

This is a digital document from the collections of the *Wyoming Water Resources Data System (WRDS) Library*.

For additional information about this document and the document conversion process, please contact WRDS at wrd@uwyo.edu and include the phrase “**Digital Documents**” in your subject heading.

To view other documents please visit the WRDS Library online at:
<http://library.wrds.uwyo.edu>

Mailing Address:

Water Resources Data System
University of Wyoming, Dept 3943
1000 E University Avenue
Laramie, WY 82071

Physical Address:

Wyoming Hall, Room 249
University of Wyoming
Laramie, WY 82071

Phone: (307) 766-6651

Fax: (307) 766-3785

Funding for WRDS and the creation of this electronic document was provided by the Wyoming Water Development Commission
(<http://wwdc.state.wy.us>)

FINAL REPORT
for
BLACKS FORK RIVER WATERSHED STUDY, LEVEL I

PHASE III
LOWER BLACKS FORK

Prepared for:

*Wyoming Water Development Commission
6920 Yellowtail Road
Cheyenne, WY 82002*

Prepared by:

*Anderson Consulting Engineers, Inc.
375 E. Horsetooth Road, Bldg. 5
Fort Collins, CO 80525
(ACE Project No. WYWDC34)*

January 2015



ANDERSON CONSULTING ENGINEERS, INC.
Civil • Water Resources • Environmental

FINAL REPORT
for
BLACKS FORK RIVER WATERSHED STUDY, LEVEL I

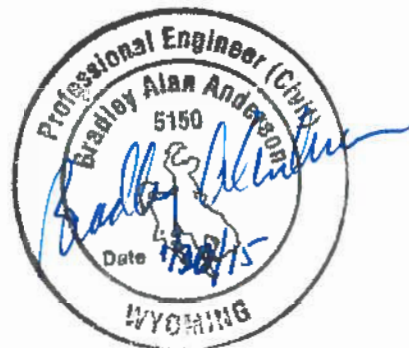
PHASE III
LOWER BLACKS FORK

Prepared for:

Wyoming Water Development Commission
6920 Yellowtail Road
Cheyenne, WY 82002

Prepared by:

Anderson Consulting Engineers, Inc.
375 E. Horsetooth Road, Bldg. 5
Fort Collins, CO 80525
(ACE Project No. WYWDC34)



January 2015

TABLE OF CONTENTS

I.	INTRODUCTION AND OVERVIEW	1.1
	1.1 Introduction	1.1
	1.2 Project Management and Report Organization.....	1.1
II.	PHASE III STUDY AREA DESCRIPTION AND INVENTORY.....	2.1
	2.1 Overview	2.1
	2.2 Land Uses and Activities	2.1
	2.2.1 Land Ownership	2.1
	2.2.2 Range Conditions/Grazing Practices.....	2.5
	2.2.2.1 <i>Grazing Allotments Administration</i>	2.5
	2.2.2.2 <i>Existing Water Supply</i>	2.5
	2.2.2.3 <i>Ecological Site Descriptions</i>	2.7
	2.2.3 Mining and Mineral Resources	2.13
	2.2.4 Wildlife.....	2.14
	2.2.4.1 <i>General</i>	2.14
	2.2.4.2 <i>Sage Grouse</i>	2.16
	2.2.4.3 <i>Wild Horses</i>	2.23
	2.2.4.4 <i>WGF Crucial Habitat Areas</i>	2.23
	2.3 Natural Environment	2.30
	2.3.1 Vegetation and Land Cover.....	2.30
	2.3.1.1 <i>Wyoming GAP Analysis</i>	2.30
	2.3.1.2 <i>NLCD</i>	2.30
	2.3.1.3 <i>LANDFIRE</i>	2.33
	2.3.1.4 <i>WYNDD</i>	2.34
	2.3.1.5 <i>Wetlands</i>	2.35
II.	PHASE III WATERSHED MANAGEMENT AND REHABILITATION PLAN	
	(LOWER BLACKS FORK RIVER SUBREGION)	3.1
	3.1 Overview	3.1
	3.2 Irrigation System Rehabilitation Projects (Watershed Plan Components “I”)	3.2
	3.2.1 I-014 Pearson Ditch Diversion (Project ID: Anderson 001).....	3.4
	3.2.2 I-015 Hamilton Ditch Diversion (Project ID: Anderson 002)	3.4
	3.2.3 I-016 Heiser Ditch Diversion (Project ID: Anderson 003).....	3.6
	3.2.4 I-017 Muskrat and Gillis Ditch Rehabilitation (Project ID: Anderson 006)	3.9

TABLE OF CONTENTS (continued)

3.2.5 I-018 Beach Desert Ditch Improvements (Project ID: Potter 001) 3.9

3.2.6 I-019 Wade Ditch Diversion Structure (Project ID: Schell 001)..... 3.12

3.2.7 I-020 Leavitt & Easton Ditch Diversion Structure (Project ID: Schell 002)..... 3.14

3.2.8 I-021 Nelson Ditch Headgate and Diversion Structure Rehabilitation
(Project ID: Taylor 001) 3.14

3.3 Upland Wildlife/Livestock Watering Sources (Watershed Management Plan
Component L/W) 3.16

3.3.1 L/W-041 Horse Ranch Pipeline (Project ID: Anderson 004) 3.19

3.3.2 L/W-042 Blakes Knoll Pipeline (Project ID: Anderson 005) 3.21

3.3.3 UDC Projects 3.24

3.4 Grazing Management Opportunities (Watershed Management Plan
Component G)..... 3.24

3.4.1 State and Transition Models..... 3.24

3.5 Water Storage Opportunities 3.29

3.5.1 S-005 Beaver Meadows Reservoir 3.32

3.5.2 S-012 Wadsworth Fishing Reservoir 3.33

IV. COST ESTIMATES..... 4.1

4.1 Phase III Conceptual Cost Estimates 4.1

LIST OF FIGURES

Figure 1.1-1 Blacks Fork Watershed: Location Map 1.2

Figure 1.2-1 Blacks Fork Watershed: Project Phases 1.4

Figure 2.1-1 Blacks Fork Watershed Phase III: Phase Boundary and Subregions 2.2

Figure 2.2-1 Blacks Fork Watershed Phase III: Land Ownership and Management 2.3

Figure 2.2-2 Distribution of Phase III Study Area among Counties 2.4

Figure 2.2-3 Distribution of Land Ownership within the Phase III Study Area 2.4

Figure 2.2-4 Blacks Fork Watershed Phase III: BLM Grazing Allotments and USFS Rangeland
Management Units 2.6

Figure 2.2-5 Blacks Fork Watershed Phase III: Stock Reservoir Evaluation 2.8

Figure 2.2-6 Blacks Fork Watershed Phase III: Existing Upland Water Sources..... 2.9

Figure 2.2-7 Blacks Fork Watershed Phase III: Predominant Ecological Sites of Management
Relevance 2.10

Figure 2.2-8 Blacks Fork Watershed Phase III: Current Mine Permits and Abandoned
Mine Lands..... 2.15

TABLE OF CONTENTS (continued)

Figure 2.2-9	WDEQ Abandoned Sand/Gravel Mine near Granger WY (Phase III Study Area).....	2.14
Figure 2.2-10	Blacks Fork Watershed Phase III: Antelope Habitat	2.17
Figure 2.2-11	Blacks Fork Watershed Phase III: Elk Habitat.....	2.18
Figure 2.2-12	Blacks Fork Watershed Phase III: Moose Habitat	2.19
Figure 2.2-13	Blacks Fork Watershed Phase III: Mule Deer Habitat	2.20
Figure 2.2-14	Blacks Fork Watershed Phase III: Sage Grouse Leks and Core Areas	2.22
Figure 2.2-15	Blacks Fork Watershed Phase III: Wild Horse Management Areas	2.24
Figure 2.2-16	Blacks Fork Watershed Phase III: Habitat Priority Areas	2.25
Figure 2.3-1	Blacks Fork Watershed Phase III: Wyoming GAP Analysis.....	2.31
Figure 2.3-2	Blacks Fork Watershed Phase III: LANDFIRE Wetlands Classes	2.38
Figure 3.2-1	Blacks Fork Watershed Phase III: Proposed Irrigation Project Locations	3.3
Figure 3.2-2	Conceptual Design I-014: Pearson Ditch Diversion (Anderson 001).....	3.5
Figure 3.2-3	Rock Vortex Weir Structure Diagram.....	3.4
Figure 3.2-4	Conceptual Design I-015: Hamilton Ditch Diversion (Anderson 002).....	3.7
Figure 3.2-5	Conceptual Design I-016: Heiser Ditch Diversion (Anderson 003)	3.8
Figure 3.2-6	Conceptual Design I-017: Muskrat and Gillis Ditch Rehabilitation (Anderson 006)	3.10
Figure 3.2-7	Conceptual Design I-018: Beach Desert Ditch Improvements (Potter 001)	3.11
Figure 3.2-8	Conceptual Design I-019: Wade Diversion Structure (Schell 001).....	3.13
Figure 3.2-9	Conceptual Design I-020: Leavitt & Easton Ditch Diversion Structure (Schell 002)	3.15
Figure 3.2-10	Nelson Ditch Headgate	3.16
Figure 3.2-11	Conceptual Design I-021: Nelson Ditch Headgate and Diversion Structure Rehabilitation (Taylor 001)	3.17
Figure 3.3-1	Blacks Fork Watershed Phase III: Existing Water Sources with 1 Mile Buffer	3.18
Figure 3.3-2	Blacks Fork Watershed Phase III: Proposed Livestock/Wildlife Upland Project Locations	3.20
Figure 3.3-3	Conceptual Design L/W-041: Horse Ranch Pipeline (Anderson 004)	3.22
Figure 3.3-4	Conceptual Design L/W-042: Blakes Knoll Pipeline (Anderson 005)	3.23
Figure 3.4-1	State and Transition Model: Sandy (Sy) 7-9" Green River and Great Divide Basins.....	3.27
Figure 3.4-2	State and Transition Model: Saline Upland (SU) 7-9" Green River and Great Divide Basins.....	3.28
Figure 3.4-3	State and Transition Model: Sands (Sa) 7-9" Green River and Great Divide Basins.....	3.30
Figure 3.5-1	Blacks Fork Watershed Phase III: Proposed Storage Project Locations.....	3.31
Figure 3.5-2	Beaver Meadows Reservoir Overview	3.32
Figure 3.5-3	Beaver Meadows Reservoir Outlet Structure	3.33
Figure 3.5-4	Agridrain Stock Reservoir Outlet	3.34

LIST OF TABLES

Table 1.2-1	Blacks Fork Watershed Investigation, Level 1: Project Phases	1.3
Table 2.2-1	Tabulation of Existing Mine Permits Phase III Study Area (WDEQ 2014)	2.14
Table 2.2-2	Wyoming Natural Diversity Database: Wildlife Species in the Phase III Study Area	2.21
Table 2.3-1	Tabulation of National Land Cover Database: Phase III Subregions.....	2.32

TABLE OF CONTENTS (continued)

Table 2.3-2	Tabulation of LANDFIRE Existing Vegetation Type Data: Phase III Lower Blacks Fork Subregion.....	2.33
Table 2.3-3	Tabulation of LANDFIRE Existing Vegetation Type Data: Phase III Big and Little Dry Creek Subregion.....	2.34
Table 2.3-4	Tabulation of LANDFIRE Existing Vegetation Type Data: Phase III Henrys Fork Subregion	2.35
Table 2.3-5	Tabulation of LANDFIRE Existing Vegetation Type Data: Phase III Flaming Gorge Subregion	2.35
Table 2.3-6	Wyoming Natural Diversity Database: Flowering Plants by subregion	2.36
Table 2.3-7	Tabulation of NWI Wetlands by subregion.....	2.36
Table 2.3-8	Tabulation of LANDFIRE Wetlands Data: Phase III Subregions.....	2.37
Table 3.2-1	Watershed Plan Component: Irrigation Rehabilitation Projects (I).....	3.2
Table 3.3-1	Watershed Plan Component: Livestock/Wildlife Supply Projects (L/W)	3.19
Table 3.3-2	UDC Project Construction Components	3.25
Table 3.5-1	Phase III Water Storage Opportunities	3.29
Table 4.1-1	Conceptual Cost Estimates: Phase III Irrigation System Components.....	4.2
Table 4.1-2	Conceptual Cost Estimates: Phase III Livestock/Wildlife (L/W) Components.....	4.3
Table 4.1-3	Conceptual Cost Estimates: Phase II Livestock / Wildlife (L/W) Components (UDC).	4.4
Table 4.1-4	Conceptual Cost Estimates: Storage Opportunities.....	4.5

LIST OF APPENDICES

Appendix 2A:	Allotment Listing
Appendix 2B:	Stock Reservoir Evaluation

I. INTRODUCTION AND OVERVIEW

1.1 Introduction

The Blacks Fork Watershed Level I Investigation was completed on behalf of the Uinta, Lincoln and Sweetwater County Conservation Districts. The primary goal of the was to combine all existing data with data collected and generated from this study to form a comprehensive Watershed Management and Rehabilitation Plan. The purpose and objectives of the project are itemized below:

- *Facilitate consensus building among the Advisory Committee, the Conservation District, landowners and the Wyoming Water Development Commission.*
- *Facilitate public participation.*
- *Conduct an evaluation and description of the Blacks Fork River watershed, including quantity and quality of surface water resources, and riparian/upland conditions.*
- *Conduct a geomorphic investigation of the primary channels within the watershed and identify potential mitigation measures to improve impaired channel reaches.*
- *Conduct an irrigation system inventory and develop a rehabilitation plan for those ditches expressing an interest to participate.*
- *Conduct an evaluation of water storage needs and opportunities to augment water available for livestock and wildlife.*
- *Develop a watershed management plan which identifies problem areas within the watershed and proposes practical economic solutions.*
- *Identify permits easements and clearances necessary for plan implementation.*
- *Develop cost estimates for improvements.*
- *Complete an economic Analysis and evaluate alternative sources of funding.*

The project study area is defined as the subbasin of the Upper Green River delineated by the Blacks Fork River Watershed (HUC 14040107) and Muddy Creek (HUC 14040108). In addition, the Henrys Fork / Upper Green-Flaming Gorge watershed (HUC 14040106) and smaller subbasins directly tributary to Flaming Gorge Reservoir were included. Figure 1.1-1 shows the general location of the watershed within the State of Wyoming.

1.2 Project Management and Report Organization

Due to the vast extent of the project study area and the range of conditions found within it, completion of the project was divided into three geographical phases, each with its own report volume containing information pertinent specifically to that region. A fourth volume, the Basinwide Summary, contains information deemed more appropriate for discussion at the basinwide watershed level as well as a collation of all watershed plan components reported in the individual volumes.

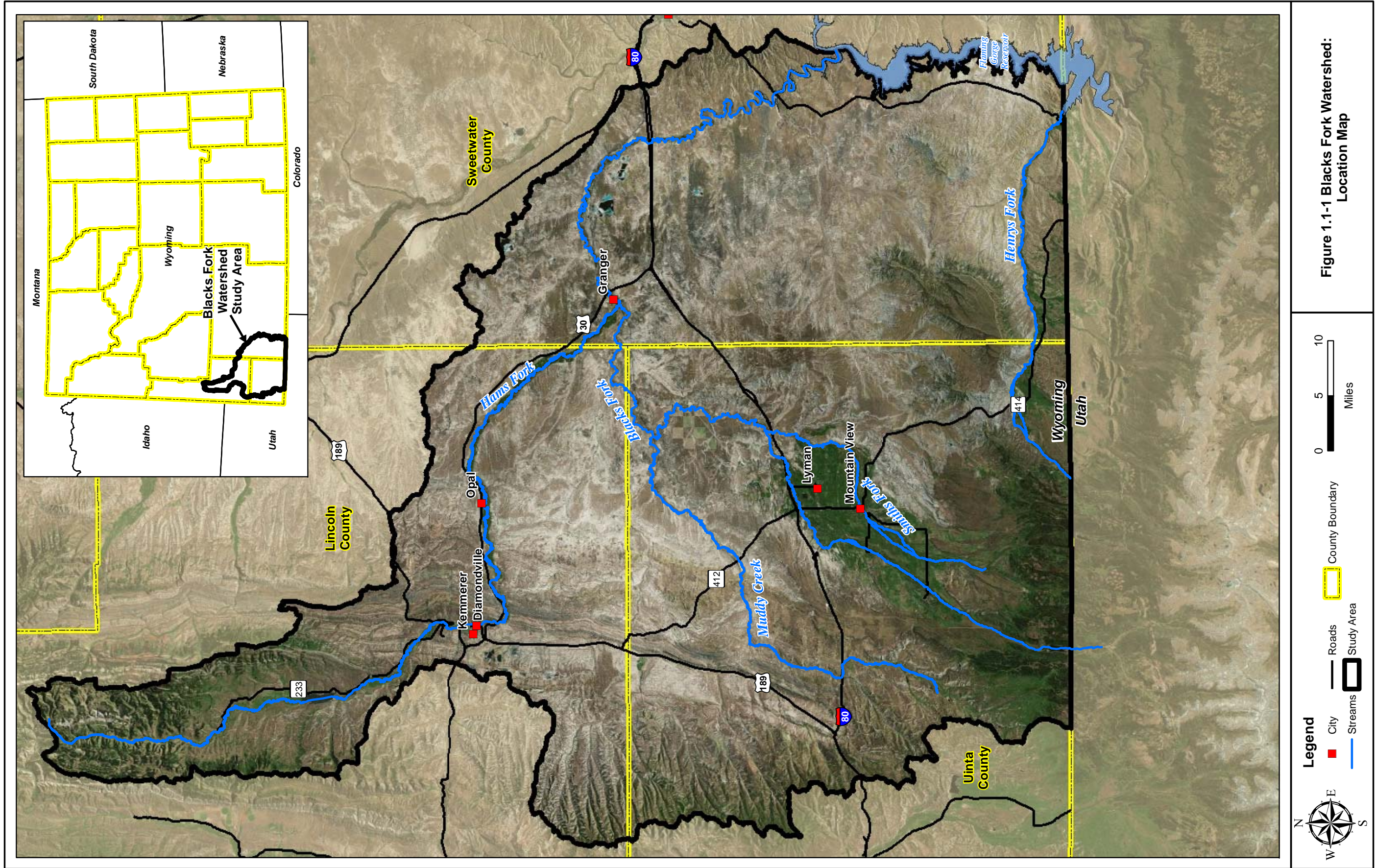


Figure 1.1-1 Blacks Fork Watershed:
Location Map

As indicated in Figure 1.2-1 and tabulated in Table 1.2-1, the project study area was divided into three subregions defined as follows:

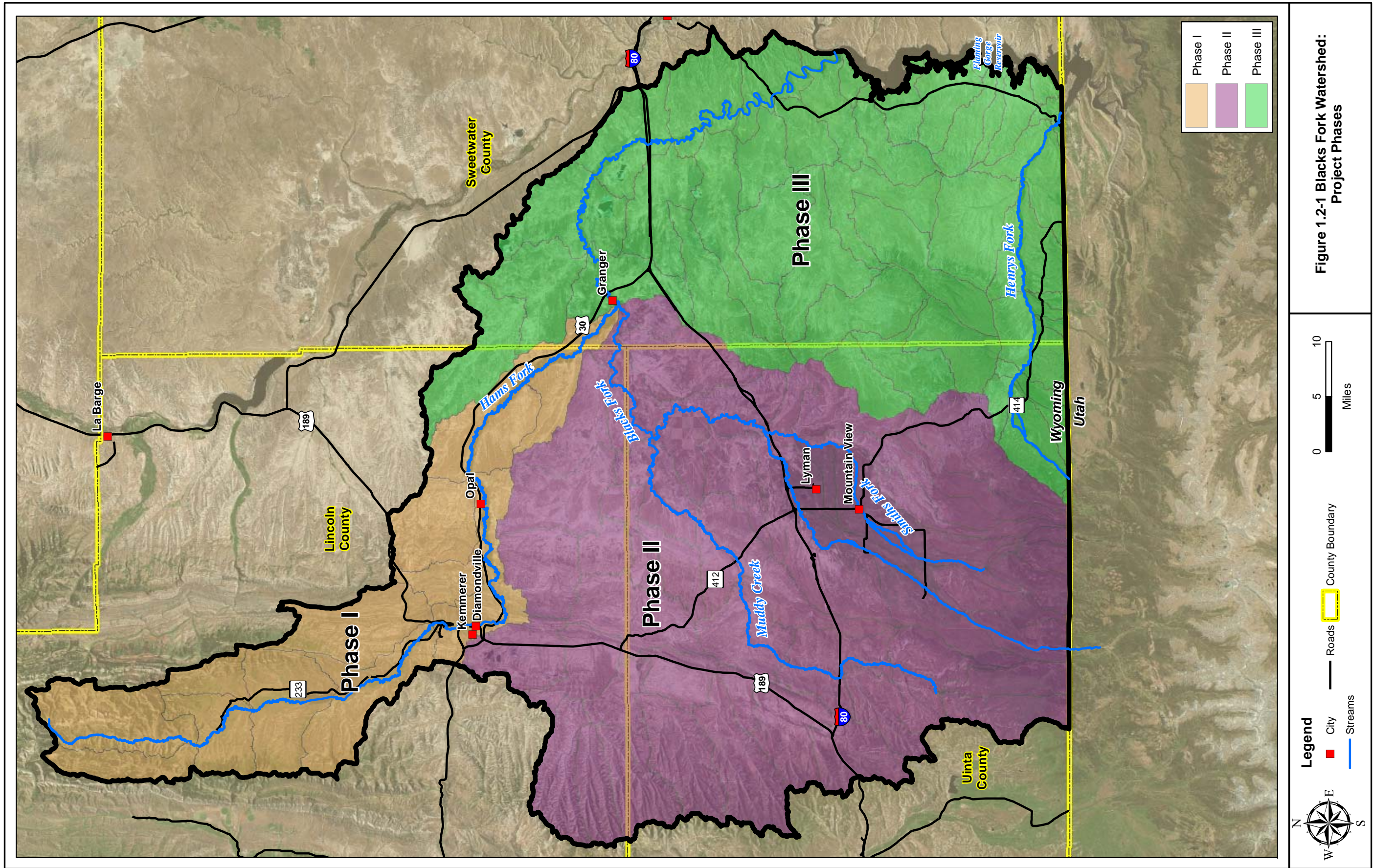
Phase I	Hams Fork	(Volume I)
Phase II	Upper Blacks Fork	(Volume II)
Phase III	Lower Blacks Fork	(Volume III)

This volume of the project report presents the Phase 3: Lower Blacks Fork watershed inventory and watershed management plan.

Throughout this report, reference will be made where the reader should refer to Volumes I, II, or III for more specific information. Likewise, Volumes I, II, and III cross reference back to this Basinwide Volume where appropriate.

Table 1.2-1 Blacks Fork Watershed Investigation, Level 1: Project Phases.

Phase	10th Order HUC	Watershed Name
Phase I:	1404010706	Upper Hams Fork
	1404010707	Lower Hams Fork
Phase II:	1404010803	Albert Creek
	1404010703	Cottonwood Creek
	1404010705	Dry Muddy Creek
	1404010802	Little Muddy Creek
	1404010704	Middle Blacks Fork
	1404010801	Muddy Creek
	1404010702	Smiths Fork
	1404010701	Upper Blacks Fork
	Phase III:	1404010710
1404010708		Lower Blacks Fork
1404010604		Lower Henrys Fork
1404010602		Middle Flaming Gorge Reservoir
1404010709		Sevenmile Gulch
1404010603		Upper Henrys Fork



II. PHASE III STUDY AREA DESCRIPTION AND INVENTORY

2.1 Overview

This chapter of the Blacks Fork Watershed Level I Investigation is intended to be used in conjunction with the Basinwide volume of the watershed study report; it was not created as a standalone document. Where appropriate, the reader is directed to the Basinwide volume for pertinent information.

As indicated in Figure 2.1-1, the Phase III study area has been subdivided into four subregions:

- Lower Blacks Fork
- Big and Little Dry Creek
- Henrys Fork
- Flaming Gorge

In the following paragraphs, various datasets are discussed in accordance with these subregions. The purpose of this effort is to enable data evaluation at a greater level of detail than would be provided when discussing the Phase III study area as a whole.

2.2 Land Uses and Activities

2.2.1 Land Ownership

The total land area within the Phase III study area is approximately 897,089 acres (1,401.7 square miles). Figure 2.2-1 presents a map indicating the various land ownership categories within the Phase III study area. Sweetwater County comprises the majority of the area (1,187 square miles or 84.7 percent). Uinta County comprises approximately 177.2 square miles (12.6 percent) and Lincoln County comprises the remaining 37.6 square miles (2.7 percent) (Figure 2.2-2).

Land ownership information was obtained from the Bureau of Land Management (BLM) and the assessor's offices of the three counties involved and incorporated into the project GIS. According to this data, approximately 845.6 square miles (60.3 percent) of the study area is owned and administered by the Bureau of Land Management (BLM). The second largest land owner category is private individuals with approximately 462.5 square miles (33 percent). The United States Forest Service administers 51.2 square miles (3.7 percent) of land within the Phase II study area. This includes the Flaming Gorge National Recreation area. The State of Wyoming rounds out the surface ownership within the study area, owning 51.4 square miles (2.4 percent). A pie chart displaying the relative percentage of land ownership within the watershed is presented as Figure 2.2-3.

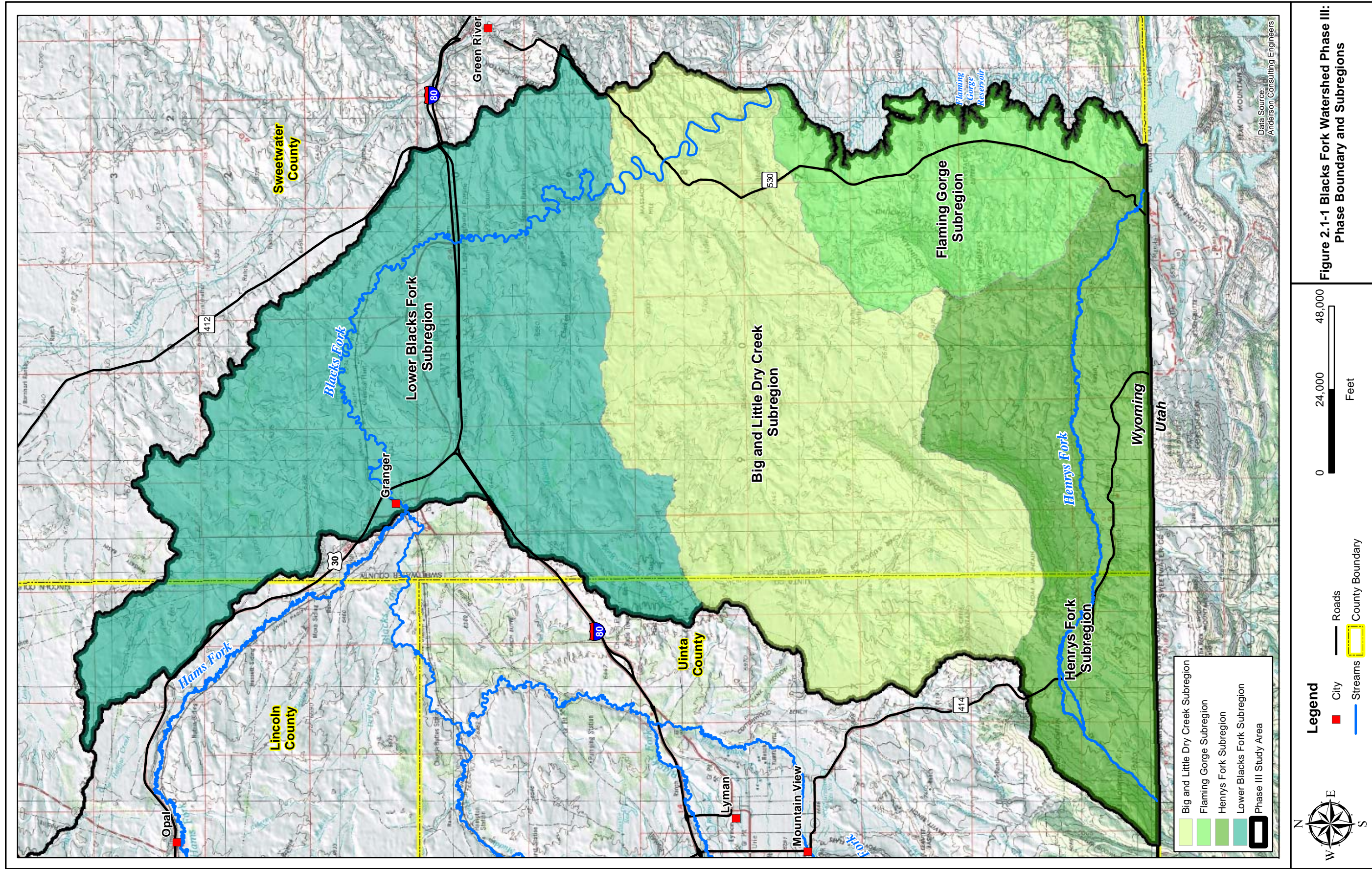
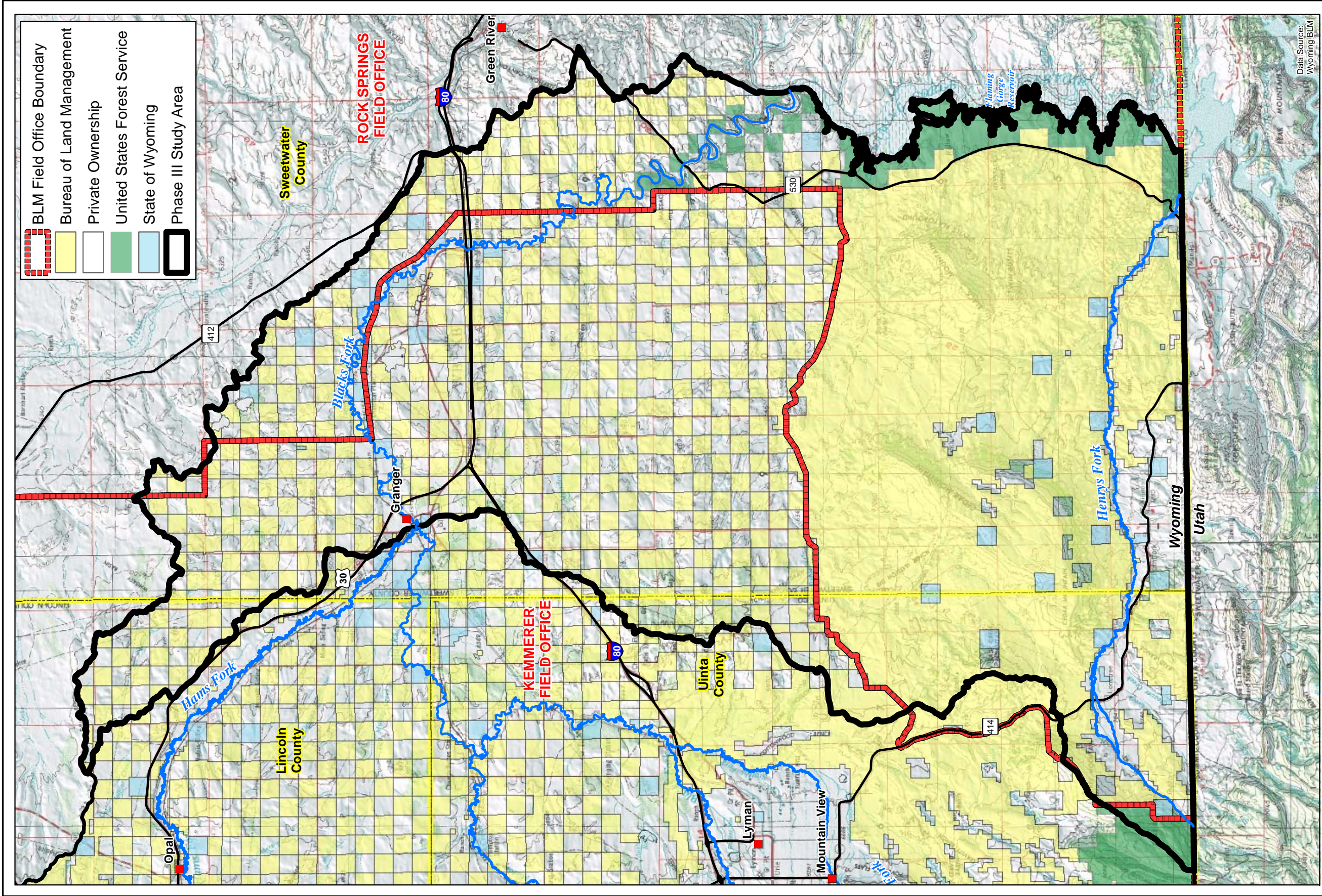
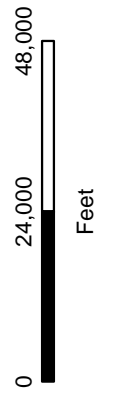


Figure 2.1-1 Blacks Fork Watershed Phase III:
Phase Boundary and Subregions



Legend

- City
- Roads
- Streams
- County Boundary



**Figure 2.2-1 Blacks Fork Watershed Phase III:
Land Ownership and Management**

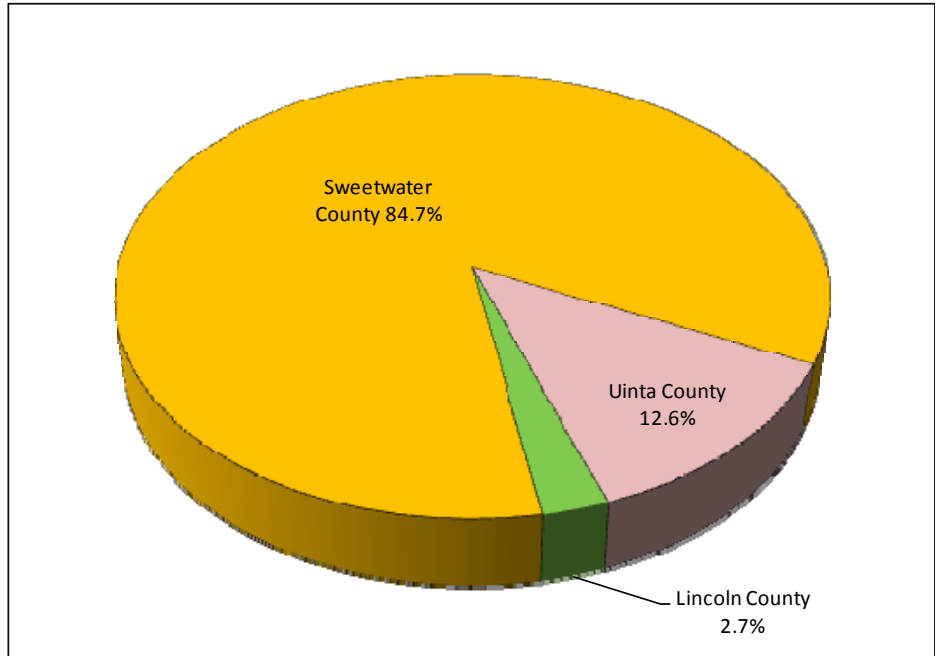


Figure 2.2-2 Distribution of Phase III Study Area among Counties.

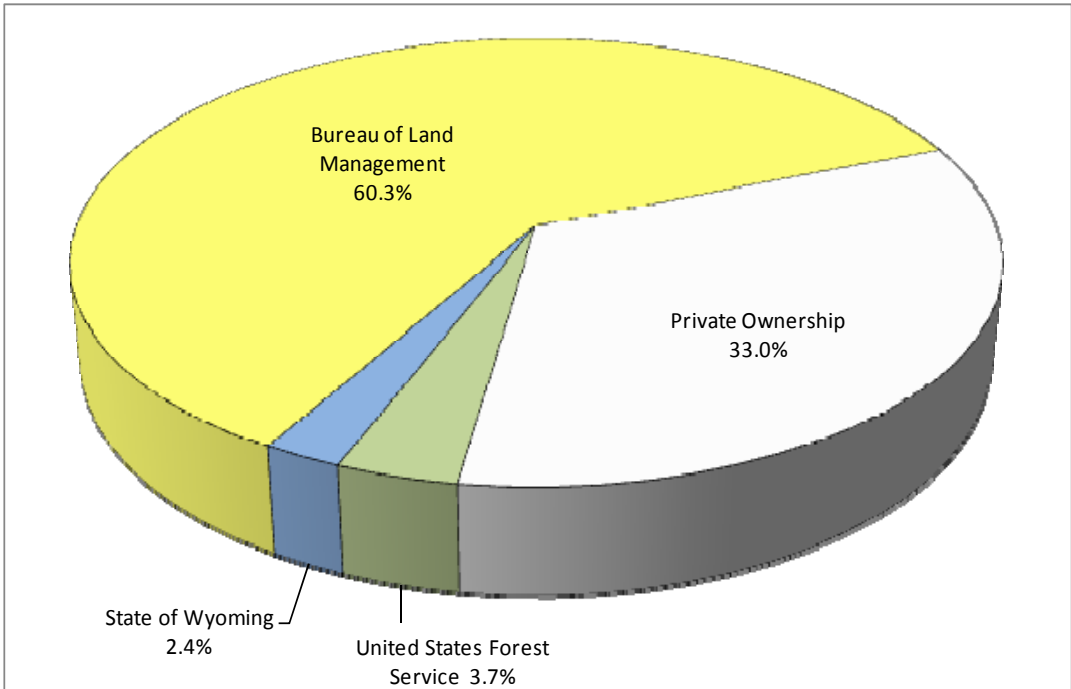


Figure 2.2-3 Distribution of Land Ownership within the Phase III Study Area.

The northern two thirds of the study area is dominated by an area referred to as the “checkerboard”. The checkerboard is a landownership pattern resulting from alternating federal and private land ownership. This pattern is a remnant of the Union Pacific Act of 1862 with which Congress granted every other section (one square mile) of land within ten miles of the railroad to the Union Pacific, which tried to sell it to raise capital for railroad construction. The strip along the railroad was later extended to twenty miles. The premise was that land values would increase following railroad construction and that the railroad company could then sell the land at a profit (BLM, 2014 at www.blm.gov).

Note: The Project GIS includes detailed land ownership information (name, address, etc.) for individual parcels in Uinta, Lincoln and Sweetwater Counties. The data were obtained directly from the respective county assessor’s offices and reflect ownership status as of the dates of their retrieval (Fall of 2013).

2.2.2 Range Conditions/Grazing Practices

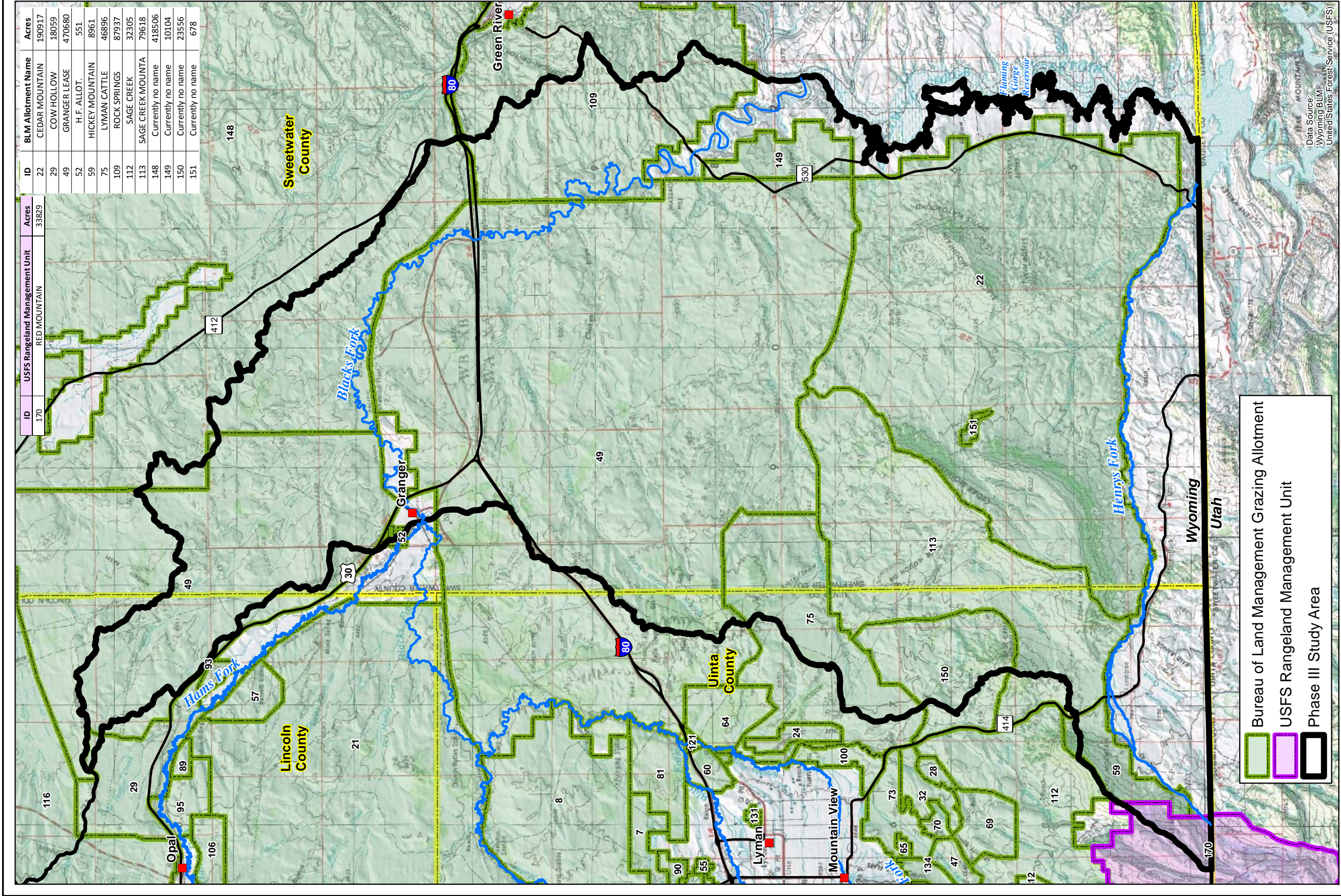
2.2.2.1 Grazing Allotments Administration

Grazing on federal lands within the Phase III study area is administered by the United States Forest Service and the Bureau of Land Management. The USFS-administered allotments (sometimes referred to as rangeland management units or RMUs) are located at higher elevations within the Uinta-Wasatch-Cache National Forest on the southwestern border of the study area. There is 1 USFS individual allotment and 13 BLM allotments as indicated in Figure 2.2-4. These allotments consist entirely of federal lands. Note that some of these allotments may be located primarily in adjacent watersheds and “spill” over the watershed divide. Appendix 2A lists the allotments and pertinent data associated with them.

The BLM allotments are administered by both the Rock Springs Field Office (Green River Resource Management Plan approved in 1997) and the Kemmerer Field Office (Kemmerer Resource Management Plan approved in 2010). The Rock Springs Field Office is currently revising the existing Green River Resource Management Plan (RMP) and preparing an associated environmental impact statement (EIS). The revision will be known as the Rock Springs RMP. The Rock Springs RMP will replace the Green River RMP and will provide an updated and comprehensive framework for managing and allocating use of public lands and resources administered by the BLM in the Rock Springs Field Office. There is one USFS Rangeland Management Unit that intersects the Phase III study area. This RMU is located in the southwest corner of the study area and is administered by the Uinta-Cache National Forest (Evanston-Mountain View Ranger District) in Evanston Wyoming, and Mountain View Wyoming.

2.2.2.2 Existing Water Supply

The methodologies regarding the development and evaluation of the existing water sources data are presented in the Blacks Fork Basinwide Volume, please refer that volume for in depth description regarding the development of the data presented here.



**Figure 2.2-4 Blacks Fork Watershed Phase III:
BLM Grazing Allotments and
USFS Rangeland Management Units**

Legend

- Bureau of Land Management Grazing Allotment
- USFS Rangeland Management Unit
- Phase III Study Area
- City
- Roads
- County Boundary
- Streams

0 24,000 48,000 Feet

W E
N S

The data indicates the presence of 333 stock reservoirs/ponds within the Phase III study area. Figure 2.2-5 displays a map of the study area showing the results of the reservoir analysis and classification. Based upon this analysis, it appears that a minimum of 172 reservoirs remain “functional” water sources and 77 are “potential” water sources. This analysis also indicates that 84 reservoirs are “non-functional” water sources as they are either breached, sediment filled, or in need of site visits to determine their status. Appendix 2B presents the results in a tabular format.

