah. These are grasslands within the sagebrush shrub-steppe ecological system and share the same species but in different proportions. The grassland is dominated by rhizomatous perennial grasses and forbs with over 75% cover and sometimes with a sparse, less than 10% cover shrub layer. Associated grasses include creeping wildrye, mat muhly and slender wheatgrass. Common forbs are poverty weed and dandelion.

Fire eliminated shrubs from the community. Fire return interval is presumed to be about 50 years and maintained this system as a grassland. Fire return intervals were probably coupled to those of the surrounding sagebrush steppe. Historical average fire size is thought to be 10-150 acres.

With ground disturbance, such as frequent fire return intervals, sites are prone to increase in tap-rooted and annual, weedy forbs. Grazing also increases the chance for annuals but along with fire suppression can also lead to an increase in shrubs and less desirable forbs.

The tables below show the distribution of the succession phases of the ecological system described above. More site-specific information can be found at the local level.

**Table H-20
Historic Succession Distribution of Succession Phases in Columbia Plateau Steppe and Grassland**

*For the succession phase distribution that primarily occurs on the Columbia Plateau

Succession Phase	A: Grass	B: Open Shrub	C: Closed Shrub	D: Open Tree	E: Closed Tree
Historic Succession Distribution	6%	35%	0%	0%	0%

**Table H-21
Historic Succession Distribution of Succession Phases in Columbia Plateau Steppe and Grassland**

*For the succession phase distribution that primarily occurs in Southern Idaho, Utah and Nevada

Succession Phase	A: Grass	B: Open Shrub	C: Closed Shrub	D: Open Tree	E: Closed Tree
Historic Succession Distribution	70-80%	20-30%	0%	0%	0%

Inter-Mountain Basins Semi-Desert Grassland

Ecological systems found in the Great Basin in lowland and upland areas and may occupy sand sheets, stabilized dunes, swales, playas, mesa tops, plateau parks, alluvial flats, and plains.

Grasslands within this system are typically characterized by a sparse to moderately dense herbaceous layer dominated by medium-tall and short bunch grasses. The dominant perennial bunch grasses and shrubs within this system are all very drought-resistant plants. These grasslands are typically dominated or co-dominated by Indian ricegrass, or needle-and-thread, and may include scattered shrubs and dwarf-shrubs of species of sagebrush, flowering saltbrush, or winterfat.

This system is maintained by frequent fires. Fire most often occurred in these sites, when adjacent shrublands burned. Dominant fires were stand replacement with an average fire return interval of 75-94 years. Mixed severity fires were rare and were most likely to occur during late development. Historic average fire return interval is 80 years. Historic disturbance such as fire likely ranged from small (<10 acres) to large (>10,000 acres) depending on conditions, time since last ignition, and fuel loading. Average patch size of fire is thought to have been 250 acres.

Cheatgrass is present in these ecological systems but do not dominate due to the high sand content.

The table below shows the distribution of the succession phases of the ecological system described above. More site-specific information can be found at the local level.

Table H-22
Historic Succession Distribution of Succession Phases in Inter-Mountain Basins Semi-Desert Grassland

Succession Phase	A: Grass	B: Open Shrub	C: Closed Shrub	D: Open Tree	E: Closed Tree
Historic Succession Distribution	20%	80%	0%	0%	0%

H.4 FIRE REGIME AND DEPARTURE ANALYSIS METHODOLOGY

H.4.1 Fire Regime Identification

Step 1: Downloaded Fire Regime layer from Landfire to identify the fire regimes across the project area.

Step 2: Downloaded Landfire Map Zones for project area. This was done to help identify the Biophysical Settings (BPSs) layer, models, and descriptions that fell within the project area.

Step 3: Determined the BPSs for the treatment area. Downloaded the BPS spatial information from Landfire, which was used to identify vegetation that may have been dominant on the landscape pre-Euro-American settlement. This aided in determining the historical reference vegetation conditions for the Affected Environment. The BPSs were grouped by similar vegetation characteristics, distribution, and fire regime. For each Vegetation Group/Fire Regime combination of interest, the BPS was queried and separated into 8 “True” rasters. The rasters were Big Sagebrush Fire Regimes III and IV, Low Sagebrush Fire Regimes III and V, Pinyon and Juniper Fire Regime III, and Steppe and Grasslands Fire Regimes I, II, and IV. Maps were then created showing the historical occurrences of Sagebrush, Pinyon- Juniper, and Grasslands across the project area.

The non-spatial BPS information was downloaded from Landfire that corresponded with the spatial data. This provided a description of vegetation range, species distribution, disturbance regimes, intervals and scale, uncharacteristic conditions, and vegetation succession classes. This information was grouped as above and used to describe historical vegetation conditions and disturbance regimes for the Affected Environment.

H.4.2 Vegetation Departure

Step 1: The Vegetation Departure (VDEP) layers from Landfire were downloaded for the treatment area in order to determine how far existing vegetation has departed from historical reference conditions and is based on changes to species composition, structural stage, and canopy closure using methods originally described in the Interagency Fire Regime Condition Class Guidebook. However, this does not include departure of current fire regimes from those of the reference period. This data was reclassified from a continuous percentage raster (1-100) into three distinct percent departure classes: 1-33 Low Departure, 34-66 Medium Departure, and 67+ High Departure.

Step 2: To identify the current stage of succession of existing vegetation, the Succession Class (SClass) layers were downloaded from Landfire and overlaid with VDEP. SClass characterizes the current stage of succession of vegetation in respect to species composition, cover, and height ranges, which occur within each BPS. SClass can also represent uncharacteristic vegetation components, such as exotic species, that are not found within the compositional or structural variability of successional states defined for a BPS. This layer was used in the analysis to determine what vegetation was associated with each departure class

(for example, increase in shrub density or Pinyon- Juniper encroachment) and to identify uncharacteristic vegetation conditions to display vegetation type transitions (for example, sagebrush to cheatgrass or non-native seedlings post wildfire).

Step 3: To ensure that uncharacteristic conditions were captured correctly, the Existing Vegetation (EVT) layer was downloaded from Landfire and overlaid with the above layers to confirm that the areas of uncharacteristic vegetation were indeed not in that group currently. For example, in the Big Sagebrush group the uncharacteristic vegetation state was cross-walked with the EVT to see if it was currently classified as grassland instead of Big Sagebrush.

The final products, after the GIS overlay, was a raster that shows combined values for each of the above Landfire layers. A new combined category was assigned to the multiple combination of values. The numeric prefix allows for a color ramp to be used to display a low to high color scheme on the map.

1 - Low Departure, Class A	2 - Medium Departure, Class A	3 - High Departure, Class A	1 - Low Departure, Uncharacteristic Vegetation
1 - Low Departure, Class B	2 - Medium Departure, Class B	3 - High Departure, Class B	2 - Medium Departure, Uncharacteristic Vegetation
1 - Low Departure, Class C	2 - Medium Departure, Class C	3 - High Departure, Class C	3 - High Departure, Uncharacteristic Vegetation
1 - Low Departure, Class D	2 - Medium Departure, Class D	3 - High Departure, Class D	No Departure
1 - Low Departure, Class E	2 - Medium Departure, Class E	3 - High Departure, Class E	Not in BPS

Appendix I. Representative Migratory Birds in the Project Area

Table I-1
Representative Migratory Birds in the Project Area¹

Common Name	Latin Name	Seasons
Bald eagle	<i>Haliaeetus leucocephalus</i>	Year-round
Bendire's thrasher	<i>Toxostoma bendirei</i>	Breeding
Black swift	<i>Cypseloides niger</i>	Breeding
Black-chinned Sparrow	<i>Spizella atrogularis</i>	Breeding
Brewer's sparrow	<i>S. breweri</i>	Breeding
Burrowing owl	<i>Athene cunicularia</i>	Year-round
Cactus wren	<i>Campylorhynchus brunneicapillus</i>	Year-round
Calliope hummingbird	<i>Stellula calliope</i>	Breeding, migrating
Cassin's finch	<i>Carpodacus cassinii</i>	Year-round
Common raven	<i>Corvus corax</i>	Year-round
Costa's hummingbird	<i>Calypte costae</i>	Year-round
Ferruginous hawk	<i>Buteo regalis</i>	Year-round
Flammulated owl	<i>Otus flammeolus</i>	Breeding
Fox sparrow	<i>Passerella iliaca</i>	Year-round
Golden eagle	<i>Aquila chrysaetos</i>	Year-round
Grasshopper sparrow	<i>Ammodramus savannarum</i>	Breeding
Grace's warbler	<i>Dendroica graciae</i>	Breeding
Gray vireo	<i>Vireo vicinior</i>	Breeding
Greater sage-grouse	<i>Centrocercus urophasianus</i>	Year-round
Green-tailed towhee	<i>Pipilo chlorurus</i>	Wintering, breeding
Juniper titmouse	<i>Baeolophus ridgewayi</i>	Year-round
Lawrence's goldfinch	<i>Carduelis lawrencei</i>	Breeding
Le Conte's thrasher	<i>Toxostoma lecontei</i>	Year-round
Lewis's woodpecker	<i>Melanerpes lewis</i>	Year-round
Loggerhead shrike	<i>Lanius ludovicianus</i>	Year-round
Long-billed curlew	<i>Numenius americanus</i>	Breeding
Lucy's warbler	<i>Vermivora luciae</i>	Breeding
Mountain plover	<i>Charadrius montanus</i>	Breeding
Nuttall's woodpecker	<i>Picoides nuttallii</i>	Year-round
Oak titmouse	<i>Baeolophus inornatus</i>	Year-round
Olive-sided flycatcher	<i>Contopus cooperi</i>	Breeding
Peregrine falcon	<i>Falco peregrinus</i>	Year-round
Pinyon jay	<i>Gymnorhinus cyanocephalus</i>	Year-round
Prairie falcon	<i>Falco mexicanus</i>	Year-round
Purple finch	<i>Carpodacus purpureus</i>	Year-round
Rufous hummingbird	<i>Selasphorus rufus</i>	Breeding, migrating
Rufous-crowned sparrow	<i>Aimophila ruficeps</i>	Year-round
Sagebrush sparrow	<i>Artemisiospiza belli</i>	Breeding
Sage thrasher	<i>Oreoscoptes montanus</i>	Breeding, wintering
Short-eared owl	<i>Asio flammeus</i>	Year-round
Sonoran yellow warbler	<i>Dendroica petechia</i> ssp. <i>sonorana</i>	Breeding, migrating
Swainson's hawk	<i>Buteo swainsoni</i>	Breeding

I. Representative Migratory Birds in the Project Area

Common Name	Latin Name	Seasons
Virginia's warbler	<i>Vermivora virginiae</i>	Breeding
White-headed woodpecker	<i>Picooides albolarvatus</i>	Year-round
Williamson's sapsucker	<i>Sphyrapicus thyroideus</i>	Year-round
Willow flycatcher	<i>Empidonax traillii</i>	Breeding

Source: BCC 2008

¹ Note that this list is a sample list of birds within the project area; it is not a complete list of species that occur.

Appendix J. Special Status Species in the Project Area

**Table J-1
Threatened, Endangered, Candidate/Proposed Species and Their Critical Habitat with the Potential to Occur in the Treatment Area**

Species Common and Scientific Name ¹	Status ²	Occurrence	Critical Habitat	Habitat Description
Mammals				
Black-footed ferret (<i>Mustela nigripes</i>)	E, Exp	Potential	No	Exclusively inhabit prairie dog colonies, i.e., dry, flat, sparsely vegetated grasslands
Columbia Basin pygmy rabbit DPS (<i>Brachylagus idahoensis</i>)	E	Yes	No	Sagebrush steppe and areas with relatively deep, loose soils that allow burrowing in the Columbia Basin in Washington state.
Gray wolf (<i>Canis lupus</i>)	E	Yes	No	Sagebrush and forested areas throughout most of the US and Canada; large tracts of contiguous habitat are essential. Listed in California, Nevada, and portions of Oregon, Utah, and Washington
Grizzly bear (<i>Ursus arctos</i>)	T, Exp.	Yes	No	Woodlands, forests, alpine meadows, and prairies, with a preference for riparian areas
Utah prairie dog (<i>Cynomys parvidens</i>)	T	Yes	No	Shrub steppe and grasslands; found only in southwestern and central Utah (USFWS 2012)
Sierra Nevada bighorn sheep (<i>Ovis canadensis sierrae</i>)	E	Yes	Yes	Sagebrush steppe, talus, rocky outcroppings; found only in the Sierra Nevada of California (USFWS 2007)
Birds				
Bi-state sage grouse (<i>Centrocercus urophasianus</i>)	PT	Yes	Proposed	Large expanses of sagebrush with a diversity of grasses, forbs, and healthy wetland and riparian ecosystems
Southwestern willow flycatcher (<i>Empidonax traillii extimus</i>)	E	Yes	No	Uses a variety of vegetation types during migration; nests in riparian habitats, primarily areas with willows, tamarisk, or both
California condor (<i>Gymnogyps californicus</i>)	E, Exp	Potential	No	Rocky shrubland, coniferous forests, and oak savannas; nest in various types of rock formations, such as crevices, overhung ledges, and potholes
Yellow-billed cuckoo (<i>Coccyzus americanus</i>)	T	Yes	Proposed	Uses a variety of vegetation types during migration; nests in riparian habitats, primarily cottonwood-willow forests

J. Special Status Species in the Project Area (Table J-1. Threatened, Endangered, Candidate/Proposed Species and Their Critical Habitat with the Potential to Occur in the Treatment Area)

Species Common and Scientific Name ¹	Status ²	Occurrence	Critical Habitat	Habitat Description
Mexican spotted owl (<i>Strix occidentalis lucida</i>)	T	Potential	Yes	Roosts and nests in late seral forests or rocky canyon habitats, though forages in a wider variety of habitats, including pinyon-juniper woodlands
Insects				
Carson wandering skipper (<i>Pseudocopaeodes eunus obscurus</i>)	E	Yes	No	Grassland habitats on alkaline substrates in Nevada and California, where there are three viable known populations
Plants				
Barneby reed-mustard (<i>Schoenocrambe barnebyi</i>)	E	Potential	No	Coarse soils derived from cobble and gravel river terrace deposits; associated with other desert shrubland plants; endemic to the Canyonlands of south-central Utah, where it is known from five occurrences in two distinct clusters: one in the southern portion of the San Rafael Swell in southern Emery County and the other in Capitol Reef National Park in central Wayne County
Barneby ridge-cress (<i>Lepidium barnebyanum</i>)	E	Potential	No	Ridge crests of white shale outcrops; found with other mound-forming species in pinyon-juniper communities; known populations occupy a habitat of less than 200 ha, on four ridgelines in Duchesne County, Utah
Clay phacelia (<i>Phacelia argillacea</i>)	E	Potential	No	Steep hillsides of shaley clay colluvium; known only from four sites in Utah along the Douglas Creek and Gordon Gulch members of the Green River formation in the Wasatch Mountains in Pleasant Valley; these probably comprise only two populations due to the close proximity of both pairs of occurrences
Clay reed-mustard (<i>Schoenocrambe argillacea</i>)	T	Yes	No	Desert shrub plant communities in association with shadscale; endemic to the Uinta Basin (Book Cliffs area) in Uintah County, northeast Utah Endemic to a small area in the Uinta Basin, Uintah County, Utah, where there are 6-7 mapped occurrences clustered in 3 "populations," with fewer than 10,000 individuals in total
Frisco clover (<i>Trifolium friscanum</i>)	C	Yes	No	Inhabits soils derived from volcanic gravels; associated with pinyon-juniper and sagebrush communities; endemic to 4 mountain ranges in Beaver and western Millard Counties of west-central Utah. Approximately seven occurrences and 3000-7500 plants are known
Jones cycladenia (<i>Cycladenia humilis</i> var. <i>jonesii</i>)	T	Yes	No	Gypsiferous, saline soils at elevations of 4,390–6,000 feet in plant communities of mixed desert scrub, juniper, or wild buckwheat-Mormon tea. Known from 26 sites in Utah and Arizona
Kodachrome bladderpod (<i>Lesquerella tumulosa</i>)	E	Yes	No	White, bare shale knolls; known from a single population of about 20,000 plants scattered over an area only about 4 km wide in Kane County, Utah

J. Special Status Species in the Project Area (Table J-1. Threatened, Endangered, Candidate/Proposed Species and Their Critical Habitat with the Potential to Occur in the Treatment Area)

Species Common and Scientific Name ¹	Status ²	Occurrence	Critical Habitat	Habitat Description
Last Chance townsendia (<i>Townsendia aprica</i>)	T	Yes	No	Saltbush and pinyon-juniper communities on clay or clay-silt exposures of the Mancos, Morrison, Summerville, and Entrada Formations of south-central Utah; a narrow endemic of south-central Utah that is known from 23 populations
Pariette cactus (<i>Sclerocactus brevispinus</i>)	T	Potential	Yes	Fine soils in clay badlands derived from the Uinta Formation in Utah within sparsely vegetated desert shrubland; 1–5 occurrences in a single area a few miles across in the Pariette Draw region of the central Uinta Basin (Duchesne County, Utah)
San Rafael cactus (<i>Pediocactus despainii</i>)	E	Potential	No	Limestone gravels, shales, clays, and silty substrates; endemic to central Utah (Emery and Wayne Co.) where there are about 21 extant occurrences; some sites are close to each other and connected by suitable habitat, so may comprise one population
Shrubby reed-mustard (<i>Schoenocrambe suffrutescens</i>)	E	Potential	No	Endemic to semi-barren, white-shale layers in the Uinta Basin of eastern Utah; surrounded by mixed desert shrub and pinyon-juniper woodlands; there are currently 8 known populations
Slickspot peppergrass (<i>Lepidium papilliferum</i>)	T	Yes	Proposed	Endemic to southwestern Idaho on the Snake River Plain and its adjacent northern foothills (approx. 90 by 25 miles) and a disjunct population on the Owyhee Plateau (approx. 11 by 12 mi), where it is restricted to unique small-scale openings within sagebrush-steppe habitats; approximately 45 extant occurrences
Uinta Basin hookless cactus (<i>Sclerocactus wetlandicus</i>)	T	Yes	N/A	Coarse soils derived from cobble and gravel river and stream terrace deposits or rocky surfaces on mesa slopes; endemic to the Uinta Basin in northeast Utah (Duchesne and Uintah Counties) with approx. 8 occurrences observed since 1989
Webber's ivesia (<i>Ivesia webberi</i>)	T	Yes	No	Sparse vegetation with shallow, rocky, clay soils; known from 16 extant occurrences scattered over a small portion of northeastern California and western Nevada, occupying a maximum of 165 acres. 2,170 acres of land in 16 units are designated as critical habitat for the species.
Wright fishhook cactus (<i>Sclerocactus wrightiae</i>)	E	Yes	N/A	Arid sites with widely spaced shrubs, perennial herbs, bunch grasses, or scattered pinyon and juniper. Estimated population size is 4,500 to 21,000 individuals.

Source: USFWS 2018

¹T&E species that may occur within the project area but would not be potentially affected by the proposed action or alternatives were excluded. These include species associated with open water, riverine, alpine, or subalpine habitats.

²E = Endangered; T = Threatened; P = Proposed; C = Candidate; Exp. = Experimental population; Status listed is that of the listed population in the project area; the status of populations outside of this area may differ.

Table J-2
BLM Sensitive Species with the Potential to Occur in the Treatment Area

Common Name	Latin Name	Habitat Description
Mammals		
Pallid bat	<i>Antrozous pallidus</i>	Shrub-steppe, grasslands ; most abundant in Great Basin ecosystems
Small-footed myotis	<i>Myotis ciliolabrum</i>	Desert scrub, grasslands, sagebrush steppe, pinyon-juniper woodlands , and agricultural/urban areas
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	Deserts, native prairies, active agricultural sites, sagebrush steppe, grasslands
Western mastiff-bat	<i>Eumops perotis californicus</i>	Grasslands , desert scrub, chaparral, and montane coniferous forests
Desert bighorn sheep	<i>Ovis canadensis nelsoni</i>	Sagebrush, grasslands , alpine meadows, mountain slopes, and foothills, all with rocky slopes for climbing
Fringed myotis	<i>Myotis thysanodes</i>	Generalist ; low desert scrub to high coniferous forests
Pygmy rabbit	<i>Brachylagus idahoensis</i>	Sagebrush steppe habitats with high foliar cover of sagebrush.
Sierra Nevada bighorn sheep	<i>Ovis canadensis sierrae</i>	Sagebrush, grasslands , open upland, montane, and alpine habitats and meadows with rocky terrain
Yuma myotis	<i>Myotis yumanensis</i>	Dry rocky cliffs associated with desert scrub, sagebrush, pinyon-juniper and coniferous forests
Gray wolf	<i>Canis lupus</i>	Large areas of contiguous habitat, including grasslands and montane areas
Spotted bat	<i>Euderma maculatum</i>	Grasslands, sagebrush , desert and subalpine meadows, including desert-scrub, pinyon-juniper woodland , and fields
Black-tailed jackrabbit	<i>Lepus californicus</i>	Grasslands, sagebrush ; herbaceous and desert-shrub areas and open, early stages of forest and chaparral habitats
White-tailed jackrabbit	<i>Lepus townsendii</i>	Sagebrush , subalpine conifer, juniper , alpine dwarf-shrub, and perennial grassland ; also uses successional stages of conifer habitats
Little Brown myotis	<i>Myotis lucifugus</i>	Pinyon-juniper , Joshua tree woodland and montane coniferous forest
Preble's shrew	<i>Sorex preblei</i>	Grasslands, pinyon-juniper woodlands , arid or semiarid shrub-grasses associated with sagebrush -dominated coniferous forest
Townsend's ground squirrel	<i>Spermophilus townsendii</i>	Grasslands, sagebrush, pinyon-juniper ; desert springs in arid environments as well as ridgetops, hillsides, and valley bottoms, canal and railroad embankments, and old fields
White salmon pocket gopher	<i>Thomomys talpoides limosus</i>	Sagebrush, grassland and herbaceous habitats as well as shrubland and chaparral
Washington ground squirrel	<i>Urocitellus washingtoni</i>	Sagebrush , shrub steppe habitats of southeastern Washington and north-central Oregon
Kit fox	<i>Vulpes macrotis</i>	Sagebrush , desert scrub, chaparral, and grasslands
Allen's big-eared bat	<i>Idionycteris phyllotis</i>	Sagebrush, pinyon-juniper woodlands , desert shrub, grasslands ; typically found near cliffs, boulders, lava flows, etc.

J. Special Status Species in the Project Area (Table J-2. BLM Sensitive Species with the Potential to Occur in the Treatment Area)

Common Name	Latin Name	Habitat Description
Big brown bat	<i>Eptesicus fuscus</i>	Generalist ; variety of habitats including pinyon-juniper, sagebrush, creosote, and agricultural/urban habitats; roosts in caves and trees
Brazilian free-tailed bat	<i>Tadarida brasiliensis</i>	Pinyon-juniper woodlands
California myotis	<i>Myotis californicus</i>	Sagebrush , oak and juniper woodlands , canyons, desert scrub, and grasslands
Canyon bat	<i>Parastrellus hesperus</i>	Pinyon-juniper , blackbrush, creosote, sagebrush and salt-desert shrub; usually associated with rocky features
Dark kangaroo mouse	<i>Microdipodops megacephalus</i>	Shadscale scrub, sagebrush and alkali sink plant communities; may also be found in sand dunes
Hoary bat	<i>Lasiurus cinereus</i>	Generalist ; Wide variety of habitat types; prefers roosting in dense vegetation and trees
Inyo shrew	<i>Sorex tenelius</i>	Rocky mountain habitats in areas with logs, boulders, or sagebrush scrub
Merriam's shrew	<i>Sorex merriami</i>	Various grassland habitats, including grasses in sagebrush steppe/ pinyon/juniper habitat, mountain mahogany and mixed woodlands
Pale kangaroo mouse	<i>Microdipodops pallidus</i>	Fine sands in alkali sinks and desert scrub dominated by <i>Atriplex</i> and big sagebrush
Botta's pocket gopher	<i>Thomomys bottae</i>	Grasslands ; open habitats and meadows, where soils are deep enough to maintain permanent burrow systems
Fish Spring pocket gopher	<i>Thomomys bottae</i>	Grasslands ; open habitats and meadows, where soils are deep enough to maintain permanent burrow systems
San Antonio pocket gopher	<i>Thomomys bottae</i>	Grasslands ; open habitats and meadows, where soils are deep enough to maintain permanent burrow systems
Gunnison prairie dog	<i>Cynomys gunnisoni</i>	High desert, grasslands , meadows, and hillsides; often found in shrubs, such as rabbitbrush, sagebrush , and saltbush
White-tailed prairie dog	<i>Cynomys leucurus</i>	Grasslands , prairie and sometimes shrubby areas
Silky pocket mouse	<i>Perognathus flavus</i>	Grasslands , sagebrush , pinyon-juniper woodlands , low valley bottoms with soft soils, among weeds and shrubs
Bighorn sheep	<i>Ovis canadensis</i>	Grasslands ; alpine meadows, mountain slopes, and foothills
Merriam's ground squirrel	<i>Urocitellus canus</i>	High desert habitat dominated by big sagebrush , western juniper , and greasewood; also found in grasslands and agricultural lands
Piute ground squirrel	<i>Urocitellus mollis</i>	Desert and grassland habitats
Southern Idaho ground squirrel	<i>Urocitellus endemicus</i>	Grasslands ; rolling foothills originally dominated by big sagebrush , bitterbrush, and native bunchgrasses and forbs.
Birds		
Bald eagle	<i>Haliaeetus leucocephalus</i>	Riparian habitats with abundant fish and adjacent snags or other perches (pinyon-juniper)
Burrowing owl	<i>Athene cunicularia</i>	Grasslands ; open habitats with sparse vegetation
Golden eagle	<i>Aquila chrysaetos</i>	Grasslands ; open country especially around mountains, hills and cliffs
Greater sage-grouse	<i>Centrocercus urophasianus</i>	Sagebrush steppe, mountain shrub, desert riparian and wet meadows
Northern goshawk	<i>Accipiter gentilis</i>	Mature and old-growth forests, riparian corridors, and more open habitats such as sagebrush steppe

J. Special Status Species in the Project Area (Table J-2. BLM Sensitive Species with the Potential to Occur in the Treatment Area)

Common Name	Latin Name	Habitat Description
Swainson's hawk	<i>Buteo swainsoni</i>	Open habitats with scattered trees and grasslands .
Grasshopper sparrow	<i>Ammodramus savannarum</i>	Open grasslands and prairies with patches of bare ground
Black-throated sparrow	<i>Amphispiza bilineata</i>	Grassland, sagebrush , variety of dry open habitats, from Sonoran desert with mixed shrubs and cactus to barren flats of creosote bush or saltbush
Short-eared owl	<i>Asio flammeus</i>	Large open areas with low vegetation, including grasslands and sagebrush steppe
Ferruginous hawk	<i>Buteo regalis</i>	Arid and semiarid grasslands , and sagebrush steppe
Lesser goldfinch	<i>Carduelis psaltria</i>	Generalist , thickets, weedy fields, woodlands, forest clearings, scrublands, farmlands
Gray flycatcher	<i>Empidonax wrightii</i>	Open and arid habitats, especially sagebrush plains with few trees or shrubs, scrubby woods of juniper and pinyon pine
Merlin	<i>Falco columbarius</i>	Grasslands, sagebrush , open and semi-open areas across northern North America
Peregrine falcon	<i>Falco peregrinus anatum</i>	Generalist , open landscapes with cliffs for nest sites; found anywhere from tundra to deserts
Wallowa rosy finch	<i>Leucosticte tephrocotis wallowa</i>	Grasslands , barren, rocky or grassy areas and cliffs in the alpine zone; winters in open areas like fields, brushy areas, and around human habitation
Ash-throated flycatcher	<i>Myiarchus cinerascens</i>	Generalist ; Dry scrub, open woodlands, and deserts
Long-billed curlew	<i>Numenius americanus</i>	Grasslands, sagebrush , high plains and rangelands
Mountain quail	<i>Oreortyx pictus</i>	Dense brush in wooded foothills and mountains, pine-oak, coniferous forest and sometimes pinyon-juniper woodlands
Broad-tailed hummingbird	<i>Selasphorus platycercus</i>	High-elevation meadows, shrubby habitats near pine-oak and evergreen forests, and forest openings within pinyon-juniper , oak woodlands, and evergreen forests
Sharp-tailed grouse	<i>Tympanuchus phasianellus</i>	Grasslands , prairie, brushy groves, forest edges, open burns in coniferous forest
Columbian sharp-tailed grouse	<i>Tympanuchus phasianellus columbianus</i>	Sagebrush steppe , mountain shrub and grasslands
Bendire's thrasher	<i>Taxostoma bendirei</i>	Desert, especially areas with tall vegetation, cholla cactus, creosote bush and yucca, and in juniper woodland
Brewer's sparrow	<i>Spizella breweri</i>	Sagebrush steppe , desert scrub consisting mainly of saltbush and creosote
Gray-crowned rosy-finch	<i>Leucosticte tephrocotis</i>	Grasslands ; breeds in alpine areas, winters in open country including mountain meadows, high deserts, valleys and plains
Loggerhead shrike	<i>Lanius ludovicianus</i>	Sagebrush, grasslands ; open country with short vegetation and open shrubs or low trees
Pinyon jay	<i>Gymnorhinus cyanocephalus</i>	Pinyon-juniper woodlands and chaparral
Sage thrasher	<i>Oreoscoptes montanus</i>	Sagebrush steppe
Green-tailed towhee	<i>Pipilo chlorurus</i>	Sagebrush, grasslands, pinyon-juniper ; prefers scrubby thickets and desert washes, though it can be found in a variety of shrubby habitats across its winter range
Sagebrush sparrow	<i>Amphispiza belli</i>	Sagebrush and other shrub steppe
Virginia's warbler	<i>Vermivora virginiae</i>	Dry mountainsides in scrub oak, chaparral, pinyon-juniper , or other low, brushy habitats
Reptiles		
Northern sagebrush lizard	<i>Sceloporus graciosus</i>	Grasslands, pinyon-juniper ; mid- to high-altitudes in sagebrush and other shrublands, mainly in the mountains; prefers open areas with scattered low bushes and lots of sun

