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Upper Snake Field Office

Programmatic Environmental Assessment of the Upper Snake Habitat Restoration Planting Project
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Prepared by
Bureau of Land Management
Upper Snake Field Office
1405 Hollipark Dr.
Idaho Falls, ID 83401

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CHAPTER 1 – INTRODUCTION

The Bureau of Land Management (BLM) Upper Snake Field Office (USFO) is preparing this Programmatic Environmental Assessment (EA) to analyze a proposal for a habitat restoration planting project for selected areas within the region administered by the USFO (Map 1, Appendix A). This EA discloses the direct, indirect, and cumulative environmental effects that would result from implementation of the proposal as required by the National Environmental Policy Act (NEPA) of 1969. The EA provides an analysis of potential effects that could result from implementation of the alternatives and assists the BLM in making a determination as to whether any "significant" impacts could result from the analyzed actions (40 CFR 1508.27). The EA will provide evidence for determining whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI) that presents the reasons why implementation of the Proposed Action would not result in "significant" environmental effects. Preparation of the document has been in accordance with the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 Code of Federal Regulations [CFR] § 1500 et. seq.), BLM guidelines for land use planning in BLM Handbook H-1601-1, BLM guidelines for implementing NEPA in BLM Handbook H-1790-1, and the Idaho Falls District Guide for Implementing NEPA (IM-ID-300-09-004). By taking a programmatic approach, this analysis would provide coverage for a number of smaller projects or activities. In cases where such activities are adequately assessed, a Documentation of NEPA Adequacy (DNA) can be prepared citing the analysis in this document. In cases, where a proposed action is not adequately covered, additional analysis under NEPA would be required.

Background

Fire is one of the principle disturbances altering landscape characteristics of the Upper Snake River Plain sagebrush steppe. Historically, fires within the Wyoming big sagebrush vegetation type of the Snake River Plain occurred at a mean fire return interval (FRI) of 75-94 years with an average patch size of approximately 250 acres. Alterations to the historic fire ecology of the area due to the introduction of non-native invasive species, such as cheatgrass, have resulted in larger fires occurring at shorter return intervals. When the interval becomes too short, native shrub and perennial bunchgrasses cannot recover and become depleted resulting in an area dominated by invasive annual grasses. Fire suppression can counter this effect to some extent, but the remaining shrubs in the landscape are too few to provide for quality habitat for shrub dependent species such as Greater sage-grouse (*Centrocercus urophasianus*), or to allow for widespread recovery through natural seed dispersal.

Large scale fires from the late 1990s to present have eliminated an estimated 641,833 acres of shrubs on lands managed by the BLM's Upper Snake Field Office. These fires reduced habitat quality and quantity for a plethora of wildlife species that inhabit the sagebrush steppe.

Land use practices have also eliminated sagebrush vegetation over large areas. Agriculture developed on private lands converted large areas of established shrub acreages to cropland, and the conversion of sagebrush to grasslands for livestock grazing also reduced the amount of shrub-land available to wildlife.

Riparian and wetland areas have also experienced modifications to habitat quality and quantity. Riparian habitats within the USFO are associated with approximately 9,500 acres along 460 miles of streams. Of these streams, 35% are properly functioning, 50% are functional-at-risk, and 15% are non-functional. In addition, wetland areas primarily associated with shorelines and spring/seep areas include approximately 400 acres along 35 miles of shoreline or spring/seep drainages. Of these wetlands, 31% are properly functioning, 55% are functional-at-risk, and 14% are non-functional. As a result of non-properly functioning streams or spring/seep drainages, some locations have experienced a decline in suitable riparian and wetland habitat cover that is necessary for riparian and aquatic species.

Purpose and Need for Action

The purpose of the action is to improve habitat conditions for threatened, endangered, and sensitive wildlife species, migratory bird species, and big game, as well as restore and improve native sagebrush steppe vegetation in areas where plant communities have become degraded. This action is needed because wildfires and other past and present actions have led to a decline or loss of native tree and shrub species within the USFO.

Location of the Proposed Action

The Upper Snake Field Office Habitat Restoration Environmental Assessment includes approximately 1,621,135 acres located in and managed by the Upper Snake Field Office in eastern Idaho. This total excludes those lands identified as Wilderness Study Areas (WSA's) which comprises 12 management areas totaling approximately 188,145 acres. Locations are between Townships 16 North to 7 South and Range 22 East to 46 East.

Conformance with the Applicable Land Use Plan

The Proposed Action is in conformance with the following landscape-level objectives and management actions set forth in the Record of Decision for the *Big Desert Management Framework Plan* (USDI-BLM 1981), *Little Lost - Birch Creek Management Framework Plan* (USDI-BLM 1981), *Big Lost Management Framework Plan* (USDI-BLM 1983), and *Medicine*

Lodge Resource Management Plan (USDI-BLM 1985) through the following decisions and objectives:

Little Lost - Birch Creek MFP (USDI-BLM 1981)

- WL 1.11: Maintain a 35-40% native shrub cover composition on 171,000 acres of antelope winter range.

Big Lost MFP (USDI-BLM 1983)

- WL 1: Institute proper management of wildlife habitat to provide or improve opportunity for wildlife species to complete life cycle processes. This will be accomplished by allocating forage, placing constraints on conflicting activities and developing projects to enhance or expand habitat range.

- WS 1: Reduce erosion and prevent soil loss on public lands.

- WS 1.2: Increase soil vegetative cover by increasing range condition class to good condition on soils with existing management problems on clay subsoils.

Big Desert MFP (USDI-BLM 1981)

- W-2: Restore and maintain vegetation cover in the stock trail drive area west of Springfield to protect or enhance productive capability of the soil resource.

- W-2.1: Stabilize erosion areas, within watersheds, with native vegetation.

- W-4.4 Seeding areas in poor range condition

- WL-4: Maintain and enhance sage grouse habitat to support an increase in the sage grouse population. This is to be accomplished through water development, vegetation manipulation and harassment reduction.

- WL-5: Improve upland game bird habitat by developing water, maintain existing cover in unique habitats and by cover plantings.

- WL-10: Enhance wildlife species habitat through the development of management plans and water sources; and to the degree possible by reseeding all disturbed areas with a mixture of native grasses, forbs, and shrubs.

Medicine Lodge RMP (USDI-BLM 1985)

- Whenever possible, management activities in habitat for threatened, endangered or sensitive species will be designated to benefit those species through habitat improvement (pg. 41).

- Maintain and perpetuate the cottonwood-riparian ecosystem (pg. 42).

These plans were amended by the *Fire, Fuels and Related Vegetation Management Direction Amendment (FDMA) Record of Decision* (USDI-BLM 2008). The purpose of the amendments was to incorporate fire, fuels, and related vegetation management direction that is consistent with the Federal Wildland Fire Management Policy including the decision to "…maintain, or restore vegetation that would support special status species (SSS) habitat and healthy, diverse, and sustainable vegetative communities" (USDI-BLM 2008).

The FMDA sets objectives and management actions which state:

Objective 1 - Make progress towards Desired Future Conditions (DFC) in the Low-elevation Shrub, Perennial Grass, Invasive Annual Grass, Mid-elevation shrub, Mountain Shrub and Juniper Vegetation types.

Management Actions:

- Use chemical, mechanical, seeding, and prescribed fire treatments as appropriate to achieve DFC.
- In Perennial Grass, Invasive Annual Grass, and Juniper-invaded cover types, restore sagebrush steppe with an aggressive sagebrush seeding effort, using the appropriate sagebrush subspecies for the treatment area.

Objective 2 - Maintain, protect, and expand sage-grouse source habitats.

Management Actions:

- Treat areas within source habitats that have low resiliency (i.e., areas characterized by low species diversity, undesirable composition, and dead or decadent sagebrush).

Objective 3 – Treat sage-grouse key and restoration habitats to expand source habitats. Improve and maintain sage-grouse restoration (R1-3) and key habitats.

Management Actions:

- Conduct vegetation treatments in restoration and key habitat to reduce risk of wildland fire and reconnect restoration and key habitats.
- Treat areas of restoration and key habitats that have low resiliency characterized by low species diversity.

Threatened, Endangered, and Candidate Species:

- Fuels management and vegetation treatments that may occur within the Little Lost River drainage would be conducted according to standards and guidelines developed for bull trout (*Salvelinus confluentus*). Riparian Habitat Conservation Areas on BLM lands within the geographic range of bull trout (US Fish and Wildlife Service 1999a, 2002).

- Ground disturbing activities other than tree and shrub plantings will not occur within 300 feet of all water bodies and springs containing the listed Northern Leopard Frogs, Western Toads, and Bull Trout.

Relationship to Statutes, Regulations, and other Applicable Plans

The Proposed Action is consistent with the *Conservation Plan for the Greater Sage-grouse in Idaho* (2006) objective to, "Maintain, enhance or restore sage-grouse habitat, and continuity of habitats, at multiple spatial scales" (Idaho Sage-grouse Advisory Committee 2006: 1-13).

Actions proposed under this EA have incorporated the interim conservation policies, procedures and Best Management Practices (BMPs) found within the *Greater Sage-grouse Interim Management Policies and Procedures* (USDI-BLM IM-2012-043) and *Sage-grouse Conservation in Fire Operations and Fuels Management* (USDI-BLM IM-2013-128) instruction memorandums, which pertain to fuels-related vegetation treatments within Greater Sage-grouse Preliminary Priority Habitat (PPH) and Preliminary General Habitat (PGH). This guidance emphasizes the use of Fuels BMPs for the purpose of identifying, enhancing, and conserving sage-grouse habitats by protecting existing patches, modifying fire behavior and restoring native plants. This guidance recommends to:

- Coordinate, plan, design, and implement vegetation treatments and associated effectiveness monitoring between Resources, Fuels Management, Emergency Stabilization, and Burned Area Rehabilitation programs to promote the maintenance of large intact sagebrush communities.

- Implement management actions, where appropriate, to improve Greater sage-grouse habitats that have become encroached upon by shrubland or woodland species.

- Design fuels treatment objectives to protect existing sagebrush ecosystems, modifying fire behavior, restoring native plants, and creating landscape patterns which most benefit sage-grouse habitat.

Actions proposed under this EA incorporate policies, procedures, and BMPs found within Local Working Group plans. These plans recommend to:

- 5.3.8.1 Encourage BLM to restore sagebrush into perennial grasslands where sagebrush cover is lacking (*North Magic Valley Local Working Group Plan 2011*).

- Restore annual grasslands to a species composition characterized by perennial grasses, forbs, and shrubs (*Big Desert Local Working Group Plan 2010*).

- Prioritize areas for treatment in sage-grouse habitats where non-native vegetation have invaded, and collaborate with the Challis Working Group Management Area and land managers to implement restoration projects (*Challis Local Working Group Plan 2010*).

- Land management agencies restore degraded rangelands to a condition that again provides suitable breeding habitat for sage-grouse by including sagebrush, native forbs (especially legumes), and native grasses in re-seeding efforts (*Upper Snake Local Working Group Plan 2009*).
- Land managers re-seed former winter range with the appropriate subspecies of sagebrush and herbaceous species unless the species are re-colonizing the area in a density that would allow recovery within an acceptable timeframe based on site potential and past experience (*Upper Snake Local Working Group Plan 2009*).

Scoping and Issue Identification

Internal scoping meetings were conducted by an interdisciplinary team (IDT) of BLM specialists to discuss the purpose and need of the project; alternatives; resources of concern; potential environmental impacts; past, present, and reasonably foreseeable projects that may have cumulative effects; and possible mitigation measures.

External scoping was also performed by the BLM. Concerns expressed in response to scoping include: the benefits of using a water-jet stinger in riparian vegetation planting, and the recommendations to use site-adapted plant material whenever possible and to analyze the effects of chemical and mechanical pre-treatments.