Numerous additional water supply projects have been developed throughout the study area in support of livestock and wildlife. These include construction of wells with designated stock use, guzzlers, pipelines, etc. These generally incorporate some sort of livestock watering facility such as large bottomless concrete stock tanks.

Based upon the reservoir analysis effort, mapping data obtained from the BLM and the SEO office, and landowner input, the existing water sources are displayed in Figure 2.2-6. Note that this feature does NOT include surface water sources such as perennial streams, intermittent streams, or springs because a primary objective of this study is to reduce reliance upon these sources. Because they do not presently appear to provide sources of water to livestock or wildlife, reservoirs which appeared to be either breached, filled with sediment, or otherwise non-functioning, are not included in this figure.

2.2.2.3 Ecological Site Descriptions

The concepts and descriptions of Ecological Sites are covered in the Blacks Fork Watershed Umbrella report. Please refer to the Umbrella report for more information.

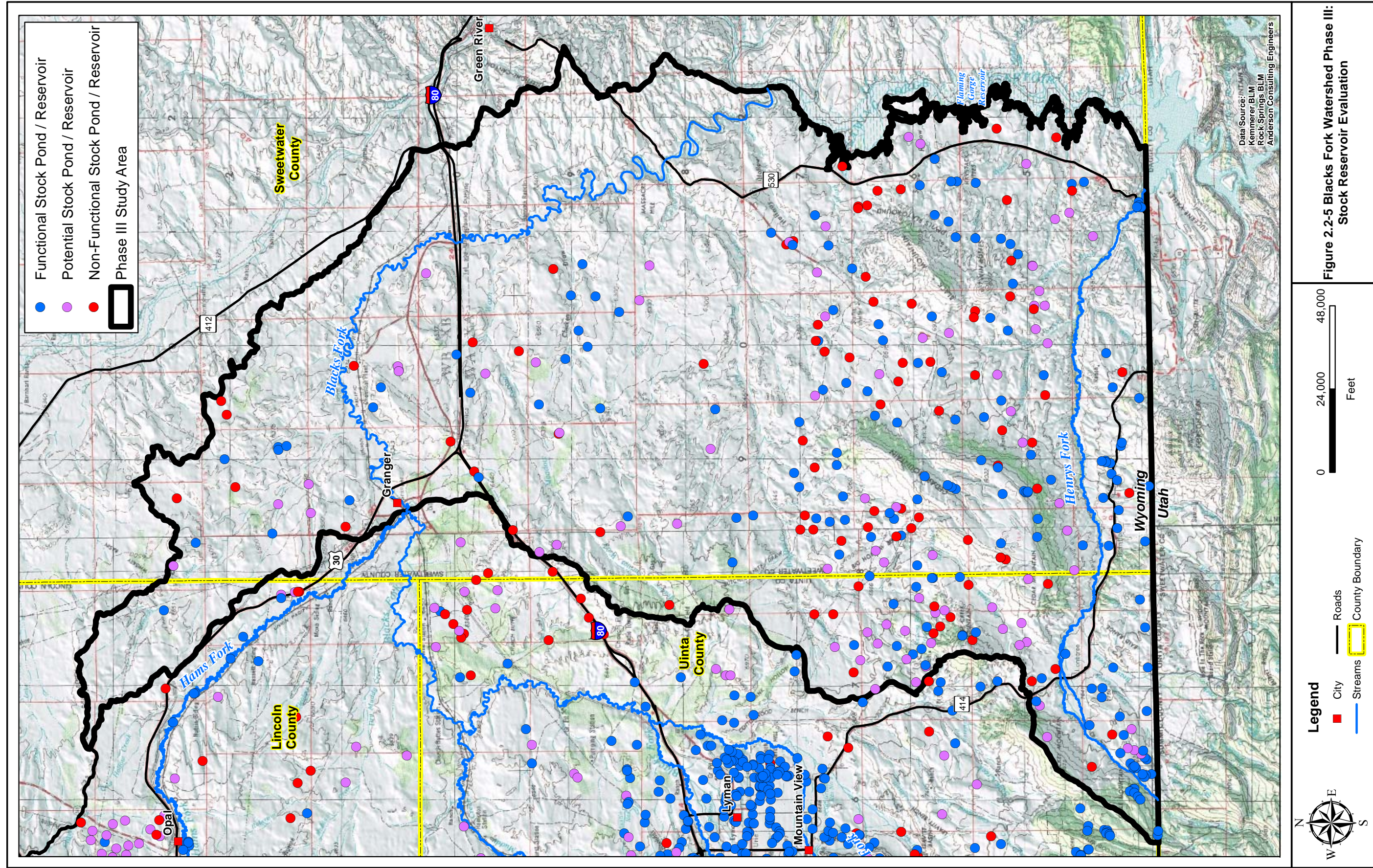
Based upon the mapping which is available for the Phase III study area (Figure 2.2-7), there are several ecological sites which are predominant. These ecological sites are:

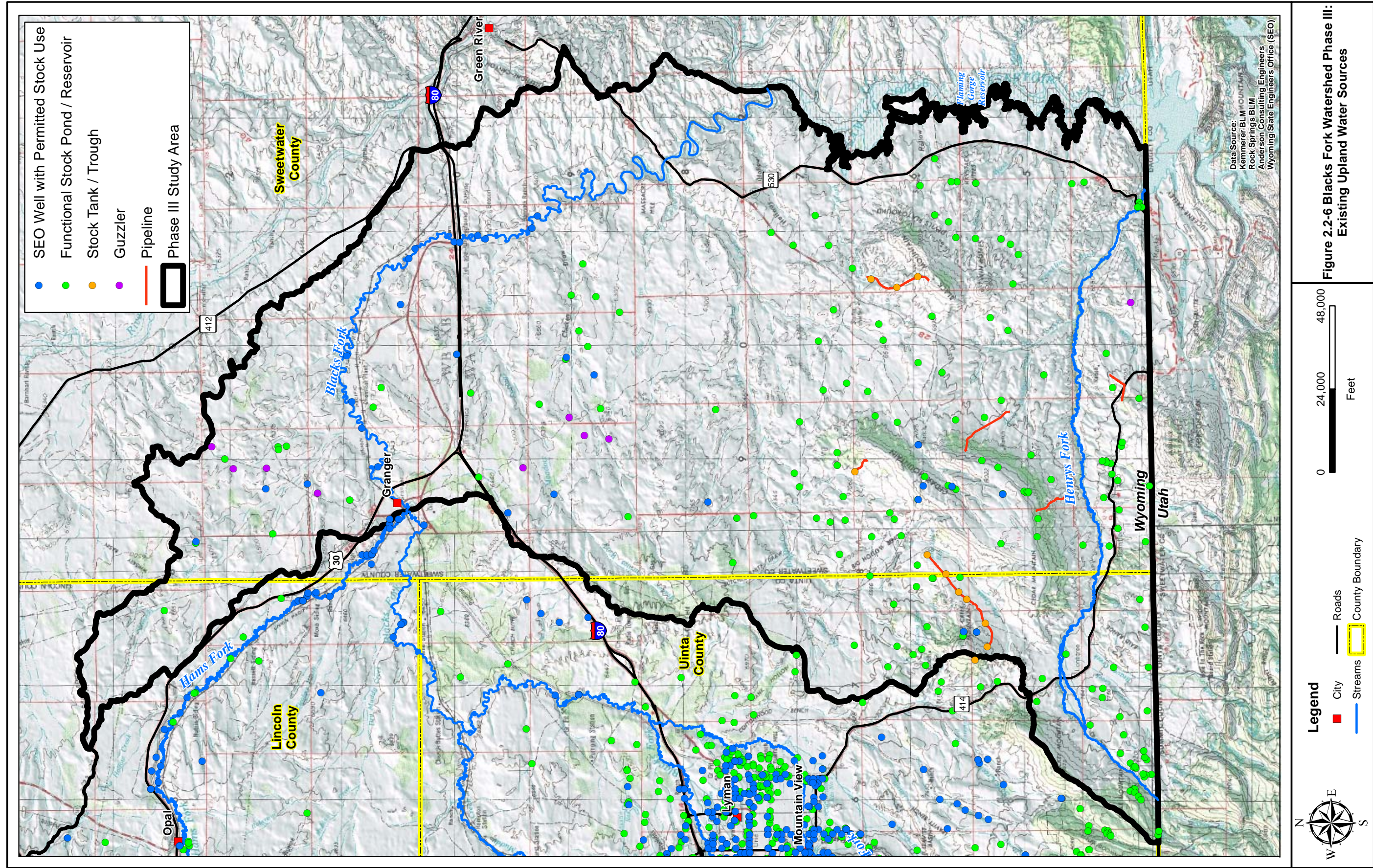
- Sandy (Sy) 7-9" Green River and Great Divide Basins
- Saline Upland (SU) 7-9" Green River and Great Divide Basins
- Sands (Sa) 7-9" Green River and Great Divide Basins

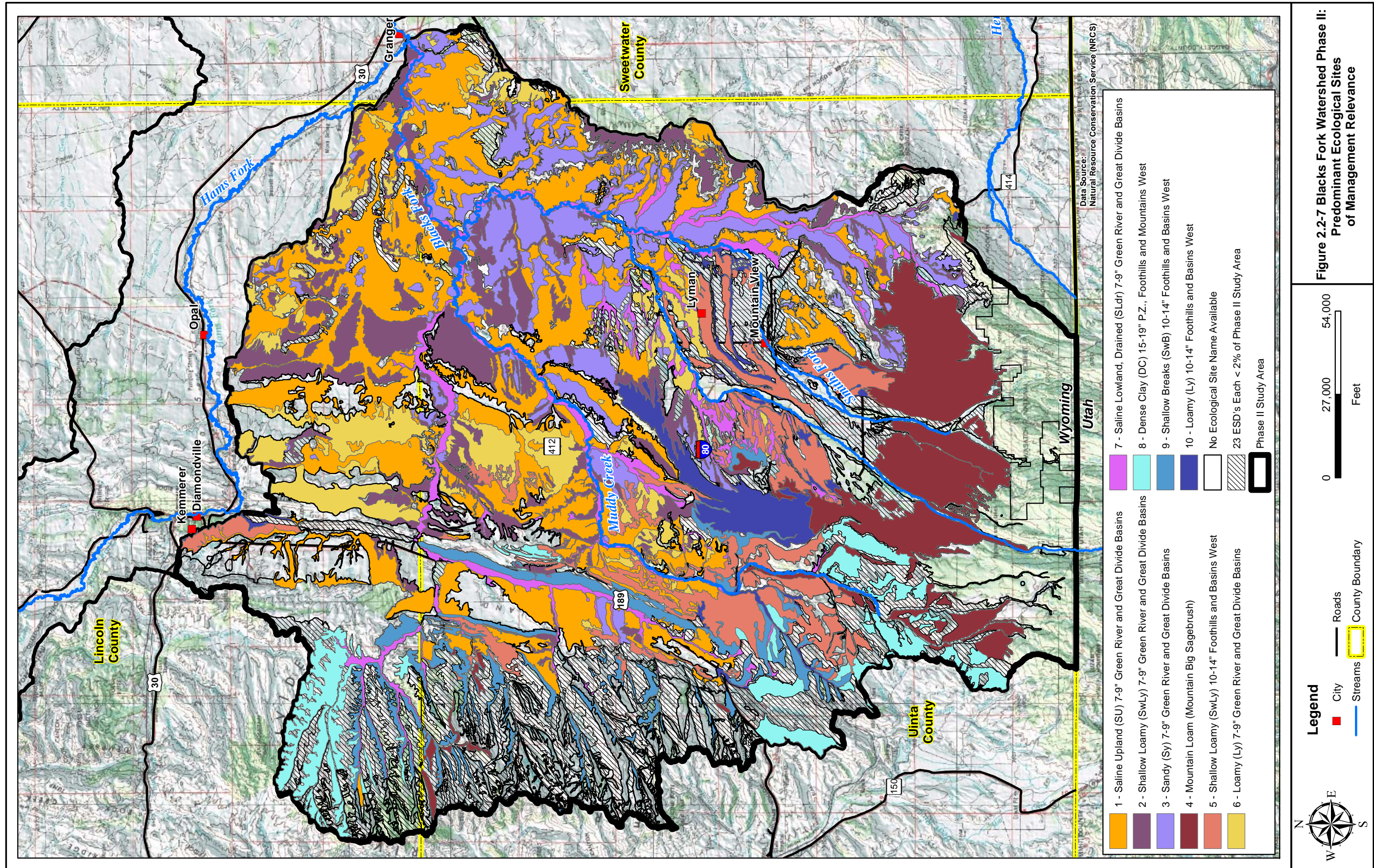
The following descriptions of the Historic Climax Plant Communities (HCPC) associated with these ESDs are extracted from the NRCS descriptions (NRCS, 2008).

Sandy (Sy) 7-9" Green River and Great Divide Basins

The Historic Climax Plant Community (HCPC) for this Ecological Site is the Needleandthread/Indian Ricegrass Plant Community. Suitable thermal and escape cover for mule deer may be limited due to the low height of woody plants. However, sagebrush, which can approach 15% protein and 40-60% digestibility, provides important winter forage for mule deer and antelope. Year-round habitat is provided for sage grouse and many other sagebrush obligate species such as the sage sparrow, Brewer's sparrow,







**Figure 2.2-7 Blacks Fork Watershed Phase II:
Predominant Ecological Sites
of Management Relevance**

sage thrasher, pygmy rabbit, sagebrush vole, horned lizard, and pronghorn antelope. Other birds that would frequent this plant community include horned larks and golden eagles.

The Big Sagebrush/Bunchgrass Plant community may be useful for the same wildlife that would use the Historic Climax Plant Community (HCPC).

The Big Sagebrush/Rhizomatous Wheatgrass Plant Community may be beneficial for the same wildlife that would use the Historic Climax Plant Community. However, the plant community composition is less diverse, and thus, less apt to meet the seasonal needs of these animals.

The Rabbitbrush/Rhizomatous Wheatgrass Plant Community provides limited forage for antelope and mule deer due to low production and lack of sagebrush. They may be used as a foraging site by sage grouse if proximal to woody cover.

The ESD suggests stocking rates for cattle under continuous season-long grazing under normal growing conditions. These are conservative estimates that should be used only as guidelines in the initial stages of the conservation planning process. Often, the current plant composition does not entirely match any particular plant community (as described in this ecological site description). Because of this, a field visit is recommended, in all cases, to document plant composition and production. More precise carrying capacity estimates should eventually be calculated using this information along with animal preference data, particularly when grazers other than cattle are involved. Under more intensive grazing management, improved harvest efficiencies can result in an increased carrying capacity. The following production and stocking notes are presented by the NRCS:

- Needleandthread/Indian Ricegrass (HCPC) 350-750 lb./ac and .16 AUM/ac
- Big Sagebrush/Bunchgrass 200-600 lb./ac and .11 AUM/ac
- Big Sagebrush/Rhizomatous Wheatgrass 100-400 lb./ac and .06 AUM/ac
- Rabbitbrush/Rhizomatous Wheatgrass 50-350 lb./ac and .04 AUM/ac

Note: Values based on continuous, season-long grazing by cattle under average growing conditions.

Grazing by domestic livestock is one of the major income-producing industries in the area. Rangeland in this area may provide yearlong forage for cattle, sheep, or horses. During the dormant period, the forage for livestock use needs to be supplemented with protein because the quality does not meet minimum livestock requirements.

Saline Upland (SU) 7-9" Green River and Great Divide Basins

The Historic Climax Plant Community (HCPC) for this Ecological Site is the Gardner's Saltbush/Bunchgrass Plant Community. The predominance of woody plants in this plant community provides winter grazing for mule deer and antelope. Suitable thermal and escape cover may be limited due to the low quantities of tall woody plants. Sagebrush obligate species may frequent the area, but do not prefer this habitat. When found adjacent to sagebrush dominated states, this plant community may provide lek sites for sage grouse.

It provides suitable habitat for prairie dog towns, badgers, burrowing owls, and other ground-burrowing animals.

The Gardner's Saltbush/Annual Forb Plant Community: This plant community may be useful for the same wildlife that would use the Historic Climax Plant Community. However, the plant community composition is less diverse, and thus, less apt to meet the seasonal needs of these animals.

The Halogeton Plant Community is also a part of this Ecological Site. This plant community exhibits a low level of plant species diversity. It is not a desirable plant community to select as a wildlife habitat management objective.

The ESD suggests stocking rates for cattle under continuous season-long grazing under normal growing conditions. These are conservative estimates that should be used only as guidelines in the initial stages of the conservation planning process. Often, the current plant composition does not entirely match any particular plant community (as described in this ecological site description). Because of this, a field visit is recommended, in all cases, to document plant composition and production. More precise carrying capacity estimates should eventually be calculated using this information along with animal preference data, particularly when grazers other than cattle are involved. Under more intensive grazing management, improved harvest efficiencies can result in an increased carrying capacity. The following production and stocking notes are presented by the NRCS:

- *Gardner's Saltbush/Bunchgrass (HCPC) 200-600 lb./ac and .1 AUM/ac*
- *Gardner's Saltbush/Annual Forb 100-500 lb./ac and .09 AUM/ac*
- *Halogeton 50-250 lb./ac and .03 AUM/ac*

Note: Values based on continuous, season-long grazing by cattle under average growing conditions.

Grazing by domestic livestock is one of the major income-producing industries in the area. Rangeland in this area may provide yearlong forage for cattle, sheep, or horses. During the dormant period, the forage for livestock use needs to be supplemented with protein because the quality does not meet minimum livestock requirements.

Sands (Sa) 7-9" Green River and Great Divide Basins

The Historic Climax Plant Community (HCPC) for this Ecological Site is the Needleandthread/Spiny Hopsage Plant Community. Suitable thermal and escape cover for mule deer may be limited due to the low height of woody plants. However, topographical variations could provide some escape cover. Sagebrush, which can approach 15% protein and 40-60% digestibility, provides important winter forage for mule deer and antelope. Year-round habitat is provided for sage grouse and many other sagebrush obligate species such as the sage sparrow, Brewer's sparrow, sage thrasher, pygmy rabbit, sagebrush vole, horned lizard, and pronghorn antelope. Other birds that would frequent this plant community include horned larks and golden eagles.

Spiny Hopsage/Bunchgrass Plant Community: This plant community may be useful for the same wildlife that would use the Historic Climax Plant Community.

Spiny Hopsage/Rhizomatous Wheatgrass Plant Community: These communities are unstable due to moving sand dunes. They provide a unique temporary habitat for some small mammals and birds.

Rabbitbrush/Rhizomatous Wheatgrass Plant Community: These communities are unstable due to moving sand dunes. They provide a unique temporary habitat for some small mammals and birds.

The ESD suggests stocking rates for cattle under continuous season-long grazing under normal growing conditions. These are conservative estimates that should be used only as guidelines in the initial stages of the conservation planning process. Often, the current plant composition does not entirely match any particular plant community (as described in this ecological site description). Because of this, a field visit is recommended, in all cases, to document plant composition and production. More precise carrying capacity estimates should eventually be calculated using this information along with animal preference data, particularly when grazers other than cattle are involved. Under more intensive grazing management, improved harvest efficiencies can result in an increased carrying capacity.

- *Needleandthread/Spiny Hopsage (HCPC) 400-800 lb./ac and .18 AUM/ac*
- *Spiny Hopsage/Bunchgrass 250-600 lb./ac and .12 AUM/ac*
- *Spiny Hopsage/Rhizomatous Wheatgrass 100-400 lb./ac and .07 AUM/ac*
- *Rabbitbrush/ Rhizomatous Wheatgrass 50-350 lb./ac and .05 AUM/ac*

Note: Values based on continuous, season-long grazing by cattle under average growing conditions.

Grazing by domestic livestock is one of the major income-producing industries in the area. Rangeland in this area may provide yearlong forage for cattle, sheep, or horses. During the dormant period, the forage for livestock use needs to be supplemented with protein because the quality does not meet minimum livestock requirements.

2.2.3 Mining and Mineral Resources

At the time of this report, there were seventeen mine permits on record with the WDEQ within the Phase III study area, twelve of these were active permits (Table 2.2-1). The active permitted mines included four sand and/or gravel operations, six Trona mines and two mines classified as other. The inactive mines include three sand and/or gravel mines classified as terminated and released and two sand and/or gravel mines classified as sites in reclamation. Figure 2.2-8 displays the locations of these mines.

Table 2.2-1 Tabulation of Existing Mine Permits Phase III Study Area (WDEQ, 2014).

Permit Number	Company Name	Mine Name	Mine Type	Mineral	Status
ET0062	DEBARNARDI BROS INC	DEBARNARDI PIT 2	Limited Mining Operation	Sand and/or Gravel	Active
PT0464	TATA CHEMICALS (SODA ASH) PARTNERS	<Null>	Permit	Trona	Active
SP0651	SEARLE BROS CONST CO	GRANGER	Small Mine Permit	Sand and/or Gravel	Active
ET0022	GRANGER, TOWN OF	<Null>	Limited Mining Operation	Other	Active
ET0634	FLAMING GORGE CORP	<Null>	Limited Mining Operation	Other	Active
PT0655	F M C WY CORP	LITTLE DRY CREEK FKA BENETRON PROJECT	Permit	Trona	Active
SP0635	F M C WY CORP	GRANGER GRAVEL	Small Mine Permit	Sand and/or Gravel	Active
PT0495	SOLVAY SODA ASH JOINT VENTURE	<Null>	Permit	Trona	Active
PT0454	F M C WY CORP	GRANGER	Permit	Trona	Active
PT0335	F M C WY CORP	WESTVACO	Permit	Trona	Active
PT0554	F M C WY CORP	FMC TRONA SOLUTION	Permit	Trona	Active
ET1568	PALLESEN CONST INC	SLAGOWSKI	Limited Mining Operation	Sand and/or Gravel	Active
ET0892	SCHMID OILFIELD SERV INC	<Null>	Limited Mining Operation	Sand and/or Gravel	Site in Reclamation
ET1288	CASTLE ROCK CONSTRUCTION CO OF COLORADO LLC	PROCARIONE	Limited Mining Operation	Sand and/or Gravel	Site in Reclamation
ET0430	GORGE ROCK PRODUCTS INC	GRANGER	Limited Mining Operation	Sand and/or Gravel	Terminated and released
ET1329	EOG RESOURCES INC	SOUTH MOXA	Limited Mining Operation	Sand and/or Gravel	Terminated and released
ET0705	BRIDGER VALLEY GRAVEL	HICKEY PIT	Limited Mining Operation	Sand and/or Gravel	Terminated and released

In addition to current WDEQ records, there are numerous abandoned mine features within the study area; also indicated in Figure 2.2-8. These features are related to the area’s historic mining legacy when reclamation standards were either less stringent than today’s regulatory environment or non-existent. The Wyoming Department of Environmental Quality, Abandoned Mine Lands Division (AML) mission is to mitigate safety hazards and repair environmental damage from past mining activities, and to assist communities impacted by mining. Many of the sites within the study area are eligible for mitigation through the AML program (Figure 2.2-9).



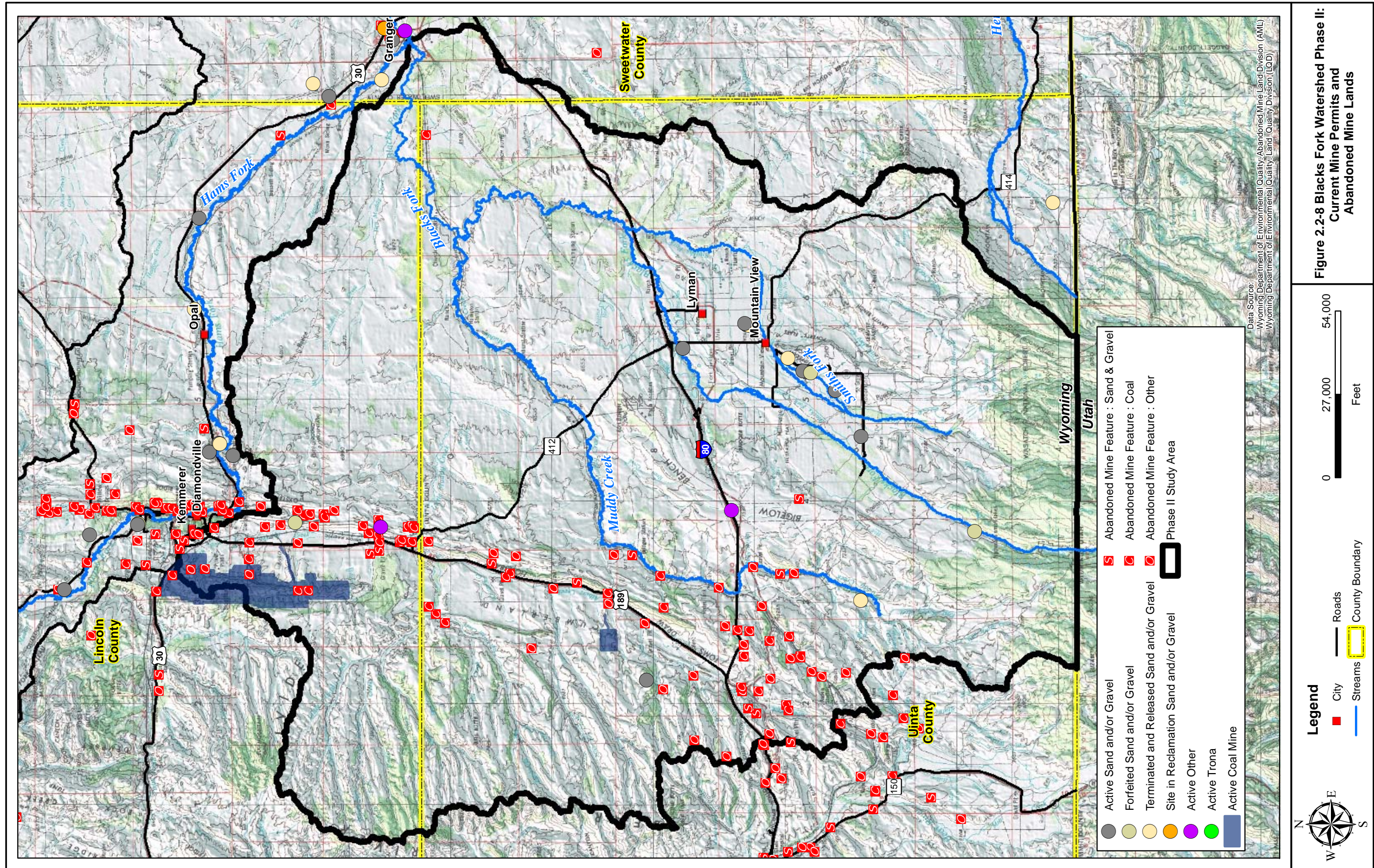
Figure 2.2-9 WDEQ Abandoned Sand/Gravel mine near Granger WY (Phase III Study Area).

The Phase III study area contains several types of abandoned mine sites; Sand and or Gravel, Industrial and numerous sites classified as other. All of these sites can include a variety of mining-related hazards including open pits, spoil piles, etc. In addition, environmental impacts associated with the historic mines may still exist.

2.2.4 Wildlife

2.2.4.1 General

The Wyoming Game and Fish Department (WGFD) maps the seasonal ranges by herd unit for each big game species and makes special note of areas listed as crucial habitat and parturition areas (birthing areas). WGF’s Crucial habitat or range is defined as those seasonal ranges or habitats (mostly winter range) that have been documented as the determining factor in a population’s ability to maintain itself at a certain level over a long period of time.



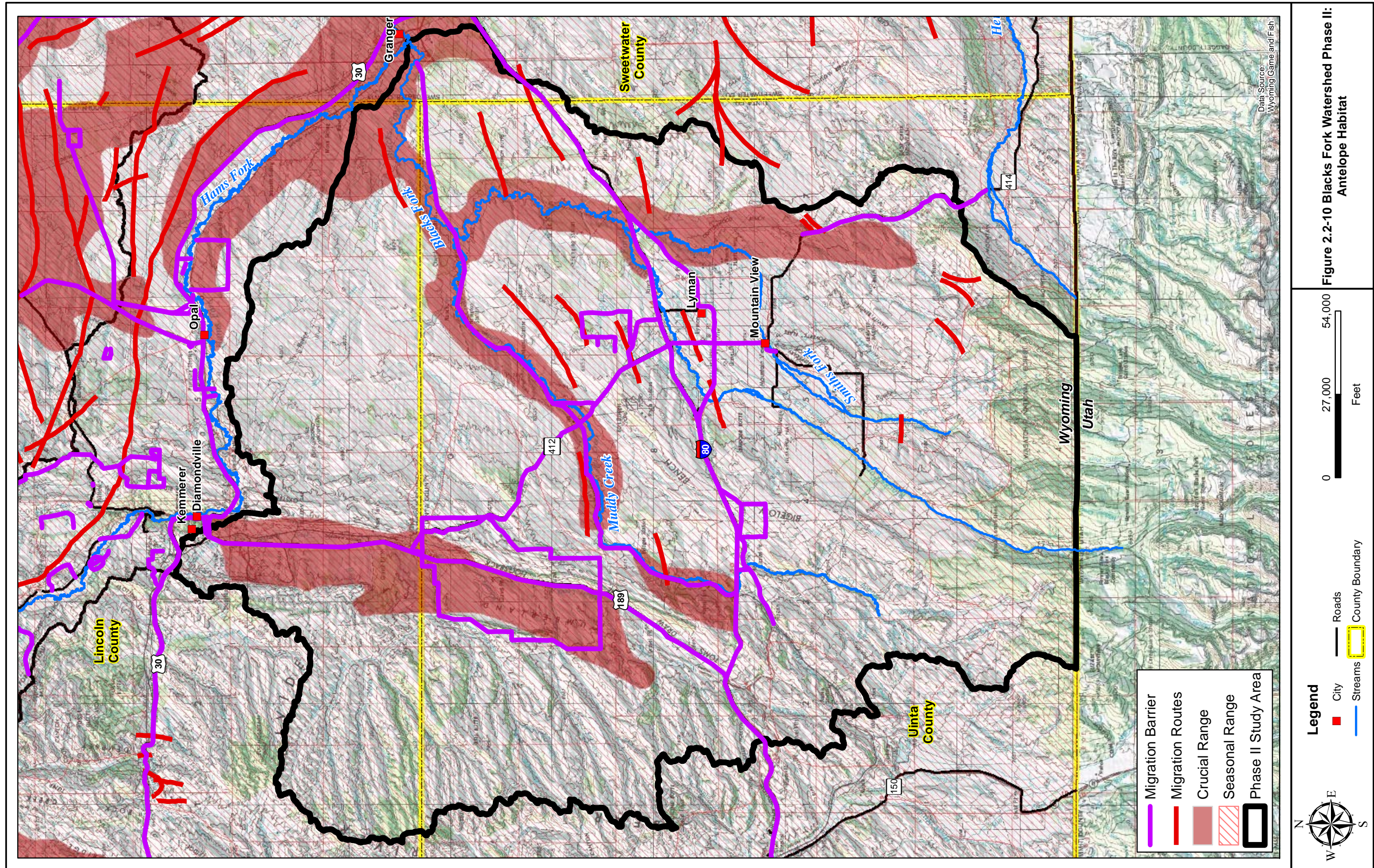
In the Phase III study area the primary big game present are antelope, elk, moose and mule deer. According to the Game and Fish data provided, all four of the big game species will utilize the entire study area as seasonal range. Within Phase III study area, approximately 405,276 acres (roughly 45 percent of the study area) have been determined to be crucial habitat for one or more of antelope, elk, moose or mule deer. The majority of this crucial range is concentrated along the Blacks Fork and Henrys Fork river corridors, and the area surrounding Flaming Gorge reservoir. There is also a significant amount of crucial range located in the Cedar Mountain area in the central portion of the study area. The only species shown to have parturition areas within the study is elk. These birthing areas are located in the very upper reaches of the Henrys Fork watershed near the southwest corner of the Phase III study area.

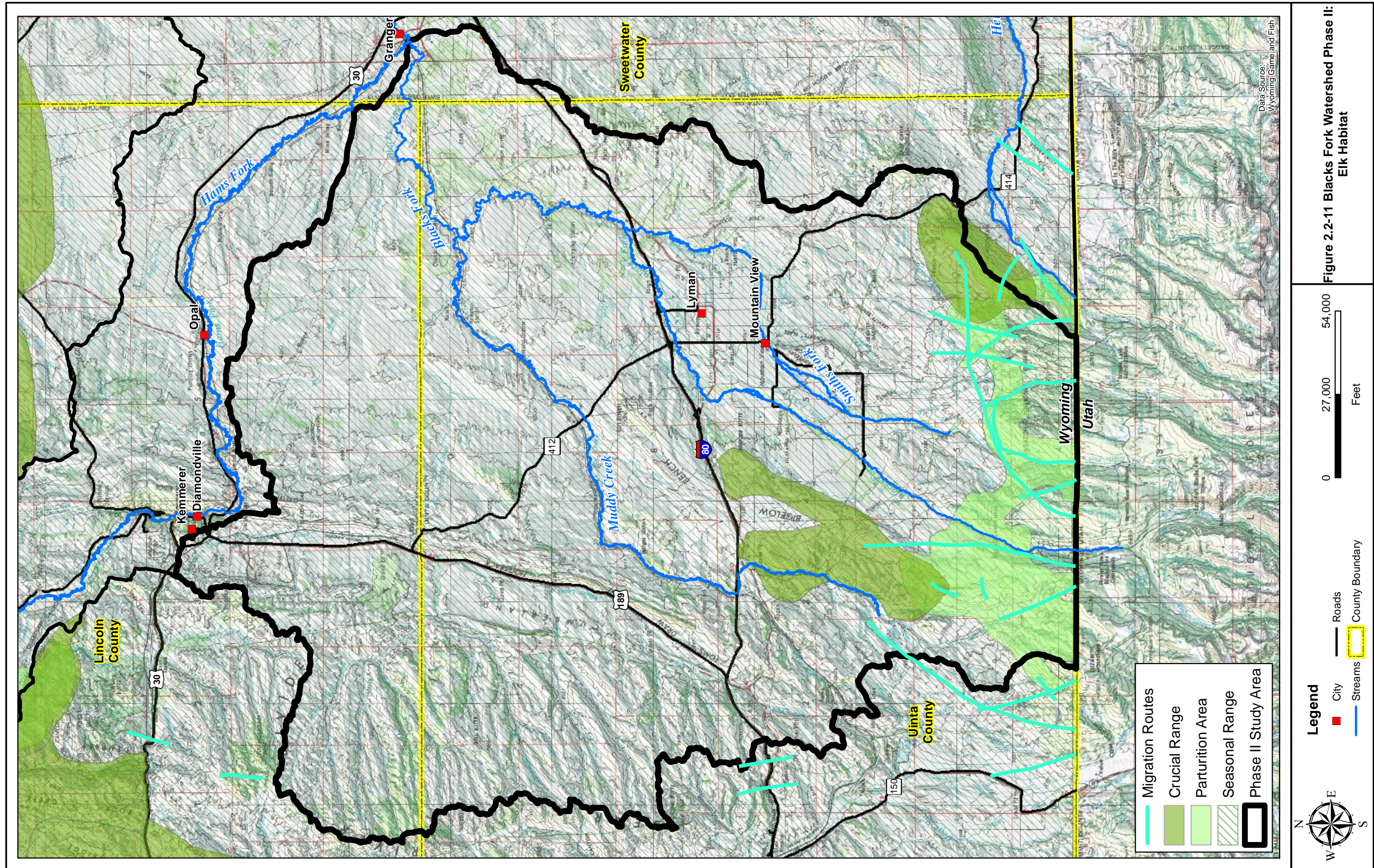
Figures 2.2-10 through 2.2-13 display the WGF seasonal range, crucial range, parturition areas, migration corridors and migration barriers for antelope, elk, moose, and mule deer within and immediately adjacent to the study area. Examination of these figures shows that while the entire study area is classified as seasonal range for the all of the big game species, the crucial habitat for these species is limited primarily to the river corridors and mountainous area previously mentioned.

The Wyoming Natural Diversity Database (WYNDD) lists numerous non-game species of concern within the study area, including amphibians, birds, mammals, fish, molluscs and reptiles. Originally initiated by the Nature Conservancy, the WYNDD became a research and service unit of the University of Wyoming in 1998. In order to more accurately analyze the distribution of the species of concern, the study areas have been broken into subregions based on their physiographic characteristics. The Phase III study area has been broken in to four subregions: Lower Blacks Fork, Big and Little Dry Creek, Henrys Fork, and Flaming Gorge. Table 2.2-2 presents the results of a database query conducted by the WYNDD for the subregions. Included in this list are all species of concern or species of potential concern which have been documented in the subregions. Review of the list shows that there are six endangered species known to have been observed within the study area, four of which are fish species. The Whooping Crane (*Grus americana*), Black Footed Ferret (*Mustela nigripes*), Bony Tail (*Gila elegans*), Colorado Pikeminnow (*Ptychocheilus lucius*), Humpback Chub (*Gila cypha*), and Razorback Sucker (*Xyrauchen texanus*) are all listed as endangered species. The Canada Lynx (*Lynx Canadensis*) is the only species listed as threatened within the study area. The Greater Sage-Grouse is also found within the study area and is considered a species of concern.

2.2.4.2 Sage Grouse

Areas of known greater sage grouse (*Centrocercus urophasianus*) leks are displayed in Figure 2.2-14. The sage grouse does not receive federal or state protection at this time; however, it is recognized as a sensitive species / species of concern by the BLM and a species of concern by WGFD. In August 2008, Executive Order 2008-2 was signed by the Governor which stresses additional management consideration to sage grouse and sage grouse habitat statewide. The order includes requirements of state agencies to encourage development outside of the core areas and to focus management to the greatest extent possible on the maintenance and enhancements of habitat within them. The core sage grouse





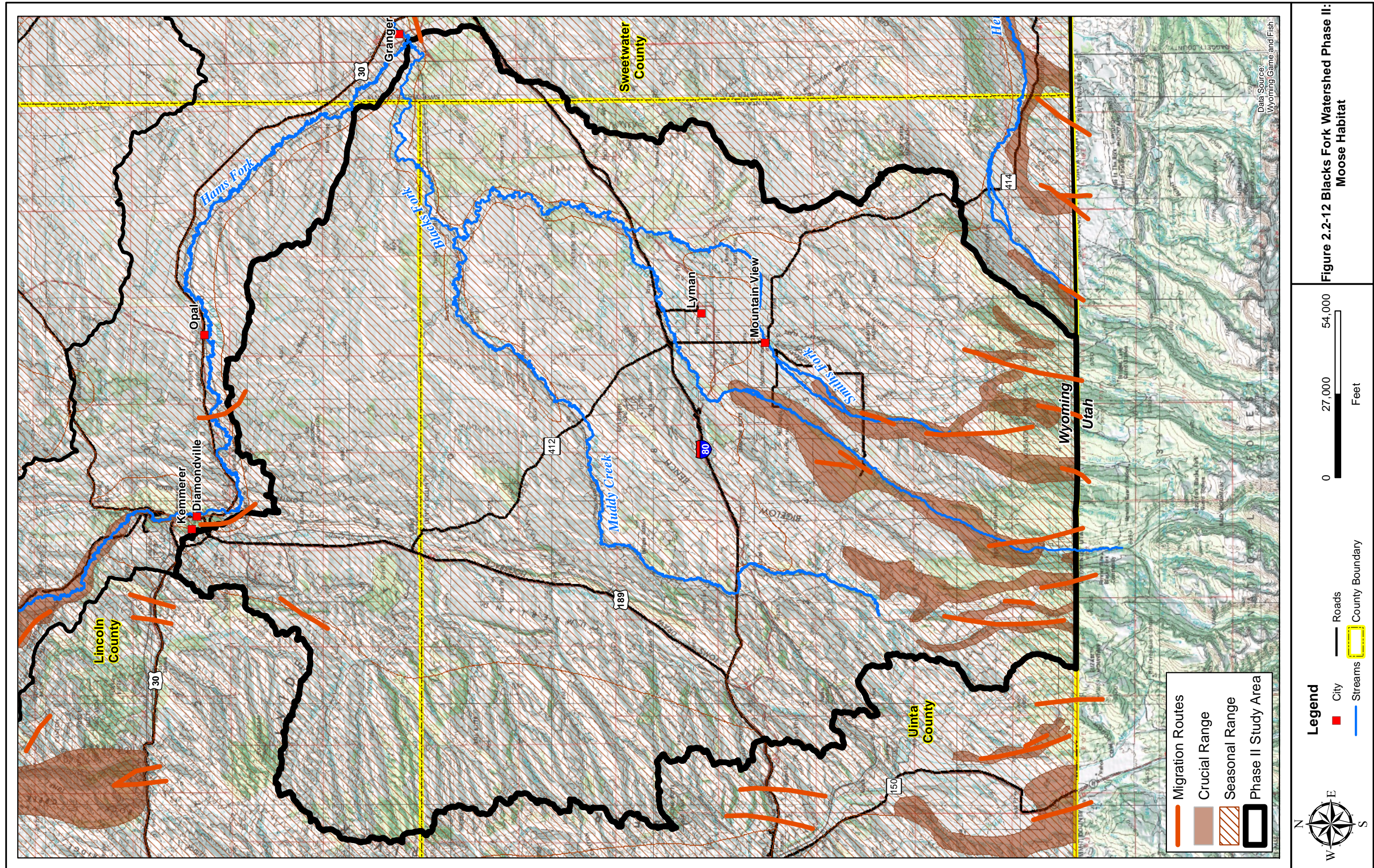


Figure 2.2-12 Blacks Fork Watershed Phase II:
Moose Habitat

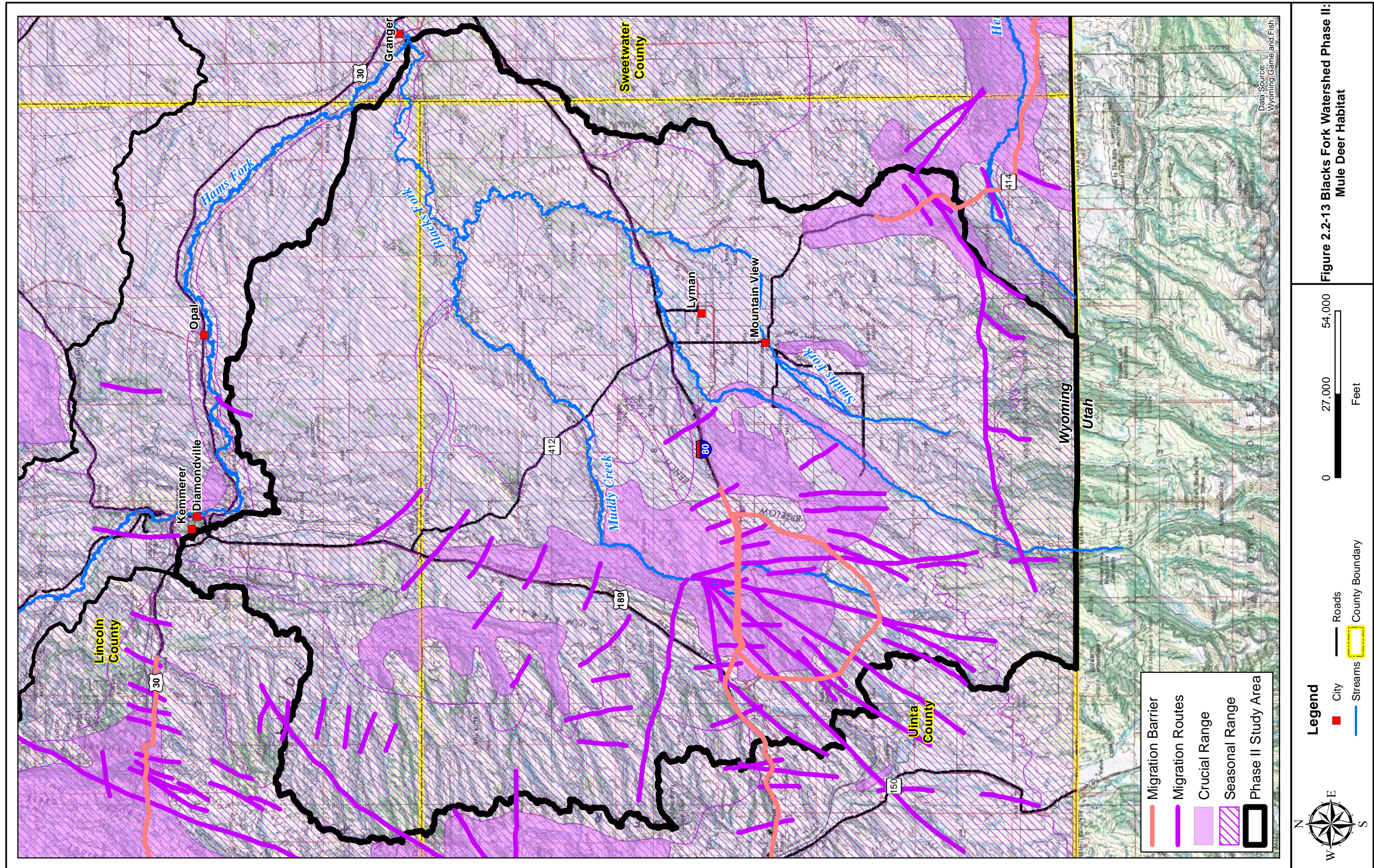
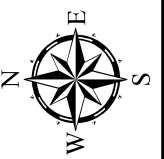


Figure 2.2-13 Blacks Fork Watershed Phase II:
Mule Deer Habitat

0 27,000 54,000
Feet

- Legend**
- City
 - Roads
 - Streams
 - County Boundary

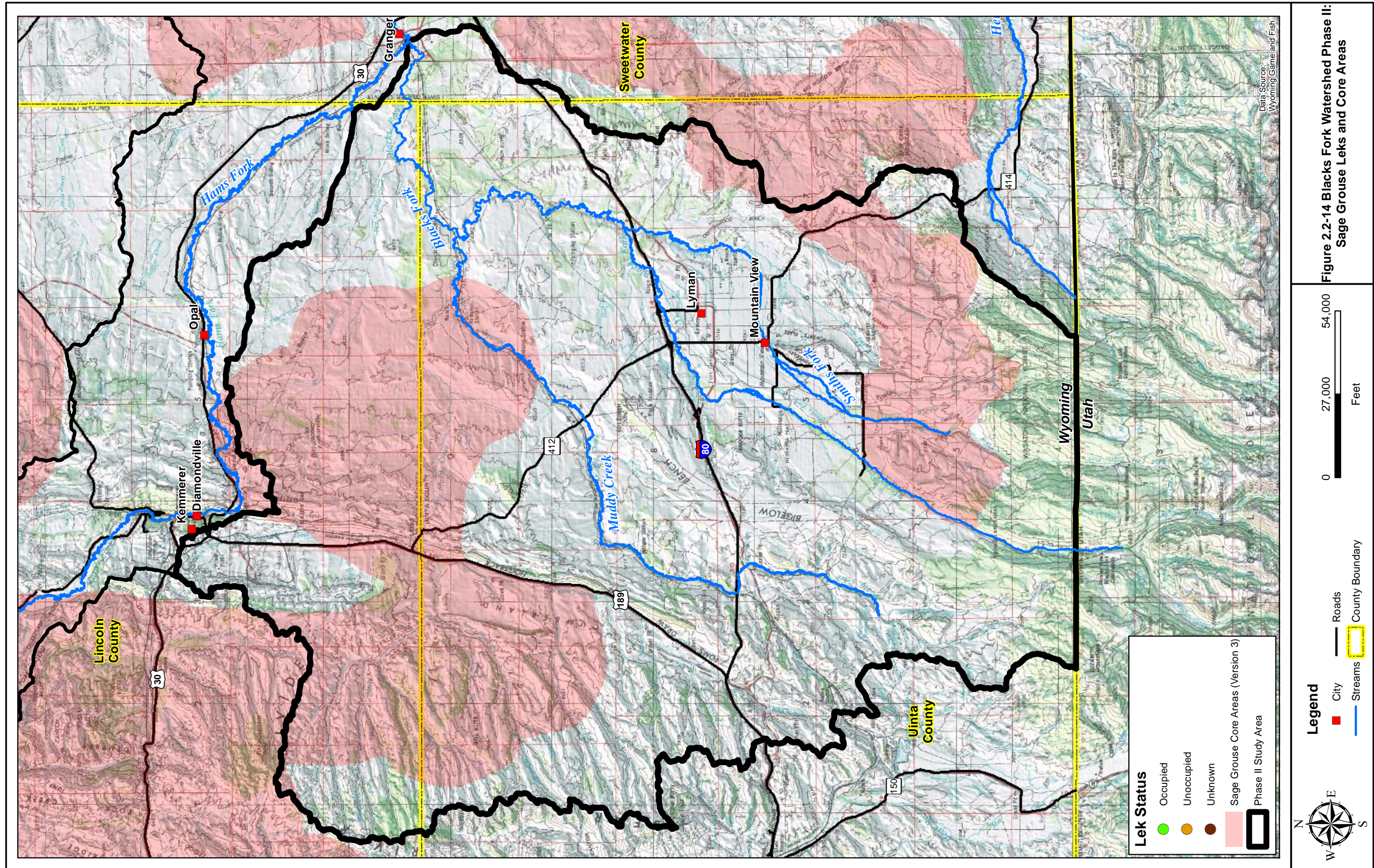


- Migration Barrier
- Migration Routes
- Crucial Range
- Seasonal Range
- Phase II Study Area

Data Source:
Wyoming Game and Fish

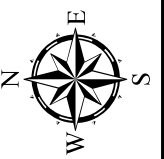
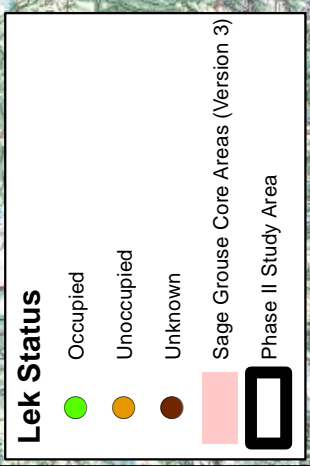
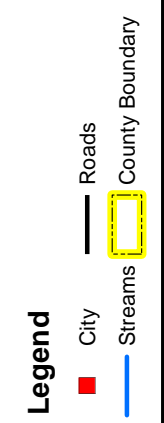
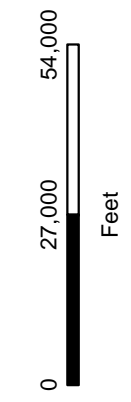
Table 2.2-2 Wyoming Natural Diversity Database: Wildlife Species in the Phase III Study Area.

