

Environmental Assessment

Coal Creek Stabilization and Sediment Reduction

DOI-BLM-WY-D090-2013-0061-EA



September 2014

Preparing Office

U.S. Department of the Interior
Kemmerer Field Office
430 North Highway 189
Kemmerer, WY 83101
Phone: 307-828-4518
Fax: 307-828-4539

High Desert District - Kemmerer Field Office



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BLM/WY/PL-14/030+1040

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1.0 Introduction

This Environmental Assessment (EA) has been prepared to analyze and disclose environmental consequences of a road modification/maintenance/sediment reduction project proposed to reduce sediment loading into Coal Creek adjacent to Bureau of Land Management (BLM) Road 4216, which passes through mixed Federal, private and State land located in Sections 25-27, Township 28 North, Range 119 West, 6th Principal Meridian, Lincoln County, Wyoming. The project is approximately 26 miles north of Cokeville, Wyoming (Appendix A, Site Map). The Wyoming Game and Fish Department (WGFD) approached the BLM, Kemmerer Field Office (KFO) to consider the project as it affects BLM land and the scope of the road easement the BLM holds on Road 4216. This EA will only analyze the sections of road on BLM land or within the scope of the road easement (Proposed Action) that are affected by the project. Actions on private or State land will be considered related actions.

This EA is a site-specific analysis of potential impacts that could result from the implementation of the Proposed Action and alternatives to the Proposed Action. This EA will tier to and incorporate information and analysis contained in the environmental assessment for grazing permit renewal in the Smithsfork Grazing Allotment, EA# 090-EA04-120, and the Kemmerer Resource Management Plan (RMP) (BLM 2010).

Eleven (11) critical sites were identified associated with BLM Road 4216 that are contributing large amounts of excess sediment into Coal Creek. The WGFD, as the lead for the project, hired a consultant (AVI Engineering) to develop a conceptual plan (refer to the Coal Creek Stabilization Project, Conceptual Planning Phase (WGFD, 2010 - Attachment 1) that provides several options for each site to reduce sediment contributions from these sources. This would improve stream habitat conditions for Bonneville cutthroat trout (BCT) and improve the overall condition and function of Coal Creek. Seven (7) of the sites are located on BLM land, three (3) on State land, and one (1) on private land. According to the BLM's land status and road access map (Appendix C) all of these sites except one, (site #1), are along the BLM road.

The primary objectives of the project are: 1) Reduce sediment loading into Coal Creek, 2) Improve riparian and aquatic habitats, 3) Improve BCT habitat at the specific locations identified as well as downstream well beyond the immediate project area, and 4) Improve road safety and function at specific locations identified.

1.1 Background

The WGFD secured funding in 2011 to hire A.V.I. Professional Corporation to prepare a Conceptual Plan (Attachment 1) addressing the site specific sedimentation and road stabilization issues on BLM Road 4216.

Modifications are proposed on 11 identified sites, which would provide stability and reduce sedimentation / erosion into Coal Creek and improve road safety and function. Toe slopes and back slopes would not exceed 4 to 1, thus allowing native upland and riparian vegetation to establish. Bank armoring of toe slopes are considered necessary at several sites (i.e. 9-11) to stabilize these areas and prevent further erosion due to the steepness of slopes within the existing authorizations. At the sites repaired, the road would meet the minimum standards listed in BLM

Manual 9113(BLM 2011), the BLM Gold Book (BLM 2007), and be approved by a qualified construction supervisor(s) upon project completion.

A final site specific plan based on the environmental analysis will be developed for each site prior to implementation. Activities selected from the conceptual plan as engineering recommendations for each site are described in the Proposed Action in section 2.1 and are shown on the Overall Project Site Map (Appendix B).

BLM Road 4216 consists of four easements and a BLM right-of-way grant. The exclusive road easements and right-of-way all have a 100 foot width, 50 feet from centerline on each side, located on lands east of State Highway 89:

Easements:

WYW 50118 (private, Sec 21, 28), issued June 11, 1974

WYW 54982 (private, Sec 25 and 27), issued August 13, 1975

WYW 54993 (private, Sec 21), issued July 24, 1975

WYW 62577 (State in two locations, Sec 26, 28), issued February 16, 1974

Right-of-Way (ROW):

WYW-45276, approved July 24, 1979

A case file map (Appendix C) shows a map of the location, beginning and end of existing easements and the ROW. Easements are exclusive road easements which give BLM the right to locate, construct, use, control, maintain, improve, relocate and repair the road.

Sedimentation

The Bureau of Land Management assessed the stream and riparian conditions along this section of Coal Creek circa 1998 and again in 2007. The majority of Coal Creek was rated as Functioning At Risk (FAR). Excess sediment loading, primarily from erosion of BLM Road 4216, in the stream system was one of the factors contributing to this unacceptable rating. Other causes of sedimentation are channelization, past willow removal causing in-stream erosion and livestock grazing. Excess sediment also contributed to a FAR rating on the Thomas Fork River (Salt Creek) below its confluence with Coal Creek.

Bonneville Cutthroat Trout (BCT)

The Thomas Fork / Salt Creek watershed, including Coal Creek and its tributaries, supports a conservation population of BCT. The BLM, U.S. Forest Service, and several State and tribal agencies signed a conservation strategy titled, "Range-Wide Conservation Agreement and Strategy for BCT" in 2000 (UDWR, 2000). The primary goal of this agreement between these agencies is to ensure the long-term existence of BCT within its historic range. The objectives of the agreement are based on eliminating threats that would cause State and Federal agencies to list this subspecies as sensitive, and may warrant listing as a threatened or endangered species under the Endangered Species Act of 1973, as amended. Threats identified by the U.S. Fish and Wildlife Service (USFWS) focus on habitat conditions of conservation population watersheds.

Protection and maintenance of watershed ecosystems is a vital component of the agreement's goals.

BCT were petitioned for listing under the Endangered Species Act in 1998. The USFWS determined that listing of the BCT was not warranted in 2000, and that decision was upheld following a status review. However, due to concerns relative to the long-term stability of native cutthroat trout populations across their range, the USFWS recommended that full and careful consideration should be given to protect their habitats. BCT are categorized as a Native Species Status 3 (NSS3) species under the Wyoming Game and Fish Department's State Wildlife Action Plan and a State sensitive species by the BLM. NSS3 species are physically isolated and/or exist at extremely low densities throughout their range, and habitat conditions appear to be stable.

Livestock Grazing

The 1986 Kemmerer Resource Management Plan (RMP) categorized the Smithsfork Allotment as a (I) Allotment and ranked it number one for priority (BLM, 1986). The overall objective for "I" category allotments is to "improve" range conditions. The RMP identified poor livestock distribution, and other issues as problems on the allotment.

On August 2, 2001, the Kemmerer Field Office issued a Final Decision (FD) reducing the capacity of the allotment by 30% over four years. These were reductions of the authorized Federal grazing use on public land and authorized Exchange of Use credit for unfenced private and/or State lands inside the Smithsfork Allotment. This was achieved by:

- Reducing the number of cattle by 10% in 2001;
- Reducing the length of the grazing season for cattle in 2002 and again in 2004; and
- Reducing the sheep numbers and Animal Unit Months (AUMS) in 2001, 2002, and 2004 by 10% per year.

As implemented, the 2001 decision reduced the prior 14,010 AUMS of active preference to 9,817 AUMS, including 6,212 cattle AUMS and 3,605 sheep AUMS. These AUMS are the permitted numbers listed in the AMP. The AUMS that were reduced now appear on the permits as suspended AUMS.

1.1 Purpose and Need for the Proposed Action

The BLM proposes, in coordination with the WGFD, to conduct modification and additional maintenance upgrades of BLM Road 4216 to reduce sediment loading into Coal Creek. The need for the action is to reduce erosion from BLM Road 4216, which is contributing to the degradation of Coal Creek and the habitats it provides, and compromising the functionality of this road as well as the safety of those using it.

Decision to be Made:

BLM will decide whether to approve the implementation of the modification/maintenance actions of BLM Road 4216 on those affected sections of BLM land and within the scope of the exclusive road easement, deny the proposed modification/maintenance, or approve the modification/ maintenance with additional mitigation.

1.2 Conformance with Land Use Plans

The 2010 Kemmerer RMP and other related documents were reviewed for decisions applicable to the proposed Coal Creek Stabilization and Sediment Reduction EA. These decisions are listed below:

The RMP identifies Bonneville cutthroat trout as NSS2 species and as such provided management guidelines under the range-wide conservation agreement and strategy for Bonneville cutthroat trout (BLM, 2010). The agreement was signed in 2000 by the U.S. Bureau of Land Management, U.S. Forest Service, and several State and tribal agencies.

The RMP also references the Thomas Fork Aquatic Habitat Management Plan (BLM, 1979) and the Raymond Mountain Area of Critical Environmental Concern (ACEC) Management Plan (BLM, 1982) (see descriptions below). The RMP states, “The Raymond Mountain ACEC designation is based on a recommendation within the Thomas Fork HMP to designate aquatic and riparian habitats of the Thomas Fork Drainage as an ACEC to amplify management needs of the Bear River (Bonneville) cutthroat trout (BLM 1982), a BLM sensitive species (BLM, 2008)”. This ACEC is adjacent to the proposed project on Coal Creek and some of the flow in Coal Creek is supplied by this area.

1.3 Relationship to Statutes, Regulations, Plans or Other Environmental Analyses

Name of Plan: Smithsfork Allotment Management Plan (AMP). **Date Approved:** 2005

The Desired Plant Communities (DPC) defined in the Smithsfork AMP should have desirable, deep-rooted herbaceous and (in some cases) woody vegetation (including, but not limited to sedge, rush, willow, currant, chokecherry, birch, cottonwood, aspen, dogwood, and native riparian grasses and forbs) with a short-term intent of achieving proper functioning condition on streams. Site specific objectives for greenline monitoring transects established in the late 1990’s are defined in the Allotment Evaluation written in November, 2000. Transect locations are identified on the Greenline Map in the maps section of the Smithsfork AMP. These greenline objectives are also listed as specific objectives in the Allotment Resource Specific Objectives section of the AMP on page 8.

Name of Plan: Thomas Fork Habitat Management Plan. **Date Approved:** 1979

The Thomas Fork Habitat Management Plan was developed cooperatively by the Wyoming Game and Fish Department (WGFD) and BLM in 1979 “to preserve, manage, and enhance Bonneville cutthroat trout habitat.” This plan also identified sediment contribution from the Coal Creek road as an important issue (BLM, 1979, pg.4).

Name of Plan: Raymond Mountain Area of Critical Environmental Concern (ACEC) Management Plan **Date Approved:** 1982.

The Raymond Mountain ACEC Management Plan was developed to incorporate decisions made in the Thomas Fork Habitat Management Plan and to protect special wildlife values, including streams which contain a genetically pure strain of Bonneville cutthroat trout. The ACEC was prepared by Bureau of Land Management, (the former) Rock Springs District, and Kemmerer Field Office. The 13,530 acre Raymond Mountain ACEC lies within the area being managed by the Thomas Fork Habitat Management Plan, which encompasses the public lands within the Thomas Fork drainage in Lincoln County, WY (see Appendix D). The ACEC also lies within the Raymond Mountain Wilderness Study Area (WSA) which encompasses 32,936 acres of BLM-administered land, 1,329 acres of State land and 200 acres of private inholdings. The Raymond Mountain WSA was determined to meet the wilderness characteristics criteria in 1982. The WSA encompasses most of the Sublette Range and extends southward to three miles north of Cokeville, in western Lincoln County, Wyoming. U.S. Highway 89 borders the northwestern side of the wilderness study area, Wyoming Highways 61 and 89 extend along the western side, and Wyoming Highway 89 extend along the southwestern side. Old unimproved roads form most of the eastern border and provide access into much of the WSA.

Name of Plan: Bureau of Land Management's Riparian Wetlands Initiative. **Date Approved:** revised 1998

The BLM's Riparian Wetlands Initiative (BLM 1998) for the 1990's set the goal that by 1997, 75% of the Federal riparian wetland areas will be in proper functioning condition. The proper functioning condition definition is, in essence, that riparian vegetation will be present along streams sufficient to dissipate stream energy during high flows, provide bank stability, improve water quality, aid floodplain development, develop diverse channel characteristics, and support greater biodiversity. Riparian areas when in proper functioning condition will provide for the greatest number of beneficial uses which may include use by wildlife as habitat, forage for livestock, and where possible high quality fisheries.

1.4 Scoping, Public Involvement and Issues

The BLM decision making process is conducted in accordance with the requirements of the Council on Environmental Quality (CEQ) regulation implementing the National Environmental Policy Act (NEPA) and the U.S. Department of Interior and BLM policies and procedures implementing NEPA. Interested publics, State agencies, other Federal agencies and individual permit holders are involved, by NEPA and the associated regulatory and policy framework, in the selection of reasonable alternatives to the proposed action and the preparation of environmental documents that disclose the potential impacts of the proposed action and the alternatives. The BLM accomplished public involvement, consultation, and coordination with a written scoping notice to public land users and other interested parties on April 11, 2013. The scoping notice advised those on the mailing list of BLM's intent to consider implementation of a sediment reduction and stream stabilization project along a portion of Coal Creek.

A response to scoping was received from the Board of Lincoln County Commissioners (Lincoln County) on April 24, 2013. Lincoln County supported the project but believed the project affected the public rights-of-way claimed by Lincoln County under Revised Statute 2477 and

Wyo. Stat. 24-3-201 and recommended an application be submitted for a County Road Right-of-Way across Lincoln County parcel PIN: 2819-213-00-031. The BLM responded on June 18, 2013 that BLM would discontinue any maintenance activities across the mentioned parcel. The Lincoln County parcel was not in the project area, but the BLM welcomed the county engineer to review and provide input on the proposed action.

A response to scoping was received from the Wyoming Game and Fish Department in a letter dated April 22, 2013 in which the agency did not identify any terrestrial issues related to the project. They strongly supported the project as relating to aquatic concerns and encouraged the BLM to proceed aggressively.

Key issues were defined by an Interdisciplinary Team during several onsite inspections, and follow up meetings that (1) drove the analysis of environmental effects; (2) prescribed or necessitated the development of mitigation measures; and/or (3) drove the development of additional project alternatives. These issues are carried forward for analysis in Chapter 4.0 of this EA. Key issues are summarized as follows:

Issues

- How will the proposed action impact significant cultural and paleontological resources in the area?
- Will the proposed action cause displacement of livestock or disruption of livestock management?
- Will the proposed action cause displacement of fish or wildlife during implementation?
- How will the proposed action affect erosion in the project area?
- How would the proposed action impact vegetation and riparian conditions in the project area?
- How will the proposed action affect sedimentation and water quality in Coal Creek and the Thomas Fork River?

The following are not present or will not be affected and will not be further analyzed:

Air Quality
Environmental Justice
Prime or Unique Farmlands
Hazardous or Solid Wastes
Mineral Resources
Prime or Sole Source of Drinking Water
Wild and Scenic Rivers
Native American Religious Concerns
Traditional Cultural Properties

2.0 Proposed Action and Alternatives

2.1 Alternative 1 – Proposed Action

The Proposed Action would be to implement a series of site specific road improvement and modification actions on BLM Road 4216 where BLM has authority (BLM land or within the BLM scope of the road easement) similar to those identified in the conceptual plan (Attachment 1) over three to five years as adequate funding and other necessary resources are available.

Modifications to BLM Road 4216 where BLM has authority occur on eight (8) (in some cases only portions of sites) of the 11 sites in the conceptual plan (this includes BLM land and where the BLM holds an exclusive road easement). Toe slopes and back slopes will not exceed 4 to 1, thus allowing native upland and riparian vegetation to establish. Bank armoring of toe slopes will be necessary at several sites (i.e. 9-11) to stabilize these areas and prevent further erosion due to the steepness of slopes within the existing authorizations. With the sites repaired, the road would meet the minimum standards listed in BLM Manual Section 9113, the BLM Gold Book (BLM 2007), and be approved by a qualified construction supervisor(s) upon project completion.

Site 1:

The BLM has no authority at this location due to it being private property. The modifications at this site will not be detailed within this EA but will be included in the cumulative impacts.

Site 2-1 through 2-3 (see Appendix B-2):

Private land within a BLM road easement located in T28N, R119W, SW1/4 Section 25.

The proposed work at site 2-1 is to realign the creek and stabilize the roadway and toe slope in place. The landowner in agreement with BLM engineers and the IDT, agreed that moving the road at this location approximately 10-15 feet southwest of its current location is the preferred solution. The existing overly steep toe slope will be recontoured to a slope of 4:1 where possible and up to 3:1 where overall slope steepness and lack of buffer space prevent gentler slopes. After slopes are regarded they would then be revegetated. The creek will be moved slightly to the northeast (right looking downstream) to provide a bankful bench between the creek and toe slope. A retaining wall constructed with riprap may also be necessary. Two (2) culverts may be installed to assist with water transport to eliminate erosion at two identified sites which naturally carry water from the uphill southwest slope down to the roadway.

The proposed work at site 2-2 is to realign the creek and install armor. As of now there is no room within the easement to recontour the existing overly steep back slope and toe slope so by realigning the creek there will be room to construct a narrow bankful bench between the creek and armor. The back slope will be recontoured to a slope of 3:1 and revegetated.

The proposed work at site 2-3 is to realign the creek and stabilize the roadway, back slope and toe slope in place. The existing overly steep toe slope will be recontoured to a slope of 3:1 once

the creek is moved slightly to the right and a bankful bench is constructed between the creek and toe slope. The roadway will be realigned to the left to give more room for regarding of the slope which includes a borrow ditch west of the road.