J. Special Status Species in the Project Area (Table J-2. BLM Sensitive Species with the Potential to Occur in the Treatment Area)

Common Name	Latin Name	Habitat Description
Striped whipsnake	<i>Coluber taeniatus</i>	Variety of habitats including shrub lands, grasslands , sagebrush flats, canyons, pinyon-juniper , and open pine-oak forests
Desert horned lizard	<i>Phrynosoma platyrhinos</i>	Sagebrush ; open sandy areas in deserts, chaparral, grassland
Greater short-horned lizard	<i>Phrynosoma hernandesi</i>	Semiarid plains to high mountains; occupies a variety of habitats including sagebrush , open pinyon-juniper , pine-spruce and spruce-fir forests
Long-nosed leopard lizard	<i>Gambelia wislizenii</i>	Sagebrush ; sandy and gravelly desert and semi-desert areas with scattered shrubs or other low plants
Northern rubber boa	<i>Charina bottae</i>	Grasslands , sagebrush , meadows and chaparral to deciduous and coniferous forests, to high alpine settings
Pygmy short-horned lizard	<i>Phrynosoma douglasii</i>	Grasslands , sagebrush , pinyon-juniper ; semiarid plains to high mountains; open, shrubby or openly wooded areas with sparse vegetation at ground level
Ring-necked snake	<i>Diadophis punctatus</i>	Forest, woodlands, grassland , chaparral and riparian corridors in arid regions
Sierra alligator lizard	<i>Elgaria coerulea palmeri</i>	Grasslands ; Sierra Nevada and immediately adjacent ranges; forested montane areas and montane chaparral
Sonoran mountain kingsnake	<i>Lampropeltis pyromelana</i>	Pinyon-juniper ; chaparral woodland and pine forests in mountainous regions, brushy rocky canyons, talus slopes and near streams and springs
Western red-tailed skink	<i>Plestiodon gilberti rubricaudatus</i>	Generalist ; variety of habitats, avoids heavy brush and dense forest
Longnose snake	<i>Rhinocheilus lecontei</i>	Grasslands , sagebrush ; desert lowland areas that have sandy or loose soil and numerous burrows
Ground snake	<i>Sonora semiannulata</i>	Generalist ; dry, rocky areas with loose soil
Amphibians		
Western spadefoot toad	<i>Spea hammondi</i>	Open areas with sandy or gravelly soils, also found in mixed woodlands, grasslands , coastal sage scrub, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats
Woodhouse's toad	<i>Anaxyrus woodhousii</i>	Grasslands ; larger riparian corridors at lower elevations, and moist meadows, ponds, lakes, and reservoirs at higher elevations
Boreal toad	<i>Anaxyrus boreas</i> ssp. <i>boreas</i>	Grasslands , sagebrush ; desert springs and streams, wet meadows, marshes, ponds, lakes reservoirs, slow moving rivers and woodlands
Dixie Valley toad	<i>Anaxyrus williamsi</i>	Grasslands , sagebrush ; springs, seeps, streams and similarly inundated areas
Western toad	<i>Anaxyrus boreas</i>	Grasslands , sagebrush ; desert springs and streams, wet meadows, marshes, ponds, lakes reservoirs, slow moving rivers and woodlands
Great Plains toad	<i>Bufo cognatus</i>	Grasslands , sagebrush ; damp areas in open grasslands and farm fields
Invertebrates		
Dalles mountainsnail	<i>Oreohelix variabilis</i>	Sagebrush ; shrubland
Deschutes mountainsnail	<i>Oreohelix variabilis</i> ssp. <i>nov</i> (Deschutes)	Sagebrush ; shrubland

J. Special Status Species in the Project Area (Table J-2. BLM Sensitive Species with the Potential to Occur in the Treatment Area)

Common Name	Latin Name	Habitat Description
Western bumblebee	<i>Bombus occidentalis</i>	Mixed woodlands, farmlands, urban areas, montane meadows and into the western edge of the prairie grasslands
Barry's hairstreak	<i>Callophrys gryneus chalcosiva</i>	Pinyon-juniper ; variety of open, brushy to lightly wooded, dry habitats and weedy areas
Intermountain sulphur	<i>Colias occidentalis pseudochristina</i>	Steep, sunny slopes with sagebrush and scattered ponderosa pine
Eastern tailed blue	<i>Cupido comyntas</i>	Grasslands ; variety of open, brushy to lightly wooded, dry habitats and weedy areas
Island checkerspot	<i>Euphydryas colon colon</i>	Grasslands ; meadows, pine-oak woodlands, along streams or near lakes, agricultural lands, powerline right of ways, along roads, or old ski areas; wet meadows
Tawny-edged skipper	<i>Polites themistocles</i>	Grasslands ; moist grassy areas including prairie swales, pastures, lawns, roadsides, and vacant lots
Coronis fritillary	<i>Speyeria coronis coronis</i>	Grasslands ; mountain slopes, foothills, prairie valleys, chaparral, sagebrush , forest openings
Great basin fritillary	<i>Speyeria egleis</i>	Grasslands ; mountain meadows, forest openings, exposed rocky ridges
Big Smoky wood nymph	<i>Cercyonis oetus alkalorum</i>	Grasslands ; grassy, alkaline flats; known only from the Big Smoky Valley between the Toiyabe and Toiyabe ranges in central Nevada
Carson wandering skipper	<i>Pseudocopaeodes eunus obscurus</i>	Salt grass and nearby nectar producing flowers; grassland habitats on alkaline substrates
Early blue	<i>Euphilotes enoptes primavera</i>	Grasslands ; records only exist from lower mountain canyons in Mineral County in the Wassuk Range; Trend unknown and considered critically imperiled in Nevada
Great Basin small blue	<i>Philotiella speciosa septentrionalis</i>	Distribution unknown, type is from Lyon County
Mattoni's blue	<i>Euphilotes pollescens mattonii</i>	Sonoran desert, prairies and sand dunes; pinyon-juniper woodlands and prairie grasslands
Mojave gypsum bee	<i>Andrena balsamorhizae</i>	Grasslands ; occurs in various habitats; nests on the ground or in various natural cavities; restricted to the habitat of its host plant, sunray
Monarch butterfly	<i>Danaus plexippus plexippus</i>	Grasslands, sagebrush ; widespread and scattered; requires milkweed (Asclepiaceae) or dogbane (Apocynaceae) as host plants for larvae
Mono basin skipper	<i>Hesperia uncas giulanii</i>	Grasslands ; Known only from the Adobe Hills in Mono County, CA. Gently rolling hills with sandy substrate.
Railroad Valley skipper	<i>Hesperia uncas fulvapalla</i>	Grasslands ; From alkali meadows on the floor of Railroad Valley in Nye County
Idaho Point-headed grasshopper	<i>Acroplophitus pulchellus</i>	Sagebrush ; xeric shrub-dominated habitat
Plants		
A cyperus	<i>Cyperus lupulinus</i> ssp. <i>lupulinus</i>	Grasslands ; grows in sun-lit locations such as fields, prairies, roadsides and farms.
Aase's onion	<i>Allium aaseae</i>	Sagebrush ; associated with relatively sparsely vegetated or bitterbrush/sagebrush bitterbrush communities.

J. Special Status Species in the Project Area (Table J-2. BLM Sensitive Species with the Potential to Occur in the Treatment Area)

Common Name	Latin Name	Habitat Description
Alender wild cabbage	<i>Caulanthus major</i> var. <i>nevadensis</i>	In the sagebrush and pinyon-juniper zones.
Alexander's buckwheat	<i>Eriogonum alexandrae</i>	Sagebrush scrub, great basin scrub, pinyon and juniper woodland .
Alpine azalea	<i>Kalmia procumbens</i>	Pinyon-juniper communities at 2100 to 2745 m (6890 to 9006 ft).
American woodsage, western germander	<i>Symphotrichum jessicae</i>	Sagebrush scrub; northern juniper woodland; mountains and plateaus.
Arapien stickleaf, Arapien blazingstar	<i>Mentzelia argillosa</i>	Sagebrush, pinyon-juniper woodlands ; scrubland and woodland.
Arrow thelypody	<i>Thelypodium sagittatum</i> ssp. <i>sagittatum</i>	Under or around western juniper (<i>Juniperus occidentalis</i>) in canyons, seasonal creek drainages, and springs.
Arrow-leaf thelypody	<i>Thelypodium eucosmum</i>	Occurs in the Blue Mountains of Oregon; Its habitat is dominated by sagebrush and juniper .
Arthur's milk-vetch	<i>Astragalus arthurii</i>	Grasslands ; known to occupy alkaline soils in dry washes and on barren bluffs.
Asotin milkvetch	<i>Astragalus asotinensis</i>	Open canyon grasslands on steep slopes of all aspects.
Atwood's pretty phacelia	<i>Phacelia pulchella</i> var. <i>atwoodii</i>	Pinyon-juniper and sagebrush .
Austin's knotweed	<i>Polygonum austinae</i>	Pinyon-juniper ; dry to moist flats or banks, from sagebrush plains to lower mountains, often with ponderosa pine.
Austin's plagiobothrys	<i>Plagiobothrys austinae</i>	Pinyon-juniper communities at 1190 to 1310 m (3900 to 4300 ft) elevation.
Bald daisy	<i>Erigeron calvus</i>	Sagebrush ; sandy loam substrates in Great Basin scrub.
Barren Valley collomia	<i>Collomia renacta</i>	Mostly a woodland-border species in pinyon-juniper and subalpine sagebrush zones in Nye County, Nevada.
Bartonberry	<i>Rubus bartonianus</i>	Dry open ground, gravelly soil; sagebrush ; elevations of 1,500-1,750 meters (5000 to 5800 ft). Also in disturbed areas along roadsides.
Bashful beardtongue	<i>Penstemon pudicus</i>	In the subalpine sagebrush , mountain mahogany, and upper pinyon-juniper zones.
Bastard kentrophyta	<i>Astragalus tegetarioides</i>	Dry open ground, gravelly soil; sagebrush ; elevations of 1,500-1,750 meters (5000 to 5800 ft). Also in disturbed areas along roadsides.
Beaked cryptantha	<i>Cryptantha rostellata</i>	Found in dry, volcanic outcrops with sagebrush /bitterbrush.
Beaked spikerush	<i>Eleocharis rostellata</i>	Sandy or loamy soils on the lower and middle Snake River Plains and surrounding, rolling, sagebrush -dominated foothills.
Beautiful penstemon	<i>Penstemon perpulcher</i>	Grasslands ; habitats include dry sand prairies, dolomite prairies, and gravelly hill prairies.
Beaver Dam breadroot	<i>Pediomelum castoreum</i>	Sagebrush ; found in desert shrublands, grows in disturbed areas.
Biennial stanleya	<i>Stanleya confertiflora</i>	Barren clay slopes in sagebrush communities.
Black lily	<i>Fritillaria camschatcensis</i>	Open valley bottom areas in the lower sagebrush zones.
Black snake-root	<i>Sanicula marilandica</i>	Grasslands ; grows pure stands in mixed prairie associations and disturbed habitats.
Blaine pincushion	<i>Sclerocactus blainei</i>	In sagebrush associations within the pinyon-juniper and mountain sagebrush zones.
Blue gramma	<i>Bouteloua gracilis</i>	Grasslands ; short grass in the mixed prairies and throughout the Great Plains and the Southwest

J. Special Status Species in the Project Area (Table J-2. BLM Sensitive Species with the Potential to Occur in the Treatment Area)

Common Name	Latin Name	Habitat Description
Blue-leaved penstemon	<i>Penstemon glaucinus</i>	Grasslands, sagebrush, pinyon-juniper ; found in habitats ranging from open desert to moist forests.
Blunt sedge	<i>Carex obtusata</i>	Dry or vernal moist grasslands , bluffs, and sandy floodplains. Associated species include common juniper .
Bodie Hills cusickiella	<i>Cusickiella quadricostata</i>	Sagebrush, pinyon-juniper ; pumice, gravelly or sandy substrates in Great Basin scrub.
Bodie Hills rockcress	<i>Boechea bodiensis</i>	Dry, open, slopes in sagebrush associations within the pinyon-juniper and mountain sagebrush zones.
Booth's evening primrose	<i>Camissonia boothii</i> ssp. <i>boothii</i>	Sandy flats, steep loose slopes, Joshua-tree and pinyon-juniper woodland
Boise milkvetch	<i>Astragalus adanus</i>	Brushy slopes, terraces and benches along canyons or along dry flats and gently rolling hill country among sagebrush in alluvial clays and gravels of both granitic and basaltic origin.
Bolander onion	<i>Allium bolanderi</i> var. <i>bolanderi</i>	Sagebrush, pinyon-juniper ; heavy soils and openings in brush and woods.
Bolander's camissonia	<i>Camissonia bolanderi</i>	Best developed on southern slopes; common associates are <i>Artemisia rigida</i> , <i>Lomatium</i> spp., <i>Brassica</i> spp.
Branching montia	<i>Montia diffusa</i>	Found in mesic grasslands , low meadows.
Bristle-flowered collomia	<i>Collomia macrocalyx</i>	Grasslands ; best developed on southern slopes; common associates are <i>Artemisia rigida</i> , <i>Lomatium</i> spp., <i>Brassica</i> spp.
Broad fleabane	<i>Erigeron latus</i>	Gravelly or rocky hillsides and outcrops in the sagebrush zone, near juniper woodlands.
Bugleg goldenweed	<i>Pyrrcoma insecticruris</i>	Mountain meadows, sagebrush/grasslands ; 5000-6000 feet elevation.
Bupleurum	<i>Bupleurum americanum</i>	Grasslands ; rocky places, grassy hillsides, meadows.
Calcereous buckwheat	<i>Eriogonum ochrocephalum</i> var. <i>calcareum</i>	Grasslands, sagebrush ; on the valley floor or on dunes in barren openings with <i>Atriplex</i> spp., <i>Grayia</i> spp., <i>Chrysothamnus</i> spp., and <i>Artemisia</i> spp.
California buttercup	<i>Ranunculus californicus</i> var. <i>californicus</i>	Coastal bluffs, open grasslands , rocky slopes along the shore, and rocky wooded areas. Usually in dry grasslands areas.
California chicory	<i>Rafinesquia californica</i>	In the mixed-shrub and sagebrush zones.
California maiden-hair	<i>Adiantum jordanii</i>	Open areas of Great Basin sagebrush /bitterbrush scrub.
California milk-vetch	<i>Astragalus californicus</i>	Grasslands, pinyon-juniper ; dry hillsides, stony ridges, and canyon benches, among sagebrush , in open oak woods or in openings of coniferous forests.
Callaway milkvetch	<i>Astragalus callithrix</i>	Grasslands, sagebrush ; deep, sandy soil on the valley floor or on dunes in barren openings with <i>Atriplex</i> , <i>Grayia</i> , <i>Chrysothamnus</i> , and <i>Artemisia</i> spp.
Candelaria blazingstar	<i>Mentzelia candelariae</i>	Grasslands ; found in disturbed, loose, gravelly slopes and clay hills.
Carson Valley monkeyflower	<i>Erythranthe carsonensis</i>	Sagebrush ; shrubland.
Cascade reedgrass	<i>Calamagrostis tweedyi</i>	Grasslands ; occupy a variety of habitats from low elevation wetlands to dry windblown mountains ridges.
Cespitose evening primrose	<i>Oenothera caespitosa</i> ssp. <i>caespitosa</i>	Grasslands ; found in Coal Valley Formation, on rounded knolls, low ridges, slopes, and especially small drainages on all aspects.

J. Special Status Species in the Project Area (Table J-2. BLM Sensitive Species with the Potential to Occur in the Treatment Area)

Common Name	Latin Name	Habitat Description
Chain-fern	<i>Woodwardia fimbriata</i>	Grasslands, sagebrush ; on foothills and valley floors above the playas, shadscale, and mixed shrub, often associated with <i>Atriplex confertifolia</i> .
Challis crazyweed	<i>Oxytropis besseyi</i> var. <i>salmonensis</i>	Sagebrush ; occurs within the shrub-steppe in sandy wash or open lower slopes.
Challis milkvetch	<i>Astragalus amblytropis</i>	Sagebrush ; gravelly washes and banks in the creosote-bursage, shadscale, and blackbrush zones
Chambers' twinpod	<i>Physaria chambersii</i>	Sandy or rocky locations; sagebrush plateaus, pinyon-juniper woodland roadsides.
Chinle chia	<i>Salvia columbariae</i> var. <i>argillacea</i>	In the pinyon-juniper zone.
Cima milkvetch	<i>Astragalus cimae</i> var. <i>cimae</i>	Mesas and stony hillsides, commonly among sagebrush . Habitats include Great Basin scrub, and pinyon-juniper woodland.
Coastal lipfern	<i>Cheilanthes intertexta</i>	Grows in rocky habitats.
Cock's-comb cat's-eye	<i>Cryptantha celosioides</i>	Stony or sandy, often sparsely vegetated soil of grasslands, sagebrush steppe; plains, valleys, montane areas.
Coffee fern	<i>Pellaea andromedifolia</i>	Found on dry Western facing sunny banks, in coastal and woodland habitats.
Columbia milk-vetch	<i>Astragalus columbianus</i>	Sandy to gravelly loams in sagebrush-grasslands communities of the Columbia River floodplain.
Common jewel flower	<i>Streptanthus glandulosus</i>	Sagebrush ; grows in grassland , chaparral, and woodlands .
Common twinpod	<i>Physaria didymocarpa</i> var. <i>didymocarpa</i>	Grasslands ; occurs in a wide variety of habitats, including gravelly prairies, dry hillsides, and road cuts.
Compact gilia	<i>Ipomopsis congesta</i> ssp. <i>crebrifolia</i>	Wide range of habitats from sagebrush through bristlecone pine communities.
Congdon's monkeyflower	<i>Diplacus congdonii</i>	Grasslands ; found in mountains and foothills in moist spots, slopes, canyons, and sometimes in disturbed areas.
Cooke's phacelia	<i>Phacelia cookei</i>	Sagebrush ; volcanic or sandy substrates in Great Basin scrub.
Cooper's rubber-plant	<i>Hymenoxys cooperi</i> var. <i>canescens</i>	Sagebrush steppe zone.
Cooper's goldflower	<i>Hymenoxys cooperi</i> var. <i>canescens</i>	Found near roadsides, open areas, and edges of juniper-pine forests.
Coral lichen	<i>Aspicilia rogeri</i>	Sagebrush ; found in shrub steppe and prefers open habitats that are moist in winter or spring but dry most of the year.
Cordelia beardtongue	<i>Penstemon floribundus</i>	Grasslands ; steep mountain slopes and associated alluvial fans in a limestone rock desert.
Cordilleran sedge	<i>Carex cordillerana</i>	Grasslands, pinyon-juniper ; found in naturally disturbed, rocky slopes with organic layer and leaf litter in mesic mixed forests and grassy slopes.
Cordroot sedge	<i>Carex chordorrhiza</i>	Grasslands ; occurs in transition mires, low-sedge vegetation and sedge dominated 'flarks' (wide, elongated pools) of raised mires.
Coville's lip-fern	<i>Cheilanthes covillei</i>	Grasslands, sagebrush ; grows in rocky crevices in the mountains and foothills.

J. Special Status Species in the Project Area (Table J-2. BLM Sensitive Species with the Potential to Occur in the Treatment Area)

Common Name	Latin Name	Habitat Description
Coyote tobacco	<i>Nicotiana attenuata</i>	Dry sandy bottomlands, rocky washes, and other dry open places. Associated species include big sagebrush , rabbitbrush, buckwheat, giant wildrye.
Craters-of-the-Moon wild buckwheat	<i>Eriogonum ovalifolium</i> var. <i>focarium</i>	Occurs on black volcanic gravel on gentle slopes and flats in sagebrush communities, conifer woodlands.
Creeping chickweed	<i>Stellaria humifusa</i>	Grasslands ; restricted to light-colored (white and tan) tuffaceous sandstone substrates, usually on rounded, gentle slopes.
Creeping nailwort	<i>Paronychia sessiliflora</i>	Grasslands ; found in dry, stony hillsides, summits, and sandstone mesas.
Crenulate moonwort	<i>Botrychium crenulatum</i>	Grasslands, pinyon-juniper ; dry, open, sparsely-vegetated, calcareous sandy-clay soils on flats and gentle slopes of hillsides and alluvial fans.
Crested shield-fern	<i>Dryopteris cristata</i>	Found in crevices of volcanic or carbonate rock in the pinyon-juniper zone, 6900-7400 ft elevation.
Crinite mariposa-lily	<i>Calochortus coxii</i>	Found in moist, north-facing grasslands and Jeffrey pine savannahs .
Cronquist's forget-me-not	<i>Hackelia cronquistii</i>	Found in north-facing gentle to moderate slopes. Usually found with a plant association that includes big sagebrush and indian ricegrass.
Cronquist's phacelia	<i>Phacelia cronquistiana</i>	Often found in pinyon-juniper-sagebrush and ponderosa pine communities.
Cronquist's stickseed	<i>Hackelia cronquistii</i>	Found in north-facing gentle to moderate slopes. Associated with big sagebrush and indian ricegrass.
Crosby buckwheat	<i>Eriogonum crosbyae</i> var. <i>crosbyae</i>	Typically on rolling hills dominated by big sagebrush .
Currant milkvetch	<i>Astragalus uncialis</i>	Found in dry alkaline soils derived from limestone. With sagebrush in gullied foothills.
Currant Summit clover	<i>Trifolium andinum</i> var. <i>podocephalum</i>	Within pinyon-juniper woodlands in settings such as rocky hills. Other documented associates include sagebrush , <i>Artemisia tridentata</i> .
Cusick's camas	<i>Camassia cusickii</i>	Occurs at low to mid elevations on steep, rocky hillsides. Often found in sagebrush scrub and among ponderosa pine.
Cusick's giant-hyssop	<i>Agastache cusickii</i>	On road cuts or other disturbances crossing such habitats, in pinyon-juniper, sagebrush , and mixed-shrub zones.
Cusick's lupine	<i>Lupinus lepidus</i> var. <i>cusickii</i>	Open woods and dry slopes.
Cusick's milk-vetch	<i>Astragalus cusickii</i> var. <i>cusickii</i>	Dry grasslands or rocky slopes in loose, finely textured soils on roadcuts, talus, and sagebrush plains.
Cusick's monkeyflower	<i>Diplacus cusickii</i>	Grasslands ; arid regions, including bottomlands. Associated species are sparse but include arrowleaf buckwheat.
Cutler's spurred lupine	<i>Lupinus caudatus</i> var. <i>cutleri</i>	Occurs in pinyon-juniper woodland.
Dalles mt. buttercup	<i>Ranunculus triternatus</i>	Grasslands, sagebrush ; meadow-steppe dominated by perennial xerophytic bunchgrasses and broad-leaved herbs.
Dalles water-starwort	<i>Callitriche fassettii</i>	Sagebrush and mountain mahogany communities, oak, pinyon-juniper and montane conifer woodlands

J. Special Status Species in the Project Area (Table J-2. BLM Sensitive Species with the Potential to Occur in the Treatment Area)

Common Name	Latin Name	Habitat Description
Darwin Mesa milk-vetch	<i>Astragalus atratus</i> var. <i>mensanus</i>	Sagebrush ; carbonate, rocky substrates in Great Basin scrub and pinyon-juniper woodland.
Davis's milkweed	<i>Asclepias cryptoceras</i> ssp. <i>davisii</i>	On steep rocky slopes with sagebrush .
Death Valley round-leaved phacelia	<i>Phacelia mustelina</i>	Sagebrush ; Great Basin scrub and pinyon-juniper woodland.
DeDecker's clover	<i>Trifolium kingii</i> subsp. <i>dedeckerae</i>	Sagebrush ; stabilized dunes in Great Basin scrub.
Deer Lodge buckwheat	<i>Eriogonum pharnaceoides</i> var. <i>cervinum</i>	Occurs in sagebrush and mountain mahogany communities, oak, pinyon-juniper and montane woodlands.
Deeth buckwheat	<i>Eriogonum nutans</i> var. <i>glabratum</i>	Sandy flats and slopes, saltbush and sagebrush communities, and in montane conifer woodlands .
Densetuft hairsedge	<i>Bulbostylis capillaris</i>	Found in disturbed habitats and grassland .
Desert chaenactis	<i>Chaenactis xantiana</i>	Grows near pinyon-juniper woodland and sagebrush scrub.
Desert dodder	<i>Cuscuta denticulata</i>	Parasitic on a variety of native shrubs in desert areas, including sagebrush and rabbitbrush.
Desert needlegrass	<i>Pappostipa speciosa</i>	Grasslands ; found in rocky slopes and canyons of arid to semi-arid regions.
Desert pincushion, broadflower pincushion	<i>Chaenactis stevioides</i>	Grasslands ; grows in deserts, open arid and semiarid habitat
Desert prenanthella	<i>Prenanthea exigua</i>	Grows near pinyon-juniper woodland .
Diffuse stickseed	<i>Hackelia diffusa</i> var. <i>diffusa</i>	Grasslands ; bottoms of mossy talus and scree slopes, shaded areas, cliffs, roadsides, and other disturbed sites.
Dimeresia or doublet	<i>Dimeresia howellii</i>	Grasslands ; grows in dry volcanic soils, primarily on the Modoc Plateau volcanic plain.
Disappearing monkeyflower	<i>Mimulus evanescens</i>	Grows in sagebrush-juniper plant associations, among rocky rubble and boulders in vernal moist, heavy gravel.
Drummond's mountain-avens	<i>Dryas drummondii</i> var. <i>drummondii</i>	Frequently in small washes or other moisture-accumulating microsites, in the sagebrush and lower pinyon-juniper zones.
Dusky canada goose	<i>Branta canadensis</i> <i>occidentalis</i>	Dry, densely vegetated, relatively undisturbed, on moderate to steep north-facing slopes in the sagebrush zone
Dwarf gray rabbitbrush	<i>Ericameria nauseosa</i> var. <i>nana</i>	Dry sand, gravel, rocky crevices in the sagebrush zone.
Dwarf lousewort	<i>Pedicularis centranthera</i>	Sagebrush ; usually granitic, sandy or rocky substrates in Great Basin scrub and pinyon-juniper woodland.
Dwarf phacelia	<i>Phacelia tetramera</i>	Grows near sagebrush scrub
Eastwood milkweed	<i>Asclepias eastwoodiana</i>	In open areas, including shale outcrops, generally barren, frequently in small washes, in the sagebrush and lower pinyon-juniper zones.
Elko rockcress	<i>Boechera falcifructa</i>	Gently north-sloping, sagebrush-dominated slopes with a high moss/cryptogamic cover over silty substrates.