CHAPTER 2- THE PROPOSED ACTION AND ALTERNATIVES

This chapter describes and compares the alternatives considered by the IDT for vegetation treatments proposed for public lands within the project area. The alternatives were developed by the IDT based on issues identified during internal and external scoping, understanding of the purpose and need for the project, and experience with restoration projects at other locations within the USFO. As this project progressed from conceptualization to alternative description, refinements to the action alternatives were made to minimize the potential for adverse effects, as described below. Different types of vegetation restoration treatments are being proposed to address the differences within plant communities, soils and slopes present within the USFO, and are designed to improve the native vegetation composition found within those areas.

Alternative A: The Proposed Action

The USFO is proposing to hand and machine plant (tree planter) sagebrush seedlings and other tree and shrub species important to a variety of wildlife species and essential to maintain overall ecological health. Trees and shrubs would be planted in areas within the USFO where those species once naturally occurred, but are currently lacking in cover due to past impacts. Treatment areas would be prioritized based on current habitat conditions, management goals and

objectives, proximity to important and intact wildlife habitat, as well as the potential for natural reestablishment. High priority areas would include, but are not limited to: big game winter range, riparian areas, and habitats known to be occupied by threatened, endangered or sensitive species, e.g., Greater sage-grouse and pygmy rabbits (*Brachylagus idahoensis*). Occasionally, trees and shrubs would be planted in habitats already containing tree and shrub species, with the intent of increasing diversity or the density of existing species. Only those species native to eastern Idaho and known to have existed previously within the treatment area or within the sub-watershed would be considered for planting. Existing conditions and ecological site information would be used to determine suitable vegetation species.

On an annual basis, up to 150,000 upland shrubs and 10,000 willows (or other riparian shrubs/trees) could be planted, either in early spring or late fall. Treatment areas would vary from approximately two acres for sites that are hand planted, and up to approximately 50 acres for machine planted sites. Riparian herbaceous vegetation would be planted in the spring or early summer to allow for root establishment before freezing takes place.

Areas that may be susceptible to grazing impacts from domestic livestock or ground disturbance from unauthorized OHV use may be temporarily fenced to reduce impacts on seedlings. Temporary fences construction would consist of two or three strand electric wire with reflective markers placed on the top wire to reduce collision potential of avian species. Additionally, the use of protective Tubex shields would be used around individual plants if wildlife herbivory is identified as a concern.

Hand Planting

Some disturbance would be necessary to place the trees and shrubs within the soil. The disturbance would vary in size depending on the species and type of seedling being planted, (e.g., cuttings, bare root or containerized). On average, holes created for trees or shrubs would not result in a disturbance area of greater than two feet in diameter.

Generally, three inch diameter earth augers would be used to establish holes for plug plantings. If enough soil cannot be obtained to properly plant the seedling, an auxiliary hole would be drilled within the vicinity. Hoedads or planting bars may also be used in place of earth augers if site conditions are not favorable, e.g., rocky sites. Occasionally, all-terrain vehicles and 4-wheel drive vehicles would be used to transport materials and equipment to the planting sites.

Riparian shrubs, such as willows, would be planted using cuttings from existing plants. Typically, an 18 to 24 inch long stem would be placed into the stream bank with a bar deep enough to reach the water table. This would enable the stems to sprout and establish new plants. In some cases, planted root wads on live or dead trees would be used where more bank stability

is desired, which would result in a larger hole (2-4 feet in diameter). Planting willow bundles in trenches along the bank would also result in a larger trench cut in the bank for the trees, typically about four feet long and two feet wide.

In areas which are not conducive to placing plantings directly by hand due to either rocky substrate or dense soils, a waterjet stinger could be used. The waterjet stinger is designed to hydrodrill a hole in the ground through the use of pumps and water jets. Plantings are then placed in the drilled hole and then worked into the substrate. It is operated by hand, but usually is transported on a UTV or ATV to the proposed worksite.

Shovel-sized (about 8 inches by 8 inches by 6 inches deep) riparian vegetation plugs (i.e., sedges and rushes) would be collected from areas with sufficient vegetation cover and transplanted to degraded areas. When a plug is planted, a hole the size of the plug would be excavated. The plugs would be planted to ensure they have access to the water table. In some instances a straw mat or other material would be used to hold the plug in place, reduce evaporation and decrease erosion until the vegetation is established.

Machine Planting

Various mechanical planters would be available for implementation including a tractor drawn chisel plow and a water wheel planter. These applications are best suited for areas containing lightly packed soils with few large rocks and gentle slopes.

A tractor drawn chisel plow creates a furrow in the ground that is closed by two packing wheels that compacts the soil. Tree or shrub seedlings would be placed in the furrow by hand prior to compaction by the wheels. The disturbance created from the plow is 12 to 14 inches wide and 8 to 12 inches deep. Plow rows would be created approximately 10 feet apart with the seedlings spaced approximately 8 feet apart within each row.

A water wheel planter is also tractor drawn and, through the use of spikes, drives holes into the ground in which seedlings are planted and then compacted by hand. The water wheel planter creates alternating holes, approximately six inches deep and between two to four feet apart.

Standard Operating Procedures

- To avoid the spread of noxious weeds, no cross country vehicular travel would occur in areas with known noxious weed infestations. Furthermore, noxious weeds discovered during treatment or post-treatment monitoring would be treated consistent with the Upper Snake-Pocatello Integrated Weed Control Program Programmatic Environmental Assessment (ID-310-2008-EA-43).

- To avoid affecting cultural resources and sensitive plants, site specific assessments and/or inventories would be conducted prior to implementation. Areas where cultural resources or sensitive plants occur and could be affected would be omitted from treatment.
- Fence Construction
    - Fence projects would be accessed using existing roads and trails.
    - Cross-country travel would be restricted to the actual fence route.
    - Only rubber-tired vehicles would be used during fence construction, alteration, or maintenance.
    - Wildlife Timing Stipulations - Timing restrictions to avoid construction during critical breeding, nesting, or wintering periods would be established by the Authorized Officer and would meet site-specific needs of affected wildlife species. Wildlife timing stipulations in place at this time for the project area include:
        - Construction activities would not be allowed during the mountain plover reproductive period of April 10 through July 10 within 200 meters of identified concentration areas; concentration areas are defined as areas where broods and/or adults have been found in the current year or documented in at least two of the past five years.
        - Construction activities would not occur within identified big game crucial winter ranges between the dates of November 15 and April 30.
        - Construction, maintenance, and other activities potentially disruptive to strutting and nesting greater sage/sharp-tailed grouse are prohibited during the period of March 1 to June 30 for the protection of strutting and nesting areas.
        - Construction, maintenance, and other activities potentially disruptive to wintering greater sage-grouse are prohibited during the period of November 15 to April 30 for the protection of winter concentration areas.
        - No fence modification/removal activities on public land would occur during established big game hunting seasons.
    - Fence modification would be postponed or suspended if soils become saturated or ruts are produced by vehicles.
    - All existing legal public vehicular and walk-in access areas would be maintained regardless of type of fence constructed. Where electric fence remains, regular wire or steel gates would be used at existing vehicle access points, with warning signs posted. In addition, if necessary, fence stiles for pedestrians, additional

gates, or other methods of access would be provided when and where identified by the Authorized Officer.

  - No electric fence across which there exists legal public access would be electrified during established big game hunting seasons.

- Although this project appears large in scope, implementation of the proposed action is limited by funding and the availability of volunteers and shrubs on an annual basis. The actions considered in this programmatic EA would be considered ongoing until a major change in resource conditions, policy, or priorities indicate that the Proposed Action is no longer necessary. Individual proposals of treatment areas would be analyzed by an IDT for detailed site-specific effects and this document would be reviewed to determine of the project proposal adequately fits within the scope of this analysis.

Alternative B: The No Action Alternative

Under the No Action Alternative, no plantings of shrubs or trees would take place on any degraded or impaired BLM managed lands unless a site-specific analysis was to occur. These lands would continue to lack shrub cover for sage-grouse, big game, and migratory birds. Additionally, degraded riparian areas would not be rehabilitated, allowing for continued increases in sediment loads from erosion, which hamper healthy fish and aquatic habitat.

CHAPTER 3 – AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter provides a description of the general environmental setting and resources within that setting that could be affected by the Proposed Action and alternatives. In addition, the section presents an analysis of the direct, indirect, and cumulative impacts likely to result from the implementation of the two alternatives.

General Setting

The project area is located in southeastern Idaho and is comprised of approximately 1,621,135 acres of public land managed by the BLM, which excludes 188,145 acres of WSA's. These lands occur in Bingham, Blaine, Bonneville, Butte, Clark, Custer, Fremont, Jefferson, Lemhi, Madison, Power, and Teton counties.

The topography of the project area consists of elevations ranging from 4,000 feet in lower elevations to 10,000 feet in higher elevations. Annual precipitation ranges from 8 inches in the drier desert areas to 29 inches in upper elevations.

Resources Considered in the Impact Analysis

The results of the assessment indicate that not all of the resources considered are present and/or would be impacted by the Proposed Action and alternative (Table 1). Direct and indirect impacts to those resources that are present and impacted are discussed in the following narratives. Cumulative impacts are discussed in a subsequent section.

Table 1. Resources Considered in the Impact Analysis.

Resource	Resource Status	Rationale
Access	Present, Not Impacted	The Proposed Action would not result in changes in access to the area.
Air Quality	Present, Not Impacted	The Proposed Action and would not result in reduction of air quality.
Areas of Critical Environmental Concern (ACEC's)	Present, Not Impacted	The proposed action would not result in detrimental effects to Areas of Critical Environmental Concern.
Cultural Resource	Present, Not Impacted	Programmatic consultation under the National Historic Preservation Act of 1966 (as amended) will be conducted in accordance with the BLM National Programmatic Agreement and the implementing Protocol agreement between Idaho BLM and the Idaho State Historic Preservation Office (ID-SHPO).
Economic and Social Values	Present, Not Impacted	The Proposed Action is consistent with the prevalent economic and social values characteristic of this area.
Environmental Justice	Not Present	There are no minority or low income populations residing near the proposed project area.
Existing and Potential Land Uses	Present, Not Impacted	The Proposed Action and alternatives would not affect any current uses and potential uses of land.
Fisheries	Present, Impacted	Impacts are disclosed under **Fisheries.**
Floodplains	Present, Not Impacted	The Proposed Action would not impact Floodplains.
Forest Resources	Present, Not Impacted	The Proposed Action would not impact the limited forest resources within the Upper Snake Field Office
Invasive, Non-Native Species	Present, Impacted	The proposed action has the potential to affect invasive, non-native species. Impacts will be discussed in conjunction with the vegetation resources section under **Vegetation**.
Mineral Resources	Present, Not Impacted	The Proposed Action would have no impact on mineral resources within the area.
Migratory Birds	Present, Impacted	Impacts are disclosed under **Migratory Birds.**
Native American Religious Concerns	Present, Not Impacted	Known ceremonial sites or resources associated with ceremonial practices within the project area would be avoided according to Standard Operating Procedures.
Paleontological Resources	Present, Not Impacted	Known paleontological resources will be identified and avoided.
Prime and Unique Farmlands	Present, Not Impacted	The Proposed Action would not impact Prime and Unique Farmlands.
Range Resources	Present, Not Impacted	The Proposed Action would not impact Range Resources and grazing permits.
Recreational Use	Present, Not Impacted	Recreation Use would not be impacted since the Proposed Action would not interfere with recreational activities.
Soils	Present, Impacted	Impacts are disclosed under **Soil Resources.**

Resource	Resource Status	Rationale
Threatened, Endangered, and Sensitive Plants	Present, Not Impacted	The Proposed Action would not impact Threatened, Endangered, and Sensitive Plants**.**
Threatened, Endangered, and Sensitive Animals	Present, Impacted	Impacts are disclosed under **Threatened, Endangered, and Sensitive Animals.**
Threatened, Endangered, and Sensitive Fish	Present, Impacted	Impacts are disclosed under **Threatened, Endangered, and Sensitive Fish.**
Tribal Treaty Rights and Interests	Present, Not Impacted	The Proposed Action does not impact Tribal Treaty Rights and Interests
Vegetation	Present, Impacted	Impacts are disclosed under **Vegetation.**
Visual Resources	Present, Not Impacted	The Proposed Action is consistent with the VRM class management objectives defined for the project area.
Wastes, Hazardous and Solid	Not Present	There are no solid or hazardous wastes in the project area and none would be created during the implementation of the Proposed Action or alternatives.
Water Quality (Surface and Ground)	Present, Impacted	Impacts are disclosed under **Water Quality (Surface and Ground).**
Wetland and Riparian Zones	Present, Impacted	Impacts are disclosed under **Wetland and Riparian Zones.**
Wild and Scenic Rivers	Present, Not Impacted	The Proposed Action will not impact Wild and Scenic Rivers
Wild Horse and Burro HMAs	Not Present	There are no wild horse and burro HMAs in the region.
Wilderness	Not Impacted	The Proposed Action would not occur within Wilderness areas.
Wildlife	Present, Impacted	Impacts are disclosed under **Wildlife Resources.**

Direct and Indirect Impacts

Fisheries

Affected Environment

Fisheries habitat includes perennial rivers and streams that have the capability to support fish. There are approximately 337 miles of perennial streams and rivers having fisheries occupancy potential on public lands administered by the USFO. Table 2 compares the number of miles of general aquatic/fisheries habitat with special status species aquatic habitat.

