

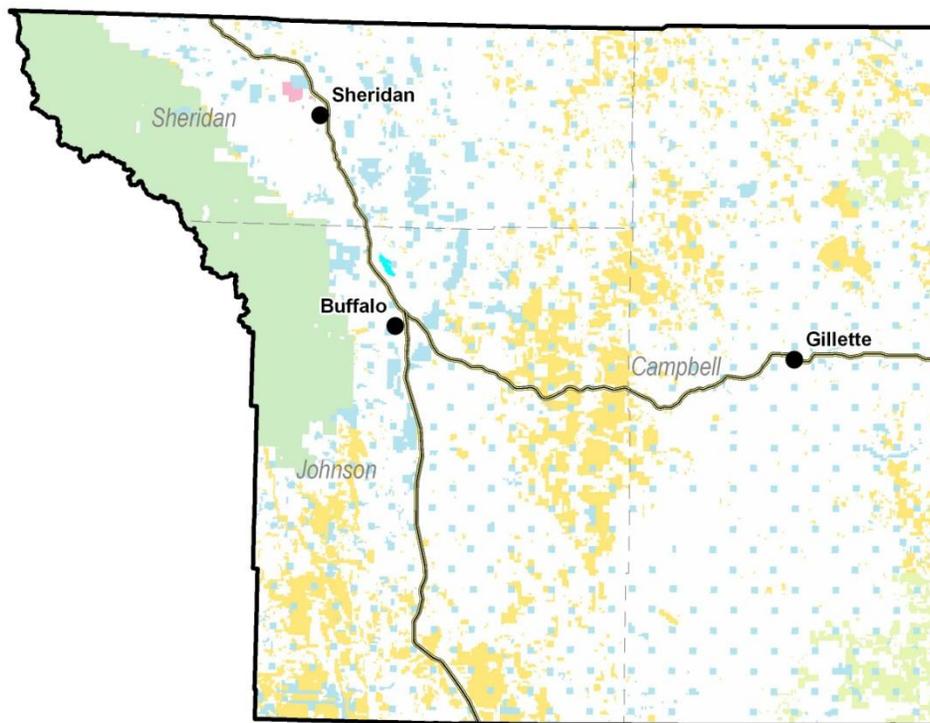
**United States Department of the Interior
Bureau of Land Management**

Environmental Assessment WY-070-EA11-217

**Fortification Creek Habitat Improvement Project
Buffalo Field Office**

***Location:** The BLM Buffalo Field Office (BFO) administrative area is in north-central and northeastern Wyoming. The BFO area includes approximately 11.2 million acres of land in Johnson, Campbell, and Sheridan Counties, of which BLM manages 4,731,140 acres of mineral estate and manages 780,291 acres of public lands.*

The Fortification Creek Planning Improvement Project Area is located within the BFO's administrative area in northeastern Wyoming.



U.S. Department of the Interior
Bureau of Land Management
Buffalo Field Office
1425 Fort Street
Buffalo, Wyoming 82834
Phone: (307) 684-1100



1. INTRODUCTION

1.1. Background

The environmental assessment (EA) analyzed the Fortification Creek (FC) Habitat Improvement Project (HIP). This EA disclosed and analyzed the environmental impacts that could result with implementing an invasive pest management project as proposed by Anadarko Petroleum Corporation project on federal surface.

The FCPA is in the Powder River Basin (PRB) in northeastern Wyoming, Figure 1-1.

The total acreage in the FCPA boundaries is 100,655 acres, 42,755 acres of which are federally owned and includes 93,159 acres of BLM managed mineral resources within Campbell, Johnson, and Sheridan counties in northeastern Wyoming. The FCPA HIP Area will affect 5000 acres in the southeast of the FCPA, as shown in Figure 1-2.

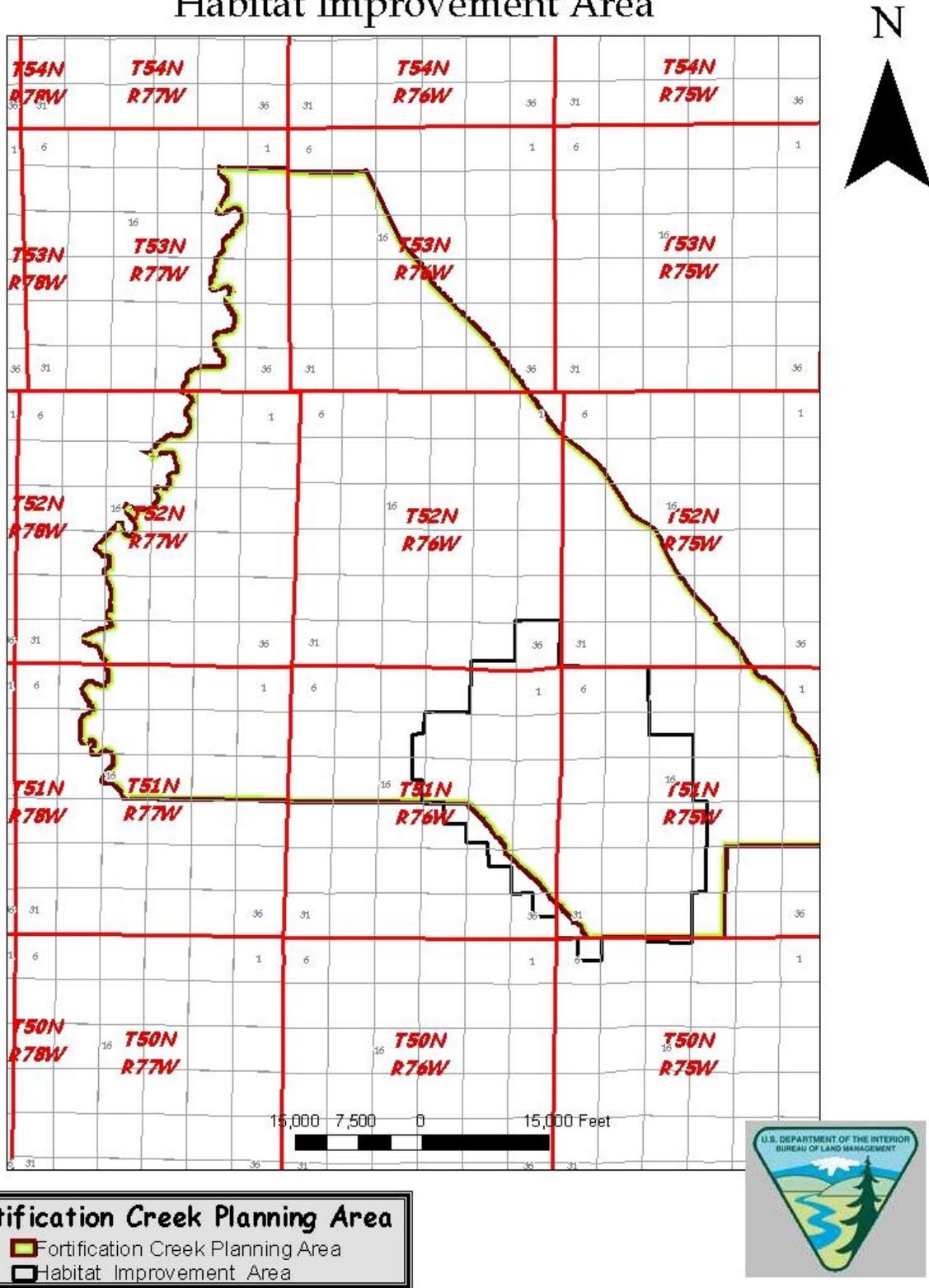
With generally rugged topography, elevations in the FCPA range from approximately 3,700 feet along the Powder River on the western boundary to approximately 4,800 feet on ridges. The area is covered by shrublands, with ridges supporting juniper woodlands. This diverse landscape is home to an isolated elk herd as well as a variety of other wildlife.

The FCPA is used as a hunting area for resident and non-resident hunters. Effects of human activity are visible throughout the landscape with gas field developments on the south and east, and private ranches surrounding the FCPA.

The FCPA has a substantial elk herd, and in particular the project area is an important winter range and calving area for the elk herd. An elk's diet consists of grasses, plants, leaves, and forbs Unlike white-tailed deer and moose which are primarily browsers, elk have a similarity to cattle as they are primarily grazers, but like other deer, they also browse. Downy brome (cheatgrass) has become prevalent in this area and compromises the lands healthy native ecosystem. Cheat grass is an invasive species and infestations can have negative impacts on a healthy ecosystem. Invasive species can create a host of environmental and other effects, most of which are harmful to native ecosystem processes, including: displacement of native plants; reduction in functionality of habitat and forage for wildlife and livestock; increased potential for soil erosion and reduced water quality; alteration of physical and biological properties of soil; loss of long-term riparian area function; loss of habitat for culturally significant plants; high cost (dollars spent) of controlling; and increased cost to maintaining transportation systems and recreational sites. Imazapic can be used to reduce cheatgrass infestation and improve the native grass community in the FCPA, therefore improving the quality and quantity of the forage for the elk herd.

Figure 1-2

Habitat Improvement Area



1.2. Need for the Proposed Action

The need for the FCPA HIP is to improve the native plant community and forage in order to maintain a healthy ecosystem for the elk herd by chemically treating cheatgrass and potentially other invasive species or noxious weeds. The proposed project reduces the buildup of cheatgrass that accumulated over the last several decades, as well as to improve the plant community and forage. This project advances the BLM's mandate to manage public lands "in a manner that will protect the quality of scientific, scenic, historic, ecological, environmental, air and atmospheric, water resources, and archeological value," Federal Land Policy and Management Act. The project also supports BLM goals to provide for the control of invasive species, and to minimize the economic, ecological, and human health impacts that invasive species cause, Executive Order 13112. Reducing the population of invasive species meets the objective of sustaining biological communities found in the objectives of the Powder River Basin Final Environmental Impact Statement (PRB FEIS), 2003.

1.3. Decision to be Made

This EA analyzes the effects of using imazapic for treating vegetation and applying integrated pest management to control cheatgrass on public lands in the Buffalo Field Office (BFO), FCPA. Decisions expected from this EA analysis include:

- Whether the BLM will authorize imazapic for use on public lands in the Buffalo Field Office (BFO), FCPA and, if so, under what circumstances?
- Which vegetation management practices could be used with applications of imazapic and under what circumstances? (i.e. fire, mowing, hand pulling, etc.)

1.4. Scoping and Issues

Key issues identified and considered in the *Vegetation Treatments Using Herbicides in 17 Western States, Programmatic Environmental Impact Statement, (BLM, 2007)* are in Appendix A. Those key and routine issues are also applicable to this analysis and are incorporated either by tiering and / or by addressing specific issues of field office concern.

The following issues are relevant to the decision to be made in the BFO:

Vegetation

- Effects of treatment on cheatgrass and native vegetation

Soil Productivity and Water Quality

- Effects of herbicides on soils and surface/groundwater

Wildlife and wildlife habitat (particularly the elk herd)

Threatened, and Endangered Species and Special Status Species (SSS)

- Effects of herbicide use to sensitive, threatened, and endangered species and SSS.
- Effects of not using pesticide (lack of adequate vegetation for grazing).

Recent external scoping of invasive species treatments received no public feedback which is similar to recent external scoping for coalbed natural gas development which includes components for treatment of invasive plants and noxious weeds, WY-070-DNA11-212.

2. PROPOSED ACTION AND ALTERNATIVES

2.1. Introduction

This EA focuses on the proposed action and no action alternatives. The no action alternative is considered and analyzed to provide a baseline for comparison of the impacts of the proposed action.

To maintain ecosystem health, the BLM is required by various laws, regulations, and policies to control invasive species, thus, the *No Action* alternative is not an appropriate option for invasive species

management. However, the Council on Environmental Quality requires a *no action* alternative as a benchmark comparison of the *proposed action* or other alternatives.

2.2. Alternative A- Proposed Action

The proposed action involves spraying imazapic to reduce infestations of cheatgrass within the FCPA. Imazapic inhibits the acetolactate synthase (ALS) enzyme resulting in inhibition of the development of the amino acids valine, leucine, and isoleucine. These are amino acids that plants use to make protein. Due to the plants inhibition to make these amino acids the plant dies from a lack of protein synthesis. Imazapic, therefore, only affects species that have an ALS enzyme (only plants have an ALS enzyme).

The FCPA consists of mature mixed grasslands, shrublands, riparian areas, and woodland areas. The proposed action will affect 5000 acres in the southeast of the FCPA. Spraying will specifically occur in T51N, R75W Sections 5, 6, 7, 8, 9, 15, 19, 20, 22, 27, 28, 29, 30, 31, 32, 33 and T50N, R75W Section 6. The proposed action consists of the following actions:

- 1) Aerial and ground application of the herbicide imazapic across 5000 acres of BLM land to reduce cheatgrass. The initial spraying will be done with a helicopter in the larger flatter areas, and by broadcast (boom) spraying via ATVs/UTVs in harder to get places and in more sensitive areas such as draws and riparian areas.
- 2) The initial spraying will be phased into 2 years. Year 1 will begin in the southeast of the FCPA Habitat Improvement Area and progress northwest. Year 2 will complete the remaining area as well as follow up treatment in the year 1 location.
- 3) Years 3 and 4 will include monitoring of the entire area and follow up with touch up spraying.
- 4) Imazapic would be applied in the August and /or September to reduce cheatgrass that germinates in the fall. Imazapic would be applied at the rate of 2 oz. to 12oz. per acre. Recommended rate is 8oz. per acre.