Site 2-4:

The BLM has no authority at this location due to it being private property. The preferred action at this site is option 1C: Install a new 40' steel multiplate drainage structure capable of conveying at least 150 cfs across Coal Creek. A temporary coffer dam would need to be installed during construction.

Site 2-5:

The BLM has no authority at this location due to it being private property. Section 2-5 has work that will occur in T28N, R119W, SW1/4, Section 36 and Section 25. Within section 36, there will be reclamation of a two-track road south of the fence to include seedbed preparation, upland seeding and possible mulching. Small fences may be necessary to protect new seedlings. Within section 25, there will be reclamation of a two-track road crossing of Coal Creek. The old stream crossing will require recontouring of small portions of the stream banks, include riparian plantings and several years of protection.

Site 3 (see Appendix B-3):

Private land within a BLM easement located in T28N, R119W, SW1/4 Section 25. The preferred engineering option is to stabilize the roadway and toe slope in place. The existing overly steep toe slope will be recontoured to a slope of 4:1. The roadway will be crowned, and regraded to slope into the borrow ditch west of the road. An 18" culvert will be placed under the road and drained into a large grassy area between the toe slope and Coal Creek (Site 3, Option 2 of the conceptual plan).

Site 4 (see Appendix B-4):

BLM land located in T28N, R119W, SW1/4 Section 25. The preferred engineering options are to stabilize the roadway and toe slope in place. Where feasible, portions of the existing overly steep toe slope will be recontoured to a slope of 4:1. Due to slope steepness and lack of buffer space, other portions of the toe slope will need to be ripped to prevent further erosion. An existing 18" culvert will be removed, cleaned, and reset to match the toe of the slope (Site 4, Options 1 and 2 of the conceptual plan).

Site 5 (see Appendix B-5):

BLM land located in T28N, R119W, SW1/4 Section 25. The preferred engineering options are to stabilize the toe slopes and back slopes along the roadway in place. The existing overly steep toe slope will be recontoured to slopes of 4:1 where possible and up to 3:1 where slope steepness and lack of buffer space prevent gentler slopes. Due to the steepness of existing slopes and confined condition at this site, a permanent turf reinforcing mat will likely be needed to stabilize the toe slope in addition to revegetating the slope. An 18" culvert will be placed under the road and drained into a grassy area between the toe slope and Coal Creek (Site 5, Options 1 and 2 of the conceptual plan).

Site 6 (see Appendix B-6):

BLM land located in T28N, R119W, SW1/4 Section 25. The preferred engineering options are to stabilize the toe slopes and back slopes along the roadway in place. A retaining wall may be necessary here depending on the site condition. The existing steep toe slope will be recontoured to slopes of 4:1. An 18" culvert will be placed under the road and drained into a grassy area between the toe slope and Coal Creek (Site 6, Options 1 and 2 of the conceptual plan).

Site 7 (see Appendix B-7):

BLM land located in T28N, R119W, SW1/4 Section 25. The preferred engineering option is to stabilize the toe slopes in place. The existing overly steep toe slope will be recontoured to slopes of 4:1 where possible and up to 3:1 where slope steepness and lack of buffer space prevent gentler slopes. Due to the steepness of existing slopes and confined condition at this site, a permanent turf reinforcing mat will likely be needed to stabilize the toe slope in addition to revegetating the slope. Two 18" culverts will be placed under the road and drained into grassy areas between the toe slope and Coal Creek (Site 7, Option 1 of the Conceptual Plan).

Site 8 (see Appendix B-8):

BLM land located in T28N, R119W, E1/2 Section 26. The preferred engineering options are to replace the two existing arch pipe culverts with a new steel multiplate bridge (73" X 55" – capable of conveying at least 150 cfs). The stream at the upper end will require some grading to get better flow hydraulics to the bridge. Also, the creek bottom at the lower end of the new bridge will require some excavation and new riprap to protect against erosion (Site 8, Options 1, 2C, and 3 of the conceptual plan). The bridge would be constructed with a box culvert or either a longer bridge span to cover the creek. The box culvert option possibly would still include armoring or the bridge in the water with riprap and possible stream realignment. A longer span bridge may allow for more limited riprap and stream channelization.

Site 9 (see Appendix B-9):

Wyoming State land with portions of the work to be conducted within the BLM easement located in T28N, R119W, E1/2 Section 26. If the State Land Board agrees with the preferred engineering option, which is to realign the creek, then the work within the scope of the road easement will occur to the roadway toe slope and back slope, with grading, stabilization, and revegetation (Site 9, Option 2 of the conceptual plan). Due to the overall steepness of the slope at this site there is not adequate room within the existing easement to recontour the existing overly steep back slope and toe slope so that vegetation can be supported (4:1 preferred, 3:1 minimum). By realigning the creek there will be room to construct a bankfull bench between the creek and the recontoured and revegetated toe slope. The back slope will be recontoured to a slope of 3:1 and revegetated. Two 18" culverts will be placed across the roadway to direct run off from the borrow ditch to grassy areas.

Site 10 (see Appendix B-10):

BLM land located in T28N, R119W, N1/2 Section 26. The preferred engineering options are to reroute the creek to the west at the existing bends, place the fill to flatten the slope, and create a wider buffer strip at the toe of the slope. The toe slopes and back slopes along the roadway would also be stabilized and revegetated in place. Existing steep toe slopes will be recontoured to slopes of 4:1 where possible and up to 3:1 where slope steepness and lack of buffer space

prevent gentler slopes. A culvert may need to be placed under the road and drained into grassy areas between the toe slope and Coal Creek at each end of the reconstructed site (Site 10, Options 1, 2, and 3 of the conceptual plan).

Site 11 (see Appendix B-11):

BLM land located in T28N, R119W, NE1/4 Section 27. There are two similar sites at this location (Site 11a and 11b) and only a short distance apart. The preferred engineering option at both of these sites is to reduce the slopes along the creek banks to 4:1 and blend them into the existing natural vegetated slopes of similar grade. A buffer strip (bankfull bench) will also be created along the edge of the stream at the toe of the new slope (Site 11, Option 1 of the conceptual plan). Rerouting of the creek itself is an alternative to route the creek away from the banks edge to reduce or eliminate the removal of the toe slope from erosion. Stabilization may be necessary with riprap or other approved materials. The road may also be slightly moved north closer to the roadway easement in order to reduce the amount of work needed in the stream or along the streambank.

All sites: At all sites the roadway surface will be properly sloped or crowned, and regraded to properly drain runoff from the road surfaces so it does not flow directly into the stream. Also, the entire disturbed area except road surfaces will be stabilized and revegetated at all sites. Permanent turf reinforcing mats may be needed at other sites to stabilize slope in addition to revegetating the slope. Areas of revegetation need to be fenced until desirable native vegetation has become firmly established so that it can withstand moderate grazing use. This is expected to require a minimum of two years and should be less than 5 years and would amount to a maximum of 25 acres (see Section 4.1, Livestock Grazing Management).

2.2 Alternative 2 – No Action Alternative

Alternative 2, the No Action Alternative is to not implement the modification options on BLM Road 4216 on the BLM authorized portions of the road. No changes would be made to the road on sites 2-1, 2-2, 2-3, 3, 4, 5, 6, 7, 8, 9, 10, 11.

3.0 Affected Environment

This chapter presents the physical, biological, social and economic resources of the areas affected. This chapter provides the baseline for comparison of impacts/consequences described in Chapter 4. This chapter is organized by the identified affected resources.

3.1 Introduction

The sections of Coal Creek related to this project are located within the Smithsfork Grazing Allotment. Refer to the Smithsfork Allotment Management Plan (BLM, 2005) for additional information (available at the Kemmerer Field Office upon request).

Elevations in the Smithsfork Allotment range from 6,100 feet above sea level near the Bear River Valley bottom to 9,313 feet above sea level at the summit of Raymond Mountain. The topography of the area consists of an upthrust mountainous area (Raymond Mountain) cut by steep canyons on the west side of the allotment to less steep topography to the east.

The entire allotment is fairly mountainous and is characterized by relatively steep slopes and deep canyons. The allotment is split roughly in half by natural barriers along an east/west axis beginning at Raymond Canyon and running east to Muddy Ridge. The Coal Creek watershed drains a majority of the northern portion of this allotment. A large portion of the allotment is accessible only by foot travel or horseback, due to the rugged terrain.

Precipitation ranges from ten inches to fourteen inches per year in the lower elevations of the allotment to twenty or more inches in the areas of Raymond Mountain with timber slopes. Most of the precipitation comes in the form of snow with snow depths of three or more feet common later in the winter, with depths of five feet or more in the higher elevations areas. Deep snow drifts are common and avalanches occur on steep slopes especially on Raymond Mountain. Rapid snow melt in the spring can cause a high peak flood flow in any of the streams in the allotment. The area also experiences high intensity thunder storms in the summer that can cause flash floods in the streams.

3.2 Cultural Resources

A Class III cultural resource inventory was conducted in 2012 along the entire project area with a 200' buffer on either side of the existing road (Wolfe 2012). No cultural resources were found in this inventory and a recommendation was made for a cultural resource clearance.

Class III inventories are intensive field inspections of the ground surface for the purpose of locating and recording all archeological resources, particularly cultural or historic materials or sites that may meet eligibility requirements for listing on the National Register of Historic Places (NRHP). Class III inventories are conducted on federal lands by qualified professional archeologists who document all cultural resources by location, description and significance.

Prior to 2012 thirty-nine (39) Class III cultural resource inventories had been conducted on a total of approximately 6,480 acres, or 7% of the allotment. As a result of this previous inventory coverage, fifteen (15) cultural properties had been documented within the applicable sections. These include ten (10) historic sites [Oregon Trail (a non-contributing segment located outside the allotment boundary), 2 stock herder camps, 1 canal, 1 cabin, 1 corral, & 4 mines] and five (5) prehistoric sites [2 lithic scatters & 3 camps]. The proposed project will not affect any of these sites.

3.3 Livestock Grazing Management

The Smithsfork Allotment has historically been used by both cattle and sheep. During the 1960's and early 1970's, a number of the sheep permits were converted to cattle permits. At the time the allotment was adjudicated, there were 33 separate livestock operations. Of this total, seven were permitted for sheep only, fourteen for cattle only, and twelve were permitted for both sheep and cattle.

The 1986 Kemmerer Resource Management Plan (RMP) categorized the Smithsfork Allotment as an (I) Allotment and ranked it number one for priority. The overall objective for “I” category allotments is to “improve” range conditions. The RMP identified poor livestock distribution, and other issues as problems on the allotment.

In 1999, the Smithsfork Grazing Association was formed, which is formally chartered with the State of Wyoming. The purpose of the association is to help facilitate management on the allotment, provide the permittees more consistency in the management of their livestock, and allow a more stable working relationship with the BLM.

On August 2, 2001, the Kemmerer Field Office issued a Final Decision (FD) reducing the capacity of the allotment by 30% over four years. These were reductions of the authorized Federal grazing use on public land and authorized Exchange of Use credit for unfenced private and/or State lands inside the Smithsfork Allotment. This was achieved by:

- Reducing the number of cattle by 10% in 2001;
- Reducing the length of the grazing season for cattle in 2002 and again in 2004; and
- Reducing the sheep numbers and AUMS in 2001, 2002, and 2004 by 10% per year.

An Allotment Management Plan (AMP) issued effective March 1, 2005 affirmed reductions issued in a 2001 decision and described the following requirements:

As implemented, the 2001 decision reduced the prior 14,010 AUMS of active preference to 9,817 AUMS, including 6,212 cattle AUMS and 3,605 sheep AUMS. These AUMS are the permitted numbers listed in the AMP. The AUMS that were reduced now appear on the permits as suspended AUMS.

Livestock use would be monitored and livestock may be moved earlier than the dates listed for the pasture management based on vegetative use level objectives. The vegetative use level objective in the first and second pastures is three inches of stubble height for Nebraska sedge where it is dominant, or five inches of stubble height for Beaked sedge where it is dominant, five inches of stubble height in the third and fourth use pasture for either species of sedge, and 40% utilization on willows. Areas or drainages grazed in the spring by sheep would not be re-used in the fall.

In 2009, the BLM, Western Watersheds Project and the Smithsfork Permittees reached a settlement agreement regarding the permittees’ appeal of the 2005 decision. The settlement carried forward all of the requirements of the 2005 AMP, added Multiple Indicator Monitoring to the suite of monitoring tools and additional penalties if neutral/positive trend criteria are not met.

In 2013, the BLM issued a decision that reduced AUMs by 10% due to non-compliance with the terms and conditions of the AMP, and the grazing season by 15% due to failure to meet the terms and conditions of the settlement agreement. The permittees appealed the decision and asked for a Stay. The Stay was granted and the case is currently awaiting a hearing.

The permittees are currently cooperating with the Wyoming Department of Agriculture to initiate a Coordinated Resource Management process in preparation for a new AMP.

3.4 Wildlife and Fisheries Resources

General

The western half of the allotment is classified as crucial winter range for deer, elk, and moose, which includes most of the Sublette Mountain Range. The northeast portion of the allotment is designated as an elk parturition area. The allotment is used season-long by mule deer, elk, and moose. There is also a small herd of pronghorn in the Little Muddy drainage in the summer.

Mule deer (*Odocoileus hemionus*): The allotment is part of the Wyoming Range mule deer herd unit. The western face of the Sublette Range and the southern tip of the allotment is mule deer crucial winter range. There are small numbers of resident deer that spend the summer in higher elevations of the allotment.

Elk (*Cervus canadensis*): The allotment is part of the West Green River elk herd unit. The entire Sublette Range, Raymond Creek and Igo Ridge are crucial elk winter range. The northeastern quarter of the allotment is classified as elk calving areas. There is a resident herd of elk that spend the summer in the higher elevations and forested areas of the allotment.

Moose (*Alces alces*): The allotment is part of the Lincoln moose herd unit. The Sublette Range, Raymond Creek, Huff Creek, lower Coal Creek, and Mill Creek are crucial moose winter range. A few moose have been observed utilizing the western half and northeastern corner of the allotment throughout the spring, summer, and fall.

Pronghorn antelope (*Antilocapra americana*): A small herd of antelope utilizes the eastern portion of the allotment during the summer months (Carter Lease pronghorn herd unit).

Black bear (*Ursus americanus*): Black bear have been observed in the Raymond Mountain WSA and are suspected to occupy habitat in the northeast corner of the allotment. Because of the very limited conifer habitat and generally very steep terrain in much of the WSA, population levels are low.

Mountain lion (*Puma concolor*): Mountain lion occupy the Raymond Mountain WSA and the northeastern corner of the allotment. At various times, they likely could be found anywhere on the allotment. Within the Raymond Mountain WSA, mountain lion kills/caches of deer and elk have been located. Descriptions of mountain lion following hunters and hikers in the WSA have been reported and a few are taken by hunters in most years.

Grouse (Blue grouse (*Dendragapus obscurus*)) and ruffed grouse (*Bonasa umbellus*) occupy the timbered and brushy riparian areas in the western and northeastern parts of the allotment. Evidence suggests populations of both species are relatively stable and are hunted on the allotment. Sage grouse have been addressed in the Special Status Species section.

Raptors: Raptors of various species occupy the entire allotment. Golden eagles, redtail hawks, and northern harriers are among the most common. There is a pair of bald eagles that have been nesting along Smiths Fork River and may use the allotment as a foraging area. The bald eagle is addressed in further detail in the Special Status Species section.

Special Status Species

Bonneville cutthroat trout (*Oncorhynchus clarkii Utah*): Streams in this area support genetically pure BCT, a BLM sensitive species, which was petitioned for listing as a Threatened and Endangered Species with the United States Fish and Wildlife Service (USFWS). The decision not to list was made in October of 2001.

Other fish species in these streams include mottled sculpin, Piute sculpin, speckled dace, longnose dace, mountain sucker, and redbside shiner.

Historic records indicate the BCT was found in the Mill Creek and Muddy Creek drainages as late as 2011, therefore all streams on the allotment are considered potential habitat for this species. Current BLM policy requires land management to be carried out in a manner to prevent possible listing of this species.

The Raymond Mountain ACEC was designated in 1982. The ACEC was designated to amplify the management needs of the BCT. The ACEC is approximately 11 miles in length and four miles wide at its widest point. It contains approximately 12,660 acres (see Appendix D-1).

In 1979 a petition to list the BCT was filed. The fish was not listed but became a candidate species. As a result of that listing petition BLM and the Wyoming Game and Fish Department developed the Thomas Fork Habitat Management Plan (HMP) in 1979. As a result of the HMP several exclosures were constructed.

Construction of the Huff Creek and Coal Creek exclosures was completed in 1980. These exclosures were constructed to protect instream fisheries habitat structures and were intended to assure the survival of the cutthroat populations. The Huff Creek exclosure was rebuilt in 1999 with new wire, new bracing and addition of wood posts where steel posts were sinking into the ground. The Coal Creek exclosure has also been totally reconstructed.

In 1982 four exclosures were constructed for a rest rotation riparian grazing study in the Little Muddy drainage. Each exclosure was fenced into pastures that were to be used at different times and at different use levels. The study was not completed, but the perimeter fences were maintained and used as livestock exclosures from 1982 until about 1990. These exclosures were reconstructed in 1997. Most gates into the various pastures were permanently closed off and corner and brace posts were replace, where needed. Several fence lines were re-routed and stream crossings reconstructed to make the fences livestock proof and easier to maintain.