J. Special Status Species in the Project Area (Table J-2. BLM Sensitive Species with the Potential to Occur in the Treatment Area)

Common Name	Latin Name	Habitat Description
Elusive Jacob's-ladder	<i>Polemonium elusum</i>	Occurs where vegetation transitions from sagebrush and mountain mahogany to Douglas-fir woodland
Engelmann's daisy	<i>Erigeron davisii</i>	Found in dry, mountainous areas and grasslands , with the highest diversity in North America.
Ephemeral monkeyflower	<i>Mimulus evanescens</i>	Sagebrush ; volcanic, gravelly, and rocky substrates in Great Basin scrub and pinyon-juniper woodland.
Erect pygmy-weed	<i>Crassula connata</i>	Grasslands ; open areas
Featherleaf kittentails	<i>Synthyris pinnatifida</i> var. <i>lanuginosa</i>	Grasslands ; occurs in dry, rocky areas in pin cushion communities of high elevations
Fee's lip-fern	<i>Cheilanthes feei</i>	Grasslands ; in arid climates, on limestone or sandstone cliff crevices, outcrops, rocky areas, and steep slopes.
Few-flowered bleedingheart	<i>Dicentra pauciflora</i>	Pinyon-juniper ; gravelly places, coniferous litter.
Field milk-vetch	<i>Astragalus agrestis</i>	Sagebrush ; Great Basin scrub and pinyon-juniper woodland.
Flat Top buckwheat, Smith's wild buckwheat	<i>Eriogonum corymbosum</i> var. <i>smithii</i>	Sagebrush ; purple-sage, desert shrub, and rabbitbrush communities, on the Entrada Formation.
Four-petal jamesia, Basin jamesia	<i>Jamesia tetrapetala</i>	Grows with chokecherry, mountain mahogany, Ephedra, and sagebrush at around 7,600 feet elevation
Franklin's penstemon	<i>Penstemon franklinii</i>	Sagebrush community on sandy-gravelly and sandy soils across a gently sloping landscape.
Fremont's combleaf	<i>Polyctenium fremontii</i>	It is found near sagebrush scrub
Frisco buckwheat	<i>Eriogonum soredium</i>	Limestone outcrop-surfaces with gravel and scattered rocks and boulders in pinyon-juniper
Frisco clover	<i>Trifolium friscanum</i>	Grows on calcareous and volcanic gravels, usually on relatively steep slopes, within pinyon-juniper .
Gambel milk-vetch	<i>Astragalus gambelianus</i>	Sagebrush, pinyon-juniper ; foothill woodland, southern oak woodland, coastal sage scrub.
Garrett's California fuchsia (Garrett's firechalice)	<i>Epilobium canum</i> ssp. <i>garrettii</i>	Grasslands ; dry/Desert
Gasquet manzanita	<i>Arctostaphylos hispidula</i>	Grasslands ; open rocky sites with serpentine or sandstone substrate.
Geyer's onion	<i>Allium geeyeri</i> var. <i>geeyeri</i>	Sagebrush ; Great Basin scrub, pinyon and juniper woodland ; gravelly or rocky.
Gilman's milkvetch	<i>Astragalus gilmanii</i>	Sagebrush ; found in the Great Basin scrub, pinyon and juniper woodland ; gravelly or rocky.
Gold poppy	<i>Eschscholzia caespitosa</i>	Pinyon-juniper ; mostly on south to west aspects, in sparse <i>Juniperus osteosperma</i> woodland.
Golden buckwheat	<i>Eriogonum chrysops</i>	Often described as occurring within sagebrush communities.
Golden chinquapin	<i>Chrysolepis chrysophylla</i> var. <i>chrysophylla</i>	Dry open sites to fairly thick woodlands . Most competitive on sites that are relatively infertile.
Goodrich eared rockcress	<i>Arabis goodrichii</i>	Rocky slopes in sagebrush and pinyon-juniper woodlands .
Goose Creek milkvetch	<i>Astragalus anserinus</i>	Occurs in drainage bottoms, lower to upper slope and crest positions, in open Utah juniper, big sagebrush , or rabbitbrush.
Gorman's iris	<i>Iris tenax</i> var. <i>gormanii</i>	Grasslands ; along the eastern edges of Elko and White Pine Counties, at elevations of 4600 to 6900 ft

J. Special Status Species in the Project Area (Table J-2. BLM Sensitive Species with the Potential to Occur in the Treatment Area)

Common Name	Latin Name	Habitat Description
Gould's camissonia	<i>Camissonia gouldii</i>	Volcanic ash cones in pinyon-juniper and big sagebrush communities.
Granite prickly phlox	<i>Linanthus pungens</i>	Occurs in dry, open forest, woodland, shrubland, and grassland habitats and their intergradations.
Gray cryptantha	<i>Cryptantha leucophaea</i>	Dry, often sandy places. Associated with rabbitbrush, bluebunch wheatgrass, cheatgrass, and sagebrush .
Gray pine	<i>Pinus sabiniana</i>	Grows in the summer dry mountains and foothills
Great Basin fishhook cactus	<i>Sclerocactus pubispinus</i>	Found in rocky hillsides of woodland and upper desert mountains. Sagebrush and pinyon-juniper communities.
Great Basin gilia	<i>Aliciella leptomeria</i>	Grasslands ; open habitats in semiarid regions, on dry bluffs or in sandy swales.
Green buckwheat	<i>Eriogonum umbellatum</i> var. <i>glaberrimum</i>	Found in sandy to gravelly slopes, sagebrush communities, aspen and montane conifer woodlands.
Green keeled cotton-grass	<i>Eriophorum viridicarinatum</i>	Grasslands ; Schoonover Formation, on mostly steep slopes of all aspects, and supporting a sparse to moderately dense vegetation
Green muhly, marsh muhly	<i>Muhlenbergia racemosa</i>	Grasslands ; Grows in disturbed areas, wetlands and other moist and wet habitats. It can grow in dry areas.
Green rock-posey lichen	<i>Rhizoplaca melanophthalma</i> ssp. <i>cerebriformis</i>	Usually on calcium-deficient rock, from pinyon-juniper communities up to the low alpine.
Green-band mariposa lily	<i>Calochortus macrocarpus</i> var. <i>maculosus</i>	Found in dry plains, rocky slopes, sagebrush scrub, and in pine forests. Usually occurring in volcanic soils.
Grimes vetchling	<i>Lathyrus grimesii</i>	Grassland /herbaceous, sagebrush shrubland/chaparral
Gumbo milkvetch	<i>Astragalus ampullarius</i>	Mixed desert sagebrush /shrub and juniper communities
Hairy wild cabbage	<i>Caulanthus pilosus</i>	Grasslands ; native to open, dry habitat.
Hall's aster	<i>Symphotrichum hallii</i>	Grasslands ; moist to dry prairies and open places in valley and plains.
Hall's daisy	<i>Erigeron aequifolius</i>	Great Basin sagebrush/scrub and pinyon-juniper woodland in clay or rocky substrates.
Hanaupah rock daisy	<i>Perityle villosa</i>	Great Basin sagebrush/scrub and pinyon-juniper woodland in clay or rocky substrates.
Hare's-foot milkvetch	<i>Astragalus purshii</i> var. <i>lagopinus</i>	Dry plains, slopes, often on basalt or pumice, often with sagebrush .
Hayden's mustard	<i>Terraria haydenii</i>	Scattered juniper habitat, very little vegetation.
Henderson's bentgrass	<i>Agrostis hendersonii</i>	Found in dry desert slopes, sandy washes, and valleys. Found within sagebrush (<i>Artemisia tridentata</i>) to pinyon-juniper woodlands .
Henderson's phlox	<i>Phlox hendersonii</i>	Found from high-elevation ridges to north-facing walls at lower elevations, in mountain sagebrush and pinyon-juniper .
Henderson's ricegrass	<i>Achnatherum hendersonii</i>	Sagebrush, pinyon-juniper ; often associated with <i>Artemisia rigida</i> and occasionally with <i>Pinus ponderosa</i> .
Hoffmann's buckwheat	<i>Eriogonum hoffmannii</i> var. <i>hoffmannii</i>	Granitic or carbonate, rocky substrates in pinyon and juniper woodland .

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Common Name	Latin Name	Habitat Description
Holmgren lupine	<i>Lupinus holmgrenianus</i>	Fond in dry desert slopes, sandy washes, and valleys. Found within sagebrush (<i>Artemisia tridentata</i>) to pinyon-juniper woodlands .
Holmgren smelowskia	<i>Nevada holmgrenii</i>	Sites are found in the mountain sagebrush and upper pinyon-juniper zones.
Hooker's balsamroot	<i>Balsamorhiza hookeri</i> var. <i>idahoensis</i>	Associated with pinyon-juniper , stiff sagebrush , and low sagebrush
Hoover's tauschia	<i>Tauschia hooveri</i>	Sagebrush ; shrubland/chaparral
Howell's rush	<i>Juncus howellii</i>	Occurs on gentle to steep slopes of all aspects; most commonly associated with open Utah juniper communities.
Howell's thelypodium	<i>Thelypodium howellii</i> var. <i>howellii</i>	Rocky, granitic substrates in pinyon and juniper woodland
Howell's whitlow-grass	<i>Draba howellii</i>	Grasslands ; rocky outcrops, meadows, dry-stone walls, brick walls, railway embankments, yards, paths, sloping pastures
Idaho hawksbeard	<i>Crepis bakeri</i> ssp. <i>idahoensis</i>	Occurs in canyon grasslands and on dry mountain slopes.
Idaho penstemon (also known as Idaho beardtongue)	<i>Penstemon idahoensis</i>	4400-7000 ft in the pinyon-juniper , sagebrush , and shadscale zones. Most commonly associated with Utah juniper (<i>Juniperus osteosperma</i>) communities.
Inchhigh lupine	<i>Lupinus uncialis</i>	Found in gravelly limestone soils on knolls, slopes, and small drainages, from the pinyon-juniper to the subalpine conifer zones.
Inflated Cima milk-vetch	<i>Astragalus cimae</i> var. <i>sufflatus</i>	Great Basin scrub/ sagebrush
Intermountain wavewing (shadscales spring parsley)	<i>Cymopterus basalticus</i>	Bare basaltic rocks, barren clays in Utah. In pinyon-juniper and sagebrush communities.
Inyo blazing star	<i>Mentzelia inyoensis</i>	Documented on a variety of substrates in habitats that include sagebrush scrub and pinyon-juniper .
Inyo rock daisy	<i>Perityle inyoensis</i>	Shale or gravelly substrates in Great Basin sagebrush scrub and pinyon and juniper woodland.
Jaeger's hesperidanthus	<i>Hesperidanthus jaegeri</i>	Sand or gravelly substrates in pinyon and juniper woodland .
Janish's penstemon	<i>Penstemon janishiae</i>	Hillsides and slopes on clay soil derived volcanic rock with sagebrush (<i>Artemisia</i>) to pinyon-juniper .
Kanab thelyplody	<i>Thelypodopsis ambigua</i> var. <i>erecta</i>	Pinyon-juniper and mixed desert sagebrush shrub communities, practically always on degraded purple Chinle shales.
Kane breadroot	<i>Pediomelum epipsilum</i>	Pinyon-juniper woodland on Chinle and Moenkopi formations.
Kaye H. Thorne's buckwheat	<i>Eriogonum artificis</i>	Pinyon and juniper woodland communities on gravelly substrates.
Kellogg's lily	<i>Lilium kelloggii</i>	Can grow in dry, rocky sites to shaded, deep soiled areas in forests , below 3500 feet.
Kellogg's rush	<i>Juncus kelloggii</i>	Dry, open, light-colored, strongly alkaline shrink-swell clay in mixed-shrub and lower sagebrush zones.
Kidney-leaved violet	<i>Viola renifolia</i>	Grasslands ; along washes, roadsides, and canyon floors, particularly on carbonate-containing substrates.

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Common Name	Latin Name	Habitat Description
King's rattleweed	<i>Astragalus calycosus</i>	Grasslands ; forb/herb
Lahontan Basin buckwheat	<i>Eriogonum rubricaulis</i>	Grasslands ; found in volcanic slopes.
Lahontan beardtongue	<i>Penstemon palmeri</i> var. <i>macranthus</i>	Grasslands ; along washes, roadsides and canyon floors, particularly on carbonate-containing substrates.
Lahontan milkvetch	<i>Astragalus porrectus</i>	Grasslands ; gravelly or sandy washes and outwash fans of volcanic sand or rock debris in the foothills of desert mountains.
Lahontan sagebrush	<i>Artemisia arbuscula</i> ssp. <i>longicaulis</i>	Sagebrush ; confined to gypsum-rich soils in central and eastern Clark County and southern Lincoln County, Nevada
Lanceleaf springbeauty	<i>Claytonia multiscapa</i> var. <i>flava</i>	Grasslands ; grows in foothills up to alpine slopes
Lance-leaved draba	<i>Draba cana</i>	Open, dry, knolls, badlands, or outcrops, usually northeast to southeast aspects, in pinyon-juniper or sagebrush .
Large Canadian St. John's wort	<i>Hypericum majus</i>	Grasslands ; found in fields, pastures, abandoned fields and in sunny locations.
Large yellow evening primrose, Flaming Gorge evening primrose	<i>Oenothera acutissima</i>	Rocky mountain juniper-sagebrush communities, and sagebrush scrub.
Large-leaved filaree	<i>Erodium macrophyllum</i>	Open sites, grassland , sagebrush scrub, vertic clay, occasionally serpentine. Grassland/herbaceous, Shrubland/chaparral
Lavin eggvetch	<i>Astragalus oophorus</i> var. <i>lavinii</i>	Occurs barren, arid and open, knolls, badlands, in pinyon-juniper and sagebrush communities.
Lavin's milk-vetch	<i>Astragalus oophorus</i> var. <i>lavinii</i>	Rocky substrates in pinyon and juniper woodland .
Lee's lewisia	<i>Lewisia leeana</i>	Grasslands ; cliffs and rocks
Leiberg's clover	<i>Trifolium leibergii</i>	Grasslands ; dry, exposed, shallow, relatively barren and undisturbed, on flat to moderately steep slopes of all aspects.
Lemmon buckwheat	<i>Eriogonum lemmonii</i>	Grasslands ; rolling hills on weathered tuff, fine, light colored, sandy loam, and silt loam.
Lemmon's milk-vetch	<i>Astragalus lemmonii</i>	Rocky or gravelly substrates in Great Basin sagebrush scrub and pinyon and juniper woodland.
Lens-pod milk-vetch	<i>Astragalus lentiformis</i>	Rocky substrates in pinyon and juniper woodland .
Lichen	<i>Calicium quercinum</i>	Sagebrush, grasslands, pinyon-juniper ; found on twigs and in sheltered sites on old wood or bark.
Lichen	<i>Hypotrachyna riparia</i>	Sagebrush, grasslands, pinyon-juniper ; on deciduous shrubs and trees in foothills of the western Cascade Range, Oregon.
Lichen	<i>Lecanora caesiorubella</i> ssp. <i>merrillii</i>	Sagebrush, grasslands, pinyon-juniper ; on barks of trees and shrubs, decaying wood in dry, open coniferous woodland, chaparral, and salt marsh.
Lichen	<i>Leptogium cyanescens</i>	Sagebrush, grasslands, pinyon-juniper ; found on shaded twigs of deciduous trees and shrubs in humid habitats, rarely in exposed situations.

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Common Name	Latin Name	Habitat Description
Lichen	<i>Lobaria linita</i>	Sagebrush, grasslands, pinyon-juniper ; found on moss-covered rocks in cool, moist areas in forests.
Lichen	<i>Microcalicium arenarium</i>	Sagebrush, grasslands, pinyon-juniper ; found on bark, wood, root, and rock faces that are sheltered from precipitation
Lichen	<i>Peltula euploca</i>	Sagebrush, grasslands, pinyon-juniper ; found on acidic rocks in deserts and other open, arid habitats.
Lichen	<i>Ramalina pollinaria</i>	Sagebrush, grasslands, pinyon-juniper ; grows on bark and rocks.
Lichen	<i>Rhizoplaca melanophthalma</i> ssp. <i>crispa</i>	Usually on calcium-deficient rock, from pinyon-juniper communities up to the low alpine.
Lichen	<i>Sigridea californica</i>	Sagebrush, grasslands, pinyon-juniper ; growing on the trunks of trees and shrubs, such as <i>Quercus</i> spp., <i>Heteromeles</i> spp., <i>Adenostoma</i> spp., and <i>Pinus</i> spp.
Lichen	<i>Texosporium sancti-jacobi</i>	Sagebrush, grasslands, pinyon-juniper ; shadscale, desert shrub, and juniper communities on calcareous substrates at 1,679 to 6300 ft elevation
Lichen	<i>Thelenella muscorum</i> var. <i>octospora</i>	Sagebrush, grasslands, pinyon-juniper ; on soil, rock, and dead or dying mosses in dry woodlands, prairie, shrub-steppe, and subalpine forest.
Lichen	<i>Umbilicaria phaea</i> var. <i>coccinea</i>	Sagebrush, grasslands, pinyon-juniper ; associated vegetation includes, <i>Juniperus occidentalis</i> , <i>Pinus ponderosa</i> .
Limestone buckwheat	<i>Eriogonum eremicum</i>	Found in shadscale, desert sagebrush shrub, and juniper communities on calcareous substrates.
Limestone daisy	<i>Erigeron uncialis</i> var. <i>uncialis</i>	Sandy to rocky substrates in Great Basin sagebrush scrub and pinyon and juniper woodland.
Limestone monkeyflower	<i>Erythranthe calcicola</i>	Usually carbonate, usually talus slopes in pinyon and juniper woodland.
Little bluestem	<i>Schizachyrium scoparium</i> var. <i>scoparium</i>	Grasslands ; ill prairies, gravel prairies, sand prairies, black soil prairies, clay prairies, and scrubby barrens
Little ricegrass	<i>Stipa exigua</i>	Carbonate, rocky soils in Great Basin sagebrush scrub and pinyon and juniper woodland.
Liverwort	<i>Herbertus dicranus</i>	Grasslands, sagebrush, pinyon-juniper ; found in dry to moist and open to shaded cliffs, outcrops, boulders, tree trunks, tree bases, dead trees, bushes.
Liverwort	<i>Lophozia gillmanii</i>	Grasslands, sagebrush, pinyon-juniper ; found on peaty soil, usually associated with cliffs or ledges. It is an obligate calciphile.
Liverwort	<i>Phymatoceros phymatodes</i>	Forest Edge, Forest/ Woodland , Grassland/sagebrush -herbaceous
Liverwort	<i>Porella vernicosa</i> ssp. <i>fauriei</i>	Found in crevices of granitic cliffs and outcrops on protected exposures in the pinyon-juniper zone.
Liverwort	<i>Ptilidium pulcherrimum</i>	Found in sandy rhyolitic soils on flats and gentle slopes of mountain sagebrush .
Liverwort	<i>Scapania obscura</i>	Pinyon-juniper, sagebrush , and mixed desert shrub communities.
Liverwort	<i>Sphaerocarpos hians</i>	Habitats include desert scrub, grasslands, sagebrush steppe, and pinyon-juniper
Loa milkvetch, Glenwood milkvetch	<i>Astragalus loanus</i>	Volcanic gravels in sagebrush and pinyon-juniper communities.

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Common Name	Latin Name	Habitat Description
Lobb's buckwheat	<i>Eriogonum lobbii</i>	Grasslands, sagebrush, pinyon-juniper ; found in a number of mountain plant communities.
Lone Mountain goldenheads	<i>Tonestus graniticus</i>	Crevice in granite cliffs and on bedrock outcrops within pinyon pine woodlands .
Long Valley Milkvetch	<i>Astragalus johannis-howellii</i>	Usually found in great basin sagebrush scrub, pinyon and juniper woodland.
Long-bract frog orchid	<i>Coeloglossum viride</i>	Sagebrush, pinyon-juniper ; grows chiefly in sub-arid soil in damp open woods in thickets and shrub borders.
Long-calyx eggvetch	<i>Astragalus oophorus</i> var. <i>lonchocalyx</i>	Pinyon-juniper, sagebrush , and mixed desert shrub communities.
Long-flowered snowberry	<i>Symphoricarpos longiflorus</i>	Found in relatively barren clay or sandy-clay knolls, slopes, and flats in the pinyon-juniper woodland zone .
Long-haired star-tulip	<i>Calochortus longebarbatus</i> var. <i>longebarbatus</i>	Mesic, alkaline, clay substrates in Great Basin sagebrush scrub.
Longsepal globemallow	<i>Iliamna longisepala</i>	Dry, open hillsides, gravelly streamsides, sagebrush-covered foothills.
Long-stemmed androsace	<i>Androsace elongata</i> ssp. <i>acuta</i>	Found on slopes, coastal sagebrush scrub, meadows and seeps, pinyon and juniper woodland, and valley and foothill grasslands
Loose beardtongue	<i>Penstemon laxus</i>	Dry meadows, sagebrush slopes and swales, and open to sparsely wooded slopes.
Loose-flowered vetch	<i>Astragalus tenellus</i>	Grasslands, sagebrush, pinyon-juniper ; plains, Foothills, Montane
Lost Creek wild buckwheat	<i>Eriogonum brevicaulis</i> var. <i>mitophyllum</i>	Grasslands, sagebrush, pinyon-juniper ; dry, sunny site with a poor, sandy soil
Lost River Silene, lobed catchfly	<i>Silene scaposa</i> var. <i>lobata</i>	Sagebrush ; scrubland, slope
Lost River whitlow-grass	<i>Draba hitchcockii</i>	Limestone outcrops and gravelly soils, sagebrush
Low feverfew	<i>Parthenium ligulatum</i>	Black sagebrush , pygmy sagebrush, and pinyon-juniper communities.
Macfarlane's four-o'clock	<i>Mirabilis macfarlanei</i>	On steep slopes and ridgelines of all aspects in the pinyon-juniper zone.
Mackenzie's phacelia	<i>Phacelia lutea</i> var. <i>mackenzieorum</i>	In the pinyon-juniper and sagebrush zones. Endemic to the Pine Nut and Virginia Ranges.
Maguire's daisy	<i>Erigeron maguirei</i>	Formations in lower limits of juniper woodland communities.
Malheur penstemon	<i>Penstemon miser</i>	Diatomite and ash soils, often weathered to clay, in sparse sagebrush/juniper communities.
Margaret rushy milkvetch	<i>Astragalus convallarius</i> var. <i>margaretiae</i>	Grows beneath sagebrush (<i>Artemisia tridentata</i>) in pinyon-juniper woodland.
Marigold navarretia	<i>Navarretia tagetina</i>	Found in open, grassland flats, vernal pools.
Masonic Mountain jewelweed	<i>Streptanthus oiganthus</i>	Plant communities include sagebrush , Great Basin scrub, and pinyon-juniper woodland.
McGee Meadows lupine	<i>Lupinus magnificus</i> var. <i>hesperius</i>	Sandy or gravelly in Great Basin sagebrush scrub (volcanic ash) and pinyon and juniper woodland.
Meadow milkvetch	<i>Astragalus diversifolius</i>	Moist, often alkaline meadows and swales in sagebrush valleys or closed drainage basins.

J. Special Status Species in the Project Area (Table J-2. BLM Sensitive Species with the Potential to Occur in the Treatment Area)

Common Name	Latin Name	Habitat Description
Meadow pussy-toes	<i>Antennaria corymbosa</i>	Sagebrush ; found in loose, sandy to gravelly soils, in the creosote-bursage, blackbrush, and mixed-shrub zones.
Membrane-leaved monkeyflower	<i>Erythranthe hymenophylla</i>	In the pinyon-juniper and mountain sagebrush zones.
Midget quillwort	<i>Isoetes minima</i>	Found in seasonally wet swales in big sagebrush shrub steppe.
Milo baker's cryptantha	<i>Cryptantha milo-bakeri</i>	Pinyon-juniper ; rocky, gravelly soil, sometimes serpentine, in conifer or mixed conifer-deciduous forests, Jeffrey pine.
Miner's candle	<i>Cryptantha scoparia</i>	Found in dry open slopes in mixed desert shrub, sagebrush , and pinyon -juniper communities.
Modoc Rim sideband	<i>Monadenia fidelis</i> ssp. nov. (Modoc Rim)	Found in mesic forests habitats or near springs or other water sources in forest situations.
Mono County Phacelia	<i>Phacelia monoensis</i>	It grows along with sagebrush , pinyon-juniper , great basin scrub, and rabbitbrush.
Mono Lake lupine	<i>Lupinus duranii</i>	Volcanic pumice, gravelly in Great Basin sagebrush scrub.
Mono milk-vetch	<i>Astragalus monoensis</i>	Sandy in Great Basin sagebrush scrub.
Moss	<i>Bruchia flexuosa</i>	Occurring in small clusters in openings among grasslands on open expanses of seasonally moist bare soil.
Moss	<i>Bryoerythrophyllum columbianum</i>	Habitats include grassland steppe as well as ledges and bluffs near rivers.
Moss	<i>Ephemerum crassinervium</i>	Grasslands ; found on damp disturbed soil, often in old fields, paths, river banks or spots of open bare ground.
Moss	<i>Ephemerum serratum</i>	Grasslands ; finely grained soil in arable fields, mud at the margins of reservoirs and rivers, or as part of the ephemeral community on tracks.
Moss	<i>Orthotrichum euryphyllum</i>	Primarily in dry pinyon juniper (<i>Juniperus occidentalis</i>), <i>Pinus ponderosa</i> , and sagebrush (<i>Artemisia tridentata</i>) associations.
Moss	<i>Physcomitrium immersum</i>	Grasslands ; grows on wet soil in floodplains or mud flats, also at roadsides and in bare spots of fields.
Moss	<i>Pseudephemerum nitidum</i>	Grasslands ; grows on the edge of fields.
Moss	<i>Rhytidiadelphus subpinnatus</i>	Grasslands ; grows heavily on grazed pastures and on mown fairways on golf courses.
Moss	<i>Thamnobryum neckeroides</i>	Found in open, gravelly soils in the subalpine conifer, subalpine sagebrush , mountain mahogany, and upper pinyon-juniper zones.
Mound cryptanth	<i>Cryptantha compacta</i>	Sagebrush ; salt desert shrub and mixed desert shrub communities.
Mount Moriah beardtongue	<i>Penstemon moriahensis</i>	Habitats include scrubby sagebrush /mountain mahogany woodlands, open sagebrush meadows and slopes, and upper pinyon-juniper and pinyon woodland.
Mountain townsendia	<i>Townsendia montana</i>	Pinyon-juniper ; mainly in the subalpine conifer zone.
Mourning milkvetch	<i>Astragalus atratus</i> var. <i>inseptus</i>	Grasslands ; endemic to the Snake River Plain in Idaho. Occurs on sparsely vegetated ridge crests.

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Common Name	Latin Name	Habitat Description
Mulford's milkvetch	<i>Astragalus mulfordiae</i>	Sagebrush ; gentle to steep south and west-facing slopes in shrub-steppe or desert shrub communities.
Murdock's evening primrose	<i>Oenothera murdockii</i>	Barrens, Forest/Woodland, Woodland - Conifer
Naked-stemmed evening-primrose	<i>Chylismia scapoidea</i> ssp. <i>scapoidea</i>	Sagebrush desert, mostly in sandy or gravelly soils, including sand dunes and unstable areas.
Narrowleaf grapefern	<i>Botrychium lineare</i>	Grasslands, pinyon-juniper ; meadow dominated by knee-high grass, shaded woods and woodlands. Early seral habitats
Narrow-leaved amole	<i>Chlorogalum angustifolium</i>	Grasslands, pinyon-juniper ; grows in heavy, rocky, soils in woodland and on grassy hillsides.
Narrow-stem cryptantha	<i>Cryptantha gracilis</i>	Open, sandy, gravelly, or clay slopes and flats in the salt-desert, shadscale, and lower sagebrush zones.
Needle Mountains milkvetch	<i>Astragalus eurylobus</i>	Gravel washes and sandy soils in alkaline desert and arid grassland .
Needleleaf sedge	<i>Carex duriuscula</i>	Occurs in the desert along disturbed areas. Also found in a forest, grassland , meadow, and riparian areas.
Neese narrowleaf penstemon	<i>Penstemon angustifolius</i> var. <i>dulcis</i>	Four-winged saltbush, sagebrush-Eriogonum , and juniper communities of sand dunes.
Nevada lupine	<i>Lupinus nevadensis</i>	Hillsides and valley floors, on dry, sandy, and stony soil with pinyon-juniper and sagebrush .
Nevada suncup	<i>Camissonia nevadensis</i>	Open, sandy, gravelly, or clay slopes and flats in the salt-desert, shadscale, and lower sagebrush zones.
Nevada willowherb	<i>Epilobium nevadense</i>	Mixed-mountain brush and pinyon-juniper -mountain brush
Newberry's milkvetch	<i>Astragalus newberryi</i> var. <i>castoreus</i>	Woodland , rocky outcrops, gravelly hillsides.
Northern golden-carpet	<i>Chrysosplenium tetrandrum</i>	Gentle slopes in open areas or under shrubs in the upper salt desert and lower sagebrush zones.
Northern grass-of-parnassus	<i>Parnassia palustris</i> var. <i>tenuis</i>	Found in mountain ranges.
Northern microseris	<i>Microseris borealis</i>	Grasslands, sagebrush ; meadow steppe habitat dominated by bunchgrasses and forbs.
Northern wormwood	<i>Artemisia campestris</i> ssp. <i>borealis</i> var. <i>wormskioldii</i>	Grows in generally arid with sagebrush shrub steppe vegetation.
Northwestern yellowflax	<i>Sclerolinon digynum</i>	Occurs in vernal pools margins and seasonally wet gravelly to rocky soils. Also found in grasslands .
Nuttall's sandwort	<i>Minuartia nuttallii</i> ssp. <i>fragilis</i>	Open, gravelly benches, dry rocky areas, or limestone talus from open sagebrush hills to alpine slopes.
Obscure scorpionflower	<i>Phacelia inconspicua</i>	Open sandy spots in sagebrush/grass zone, near junipers .
Ochoco lomatium	<i>Lomatium ochocense</i>	Grasslands, sagebrush ; open, barren scabland with <i>Artemisia rigida</i> / <i>Poa secunda</i> plant association.
Oregon daisy	<i>Erigeron oreganus</i>	Dry, open soils among boulders in healthy sagebrush steppe vegetation.

J. Special Status Species in the Project Area (Table J-2. BLM Sensitive Species with the Potential to Occur in the Treatment Area)

Common Name	Latin Name	Habitat Description
Oregon white-top aster	<i>Sericocarpus oregonensis</i> var. <i>oregonensis</i>	Found in mesic to moist habitats, well-drained open woodlands , and dry, open, often rocky coniferous forest.
Osgood Mountains milkvetch (also identified as “mudflat milkvetch”)	<i>Astragalus yoder-williamsii</i>	Dry, cold ridge crests, stony flats, and disturbed roadbeds. Associated with low sagebrush and big mountain sagebrush.
Ostler pepperplant	<i>Lepidium ostleri</i>	Pinyon-juniper community, often in shaded sites on limestone outcrop.
Ostler's ivesia or Wah Wah ivesia	<i>Ivesia shockleyi</i> var. <i>ostleri</i>	Pinyon-juniper and adjacent ponderosa pine communities in crevices of quartzite or whitish outcrops.
Owyhee clover	<i>Trifolium owyheense</i>	Barren slopes in sagebrush-steppe or desert shrub vegetation.
Owyhee prickly phlox	<i>Leptodactylon glabrum</i>	Generalist ; Found in disturbed silty clay soils of valley bottoms in salt desert vegetation, or on roadsides or in abandoned fields.
Owyhee sagebrush	<i>Artemisia papposa</i>	This species grows in meadows, alkaline flats, and sagebrush-juniper slopes.
Pacific fir-moss	<i>Huperzia miyoshiana</i>	Found in loose soil and rock crevices among boulders in pinyon-juniper woodlands and sagebrush shrublands.
Pacific pea	<i>Lathyrus vestitus</i> ssp. <i>ochropetalus</i>	Dry, open to wooded areas, forest edges, and roadsides, near or within historical prairies Pinyon-juniper, grasslands.
Packard's buckwheat	<i>Eriogonum shockleyi</i> var. <i>packardiae</i>	Occurs in the sagebrush-steppe zone of the western Snake River Plain, in azonal microhabitats.
Packard's desert parsley	<i>Lomatium packardiae</i>	Found within sagebrush communities, on dry, open, rocky clay soils derived from rhyolite or volcanic ash.
Packard's milkvetch	<i>Astragalus cusickii</i> var. <i>packardiae</i>	Shrub-steppe, and to a lesser extent bunchgrass grassland community.
Pahrump silverscale	<i>Atriplex argentea</i> var. <i>longitrichoma</i>	Saline valley bottoms, with shrubby saltbush, creosote bush, mesquite, and annual weedy grasses and forbs, grasslands.
Pahute Mesa beardtongue	<i>Penstemon pahutensis</i>	In loose soil and rock crevices among boulders in pinyon-juniper woodlands and sagebrush shrublands.
Paiute lomatium	<i>Lomatium ravenii</i> var. <i>paiutense</i>	Flats, slopes, ridges, generally alkaline soils, sagebrush, pinyon-juniper woodlands.
Pale blue-eyed grass	<i>Sisyrinchium sarmentosum</i>	Forest - Conifer, Forest/Woodland, Grassland /herbaceous.
Palmer's buckwheat	<i>Eriogonum palmerianum</i>	Sandy to gravelly washes, flats, and slopes, saltbush, greasewood, creosote bush, blackbrush, and sagebrush communities, pinyon and/or juniper woodlands
Palmer's evening-primrose	<i>Tetrapteron palmeri</i>	Grows in desert and sagebrush habitats.
Palouse goldenweed	<i>Pyrrcoma liatrifomis</i>	Grassland communities and transition zones between prairie and open ponderosa pine. It also occurs in mesic grassland habitats.
Palouse milk-vetch	<i>Astragalus arrectus</i>	Grassy loess hillsides, sagebrush slopes, river bluffs, and openings in yellow pine forest.
Palouse thistle	<i>Cirsium brevifolium</i>	Open grasslands and grassy areas (roadsides) rarely extending far into forest or shrublands.
Panamint dudleya	<i>Dudleya saxosa</i> subsp. <i>saxosa</i>	Great Basin scrub/ sagebrush and pinyon and juniper woodland.