No equipment use would be allowed when soils are saturated and ruts greater than 3” in depth are created on a straight line route. The following standard operating procedures would be adhered to during the application of imazapic:

- The herbicide product label would be followed for use and storage.
- Only licensed applicators would apply the herbicide.
- Herbicide application would be avoided during times of adverse weather conditions.
- Aerial application of the herbicide would not occur when winds exceed 6 mph.
- Drift control agents and low volatile formulations would be used in the herbicide formulation to reduce drift hazard to non target areas.
- Buffers to protect threatened and endangered species (TES) plants are as follows:
 - 25-900 feet from terrestrial TES plants, depending on application rates & aircraft
 - 100 -300 feet from aquatic/riparian TES plants, depending on application rates and aircraft type
- Buffers to protect water resources are as follows:
 - Aerial Spraying-100 feet from any riparian, spring, stream, or water resources
 - Vehicle Spraying - 25 feet from any riparian, spring, stream, or water resources
 - Hand Application – 10 feet from any riparian, spring, stream, or water resources

No new access roads would be needed to access the project area and access would be via existing roads and trails. No permanent manmade structures would be established or left remaining after treatment work is completed.

Treatment work is planned to start in August and/or September of 2011. The project has been designed to provide for the optimum amount of edge effect in order to increase the habitat values for wildlife.

Due to the potential for weed invasion within the project area, standard weed prevention measures would be followed. This includes annual monitoring of the project area to detect and/or treat weed infestations.

No chemicals subject to the Superfund Amendments and Reauthorization Act (SARA) Title III in amounts greater than 10,000 pounds would be used. No extremely hazardous substances as defined in 40 CFR 355 in threshold planning quantities would be used.

2.3. Alternative B – No Use of Herbicides – No Action

Under Alternative B, the BLM and proponents would not be able to treat cheatgrass using imazapic and current resource conditions and trends would continue.

2.4. Alternative Considered, but Not Analyzed Further Prescribed Fire:

The use of prescribed fire to reduce the hazardous fuel loads was considered, but eliminated. The rationale for not using prescribed fire was since the understory is comprised mainly of cheatgrass, the use of prescribed fire would not be an effective treatment since cheatgrass responds favorably to fire and tends to expand its range following fire events. Therefore this alternative was not considered, because it would not meet the need of improving the native plant community and forage.

2.5. Conformance

The proposed action and alternatives conform to the Buffalo Resource Management Plan (RMP), 1985 and amended in 2001, and as the Powder River Basin Final Environmental Impact Statement (PRB FEIS), 2003. They are consistent with vegetation objectives, goals, and decisions as stated on page 16 of the Buffalo RMP. The objective is to control the introduction and proliferation of noxious and invasive species on public surface.

The following provides a description of the authorities that apply to the *proposed action*. This is not an all-inclusive list of statutes, limitations, and guidelines, but is a representative list of the types of laws and policy that guide the management of the public land. All laws, regulations, and policies, including BLM manuals, handbooks and internal memoranda, would be followed unless otherwise stated.

ENVIRONMENTAL POLICY

The National Environmental Policy Act (1969)

- requires the preparation of Environmental Impact Statements (EIS) for federal projects that may have a significant effect on the environment
- requires systematic, interdisciplinary planning to ensure the integrated use of natural and social sciences and environmental design arts in making decisions about major federal actions that may have a significant effect on the environment

LAND USE AND NATURAL RESOURCES MANAGEMENT

Bureau of Land Management, Invasive Species Management Environmental Assessment (October 26, 2010), EA# WYW070-09-099

Vegetation Treatments Using Herbicides in 17 Western States, Programmatic Environmental Impact Statement, Record of Decision (BLM, 2007)

The ROD approved:

- the use of 18 herbicide active ingredients

- the use of a scientific protocol to guide the analytical methodology for consideration of the use or non-use of herbicides by the BLM

This document will be referenced in this EA to address the general effects on the environment of using non-herbicide treatment methods, including mechanical, manual, and biological control methods.

Federal Land Policy and Management Act (1976)

Directs the BLM to “take any action necessary to prevent unnecessary and or undue degradation of public land.”

Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management for the Public Lands Administered by the Bureau of Land Management in the State of Wyoming (1997)

Carlson-Foley Act (1968)

Provides the authorization for reimbursement of expenses to State or local agencies for weed control on Federal lands.

Federal Noxious Weed Act (1974), as amended by Sec. 15, Management of Undesirable Plants on Federal Lands, 1990

Congress amended the Federal Noxious Weed Act of 1974 and this amendment was signed into law November 28, 1990. This Act requires that each Federal Agency:

- designate a lead office and person trained in the management of undesirable plants;
- establish and fund an undesirable plant management program;
- complete and implement cooperative agreements with State Agencies;
- and establish integrated management systems to control undesirable plant species.

Executive Order 13112,, invasive species (1999)

Directs federal agencies to prevent the introduction of and provide for control, and to minimize the economic, ecological, and human health impacts that invasive cause.

Public Rangelands Improvement Act (1978)

Requires the BLM to manage, maintain, and improve the condition of the public rangelands so that they become as productive as feasible.

BLM Manual 9014 – *Use of Biological Control Agents of Pests on Public Lands* – This manual outlines policy, defines responsibilities, and provides guidance for the release, maintenance, and collections of biological control agents for integrated pest management programs on the lands administered by the BLM.

BLM Manual 9220 – *Integrated Pest Management* – This manual outlines policy, defines responsibilities, and provides guidance for implementing integrated pest management programs on lands administered by the BLM.

BLM Manual 9011 and Manual Handbook H-9011-1 - *Chemical Pest Control* – This manual and handbook outline policy and provide guidance for conduction pest control programs on public land.

BLM Manual 9015 – *Integrated Weed Management* – This manual addresses the BLM’s policy relating to the management and coordination of noxious weed activities among activities of the BLM, organizations, and individuals.

Biological assessments for blowout penstemon and Ute ladies' tresses are found at the web address: http://www.blm.gov/wy/st/en/programs/plant_conservation/Plants/penstemon.html. Each of the listed plant species in Wyoming has specific habitat requirements and is only known to occur in a few locales. Blowout penstemon occurs in Nebraska as well as Wyoming. Ute ladies' tresses is widespread and occurs in occurs in Colorado, Idaho, Montana, Nebraska, Nevada, Utah, Washington, and Wyoming.

AIR QUALITY

The **Clean Air Act (1990)**, as amended (42 U.S.C. 7401, 7642), requires BLM to protect air quality, maintain federal- and state-designated air quality standards, and abide by the requirements of the State Implementation Plans.

Wyoming Air Quality Standards and Regulations specify the requirements for air permitting and monitoring to implement Clean Air Act and state ambient air quality standards.

CULTURAL RESOURCES

The **Historic Sites Act (16 U.S.C. 461)** declares national policy to identify and preserve historic sites, buildings, objects, and antiquities of national significance, thereby providing a foundation for the National Register of Historic Places.

The **National Historic Preservation Act (1966)**, as amended (16 U.S.C. 470), expands protection of historic and archeological properties to include those of national, state, and local significance. It also directs federal agencies to consider the effects of proposed actions on properties eligible for or included in the National Register of Historic Places.

The **Archaeological Resources Protection Act (1979)**, as amended (16 U.S.C. 470a, 470cc, 470ee), requires permits for the excavation or removal of federally administered archeological resources, encourages increased cooperation among federal agencies and private individuals, provides stringent criminal and civil penalties for violations, and requires federal agencies to identify important resources vulnerable to looting and to develop a tracking system for violations.

The **Native American Graves Protection and Repatriation Act (1990)** (Public Law 101-601) provides a process for federal agencies to return certain Native American cultural items (e.g., human remains, funerary objects, sacred objects, and objects of cultural patrimony) to lineal descendants and culturally affiliated Native American tribes.

Protection and Enhancement of the Cultural Environment (EO 11593) directs federal agencies to locate, inventory, nominate, and protect federally owned cultural resources eligible for the National Register of Historic Places and to ensure that their plans and programs contribute to preservation and enhancement of nonfederal owned resources.

HAZARDOUS MATERIALS

The **Comprehensive Environmental Response, Compensation, and Liability Act (1980)** (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (42 U.S.C. 9601–9673), provides for liability, risk assessment, compensation, emergency response, and cleanup (including the cleanup of inactive sites) for hazardous substances. The Act requires federal agencies to report sites where hazardous wastes are or have been stored, treated, or disposed and requires responsible parties, including federal agencies, to clean up releases of hazardous substances.

The **Resource Conservation and Recovery Act (RCRA)**, as amended by the Federal Facility Compliance Act of 1992 (42 U.S.C. 6901–6992), authorizes the Environmental Protection Agency (EPA) to manage, by regulation, hazardous wastes on active disposal operations. The Act waives sovereign

immunity for federal agencies with respect to all federal, state, and local solid and hazardous waste laws and regulations. Federal agencies are subject to civil and administrative penalties for violations and to cost assessments for the administration of the enforcement.

The **Emergency Planning and Community Right-To-Know Act (1986)** (42 U.S.C. 11001–11050) (aka Superfund Amendments Reauthorization Act (SARA)): requires the private sector and federal, state, local, and tribal governments to inventory chemicals and chemical products, to report those in excess of threshold planning quantities, to inventory emergency response equipment, to provide annual reports and support to local and state emergency response organizations, and to maintain a liaison with the local and state emergency response organizations and the public.

PESTICIDE REGULATIONS

Federal Insecticide, Fungicide, and Rodenticide Act (EPA)

- provides for the registration of pesticides, certification of applicators to apply restricted use pesticides, and enforcement of pesticide regulations
- provides for individual states to obtain primacy for enforcement of FIFRA regulations as long as the states' requirements are at least equal to federal requirements

WATER QUALITY

The **Clean Water Act (1987)**, as amended (33 U.S.C. 1251), establishes objectives to restore and maintain the chemical, physical, and biological integrity of the nation's water. The Act also requires permits for point source discharges to navigable waters of the United States and the protection of wetlands and includes monitoring and research provisions for protection of ambient water quality.

Wyoming Water Quality Regulations implement permitting and monitoring requirements for the National Pollutant Discharge Elimination System, operation of injection wells, groundwater protection requirements, prevention and response requirements for spills, and salinity standards and criteria for the Colorado River Basin.

Protection of Wetlands (EO 11990) requires federal agencies to take action to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands.

Floodplain Management (EO 11988) provides for the restoration and preservation of national and beneficial floodplain values, and enhancement of the natural and beneficial values of wetlands in carrying out programs affecting land use.

WILDLIFE

The **Endangered Species Act (1973)** (ESA), as amended (16 U.S.C. 1531, et seq.), directs federal agencies to ensure that their actions do not jeopardize threatened and endangered species, and that through their authority they help bring about the recovery of such species.

The **Bald Eagle Protection Act (1940)** (16 U.S.C. 668), amended in 1962 to include the golden eagle, prohibits the taking or possession of and commerce in bald and golden eagles, with limited exceptions.

Fish and Wildlife Coordination Act (1958) (16 U.S.C. 661 et seq.) provides that, whenever the waters or channel of a body of water are modified by a department or agency of the United States, the department or agency first will consult with the U.S. Fish and Wildlife Service and with the head of the agency exercising administration over the wildlife resources of the state where construction will occur, with a view to the conservation of wildlife resources.

Fish and Wildlife Improvement Act (1978) (16 U.S.C. 7421) authorizes the Secretary of the Interior and the Secretary of Commerce to assist in training of state fish and wildlife enforcement personnel, to cooperate with other federal or state agencies for enforcement of fish and wildlife laws, and to use appropriations to pay for rewards and undercover operations.

Fish and Wildlife Conservation Act (1980), as amended, (16 U.S.C. 2901–2911, commonly known as the Nongame Act) encourages states to develop conservation plans for nongame fish and wildlife of ecological, educational, aesthetic, cultural, recreational, economic, or scientific value. The states may be reimbursed for a percentage of the costs of developing, revising, or implementing conservation plans approved by the Secretary of the Interior. Amendments adopted in 1988 and 1989 also direct the Secretary to undertake certain activities to research and conserve migratory nongame birds.

Migratory Bird Treaty Act (1918) (16 U.S.C. 703–711) manages and protects migratory bird species through consultation with state and local governments and protection of land and water resources necessary for the conservation of migratory birds. Under the Act, taking, killing, or possessing migratory birds is unlawful.

The Sikes Act (1960) (16 U.S.C. 670a–670o), as amended, Public Law 86-797, provides for cooperation by the Departments of the Interior and Defense with state agencies in planning, development, and maintenance of fish and wildlife resources on military reservations throughout the United States. Public Law 93-452, signed in 1974, authorized conservation and rehabilitation programs on BLM lands. Public Law 97-396, approved in 1982, provided for the inclusion of endangered plants in conservation programs developed for BLM lands. It also defined “cooperative agreements” with states and clarified section 209 concerning purchases and contracts for property and services from states.

Biological Opinion (2007 update) ES-6-WY-07-F012 This document transmits the U.S. Fish and Wildlife Service’s Final Biological Opinion for the Powder River Basin Oil and Gas Project, and its effects on the bald eagle and Ute ladies’-tresses orchid, in accordance with section 7 of the Endangered Species Act of 1973, as amended (50 CFR 402.14).