Wyoming Game and Fish, BLM and US Forest Service are cooperating on the implementation of existing management plans for Bonneville cutthroat trout. The proposed actions in this allotment plan are consistent with the interagency plans. The University of Wyoming completed several studies in the mid to late 1990s to help define BCT habitat requirements and movement patterns.

Greater sage-grouse (*Centrocercus urophasianus*): There are four known greater sage-grouse strutting grounds (leks) on the east side of the allotment (three on Federal land and one on State land). There are three additional leks within two miles of the allotment which have a high associated potential for nesting habitat on the allotment. As a result, virtually the entire southern portion of the allotment containing suitable sagebrush densities is potential nesting habitat.

Optimum nesting habitat consists of stands containing sagebrush 16 to 32 inches tall with a canopy cover ranging from 15 to 25 percent with an understory of at least 15 percent grass and 10 percent forb canopy cover. Optimum brood rearing habitat is associated with insects in and adjacent to riparian areas which occur throughout the allotment. In the winter, all southern exposures in the southern half of the allotment containing taller sagebrush stands with 10 to 30 percent canopy cover, usually have sagebrush exposed above the snow and are potential sage grouse wintering habitat. Numerous sage-grouse have been observed on the allotment in past several years including 2004, attesting to the success of nesting and wintering on the allotment.

Pygmy rabbit (*Brachylagus idahoensis*): The pygmy rabbit, a BLM sensitive species, has potential to occur on the allotment. Pygmy rabbit habitat consists of relatively taller and denser big sagebrush on deeper soil areas. Height of the sagebrush can vary from about 1 ½ to 7 feet with densities commonly so dense that it is difficult to walk through (often meaning greater than 30% cover). Other shrub species may be present. These conditions are often found in alluvial fans, swales and large flat valleys, and along creek and drainage bottoms, but not on steep ground. These conditions are present in several locations on the allotment, especially associated with the sagebrush bottoms near the perennial streams. No surveys for this species have been conducted, but it is suspected that it is present on the allotment.

Long-eared myotis (*Myotis evotis*): Long-eared myotis, a BLM sensitive species, is a cave and mine dwelling bat that forages in coniferous and deciduous forest habitats has potential to occur on the west side of the allotment associated with some old mine addits in that area. No surveys for this species have been conducted, but it is assumed to be present on west side of the allotment.

Idaho pocket gopher (*Thomomys idahoensis*): Idaho pocket gopher, a BLM sensitive species, has potential to occur on the allotment associated with shallow stony soils. No surveys for this species have been conducted, but it is assumed to be present where correct conditions occur on the allotment.

Sagebrush obligate species: Sage thrasher, loggerhead shrike, Brewer's sparrow, and sage sparrow, all BLM sensitive species, have potential to occur on the allotment. These species have not been recorded on the allotment, but are all basin-prairie shrub and/or mountain-foothill shrub habitat obligate species. These conditions occur on a substantial portion of the allotment and it is assumed that all of these species may be present on the allotment.

3.5 Soils

Soil depth is highly variable, ranging from very shallow (less than 10" deep) on ridge tops, such as Raymond Mountain, shallow (10-20" deep); moderately deep (20-40" deep) on steep side slopes; and very deep (greater than 60" deep) within most of the major drainages. The predominate soil forming factors of effective precipitation, topography, and geologic parent materials provide a myriad of soil textures and weathering depths.

The Smithsfork Allotment is located in the Wyoming Overthrust Belt, an area in which thrust faulting in late Mesozoic and early Cenozoic time was followed by a period of high-angle faulting. The north-south trending Crawford Thrust Fault is exposed at the surface in the southeastern portion of the allotment. Movement on this thrust, followed later by movement on

the high-angle Cokeville fault which trends north-south along the western border of the allotment, resulted in the uplift of the Sublette anticline and the resultant steep topography within the allotment. Late Paleozoic and Mesozoic sedimentary formations, which strike basically north-south and are steeply dipping, underlie most of the allotment.

Within the allotment, erosion of numerous steep slopes underlain by a wide variety of sedimentary rock units has produced colluvium deposits (unconsolidated rock debris, sand, and soil transported mainly by gravity) in several areas. Large areas of colluvium are concentrated on the south and west sides of the allotment between Highway 30 and the steeper slopes of the Sublette Range, with smaller areas along drainages such as Huff Creek. In general, there are several areas with high potential for landslides along Raymond Creek, Huff Creek, and Little Muddy Creek. Coal Creek drains areas of highly unstable geologic materials which are subject to large slumps and slides.

The formations in the allotment trend generally north-south, and thus the bedrock lithologies change rapidly along east-west traverses within the allotment. Sandstone, shale, siltstone, quartzite, claystone, conglomerate, coal, bentonite, and limestone are examples of the variety of sedimentary units within the surface formations, the erosion of which may produce surficial materials subject to later mass movement. Many of the underlying beds are folded into synclines and anticlines, with resulting steep dips. The interaction of those dipping beds with surface slopes can produce situations conducive to rock slides along bedding planes. In general, the complexity of the geology in the allotment results in numerous opportunities for erosional features (slopewash, alluvial fans, talus slopes, etc.) to occur.

There is no soil survey available for this allotment; therefore, no quantitative analysis can be made for soils in this area. However, some inference may be derived from possibly similar soils in the Star Valley area to the north which does have a soil survey (USDA, 1976).

Forested mountain slopes of 30-70% may be characterized by brown and red very gravelly silty clay loam soils greater than 40 inches to bedrock and red silt loam over silty clay and clay soils deeper than 40 inches. These soils have a high water erosion potential when the vegetation is removed as a result of slope and silt content. Vegetation may include Douglas fir, lodgepole pine, snowberry, aspen, and pine grass.

Ridges and upper slopes may be dominated by brown cobbly silty clay loam soils over hard limestone bedrock between 10 and 40 inches. Vegetation may include big sagebrush, serviceberry, snowberry, Kentucky bluegrass, and mountain brome.

Upper slopes of 30-60% may include brown and red gravelly loam over very gravelly loamy sand and/or very gravelly clay loam soils intermingled with loam over silty clay loam soils deeper than 40 inches to bedrock. These soils have a moderate to high water erosion potential when the vegetation is removed as a result of slope and silt content. Vegetation may include big sagebrush, serviceberry, Kentucky bluegrass, and basin wild rye.

Lower slopes of 10-30% may include brown silt loam over silty clay loam and/or gravelly loam over very gravelly loamy sand soils deeper than 60 inches to bedrock. These soils have a moderate water erosion potential when the vegetation is removed as a result of slope and silt

content. Vegetation may include big sagebrush, serviceberry, aspen, lodgepole pine, snowberry, Kentucky bluegrass, bluebunch wheatgrass, pinegrass, and thickspike wheatgrass.

Interspersed with these soils are rock outcrops and soils with bedrock less than 20 inches from the surface.

3.6 Vegetation

The vegetation in this allotment is dominated by mountain big sagebrush communities comprised of a big sagebrush overstory and an understory of native perennial grasses and forbs. These big sagebrush communities usually occur on the deeper, well-drained soils of the valleys and ridges. Communities of alkali sagebrush are found in areas on the shallower, heavy clay soils, and on the more alkaline soils. Serviceberry, snowberry, antelope bitterbrush, and other shrubs occur at the higher elevations and in snow bank areas. Aspen groves and stands of coniferous trees are found mainly at higher elevations and on north and east facing slopes, or wherever there is enough effective precipitation to support these communities. Aspen communities, primarily in the Raymond Mountain area, have been described as old and decadent with sagebrush and conifer invasion reducing the amount of regeneration. However, some aspen communities in the allotment are regenerating. Mountain mahogany, juniper, and other mountain shrub species are the dominant vegetation communities on steeper slopes with shallow soils.

Riparian shrub communities consisting of water birch, rose, willows, and other shrubs are found along several of the perennial creeks along the west side of Raymond Mountain, while wet meadow types occur along most of the major drainages throughout the allotment, as well as in areas of springs or seeps.

The vegetation in the project area is typical of localized riparian areas associated with springs. Sedges, tufted hair grass, and willows dominate these small areas. Much of the area that will be made unavailable is currently bare or producing minimal amounts of palatable or desirable forage. Some sites are currently occupied by weedy vegetation (e.g. Canada thistle, cheatgrass, etc.).

Approximately 22,000 acres of sagebrush control projects using 2,4-D herbicide were completed during the period from 1968 thru 1970. Willows on the streams in the sprayed areas were also killed as a result of the projects. The sagebrush has reestablished in the treated areas and the sprayed areas are no longer obvious. Healthy, diverse age class, willow communities have not recovered in these sprayed areas. Presently, numerous, highly suppressed, low in stature (i.e. less than 3 feet tall) willow plants remain in widely dispersed, small patches, or as single plants across riparian areas of the allotment. Many of these are likely remnant plants that survived the top-killing effects of herbicide treatments, but remain suppressed by browsing, so have not recovered to their potential height.

In 1981, Landsat satellite imagery and computer enhancement was utilized to characterize the vegetation community types within the Kemmerer Field Office. Data has not been verified through field inventory techniques, and is considered only an approximation of the cover types of the allotment due to inherent limitations in defining small or low density cover areas. The general land cover types within the allotment are listed in Table 1.

Table 1 - Major Land Cover Types

Table 1. Major Land Cover Types by Landsat (1981) Cover Type	Acres
Juniper	110
Sagebrush	50,788
Sagebrush/Juniper	1,155
Riparian/Cropland	5,988
Aspen	14,965
Barren	78
Cottonwood/Willow	1,860
Mountain Shrub	3,474
Coniferous Forest	1,790
Low Density Shrub	1,272
Grass/Shrubland	9,457
Total Acres	90,937

3.7 Invasive, Non Native Species

Canadian thistle (*Cirsium arvense (L.) Scop*) occurs on many of the cut banks in streams and other meadows. Musk thistle (*Carduus nutans L*) and hounds tongue (*Cynoglossum officinale*) occur in valley bottom stream terraces and snow bank areas. Dalmatian toadflax (*Linaria dalmatica (L.) Mill*) and Dyers Woad (*Isatis tinctoria*) occur in the uplands. The heaviest infestation of Dyers Woad occurs on the west slope of Raymond Mountain. An infestation of Dyers Woad has been located along the roadway leading to and at Huff Lake. Dalmatian toadflax and black henbane (*Hyoscyamus niger L.*) are lightly scattered along the riparian zones in Raymond Canyon. Black henbane is also found in road ditches and other disturbed areas. Other noxious weeds, such as knapweed (*Rhaponticum repens (L.) Hidalgo*), occasionally occur in other disturbed areas. A complete inventory of noxious weeds has not been completed. Annual weed control efforts utilizing various methods are ongoing through cooperative efforts between Lincoln County Weed and Pest District and the BLM.

Cheatgrass (*Bromus tectorum*) is becoming more widely dispersed across the allotment, and becoming more dominant in some areas, especially on drier slopes and in disturbed areas (e.g. along roads, and trails, and livestock concentration areas).

3.8 Water Resources

Stream Hydrology

The Coal Creek drainage is a primary tributary of the Thomas Fork drainage, which is a major tributary of the Bear River watershed. Streams in the Coal Creek drainage are primarily C channel types (Rosgen, 1996). In these stream systems the presence and condition of riparian vegetation is the primary factor controlling the rate of lateral channel adjustment and bank

erosion. Riparian communities dominated by deep-rooted riparian vegetation such as sedges and willows provide the greatest amount of stability in these systems.

Coal Creek, in the two-mile reach of the project area, is situated in a “Valley Type V” defined by Rosgen (1996) as a “u-shaped valley, with valley-floor slopes generally less than four percent. Soils are derived from materials deposited as moraines or more recent alluvium from the Holocene period to the present. Landforms locally include lateral and terminal moraines, alluvial terraces, and floodplains. Deep, coarse deposition of glacial till is common, as are glacio-lauustrine deposition above structurally controlled reaches.” The channel slope from the old road crossing (Site 2-5) - located just upstream from the confluence of Little Muddy Creek - to the confluence of Huff Creek was calculated at 0.57%, and the valley slope at 1.07%.

Floodplains

The floodplain that has developed over time in the Coal Creek valley is relatively narrow, extending about 25-30 feet either side of the stream channel (~60’ total average width). The entire Coal Creek watershed encompasses over 40 miles of perennial stream. In 2007 BLM assessed 38.25 perennial stream miles in this watershed using the PFC assessment method (BLM, 1998a). The conditions of these riparian areas are described in the Wetland and Riparian Section.

Wetlands and Riparian Zones

The Smithsfork Allotment AMP (BLM 2005) identified over-utilization of riparian and wetland areas as a primary concern due to poor livestock distribution patterns. Subsequent monitoring has documented that these problems are not yet fully resolved. (Monitoring data is available for review at the Kemmerer Field Office).

The proposed project is within the Coal Creek drainage, which is part of the Thomas Fork drainage. Riparian communities in the Coal Creek drainage are dominated primarily by mixed sedge and grass communities with a limited component of willows. Potential exists for more extensive willow communities. Numerous willows are present along some portions of the streams, but are highly suppressed by excessive browsing.

The Coal Creek watershed is a sub-basin of the Thomas Fork of the Bear River. Named tributaries include Huff Creek, Cliff Creek, Little Muddy Creek, Stoner Creek (North & South Forks), and East Fork Coal Creek. The Coal Creek watershed is the primary basin which drains the northern half of the Smithsfork Allotment.

Proper Functioning Condition (PFC) assessments were completed in 1994 and 1995, and again in 2007 on most perennial streams in the Smithsfork Allotment. In the Coal Creek watershed these assessments were completed on 38.25 miles of perennial streams in 2007. Of this, 19.5 miles (51%) was rated PFC, 17.75 miles (46%) was rated FAR, and one mile (3%) was rated not functioning (see Appendix E for Coal Creek 1994-2012 rating tables (lower Coal Creek highlighted in gray)).

Streams that are in proper functioning condition have adequate vegetation, land form, or large woody debris present to dissipate stream energies, filter sediment, improve flood water retention, develop root masses adequate to stabilize stream banks and develop diverse habitat characteristics. On average, streams in this condition have the ability to withstand the energies of up to 35 year flood events. PFC is considered the minimum acceptable condition for long term management and is the minimum level that can sustain the riparian resources.

Streams that are less than in PFC are considered functioning-at-risk, which means the stream is functioning but one or more attributes related to existing soil, water, or vegetation makes them susceptible to degradation during peak flows or when a flood event occurs. When a stream is functioning-at-risk, a primary goal is to address management practices and improve the overall condition of the stream to the minimum PFC as quickly as possible. From this point the overall goals of a management plan can then be reached. Without being in a proper functioning condition, riparian resources cannot be sustained.

A non-functioning stream is one where the physical function of the stream is clearly out of balance. There could be a lack of proper streamside vegetation, excessive erosion or sediment deposition, excessive down cutting of the stream channel, excessive lateral movement of the stream, etc. Non-functioning streams do not have the ability to dissipate high stream flow energies.

Stream reaches that are non-functional have degraded or down cut to the point that they need to completely re-establish the appropriate structural condition of their flood plains. The process of reestablishing flood plains can take decades but is accelerated by healthy riparian communities. Other problem reaches that are functioning-at-risk still have flood plain access and can recover with a change in vegetation alone. In both cases, the key to achieving PFC is the establishment of healthy riparian communities with proper species and an appropriate distribution of size and age classes.

As part of the riparian monitoring plan for the Smithsfork Allotment, a riparian greenline trend monitoring site was established on Coal Creek within the project area in 1996. Trend was monitored in 2001 and again in 2008 and appears to be generally static with a slight increase in the willow composition being offset by a slight decline in the composition of sedges and other late seral wetland species. In 2010, the full suite of stream monitoring attributes described in the Riparian Area Management manual (BLM, 1998b) was collected at this and other established trend monitoring sites throughout the allotment. Short-term, annual trend indicator monitoring was conducted in 2011 and 2012 and long-term trend indicators are scheduled to be collected in 2015.

Water Quality

The entire Coal Creek watershed drains into the Bear River system. Numerous springs and seeps are found in the headwaters of the drainages and contribute significantly to the stream flows. Coal Creek is located in the Central Bear River sub-basin (HUC 160102) of the Bear River Basin.

The Bear River system drainages have not been listed on Wyoming DEQ 303d lists as being impaired, but local interests have expressed a concern about the amount of sediment that is carried out of the watersheds during spring flood flows. Analysis by the State of Wyoming Department of Environmental Quality (WDEQ) for the creation of the two year 303d list and 305b reports have indicated potential problems in the area but the 2012 305b report concluded that the criteria for designated uses are still being met. The methodical nature of gathering and analyzing credible data for future reports means that the analysis and determination is ongoing and will consider new and existing data.

The *Wyoming Water Quality Assessment and Impaired Waters List (2012 Integrated 305(b) and 303(d)) Report* (WDEQ 2012) provides the following sub-basin information: Channelization and willow removal, which were practices intended to increase crop production during the mid-1900s, have reportedly caused accelerated bank erosion and stream widening along much of the lower Smiths Fork. A Smiths Fork Steering Committee has been formed to improve water quality by increasing bank stability and wildlife habitat by modifying grazing practices and using controlled burns. Considerable acreage along the Smiths Fork has been incorporated into the NRCS's CRP riparian forest buffer program. The BLM Smithsfork Grazing Allotment is a 90,937-acre cattle and sheep grazing allotment located northeast of Cokeville. A major management concern on this allotment is the condition of riparian areas, upland springs and seeps due to past grazing and other activities; including the chemical spraying of vegetation, which eliminated most of the willows in the late 60's and early 70's, and numerous sheep to cattle conversions. With season-long grazing and a lack of upland water resources, livestock tend to concentrate in riparian areas for most of the growing season.