Table 2: Comparison of General and SSS Fisheries/Aquatic Habitat by Stream/Rivers within the USFO.

Description	Streams/Rivers (mi)
Field Office Area Totals	337
General Fisheries Aquatic Habitat	337
SSS Fisheries Aquatic Habitat	311
Overlap of General & SSS Aquatic Habitat	311

Fish found within the USFO are representative of those species found within the Upper Snake River. Native species include the following cold water species: Mountain whitefish (*Prosopium williamsoni*), Utah chub (*Gila atraria*), Utah sucker (*Catastomus ardens*), mountain sucker (*Catastomus platyrhynchus*), longnosed dace (*Rhinichthys cataractae*), speckled dace (*Rhinicthys osulus*), redside shiner (*Richardsonius balteatus*), mottled sculpin (*Cottus bairdi*), shorthead sculpin (*Cottus confuses*), and Paiute sculpin (*Cottus beldingi*). Introduced species include the following cold water species: rainbow trout (*Oncorhynchus mykis*), brown trout (*Salmo trutta*), lake trout (*Salvelinus namaycush*), brook trout (*Salvelinus fontinalis*), and kokanee (*Oncorhynchus nerka*). The following species have also been introduced to waters in the planning area: smallmouth bass (*Micropterus dolomieui*), common carp (*Cyprinus carpio*), and yellow perch (*Perca flavescens*). White sturgeon (*Acipenser transmontanus*), a cold water species native to the lower Snake River below Shoshone Falls, has also been introduced into the Snake River.

Special status fish and aquatic species (SSAQ) include the following: federally listed (T&E), candidate, proposed, State-listed, and BLM sensitive species (BLM 2003). There are currently four SSAQ that are known or have potential habitat within the USFO. Of these four species, one is federally listed as threatened, and the remaining three are identified as BLM sensitive species.

Public lands administered by the Upper Snake FO provide habitat for one federally-listed threatened native fish species, bull trout (*Salvelinus confluentus).* Habitat in the USFO for bull trout is in the Little Lost River drainage. Streams within this drainage that are occupied by bull trout that have sections managed by the Upper Snake FO include the Little Lost River, Wet Creek, Williams Creek, Warm Creek, Sawmill Creek, Badger Creek and Summit Creek.

Yellowstone cutthroat trout (YCT) (*Oncorhynchus clarki bouvieri*) and the Big Lost River population of mountain whitefish (*Prosopium williamsoni*) were petitioned for listing. Both species have been determined not warranted for listing by the US Fish and Wildlife Service (FR, 2006 and FR, 2010). YCT are found in the upper Snake River drainages and the Medicine Lodge and Beaver-Camas Creeks sink drainages. The Big Lost River populations of mountain whitefish are found in the Big Lost River and its larger tributaries.

BLM has designated three species as "sensitive" in coordination with Idaho Fish and Game (BLM 2003). The YCT and northern leopard frog (*Rana pipiens*) are listed as Rangewide/Globally Imperiled – Type 2. This means the species is experiencing significant declines throughout its range with a high likelihood of being listed in the foreseeable future due to its rarity and/or significant endangerment factors such as habitat loss. In the case of YCT, hybridization with introduced rainbow trout is also a factor in its designation as a BLM sensitive species. The Western toad is a Regional/State Imperiled-Type 3, meaning the species is experiencing declines in population or habitat, and is in danger of regional or local extinction in Idaho in the foreseeable future.

All of the native or introduced species, with the exception of smallmouth bass, yellow perch and common carp, are cold water species. They need cold, clean, well oxygenated water, adequate spawning substrate, adequate food supplies and connectivity between spawning, feeding and overwintering habitats.

The condition of general fisheries and aquatic species habitat is intrinsically linked to the condition of the adjacent riparian-wetland habitat and also the stream channel characteristics. Riparian vegetation moderates water temperatures, adds structure to the banks to reduce erosion, provides overhead cover for fish, and provides habitat for terrestrial prey species.

Intact vegetated floodplains dissipate stream energy, store water for later release, and provide rearing areas for juvenile fish. Water quality, especially in regard to factors such as temperature, sediment, and dissolved oxygen, also greatly affects fisheries habitat. Appropriate channel structure for aquatic species habitat provides dissipation of stream energy, in-stream cover, numerous and quality pools, appropriate spawning substrate and habitat complexity.

Stream systems that are free flowing allow fish to move between various habitats provided within the stream system. These include spawning, rearing, feeding and overwintering habitats along with refuge areas when water temperatures exceed the tolerance of specific species.

Environmental Consequences

Alternative A (Proposed Action)

During transplanting of herbaceous riparian vegetation, small areas of the riparian zone and stream bed would be disturbed. A small amount of sediment would be added to or stirred up in the stream for a short period, temporarily decreasing water quality.

Vegetation treatments that occur within the Little Lost River drainage would be conducted according to standards and guidelines developed for bull trout Riparian Habitat Conservation Areas on BLM lands and ground disturbing activities other than tree and shrub plantings would not occur within 300 feet of all water bodies and springs containing the northern leopard frogs, western toads, Yellowstone cutthroat trout and bull trout.

In the long term, the riparian plugs would provide a seed source to populate the stream bank with riparian vegetation. The riparian vegetation would improve fish habitat by trapping sediment and improving water quality. In addition it would help to stabilize banks which provide structure and boundaries for channel and cover for fish.

Long term benefits of planting shrubs in riparian areas would be improvement aquatic habitats by providing shade to reduce water temperature, improving water quality by trapping sediment, providing overhead cover and increasing terrestrial insect production thereby providing a food source for fish and amphibians.

Alternative B (No Action Alternative)

Under the No Action Alternative, shrubs and/or herbaceous riparian vegetation would not be planted within riparian areas except in cases where a site specific analysis has been conducted. Though riparian areas would not be temporarily disturbed and sediment would not be added to the stream due to the planting process, the expected improvement in fisheries habitat would not occur.

Migratory Birds

Affected Environment

There are approximately 240 species of migratory birds in the USFO. Waterfowl, raptors, shorebirds, gulls, and neo-tropical migrants are included in the migratory bird category. The Idaho Bird Conservation Plan (2000) included both riparian areas and sagebrush as priority bird habitats in Idaho. The lack of shrubs reduces both the quality and quantity of useable habitat for shrub dependent migratory birds.

The USFO provides stopover habitat within both the Central and Pacific Flyways and also provides breeding and nesting habitat for migratory birds. The extensive sagebrush habitat provides breeding habitat for sagebrush obligate species such as sage thrasher and sage sparrow. Although not sagebrush obligates, many other migratory birds breed and nest in sagebrush habitat including Brewer's and vesper sparrow, Brewer's blackbird, green-tailed towhees, western meadowlark, gray flycatcher and northern harrier.

Henry's Fork and the South Fork of the Snake River, as well as many small streams, provide nesting and stopover habitat as well as migration routes for a wide diversity of migratory species including raptors, warblers, sparrows, swallows, shorebirds and waterfowl. Other breeding and nesting habitat for migratory birds within the USFO includes lava tubes, rocky outcrops, and grassland meadows. The lack of shrubs reduces both the quality and quantity of useable habitat for shrub dependent migratory birds. Wildland fires have reduced shrub densities on thousands of acres in the USFO.

Environmental Consequences

Alternative A (Proposed Action)

Implementing the proposed action is expected to improve habitat conditions for the majority of migratory birds. Direct effects from human disturbance would occur during project implementation for relatively short periods of time (up to 1-2 weeks) as crews move through the landscape planting shrubs and trees each year. A small amount of noise from ATVs may also disturb migratory birds during planting. These direct effects are expected to be short-term in duration. Adding shrubs and herbaceous vegetation to the landscape is expected to provide food for migratory birds, improve conditions for prey species and sensitive predators; and provide critical cover. The species affected and intensity of indirect effects is expected to vary between treatment areas; however, more treatment over more area of land is expected to improve conditions for the most of migratory bird species.

Direct impacts from temporary fencing would be increased perches for hunting, singing and territorial displays which may increase fitness and mating potential, but it may also increase their visibility to potential predators. Further impacts would be potential fence strikes resulting in injury or possible mortality of individual birds, more likely larger birds such as hawks and owls. As fences would be built outside of the nesting season there is little concern of disturbance or destruction of nests or nestlings. If fence strikes are noticed reflective markers would be installed.

Alternative B (No Action Alternative)

Implementing the no action alternative would not result in any direct effects on migratory bird species. Indirectly, species which are expected to benefit from the improvement of habitat through shrub and herbaceous vegetation plantings would continue to have less suitable habitat for a much longer period of time (up to 50 years or more) until reestablishment through natural plant dispersion eventually occurred or until a site specific analysis allows for the replanting of the site.

Soils

Affected Environment

Soils within the USFO are generally deep (greater than 40 in. to bedrock) on nearly level to rolling terrain (0–16% slope angle). On undulating to hilly uplands (1–30% slope), slightly altered bedrock is often more than 40 in. below the surface. On steep and very steep slopes (20–60% slope), soils range from shallow (10–20 in.) to moderately deep (20–40 in.) over partially weathered bedrock. Rock outcrops are common on steeper slopes and gently sloping basalt lava flows with little or no soil development. Soils within the USFO have developed through erosion and deposition of the local geologic formations as well as historic volcanic activity. Parent material of the soils within the USFO includes alluvium, colluvium, loess, eolian deposits, lacustrine deposits, till, volcanic ash, cinders, eolian sands, and/or tephra derived from local geologic features.

Soil properties, such as texture, parent material, or pH, can be used to identify soils within the USFO that are sensitive to erosion. Wind erodible soils are identified based upon the Wind Erodibility Group (WEG) rating for soil map units rated as 1 or 2 (on a scale of 1-8; 8 indicating not prone to wind erosion). The five soil map units, totaling 141,730 acres, which are considered wind-erodible within the USFO include: Rock outcrop-Grassy Butte, Wolverine-Malm-Juniperbute-Jipper-Grassyridge, Juniperbute-Dune land, Snowshoe-Juniperbute-Jipper, and Rhylow-Oleo-Lasac-Koffgo-Dashiki. Water erodible soils are identified based upon the K-factor rating for the soil map unit and the slope on which the soils occur. Soils were identified as water erodible if the soil K-factor rating is greater than 0.36 and the soil occurs on a slope greater than 10%. The five soil map units, totaling 9,755 acres, that are considered water-erodible within the USFO include: Torriorthents-Rock outcrop-Ririe-Paulson-Dranyon-Cryoborolls, Rexburg-Newdale-Neeley, Lagal till substratum-Koffgo-Huckridge, Ridgecrest-Greys-Dra, and McCarey-Deerhorn.

Condition of the soil resource within the USFO is site specific and dependent upon previous disturbances. In general, soils are stable and erosion rates occur within the expected range for site potential.