Common Name	Scientific Name	Subregion				Listing Status	Tracked/Watched
		Henry's Fork	Dry Creek	Lower Blacks Fork	Flaming Gorge		
Amphibians							
Eastern Clade Western Toad	Anaxyrus boreas - Eastern Clade	x	x			Petition Under Review (UR)	Tracked
Great Basin Spadefoot	Spea intermontana	x	x	x	x		Tracked
Northern Leopard Frog	Lithobates pipiens	x	x	x	x	Not Warranted for Listing (NW)	Tracked
Tiger Salamander	Ambystoma mavortium		x				Watched
Birds							
American Avocet	Recurvirostra americana	x	x	x			Watched
American Bittern	Botaurus lentiginosus	x					Tracked
American Dipper	Cinclus mexicanus			x			Watched
American White Pelican	Pelecanus erythrorhynchos	x	x	x	x		Tracked
Ash-throated Flycatcher	Myiarchus cinerascens	x	x		x		Watched
Baird's Sparrow	Ammodramus bairdii	x					Tracked
Bald Eagle	Haliaeetus leucocephalus	x	x	x	x	Delisted, formally monitored (DM)	Tracked
Barn Owl	Tyto alba				x		Watched
Black Rosy-Finch	Leucosticte atrata			x			Tracked
Black-crowned Night-Heron	Nycticorax nycticorax	x		x	x		Watched
Black-throated Gray Warbler	Setophaga nigrescens	x	x				Tracked
Brewer's Sparrow	Spizella breweri	x	x	x	x		Watched
Bufflehead	Bucephala albeola	x		x	x		Watched
Burrowing Owl	Athene cunicularia	x	x	x	x		Tracked
Bushtit	Psaltriparus minimus	x	x	x			Tracked
California Gull	Larus californicus	x	x		x		Watched
Canyon Wren	Catherpes mexicanus	x	x	x	x		Watched
Cassin's Sparrow	Peucaea cassinii	x					Watched
Chestnut-collared Longspur	Calcarius ornatus		x				Tracked
Common Goldeneye	Bucephala clangula	x		x	x		Watched
Common Loon	Gavia immer	x	x	x	x		Tracked
Common Tern	Sterna hirundo		x				Watched
Dark-eyed Junco	Junco hyemalis		x		x		Tracked
Eastern Phoebe	Sayornis phoebe	x	x				Watched
Ferruginous Hawk	Buteo regalis	x	x	x	x		Tracked
Forster's Tern	Sterna forsteri		x				Tracked
Golden Eagle	Aquila chrysaetos	x	x	x	x		Watched
Grasshopper Sparrow	Ammodramus savannarum	x					Watched
Greater Sage-Grouse	Centrocercus urophasianus	x	x	x	x	Candidate; Warranted but Precluded (C)	Tracked
Harlequin Duck	Histrionicus histrionicus			x			Tracked
Herring Gull	Larus argentatus		x		x		Watched
Juniper Titmouse	Baeolophus ridgwayi			x			Tracked
Lewis's Woodpecker	Melanerpes lewis	x		x			Tracked
Loggerhead Shrike	Lanius ludovicianus	x	x	x	x		Tracked
Long-billed Curlew	Numenius americanus	x		x	x		Tracked
McCown's Longspur	Rhynchophanes mccownii			x			Tracked
Merlin	Falco columbarius	x	x	x			Watched
Mountain Plover	Charadrius montanus	x	x	x	x	Not Warranted for Listing (NW)	Tracked
Northern Goshawk	Accipiter gentilis	x	x	x	x	Not Warranted for Listing (NW)	Tracked
Osprey	Pandion haliaetus	x	x	x	x		Watched
Peregrine Falcon	Falco peregrinus		x	x		Delisted, formally monitored (DM)	Tracked
Ring-billed Gull	Larus delawarensis		x	x	x		Watched
Ring-necked Duck	Aythya collaris	x			x		Watched
Rose-breasted Grosbeak	Pheucticus ludovicianus	x					Watched
Sage Thrasher	Oreoscoptes montanus	x	x	x	x		Watched
Sagebrush Sparrow	Artemisiospiza nevadensis	x	x	x	x		Tracked
Sandhill Crane	Grus canadensis	x	x	x	x		Watched
Scott's Oriole	Icterus parisorum		x				Tracked
Short-eared Owl	Asio flammeus		x				Tracked
Snowy Egret	Egretta thula	x	x		x		Watched
Townsend's Warbler	Setophaga townsendi	x					Watched
Trumpeter Swan	Cygnus buccinator	x	x	x	x	Not Warranted for Listing (NW)	Tracked
Tundra Swan	Cygnus columbianus			x	x		Watched
Virginia Rail	Rallus limicola	x					Watched
Western Scrub-Jay	Aphelocoma californica			x			Tracked
Western Yellow-billed Cuckoo	Coccyzus americanus occidentalis	x				Proposed Threatened (PT)	Tracked
White-faced Ibis	Plegadis chihi	x		x	x		Tracked
White-winged Crossbill	Loxia leucoptera			x			Watched
Whooping Crane	Grus americana	x	x			Listed Endangered (LE), and Endangered - Nonessential Experimental Population (LEXN)	Tracked
Winter Wren	Troglodytes hiemalis		x				Watched
Crustaceans							
Versatile Fairy Shrimp	Branchinecta lindahli			x	x		Tracked
Fish							
Blunt-leaf spike-moss	Selaginella mutica				x		Tracked
Bluehead Sucker	Catostomus discobolus	x	x	x	x		Tracked
Bonytail	Gila elegans		x			Listed Endangered (LE)	Tracked
Colorado Pikeminnow	Ptychocheilus lucius		x			Listed Endangered (LE)	Tracked
Colorado River Cutthroat Trout	Oncorhynchus clarkii pleuriticus	x				Not Warranted for Listing (NW)	Tracked
Flannelmouth Sucker	Catostomus latipinnis	x	x	x	x		Tracked
Humpback Chub	Gila cypha		x			Listed Endangered (LE)	Tracked
Mountain Sucker	Catostomus platyrhynchus	x		x			Watched
Razorback Sucker	Xyrauchen texanus		x			Listed Endangered (LE)	Tracked
Roundtail Chub	Gila robusta	x	x	x	x		Tracked
Mammals							
Bighorn Sheep	Ovis canadensis		x			Listed Endangered (LE), and Endangered - Nonessential Experimental Population (LEXN)	Watched
Black-footed Ferret	Mustela nigripes		x	x		Listed Threatened (LT)	Tracked
Canada Lynx	Lynx canadensis	x					Tracked
Canyon Deermouse	Peromyscus crinitus	x			x		Tracked
Dwarf Shrew	Sorex nanus	x					Watched
Hoary Bat	Lasiurus cinereus		x				Watched
Idaho Pocket Gopher	Thomomys idahoensis	x					Tracked
Least Weasel	Mustela nivalis	x					Watched
Little Brown Myotis	Myotis lucifugus		x			Petition Under Review (UR)	Watched
Long-eared Myotis	Myotis evotis	x	x				Watched
Long-legged Myotis	Myotis volans		x				Watched
North American Water Vole	Microtus richardsoni	x					Tracked
Northern River Otter	Lontra canadensis	x	x				Tracked
Pallid Bat	Antrozous pallidus			x			Tracked
Pinon Deermouse	Peromyscus truei	x			x		Tracked
Plains Bison	Bos bison bison	x	x	x		Not Warranted for Listing (NW)	Tracked
Prairie Gray Fox	Urocyon cinereoargenteus ocythous				x	Petition Under Review (UR)	Watched
Pygmy Rabbit	Brachylagus idahoensis	x	x	x	x	Not Warranted for Listing (NW)	Tracked
Ringtail	Bassariscus astutus				x		Watched
Silver-haired Bat	Lasiurus noctivagans		x	x			Watched
Spotted Bat	Euderma maculatum		x				Tracked
Thirteen-lined Ground Squirrel	Ictidomys tridecemlineatus	x	x		x		Tracked
Uinta Ground Squirrel	Urocyon armatus	x	x	x	x		Watched
Utah Cliff Chipmunk	Neotamias dorsalis utahensis	x			x		Tracked
Western Small-footed Myotis	Myotis ciliolabrum	x	x		x		Watched
White-tailed Prairie Dog	Cynomys leucurus	x	x	x	x	Not Warranted for Listing (NW)	Tracked
Wyoming Ground Squirrel	Urocyon elegans	x	x	x	x		Watched
Yuma Myotis	Myotis yumanensis		x				Tracked
Molluscs							
Creeping Anclid	Ferrissia rivularis			x			Tracked
Green River Pebblesnail	Fluminicola coloradoensis			x			Tracked
Marsh Rams-horn	Planorbella trivolvis			x			Tracked
Reptiles							
Great Basin Gophersnake	Pituophis catenifer deserticola	x	x		x		Watched
Midget Faded Rattlesnake	Crotalus oregonus concolor	x	x	x	x		Tracked
Northern Tree Lizard	Urosaurus ornatus wrighti	x	x		x		Tracked
Plateau Fence Lizard	Sceloporus tristichus	x	x		x		Tracked



Data Source:
Wyoming Game and Fish

Figure 2.2-14 Blacks Fork Watershed Phase II:
Sage Grouse Leks and Core Areas



population areas within the Phase III study area are delineated in Figure 2.2-14. As is evident in this figure, the sage grouse core areas affect three distinct areas of land within the Phase III study area. The core area to the north of Granger encompasses a total of 57,516 acres, the sage grouse core area to the south of Granger extending to Sage Creek Mountain encompasses 137,395 acres, while the core area surrounding the Blacks Fork River contains 121,024 acres. This totals 431,259 acres of sage grouse core areas located within the Phase III study area. While there are several occupied sage grouse leks located in the central portion of the study area (as seen in Figure 2.2-14), these are not considered part of the core areas by the Wyoming Game and Fish Department.

The BLM definition of a sensitive species is as follows: species that could easily become endangered or extinct in the state, including: (a) species under status review by the FWS/National Marine and Fisheries Service; (b) species whose numbers are declining so rapidly that Federal listing may become necessary; (c) species with typically small or fragmented populations; and (d) species inhabiting specialized refuge or other unique habitats.

WGFD lists the greater sage grouse as: species that are widely distributed, with population status or trends unknown but suspected to be stable; habitat restricted or vulnerable but no recent or on-going significant loss; species likely sensitive to human disturbance. *The sage grouse is not listed as a Threatened or Endangered species and does not receive any protections from the Endangered Species Act; however, BLM and WGFD have developed restrictions/recommendations to help protect the sage grouse.*

2.2.4.3 Wild Horses

Following passage of the Wild, Free-Roaming Horse and Burro Act in 1971, BLM was charged with management of wild horses or burros in "herd management areas" (HMAs). The BLM establishes an "appropriate management level" (AML) for each HMA. The AML is the population objective for the HMA that will ensure a "thriving ecological balance among all the users and resources of the HMA". For example, wildlife, livestock, wild horses, vegetation, water, and soil. Wyoming has no wild burros (BLM, 2012). Should any wild horses be found within this study area, they would be removed by BLM.

Within the Phase III study area, there are no HMAs as indicated in Figure 2.2-15.

2.2.4.4 WGF Crucial Habitat Areas

As part of the WGFD Strategic Habitat Plan (2009), areas within the State which have been determined to be Crucial Priority Areas or Enhancement Priority Areas for aquatic, terrestrial and combined terrain were delineated (Figure 2.2-16). "Combined" areas were created where significant overlap occurred between aquatic and terrestrial areas. As defined by WGFD at: <http://wgfd.wyo.gov/web2011/wildlife-1000405.aspx>

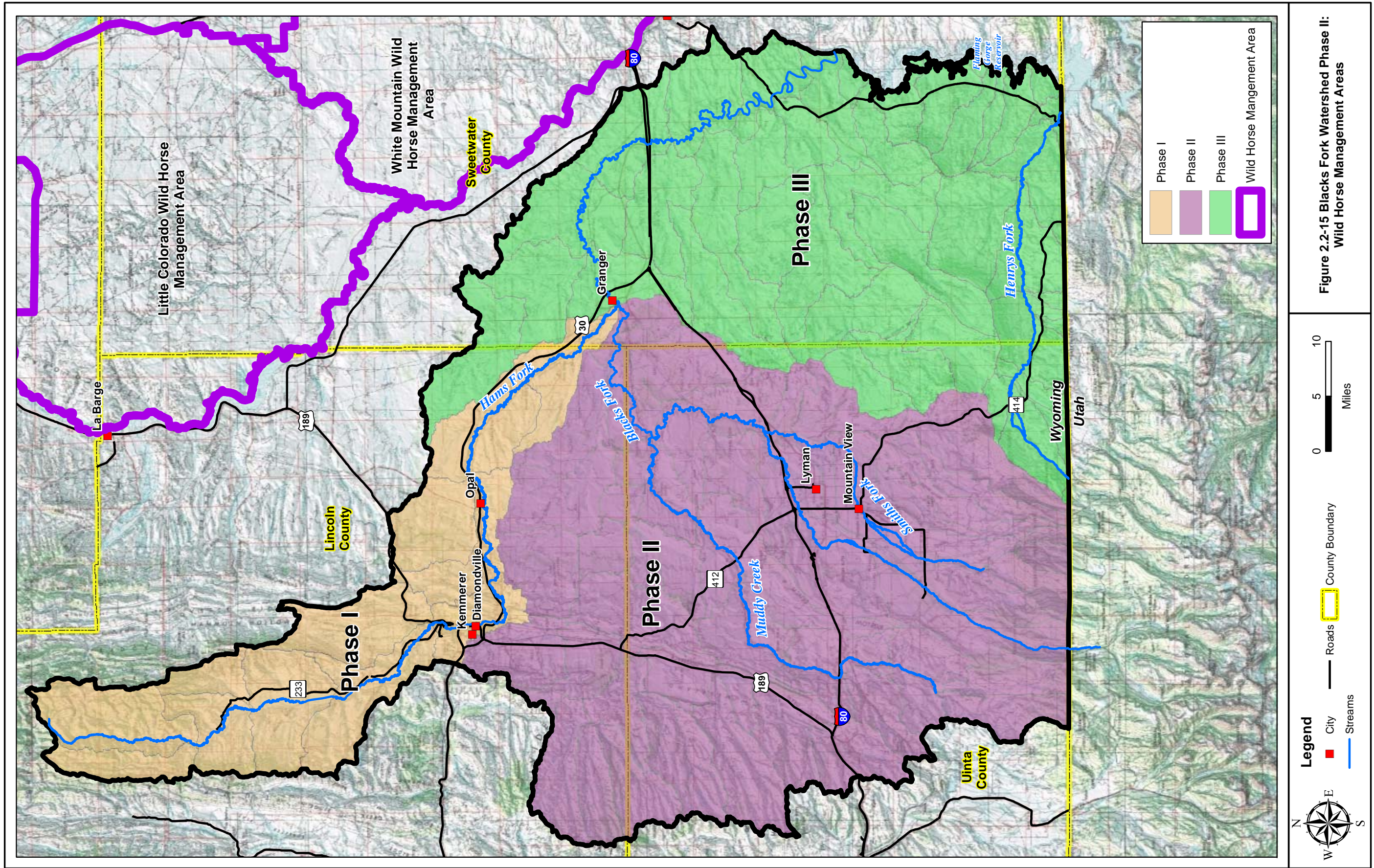


Figure 2.2-15 Blacks Fork Watershed Phase II: Wild Horse Management Areas

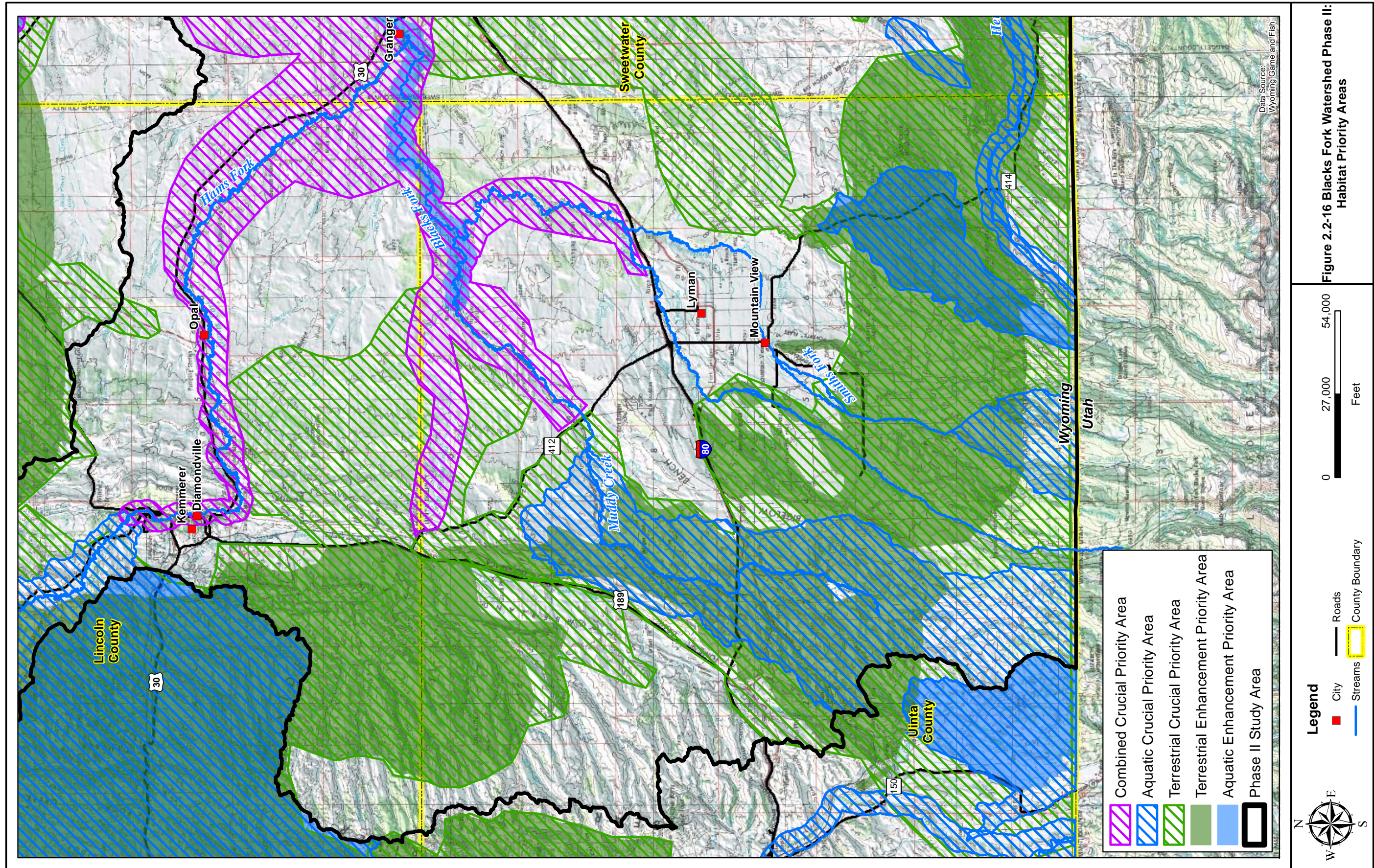


Figure 2.2-16 Blacks Fork Watershed Phase II: Habitat Priority Areas

“Crucial Priority Areas are based on significant biological or ecological values. These are areas that need to be protected or managed to maintain viable healthy populations of terrestrial and aquatic wildlife for the present and future. They represent habitat values and identify where those values occur on the landscape. Examples of values include crucial winter range, sage grouse core area seasonal habitats, Species of Greatest Conservation Need (SGCN) diversity and uniqueness, quality and condition of vegetative communities, movement corridors, quality of watershed hydrologic function, etc. The Department will concentrate habitat protection and management activities in these areas.”

Enhancement Habitat Priority Areas represent those with a realistic potential to address wildlife habitat issues and to improve, enhance, or restore wildlife habitats. These areas offer potential for improving habitat and focusing Department habitat efforts. They may overlap crucial areas or be distinct from them. Enhancement areas are based on habitat issues. Like crucial areas where values are key, issues were identified by regional personnel and used to select enhancement habitat areas. Examples of issues include loss of aspen communities, habitat fragmentation, development, loss of connectivity, water quality effects, water quantity limitations, beetle killed conifer, lack of fish passage, loss of fish to diversions, degraded habitat, etc.” (<http://wgfd.wyo.gov/web2011/wildlife-1000055.aspx>).

Review of the WGF Crucial Habitat Area Narratives (available at <http://wgfd.wyo.gov/web2011/wildlife-1000426.aspx>) provides the following information regarding sensitive aquatic, terrestrial and combined areas within the study area. The paragraphs were extracted directly from the narratives for Crucial Habitat Areas found within the project study area:

Henrys Fork River Corridor: Aquatic Crucial Area

- *Reason Selected:*
The Henry’s Fork River provides habitat for sensitive native fish species, and habitat protection is warranted. The river corridor provides important cottonwood/willow riparian habitat diversity used by several terrestrial and aquatic wildlife species.
- *Primary species or assemblages of species:*
Colorado River cutthroat trout, flannelmouth sucker, bluehead sucker
- *Solutions or actions:*
Advocate sound water management practices that improve habitat conditions for the fishery. Promote sound livestock grazing management practices and other land use activities that promote healthy riparian habitat and reduce excessive sediment yield into the river. Advocate irrigation diversion structure modifications or replacement that accommodate fish passage.
- *Additional Information:*
Heavy siltation of the substrate is common in the middle and lower sections of the Henry’s Fork River. Silt yield from the watershed is so wide spread as to be largely uncontrollable. Irrigation of native hay crops, in many instances, depletes river flows during late summer, thus diminishing habitat function for fish. Irrigation diversion structures in the river may be barriers to fish passage and promotes habitat fragmentation.

Ringdahl: Aquatic Crucial Area

- *Reason Selected:*
Ringdahl Reservoir provides habitat for one of the last known genetically pure bluehead sucker populations in Wyoming that is currently not threatened by hybridization with white suckers.
- *Primary species or assemblages of species:*
Bluehead sucker
- *Solutions or actions:*
Advocate sound water management practices that improve habitat conditions for the fishery. Investigate potential for establishing a minimum pool level in the reservoir. Investigate the site location and feasibility of rebuilding and enlarging the dam. Negotiate potential to enlarge the dam and storage capacity of Ringdahl dam and reservoir so a fisheries minimum pool can be established beneath the existing storage right. Promote sound livestock grazing management practices for maintaining proper watershed function and water yield of the tributary spring feeder drainage.
- *Additional Information:*
The reservoir is used to store water for irrigating agricultural hay crops. As a result the reservoir is subject to being drawn down to dead pool levels or completely drained to meet water right demands.

Uinta: Terrestrial Crucial Area

- *Reason Selected:*
Crucial winter range for elk, moose, mule deer, and pronghorn, major migration corridors for big game, Governor's Sage-grouse Implementation Team (GSGIT) sage-grouse core breeding areas, other sagebrush obligates (including pygmy rabbits), and other SGCN listed in the Wyoming Comprehensive Wildlife Conservation Strategy plan.
- *Primary Species or assemblages of species:*
Mule deer, elk, moose, pronghorn, greater sage-grouse, pygmy Rabbit and other SGCN listed in the Wyoming Comprehensive Wildlife Conservation Strategy plan.
- *Solutions or actions:*
Increased preservation of this area from development threats and improved livestock and timber management need to occur to protect the world-class wildlife values in this area. Timber management practices that remove beetle infested conifers and benefit aspen and willow habitats need to occur on the north slope of the Uintas. Treatments of willow riparian habitats for moose and improved livestock management of willow, and aspen dominated transitional habitats on the Wasatch- Cache NF will be pursued. Assessment of livestock management practices and habitat conditions need to occur, particularly in transitional and winter ranges to develop actions to protect or manage these areas. Seriously degraded winter range complexes in the Leroy area are in desperate need of attention, although options are severely limited given current livestock management practices, landownership patterns and lack of concern for wildlife among some landowners and land managers. Forage reserves/grass banks are needed in this area to facilitate habitat treatments and provide flexibility to livestock producers. The Department and partners

should pursue permanent withdrawals of energy development leases throughout much of this area, particularly in that portion west of Wyoming Highway 189. Application of the Department's Standard Recommendations for Development of Oil and Gas Resources in Crucial and Important Wildlife Habitats and development stipulations under the Governor's sage-grouse core habitats should be applied throughout areas that energy development is permitted. Conservation easement opportunities should be pursued where possible in this area. Rezoning from Agricultural to residential lands within the county is rapidly increasing and will be addressed through increased involvement with the county zoning board.

- **Additional Information:**
None Available

Green River, Blacks Fork and Hams Fork: Combined Crucial Area

- **Reason Selected:**
Fontenelle Reservoir and the lower Green River support a regionally important recreational sport fishery. The lower river corridors provide important cottonwood/willow riparian habitat diversity within the high sagebrush desert ecosystem that is used by several terrestrial and aquatic wildlife species. The river corridors provide habitat for sensitive native non-game species. This area includes crucial winter range for Lincoln Moose and Carter Lease and Sublette Pronghorn Herd Units and severe winter relief habitats for West Green River Elk and Wyoming Range Mule Deer Herd Units. Since this polygon is primarily woody riparian, it represents critical big game migration corridors. It also includes areas designated as a greater sage-grouse core breeding area by the Governor's Sage-grouse Implementation Team (GSGIT). This area supports numerous SGCN identified in the CWCS report.
- **Primary Species or assemblages of species:**
Roundtail chub, flannelmouth sucker, bluehead sucker, mountain sucker, rainbow trout, brown trout, kokanee, cutthroat trout, mountain whitefish, Great Basin spadefoot toad, northern leopard frog, moose, pronghorn, sage grouse, cottonwood-willow riparian obligate non-game species, sagebrush obligates, and other SGCN listed in the Wyoming Comprehensive Wildlife Conservation Strategy (CWCS).
- **Solutions or actions:**
Advocate sound water management practices. Promote sound livestock grazing management practices and other land use activities that reduce excessive sediment yield. Work with landowners and conservation organizations to develop instream habitat projects for improving fish habitat. Promote full assessment and protection of habitats (especially riparian habitats and prairie dog complexes). Conduct habitat treatments where appropriate to improve rangeland, riparian and stream channel condition. Attempt to minimize habitat impacts created by energy and industrial development activities. The Department and partners should pursue permanent withdrawals of energy development leases. Conservation easements or other habitat protection approaches should be pursued where possible. Construct experimental instream rock sill structures to improve.

- **Additional Information:**

The Blacks Fork River downstream of the confluence with Muddy Creek to Flaming Gorge Reservoir is not suitable for a trout fishery. The topography consists of rolling sagebrush hills, salt desert shrub flats, and badlands. The soil is very alkaline and subject to heavy erosion. The stream is choked with fine clay, sand and silt. The river channel is wide and shallow and lacks adequate pool depth at lower flows. Water temperatures during the summer exceed the limit at which trout can survive. This section is a refuge for native non-game fish and is managed for native fish in particular roundtail chubs, flannelmouth suckers, and bluehead suckers. Some willow and buffaloberry shrubs are present along the river bottom, but they do not influence the fishery habitat. Invasive tamarix persists along this reach of river and is well suited to the alkaline conditions and fluctuating water tables in the riparian zone. The lower Black's Fork is a water depleted system resulting from agricultural water use upstream in the Bridger Valley, and industrial trona mine water use within the crucial habitat corridor itself. Upstream irrigation of native hay crops, in many instances, depletes river flows during late summer, thus diminishing habitat function for fish. River channel dewatering and sediment deposition reduces pool depths and fish cover, severs connectivity with lateral side channel habitats, and at times can cease river flow completely leaving only residual pools.

Little Mountain and Flaming Gorge: Combined Crucial Area

- **Reason Selected:**

Crucial winter range for elk, mule deer, pronghorn, a Governor's Sage-grouse Implementation Team (GSGIT) sage-grouse core breeding area and a large number of SGCN. Unique reptile community. Habitats in this area are extremely diverse and unique in Wyoming. Landscape scale ecosystem restoration efforts have been ongoing for the past 18 years.

- **Primary Species or assemblages of species:**

Colorado River cutthroat trout, mountain sucker, flannelmouth sucker, lake trout, kokanee salmon, rainbow trout, brown trout, smallmouth bass, channel catfish, midget faded rattlesnake, northern plateau lizard, cliff tree lizard, Great Basin gopher snake, elk, mule deer, pronghorn, moose, greater sage-grouse (under federal review for listing), pygmy rabbit and a unique assemblage of species occurs in this area, including juniper, sagebrush and aspen obligate birds and mammals.

- **Solutions or actions:**

Pursue permanent withdrawals of energy development leases. Advocate habitat protection and attempt to minimize habitat impacts created by energy development activities. Pursue and accept development-limited easements for private lands on the east side of Flaming Gorge Reservoir as a contributing strategy for protecting important habitats. Advocate sound livestock grazing practices. Investigate and develop opportunities for forage reserve grazing management on the east side of Flaming Gorge Reservoir. Manage elk and moose population levels so that aspen, willow, water birch, currant, chokecherry, and other mountain shrubs are not inhibited or suppressed by excessive browsing. Ensure wildlife is managed so these vegetative communities are allowed to restore vigor and maintain diverse age class structure. Enhance watershed

segments that maintain potential for restoring woody riparian vegetation, and subsequently encourage expansion of beaver colonies into suitable habitat where populations can be sustained over the long term. Cooperate with BLM, livestock grazing lessees, conservation groups, and other affected interests to implement existing plans for additional prescribed burn projects. Monitor aquatic and terrestrial wildlife habitat response to individual and cumulative watershed restoration treatments.

- **Additional Information:**

Vegetative communities in this area are very diverse and transition quickly in a relatively short distance from the subalpine fir zone at 9,000 ft on top of Little Mountain to salt desert shrub zone at 6,040 ft near the shoreline at Flaming Gorge Reservoir. The delineated area includes a unique blend of rock outcrops and talus slopes, juniper woodlands, mountain shrub, sagebrush-grassland, and salt desert shrub communities at the mid and low elevations that support a species assemblage of reptiles found nowhere else in Wyoming. This is the only area in Wyoming inhabited by the midget faded rattlesnake. This area is under increasing threat from a variety of energy development proposals, including wind farms, oil and gas development, and major energy corridors. This occurs despite increased protections (ACEC, SMA) applied by the Bureau of Land Management during the last RMP. Increased preservation of this area from these threats and improved livestock management needs to occur to protect this areas world-class wildlife values. Energy development and other land uses in the Green River watershed cumulatively threaten water quality and physical habitat in Flaming Gorge Reservoir.

2.3 Natural Environment

2.3.1 Vegetation and Land Cover

2.3.1.1 Wyoming GAP Analysis

The GAP dataset is intended for use at a state or ecoregion level geographic area. For the purposes of this project however it is the most display friendly vegetative dataset available. The GAP dataset provides generalized distributions of the vegetative land cover located within the Phase III study area. For more information related to the GAP dataset please see the Basinwide volume of this report. Figure 2.3-1 displays the Wyoming Gap Analysis results for the Phase III study area.

2.3.1.2 NLCD

The National Land Cover Database (NLCD) is a Landsat-based, 30-meter resolution, land cover database for the nation. Details regarding this database are discussed in the Basinwide volume of this report.

In order to more accurately analyze the distribution of the NLCD dataset, the Phase III study area has been broken into four subregions based on their physiographic characteristics. The four subregions are: Lower Blacks Fork, Big and Little Dry Creek, Henrys Fork, and Flaming Gorge. Table 2.3-1 presents the results of

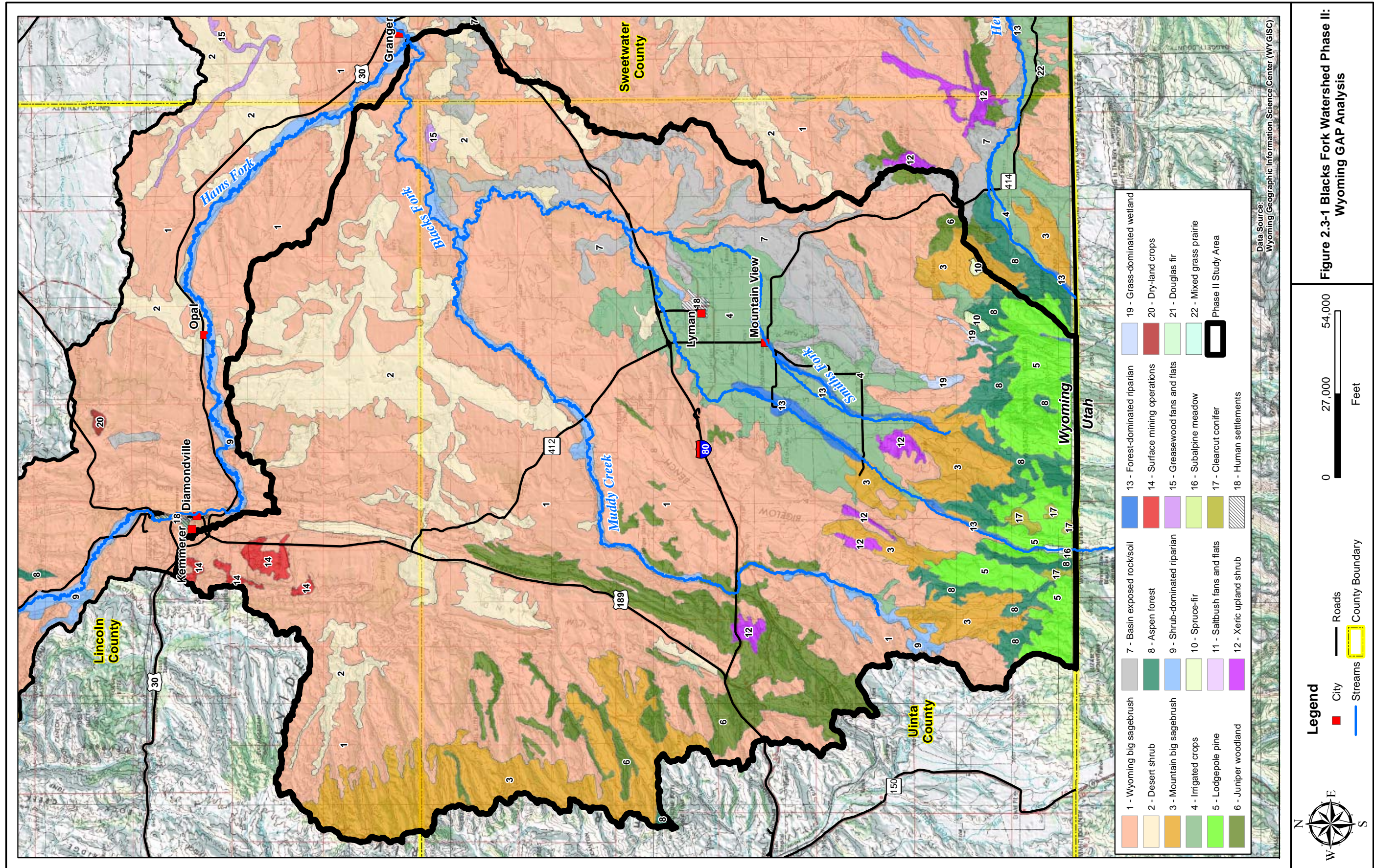


Table 2.3-1 Tabulation of National Land Cover Database: Phase III Subregions.