The Bear River Watershed Information System (BRWIS 2013) describes the Central Bear Watershed water quality as being impacted by excess suspended sediments, high levels of nutrients and high water temperatures along some reaches. "Nutrient and sediment concentrations decrease slightly as the Bear River travels through this watershed until it reaches the confluence with Smith's Fork. Inputs from Smith's Fork result in substantial increases of both nutrients and sediments in the Bear River. Inputs from the Thomas Fork increase sediment and phosphorus loads during the summer season. Thomas Fork also contributes excess nitrogen to the Bear River, making it a pollutant of concern from this point to Bear Lake.

The water quality of the upper portion of the Smith's Fork and Salt Creek in Wyoming and Thomas Fork in Idaho is relatively good. However, as these tributaries travel through lower gradient lands, inputs from a variety of sources reduce the quality. By the time Smith's Fork reaches the Bear River, it is impaired by excess sediments. Bank erosion and willow removal are the main causes of sedimentation. Past efforts to straighten the river required widening the stream and resulted in streambank erosion." In 2004, the Wyoming Game and Fish Department, grazing permittees, BLM and other entities participated in the Smithsfork Steering Committee to reduce sediment inputs to the river, increase bank stability and improve wildlife habitat by modifying grazing practices and conducting controlled burns.

The Salt Creek/Thomas Fork drainage contributes excess phosphorus, nitrogen, and sediments at its confluence with the Bear River in Idaho. Highway construction in the stream valley, grazing, unstable banks and natural in-stream erosion cause streambank erosion, which contributes to

water pollution. In addition, fertilizers and animal waste enter the stream in this drainage, making it a major contributor of nitrogen to the Bear River. To address these issues, the Bear Lake Regional Commission (BLRC) initiated a project in 2000 to implement streambank stabilization practices.

Proper Functioning Condition (PFC) inventory data collected by the BLM indicate that nearly half of the streams within the allotment are “functioning at risk”, which means the riparian wetland areas are functional, but susceptible to degradation (see Wetlands and Riparian Zones section). The BLM released the Smithsfork Allotment Management Plan in March 2005. The plan provided grazing management strategies that are expected to improve riparian vegetation along stream corridors and upland spring sites, which may improve water quality in the Smiths and Thomas Fork Watersheds (BLM, 2005). Water quality assessments conducted by WDEQ (WDEQ 2002) on Coantag and Hobble Creeks and in the Smiths Fork drainage above North Smiths Fork indicate they fully support aquatic life other than fish.

Land within the Salt Creek watershed near Idaho is managed primarily for recreation and grazing. Sediment and nutrients have been identified as possible water quality concerns in portions of this drainage, both in Idaho and Wyoming. Some reaches of Salt Creek have unstable banks due to naturally unstable geology and channel confinement imposed by the construction of a highway within the valley. A WDEQ study (WDEQ 2005) of Salt Creek indicated that riparian conditions are improving and that a fairly healthy macroinvertebrate community is present, but it is unclear whether the stream supports cold water fisheries during summer months. WGFD and BLM have completed several riparian improvement projects in the Coal and Little Muddy Creek watersheds to enhance BCT populations. A WDEQ assessment of Giraffe Creek (WDEQ, 2002), a tributary to Salt Creek, indicates full support of the aquatic life other than fish.

Water pollution sources in the Smithsfork Allotment are non-point in nature and the main concerns are sediment loading and water temperature. Sediment loading is related to geology, soils, and stream conditions. Although some sediment production and movement is a natural function of stream dynamics, these processes are balanced by other processes that slow the transport of sediment by trapping it in vegetation and building stream banks. Streams that have not obtained the minimum acceptable level of Proper Functioning Condition (PFC) are defined as being in less than the preferred minimum condition, (BLM, 1998a) and tend to produce levels of sediment in excess of what can be retained. This results in reduced riparian size and vigor, which in turn, results in lower forage production and reduced late season flows, as well as increasing downstream maintenance costs. Water quality problems within the allotment are related to stream conditions. Many of the stream reaches within the Coal Creek watershed are in less than the minimally acceptable condition of PFC (Appendix E).

Water temperature is a concern on some of the creeks within the Coal Creek watershed, which provides habitat for BCT. Management implications of this sensitive species are discussed under the Special Status Species portion of this document. Improving stream conditions would address this concern by increasing stream cover and soil/water contact, both of which would reduce solar gain and buffer temperature fluctuations.

Specific water quality information was obtained from a report prepared by the Wyoming Department of Environmental Quality (WDEQ) published in 1998. It is available on their website. This report also identifies the beneficial uses for each stream.

The following are excerpts from the WDEQ 1998 report (WDEQ, 1998):

Raymond Canyon drainage (includes the North and South Forks of Raymond Creek): Un-assessed.

Smithsfork/Muddy Creek drainage: Monitoring data show dissolved oxygen levels below 8mg/l in June of 1993, 1994, 1995, and 1996 at the Bear River station below the Smithsfork (outside of the allotment). Historic evaluations provide conflicting information, either indicating concerns with silt, sediment and flow alteration, or no concerns. The approximately 242 perennial reach miles in this drainage are evaluated as fully supporting all designated beneficial uses.

Salt Creek drainage (includes Coal Creek): Coal Creek drains areas of highly unstable geologic materials which are subject to large slumps and slides. In many parts of the drainage, these slumps and slides have been large enough to move the stream channel. The result is that Coal Creek is flowing past or through large areas of unconsolidated flow and slump material and transporting those sediments downstream into Idaho. Coal Creek contains a series of debris flow complexes. The approximately 60 perennial miles are reported as fully supporting all designated beneficial uses.

3.9 Recreation

The major recreational activity is big game hunting during the months of August through October. Other recreational activities are cross-country skiing, snowmobiling, fishing, sightseeing, four-wheel ATV use, bird-watching, casual target shooting, photography, and antler hunting (deer and elk antlers). Commercial or organized outfitting and guiding requires a Special Use Permit. The remainder of the recreational activities is dispersed casual use.

Several locations along Coal Creek Road have eroded along the creek banks over the past years, due to natural precipitation runoff, livestock grazing, and improper construction of the two-track road. The two-track road altered the natural topography of the land and thus the existing runoff flow path. In addition to the creek bank erosion, several storm conveyance structures have diminished and washed out over the years. The erosion problem has been an increasing concern along certain areas of interest of Coal Creek, which, if not corrected could cause a public health and safety concern to recreationists and livestock operators.

3.10 Visual Resource Management (VRM)

BLM's VRM system provides a way to identify and evaluate scenic values to determine the appropriate levels of management. It also provides a way to analyze potential visual impacts and apply visual design techniques to ensure that surface-disturbing activities are in harmony with their surroundings. There are four VRM classes. This allotment is a VRM class II, whose

objective is: To retain the existing character of the landscape. The level of change to the characteristic landscape should be low.

3.11 Wilderness Values and Areas of Critical Environmental Concern (ACEC)

The Raymond Mountain Wilderness Study Area (WSA) is located in the Sublette Mountain Range (Raymond Mountains) and encompasses 32,936 acres in the western portion of the Smithsfork Allotment. The WSA was designated a WSA in a 1981 *Wyoming Wilderness Study Areas Final Inventory Report*. An Environmental Impact Statement was prepared in 1988, with a recommendation in 1990 to forward the Raymond Mountain WSA as suitable for wilderness designation. Congressional action has not been initiated as of November 2004. Current management of the WSA is under the guidance of the BLM Manual 6330-Management of Wilderness Study Areas (7/13/2012), the Kemmerer RMP of 2010, and the Raymond Mountain ACEC Plan of 1982.

The WSA is approximately nineteen miles in length and four miles wide at its widest point. The WSA has diverse vegetation and steep topography. A major portion of the area is forested with douglas fir, lodgepole pine, and other coniferous trees, as well as aspen. The southern end of the WSA gives way to stands of big sagebrush and rock outcrops. Several drainages are located in the area. Huff and Raymond creeks contain an essentially pure strain of the Bonneville or Bear River (Bonneville) cutthroat trout. The WSA is also an important area for moose, deer, elk and other wildlife, as well as providing forage for livestock. The WSA has historically been used by both cattle and sheep.

The Raymond Mountain ACEC was designated in 1982. The ACEC was designated to amplify the management needs of the Bear River cutthroat trout, which is a BLM sensitive species. The ACEC is approximately 11 miles in length and four miles wide at its widest point. It contains approximately 12,660 acres (BLM, 1982).

4.0 Environmental Effects

This chapter describes the direct and indirect effects that would be expected to occur upon the implementation of the considered alternatives. This chapter is organized by resource topics, with the impacts of all alternatives combined under each resource.

The Council on Environmental Quality (CEQ) regulations that implement NEPA defines a cumulative impact as: “the impact on the environment which results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions.” Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7).

4.1 Cultural Resources

Alternative 1 – Proposed Action

The Proposed Action would not affect significant cultural and paleontological resources in the area as appropriate design features and mitigation measures would be applied. However, there is a chance of damaging previously unknown buried sites. A Class III cultural survey was completed in 2012 for all areas where there is potential for these impacts to occur. No significant sites were discovered (Wolfe, 2012).

Alternative 2 – No Action Alternative

There would be no direct impacts on significant cultural and paleontological resources in the area resulting from the no action alternative. However, if such sites exist in or near the sites proposed for treatment within the ROW, continued erosion over time could expose these sites and they could be permanently lost from lack of discovery and subsequent protection.

4.2 Livestock Grazing Management

Alternative 1 – Proposed Action

The amount of livestock forage available would temporarily be reduced by a small amount from implementation of the Proposed Action. To allow desirable native vegetation to become firmly established so that it can withstand moderate grazing use, sites where road slopes and stream banks are stabilized and surrounding areas will require protection from livestock trampling and grazing for a reasonable period of time (approximately two years). The total maximum acres of land that would be temporarily unavailable for livestock grazing would not exceed 25 acres (F. Roadifer, personal communication, 2013) which would equate to no more than 12 AUMs based on current estimated conditions and production. Management of livestock may be inconvenienced to some degree due to fences, gates, etc. necessary to temporarily protect revegetated areas. The long-term expected increase in forage production and availability resulting from properly implementing the Proposed Action and allowing desirable vegetation to become firmly established would mitigate for the small temporary reduction and inconveniences. Livestock could possibly be displaced temporarily from locations near the project area by the presence of machinery and work activity. This displacement would aid in removing livestock in riparian areas, and displacing them to the uplands. Areas of crossing will need to be relocated during construction to avoid use of steep areas.

Alternative 2 – No Action Alternative

The amount of livestock forage currently available would remain the same, or possibly gradually decline further as banks are eroded and the riparian system remains overloaded with sediment from the disturbance associated with the road under current conditions.

4.3 Wildlife and Fisheries Resources

Alternative 1 – Proposed Action

Individual fish or wildlife could potentially be temporarily disrupted or displaced during implementation of the Proposed Action. Habitat for BCT would be immediately improved upon implementation at the specific project sites through a reduction in sediment, improved channel configuration, increased cover, and fully vegetated banks and slopes where vegetation mats are placed. Habitat conditions for both terrestrial and aquatic species would continue to improve over time as vegetation becomes more firmly established and sediments from other sources are trapped and stored on these sites. Habitat conditions downstream would also improve over the long-term for fish and wildlife as a result of reduced sediment in the stream.

Replacement of the existing culverts with a bridge at site 8 will enhance opportunities for fish and other aquatic fauna to move freely through this portion of the Coal Creek drainage.

Alternative 2 – No Action Alternative

Fish and wildlife habitat conditions would remain in their current condition and would continue to be impacted by excess sediment contributions from the road. Conditions could potentially gradually decline further as banks are eroded and the riparian/stream system remains overloaded with sediment from the disturbance associated with the road.

Movement of fish and other aquatic fauna would remain somewhat limited at the culverts as they currently exist, or could gradually be further reduced if the channel downstream becomes deeper over time.

4.4 Soils

Alternative 1 – Proposed Action

In the short term, soils would be disturbed during project implementation. Impacts would include removal of surface vegetation, exposure of soils to erosive forces of wind and water, and some mixing of soil horizons. During construction, efforts will be made to minimize soil mixing and reestablish vegetation on them as rapidly as possible. Permanent turf reinforcing mats will be used to stabilize slopes of 4:1 or steeper. Other sites will be reseeded and protected from livestock grazing until suitably stabilized. Establishment of vegetation after project implementation would stabilize soils and reduce overall runoff from the site in the long term. Sediment contributions into Coal Creek would be reduced. Potential effects on these resources would be similar to those on the wildlife and fisheries resources (i.e. very minor and brief negative impacts during actual implementation, but long-term very beneficial).

Alternative 2 – No Action Alternative

Current rates of soil erosion in the project area would continue, potentially causing further degradation of the sites and downstream conditions. Sediment contributions into Coal Creek would not be reduced.

4.5 Vegetation

Alternative 1 – Proposed Action

Proper implementation and establishment of healthier and more vigorous desirable plant communities at currently disturbed sites would reduce the amount of sedimentation into Coal Creek. These plant communities would also help stabilize the roadway and reduce future maintenance costs of this roadway. The new vegetation would increase overall ecosystem function of this project area to include: new vegetation opportunities for wildlife, shade for Coal Creek to improve the aquatic ecosystem and habitat for invertebrates and vertebrates, among others.

Alternative 2 – No Action Alternative

Current bare ground along the roadway would most likely invite invasive or non-native species to take root, instead of a native more desirable plant community.

4.6 Invasive, Non-Native Species

Alternative 1 – Proposed Action

Proper implementation and establishment of healthier and more vigorous desirable plant communities at currently disturbed sites would greatly reduce potential establishment and spread of noxious weeds.

Alternative 2 – No Action Alternative

Weeds currently found at the project area would remain and could spread to other bare ground at the disturbed sites identified in this EA.

4.7 Water Resources

Alternative 1 – Proposed Action

The project is directly associated with Coal Creek. Suspended sediments could be temporarily increased during project implementation. However, implementation would greatly reduce sediment contributions to Coal Creek over the long-term.

Alternative 2 – No Action Alternative

Sediment loading and riparian vegetation in the areas proposed for restoration would remain in their currently degraded condition.

4.8 Recreation

Alternative 1 – Proposed Action

Improved road conditions may lead to increased vehicular traffic, whereas in the past the public may have avoided this area due to deteriorating road conditions. Better access could lead to increased overall recreation use and visitation. Construction should occur during the dry season, prior to hunting season, to minimize impacts to the increased vehicle traffic during that time.

Alternative 2 – No Action Alternative

The road condition will continue to deteriorate to the point where vehicle passage will become difficult to nearly impossible. Vehicles that continue to use the road will contribute to the sedimentation into Coal Creek and vegetation destruction along the edge of the roadway.

4.9 Visual Resource Management (VRM)

Alternative 1 – Proposed Action

Improved road conditions will not have an impact to the visual resources or change the existing character of the landscape. The level of change to the characteristic landscape would be low.

Alternative 2 – No Action Alternative

If the road condition continues to deteriorate to the point where vehicle passage will become difficult to nearly impossible, or additional damage occurs, the existing character of the landscape may change, with the potential of changing the VRM class.

4.10 Wilderness Values and Areas of Critical Environmental Concern (ACEC)

Alternative 1 – Proposed Action

Improved road conditions will have no impacts to the wilderness values of the area.

Alternative 2 – No Action Alternative

No change to the road condition would have no impact to the wilderness values of the area.

4.11 Cumulative Effects

4.11.1 Cultural Resources

Alternative 1 – Proposed Action

Based on the Class III survey conducted in this area in 2012, no significant cultural or paleontological resources were found in the project area. Therefore, there will be no Cumulative Effects on these resources from the Proposed Action.

Alternative 2 – No Action Alternative

There will be no Cumulative Effects on these resources from the No Action alternative.

4.11.2 Livestock Grazing Management

Alternative 1 – Proposed Action

Cumulative Effects on livestock grazing management from implementation of the Proposed Action, combined with implementation of the Smithsfork AMP, and other improved management practices throughout this watershed (e.g. head cut control projects recently implemented on State and private land), would result in improved forage production and healthier rangelands / riparian conditions over the long term. Efforts to improve riparian conditions along Coal Creek through grazing management alone would be enhanced through addressing this excess sediment source not directly caused by livestock grazing. However, there will be minor reductions in available forage resulting from protection of the sites being stabilized through implementation of the Proposed Action, which would be mitigated over the long-term from increased production and improved stream / riparian condition and function.

The related actions on private and State land will contribute to the improved management practices. Minor reductions in forage will contribute to the estimated 12 AUM temporary unavailability while the area revegetates.

Alternative 2 – No Action Alternative

The amount of livestock forage currently available would remain the same, or possibly gradually decline further as banks are eroded and the riparian system remains overloaded with sediment from the disturbance associated with the road. Potential improvements in riparian conditions from improved grazing management practices implemented in the Smithsfork AMP may not be fully realized due to the offsetting excess sediments from the currently unstable road.

4.11.3 Wildlife and Fisheries Resources

Alternative 1 – Proposed Action

There will be cumulative long-term benefits to fish and wildlife resources from implementation of the Proposed Action, combined with implementation of the Smithsfork AMP, and other related efforts throughout this watershed. Riparian and stream habitat conditions would be directly improved on sites stabilized through project implementation. Furthermore, the reduction of excess sediment from these unstable sites would result in improved habitat conditions and stream function downstream. The cumulative benefits to BCT habitat from these efforts as well as other similar habitat improvements across their range would reduce the risk of this species being federally listed as threatened or endangered.