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Common Name	Latin Name	Habitat Description
Panamint Mountains buckwheat	<i>Eriogonum microthecum</i> var. <i>panamintense</i>	Rocky, sometimes carbonate in Great Basin scrub/ sagebrush and pinyon and juniper woodland.
Panamint Mtns. lupine	<i>Lupinus magnificus</i> var. <i>magnificus</i>	Gravelly or rocky, vernal mesic in Great Basin scrub/ sagebrush and pinyon and juniper woodland.
Parish's horse-nettle	<i>Solanum parishii</i>	Grows in many types of habitats, including inland chaparral/ sagebrush , woodlands, and forests.
Parry's petalonyx	<i>Petalonyx parryii</i>	Often found in warm, dry desert regions. Dry, desert washes.
Pasqueflower	<i>Anemone patens</i> var. <i>multifida</i>	Prairies and grasslands , open alpine slopes and ridges in loose, sandy, well-drained soil.
Pauper milk-vetch	<i>Astragalus misellus</i> var. <i>misellus</i>	Habitat is stony hills and pastures and gravelly clay banks, on basaltic bedrock, with sagebrush and juniper .
Pauper milk-vetch	<i>Astragalus misellus</i> var. <i>pauper</i>	Associated species include sagebrush , rock buckwheat, bluebunch wheatgrass, and yellow fleabane.
Payson's bladderpod	<i>Lesquerella paysonii</i>	Windswept, gravelly, calcareous ridgecrests, semi-open slopes, and rocky floodplains. Often associated with sagebrush/grassland communities.
Payson's milkvetch	<i>Astragalus paysonii</i>	Endemic of Clearwater Mountains; occurs primarily in disturbed areas such as recovering burns, clear cuts, road cuts, and blow downs. Grassland, sagebrush, pinyon-juniper .
Peck's Indian paintbrush	<i>Castilleja peckiana</i>	Dry areas. Sandy or gravelly soil, open pine forests, sagebrush slopes.
Peninsular onion	<i>Allium peninsulare</i>	Valley Grassland , Foothill Woodland, and Coastal Chaparral.
Perennial thelypod	<i>Thelypodium flexuosum</i>	Moderately to strongly alkaline sandy loam or clay, open deserts, sagebrush scrub
Phipp's hawthorn	<i>Crataegus phippsii</i>	Occurs in open thickets. Sometimes found in riparian areas. Forest/Woodland, Shrubland/chaparral/ sagebrush , Woodland - Conifer.
Picabo milkvetch	<i>Astragalus oniciformis</i>	Occurs almost exclusively on the <i>Artemisia tridentata</i> var. <i>wyomingensis</i> / <i>Stipa comata</i> habitat type. Sagebrush .
Pine Nut Mountains mousetails	<i>Ivesia pityocharis</i>	Shrubland/chaparral. Seasonally saturated soils in sagebrush flats.
Pink egg milkvetch	<i>Astragalus oophorus</i> var. <i>lonchocalyx</i>	Pinyon-juniper, sagebrush , and mixed desert shrub communities.
Pinnate spring-parsley	<i>Cymopterus beckii</i>	Sandy or stony crevices, ledges, and cliff bases on Navajo Sandstone in pinyon-juniper , mountain brush, and ponderosa pine.
Pinyon Mesa buckwheat	<i>Eriogonum mensicola</i>	Great Basin scrub/ sagebrush
Pinyon penstemon	<i>Penstemon pinorum</i>	Pinyon-juniper , mountain-mahogany, ephedra, oak, sagebrush , and less commonly greasewood communities.
Pioche blazingstar	<i>Mentzelia argillicola</i>	Found in forb, herb, and subshrub. Grassland, sagebrush .
Piper's daisy	<i>Erigeron piperianus</i>	Commonly found in virgin stands of the big sagebrush /bluebunch wheatgrass association.
Playa phacelia	<i>Phacelia inundata</i>	Great Basin, scrub/ sagebrush , Playa/salt flat. Alkali playas and seasonally inundated areas with clay soils.

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Common Name	Latin Name	Habitat Description
Plumas ivesia	<i>Ivesia sericoleuca</i>	Volcanic, rocky, sometimes roadsides in Great Basin scrub and pinyon and juniper woodland.
Plumed clover	<i>Trifolium plumosum</i> ssp. <i>plumosum</i>	Dry hillsides and meadows. Associated species include ponderosa pine, lupine, and Idaho fescue. Grassland, pinyon-juniper.
Plumed clover	<i>Trifolium plumosum</i> var. <i>amplifolium</i>	Known from Palouse prairie remnants, forest edge, and one site described as a sedge wetland to open <i>Pinus ponderosa</i> forest with bunchgrass understory. Grassland, pinyon-juniper.
Polished blazingstar	<i>Mentzelia polita</i>	Open areas in mixed desert shrub communities. Sagebrush
Prairie moonwort	<i>Botrychium campestre</i>	Occurs primarily in non-forested habitats at low elevations, although it may grow under shrubs in or at the margins of these habitats. Grassland, sagebrush
Prickly-poppy	<i>Argemone munita</i> ssp. <i>rotundata</i>	Found on open slopes and foothills. Grassland, sagebrush, pinyon-juniper.
Prostrate bladderpod	<i>Lesquerella prostrata</i>	Sagebrush, grassland, and juniper communities.
Prostrate ceanothus	<i>Ceanothus prostratus</i>	Dry to mesic forest sites, often associated with chaparral/ sagebrush.
Psorlea globemallow	<i>Sphaeralcea psoraloides</i>	Desert, Forest/Woodland, Woodland - Conifer. Salt and mixed desert shrub communities. Pinyon-juniper communities
Puget balsamroot	<i>Balsamorhiza deltoidea</i>	Yellow Pine Forest, Red Fir Forest, Lodgepole Forest, Foothill Woodland, Chaparral, Valley Grassland, (many plant communities).
Pulsifer's milk-vetch	<i>Astragalus pulsiferae</i> var. <i>pulsiferae</i>	Rocky, carbonate in Great Basin scrub and pinyon and juniper woodland.
Pulsifer's monkey-flower	<i>Erythranthe pulsiferae</i>	Seasonally wet or moist open areas; often in exposed mineral soil or in grass/forb openings in ponderosa pine, Douglas fir. Grassland.
Purple cymopterus	<i>Cymopterus purpurascens</i>	Found in desert regions and near pinyon-juniper woodland.
Pygmy suncup	<i>Camissonia pterosperma</i>	Pinyon-Juniper Woodland
Rabbit Valley gilia	<i>Aliciella caespitosa</i>	Found within open pinyon-juniper communities, often mixed with mountain brush, sagebrush, or ponderosa pine.
Rabbitbrush or Bloomer's goldenweed	<i>Ericameria bloomeri</i>	Grows in coniferous forests, pinyon-juniper.
Racemose pyrrocoma	<i>Pyrrocoma racemosa</i> var. <i>racemosa</i>	Northern Juniper Woodland, Sagebrush Scrub, Alkali Sink, Red Fir Forest, wetland-riparian.
Railroad Canyon buckwheat	<i>Eriogonum soliceps</i>	Gravelly soil, sagebrush communities.
Railroad Valley globemallow	<i>Sphaeralcea caespitosa</i> var. <i>williamsiae</i>	Greasewood, shadscale, and mixed shrubs zones/ sagebrush, often more abundant on recovering disturbances such as washes and roadsides.
Red poverty weed	<i>Micromonolepis pusilla</i>	May be found in plains, open pine forest, chaparral slopes, and dry rock cliffs. Desert regions, in saline or alkaline clay soils, salt-encrusted soils, or edges of alkaline ponds.
Redberry	<i>Rhamnus ilicifolia</i>	Chaparral, sagebrush, montane forests.
Red-fruited lomatium	<i>Lomatium erythrocarpum</i>	Generally found in open areas, in the ecotone between shrub-steppe/ sagebrush vegetation, dominated by mountain mahogany and big sagebrush

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Common Name	Latin Name	Habitat Description
Red-rooted yampah	<i>Perideridia erythrorhiza</i>	Found in moist prairies with tufted hairgrass and California oatgrass. Also pastureland, grasslands , and wood edges.
Reese River phacelia	<i>Phacelia glaberrima</i>	Low, barren hills with white, alkaline clay soils. Also limestone talus. Generally on steeper slopes of low hills, bluffs, and badlands in shadscale-greasewood, sagebrush , and lower pinyon-juniper zones.
Rigid threadbush	<i>Nemacladus rigidus</i>	Desert scrub, juniper or pinyon-juniper woodland, sandy and gravelly wash bottoms, volcanic ash.
Roadside agrimonia	<i>Agrimonia striata</i>	Moist places, generally in woodland; Moist upper elevation mixed conifer forests, forest edges, forests, meadows and fields, grasslands , woodlands.
Rock melic, nodding melicgrass	<i>Melica stricta</i>	Sagebrush Scrub, Yellow Pine Forest, Red Fir Forest, Northern Juniper Woodland, Lodgepole Forest, Subalpine Forest, Bristle-cone Pine Forest.
Rock purpusia	<i>Ivesia arizonica</i> var. <i>saxosa</i>	Crevices of cliffs and boulders on volcanic and possibly carbonate rocks in the upper mixed-shrub, sagebrush , and pinyon-juniper zones.
Rollins' lomatium	<i>Lomatium rollinsii</i>	Mid to low elevation canyon grasslands of early to late seral successional stage. Found on gentle to steep slopes.
Rose checker-mallow	<i>Sidalcea malviflora</i> ssp. <i>virgata</i>	Open meadows, grasslands , prairies, grassy hillsides, fencerows, roadsides, and in low mountain areas.
Rose's lomatium	<i>Lomatium roseanum</i>	Bare rock/talus/scree, Shrubland/chaparral. Usually found within low sagebrush vegetation. Also common in open, dry, basalt talus.
Rosy balsamroot	<i>Balsamorhiza rosea</i>	Dry, rocky slopes at low elevation, shrube-steppe, sagebrush
Rosy owl-clover	<i>Orthocarpus bracteosus</i>	Sagebrush Scrub, Northern Juniper Woodland. Likely to occur in wetlands and non-wetlands.
Rosy pussypaws	<i>Calyptidium roseum</i>	Occurs usually in nonwetlands, occasionally in Sagebrush Scrub, Northern Juniper Woodland, Red Fir Forest, Lodgepole Forest.
Rough pyrrocoma	<i>Pyrrocoma scaberula</i>	Mesic grasslands and transition zones between grasslands and ponderosa pine communities.
Rural paintbrush	<i>Castilleja flava</i> var. <i>rustica</i>	Subalpine sagebrush steppe, rocky slope.
Sabin's lupine	<i>Lupinus sabinianus</i>	Lower to mid-elevation mixed coniferous forests and transitional grasslands .
Saddle Mountain bittercress	<i>Cardamine pattersonii</i>	Grassland /herbaceous. Moss mats over bare rocks, moist cliffs and other rocky slopes, and grassy balds.
Sagebrush loeflingia	<i>Loeflingia squarrosa</i> var. <i>artemisiarum</i>	Rocky, carbonate in Great Basin scrub, sagebrush, and pinyon-juniper woodland.
Sagebrush pygmyleaf	<i>Loeflingia squarrosa</i> ssp. <i>artemisiarum</i>	Occurs in dry soils and loose sands of washes. Found in Great Basin scrub, Sonoran Desert scrub, and sagebrush .
Sagebrush stickseed	<i>Hackelia hispida</i> var. <i>disjuncta</i>	Sagebrush ; rocky talus (sparsely-vegetated) at elevations of 600 to 2100 feet in the Columbia Basin and Eastern Cascades.
Saline plantain	<i>Plantago eriopoda</i>	Alkaline meadows at lower elevations, marshes, prairies, plains, grasslands .
Salt heliotrope	<i>Heliotropium curassavicum</i>	Occurs in yellow pine forest, red fir forest, lodgepole forest, foothill woodland, chaparral/ sagebrush , valley grassland .

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Common Name	Latin Name	Habitat Description
Sanborn's onion	<i>Allium sanbornii</i> var. <i>sanbornii</i>	Heavy serpentine clay. chaparral/ sagebrush , foothill woodland, yellow pine forest.
Sand seep clover or Kane white-tip clover	<i>Trifolium variegatum</i> var. <i>parunuweapensis</i>	Drainage bottoms with rushes within ponderosa pine and pinyon-juniper woodland.
Scapose or tufted Townsend daisy	<i>Townsendia scapigera</i>	Openings in sagebrush. Sagebrush Scrub, Pinyon-Juniper Woodland, Subalpine Forest, Lodgepole Forest.
Scarlet buckwheat	<i>Eriogonum phoeniceum</i>	Tuffaceous ash outcrops, sagebrush communities, pinyon-juniper woodlands.
Schoolcraft buckwheat	<i>Eriogonum microthecum</i> var. <i>schoolcraftii</i>	Sandy to rocky soil, sagebrush communities, pinyon-juniper woodlands.
Schoolcraft catseye	<i>Cryptantha schoolcraftii</i>	Sagebrush steppe zone.
Scribner's grass	<i>Scribneria bolanderi</i>	Sagebrush, grassland , sterile or sandy to rocky soil, often along roadsides, mostly in foothills and lower mtns.
Scrub lotus	<i>Lotus argyraeus</i> var. <i>multicaulis</i>	Pinyon-juniper woodland
Serpentine catchfly	<i>Silene hookeri</i> ssp. <i>serpentinicola</i>	Serpentine soils, chaparral/ sagebrush , conifer forest.
Serpentine dwarf rose	<i>Rosa gymnocarpa</i> var. <i>serpentina</i>	Forest/Woodland, Shrubland/chaparral/ sagebrush . Full sun in chaparral, dwarf forest on ultramafic substrates.
Sevier townsendia	<i>Townsendia jonesii</i> var. <i>lutea</i>	Salt desert and mixed desert shrub, pinyon-juniper and sagebrush communities.
Sexton mt. mariposa-lily	<i>Calochortus indecorus</i>	Rocky, serpentine substrates. Probably in woodlands with grassy openings, pinyon-juniper, grassland
Shaggy horkelia	<i>Horkelia congesta</i> ssp. <i>congesta</i>	Grassland and oak savannah remnants and grassy balds.
Sharpp fruited peppergrass	<i>Lepidium oxycarpum</i>	Valley Grassland , Coastal Salt Marsh, wetland-riparian.
Shasta orthocarpus	<i>Orthocarpus pachystachyus</i>	Alkaline in Great Basin scrub, sagebrush .
Shevock bristlemoss	<i>Orthotrichum shevockii</i>	Habitat is arid pinyon-juniper woodland to very open ponderosa pine forests. It is restricted to very large granitic boulders and rock walls.
Shiny-fruited popcorn flower	<i>Plagiobothrys lamprocarpus</i>	Moist places in an old [dirt] road.
Shockley's or matted cowpie buckwheat	<i>Eriogonum shockleyi</i> var. <i>shockleyi</i>	Gravelly or clayey flats, washes, and slopes, saltbush, blackbrush, and sagebrush communities, pinyon-juniper woodlands.
Shockley's ivesia	<i>Ivesia shockleyi</i>	Open, exposed rocky ridges and outcrops. Associates with pinyon-juniper woodlands and ponderosa pine forests.
Short-flowered eriogonum	<i>Eriogonum brachyanthum</i>	Creosote bush, other warm desert shrub, sagebrush , shad-scale communities
short-lobed penstemon	<i>Penstemon seorsus</i>	Dry, open, rocky places in the plains and foothills, often with sagebrush .
Sickle-pod rockcross	<i>Boechera atrorubens</i>	Rocky summits and sandy loam on sagebrush slopes.

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Common Name	Latin Name	Habitat Description
Sickle-pod rockcress	<i>Arabis sparsiflora</i> var. <i>atrorubens</i>	Rocky summits and sandy loam on sagebrush slopes.
Sierra brodiaea	<i>Triteleia ixioides</i> ssp. <i>anilina</i>	Coniferous forest edges, often in moist gravel or sand, pinyon-juniper .
Sierra Valley ivesia	<i>Ivesia aperta</i> var. <i>aperta</i>	Clay, often roadsides in Great Basin scrub and pinyon and juniper woodland.
Simpson's hedgehog cactus	<i>Pediocactus simpsonii</i>	Pinyon-juniper woodlands, sagebrush, montane and prairie grasslands , and coniferous forests.
Siskiyou fairy bells	<i>Prosartes parvifolia</i>	Montane conifer, mixed-evergreen forest, exposed roadsides, pinyon-juniper .
Siskiyou mariposa-lily	<i>Calochortus persistens</i>	Open areas of ridgeline rock outcrops and talus within montane shrub plant communities of coniferous forests, sagebrush .
Siskiyou monardella	<i>Monardella purpurea</i>	Rocky slopes, generally on serpentine or related bedrock, chaparral, woodland, montane forest, sagebrush , pinyon-juniper .
Siskiyou phacelia	<i>Phacelia leonis</i>	Upper montane coniferous forest openings; sometimes serpentinite. Sandy flats, slopes, conifer forest, pinyon-juniper .
Slender moonwort	<i>Botrychium lineare</i>	Cliff, Forest - Conifer, Forest/Woodland, Grassland /herbaceous, Woodland - Conifer
Slender sedge	<i>Carex lasiocarpa</i> var. <i>americana</i>	Grasslands /Grass-like habitat.
Slender-flowered evening-primrose	<i>Tetrapteron graciliflorum</i>	Open or shrubby slopes, generally clay soils, grassland , oak and Joshua-tree woodland.
Slickspot peppergrass	<i>Lepidium papilliferum</i>	Playa/salt flat, Shrubland/chaparral. Semi-arid, sagebrush -steppe habitats.
Small-flower evening-primrose	<i>Eremothera minor</i>	Sandy slopes, flats, sagebrush scrub.
Smoky Mt. globemallow	<i>Sphaeralcea grossulariifolia</i> var. <i>fumariensis</i>	Desert, forest/woodland, shrubland/chaparral, sagebrush , woodland - conifer.
Smooth mentzelia	<i>Mentzelia mollis</i>	Barren. Ash/claybed outcrops. Adjacent areas support sagebrush -shadscale plant communities.
Smooth wild cabbage	<i>Caulanthus crassicaulis</i> var. <i>glaber</i>	Dry sagebrush scrub, pinyon/juniper woodland.
Snake River cryptantha	<i>Cryptantha spiculifera</i>	Dry, open, flat, or sloping areas in stable or stony soils, with low vegetative cover. Sagebrush, grasslands .
Snake River goldenweed	<i>Pyrrocoma radiata</i>	A grazing-modified sagebrush/grassland community and steep, rocky hillsides.
Snowball cactus	<i>Pediocactus nigrispinus</i>	Sagebrush, grasslands , and coniferous forests.
Soldier Meadow cinquefoil	<i>Potentilla basaltica</i>	Grassland /herbaceous and in alkaline meadows above, and outflow stream margins below, desert springs.
South Fork John Day milk-vetch	<i>Astragalus diaphanus</i> var. <i>diurnus</i>	Dry, barren slopes and in openings in pinyon- juniper woodland.
Southern Oregon buttercup	<i>Ranunculus austrooreganus</i>	Open oak savannahs and grasslands and along the margins of rocky vernal pools.
Spinescent fameflower	<i>Phemeranthus spinescens</i>	Basaltic outcrops and scablands in sagebrush deserts.

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Common Name	Latin Name	Habitat Description
St. George blue-eyed grass	<i>Sisyrinchium radicum</i>	Grassland /herbaceous. Occurs in moist, sometimes alkaline meadows, stream banks, and borders of springs.
Stalked moonwort	<i>Botrychium pedunculosum</i>	Grassland, pinyon-juniper , mountain meadows, streamside areas, open- to closed-canopy forests and woodlands, roadsides or similarly open or disturbed habitats.
Starveling milkvetch	<i>Astragalus jejunos</i> var. <i>jejunos</i>	Occurs on dry barren ridges and bluffs of shale, sandstone, clay, or cobblestones. Barrens, Shrubland/chaparral, sagebrush.
Steamboat monkeyflower	<i>Diplacus ovatus</i> (<i>Mimulus ovatus</i>)	Dry slopes in sagebrush and pinyon-juniper communities.
Stebbin's malacothrix	<i>Malacothrix stebbinsii</i>	Gravelly soils beneath shrubs, along ditches, near streams, in sagebrush steppes, creosote bush scrublands.
Sticky pyrrocoma	<i>Pyrrocoma lucida</i>	Carbonate or volcanic, gravelly or rocky substrate in pinyon and juniper woodland.
Stiff milkvetch or Idaho milkvetch	<i>Astragalus conjunctus</i> var. <i>conjunctus</i>	Dry rocky slopes, scablands, and hilltops throughout the sagebrush desert. It typically is found above 2000 feet.
Succor Creek parsley	<i>Lomatium packardiae</i>	Usually found within low sagebrush vegetation. Also common in open, dry, basalt talus.
Suksdorf's milk-vetch	<i>Astragalus pulsiferae</i> var. <i>suksdorfii</i>	Sandy, volcanic, lake margins in Great Basin scrub, sagebrush, and pinyon and juniper woodland.
Sunnyside green gentian	<i>Frasera gypsicola</i>	Barrens, desert, shrubland/chaparral, sagebrush. White soils encrusted with mineral salts in valley bottoms.
Susanville beardtongue	<i>Penstemon sudans</i>	Forest/Woodland, Shrubland/chaparral. Open, sagebrush- or woodland-dominated, rocky slopes on volcanic, alkaline clay, or other igneous substrates.
Tall buckwheat	<i>Eriogonum elatum</i> var. <i>elatum</i>	Sandy to gravelly slopes and flats, mixed grassland and sagebrush communities, pinyon-juniper , and conifer woodlands.
Tecopa birdbeak	<i>Cordylanthus tecopensis</i>	Desert, Grassland /herbaceous. Mohavean desert scrub, alkali flats and meadows below 2500 feet.
Thin-leaved peavine	<i>Lathyrus holochlorus</i>	Characteristic habitat is believed to be grassland or prairie edge/oak savanna/prairie-oak woodland ecotone, which historically was maintained by fire.
Thompson's chaenactis	<i>Chaenactis thompsonii</i>	Barrens, Grassland /herbaceous. Mostly restricted to serpentine soils.
Thompson's clover	<i>Trifolium thompsonii</i>	Dry, open grasslands dominated by Idaho fescue and bluebunch wheatgrass, occasionally ponderosa woods.
Thompson's paintbrush	<i>Castilleja thompsonii</i>	Dry soil, frequently associated with sagebrush . Local on open slopes and bald summits of the surrounding mountains to about 7000 ft.
Three-leaf goldthread	<i>Coptis trifolia</i>	Sandy or gravelly soil of grasslands , sagebrush steppe, barren slopes; plains, valleys.
Threeleaf milkvetch, plains milkvetch	<i>Astragalus gilviflorus</i>	Barren knolls, stony hilltops, gullied bluffs and badlands, on limestone, shale or sandstone in sagebrush communities at 5340-6590 feet.
Three-toothed horkelia	<i>Horkelia tridentata</i> ssp. <i>tridentata</i>	Open areas, primarily in sagebrush communities and conifer woodlands.
Tiehm peppergrass	<i>Stroganowia tiehmii</i>	Found most often within the sagebrush zone; outlying occurrences can be found in the surrounding lower pinyon-juniper .

J. Special Status Species in the Project Area (Table J-2. BLM Sensitive Species with the Potential to Occur in the Treatment Area)

Common Name	Latin Name	Habitat Description
Timwort	<i>Cicendia quadrangularis</i>	Valley Grassland , Northern Oak Woodland, Foothill Woodland; < 2700 m.
Tioga Pass sedge	<i>Carex tiogana</i>	Grassland /herbaceous. On terraces next to lakes; meadows. Mesic sites; 3090-3310 m
To be determined	<i>Monardella angustifolia</i>	Surrounding vegetation includes sagebrush steppe and big sagebrush shrubland.
Tonopah milk-vetch	<i>Astragalus pseudodanthus</i>	Great Basin scrub, sagebrush .
Toquima milkvetch	<i>Astragalus toquimanus</i>	Sagebrush, pinyon-juniper , Forest/Woodland, Shrubland/chaparral, Woodland - Conifer. Gravelly/stony hillsides and canyon benches.
Torrey milkvetch	<i>Astragalus calycosus</i> var. <i>monophyllidius</i>	Forest - Conifer, Forest/Woodland. Open gravelly hillsides, in scattered juniper and pinyon forest, on limestone.
Trans montane abronia	<i>Abronia turbinata</i>	Sandy soils, desert scrub, sagebrush .
Tufted cryptantha	<i>Cryptantha caespitosa</i>	Sagebrush ; populations are usually restricted to rocky or chalky ridgetops in cushion plant communities.
Tufted evening primrose	<i>Oenothera caespitosa</i> ssp. <i>marginata</i>	Rocky or sandy sites in granite, limestone, or sandstone soils, pinyon-juniper woodland to pine forest.
Tufted townsend daisy	<i>Townsendia scapigera</i>	Sagebrush scrub, pinyon-juniper woodland, subalpine forest, lodgepole forest, bristle-cone pine forest.
Tunnel Springs beardtongue	<i>Penstemon concinnus</i>	Endemic to the Great Basin occurring in pinyon-juniper , blue grama, mountain mahogany, cliff rose, and sagebrush communities.
Twin-spiked moonwort	<i>Botrychium paradoxum</i>	Montane to subalpine grasslands or forb-dominated meadows. Also in western red cedar forests.
Tygh Valley milk-vetch	<i>Astragalus tyghensis</i>	Dry rocky soils with a thin overlying sandy layer. Part of mounded prairies, open bunchgrass grasslands , or semi-open pinyon-juniper communities.
Umpqua mariposa-lily	<i>Calochortus umpquaensis</i>	Found within a rather broad continuum of habitats, from closed canopy coniferous forests and pinyon-juniper to rather open, species-rich, grass-forb meadows, grasslands , and sagebrush
United blazingstar, ventana stickleaf	<i>Mentzelia congesta</i>	Disturbed slopes, sagebrush scrub, pinyon-juniper woodlands, pine forests.
Upward-lobed moonwort	<i>Botrychium ascendens</i>	Lower montane coniferous forest (mesic), pinyon-juniper
Utah spurge	<i>Euphorbia nephradenia</i>	Shale, clay hills, blow sand and stabilized dunes; desert shrub, sagebrush , and grassland communities.
Valley sedge	<i>Carex vallicola</i>	Dry to mesic hillsides, grasslands , thickets, open forests.
Veyo milkvetch	<i>Astragalus ensiformis</i> var. <i>gracilior</i>	Open valley floor in stiff clay soil, sheltering under and growing up through sagebrush , 4900 ft.
Wallowa ricegrass	<i>Achnatherum wallowaense</i>	Sagebrush, grassland , restricted to non-forested, rocky, shallow soils, dominated by <i>Poa secunda</i> , other bunchgrasses and forbs. Rigid sagebrush is often present.
Wanapum crazyweed	<i>Oxytropis campestris</i> var. <i>wanapum</i>	Open sagebrush communities dominated by shrubs and grasses on deep sand.
Ward's penstemon	<i>Penstemon wardii</i>	Semi-barren, light-colored clays (often calcareous or gypsiferous) in desert shrub, sagebrush , and pinyon-juniper .