Blacks Fork Watershed Phase III : Lower Blacks Fork Subregion (NLCD)			
Classification	Description	Acres	Percent of Subregion
Shrub/Scrub	Areas dominated by shrubs; less than 16 feet tall with shrub canopy typically greater than 20% of total vegetation. This class includes true shrubs, young trees in an early successional stage or trees stunted from environmental conditions.	295,505	92.4%
Barren Land	Areas of bedrock, desert pavement, scarps, talus, slides, volcanic material, glacial debris, sand dunes, strip mines, gravel pits and other accumulations of earthen material. Generally, vegetation accounts for less than 15% of total cover.	8,899	2.8%
Herbaceous	Areas dominated by graminoid or herbaceous vegetation, generally greater than 80% of total vegetation. These areas are not subject to intensive management such as tilling, but can be utilized for grazing.	6,390	2.0%
Other	Areas with less than 1% of Subregion Area	8,930	2.8%
Total		319,723	100%
Blacks Fork Watershed Phase III : Big and Little Dry Creek Subregion (NLCD)			
Classification	Description	Acres	Percent of Subregion
Shrub/Scrub	Areas dominated by shrubs; less than 16 feet tall with shrub canopy typically greater than 20% of total vegetation. This class includes true shrubs, young trees in an early successional stage or trees stunted from environmental conditions.	289,018	93.0%
Herbaceous	Areas dominated by graminoid or herbaceous vegetation, generally greater than 80% of total vegetation. These areas are not subject to intensive management such as tilling, but can be utilized for grazing.	13,798	4.4%
Barren Land	Areas of bedrock, desert pavement, scarps, talus, slides, volcanic material, glacial debris, sand dunes, strip mines, gravel pits and other accumulations of earthen material. Generally, vegetation accounts for less than 15% of total cover.	4,021	1.3%
Other	Areas with less than 1% of Subregion Area	3,938	1.3%
Total		310,775	100%
Blacks Fork Watershed Phase III : Henrys Fork Subregion (NLCD)			
Classification	Description	Acres	Percent of Subregion
Shrub/Scrub	Areas dominated by shrubs; less than 16 feet tall with shrub canopy typically greater than 20% of total vegetation. This class includes true shrubs, young trees in an early successional stage or trees stunted from environmental conditions.	131,063	77.7%
Emergent Herbaceous Wetlands	Areas where perennial herbaceous vegetation accounts for greater than 80% of vegetative cover and the soil or substrate is periodically saturated with or covered with water.	12,668	7.5%
Herbaceous	Areas dominated by graminoid or herbaceous vegetation, generally greater than 80% of total vegetation. These areas are not subject to intensive management such as tilling, but can be utilized for grazing.	4,755	2.8%
Evergreen Forest	Areas dominated by trees generally greater than 16 feet tall, and greater than 20% of total vegetation cover. More than 75% of the tree species maintain their leaves all year. Canopy is never without green foliage.	4,550	2.7%
Barren Land	Areas of bedrock, desert pavement, scarps, talus, slides, volcanic material, glacial debris, sand dunes, strip mines, gravel pits and other accumulations of earthen material. Generally, vegetation accounts for less than 15% of total cover.	4,486	2.7%
Hay/Pasture	Areas of grasses, legumes, or grass-legume mixtures planted for livestock grazing or the production of seed or hay crops, typically on a perennial cycle. Pasture/hay vegetation accounts for greater than 20% of total vegetation.	4,285	2.5%
Woody Wetlands	Areas where forest or shrubland vegetation accounts for greater than 20% of vegetative cover and the soil or substrate is periodically saturated with or covered with water.	2,694	1.6%
Developed, Open Space	Areas with a mixture of some constructed materials, but mostly vegetation in the form of lawn grasses. Impervious surfaces account for less than 20% of total cover. These areas most commonly include large-lot single-family housing units, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes.	1,987	1.2%
Deciduous Forest	Areas dominated by trees generally greater than 16 feet tall, and greater than 20% of total vegetation cover. More than 75% of the tree species shed foliage simultaneously in response to seasonal change.	1,738	1.0%
Other	Areas with less than 1% of Subregion Area	401	0.2%
Total		15,591	100%
Blacks Fork Watershed Phase III : Flaming Gorge Subregion (NLCD)			
Classification	Description	Acres	Percent of Subregion
Shrub/Scrub	Areas dominated by shrubs; less than 16 feet tall with shrub canopy typically greater than 20% of total vegetation. This class includes true shrubs, young trees in an early successional stage or trees stunted from environmental conditions.	92,146	94.4%
Barren Land	Areas of bedrock, desert pavement, scarps, talus, slides, volcanic material, glacial debris, sand dunes, strip mines, gravel pits and other accumulations of earthen material. Generally, vegetation accounts for less than 15% of total cover.	4,378	4.5%
Other	Areas with less than 1% of Subregion Area	1,129	1.2%
Total		97,654	100%

National Land Cover Database analysis for these subregions. All four of the subregions in the Phase III study area are overwhelmingly dominated by the Shrub/Scrub classification, ranging from 78% coverage in the Henrys Fork subregion to 94% in the Flaming Gorge subregion. The Henrys Fork subregion does exhibit the most vegetative diversity within the Phase III study area with 9 classifications, including some wetlands and forest classifications. The vegetative diversity in the other three subregions only includes a mixture of barren land and herbaceous grassland classifications in addition to the dominant Shrub/Scrub classification.

2.3.1.3 LANDFIRE

In order to more accurately analyze the distribution of the LANDFIRE dataset, the Phase III study area has been broken into subregions based on their physiographic characteristics. The Phase III study area has been broken in to four subregions. The four subregions are: Lower Blacks Fork, Big and Little Dry Creek, Henrys Fork, and Flaming Gorge. Existing vegetative type within each Phase III subregion was evaluated using data obtained through the LANDFIRE project (www.landfire.gov). For clarity, vegetation types making up less than 1% of each subregion were grouped together and tallied at the bottom of each table.

Lower Blacks Fork Subregion

The LANDFIRE existing vegetation data indicate 10 different vegetation classifications make up 96% of the land area within the Lower Blacks Fork Subregion. As is indicated in the data, the major sagebrush community (Inter-Mountain Basins Big Sagebrush Shrubland) dominates coverage of the subregion totaling approximately 45% of the area. The table also presents valuable information pertaining to the vegetation types present to a much lesser extent. Table 2.3-2 summarizes the distribution of the vegetation communities within the Lower Blacks Fork subregion.

Table 2.3-2 Tabulation of LANDFIRE Existing Vegetation Type Data: Phase III Lower Blacks Fork Subregion.

Blacks Fork Watershed Phase III : Lower Blacks Fork Subregion			
Existing Vegetation Type	Acres	Percent of Watershed	Cumulative Percent
Inter-Mountain Basins Big Sagebrush Shrubland	145340.59	45.417%	45.417%
Inter-Mountain Basins Big Sagebrush Steppe	57331.08	17.915%	63.332%
Inter-Mountain Basins Semi-Desert Grassland	27177.50	8.493%	71.824%
Inter-Mountain Basins Mat Saltbush Shrubland	25999.03	8.124%	79.949%
Introduced Upland Vegetation-Annual and Biennial Forbland	16452.97	5.141%	85.090%
Inter-Mountain Basins Sparsely Vegetated Systems	13450.86	4.203%	89.293%
Barren	8471.23	2.647%	91.940%
Rocky Mountain Subalpine/Upper Montane Riparian Systems	4913.14	1.535%	93.475%
Open Water	3404.86	1.064%	94.539%
Inter-Mountain Basins Greasewood Flat	3316.57	1.036%	95.576%
All other classes less than 1% each	14158.30	4.424%	100.00%

Big and Little Dry Creek Subregion

The LANDFIRE existing vegetation data indicate 9 different vegetation classifications make up 93% of the land area within the Big and Little Dry Creek Subregion. As is clearly indicated in the data, the major sagebrush community (Inter-Mountain Basins Big Sagebrush Shrubland) dominates coverage of the

subregion totaling approximately 55% of the area. The table presents valuable information pertaining to the vegetation types present to a much lesser extent. Table 2.3-3 summarizes the distribution of the vegetation communities within the Big and Little Dry Creek Fork subregion.

Table 2.3-3 Tabulation of LANDFIRE Existing Vegetation Type Data: Phase III Big and Little Dry Creek Subregion.

Blacks Fork Watershed Phase III : Big and Little Dry Creek Subregion			
Existing Vegetation Type	Acres	Percent of Watershed	Cumulative Percent
Inter-Mountain Basins Big Sagebrush Shrubland	170211.19	54.734%	54.734%
Inter-Mountain Basins Big Sagebrush Steppe	29203.73	9.391%	64.125%
Inter-Mountain Basins Semi-Desert Grassland	28739.82	9.242%	73.367%
Mountain Big Sagebrush Shrubland Alliance	14686.27	4.723%	78.090%
Inter-Mountain Basins Mat Saltbush Shrubland	14369.35	4.621%	82.710%
Inter-Mountain Basins Sparsely Vegetated Systems	12492.34	4.017%	86.727%
Introduced Upland Vegetation-Annual and Biennial Forbland	10831.95	3.483%	90.211%
Inter-Mountain Basins Montane Sagebrush Steppe	5580.55	1.795%	92.005%
Barren	4024.90	1.294%	93.299%
All other classes less than 1% each	20837.25	6.7006%	100.00%

Henrys Fork Subregion

The LANDFIRE existing vegetation data indicate 19 different vegetation classifications make up 92% of the land area within the Henrys Fork Subregion. The Henrys Fork subregion is the most diverse in regards to the existing vegetation type within the Phase III Study Area. Even though the Inter Mountain Basins Big Sagebrush Shrubland still dominates the coverage of the subregion (30% of the area), there are a variety of grassland, riparian, and woodland vegetation types present in larger percentages than anywhere else in the Phase III study area. Table 2.3-4 summarizes the distribution of the vegetation communities within the Henrys Fork subregion.

Flaming Gorge Subregion

The LANDFIRE existing vegetation data indicate 8 different vegetation classifications make up 96% of the land area within the Flaming Gorge Subregion. The Flaming Gorge subregion is the least diverse in regards to existing vegetation type with only 8 different vegetative classifications. As is indicated in the data, the major sagebrush community (Inter-Mountain Basins Big Sagebrush Shrubland) dominates coverage of the subregion totaling approximately 43% of the area. The table presents valuable information pertaining to the vegetation types present to a much lesser extent. Table 2.3-5 summarizes the distribution of the vegetation communities within the Flaming Gorge subregion.

2.3.1.4 WYNDD

The Wyoming Natural Diversity Database (WYNDD) lists several vegetation species within the Phase III study area. Table 2.3-6 presents the results of a database query conducted by the WYNDD for the Phase III study area broken down by subregion.

Table 2.3-4 Tabulation of LANDFIRE Existing Vegetation Type Data: Phase III Henrys Fork Subregion.

Blacks Fork Watershed Phase III : Henrys Fork Subregion			
Existing Vegetation Type	Acres	Percent of Watershed	Cumulative Percent
Inter-Mountain Basins Big Sagebrush Shrubland	50744.20	30.064%	30.064%
Mountain Big Sagebrush Shrubland Alliance	16341.99	9.682%	39.746%
Inter-Mountain Basins Big Sagebrush Steppe	14900.21	8.828%	48.574%
Inter-Mountain Basins Mat Saltbush Shrubland	10887.99	6.451%	55.025%
Introduced Upland Vegetation-Annual and Biennial Forbland	8407.18	4.981%	60.006%
Inter-Mountain Basins Semi-Desert Grassland	6670.72	3.952%	63.958%
Western Great Plains Floodplain Systems	6070.04	3.596%	67.555%
Inter-Mountain Basins Sparsely Vegetated Systems	5667.95	3.358%	70.913%
Pasture and Hayland	5487.36	3.251%	74.164%
Barren	4493.48	2.662%	76.826%
Inter-Mountain Basins Greasewood Flat	4202.81	2.490%	79.316%
Inter-Mountain Basins Montane Sagebrush Steppe	3534.52	2.094%	81.410%
Rocky Mountain Aspen Forest and Woodland	3405.53	2.018%	83.428%
Rocky Mountain Lower Montane-Foothill Shrubland	3330.36	1.973%	85.401%
Wyoming Basins Dwarf Sagebrush Shrubland and Steppe	2793.94	1.655%	87.056%
Inter-Mountain Basins Semi-Desert Shrub-Steppe	2234.18	1.324%	88.380%
Rocky Mountain Wetland-Herbaceous	2214.38	1.312%	89.692%
Rocky Mountain Subalpine/Upper Montane Riparian Systems	2016.45	1.195%	90.887%
Rocky Mountain Foothill Limber Pine-Juniper Woodland	1795.17	1.064%	91.950%
All other classes less than 1% each	13586.75	8.050%	100.00%

Table 2.3-5 Tabulation of LANDFIRE Existing Vegetation Type Data: Phase III Flaming Gorge Subregion.

Blacks Fork Watershed Phase III : Flaming Gorge Subregion			
Existing Vegetation Type	Acres	Percent of Watershed	Cumulative Percent
Inter-Mountain Basins Big Sagebrush Shrubland	42253.18	43.185%	43.185%
Introduced Upland Vegetation-Annual and Biennial Forbland	10743.66	10.981%	54.165%
Inter-Mountain Basins Semi-Desert Grassland	10248.83	10.475%	64.640%
Inter-Mountain Basins Sparsely Vegetated Systems	9067.02	9.267%	73.907%
Inter-Mountain Basins Mat Saltbush Shrubland	8281.08	8.464%	82.371%
Inter-Mountain Basins Big Sagebrush Steppe	7862.31	8.036%	90.406%
Barren	4381.17	4.478%	94.884%
Inter-Mountain Basins Semi-Desert Shrub-Steppe	1069.27	1.093%	95.977%
All other classes less than 1% each	3936.16	4.023%	100.00%

2.3.1.5 Wetlands

Existing wetlands mapping data within each Phase III subregion was evaluated using data obtained through National Wetlands Inventory (NWI) created by the US Fish and Wildlife Service (USFWS) and the LANDFIRE project (www.landfire.gov). Due to the relatively limited extent of NWI mapped wetlands in relation to the size of subregions, the data does not lend itself to mapping presentation at this scale. The results of the NWI analysis by subregion are presented in Table 2.3-7.

Table 2.3-8 summarizes the distribution of the LANDFIRE wetland and riparian vegetation communities within each Phase III subregion (Rocky Mountain Subalpine/Upper Montane Riparian Systems, Rocky Mountain Montane Riparian Systems, Rocky Mountain Wetland-Herbaceous, Western Great Plains Floodplain Systems, Western Great Plains Depressional Wetland Systems, Introduced Riparian

Table 2.3-6 Wyoming Natural Diversity Database: Phase III Flowering Plants by subregion.

Common Name	Scientific Name	Subregion				Listing Status	Tracked/Watched
		Henrys Fork	Dry Creek	Lower Blacks Fork	Flaming Gorge		
Flowering Plants							
Cedar Mountain Easter-daisy	Townsendia microcephala	x	x			Not Warranted for Listing (NW)	Tracked
Daggett rockcress	Boechera pendulina var. russeola		x				Watched
Deep Creek cinquefoil	Potentilla multisepta		x				Tracked
Divergent buckwheat	Eriogonum divaricatum	x		x			Tracked
Dwarf mountain mahogany	Cercocarpus ledifolius var. intricatus				x		Tracked
Entire-leaved Peppergrass	Lepidium integrifolium	x				Not Warranted for Listing (NW)	Tracked
Erect cryptantha	Cryptantha stricta	x	x				Watched
Fullstem	Chamaechaenactis scaposa	x	x		x		Tracked
Garrett's beardtongue	Penstemon scariosus var. garrettii	x					Tracked
Greene rabbitbrush	Chrysothamnus greenei	x					Tracked
Hayden's milkvetch	Astragalus bisulcatus var. haydenianus	x	x				Tracked
Little-leaf mock-orange	Philadelphus microphyllus	x					Tracked
Maybell locoweed	Oxytropis besseyi var. obnapiformis	x					Tracked
Moab milkvetch	Astragalus coltonii var. moabensis	x	x				Tracked
Narrowleaved bladderpod	Lesquerella parvula	x	x				Tracked
Nelson phacelia	Phacelia salina		x				Tracked
Nelson's milkvetch	Astragalus nelsonianus	x					Watched
Opal phlox	Phlox opalensis	x	x	x	x		Watched
Payson Beardtongue	Penstemon paysoniorum	x	x	x			Watched
Persistent sepal yellowcress	Rorippa calycina				x		Watched
Precocious milkvetch	Astragalus proimanthus	x	x		x	Not Warranted for Listing (NW)	Tracked
Rollins' cryptantha	Cryptantha rollinsii		x				Tracked
Selby rockcress	Boechera selbyi				x		Tracked
Slender cryptantha	Cryptantha gracilis		x		x		Tracked
Stemless beardtongue	Penstemon acaulis	x	x		x		Tracked
Uinta greenthread	Thelesperma pubescens	x	x			Not Warranted for Listing (NW)	Tracked
Utah greasebush	Glossopetalon spinescens var. meionandrum				x		Tracked
Utah mountain lilac	Ceanothus martinii	x	x				Tracked
Watson's prickly-phlox	Linanthus watsonii	x					Tracked
Western phacelia	Phacelia incana		x		x		Tracked
Yampa beardtongue	Penstemon yampaensis	x					Tracked
Gymnosperms							
Green Mormon tea	Ephedra viridis var. viridis	x	x				Tracked

Vegetation). Figure 2.3-2 displays the LANDFIRE wetland classifications for the entire Phase III study area.

Table 2.3-7 Tabulation of NWI Wetlands by subregion.

Phase III NWI Inventory	
Subregion	Total NWI Acres
Big and Little Dry Creek	4551.26
Flaming Gorge	754.74
Henrys Fork	12270.84
Lower Blacks Fork	5098.56
Total Acres	22675.40

Table 2.3-8 Tabulation of LANDFIRE Wetlands Data: Phase III Subregions.

Blacks Fork Watershed Phase III : Lower Blacks Fork Subregion			
Existing Vegetation Type	Acres	Percent of Subregion	Cumulative Percent
Rocky Mountain Subalpine/Upper Montane Riparian Systems	4913.14	1.535%	1.535%
Western Great Plains Floodplain Systems	1563.66	0.489%	2.024%
Rocky Mountain Wetland-Herbaceous	582.67	0.182%	2.206%
Rocky Mountain Montane Riparian Systems	283.77	0.089%	2.295%
Western Great Plains Floodplain Systems	146.34	0.046%	2.340%
Western Great Plains Depressional Wetland Systems	1.11	0.0003%	2.341%
Blacks Fork Watershed Phase III : Big and Little Dry Creek Subregion			
Existing Vegetation Type	Acres	Percent of Subregion	Cumulative Percent
Western Great Plains Floodplain Systems	2388.07	0.768%	0.768%
Rocky Mountain Subalpine/Upper Montane Riparian Systems	2204.60	0.709%	1.477%
Rocky Mountain Montane Riparian Systems	1083.28	0.348%	1.825%
Rocky Mountain Wetland-Herbaceous	58.49	0.019%	1.844%
Western Great Plains Depressional Wetland Systems	19.35	0.006%	1.850%
Blacks Fork Watershed Phase III : Henrys Fork Subregion			
Existing Vegetation Type	Acres	Percent of Subregion	Cumulative Percent
Western Great Plains Floodplain Systems	6070.04	3.596%	3.596%
Rocky Mountain Wetland-Herbaceous	2214.38	1.312%	4.908%
Rocky Mountain Subalpine/Upper Montane Riparian Systems	2016.45	1.195%	6.103%
Rocky Mountain Montane Riparian Systems	1322.58	0.784%	6.887%
Western Great Plains Depressional Wetland Systems	210.16	0.125%	7.011%
Blacks Fork Watershed Phase III : Flaming Gorge Subregion			
Existing Vegetation Type	Acres	Percent of Subregion	Cumulative Percent
Western Great Plains Floodplain Systems	92.52	0.095%	0.095%
Rocky Mountain Subalpine/Upper Montane Riparian Systems	63.16	0.065%	0.159%
Rocky Mountain Montane Riparian Systems	2.00	0.002%	0.161%
Western Great Plains Depressional Wetland Systems	1.11	0.001%	0.162%

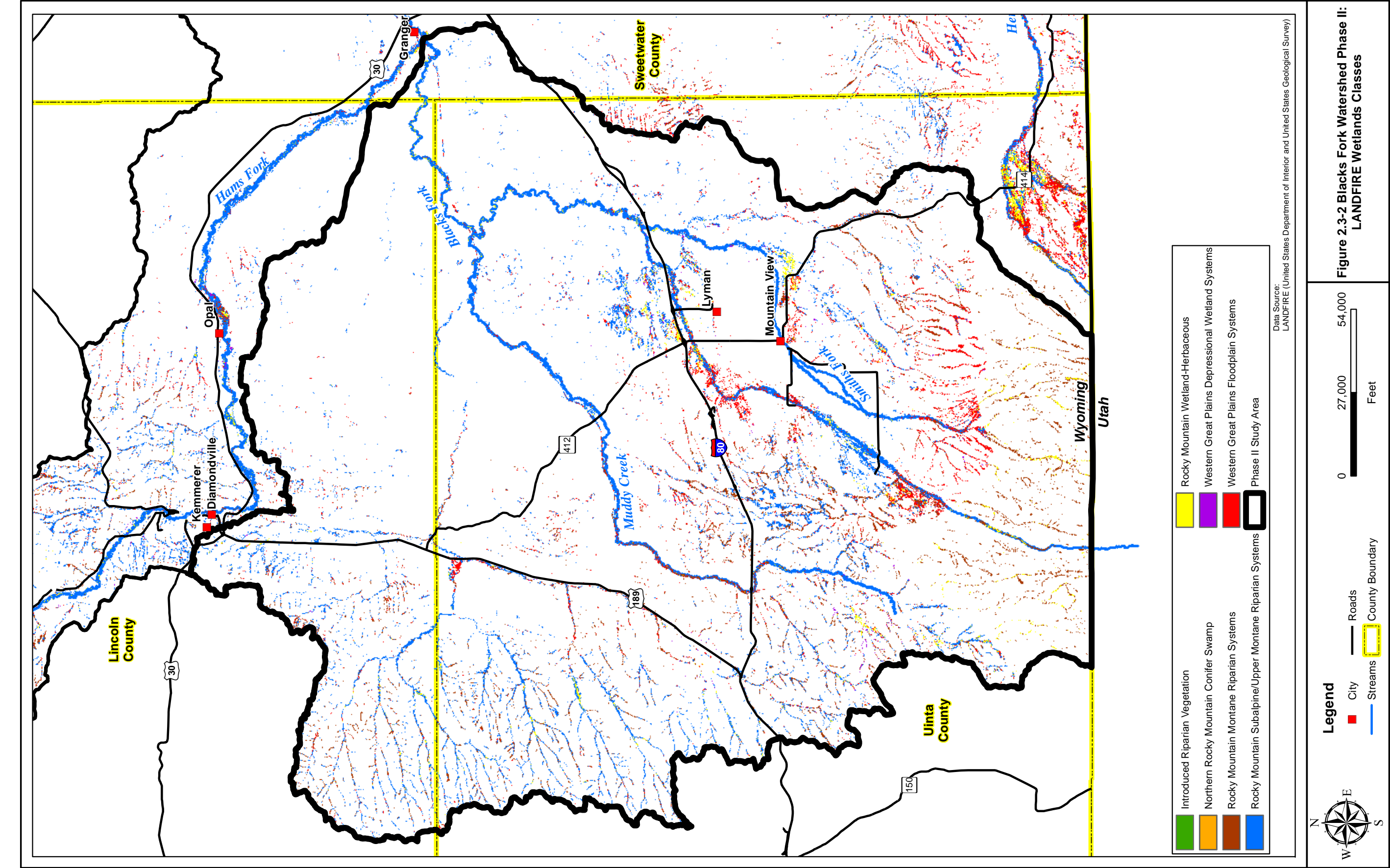


Figure 2.3-2 Blacks Fork Watershed Phase II:
LANDFIRE Wetlands Classes

III. PHASE III WATERSHED MANAGEMENT AND REHABILITATION PLAN (LOWER BLACKS FORK RIVER SUBREGION)

3.1 Overview

In this chapter, those individual project components of the Blacks Fork Watershed Management Plan which fall within the geographic boundaries of the Phase III investigation (Lower Blacks Fork River Subregion) are presented. The reader is directed to the Basinwide Report for a discussion of the benefits associated with the various components of the watershed management plan. Likewise, the Basinwide Report volume tabulates summaries of this and the other two project investigative phases.

In the following paragraphs, individual projects are presented within the following categories:

- **Irrigation System Conservation and Rehabilitation.** The inventory and evaluation of the existing infrastructure was completed and improvements identified for the rehabilitation of existing structures and the potential conservation of existing irrigation diversions.
- **Livestock/Wildlife Upland Watering Opportunities.** Based upon an evaluation of existing water sources and the condition of upland grazing resources, potential upland water source development projects were identified.
- **Grazing Management Opportunities.** Based upon a review of the pertinent ESDs and the ambient vegetation and soil conditions, grazing management strategies are presented.
- **Surface Water Storage Opportunities.** Results of previous investigations pertaining to development of water storage opportunities within the watershed are incorporated.
- **Stream Channel Condition and Stability.** Stream channels within the watershed were characterized with respect to their condition and stability. Impaired channels were identified for further evaluation and alternative improvements developed.

In the remainder of this chapter, the conceptual plans developed within each watershed component are described and evaluated with respect to providing benefits to improving the existing water supply through conservation. For the purposes of tracking individual components of the watershed management plan, each component was designated a unique project or "improvement" number. The prefixes used for each improvement describe the category of the watershed management plan it falls under. The prefixes are as follows:

- Project Components "I": Irrigation system rehabilitation components (Section 3.2)
- Project Components "L/W": Livestock/wildlife upland watering opportunities (Section 3.3)
- Project Components "G": Grazing management opportunities (Section 3.4)
- Project Components "S": Surface water storage opportunities (Section 3.5)
- Project Components "C": Stream channel stability components (Section 3.6)

Project Components Identifiers are also provided which provide a means of tracking projects sponsored by individual landowners/stakeholders within the study area.

3.2 Irrigation System Rehabilitation Projects (Watershed Plan Components “I”)

As presented in the Basinwide Report, the irrigation system inventory effort associated with this project consisted of evaluation of structures and ditch conditions at the request of interested landowners and stakeholders. No ditch systems were inventoried in their entirety. Instead, and at the request of those individuals who came forward with requests to participate in the study, individual irrigation system components were inventoried. The recommendations included herein are not all-inclusive; there will be additional irrigation structures located throughout the watershed in need of rehabilitation or replacement. By virtue of their location within the geographic boundaries of this study, those potential projects involving those structures would still be considered eligible for application funding through the WWDC Small Water Project Program (SWPP).

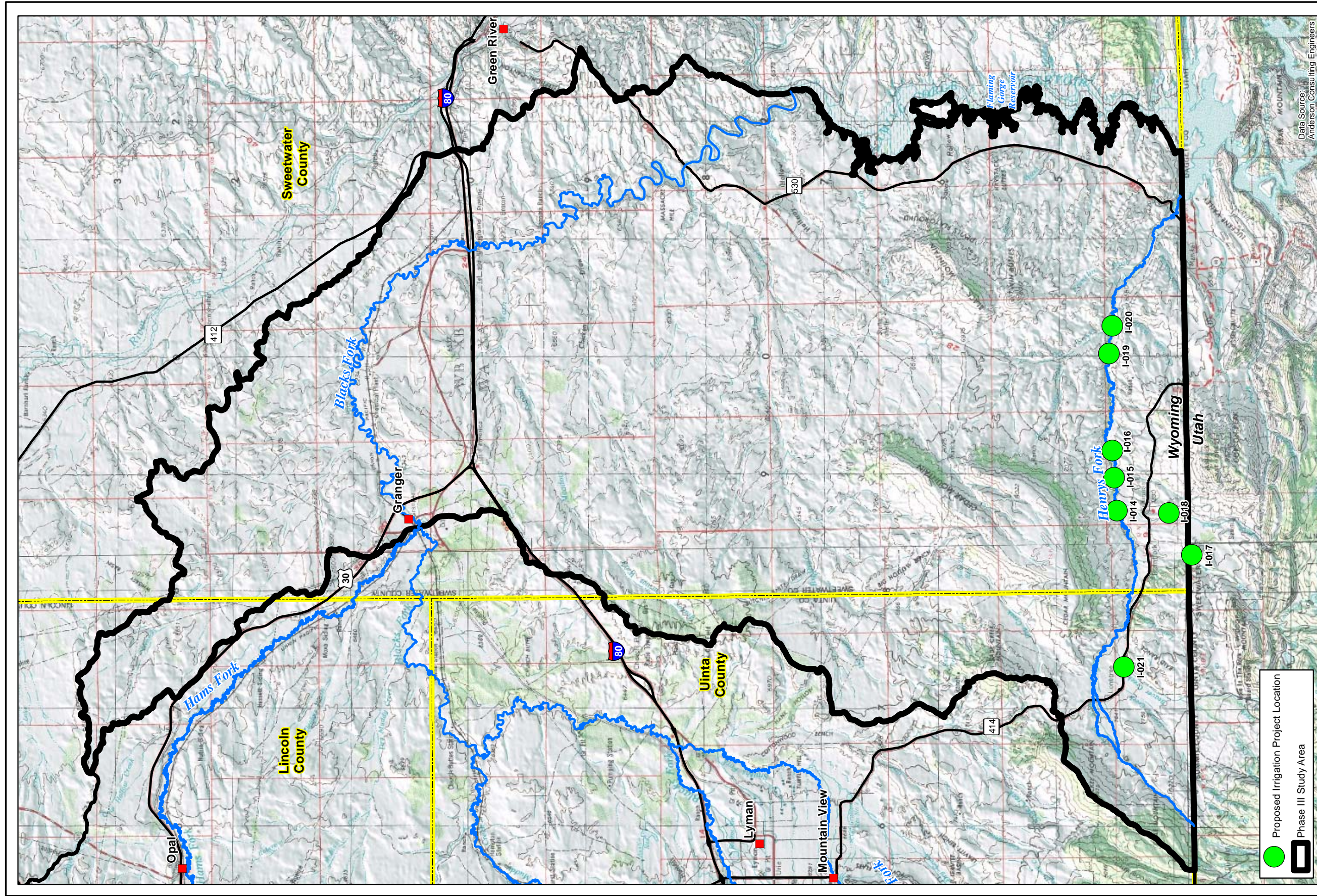
The improvements that comprise this component of the watershed management plan include:

- Rehabilitation/replacement of existing structures
- Mitigation of seepage losses
- Enhanced delivery of water
- Reduction in annual operation and maintenance costs
- Improvement in ditch management and efficiency through water measurement
- Economic practicality
- Physical feasibility

In this Phase III volume of the Blacks Fork River Watershed Study, narratives of the individual projects are presented along with conceptual cost estimates. The projects identified in this phase of the investigation and their respective component identifiers in the watershed management plan are summarized in Table 3.2-1. Figure 3.2-1 displays their general location.

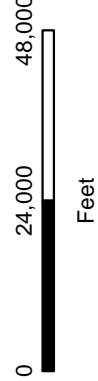
Table 3.2-1 Watershed Plan Component: Irrigation Rehabilitation Projects (I).

Watershed Management Plan Component	Project ID	Project Name	Diversion	Headgate	Measurement Device	Siphon	Splitter Box	Ditch Earthwork	Geotextile Liner	Pipeline
Phase III										
I-014	Anderson 001	Pearson Ditch Diversion	1							
I-015	Anderson 002	Hamilton Ditch Diversion	1							
I-016	Anderson 003	Heiser Ditch Diversion	1							
I-017	Anderson 006	Muskrat and Gillis Ditch Rehabilitation								8,000
I-018	Potter 001	Beach Desert Ditch Improvements		1	1					6,800
I-019	Schell 001	Wade Ditch Diversion Structure	1							
I-020	Schell 002	Leavitt & Easton Ditch Diversion Structure	1							
I-021	Taylor 001	Nelson Ditch Headgate and Diversion Structure	1	1						



Data Source:
Anderson Consulting Engineers

**Figure 3.2-1 Blacks Fork Watershed Phase III:
Proposed Irrigation Project Locations**



- Legend**
- Proposed Irrigation Project Location
 - Phase III Study Area
 - City
 - Roads
 - Streams
 - County Boundary



3.2.1 I-014 Pearson Ditch Diversion (Project ID: Anderson 001)

This diversion serves the Pearson Ditch on the Henrys Fork River in Section 6, Township 12 North, Range 111 West. The Pearson Ditch diverts water under Permit No. CR CB03/025 (Priority date 6/20/1879) according to records of the WSEO. Records indicate the permitted diversion originally had an appropriation of 1.1 cubic feet per second for irrigation of 77 acres.

At the request of the landowner, the diversion structure was evaluated. Figure 3.2-2 displays an aerial photo of the vicinity. The diversion dam consists of boulders and cobble within the stream bed which must be pushed up each season. According to the ditch owner, diversion at low flow becomes problematic and a more permanent solution would be desirable.

At the location indicated in the Figure, a diversion structure is recommended which would meet the design criteria to be determined during the design process. At this time, a structure designed such that fish migration and passage is feasible is highly recommended. Configurations which could be incorporated would include options such as a rock vortex weir as indicated in Figure 3.2-3. A potentially limiting factor for construction of this type of structure, however, would be the availability of suitable rock of the size which would be required for a permanent structure. In order to establish a rock diversion structure which would remain intact during high flow events on the Henrys Fork River, rock of adequate size could be difficult to find locally and transport from other locations could be cost prohibitive. In that event, structures consisting of driven sheet piling may be more cost effective. However, these structures may be less fish “friendly” without specific consideration of habitat impacts.

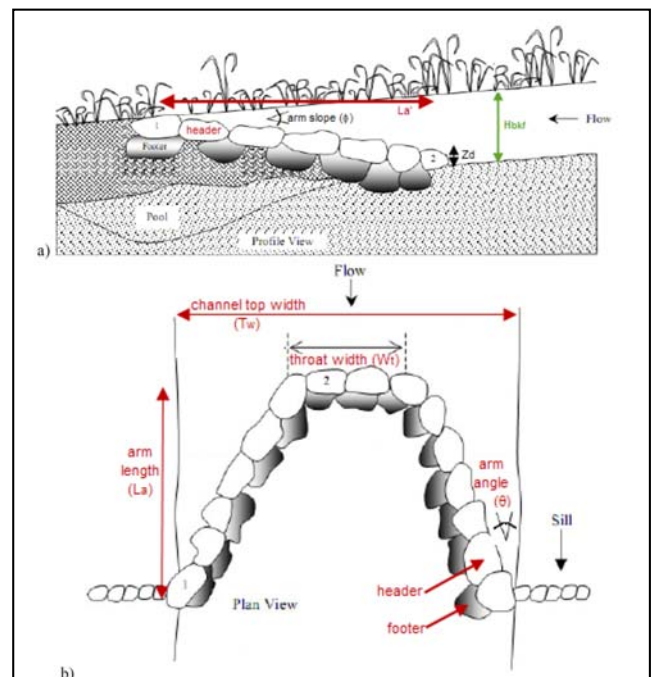
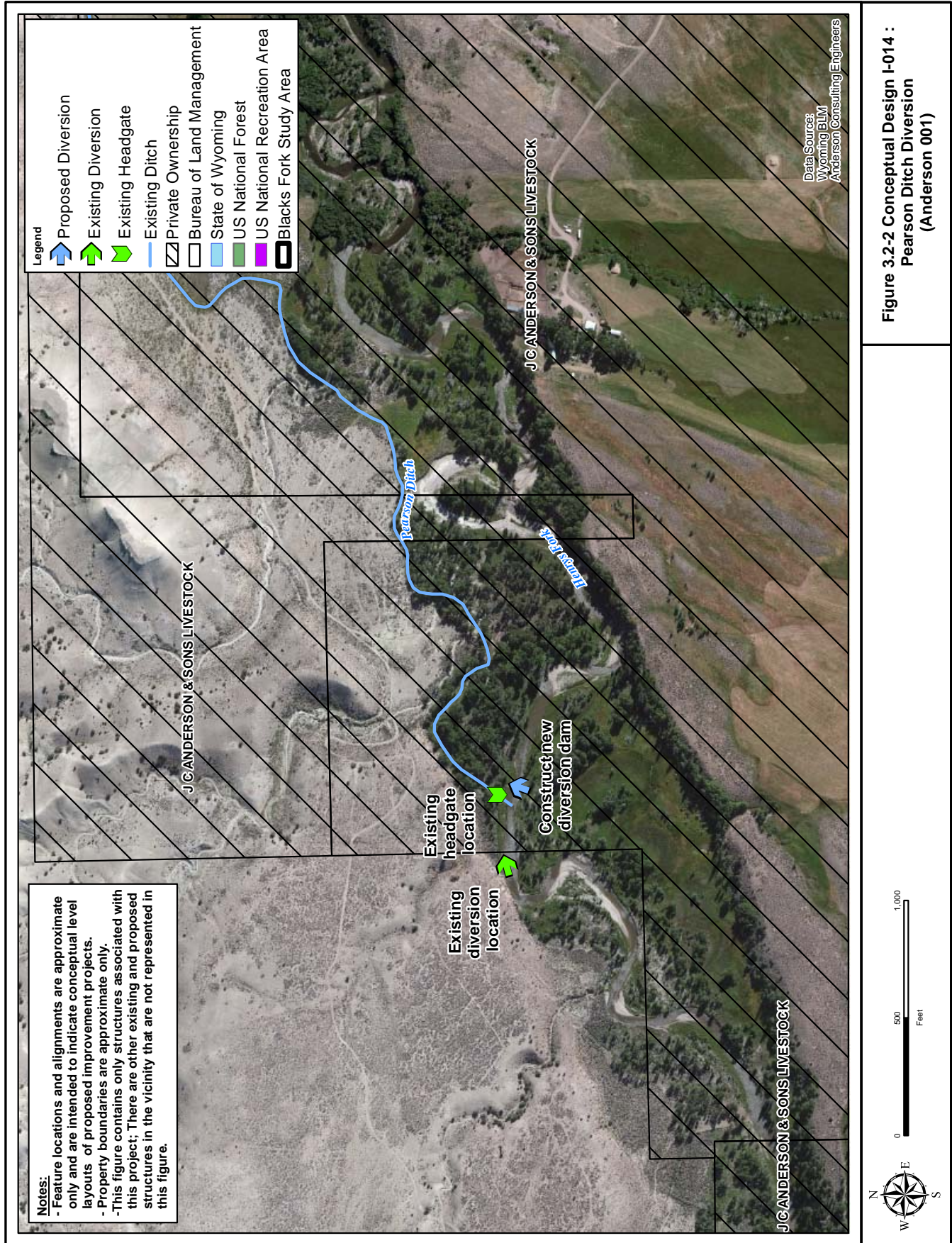


Figure 3.2-3. Rock Vortex Weir Structure Diagram (Adapted from Rosgen, 2006).

3.2.2 I-015 Hamilton Ditch Diversion (Project ID: Anderson 002)

This diversion serves the Hamilton Ditch on the Henrys Fork River in Section 4, Township 12 North, Range 111 West. The Hamilton Ditch diverts water under Permit No. T4100.0 (Priority date May 1875) according to records of the WSEO. Records indicate the permitted diversion originally had an appropriation of 1.43 cubic feet per second for irrigation of 100 acres.



At the request of the landowner, the diversion structure was evaluated. Figure 3.2-4 displays an aerial photo of the vicinity. The diversion dam consists of boulders and cobble within the stream bed which must be pushed up each season. According to the ditch owner, diversion at low flow becomes problematic and a more permanent solution would be desirable.

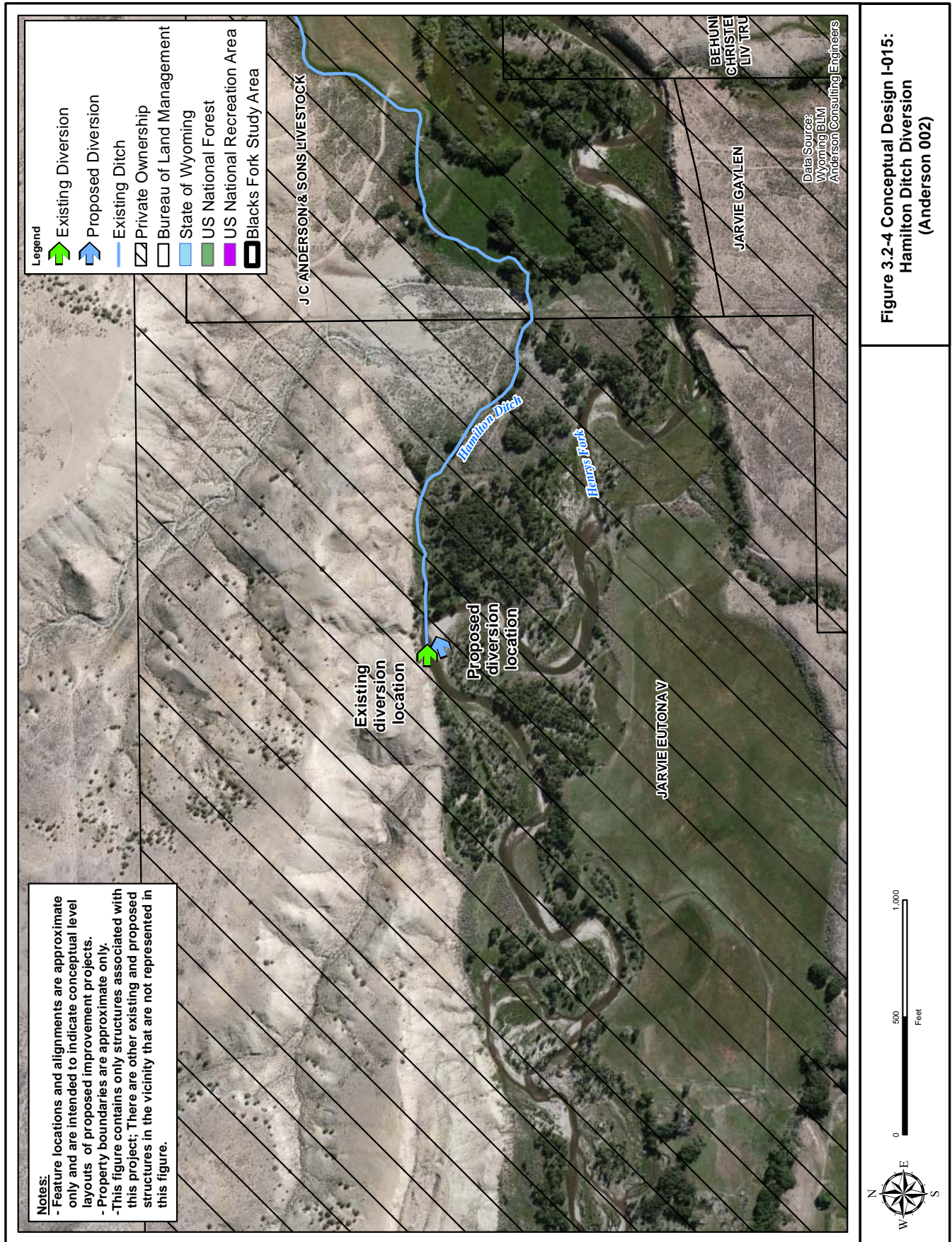
At the location indicated in the Figure, a diversion structure is recommended which would meet the design criteria to be determined during the design process. At this time, a structure designed such that fish migration and passage is feasible is highly recommended. Configurations which could be incorporated would include options such as a rock vortex weir as indicated in Figure 3.2-3. A potentially limiting factor for construction of this type of structure, however, would be the available of suitable rock of the size which would be required for a permanent structure. In order to establish a rock diversion structure which would remain intact during high flow events on the Henrys Fork River, rock of adequate size could be difficult to find locally and transport from other locations could be cost prohibitive. In that event, structures consisting of driven sheet piling may be more cost effective. However, these structures may be less fish “friendly” without specific consideration of habitat impacts.

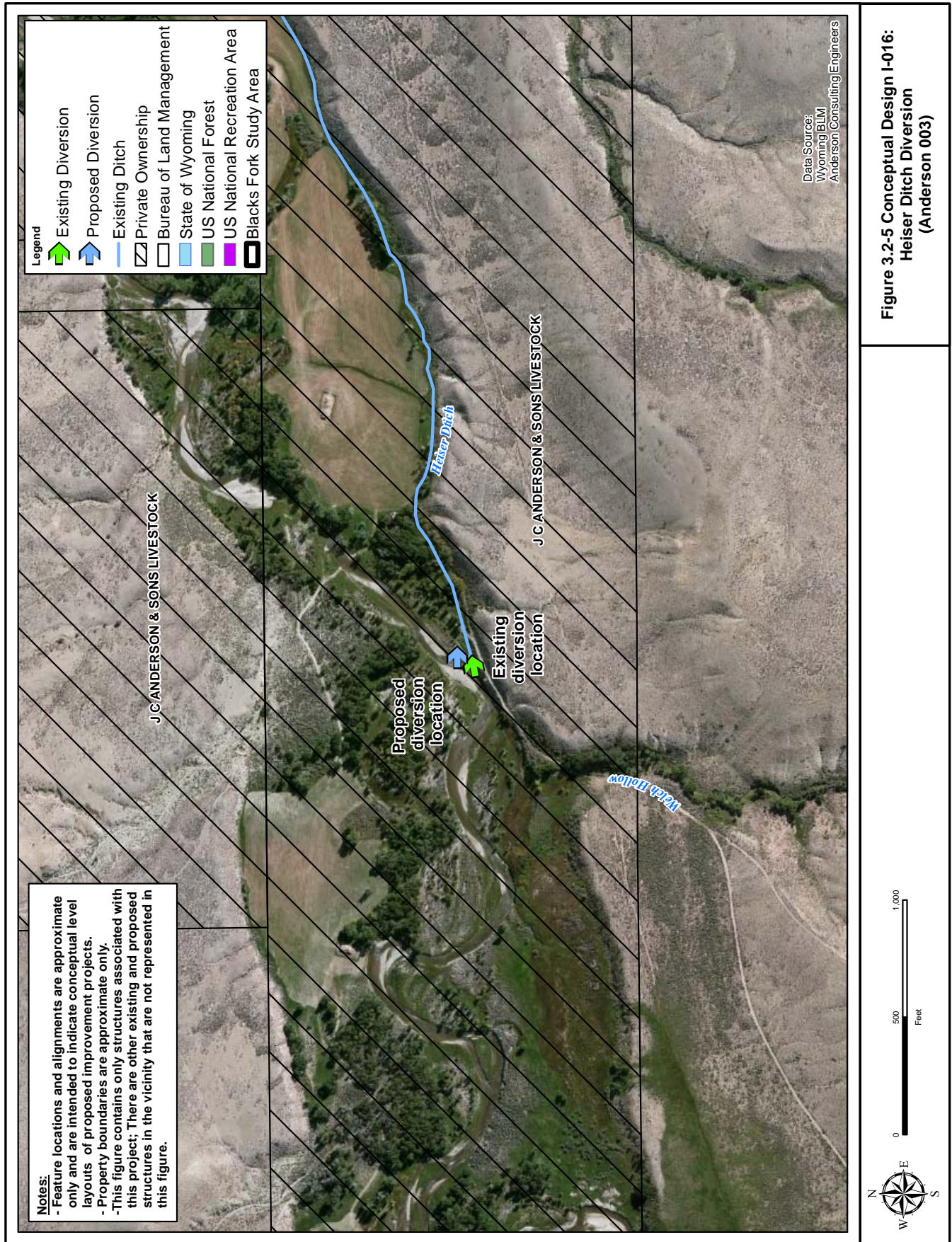
3.2.3 I-016 Heiser Ditch Diversion (Project ID: Anderson 003)

This diversion serves the Heiser Ditch on the Henrys Fork River in Section 3, Township 12 North, Range 111 West. The Heiser Ditch diverts water under Permit Nos. T4115 and T4116 (Priority date December 31, 1880) according to records of the WSEO. Records indicate the permitted diversion originally had an appropriation of 0.85 and 1.21 cubic feet per second for irrigation of a total of 145 acres.