The related actions on private and State land will contribute to the overall benefit to the watershed and its resources.

Alternative 2 – No Action Alternative

Fish and wildlife habitat conditions would likely remain in their current condition and would continue to be impacted by excess sediment contributions from the road. Conditions could potentially gradually decline further as banks are eroded and the riparian / stream system remains overloaded with sediment from the disturbance associated with the road. The No Action Alternative would result in no cumulative benefits to BRC habitat, which would result in no decrease in the risk of this species being federally listed as threatened or endangered.

4.11.4 Soils

Alternative 1 – Proposed Action

There will be cumulative long-term benefits to the soil resources from implementation of the Proposed Action, combined with implementation of the Smithsfork AMP, and other related efforts throughout this watershed. Improved conditions of riparian plant communities would increase sediment storage and build deeper and more productive soils along riparian corridors. Improved vegetation on upland sites would also reduce soil loss and improve soil retention on these areas.

The related actions on private and State land will contribute to the overall benefit to the watershed and its resources.

Alternative 2 – No Action Alternative

Bare and degraded slopes and stream banks would likely remain in their current condition and would continue to contribute excess amounts of sediment into Coal Creek. Conditions could potentially gradually decline further as the remaining plant communities decline further and provide even less protection to the soils remaining at these sites.

4.11.5 Vegetation

Alternative 1 – Proposed Action

There will be cumulative long-term benefits to the vegetation resources from implementation of the Proposed Action, combined with implementation of the Smithsfork AMP, and other related efforts throughout this watershed. Improved conditions of upland and riparian plant communities would provide increased water infiltration rates, reduced sediment loss and improved forage conditions for wildlife and livestock. Establishment of healthier and more vigorous desirable plant communities at currently disturbed sites would greatly reduce potential establishment and spread of noxious weeds.

The related actions on private and State land will contribute to the overall benefit to the watershed and its resources.

Alternative 2 – No Action Alternative

No vegetation disturbance would occur during project implementation. However, remaining plant communities could continue to decline further and provide even less protection to the soils remaining at these sites and weeds currently found at the project area would remain and could spread.

4.11.6 Water Resources

Alternative 1 – Proposed Action

The project is directly associated with Coal Creek. Implementation of the Proposed Action combined with implementation of the Smithsfork AMP, and other related efforts throughout this watershed would greatly reduce sediment contributions to Coal Creek over the long-term.

The related actions on private and State land will contribute to the overall benefit to the watershed and its resources.

Alternative 2 – No Action Alternative

Sediment loading and riparian vegetation in the areas proposed for restoration would remain in their currently degraded condition which would allow the current rates of sediment contribution to Coal Creek to continue.

4.12 Mitigation Measures Considered

Various mitigation measures will be practiced during and after project implementation. Disturbed sites will be protected from livestock grazing until stabilized with vegetation, which is estimated at two years. Efforts will be made to avoid releasing sediments into the stream to the extent reasonably possible during construction. The implementation period will avoid BCT spawning and incubation periods. Crossing/trailing areas will be relocated to areas that will cause the least impact.

Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the BLM, or any person working on his behalf, shall be immediately reported to the authorized officer. The BLM shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the authorized officer. An evaluation of the discover will be made by the authorized officer to determine appropriate actions to prevent the loss of significant cultural or BLM scientific values. The BLM will be responsive for the cost of evaluation and any decision as to proper mitigation measures will be made by the authorized officer after consulting with the BLM.

5.0 Tribes, Individuals, Organizations, or Agencies Consulted

Floyd Roadifer, WGFD
3Y Livestock LC
Boehme Ranch
Lavalle Hirschi
Karma Loertsher
Evan Pope
Smithsfork Grazing Assoc.
Western Watersheds Project
Office of State Lands & Investment
US Army Corps of Engineers
DEQ, Water Quality Division
Board of Lincoln County Commissioners

Justin Gurr
Argyle Ranch INC
Erick Esterholdt
K-H Cornia Investments LC
Merrill Muir
Fred Roberts
Teichert Brothers L.L.C
Twin Creeks Open Range LLC
USFWS
Demont Grandy, Lincoln Cons. District
Justin Williams WY Dept. Ag.

6.0 List of Preparers

Scott Whitesides	Planning and Environmental Coordinator
Steven Calkum	Rangeland Management Specialist
Erik Norelius	Wildlife Biologist
Lynn Harrell	Archeologist
Kelly Lamborn	Realty Specialist

6.1 List of Reviewers

Levi Bennington	Range Management Specialist
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Travis Chewning Planning and Environmental Coordinator
Basia Trout Assistant Field Manager, Resources
Floyd Roadifer Wyoming Game and Fish Biologist
Jeromy Caldwell Field Manager

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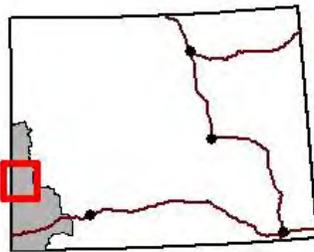
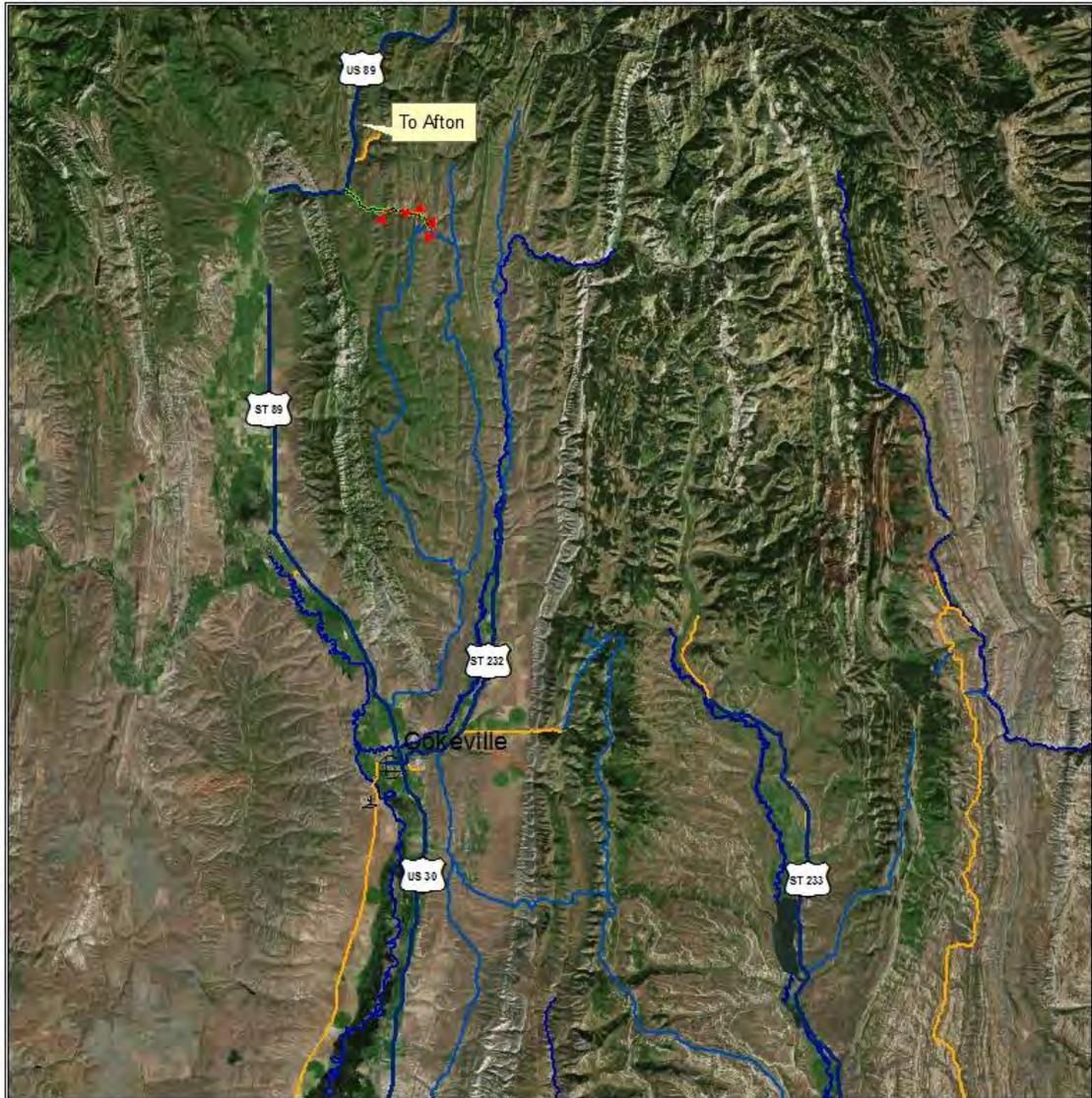
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Appendix A Site Map



- ▲ coal_creek_APE
 - Coal_Creek_Rd
 - main_roads
- Lincoln County Roads**
RDNAME_ADD
- Town Streets
 - County
 - KFO major streams

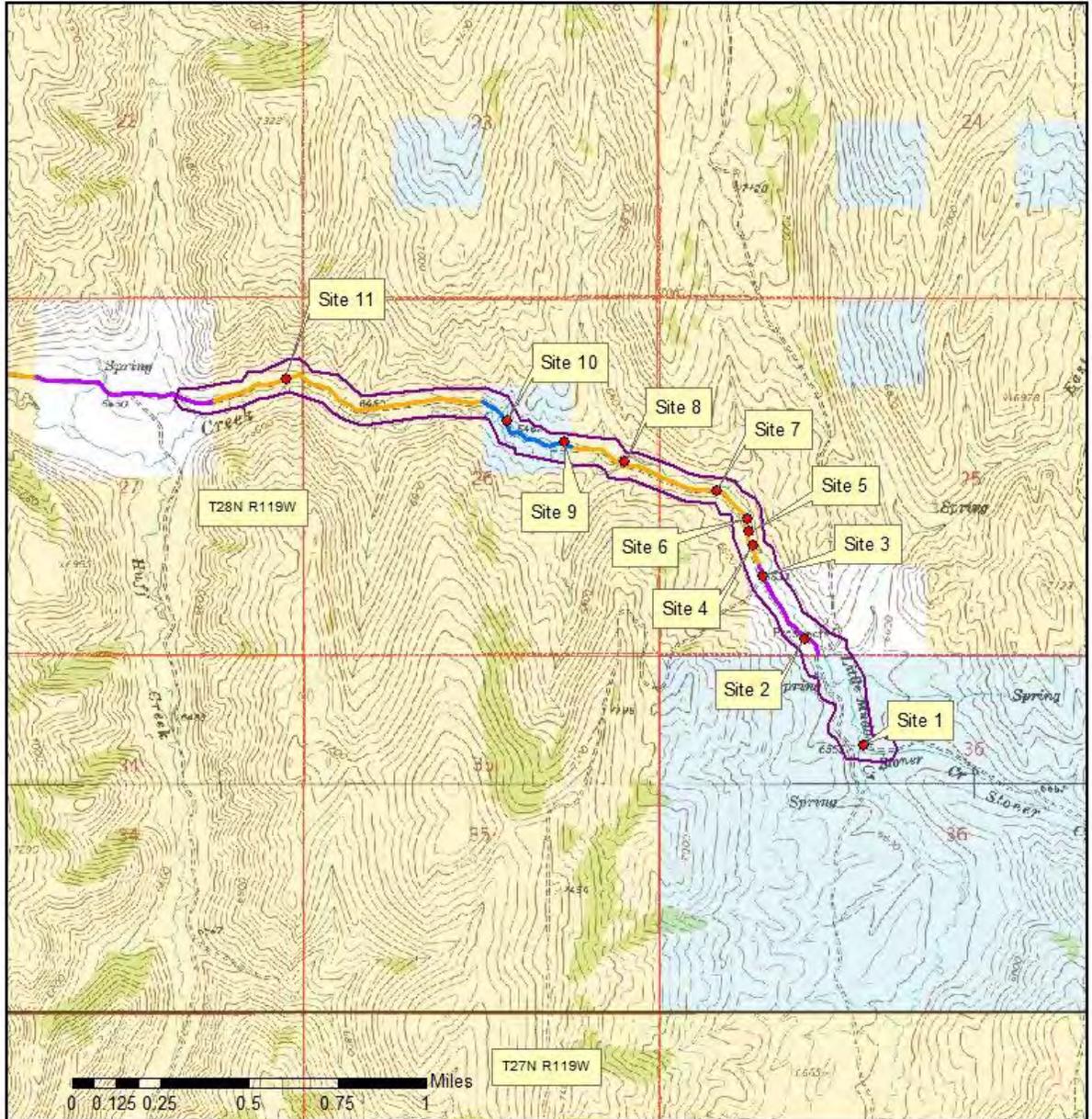
Coal Creek Stabilization and Sediment Reduction Project General Site Map



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Appendix B Overall Project Site Map

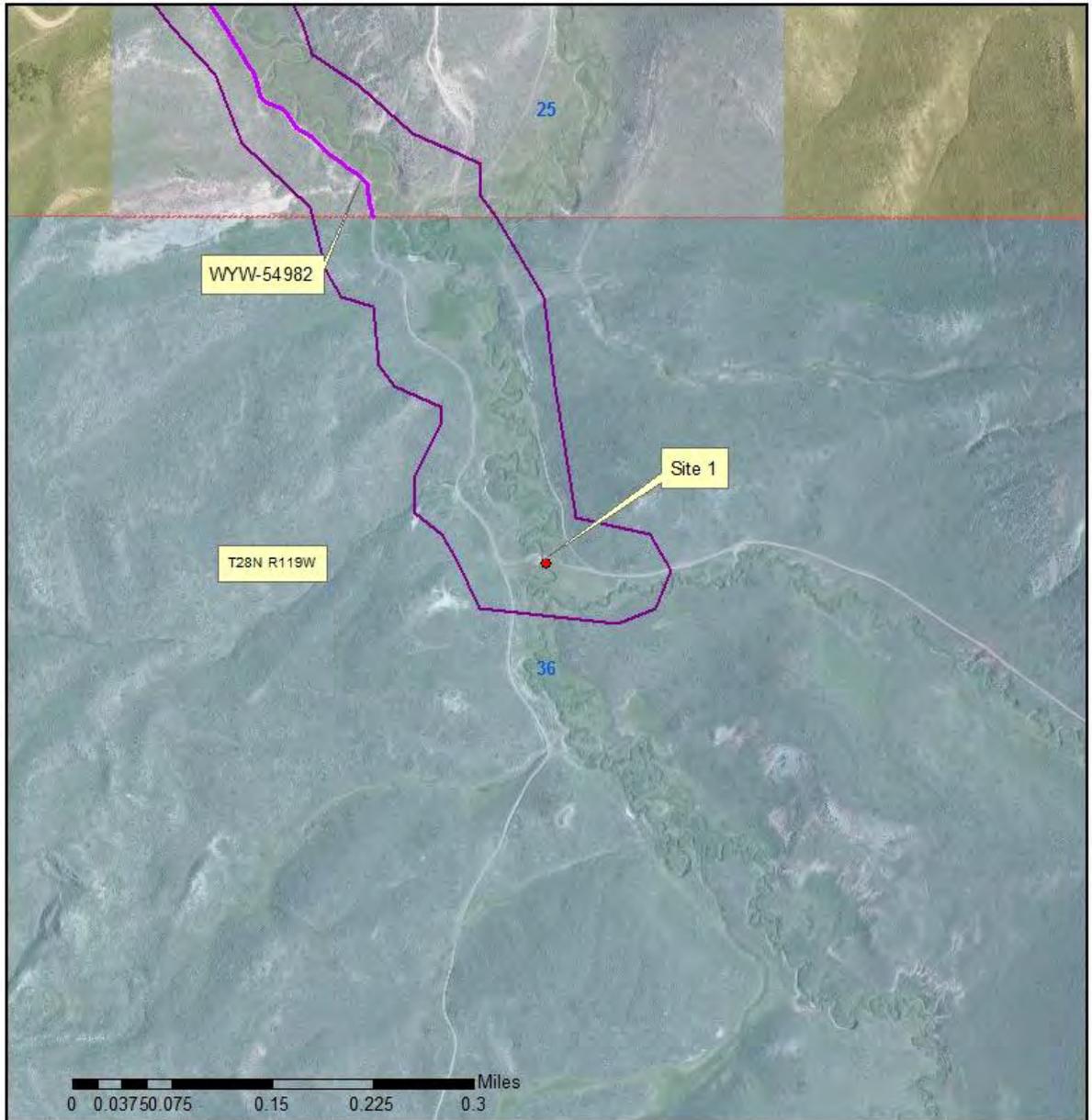


Allotment Assignment

- Site Locations
- Coal Creek Project Area
- Bureau of Land Management
- Private
- State