Environmental Consequences

Alternative A (Proposed Action)

Under the proposed action both mechanical and hand plantings would occur on a variety of soils within the USFO. Hand plantings would occur on sites up to two acres in size and would generally result in minor disturbances to the soil. Disturbances to the soil would be from plantings, both hand and hydrodrill, requiring up to a two foot diameter hole, removal of plant plugs, and from borrowing soil from other locations. Additionally, hand plantings may need the use of four-wheel drive vehicles or ATVs to transport materials. These disturbances would be temporary but may cause a minor increase in erosion rates until the soil has stabilized, or minor compaction of the surface soils.

Machine plantings would cause disturbance from the use of mechanical equipment such as chisel plows or water wheel transplanters. This type of planting would occur on areas up to 50 acres in size, resulting in a larger scale of continuous soil disturbance. As with hand plantings, these disturbances could temporarily cause an increase in erosion and compaction. The scale of disturbance may allow for soil to move further via wind or water. Increased erosion and compaction would be temporary and erosion rates would be expected to return to normal as the soils stabilize.

Over the long-term the mechanical and hand plantings would re-introduce/re-establish native plant species. Establishment of vigorous native plant communities would help to ensure site stability and the maintenance of nutrient rich topsoil.

Alternative B (No Action Alternative)

Under the No Action Alternative mechanical and hand plantings would be considered on a site specific basis. In the short-term degraded areas may be at continued risk of elevated erosion rates and site instability during the site specific analysis of impacts.

Threatened, Endangered, and Sensitive Animals

Affected Environment

The varied habitat within the planning area supports a wide variety of special status species. Special status species include federal threatened and endangered and BLM sensitive species.

The December 30, 2009 Semi-annual Species List Update (14420-2010-SL-0081) from the U.S Fish & Wildlife Service included the Endangered Utah Valvata Snail. The snail is found only in the Snake River. The greater sage-grouse is a candidate species.

Idaho BLM sensitive species habitat in the project area includes: conifer forests, aspen forests, juniper forests, shrub-land/grasslands, and riparian area. For sagebrush obligate species such as sage-grouse the lack of sagebrush decreases both the quantity and quality of habitat available.

The northern and eastern forests within the USFO provides habitat for the recovered population of Yellowstone Grizzly Bears.

The South Fork and Henry's Fork of the Snake River corridor in the USFO supports the most abundant population of the yellow-billed cuckoos in Idaho, even though it is considered a rare and local summer resident (66 FR 143). In the fall of 2013 the yellow-billed cuckoo was proposed to be listed under the Endangered Species Act. Recent surveys indicate nesting is likely within five different areas along the South Fork (Reynolds and Hinckley 2005).

The rivers in eastern portion of the USFO also support greater than 30% of the breeding population of bald eagles in Idaho. The majority of nests are located along the South Fork, lower Henry's Fork and Teton River, while the remaining nests are located primarily along the upper Henry's Fork (Annual Productivity Report, 2009).

Sagebrush obligate species rely on sagebrush for at least a portion of their life cycle. The vast and relatively continuous expanse of live, robust taller sagebrush with a good grass and forb component provides habitat required for all life cycles (lekking, brood-rearing, and wintering) of sage-grouse (Braun et al. 2005), as well as breeding habitat for migratory song birds such as Brewer's and sage sparrows, sage thrasher, and loggerhead shrikes. Additionally, pygmy rabbits, also sagebrush obligates, are found in suitable habitats throughout the USFO. For sagebrush obligate species such as sage-grouse the lack of sagebrush decreases both the quantity and quality of habitat available.

Extensive lava tubes in the northeastern and southwestern portions of the USFO support state and regionally important winter roosts for Townsend's big-eared bats, as well as a small number of western small-footed bats. These lava tubes also support a small number of Townsend's big-eared bat maternity roosts.

Environmental Consequences

Alternative A (Proposed Action)

Implementing the proposed action is expected to improve habitat conditions for the majority of potentially affected BLM sensitive species. Some direct effect from human disturbance could

occur during project implementation during the relatively short periods of time (up to approximately 1-2 weeks per treatment area) as crews move through the landscape planting shrubs each year. A small amount of noise from ATVs may also disturb wildlife during plantings. These direct effects are expected to be short-term in duration.

Indirectly, habitat is expected to improve for all of the BLM sensitive species that depend on shrubland and riparian habitat. Adding shrubs to upland habitats is expected to increase food by increasing plant biomass, and by increasing the availability of insects. This also improves the conditions of prey species for sensitive predators and provides critical cover for sensitive animals.

Planting sagebrush should improve habitat for greater sage-grouse. The plantings would potentially improve nesting cover, early brood rearing cover, and winter cover.

Adding shrubs/trees to riparian landscapes similarly is expected to provide food and cover for sensitive animals. The species affected and intensity of indirect effects are expected to vary between treatment sites and between years; however, more treatment over more area of land is expected to improve conditions for most species.

Sage-grouse collisions with wire fencing have been documented as a cause of mortality where fences were in close proximity to leks (Stevens, 2012). Problems are accentuated where regular movements of large numbers of birds cross a potential hazard such as a fence. Current literature indicates that fences may present an obstacle for sage grouse, which typically fly lower to the ground and therefore may be prone to striking fences in some situations. Habitat use and topography in the areas adjacent to the fence are important considerations in risk of sage grouse strikes. According to Connelly, placement of new fences and structures should be avoided within 1 km (0.6 mi) from occupied leks (Connelly et al, 2000), and the BLM IM-2012-043 suggests evaluating any new fences within 1.25 miles of leks that have been active within the past 5 years. If temporary fences must be built within close proximately to leks they would be marked to reduce risk of collision. Also, any other fences with documented strikes would be modified to make the fence more visible to sage-grouse and other avian species. As fences would be built outside of the nesting season there is little concern of disturbance or destruction of nests or nestlings.

Alternative B (No Action Alternative)

Implementing the no action alternative would not have any direct effects on any BLM sensitive species. Indirectly, habitat for wildlife species which use terrestrial shrubs would continue to be forced to utilize large tracts of shrub-less vegetation for a longer period of time until natural establishment occurs or until a site specific analysis allows for the replanting of the site.

Under the no action alternative riparian habitat would not be improved with shrub or herbaceous plantings. Habitat recovery would be dependent on natural processes.

Threatened, Endangered, and Sensitive Fish

Affected Environment

Special status fish and aquatic species (SSAQ) include the following: federally listed (T&E), candidate, proposed, State-listed, and BLM sensitive species (BLM 2003). There are currently four SSAQ that are known or have potential habitat within the USFO. Of these four species, one is federally listed as threatened, and the remaining three are identified as sensitive species.

Public lands administered by the USFO provide habitat for one federally-listed threatened native fish species, bull trout. Habitat in the USFO for bull trout is in the Little Lost River drainage. Streams within this drainage that are occupied by bull trout that have sections managed by the USFO are the Little Lost River, Wet Creek, Williams Creek, Warm Creek, Sawmill Creek, Badger Creek and Summit Creek.

Yellowstone cutthroat trout (YCT) and the Big Lost River population of mountain whitefish were petitioned for listing. Both species have been determined not warranted for listing by the USFWS (FR 2006, FR 2010). YCT are found in the upper Snake River drainages and the Medicine Lodge and Beaver-Camas Creeks sink drainages. The Big Lost River populations of mountain whitefish are found in the Big Lost River and its larger tributaries.

BLM has designated three species as sensitive in coordination with IDFG (BLM 2003). The YCT and northern leopard frog (*Rana pipiens*) are listed as Rangewide/Globally Imperiled – Type 2, meaning the species is experiencing significant declines throughout its range with a high likelihood of being listed in the foreseeable future due to its rarity and/or significant endangerment factors such as habitat loss. In the case of YCT, hybridization with introduced rainbow trout is also a factor. The Western toad is a Regional/State Imperiled-Type 3, meaning the species is experiencing declines in population or habitat and is in danger of regional or local extinction in Idaho in the foreseeable future.

All of the special status aquatic species are cold water species. They need cold, clean, well oxygenated water; adequate spawning substrate; adequate food supplies; and connectivity between spawning, feeding and overwintering habitats.

The condition of special status aquatic species habitat is intrinsically linked to the condition of the adjacent riparian-wetland habitat and stream channel characteristics. Riparian vegetation moderates water temperatures, adds structure to the banks to reduce erosion, provides overhead cover for fish, and provides habitat for terrestrial prey species.

Intact vegetated floodplains dissipate stream energy, store water for later release, and provide rearing areas for juvenile fish. Water quality, especially in regard to factors such as temperature, sediment, and dissolved oxygen, also greatly affects fisheries habitat. Appropriate channel structure for aquatic species habitat provides dissipation of stream energy, in-stream cover, numerous and quality pools, appropriate spawning substrate, and habitat complexity.

Stream systems that are free flowing allow fish to move between various habitats provided within the stream system. These include spawning, rearing, feeding and overwintering habitats along with refuge areas when water temperatures exceed the tolerance of specific species.

Environmental Consequences

Alternative A (Proposed Action)

During transplanting of herbaceous riparian vegetation, small areas of the riparian zone and stream bed would be disturbed. A small amount of sediment would be added to or stirred up in the stream for a short period, temporarily decreasing water quality.

Vegetation treatments that occur within the Little Lost River drainage would be conducted according to standards and guidelines developed for bull trout Riparian Habitat Conservation Areas on BLM lands. Ground disturbing activities, other than tree and shrub plantings, would not occur within 300 feet of all water bodies and springs containing the northern leopard frogs, western toads, Yellowstone cutthroat trout and bull trout.

In the long term, the riparian plugs would provide a seed source to populate the stream bank with riparian vegetation. The riparian vegetation would improve fish habitat by trapping sediment and improving water quality. In addition it would help to stabilize banks which provide structure and boundaries for channel and cover for fish.

Alternative B (No Action Alternative)

Implementing the no action alternative would not have any direct effects on any BLM sensitive fish species. Under the No Action Alternative mechanical and hand plantings would be considered on a site specific basis.

Vegetation

Affected Environment

The proposed project area encompasses approximately 1,621,135 acres managed by the BLM and is comprised of fifty-four different ecological systems. Treatments would target those areas within the USFO that have not adequately recovered from past disturbances, such as the Big

Desert sagebrush steppe that has been repeatedly impacted by wildfire over the last 20 years. Of the fifty-four ecological systems, five make up approximately 93% (1,501,702 acres) of the BLM managed lands within the Proposed Action location. These include: inter-mountain basin big sagebrush at 32%, semi-desert grasslands at 21%, low sagebrush steppe at 17%, montane sagebrush at 14%, and non-native perennial grasslands at 9%.

Of the BLM managed lands, 641,833 acres have been impacted by wildfire since 1970. Of these impacted acres, 534,053 acres have been reseeded with either perennial non-native species or with native species.

This analysis of the vegetative component consists of degraded lands impacted by fire, past land treatments such as crested wheatgrass seedings, and other actions that have led to a decrease in shrub cover. Historically, these lands had a shrub component, but due to past impacts, they are lacking sufficient cover and are now generally comprised of early-seral native and non-native perennial and annual grasses.

There are 15 noxious weed species identified within the boundary of the Proposed Action. These species are known to inhabit approximately 26,879 acres of BLM land. Table 3 lists these species and acres infested.

Table 3: Noxious Weed Species

Species	Acres Infested
Black Henbane	73
Canada Thistle	1,839
Dalmatian Toadflax	145
Hoary Alyssum	7
Houndstongue	650
Leafy Spurge	14,817
Musk Thistle	1,411
Perenial Pepperweed	74
Puncturevine	2
Purple Loosestrife	0.44
Rush Skeletonweed	3,956
Russian Knapweed	1,315
Scotch Thistle	152
Spotted Knapweed	2,424
Yellow Toadflax	13

Environmental Consequences

Alternative A (Proposed Action)

Short-term impacts from planting shrubs and riparian vegetation would result from the disturbance of existing plants, generally grasses and forbs, in order to plant the seedlings. These actions could result in temporarily reduced vigor in plants directly affected by augers, shovels, and other planting processes due to damage to the foliage and root systems. The disturbed sites would provide an avenue for invasive species/noxious weeds to establish. Indirectly, the effects of these small disturbances would be offset by the increased vegetation diversity and cover due to the plantings.