WILDERNESS STUDY AREAS

Invasive plant control on public lands within Wilderness Study Areas (WSAs) must comply with and be managed consistent with BLM’s Interim Management Policy Handbook (H-8550-1) For Lands Under Wilderness Review, (see also Section 603, FLPMA). The law provides for, and the BLM’s policy is to allow invasive species control on lands under wilderness review in the manner and degree that does not degrade wilderness quality. Invasive plant control methods within WSAs are subject to reasonable regulations, policies, and practices. None of the proposed project lands are in a WSA.

3. AFFECTED ENVIRONMENT

3.1. Introduction

This chapter describes key aspects of the environment likely to be affected by the *proposed action* and *no action* alternative (i.e., the physical, biological, social, and economic values) of the project area as identified by the interdisciplinary team analysis and as presented in Chapter 1 of this assessment.

The primary target for the majority of improving the native plant community and forage is cheatgrass. Cheatgrass is trying to out-compete the desirable species for the moisture and nutrients available. A secondary action may include the need to treat other potential invasive species and/or noxious weeds. These species have not infested the area currently but have potential of establishing with the removal of cheatgrass. Monitoring the area for potential infestations will occur concurrently with cheatgrass monitoring. The following section identifies the target species and discusses the impacts of the

alternatives on the desirable or native species. The proposed project area is on federal lands which have extensive development of natural gas and its infrastructure (roads, well pads, electrical power lines).

3.1.1. Invasive Plant Species

Brome Species (*Bromus tectorum*, *B. japonicus*)

Cheatgrass is an annual grass that forms tufts up to 2 feet tall. The leaves and sheathes are covered in short, soft hairs. The flowers occur as drooping, open, terminal clusters that can have a greenish, red, or purple hue. These annual plants will germinate in fall or spring (fall is more common), and senescence usually occurs in summer. Cheatgrass invades rangelands, pastures, prairies, and other open areas. Cheatgrass has the potential to completely alter the ecosystems it invades. It can completely replace native vegetation and change fire regimes. It occurs throughout the United States and Canada, but is most problematic in areas of the western United States with lower precipitation levels. Cheatgrass is native to Europe, parts of Africa and Asia. It was introduced into the United States accidentally in the mid 1800s.

Location: Throughout the BFO

Wyoming Noxious Weed: No

3.2. NATIVE VEGETATION

3.2.1. Affected Environment

Vegetation in the FCPA is characterized as a mosaic of vegetation types that includes mixed grasslands, shrublands, riparian areas, and woodland areas. Vegetation types and their distribution in the FCPA are shown on Figure 3-1 and listed in Table 3-1. BLM uses the vegetation classifications in combination with soil classifications and the Natural Resources Conservation Service (NRCS) ecological site descriptions.

Vegetation Class	Total Area (acres)	Percentage of FCPA
Agricultural	99.7	0.1%
Juniper Woodland	1,737.2	1.7%
Herbaceous Rangeland	66,848.7	66.4%
Rock-Bare Soil	1,514.5	1.5%
Shrubland	30,451.5	30.3%
Total Vegetation Resources	100,651.6	100%

Figure 3-1 Vegetation Classification

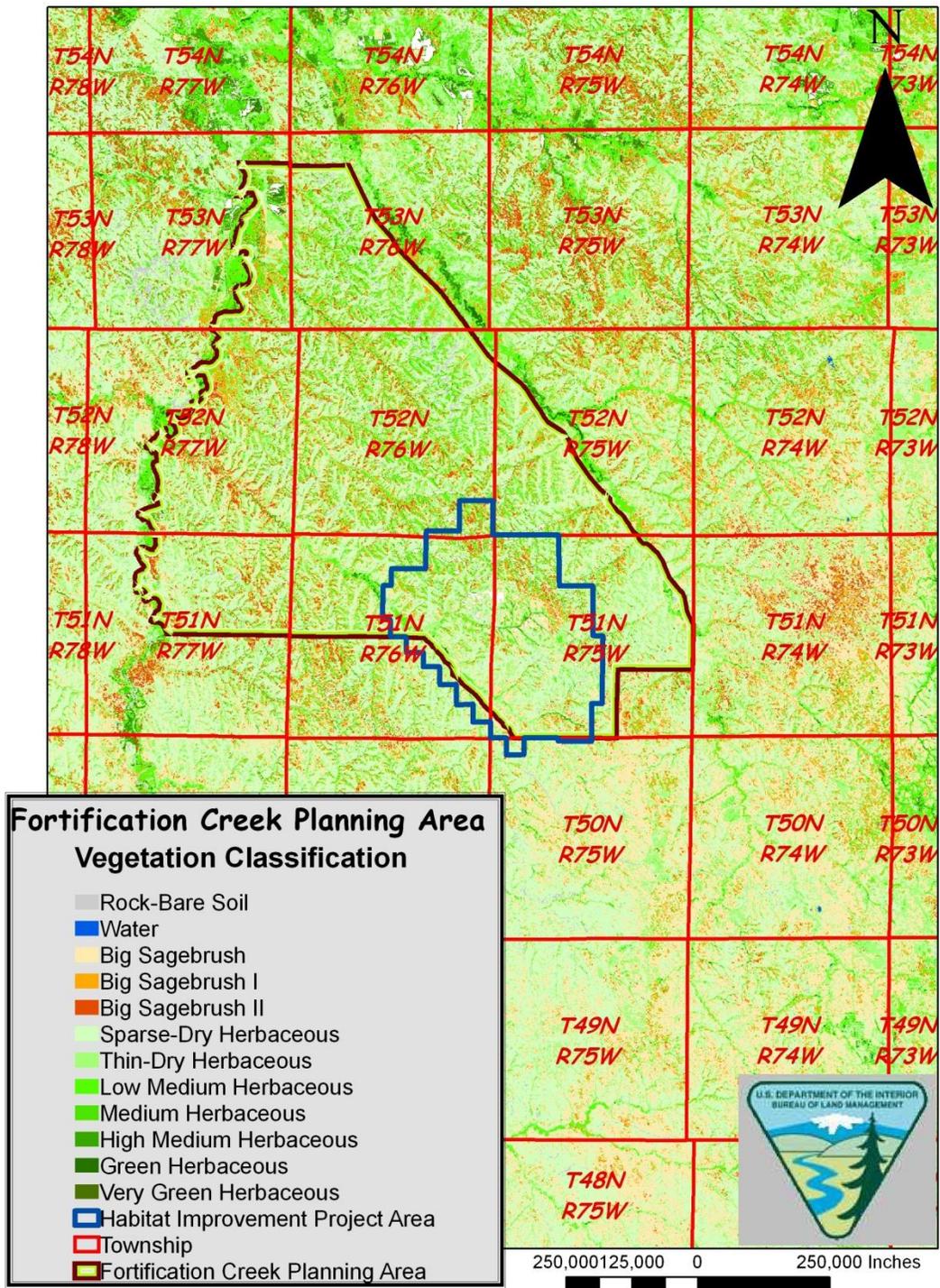
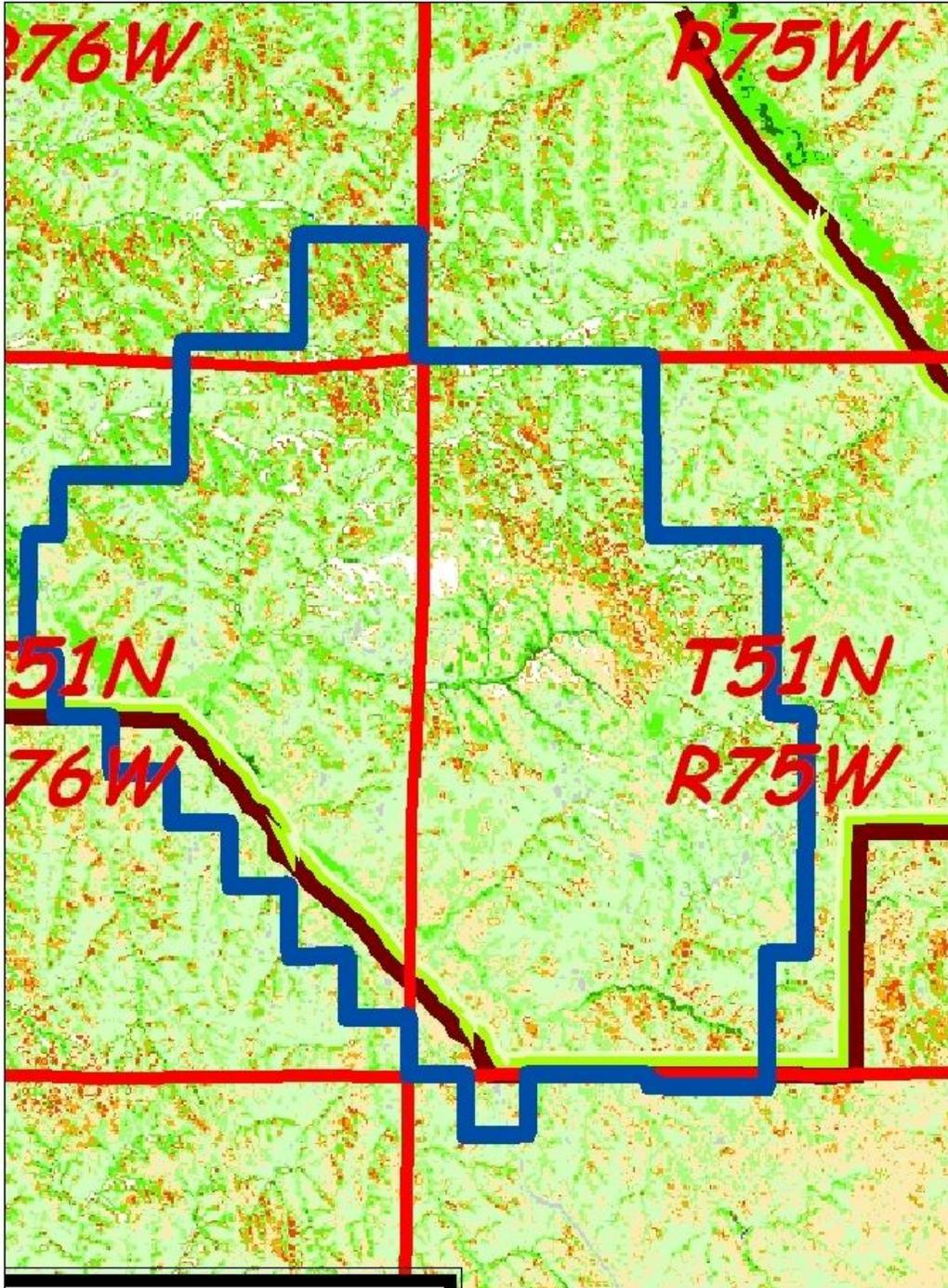


Figure 3-2 Vegetation Classification Zoomed In

Vegetation Classification Zoomed In



WGFD land cover classifications mapping and resources were used to identify vegetation types within the FCPA. Nomenclature information was taken from the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service Plants online Database and Vascular Plants of Wyoming (Dorn 1992). Six land cover types were identified within the PRB: agriculture lands, herbaceous rangelands, rock-bare soil, sagebrush shrubland, woodland, and water.

Indicators of vegetation habitat health are described in the Wyoming Standards for Healthy Public Rangelands (BLM 1995a). The goal for upland vegetation is a plant community appropriate to the site that is resilient, diverse, and able to recover from natural and human disturbance. Indicators include:

- Vegetative cover;
- Plant composition and diversity (species, age class, structure, successional stages, desired plant community);
- Bare ground and litter;
- Erosions (rills, gullies, pedestals, capping); and
- Water infiltration rates.

Current Conditions and Trends

The following sections briefly describe the vegetation types present in the FCPA. There are no threatened or endangered or special status plant species known to occur in the FCPA.

Herbaceous Rangeland

Herbaceous rangelands are a mixed grassland vegetative type including western wheatgrass (*Pascopyrum smithii*), thickspike wheatgrass (*Elymus lanceolatus*), needle-and-thread grass (*Hesperostipa comata*), blue grama (*Bouteloua gracilis*), junegrass (*Koeleria macrantha*), green needlegrass (*Nassella viridula*), bluebunch wheatgrass (*Pseudoroegneria spicata*), crested wheatgrass (*Agropyron cristatum*), little bluestem (*Schizachyrium scoparium*), Indian ricegrass (*Achnatherum hymenoides*), basin wildrye (*Leymus cinereus*), buckwheat (*Eriogonum* sp.), Japanese brome (*Bromus japonicus*), cheatgrass (*Bromus tectorum*), threadleaf sedge (*Carex filifolia*), prairie clover (*Dalea* sp.), soapweed yucca (*Yucca glauca*), hairy false goldenaster (*Heterotheca villosa*), common yarrow (*Achillea millefolium*), scarlet globemallow (*Sphaeralcea coccinea*), broom snakeweed (*Gutierrezia sarothrae*), prickly pear cactus (*Opuntia* sp.), yellow pincushion cactus (*Chaenactis* sp.), hedgehog cactus (*Echinocereus* sp.), prairie sagewort (*Artemisia frigida*), and Wyoming big sagebrush (*Artemisia tridentata* var. *wyomingensis*). Wyoming big sagebrush is a common shrub of this grass community in the PRB (Knight 1994).

Cheatgrass is ubiquitous within both the mixed grass understory and the sagebrush shrubland. In some parts of the FCPA, in response to fire and other disturbances (grazing, livestock bedgrounds, and oil and gas operations), Cheatgrass has become a monoculture.