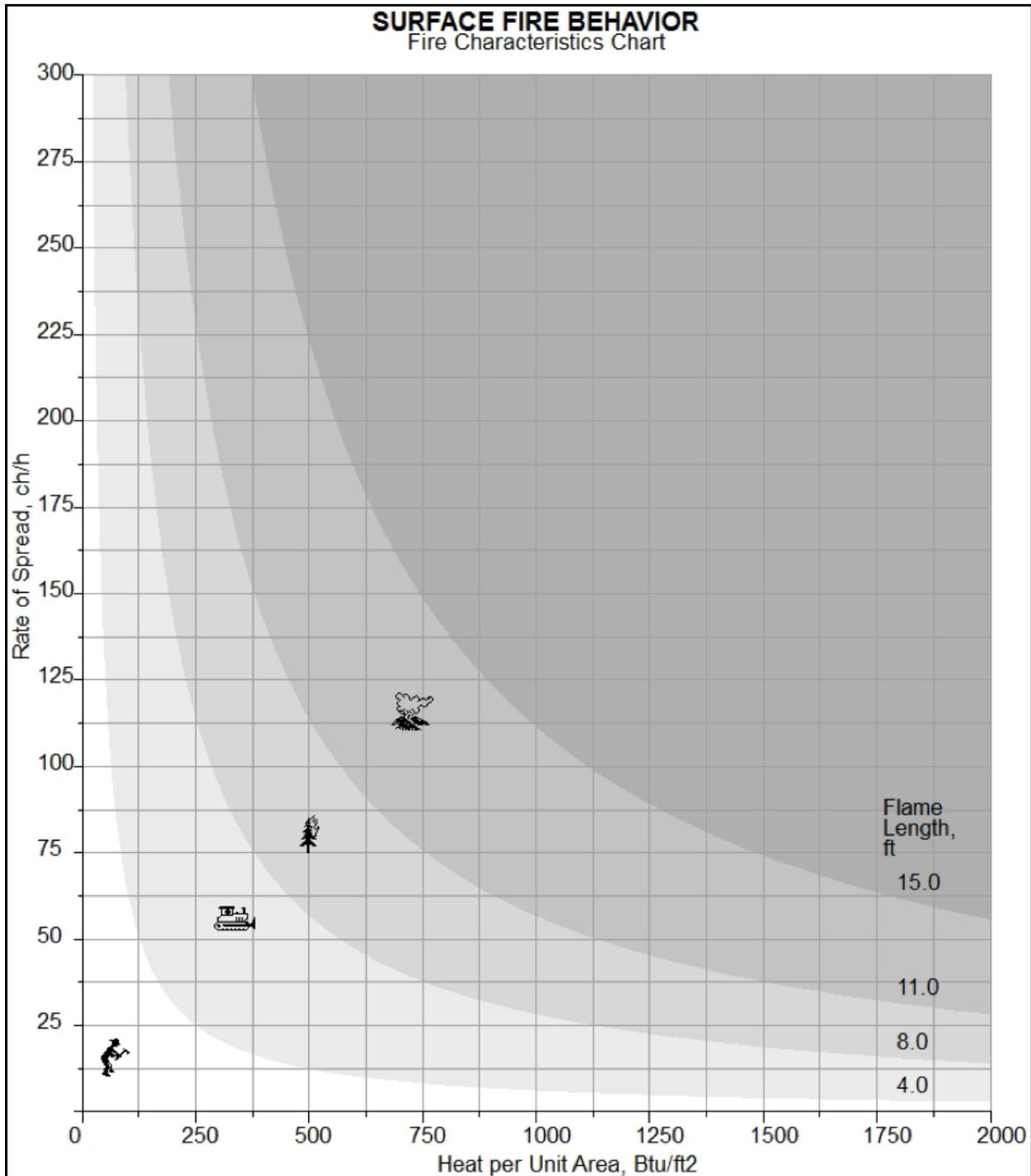
J. Special Status Species in the Project Area (Table J-2. BLM Sensitive Species with the Potential to Occur in the Treatment Area)

Common Name	Latin Name	Habitat Description
Warner mt. bedstraw	<i>Galium serpenticum</i> ssp. <i>warnerense</i>	Steep slopes, rocky areas, meadows, pinyon-juniper woodland.
Washoe suncup	<i>Camissonia pusilla</i>	Dry, open to branchy slopes, flats, and roadsides on sandy soil with sagebrush (<i>Artemisia</i> spp.) to pinyon-juniper .
Wassuk beardtongue	<i>Penstemon rubicundus</i>	Desert scrub, sagebrush, pinyon-juniper ecosystems on rocky to gravelly soils on perched tufa shores.
Wavy-leaf thelypody	<i>Thelypodium laciniatum</i> var. <i>streptanthoides</i>	Sagebrush scrub.
Wax currant	<i>Ribes cereum</i> var. <i>colubrinum</i>	Dry habitats in conifer and oak woodlands, pinyon-juniper .
Webber's ivesia	<i>Ivesia webberi</i>	Pinyon and juniper woodland (volcanic or granitic, rocky).
Welsh's milkvetch, Loa milkvetch	<i>Astragalus welshii</i>	Sagebrush, pinyon-juniper , and sagebrush -aspen communities.
Western sedge	<i>Carex occidentalis</i>	Dry grasslands , forests.
Western yellow oxalis	<i>Oxalis suksdorfii</i>	Sagebrush, pinyon-juniper , open woods, fir, Douglas fir-oak woodlands, dry shrublands, roadsides, disturbed areas; 0–700 m.
Wheeler's skeleton-weed	<i>Chaetadelpa wheeleri</i>	Dunes, sandy soils and alkali flats in creosote bush scrub, sagebrush scrub.
White cushion erigeron	<i>Erigeron disparipilus</i>	Gravelly and rocky slopes, ridges, sagebrush, grassland .
White locoweed	<i>Oxytropis sericea</i> var. <i>sericea</i>	Sagebrush and pinyon-juniper habitats
White River swertia	<i>Frasera gypsicola</i>	White soils encrusted with mineral salts in valley bottoms.
Whited's milk-vetch	<i>Astragalus sinuatus</i>	Sagebrush -bunchgrass shrub-stepps on predominantly south facing slopes.
White-margined wax plant	<i>Glyptopleura marginata</i>	Sandy or rocky deserts, alkali flats, arid grasslands , often with <i>Atriplex</i> spp.
White-topped aster	<i>Sericocarpus rigidus</i>	Open, non-forested habitats (sagebrush, grasslands) that are seasonally mesic but somewhat moisture stressed during late summer.
Wilcox's penstemon	<i>Penstemon wilcoxii</i>	Grows in a range of habitats, from sagebrush , shrubby areas, forested slopes, moist soil, and rocky sites.
Wild crabapple	<i>Peraphyllum ramosissimum</i>	Oak- sagebrush, pinyon-juniper , mountain brush, and ponderosa pine communities.
Wildrose Canyon buckwheat	<i>Eriogonum eremicola</i>	Great Basin scrub, sagebrush
Willamette Valley larkspur	<i>Delphinium oregonum</i>	Grasslands ; native wet prairies, on the edges of ash and oak woodlands, and along roadsides and fence rows.
Williams's combleaf	<i>Polyctenium williamsiae</i>	Pinyon and juniper woodland
Windloving buckwheat	<i>Eriogonum anemophilum</i>	Bare rock/talus/scree, desert, sagebrush /chaparral.
Winward's goldenbush	<i>Ericameria discoidea</i> var. <i>winwardii</i>	Landscape in the vicinity of known occurrences is predominantly mountain shrub grassland dominated by <i>Artemisia tridentata</i> (big sagebrush).
Wirestem buckwheat	<i>Eriogonum pharnaceoides</i> var. <i>cervinum</i>	Occurs on sandy or gravelly slopes, sagebrush and mountain mahogany communities, oak, pinyon-juniper and montane conifer woodlands.

J. Special Status Species in the Project Area (Table J-2. BLM Sensitive Species with the Potential to Occur in the Treatment Area)

Common Name	Latin Name	Habitat Description
Wolf's evening primrose	<i>Oenothera wolffii</i>	Roadcuts and roadsides near the coast and possibly, moist sandy riparian areas.
Yellow lady's-slipper	<i>Cypripedium parviflorum</i>	Grasslands, pinyon-juniper, damp forest understory of mixed deciduous and coniferous forests to open meadows, and along streams in acidic soils
Yellowflower locoweed	<i>Oxytropis monticola</i>	Grasslands, dry, sunny hillsides, rocky slopes, prairie meadows

Appendix K. Surface Fire Behavior Fire Characteristics Chart



Source: National Wildfire Coordinating Group 2017

Chart above shows the relationship of surface fire flame length and fireline intensity to suppression interpretations.

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Appendix L. Consultation and Coordination

**Table L-1
Scoping Open Houses Held in 2018**

Location	Date	Venue
California		
Susanville	6 February 2018	BLM Eagle Lake Field Office 2550 Riverside Drive Susanville, CA 96130
Idaho		
Boise	30 January 2018	Wyndham Garden Boise Airport 3300 South Vista Avenue Boise, ID 83705
Twin Falls	13 February 2018	Canyon Springs Red Lion Inn 1357 Blue Lakes Boulevard Twin Falls, ID 83301
Idaho Falls	14 February 2018	Hilton Garden Inn 700 Lindsay Boulevard Idaho Falls, ID 83402
Nevada		
Reno	7 February 2018	UNR – Crowley Student Union, Milt Glick Ballroom C 1664 North Virginia Street Reno, NV 89503
Elko	8 February 2018	Red Lion Hotel, High Desert Inn Ballroom 2065 Idaho Street Elko, NV 89801
Ely	13 February 2018	Bristlecone Convention Center 150 Sixth Street Ely, NV 89301
Tonopah	15 February 2018	Tonopah Convention Center 301 Brougner Avenue Tonopah, NV 89049
Oregon		
Lakeview	7 February 2018	BLM Lakeview District Interagency Office 1301 South G Street Lakeview, OR 97630
Burns	8 February 2018	Harney County Chamber of Commerce/Community Center 484 North Broadway Burns, OR 97720
Utah		
Snowville	31 January 2018	Snowville Elementary School 160 North Stone Road Snowville, UT 84336
Salt Lake City	15 February 2018	Courtyard by Marriott Downtown 345 West 100 South Salt Lake City, UT 84101
Cedar City	14 February 2018	Heritage Center – Festival Hall 105 North 100 East Cedar City, UT 84720

Location	Date	Venue
Vernal	1 February 2018	Uintah Conference Center 313 East 200 South Vernal, UT 84078
Washington		
Moses Lake	1 February 2018	Moses Lake Best Western 3000 West Marina Drive Moses Lake, WA 98837

Table L-2
Tribes Invited to Participate as a Cooperating Agency and Through Government-to-Government Consultation¹

Alturas Indian Rancheria, California
Bridgeport Indian Colony
Burns Paiute Tribe
California Native American Heritage Commission
Cedarville Rancheria, California
Coeur d'Alene Tribe
Confederated Salish and Kootenai Tribes of the Flathead Reservation
Confederated Tribes and Bands of the Yakama Nation
Confederated Tribes of the Colville Reservation
Confederated Tribes of the Goshute Reservation, Nevada and Utah
Confederated Tribes of the Umatilla Reservation
Confederated Tribes of the Warm Springs Reservation of Oregon
Death Valley Timbi-sha Shoshone Tribe
Duckwater Shoshone Tribe of the Duckwater Reservation, Nevada
Eastern Shoshone Tribe of the Wind River Reservation, Wyoming
Ely Shoshone Tribe of Nevada
Fort Bidwell Indian Community of the Fort Bidwell Reservation of California
Fort McDermitt Paiute and Shoshone Tribes of the Fort McDermitt Indian Reservation, Nevada and Oregon
Greenville Rancheria
Hopi Tribe of Arizona
Kaibab Band of Paiute Indians of the Kaibab Indian Reservation, Arizona
Kalispel Indian Community of the Kalispel Reservation
Klamath Tribes
Kootenai Tribe of Idaho
Las Vegas Tribe of Paiute Indians of the Las Vegas Indian Colony, Nevada
Lovelock Paiute Tribe of the Lovelock Indian Colony, Nevada
Moapa Band of Paiute Indians of the Moapa River Indian Reservation, Nevada
Navajo Nation, Arizona, New Mexico & Utah
Nevada Indian Commission
Nez Perce Tribe
Northwestern Band of Shoshone Nation
Paiute Indian Tribe of Utah
Paiute Indian Tribe of Utah - Cedar Band of Paiutes
Paiute Indian Tribe of Utah - Indian Peaks Band of Paiutes
Paiute Tribe of Utah - Kanosh Band of Paiutes
Paiute Indian Tribe of Utah - Koosharem Band of Paiutes
Paiute Indian Tribe of Utah - Shivwits Band of Paiutes
Paiute-Shoshone Tribe of the Fallon Reservation and Colony, Nevada

Pit River Tribe
Pyramid Lake Paiute Tribe of the Pyramid Lake Reservation, Nevada
Reno-Sparks Indian Colony
Shoshone-Bannock Tribes of the Fort Hall Reservation
Shoshone-Paiute Tribes of the Duck Valley Reservation, Nevada
Skull Valley Band of Goshute Indians of Utah
Southern Ute Indian Tribe
Spokane Tribe of the Spokane Reservation
Summit Lake Paiute Tribe
Susanville Indian Rancheria, California
Te-Moak Tribe of Western Shoshone Indians of Nevada
Te-Moak Tribe of Western Shoshone Indians of Nevada - Battle Mountain Band
Te-Moak Tribe of Western Shoshone Indians of Nevada - Elko Band
Te-Moak Tribe of Western Shoshone Indians of Nevada - South Fork Band
Te-Moak Tribe of Western Shoshone Indians of Nevada - Wells Band
The Modoc Tribe of Oklahoma
Ute Indian Tribe of the Uintah and Ouray Reservation, Utah
Ute Mountain Ute Tribe
Walker River Paiute Tribe of the Walker River Reservation, Utah
Washoe Tribe of Nevada and California
Winnemucca Indian Colony of Nevada c/o Reno Law Group
Yerington Paiute Tribe of the Yerington Colony & Campbell Ranch, Nevada
Yomba Shoshone Tribe of the Yomba Reservation, Nevada

¹No tribes requested to be a cooperating agency. However, two tribes – the Burns Paiute Tribe and Shoshone Paiute Tribes of the Duck Valley Reservation – requested further consultation.

Table L-3
Agencies and Organizations Invited to Participate as a Cooperating Agency

Agency or Organization Invited to be a Cooperator	Accepted	Declined	No Response
California			
Bureau of Indian Affairs, Northern California Agency			X
California Department of Forestry			X
California Department of Fish and Wildlife			X
Commander, Department of Defense, Navy Region Southwest			X
Department of Defense, Navy Region Southwest			X
State Clearinghouse, Governor's Office of Planning and Research			X
Modoc Wildlife Refuge			X
National Park Service Whiskeytown			X
Lava Beds National Monument			X
Klamath National Forest			X
Lassen National Forest			X
Modoc National Forest			X
Plumas National Forest			X
Shasta-Trinity National Forest			X
Modoc County			X

Agency or Organization Invited to be a Cooperator	Accepted	Declined	No Response
Lassen County			X
Idaho			
Idaho National Guard	X		
Blaine County	X		
Cassia County	X		
Lemhi County	X		
Idaho Department of Lands	X		
Owyhee County		X	
Idaho Association of Counties			X
Idaho Department of Fish and Game			X
Idaho Governor's Office			X
Idaho Governor's Office of Species Conservation			X
Boise National Forest			X
Caribou-Targhee National Forest			X
Salmon-Challis National Forest			X
Sawtooth National Forest			X
Craters of the Moon National Monument			X
Bingham County			X
Custer County			X
Fremont County			X
Madison County			X
Twin Falls County			X
Power County			X
Nevada			
Nevada Department of Wildlife	X		
Elko County	X		
Eureka County	X		
Humboldt County	X		
Lincoln County	X		
Storey County	X		
Churchill County		X	
Congressman Mark Amodei			X
Department of Defense, Fallon Naval Air Station			X
Department of Defense, Nellis Air Force Base			X
Nevada Department of Transportation			X
Nevada Department of Conservation and Natural Resources			X
Sagebrush Ecosystem Program			X
Clark County			X
Jefferson County			X
Lander County			X
Nye County			X
Pershing County			X
Washoe County			X
White Pine County			X
Oregon			
Oregon DOT		X	
Oregon Parks and Recreation		X	
Bonneville Power Administration			X

Agency or Organization Invited to be a Cooperator	Accepted	Declined	No Response
Department of Agriculture			X
Department of Energy			X
Department of Environmental Quality			X
Department of Fish and Wildlife			X
Department of Forestry			X
Department of Geology & Mineral Industries			X
Department of State Lands			X
Department of Transportation			X
Deschutes County Community Development Department			X
Federal Highway Administration, Oregon Division			X
Governor's Office of Natural Resources			X
Governor of Oregon			X
Harney Soil and Water Conservation District			X
Land Conservation and Development Department			X
State Parks & Recreation Department			X
Water Resources Department			X
US Army Corps of Engineers, Northwest Division			X
USDA Rural Development			X
US Forest Service, Pacific Region			X
Baker County			X
Crook County			X
Gilliam County			X
Grant County			X
Harney County			X
Jefferson County			X
Lake County			X
Malheur County			X
Morrow County			X
Umatilla County			X
Union County			X
Sherman County			X
Wallowa County			X
Wasco County			X
Utah			
Carbon County	X		
Duchesne County	X		
Public Lands Policy Coordinating Office	X		
State of Utah, Governor's Public Lands Policy Coordination Office	X		
Beaver County	X		
Forest Service Intermountain Region			X
Box Elder County			X
Daggett County			X
Emery County			X
Garfield County			X
Grand County			X

Agency or Organization Invited to be a Cooperator	Accepted	Declined	No Response
Iron County			X
Juab County			X
Kane County			X
Millard County			X
Piute County			X
Rich County			X
Sanpete County			X
Sevier County			X
Tooele County			X
Uintah County			X
Utah County			X
Wasatch County			X
Wayne County			X
Washington			
Washington Department of Fish and Wildlife			X
Other			
Natural Resources Conservation Service, Nevada, Utah, Idaho, Oregon	X		
National Trails Intermountain Region, National Park Service	X		
US Environmental Protection Agency, Regions 9 and 10		X	
Bureau of Reclamation	X		
Department of Defense, Air Force Western Regional Office			X
Department of Defense, Army Regional Energy and Environmental Office, Western Department of Defense			X
Federal Highway Administration			X
Federal Energy Regulatory Commission			X
National Park Service, Washington DC			X
Natural Resources Conservation Service Clearinghouse			X
USDA Soil Conservation Service			X
US Department of Energy			X
US Fish and Wildlife Service, Nevada, California, Utah, Idaho, Oregon			X
US Forest Service, Research and Development			X

**Table L-4
List of Preparers**

BUREAU OF LAND MANAGEMENT	
Name	Role/Responsibility
Interdisciplinary Team	
Marlo Draper	BLM Project Manager
Sheila Lehman	NEPA Specialist
Dusty Pence	Fire/Fuels
Sandy Gregory	Fire/Fuels
Gillian Wigglesworth	Vegetation
Jeremy Bisson	Fish and Wildlife, Special Status Species
Shannon Bassista	Special Designations, Lands with Wilderness Characteristics, Recreation and Travel Management
Brianna Goehring	Livestock Grazing, Wild Horses and Burros
Kim Allison	Livestock Grazing, Wild Horses and Burros
Justin Shirley	Livestock Grazing, Wild Horses and Burros
Jeremy Bluma	Lands and Realty
Kelli Barnes	Cultural Resources and Tribal Interests, Paleontological Resources
Nick Pay	Cultural Resources and Tribal Interests, Paleontological Resources
Christa Braun	GIS

EMPSI	
Name	Role/Responsibility
Management Team	
Meredith Zaccherio	Project Manager
Peter Gower	Deputy Project Manager
Becky Boyle	Project Assistant
Interdisciplinary Team	
Morgan Triegeer	Vegetation
Dan Morta	Vegetation
Andy Spellmeyer	Recreation, Lands with Wilderness Characteristics
Lindsay Chipman	Wildlife, Special Status Species
Kevin Rice	Wildlife
Kate Krebs	Lands with Wilderness Characteristics
Sarah Crump	Lands with Wilderness Characteristics, Socioeconomics
Derek Holmgren	Fire and Fuels
Laura Patten	Water and Soil Resources
Amy Cordle	Air Quality
Holly Prohaska	Livestock Grazing, Wild Horses and Burros
Zoe Ghali	Socioeconomics
Kevin Doyle	Cultural Resources, Tribal Interests, Paleontological Resources
Jacob Accola	GIS
Marcia Rickey	GIS

Appendix M. Greater Sage-Grouse Resource Management Plan Amendments Decadal Treatment Objectives

Below are tables presenting the decadal treatment objectives for greater sage-grouse habitat from the 2015 Greater Sage-Grouse Resource Management Plan Amendments for Idaho and southwestern Montana, Nevada and northeastern California, Oregon, and Utah. Decadal treatment objectives were not developed for Washington or California. As specified further in each plan, the treatments are intended to increase the amount and functionality of seasonal greater sage-grouse habitats.

M.1 IDAHO

Table M-1. Estimated Acres of Treatment Needed within a 10-Year Period to Achieve Vegetation Objectives on BLM-Administered Lands¹

Greater Sage-Grouse Population Area	Mechanical ²	Prescribed Fire ³	Grass Restoration ⁴
Bear Lake Plateau	1,000	0	0
East Idaho Uplands	6,000	9,000	1,000
S Central Idaho/N Snake River and Mountain Valleys	18,000	11,000	162,000
Weiser	0	0	13,000
SW Idaho	52,000	10,000	444,000
SW Montana	0	0	0

¹ These are estimates of treatments required to achieve and/or maintain desired habitat conditions over a period of ten years. There are many dynamic and highly variable disturbances that may happen over that period of time that can have a significant effect on the amount, type, and timing of treatment needed. Those disturbances are factored into the ten-year simulation using stochastic, not predictive, techniques. Probabilities of events such as large wildfires are used in the model to make the simulation as realistic as possible, given empirical data about such events in the past, but the results of the simulation cannot be used to predict the future occurrence of such events, including their timing, size, or location, which are essentially random.

² Removal of conifers that have invaded sagebrush including phase one juniper that is 10 percent or less and reducing sagebrush cover in areas over 30 percent canopy cover

³ Acres are those that are greater than 30 percent sagebrush canopy cover and/or invaded by 10 percent or greater conifer.

⁴ Acres presently dominated by annual grasses that can be improved by herbicide application and seeding of perennial vegetation.

M.2 NEVADA AND CALIFORNIA

Table M-2. Conifer Treatment Acres per Decade

State	Mechanical Treatment ¹	Prescribed Fire ²
Nevada	649,000	8,000
California ³	34,000	10,000
Total	683,000	18,000

¹ Removal of conifers that have invaded sagebrush, generally phase one juniper that is 10 percent or less.

² Acres are those that are greater than 30 percent sagebrush canopy cover and/or invaded by 10 percent or greater conifer.

³ BLM California-managed lands will be consistent with annual acres of treatment specified in the Sage Steppe Ecosystem Restoration FEIS (BLM 2008).

Table M-3. Annual Grass Treatment by Decade for 50 Years

State	Grass Restoration ¹
Nevada	1,354,000
California	257,000
Total	1,611,000

¹Acres presently dominated by annual grasses that could be improved by herbicide application or seeding of perennial vegetation.

M.2.1 Bi-State Sage-Grouse

Goal: Over the next 25 years, areas with ≥25-65% and areas with >65% sagebrush cover are increasing through the implementation of integrated restoration strategies.

Objective 1a: By 2024, 200,000 acres of degraded habitat (i.e., areas with conifer encroachment, invasive annual grasses, and/or altered fire regimes) have been improved through changes in management or restoration activities to meet habitat objectives.

Objective 4b: Over the next 10 years areas with annual invasive grass dominance are reduced across 20,000 acres of habitat.

Objective 5a: Over the next 10 years manage or restore habitat so that land cover provides adequate sagebrush habitat to meet sage grouse needs to maintain or increase current populations.

M.3 OREGON

Table M-4. Decadal Treatment Objectives for Greater Sage-grouse Habitat

Treatment Objective	Average Annual Acres ¹	Average Decadal Acres ¹
Conifer reduction	40,250	402,500
Sagebrush thinning	53,217	532,170
Invasive plant control ²	12,700	127,000
Crested wheatgrass restoration	1,844	18,440

¹These acreage estimates represent an objective for treatment over a ten-year (decadal) period to support achievement or progress toward GRSG habitat objectives. These estimates account for variability in funding and do not reflect a maximum or minimum acreage for any one treatment objective should funding and site-specific conditions allow for more or less treatment acreage than described in order to meet habitat objectives.

²Principally annual grasses

M.4 UTAH

Table M-5. Decadal Treatment Objectives for Greater Sage-grouse Habitat

Population Areas	Mechanical Treatment ¹	Annual Grass Treatment ¹
Box Elder	9,300	17,800
Ibapah; Hamlin Valley	17,900	2,100
Rich; Uintah	40,700	6,800
Carbon	2,600	200
Bald Hills; Panguitch	43,900	8,900
Parker Mountain	32,800	2,200
Sheeprocks	33,700	10,000
Statewide	180,900	48,000

¹ These acreage figures, based on Vegetation Dynamics Development Tool modeling, represent an objective for treatment on BLM-administered lands over a 10-year (decadal) time frame to support achievement or progress toward GRSG habitat objectives (see Final EIS Appendix V, Great Basin Vegetation Modeling using Vegetation Dynamics Development Tool). This accounts for variations in yearly funding availability and does not reflect a maximum or minimum acreage for any one treatment type or total treatment acreage, should funding and site specific conditions allow for more or less treatment acreage than described in order to meet habitat objectives.

Appendix N. Potential Treatment Areas and Acres from the FIAT Assessments

FIAT Planning Area Name	Potential Treatment Area Name	Treatment Purpose and Need	Total Acre Potential Treatment Area	Assessment Acre Potential Treatment Area	Treatment Type	Priority For Implementation	Comments
Antelope Valley	Antelope Valley Rd West	Coniferous Encroachment	8,214.61	Acres for Pri 1 were not seperated out	Both	High	Assess & treat PJ edge
Antelope Valley	Little Smoky Valley West	Coniferous Encroachment	3,446.01	11,652	Both	High	Assess & treat PJ edge
Antelope Valley	Fenstamaker	Coniferous Encroachment	10,224.30	10,217	Both	Moderate	Assess & treat PJ edge
Antelope Valley	Antelope Range	Coniferous Encroachment	13,046.30	13,037	Both	Low	Assess & treat PJ edge
Total Acres			34,931.22	34,906			
Bald Hills	Greenville Bench	Sagebrush_Protection_Enhance	21,185.90	21,241	Restoration	Low	Sagebrush planting
Bald Hills	Buckhorn Flat	Coniferous Encroachment	15,252.10	Acres for Pri 1 were not seperated out	Both	High	Phase 1 and 2 PJ removal
Bald Hills	Black Mountain	Coniferous Encroachment	7.09	Acres for Pri 1 were not seperated out	Both	High	Phase 1 and 2 PJ removal
Bald Hills	Black Mountain	Coniferous Encroachment	41,546.50	56,949	Both	High	Phase 1 and 2 PJ removal
Bald Hills	Buckhorn Flat	Coniferous Encroachment	5,127.46	Acres for Pri 2 were not seperated out	Both	Moderate	Phase 1 and 2 PJ removal
Bald Hills	Black Mountain	Coniferous Encroachment	43,806.20	49,050	Both	Moderate	Phase 1 and 2 PJ removal
Total Acres			126,925.25	127,240			
Bates Callahan	Grass Valley	Sagebrush_Protection_Enhance	13,812.50	Acres for Pri 1 were not seperated out	Restoration	High	remove crested wg; plant natives
Bates Callahan	Bean Flat	Sagebrush_Protection_Enhance	49,716.90	Acres for Pri 2 were not seperated out	Restoration	Moderate	Reestablish natives in crested stands
Bates Callahan	Trail Canyon Fire 1999	Invasives_SagebrushPE	59,117.30	Acres for Pri 2 were not seperated out	Restoration	Moderate	Restoration of previously post-fire rehab area
Bates Callahan	Table Mountain	Invasives_SagebrushPE	802.28	802	Restoration	Low	Treat for Cheatgrass
Bates Callahan	Ravenswood	Coniferous Encroachment	9,489.57	Acres for Pri 1 were not seperated out	Both	High	Assess & treat PJ edge
Bates Callahan	Reese River East	Coniferous Encroachment	24,120.90	Acres for Pri 1 were not seperated out	Both	High	Assess & treat PJ edge
Bates Callahan	Callaghan	Coniferous Encroachment	22,585.90	Acres for Pri 1 were not seperated out	Both	High	Assess & treat PJ edge
Bates Callahan	Simpson Park	Coniferous Encroachment	5,833.95	Acres for Pri 1 were not seperated out	Both	High	Assess & treat PJ edge
Bates Callahan	East Simpsons	Coniferous Encroachment	28,106.40	Acres for Pri 1 were not seperated out	Both	High	Assess & treat PJ edge
Bates Callahan	Sulpher Spring	Coniferous Encroachment	2,722.62	Acres for Pri 1 were not seperated out	Both	High	Assess & treat PJ edge
Bates Callahan	Grimes Hills	Coniferous Encroachment	2,654.54	Acres for Pri 1 were not seperated out	Both	High	Assess and remove PJ if needed
Bates Callahan	Reese/Grass to Callaghan cooridor	Coniferous Encroachment	1,625.50	Acres for Pri 1 were not seperated out	Both	High	PJ Removal for cooridor
Bates Callahan	Grass/Bean to Bates cooridor	Coniferous Encroachment	1,689.84	112,553	Both	High	PJ Removal for cooridor
Bates Callahan	Sulpher Spring	Coniferous Encroachment	1,390.68	110,141	Both	Moderate	Assess & treat PJ edge
Total Acres			223,668.88	223,496			
Cherry Creek	Snow Creek Seeding	Sagebrush_Protection_Enhance	4,171.27	Acres for Pri 1 were not seperated out	Restoration	High	Establish natives in crested wg seeding
Cherry Creek	Odgers Riparian Restoration	Sagebrush_Protection_Enhance	6,462.37	Acres for Pri 1 were not seperated out	Restoration	High	passive and active restoration
Cherry Creek	Butte Fire	Invasives_SagebrushPE	5,802.45	Acres for Pri 1 were not seperated out	Restoration	High	Assess fire rehab & seed natives if needed
Cherry Creek	Cherry Creek WUI	Invasives_SagebrushPE	11,837.20	Acres for Pri 2 were not seperated out	Restoration	Moderate	Assess and treat BRTE
Cherry Creek	Cherry Creek Bench	Coniferous Encroachment	35,343.30	Acres for Pri 1 were not seperated out	Both	High	PJ removal on benches