Long-term impacts from planting shrubs and riparian vegetation include the potential for increased vegetative cover and vigor in areas where shrubs were historically present but are currently lacking. Increased shrub cover allows for the catchment of winter snows in areas currently without shrub cover. This increase of snow depth could potentially increase available soil moisture for plants and therefore increase the vigor of existing plants and allow for grasses and forbs not present to migrate into traditional habitat areas. Any action involving soil disturbance would expose the seedbed to possible invasive species/noxious weed establishment.

Alternative B (No Action Alternative)

Under this action, shrubs would not be planted in degraded or disturbed areas except where site specific analyses have been conducted. Present plants and vegetation in these areas would continue their life-cycles without direct impact. As a result, any potential for these areas to increase in vegetative diversity and transition from their current degraded state, would not occur or would occur at a much slower pace through natural reestablishment.

Water Quality (Surface and Ground)

Affected Environment

The USFO manages public lands along approximately 460 miles of streams and rivers, 681 individual springs, and 70 acres of lakes and ponds. BLM manages public lands along 172.6 miles on 10 major streams or rivers, as shown in Table 4. Water from spring developments, reservoirs, streams, and stream diversions within the USFO supports livestock and wildlife, hydropower generation, and private land crop irrigation.

Table 4: Major streams and rivers within the Upper Snake FOA.

Stream/River	Miles of Public Lands along Streams/Rivers
Big Lost River	0.6
Birch Creek	6.4
Fall River	2.0
Henry's Fork of Snake River	26.0
Little Lost River	17.9
Main Snake River	45.0
Medicine Lodge Creek	2.3
South Fork of Snake River	51.0
Teton River	8.6
Willow Creek	12.8
Total	172.6

Currently, the most significant water quality requirements affecting BLM public land management activities come from the water quality standards and implementation plans section [also known as Section 303(d)] of the Clean Water Act and Environmental Protection Agency regulations [§ 130.2(j), § 130.740 (40 CFR I § 130 et seq.)]. Under this section, individual states are given authority to determine which waters in their state do not meet water quality standards and/or have impaired beneficial uses. These waters are commonly referred to as "water quality–limited" or "303(d)-listed" streams. Section 303(d) also requires states to determine Total Maximum Daily Loads (TMDL) for their 303(d)-listed streams. The TMDL determination process requires coordination of state, private, and federal entities (through watershed area groups), to work on sub-basin assessments for each Hydrologic Unit Code, to analyze the pollutant load for each listed stream, and to allocate a maximum load to each stream listed for each pollutant. Once complete, the TMDL determination impacts federal agencies through subsequent HUC-specific implementation plans, which define how land management agencies would reduce pollutant input into the listed streams.

Within the USFO, all of the watersheds with listed streams that required TMDL determinations currently have them in place. The most common pollutants for these stream reaches are sediment and water temperature. The most widely reported beneficial uses for these listed streams are cold water aquatic life and salmonid (trout) spawning.

The USFO manages about 106 miles of stream banks of the 2010 Section 303(d)-listed streams, which is approximately 23% of the total BLM-administered stream miles. Table 1 in Appendix 1 lists the 2010 Section 303(d)-listed streams and their pollutants in the USFO.

Environmental Consequences

Alternative A (Proposed Action)

Hand and machine planting would have negligible impacts on water quality along the streams in the USFO. Some of the root wad placements and willow bundle placements would result in some bank sediment entering the stream from the excavated holes and trenches, but this would be an extremely minor impact. Based on past experience, the suspended sediment in the stream would only be present until the hole or trench is planted and covered (less than an hour). In the long term, the riparian plantings along streams would increase bank stability, increasing the trapping of sediment along the bank by denser riparian habitat and improvement of water quality. This proposed action would have no impact to ground water.

Alternative B (No Action Alternative)

Under this alternative no upland or riparian plantings would be implemented except in cases where site specific analysis have been conducted. This would result in negligible short-term impacts to water quality due to the lack of ground disturbance from these plantings. However, in the long-term, the continued lack of upland shrubs and riparian vegetation would result in increased sediment loading and sedimentation in surface water until vegetation recovers naturally There would be no impact to ground water under this alternative.

Wetland and Riparian Zones

Affected Environment

Lotic riparian areas are those ecosystems associated with running waters, streams, or drainages, while lentic wetland areas are those associated with standing water ecosystems, such as lakes, reservoirs, vegetated playas, meadows, springs, seeps, low velocity backwater areas, or areas where permanent soil moisture is available. Lotic riparian communities occur along the major watercourses in the valleys of the USFO and in association with isolated springs, seeps, and smaller streams. Lotic systems occur primarily as deciduous stands of trees and shrubs dominated by various mixtures of willow (*Salix* spp.), cottonwood (*Populus* spp.), quaking aspen (*Populus tremuloides*), water birch (*Betula occidentalis*), and red-osier dogwood (*Cornus stolonifera*). A mosaic of herbaceous species including sedge (*Carex* spp.), rush (*Juncus* spp.), and various other graminoids and forbs occurs along the riparian margin. These woodlands and shrublands require periodic flooding and bare, moist substrates for reestablishment.

Lentic wetland areas are commonly found independent of a defined stream channel and may occur at various elevations and in diverse landscape settings. This is particularly true for meadows, springs, and seeps, which may be present within very arid areas and at low elevations.

Where adequate site potential exists, vegetation associated with reservoirs or lakes commonly provides valuable nesting and brood-rearing habitat for waterfowl and shorebirds. Common vegetation associated with these types of wetlands includes willow, sedge, rush, spikerush (*Eleocharis* spp.), bulrush (*Scirpus* spp.), and cattail (*Typha angustifolia*). Several species of amphibians, birds, and reptiles tend to associate with these areas. Lentic systems are typically small, and while they are extremely important ecologically, most springs and seeps within the USFO typically average less than a quarter-acre in size.

Meadow habitats are vulnerable to surface-disturbing uses that affect soil stability, water-holding capacity, and plant composition. All meadows are important watershed components that may be functionally impaired by gullies, sagebrush encroachment, and dominance by such species as iris (*Iris* spp.), which provides greatly diminished wildlife habitat values and indicates poor habitat health.

Springs and seeps occur where ground water approaches the surface. Many springs flow directly into streams, while others form small isolated ponds or marshy areas. Some springs may lose their surface expression and recharge alluvial fill material or permeable strata. Springs and seeps are important to lotic habitats because of the perennial base flow they provide to streams.

Within the USFO, riparian areas in lotic sites include approximately 9,500 acres along 460 miles of rivers and streams, while wetland areas in lentic sites include approximately 400 acres along 35 miles of shoreline or spring/seep drainages. Although this is a small percentage of the USFO (less than 1%), the importance of these areas as wildlife habitat far exceeds their size (Ecological Solutions Group 2013).

Field data from Proper Functioning Condition (PFC) studies throughout the USFO since 1992 indicate that overall trends in riparian–wetland habitats have been improving. For example, since 2001, the percentage of lotic miles in PFC has increased by 11%, while nonfunctional miles have decreased by 10%. Also since 2001, lentic acres in PFC have increased by 16%, and nonfunctional acres have decreased by 9% (Ecological Solutions Group 2013).

Some areas are declining with respect to invasive species/noxious weeds but improving with respect to other indicators. However, under the Upper Snake FO's weed control program, the spread of these species along many riparian-wetland areas has declined dramatically. The most common invasive species/noxious weeds found in riparian-wetland areas within the USFO include Canada thistle (*Cirsium arvense*), musk thistle (*Carduus nutans*), and leafy spurge (*Euphorbia esula*). Russian olive (*Elaeagnus angustifolia*) and salt cedar (tamarisk) (*Tamarix* spp.) are exotic tree species that have been documented along a handful of rivers and streams in the USFO. Current populations of both species appear to be increasing in number and size.

Russian olive is particularly pervasive along the South Fork and Main Stem of the Snake River, while salt cedar is relatively widespread along the Teton River.

Over the past 20 years, in accordance with the Clean Water Act, the USFO has routinely planted trees, shrubs, and some graminoids along riparian-wetland areas that have been degraded by permitted/authorized activities or natural events (e.g., fires, flooding).

Environmental Consequences

Alternative A (Proposed Action)

Under the Proposed Action, hand planting would result in a very small footprint of short-term displacement of soils and existing herbaceous vegetation. Root wad and willow bundle plantings would require the creation of a larger hole (two to four feet in diameter) or trench (two feet wide by four feet long), respectively, resulting in more displacement of soil and existing vegetation compared to planting cuttings, which would only require a small hole the diameter of the cutting. Utilization of these three planting methods would not result in removal of desirable shrubs or trees necessary to stabilize streambanks and maintain functioning riparian-wetland areas. Transplantation of shovel-sized plugs of sedges and rushes to degraded areas would result in short-term loss of vegetation at the source, but would increase vegetative cover and stability in the degraded areas that would receive the transplanted plant material. In the long-term, as a result of the planting methods discussed, degraded riparian-wetland areas would reestablish healthy, sustainable habitats that support adequate vegetative cover, increased diversity, and improved species composition.

Mechanical planting would not likely occur in riparian-wetland areas, and would thus, result in no direct impacts to these habitats.

Alternative B (No Action Alternative)

Under the No Action alternative, routine hand planting within riparian-wetland areas would continue to occur under site specific analysis to maintain compliance with the Clean Water Act. Impacts would be similar to those described under the Proposed Action.

Wildlife

Affected Environment

Wildlife in the USFO includes big game: mule deer, white-tailed deer, elk, pronghorn antelope, moose, mountain lions, and black bear. Upland game birds include: ring-necked pheasants, blue grouse, ruffed grouse, gray partridge, turkeys, mourning dove, etc. Small game includes:

cottontail rabbits and snowshoe hares. Other wildlife that inhabit the USFO include furbearers, bats, reptiles, and amphibians.

The unique juxtaposition of topography and habitat types (i.e., mountains, valleys, shrub steppe, riparian, etc.) in the Sand Creek HMA draws moose and elk in from the surrounding areas (Henry's Fork and Teton Rivers, Big Bend Ridge, and Island Park) resulting in the largest desert wintering moose population in North America (BLM and IDFG 2009) and the largest wintering elk herd in Idaho (IDFG 1999). The importance of big game within the planning area is emphasized by closing approximately 430,000 acres to human entry closures to minimize disturbance of big game during critical winter seasons.

There are several major river corridors within the PA boundaries including the Teton, Henry's Fork, and Snake rivers. Both moose and white-tailed deer can be found year round along the Snake River Corridor. The Teton River is an important seasonal migration route for elk and mule deer. The many lava flows and lava tubes within the PA provide cover, nesting and denning habitat for small mammals, reptiles and a few raptor species.

Lack of shrubs on large areas of the PA decreases both the quality and quantity of habitat for shrub dependent species. Wildland fires have reduced shrubs on many big game winter ranges, decreasing the ability of these ranges to sustain big game herds.

Environmental Consequences

Alternative A (Proposed Action)

Implementing the proposed action is expected to improve habitat conditions for mule deer, elk moose, and pronghorn antelope. Some direct effect from human disturbance could occur during project implementation during the relatively short periods of time (up to approximately 1-2 weeks per treatment area) as crews move through the landscape planting shrubs each year. A small amount of noise from ATVs may also disturb wildlife during plantings. These direct effects are expected to be short-term in duration. Indirectly, habitat is expected to improve for wildlife. Adding shrubs to the landscape is expected to provide both food and cover for wildlife species. The species affected and intensity of indirect effects is expected to vary between treatment sites and species planted; however, more treatment over more area of land is expected to improve conditions for the most individuals.