Sagebrush Shrubland

Sagebrush shrubland includes a combination of sparse, moderately dense, and dense Wyoming sagebrush crown closure with a variety of understory grasses and forbs. The sagebrush shrubland is widely distributed and occupies a large part of the FCPA. Plant species seen in this community include Wyoming big sagebrush, snowberry (*Symphoricarpos albus*), skunkbush sumac (*Rhus trilobata*), junegrass, prickly pear cactus, scarlet globemallow, and rabbitbrush (*Chrysothamnus* spp.).

Juniper Woodland

The juniper woodland vegetation type primarily includes Rocky Mountain juniper (*Juniperus scopulorum*) with widely scattered ponderosa pine (*Pinus ponderosa*) and a sagebrush/grass understory. This vegetation type is encroaching into the sagebrush shrubland and herbaceous rangeland types.

Noxious Weeds

Noxious weeds present in the FCPA include diffuse knapweed (*Centaurea diffusa*), leafy spurge (*Euphorbia esula*), Russian knapweed (*Acroptilon repens*), Scotch thistle (*Onopordum acanthium*), spotted knapweed (*Centuria stoebe*), and tamarisk (saltcedar; *Tamarix* sp.). These species primarily occur along the Powder River. Canada thistle (*Cirsium arvense*), cheatgrass, Dalmatian toadflax (*Linaria dalmatica*), field bindweed (*Convolvulus arvensis*), and houndstongue (*Hieracium* sp.) are also present in the FCPA.

Rock-Bare Soil

Rock-bare soil is rock, roads, sandbars, eroded gullies, or bare ground with less than 10% vegetation.

Water

Water includes a combination of livestock ponds and streams or open water in wetlands.

Trends

Increasing pressure on native vegetation habitats will continue with increasing coalbed natural gas (CBNG) and conventional oil and gas development. Native vegetation clearing for increasing CBNG development will encourage the establishment of opportunistic invasive species. Noxious weeds are increasing on all lands throughout the state, regardless of surface ownership. The potential for noxious weeds to continue spreading to new areas is great.

Noxious Weeds

Noxious weed management is mandated on federal lands by the Federal Noxious Weed Act of 1974 and the Carson-Foley Act of 1968.

3.3. SOIL PRODUCTIVITY

Soils within the FCPA have developed in residual material and alluvium in a climatic regime characterized by cold winters, warm summers, and low precipitation. The upland soils are derived from both residual material (flat-lying, interbedded sandstone, siltstone, and shale) and stream alluvium. Valley soils have developed in unconsolidated stream sediments including silt, sand, and gravel (BLM 2003a). Exposed bedrock is present on steep slopes.

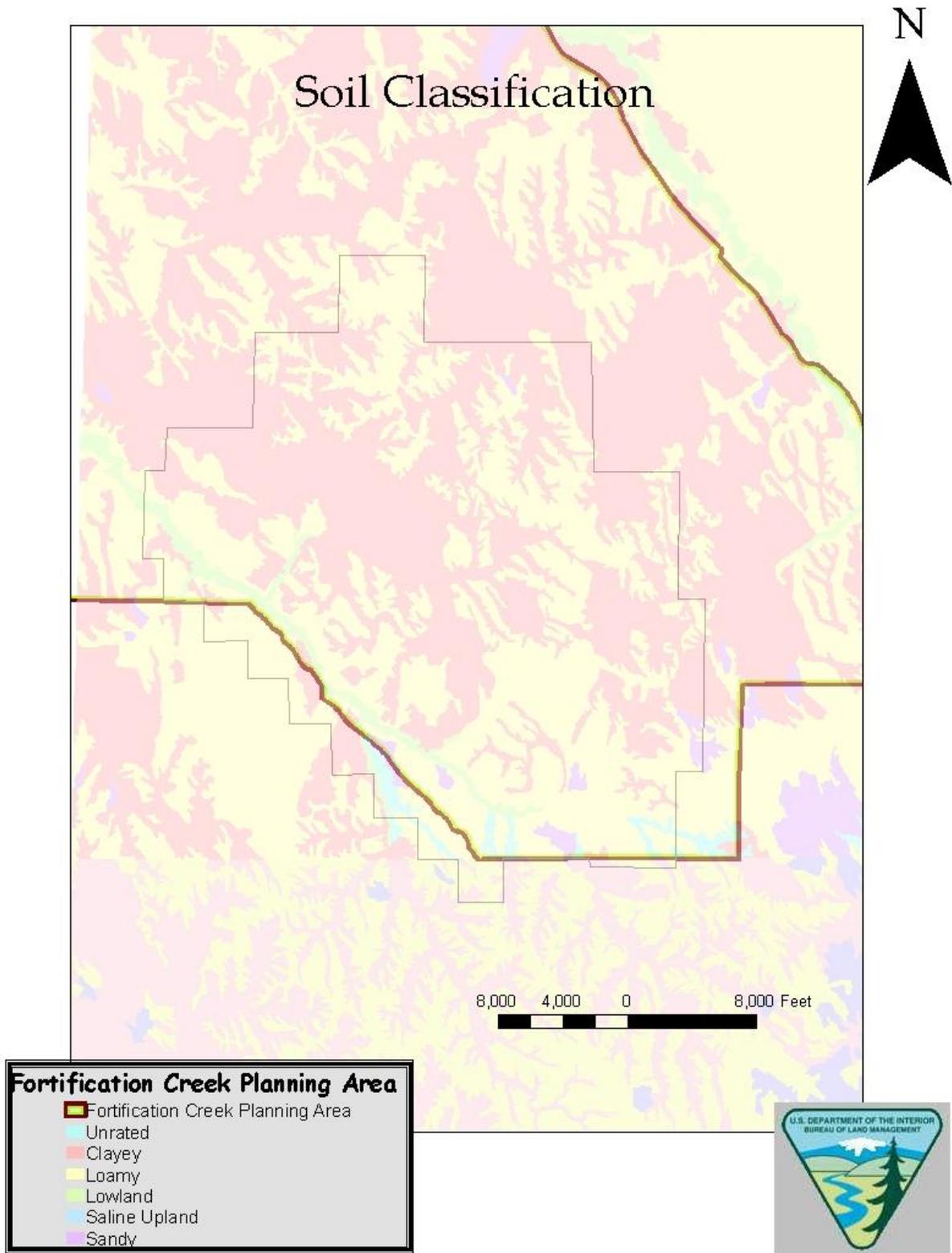
3.3.1. Affected Environment

The FCPA HIP Area is included in the soil surveys of Campbell, Johnson, and Sheridan counties. The soil complexes present in the FCPA HIP Area are shown on Figure 3-2 and summarized in Table 3-2. Soils in the project area are generally upland soils, but valley and stream terrace soils are locally present. Rock outcrop (sandstone and shale) and clinker have poor revegetation potential, but provide valuable wildlife habitat because of their irregular terrain (BLM 2003a). The Wyoming Standards for Healthy Public Rangelands (BLM 1995a) include resource goals for maintaining healthy ecosystems. Standard #1 reads that soils are stable and allow for water infiltration to provide for optimal plant growth and minimal surface runoff. The following factors contribute to soil stability.

Table 3- 2 Soil Classifications

Table 3-2 Soil Classification in the FCPA Habitat Improvement Project Area		
Soil Class	Total Area (acres)	Percentage of FCPA Habitat Improvement Project Area
Loamy (Ly) 10-14 NP	9407	47.7%
Shallow Clayey (SwCy) 10-14 NP	7666	38.9%
Other	2629	13.4%

Figure 3-3 Soil Classification



Water Erosion Hazard

Soils that have potential water erosion hazards are classified based on soil permeability classes, K-factor, and slope. K-factor is one of six factors used in the Universal Soil Loss Equation to predict annual rate of soil loss due to water erosion. Soil structure; percentage of silt, sand, and organic matter; and permeability all affect the K-factor of a soil. The higher the K-factor value, the more susceptible the soil is to water erosion. These values were calculated for soil types in the FCPA HIP Area based on the NRCS Soil Survey Geographic (SSURGO) data.

Twenty-nine percent of the FCPA HIP Area contains slopes of 25% and greater. At slopes greater than 25%, most soil types are subject to water erosion; only the most permeable and lowest K-factor soils are not subject to water erosion. Soils with severe water erosion hazard generally coincide with slopes greater than or equal to 25% in the FCPA HIP Area.

Although removal of cheatgrass could result in increased erosion in the years it takes the native vegetation to rebound, the likely hood of significant erosion is minimal due to the amount of native vegetation and the biological crust still present in the FCPA HIP Area.

Biological Crust

Biological crusts are a living community of bacteria, microfungi, cyanobacteria, green algae, mosses, liverworts, and lichens that grow on or just below the soil surface. Biological crusts can heavily influence the morphology of the soil surface, stabilize soil, fix carbon and nitrogen, and can either increase or decrease infiltration. The percent cover and the components of the crust can vary across short distances.

Biological crusts are present in the FCPA HIP Area, particularly in areas with shallow soils. These crusts have not been well studied in the area; therefore, their current extent or survival trend is unknown.

3.4. WATER QUALITY

Discussion of ground water, watersheds, riparian areas, and water bodies as well as the affected environment of water quality can be found in the BLM, Invasive Species Management Environmental Assessment (2010), EA# WYW070-09-099, (3.4).

3.5. WILDLIFE

3.5.1. Affected Environment

This environmental analysis incorporates wildlife information from the PRB FEIS (2003) by reference.

3.5.1.1. Big Game

Big game species within the PRB include elk, pronghorn antelope, mule deer, and white-tailed deer; moose are found in the Big Horn Mountains. Discussions of big game habitat and population trends are available in the Fortification Creek Area Draft Resource Management Plan Amendment Environmental Assessment 2011 (Chapter 3).

Although the Fortification Creek Area Draft Resource Management Plan Amendment Environmental Assessment 2011 is only in draft form, the draft is available to the public and is in its final stages. Analysis within the Draft RMP has is not expected to change. This FCPA HIP EA is an analysis of the potential impacts and not a decision. Therefore using the analysis of big game from the Fortification Creek Area Draft Resource Management Plan Amendment Environmental Assessment is adequate for this EA.

3.5.1.2. Aquatics

Discussion of aquatic environment can be found in the BLM, Invasive Species Management Environmental Assessment (2010), EA# WYW070-09-099, (3.5.1.2).

3.5.1.3. Migratory Birds

Migratory birds of management concern are identified in the PRB FEIS (3-150 to 3-153) with discussion on population trends.

3.5.1.4. Raptors

Range, distribution, and population summaries of the most common raptors within the Powder River Basin are provided in the PRB FEIS (3-141 to 3-148).

3.5.1.5. Threatened and Endangered and Sensitive Species

3.5.1.5.1. Threatened and Endangered

This environmental analysis incorporates water quality information from the BLM, Invasive Species Management Environmental Assessment (2010), EA# WYW070-09-099, by reference.

3.5.1.5.1.1. Ute's Ladies Tresses Orchid

Ute's ladies tresses orchid habitat is discussed the BLM, Invasive Species Management Environmental Assessment (October 26, 2009), EA# WYW070-09-099, (3.5.1.5.1.1)..

3.5.1.5.1.2. Greater Sage-grouse

Greater Sage-grouse habitat and lek attendance can be found in the BLM, Invasive Species Management Environmental Assessment (2010), EA# WYW070-09-099, (3.5.1.5.1.2).

3.6. CULTURAL PROPERTIES

3.6.1. Affected Environment...

Cultural properties can be found in the BLM, Invasive Species Management Environmental Assessment (2010), EA# WYW070-09-099, (3.6).

4. ENVIRONMENTAL EFFECTS

This section describes the environmental effects of the proposed actions, alternative A and alternative B. The effects analysis addresses the direct and indirect effects of implementing the proposed actions, the cumulative effects of the proposed actions, identifies and analyzes mitigation measures (COAs), and discloses any residual effects remaining following mitigation.

4.1. Invasive Plant Species- Brome Species (*Bromus tectorum*, *B. japonicus*)

Alternative A – Proposed Action

Direct and Indirect Effects

The *Proposed Action* identifies treatment of cheatgrass with herbicide treatments. This alternative would result in control of cheatgrass where herbicide treatment is conducted resulting in reduced cheatgrass infestations in terms of both number and size of infestations. Mitigation is always identified and disclosed in these analyses, including site specific measures to reduce any undesirable effects.

Cumulative Effects

Vectors (livestock, vehicles, recreationists, water, wind, wildlife) and disturbances (roads, natural gas development, grazing, interstate pipelines, fuel treatments, water developments, recreation developments, etc.) will continue to be present in the BFO, FCPA HIP Area. These factors have contributed in the past and currently to the establishment of cheatgrass populations on the BLM lands. Project-specific mitigations, incorporated into all new projects help to reduce the risk of new infestations and the spread of cheatgrass associated with new disturbance. Small acreage developments on adjacent lands, streams and watersheds that traverse differing lands owners and, interstate corridors can contribute to the introduction of cheatgrass over time.

Residual Effects

With the removal of cheatgrass there is a potential of creating areas where other invasive species and/or noxious weeds could establish.

Mitigation Measures

- Continued monitoring and treatment, as appropriate, will insure objectives of the *proposed action* are implemented as planned and other invasive species and/or noxious weed do not establish.