At the request of the landowner, the diversion structure was evaluated. Figure 3.2-5 displays an aerial photo of the vicinity. The diversion dam consists of boulders and cobble within the stream bed which must be pushed up each season. According to the ditch owner, diversion at low flow becomes problematic and a more permanent solution would be desirable.

At the location indicated in the figure, a diversion structure is recommended which would meet the design criteria to be determined during the design process. At this time, a structure designed such that fish migration and passage is feasible is highly recommended. Configurations which could be incorporated would include options such as a rock vortex weir as indicated in Figure 3.2-3. A potentially limiting factor for construction of this type of structure, however, would be the available of suitable rock of the size which would be required for a permanent structure. In order to establish a rock diversion structure which would remain intact during high flow events on the Henrys Fork River, rock of adequate size could be difficult to find locally and transport from other locations could be cost prohibitive. In that event, structures consisting of driven sheet piling may be more cost effective. However, these structures may be less fish “friendly” without specific consideration of habitat impacts.





3.2.4 I-017 Muskrat and Gillis Ditch Rehabilitation (Project ID: Anderson 006)

The purpose of this project to restore function to the Muskrat and Gillis Ditches following failure of a hill slope which resulted in partial destruction of both ditch systems. The problem area is located in Section 16, Township 3 North, Range 17 East, Salt Lake Meridian. The location of the headgates lies south of the Wyoming state line in the State of Utah as indicated in Figure 3.2-6. However, lands irrigated by the two ditches lie within the State of Wyoming. The two ditches divert water from Burnt Fork and run roughly parallel northeasterly for approximately one mile before diverging. At one point, the two ditches cross over each other.

Approximately 2,000 feet downstream of the ditch headgates, the ditches traverse a steep side slope. In 2012, the slope failed resulting in loss of portions of both ditches. Under this alternative, the following design items and concepts would be employed:

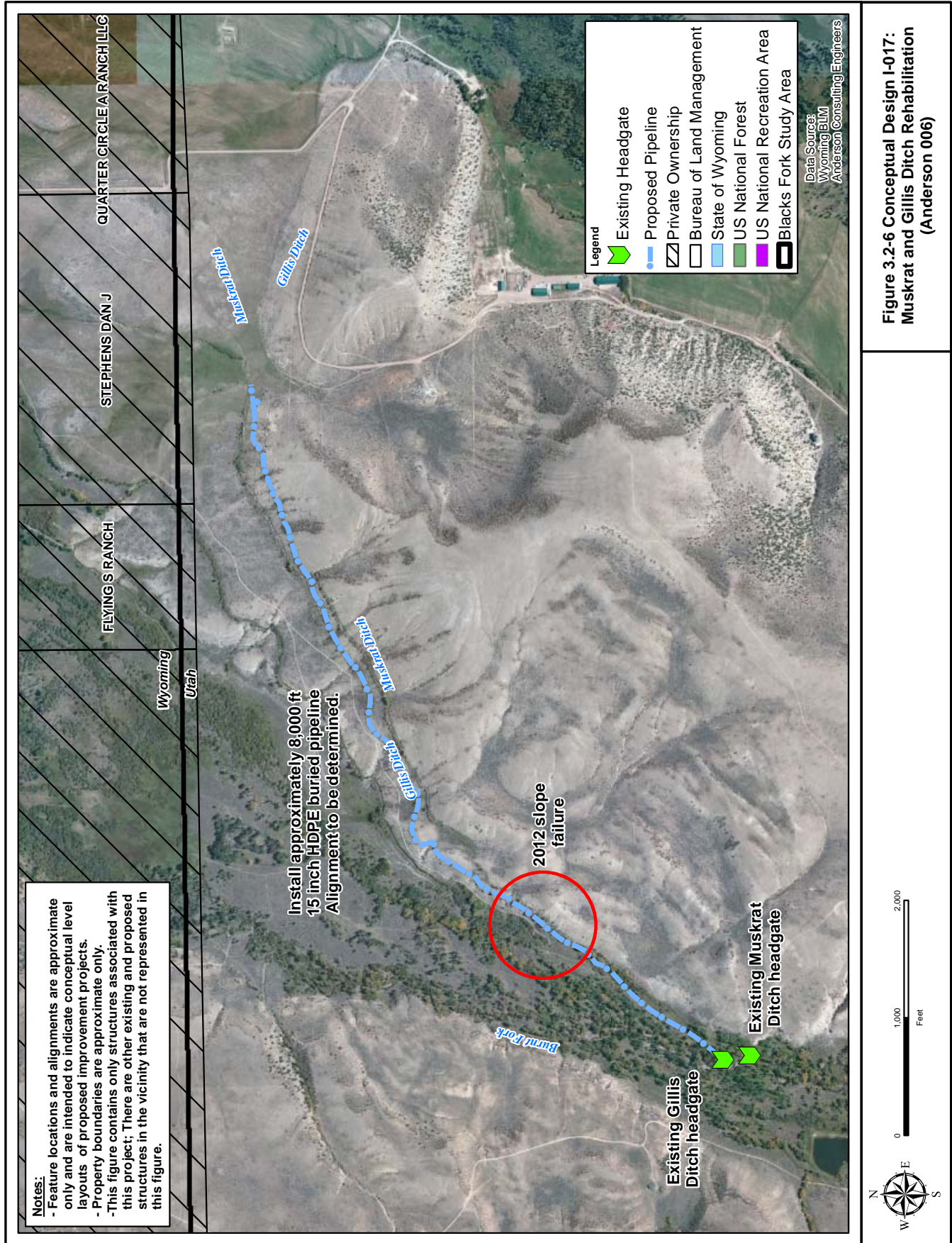
- The two ditch systems would be combined into a single pipeline from the headgate to the point where the alignments diverge. This would be a distance of approximately 8,000 feet.
- Pipeline size and configuration would be determined during the final design process; preliminary estimates indicate a pipe diameter of approximately 15 inches would be required to convey the design discharge of approximately 5 cubic feet per second.
- According to the ditch owner, the Gillis Ditch headgate would provide greater utility and would therefore be the desirable headgate to retain as the diversion point for the combined ditches.
- Alignment of the pipeline would be determined during the final design process. For this conceptual design, the alignment of the existing system was assumed to be preferred.

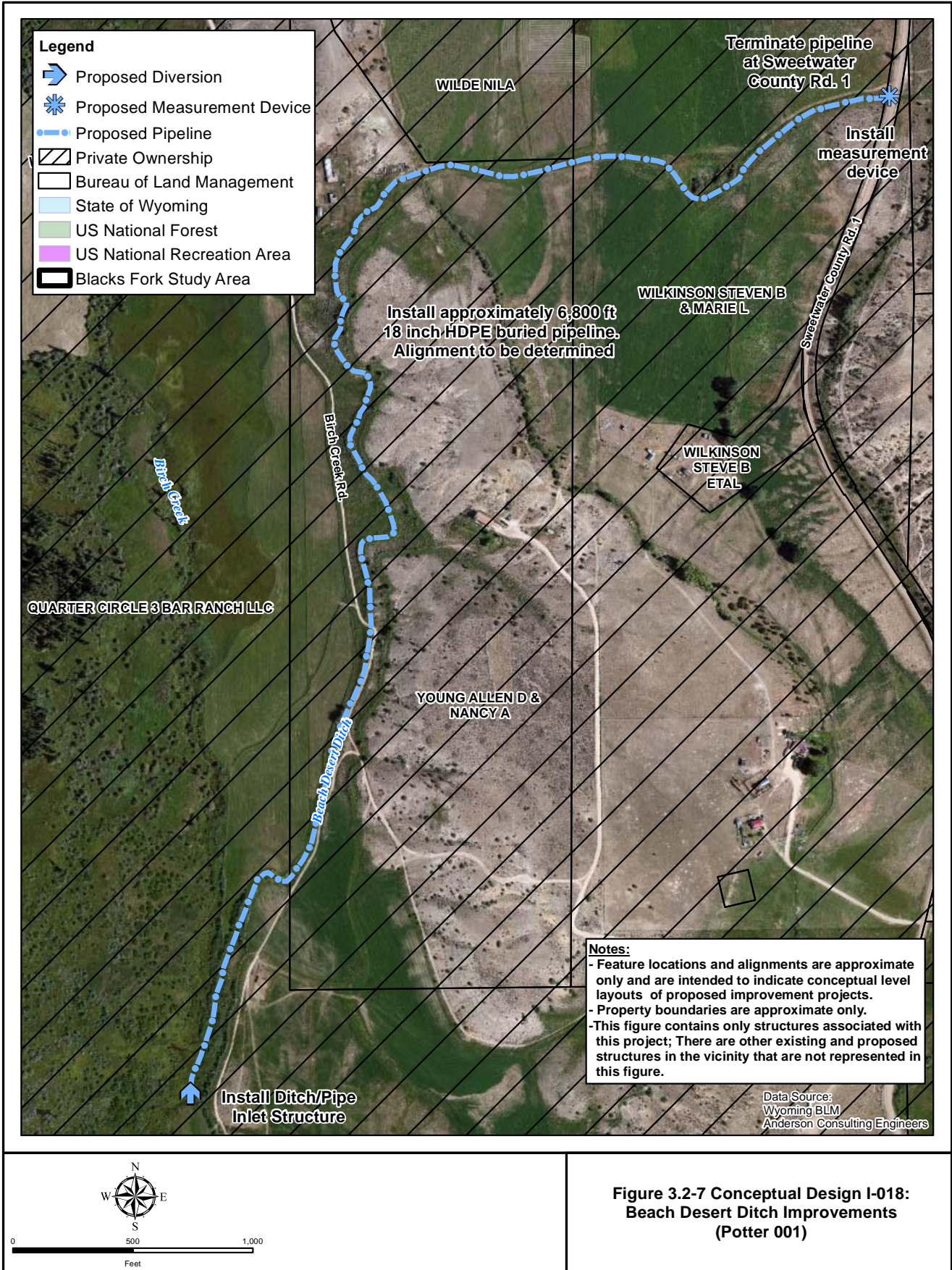
3.2.5 I-018 Beach Desert Ditch Improvements (Project ID: Potter 001)

The Beach Desert Ditch diverts surface water from Birch Creek and from springs and seeps within its floodplain. The ditch intake location is located in Section 19, Township 12 North, Range 111 West. The ditch diverts under the following permit numbers:

<u>Permit</u>	<u>Priority Date</u>	<u>cfs</u>	<u>Acres</u>
P9323.0D	8/11/1909	1.57	110
P2220.0E	05/09/1910	4.37	306
P5897.0E	02/19/1957	1.99	139
Total		7.93	555

At the request of the landowner, the diversion structure was evaluated. Figure 3.2-7 displays an aerial photo of the vicinity. There is currently no physical structure associated with the ditch inlet. Instead, water is collected in the ditch from seeps and springs along the edge of the Birch Creek floodplain. According to the landowner, ditch losses are significant and conveyance of water is often problematic.





A pipeline to replace the open ditch is recommended to convey diversions approximately 6,800 feet to the point where the ditch crosses under Sweetwater County Rd 1. At that point, the pipe would terminate and diverted flows are split among users.

Under this alternative, the following components would be employed:

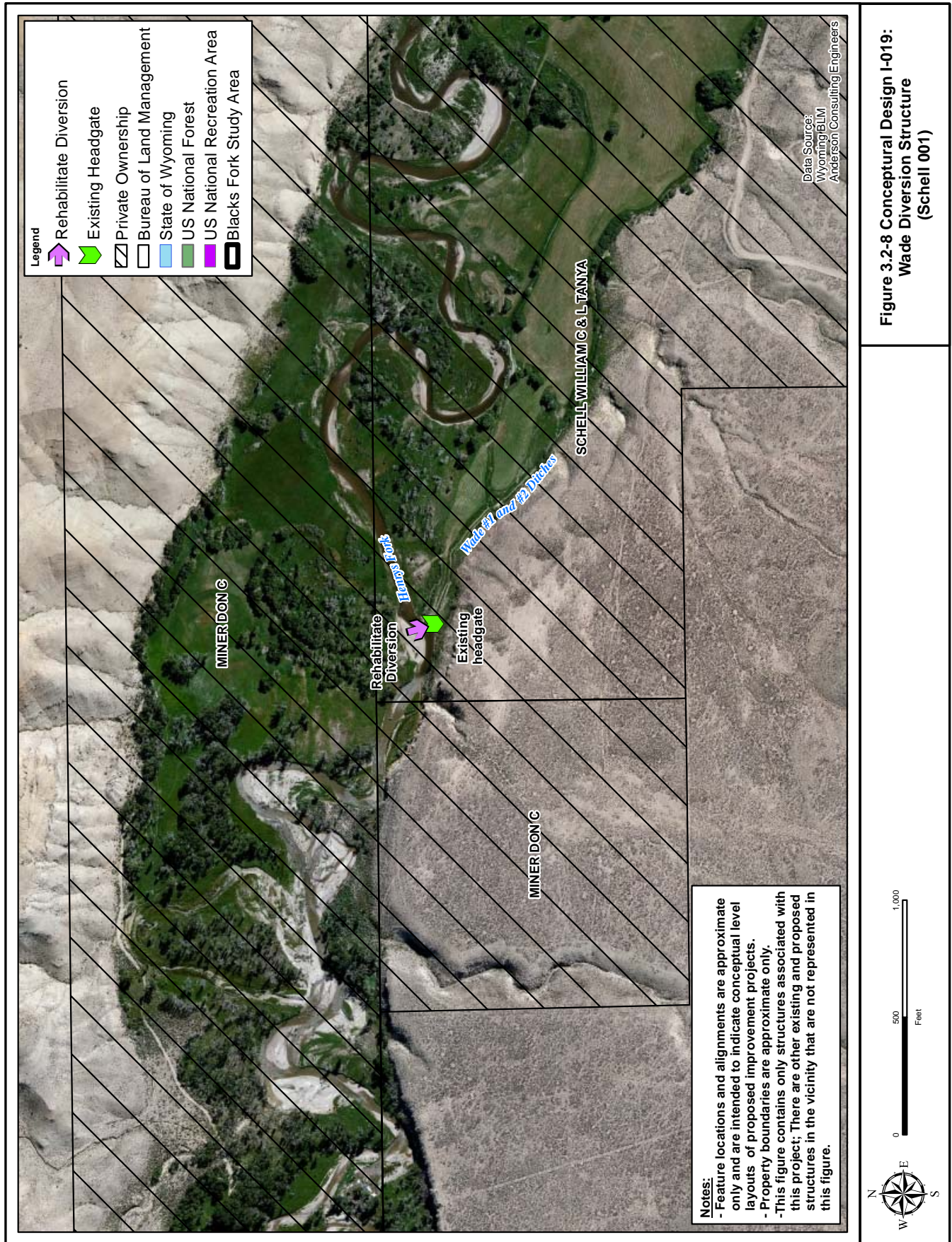
- A headgate structure with headwall would be installed at the diversion location. The structure would be equipped with a closeable slide gate to control flows into the pipeline.
- A buried 18 inch diameter HDPE pipeline would be installed along the existing alignment of the Beach Desert ditch. The pipeline would be approximately 6,800 feet long and include the requisite valves and fittings for proper installation and maintenance
- The ditch would be equipped with a suitable measurement device to facilitate proper management of diversions. The location and type of measurement device would be determined during the final design phase of the project.

3.2.6 I-019 Wade Ditch Diversion Structure (Project ID: Schell 001)

This diversion serves the Wade #1 Ditch and the Wade #2 Ditch on the Henrys Fork River in Section 3, Township 12 North, Range 110 West. The Wade #1 Ditch diverts water under Permit No. T4105 (Priority date 5/31/1878) according to records of the WSEO. Records indicate the permitted diversion originally had an appropriation of 0.77 cubic feet per second for irrigation of 53 acres. The Wade #2 Ditch diverts water under Permit No. T4132 (Priority date Spring 1889). Records indicate the permitted diversion originally had an appropriation of 0.65 cubic feet per second for irrigation of 45 acres.

At the request of the landowner, the diversion structure was evaluated. Figure 3.2-8 displays an aerial photo of the vicinity. The diversion dam consists of boulders and cobble within the stream bed which must be pushed up each season. According to the ditch owner, diversion at low flow becomes problematic and a more permanent solution would be desirable.

At the location indicated in the figure, a diversion structure is recommended which would meet the design criteria to be determined during the design process. At this time, a structure designed such that fish migration and passage is feasible is highly recommended. Configurations which could be incorporated would include options such as a rock vortex weir as indicated in Figure 3.2-3. A potentially limiting factor for construction of this type of structure, however, would be the availability of suitable rock of the size which would be required for a permanent structure. In order to establish a rock diversion structure which would remain intact during high flow events on the Henrys Fork River, rock of adequate size could be difficult to find locally and transport from other locations could be cost prohibitive. In that event, structures consisting of driven sheet piling may be more cost effective. However, these structures may be less fish “friendly” without specific consideration of habitat impacts.



3.2.7 I-020 Leavitt & Easton Ditch Diversion Structure (Project ID: Schell 002)

This diversion serves the Leavitt & Eastman Ditch on the Henrys Fork River in Section 2, Township 12 North, Range 110 West. The ditch name was reported by the ditch owner, however, search of the WSEO database failed to verify the ditch name or water rights information. Prior to continuing with design for this project, the water rights should be verified by searching the records of the WSEO at their offices in Cheyenne, Wyoming.

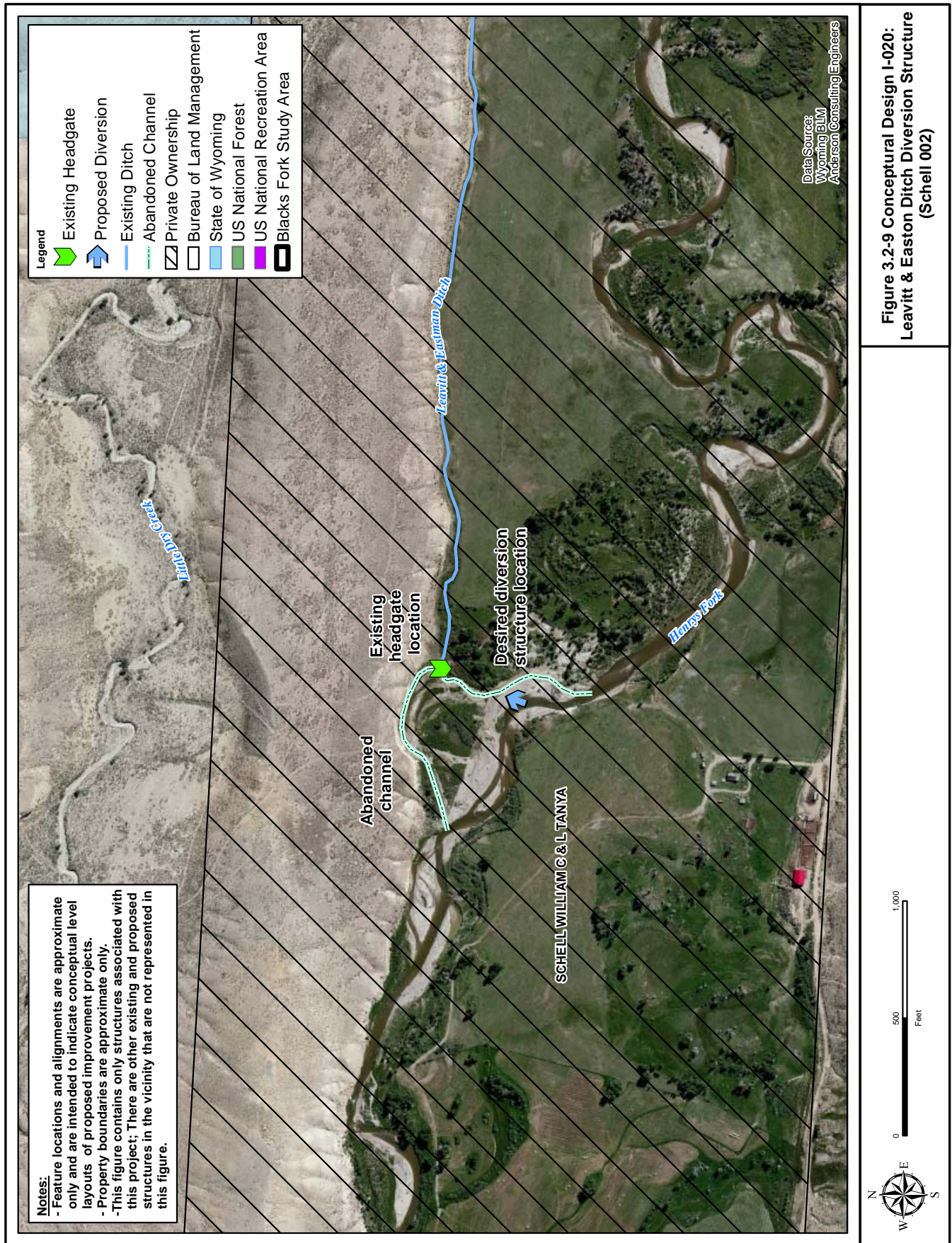
At the request of the landowner, the diversion structure was evaluated. Figure 3.2-9 displays an aerial photo of the vicinity. The diversion dam consists of boulders and cobble within the stream bed which must be pushed up each season. Evaluation of the aerial photography indicates that the Henrys Fork alignment has changed in recent years leaving the headgate on an abandoned channel. In order to maintain diversion, the ditch owner must excavate a channel from the Henrys Fork in its current alignment to the ditch headgate. According to the ditch owner, diversion at low flow becomes problematic and a more permanent solution would be desirable.

At the location indicated in the figure, a diversion structure is recommended which would meet the design criteria to be determined during the design process. At this time, a structure designed such that fish migration and passage is feasible is highly recommended. Configurations which could be incorporated would include options such as a rock vortex weir as indicated in Figure 3.2-3. A potentially limiting factor for construction of this type of structure, however, would be the available of suitable rock of the size which would be required for a permanent structure. In order to establish a rock diversion structure which would remain intact during high flow events on the Henrys Fork River, rock of adequate size could be difficult to find locally and transport from other locations could be cost prohibitive. In that event, structures consisting of driven sheet piling may be more cost effective. However, these structures may be less fish “friendly” without specific consideration of habitat impacts.

3.2.8 I-021 Nelson Ditch Headgate and Diversion Structure Rehabilitation (Project ID: Taylor 001)

The Nelson Ditch headgate and diversion structure evaluated at the request of the landowner. The ditch diverts from Beaver Creek (tributary to Henry’s Fork River) in Section 2, Township 12 North, Range 113 West. Preliminary review of water rights data available through the WYSEO’s database indicates the ditch operates under Permit 1930 (1897). Subsequent enlargements date from 1908 through 1945.

At the request of the landowner, the diversion structure was evaluated. The existing diversion structure consists of a rock dam placed within Beaver Creek which must be frequently rebuilt in order to maintain diversion feasibility. According to the ditch owner, diversion at low flow becomes problematic and a more permanent solution would be desirable. The existing headgate is in poor condition and in need of replacement (Figure 3.2-10). At this time, a structure designed such that fish migration and passage is feasible is highly recommended. Figure 3.2-11 displays the general layout of the site and the proposed improvements. Configurations which could be incorporated would include options such as a rock vortex weir as indicated in Figure 3.2-3.

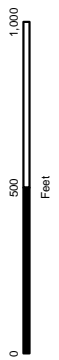


Notes:

- Feature locations and alignments are approximate only and are intended to indicate conceptual level layouts of proposed improvement projects.
- Property boundaries are approximate only.
- This figure contains only structures associated with this project; There are other existing and proposed structures in the vicinity that are not represented in this figure.

- Legend**
- Existing Headgate
 - Proposed Diversion
 - Existing Ditch
 - Abandoned Channel
 - Private Ownership
 - Bureau of Land Management
 - State of Wyoming
 - US National Forest
 - US National Recreation Area
 - Blacks Fork Study Area

Data Source:
Wyoming BLM
Anderson Consulting Engineers



**Figure 3.2-9 Conceptual Design I-020:
Leavitt & Easton Ditch Diversion Structure
(Schell 002)**

Replacement of the existing headgate is also recommended. Installation of a concrete structure incorporating a slide gate to facilitate control of diversions at this location would be desirable.

3.3 Upland Wildlife/Livestock Watering Sources (Watershed Management Plan Component L/W)



Figure 3.2-10 Nelson Ditch Headgate.

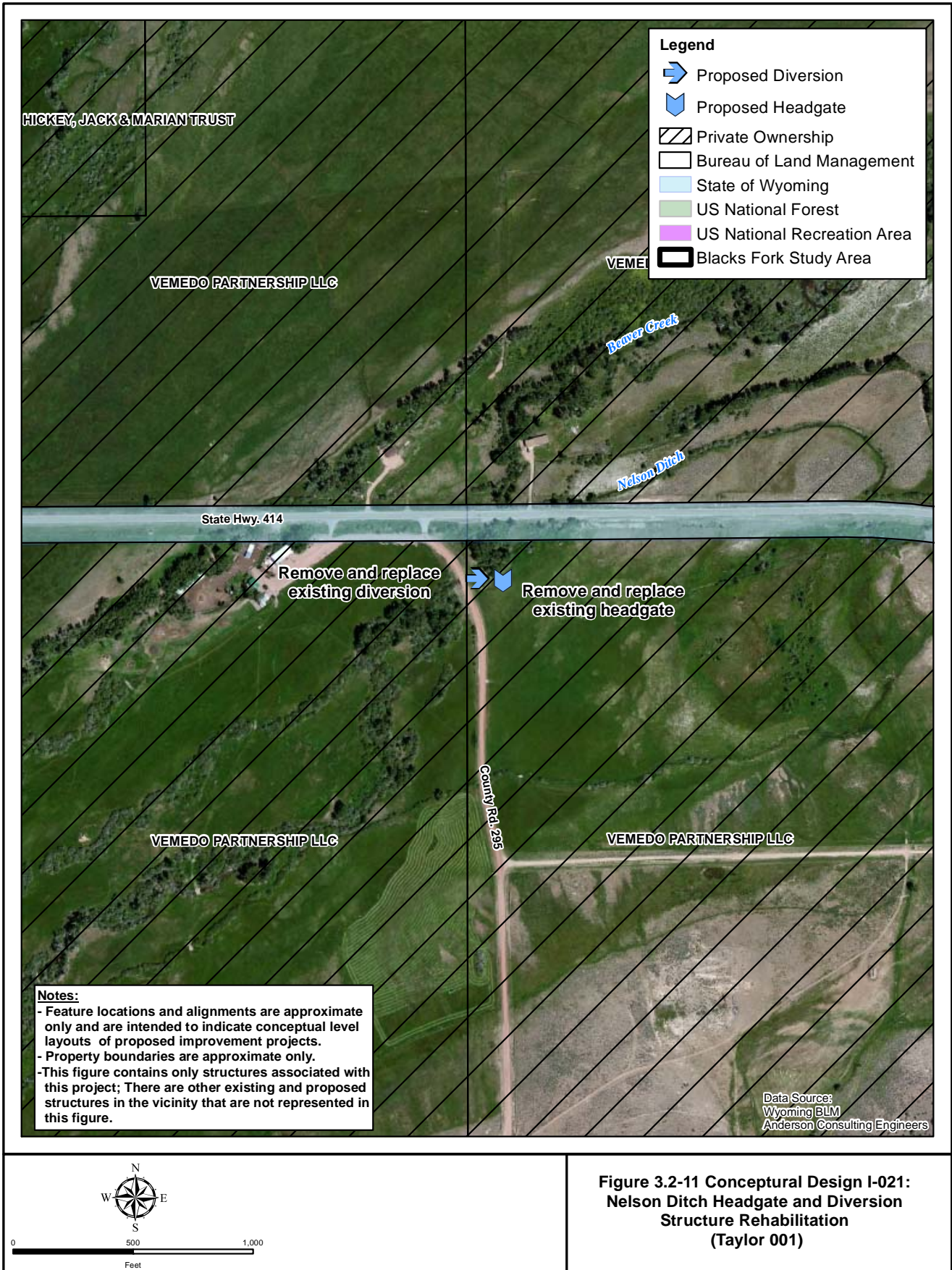
As presented in the Basinwide volume of this report, water sources deemed “viable” were mapped within the project GIS. Based upon the premise that existing water sources are capable of providing water to livestock within a one mile radius, buffers were drawn around the mapped sources (Figure 3.3-1). Note that this figure does not show buffers about perennial / intermittent streams nor springs. When viewing this figure, it should be kept in mind that stock reservoirs represent ephemeral sources of water; the majority of them rely upon rainfall runoff for their water supply. Also, although all wells with stock use as a permitted use are shown, not all may in actuality be equipped to provide livestock / wildlife water.

A list of interested land owners and allotment permittees was generated based upon input obtained at project meetings. Individual meetings were scheduled and completed to gain their input on the water needs of their respective geographical areas of interest. Based upon the results of these interviews and the information presented above pertaining to existing water supplies and areas in need of upland water development, conceptual water development projects were identified. The general objective of this effort was to create a means of providing reliable sources of livestock / wildlife drinking water in water-short portions of the watershed as well as alternative water supplies to riparian corridors.

In this Phase III volume of the Blacks Fork River Watershed Study, the Livestock/Wildlife water supply projects lying within the boundaries of the investigative phase are presented. The projects identified in this phase of the investigation and their respective component identifiers in the watershed management plan are summarized in Table 3.3-1. The following information is presented for each of the livestock/wildlife (L/W) watershed plan components:

1. Narrative description of the project including the individual components, land ownership, location and benefit. This information is presented in the following paragraphs.
2. Conceptual Drawings showing the overall layout and design of the project.

Figure 3.3-2 displays the general location of all livestock/wildlife water opportunity projects



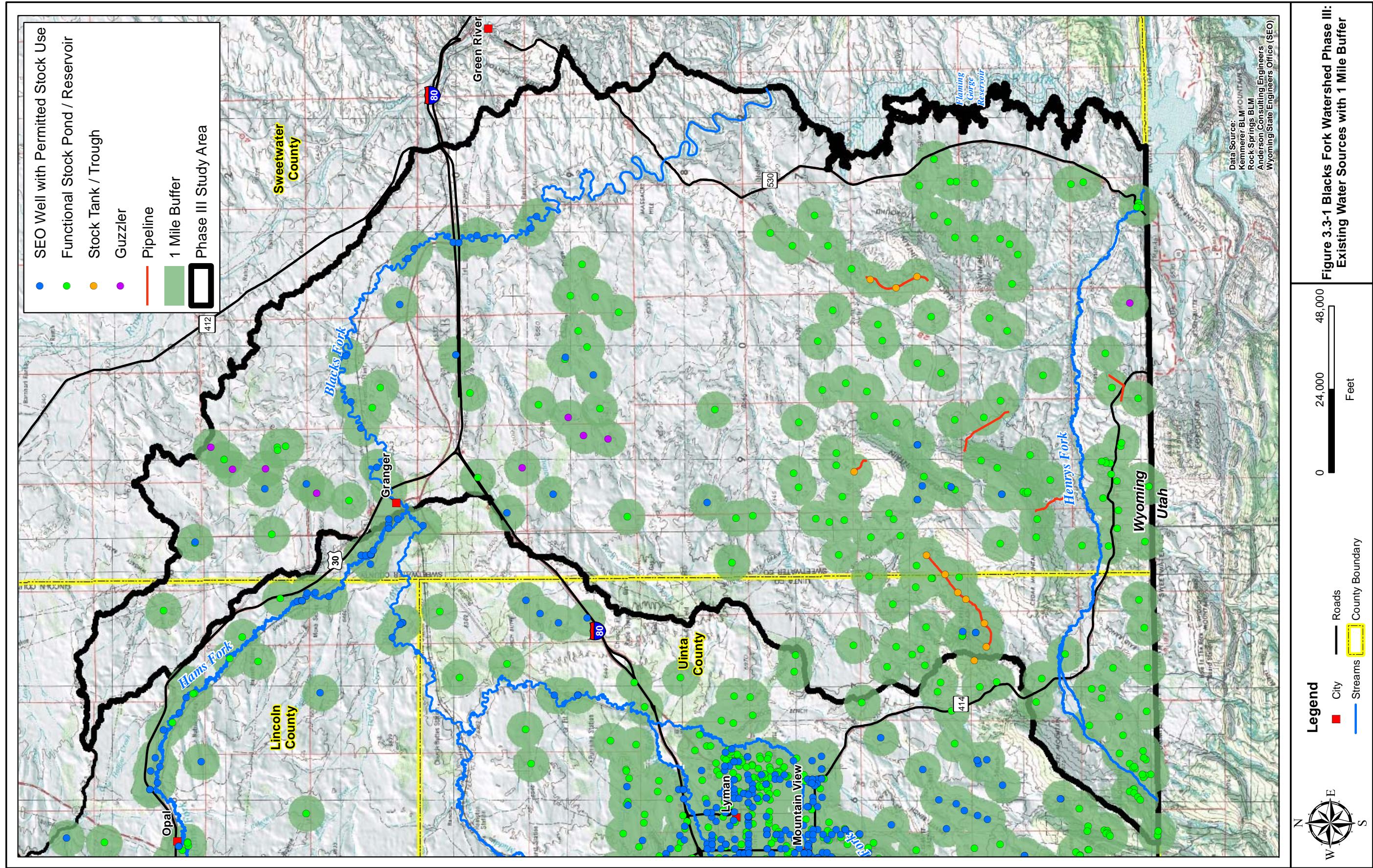


Figure 3.3-1 Blacks Fork Watershed Phase III: Existing Water Sources with 1 Mile Buffer

It must be kept in mind that designs presented in this report are conceptual only. The indicated alignments of pipelines and placement of livestock / wildlife watering facilities are general and intended to represent the concept behind the alternatives if implemented, detailed design would be required. It must also be kept in mind that maintenance of proposed projects is imperative to their success.

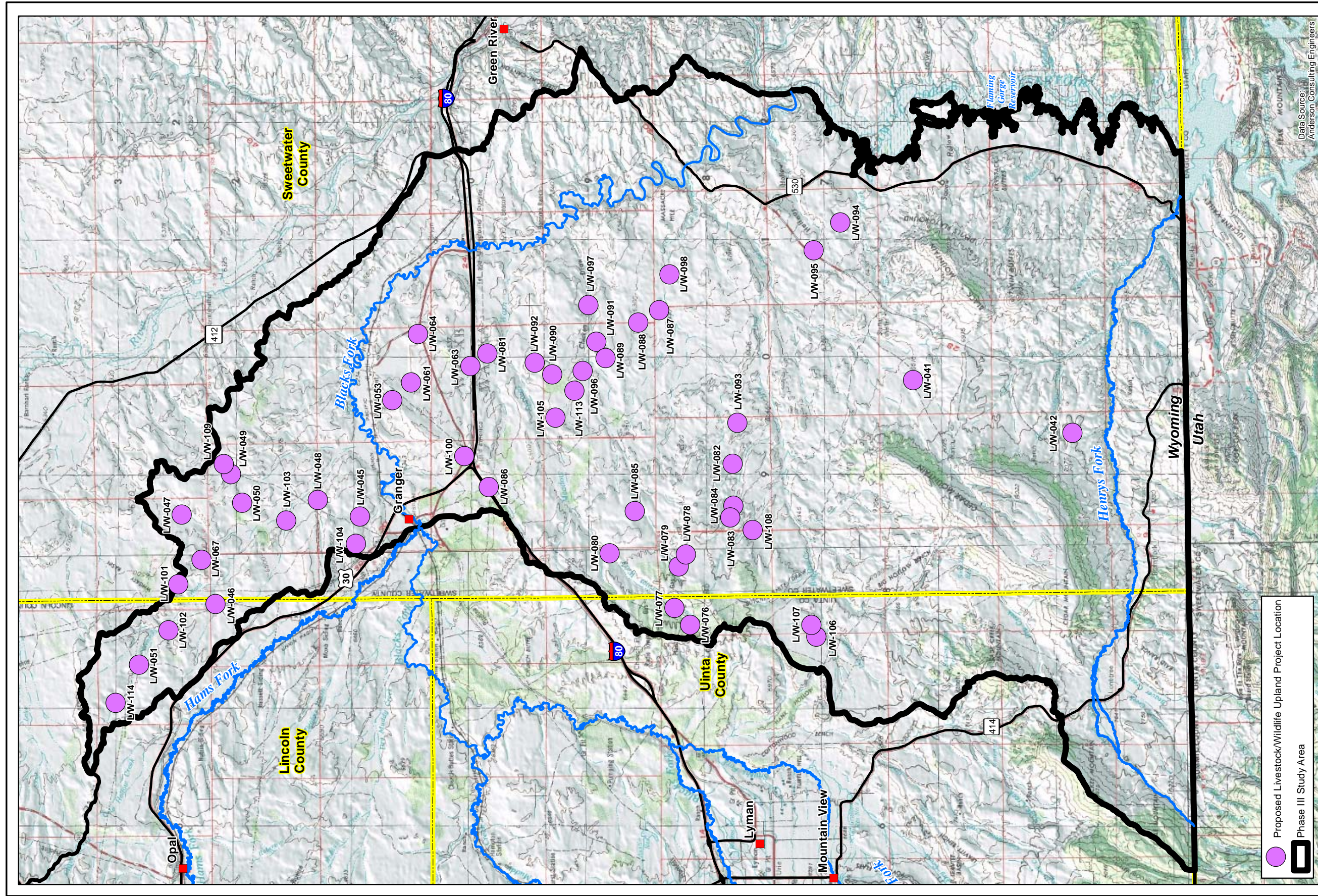
Table 3.3-1 Watershed Plan Component: Livestock/Wildlife Supply Projects (L/W).

Watershed Management Plan Component	Project ID	Project Name	Spring Development	Pipeline	Stock Tank	Storage Tank	Well Construction / Rehabilitation	Solar Pump / Generator	Stock Reservoir Rehabilitation	Stock Reservoir Construction	Guzler Construction
Phase III											
L/W-041	Anderson 004	Horse Ranch Pipeline		31,000	3						
L/W-042	Anderson 005	Blakes Knoll Pipeline		23,000	3						
L/W-045	UDC-003	UDCO 72-17							1		
L/W-046	UDC-004	Flowing Well		300	1		1				
L/W-047	UDC-005	Hydro Test Pit							1		
L/W-048	UDC-006	Pipeline Pit							1		
L/W-049	UDC-007	Stock Reservoir							1		
L/W-050	UDC-008	Stock Reservoir							1		
L/W-051	UDC-009	Flowing Well		300	1		1				
L/W-053	UDC-011	Pit and Pipeline			1						
L/W-061	UDC-019	Stock Reservoir							1		
L/W-063	UDC-021	Stock Reservoir							1		
L/W-064	UDC-022	Water Well		300	1		1				
L/W-067	UDC-025	Water Well and Stock Reservoir					1				
L/W-076	UDC-034	Stock Reservoir							1		
L/W-077	UDC-035	Spring in the Bluff	1	300	1						
L/W-078	UDC-036	Spring	1								
L/W-079	UDC-037	Carter Spring	1	300	1						
L/W-080	UDC-038	Meadow Spring	1						1		
L/W-081	UDC-039	Stock Reservoir							1		
L/W-082	UDC-040	Stock Reservoir							1		
L/W-083	UDC-041	Upper Coyote Springs	1	300	1						
L/W-084	UDC-042	Lower Tin Can Spring	1	300	1						
L/W-085	UDC-043	Chicken Springs	1	300	1						
L/W-086	UDC-044	Stock Reservoir							1		
L/W-087	UDC-045	Antelope #20							1		
L/W-088	UDC-046	Antelope #21							1		
L/W-089	UDC-047	Stock Reservoir							1		
L/W-090	UDC-048	Stock Reservoir							1		
L/W-091	UDC-049	Stock Reservoir							1		
L/W-092	UDC-050	Stock Pond and Trough			1				1		
L/W-093	UDC-051	Stock Reservoir							1		
L/W-094	UDC-052	Stock Reservoir							1		
L/W-095	UDC-053	Stock Reservoir							1		
L/W-096	UDC-054	Stock Reservoir							1		
L/W-097	UDC-055	Stock Reservoir							1		
L/W-098	UDC-056	Stock Reservoir							1		
L/W-100	UDC-058	Stock Reservoir							1		
L/W-101	UDC-059	Stock Reservoir							1		
L/W-102	UDC-060	Stock Reservoir							1		
L/W-103	UDC-061	Stock Reservoir							1		
L/W-104	UDC-062	Stock Reservoir							1		
L/W-105	UDC-063	Stock Reservoir							1		
L/W-106	UDC-064	Spring	1	300	1						
L/W-107	UDC-065	Spring	1	300	1						
L/W-108	UDC-066	Well		300	1		1				
L/W-109	UDC-067	Water Well		300	1		1				
L/W-113	UDC-071	Little America Pipeline		122,000	9						
L/W-114	UDC-072	Cow Hollow Pipeline		57,000	3						

3.3.1 L/W-041 Horse Ranch Pipeline (Project ID: Anderson 004)

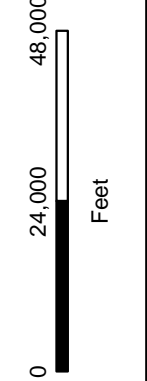
This alternative would involve the extension of an existing pipeline / stock tank system in the Big Dry Creek subwatershed which is tributary to Flaming Gorge Reservoir. The proposed project would be located within:

- Sections 3,4,8,9,17 and 18 of Township 14 North, Range 110 West,
- Section 34 of Township 15 North, Range 110 West and
- Section 13 of Township 14 North, Range 111 West.

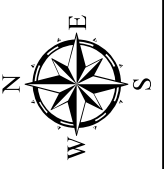


Data Source:
Anderson Consulting Engineers

**Figure 3.3-2 Blacks Fork Watershed Phase III:
Proposed Livestock/Wildlife
Upland Project Locations**



- Legend**
- Proposed Livestock/Wildlife Upland Project Location
 - Phase III Study Area
 - City
 - Roads
 - County Boundary
 - Streams



The source of the existing pipeline / stock tank system is a well located on privately owned lands. Extension of the existing system would provide sources of water to an area currently lacking water supplies as well as providing an alternative to riparian sources. Figure 3.3-3 displays the conceptual design of the project.

Under this alternative, the following components would be employed:

- Approximately 31,000 linear feet of buried 1 ½ inch HDPE low-pressure pipeline would be routed north easterly along existing roads.
- Three additional stock tanks (1,200 gallon each) would be installed.
- Requisite valves and fittings would be incorporated to facilitate management of flows and water levels.
- Wildlife egress ramps would be installed in the proposed stock tank.

Note that the proposed project as delineated would involve only federally owned lands managed by the Bureau of Land Management.