Direct impacts include negatively affecting wildlife movement patterns as the fences may pose as barriers. All fences would be built to meet BLM wildlife specifications, which would reduce the influence of fences on wildlife movement. All of the temporary fences built would be electric fences. As little research has been done on the effect of electric fences on wildlife population in SE Idaho; interim electric fence policy written by the BLM Rawlings Field Office

would be used to mitigate impacts to wildlife. It states that one, two, and three-wire electric fences may be built on public lands, as long as the top wire is no higher than 42 inches from the ground and the bottom wire is a minimum of 16 inches from the ground. If the bottom wire is 16 inches it would not be electrified to allow antelope passage; a 20 inch bottom wire spacing would be required if the wire is electrified. A 42 inch top wire is passable by mature mule deer and elk, whether electrified or not. The middle wire should be a minimum of 12 inches below the top wire. Many experiences in the Rawlins Field Office area have shown that for individual animals approaching an electric fence, antelope go under and deer and elk jump over. When these animals are in large numbers they run through these fences, because of the fences' construction material and inability to withstand extensive pressure. These types of electric fences seem to have less impact on wildlife movement than the conventional fence type. Indirect effects include a potential increase of cover and food available to wildlife by controlling livestock distribution.

Alternative B (No Action Alternative)

Implementing the no action alternative would not have direct effects on wildlife. Indirectly, species which are expected to benefit from the improvement of habitat through shrub planting would continue to have less suitable habitat for a much longer period of time (up to 50 years or more) until natural establishment occurs or a site specific analysis allows for the replanting of the site.

Chapter 4 - Cumulative Impacts

This section of the document discloses the incremental impact that the Proposed Action and Alternative are likely to have when considered in the context of impacts associated with past, present, and reasonably foreseeable future actions that have occurred, or are likely to occur, in the area.

Due to the large area which this EA encompasses, the Cumulative Impact Assessment Area (CIAA) consists of lands within the USFO boundaries and includes lands in Idaho managed by the State of Idaho, other federal agencies, as well as private holdings. The total acreage of these lands is 7,129,429 acres. These lands when broken down into management consists of: 2,618,387 acres of privately owned lands, 1,809,280 acres of lands managed by the BLM, the US Forest Service manages 1,666,183 acres, the Department of Energy (DOE) manages 542,498 acres with the State of Idaho managing 385,231 acres. The remaining 78,554 acres is split among other Governmental and Tribal agencies. Map 1 in Appendix A shows the CIAA boundary and management agencies.

Past and Present Actions

Past, present, and reasonably foreseeable actions that have occurred in the CIAA have impacted the human environment to varying degrees (see Table 5). These actions include vegetation management, fire, agricultural development, and infrastructural development. Although these actions probably do not account for all of the impacts that have or are likely to occur, GIS analysis, agency records, and professional judgment suggest that they have contributed to the vast majority of cumulative impacts that have occurred in the assessment area.

Table 5: Past and Present Actions Within the CIAA

Type of Activity	Past and Present Actions
Agricultural Development	
Cultivated crop agriculture, both dryland and irrigated	1,502,494 acres
Urban Development	
Buildings and other structures, concrete and asphalt pads	140,501 acres
Wildfire History	
Total Acres Burned	1,076,231 acres
Vegetation Management	
Reseeding	433,901 acres
Prescribed Fire	141,293 acres
Invasive/Non-Native Species	
Noxious weeds	26,879 acres
Non-native Perennial Grasses	163,016 acres
Annual Grasslands	81,083 acres
Livestock Grazing	
Number of Allotments	676 Allotments encompassing 4,192,791 acres
Infrastructure Development	
Miles of Road	18,305 Miles
Power lines (high voltage)	550 Miles
Railroad	580 Miles

Rivers, Canals, Streams	1,528 Miles
Reservoirs	85,412 acres
Communication Towers	186 sites
Fence lines	6,184 miles

Reasonably Foreseeable Future Actions

The effects of the Proposed Action and Alternative are expected to vary widely by resource. For some resources, effects would be very short-term, lasting only during project implementation. For others, effects would last for years. In the interest of consistency, a 10-year timeframe was used to consider the incremental effects of reasonably foreseeable future actions.

All of the past and present actions discussed above are expected to persist through this time frame, though the relative intensity of these actions could vary depending on a variety of economic factors or changes in management direction.

Cumulative Impacts associated with Past, Present, and Reasonably Foreseeable Future Actions

Each of the past, present, and reasonably foreseeable future actions contribute a specific incremental environmental effect that can be described or accounted for with the same indicators as used in the alternative analysis presented earlier in the document. The proper indicator depends upon the analysis method used and the resource affected by the action. Indicators might be measured by the acres of soil disturbed, acres of big game habitat affected, percentage change in ground cover, or another indicator that is best used to describe and account for the accumulated effect to the particular resource. The accumulated effect of past, present, and reasonably foreseeable future actions on a given resource provides a baseline from which to evaluate the contribution of the alternatives to the collective impact on that resource. This purpose of this section of the document is to provide that baseline. The effects of the various alternatives on the baseline are presented in a subsequent section.

Past and present actions have resulted in varying degrees of impact to the resources considered in the analysis. Impacts are higher for urban and rural areas which have resulted in direct habitat loss and fragmentation of approximately 37% of the CIAA. Urban and rural development has altered or removed native vegetation communities, changed soil characteristics, and introduced elements such as accelerated erosion, irrigation and concentrated fertilization that have altered and would continue to alter the characteristics of the natural landscape.

Impacts associated with infrastructure development have resulted in direct habitat loss and fragmentation of less than <1% of the CIAA. Infrastructure often affects natural habitats differently than agriculture or urban development. In the case of roads and fences, the impacts are often drawn out over a linear area rather than as agriculture and urban development impacts are in large, concentrated blocks. Although infrastructure may influence natural areas in different ways, the impacts are similar in removing the native vegetation communities and introducing non-natural elements into the natural landscape.

Within the CIAA there is approximately 4,192,791 acres designated as grazing allotments. These lands include private, State, BLM and Forest Service management areas. Fencing is commonly used as a livestock management tool and there are approximately 6,184 miles of fence occurring throughout the CIAA. Using an average impact area of 4 feet along all fences, the total area affected by fencing is approximately 2,998 acres, which is less than 1% of the total area within the CIAA.

Activities that occur on public and private lands, such as agricultural practices; infrastructure development; recreational use such as camping, hunting, and ATV use; and livestock grazing management affect wildlife use patterns, the quantity and quality of habitats, and population viability. Many species of wildlife including birds, bears, and big game require large intact habitats for their continued survival. Urbanization and recreational opportunities on adjacent private lands reduces their value to wildlife habitat through fragmentation of existing habitats. Cumulative impacts of livestock grazing on wildlife habitat include compaction of soils, reduction of available forage and cover, and disturbance of riparian vegetation. Maintaining intact habitats and having the flexibility to modify grazing schedules to meet the specific needs of vegetation and wildlife would help maintain rangelands in good ecological condition.

Fisheries

Within the CIAA there are approximately 1,325 miles of main rivers and creeks and 80 miles of lakes and reservoirs. Of the 1,325 miles of river, 819 miles flow through privately held lands. Before the 1880s these lands were not heavily used for agriculture, but have since been developed. This development also included the construction of irrigation canals that divert thousands of gallons of water from rivers during the summer to water crops. The removal of water from the rivers reduces the available habitat for fisheries. Runoff from these lands can also carry containments such as fertilizer, herbicides, and pesticides back into the hydrologic system and can degrade fisheries habitat.

Although further development along parts of these rivers and creeks are possible, the impacts from these developments would be incremental over the long-term and no large scale impacts are likely to occur in any foreseeable time frame.

Migratory Birds

Migratory birds occur throughout the CIAA and have been impacted by past and present actions and are expected to continue to be impacted by reasonably foreseeable future actions.

Within the CIAA there has been 2,618,387 acres of land have been converted to urban cities and rural agriculture. In general, this removes native habitat and modifies bird species composition from sagebrush obligate species to more generalist or undesirable species such as brown-headed cowbirds. However, agricultural lands do provide some habitat for migratory birds. For instance, during the growing season, crop lands likely provide some cover for migratory birds (i.e., bobolink) which could be offset by the potential for loss of nests and mortality during harvest. Use by other migratory birds, particularly gulls and raptors, may increase during harvest due to the exposure of rodents and insects. Following harvest of grain crops, use by seed-eating birds, such as the red-winged blackbird and western meadowlark, may also increase due to the seed left from the harvest.

There is little historical data on migratory bird use of habitats in the CIAA. Historically, migratory bird response to past grazing activities was likely similar to their response to current grazing practices, but on a much greater scale due to previously unregulated grazing use. Compaction of soil, removal of plant materials and reduced water infiltration from grazing likely resulted in decreased grasses and forbs and an increase in shrub habitat. This would have modified migratory bird composition and density from species reliant on grasses and forbs decreasing and those species reliant on shrubs increasing.

Historically, fires were a natural part of the ecosystem and likely resulted in some mortality and displacement of migratory birds until habitat was restored. Today wildfire still results in mortality and displacement of migratory birds, but the fire return interval is shorter, fires burn hotter, and are larger than they were historically. This has resulted in a conversion of habitat from native perennial grasses, forbs and shrubs to non-native annual grasses which further influence current fire cycles.

Soils

Rural and urban development (including agriculture) has impacted soils across approximately 2,618,387 acres or about 37% of the CIAA. The majority of the impact has been associated with the removal of natural vegetation, the disruption of natural soil horizons associated with cultivation, and the alteration of soil chemistry through herbicide and fertilizer use.

Wildfire also affects soil stability and increases erosion potential. The increased wildfire intensity has the potential for large scale erosion. With the continual encroachment of cheatgrass

and noxious weeds, and wildfire being part of the natural regime cycle, wildfire will be a constant threat to soil stability into the foreseeable future.

Threatened, Endangered, and Sensitive Species

The U.S. Fish and Wildlife Service (USFWS) identified primary and other threats to greater sage-grouse in its 12-Month Findings for Petitions to List the Greater Sage-grouse as Threatened or Endangered (USFWS 2010). The primary cause of sage-grouse population decline identified by the USFWS was fragmentation of sagebrush habitats due to: habitat conversion for agriculture or urbanization, infrastructure within sagebrush habitats (power lines, communication towers, fences, roads, railroads, etc.), wildfire, and energy development (specifically roads and energy related infrastructure). Other important threats included: inadequate regulatory mechanisms, invasive plants (annual grasses and noxious weeds), climate change, collisions (with fence, power lines, etc.), conifer invasion, contaminants, disease (West Nile virus), poorly managed livestock grazing, hunting, mining, predation, prescribed fire/vegetation treatments, recreation (particularly off highway vehicle use) and water developments (USFWS 2010). It is often the cumulative impact of a variety of disturbances that have the greatest effect on sagebrush ecosystems, rather than any single disturbance (Knick et al. 2011).

Wildfire and development (agricultural and urban) provide the greatest cumulative impact to sage-grouse, bald eagles, yellow-billed cuckoos, and grizzly bears within the CIAA. Aside from the direct impacts of habitat alteration, these disturbances may alter species behavior causing them to avoid impacted habitats or displace populations to more suitable areas.

Although livestock grazing was not identified as a primary threat, it is one of the more widespread uses occurring in sage grouse habitat (Connelly et al. 2004). There is limited evidence to suggest there are direct impacts to sage-grouse by livestock, but livestock grazing does directly impact sage-grouse habitats by removing vegetation (forage and cover) or changing species composition under poor management practices (Connelly and Braun 1997).

Recreation use is likely to increase into the foreseeable future. This may result in further habitat fragmentation as unauthorized roads and trails are created. Furthermore, it may increase access for hunters while decreasing security for threatened, endangered, and sensitive species.

Threatened, Endangered, and Sensitive Fish

Within the CIAA there are 1,072 miles of Yellowstone Cutthroat habitat, 94 miles of Bull trout habitat, and 243 miles of whitefish habitat. Traditionally these native species had slight pressure from Native American fishing, but lacked introduced species competing for the same resources.