Alternative B – No Use of Herbicides – No Action

Direct and Indirect Effects

A lack of control efforts, would allow cheatgrass to continue to spread and increase, eventually becoming impossible to eradicate. Seeds from cheatgrass populations will continue to be transported to and infest new sites throughout the area. Cheatgrass will increasingly impact native ecosystems, affecting floral and faunal diversity, including sensitive species, as well as surface water availability. Native plant diversity and wildlife habitat quality will be significantly reduced over time due to increasing dominance by cheatgrass. No existing cheatgrass or populations would be controlled, eradicated, or reduced under this alternative.

Cumulative Effects

Under the *no action* alternative, existing infestations will continue to spread unchecked, gaining increasing vegetative dominance over the long term, contributing significantly to the cumulative effects of past and present cheatgrass infestations. The *proposed action* alternative would have less cumulative effects overall than the *no action* alternative.

Residual Effects

There is a high risk that seeds from cheatgrass will migrate off site, resulting in increased infestations and subsequent mechanical and chemical treatments over a wider area adjacent to BLM land. Increased populations and subsequent spread onto non-BLM lands will result in greater herbicide use over the long term, vs. controlling of cheatgrass sources on the BLM now. Herbicide use in the region could potentially be higher overall as cheatgrass spread off BLM land, and control efforts are implemented on adjacent lands, resulting in an increased risk of non-target species exposure to herbicides and/or residues.

4.2. NATIVE VEGETATION

Alternative A – Proposed Action

Direct and Indirect Effects

Imazapic can be used for treating cheatgrass selectively. The ability to damage or kill only certain plant species or families but not others makes an herbicide selective. The use of imazapic in the fall and at correct rates is selective to cheatgrass.

Plants tolerant to imazapic but will initially show a slowed growth period following treatment. Reduced ALS activity will occur but because they are tolerant they metabolize the imazapic molecule and overcome the reduction protein synthesis. For a short period of time the protein synthesis is slowed but photosynthesis still occurs and the plant stores carbohydrates. The higher sugar content makes these plants attractive to grazing animals. If plants experience environmental stress in addition to the herbicide, growth recovery can be delayed. Woody species such as sagebrush and juniper as well as an assortment of forbs are example of tolerant plants. The product label, which is included in the Pesticide Use Proposal, includes a complete list of tolerant plants.

Risk to off-site plants from spray drift is greater under scenarios with smaller buffer zones and application from greater heights (i.e., aerial application or ground application with a high boom); although drift can be controlled with application during no to minimal wind conditions and bigger droplet size. There is a risk of damage to native plants from accidental herbicide spills under this alternative. In the event of a

spill, effects would range from decreased productivity or injury to plant death. This risk is minimized through the use of the standard operating procedures and following label requirements when applying herbicides.

Aerial application is utilized in the field office for those species that inhabit large acreages in a variety of terrain. Topography and expanse of infestations makes them almost unattainable for treatment by motorized vehicles with booms including ATV's, and hand/back pack application. Buffer zones around water sources are 100 feet unless a greater distance is specified on the label. The BFO preformed similar projects on grasshoppers and Mormon crickets in 2010 to prevent forage destruction and mosquitoes to prevent the outbreak of West Nile Virus.

This alternative provides the best long term protection overall for native vegetation communities, due to the greater effectiveness of invasive plant control.. Under this alternative, cheatgrass will be controlled selectively throughout FCPA HIP Area, resulting in improved quality of native vegetation communities in these areas. Additional areas should experience some habitat improvement, with at least partial control, and containment of further spread.

Cumulative Effects

Under the *proposed action*, expanded use of imazapic to treat cheatgrass does have the potential to harm or kill non-target plants. A treatment schedule for persistent infestations anticipates Imazapic application for up to 4 years, this would increase the potential for non-target plants being negatively affected (harmed, weakened, or killed) by herbicides.

Over several years time, the cumulative effects of not treating cheatgrass would be biologically significant and outweigh most concerns about effects on non-target plants and native plant communities. Overall, treatment would have an insignificant biological effect as far as harming native plants and plant communities if the project is implemented with the appropriate mitigation measures. Treatments could be expected to benefit native plants and plant communities and special status plants by restoring native habitats and plant communities.

This proposal contributes an insignificant amount to the cumulative level of risk to native plant communities from herbicides in the region.

Mitigation Measures

- Monitoring would occur to ensure objectives of the *proposed action* are implemented as planned. Post-treatment reviews would occur on a sample basis to determine whether treatments were effective.
- Mitigation measures will follow the Fortification Creek Area Draft Resource Management Plan Amendment Environmental Assessment 2011, (Appendix B, Performance Based Standards: Goals, Objectives, Indicators, and recommendations).
- The BFO will be notified prior to treatments to insure the *Standard Operating Procedures* are appropriately applied.
- Re-treatment and active restoration prescriptions would be developed based on post treatment results.

Residual Effects

Some grass damage can occur but is usually minor due to the desirable grasses being in dormant stage in August and September. The native grasses should recover the following year as more moisture is present and competition from the cheatgrass is reduced. Desirable forage will fill in where the cheatgrass was.

Alternative B – No Use of Herbicides – No Action

Direct and Indirect Effects

There would be no risk of herbicide damage to native plants under this alternative. There would be continued increase in cheatgrass populations in the FCPA HIP Area. This degradation of native plant communities could result from direct competition for moisture, light, and/or nutrients between cheatgrass and native plant species, as well as from changes in ecosystem processes such as fire and flooding. Some areas would continue to be cheatgrass infested, with reduced native plant diversity and habitat quality. These areas would likely increase over time across the BFO FCPA HIP, and the severity of the existing infestations would worsen, further impacting native plant communities.

Cumulative Effects

As new activities are undertaken, measures are implemented to minimize the risk of new cheatgrass infestations or further spread of existing populations. However, existing populations continue to affect native plant communities. The *no action* alternative would contribute the most to the cumulative effects of past, present, and reasonably foreseeable actions on native plant communities, as one of the more significant existing threats to native communities, i.e., cheatgrass spread would continue to the greatest degree under this alternative.

Residual Effects

Absence of control efforts would result in degradation of native ecosystems. Over the long term, the lack of control efforts in the BFO could also contribute to a loss or degradation of native plant communities off BLM lands, as uncontrolled cheatgrass populations spread onto adjacent lands. This could lead to greater overall herbicide use and risk to non-target species in the region, as control efforts on adjacent lands are accelerated to deal with weeds spreading off BLM lands.

4.3. SOIL PRODUCTIVITY

Alternative A – Proposed Action

Direct and Indirect Effects

Imazapic may indirectly affect soil through plant removal resulting in changes in physical and biological soil parameters. As vegetation is removed, there is less plant material to intercept rainfall and less to contribute organic material to the soil. Loss of plant material and soil organic matter can increase the risk of soil susceptibility to wind and water erosion. The risk for increased erosion would be temporary, lasting only until native vegetation was reestablished. If imazapic treatments lead to revegetation with native plants, soil stability may be improved relative to sites dominated by cheatgrass. Imazapic treatments would benefit soil by removing cheatgrass and allowing restoration of native vegetation and return of natural fire regimes.

Cumulative Effects

Some herbicides are metabolized by soil bacteria, while others are toxic to soil microorganisms. Little information about effects to these organisms is available. Imazapic is moderately adsorbed to soil particles and could be moved off-site with wind or mass soil movement. Imazapic is relatively water soluble and could move off-site in precipitation run off prior to being absorbed to soil.

The potential adverse effects to soils from the *proposed action* are small in comparison to the potential effects of cheatgrass themselves and other influences. In the long term, restoration of healthy native plant communities proposed in this EA will have beneficial impacts on soils.

Mitigation Measures

- Implementation monitoring would occur to ensure erosion does not occur due to the removal of cheatgrass in highly erosive soils. If erosion is found, stabilization measures would be developed.

- Mitigation measures will follow the Fortification Creek Area Draft Resource Management Plan Amendment Environmental Assessment 2011, (Appendix B, Performance Based Standards: Goals, Objectives, Indicators, and recommendations).

Residual Effects

Soil organisms are important to the human environment because they could affect soil productivity. Imazapic does not have notable effects to overall long term soil productivity or permanent impairment of soil ecosystems. Information about specific herbicide effects to each of the myriad of soil organisms is scarce. Therefore, caution will be used when applying these chemicals to soils supporting biological soil crusts.

Alternative B – No Use of Herbicides – No Action

Direct and Indirect Effects

Cheatgrass would have negative effects on soil properties. Cheatgrass may increase the proportion of bare ground, increase or decrease the amount of organic matter in the soil, deplete the soil of nutrients or enrich the soil with certain nutrients, change fire frequency, and produce toxic herbicides that affect soil organisms. Some of these changes may be difficult to reverse and could lead to long-term soil degradation and difficulty in re-establishing native vegetation.

Cumulative Effects

The cumulative effects of cheatgrass infestation could be dramatic and irreversible. Soil lost to erosion may take years to replace. The loss of soil biota also could lead to degradation of soil properties that are not easily re-established. Changes in the soil biota could lead to changes in nutrient cycling that lead to a loss of nutrients from the ecosystem. Preventing the spread of cheatgrass would have a positive impact on soils.

Residual Effects

If treatments are not applied environmental degradation such as nutrient decrease, erosion, increased bare ground, and decreased litter layer, could occur. As such effects occur; conditions of the environment will be more ideal cheatgrass infestation to occur.

Soil compaction, loss of microbiotic crusts, formation of hydrophobic surface layer on soil, and loss of volatilized nitrogen, phosphorus and potassium may have longer term effects and need to be minimized or eliminated through site-specific *Standard Operating Procedures*.

Many other natural (i.e., wildland fire) and human influences (land development and use) may result in adverse effects on soils and soil productivity.

WATER QUALITY

Potential direct, indirect, and cumulative impacts and mitigation measures were disclosed in the U.S. Department of the Interior 2003, BLM. Invasive Species Management Environmental Assessment. 2010. EA# WYW070-09-099 (3.4).

4.4. WILDLIFE

4.4.1. Big Game

Alternative A – Proposed Action

Direct and indirect Effects/Cumulative impacts

Wildlife direct, indirect and cumulative impacts in this environmental analysis are provided in the Fortification Creek Area Draft Resource Management Plan Amendment Environmental Assessment 2011 (Chapter 4).

Mitigation Measures

Mitigation measures will follow the Fortification Creek Planning Area Area Draft Resource Management Plan Amendment Environmental Assessment 2011, (Appendix A, Fortification Creek Planning Area Reclamation Monitoring and Reporting Guide).

Alternative B – No Herbicide Use – No Action**Direct and indirect Effects/Cumulative impacts**

Wildlife direct, indirect and cumulative impacts in this environmental analysis are provided in the Fortification Creek Area Draft Resource Management Plan Amendment Environmental Assessment 2011(Chapter 4).

4.4.2. Aquatics

Discussions of direct, indirect, and cumulative impacts to water quality are available in the BLM Invasive Species Management Environmental Assessment (2010), EA# WYW070-09-099, by reference.

Alternative A – Proposed Action**Direct and indirect Effects/Cumulative impacts/Mitigation Measures**

Water quality direct, indirect, cumulative impacts and mitigation measures are provided in the BLM, Invasive Species Management Environmental Assessment (2010), EA# WYW070-09-099, (3.5.1.2).

Alternative B – No Herbicide Use – No Action**Direct and indirect Effects/Cumulative impacts**

Water quality direct, indirect, cumulative impacts and mitigation measures are provided in the BLM, Invasive Species Management Environmental Assessment (2010), EA# WYW070-09-099, (3.5.1.2).

4.4.3. Migratory Birds**Direct and indirect Effects/Cumulative impacts**

Discussions of direct, indirect, and cumulative impacts to migratory birds are available in the PRB FEIS (2003) by reference.

Alternative A – Proposed Action**Direct and indirect Effects/Cumulative impacts**

Migratory birds direct, indirect, cumulative impacts and mitigation measures are provided in the PRB FEIS (2003) (4-234 through 4-235).

Alternative B – No Herbicide Use – No Action**Direct and indirect Effects/Cumulative impacts**

Migratory birds direct, indirect, cumulative impacts and mitigation measures are provided in the PRB FEIS (2003) (4-234 through 4-235).

4.4.4. Raptors**Alternative A – Proposed Action****Direct and indirect Effects/Cumulative impacts**

Raptors direct, indirect, cumulative impacts and mitigation measures are provided in the PRB FEIS (2003) (4-217 through 4-221).

Alternative B – No Herbicide Use – No Action**Direct and indirect Effects/Cumulative impacts**

Raptors direct, indirect, cumulative impacts and mitigation measures are provided in the PRB FEIS (2003) (4-217 through 4-221).

4.4.4.1. Threatened and Endangered and Sensitive Species

This environmental analysis incorporates water quality information from the BLM, Invasive Species Management Environmental Assessment (2010), EA# WYW070-09-099, by reference.

4.4.4.1.1. Ute's Ladies Tresses Orchid

Alternative A – Proposed Action

Direct and indirect Effects/Cumulative impacts

Ute's Ladies Tresses direct, indirect, cumulative impacts and mitigation measures are provided in the BLM, Invasive Species Management Environmental Assessment (2010), EA# WYW070-09-099 (3.5.1.5.1.1).

Alternative B – No Herbicide Use – No Action

Direct and indirect Effects/Cumulative impacts

Ute's Ladies Tresses direct, indirect, cumulative impacts and mitigation measures are provided in the BLM, Invasive Species Management Environmental Assessment (2010), EA# WYW070-09-099 (3.5.1.5.1.1).