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Appendix B-1 Site 1

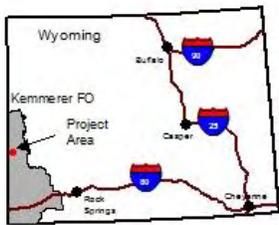
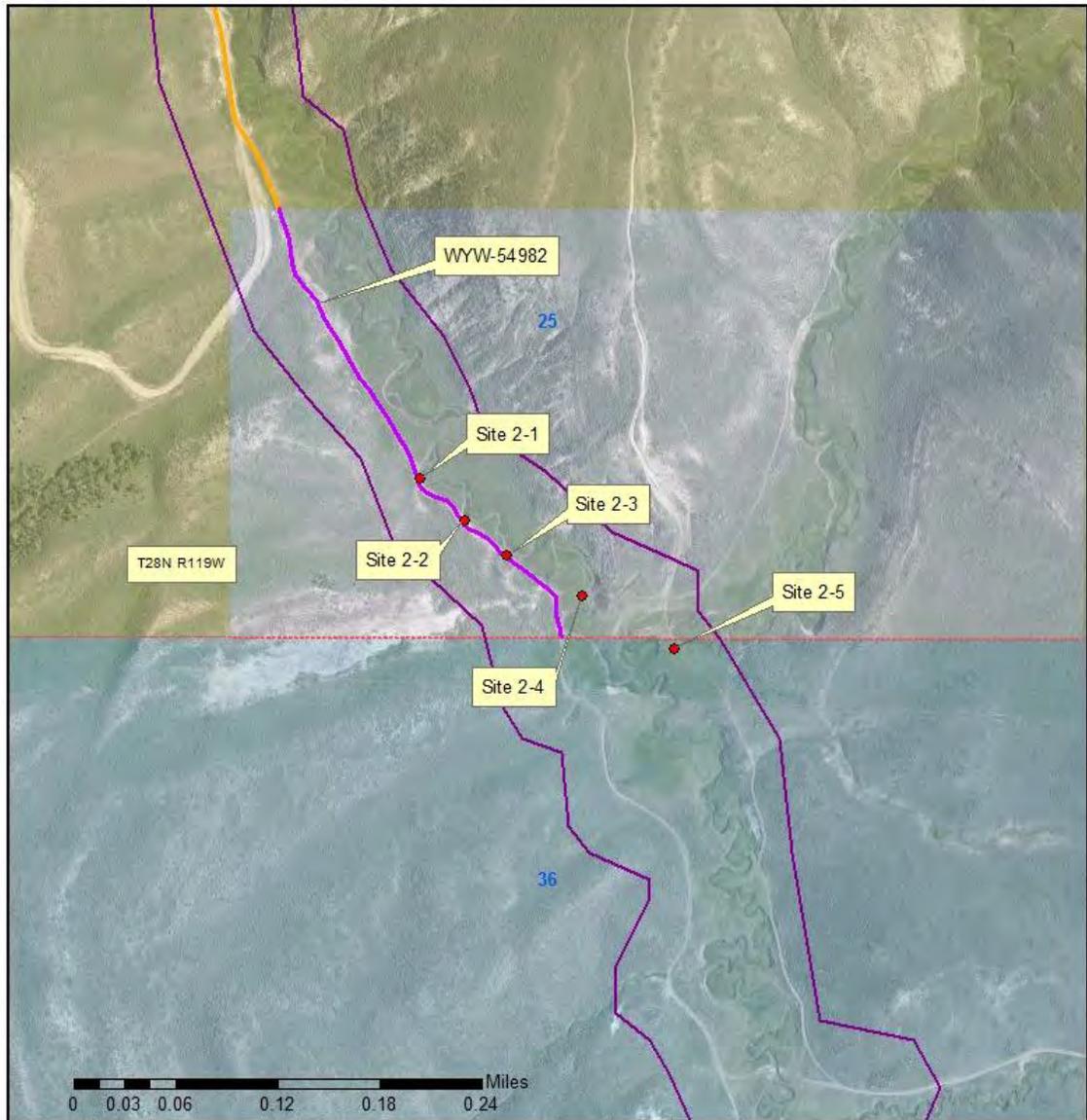


Allotment Assignment

- Site Locations
- Coal Creek Project Area
- Bureau of Land Management
- Private
- State

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Appendix B-2 Site 2

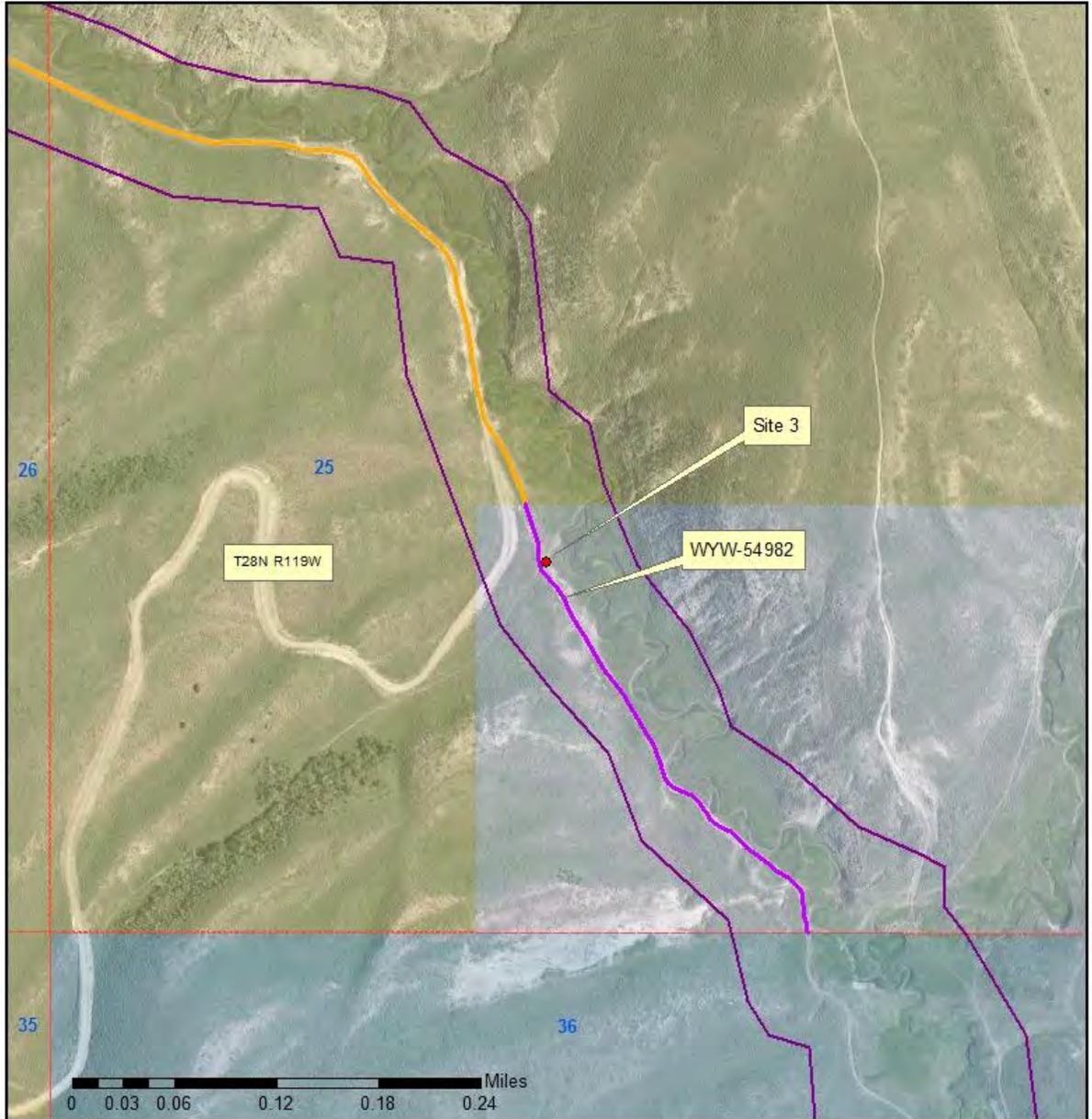


Allotment Assignment

- Site Locations
- Coal Creek Project Area
- Bureau of Land Management
- Private
- State

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Appendix B-3 Site 3

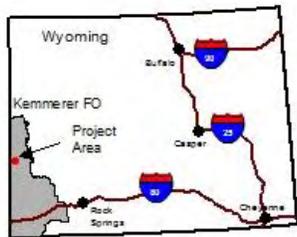
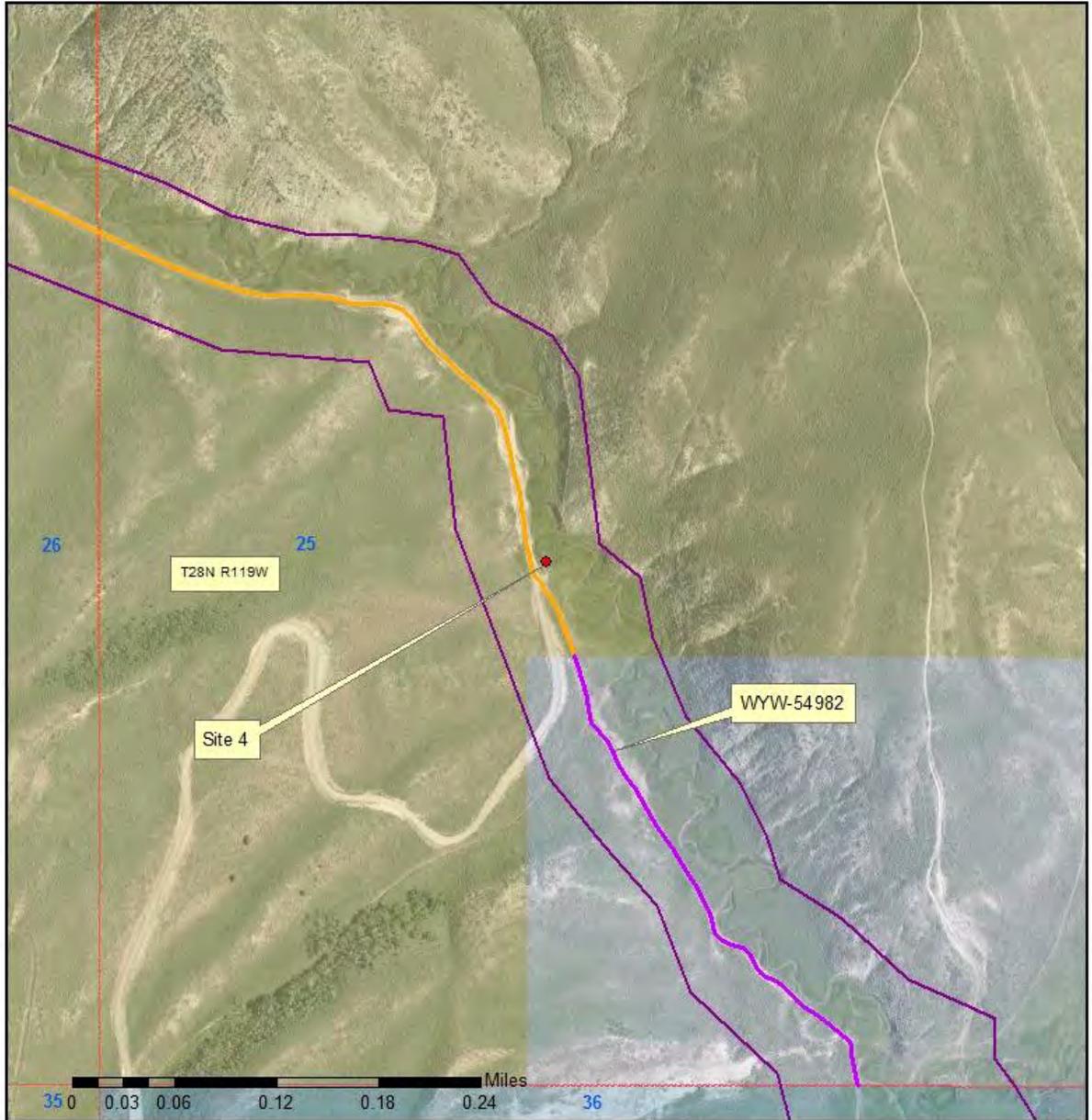


Allotment Assignment

- Site Locations
- Coal Creek Project Area
- Bureau of Land Management
- Private
- State

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Appendix B-4 Site 4

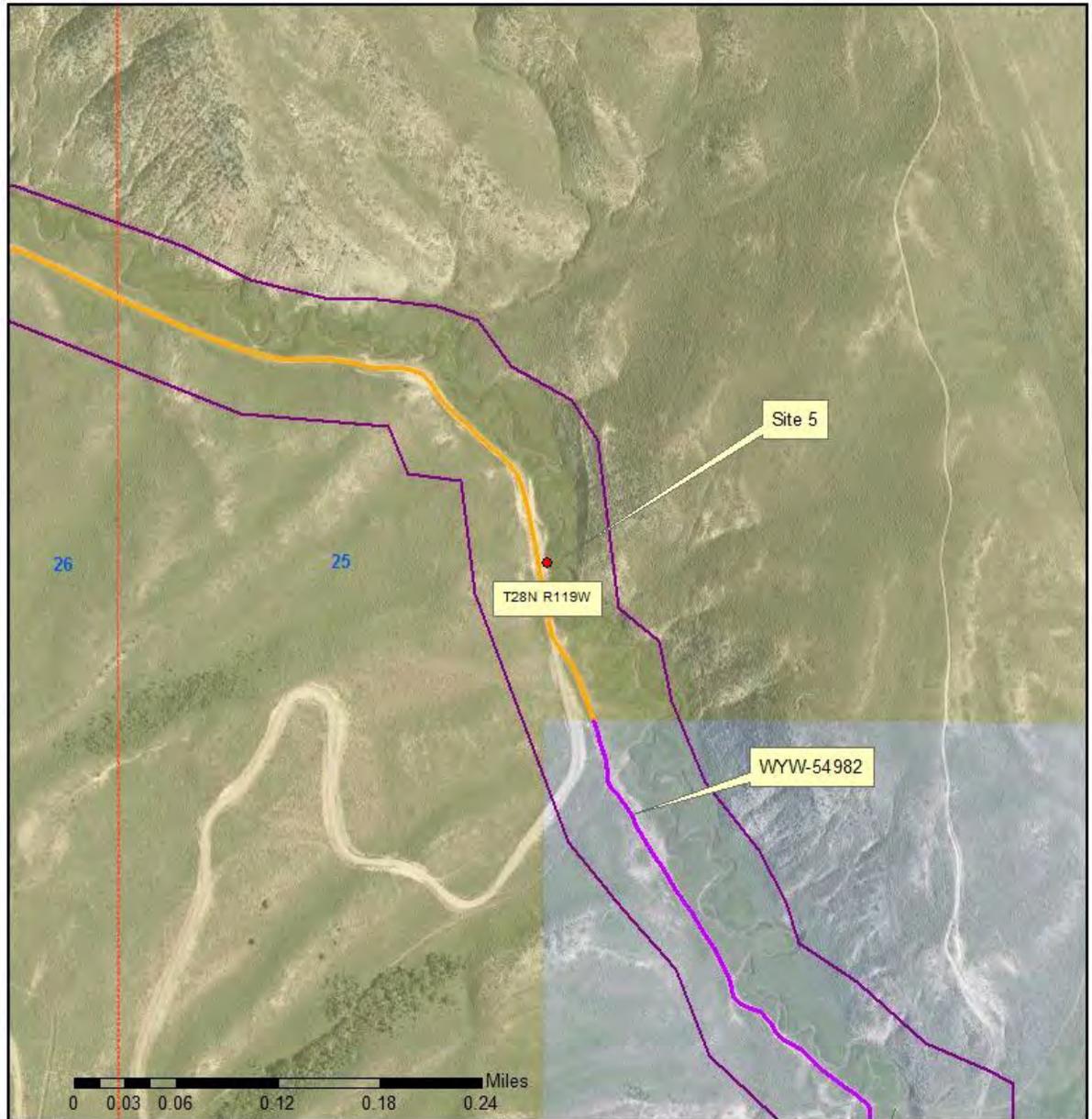


Allotment Assignment

- Site Locations
- Coal Creek Project Area
- Bureau of Land Management
- Private
- State