The increase of recreational activities, introduction of non-native species, and alteration of habitat through the development of canals and reservoirs has placed increased pressures on these species.

Within the CIAA, there are no known further large-scale development along streams and rivers where these species inhabit, although it is likely that recreation use will increase into the foreseeable future.

Vegetation

Of the 7,129,431 acres within the CIAA, 2,618,387 acres or 37% of lands are privately managed. These lands have been heavily altered from their native state into agricultural lands, rural and urban areas. There are grazing allotments designated in 4,192,791 acres within the CIAA. Native vegetation on these lands has been impacted by grazing, wildfires, seeding projects, invasive and noxious plants, and drought cycles.

Over the past 30 years, wildfire has burned 641,833 acres on BLM lands, which amounts to approximately 9% of CIAA. Wildfire can remove and/or permanently alter native vegetation communities. Often, invasive species/noxious weeds are able to establish within fire disturbance areas. Generally, perennial grasses and forbs are able to recover well after wildfire if their composition and health were adequate prior to the fire and fire intensity is not too severe. If shrubs are removed by wildfire, recovery to pre-fire conditions can take much longer.

Approximately 534,053 acres (7% of CIAA) of native habitat have been treated and/or seeded within the CIAA. Some vegetation treatments have been completed in an effort to rehabilitate and stabilize areas after wildfire and others were completed to improve watershed functionality. Some treatments were completed in the late 1900s with the intent of increasing forage for livestock. Many of the treatment areas have burned or have been treated on multiple occasions. The majority of vegetation treatment areas completed in the CIAA have been seeded in crested wheatgrass, which decreases vegetation species diversity and habitat value to wildlife.

Water Quality (Surface and Ground)

There are 1,325 miles of river within the CIAA of which 819 miles flow through privately held lands. These lands traditionally consisted of native vegetation and the rivers, streams and creeks were unaltered and uncontaminated from urban and rural development. Rivers, streams, and creeks that flow near agricultural fields have a higher potential to acquire degraded runoff which may be contaminated with fertilizers, herbicides and pesticides.

Waters that flow through public lands can be impacted through grazing and wildfire, which removes riparian vegetation and can increase erosion and sedimentation in rivers, streams, and creeks. The removal of vegetative cover can also potentially increase water temperature.

Wetlands and Riparian

Historically wetlands and riparian areas within the CIAA were used by Native Americans and early settlers for water and small crops. Today, many of these areas have been dramatically changed and developed. Springs and seeps have been captured and converted into pipelines, reducing the riparian and wetland footprint. Riparian areas have been impacted through unmonitored grazing practices. Rivers and streams have been channelized to reduce springtime flooding and thus narrow the riparian areas into a defined area.

Wildfire has also impacted 583 miles wetlands and riparian areas. This allows for the establishment of invasive, non-native species such as Canadian Thistle. Development of wetlands and riparian areas may continue on privately managed lands and can result in further impacts.

Wildlife Resources

Historically, big game species in the CIAA were used by Native Americans and early settlers as food and for their fur, teeth, bones and antlers or horns. Today big game is economically important for tourism, hunting, and for their meat and other products. The construction of 6,184 miles of fences has changed movement patterns, but three and four strand fences are considered negotiable by big game. Fences provide perches for resident bird species that increases their visibility to their predators, but also provides increased visibility for territorial displays, singing perches and foraging points.

Agriculture, particularly alfalfa fields and haystacks, in the CIAA provide forage to big game during the winter and other times of the year. Agriculture also provides cover and increased forage for small mammal prey for raptors such as rabbits, marmots, and mice.

Historically, the CIAA provided intact sagebrush steppe habitat for wildlife. Currently, 18,305 miles of roads and trails and 550 miles of high-power lines fragment the CIAA. Habitat fragmentation creates landscapes of altered habitats fundamentally different from those created by natural disturbances such as changes in vegetation composition, increased edges, and reduced forage quality and security. These roads and trails also provide an increase in recreational opportunities which may disturb wildlife during critical seasons of the year or result in wildlife avoiding previously important areas such as fawning or nesting grounds.

There is little historical information on the other wildlife species such as resident bird, reptile and small mammal species found in the CIAA. Changes in vegetation composition and structure ultimately results in a change in wildlife species abundance and diversity moving from species specialized for a certain habitat type to more generalist species.

Recreation use is likely to increase into the foreseeable future. This may result in further habitat fragmentation as unauthorized roads and trails are created. Furthermore, it may increase access for hunters, while decreasing security for game species.

Incremental Effects of the Proposed Action and No Action Alternatives

The objective of this section of the document is to disclose the differing impacts that each alternative would incrementally add to or subtract from the total effect of past, present, and reasonably foreseeable actions discussed in the prior sections. As indicated in Table 6, the implementation of the various alternatives would affect the current condition of the CIAA in different ways.

Table 6: Incremental Effects of the Alternatives		
Resource	Alternative A – The Proposed Action	Alternative B – No Action
Fisheries	The Proposed Action would result in short-term disturbance of sediments, but there would be an improvement of fish habitat by the trapping of sediment and increased water quality, as well as increased vegetative cover helps to stabilize banks which provide structure and boundaries for channel and cover for fish.	No initial degradation from planting would occur but fisheries habitat would continue to remain in degraded conditions, reducing potential fish populations.
Invasive, Non-native Species	The Proposed Action would result in ground disturbance and slight short-term impacts in residential vegetative populations. There could be an increase in invasive species populations due to current infestations found within and adjacent to the project area. Treatment of weeds and restoration of disturbed areas would help reduce the spread of invasive, non-native species throughout the CIAA.	Taking no action has the potential for existing conditions, favorable for substantial weed infestations, to continue. Resulting in the potential for large-scale noxious weed infestations.
Migratory Birds	The Proposed Action would result in changes in vegetation composition, structure and productivity across various landscapes. These lands could become productive habitat for migratory birds quicker than lands no treated under the Proposed Action.	Taking no action would potentially result in large areas of land impacted by wildfire and other detrimental impacts remaining in a degraded state. Limiting nesting habitat for Migratory birds.
Soils	Initial seeding would break up soil strata allowing for greater erosion potential. Especially through the use of mechanical means such as tractors and drills. Long term effects would be the establishment of native shrubs, resulting in decreased soil erosion, provide stability, and enhance nutrients in the topsoil.	Degraded areas with little cover would be susceptible to erosion and slopes could remain unstable.
Threatened, Endangered, and Sensitive Animals	Areas treated under the Proposed Action could develop ecologically healthy habitats quicker than untreated areas. These treated areas would increase potential nesting and brood rearing habitat and reduce impacts resulting from wildfire.	Taking no action would potentially result in large areas of land impacted by wildfire and other detrimental impacts remaining in a degraded state. Limiting nesting habitat for threatened, endangered, and sensitive animals.
Threatened, Endangered, and Sensitive Fish	The Proposed Action would result in short-term disturbance of sediments, but there would be an improvement of fish habitat by trapping sediment and increased water quality, as well as increased vegetative cover helps to stabilize banks which provide structure and boundaries for channel and cover for fish.	No initial degradation from planting would occur but fisheries habitat would continue to remain in degraded conditions, reducing potential fish populations.
Vegetation	Effects of the Proposed Action in combination with past, present, and reasonably foreseeable future actions would result in an improvement in vegetative conditions and shrub habitat. In the long term, areas which currently are degraded and lacking shrub cover could recover to historical percentages. Other actions would contribute a negligible amount to cumulative effects to this resource.	Under the No Action Alternative, areas currently degraded would take longer to re-establish shrub cover, if shrub cover is able to recover. Degraded areas will be susceptible to invasion by non-native species and noxious weeds.
Water Quality	The Proposed Action would result in short-term sediment	Taking no action can result in the continual degrading of water quality, due

Table 6: Incremental Effects of the Alternatives		
	disturbance. In the long term there potentially can be an increase in water quality due to greater stream-bank stability resulting in less sediment escaping into the system as well as potential cover, reducing the potential for increased water temperature.	to less riparian vegetation available to filter out sediments.
Riparian and Wetland Zones	The reestablishment of riparian vegetation will increase riparian and wetland zones ability to resist erosion and the encroachment of invasive, non-native species.	Under the No Action Alternative, degraded riparian and wetland zones would slowly return to their native state, if no further impacts occur, and degraded areas would still be susceptible to noxious, invasive non-native species, and degradation through erosion.
Wildlife	The Proposed Action would result in short-term displacement of wildlife during planting. Treated areas into the foreseeable future would improve with increased shrub cover resulting in more habitat and cover for wildlife. Treated areas could also potentially become more susceptible to large-scale wildfire as shrub densities increase.	Traditional wildlife habitat would remain in a degraded state and the displacement of wildlife into other areas could continue to occur.

CHAPTER 5 – CONSULTATION AND COORDINATION

Persons and Agencies Contacted

Natural Resource Conservation Service
Idaho Department of Lands
Idaho Conservation League
Idaho Department of Fish and Game
Greater Yellowstone Collation
Western Watersheds Project
Idaho State Dept. of Agriculture
U.S. Department of Energy - INL
Chairman, Land Use Policy Committee, Shoshone-Bannock Tribes
Northwest Band of Shoshone Nation
Chairman, Tribal Business Council, Shoshone-Bannock Tribes

List of Preparers

Marissa Guenther…… *NEPA Reviewer*	NEPA Review
Devin Englestead…...*Wildlife Biologist*	Wildlife; Threatened, Endangered and Sensitive Animal Species; Migratory Birds
Arn Berglund……..*Fisheries Biologist*	Fisheries; Threatened, Endangered and Sensitive Fish
Harley Bateman……..*Fuels Technician*	Project Lead; Vegetation; Invasive, Non-native Species
Deena Teel……..*Supervisory NRS*	Wetland and Riparian Zones
Dan Kotansky……....*Hydrologist*	Water Quality
Brandy Janzen...…….*Soils Specialist*	Soils

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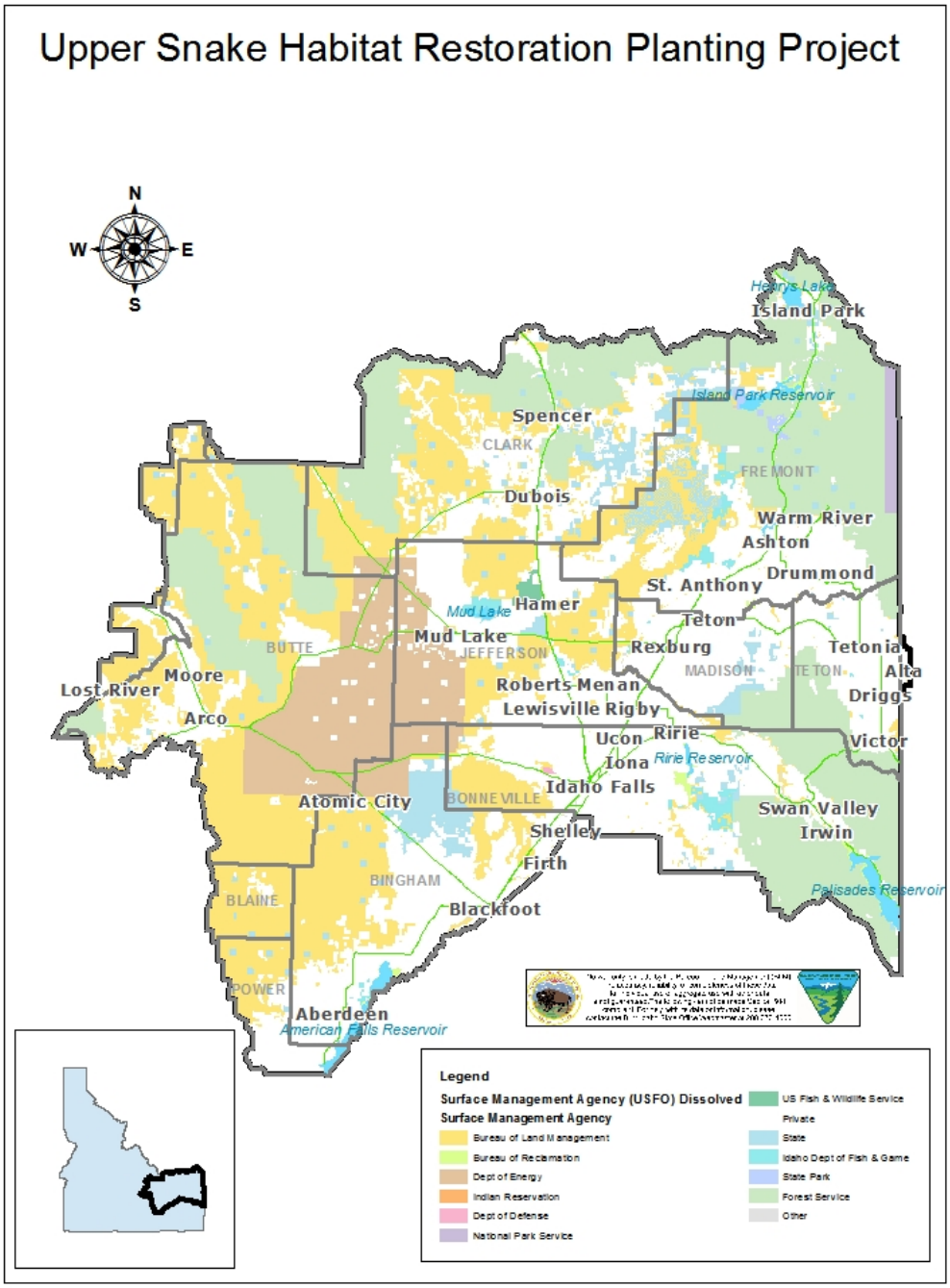
APPENDIX A : MAPS