4.4.4.1.2. Greater Sage-grouse

Alternative A – Proposed Action

Direct and indirect Effects/Cumulative impacts

Sage-grouse direct, indirect, cumulative impacts and mitigation measures are provided in the BLM, Invasive Species Management Environmental Assessment (2010), EA# WYW070-09-099 (3.5.1.5.1.2).

Alternative B – No Herbicide Use – No Action

Direct and indirect Effects/Cumulative impacts

Sage-grouse direct, indirect, cumulative impacts and mitigation measures are provided in the BLM Invasive Species Management Environmental Assessment (2010), EA# WYW070-09-099 (3.5.1.5.1.2).

4.5. CULTURAL PROPERTIES

Alternative A – Proposed Action

Direct and indirect Effects

Cumulative impacts

Mitigation Measures

Residual Effects

Alternative B – No Herbicide Use – No Action

Direct and indirect Effects

Cumulative impacts

5. CONSULTATION AND COORDINATION

Agencies summarized in Table 5.1 were consulted on the proposed project to confirm compliance with applicable laws and regulations.

Table 5.1 Consultations

Contact	Title	Organization
Jennifer L. Vollmer	Weed Scientist/Consultant	Greyskull Enterprise, LLC
Colleen Faber	Reclamation Supervisor	Anadarko Petroleum Corporation
Rich Bayers	Owner/operator Certified Pesticide Applicator	Back Country Spraying, LLC
Pauline Schuette	US Fish and Wildlife Service Wildlife Biologist	US Fish and Wildlife Service
Bud Stewart	Dept. Energy Development Biologist	Wyoming Game & Fish Dept.
Bert Jellison	Terrestrial Habitat Coordinator	WY Game and Fish Department
Ken Henke	Weed and Pest Coordinator	BLM
Lynn Jahnki	Wildlife Management Coordinator	US Fish and Wildlife Service

6. REFERENCES AND AUTHORTIES

Parker, Patricia and Thomas King. Guideline for Evaluating and Documenting Traditional Cultural Properties. National Register Bulletin #38 1998.

Programmatic Agreement Among the Bureau of Land Management, Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers Regarding the Manner in which BLM Will Meet Its Responsibilities Under the National Historic Preservation Act – State Protocol 2006.

U.S. Department of the Interior 2001, Bureau of Land Management, Buffalo Field Office. Approved Resource Management Plan for Public Lands Administered by the Bureau of Land Management Buffalo Field Office April 2001.

U.S. Department of the Interior 2003, Bureau of Land Management. Powder River Oil and Gas Project Environmental Impact Statement and Resource Management Plan Amendment. April 30, 2003.

U.S. Department of the Interior 2003, Bureau of Land Management. Invasive Species Management Environmental Assessment. 2010.

7. LIST OF INTERDISCIPLINARY TEAM PREPARES AND REVIEWERS

Meleah Corey, Natural Resource Specialist
Casey Freise, Supervisory Natural Resource Specialist
Keith Anderson, Hydrologist
Seth Lambert, Archaeologist
Janelle Gonzales, Rangeland Management Specialist
Jim Verplancke, Acting NRS Supervisor, Resources/Wildlife Biologist
John Kelley, Planning and Environmental Coordinator
Duane W. Spencer, Field Manager

Interdisciplinary Team Lead: Meleah Corey

APPENDIX A**Key Issues Identified During the Scoping of the *Vegetation Treatments Using Herbicides in 17 Western States, Programmatic Environmental Impact Statement***

Program Purpose and Need
<ol style="list-style-type: none"> 1. Focus on long-term ecosystem sustainability and biological diversity; clearly define restoration objectives 2. Need to address all invasive species, not just weeds 3. Evaluate land use impacts, such as grazing and fire suppression, on the decline of ecosystem health 4. Focus on addressing the causes rather than treating the symptoms 5. Address how PEIS will impact Resource Management Plans and other local planning 6. Work closely with agencies, conservation groups, and private landowners on vegetation management
Proposed Action
<ol style="list-style-type: none"> 1. Ensure that adequate funds are available to treat enough land and monitor treatment success 2. Consider all treatment methods 3. Naturally-occurring fires should be allowed to burn and restored to public lands 4. Use newer, less toxic herbicides where feasible, and limit use or avoid use of herbicides 5. Describe how herbicides were chosen and evaluated in the PEIS 6. Describe where acres will be treated and method of accounting for acres that receive multiple treatments
Other Potential Alternatives
<ol style="list-style-type: none"> 1. Reduce or eliminate the use of herbicides; apply from the ground rather than from the air 2. Fuels reduction should only occur in WUI or where there is a threat of significant wildfire 3. Treat more acres; treat fewer acres 4. Develop a no-grazing alternative; develop a no-logging alternative; develop a no-OHV alternative 5. Develop restrictions on motorized vehicle use on public lands 6. Develop an alternative based on an ecosystem management approach
Restoration Goals and Best Management Practices
<ol style="list-style-type: none"> 1. Identify restoration objectives and focus on preventative measures to eliminate the causes of land degradation 2. Restoration efforts should focus on restoring natural disturbance regimes and ecosystem processes 3. Improve management of public lands for multiple use and maximum public benefit 4. Use native plants and certified native seed, where practical, for revegetation 5. Restrict grazing on lands that are being rehabilitated or that have not been impacted by livestock 6. Monitor success of treatments and establish performance measures to determine treatment success 7. Include public education as part of the vegetation treatment program

Environmental Consequences

1. Address the impacts on air quality from prescribed burning
2. Address the impacts of herbicides on water quality
3. Assess the role of fire in contributing to weed growth
4. Evaluate the effects of herbicide treatments on non-target species
5. Address the role of grazing in controlling weeds and other invasive vegetation and hazardous fuels
6. Vegetation treatments should focus on restoring habitat and natural ecological processes
7. Address the impacts of treatments on species of concern
8. Describe how treatments will occur in wilderness areas
9. Address the impacts of prescribed fire on powerline operations and safety
10. Evaluate the impacts to subsistence crops used by Native Americans and Alaska Natives
11. Address the risks to humans and fish and wildlife from use of herbicides and smoke from prescribed fire
12. Address how will vegetation treatments will affect the local economy

APPENDIX B

Standard Operating Procedures from the *Vegetation Treatments Using Herbicides in 17 Western States, Programmatic Environmental Impact Statement* adapted for the Buffalo Field Office

BLM Activity	Preventative Measures
Project Planning	<ul style="list-style-type: none"> • Incorporate prevention measures into project layout and design, alternative evaluation, and project decisions to prevent the introduction or spread of weeds. • Determine prevention and maintenance needs, including the use of herbicides, at the onset of project planning. • Before ground-disturbing activities begin, inventory weed infestations and prioritize areas for treatment in project operating areas and along access routes. • Remove sources of weed seed and propagules to prevent the spread of existing weeds and new weed infestations, where possible. • Pre-treat high-risk sites for weed establishment and spread before implementing projects. • Post weed awareness messages and prevention practices at strategic locations such as trailheads, roads, boat launches, and public land kiosks. • When possible, coordinate project activities with nearby herbicide applications to maximize the cost effectiveness of weed treatments.
Project Development	<ul style="list-style-type: none"> • Minimize soil disturbance to the extent practical, consistent with project objectives. • Avoid creating soil conditions that promote weed germination and establishment. • To prevent weed germination and establishment, retain native vegetation in and around project activity areas and keep soil disturbance to a minimum, consistent with project objectives. • Locate, use and maintain weed-free project staging areas. Avoid or minimize all types of travel through weed-infested areas, or restrict travel to periods when the spread of seeds or propagules is least likely. • Prevent the introduction and spread of weeds caused by moving weed-infested sand, gravel, borrow, and fill material. • Inspect material sources on site, and ensure that they are weed-free before use and transport, if possible. Treat weed-infested sources to eradicate weed seed and plant parts, and strip and stockpile contaminated material before any use of pit material. • Prevent weed establishment by not driving through weed-infested areas. • Inspect and document weed establishment at access roads, cleaning sites, and all disturbed areas; control infestations to prevent weed spread within the project area. • Avoid acquiring water for dust abatement where access to the water is through weed-infested sites. <p>• Identify sites where equipment can be cleaned. Clean equipment</p>

	<p>before entering public lands, where possible.</p> <ul style="list-style-type: none"> • Clean all equipment before leaving the project site if operating in areas infested with weeds, where possible. • Inspect and treat weeds that establish at equipment cleaning sites. • Ensure that rental equipment is free of weed seed. • Inspect, remove, and properly dispose of weed seed and plant parts found on workers’ clothing and equipment. Proper disposal entails bagging the seeds and plant parts and incinerating them.
<p>Revegetation</p>	<ul style="list-style-type: none"> • Include weed prevention measures, including project inspection and documentation, in operation and reclamation plans. • Retain bonds until reclamation requirements, including weed treatments, are completed, based on inspection and documentation. • To prevent conditions favoring weed establishment, reestablish vegetation on bare ground caused by project disturbance as soon as possible using either natural recovery or artificial techniques. • Maintain stockpiled, uninfested material in a weed-free condition. • Revegetate disturbed soil (except travel ways on surfaced projects) in a manner that optimizes plant establishment for each specific project site. For each project, define what constitutes disturbed soil and objectives for plant cover revegetation. Revegetation may include topsoil replacement, planting, seeding, fertilization, liming, and weed-free mulching, as necessary. • Stockpile topsoil and replace it on disturbed areas (e.g., road embankments or landings). • Use native material where appropriate and feasible. Use certified weed-free or weed-seed-free hay or straw where certified materials are required and/or are reasonably available. • Provide briefings that identify operational practices to reduce weed spread (for example, avoiding known weed infestation areas when locating fire lines). • Evaluate options, including closure, to regulate the flow of traffic on sites where desired vegetation needs to be established. Sites could include road and trail rights-of-way (ROW), and other areas of disturbed soils.

Standard Operating Procedures for Applying Herbicides	
Resource Element	Standard Operating Procedure
<i>Guidance Documents</i>	<i>BLM Handbook H-9011-1 (Chemical Pest Control); and manuals 1112 (Safety), 9011 (Chemical Pest Control), 9012 (Expenditure of Rangeland Insect Pest Control Funds), 9015 (Integrated Weed Management), and 9220 (Integrated Pest Management)</i>
General	<ul style="list-style-type: none"> • Prepare operational and spill contingency plan in advance of treatment. • Conduct a pretreatment survey before applying herbicides. • Select herbicide that is least damaging to the environment while providing the desired results. • Select herbicide products carefully to minimize additional impacts from degradates, adjuvants, inert ingredients, and tank mixtures. • Apply the least amount of herbicide needed to achieve the desired result. • Follow herbicide product label for use and storage. • Have licensed applicators apply herbicides. • Use only USEPA-approved herbicides and follow product label directions and “advisory” statements. • Review, understand, and conform to the “Environmental Hazards” section on the herbicide product label. This section warns of known pesticide risks to the environment and provides practical ways to avoid harm to organisms or to the environment. • Consider surrounding land use before assigning aerial spraying as a treatment method and avoid aerial spraying near agricultural or densely populated areas. • Minimize the size of application area, when feasible. • Comply with herbicide-free buffer zones to ensure that drift will not affect crops or nearby residents/landowners. • Post treated areas and specify reentry or rest times, if appropriate. • Notify adjacent landowners prior to treatment. • Keep a copy of Material Safety Data Sheets (MSDSs) at work sites. MSDSs are available for review at http://www.cdms.net/. • Keep records of each application, including the active ingredient, formulation, application rate, date, time, and location. • Avoid accidental direct spray and spill conditions to minimize risks to resources. • Avoid aerial spraying during periods of adverse weather conditions (snow or rain imminent, fog, or air turbulence). • Make helicopter applications at target airspeed of 40 to 50 miles per hour (mph), and at about 30 to 45 feet above ground. • Take precautions to minimize drift by not applying herbicides when winds exceed >10 mph (>6 mph for aerial applications), or a serious rainfall event is imminent. • Use drift control agents and low volatile formulations. • Conduct pre-treatment surveys for sensitive habitat and special status species within or adjacent to proposed treatment areas. • Consider site characteristics, environmental conditions, and application equipment in order to minimize damage to non-target