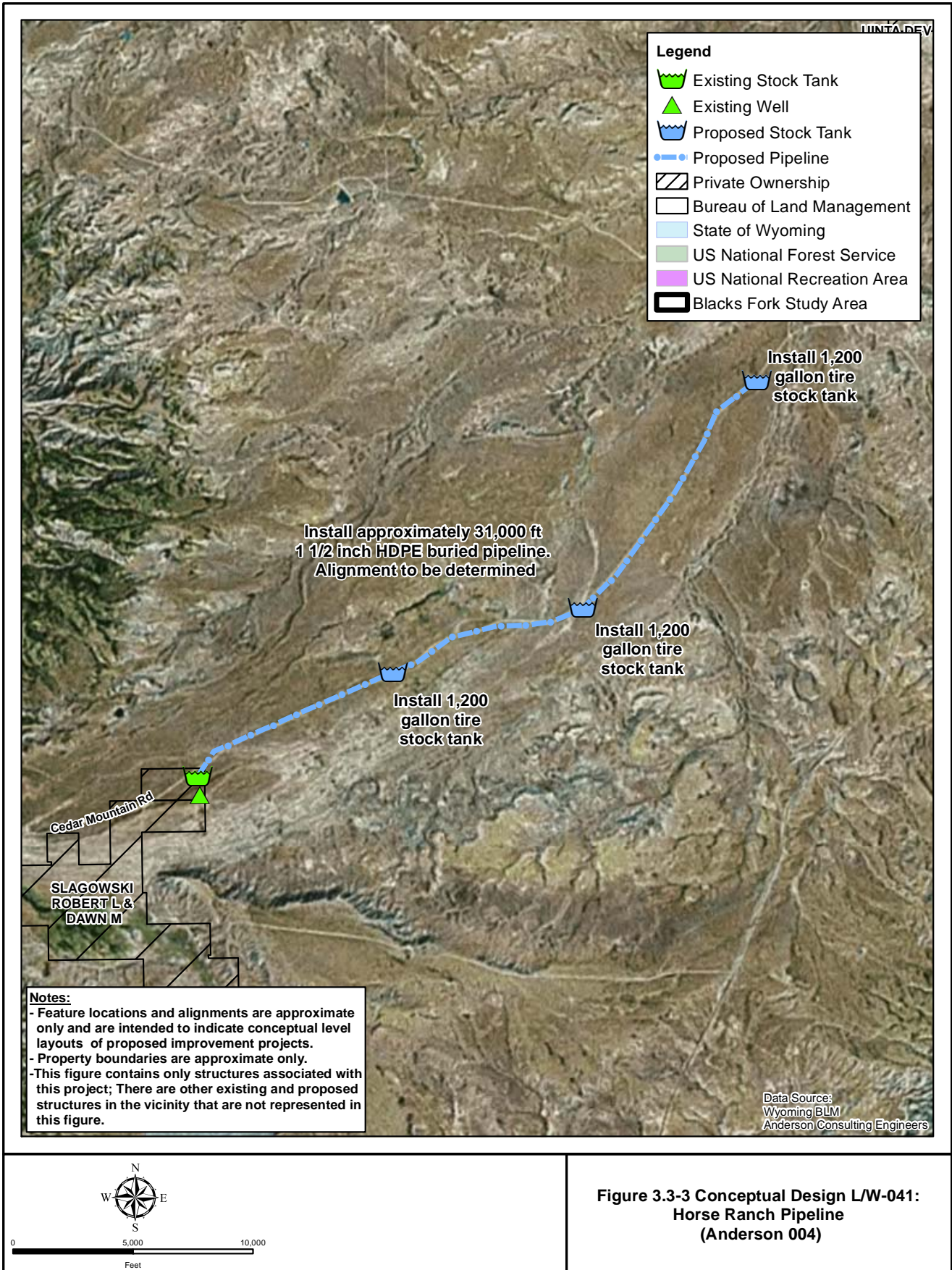
3.3.2 L/W-042 Blakes Knoll Pipeline (Project ID: Anderson 005)

This alternative would involve the extension of an existing pipeline / stock tank system in the Lane Meadow Creek subwatershed within the Henrys Fork watershed. The proposed project would be located within Sections 22, 23, 25, and 26 of Township 13 North, Range 111 West and Section 30 of Township 13 North, Range 110 West. The source of the existing pipeline / stock tank system is a well located on land owned by the State of Wyoming in Section 15 of Township 13 North, Range 111 West. Extension of the existing system would provide sources of water to an area currently lacking water supplies as well as providing an alternative to riparian sources. Figure 3.3-4 displays the conceptual design of the project.

Under this alternative, the following components would be employed:

- Approximately 23,000 linear feet of buried 1 ½ inch HDPE low-pressure pipeline would be routed south easterly along existing roads.
- Three additional stock tanks (1,200 gallon each) would be installed.
- Two existing storage tanks would be incorporated into the project.
- Requisite valves and fittings would be incorporated to facilitate management of flows and water levels.
- Wildlife egress ramps would be installed in the proposed stock tank.

Note that the proposed project as delineated would involve only federally owned lands managed by the Bureau of Land Management.



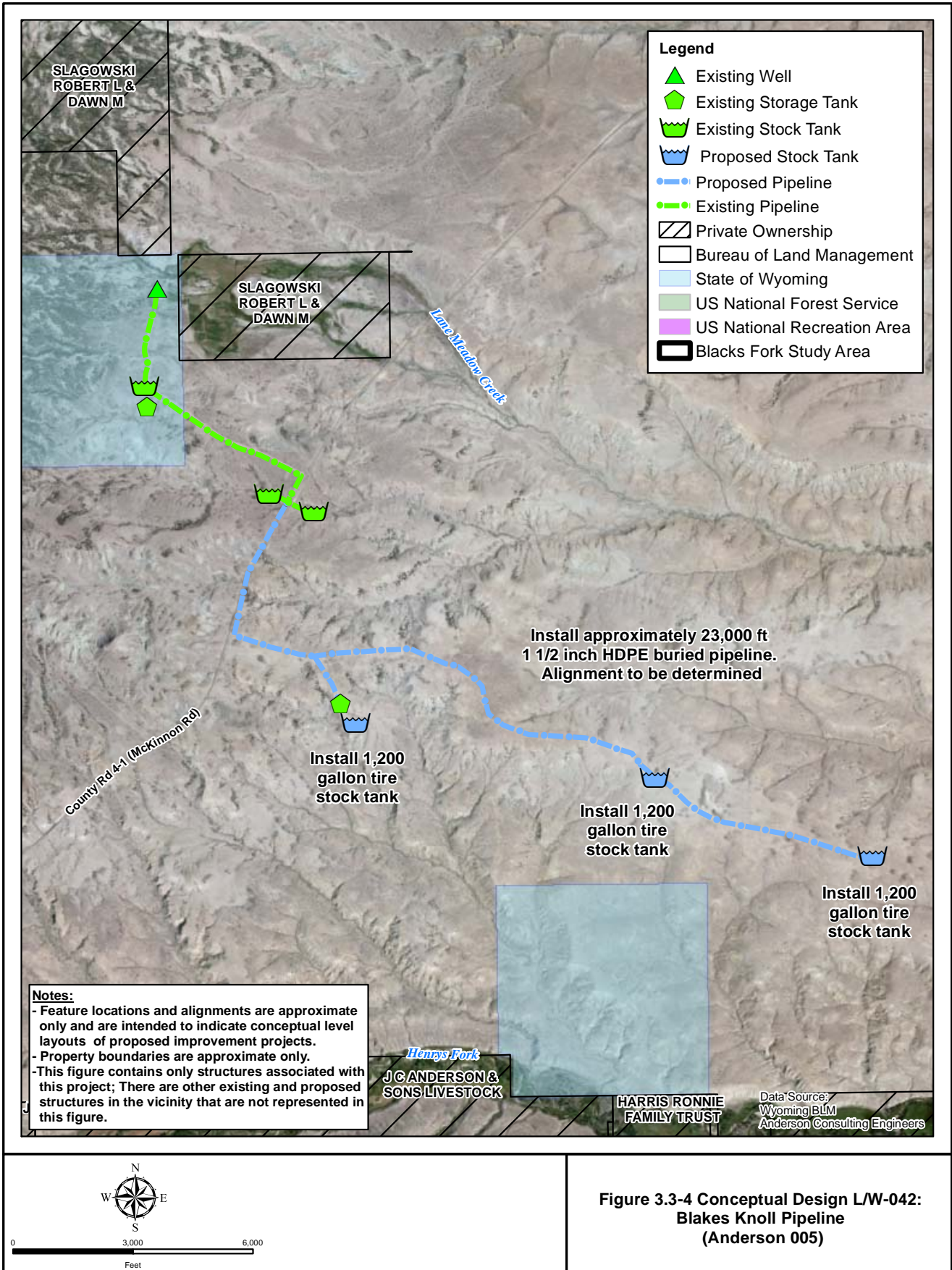


Figure 3.3-4 Conceptual Design L/W-042: Blakes Knoll Pipeline (Anderson 005)

3.3.3 UDC Projects

Forty seven (47) projects identified by the Uinta Development Company (UDC) are located within the boundaries of the Phase II investigation. Table 3.3-2 tabulates the various construction components. *As presented in the Basinwide Report, conceptual designs and narratives of UDC projects were not prepared in this Level I investigation.*

3.4 Grazing Management Opportunities (Watershed Management Plan Component G)

3.4.1 State and Transition Models

The concepts and descriptions of Ecological Sites are covered in the Blacks Fork Watershed Basinwide Volume. Please refer to that volume for more information. The ESD for a given ecological site contains a wealth of information pertaining to the site and its community. Within each ESD is a State and Transition model.

Based upon the mapping which is available for the Phase III study area (see Figure 2.2-7), there are several ecological sites which are predominant. These ecological sites are:

- Sandy (Sy) 7-9" Green River and Great Divide Basins
- Saline Upland (SU) 7-9" Green River and Great Divide Basins
- Sands (Sa) 7-9" Green River and Great Divide Basins

The following descriptions of the Historic Climax Plant Communities (HCPC) associated with these ESDs are extracted from the NRCS descriptions (NRCS, 2008).

Sandy (Sy) 7-9" Green River and Great Divide Basins

The interpretive plant community for this site is the Historic Climax Plant Community. This state evolved with grazing by large herbivores and is well suited for grazing by domestic livestock. Potential vegetation is estimated at 70% grasses or grass-like plants, 10% forbs, and 20% woody plants. The major grasses include needleandthread, Indian ricegrass, thickspike wheatgrass, bluebunch wheatgrass, and bottlebrush squirreltail. Other grasses occurring in the state may include Sandberg bluegrass, prairie junegrass, needleleaf sedge, Canby bluegrass, plains reedgrass, threawn, and galleta. Wyoming big sagebrush is the dominant woody plant. Other woody species include green and rubber rabbitbrush, spiny hopsage, spineless and spiny horsebrush, bitterbrush, and winterfat.

A typical plant composition for this state consists of needleandthread 10-30%, Indian ricegrass 10-30%, thickspike wheatgrass 10-25%, bottlebrush squirreltail 5-15%, bluebunch wheatgrass 5-10%, other grasses and grass-like plants 5-10%, perennial forbs 5-10%, Wyoming big sagebrush 5-10%, and 5-10% other woody species. Ground cover, by ocular estimate, varies from 20-30%.

Table 3.3-2 UDC Project Construction Components.

Project Name	UDC Waypoint	Priority	Develop Source	Fence Source - 850'	Diversion Repair	Supply Ditch-Earthwork	Supply Ditch-Rock	Excavate Pond/Pit (Sediment Removal)	Line Pond/Pit (Bentonite)	Install Principal Outlet (Agri-Drain)	Repair Embankment-Earthwork	Repair Emergency Spillway-Earthwork	Repair Emergency Spillway-Rock	Install Buried Pipe - 300'	Install Stock Tank	Latitude (dd.ddd)	Longitude (dd.ddd)	QC	Section	Town	Range	Quad	Pasture
Watershed Component L/W-045 (UDC-003)	11	Low				x		x	x	x						41.6319	-109.964	NENE	17	T 19 N	R 111 W	N MILE GL	SEVEN MILE
Watershed Component L/W-046 (UDC-004)	12	High		x										x	x	41.7432	-110.051	SESW	3	T 20 N	R 112 W	MOXA	SEVEN MILE
Watershed Component L/W-047 (UDC-005)	16	Low				x		x	x		x					41.7684	-109.959	SWSW	25	T 21 N	R 111 W	HSKEY BUT	SEVEN MILE
Watershed Component L/W-048 (UDC-006)	17	Low				x		x	x			x	x			41.664	-109.946	SESE	33	T 20 N	R 111 W	N MILE GL	SEVEN MILE
Watershed Component L/W-049 (UDC-007)	18	Low				x		x	x	x		x				41.7302	-109.918	SESW	11	T 20 N	R 111 W	N MILE GL	SEVEN MILE
Watershed Component L/W-050 (UDC-008)	19	Low						x	x	x	x	x	x			41.722	-109.948	SESE	9	T 20 N	R 111 W	N MILE GL	SEVEN MILE
Watershed Component L/W-051 (UDC-009)	20	Mid		x										x	x	41.8025	-110.112	SWSW	15	T 21 N	R 112 W	NTENELLE	SEVEN MILE
Watershed Component L/W-053 (UDC-011)	24	Mid													x	41.606	-109.845	SW	21	T 19 N	R 110 W	TLE AMER	LITTLE AMERICA
Watershed Component L/W-061 (UDC-019)	35	Low				x										41.5912	-109.827	SWSW	27	T 19 N	R 110 W	TLE AMER	LITTLE AMERICA
Watershed Component L/W-063 (UDC-021)	38	Mid										x				41.5459	-109.811	NENE	15	T 18 N	R 110 W	TLE AMER	LITTLE AMERICA
Watershed Component L/W-064 (UDC-022)	39	Low	x											x	x	41.5857	-109.778	SWNE	36	T 19 N	R 110 W	TLE AMER	LITTLE AMERICA
Watershed Component L/W-067 (UDC-025)	43	High		x												41.7537	-110.006	NWSE	33	T 21 N	R 111 W	NTENELLE	SEVEN MILE
Watershed Component L/W-076 (UDC-034)	59	Low									x					41.3797	-110.078	NWSW	8	T 16 N	R 112 W	DCAT BU	MASSACRE HILL
Watershed Component L/W-077 (UDC-035)	60	Mid	x	x										x	x	41.3918	-110.06	SESE	5	T 16 N	R 112 W	DCAT BU	MASSACRE HILL
Watershed Component L/W-078 (UDC-036)	63	Low		x												41.3825	-110.006	SWNE	11	T 17 N	R 112 W	DCAT BU	MASSACRE HILL
Watershed Component L/W-079 (UDC-037)	64	High	x	x										x	x	41.388	-110.018	NWNW	11	T 16 N	R 112 W	DCAT BU	MASSACRE HILL
Watershed Component L/W-080 (UDC-038)	67	High	x	x				x	x	x						41.4409	-110.004	SENE	24	T 17 N	R 112 W	DCAT BU	MASSACRE HILL
Watershed Component L/W-081 (UDC-039)	68	Low								x	x					41.5328	-109.799	NWNE	23	T 18 N	R 110 W	TLE AMER	MASSACRE HILL
Watershed Component L/W-082 (UDC-040)	72	Mid			x			x	x				x			41.3459	-109.914	NWNE	27	T 16 N	R 111 W	LES RESEF	MASSACRE HILL
Watershed Component L/W-083 (UDC-041)	74	High	x	x										x	x	41.3481	-109.969	SWSE	19	T 16 N	R 111 W	LES RESEF	MASSACRE HILL
Watershed Component L/W-084 (UDC-042)	75	Low	x	x										x	x	41.3456	-109.957	NWNW	29	T 16 N	R 111 W	LES RESEF	MASSACRE HILL
Watershed Component L/W-085 (UDC-043)	78	High	x	x										x	x	41.4211	-109.961	SWSW	9	T 17 N	R 111 W	ELOPE KN	MASSACRE HILL
Watershed Component L/W-086 (UDC-044)	79	High						x	x			x				41.533	-109.935	NENW	22	T 18 N	R 111 W	GRANGER	MASSACRE HILL
Watershed Component L/W-087 (UDC-045)	82	Mid			x			x	x			x				41.4006	-109.757	NENE	1	T 16 N	R 110 W	KNOLL N	MASSACRE HILL
Watershed Component L/W-088 (UDC-046)	83	High			x			x	x				x			41.4167	-109.769	NWNW	31	T 17 N	R 109 W	KNOLL N	MASSACRE HILL
Watershed Component L/W-089 (UDC-047)	84	Low				x		x	x							41.4421	-109.805	SWSW	23	T 17 N	R 110 W	KNOLL N	MASSACRE HILL
Watershed Component L/W-090 (UDC-048)	85	Mid			x			x	x				x			41.483	-109.821	SESW	3	T 17 N	R 110 W	KNOLL N	MASSACRE HILL
Watershed Component L/W-091 (UDC-049)	86	High									x		x			41.4488	-109.788	SWSW	13	T 17 N	R 110 W	KNOLL N	MASSACRE HILL
Watershed Component L/W-092 (UDC-050)	87	High		x					x						x	41.4969	-109.805	NWSW	35	T 18 N	R 110 W	KNOLL N	MASSACRE HILL
Watershed Component L/W-093 (UDC-051)	88	Low						x	x				x			41.3417	-109.873	SWNE	25	T 16 N	T 111 W	WINTER FLA	MASSACRE HILL
Watershed Component L/W-094 (UDC-052)	89	Low														41.2607	-109.671	SESW	23	T 15 N	R 109 W	FWAY HOL	MASSACRE HILL
Watershed Component L/W-095 (UDC-053)	90	Low						x								41.2815	-109.698	SESE	16	T 15 N	R 109 W	FWAY HOL	MASSACRE HILL
Watershed Component L/W-096 (UDC-054)	91	High			x	x		x	x							41.4597	-109.818	NWNE	15	T 17 N	R 110 W	KNOLL N	MASSACRE HILL
Watershed Component L/W-097 (UDC-055)	93	High			x			x	x							41.4547	-109.751	NWNW	17	T 17 N	R 109 W	SSACCRE H	MASSACRE HILL
Watershed Component L/W-098 (UDC-056)	94	Mid						x	x				x			41.3922	-109.721	SWSE	5	T 16 N	R 109 W	SSACCRE H	MASSACRE HILL
Watershed Component L/W-100 (UDC-058)	98	Mid						x	x			x	x			41.5513	-109.903	SWSW	12	T 18 N	R 111 W	GRANGER	LITTLE AMERICA
Watershed Component L/W-101 (UDC-059)	100	Low										x	x			41.7716	-110.03	SESW	29	T 21 N	R 111 W	BELLE SOU	SEVEN MILE
Watershed Component L/W-102 (UDC-060)	101	Low						x								41.7795	-110.078	SESE	23	T 21 N	R 111 W	BELLE SOU	SEVEN MILE
Watershed Component L/W-103 (UDC-061)	103	Low			x											41.6884	-109.967	SENE	29	T 20 N	R 111 W	N MILE GL	SEVEN MILE
Watershed Component L/W-104 (UDC-062)	104	Low			x			x	x			x	x			41.6352	-109.991	SESW	7	T 19 N	R 111 W	N MILE GL	SEVEN MILE
Watershed Component L/W-105 (UDC-063)	108	Low			x								x			41.4811	-109.865	NWSW	5	T 17 N	R 110 W	KNOLL N	MASSACRE HILL
Watershed Component L/W-106 (UDC-064)	114	Mid	x	x										x	x	41.2882	-110.091	SENE	13	T 15 N	R 113 W		GRANGER
Watershed Component L/W-107 (UDC-065)	115	High	x	x										x	x	41.2827	-110.079	NENE	18	T 15 N	R 113 W		GRANGER
Watershed Component L/W-108 (UDC-066)	121	High		x										x	x	41.3315	-110.982	NENE	16	T 16 N	R 112 W		GRANGER
Watershed Component L/W-109 (UDC-067)	134	Low	x											x	x	41.7356	-109.908	NENE	11	T 20 N	R 111 W	N MILE GL	SEVEN MILE
Watershed Component L/W-113 (UDC-071)	N/A	N/A	x											x	x	41.4663	-109.838	NESW	9	T 17 N	R 110 W		MASSACRE HILL
Watershed Component L/W-114 (UDC-072)	N/A	N/A	x											x	x	41.8207	-110.151	NWNW	8	T 21 N	R 112 W		SEVEN MILE

The total annual production (air-dry weight) of this state is about 550 pounds per acre, but it can range from about 350 lbs./acre in unfavorable years to about 750 lbs./acre in above average years.

The state is stable and well adapted to the Cool Central Desertic Basins and Plateaus climatic conditions. The diversity in plant species allows for high drought resistance. This is a sustainable plant community (site/soil stability, watershed function, and biologic integrity).

Transitions or pathways leading to other plant communities are as follows:

- *Nonuse and No Fire will convert this plant community to the Big Sagebrush/Bunchgrass State.*
- *Heavy Continuous Season-Long Grazing will convert this plant community to the Big Sagebrush/Rhizomatous Wheatgrass State.*
- *Wildfire followed by Continuous Season-long Grazing will convert this plant community to the Rabbitbrush/Rhizomatous Wheatgrass State.*

Figure 3.4-1 displays the state and transition model for this site.

Saline Upland (SU) 7-9" Green River and Great Divide Basins

The interpretive plant community for this site is the Historic Climax Plant Community. Potential vegetation is about 50% grasses or grass-like plants, 5% forbs, and 45% woody plants. Saline tolerant plants dominate this site. The major grasses include bottlebrush squirreltail and Indian ricegrass. Other grasses may include rhizomatous wheatgrass, needleandthread, Sandberg bluegrass, and Salina wildrye. Gardner's saltbush and bud sagebrush are the dominant woody plants. Other woody plants may include greasewood and winterfat.

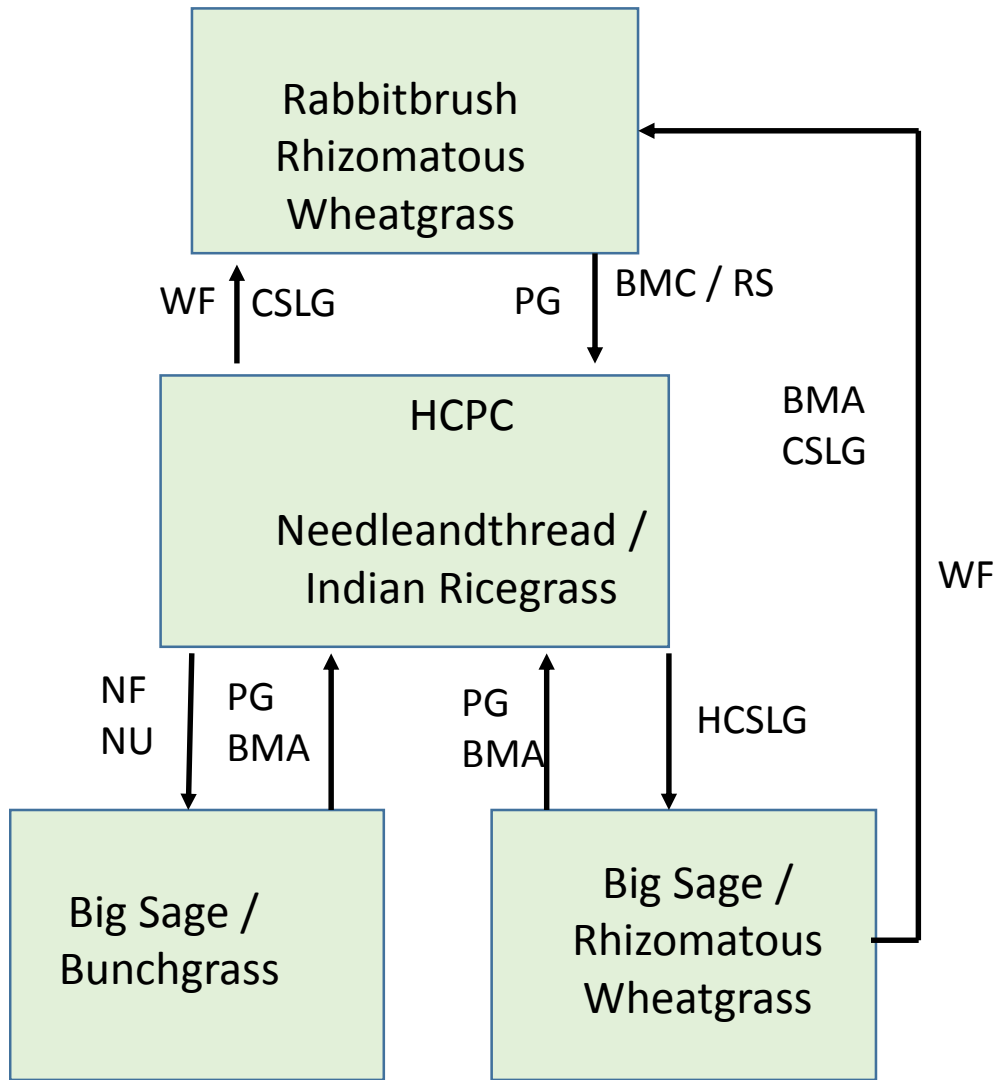
A typical plant composition for this state consists of bottlebrush squirreltail 15-30%, Indian ricegrass 15-25%, other grasses and grass-like plants 5-20%, perennial forbs 1-5%, Gardner's saltbush 25-45%, bud sagebrush 5-15%, and 5-10% other woody species. This state provides valuable winter grazing for domestic livestock. Ground cover, by ocular estimate, varies from 20-40%. The total annual production (air-dry weight) of this state is about 400 pounds per acre, but it can range from about 200 lbs./acre in unfavorable years to about 600 lbs./acre in above average years.

This state is fragile, but well adapted to the Cool Central Desertic Basins and Plateaus climatic conditions. The diversity in plant species allows for some drought resistance. This is a sustainable plant community, but is difficult to reestablish when damaged. (Site/soil stability, watershed function, and biologic integrity).

Transitions or pathways leading to other plant communities are as follows:

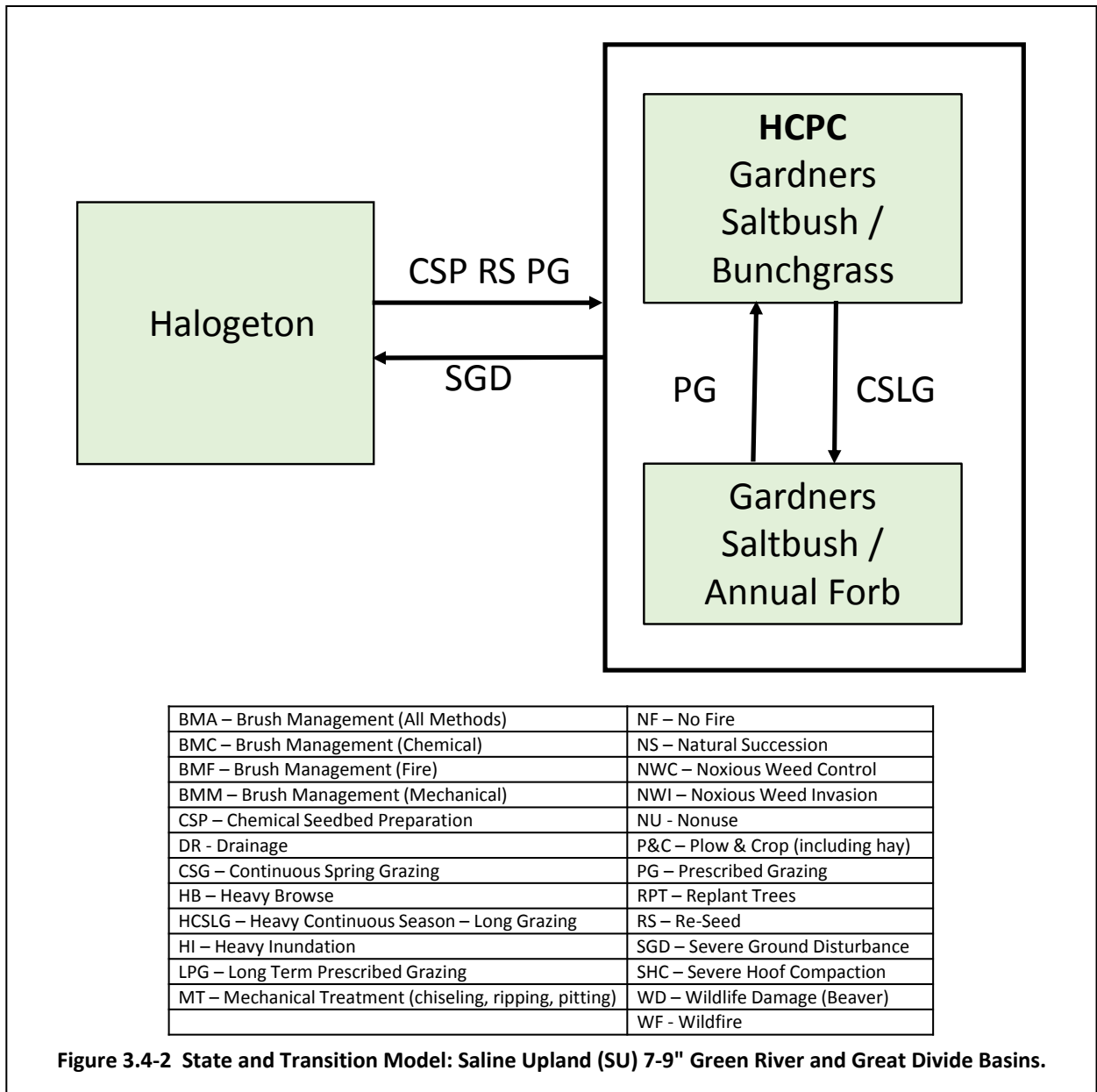
- *Severe Ground Disturbance will convert this plant community to the Halogeton State.*
- *Continuous Season-long Grazing will convert this plant community to the Gardner's Saltbush/Annual Forb State.*

Figure 3.4-2 displays the state and transition model for this site



BMA – Brush Management (All Methods)	NF – No Fire
BMC – Brush Management (Chemical)	NS – Natural Succession
BMF – Brush Management (Fire)	NWC – Noxious Weed Control
BMM – Brush Management (Mechanical)	NWI – Noxious Weed Invasion
CSP – Chemical Seedbed Preparation	NU - Nonuse
DR - Drainage	P&C – Plow & Crop (including hay)
CSG – Continuous Spring Grazing	PG – Prescribed Grazing
HB – Heavy Browse	RPT – Replant Trees
HCSLG – Heavy Continuous Season – Long Grazing	RS – Re-Seed
HI – Heavy Inundation	SGD – Severe Ground Disturbance
LPG – Long Term Prescribed Grazing	SHC – Severe Hoof Compaction
MT – Mechanical Treatment (chiseling, ripping, pitting)	WD – Wildlife Damage (Beaver)
	WF - Wildfire

Figure 3.4-1 State and Transition Model: Sandy (Sy) 7-9" Green River and Great Divide Basins.



Sands (Sa) 7-9" Green River and Great Divide Basins

The interpretive plant community for this site is the Historic Climax Plant Community. This state evolved with grazing by large herbivores and is suited for grazing by domestic livestock. Potential vegetation is estimated at 60% grasses or grass-like plants, 15% forbs, and 25% woody plants. The major grasses include needleandthread, Indian ricegrass, thickspike wheatgrass, and bottlebrush squirreltail. Other grasses include Sandberg bluegrass, prairie junegrass, bluebunch wheatgrass, threawn, sandhill muhly, galleta, and needleleaf sedge. Silver sagebrush and spiny hopsage are the dominant woody plants. Other woody plants may include big sagebrush, fourwing saltbush, spiny horsebrush, rubber and green rabbitbrush, shadscale, winterfat, and bitterbrush.

A typical plant composition for this state consists of needleandthread 15-30%, Indian ricegrass 15-30%, thickspike wheatgrass 10-25%, bottlebrush squirreltail 5-15%, other grasses and grass-like plants 5-15%, perennial forbs 5-15%, silver sagebrush 5-10%, spiny hopsage 5-10%, and 5-15% other woody species. Ground cover, by ocular estimate, varies from 15-25%.

The total annual production (air-dry weight) of this state is about 600 pounds per acre, but it can range from about 400 lbs./acre in unfavorable years to about 800 lbs./acre in above average years.

This plant community is extremely stable and well adapted to the Cool Central Desertic Basins and Plateaus climatic conditions. The diversity in plant species allows for high drought tolerance. This is a sustainable plant community (site/soil stability, watershed function, and biologic integrity).

Transitions or pathways leading to other plant communities are as follows:

- Nonuse and No Fire will convert this plant community to the Spiny Hopsage/Bunchgrass State.
- Heavy Continuous Season-Long Grazing will convert this plant community to the Spiny Hopsage/Rhizomatous Wheatgrass State.
- Wildfire followed by Continuous Season-long Grazing will convert this plant community to the Rabbitbrush/Rhizomatous Wheatgrass State.

Figure 3.4-3 displays the state and transition model for this site.

3.5 Storage Opportunities

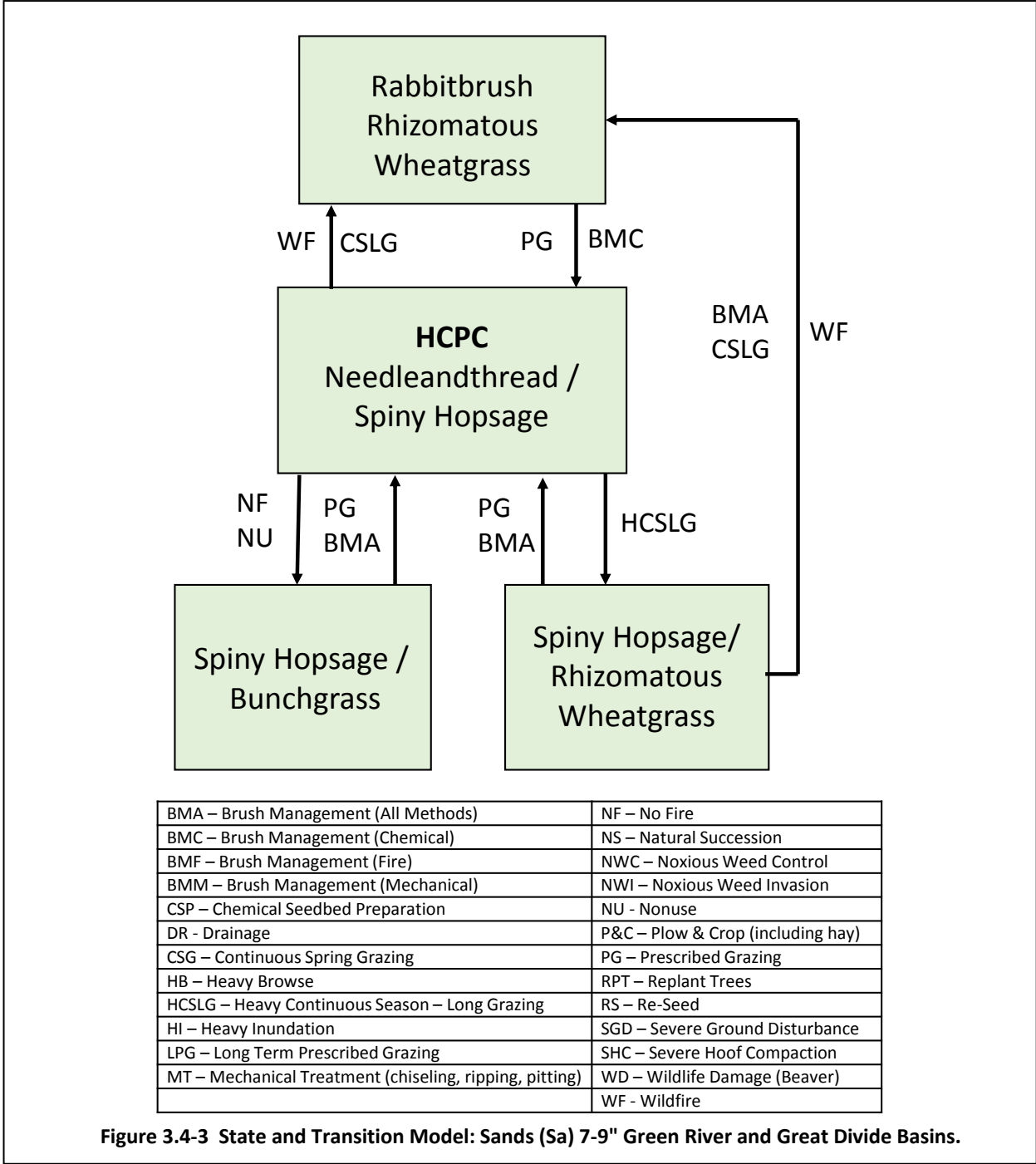
Two potential reservoir storage projects were identified within this phase of the Blacks Fork Watershed investigation:

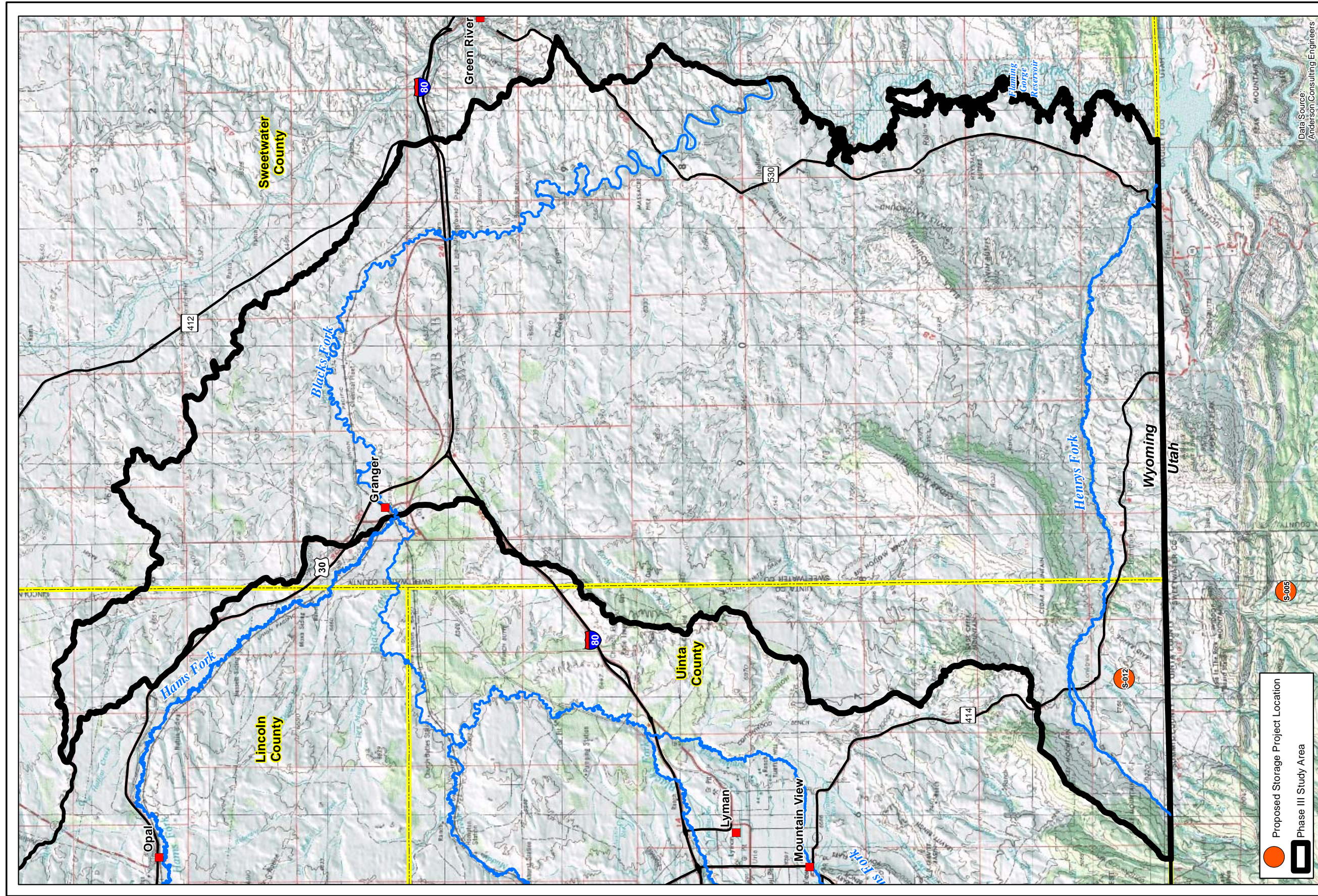
- Beaver Meadows Reservoir
- Wadsworth Fishing Reservoir

Table 3.5-1 tabulates the projects and pertinent information. Figure 3.5-1 shows their locations.

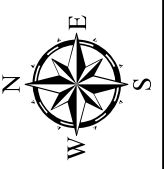
Table 3.5-1 Phase III Water Storage Opportunities.

Watershed Plan Component	Study Area Phase	Project name	Action	Source	Storage	
					Existing	New Construcion / Enlarged
Large Reservoirs						
S-005	III	Beaver Meadows	Enlargement	Lost Creek	676	+750 - 1,000
Small Reservoirs						
S-012	III	Wadsworth Fishing Reservoir	Rehabilitation	Beaver Creek	16.3	N/A

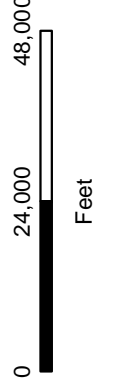




Data Source:
Anderson Consulting Engineers



- Legend**
- Proposed Storage Project Location
 - Phase III Study Area
 - City
 - Roads
 - Streams
 - County Boundary



**Figure 3.5-1 Blacks Fork Watershed Phase III:
Proposed Storage Project Locations**

3.5.1 S-005 Beaver Meadows Reservoir

Beaver Meadows reservoir is located in the State of Utah in Section 31, Township 3 North, Range 17 East, Salt Lake Meridian. Figure 3.5-2 displays an overview of the reservoir. It is owned by the Interstate Ditch Company. It provides approximately 2,155 acre feet of storage for irrigation purposes.



Figure 3.5-2 Beaver Meadows Reservoir Overview.

According to representatives of the Utah Division of Water Rights, Dam Safety Division, the following statistics describe the dam and reservoir:

Structural Height:	45 Feet
Hydraulic Height:	37 Feet
Reservoir Area at Spillway Crest:	122 Acres
Reservoir Storage at Spillway Crest:	2155 Acft
Reservoir Storage at Dam Crest:	3094 Acft
Dam Crest Elevation:	9390 Feet MSL
Dam Crest Length:	935 Feet
Dam Crest Width:	16 Feet
Spillway Type:	Drop Inlet
Emergency Spillway Type:	Open Channel
Spillway Maximum Discharge:	1124 Cfs
Maximum Dam Breach Flow:	21000 Cfs
Drainage Basin Area:	7.9 Sq. Miles
Outlet Diameter:	24 Inches
Outlet Length:	240 Feet
Outlet Construction:	Reinforced Concrete Pipe
Outlet Control Location:	Upstream end of conduit
Maximum Outlet Discharge:	73 Cfs

According to Interstate Ditch Company representatives, enlargement of the dam would be desirable to help meet late season irrigation demand. During a site visit completed in conjunction with this Level I investigation, the ditch representative reported that during a recent dam inspection, it was determined that the reservoir outlet elevation was established approximately two feet lower than the design elevation. The outlet consists of reinforced concrete drop inlet (Figure 3.5-3). Validation of this condition was beyond the scope and budget of this Level I investigation. However, review of dam inspection reports and associated correspondence available through the State of Utah in conjunction with this Level I investigation failed to find documentation either substantiating or refuting the claim. Should the outlet elevation actually be constructed at an elevation below its intended configuration, the ditch company is not storing the capacity intended. It is our understanding that the outlet could be modified relatively easily to regain the intended and permitted reservoir capacity.



Figure 3.5-3. Beaver Meadows Reservoir Outlet Structure.

This project alternative would involve the following components which should be completed by the Interstate Ditch company:

- Collection of available information pertaining to the dam and reservoir construction, including As Built Drawings if available.
- Completion of topographic survey to validate/verify assumptions.
- Depending upon the results of the tasks above, the ditch company should pursue funding through the WWDC for a level I feasibility study of restoring the reservoir's full storage capacity.

3.5.2 S-012 Wadsworth Fishing Reservoir

The Wadsworth Reservoir lies within the SE 1/4 SE 1/4 of Section 9, Township 12 North, Range 113 West (Permit P10904.0R). A preliminary search of the WSEO water rights database failed to determine the permitted storage capacity of the reservoir. However, based upon review of aerial photographs, it appears to be on the order of 40 to 50 acre feet. The reservoir provides irrigation storage for downstream ditches as well a habitat for fisheries and wildlife.