Map 1: Habitat Restoration Project Area and Cumulative Impact Assessment Area



APPENDIX B: Surface Water

Watershed/HUC	*Assessment Unit (AU)/reach*	*Stream*	*Causes **	*Total Listed Stream Length with BLM-Administered Lands (miles)*	*Stream Length with BLM-Administered Lands (miles)*	*%of Listed, Perennial Stream Miles on BLM-Administered Lands compared to Total Length of Listed Streams with BLM-Administered Lands*	*Beneficial Uses (BU) ***
American Falls 17040206	SK022-04 Snake River, River Mile 791 (T1N R37E S10) to Res.	Snake River	S, Mercury	54.	26.	48.	CWAL, SS, PCR, SCR, DWS
Beaver-Camas 17040214	SK006-03 Ching Cr, source to mouth	Ching Cr	EC	7.0	1.4	20.	CWAL, SS, SCR
	SK016-02 Rattlesnake Cr, source to mouth	Corral Cr	CB/HB	5.5	0.3	5.	CWAL, SS, SCR
		EFK Rattlesnake Cr	CB/HB	6.5	0.2	3.	CWAL, SS, SCR
	SK017-02 Threemile Cr,	West Threemile Cr	CB/HB, T	3.8	1.0	26.	CWAL, SS, SCR

Watershed/HUC	*Assessment Unit (AU)/reach*	*Stream*	*Causes **	*Total Listed Stream Length with BLM-Administered Lands (miles)*	*Stream Length with BLM-Administered Lands (miles)*	*%of Listed, Perennial Stream Miles on BLM-Administered Lands compared to Total Length of Listed Streams with BLM-Administered Lands*	*Beneficial Uses (BU) ***
	source to mouth						
	SK021-02 Beaver Cr, source to Idaho Cr	Beaver Cr	EC, T	4.5	1.6	36.	CWAL, SS, PCR, DWS
Upper Henrys 17040202	SK035-03 Timber Cr, source to mouth	Timber Cr	EC, T	2.0	0.6	30.	CWAL, SS, SCR
		Icehouse Cr	S	10.0	0.8	8.	CWAL, SS, SCR
Lower Henrys 17040203	SK013-04 Sand Cr, Pine Cr to mouth	Sand Cr	CB/HB	8.8	2.0	23.	CWAL, PCR, SCR
Little Lost 17040217	SK001-05 Little Lost River, canal (T6N	Little Lost River	T	10.3	1.3	13.	CWAL, SS, PCR

Watershed/HUC	*Assessment Unit (AU)/reach*	*Stream*	*Causes **	*Total Listed Stream Length with BLM-Administered Lands (miles)*	*Stream Length with BLM-Administered Lands (miles)*	*%of Listed, Perennial Stream Miles on BLM-Administered Lands compared to Total Length of Listed Streams with BLM-Administered Lands*	*Beneficial Uses (BU) ***
	R28E) to sinks						
	SK002-05 Little Lost River, Big Springs Cr confl. to canal (T6N R28E)	Little Lost River	CB/HB, S, T	5.8	5.1	88.	CWAL, SS, PCR
	SK003-02 Big Springs Cr, source to mouth	Big Springs Cr	T	1.9	0.9	46.	CWAL
	SK003-03 Big Springs Cr, source to mouth	Big Springs Cr	U, T	7.1	3.0	42.	CWAL, SS, PCR
	SK007-04 Little Lost River, Badger Cr to Big Springs Cr	Little Lost River	CB/HB, S, T	12.3	6.6	54.	CWAL, SS, PCR
	SK009_02 Little Lost River, Wet Cr to	Horse Cr	S, T	6.0	3.4	57.	CWAL, SS, PCR, SCR

Watershed/HUC	*Assessment Unit (AU)/reach*	*Stream*	*Causes **	*Total Listed Stream Length with BLM-Administered Lands (miles)*	*Stream Length with BLM-Administered Lands (miles)*	*%of Listed, Perennial Stream Miles on BLM-Administered Lands compared to Total Length of Listed Streams with BLM-Administered Lands*	*Beneficial Uses (BU) ***
	Badger Cr						
		Williams Cr	S, T	6.9	1.1	16.	CWAL, SS, PCR, SCR
	SK010-04 Little Lost River, Confl. Of Summit Cr and Sawmill Cr to Wet Cr	Little Lost River	S, T	7.1	1.4	20.	CWAL, SS, PCR
	SK014-02 Sawmill Cr, Confl. Of Timber and Main Fork to Warm Cr	Garfield Cr	CB/HB, T	2.7	0.2	7.	CWAL, SS, SCR
	SK014-04 Sawmill Cr, Confl. Of	Sawmill Cr	S, T	7.6	1.3	17.	CWAL, SS, PCR

Watershed/HUC	*Assessment Unit (AU)/reach*	*Stream*	*Causes **	*Total Listed Stream Length with BLM-Administered Lands (miles)*	*Stream Length with BLM-Administered Lands (miles)*	*%of Listed, Perennial Stream Miles on BLM-Administered Lands compared to Total Length of Listed Streams with BLM-Administered Lands*	*Beneficial Uses (BU) ***
	Timber and Main Fork to Warm Cr						
	SK019-02a Moffett Cr, from Barney Cr to Barney Cr	Moffett Cr	CB/HB, T	1.4	1.4	100.	CWAL, SS, SCR
	SK019_03 Summit Cr, Moffett Cr to Little Lost River	Summit Cr	T	6.7	4.3	64.	CWAL
	SK021-03 Dry Cr, source to Dry Cr canal	Dry Cr	T	2.4	0.6	25.	CWAL, SCR
	SK023-02 Squaw Cr, source to mouth	Chicken Cr	CB/HB	3.2	2.1	66.	CWAL, SS, SCR
		Massacre Cr	CB/HB	3.0	1.4	47.	CWAL, SS, SCR

Watershed/HUC	*Assessment Unit (AU)/reach*	*Stream*	*Causes **	*Total Listed Stream Length with BLM-Administered Lands (miles)*	*Stream Length with BLM-Administered Lands (miles)*	*%of Listed, Perennial Stream Miles on BLM-Administered Lands compared to Total Length of Listed Streams with BLM-Administered Lands*	*Beneficial Uses (BU) ***
		Squaw Cr	CB/HB	9.1	7.0	77.	CWAL, SS, SCR
	SK025-02 Deer Cr, source to mouth	Deer Cr	T	5.3	3.8	72.	CWAL, SCR
Medicine Lodge 17040215	SK005-02 WFK Indian Cr, source to mouth	Cabin Cr	CB/HB, EC	4.4	0.7	16.	CWAL, SS, SCR
		WFK Indian Cr	CB/HB, EC	8.4	2.0	24.	CWAL, SS, SCR
	SK007-03 Middle Cr, Dry Fk Middle Cr to mouth	Middle Cr	FC	5.6	2.2	39.	CWAL, SS, SCR
	SK008-02 Middle Cr, source to Dry Fk Middle Cr	Middle Cr	S, T	5.8	0.6	10.	CWAL, SS, SCR

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	SK009-02 Dry Fk Middle Cr, source to mouth	Dry Fork Middle Cr	S	5.2	2.0	38.	CWAL, SS
	SK010-02 Edie Cr, source to mouth	Edie Cr	EC, S	7.7	4.0	52.	CWAL, SS, SCR
	SK012-02 Irving Cr, source to mouth	The Bull Pen (EFK Irving Cr)	EC, S, T	4.0	1.1	28.	CWAL, SS, SCR
		WFK Irving Cr	EC, S, T	4.4	1.1	25.	CWAL, SS, SCR
	SK013-02 Warm Cr, source to mouth	Warm Cr (Black Cyn Cr)	S, T	4.8	0.5	10.	CWAL, SS, SCR
	SK013-03 Warm Cr, source to mouth	Divide Cr (Warm Cr)	S, T	2.4	0.3	12.	CWAL, SS, SCR
	SK015-02	Horse Cr	CB/HB, S,	6.1	1.4	23.	CWAL,

Watershed/HUC	*Assessment Unit (AU)/reach*	*Stream*	*Causes **	*Total Listed Stream Length with BLM-Administered Lands (miles)*	*Stream Length with BLM-Administered Lands (miles)*	*%of Listed, Perennial Stream Miles on BLM-Administered Lands compared to Total Length of Listed Streams with BLM-Administered Lands*	*Beneficial Uses (BU) ***
	Horse Cr, source to mouth		T				SS, SCR
	SK018-02 Deep Cr, source to mouth	Deep Cr	CB/HB, S, T	9.6	4.7	49.	CWAL, SCR
		SFK Deep Cr	CB/HB, S, T	2.5	1.8	72.	CWAL, SCR
Palisades 17040104	SK028-04 Rainey Cr, source to mouth	Rainey Cr	CB/HB, EC	11.9	0.8	7.	CWAL, SS, SCR
	SK029-03 Pine Cr, source to mouth	Pine Cr	U	10.0	1.3	13.	CWAL, SS, SCR
Teton 17040204	SK011-02 Warm Cr, source to mouth	Warm Cr	CB/HB, FC	4.9	0.4	8.	CWAL, SCR

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Willow Cr 17040205	SK005-04 Willow Cr, Birch Cr to Bulls Fork	Willow Cr	Nutr./Eutro. Biol. Indic., T	2.3	1.9	83.	CWAL, SS, PCR, DWS
	SK008-02 Willow Cr, Mud Cr to Birch Cr	Twin Cr	CB/HB, EC	2.3	0.5	22.	CWAL, SS, PCR, DWS
Totals				**303.2**	**106.1**	**35.**	

* B-MacroB = Benthic-Macroinvertebrate Bioassessments
CB/HB = Combined Biota/Habitat Bioassessment
FB = Fisheries Bioassessment
HA = Habitat Assessment
PSHAlt = Physical Substrate Habitat Alterations
S = Sedimentation/siltation
T = water temperature
EC = Escherichia coli
FC = Fecal coliform
U = Unknown
Nutr./Eutro.Biol.Indic. = Nutrient/Eutrophication Biological Indicators

** CWAL = Cold water aquatic life
SS = Salmonid spawning
PCR = Primary contact recreation
SCR = Secondary contact recreation
DWS = Domestic water supply