	<p>vegetation.</p> <ul style="list-style-type: none"> • Turn off applied treatments at the completion of spray runs and during turns to start another spray run. • Refer to the herbicide product label when planning revegetation to ensure that subsequent vegetation would not be injured following application of the herbicide. • Clean OHVs to remove seeds.
<p>Air Quality See Manual 7000 (Soil, Water, and Air Management)</p>	<ul style="list-style-type: none"> • Consider the effects of wind, humidity, temperature inversions, and heavy rainfall on herbicide effectiveness and risks. • Apply herbicides in favorable weather conditions to minimize drift. For example, do not treat when winds exceed 10 mph (>6 mph for aerial applications) or rainfall is imminent. • Use drift reduction agents, as appropriate, to reduce the drift hazard. • Select proper application equipment (e.g., spray equipment that produces 200- to 800-micron diameter droplets [spray droplets of 100 microns and less are most prone to drift]). • Select proper application methods (e.g., set maximum spray heights, use appropriate buffer distances between spray sites and non-target resources).
<p>Soil See Manual 7000 (Soil, Water, and Air Management)</p>	<ul style="list-style-type: none"> • Minimize treatments in areas where herbicide runoff is likely, such as steep slopes when rainfall is expected. • Minimize use of herbicides that have high soil mobility, particularly in areas where soil properties increase the potential for mobility. • Do not apply granular herbicides on slopes of more than 15% where there is the possibility of runoff carrying the granules into non-target areas.
<p>Water Resources See Manual 7000 (Soil, Water, and Air Management)</p>	<ul style="list-style-type: none"> • Consider climate, soil type, slope, and vegetation type when developing herbicide treatment programs. • Select herbicide products to minimize impacts to water. This is especially important for application scenarios that involve risk from active ingredients in a particular herbicide, as predicted by risk assessments. • Use local historical weather data to choose the month of treatment. Considering the phenology of the target species, schedule treatments based on the condition of the water body and existing water quality conditions. • Plan to treat between weather fronts (calms) and at appropriate time of day to avoid high winds that increase water movements, and to avoid potential stormwater runoff and water turbidity. • Review hydrogeologic maps of proposed treatment areas. Note depths to groundwater and areas of shallow groundwater and areas of surface water and groundwater interaction. • Minimize treating areas with high risk for groundwater contamination. • Conduct mixing and loading operations in an area where an accidental spill would not contaminate an aquatic body. • Do not rinse spray tanks in or near water bodies. Do not broadcast

	<p>pellets where there is danger of contaminating water supplies.</p> <ul style="list-style-type: none"> • Maintain buffers between treatment areas and water bodies. Buffer widths should be developed based on herbicide- and site-specific criteria to minimize impacts to water bodies. • Minimize the potential effects to surface water quality and quantity by stabilizing terrestrial areas as quickly as possible following treatment
<p>Wetlands and Riparian Areas</p>	<ul style="list-style-type: none"> • Use a selective herbicide and a wick or backpack sprayer. • Use appropriate herbicide-free buffer zones for herbicides not labeled for aquatic use based on risk assessment guidance, with minimum widths of 100 feet for aerial, 25 feet for vehicle, and 10 feet for hand spray applications
<p>Vegetation See Handbook H-4410-1 (National Range Handbook), and manuals 5000 (Forest Management) and 9015 (Integrated Weed Management)</p>	<ul style="list-style-type: none"> • Refer to the herbicide label when planning revegetation to ensure that subsequent vegetation would not be injured following application of the herbicide. • Use native or sterile species for revegetation and restoration projects to compete with invasive species until desired vegetation establishes. • Use weed-free feed for horses and pack animals. Use weed-free straw and mulch for revegetation and other activities. • Identify and implement any temporary domestic livestock grazing and/or supplemental feeding restrictions needed to enhance desirable vegetation recovery following treatment. Consider adjustments in the existing grazing permit, to maintain desirable vegetation on the treatment site.
<p>Pollinators</p>	<ul style="list-style-type: none"> • Complete vegetation treatments seasonally before pollinator foraging plants bloom. • Time vegetation treatments to take place when foraging pollinators are least active both seasonally and daily. • Design vegetation treatment projects so that nectar and pollen sources for important pollinators and resources are treated in patches rather than in one single treatment. • Minimize herbicide application rates. Use typical rather than maximum rates where there are important pollinator resources. • Maintain herbicide free buffer zones around patches of important pollinator nectar and pollen sources. • Maintain herbicide free buffer zones around patches of important pollinator nesting habitat and hibernacula. • Make special note of pollinators that have single host plant species, and minimize herbicide spraying on those plants (if invasive species) and in their habitats.
<p>Fish and Other Aquatic Organisms See manuals 6500 (Wildlife and Fisheries Management) and 6780 (Habitat Management Plans)</p>	<ul style="list-style-type: none"> • Use appropriate buffer zones based on label and risk assessment guidance. • Minimize treatments near fish-bearing water bodies during periods when fish are in life stages most sensitive to the herbicide(s) used, and use spot rather than broadcast or aerial treatments. • Use appropriate application equipment/method near water bodies if the potential for off-site drift exists.

	<ul style="list-style-type: none"> • For treatment of aquatic vegetation, 1) treat only that portion of the aquatic system necessary to achieve acceptable vegetation management, 2) use the appropriate application method to minimize the potential for injury to desirable vegetation and aquatic organisms, and 3) follow water use restrictions presented on the herbicide label.
<p>Wildlife See manuals 6500 (Wildlife and Fisheries Management) and 6780 (Habitat Management Plans)</p>	<ul style="list-style-type: none"> • Use herbicides of low toxicity to wildlife, where feasible. • Use spot applications or low-boom broadcast operations where possible to limit the probability of contaminating non-target food and water sources, especially non-target vegetation over areas larger than the treatment area. • Use timing restrictions (e.g., do not treat during critical wildlife breeding or staging periods) to minimize impacts to wildlife
<p>Threatened, Endangered, and Sensitive Species See Manual 6840 (Special Status Species)</p>	<ul style="list-style-type: none"> • Survey for special status species before treating an area. Consider effects to special status species when designing herbicide treatment programs. • Use a selective herbicide and a wick or backpack sprayer to minimize risks to special status plants. • Avoid treating vegetation during time-sensitive periods (e.g., nesting and migration, sensitive life stages) for special status species in area to be treated.
<p>Livestock See Handbook H-4120-1 (Grazing Management)</p>	<ul style="list-style-type: none"> • Whenever possible and whenever needed, schedule treatments when livestock are not present in the treatment area. Design treatments to take advantage of normal livestock grazing rest periods, when possible. • If directed by the herbicide product label, remove livestock from treatment sites prior to herbicide application. • Use herbicides of low toxicity to livestock, where feasible. • Take into account the different types of application equipment and methods, where possible, to reduce the probability of contamination of non-target food and water sources. • Avoid use of diquat in riparian pasture while pasture is being used by livestock. • Notify lessees of the herbicide treatment project to improve coordination and avoid potential conflicts and safety concerns during implementation of the treatment. • Notify lessees of livestock grazing, feeding, or slaughter restrictions, if necessary. • Provide alternative forage sites for livestock, if possible.

<p>Cultural Resources and Paleontological Resources See handbooks H-8120-1 (Guidelines for Conducting Tribal Consultation) and H-8270-1 (General Procedural Guidance for Paleontological Resource Management), and manuals 8100 (The Foundations for managing Cultural Resources), 8120 (Tribal Consultation Under Cultural Resource Authorities), and 8270 (Paleontological Resource Management) See also: Programmatic Agreement among the Bureau of Land Management, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers Regarding the Manner in Which BLM Will Meet Its Responsibilities Under the National Historic Preservation Act</p>	<ul style="list-style-type: none"> • Follow standard procedures for compliance with Section 106 of the National Historic Preservation Act as implemented through the Programmatic Agreement among the Bureau of Land Management, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers Regarding the Manner in Which BLM Will Meet Its Responsibilities Under the National Historic Preservation Act and state protocols or 36 Code of Federal Regulations Part 800, including necessary consultations with State Historic Preservation Officers and interested tribes. • Follow BLM Handbook H-8270-1 (General Procedural Guidance for Paleontological Resource Management) to determine known Condition I and Condition 2 paleontological areas, or collect information through inventory to establish Condition 1 and Condition 2 areas, determine resource types at risk from the proposed treatment, and develop appropriate measures to minimize or mitigate adverse impacts. • Consult with tribes to locate any areas of vegetation that are of significance to the tribe and that might be affected by herbicide treatments. • Work with tribes to minimize impacts to these resources. • Follow guidance under Human Health and Safety in the PEIS in areas that may be visited by Native peoples after treatments.
<p>Visual Resources See handbooks H-8410-1 (Visual Resource Inventory) and H-8431-1 (Visual Resource Contrast Rating), and manual 8400 (Visual Resource Management)</p>	<ul style="list-style-type: none"> • Minimize the use of broadcast foliar applications in sensitive watersheds to avoid creating large areas of browned vegetation. • Consider the surrounding land use before assigning aerial spraying as an application method. • Minimize off-site drift and mobility of herbicides (e.g., do not treat when winds exceed 10 mph; minimize treatment in areas where herbicide runoff is likely; establish appropriate buffer widths between treatment areas and residences) to contain visual changes to the intended treatment area. • If the area is a Class I or II visual resource, ensure that the change to the characteristic landscape is low and does not attract attention (Class I), or if seen, does not attract the attention of the casual viewer (Class II). • Lessen visual impacts by: 1) designing projects to blend in with topographic forms; 2) leaving some low-growing trees or planting some low-growing tree seedlings adjacent to the treatment area to screen short-term effects; and 3) revegetating the site following treatment. • When restoring treated areas, design activities to repeat the form, line, color, and texture of the natural landscape character conditions to meet established Visual Resource Management (VRM) objectives.

<p>Wilderness and Other Special Areas See handbooks H-8550-1 (Management of Wilderness Study Areas (WSAs)), and H-8560-1 (Management of Designated Wilderness Study Areas), and Manual 8351 (Wild and Scenic Rivers)</p>	<ul style="list-style-type: none"> • Encourage backcountry pack and saddle stock users to feed their livestock only weed-free feed for several days before entering a wilderness area. • Encourage stock users to tie and/or hold stock in such a way as to minimize soil disturbance and loss of native vegetation. • Revegetate disturbed sites with native species if there is no reasonable expectation of natural regeneration. • Provide educational materials at trailheads and other wilderness entry points to educate the public on the need to prevent the spread of weeds. • Use the “minimum tool” to treat noxious and invasive vegetation, relying primarily on the use of ground-based tools, including backpack pumps, hand sprayers, and pumps mounted on pack and saddle stock. • Use chemicals only when they are the minimum method necessary to control weeds that are spreading within the wilderness or threaten lands outside the wilderness. • Give preference to herbicides that have the least impact on non-target species and the wilderness environment. • Implement herbicide treatments during periods of low human use, where feasible. • Address wilderness and special areas in management plans. • Maintain adequate buffers for Wild and Scenic Rivers (¼ mile on either side of river, ½ mile in Alaska).
<p>Recreation See Handbook H-1601-1 (Land Use Planning Handbook, Appendix C)</p>	<ul style="list-style-type: none"> • Schedule treatments to avoid peak recreational use times, while taking into account the optimum management period for the targeted species. • Notify the public of treatment methods, hazards, times, and nearby alternative recreation areas. • Adhere to entry restrictions identified on the herbicide product label for public and worker access. • Post signs noting exclusion areas and the duration of exclusion, if necessary. • Use herbicides during periods of low human use, where feasible.
<p>Social and Economic Values</p>	<ul style="list-style-type: none"> • Consider surrounding land use before selecting aerial spraying as a method, and avoid aerial spraying near agricultural or densely-populated areas. • Post treated areas and specify reentry or rest times, if appropriate. • Notify grazing lessees of livestock feeding restrictions in treated areas, if necessary, as per herbicide product label instructions. • Notify the public of the project to improve coordination and avoid potential conflicts and safety concerns during implementation of the treatment. • Control public access until potential treatment hazards no longer exist, per herbicide product label instructions. • Observe restricted entry intervals specified by the herbicide product label. • Notify local emergency personnel of proposed treatments.

	<ul style="list-style-type: none"> • Use spot applications or low-boom broadcast applications where possible to limit the probability of contaminating non-target food and water sources, especially vegetation over areas larger than the treatment area. • Consult with Native American tribes to locate any areas of vegetation that are of significance to the tribes and Native groups and that might be affected by herbicide treatments. • To the degree possible within the law, hire local contractors and workers to assist with herbicide application projects and purchase materials and supplies, including chemicals, for herbicide treatment projects through local suppliers. • To minimize fears based on lack of information, provide public educational information on the need for vegetation treatments and the use of herbicides in an integrated pest management program for projects proposing local use of herbicides.
<p>Rights-of-way</p>	<ul style="list-style-type: none"> • Coordinate vegetation management activities where joint or multiple use of a ROW exists. • Notify other public land users within or adjacent to the ROW proposed for treatment. • Use only herbicides that are approved for use in ROW areas.
<p>Human Health and Safety</p>	<ul style="list-style-type: none"> • Establish a buffer between treatment areas and human residences based on guidance given in the HHRA, with a minimum buffer of ¼ mile for aerial applications and 100 feet for ground applications, unless a written waiver is granted. • Use protective equipment as directed by the herbicide product label. • Post treated areas with appropriate signs at common public access areas. • Observe restricted entry intervals specified by the herbicide product label. • Provide public notification in newspapers or other media where the potential exists for public exposure. • Have a copy of MSDSs at work site. • Notify local emergency personnel of proposed treatments. • Contain and clean up spills and request help as needed. • Secure containers during transport. • Follow label directions for use, storage and container disposal. • Dispose of unwanted herbicides promptly and correctly.

APPENDIX C**Site Specific Conditions of Approval (COAs)**

1. The BLM Authorized Officer NRS will be contacted prior to beginning operations so that insure *Standard Operating Procedures* followed.
2. Annual monitoring of cheatgrass infestations will continue up to but not limited to 4 years to ensure objectives of the Proposed Action are successful and other invasive species and/or noxious weeds do not establish. Re-treatment and active restoration prescriptions would be developed based on post treatment results.
3. Annual monitoring of site soil stability will continue but not limited to 4 years to ensure slope stability is maintained after the treatment of cheatgrass. Stabilization measures would be developed based on monitoring results.
4. Annual monitoring of native vegetation establishment will continue but not limited to 4 years to ensure native vegetation establishes after the treatment of cheatgrass. Revegetation measures would be developed based on monitoring results.
5. An annual monitoring report will be submitted to the BFO upon completion of the annual monitoring for cheatgrass, soil stabilization, and native vegetation establishment.
6. Mitigation measures will follow the Fortification Creek Area Draft Resource Management Plan Amendment Environmental Assessment 2011, (Appendix B, Performance Based Standards: Goals, Objectives, Indicators, and recommendations).
7. The Pesticide Application Records submitted to the BFO office will indicate where the aerial application occurred verses where ground application occurred. Acreage of aerial and ground application each will also be given within the Pesticide Application Records.