At the request of the landowner, the reservoir outlet was evaluated and determined to be in need of replacement. Replacement of the existing outlet with a commercially available outlet such as an Agridrain System is recommended (Figure 3.5-4).

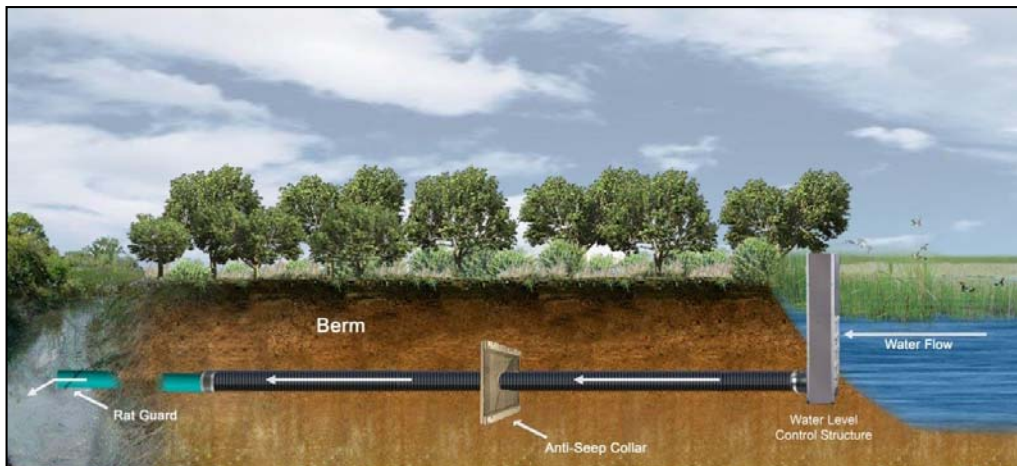


Figure 3.5-4 Agridrain Stock Reservoir Outlet.

IV. COST ESTIMATES

4.1 Phase III Conceptual Cost Estimates

Conceptual-level costs have been developed for each of the alternative potential projects identified and described in Chapter 3. The bases for these costs are described in the following subsections for each of the overall project categories. Cost estimates presented represent 2015 dollars.

Discussion of methods and sources used to generate these costs are presented in Chapter 7 of the Basinwide volume of this report.

The following tables reiterate the conceptual cost estimates presented in the Basinwide volume for convenience herein:

Table 4.1-1: Irrigation System Components

Table 4.1-2: Upland Wildlife/Livestock Water Components

Table 4.1-3: Upland Wildlife/Livestock Water Components (UDC)

Table 4.1-4: Storage Opportunities

Table 4.1-1 Conceptual Cost Estimates: Phase III Irrigation System Components.

Watershed Plan Component	Study Area Phase	Project Name	Construction Subtotal	Engineering (10%)	Construction and Engineering Subtotal	Contingency (15%)	Total Construction Cost	Final Plans and Specs	Additional	Permitting / Legal Fees / Access and Rights of Way	Total Project Cost
I-014	Phase III	Anderson 001	\$146,500	\$14,650	\$161,150	\$24,173	\$185,323	\$2,500	\$0	\$2,000	\$189,823
I-015	Phase III	Anderson 002	\$146,500	\$14,650	\$161,150	\$24,173	\$185,323	\$2,500	\$0	\$2,000	\$189,823
I-016	Phase III	Anderson 003	\$146,500	\$14,650	\$161,150	\$24,173	\$185,323	\$2,500	\$0	\$2,000	\$189,823
I-017	Phase III	Anderson 006	\$116,800	\$11,680	\$128,480	\$19,272	\$147,752	\$2,500	\$0	\$1,000	\$151,252
I-018	Phase III	Potter 001	\$175,000	\$17,300	\$190,300	\$28,545	\$218,845	\$2,500	\$0	\$500	\$221,845
I-019	Phase III	Schell 001	\$120,000	\$12,000	\$132,000	\$19,800	\$151,800	\$2,500	\$0	\$2,000	\$156,300
I-020	Phase III	Schell 002	\$175,000	\$17,500	\$192,500	\$28,875	\$221,375	\$2,500	\$0	\$2,000	\$225,875
I-021	Phase III	Taylor 001	\$34,000	\$3,400	\$37,400	\$5,610	\$43,010	\$1,500	\$0	\$500	\$45,010

Table 4.1-2 Conceptual Cost Estimates: Phase III Livestock/Wildlife (L/W) Components.

Project Phase		Phase III	Phase III	Phase III	Phase III
		Watershed Component	Watershed Component	Watershed Component	Watershed Component
		L/W-041	L/W-042	L/W-113	L/W-114
Project Number:		Anderson 004	Anderson 005	UDC-071	UDC-072
Description:		Pipeline / Stock Tank Construction	Pipeline / Stock Tank Construction	Pipeline / Stock Tank Construction	Pipeline / Stock Tank Construction
Project Name:		Horse Ranch Pipeline	Blakes Knoll Pipeline	Little America Pipeline Project	Cow Hollow Pipeline Project
Water Source:		Existing Well	Existing Pipeline	Existing Well	Existing Well
Mobilization		\$3,000	\$3,000	\$3,000	\$3,000
Well Construction / Spring Development	Source:				
	Units (each)				
	Depth Each				
	Unit Cost (\$/LF wells or \$/EA springs)	NA	NA	NA	NA
	Well Screen (LF each well)				
	Well Screen (\$/LF)				
Component Subtotal					
Stock Pond / Guzzler Construction / Rehabilitation	Units (each)				
	Earthwork (Stock Pond)				
	Agri-Drain Installation (Stock Pond)				
	Rock Stabilization (Stock Pond)	NA	NA	NA	NA
	Bentonite Lining (Stock Pond)				
	Guzzler Installation (Materials and Labor)				
Pond/ Guzzler Component Subtotal					
Pump	Units (EA)				
	Type				
	Unit Cost (EA)	NA	NA	NA	NA
	Component Subtotal				
Pipeline	Low Pressure 1 1/2 in Pipe Diameter:	1.5	1.5	1.5	1.5
	Units (LF)	31,000	23,000	122,000	57,000
	Unit Cost (EA)	\$3.34	\$3.34	\$3.34	\$3.34
	Component Subtotal	\$103,540	\$76,820	\$407,480	\$190,380
	Other Pipe				
	Units (LF)				
Unit Cost (EA)	NA	NA	NA	NA	
Component Subtotal					
Additional Storage Tanks	Units (EA)				
	Size (gal)				
	Unit Cost (\$/gal)	NA	NA	NA	NA
	Component Subtotal				
Livestock / Wildlife Water Tanks	Units (EA)	3	3	9	3
	Size (gal)	1,200	1,200	1,200	1,200
	Unit Cost	\$3,000	\$3,000	\$3,000	\$3,000
	Component	\$9,000	\$9,000	\$27,000	\$9,000
Miscellaneous	Item				
	Units (Each)				
	Unit Cost (\$/ea)	NA	NA	NA	NA
	Component Subtotal				
Construction Subtotal		\$115,540	\$88,820	\$437,480	\$202,380
Engineering (10%)		\$11,554	\$8,882	\$43,748	\$20,238
Construction and Engineering Subtotal		\$127,094	\$97,702	\$481,228	\$222,618
Contingency (15%)		\$19,064	\$14,655	\$72,184	\$33,393
Total Construction Cost		\$146,158	\$112,357	\$553,412	\$256,011
Final Plans and Specs		\$1,500	\$1,500	\$300	\$300
Additional		\$0	\$0	\$0	\$0
Permitting / Legal Fees / Access and Rights of Way		\$1,000	\$1,000	\$0	\$0
Total Project Cost		\$148,658	\$114,857	\$553,712	\$256,311

Table 4.1-3 Conceptual Cost Estimates: Phase II Livestock / Wildlife (L/W) Components (UDC).

Project ID	Project Name	UDC Inventory Waypoint	Estimated Project Cost	Construction Subtotal	Engineering (10%)	Construction and Engineering Subtotal	Contingency (15%)	Total Construction Cost	Final Plans and Specs	Additional	Permitting / Legal Fees / Access and Rights of Way	Total Project Cost
Watershed Component L/W-045 (UDC-003)	UDCO 72-17	11	\$26,000	\$26,000	\$2,600	\$28,600	\$4,290	\$32,890	\$1,500	\$0	\$500	\$34,890
Watershed Component L/W-046 (UDC-004)	Flowing Well	12	\$9,750	\$9,750	\$975	\$10,725	\$1,609	\$12,334	\$300	\$0	\$500	\$13,134
Watershed Component L/W-047 (UDC-005)	Hydro Test Pit	16	\$26,000	\$26,000	\$2,600	\$28,600	\$4,290	\$32,890	\$1,500	\$0	\$500	\$34,890
Watershed Component L/W-048 (UDC-006)	Pipeline Pit	17	\$15,000	\$15,000	\$1,500	\$16,500	\$2,475	\$18,975	\$1,500	\$0	\$500	\$20,975
Watershed Component L/W-049 (UDC-007)	Stock Reservoir	18	\$26,000	\$26,000	\$2,600	\$28,600	\$4,290	\$32,890	\$1,500	\$0	\$500	\$34,890
Watershed Component L/W-050 (UDC-008)	Stock Reservoir	19	\$26,000	\$26,000	\$2,600	\$28,600	\$4,290	\$32,890	\$1,500	\$0	\$500	\$34,890
Watershed Component L/W-051 (UDC-009)	Flowing Well	20	\$14,750	\$14,750	\$1,475	\$16,225	\$2,434	\$18,659	\$500	\$0	\$500	\$19,659
Watershed Component L/W-053 (UDC-011)	Pit and Pipeline	24	\$3,000	\$3,000	\$300	\$3,300	\$495	\$3,795	\$0	\$0	\$500	\$4,295
Watershed Component L/W-061 (UDC-019)	Stock Reservoir	35	\$5,000	\$5,000	\$500	\$5,500	\$825	\$6,325	\$1,500	\$0	\$500	\$8,325
Watershed Component L/W-063 (UDC-021)	Stock Reservoir	38	\$5,000	\$5,000	\$500	\$5,500	\$825	\$6,325	\$1,000	\$0	\$500	\$7,825
Watershed Component L/W-064 (UDC-022)	Water Well	39	\$14,000	\$14,000	\$1,400	\$15,400	\$2,310	\$17,710	\$1,000	\$0	\$1,000	\$19,710
Watershed Component L/W-067 (UDC-025)	Water Well and Stock Reservoir	43	\$4,250	\$4,250	\$425	\$4,675	\$701	\$5,376	\$0	\$0	\$500	\$5,876
Watershed Component L/W-076 (UDC-034)	Stock Reservoir	59	\$5,000	\$5,000	\$500	\$5,500	\$825	\$6,325	\$1,500	\$0	\$500	\$8,325
Watershed Component L/W-077 (UDC-035)	Spring in the Bluff	60	\$14,850	\$14,850	\$1,485	\$16,335	\$2,450	\$18,785	\$1,500	\$0	\$500	\$20,785
Watershed Component L/W-078 (UDC-036)	Spring	63	\$4,250	\$4,250	\$425	\$4,675	\$701	\$5,376	\$1,500	\$0	\$500	\$7,376
Watershed Component L/W-079 (UDC-037)	Carter Spring	64	\$14,850	\$14,850	\$1,485	\$16,335	\$2,450	\$18,785	\$1,500	\$0	\$500	\$20,785
Watershed Component L/W-080 (UDC-038)	Meadow Spring	67	\$26,000	\$26,000	\$2,600	\$28,600	\$4,290	\$32,890	\$1,500	\$0	\$500	\$34,890
Watershed Component L/W-081 (UDC-039)	Stock Reservoir	68	\$11,500	\$11,500	\$1,150	\$12,650	\$1,898	\$14,548	\$1,500	\$0	\$500	\$16,548
Watershed Component L/W-082 (UDC-040)	Stock Reservoir	72	\$26,000	\$26,000	\$2,600	\$28,600	\$4,290	\$32,890	\$1,500	\$0	\$500	\$34,890
Watershed Component L/W-083 (UDC-041)	Upper Coyote Springs	74	\$14,850	\$14,850	\$1,485	\$16,335	\$2,450	\$18,785	\$1,500	\$0	\$500	\$20,785
Watershed Component L/W-084 (UDC-042)	Lower Tin Can Spring	75	\$14,850	\$14,850	\$1,485	\$16,335	\$2,450	\$18,785	\$1,500	\$0	\$500	\$20,785
Watershed Component L/W-085 (UDC-043)	Chicken Springs	78	\$14,850	\$14,850	\$1,485	\$16,335	\$2,450	\$18,785	\$1,500	\$0	\$500	\$20,785
Watershed Component L/W-086 (UDC-044)	Stock Reservoir	79	\$26,000	\$26,000	\$2,600	\$28,600	\$4,290	\$32,890	\$1,500	\$0	\$500	\$34,890
Watershed Component L/W-087 (UDC-045)	Antelope #20	82	\$15,000	\$15,000	\$1,500	\$16,500	\$2,475	\$18,975	\$1,500	\$0	\$500	\$20,975
Watershed Component L/W-088 (UDC-046)	Antelope #21	83	\$26,000	\$26,000	\$2,600	\$28,600	\$4,290	\$32,890	\$1,500	\$0	\$500	\$34,890
Watershed Component L/W-089 (UDC-047)	Stock Reservoir	84	\$15,000	\$15,000	\$1,500	\$16,500	\$2,475	\$18,975	\$1,500	\$0	\$500	\$20,975
Watershed Component L/W-090 (UDC-048)	Stock Reservoir	85	\$15,000	\$15,000	\$1,500	\$16,500	\$2,475	\$18,975	\$1,500	\$0	\$500	\$20,975
Watershed Component L/W-091 (UDC-049)	Stock Reservoir	86	\$5,000	\$5,000	\$500	\$5,500	\$825	\$6,325	\$1,500	\$0	\$500	\$8,325
Watershed Component L/W-092 (UDC-050)	Stock Pond and Trough	87	\$26,000	\$26,000	\$2,600	\$28,600	\$4,290	\$32,890	\$1,500	\$0	\$500	\$34,890
Watershed Component L/W-093 (UDC-051)	Stock Reservoir	88	\$26,000	\$26,000	\$2,600	\$28,600	\$4,290	\$32,890	\$1,500	\$0	\$500	\$34,890
Watershed Component L/W-094 (UDC-052)	Stock Reservoir	89	\$5,000	\$5,000	\$500	\$5,500	\$825	\$6,325	\$1,500	\$0	\$500	\$8,325
Watershed Component L/W-095 (UDC-053)	Stock Reservoir	90	\$5,000	\$5,000	\$500	\$5,500	\$825	\$6,325	\$1,500	\$0	\$500	\$8,325
Watershed Component L/W-096 (UDC-054)	Stock Reservoir	91	\$26,000	\$26,000	\$2,600	\$28,600	\$4,290	\$32,890	\$1,500	\$0	\$500	\$34,890
Watershed Component L/W-097 (UDC-055)	Stock Reservoir	93	\$26,000	\$26,000	\$2,600	\$28,600	\$4,290	\$32,890	\$1,500	\$0	\$500	\$34,890
Watershed Component L/W-098 (UDC-056)	Stock Reservoir	94	\$15,000	\$15,000	\$1,500	\$16,500	\$2,475	\$18,975	\$1,500	\$0	\$500	\$20,975
Watershed Component L/W-100 (UDC-058)	Stock Reservoir	98	\$26,000	\$26,000	\$2,600	\$28,600	\$4,290	\$32,890	\$1,500	\$0	\$500	\$34,890
Watershed Component L/W-101 (UDC-059)	Stock Reservoir	100	\$5,000	\$5,000	\$500	\$5,500	\$825	\$6,325	\$1,500	\$0	\$500	\$8,325
Watershed Component L/W-102 (UDC-060)	Stock Reservoir	101	\$5,000	\$5,000	\$500	\$5,500	\$825	\$6,325	\$1,500	\$0	\$500	\$8,325
Watershed Component L/W-103 (UDC-061)	Stock Reservoir	103	\$5,000	\$5,000	\$500	\$5,500	\$825	\$6,325	\$1,500	\$0	\$500	\$8,325
Watershed Component L/W-104 (UDC-062)	Stock Reservoir	104	\$26,000	\$26,000	\$2,600	\$28,600	\$4,290	\$32,890	\$1,500	\$0	\$500	\$34,890
Watershed Component L/W-105 (UDC-063)	Stock Reservoir	108	\$5,000	\$5,000	\$500	\$5,500	\$825	\$6,325	\$1,500	\$0	\$500	\$8,325
Watershed Component L/W-106 (UDC-064)	Spring	114	\$14,850	\$14,850	\$1,485	\$16,335	\$2,450	\$18,785	\$1,500	\$0	\$500	\$20,785
Watershed Component L/W-107 (UDC-065)	Spring	115	\$14,850	\$14,850	\$1,485	\$16,335	\$2,450	\$18,785	\$1,500	\$0	\$500	\$20,785
Watershed Component L/W-108 (UDC-066)	Well	121	\$9,750	\$9,750	\$975	\$10,725	\$1,609	\$12,334	\$1,500	\$0	\$500	\$14,334
Watershed Component L/W-109 (UDC-067)	Water Well	134	\$5,500	\$5,500	\$550	\$6,050	\$908	\$6,958	\$1,500	\$0	\$500	\$8,958
Watershed Component L/W-113 (UDC-071)	Little America Pipeline Project	N/A	\$437,480	\$437,480	\$43,748	\$481,228	\$72,184	\$553,412	\$1,500	\$0	\$500	\$555,412
Watershed Component L/W-114 (UDC-072)	Cow Hollow Pipeline Project	N/A	\$202,380	\$202,380	\$20,238	\$222,618	\$33,393	\$256,011	\$1,500	\$0	\$500	\$258,011

Table 4.1-4 Conceptual Cost Estimates: Storage Opportunities.

Watershed Plan Component	Priority	Study Area Phase	Project name	Action	Conceptual Project Cost
Small Reservoirs					
S-005		III	Beaver Meadows	Enlargement	\$500,000
S-012		III	Wadsworth Fishing Reservoir	Rehabilitation	\$15,000

APPENDIX 2A

ALLOTMENT LISTING

BLM Grazing Allotments

Field Office Name	Allotment Number	Allotment Name	Public AUMs	Private AUMs	State AUMs	Acres	ACE_ID
Rock Sprg	3201	CEDAR MOUNTAIN	20214	314	376	190916.5369	22
Kemmerer	11301	COW HOLLOW	687	425	66	18058.5843	29
Kemmerer	11302	GRANGER LEASE	13865	15172	727	470679.644	49
Kemmerer	11326	H.F. ALLOT.	36			551.289515	52
Rock Sprg	4013	HICKEY MOUNTAIN	678	84		8961.452263	59
Kemmerer	11303	LYMAN CATTLE	2313	1075	45	46896.37197	75
Rock Sprg	13018	ROCK SPRINGS	105584	68453	1182	87936.55432	109
Kemmerer	1449	SAGE CREEK	2378			32305.07836	112
Rock Sprg	3200	SAGE CREEK MOUNTA	11844	184	220	79618.10308	113
Rock Sprg		Currently no name	0			418506.3688	148
Rock Sprg		Currently no name	0			10104.23177	149
Rock Sprg		Currently no name	0			23555.90201	150
Rock Sprg		Currently no name	0			678.237411	151

Cache-Uinta National Forest RMUs

ADMIN_ORG	ADMIN_ORG	MANAGING_O	RMU_ID	RMU_NAME	CATTLE	GOATS	HORSES	MULE	SHEEP	RMU_STATUS	ACE_ID	acres
41904	Evanston-Mountain View Ranger District	41904	503	RED MOUNTAIN	YES	NO	NO	NO	NO	ACTIVE	170	33,829

APPENDIX 2B

STOCK RESERVOIR EVALUATION

ACE ID	Name	Source	Condition	Water Source	Notes	Latitude	Longitude	Phase	HUC 12 Name	Allotment	Land Owner	T	R	S
253	Unknown	ACE Mapscan	Wet	Yes		41.75	-110.01	Phase III	Upper Sevenmile Gulch	Granger Lease	Private	21N	111W	33
269	Unknown	ACE Mapscan	Wet	No	INDUSTRIAL, ASSOCIATED WITH MINING ACTIVITIES	41.73	-109.86	Phase III	Blacks Fork-Eckes Draw	Currently No Name	BLM	20N	110W	8
272	Unknown	ACE Mapscan	Wet	No	INDUSTRIAL, ASSOCIATED WITH MINING ACTIVITIES	41.73	-109.87	Phase III	Blacks Fork-Eckes Draw	Currently No Name	Private	20N	110W	7
303	Unknown	ACE Mapscan	Wet	Yes		41.69	-109.91	Phase III	Lower Sevenmile Gulch	Granger Lease	BLM	20N	111W	26
304	Unknown	ACE Mapscan	Wet	Yes		41.69	-109.91	Phase III	Lower Sevenmile Gulch	Granger Lease	BLM	20N	111W	26
309	Unknown	ACE Mapscan	Wet	Yes		41.68	-109.91	Phase III	Lower Sevenmile Gulch	Granger Lease	BLM	20N	111W	26
371	Unknown	ACE Mapscan	Wet	No	INDUSTRIAL, ASSOCIATED WITH TRONA MINE?	41.63	-109.82	Phase III	Blacks Fork-Eckes Draw	Currently No Name	Private	19N	110W	15
386	Unknown	ACE Mapscan	Wet	Yes		41.61	-109.87	Phase III	Blacks Fork-Eckes Draw	Granger Lease	BLM	19N	110W	20
400	Unknown	ACE Mapscan	Dry	Potential	WET IN 2010 PHOTOGRAPHY	41.59	-109.82	Phase III	Blacks Fork-Eckes Draw	Granger Lease	Private	19N	110W	27
402	Unknown	ACE Mapscan	Dry	Potential	WET IN 2010 PHOTOGRAPHY	41.59	-109.83	Phase III	Blacks Fork-Eckes Draw	Granger Lease	BLM	19N	110W	28
465	Unknown	ACE Mapscan	Wet	Yes	WET IN TWO YEARS OF PHOTOGRAPHY	41.53	-109.94	Phase III	Blacks Fork-Town of Granger	Granger Lease	BLM	18N	111W	22
510	Unknown	ACE Mapscan	Dry	Potential		41.47	-109.90	Phase III	Upper Meadow Springs Wash	Granger Lease	BLM	17N	111W	12
824	Unknown	ACE Mapscan	Wet	Yes		41.30	-109.69	Phase III	Blacks Fork-Flaming Gorge Reservoir	Granger Lease	BLM	15N	109W	10
880	Unknown	ACE Mapscan	Wet	Yes	WET IN TWO YEARS OF PHOTOGRAPHY	41.28	-109.70	Phase III	Blacks Fork-Flaming Gorge Reservoir	Granger Lease	BLM	15N	109W	16
969	Unknown	ACE Mapscan	Dry	No	BREACHED	41.23	-110.15	Phase III	Big Dry Creek-Shurtliff Spring	Lyman Cattle	BLM	15N	113W	33
991	Unknown	ACE Mapscan	Dry	No	breached	41.23	-109.66	Phase III	Flaming Gorge Reservoir-Buckboard Reservoir	Cedar Mountain	BLM	14N	109W	2
1012	Unknown	ACE Mapscan	Wet	Yes		41.22	-110.01	Phase III	Big Dry Creek-Cattail Draw	Sage Creek Mountain	BLM	14N	112W	2
1016	Whiskey Reservoir	ACE Mapscan	Dry	Potential		41.22	-110.17	Phase III	Big Dry Creek-Shurtliff Spring	Lyman Cattle	BLM	14N	113W	5
1018	Calamagrottis	ACE Mapscan	Dry	No	Breached	41.22	-109.98	Phase III	Big Dry Creek-Cattail Draw	Sage Creek Mountain	BLM	14N	111W	6
1078	Box Spring Reservoir	ACE Mapscan	Wet	Yes		41.18	-109.97	Phase III	Big Dry Creek-Cattail Draw	Sage Creek Mountain	BLM	14N	111W	19
1095	Unknown	ACE Mapscan	Wet	Yes		41.17	-110.05	Phase III	Dry Creek-Big Hollow Creek	Sage Creek Mountain	BLM	14N	112W	28
1108	Unknown	ACE Mapscan	Dry	No	SEDIMENT	41.16	-109.88	Phase III	Little Dry Creek-Lane Meadow Creek	Currently No Name	Private	14N	111W	25
1110	Unknown	ACE Mapscan	Wet	Yes		41.16	-109.96	Phase III	Winter Fat Reservoir	Cedar Mountain	BLM	14N	111W	29
1113	Ringdahl Reservoir	ACE Mapscan	Wet	Yes		41.16	-109.96	Phase III	Winter Fat Reservoir	Cedar Mountain	BLM	14N	111W	32
1118	Unknown	ACE Mapscan	Wet	Yes		41.15	-110.11	Phase III	Dry Creek-Balsam Root Reservoir	Currently No Name	Private	14N	113W	35
1119	Unknown	ACE Mapscan	Wet	Yes		41.15	-110.11	Phase III	Dry Creek-Balsam Root Reservoir	Currently No Name	Private	14N	113W	35
1123	Unknown	ACE Mapscan	Wet	Yes		41.14	-110.11	Phase III	Dry Creek-Big Hollow Creek	Sage Creek Mountain	BLM	13N	113W	2
1129	Unknown	ACE Mapscan	Wet	Yes		41.13	-109.93	Phase III	Little Dry Creek-Lane Meadow Creek	Cedar Mountain	Private	13N	111W	4
1132	Unknown	ACE Mapscan	Wet	Yes		41.13	-109.88	Phase III	Little Dry Creek-Lane Meadow Creek	Cedar Mountain	BLM	13N	111W	12
1149	Unknown	ACE Mapscan	Dry	No	SEDIMENT	41.12	-109.90	Phase III	Little Dry Creek-Lane Meadow Creek	Cedar Mountain	BLM	13N	111W	11
1155	Unknown	ACE Mapscan	Dry	Potential	Pipeline leading to it from spring	41.11	-109.88	Phase III	Little Dry Creek-Lane Meadow Creek	Cedar Mountain	BLM	13N	111W	13
1162	Unknown	ACE Mapscan	Wet	Yes		41.10	-109.71	Phase III	Henrys Fork-Cottonwood Creek	Cedar Mountain	BLM	13N	109W	17
1166	Unknown	ACE Mapscan	Dry	Potential		41.10	-109.91	Phase III	Little Dry Creek-Lane Meadow Creek	Cedar Mountain	BLM	13N	111W	22
1167	Unknown	ACE Mapscan	Wet	Yes		41.10	-109.96	Phase III	Henrys Fork-Logan Hollow	Cedar Mountain	Private	13N	111W	19
1173	Unknown	ACE Mapscan	Wet	Yes		41.10	-109.96	Phase III	Henrys Fork-Logan Hollow	Cedar Mountain	Private	13N	111W	19
1174	Unknown	ACE Mapscan	Wet	Yes		41.10	-109.96	Phase III	Henrys Fork-Logan Hollow	Cedar Mountain	Private	13N	111W	19
1188	Unknown	ACE Mapscan	Wet	Yes		41.09	-110.18	Phase III	Henrys Fork-Poison Creek	Hickey Mountain	BLM	13N	113W	20
1191	Unknown	ACE Mapscan	Dry	No	Breached	41.09	-109.77	Phase III	Little Dry Creek-Lane Meadow Creek	Cedar Mountain	BLM	13N	110W	23
1200	Unknown	ACE Mapscan	Wet	Yes		41.09	-110.16	Phase III	Henrys Fork-Poison Creek	Sage Creek Mountain	BLM	13N	113W	21
1240	Unknown	ACE Mapscan	Dry	No	Sediment and vegetation, no water storage	41.07	-109.59	Phase III	Twin Buttes Draw	No Allotment	USFS	13N	108W	33
1242	Unknown	ACE Mapscan	Wet	Yes		41.07	-110.13	Phase III	Henrys Fork-Louse Creek	No Allotment	Private	13N	113W	34
1315	Unknown	ACE Mapscan	Wet	Yes		41.05	-110.21	Phase III	Henrys Fork-Louse Creek	No Allotment	Private	12N	114W	1
1326	Unknown	ACE Mapscan	Wet	Yes		41.05	-110.17	Phase III	Henrys Fork-Louse Creek	No Allotment	Private	12N	113W	5
1358	Unknown	ACE Mapscan	Wet	Yes		41.04	-110.18	Phase III	Henrys Fork-Louse Creek	No Allotment	Private	12N	113W	8
1362	Unknown	ACE Mapscan	Wet	Yes		41.04	-110.17	Phase III	Henrys Fork-Louse Creek	No Allotment	Private	12N	113W	8
1370	Unknown	ACE Mapscan	Wet	Yes		41.04	-109.93	Phase III	Henrys Fork-Logan Hollow	No Allotment	Private	12N	111W	9
1377	Unknown	ACE Mapscan	Wet	Yes		41.04	-109.97	Phase III	Birch Creek-Upper Henrys Fork	No Allotment	Private	12N	111W	7
1388	Unknown	ACE Mapscan	Wet	Yes		41.03	-109.93	Phase III	Henrys Fork-Logan Hollow	No Allotment	Private	12N	111W	9
1390	Unknown	ACE Mapscan	Wet	Yes		41.03	-109.93	Phase III	Henrys Fork-Logan Hollow	No Allotment	Private	12N	111W	9
1398	Unknown	ACE Mapscan	Wet	Yes		41.03	-110.02	Phase III	Henrys Fork-Spring Creek	No Allotment	Private	12N	112W	10
1408	Unknown	ACE Mapscan	Wet	Yes		41.03	-109.93	Phase III	Henrys Fork-Logan Hollow	No Allotment	Private	12N	111W	9
1411	Unknown	ACE Mapscan	Wet	Yes		41.03	-110.15	Phase III	Henrys Fork-Beaver Creek	No Allotment	Private	12N	113W	9
1413	Unknown	ACE Mapscan	Wet	Yes		41.03	-109.95	Phase III	Henrys Fork-Logan Hollow	No Allotment	Private	12N	111W	8
1440	Unknown	ACE Mapscan	Wet	Yes		41.02	-110.00	Phase III	Henrys Fork-Spring Creek	No Allotment	Private	12N	112W	14
1441	Unknown	ACE Mapscan	Wet	Yes	Private lands	41.02	-109.95	Phase III	Henrys Fork-Logan Hollow	No Allotment	Private	12N	111W	17
1448	Unknown	ACE Mapscan	Wet	Yes		41.02	-109.98	Phase III	Henrys Fork-Spring Creek	No Allotment	Private	12N	112W	13
1453	Unknown	ACE Mapscan	Wet	Yes		41.02	-109.92	Phase III	Henrys Fork-Logan Hollow	No Allotment	State of Wyoming	12N	111W	15
1455	Unknown	ACE Mapscan	Wet	Yes		41.02	-109.91	Phase III	Henrys Fork-Logan Hollow	No Allotment	Private	12N	111W	15
1466	Unknown	ACE Mapscan	Wet	Yes	Intermittent	41.02	-110.28	Phase III	Henrys Fork-Louse Creek	Hickey Mountain	State of Wyoming	12N	114W	16
1474	Unknown	ACE Mapscan	Dry	No	on topo, but vegetated no water storage	41.02	-109.97	Phase III	Birch Creek-Upper Henrys Fork	No Allotment	Private	12N	111W	18
1476	Unknown	ACE Mapscan	Wet	Yes	Intermittent	41.01	-110.28	Phase III	Henrys Fork-Louse Creek	Hickey Mountain	State of Wyoming	12N	114W	16
1477	Unknown	ACE Mapscan	Wet	Yes		41.01	-110.25	Phase III	Henrys Fork-Louse Creek	No Allotment	BLM	12N	114W	15
1478	Unknown	ACE Mapscan	Wet	Yes	Intermittent	41.01	-110.27	Phase III	Henrys Fork-Louse Creek	Hickey Mountain	State of Wyoming	12N	114W	16
1480	Unknown	ACE Mapscan	Wet	Yes	Intermittent	41.01	-110.27	Phase III	Henrys Fork-Louse Creek	Hickey Mountain	State of Wyoming	12N	114W	16
1481	Unknown	ACE Mapscan	Wet	Yes	Intermittent	41.01	-110.28	Phase III	Henrys Fork-Louse Creek	Hickey Mountain	State of Wyoming	12N	114W	17
1483	Unknown	ACE Mapscan	Wet	Yes		41.01	-110.25	Phase III	Henrys Fork-Louse Creek	No Allotment	BLM	12N	114W	15
1488	Unknown	ACE Mapscan	Wet	Yes		41.01	-110.28	Phase III	Henrys Fork-Louse Creek	Red Mountain	USFS	12N	114W	20
1499	Unknown	ACE Mapscan	Wet	Yes		41.01	-110.29	Phase III	Henrys Fork-Louse Creek	Red Mountain	USFS	12N	114W	20
1514	Unknown	ACE Mapscan	Wet	Yes		41.01	-110.26	Phase III	Henrys Fork-Louse Creek	No Allotment	BLM	12N	114W	22
1518	Unknown	ACE Mapscan	Wet	Yes	Wet in 3 years of photography	41.01	-110.23	Phase III	Henrys Fork-Poison Creek	No Allotment	Private	12N	114W	23
1521	Unknown	ACE Mapscan	Wet	Yes	National Recreation Area lands	41.01	-109.67	Phase III	Henrys Fork-Flaming Gorge Reservoir	No Allotment	USFS	12N	109W	23
1526	Unknown	ACE Mapscan	Wet	Yes		41.01	-109.95	Phase III	Henrys Fork-Logan Hollow	No Allotment	Private	12N	111W	20
1532	Unknown	ACE Mapscan	Wet	Yes	National Recreation Area lands	41.00	-109.66	Phase III	Henrys Fork-Flaming Gorge Reservoir	No Allotment	USFS	12N	109W	23
1534	Unknown	ACE Mapscan	Wet	Yes		41.00	-109.96	Phase III	Henrys Fork-Logan Hollow	No Allotment	Private	12N	111W	20
1536	Unknown	ACE Mapscan	Wet	Yes	National Recreation Area lands	41.00	-109.67	Phase III	Henrys Fork-Flaming Gorge Reservoir	No Allotment	USFS	12N	109W	23

ACE ID	Name	Source	Condition	Water Source	Notes	Latitude	Longitude	Phase	HUC 12 Name	Allotment	Land Owner	T	R	S
1551	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.19	Phase III	Henrys Fork-Poison Creek	No Allotment	Private	12N	113W	19
1552	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.02	Phase III	Burnt Fork	No Allotment	Private	12N	112W	23
1555	Unknown	ACE Mapscan	Wet	Yes	National Recreation Area lands	41.00	-109.67	Phase III	Henrys Fork-Flaming Gorge Reservoir	No Allotment	USFS	12N	109W	23
1559	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.15	Phase III	Henrys Fork-Beaver Creek	No Allotment	BLM	12N	113W	21
1571	Unknown	ACE Mapscan	Wet	Yes	Private Property	41.00	-109.96	Phase III	Henrys Fork-Logan Hollow	No Allotment	Private	12N	111W	20
1590	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.32	Phase III	Henrys Fork-Dahlgreen Creek	Red Mountain	USFS	12N	115W	25
1592	Unknown	ACE Mapscan	Wet	Yes		40.99	-110.32	Phase III	Henrys Fork-Dahlgreen Creek	Red Mountain	USFS	12N	115W	25
1810	Unknown	Rock Springs BLM	N/A	No	NO VISIBLE RESERVOIR	41.28	-109.70	Phase III	Blacks Fork-Flaming Gorge Reservoir	Granger Lease	BLM	15N	109W	16
1811	Big Hollow Pit Reservoir	Rock Springs BLM	Wet	Yes		41.28	-109.94	Phase III	Big Dry Creek-Tin Cup Draw	Sage Creek Mountain	BLM	15N	111W	16
1812	Unknown	Rock Springs BLM	Dry	No	BREACHED	41.28	-109.70	Phase III	Blacks Fork-Flaming Gorge Reservoir	Granger Lease	BLM	15N	109W	16
1813	Unknown	Rock Springs BLM	Wet	Yes		41.28	-109.96	Phase III	Big Dry Creek-Tin Cup Draw	Sage Creek Mountain	BLM	15N	111W	17
1814	Unknown	Rock Springs BLM	Dry	No	BREACHED	41.28	-110.00	Phase III	Big Dry Creek-Cattail Draw	Sage Creek Mountain	BLM	15N	112W	13
1815	Needle Pit Reservoir	Rock Springs BLM	Wet	Yes		41.28	-109.89	Phase III	Needle Reservoir	Sage Creek Mountain	BLM	15N	111W	14
1816	Badlands Reservoir	Rock Springs BLM	Dry	No	BREACHED	41.27	-109.91	Phase III	Big Dry Creek-Tin Cup Draw	Sage Creek Mountain	BLM	15N	111W	22
1817	Unknown	Rock Springs BLM	Dry	No	BREACHED	41.27	-109.99	Phase III	Big Dry Creek-Cattail Draw	Sage Creek Mountain	BLM	15N	112W	24
1818	Unknown	Rock Springs BLM	N/A	No	NO VISIBLE RESERVOIR	41.27	-110.00	Phase III	Big Dry Creek-Cattail Draw	Sage Creek Mountain	BLM	15N	112W	24
1819	Unknown	Rock Springs BLM	Dry	No	BREACHED	41.27	-110.09	Phase III	Big Dry Creek-Shurtliff Spring	Sage Creek Mountain	BLM	15N	113W	24
1820	Wild Onion Pit Reservoir	Rock Springs BLM	Dry	No	BREACHED ON EAST SIDE	41.26	-109.94	Phase III	Big Dry Creek-Tin Cup Draw	Sage Creek Mountain	BLM	15N	111W	21
1821	Unknown	Rock Springs BLM	Wet	Yes		41.26	-109.99	Phase III	Big Dry Creek-Cattail Draw	Sage Creek Mountain	BLM	15N	112W	24
1822	Cedar Mountain Reservoir #10	Rock Springs BLM	Dry	Potential		41.26	-109.86	Phase III	Winter Fat Reservoir	Sage Creek Mountain	BLM	15N	110W	19
1823	Cedar Mountain Reservoir #9	Rock Springs BLM	N/A	No	NO RESERVOIR VISIBLE	41.26	-109.80	Phase III	Winter Fat Reservoir	Cedar Mountain	BLM	15N	110W	22
1824	Burnt fork Reservoir #5	Rock Springs BLM	Dry	No	BREACHED	41.26	-109.79	Phase III	Needle Reservoir	Cedar Mountain	BLM	15N	110W	23
1825	Northeast Pit Reservoir	Rock Springs BLM	Dry	Potential		41.26	-109.73	Phase III	Blacks Fork-Flaming Gorge Reservoir	Cedar Mountain	BLM	15N	109W	20
1826	Unknown	Rock Springs BLM	Wet	Yes		41.26	-109.80	Phase III	Winter Fat Reservoir	Cedar Mountain	BLM	15N	110W	27
1827	Hearth Reservoir	Rock Springs BLM	Wet	Yes		41.26	-109.85	Phase III	Winter Fat Reservoir	Cedar Mountain	BLM	15N	110W	30
1828	Unknown	Rock Springs BLM	Dry	No	BREACHED	41.25	-109.81	Phase III	Winter Fat Reservoir	Cedar Mountain	BLM	15N	110W	28
1829	Unknown	Rock Springs BLM	Dry	Potential		41.25	-110.04	Phase III	Dry Creek-Balsam Root Reservoir	Sage Creek Mountain	BLM	15N	112W	28
1830	Unknown	Rock Springs BLM	Dry	Potential		41.25	-109.78	Phase III	Needle Reservoir	Cedar Mountain	BLM	15N	110W	26
1831	Pipeline Reservoir No. 2	Rock Springs BLM	Dry	Potential		41.25	-109.68	Phase III	Buckboard Wash	Cedar Mountain	BLM	15N	109W	27
1832	Unknown	Rock Springs BLM	Wet	Yes		41.25	-109.99	Phase III	Big Dry Creek-Cattail Draw	Sage Creek Mountain	BLM	15N	112W	25
1833	Ridge Pit Reservoir	Rock Springs BLM	Wet	Yes		41.25	-109.70	Phase III	Buckboard Wash	Cedar Mountain	BLM	15N	109W	28
1834	Seismograph No. 4 Pit Reservoir	Rock Springs BLM	Dry	No	SEDIMENT	41.25	-110.09	Phase III	Dry Creek-Balsam Root Reservoir	Currently No Name	BLM	15N	113W	25
1835	Trail Reservoir	Rock Springs BLM	Wet	Yes		41.25	-109.77	Phase III	Needle Reservoir	Cedar Mountain	BLM	15N	110W	25
1836	Unknown	Rock Springs BLM	Wet	Yes		41.25	-109.93	Phase III	Big Dry Creek-Cattail Draw	Sage Creek Mountain	BLM	15N	111W	28
1837	Unknown	Rock Springs BLM	Wet	Yes		41.25	-109.92	Phase III	Big Dry Creek-Tin Cup Draw	Sage Creek Mountain	BLM	15N	111W	27
1838	Unknown	Rock Springs BLM	Wet	Yes		41.24	-110.03	Phase III	Big Dry Creek-Cattail Draw	Sage Creek Mountain	BLM	15N	112W	34
1839	Sitanton Reservoir	Rock Springs BLM	N/A	No	NO VISIBLE RESERVOIR	41.24	-110.01	Phase III	Big Dry Creek-Cattail Draw	Sage Creek Mountain	BLM	15N	112W	35
1840	Unknown	Rock Springs BLM	Wet	Yes		41.24	-109.97	Phase III	Big Dry Creek-Cattail Draw	Sage Creek Mountain	BLM	15N	111W	31
1841	Horse Reservoir No. 4	Rock Springs BLM	Wet	Yes		41.24	-109.99	Phase III	Big Dry Creek-Cattail Draw	Sage Creek Mountain	BLM	15N	112W	36
1842	Buckboard Reservoir	Rock Springs BLM	Dry	No	BREACHED, PART OF FLAMING GORGE NOW	41.24	-109.62	Phase III	Flaming Gorge Reservoir-Buckboard Reservoir	No Allotment	USFS	15N	108W	31
1843	Burnt fork Reservoir #4	Rock Springs BLM	Wet	Yes		41.24	-109.85	Phase III	Winter Fat Reservoir	Cedar Mountain	BLM	15N	110W	32
1844	Unknown	Rock Springs BLM	Dry	No	PIPING UNDERNEATH EMBANKMENT?	41.23	-109.82	Phase III	Winter Fat Reservoir	Cedar Mountain	BLM	15N	110W	33
1845	Unknown	Rock Springs BLM	Wet	Yes		41.23	-110.12	Phase III	Big Dry Creek-Shurtliff Spring	Currently No Name	BLM	15N	113W	35
1846	Pine Spring Reservoir	Rock Springs BLM	Wet	Yes		41.23	-109.73	Phase III	Buckboard Wash	Cedar Mountain	BLM	15N	109W	32
1847	Unknown	Rock Springs BLM	N/A	No	NO VISIBLE RESERVOIR	41.23	-110.06	Phase III	Dry Creek-Balsam Root Reservoir	Sage Creek Mountain	BLM	14N	112W	5
1848	Cow Reservoir #1	Rock Springs BLM	Dry	Potential		41.23	-110.14	Phase III	Big Dry Creek-Shurtliff Spring	Currently No Name	BLM	14N	113W	3
1849	Pipeline Reservoir No. 1	Rock Springs BLM	Dry	No	SEDIMENT	41.23	-109.66	Phase III	Flaming Gorge Reservoir-Buckboard Reservoir	Cedar Mountain	BLM	14N	109W	2
1850	Unknown	Rock Springs BLM	Dry	Potential		41.22	-109.97	Phase III	Big Dry Creek-Cattail Draw	Sage Creek Mountain	BLM	14N	111W	6
1851	Crested Wheat Pit Reservoir #2	Rock Springs BLM	Dry	Potential		41.22	-110.11	Phase III	Dry Creek-Balsam Root Reservoir	Currently No Name	BLM	14N	113W	2
1852	Seismograph No. 1 Pit Reservoir	Rock Springs BLM	N/A	No	NO VISIBLE RESERVOIR	41.22	-110.00	Phase III	Big Dry Creek-Cattail Draw	Sage Creek Mountain	BLM	14N	112W	1
1853	Unknown	Rock Springs BLM	N/A	No	NO VISIBLE RESERVOIR	41.22	-109.74	Phase III	Buckboard Wash	Cedar Mountain	BLM	14N	109W	6
1854	Burnt fork Reservoir #7	Rock Springs BLM	Wet	Yes		41.22	-109.86	Phase III	Winter Fat Reservoir	Cedar Mountain	BLM	14N	110W	6
1855	Winch Pit Reservoir (Powerline Pit)	Rock Springs BLM	Wet	Yes		41.22	-110.05	Phase III	Dry Creek-Balsam Root Reservoir	Sage Creek Mountain	BLM	14N	112W	4
1856	Three Corners Pit Reservoir	Rock Springs BLM	Dry	No	BREACHED, CHANNEL SKIRTING WEST SIDE THROUGH RESERVOIR	41.22	-109.66	Phase III	Flaming Gorge Reservoir-Buckboard Reservoir	Cedar Mountain	BLM	14N	109W	2
1857	Seismograph No. 2 Pit Reservoir	Rock Springs BLM	Dry	Potential		41.22	-110.02	Phase III	Big Dry Creek-Cattail Draw	Sage Creek Mountain	BLM	14N	112W	10
1858	Cedar Mountain Reservoir	Rock Springs BLM	Wet	Yes		41.22	-109.88	Phase III	Winter Fat Reservoir	Cedar Mountain	BLM	14N	111W	12
1859	Spring Creek Reservoir	Rock Springs BLM	N/A	No	NO VISIBLE RESERVOIR	41.22	-109.76	Phase III	Buckboard Wash	Cedar Mountain	BLM	14N	110W	12
1860	Cow Reservoir #2	Rock Springs BLM	Dry	Potential		41.22	-110.12	Phase III	Dry Creek-Balsam Root Reservoir	Currently No Name	BLM	14N	113W	2
1861	Burnt fork Reservoir #10	Rock Springs BLM	Wet	Yes	BREACHED BUT HOLDING WATER, POSSIBLY SECONDARILY EXCAVATED	41.21	-109.79	Phase III	Needle Reservoir	Cedar Mountain	BLM	14N	110W	11
1862	Cedar Mountain Reservoir #8	Rock Springs BLM	Dry	Potential		41.21	-109.84	Phase III	Winter Fat Reservoir	Cedar Mountain	BLM	14N	110W	8
1863	Canal Pit Reservoir	Rock Springs BLM	Dry	No	BREACHED	41.21	-109.65	Phase III	Flaming Gorge Reservoir-Buckboard Reservoir	Cedar Mountain	BLM	14N	109W	12
1864	Unknown	Rock Springs BLM	N/A	No	NO VISIBLE RESERVOIR	41.21	-109.87	Phase III	Winter Fat Reservoir	Cedar Mountain	BLM	14N	111W	12
1865	Eastfork Pit Reservoir #3	Rock Springs BLM	Dry	Potential		41.21	-110.04	Phase III	Dry Creek-Balsam Root Reservoir	Sage Creek Mountain	BLM	14N	112W	10
1866	North Black Mountain Pit Reservoir	Rock Springs BLM	Wet	Yes		41.21	-109.80	Phase III	Needle Reservoir	Cedar Mountain	BLM	14N	110W	10
1867	Standard Pit	Rock Springs BLM	Dry	Potential		41.21	-110.10	Phase III	Dry Creek-Balsam Root Reservoir	Currently No Name	BLM	14N	113W	12
1868	Cow Pit Reservoir #3	Rock Springs BLM	Wet	Yes		41.21	-110.14	Phase III	Big Dry Creek-Shurtliff Spring	Currently No Name	BLM	14N	113W	9
1869	Unknown	Rock Springs BLM	Wet	Yes		41.20	-109.98	Phase III	Big Dry Creek-Cattail Draw	Sage Creek Mountain	BLM	14N	112W	12
1870	Standard Reservoir	Rock Springs BLM	Wet	Yes		41.20	-110.08	Phase III	Dry Creek-Balsam Root Reservoir	Sage Creek Mountain	BLM	14N	112W	7
1871	Boundary Reservoir	Rock Springs BLM	Wet	Yes		41.20	-109.99	Phase III	Big Dry Creek-Cattail Draw	Sage Creek Mountain	BLM	14N	112W	13
1872	Cedar Brake Reservoir #1	Rock Springs BLM	Wet	Yes		41.20	-110.12	Phase III	Dry Creek-Balsam Root Reservoir	Currently No Name	BLM	14N	113W	14
1873	Unknown	Rock Springs BLM	N/A	No	NO VISIBLE RESERVOIR	41.20	-110.01	Phase III	Dry Creek-Balsam Root Reservoir	Sage Creek Mountain	BLM	14N	112W	14
1874	Unknown	Rock Springs BLM	Dry	Potential		41.20	-109.98	Phase III	Big Dry Creek-Cattail Draw	Sage Creek Mountain	BLM	14N	111W	18
1875	Unknown	Rock Springs BLM	Wet	Yes	NOTE DIVERSION DITCH	41.20	-109.89	Phase III	Winter Fat Reservoir	Cedar Mountain	BLM	14N	111W	14
1876	Unknown	Rock Springs BLM	N/A	No	NO VISIBLE RESERVOIR	41.20	-109.85	Phase III	Winter Fat Reservoir	Cedar Mountain	BLM	14N	110W	17
1877	Seismograph Reservoir No 3	Rock Springs BLM	Wet	Yes		41.20	-110.01	Phase III	Dry Creek-Balsam Root Reservoir	Sage Creek Mountain	BLM	14N	112W	14