FIAT Planning Area Name	Potential Treatment Area Name	Treatment Purpose and Need	Total Acre Potential Treatment Area	Assessment Acre Potential Treatment Area	Treatment Type	Priority For Implementation	Comments
Cherry Creek	East Medicine Bench	Coniferous Encroachment	11,055.60	Acres for Pri 1 were not seperated out	Both	High	PJ removal on benches
Cherry Creek	Butte Mountains	Coniferous Encroachment	5,127.15	Acres for Pri 1 were not seperated out	Both	High	PJ removal on benches
Cherry Creek	Cherry Creek Basin	Coniferous Encroachment	14,421.80	82,377	Both	High	Conifer removal in summer habitat
Cherry Creek	High Bald Peaks	Coniferous Encroachment	8,646.20	20,481	Both	Moderate	PJ removal to open up summer habitat
Total Acres			102,867.34	102,858			
Cooks Creek	Cooks Creek Riparian	Sagebrush_Protection_Enhance	137.37	Acres for Pri 1 were not seperated out	Restoration	High	Riparian veg treatment
Cooks Creek	Horse Mountain	Coniferous Encroachment	12,841.20	12,968	Both	High	
Cooks Creek	Antelope Complex 2007	Invasives_SagebrushPE	28,176.10	28,154	Restoration	Low	Island planting Antelope Complex
Total Acres			41,154.67	41,122			
Cortez	Beowawe Fire 2000	Invasives_SagebrushPE	14,252.70	14,242	Restoration	Moderate	Restoration of previously post-fire rehab area
Cortez	Buckhorn 2 Fire 1996	Invasives_SagebrushPE	2,383.19	2,381	Restoration	Low	Restoration of previously post-fire rehab area
Total Acres			16,635.89	16,623			
Egan	Lower Butte Seeding	Sagebrush_Protection_Enhance	2,538.68	Acres for Pri 1 were not seperated out	Restoration	High	remove crested wg; plant natives
Egan	North Egan Seeding	Sagebrush_Protection_Enhance	1,263.56	Acres for Pri 2 were not seperated out	Restoration	Moderate	remove crested wg; plant natives
Egan	South Egan Seeding	Sagebrush_Protection_Enhance	1,103.40	Acres for Pri 2 were not seperated out	Restoration	Moderate	remove crested wg; plant natives
Egan	Bull Canyon prescribed	Invasives_SagebrushPE	2,711.79	Acres for Pri 1 were not seperated out	Restoration	High	treat BRTE; seed with natives
Egan	Egan Basin	Coniferous Encroachment	8,124.37	Acres for Pri 1 were not seperated out	Both	High	remove PJ along benches; maint. of 9mile chain
Egan	South Butte	Coniferous Encroachment	18,399.60	Acres for Pri 1 were not seperated out	Both	High	remove PJ along benches
Egan	Baughman	Coniferous Encroachment	2,528.73	Acres for Pri 1 were not seperated out	Both	High	phase 1 & 2 PJ treatment
Egan	Thirty Mile	Coniferous Encroachment	7,891.00	Acres for Pri 1 were not seperated out	Both	High	phase 1 & 2 PJ treatment in summer habitat
Egan	Telegraph	Coniferous Encroachment	5,834.94	48,023	Both	High	conifer removal/thinning
Egan	Telegraph	Coniferous Encroachment	6,114.06	Acres for Pri 2 were not seperated out	Both	Moderate	conifer removal/thinning
Egan	Egan Basin	Coniferous Encroachment	7,856.85	16,337	Both	Moderate	remove PJ along benches; maint. of 9mile chain
Total Acres			64,366.98	64,360			
Johns Valley	Johns Valley historical chaining	Sagebrush_Protection_Enhance	1,614.72	1,620	Restoration	Low	assess crested wg seeding and plant natives
Johns Valley	Johns Valley PJ removal	Coniferous Encroachment	36,985.80	37,119	Both	High	phase 1 & 2 PJ removal
Johns Valley	Johns Valley PJ removal	Coniferous Encroachment	40,487.40	40,641	Both	Moderate	phase 1 & 2 PJ removal
Total Acres			79,087.92	79,380			
Long Valley	Mountain Spring	Coniferous Encroachment	13,548.00	Acres for Pri 1 were not seperated out	Both	High	PJ thin/removal in summer habitat
Long Valley	Little Willow Spring	Coniferous Encroachment	17,096.50	Acres for Pri 1 were not seperated out	Both	High	PJ thin/removal in summer habitat
Long Valley	Long Valley Bench	Coniferous Encroachment	6,885.98	37,516	Both	High	PJ thin/removal along valley bottoms
Long Valley	Little Willow Spring	Coniferous Encroachment	10,957.80	10,953	Both	Moderate	PJ thin/removal in summer habitat
Total Acres			48,488.28	48,469			

FIAT Planning Area Name	Potential Treatment Area Name	Treatment Purpose and Need	Total Acre Potential Treatment Area	Assessment Acre Potential Treatment Area	Treatment Type	Priority For Implementation	Comments
North Spring	Sampson Fire 2004	Invasives_SagebrushPE	1,283.22	Acres for Pri 2 were not seperated out	Restoration	Moderate	assess BRTE and native plantings
North Spring	North Schell Creek	Coniferous Encroachment	10,072.00	Acres for Pri 1 were not seperated out	Both	High	conifer removal/thinning in summer habitat
North Spring	Kalamazoo Pass	Coniferous Encroachment	22,194.50	32,273	Both	High	conifer removal/thinning in summer habitat
North Spring	Antelope Range	Coniferous Encroachment	15,916.80	17,207	Both	Moderate	conifer removal/thinning in summer habitat
Total Acres			49,466.52	49,480			
Panguitch	Buckskin Valley 1	Sagebrush Protection/Enhancement	1,413.90	Acres for Pri 3 were not seperated out	Restoration	Low	assess crested seedings & plant natives
Panguitch	Buckskin Valley 2	Sagebrush Protection/Enhancement	1,754.52	Acres for Pri 3 were not seperated out	Restoration	Low	assess crested seedings & plant natives
Panguitch	Bear Valley 1	Sagebrush Protection/Enhancement	1,753.11	Acres for Pri 3 were not seperated out	Restoration	Low	assess crested seedings & plant natives
Panguitch	Bear Valley 2	Sagebrush Protection/Enhancement	602.03	Acres for Pri 3 were not seperated out	Restoration	Low	assess crested seedings & plant natives
Panguitch	Dickison Hill	Invasives_SagebrushPE	2,199.36	7,746	Restoration	Low	assess failed seeding & re-seed
Panguitch	Black Knoll	Invasives_SagebrushPE	294.846. Since no priority not included in acre total.		Restoration		treat cheatgrass
Panguitch	Dog Valley	Coniferous Encroachment	278,812.00	279,663	Both	High	Phase 1 and 2 PJ removal
Panguitch	Dog Valley	Coniferous Encroachment	173,533.00	174,072	Both	Moderate	Phase 1 and 2 PJ removal
Panguitch	Dog Valley	Coniferous Encroachment	124,507. Since no priority not included in acre total.		Both		Phase 1 and 2 PJ removal
Total Acres			460,067.92	461,481			
Parker Mountain	South Narrows Seeding	Invasives_SagebrushPE	3,038.23	Acres for Pri 2 were not seperated out	Restoration	Moderate	assess failed seeding; reestablish native plants
Parker Mountain	Parker Mountain	Coniferous Encroachment	44,556.20	Acres for Pri 1 were not seperated out	Both	High	Phase 1 & 2 PJ & mixed conifer treatment
Parker Mountain	Grass Valley	Coniferous Encroachment	59,394.10	104,396	Both	High	Phase 1 & 2 PJ treatment
Parker Mountain	Grass Valley	Coniferous Encroachment	188,787.00	Acres for Pri 2 were not seperated out	Both	Moderate	Phase 1 & 2 PJ treatment
Parker Mountain	Parker Mountain	Coniferous Encroachment	104,342.00	297,429	Both	Moderate	Phase 1 & 2 PJ & mixed conifer treatment
Total Acres			400,117.53	401,825			
Punchbowl	Fish Lake Valley	Coniferous Encroachment	28,168.20	Acres for Pri 1 were not seperated out	Both	High	Between 7000ft-7400ft
Punchbowl	Monitor Valley	Coniferous Encroachment	92,479.80	Acres for Pri 1 were not seperated out	Both	High	Between 7000ft-7400ft
Punchbowl	Johnny Potts to White Rock Mtn	Coniferous Encroachment	3,442.15	Acres for Pri 1 were not seperated out	Both	High	
Punchbowl	Stoneberger	Coniferous Encroachment	12,031.10	136,016	Both	High	
Punchbowl	Table Mountain	Coniferous Encroachment	45,036.10	Acres for Pri 2 were not seperated out	Both	Moderate	PJ removal/thinning
Punchbowl	Monitor Valley	Coniferous Encroachment	17,866.00	Acres for Pri 2 were not seperated out	Both	Moderate	Between 7000ft-7400ft
Punchbowl	Fish Lake Valley	Coniferous Encroachment	19,310.10	82,149	Both	Moderate	Between 7000ft-7400ft
Total Acres			218,333.45	218,165			
Reese R. Yomba Desatoya	Upper Reese River	Sagebrush_Protection_Enhance	64,751.50	Acres for Pri 1 were not seperated out	Restoration	High	Restore hydrologic function
Reese R. Yomba Desatoya	Shoshone	Coniferous Encroachment	10,336.90	Acres for Pri 1 were not seperated out	Both	High	Around springs and streams
Reese R. Yomba Desatoya	Porter Fan	Coniferous Encroachment	6,406.44	Acres for Pri 1 were not seperated out	Both	High	treat/thin phase 1 & 2 PJ along benches

FIAT Planning Area Name	Potential Treatment Area Name	Treatment Purpose and Need	Total Acre Potential Treatment Area	Assessment Acre Potential Treatment Area	Treatment Type	Priority For Implementation	Comments
Reese R. Yomba Desatoya	Cloverdale	Coniferous Encroachment	3,676.74	Acres for Pri 1 were not seperated out	Both	High	Phase 1 and 2 PJ removal
Reese R. Yomba Desatoya	Clan Alpine	Coniferous Encroachment	3,611.86	Acres for Pri 1 were not seperated out	Both	High	Phase 1,2 PJ Removal
Reese R. Yomba Desatoya	Haypress	Coniferous Encroachment	30,541.10	119,235	Both	High	Phase 1,2 PJ Removal
Reese R. Yomba Desatoya	Smith Creek Valley West	Coniferous Encroachment	33,171.80	Acres for Pri 2 were not seperated out	Both	Moderate	Phase 1,2 PJ Removal
Reese R. Yomba Desatoya	Cloverdale Connect	Coniferous Encroachment	3,750.63	36,895	Both	Moderate	Around springs and streams
Total Acres			156,246.97	156,130			
Ruby	Franklin River	Sagebrush_Protection_Enhance	15,248.80	Acres for Pri 1 were not seperated out	Restoration	High	Establish natives in crested
Ruby	Egbert	Invasives_SagebrushPE	2,202.06	2,202	Restoration	Moderate	BRTE chem_native planting
Ruby	Black Sage	Coniferous Encroachment	4,138.52	Acres for Pri 1 were not seperated out	Both	High	Phase 1 PJ removal
Ruby	East Humboldt	Coniferous Encroachment	19,046.90	Acres for Pri 1 were not seperated out	Both	High	Phase 1 PJ removal
Ruby	Valley Mountain	Coniferous Encroachment	16,455.20	54,881	Both	High	Phase 1 PJ removal
Total Acres			57,091.48	57,083			
South Fork	Grindstone Fire 1986	Invasives_SagebrushPE	2,128.09	Acres for Pri 1 were not seperated out	Restoration	High	Restoration of previously post-fire rehab area
South Fork	Carlin Fire 2005	Invasives_SagebrushPE	5,004.50	Acres for Pri 1 were not seperated out	Restoration	High	Restoration of previously post-fire rehab area
South Fork	Webb Fire 2006	Invasives_SagebrushPE	14,522.90	Acres for Pri 2 were not seperated out	Restoration	Moderate	Restoration of previously post-fire rehab area
South Fork	Ferdelford Fire 1988	Invasives_SagebrushPE	3,989.01	Acres for Pri 2 were not seperated out	Restoration	Moderate	Restoration of previously post-fire rehab area
South Fork	Palisade Fire 1998	Invasives_SagebrushPE	4,314.83	Acres for Pri 2 were not seperated out	Restoration	Moderate	Restoration of previously post-fire rehab area
South Fork	Rain Fire 1994	Invasives_SagebrushPE	10,009.80	Acres for Pri 2 were not seperated out	Restoration	Moderate	Restoration of previously post-fire rehab area
South Fork	Party Fire 2007	Invasives_SagebrushPE	4,248.23	Acres for Pri 2 were not seperated out	Restoration	Moderate	Restoration of previously post-fire rehab area
South Fork	Dixie Creek Fire 1992	Invasives_SagebrushPE	13,371.20	Acres for Pri 2 were not seperated out	Restoration	Moderate	Restoration of previously post-fire rehab area
South Fork	Bullion Fire 1987	Invasives_SagebrushPE	5,275.68	Acres for Pri 2 were not seperated out	Restoration	Moderate	Restoration of previously post-fire rehab area
South Fork	Hastings Fire 2005	Invasives_SagebrushPE	1,180.83	Acres for Pri 2 were not seperated out	Restoration	Moderate	Treatment for cheat grass and PJ
South Fork	Harrison Fire 2007	Invasives_SagebrushPE	562.43	Acres for Pri 2 were not seperated out	Restoration	Moderate	May be in a forest service priority watershed
South Fork	Sadler Complex 1999	Invasives_SagebrushPE	86,506.20	143,893	Restoration	Moderate	Restoration of previously post-fire rehab area
South Fork	Rose Fire 1999	Invasives_SagebrushPE	48,365.20	Acres for Pri 3 were not seperated out	Restoration	Low	Restoration of previously post-fire rehab area
South Fork	Sadler Complex 1999	Invasives_SagebrushPE	97,401.50	Acres for Pri 3 were not seperated out	Restoration	Low	Restoration of previously post-fire rehab area
South Fork	Corral	Sagebrush_Protection_Enhance	1,283.87	Acres for Pri 1 were not seperated out	Restoration	High	Native grass/forbes and sagebrush seeding
South Fork	Toyn Creek	Coniferous Encroachment	830.52	9,241	Both	High	PJ phase I and II removal/thinning
South Fork	Cedar Ridge South	Coniferous Encroachment	9,457.38	Acres for Pri 3 were not seperated out	Both	Low	Assess PJ encroachment in and surrounding WSA
South Fork	Cedar Ridge North	Coniferous Encroachment	7,575.19	162,697	Both	Low	Assess PJ encroachment in and surrounding WSA
Total Acres			316,027.36	315,831			

FIAT Planning Area Name	Potential Treatment Area Name	Treatment Purpose and Need	Total Acre Potential Treatment Area	Assessment Acre Potential Treatment Area	Treatment Type	Priority For Implementation	Comments
Step toe Cave	Willow Creek Ext	Sagebrush Protection/Enhancement	3,966.75	Acres for Pri 1 were not seperated out	Restoration	High	remove crested wg; seed natives
Step toe Cave	Ward Seeding	Sagebrush Protection/Enhancement	2,126.17	Acres for Pri 1 were not seperated out	Restoration	High	remove crested wg; seed natives
Step toe Cave	Willow Creek 1	Sagebrush Protection/Enhancement	997.74	Acres for Pri 1 were not seperated out	Restoration	High	remove crested wg; seed natives
Step toe Cave	South Step toe	Sagebrush Protection/Enhancement	3,200.35	Acres for Pri 1 were not seperated out	Restoration	High	remove crested wg; seed natives
Step toe Cave	Willow Creek 2	Sagebrush Protection/Enhancement	1,164.48	Acres for Pri 1 were not seperated out	Restoration	High	remove crested wg; seed natives
Step toe Cave	Unnamed veg treatment 1	Sagebrush Protection/Enhancement	2,379.45	Acres for Pri 1 were not seperated out	Restoration	High	remove crested wg; seed natives
Step toe Cave	Triangle	Sagebrush Protection/Enhancement	447.09	Acres for Pri 1 were not seperated out	Restoration	High	remove crested wg; seed natives
Step toe Cave	Unnamed veg treatment 2	Sagebrush Protection/Enhancement	2,338.58	Acres for Pri 1 were not seperated out	Restoration	High	remove crested wg; seed natives
Step toe Cave	Horse/Cattle Camp	Sagebrush Protection/Enhancement	3,023.11	Acres for Pri 1 were not seperated out	Restoration	High	remove crested wg; seed natives
Step toe Cave	South Group Seeding	Sagebrush Protection/Enhancement	574.46	Acres for Pri 1 were not seperated out	Restoration	High	remove crested wg; seed natives
Step toe Cave	Patterson Pass Seeding	Sagebrush Protection/Enhancement	5,134.54	Acres for Pri 1 were not seperated out	Restoration	High	remove crested wg; seed natives
Step toe Cave	South Cattle Camp	Sagebrush Protection/Enhancement	1,438.20	Acres for Pri 1 were not seperated out	Restoration	Low	remove crested wg; seed natives
Step toe Cave	Cave Valley SG treatments	Invasives_SagebrushPE	2,970.07	Acres for Pri 1 were not seperated out	Restoration	High	assess and re-treat due to lack of success
Step toe Cave	South Step toe Bench	Coniferous Encroachment	27,430.60	Acres for Pri 1 were not seperated out	Both	High	remove/thin PJ along benches
Step toe Cave	Terrace	Coniferous Encroachment	5,193.12	Acres for Pri 1 were not seperated out	Both	High	remove/thin conifers
Step toe Cave	Cave Valley Bench	Coniferous Encroachment	7,541.39	68,493	Both	High	remove/thin PJ along benches
Step toe Cave	Cattle Camp	Coniferous Encroachment	23,606.50	Acres for Pri 2 were not seperated out	Both	Moderate	remove/thin 1 & 2 PJ
Step toe Cave	Terrace	Coniferous Encroachment	4,643.70	Acres for Pri 2 were not seperated out	Both	Moderate	remove/thin conifers
Step toe Cave	South Step toe Bench	Coniferous Encroachment	22,058.10	50,315	Both	Moderate	remove/thin PJ along benches
Step toe Cave	Terrace	Coniferous Encroachment	420.09	1,858	Both	Low	remove/thin conifers
Total Acres			120,654.49	120,666			
Table Mtn Hamlin Valley	Hamlin Valley Sage Grouse Treatment	Invasives_SagebrushPE	14,520.20	Acres for Pri 1 were not seperated out	Restoration	High	Assess and treat cheatgrass
Table Mtn Hamlin Valley	Meadow Valley Wash Seedings	Invasives_SagebrushPE	9,010.99	Acres for Pri 1 were not seperated out	Restoration	High	Assess and native plants witnin seeding
Table Mtn Hamlin Valley	Coyote Wildfire Area	Invasives_SagebrushPE	22,415.10	Acres for Pri 3 were not seperated out	Restoration	Low	Assess for cheatgrass
Table Mtn Hamlin Valley	Table Fire	Invasives_SagebrushPE	8,638.14	Acres for Pri 3 were not seperated out	Restoration	Low	Assess for cheatgrass and re-establish natives
Table Mtn Hamlin Valley	Eagle Fire 2002	Invasives_SagebrushPE	8,520.52	Acres for Pri 3 were not seperated out	Restoration	Low	Assess for cheatgrass establishment
Table Mtn Hamlin Valley	Buster Fire 2002	Invasives_SagebrushPE	4,399.39	Acres for Pri 3 were not seperated out	Restoration	Low	Assess fire rehab
Table Mtn Hamlin Valley	Meadow Valley Wash	Coniferous Encroachment	45,343.70	Acres for Pri 1 were not seperated out	Both	High	Phase 1 and 2 PJ removal
Table Mtn Hamlin Valley	NV-UT Hamlin Bench	Coniferous Encroachment	61,217.50	130,199	Both	High	Removal of phase 1 and 2 PJ

FIAT Planning Area Name	Potential Treatment Area Name	Treatment Purpose and Need	Total Acre Potential Treatment Area	Assessment Acre Potential Treatment Area	Treatment Type	Priority For Implementation	Comments
Table Mtn Hamlin Valley	Table Mountain	Coniferous Encroachment	11,212.80	Acres for Pri 2 were not seperated out	Both	Moderate	PJ phase I and II removal/thinning
Table Mtn Hamlin Valley	Cave and Lake S-10	Coniferous Encroachment	11,626.40	Acres for Pri 2 were not seperated out	Both	Moderate	Phase I and II and corridor
Table Mtn Hamlin Valley	Cave and Lake A-2	Coniferous Encroachment	3,298.62	Acres for Pri 2 were not seperated out	Both	Moderate	PJ phase I and II removal/thinning
Table Mtn Hamlin Valley	NV-UT Hamlin Bench	Coniferous Encroachment	84,382.80	110,611	Both	Moderate	Removal of phase 1 and 2 PJ
Table Mtn Hamlin Valley	White Rock Fire	Invasives_SagebrushPE	6,245.10	Acres for Pri 3 were not seperated out	Restoration	Low	Assess for cheatgrass and re-establish natives
Table Mtn Hamlin Valley	Paradise Fire	Invasives_SagebrushPE	5,626.88	55,887	Restoration	Low	Assess for cheatgrass and re-establish natives
Total Acres			296,458.14	296,697			
Western White Pine	Pinto Creek Seeding	Sagebrush Protection/Enhancement	1,283.76	Acres for Pri 1 were not seperated out	Restoration	High	remove crested wg; plant natives
Western White Pine	Halstead Seeding	Sagebrush Protection/Enhancement	989.42	Acres for Pri 1 were not seperated out	Restoration	High	remove crested wg; plant natives
Western White Pine	Fernando Seeding	Sagebrush Protection/Enhancement	902.09	Acres for Pri 1 were not seperated out	Restoration	High	remove crested wg; plant natives
Western White Pine	McQueen Seeding	Sagebrush Protection/Enhancement	2,044.95	Acres for Pri 1 were not seperated out	Restoration	High	remove crested wg; plant natives
Western White Pine	Lampson Fire 2007	Invasives_SagebrushPE	577.19	Acres for Pri 2 were not seperated out	Restoration	Moderate	Enhance riparian function
Western White Pine	Pinto Fire 2012	Invasives_SagebrushPE	2,881.20	Acres for Pri 2 were not seperated out	Restoration	Moderate	Assess fire rehab & seed natives if needed
Western White Pine	Cathedral Fire 2007	Invasives_SagebrushPE	3,701.94	3,701	Restoration	Low	Chemical treatment of cheat grass in fire
Western White Pine	Jakes Valley	Coniferous Encroachment	48,282.50	Acres for Pri 1 were not seperated out	Both	High	treat/thin phase 1 & 2 PJ along benches
Western White Pine	South Newark Valley	Coniferous Encroachment	18,043.00	Acres for Pri 1 were not seperated out	Both	High	treat/thin phase 1 & 2 PJ along benches
Western White Pine	East Pancake	Coniferous Encroachment	8,632.23	Acres for Pri 1 were not seperated out	Both	High	treat/thin phase 1 & 2 PJ along benches
Western White Pine	Mokomoke Mountain	Coniferous Encroachment	19,081.60	99,229	Both	High	assess for potential PJ thinning
Western White Pine	Mokomoke Mountain	Coniferous Encroachment	51,314.00	54,754	Both	Moderate	assess for potential PJ thinning
Total Acres			157,733.88	157,684			
Total Acres of Treatments			2,970,324.16	2,973,496			

FIAT Planning Area Name	Potential Treatment Area Name	Treatment Purpose and Need	Total Acre Potential Treatment Area (Spatial)	Assesment Acres	Notes	Treatment Type	Priority For Implementation	Comments
Beulah	Restoration 1st Priority	Invasive Annuals	3,941.32	3,941	Not list in Assessment, but included in PRI 1 total acres in Table 4-6	Restoration and Fuels	1	Prioritize along elevation break below 5,000' & treat annuals along selective fuel breaks 100' buf
Beulah	Restoration 2nd Priority	Invasive Annuals	980.40	980	Not list in Assessment, but included in PRI 1 total acres in Table 4-6	Restoration and Fuels	2	Prioritize along elevation break below 5,000' & treat annuals along selective fuel breaks 100' buf
Beulah	Restoration 3rd Priority	Invasive Annuals	9,237.26	9,200		Restoration and Fuels	3	Prioritize along elevation break below 5,000' & treat annuals along selective fuel breaks 100' buf
Beulah	Conifer 1st Priority	Conifer Encroachment	363,920.11	363,924		Restoration and Fuels	1	PHase 1 near elevation break or within focal habitat at lower elevation. All treatment options
Beulah	Conifer 1st Priority	Conifer Encroachment	4,430.87	4,435	Not list in Assessment, but included other Conifer Encroachment aPRI 1 acreage total and also in PRI 1 total acres in Table 4-6	Restoration and Fuels	1	Phase 1 near elevation break or within focal habitat at lower elevation. All treatment options
Beulah	Conifer 2nd Priority	Conifer Encroachment	45,476.95	45,520	In assessment there is listed a 2nd Priority Habitat Restoration Treatment for 6,000 which is not seperatly listed in Attribute table, but looks to be included in total acre potential treatment Area	Restoration and Fuels	2	Phase 2 and 3 outside focal habitat along perimeter. All treatment options
Total Acres			427,986.90	428,000				
Curlew	Restoration 2nd Priority	Reducing HZ Fuels, invasive annual grass, conifes, and invasive weeds	2,059.20	2,000		Restoration and Fuels	2	GIS data shows outside of focal habitat, but map attached to FIAT doc shows inside.
Curlew	Restoration 3rd Priority	Reducing HZ Fuels, invasive annual grass, conifes, and invasive weeds	8,055.26	8,000		Restoration and Fuels	3	GIS data shows outside of focal habitat, but map attached to FIAT doc shows inside.
Curlew	Conifer 1st Priority	Conifer Encroachment	113,433.50	106,900	Not sure what remaining 6,533 acres are, nothing listed in assessment.	Restoration and Fuels	1	No phase id'd, all in focal habitat, some outside. All treatment options. Acres include treatments in Fuels treatment polys
Curlew	Conifer 2nd Priority	Conifer Encroachment	22,230.10	28,800	Not sure why have 6,570 more acres in assessment than in spatial.	Restoration and Fuels	2	No phase id'd, all outside focal habitat. All treatment options. Acres include treatments in Fuels treatment polys
Total Acres			145,778.05	145,700				
Greater Owyhee	Restoration 2nd Priority	Sagebrush Manipulation	24,606.00	24,600		Restoration	2	Sagebrush manipulation project start 2016 USFS to send shapefile, north fork Humbolt
Greater Owyhee	Fuels 3rd Priority	Expansion of Annuals Treatment	63,710.75	62,800	These acres are listed in Fuel Treatment table 4-25. Will include in acres treatment total.	Restoration	3	Expansion of Annuals treatment outside of focal habitat
Greater Owyhee	Annuals 1st Priority	Invasive Annuals	146,290.66			Restoration	1	chemical treatment to prevent invasives, seed & monitor. Medusa Head & Cheatgrass. Part of Santa Rosa Medusahead Control?
Greater Owyhee	Annuals 1st Priority	Invasive Annuals	18,727.52	162,400	List on pg 4-21 and Table 4-26 of assessment list total as 162,400 acres. Not sure what remaining 2,618 acres are unless they are the "NULL" acres in Table 4-26.	Restoration	1	chemical treatment to prevent invasives, seed & monitor. Medusa Head & Cheatgrass. Part of Santa Rosa Medusahead Control?
NULL ACRES			2,600.00	2,600				
Total Acres			255,934.92	252,400	Difference of 3,535			
Jim Sage	Conifer 1st Priority	Conifer Encroachment	24,430.15	24,400		Restoration and Fuels	1	Phase 1&2 in focal habitat 3 A,B,C, Fuels Treat #1 out focal habitat winter habitat and Fuels treats #2. All treatment options
Jim Sage	Annual 1st Priority	Invasive Annuals	33,771.06	33,800		Restoration	1	chemical treatment to prevent invasives, seed & monitor. Inside focal habitat and outside on the N. Minus conifer & fuels treatments.
NULL Acres			0.00	700				
Total Acres			58,201.21	58,900				
Mainstem Malheur	Conifer 1st Priority	Conifer Encroachment	175,480.10	213,200	This total includes the Restoration 1st priority treatment of 37,690 acres	Restoration and Fuels	1	No phase id'd all in focal habitats in 1C and 3C mech treats with follow-up treats for effectiveness
Mainstem Malheur	Conifer 2nd Priority	Conifer Encroachment	78,696.29	41,000	The difference between these acreages is 37,696 acres. Similar to acreage of Restoration 1st Priority Treatment. Which was included in Conifer 1st priority total in assessment acres.	Restoration and Fuels	2	No phase id'd out of focal habitats in 1C and 3C mech treats with follow-up treats for effectiveness