Pesticide Use Proposal Standard Conditions of Approval

The following are COAs which will apply to any Pesticide Use Proposal approved by the Authorized Officer in the Buffalo Field Office.

I. General

1. Applicators will have a current State of Wyoming Pesticide Applicators License. All personnel involved in herbicide application must be State or EPA trained and certified. All individuals involved in handling or application will be instructed regarding safety and spill procedures.
2. The Applicator will submit for approval, a Pesticide Use Proposal which details the proposed action.
3. Pesticide Application Records shall be completed within 24 hours after completion of application. The applicator will keep the original on file for 10 years. A copy will be sent to the BFO office within 48 hours of the application. The PAR Form is attached.
4. Only chemicals approved for use on BLM surface located in Wyoming will be used.
5. All label directions and precautions for application and disposal will be followed. Any variances must be presented to and approved by the BLM Authorized Officer prior to application.
6. Applicators will not apply herbicides at rates higher than the application rates allowed on the EPA manufacturers herbicide labels specifications submitted with the PUP.
7. Application operations will be suspended when any of the following conditions exist on the treatment area:
 - a. Wind velocity exceeds 6 miles per hour for applications of liquids or 15 miles per hour for the application of granular herbicides, or as specified on the label.
 - b. Precipitation is occurring or is imminent within 24 hours.
 - c. Snow, ice or frost covers the treatment area.
 - d. Fog significantly reduces visibility.
8. Equipment used to apply or mix herbicides shall not be rinsed, cleaned or drained into any water source. Excess herbicide or fluid will be disposed at authorized facilities.
9. Chemical spills shall be handled in accordance with label direction. Any spills occurring on federally

managed property will be immediately reported to the BLM BFO Authorized Officer.

10. Vehicles must remain on authorized routes when accessing project areas. ATV use shall be limited to authorized routes and treatment areas, no off-road casual use.
11. Any variation from the approved pesticide use proposal (such as use of chemical not listed) will require a formal request and subsequent approval from the BLM Authorized Officer.
12. Grazing Lessee will be notified at least 24 hours prior to application.

II. Water Resources including Wetlands and Riparian Areas

1. Protective buffer zones will be observed along riparian areas, along streams, rivers and wetlands, as provided in the label information. Only those chemicals which are designated for wetland application may be considered for those areas.

Buffer Zones for Federal Surface Applications, except where label instructions are more restrictive:

- 100' for aerial application
- 25' for motorized application
- 10' for hand application.

Ute ladies'-tresses orchid

1. Except in cases of extreme ecological health (insect or weed outbreaks/infestations), herbicide treatment of noxious plants/weeds will be prohibited within 0.25 miles of known populations of the orchid and insecticide/pesticide treatments will be prohibited within 1.0 mile of known populations of the orchid to protect pollinators.
 - Where insect or weed outbreaks have the potential to degrade area ecological health inside the buffers listed above, at the discretion of the BLM's authorized officer and with concurrence by the USFWS, the following will apply: where needed, and only on a case-by-case basis, a pesticide use proposal or other site specific plan will address concerns of proper timing, methods of use, and chemicals. Pesticides specific to dicots will be preferred where these are adequate to control the noxious weeds present.
 - Aerial application of herbicides will be carefully planned to prevent drift in areas near known populations of the orchid (outside of the 0.25 mile buffer).

Wildlife

1. If any dead or injured threatened, endangered, proposed, or candidate species is located, the U.S. Fish and Wildlife Service's Wyoming Field Office (307-772-2374) and law enforcement office (307-261-6365) and BLM Buffalo Field Office (307-684-1100) shall be notified within 24 hours.
2. Observations of any threatened, endangered, proposed, or candidate species within the project area shall be reported to the BLM Buffalo Field Office (307-684-1100).
3. If any dead or injured sensitive species is located, the BLM Buffalo Field Office (307-684-1100) shall be notified within 24 hours.
4. To reduce disturbance to nesting raptors, herbicide application may only take place during the raptor nesting season (February 1 to July 31) within one half mile of active raptor nests with coordination and approval of the BLM biologists and when the chicks are between the downy and flight practicing stages.
5. Weed treatment may occur within a 0.5 to 1.0 mile radius of active bald eagle nests between May 15 and June 15. Operators must contact the authorizing agency who will coordinate with and receive written confirmation from the Service before application of this measure.
6. Additional measures may be necessary if site-specific project is determined by a Bureau biologist to have an adverse effect on a threatened, endangered, proposed, or candidate species or their habitat.

DECISION RECORD
Buffalo Field Office Fortification Creek (FC) Habitat Improvement Project
ENVIRONMENTAL ASSESSMENT – WY-070-EA11-217

DECISION:

BLM Buffalo Field Office (BFO) approves Alternative A of the Fortification Creek (FC) Habitat Improvement Project (HIP) Environmental Assessment (EA) WY-070-EA11-217. The analysis of Alternative A found there were no significant impacts on the human environment, beyond those described in the Vegetation Treatments Using Herbicides in 17 Western States, Programmatic Environmental Impact Statement (EIS), Record of Decision (ROD) (BLM, 2007), or the Powder River Basin (PRB) (FEIS) thus an EIS is not required.

Compliance. This decision complies with:

- Federal Land Policy and Management Act of 1976 (FLPMA) (43 USC 1701) (see Section 201).
- National Environmental Policy Act of 1969 (NEPA) (42 USC 4321).
- Endangered Species Act of 1974 (16 USC 1531).
- Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA).
- Executive Order 13112, Invasive Species, 1999.
- Buffalo and Powder River Basin (PRB) Final Environmental Impact Statement (FEIS), 1985, 2003.
- Buffalo Resource Management Plan (RMP) 1985, Amendments 2001, 2003.
- Interior Department Order 3310; BLM Manuals 6301, 6302, and 6303.
- Vegetation Treatments Using Herbicides in 17 Western States, Programmatic Environmental Impact Statement (EIS); Record of Decision (ROD), BLM, 2007.
- Invasive Species Management, WY-070-EA09-099, BFO, 2010.
- BLM Manual 6840, Special Status Species Management (SSS), 2008.
- Memorandum of Understanding, WY BLM and WY Game and Fish Department, Mar 1990.

A summary of the details of the approval follows: The FCPA consists of mature mixed grasslands, shrublands, riparian areas, and woodland areas. The project will affect 5000 acres in the southeast of the FCPA. Spraying will specifically occur in T51N, R75W Sections 5, 6, 7, 8, 9, 15, 19, 20, 22, 27, 28, 29, 30, 31, 32, 33 and T50N, R75W Section 6. The project consists of:

- 1) Aerial and ground application of the herbicide imazapic across 5000 acres of BLM land to reduce cheatgrass. The initial spraying will be done with a helicopter in the larger flatter areas, and by broadcast (boom) spraying via ATVs/UTVs in harder to get places and in more sensitive areas such as draws and riparian areas.
- 2) The initial spraying will be phased into two years. Year 1 will begin in the southeast of the FCPA HIP Area and progress northwest. Year 2 will complete the remaining area as well as follow up treatment in the year 1 location.
- 3) Years 3 and 4 will be will include monitoring of the entire area and follow up with touch up spraying.
- 4) Imazapic would be applied in the August and /or September to reduce cheatgrass that germinates in the fall. Imazapic would be applied at the rate of 2 oz. to 12oz. per acre. Recommended rate is 8oz. per acre.

Limitations. This approval is subject to the individual proponent compliance with all mitigation, as well as the mitigation and monitoring requirements contained in the PRB FEIS ROD, 2003, and this project's conditions of approval (COAs).

THE FINDING OF NO SIGNIFICANT ACTION. Analysis of Alternative A of the EA, WY-070-EA11-217, and the FONSI found the project will have no significant impacts on the human environment, beyond those described in the Buffalo and PRB FEISs (1985, 2003), thus an EIS is not required.

COMMENT OR NEW INFORMATION SUMMARY. Since conception of the proposal BFO received a new Interior Department policy on wilderness (see FLPMA, Sections 201, 202),

DECISION RATIONALE:

The approval of this project is based on:

1. Any applicator, in their pesticide use proposal, committed to comply with all applicable federal, state and local laws and regulations.
2. The selected alternative will not result in any undue or unnecessary environmental degradation. The project treatment areas clearly lack wilderness characteristics due to extensive natural gas development and its infrastructure.
3. It is in the public interest to approve this FCPA HIP proposal, as these actions will comply with the direction of Executive Order 13112, Invasive Species, and the Carlson-Foley Act of 1968, the Plant Protection Act of 2000, and the Federal Noxious Weed Act of 1974.
4. Mitigation measures were selected to alleviate environmental impacts and meet the project's need. Mitigation is discussed in the environmental effects section of the EA. For a complete description of all site-specific COA's associated with this approved decision, see the COAs in the EA.

ADMINISTRATIVE REVIEW AND APPEAL. This decision is issued under 43 CFR 4190.1 and/or 43 CFR 5003.1(b) and is effective immediately. The BLM made the determination that vegetation, soil, or other resources on the public lands are at substantial risk of wildfire due to drought, fuels buildup, or other reasons, or at immediate risk of erosion or other damage due to wildfire. Thus, notwithstanding the provisions of 43 CFR 4.21(a)(1), filing a notice of appeal under 43 CFR Part 4 does not automatically suspend the effect of the decision . Appeal of this decision may be made to the Interior Board of Land Appeals in accordance with 43 CFR 4.410. The Interior Board of Land Appeals must decide an appeal of this decision within 60 days after all pleadings have been filed, and within 180 days after the appeal was filed as contained in 43 CFR 4.416.

Field Manager: _____ Date: _____

FINDING OF NO SIGNIFICANT IMPACT
Buffalo Field Office Fortification Creek (FC) Habitat Improvement Project EA
ENVIRONMENTAL ASSESSMENT – WY-070-EA11-217

FINDING OF NO SIGNIFICANT IMPACT: On the basis of the information in the environmental assessment (EA), which I incorporate here by reference, I find that: (1) the implementation of Alternative A will not have significant environmental impacts beyond those addressed in PRB EIS or the Vegetation Treatments Using Herbicides in 17 Western States, Programmatic Environmental Impact Statement and the Record of Decision (BLM, 2007) to which the EA is tied; (2) Alternative A conforms to the Buffalo Field Office (BFO) Resource Management Plan (RMP) (1985, 2001, 2003); and (3) Alternative A does not constitute a major federal action having a significant effect on the human environment. Therefore an environmental impact statement will not be prepared. This finding is based on my consideration of the Council on Environmental Quality's (CEQ) criteria for significance (40 CFR 1508.27), both with regard to the context and to the intensity of the impacts described in the EA, and to Sections 201 and 202 of the Federal Land Policy and Management Act (FLPMA) (Interior Department Order 3310).

CONTEXT: Along with livestock grazing, mineral development (coal, oil and gas, bentonite, and uranium) is a long-standing and common land use within the Powder River Basin. The surface disturbance associated with mineral development enables invasion of undesirable vegetation over most of the basin. In addition to the well site, pipeline and utility corridors disturbance, which was estimated in the PRB FEIS to be over 200,000 acres, provide opportunity for noxious weed infestation throughout.

INTENSITY: The implementation of Alternative A will result in beneficial effects in suppression of unwanted species invasion throughout the BFO, FCPA Habitat Improvement Project area. Design features and mitigation measures included in Alternative A prevent major adverse environmental effects. The preferred alternative does not pose a significant risk to public health and safety. Relevant scientific literature and professional expertise were used in preparing the EA. The scientific community is reasonably consistent with their conclusions on environmental effects relative to integrated pest management. Research findings on the nature of the environmental effects are not highly controversial, highly uncertain, or involve unique or unknown risks.

Integrated pest management was identified as mitigation and analyzed in the PRB FEIS; the selected alternative does not establish a precedent for future actions with significant effects. There are no cultural or historical resources present that will be adversely affected by the selected alternative. No species listed under the Endangered Species Act or their designated critical habitat will be adversely affected. The selected alternative will not have any anticipated effects that would threaten a violation of federal, state, or local law or requirements imposed for the protection of the environment.

ADMINISTRATIVE REVIEW OR APPEAL OPPORTUNITIES: This decision is issued under 43 CFR 4190.1 and/or 43 CFR 5003.1(b) and is effective immediately. The BLM determined that vegetation, soil, or other resources on the public lands are at substantial risk of wildfire due to drought, fuels buildup, or other reasons, or at immediate risk of erosion or other damage due to wildfire. Thus, notwithstanding the provisions of 43 CFR 4.21(a)(1), filing a notice of appeal under 43 CFR Part 4 does not automatically suspend the effect of the decision. Appeal of this decision may be made to the Interior Board of Land Appeals in accordance with 43 CFR 4.410. The Interior Board of Land Appeals must decide an appeal of this decision within 60 days after all pleadings have been filed, and within 180 days after the appeal was filed as contained in 43 CFR 4.416.

Field Manager: _____

Date: _____