ACE ID	Name	Source	Condition	Water Source	Notes	Latitude	Longitude	Phase	HUC 12 Name	Allotment	Land Owner	T	R	S
1878	Unknown	Rock Springs BLM	Dry	No	BREACHED	41.20	-109.98	Phase III	Big Dry Creek-Cattail Draw	Sage Creek Mountain	BLM	14N	111W	18
1879	High Mesa No. 2 Pit Reservoir	Rock Springs BLM	Dry	Potential		41.19	-110.11	Phase III	Dry Creek-Balsam Root Reservoir	Currently No Name	BLM	14N	113W	14
1880	Burntfor Reservoir #6	Rock Springs BLM	N/A	No	NO VISIBLE RESERVOIR	41.19	-109.83	Phase III	Needle Reservoir	Cedar Mountain	BLM	14N	110W	16
1881	Unknown	Rock Springs BLM	Dry	Potential		41.19	-110.14	Phase III	Dry Creek-Balsam Root Reservoir	Currently No Name	BLM	14N	113W	15
1882	Freak Island Reservoir	Rock Springs BLM	Dry	No	SEDIMENT	41.19	-109.65	Phase III	Flaming Gorge Reservoir-Buckboard Reservoir	Cedar Mountain	BLM	14N	109W	13
1883	Seismograph No. 3 Pit Reservoir	Rock Springs BLM	N/A	No	NO VISIBLE RESERVOIR	41.19	-110.00	Phase III	Dry Creek-Big Hollow Creek	Sage Creek Mountain	BLM	14N	112W	13
1884	Cedar Break Reservoir #2	Rock Springs BLM	Wet	Yes		41.19	-110.13	Phase III	Dry Creek-Balsam Root Reservoir	Currently No Name	BLM	14N	113W	15
1885	Clematis Reservoir	Rock Springs BLM	Dry	Potential		41.19	-110.16	Phase III	Dry Creek-Balsam Root Reservoir	Currently No Name	BLM	14N	113W	21
1886	Bland Reservoir #2	Rock Springs BLM	Dry	Potential		41.19	-109.59	Phase III	Flaming Gorge Reservoir-Squaw Hollow	No Allotment	USFS	14N	108W	21
1887	Unknown	Rock Springs BLM	N/A	No	Nothing visible on imagery	41.19	-109.77	Phase III	Needle Reservoir	Cedar Mountain	BLM	14N	110W	24
1888	Buck Basin Reservoir	Rock Springs BLM	Wet	Yes		41.18	-110.06	Phase III	Dry Creek-Balsam Root Reservoir	Sage Creek Mountain	BLM	14N	112W	20
1889	Soap Holes Reservoir	Rock Springs BLM	Wet	Yes		41.18	-110.04	Phase III	Dry Creek-Big Hollow Creek	Sage Creek Mountain	BLM	14N	112W	22
1890	Dobie Reservoir	Rock Springs BLM	Dry	Potential		41.18	-110.07	Phase III	Dry Creek-Balsam Root Reservoir	Currently No Name	BLM	14N	112W	20
1891	Unknown	Rock Springs BLM	N/A	No	NO VISIBLE RESERVOIR	41.18	-109.99	Phase III	Dry Creek-Big Hollow Creek	Sage Creek Mountain	BLM	14N	112W	24
1892	Unknown	Rock Springs BLM	Wet	Yes		41.18	-109.83	Phase III	Needle Reservoir	Cedar Mountain	BLM	14N	110W	21
1893	Sage Mountain Reservoir No. 1	Rock Springs BLM	Wet	Yes		41.18	-110.13	Phase III	Dry Creek-Balsam Root Reservoir	Currently No Name	BLM	14N	113W	22
1894	Balsam Root Reservoir	Rock Springs BLM	Wet	Yes		41.18	-110.14	Phase III	Dry Creek-Balsam Root Reservoir	Currently No Name	BLM	14N	113W	22
1895	Cedar Mountain Reservoir #7	Rock Springs BLM	Dry	Potential		41.18	-110.15	Phase III	Dry Creek-Balsam Root Reservoir	Currently No Name	BLM	14N	113W	21
1896	Island Reservoir	Rock Springs BLM	Wet	Yes		41.18	-109.64	Phase III	Flaming Gorge Reservoir-Squaw Hollow	Cedar Mountain	BLM	14N	109W	24
1897	Burntfor Reservoir #8	Rock Springs BLM	Dry	Potential		41.18	-109.80	Phase III	Needle Reservoir	Cedar Mountain	BLM	14N	110W	22
1898	Unknown	Rock Springs BLM	Wet	Yes		41.18	-109.95	Phase III	Winter Fat Reservoir	Cedar Mountain	BLM	14N	111W	20
1899	Artemisia Cana Pit Reservoir	Rock Springs BLM	Wet	Yes		41.18	-110.10	Phase III	Dry Creek-Balsam Root Reservoir	Currently No Name	BLM	14N	113W	24
1900	Blane Reservoir #1	Rock Springs BLM	Dry	Potential		41.18	-109.60	Phase III	Flaming Gorge Reservoir-Squaw Hollow	No Allotment	USFS	14N	108W	21
1902	High Mesa No. 1 Pit Reservoir	Rock Springs BLM	Dry	Potential		41.17	-110.12	Phase III	Dry Creek-Balsam Root Reservoir	Currently No Name	BLM	14N	113W	23
1903	Soapholes Pit Reservoir	Rock Springs BLM	Wet	Yes		41.17	-110.05	Phase III	Dry Creek-Big Hollow Creek	Sage Creek Mountain	BLM	14N	112W	28
1904	Eastfork Pit Reservoir #2	Rock Springs BLM	Dry	Potential		41.17	-110.03	Phase III	Dry Creek-Big Hollow Creek	Sage Creek Mountain	BLM	14N	112W	27
1905	Symphoricarpus No. 3 Pit Reservoir	Rock Springs BLM	N/A	No	NO VISIBLE RESERVOIR	41.17	-110.11	Phase III	Dry Creek-Balsam Root Reservoir	Currently No Name	BLM	14N	113W	26
1906	Burntfor Reservoir #9	Rock Springs BLM	Dry	No	BREACHED	41.17	-109.83	Phase III	Needle Reservoir	Cedar Mountain	BLM	14N	110W	28
1907	Symphoricarpus No. 1 Reservoir	Rock Springs BLM	Dry	No	BREACHED	41.17	-110.08	Phase III	Dry Creek-Balsam Root Reservoir	Currently No Name	BLM	14N	112W	30
1908	Symphoricarpus No. 2 Pit Reservoir	Rock Springs BLM	Dry	Potential		41.17	-110.09	Phase III	Dry Creek-Balsam Root Reservoir	Currently No Name	BLM	14N	113W	25
1909	Unknown	Rock Springs BLM	Wet	Yes		41.17	-109.78	Phase III	Needle Reservoir	Cedar Mountain	BLM	14N	110W	26
1911	Two Island Reservoir	Rock Springs BLM	Wet	Yes		41.17	-109.67	Phase III	Flaming Gorge Reservoir-Squaw Hollow	Cedar Mountain	BLM	14N	109W	26
1912	Symphoricarpus No. 5 Pir Reservoir	Rock Springs BLM	N/A	No	NO VISIBLE RESERVOIR	41.17	-110.10	Phase III	Dry Creek-Balsam Root Reservoir	Currently No Name	BLM	14N	113W	25
1913	Prairie Dog Pit Reservoir	Rock Springs BLM	Wet	Yes		41.17	-109.61	Phase III	Flaming Gorge Reservoir-Squaw Hollow	Cedar Mountain	BLM	14N	108W	29
1914	Unknown	Rock Springs BLM	Dry	Potential		41.16	-110.09	Phase III	Dry Creek-Balsam Root Reservoir	Currently No Name	BLM	14N	112W	30
1915	Indian Pit Reservoir	Rock Springs BLM	Wet	Yes		41.16	-109.84	Phase III	Little Dry Creek-Lane Meadow Creek	Cedar Mountain	BLM	14N	110W	29
1916	Unknown	Rock Springs BLM	N/A	No	NO VISIBLE RESERVOIR	41.16	-110.09	Phase III	Dry Creek-Balsam Root Reservoir	Currently No Name	BLM	14N	113W	25
1918	Unknown	Rock Springs BLM	Dry	Potential		41.16	-109.80	Phase III	Little Dry Creek-Lane Meadow Creek	Cedar Mountain	BLM	14N	110W	34
1919	Twin Pit Reservoir	Rock Springs BLM	Wet	Yes		41.16	-109.68	Phase III	Flaming Gorge Reservoir-Squaw Hollow	Cedar Mountain	BLM	14N	109W	34
1920	Seismic Pit Reservoir	Rock Springs BLM	Wet	Yes		41.15	-109.64	Phase III	Flaming Gorge Reservoir-Squaw Hollow	Cedar Mountain	BLM	14N	109W	36
1921	Unknown	Rock Springs BLM	Wet	Yes		41.15	-109.96	Phase III	Winter Fat Reservoir	Cedar Mountain	Private	14N	111W	32
1922	Unknown	Rock Springs BLM	Wet	Yes		41.15	-109.89	Phase III	Little Dry Creek-Lane Meadow Creek	Cedar Mountain	BLM	14N	111W	35
1923	Unknown	Rock Springs BLM	Wet	Yes		41.15	-110.05	Phase III	Dry Creek-Big Hollow Creek	Sage Creek Mountain	BLM	14N	112W	33
1924	Shadscale Reservoir	Rock Springs BLM	Wet	Yes		41.15	-109.70	Phase III	Anvil Wash	Cedar Mountain	BLM	14N	109W	33
1925	Groundhog Pit Reservoir	Rock Springs BLM	Wet	Yes		41.15	-109.64	Phase III	Flaming Gorge Reservoir-Squaw Hollow	Cedar Mountain	BLM	14N	109W	36
1926	Unknown	Rock Springs BLM	N/A	No	NO VISIBLE RESERVOIR	41.14	-110.01	Phase III	Dry Creek-Big Hollow Creek	Sage Creek Mountain	BLM	13N	112W	2
1927	Eastfork Pit Reservoir #1	Rock Springs BLM	N/A	No	NO VISIBLE RESERVOIR	41.14	-110.06	Phase III	Dry Creek-Big Hollow Creek	Sage Creek Mountain	BLM	13N	112W	5
1928	Juniper Pit Reservoir	Rock Springs BLM	N/A	No	NO VISIBLE RESERVOIR	41.14	-110.12	Phase III	Dry Creek-Big Hollow Creek	Sage Creek Mountain	BLM	13N	113W	2
1929	Flint Rock Reservoir	Rock Springs BLM	Dry	No	BREACHED	41.14	-109.78	Phase III	Little Dry Creek-Lane Meadow Creek	Cedar Mountain	BLM	13N	110W	2
1930	Unknown	Rock Springs BLM	Dry	No	BREACHED	41.14	-109.84	Phase III	Little Dry Creek-Lane Meadow Creek	Cedar Mountain	BLM	13N	110W	5
1931	Unknown	Rock Springs BLM	N/A	No	NO VISIBLE RESERVOIR	41.14	-109.77	Phase III	Little Dry Creek-Lane Meadow Creek	Cedar Mountain	BLM	13N	110W	2
1933	Old Reservoir	Rock Springs BLM	Wet	Yes		41.13	-109.70	Phase III	Anvil Wash	Cedar Mountain	BLM	13N	109W	4
1934	Alkali Pit Reservoir	Rock Springs BLM	Wet	Yes		41.13	-109.64	Phase III	Anvil Wash	Cedar Mountain	BLM	13N	109W	1
1935	Dry Creek Reservoir	Rock Springs BLM	Dry	Potential		41.12	-110.08	Phase III	Dry Creek-Big Hollow Creek	Sage Creek Mountain	BLM	13N	112W	7
1936	Unknown	Rock Springs BLM	Wet	Yes		41.12	-109.78	Phase III	Little Dry Creek-Lane Meadow Creek	Cedar Mountain	BLM	13N	110W	11
1938	Shelton Lake	Rock Springs BLM	Wet	Yes		41.12	-109.94	Phase III	Little Dry Creek-Lane Meadow Creek	Cedar Mountain	Private	13N	111W	9
1939	Unknown	Rock Springs BLM	Dry	No	BREACHED	41.12	-109.94	Phase III	Little Dry Creek-Lane Meadow Creek	Cedar Mountain	Private	13N	111W	9
1940	Middle Reservoir	Rock Springs BLM	Dry	Potential		41.12	-109.84	Phase III	Little Dry Creek-Lane Meadow Creek	Cedar Mountain	BLM	13N	110W	8
1941	Unknown	Rock Springs BLM	N/A	No	NO VISIBLE RESERVOIR	41.12	-110.03	Phase III	Dry Creek-Big Hollow Creek	Sage Creek Mountain	BLM	13N	112W	10
1942	General Petroleum Well Reservoir	Rock Springs BLM	N/A	No	NO VISIBLE RESERVOIR	41.12	-110.03	Phase III	Dry Creek-Big Hollow Creek	Sage Creek Mountain	BLM	13N	112W	10
1943	Hussman Reservoir	Rock Springs BLM	Wet	Yes		41.12	-110.02	Phase III	Winter Fat Reservoir	Cedar Mountain	BLM	13N	112W	11
1944	Bomb Pit Reservoir	Rock Springs BLM	Dry	Potential		41.12	-110.11	Phase III	Dry Creek-Big Hollow Creek	Sage Creek Mountain	BLM	13N	113W	11
1945	Haystack Butte No 2 Reservoir	Rock Springs BLM	Dry	No	BREACHED	41.12	-109.58	Phase III	Flaming Gorge Reservoir-Squaw Hollow	Cedar Mountain	BLM	13N	108W	9
1946	Heiner Reservoir No. 3	Rock Springs BLM	Wet	Yes		41.12	-109.87	Phase III	Little Dry Creek-Lane Meadow Creek	Cedar Mountain	BLM	13N	111W	12
1947	Phil Mass Reservoir	Rock Springs BLM	Wet	Yes		41.12	-109.96	Phase III	Winter Fat Reservoir	Cedar Mountain	BLM	13N	111W	7
1948	Buck Crossing Reservoir	Rock Springs BLM	Wet	Yes		41.11	-109.70	Phase III	Anvil Wash	Cedar Mountain	BLM	13N	109W	16
1949	Unknown	Rock Springs BLM	N/A	No	NO VISIBLE RESERVOIR	41.11	-110.03	Phase III	Dry Creek-Big Hollow Creek	Sage Creek Mountain	State of Wyoming	13N	112W	15
1950	Thunderhead Reservoir	Rock Springs BLM	Wet	Yes		41.11	-109.79	Phase III	Little Dry Creek-Lane Meadow Creek	Cedar Mountain	BLM	13N	110W	15
1951	Unknown	Rock Springs BLM	Dry	No	BREACHED	41.11	-109.66	Phase III	Anvil Wash	Cedar Mountain	BLM	13N	109W	14
1952	Hole in Bank Reservoir	Rock Springs BLM	Dry	No	BREACHED	41.11	-109.76	Phase III	Little Dry Creek-Lane Meadow Creek	Cedar Mountain	BLM	13N	110W	13
1953	Section Corner Reservoir	Rock Springs BLM	Wet	Yes		41.11	-109.70	Phase III	Henrys Fork-Cottonwood Creek	Cedar Mountain	BLM	13N	109W	16
1954	Gumbo Reservoir	Rock Springs BLM	N/A	No	NO VISIBLE RESERVOIR	41.11	-109.72	Phase III	Henrys Fork-Cottonwood Creek	Cedar Mountain	BLM	13N	109W	17
1955	Dead Cedar Reservoir	Rock Springs BLM	Wet	Yes		41.11	-109.75	Phase III	Flaming Gorge Reservoir-Wildhorse Draw	Cedar Mountain	BLM	13N	109W	18
1956	Joe Hickey Reservoir# 1	Rock Springs BLM	Dry	Potential		41.10	-110.12	Phase III	Henrys Fork-Poison Creek	Sage Creek Mountain	BLM	13N	113W	14
1957	Hickey Reservoir No. 1	Rock Springs BLM	Dry	Potential		41.10	-110.10	Phase III	Dry Creek-Big Hollow Creek	Sage Creek Mountain	BLM	13N	113W	13

ACE ID	Name	Source	Condition	Water Source	Notes	Lattitude	Longitude	Phase	HUC 12 Name	Allotment	Land Owner	T	R	S
1958	Unknown	Rock Springs BLM	Wet	Yes		41.10	-109.96	Phase III	Henrys Fork-Logan Hollow	Cedar Mountain	Private	13N	111W	20
1959	Mel Behunin Road Reservoir	Rock Springs BLM	Dry	Potential		41.10	-110.12	Phase III	Henrys Fork-Poison Creek	Sage Creek Mountain	BLM	13N	113W	23
1960	Roundup Reservoir	Rock Springs BLM	Dry	Potential		41.10	-110.05	Phase III	Dry Creek-Big Hollow Creek	Sage Creek Mountain	BLM	13N	112W	21
1961	Cedar Mountain Reservoir #3	Rock Springs BLM	N/A	No	NO VISIBLE RESERVOIR	41.09	-110.16	Phase III	Henrys Fork-Poison Creek	Sage Creek Mountain	BLM	13N	113W	21
1962	Butte Reservoir	Rock Springs BLM	Dry	Potential		41.09	-109.62	Phase III	Anvil Wash	Cedar Mountain	BLM	13N	108W	19
1963	Branch Reservoir	Rock Springs BLM	Wet	Yes		41.09	-109.92	Phase III	Little Dry Creek-Lane Meadow Creek	Cedar Mountain	BLM	13N	111W	21
1964	Rim Rock Reservoir	Rock Springs BLM	N/A	No	NO VISIBLE RESERVOIR	41.09	-109.91	Phase III	Little Dry Creek-Lane Meadow Creek	Cedar Mountain	BLM	13N	111W	22
1965	Blue Horse Pit Reservoir	Rock Springs BLM	Dry	Potential		41.09	-109.73	Phase III	Twin Buttes Draw	Cedar Mountain	BLM	13N	109W	20
1966	Blue Horse Pit Reservoir 2	Rock Springs BLM	Dry	Potential		41.09	-109.73	Phase III	Twin Buttes Draw	Cedar Mountain	BLM	13N	109W	20
1967	Unknown	Rock Springs BLM	Wet	Yes		41.09	-110.01	Phase III	Henrys Fork-Spring Creek	Cedar Mountain	Private	13N	112W	23
1968	Ribbon Pit Reservoir	Rock Springs BLM	Dry	Potential		41.09	-109.77	Phase III	Little Dry Creek-Lane Meadow Creek	Cedar Mountain	BLM	13N	110W	24
1969	Unknown	Rock Springs BLM	N/A	No	NO VISIBLE RESERVOIR	41.09	-109.96	Phase III	Henrys Fork-Logan Hollow	Cedar Mountain	Private	13N	111W	20
1970	Hickey Mountain Reservoir	Rock Springs BLM	Dry	Potential		41.09	-110.19	Phase III	Henrys Fork-Poison Creek	Hickey Mountain	BLM	13N	113W	19
1971	Unknown	Rock Springs BLM	Wet	Yes		41.09	-109.99	Phase III	Henrys Fork-Spring Creek	Cedar Mountain	Private	13N	112W	24
1972	Star Pit Reservoir	Rock Springs BLM	Dry	Potential		41.09	-109.79	Phase III	Little Dry Creek-Lane Meadow Creek	Cedar Mountain	BLM	13N	110W	22
1973	Franklin Pit Reservoir	Rock Springs BLM	Dry	Potential		41.08	-109.75	Phase III	Flaming Gorge Reservoir-Wildhorse Draw	Cedar Mountain	BLM	13N	110W	25
1974	Unknown	Rock Springs BLM	Dry	Potential	INTERMITTENT AT BEST	41.08	-110.22	Phase III	Henrys Fork-Louse Creek	Hickey Mountain	BLM	13N	114W	25
1975	Unknown	Rock Springs BLM	Wet	Yes		41.08	-109.84	Phase III	Little Dry Creek-Lane Meadow Creek	Cedar Mountain	BLM	13N	110W	29
1976	Franklin Pit Reservoir	Rock Springs BLM	N/A	No	NO VISIBLE RESERVOIR	41.08	-109.86	Phase III	Little Dry Creek-Lane Meadow Creek	Cedar Mountain	BLM	13N	110W	30
1977	Unknown	Rock Springs BLM	N/A	No	NO VISIBLE RESERVOIR	41.08	-110.06	Phase III	Henrys Fork-Spring Creek	Cedar Mountain	BLM	13N	112W	29
1978	Black Mountain South Reservoir	Rock Springs BLM	Dry	Potential		41.08	-109.77	Phase III	Little Dry Creek-Lane Meadow Creek	Cedar Mountain	BLM	13N	110W	25
1979	Silt Reservoir	Rock Springs BLM	Dry	Potential		41.08	-109.81	Phase III	Little Dry Creek-Lane Meadow Creek	Cedar Mountain	BLM	13N	110W	27
1980	Heiner Reservoir No. 2	Rock Springs BLM	Wet	Yes		41.08	-109.95	Phase III	Henrys Fork-Logan Hollow	Cedar Mountain	BLM	13N	111W	29
1981	Cedar Mountain Reservoir #2	Rock Springs BLM	N/A	No	BREACHED, LOOKS LIKE RESERVOIR REMOVED	41.08	-110.15	Phase III	Henrys Fork-Poison Creek	Sage Creek Mountain	Private	13N	113W	28
1982	Hammer Reservoir	Rock Springs BLM	Dry	Potential		41.07	-109.68	Phase III	Twin Buttes Draw	Cedar Mountain	BLM	13N	109W	34
1983	Antler Reservoir	Rock Springs BLM	Dry	Potential		41.07	-109.98	Phase III	Henrys Fork-Spring Creek	Cedar Mountain	BLM	13N	111W	31
1984	South Cedar Mountain Pit Reservoir	Rock Springs BLM	Dry	Potential		41.06	-110.00	Phase III	Henrys Fork-Spring Creek	Cedar Mountain	BLM	13N	112W	35
1985	Picket Pen Pit Reservoir	Rock Springs BLM	Dry	Potential		41.06	-109.67	Phase III	Twin Buttes Draw	Cedar Mountain	BLM	13N	109W	35
1986	Slide Reservoir	Rock Springs BLM	Dry	Potential		41.06	-110.05	Phase III	Henrys Fork-Spring Creek	Cedar Mountain	BLM	13N	112W	33
1987	Unknown	Rock Springs BLM	N/A	No	NO VISIBLE RESERVOIR	41.06	-109.65	Phase III	Twin Buttes Draw	Cedar Mountain	BLM	13N	109W	36
1988	Linwood Pit Reservoir	Rock Springs BLM	Wet	Yes		41.06	-109.64	Phase III	Twin Buttes Draw	Cedar Mountain	BLM	13N	109W	36
1989	Birch Pit Reservoir	Rock Springs BLM	Wet	Yes		41.05	-110.02	Phase III	Henrys Fork-Spring Creek	Cedar Mountain	BLM	12N	112W	2
1990	Twin Buttes Pit Reservoir	Rock Springs BLM	Wet	Yes		41.05	-109.64	Phase III	Twin Buttes Draw	Cedar Mountain	BLM	12N	109W	1
1991	Bullock Reservoir	Rock Springs BLM	Dry	No	BREACHED	41.05	-110.25	Phase III	Henrys Fork-Louse Creek	Hickey Mountain	BLM	12N	114W	3
1992	Trail Pit Reservoir	Rock Springs BLM	Dry	Potential		41.04	-109.70	Phase III	Flaming Gorge Reservoir-Wildhorse Draw	Cedar Mountain	BLM	12N	109W	9
1993	Unknown	Rock Springs BLM	Wet	Yes		41.03	-109.82	Phase III	Flaming Gorge Reservoir-Wildhorse Draw	No Allotment	BLM	12N	110W	9
1994	Unknown	Rock Springs BLM	N/A	No	RESERVOIR REMOVED	41.03	-110.22	Phase III	Henrys Fork-Louse Creek	No Allotment	BLM	12N	114W	12
1995	Unknown	Rock Springs BLM	Wet	Yes		41.03	-109.86	Phase III	Henrys Fork-Logan Hollow	No Allotment	BLM	12N	110W	18
1996	Evans Reservoir	Rock Springs BLM	Wet	Yes		41.02	-110.20	Phase III	Henrys Fork-Louse Creek	No Allotment	BLM	12N	113W	18
1997	O'neil Pit Reservoir	Rock Springs BLM	Wet	Yes		41.02	-110.24	Phase III	Henrys Fork-Louse Creek	No Allotment	BLM	12N	114W	14
1998	Unknown	Rock Springs BLM	Wet	Yes		41.02	-110.22	Phase III	Henrys Fork-Louse Creek	No Allotment	BLM	12N	114W	13
1999	Antelope Wash Pit Reservoir	Rock Springs BLM	N/A	No	NO VISIBLE RESERVOIR	41.02	-109.84	Phase III	Flaming Gorge Reservoir-Wildhorse Draw	No Allotment	BLM	12N	110W	17
2000	Unknown	Rock Springs BLM	Dry	Potential	INTERMITTENT SOURCE AT BEST	41.02	-110.23	Phase III	Henrys Fork-Louse Creek	No Allotment	BLM	12N	114W	14
2001	Unknown	Rock Springs BLM	Wet	Yes		41.02	-110.25	Phase III	Henrys Fork-Louse Creek	No Allotment	BLM	12N	114W	15
2002	Unknown	Rock Springs BLM	Dry	Potential	INTERMITTENT SOURCE AT BEST	41.02	-110.21	Phase III	Henrys Fork-Louse Creek	No Allotment	BLM	12N	114W	13
2003	Unknown	Rock Springs BLM	Dry	Potential		41.01	-110.23	Phase III	Henrys Fork-Louse Creek	No Allotment	BLM	12N	114W	14
2004	Unknown	Rock Springs BLM	Wet	Yes		41.01	-110.25	Phase III	Henrys Fork-Louse Creek	No Allotment	BLM	12N	114W	15
2005	Unknown	Rock Springs BLM	Dry	Potential		41.01	-110.24	Phase III	Henrys Fork-Poison Creek	No Allotment	Private	12N	114W	23
2006	Unknown	Rock Springs BLM	Wet	Yes		41.01	-110.08	Phase III	Henrys Fork-Spring Creek	No Allotment	BLM	12N	112W	20
2007	Neff Reservoir	Rock Springs BLM	Wet	Yes		41.01	-109.87	Phase III	Flaming Gorge Reservoir-Wildhorse Draw	No Allotment	BLM	12N	110W	19
2008	Private	Rock Springs BLM	Wet	Yes		41.01	-110.26	Phase III	Henrys Fork-Louse Creek	No Allotment	Private	12N	114W	21
2009	Unknown	Rock Springs BLM	Wet	Yes		41.01	-110.24	Phase III	Henrys Fork-Poison Creek	No Allotment	BLM	12N	114W	22
2010	Private	Rock Springs BLM	Wet	Yes	VISIBLE BREACH BUT HOLDING WATER	41.00	-110.26	Phase III	Henrys Fork-Louse Creek	No Allotment	Private	12N	114W	21
2011	Well Reservoir	Rock Springs BLM	Wet	Yes		41.00	-110.11	Phase III	Henrys Fork-Spring Creek	No Allotment	BLM	12N	113W	23
2012	Unknown	Rock Springs BLM	Wet	Yes		41.00	-110.24	Phase III	Henrys Fork-Poison Creek	No Allotment	Private	12N	114W	22
2013	Private	Rock Springs BLM	Wet	Yes		41.00	-110.26	Phase III	Henrys Fork-Poison Creek	No Allotment	BLM	12N	114W	21
2014	Unknown	UDCo	Wet	Yes	See UDCo pdf Summary	41.78	-110.08	Phase III	Upper Sevenmile Gulch	Granger Lease	Private	21N	112W	23
2016	Unknown	UDCo	Dry	Potential	See UDCo pdf Summary	41.77	-110.03	Phase III	Upper Sevenmile Gulch	Granger Lease	Private	21N	111W	29
2017	HYDRO TEST PIT	UDCo	Dry	No	BREACHED, See UDCo pdf Summary	41.77	-109.96	Phase III	Upper Sevenmile Gulch	Granger Lease	Private	21N	111W	25
2018	Unknown	UDCo	Wet	Yes	See UDCo pdf Summary	41.73	-109.92	Phase III	Lower Sevenmile Gulch	Granger Lease	Private	20N	111W	11
2019	Unknown	UDCo	Dry	No	WASHED OUT, See UDCo pdf Summary	41.72	-109.95	Phase III	Lower Sevenmile Gulch	Granger Lease	Private	20N	111W	9
2020	Unknown	UDCo	Wet	Yes	See UDCo pdf Summary	41.69	-110.00	Phase III	Lower Sevenmile Gulch	Granger Lease	Private	20N	111W	19
2021	Unknown	UDCo	Dry	Potential	See UDCo pdf Summary	41.69	-109.97	Phase III	Lower Sevenmile Gulch	Granger Lease	Private	20N	111W	29
2025	PIPELINE PIT	UDCo	Dry	Potential	See UDCo pdf Summary	41.66	-109.95	Phase III	Lower Sevenmile Gulch	Granger Lease	Private	20N	111W	33
2026	Unknown	UDCo	Dry	Potential	WET IN 2010 PHOTOGRAPHY, See UDCo pdf Summary	41.66	-109.98	Phase III	Lower Sevenmile Gulch	Granger Lease	Private	19N	111W	5
2027	Unknown	UDCo	Dry	No	See UDCo pdf Summary	41.64	-109.99	Phase III	Blacks Fork-Town of Granger	Granger Lease	Private	19N	111W	7
2028	UDCo 72-17	UDCo	Dry	Yes	WET IN TWO YEARS OF PHOTOGRAPHY, See UDCo pdf Summary	41.63	-109.96	Phase III	Blacks Fork-Town of Granger	Granger Lease	Private	19N	111W	17
2029	Unknown	UDCo	Wet	Yes	WET IN TWO YEARS OF PHOTOGRAPHY, See UDCo pdf Summary	41.61	-109.85	Phase III	Blacks Fork-Eckes Draw	Granger Lease	Private	19N	110W	21
2030	Unknown	UDCo	Dry	Potential	See UDCo pdf Summary	41.59	-109.83	Phase III	Blacks Fork-Eckes Draw	Granger Lease	Private	19N	110W	27
2031	Unknown	UDCo	Dry	Potential	See UDCo pdf Summary	41.57	-109.73	Phase III	Green River-Greasewood Canyon	Granger Lease	BLM	18N	109W	4
2036	Unknown	UDCo	Dry	No	SPILLWAY WASHED OUT, See UDCo pdf Summary	41.55	-109.90	Phase III	Blacks Fork-Town of Granger	Granger Lease	BLM	18N	111W	12
2040	LITTLE AMERICA #1 STOCK RESERVOIR	UDCo	Wet	Yes	WET IN TWO YEARS OF PHOTOGRAPHY, See UDCo pdf Summary	41.55	-109.81	Phase III	Lower Meadow Springs Wash	Granger Lease	Private	18N	110W	15
2046	Unknown	UDCo	Wet	Yes	WET IN TWO YEARS PHOTOGRAPHY, See UDCo pdf Summary	41.54	-109.85	Phase III	Lower Meadow Springs Wash	Granger Lease	Private	18N	110W	17
2047	Unknown	UDCo	Dry	No	See UDCo pdf Summary	41.53	-109.93	Phase III	Blacks Fork-Town of Granger	Granger Lease	BLM	18N	111W	22
2048	Unknown	UDCo	Dry	No	BREACHED, See UDCo pdf Summary	41.53	-109.80	Phase III	Lower Meadow Springs Wash	Granger Lease	Private	18N	110W	23

ACE ID	Name	Source	Condition	Water Source	Notes	Lattitude	Longitude	Phase	HUC 12 Name	Allotment	Land Owner	T	R	S
2050	Unknown	UDCo	Dry	Potential	See UDCo pdf Summary	41.52	-109.83	Phase III	Lower Meadow Springs Wash	Granger Lease	Private	18N	110W	21
2055	Unknown	UDCo	Dry	No	BREACHED, See UDCo pdf Summary	41.50	-110.00	Phase III	Blacks Fork-Town of Granger	Granger Lease	Private	18N	111W	31
2056	Unknown	UDCo	Dry	No	See UDCo pdf Summary	41.50	-109.81	Phase III	Upper Meadow Springs Wash	Granger Lease	BLM	18N	110W	35
2057	Unknown	UDCo	Dry	Potential	See UDCo pdf Summary	41.48	-109.82	Phase III	Chicken Draw	Granger Lease	Private	17N	110W	3
2058	Unknown	UDCo	Dry	Potential	See UDCo pdf Summary	41.48	-110.02	Phase III	Upper Meadow Springs Wash	Granger Lease	BLM	17N	112W	2
2059	Unknown	UDCo	Wet	Yes	WET IN TWO YEARS PHOTOGRAPHY, See UDCo pdf Summary	41.48	-109.87	Phase III	Upper Meadow Springs Wash	Granger Lease	Private	17N	110W	5
2062	72-3 STOCK RESERVOIR	UDCo	Dry	No	See UDCo pdf Summary	41.47	-109.72	Phase III	Chicken Draw	Granger Lease	Private	17N	109W	9
2063	Unknown	UDCo	Dry	Potential	See UDCo pdf Summary	41.47	-110.01	Phase III	Upper Meadow Springs Wash	Granger Lease	BLM	17N	112W	12
2064	Unknown	UDCo	Dry	No	BREACHED, See UDCo pdf Summary	41.47	-109.90	Phase III	Upper Meadow Springs Wash	Granger Lease	BLM	17N	111W	12
2065	Unknown	UDCo	Wet	Yes	See UDCo pdf Summary	41.46	-109.82	Phase III	Chicken Draw	Granger Lease	Private	17N	110W	15
2066	Unknown	UDCo	Wet	Yes	See UDCo pdf Summary	41.45	-109.75	Phase III	Chicken Draw	Granger Lease	BLM	17N	109W	18
2068	Unknown	UDCo	Wet	Yes	See UDCo pdf Summary	41.45	-109.79	Phase III	Chicken Draw	Granger Lease	Private	17N	110W	13
2069	72-5 STOCK RESERVOIR	UDCo	Wet	Yes	WET IN TWO YEARS OF PHOTOGRAPHY, See UDCo pdf Summary	41.45	-109.72	Phase III	Chicken Draw	Granger Lease	Private	17N	109W	21
2071	Unknown	UDCo	Wet	Yes	See UDCo pdf Summary	41.44	-109.81	Phase III	Chicken Draw	Granger Lease	Private	17N	110W	23
2072	72-6 STOCK RESERVOIR	UDCo	Wet	Yes	WET IN TWO YEARS PHOTOGRAPHY, See UDCo pdf Summary	41.44	-109.75	Phase III	Chicken Draw	Granger Lease	Private	17N	109W	19
2073	Unknown	UDCo	N/A	No	NO VISIBLE RESERVOIR	41.43	-110.00	Phase III	Upper Meadow Springs Wash	Granger Lease	Private	17N	111W	19
2074	72-10 STOCK RESERVOIR	UDCo	Wet	Yes	See UDCo pdf Summary	41.43	-109.87	Phase III	Chicken Draw	Granger Lease	Private	17N	110W	19
2076	Unknown	UDCo	Dry	Potential	See UDCo pdf Summary	41.42	-109.99	Phase III	Upper Meadow Springs Wash	Granger Lease	Private	17N	111W	31
2077	ANTELOPE #21	UDCo	Wet	Yes	WET IN TWO YEARS OF PHOTOGRAPHY, See UDCo pdf Summary	41.42	-109.77	Phase III	Lower Little Dry Creek	Granger Lease	Private	17N	109W	31
2078	ANTELOPE #7	UDCo	Wet	Yes	WET IN TWO YEARS OF PHOTOGRAPHY, See UDCo pdf Summary	41.41	-109.98	Phase III	Chicken Draw	Granger Lease	Private	17N	111W	31
2080	ANTELOPE #20	UDCo	Dry	Potential	See UDCo pdf Summary	41.40	-109.76	Phase III	Lower Little Dry Creek	Granger Lease	Private	16N	110W	1
2081	Unknown	UDCo	Dry	Potential	See UDCo pdf Summary	41.39	-109.72	Phase III	Lower Little Dry Creek	Granger Lease	Private	16N	109W	5
2082	Unknown	UDCo	Dry	No	BREACHED, See UDCo pdf Summary	41.38	-110.08	Phase III	Upper Meadow Springs Wash	Granger Lease	BLM	16N	112W	8
2083	73-1 STOCK RESERVOIR	UDCo	Dry	Potential	WET IN 2010 PHOTOGRAPHY, See UDCo pdf Summary	41.37	-109.99	Phase III	Big Dry Creek-Tin Cup Draw	Granger Lease	Private	16N	112W	13
2084	Unknown	UDCo	Dry	No	ABANDON, See UDCo pdf Summary	41.35	-109.82	Phase III	Upper Little Dry Creek	Granger Lease	Private	16N	110W	21
2085	73-3 STOCK RESERVOIR	UDCo	Dry	Potential	See UDCo pdf Summary	41.35	-109.91	Phase III	Big Dry Creek-Tin Cup Draw	Granger Lease	Private	16N	111W	27
2086	Unknown	UDCo	Wet	Yes	See UDCo pdf Summary	41.34	-109.87	Phase III	Upper Little Dry Creek	Granger Lease	Private	16N	111W	25
2087	Unknown	UDCo	Wet	Yes	See UDCo pdf Summary	41.33	-110.03	Phase III	Big Dry Creek-Cattail Draw	Lyman Cattle	BLM	16N	112W	34
2088	Unknown	UDCo	Wet	Yes	See UDCo pdf Summary	41.33	-109.99	Phase III	Big Dry Creek-Cattail Draw	Lyman Cattle	BLM	16N	112W	36
2089	Unknown	UDCo	Wet	Yes	See UDCo pdf Summary	41.31	-109.98	Phase III	Big Dry Creek-Cattail Draw	Lyman Cattle	Private	15N	112W	1
2090	Unknown	UDCo	Dry	Potential	See UDCo pdf Summary	41.28	-109.70	Phase III	Blacks Fork-Flaming Gorge Reservoir	Granger Lease	BLM	15N	109W	16
2092	HALFWAY HOLLOW	UDCo	Wet	Yes	See UDCo pdf Summary	41.26	-109.67	Phase III	Buckboard Wash	Granger Lease	Private	15N	109W	23
2093	Unknown	UDCo	Dry	Potential	See UDCo pdf Summary	41.25	-110.12	Phase III	Big Dry Creek-Shurtliff Spring	Lyman Cattle	BLM	15N	113W	26



ANDERSON CONSULTING ENGINEERS, INC.

Civil • Water Resources • Environmental