FIAT Planning Area Name	Potential Treatment Area Name	Treatment Purpose and Need	Total Acre Potential Treatment Area (Spatial)	Assesment Acres	Notes	Treatment Type	Priority For Implementation	Comments
Mainstem Malheur	Restoration 1st Priority	Restoration	37,690.00	0	No mention in Assessment. BUT was included in assessment totals for Priority 1 and Priority 2 totals. Only found in spatial data.	Restoration and Fuels	1	In 1B, 1C and 3C within focal habitat
Mainstem Malheur	Restoration 2nd Priority	Restoration	17,037.00	54,700	The difference between these acreages is 37,663 acres. Similar to acreage of Restoration 1st Priority Treatment. Which was included in Conifer 1st priority total in assessment acres and Conifer 2nd Priority acre and apparently this one too.	Restoration and Fuels	2	In 1B, 1C and 3C within focal habitat
Total Acres			308,903.38	308,900				
North Fork Owyhee	Adobe Sagebrush Augmentation 1st	Restore sagebrush & herb component remove rabbit brush	3,523.00	Acres for Pri 1 were not seperated out		Restoration	1	In 2C and 3C in and out of focal habitat.
North Fork Owyhee	Coal Mine Canyon Restoration 1st	Restore sagebrush & herb component remove rabbit brush	18,393.14	Acres for Pri 1 were not seperated out		Restoration	1	In 2C and 3C all in focal habitat.
North Fork Owyhee	Dinner Station Restoration 1st	Restore sagebrush & herb component remove rabbit brush	22,243.54	Acres for Pri 1 were not seperated out		Restoration	1	In 2C and 3C in and out of focal habitat
North Fork Owyhee	Saval Sage Restoration 1st	Restore sagebrush & herb component remove rabbit brush	120,621.66	154,500	Assessment says 154,500 acres, includes all 1st priorities. GIS Acres 1st priorities: 164,781 acres. Not sure what the 10,281 acre difference is.	Restoration	1	In 2C and 3C in and out of focal habitat
North Fork Owyhee	Stone Flat Restoration 2nd Priority	Restore sagebrush & herb component remove rabbit brush	34,597.91		This treatment is in the spatial data but acres are not included in the total for Pri. 2 Restoration.	Restoration	2	
North Fork Owyhee	Restore Moderate 3rd	Restore sagebrush & herb component remove rabbit brush	52,768.55	52,600	Believe the 185 acre difference is due to the "NULL" acres of 11,000.	Restoration	3	In 1A, 1B & 1C all in focal habitat.
North Fork Owyhee	Indian Creek Sagebrush Augmentation 2nd	Restore sagebrush & herb component remove rabbit brush	48,742.24	0		Restoration	2	In 3A, 1A, 2B, 2C all in focal habitat
North Fork Owyhee	Red House Sagebrush Augmentation 2nd	Restore sagebrush & herb component remove rabbit brush	6,626.03	54,900	Assessment says 55,368, includes all 2nd priorities. GIS Acres 2nd Priorities 55,368. Believe the 468 acre difference is due to the "NULL" acres of 11,000.	Restoration	2	In 3A, 1A, 2B all in focal habitat
NULL ACRES			0.00	11,000				
Total Acres			307,516.07	273,000	Difference of 34,516			
Oakley	Cave Canyon 1st Priority	Nothing ID'd in Assessment and "Null" in GIS and restoration attribute table	42,059.60	0	Nothing ID'd in Assessment and "Null". In GIS and restoration attribute table. Could these acres be the Invasive Annual Treatments?	Restoration	1	02/27/2015 - cave canyon fire
Oakley	Conifer 1st Priority	Conifer Encroachment	93,776.29	123,300	There is no table associated with these treatments, only a list. Assessment Priority 1 total acres includes Conifer 2nd priority too. In Assessment there is no Conifer 2nd priortiy listed.	Restoration and Fuels	1	Phase 1&2 in & out of focal habitat pri 3 A,B,C remove conifer via mastication or hand fell & pile, & annuals and restore GRSG habitat
Oakley	Conifer 2nd Priority	Conifer Encroachment	29,506.19	0	There is no table associated with these treatments, only a list. These acres are included in total acres for Conifer 1st priority. No Conifer 2nd priority is listed in assessment.	Restoration and Fuels	2	Phase 1&2 out of focal habitat pri 3A,B,C remove conifer via mastication or hand fell & pile, & annuals and restore GRSG habitat
Oakley	Invasive Annual 1st Priority	Invasive Annuals	0.00	10,200	Listed in Assessment pg 4-41, but no table reflecting any restoration or invasive annual treatments for PPA. No GIS info or attribute table listing polygons for treatments. Could this be Cave Canyon .	Restoration and Fuels	1	Map of Invasive Treatments is in Assessment Fig. 4.60 and listed in Assessment on pg 4-41, but there is no GIS data covering treatment area or anything in any of the attribute tables describing treatments.
Oakley	Invasive Annual 2nd Priority	Invasive Annuals	0.00	31,800	Listed in Assessment pg 4-41, but no table reflecting any restoration or invasive annual treatments for PPA. No GIS info or attribute table listing polygons for treatments. Could this be Cave Canyon .	Restoration and Fuels	2	Map of Invasive Treatments is in Assessment Fig. 4.60 and listed in Assessment on pg 4-41, but there is no GIS data covering treatment area or anything in any of the attribute tables describing treatments.
Total Acres			165,342.09	165,300				

FIAT Planning Area Name	Potential Treatment Area Name	Treatment Purpose and Need	Total Acre Potential Treatment Area (Spatial)	Assesment Acres	Notes	Treatment Type	Priority For Implementation	Comments
Oneil	21 mile Restoration High 1st	Chemical and seeding treats for cheatgrass & halogeton	304.25	Acres for Pri 1 were not seperated out	Includes all the acre totals, INCLUDING 2nd priority. There is no Restoration 2nd Priority treatments listed in Assessment. There is a 25 acre difference	Restoration	1	In 3C and out of focal habitat. Clipped out conifer
Oneil	Hepworth Restoration High 1st	Chemical and seeding treats for cheatgrass & halogeton	7,129.03	Acres for Pri 1 were not seperated out	Includes all the acre totals, INCLUDING 2nd priority. There is no Restoration 2nd Priority treatments listed in Assessment. There is a 25 acre difference	Restoration	1	In 3A and 3B and in focal habitat. Clipped out conifer
Oneil	Knoll Creek Restoration High 1st	Chemical and seeding treats for cheatgrass & halogeton	1,566.38	Acres for Pri 1 were not seperated out	Includes all the acre totals, INCLUDING 2nd priority. There is no Restoration 2nd Priority treatments listed in Assessment. There is a 25 acre difference	Restoration	1	In 3C and in focal habitat. Clipped out conifer
Oneil	Savannah Restoration High 1st	Chemical and seeding treats for cheatgrass & halogeton	832.65	Acres for Pri 1 were not seperated out	Includes all the acre totals, INCLUDING 2nd priority. There is no Restoration 2nd Priority treatments listed in Assessment. There is a 25 acre difference	Restoration	1	In 3C and out of focal habitat. Clipped out conifer
Oneil	Scott Creek Drill Seeded Restoration 1st	Chemical and seeding treats for cheatgrass & halogeton	1,439.22	Acres for Pri 1 were not seperated out	Includes all the acre totals, INCLUDING 2nd priority. There is no Restoration 2nd Priority treatments listed in Assessment. There is a 25 acre difference	Restoration	1	In 3B and 3C and in focal habitat. Clipped out conifer
Oneil	Tabor Restoration High 1st	Chemical and seeding treats for cheatgrass & halogeton	10,046.52	Acres for Pri 1 were not seperated out	Includes all the acre totals, INCLUDING 2nd priority. There is no Restoration 2nd Priority treatments listed in Assessment. There is a 25 acre difference	Restoration	1	In 2C, 3B and 3C and in focal habitat. Clipped out conifer
Oneil	Cricket Restoration High 2nd	Chemical and seeding treats for cheatgrass & halogeton	11,209.62	Acres for Pri 2 were not seperated out	Includes all the acre totals, INCLUDING 2nd priority. There is no Restoration 2nd Priority treatments listed in Assessment. There is a 25 acre difference	Restoration	2	In 2A and in focal habitat. Clipped out conifer
Oneil	18 mile Conifer 1st Priority	Conifer Encroachment	55,202.13	Acres for Pri 1 were not seperated out	GIS acre total is 168,627. Includes all 1st priority treatments. Not sure what the 17,827 acre difference is.	Restoration and Fuels	1	No phase Id'd, all inside focal habitat In 2B, 1A, 3B, and 3C. All treatment options
Oneil	N Pequops Conifer 1st Priority	Conifer Encroachment	40,352.76	Acres for Pri 1 were not seperated out	GIS acre total is 168,627. Includes all 1st priority treatments. Not sure what the 17,827 acre difference is.	Restoration and Fuels	1	No phase Id'd all inside focal habitat. In 2B, 2C, 3B, and 3 C. All treatment options
Oneil	N Pequops Conifer 1st Priority	Conifer Encroachment	123.03	Acres for Pri 1 were not seperated out	GIS acre total is 168,627. Includes all 1st priority treatments. Not sure what the 17,827 acre difference is.	Restoration and Fuels	1	No phase ID'd on border outside of focal habitat. In 2 B and 3 B. All treatment options
Oneil	SANE Proposed conifer 1st Priority	Conifer Encroachment	20,757.12	Acres for Pri 1 were not seperated out	GIS acre total is 168,627. Includes all 1st priority treatments. Not sure what the 17,827 acre difference is.	Restoration and Fuels	1	No phase Id'd. In focal habitat. In 3A,2A, and 3B. All treatment options
Oneil	SANE Proposed conifer 1st Priority	Conifer Encroachment	60.00	Acres for Pri 1 were not seperated out	GIS acre total is 168,627. Includes all 1st priority treatments. Not sure what the 17,827 acre difference is.	Restoration and Fuels	1	No phase Id'd. In 2B, 3A, 2A, and 1A. On border out of focal habitat. All treatment options
Oneil	SANE Proposed conifer High 1st Priority	Conifer Encroachment	0.93	Acres for Pri 1 were not seperated out	GIS acre total is 168,627. Includes all 1st priority treatments. Not sure what the 17,827 acre difference is.	Restoration and Fuels	1	No phase ID'd One border outside of focal habitat. part of Oniel SANE #1on border
Oneil	Sugarloaf conifer expansion 1st Priority	Conifer Encroachment	52,131.78	183,300	GIS acre total is 168,627. Includes all 1st priority treatments. Not sure what the 17,827 acre difference is.	Restoration and Fuels	1	No Phase Id'd. In focal habitat. In 2C, 1B, 2B, and 3B. All treatment options
Oneil	SANE Proposed conifer 2nd Priority	Conifer Encroachment	40,598.51	Acres for Pri 2 were not seperated out	GIS acre total is 49,207. Includes all 2nd priority treatments. Not sure what the 10,293 acre difference is.	Restoration and Fuels	2	No Phase Id'd Outside focal habitat. In 3C, 1B, 3B,2B, 3A, and 2C. All treatment options
Oneil	N Pequops Conifer 2nd Priority	Conifer Encroachment	5.54	Acres for Pri 2 were not seperated out	GIS acre total is 49,207. Includes all 2nd priority treatments. Not sure what the 10,293 acre difference is.	Restoration and Fuels	2	No Phase Id'd Small area inside border of focal habitat. 2B and 2C. All treatment options
Oneil	N Pequops Conifer 2nd Priority	Conifer Encroachment	8,603.16	59,500	GIS acre total is 49,207. Includes all 2nd priority treatments. Not sure what the 10,293 acre difference is.	Restoration and Fuels	2	No Phase Id'd. Outside of focal habitat In 2B, 2C, and 3B habitat. All treatment options
Null Acres			0.00	7,600				
Total Acres			250,362.61	250,400				

FIAT Planning Area Name	Potential Treatment Area Name	Treatment Purpose and Need	Total Acre Potential Treatment Area (Spatial)	Assesment Acres	Notes	Treatment Type	Priority For Implementation	Comments
Otis	Restoration 1st Priority	Mech with hand or machine pile around active leks.	58,822.68	Acres for Pri 1 were not seperated out	NO MENTION OF THIS IN ASSESSMENT!!! But have GIS info in NGB Restoration attribute table.	Restoration	1	02/26/2015 - South potion of annuals minus conifer. Part of completed NEPA??
Otis	Conifer 1st Priority	Conifer Encroachment	31,035.34	Acres for Pri 1 were not seperated out	This total includes the Invasive Annual Grass 1st Priority total of 16,700 acres.	Restoration and Fuels	1	North 2/3 is Phase 3 while south is phase 1. In focal habitat. 1C,1B,1A, 2A, 2B, 2C. Mech removal, chemical treatsfor invasives, seeding and monitoring.
Otis	Conifer 2nd Priority	Conifer Encroachment	36,119.50	Acres for Pri 2 were not seperated out	Only mentioned in assessment on pg 4-49 as Burns District Office staff identified four areas for conifer reduction (see attached GIS data). But no mention of acres. Has poly's in GIS and NGB Conifer attribute table has info.	Restoration and Fuels	2	Combo of Phase 3 and 1. Out of focal habitat 3C,1C,2B, 2C. Mech removal, chemical treats for invasives, seeding and monitoring. FIAT Assessment on pg 4-49 lists this as 1st priority, but GIS info lists as 2nd priority.
Otis	Conifer 2nd Priority	Conifer Encroachment	14,855.66	Acres for Pri 2 were not seperated out	Only mentioned in assessment on pg 4-49 as Burns District Office staff identified four areas for conifer reduction (see attached GIS data). But no mention of acres. Has poly's in GIS and NGB Conifer attribute table has info.	Restoration and Fuels	2	Phase 3. Out of focal habitat. 1B,2B,1A. Mech removal, chemical treats for invasives, seeding and monitoring. FIAT Assessment on pg 4-49 lists this as 1st priority, but GIS info lists as 2nd priority.
Otis	Annual 1st Priority	Invasive Annuals	9,618.22	98,700	This total includes the Conifer 1st Priority total of 16,700 acres. Not sure what the 7,082 acre difference it.	Restoration and Fuels	1	chemical treatment to prevent invasives, seed & monitor. Mostly in focal habitat, minus portion to the west. Part of completed NEPA? FIAT Assessment on pg 4-49 states there are 96,100 acres of invasive annuals treatments and lists this as 16,700 acres which does not match GIS acres or attribute table acres.
Otis	Annual 2nd Priority	Invasive Annuals	0.00	50,600	There is a 2nd Priority Invasive Annual Grass treatment mentioned in Assessment. BUT THERE IS NO GIS DATA to go with it.	???	2	On page 4-50 of Assessment this is listed as 2nd priority project. There is no GIS data to back assessment text. Only shows 1st priority invasive annual treatment of 9,618 acres (not 16,700 like FIAT assessment shows), nothing about 2nd priority treatments
Null Acres			0.00	1,100				
Total Acres			150,451.40	150,400				
Owyhee Desert	Restoration 1st Priority	Invasive Annuals	59,729.49	54,900	The difference of 4829 is part of the "NULL" acres which are 5,200.	Restoration and Fuels	1	Chem and seeding treats for cheatgrass & medusahead. Plant perennial forbs into treats to reduce invasive annuals. Mow and seed up to 1 mi @ playas.
Owyhee Desert	Restoration 2nd Priority	Invasive Annuals	21,077.14	20,700	The difference of 377 is part of the "NULL" acres which are 5,200.	Restoration and Fuels	2	Chem and seeding treats for cheatgrass & medusahead. Plant perennial forbs into treats to reduce invasive annuals. Mow and seed up to 1 mi @ playas.
Null Acres			0.00	5,200				
Total Acres			80,806.62	80,800				
Owyhee North	Conifer 1st Priority	Conifer Encroachment	420,338.92	Acres for Pri 1 were not seperated out	Includes all 1st priorities. The 7,400 acre difference is the "NULL" acres.	Restoration and Fuels	1	All phases in focal habitat and all R&R classes. Part of BOSH. Mech, chem, seed_plant, monitor and continues out of focal habitat to improve conectivity & maintain habitat.
Owyhee North	Conifer OR 1st Priority	Conifer Encroachment	365,467.18	Acres for Pri 1 were not seperated out	Includes all 1st priorities. The 7,400 acre difference is the "NULL" acres.	Restoration and Fuels	1	All phases in focal habitat and all R&R classes. Mech, chem, seed_plant monitor. Is this part of BOSH even though in Oregon?
Owyhee North	Annuals 1st Priority	Invasive Annuals	16,970.56	795,400	Includes all 1st priorities. The 7,400 acre difference is the "NULL" acres.	Restoration	1	sagebrush treats,chem treats, seed, plant and monitor. In and out of focal habitat. Part of Tri-state or BOSH?
Null Acres			0.00	7,400				
Total Acres			802,776.66	802,800				
Owyhee South	Restoration 3rd Priority	Invasive Annuals	125,158.02	124,900	There is mention in the assessment on page 4-67 of Habitat Restoration other 3rd priority of 51,200 acres and Table 4-87 on same page has acres for priority 3 as 124,900. I have no idea why assessment numbers and priorities in this PPA do not match spatial data. Believe the difference of 258 acres is the "NULL" acres in table 4-87.	Restoration and Fuels	3	Chem and seeding treats for cheatgrass & medusahead. Plant perennial forbs into treats to reduce invasive annuals.
Owyhee South	Conifer 1st Priority	Conifer Encroachment	517,837.05	512,400	Believe the 5,437 acres difference is due to "NULL" acres in Table 4-87	Restoration and Fuels	1	All phases in focal habitat and all R&R classes. Mech, chem, seed_plant monitor. Part of BOSH?
Owyhee South	Annuals 1st Priority	Invasive Annuals	45,173.83	0	There is NO mention of 1st Priority Annuals treatments in the Assessment. On page 4-67 of Assessment mentions a 3rd Priority Invasive annual treatment for 79,400. The 79,400 acres total includes the listed 2nd priority Annuals treatment of 27,714 acres.	Restoration and Fuels	1	sagebrush treats, chem treats, seed, plant and monitor. Inside focal habitat. FIAT Assessment on page 4-67 identifies this as 3rd priority. GIS and attribute table identifies it as 1st Priority. Which is it?? Is the part of Tri-State or BOSH?

FIAT Planning Area Name	Potential Treatment Area Name	Treatment Purpose and Need	Total Acre Potential Treatment Area (Spatial)	Assesment Acres	Notes	Treatment Type	Priority For Implementation	Comments
Owyhee South	Annuals 1st Priority	Invasive Annuals	6,511.74	0	There is NO mention of 1st Priority Annuals treatments in the Assessment. On page 4-67 of Assessment mentions a 3rd Priority Invasive annual treatment for 79,400. The 79,400 acres total includes the listed 2nd priority Annuals treatment of 27,714 acres.	Restoration and Fuels	1	sagebrush treats, chem treats, seed, plant and monitor. Inside focal habitat. FIAT Assessment on page 4-67 identifies this as 3rd priority. GIS and attribute table identifies it as 1st Priority. Which is it?? Is the part of Tri-State or BOSH?
Owyhee South	Annuals 2nd Priority	Invasive Annuals	27,714.53	0	There is NO mention of 2nd Priority Annuals treatments in the Assessment. On page 4-67 of Assessment mentions a 3rd Priority Invasive annual treatment for 79,400. The 79,400 acres total includes the listed 1st priority Annuals treatment of 27,714 acres.	Restoration and Fuels	2	sagebrush treats, chem treats, seed, plant and monitor. Inside focal habitat. FIAT Assessment on page 4-67 identifies this as 3rd priority. GIS and attribute table identifies it as 2nd Priority. Which is it?? Is the part of Tri-State or BOSH?
	Null Acres		0.00	5,700				
Total Acres			722,395.18	643,000	Off by 79,395 acres.			
Rogerson	Fuel 1st Priority	Assessment gives no explanation other than Rogerson Area Fuel Treatments 1st Priority	22,940.78	Acres for Pri 1 were not seperated out for Fuels and Restoration	Total includes all of 1st priorities. There is a 300 acre difference which is the "NULL" Acres in Table 4-93.	Fuels and Restoration?	1	Linear but wider then fuel break and is a poly not a line in GIS data, not sure if these are along roads or natural breaks. Not sure if this is a linear treatment along road or a hz fuel treat in acres?? Refer to page 4-76 and Table 4-93 in NGB Assessment
Rogerson	Fuels 1st Priority	Assessment gives no explanation other than Rogerson Area Fuel Treatments 1st Priority	172,475.66	195,100	Total includes all of 1st priorities. There is a 300 acre difference which is the "NULL" Acres in Table 4-93.	Fuels and Restoration?	1	Located outside of focal habitat 3A, 1B, 2B, 3C, 3B. Not linear no info on treats.
Rogerson	Fuel 3rd Priority	Assessment gives no explanation other than Rogerson Area Fuel Treatments 3rd Priority	61,334.33	61,300		Fuels and Restoration?	3	Linear but wider then fuel break and is a poly not a line in GIS data, not sure if these are along roads or natural breaks. Not sure if this is a linear treatment along road or a hz fuel treat in acres?? Refer to page 4-76 and Table 4-93 in NGB Assessment
Rogerson	Restoration 1st Priority	Mech, chem, seeding treats for rest & rec. excluds shrub areas nat/plant	140,920.45	Acres for Pri 1 were not seperated out for Restoration	This total includes all 1st priorities and is listed in Table 4-94 on page 4-77. Assessment lists the Habitat Restoration (Other) 1st priorties as 102,300 acres on page 4-77. The 102,300 is not close to 140,920 acres which is the size of this treatment in GIS. Table 4-94 matches the Spatial data for acres BUT NOT the treatment and acres by priority listed in the Assessment.	Restoration	1	Plant perennial and shrubs inside focal habitat. Monitor areas already planted with shrubs.
Rogerson	Restoration 2nd Priority	Mech, chem, seeding treats for rest & rec. excluds shrub areas nat/plant	168,143.69	Acres for Pri 2 were not seperated out.	This total includes the 38,566 acres of IA treatment that is also a 2nd priority.	Restoration	2	Plant perennial and shrubs inside focal habitat. Monitor areas already planted with shrubs
Rogerson	Restoration 3rd Priority	Mech, chem, seeding treats for rest & rec. excluds shrub areas nat/plant	113,009.08	113,000		Restoration	3	Plant perennial and shrubs inside focal habitat. Monitor areas already planted with shrubs
Rogerson	Annuals 1st Priority	Invasive Annuals	138,902.48	279,900	This total includes all 1st priorities and is listed in Table 4-94 on page 4-77. Assessment lists the IA 1st priorties as 177,600 acres on page 4-77. The 177,600 acre number includes the 38,566 acre 2nd priority IA treatments. Table 4-94 matches the Spatial data for acres BUT NOT the treatment and acres by priority listed in the Assessment.	Restoration	1	chem treats, seed, plant & monitor, herb and shrub spec. All in focal areas. Do in tandum with restoration and fuelbreaks. Part of Tri-State or BOSH?
Rogerson	Annuals 2nd Priority	Invasive Annuals	38,566.33	206,700	This total includes the 168,143 acres of Restoration treatment that is also a 2nd priority.	Restoration	2	chem treats, seed, plant & monitor, herb and shrub spec. All in focal areas. Do in tandum with restoration and fuelbreaks. Part of Tri-State or BOSH?
	Null Acres		0.00	400				
Total Acres			856,292.80	856,400				
Sheephead West	Annuals 1st Priority	Invasive Annuals	4,269.37	4,300		Restoration	1	chem treats, seed, plant & monitor, herb and shrub spec. All in focal areas. Do in tandum with restoration and fuelbreaks.
Total Acres			4,269.37	4,300				
Tuscarora	Fuel 2nd Priority	Chemical treatments and seed monitor. Good forb component.	33,067.46	31,800	Acres included in Table 4-114. Difference of 1,267 acres which is the Null Acres.	Fuels	2	

FIAT Planning Area Name	Potential Treatment Area Name	Treatment Purpose and Need	Total Acre Potential Treatment Area (Spatial)	Assesment Acres	Notes	Treatment Type	Priority For Implementation	Comments
Tuscarora	Frazier Restoration 1st Priority	Mech chem, seed, monitor. Good forb component	2,939.76	Acres for Pri 1 were not seperated out.	Acres include all Priority 1. There is a difference of 628 acres. Believe these are part of the Null Acres	Restoration	1	inside focal habitat. Snow Canyon, 6 mile NEPA?
Tuscarora	Milligan Restoration 1st Priority	Mech chem, seed, monitor. Good forb component	12,204.25	Acres for Pri 1 were not seperated out.	Acres include all Priority 1. There is a difference of 628 acres which is the "NULL" acres in Table 4-115.	Restoration	1	inside focal habitat. Snow Canyon, 6 mile NEPA?
Tuscarora	Willow Creek Restoration 1st Priority	Mech chem, seed, monitor. Good forb component	22,698.99	Acres for Pri 1 were not seperated out.	Acres include all Priority 1. There is a difference of 628 acres.	Restoration	1	inside focal habitat. Snow Canyon, 6 mile NEPA?
Tuscdarora	Little Rock Restoration 1st Priority	Mech chem, seed, monitor. Good forb component	11,983.04	49,200	Acres include all Priority 1. There is a difference of 628 acres.	Restoration	1	inside focal habitat. Snow Canyon, 6 mile NEPA?
Tuscarora	Cornucopia Restoration 2nd Priority	Mech chem, seed, monitor. Good forb component	35,260.67	Acres for Pri 2 were not seperated out.	If have only 2nd priorities related to Restoration total acres is 108,893, which is not close to 135,400 acres. So ASSUME includes all the 2nd priorities including Fuels (33,067 acres) for a total of 141,960. There is a difference of 6,560 acres. Fuels is also counted in Fuels treatment table 4-114.	Restoration	2	inside focal habitat. Snow Canyon, 6 mile NEPA?
Tuscarora	Hoary Crest Restoration 2nd Priority	Mech chem, seed, monitor. Good forb component	3,166.30	Acres for Pri 2 were not seperated out.	If have only 2nd priorities related to Restoration total acres is 108,893, which is not close to 135,400 acres. So ASSUME includes all the 2nd priorities including Fuels (33,067 acres) for a total of 141,960. There is a difference of 6,560 acres. Fuels is also counted in Fuels treatment table 4-114.	Restoration	2	inside focal habitat. Snow Canyon, 6 mile NEPA?
Tuscarora	Six Mile Restoration 2nd Priority	Mech, chem, seed, monitor. Good forb component	9,480.59	Acres for Pri 2 were not seperated out.	If have only 2nd priorities related to Restoration total acres is 108,893, which is not close to 135,400 acres. So ASSUME includes all the 2nd priorities including Fuels (33,067 acres) for a total of 141,960. There is a difference of 6,560 acres, which is the "NULL" acres in table 4-115. Fuels is also counted in Fuels treatment table 4-114.	Restoration	2	inside focal habitat. Snow Canyon, 6 mile NEPA?
Tuscarora	Restoration 3rd Priority	Mech chem, seed, monitor. Good forb component	50,640.85	43,700	There is a difference of 6,940 acres, which is the "NULL" acres in Table 4-115.	Restoration	3	inside focal habitat. Snow Canyon, 6 mile NEPA?
Tuscarora	Indian Creek Sagebrush Aug 2nd Priority	Mech chem, seed, monitor. Good forb component	26,472.28	Acres for Pri 2 were not seperated out.	If have only 2nd priorities related to Restoration total acres is 108,893, which is not close to 135,400 acres. So ASSUME includes all the 2nd priorities including Fuels (33,067 acres) for a total of 141,960. There is a difference of 6,560 acres. Fuels is also counted in Fuels treatment table 4-114.	Restoration	2	inside focal habitat. Snow Canyon, 6 mile NEPA?
Tuscarora	Low Sagebrush Augmentation 2nd Priority	Mech chem, seed, monitor. Good forb component	5,872.42	Acres for Pri 2 were not seperated out.	If have only 2nd priorities related to Restoration total acres is 108,893, which is not close to 135,400 acres. So ASSUME includes all the 2nd priorities including Fuels (33,067 acres) for a total of 141,960. There is a difference of 6,560 acres. Fuels is also counted in Fuels treatment table 4-114.	Restoration	2	inside focal habitat. Snow Canyon, 6 mile NEPA?
Tuscarora	Willow Sagebrush Aug 2nd Priority	Mech chem, seed, monitor. Good forb component	26,102.74	Acres for Pri 2 were not seperated out.	If have only 2nd priorities related to Restoration total acres is 108,893, which is not close to 135,400 acres. So ASSUME includes all the 2nd priorities including Fuels (33,067 acres) for a total of 141,960. There is a difference of 6,560 acres. Fuels is also counted in Fuels treatment table 4-114.	Restoration	2	inside focal habitat. Snow Canyon, 6 mile NEPA?