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Appendix B-5 Site 5

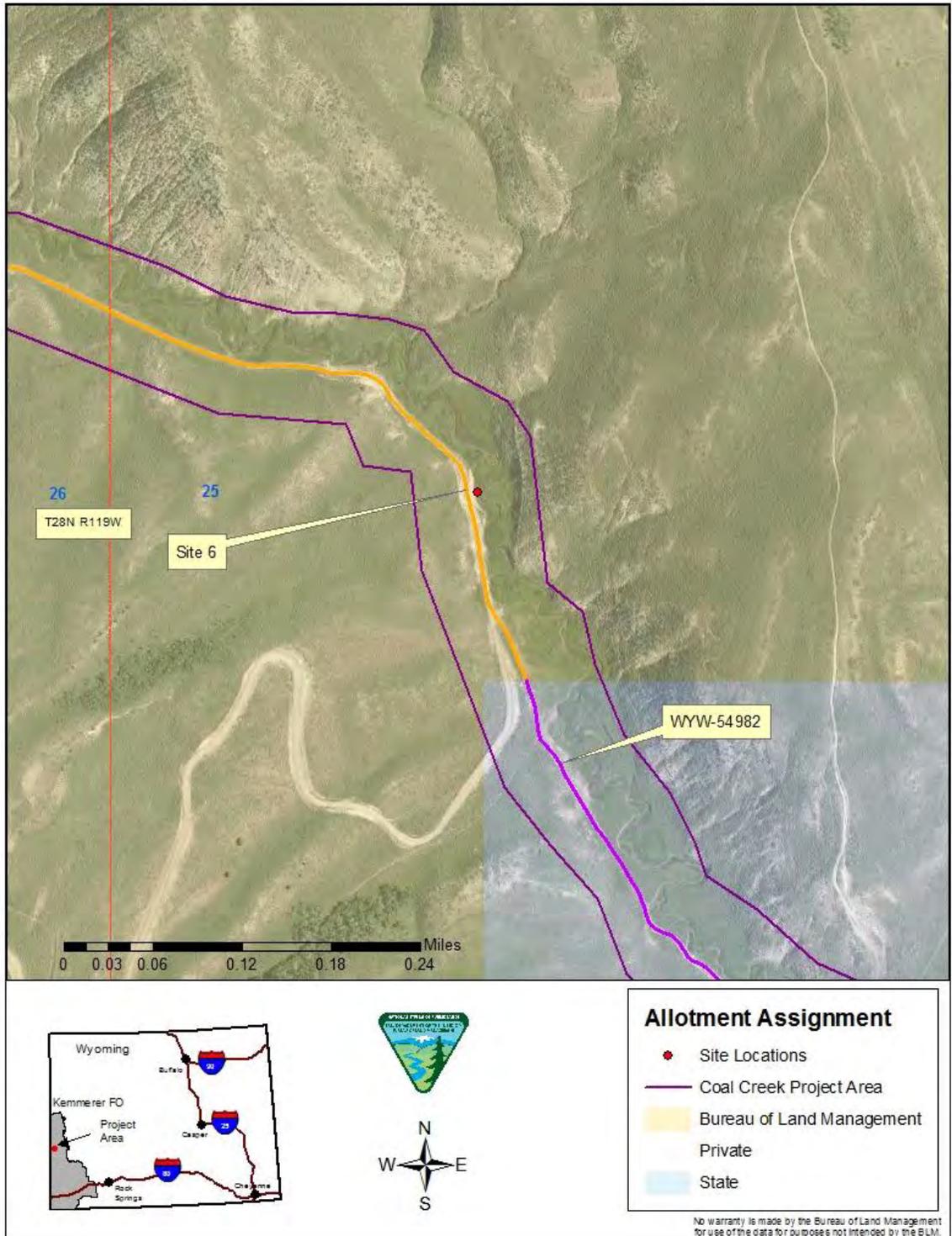


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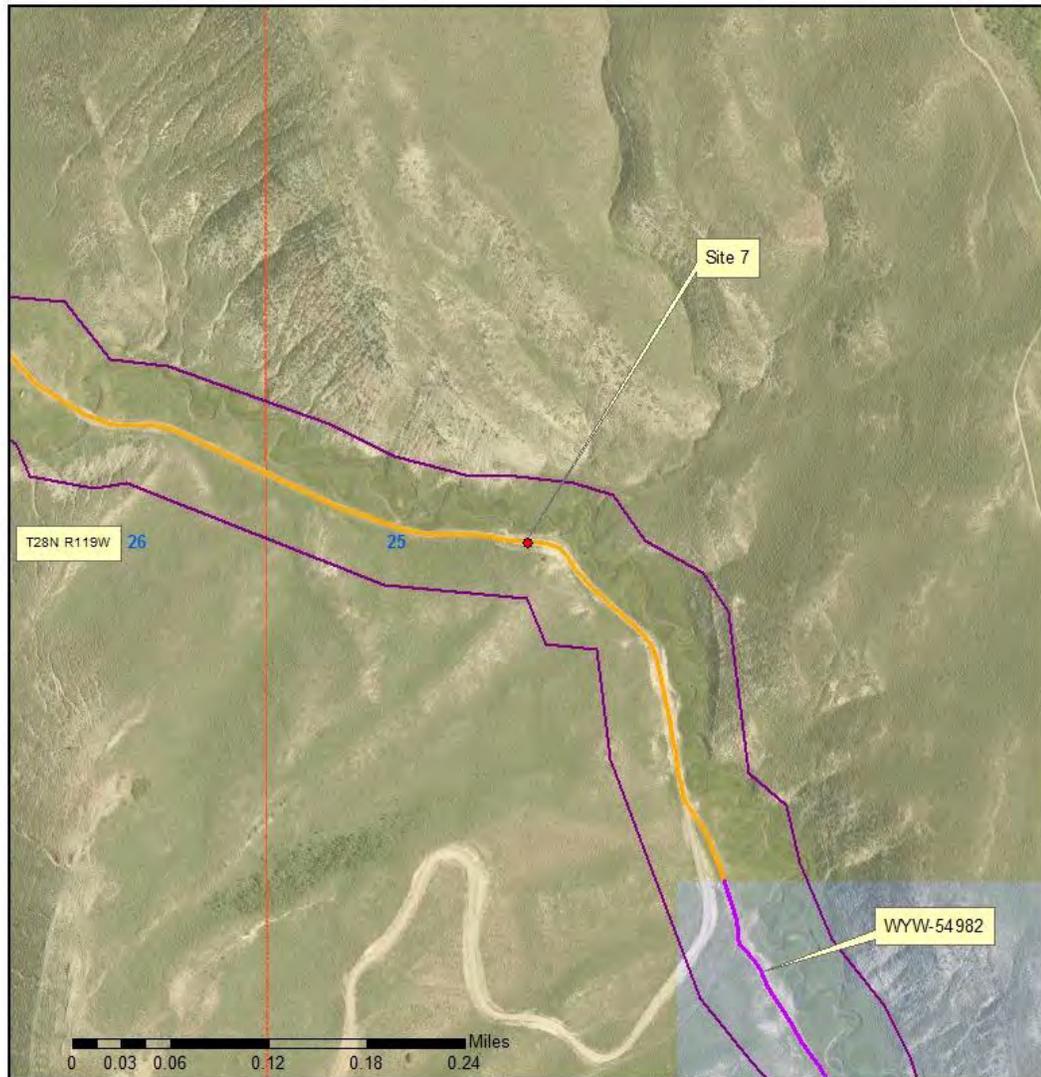
- Site Locations
- Coal Creek Project Area
- Bureau of Land Management
- Private
- State

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Appendix B-6 Site 6



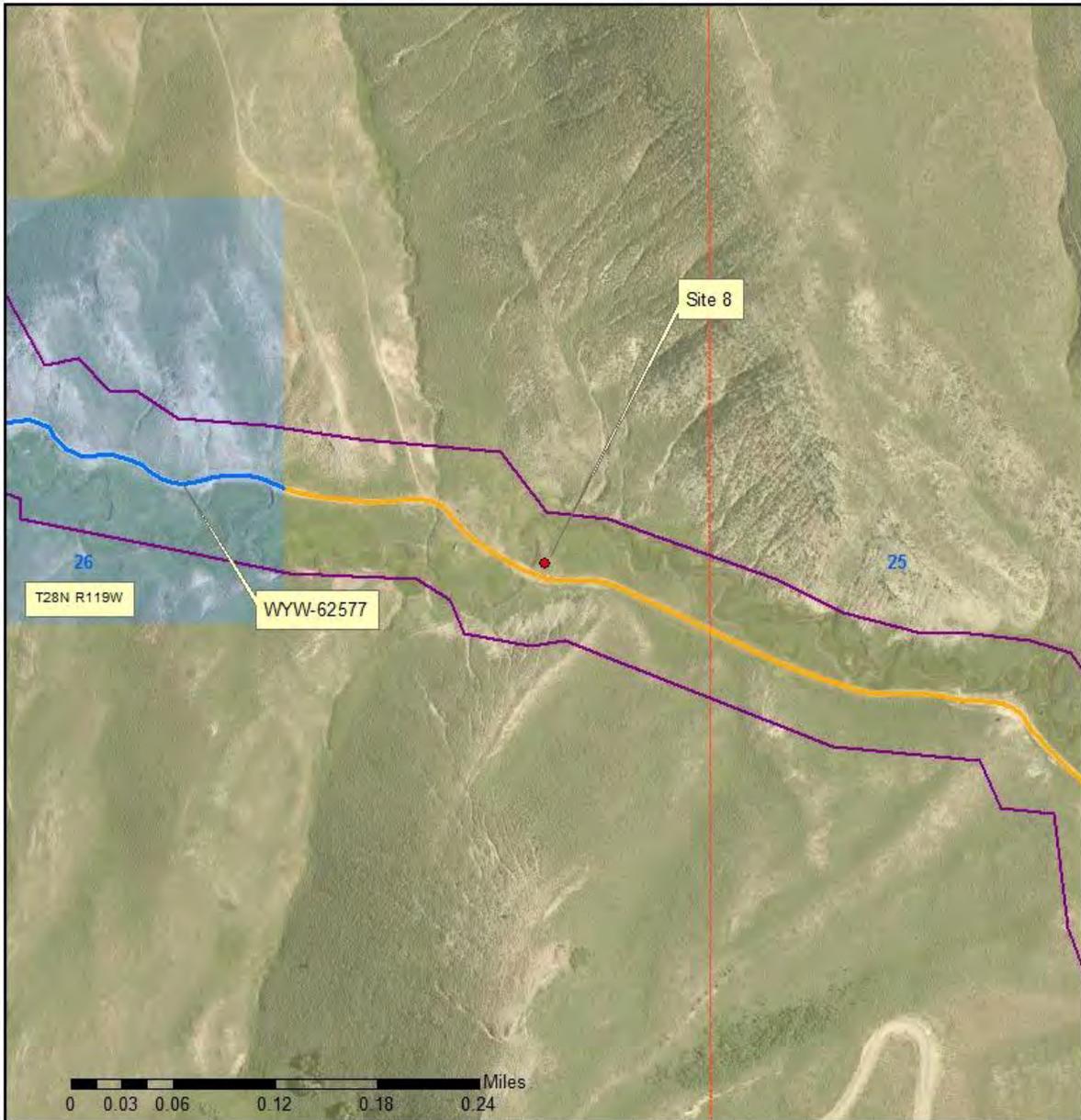
Appendix B-7 Site 7



Allotment Assignment	
●	Site Locations
—	Coal Creek Project Area
 	Bureau of Land Management
 	Private
 	State

No warranty is made by the Bureau of Land Management for use of the data for purposes not intended by the BLM.

Appendix B-8 Site 8

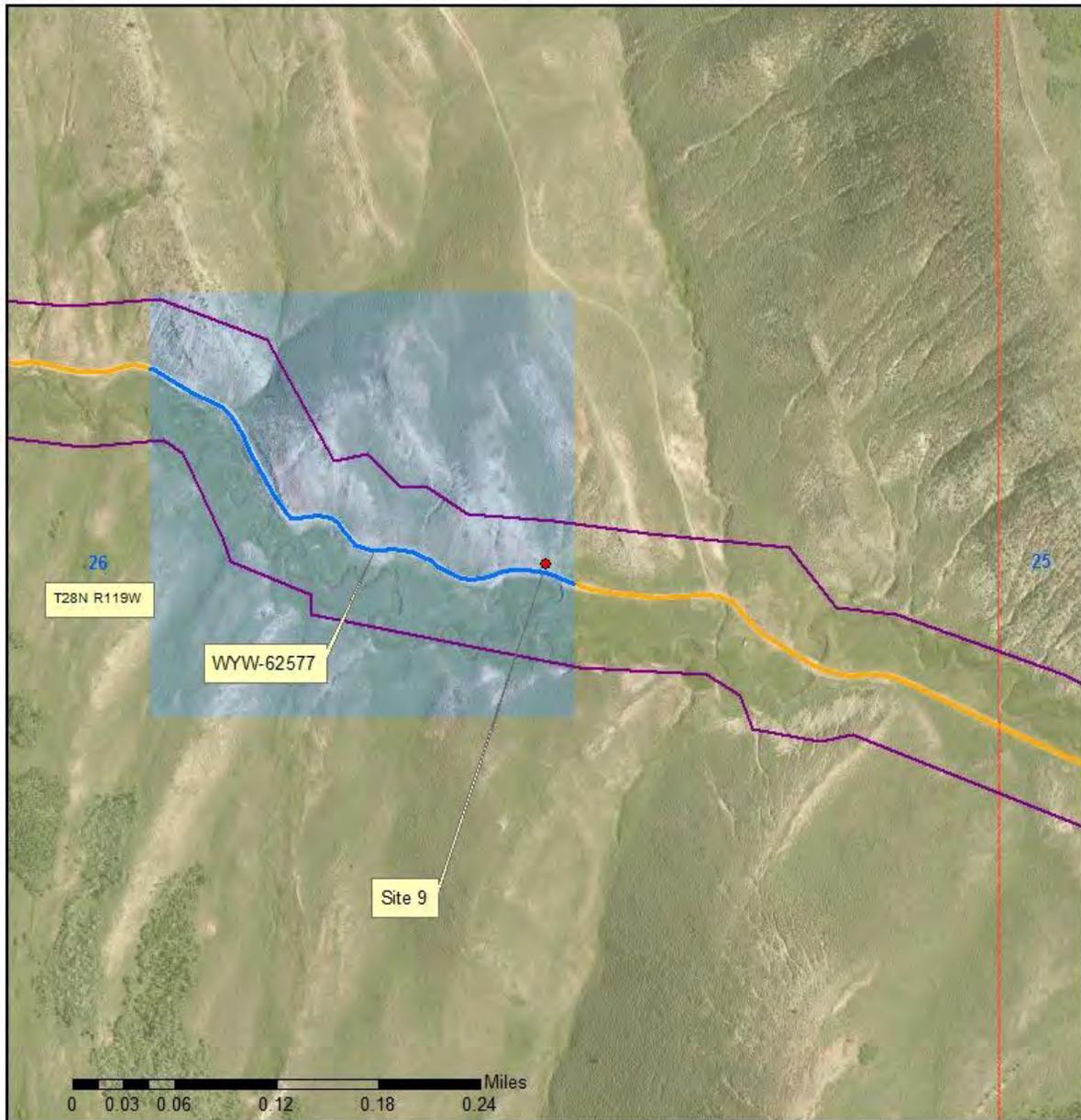


Allotment Assignment

- Site Locations
- Coal Creek Project Area
- Bureau of Land Management
- Private
- State

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Appendix B-9 Site 9

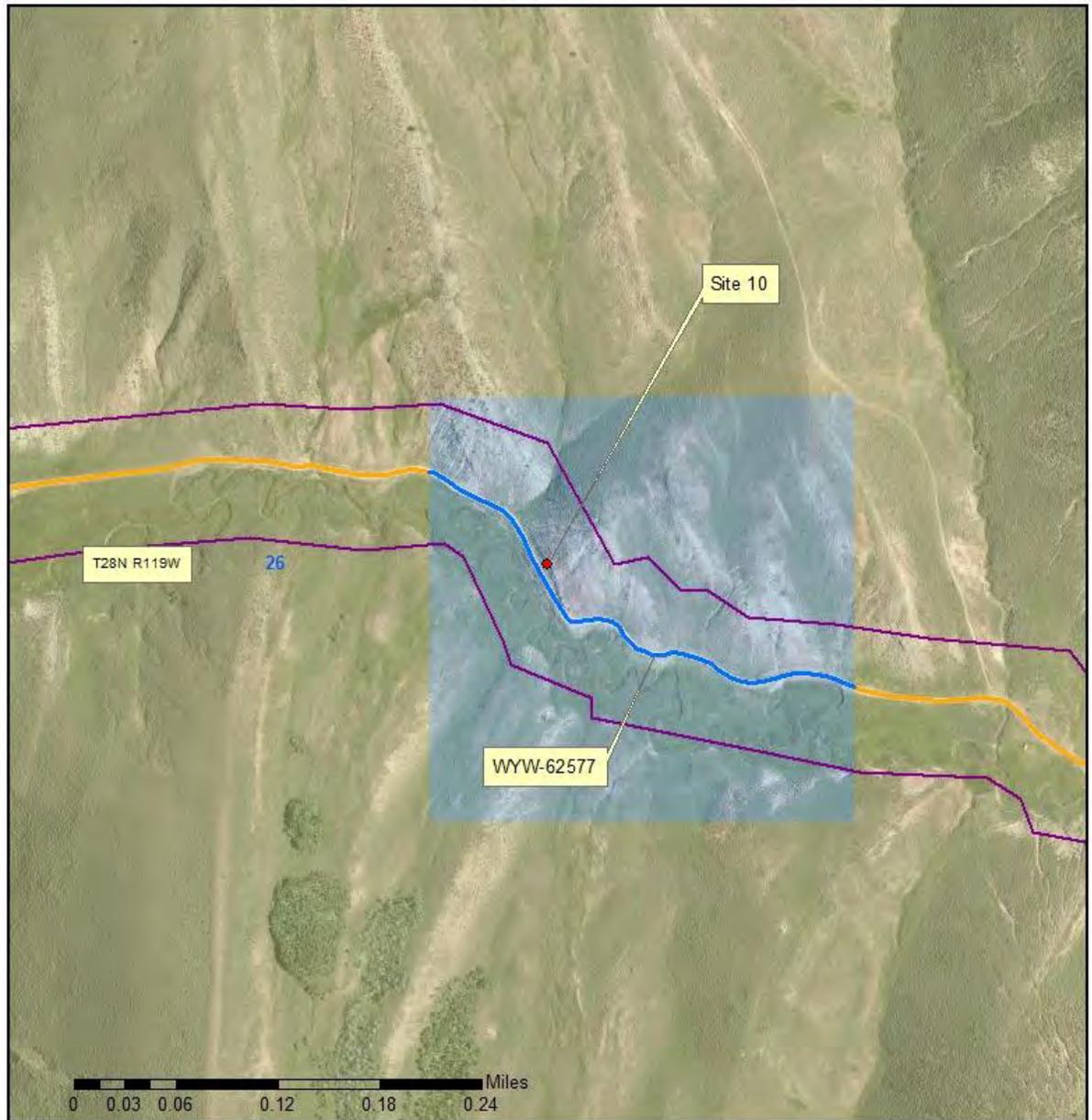


Allotment Assignment

- Site Locations
- Coal Creek Project Area
- Bureau of Land Management
- Private
- State