FIAT Planning Area Name	Potential Treatment Area Name	Treatment Purpose and Need	Total Acre Potential Treatment Area (Spatial)	Assesment Acres	Notes	Treatment Type	Priority For Implementation	Comments
Tuscarora	Fuel 2nd Priority	Assessment gives no explanation other than Tuscarora fuel treatment areas 2nd priority	33,067.47	0	This acreage is counted twice. It is included in the Habitat Restoration Treatments 2nd Priority totals and the Fuels Management treatment total. In fuels management there is a difference of 1300 acres, this is the NULL acres that are listed as NULL in Table 4-114.	Fuels	2	Located in and out of focal habitat 3A, 2B, 1B. chem treats, seed monitor. Good forb component. Not sure if this is a linear treatment along road or a hz fuel treat in acres as has both features in GIS info?? Refer to page 4-91 and Table 4-114 in NGB Assessment
Tuscarora	Annual 2nd Priority	Invasive Annuals	2,538.16	135,400	If have only 2nd priorities related to Restoration total acres is 108,893, which is not close to 135,400 acres. So ASSUME includes all the 2nd priorities including Fuels (33,067 acres) for a total of 141,960. There is a difference of 6,560 acres. Fuels is also counted in Fuels treatment table 4-114.	Restoration	2	chem treats, seed, plant & monitor, good forb component. Inside focal habitat. Part of McCann Creek or Medusahead NEPA?
Null Acres			0.00	16,900				
Total Acres			275,494.99	277,000				
West Box Elder	Restoration 2nd Priority	Protect winter habitat. Chem, seed & monitor Good forb component	20,140.81	Acres for Pri 2 were not seperated out.	Includes all 2nd Priorities. Difference of 998 acres.	Restoration	2	inside focal habitat.
West Box Elder	Restoration 3rd Priority	Protect winter habitat. Chem, seed, & monitor. Good forb component	30,053.27	29,600	Difference of 453 acres, which is included in the "NULL" Acres.	Restoration	3	inside focal habitat
West Box Elder	Conifer 1st Priority	Conifer Encroachment	475,445.95	Acres for Pri 1 were not seperated out.	Includes all 1st priorities. There is a difference of 59,029 acres which may be a keystroke error in the assessment.	Restoration and Fuels	1	No Phase ID'd. In Focal Habitat. 3C, 3B, 2B, 2C, 1C, 1B. All treatment options. Are these part of already completed NEPA. See FIAT Assessment pg 4-96 and table 4-122.
West Box Elder	Conifer 1st Priority	Conifer Encroachment	376.85	475,800	Includes all 1st priorities. There is a difference of 59,029 acres which may be a keystroke error in the assessment.	Restoration and Fuels	1	No Pahase ID'd. In Focal Habitat. 3C, 3B, 2B, 2C, 1C, 1B. All treatment options. Are these part of already completed NEPA. See FIAT Assessment pg 4-96 and table 4-122.
West Box Elder	Conifer 2nd Priority	Conifer Encroachment	69,857.65	89,000	Includes all 2nd Priorities. Difference of 998 acres, which is included in the "Null" Acres.	Restoration and Fuels	2	No Phases ID'd. Out of Focal Habitat. 3C, 3B, 2B, 2C, 1C, 1B. All treatment options. Are these part of already completed NEPA. See FIAT Assessment pg 4-96 and table 4-122.
West Box Elder	Annuals 1st Priority	Invasive Annuals	40,949.19	41,000	Includes all 1st priorities. There is a difference of 59,029 acres which may be a keystroke error in the assessment. This treatment also shows up in in Table 4-121.	Restoration	1	All treatment options. Inside focal habitat. Part of completed NEPA?
Null Acres			0.00	1,400				
Total Acres			636,823.72	636,800				
Total NGB Acres			5,449,335.98	5,334,100				

FIAT Planning Area Name	Potential Treatment Area Name	Treatment Purpose and Need	Total Acre Potential Treatment Area	Assessment Total Acres	Treatment Type	Priority For Implementation	Comments
Gravelly	Gravelly New/Planned Conifer Treatment	Encroachment	27,259.60	27,260	Restoration; Fuels	High	Conifer reduction, using all potential methods depending on topography and soil resistance/resiliance, predominantly hand treatment, Identified with NRI conifer layer
Gravelly	Gravelly Invasive Annual Grass Treatment	Invasives	32,297.40	32,297	Restoration	Moderate	Invasive species removal and control
Gravelly	Gravelly Invasive Annual Grass Treatment	Sagebrush_Protection_Enhance	907.19	907	Restoration	Moderate	Habitat Restoration
Total Acres			60,464.19	60,464			
Hart Mountain	Hart Mountain Sagebrush Mowing Treatment	Sagebrush_Protection_Enhance	11,227.70	11,228	Restoration	Moderate	Habitat Restoration Sagebrush Mowing
Hart Mountain	Hart Mountain Existing Conifer Treatments	Encroachment	2,341.76	2,342	Restoration; Fuels	Moderate	Existing conifer reduction derived from shapefiles provided by Gail Collins USFWS Lakeview Oregon
Hart Mountain	Hart Mountain New/Planned Conifer Treatment	Encroachment	20,256.80	20,257	Restoration; Fuels	Moderate	Proposed conifer reduction derived from shapefiles provided by Gail Collins USFWS Lakeview Oregon
Total Acres			33,826.26	33,827			
High Rock	High Rock Lost Fire Active ESR Treatments	Sagebrush_Protection_Enhance	381.31	381	Restoration	Moderate	Lost Fire ESR derived from Surprise ESR shapefiles
High Rock	High Rock Sagebrush Planting Treatment	Sagebrush_Protection_Enhance	3,217.77	3,218		High	
Total Acres			3,599.08	3,599			
Horse Lake	Horse Lake Lek New/Planned Conifer Treatment	Encroachment	19,791.60	19,792	Restoration; Fuels	High	1.8mi buffer around leks
Horse Lake	Horse Lake Outside of Leks New/Planned Conifer Treatment	Encroachment	20,396.40	20,396	Restoration; Fuels	Moderate	Used 30cm Resolution imagery to digitize cutting zones
Horse Lake	Horse Lake Existing Conifer Treatments	Encroachment	4,530.63	4,531	Restoration; Fuels	Moderate	Completed fuels projects
Horse Lake	Horse Lake New/Planned Conifer Treatment	Encroachment	992.03	992	Restoration; Fuels	Moderate	Projects with completed NEPA but not yet completed
Horse Lake	Horse Lake Invasive Annual Grass Treatment	Invasives_SagebrushPE	26,430.40	26,430	Restoration	Moderate	
Total Acres			72,141.06	72,141			
Lone Willow	Lone Willow Invasive Annual Grass Treatment	Invasives	44,077.80	44,078	Restoration; Fuels	Moderate	Annual grass treatment digitized and refined during FIAT workshop
Lone Willow	Lone Willow Active ESR Treatments	Sagebrush_Protection_Enhance	3,341.40	3,341	Restoration; Fuels	High	Hand Planting sites provided by Winnemucca
Total Acres			47,419.20	47,419			

FIAT Planning Area Name	Potential Treatment Area Name	Treatment Purpose and Need	Total Acre Potential Treatment Area	Assessment Total Acres	Treatment Type	Priority For Implementation	Comments
Madeline Plains	Madeline Plains New/Planned Conifer Treatment	Encroachment	2,647.70	2,648	Fuels	High	Phase 1 Juniper on East side of ridge
Madeline Plains	Madeline Plains New/Planned Conifer Treatment	Encroachment	15,004.30	15,004	Restoration; Fuels	Moderate	Conifer treatment on Dry Valley Ridge Identified with 30cm Imagery
Madeline Plains	Madeline Plains Existing Conifer Treatments	Encroachment	1,552.97	1,553	Restoration; Fuels	Moderate	Existing Completed Projects
Total Acres			19,204.97	19,205			
Madeline Plains Connectivity	Madeline Plains Connectivity First Priority New/Planned Conifer Treatment	Encroachment	26,927.20	26,927	Restoration; Fuels	High	
Madeline Plains Connectivity	Madeline Plains Connectivity Second Priority New/Planned Conifer Treatment	Encroachment	15,453.00	15,453	Restoration; Fuels	Moderate	Digitized from ESRI imagery basemap.
Total Acres			42,380.20	42,380			
Massacre	Massacre Board Corral Existing Conifer Treatments	Encroachment_SagebrushPE	472.59	473	Restoration; Fuels	High	Complete or active conifer project
Massacre	Massacre Rim New/Planned Conifer Treatment	Encroachment_SagebrushPE	302.09	302	Restoration; Fuels	High	Complete or active conifer project
Massacre	Massacre Low Sagebrush New/Planned Conifer Treatment	Encroachment	3,203.79	3,204	Restoration; Fuels	Moderate	Derived from ESRI imagery basemap
Massacre	Massacre Spring New/Planned Conifer Treatment	Encroachment	33,804.50	33,805	Restoration; Fuels	Moderate	Identified with FIAT Conifer layer and Esri imagery. limited hand treatment due to access and slope
Massacre	Massacre Spring New/Planned Conifer Treatment	Encroachment	2,816.51	2,817	Restoration; Fuels	Low	Identified with FIAT Conifer layer and Esri imagery. limited hand treatment due to access and slope
Massacre	Massacre Sagebrush Planting Treatment	Sagebrush_Protection_Enhance	3,847.14	3,847		High	
Total Acres			44,446.63	44,448			
North Warner	North Warner New/Planned Conifer Treatment	Invasives_Encroachment	192,550.00	192,550	Restoration; Fuels	Moderate	Conifer reduction using all potential methods depending on topography and soil resistance/resilience Identified with NRI conifer layer
North Warner	North Warner Invasive Annual Grass Treatment	Invasives	293,398.00	293,398	Restoration	Moderate	Medusa head restoration, prioritizing known infestations, starting south to north
North Warner	North Warner Existing Conifer Treatments	Encroachment	2,887.08	2,887	Restoration; Fuels	Moderate	Maintenance treatments on existing conifer reductions
Total Acres			488,835.08	488,835			
Orejana East	Orejana East Miller Active ESR Treatments	Sagebrush_Protection_Enhance	8,494.12	8,494	Restoration	High	Derived from Burns proposed revegetation layer

FIAT Planning Area Name	Potential Treatment Area Name	Treatment Purpose and Need	Total Acre Potential Treatment Area	Assessment Total Acres	Treatment Type	Priority For Implementation	Comments
Orejana East	Orejana East Miller Homestead Sagebrush Planting Treatment	Invasives_SagebrushPE	150,221.00	150,221	Restoration	High	Miller Homestead Long term recovery Restoration with invasive annual grass treatments
Orejana East	Orejana East Invasive Annual Grass Treatment	Invasives_SagebrushPE	150,221.00	150,221	Restoration	High	Miller Homestead Long term recovery Restoration with invasive annual grass treatments
Total Acres			308,936.12	308,936			
Orejana West	Orejana West Sagebrush Mowing Treatment	Sagebrush_Protection_Enhance	124,800.00	124,800	Restoration	High	Habitat Restoration Sagebrush Mowing
Orejana West	Orejana West Invasive Annual Grass Treatment	Invasives	124,800.00	124,800	Restoration; Fuels	High	Invasive species removal and control
Total Acres			249,600.00	249,600			
Pueblo	Pueblo Fire Sagebrush Planting Treatment		22,412.10	22,412		Moderate	
Total Acres			22,412.10	22,412			
Roaring Springs	Roaring Springs Invasive Annual Grass Treatment	Invasives	13,891.90	13,892	Restoration	High	Annual grass containment area, use aerial herbicide application to contain annual invasive species down to the valley and lower elevations
Roaring Springs	Pueblo/Roaring Springs Active ESR Treatments	Sagebrush_Protection_Enhance	8,527.39	8,527	Restoration	High	Derived from Burns proposed revegetation layer
Total Acres			22,419.29	22,419			
Shaffer Mountain Connectivity	Shaffer Mountain Connectivity Invasive Annual Grass Treatment	Invasives_SagebrushPE	15,577.90	15,578	Restoration; Fuels	Moderate	Listed as High priority in WGB Assessment
Total Acres			15,577.90	15,578			
Sheldon	Sheldon Existing Conifer Treatments	Encroachment	2,390.21	2,390	Restoration; Fuels	Moderate	Derived from merged existing juniper treatment shapefiles
Sheldon	Sheldon New/Planned Conifer Treatment	Encroachment	1,257.15	1,257	Restoration; Fuels	Moderate	Derived from merged existing juniper treatment shapefiles
Total Acres			3,647.36	3,647			
Shinn	Shinn New/Planned Conifer Treatment	Encroachment	36,777.10	36,777	Restoration; Fuels	Moderate	Digitized from ESRI imagery basemap
Shinn	Shinn Rush Fire Sagebrush Planting Treatment	Sagebrush_Protection_Enhance	26,377.80	26,378	Restoration	Low	**Review Remove because existing? Existing ESR drill and aerial seeding projects completed in 2013-2014. Monitor
Shinn	Shinn Conservation Easment Sagebrush Planting Treatment	Invasives_SagebrushPE	10,320.40	10,320	Restoration	Moderate	Conservation easment get final polygon
Shinn	Shinn Skedaddle Ranch Road Sagebrush Planting Treatment	Invasives_SagebrushPE	5,159.56	5,160	Restoration	Moderate	Long Term Recovery/Restoration

FIAT Planning Area Name	Potential Treatment Area Name	Treatment Purpose and Need	Total Acre Potential Treatment Area	Assessment Total Acres	Treatment Type	Priority For Implementation	Comments
Shinn	Shinn Smoke Creek Road Green Stripping and Sagebrush Planting Treatment	Invasives_SagebrushPE	17,672.90	17,673	Restoration; Fuels	Moderate	Smoke creek road green stripping
Shinn	Shinn Invasive Annual Grass Treatment	Invasives_SagebrushPE	54,119.70	54,120	Restoration	High	
Total Acres			150,427.46	150,428			
South Warner	South Warner Existing Conifer Treatments	Encroachment	8,561.42	8,561	Restoration; Fuels	High	Conifer reduction maintenance project, hand treatment and seeding of any burn piles (extensive conifer reductions have been completed in this area)
South Warner	South Warner Existing Conifer Treatments	Encroachment	28,961.40	28,961	Restoration; Fuels	Moderate	Conifer reduction maintenance project, hand treatment and seeding of any burn piles (extensive conifer reductions have been completed in this area)
South Warner	South Warner Invasive Annual Grass Treatment	Invasives	37,519.80	37,520	Restoration	Moderate	Invasive species removal and control
Total Acres			75,042.62	75,042			
Trout Creek East	Trout Creek East Holloway Active ESR Treatments	Sagebrush_Protection_Enhance	53,511.50	53,511	Restoration	High	Merged from Vale revegetation shapefiles
Trout Creek East	Trout Creek East Long Draw Active ESR Treatments	Sagebrush_Protection_Enhance	17,548.80	17,549	Restoration	Moderate	Probably ExistingMerged from Vale revegetation shapefiles
Total Acres			71,060.30	71,060			
Trout Creek West	Trout Creek West Active ESR Treatments	Sagebrush_Protection_Enhance	35,899.80	35,900	Restoration	Moderate	Derived from Burns proposed revegetation layer
Total Acres			35,900.00	35,900			
Virginia Ranges	Virginia Ranges New/Planned Conifer Treatment	Invasives_Encroachment_Sagebrush	3,515.74	3,516	Restoration; Fuels	High	NEPA planning begun
Virginia Ranges	Virginia Ranges Winnemucca Ranch New/Planned Conifer Treatment	Encroachment_SagebrushPE	4,827.68	4,828	Restoration; Fuels	High	NEPA planning begun
Total Acres			8,343.42	8,344			
Vya	Vya East Existing Conifer Treatments	Encroachment_SagebrushPE	1,725.33	1,725	Restoration; Fuels	High	Complete or active conifer project
Vya	Vya Calcutta Existing Conifer Treatments	Encroachment_SagebrushPE	863.22	863	Restoration; Fuels	High	Complete or active conifer project
Vya	Vya North Cowhead New/Planned Conifer Treatment	Encroachment_SagebrushPE	1,787.85	1,788	Restoration; Fuels	High	Complete or active conifer project
Vya	Vya Crooks Lake New/Planned Conifer Treatment	Encroachment_SagebrushPE	976.99	977	Restoration; Fuels	High	Complete or active conifer project
Vya	Vya Horse Lake New/Planned Conifer Treatment	Encroachment_SagebrushPE	855.56	856	Restoration; Fuels	High	Complete or active conifer project

FIAT Planning Area Name	Potential Treatment Area Name	Treatment Purpose and Need	Total Acre Potential Treatment Area	Assessment Total Acres	Treatment Type	Priority For Implementation	Comments
Vya	Vya South Larkspur New/Planned Conifer Treatment	Encroachment_SagebrushPE	1,712.35	1,712	Restoration; Fuels	High	Complete or active conifer project
Vya	Vya Horse Creek New/Planned Conifer Treatment	Encroachment_SagebrushPE	679.29	680	Restoration; Fuels	High	Complete or active conifer project
Vya	Vya Powerline Nevada Cowhead New/Planned Conifer Treatment	Encroachment_SagebrushPE	147.66	148	Restoration; Fuels	High	Complete or active conifer project
Vya	Vya Rock Creek New/Planned Conifer Treatment	Encroachment	656.38	656	Restoration; Fuels	Moderate	Complete or active conifer project
Vya	Vya Big Bally Aspen New/Planned Conifer Treatment	Encroachment	135.89	136	Restoration; Fuels	Moderate	Complete or active conifer project
Vya	Vya Mosquito Valley Existing Conifer Treatments	Encroachment	81.14	81	Restoration; Fuels	Moderate	Inported from FY16 juniper projects
Vya	Vya New/Planned Conifer Treatment	Encroachment	14,665.40	14,665	Fuels	High	Vya planned conifer projects boundary
Vya	Vya Sagebrush Planting Treatment		3,536.22	3,536		High	
Total Acres			27,823.27	27,823			
Wall Canyon	Wall Canyon Lost Fire Active ESR Treatments	Sagebrush_Protection_Enhance	1,539.36	1,540	Restoration	Moderate	Derived from merged lost fire seeding polygons
Wall Canyon	Wall Canyon Invasive Annual Grass Treatment	Invasives_SagebrushPE	54,993.40	54,993	Fuels	High	
Wall Canyon	Wall Canyon Sagebrush Planting Treatment	Sagebrush_Protection_Enhance	3,699.24	3,699	Restoration	High	
Total Acres			60,232.00	60,232			
WGB Total Acres			2,633,718.27	2,633,718			

OBJECTID	FIAT Planning Area Name	Potential Treatment Area Name	Treatment Purpose and Need	Total Acre Potential Treatment Area	Assessment Total Acres	Treatment Type	Priority For Implementation	Comments
1	Antelope Flat_Big Lost	Conifer 1st Priority	Conifer Encroachment	67,717	36,900	Restoration_Encroachment	1	Inside BBD in 2b and 2c
2	Antelope Flat_Big Lost	Conifer 2nd Priority	Conifer Encroachment	31,084	Acres for Pri 2 were not seperated out	Restoration_Encroachment	2	Outside BBD in 2b and 2c
3	Antelope Flat_Big Lost NULL ACRES	Restoration 2nd Priority	Habitat Restoration	5,735 0	30,700 36,900	Restoration_Sagebrush	2	
Total Acres				104,536	104,500			
4	Bennett Hill	Annual 1st Priority	Annual Grass	21,996	42,400	Restoration_Invasives	1	Difference of 20,404 acres. This looks to be the habitat restoration that is listed, but not included in 1 spatial data.
5	Bennett Hill	Annual 2nd Priority	Annual Grass	60,237	60,200	Restoration_Invasives	2	
6	Bennett Hill	Fuels 1st	Fuels	14,500	14,500	Restoration and Fuels	1	
Total Acres				96,733	117,100			Difference of 20,367 acres. Assessment mentions on page 4-12 of 20,400 acres of habitat restoration other treatments. There are maps in assessment showing this but there is no spatial information showing this in attribute table.
7	Big Desert	Cedar Butte Conifer	Conifer Encroachment	5,110	Acres for Pri 1 were not seperated out	Restoration_Encroachment	1	
9	Big Desert	Restoration 1st Priority	Restoration	56,128	Acres for Pri 1 were not seperated out	Restoration_Sagebrush	1	
10	Big Desert	Restoration 1st Priority	Restoration	151,187	212,425	Restoration_Sagebrush	1	Difference of Priority 1 is 2525 acres. Potentially Null Acres
11	Big Desert	Restoration 2nd Priority	Restoration	43,176	42,800	Restoration_Sagebrush	2	Difference of Priority 2 is 376 acres. Potentially Null Acres
12	Big Desert NULL ACRES	Restoration 3rd Priority	Restoration	3,385 0	3,400 3,000	Restoration_Sagebrush	3	Difference of Priority 3 is 15 acres. Potentially Null Acres
Total Acres				258,986	261,625			
13	Birch Creek NULL ACRES	Mahogany Butte Conifer	Conifer Encroachment	24,155 0	22,900 1,200	Restoration_Encroachment	2	
Total Acres				24,155	24,100			

14 Hat Creek	Conifer 1st Priority	Conifer Encroachment	66,223	58,000	Restoration_Encroachment	1	Inside BBD 2b and 2c habitat
15 Hat Creek	Conifer 2nd Priority	Conifer Encroachment	2,346	2,300	Restoration_Encroachment	2	All in 1a, 1b, and 1c habitat There is no spatial data for this treatment...Is this the Fuels treatment mentioned in the 3 assessment.
Hat Creek NULL Acres	Conifer 3rd Priority	Conifer Encroachment	0 0	300 8,000	Restoration		
Total Acres			68,569	68,600			
16 Lemih-Birch	Conifer 1st Priority	Conifer Encroachment	94,147	52,900	Restoration_Encroachment	1	
17 Lemih-Birch	Conifer 2nd Priority	Conifer Encroachment	1,050	Acres for Pri 2 were not seperated out	Restoration_Encroachment	2	
18 Lemih-Birch	Restoration 2nd Priority	Restoration	5,566	6,200	Restoration_Sagebrush	2	
19 Lemih-Birch NULL Acres	Restoration 3rd Priority	Restoration	6,206 0	6,200 41,600	Restoration_Sagebrush	3	
Total Acres			106,969	106,900			
20 Little Lost NULL Acres	Restoration 2nd Priority	Sagebrush Restoration	5,576 0	5,000 600	Restoration_Sagebrush	2	
Total Acres			5,576	5,600			
23 Magic	Annuals 1st Priority	Annuals	86,888	Acres for Pri 1 were not seperated out Acres for Pri 2 were not	Restoration_Invasives	1	
21 Magic	Annuals 2nd Priority	Annuals	29,145	Acres for Pri 3 were not seperated out	Restoration_Invasives	2	
22 Magic	Annuals 3rd Priority	Annuals	25,189	Acres for Pri 3 were not seperated out	Restoration_Invasives	3	
27 Magic	Restoration 1st Priority	Restoration	203,734	291,800	Restoration_Sagebrush	1	
28 Magic	Restoration 2nd Priority	Restoration	12,374	41,600	Restoration_Sagebrush	2	
29 Magic	Restoration 3rd Priority	Restoration	138,230	163,400	Restoration_Sagebrush	3	
			495,560	496,800			
24 Magic	Fuels 1st Priority	Fuels	50,696	Acres for Pri 1 were not seperated out	Fuels	1	
25 Magic	Fuels 1st Priority	Fuels	8,051	52,800	Fuels	1	
26 Magic	Fuels 2nd Priority	Fuels	12,153	8,600	Fuels	2	

NULL Acres			0	8,300		
Total Acres			70,900	69,700		
30 Medicine Lodge	Conifer 1st Priority Restoration 2nd	Conifer Encroachment	7,650	7,600	Restoration_Encroachment	1
31 Medicine Lodge	Priority	Restoration	5,575	6,000	Restoration_Sagebrush	2
Total Acres			13,225	13,600		
33 Pahsimeroi	Conifer 1st Priority Restoration 2nd	Conifer Encroachment	124,517	99,500	Restoration_Encroachment	Target PSME and other conifer in western portion. Inside BBD in 2b 1 and 2c habitat
32 Pahsimeroi NULL Acres	Priority	Restoration	65,252 0	63,500 26,700	Restoration_Sagebrush	2 Inside BBD
Total Acres			189,769	189,700		
34 Sand Creek	Conifer 1 st Priority	Conifer Encroachment	146,296	153,900	Restoration_Encroachment	1 Phase 1 scattered juniper
Total Acres			146,296	153,900		
36 Table Butte	Restoration 2nd Priority	Restoration	21,890	21,900	Restoration_Sagebrush	Restablishing sagebrush back into the historic fire scares where 2 natural recovery has not occurred.
Total Acres			21,890	21,900		
37 Twin Buttes	Conifer 1st Priority Restoration 1st	Conifer Encroachment	49,809	Acres for Pri 1 were not seperated out	Restoration_Encroachment	1
39 Twin Buttes	Priority	Restoration	32,250	82,100	Restoration_Sagebrush	1
Total Acres			82,059	82,100		

FIAT Planning Area Name	Potential Treatment Area Name	Treatment Purpose and Need	Total Acre Potential Treatment Area	Assessment Acre Potential Treatment Area	Treatment Type	Priority For Implementation	Comments
12 Mile	Experimental Sagebrush Thinning	Sagebrush_Protection_Enhance via Sagebrush Thinning	141.42	141.42	Restoration; Fuels	1st	
12 Mile	Grass Butte Conifer Encroachment	Conifer Encroachment	2,064.84	Acres for Pri 1 were not seperated out.	Restoration; Fuels	1st	
12 Mile	Summit Reservoir Conifer Encroachment	Conifer Encroachment	39,714.10	Acres for Pri 1 were not seperated out.	Restoration; Fuels	1st	
12 Mile	Twelve Mile Reservoir Conifer Encroachment	Conifer Encroachment	77,279.00	119,057.94	Restoration; Fuels	1st	
12 Mile	Summit Reservoir Conifer Encroachment	Conifer Encroachment	45,492.60	Acres for Pri 2 were not seperated out.	Restoration; Fuels	2nd	
12 Mile	Twelve Mile Reservoir Conifer Encroachment	Conifer Encroachment	6,702.18	Acres for Pri 2 were not seperated out.	Restoration; Fuels	2nd	
12 Mile	Twelve Mile Reservoir Conifer Encroachment	Conifer Encroachment	1,085.26	Acres for Pri 2 were not seperated out.	Restoration; Fuels	2nd	
12 Mile	Twelve Mile Reservoir Conifer Encroachment	Conifer Encroachment	184.32	Acres for Pri 2 were not seperated out.	Restoration; Fuels	2nd	
12 Mile	Twelve Mile Reservoir Conifer Encroachment	Conifer Encroachment	12.01		Restoration; Fuels	2nd	
12 Mile	Twelve Mile Reservoir Conifer Encroachment	Conifer Encroachment	836.37	54,312.74	Restoration; Fuels	2nd	
12 Mile	Twelve Mile Conifer Encroachment	Conifer Encroachment	27,231.00	Acres for Pri 2 were not seperated out.	Restoration; Fuels	3rd	
12 Mile	Twelve Mile Conifer Encroachment	Conifer Encroachment	14,300.90	41,531.90	Restoration; Fuels	3rd	
12 Mile	Ibex Butte Invasive Annual Grasses	Invasives Annual Grasses	56,590.70	56,590.66	Restoration; Fuels	1st	
12 Mile	Yreka Rim Invasive Annual Grasses	Invasives Annual Grasses	36,261.80	36,261.79	Restoration; Fuels	2nd	
12 Mile	12 Mile Invasive Annual Grasses	Invasives Annual Grasses	119,926.00	119,926.20	Restoration; Fuels	3rd	
Total Acres			427,822.51	427,822.65			
Brothers	Berger Ridge Conifer Encroachment	Conifer Encroachment	53,436.30	53,436.34	Restoration; Fuels	1st	
Brothers	Berger Ridge Conifer Encroachment	Conifer Encroachment	9,539.84	Acres for Pri 2 were not seperated out.	Restoration; Fuels	2nd	
Brothers	Pringle Flat Conifer Encroachment	Conifer Encroachment	50,318.60	59,858	Restoration; Fuels	2nd	
Brothers	Brothers Conifer Encroachment	Conifer Encroachment	104,129.00	104,128.90	Restoration; Fuels	3rd	
Brothers	Brothers Invasive Annual Grasses	Invasives Annual Grasses	178,072.00	Acres for Pri 1 were not seperated out.	Restoration; Fuels	1st	
Brothers	Brothers Invasive Annual Grasses	Invasives Annual Grasses	14.73	178,086.57	Restoration; Fuels	1st	
Brothers	South Fork Hill Invasive Annual Grasses	Invasives Annual Grasses	28,122.60	28,122.58	Restoration; Fuels	2nd	
Brothers	Brothers Invasive Annual Grasses	Invasives Annual Grasses	11,245.60	11,245.64	Restoration; Fuels	3rd	
Brothers	Experimental Sagebrush Thinning	Sagebrush Thinning	363.13	Acres for Pri 1 were not seperated out	Restoration; Fuels	1st	
Brothers	Experimental Sagebrush Thinning	Sagebrush_Protection_Enhance via Sagebrush Thinning	67.47	430.60	Restoration; Fuels	1st	
Total Acres			435,309.27	435,309.07			
Hay Creek	Hay Creek Conifer Encroachment	Conifer Encroachment	21,737.00	21,737.00	Restoration	High	The 35,778.40 acres in assessment is tied to Post Fire Rehab Mgt Strategies Table 4-18. Conifer Treatments tied to Table 4-17 is Pri. 1: 17,517 and Pri 2: 3,840 acres. For a total of 21,737 acres.
Total Acres			21,737.00	21,737.00			
Paulina	Paulina Conifer Encroachment	Conifer Encroachment	48,556.60	48,556.60	Restoration; Fuels	1st	
Paulina	Paulina Conifer Encroachment	Conifer Encroachment	5,822.25	Acres for Pri 2 were not seperated out	Restoration; Fuels	2nd	
Paulina	Paulina Conifer Encroachment	Conifer Encroachment	32,342.10	38,164.32	Restoration; Fuels	2nd	
Paulina	Congleton Ranch Invasive Annual Grasses	Invasives Annual Grasses	6,786.59	Acres for Pri 1 were not seperated out	Restoration; Fuels	1st	
Paulina	Durgan Ranch Invasive Annual Grasses	Invasives Annual Grasses	24,727.30	31,513.93	Restoration; Fuels	1st	
Paulina	Humphrey Ranch Invasive Annual Grasses	Invasives Annual Grasses	6,248.50	6,248.50	Restoration; Fuels	2nd	
Paulina	Paulina Invasive Annual Grasses	Invasives Annual Grasses	56,022.00	56,021.99	Restoration; Fuels	3rd	
Total Acres			180,505.34	180,505.34			
Central OR Total Acres_Miles			1,065,374.12	1,065,374.06			