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Appendix B-10 Site 10

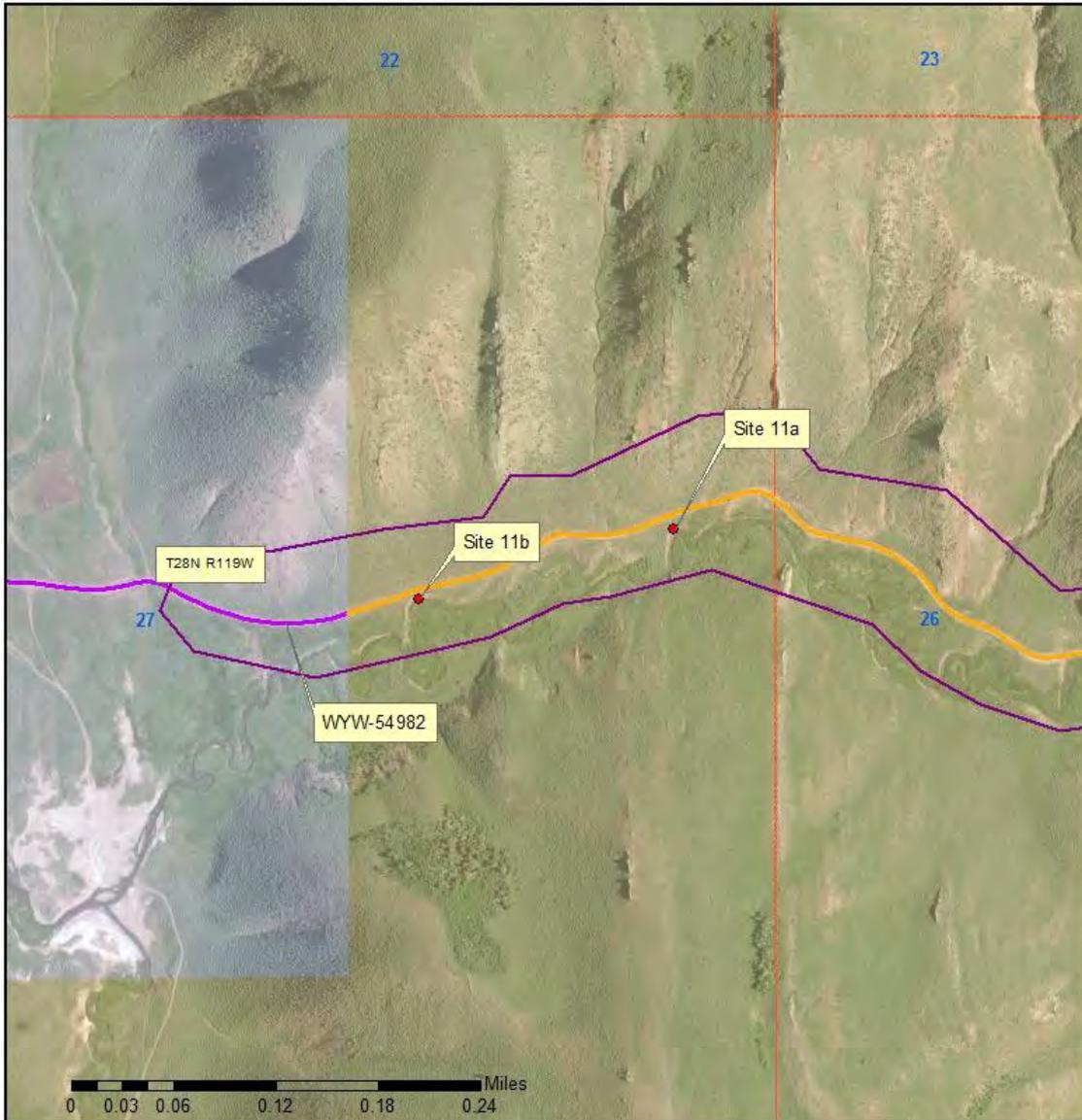


Allotment Assignment

- Site Locations
- Coal Creek Project Area
- Bureau of Land Management
- Private
- State

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Appendix B-11 Site 11

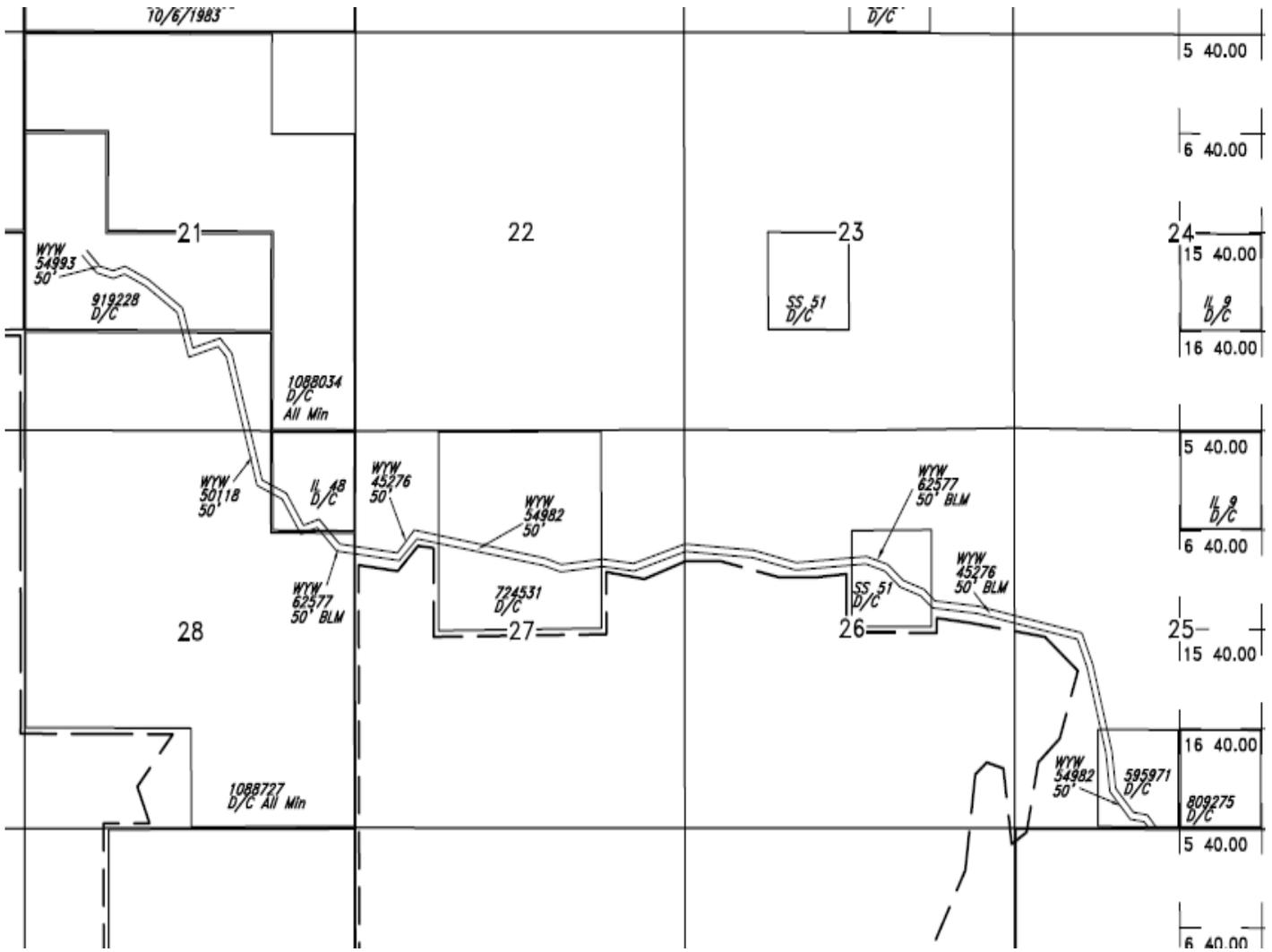


Allotment Assignment

- Site Locations
- Coal Creek Project Area
- Bureau of Land Management
- Private
- State

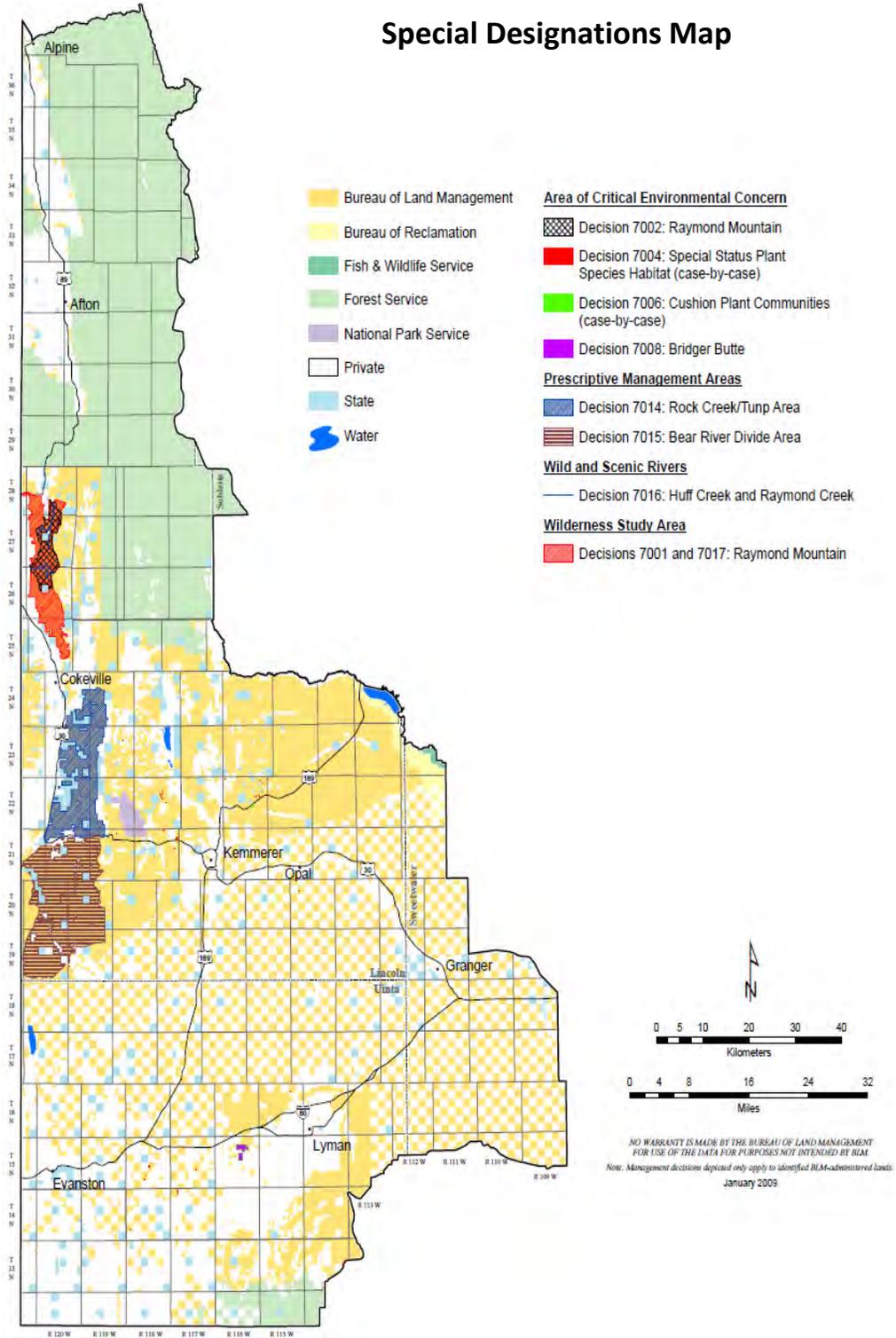
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Appendix C Case File Map

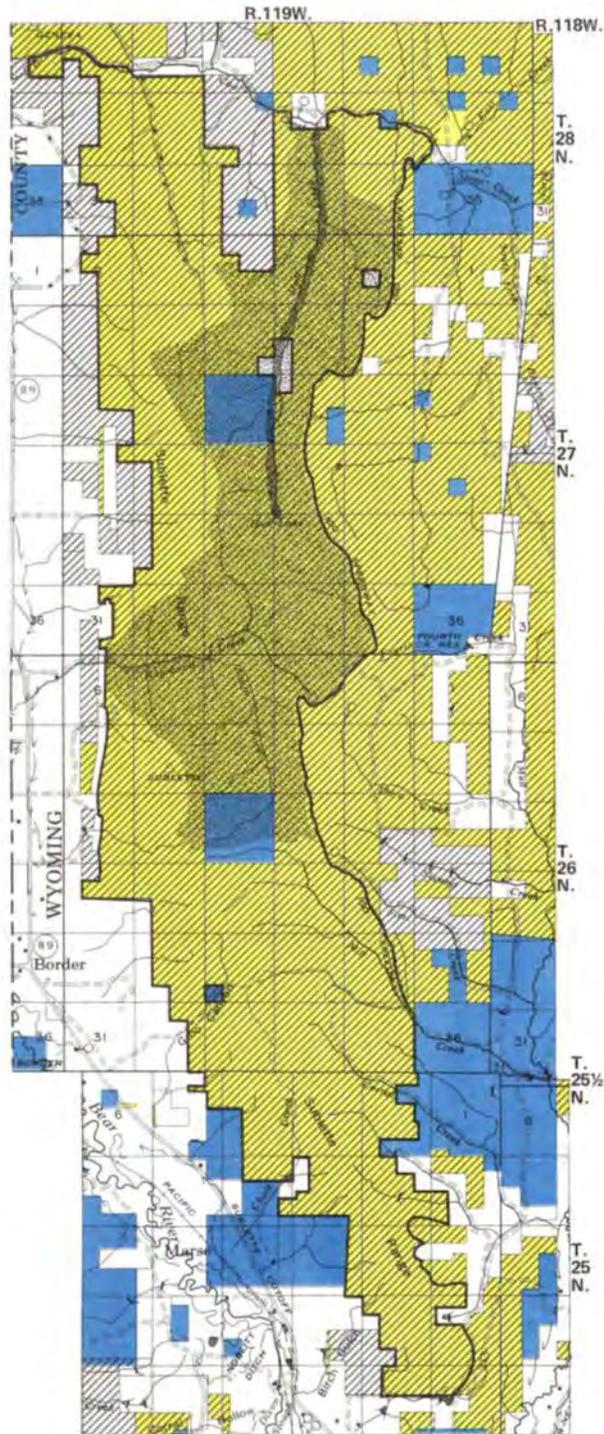


Appendix D

Special Designations Map



Appendix D-1



Map RM-1
 Raymond Mountain WSA
LAND AND MINERAL STATUS

Appendix E

Coal Creek PFC Table 1994-2012

Reach ID #	Date	Stream Name	Allotment	General Reach Location	RATING (miles)				Total	FAR SCALE	PFC SCALE	
					PFC	FAR						NF
						up	n/a	down				
41	8/18/1995	Coal Creek - Upper main fork to exclosure fence	Smithsfork			2.4				2.4		
42	8/17/1995	Coal Creek - East fork of Upper Main fork	Smithsfork				1			1		
40	8/18/1995	Coal Creek - Anna Marie Fork (BLM name for fork)	Smithsfork			1.1				1.1		
39	8/18/1995	Coal Creek - Banoose Fork (BLM name for fork)	Smithsfork				1.1			1.1		
43	8/17/1995	Coal Creek - East fork of Lower main fork	Smithsfork			1.5				1.5		
35	8/21/1995	Coal Creek - exclosure fork (BLM name for fork)	Smithsfork					0.75				
38	8/25/1995	Coal Creek - Main Fork	Smithsfork		2					2		
37	8/25/1995	Coal Creek - Omega Fork (BLM name for fork)	Smithsfork				2			2		
34	8/21/1995	Coal Creek - inside exclosure	Smithsfork	1						1		
33	8/21/1995	Coal Creek - Below exclosure fence to below B-channel	Smithsfork	0.5						0.5		
33	7/24/2007	Coal Creek - Below exclosure fence to below B-channel to private	Smithsfork		0.75					0.75		2
34	7/24/2007	Coal Creek - inside exclosure	Smithsfork		1.00					1.00		5
35	7/24/2007	Coal Creek - exclosure fork (BLM name for fork)	Smithsfork				0.75			0.75	4	

36	7/24/2007	Dipper Creek - upper	Smithsfork				1.00	0.75		1.75	5	
37	7/24/2007	Coal Creek - Omega Fork (BLM name for fork)	Smithsfork		2.00					2.00		1
38	7/12/2007	Coal Creek - Main Fork from private in Sec 25 down stream Part A	Smithsfork			0.25				0.25	3	
38	7/18/2007	Coal Creek - Main Fork from private in Sec 25 down stream Part B	Smithsfork		1.00					1.00		1
38	7/19/2007	Coal Creek - Main Fork from private in Sec 25 down stream Part C	Smithsfork		0.75					0.75		2
39	7/24/2007	Coal Creek - Banoose Fork (BLM name for fork)	Smithsfork			1.00				1.00	5	
40	7/24/2007	Coal Creek - Anna Marie Fork (BLM name for fork)	Smithsfork		1.00					1.00		3
41	7/24/2007	Coal Creek - Upper main fork to exclosure fence	Smithsfork			2.50				2.50	8	
42	8/17/1995	Coal Creek - East fork of Upper Main fork	Smithsfork					1.00		1.00		
43	7/23/2007	Coal Creek - East fork of Lower main fork	Smithsfork		1.00	1.25		0.25		2.50	3,6	2

Attachment 1
Coal Creek Stabilization Project, Conceptual Planning Phase