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FINAL REPORT
for
BLACKS FORK RIVER WATERSHED STUDY, LEVEL I

PHASE II
UPPER 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

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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 II 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>	2.31
	2.3.1.3 <i>LANDFIRE</i>	2.31
	2.3.1.4 <i>WYNDD</i>	2.36
	2.3.1.5 <i>Wetlands</i>	2.36
III.	PHASE II WATERSHED MANAGEMENT AND REHABILITATION PLAN (UPPER 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-005 through I-008 Twin Buttes Canal Measurement Devices (Project ID: Eyre-001, Eyre 002, Eyre 003 and Eyre 004).....	3.4
3.2.2	I-009 Graham Reservoir Enhancement Project (Project ID: Kofford 003)	3.4
3.2.3	I-010 Graham Reservoir Supply Ditch (Project ID: Kofford 004).....	3.7

TABLE OF CONTENTS (continued)

3.2.4	I-011 Bridger Butte Canal Farm Turnout Rehabilitation (Project ID: Mecham 001)	3.7
3.2.5	I-012: Bridger Butte Canal Diversion Structure Rehabilitation (Project ID: Mecham 002)	3.10
3.2.6	I-013 Twin Buttes Canal Diversion Rehabilitation (Project ID: Micheli-001)	3.11
3.3	Upland Wildlife/Livestock Watering Sources (Watershed Management Plan Component L/W)	3.11
3.3.1	L/W-019 through L/W-036 Company Ranch Projects (Project IDs CR-001 through CR-18)	3.15
3.3.2	L/W-037: West Fork of Smith Fork Pipeline Project (Project ID: Hamilton 001)	3.16
3.3.3	L/W-038: Cold Spring Pipeline Project (Project ID: Hamilton 002)	3.20
3.3.4	L/W-039: Wildflower Spring Development Project 1 (Project ID: Kofford 001)	3.20
3.3.5	L/W-040: Clifford Spring Development (Project ID: Kofford 002)	3.23
3.3.6	UDC Projects	3.23
3.4	Grazing Management Opportunities (Watershed Management Plan Component G)	3.25
3.4.1	State and Transition Models	3.25
3.5	Water Storage Opportunities	3.29
3.5.1	S-002 Meeks Cabin Reservoir Enlargement	3.31
3.5.2	S-003 Stateline Reservoir Enlargement	3.33
3.5.3	S-006 Austin Reservoir (Isom Reservoir) Rehabilitation	3.34
3.5.4	S-007 Moslander Reservoir Enlargement	3.35
3.5.5	S-008 Cottonwood Reservoir Enlargement / Rehabilitation	3.36
3.5.6	S-010 Horse Creek Reservoir Construction	3.38
3.5.7	S-011 West Fork Smiths Fork Reservoir Construction	3.38
IV.	COST ESTIMATES	4.1
4.1	Phase II Conceptual Cost Estimates	4.1

TABLE OF CONTENTS (continued)

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 II: Phase Boundary and Subregions	2.2
Figure 2.2-1	Blacks Fork Watershed Phase II: Land Ownership and Management	2.3
Figure 2.2-2	Distribution of Phase II Study Area among Counties	2.4
Figure 2.2-3	Distribution of Land Ownership within the Phase II Study Area	2.4
Figure 2.2-4	Blacks Fork Watershed Phase II: BLM Grazing Allotments and USFS Rangeland Management Units	2.6
Figure 2.2-5	Blacks Fork Watershed Phase II: Stock Reservoir Evaluation	2.8
Figure 2.2-6	Blacks Fork Watershed Phase II: Existing Upland Water Sources.....	2.9
Figure 2.2-7	Blacks Fork Watershed Phase II: Predominant Ecological Sites of Management Relevance	2.10
Figure 2.2-8	Blacks Fork Watershed Phase II: Current Mine Permits and Abandoned Mine Lands.....	2.15
Figure 2.2-9	WDEQ Abandoned Coal Mine near Muddy Creek (Phase II Study Area).....	2.14
Figure 2.2-10	Blacks Fork Watershed Phase II: Antelope Habitat	2.17
Figure 2.2-11	Blacks Fork Watershed Phase II: Elk Habitat.....	2.18
Figure 2.2-12	Blacks Fork Watershed Phase II: Moose Habitat	2.19
Figure 2.2-13	Blacks Fork Watershed Phase II: Mule Deer Habitat	2.20
Figure 2.2-14	Blacks Fork Watershed Phase II: Sage Grouse Lek and Core Areas	2.22
Figure 2.2-15	Blacks Fork Watershed Phase II: Wild Horse Management Areas	2.24
Figure 2.2-16	Blacks Fork Watershed Phase II: Habitat Priority Areas	2.25
Figure 2.3-1	Blacks Fork Watershed Phase II: Wyoming GAP Analysis.....	2.32
Figure 2.3-2	Blacks Fork Watershed Phase II: LANDFIRE Wetlands Classes	2.38
Figure 3.2-1	Blacks Fork Watershed Phase II: Proposed Irrigation Project Locations	3.3
Figure 3.2-2	Conceptual Design I-005 through I-008: Twin Buttes Canal Measurement Devices (Eyre 001 through 004).....	3.5
Figure 3.2-3	Conceptual Design I-009: Graham Reservoir Enhancement Project (Kofford 003).....	3.6
Figure 3.2-4	Conceptual Design I-010: Graham Reservoir Supply Ditch (Kofford 004).....	3.8
Figure 3.2-5	Failing Farm Turnout Headgate on Bridger Butte Canal.....	3.7
Figure 3.2-6	Conceptual Design I-011: Bridger Butte Canal Farm Turnout Rehabilitation (Mecham 001)	3.9
Figure 3.2-7	Bridger Butte Diversion Structure.....	3.10
Figure 3.2-8	Conceptual Design I-012: Bridger Butte Canal Diversion Structure Rehabilitation (Mecham 002)	3.12
Figure 3.2-9	Conceptual Design I-013: Twin Buttes Canal Diversion Rehabilitation Micheli-001)	3.13
Figure 3.3-1	Blacks Fork Watershed Phase II: Existing Water Sources with 1 Mile Buffer	3.14
Figure 3.3-2	Blacks Fork Watershed Phase II: Proposed Livestock / Wildlife Upland Project Locations	3.17

TABLE OF CONTENTS (continued)

Figure 3.3-3	L/W-019 through L/W-036: Company Ranch Proposed Project Locations	3.18
Figure 3.3-4	Conceptual Design L/W-037: West Fork of Smith Fork Pipeline Project (Hamilton 001).....	3.19
Figure 3.3-5	Conceptual Design L/W-038: Cold Spring Pipeline Project (Hamilton 002)	3.21
Figure 3.3-6	Conceptual Design L/W-039: Wildflower Spring Development Project 1 (Kofford 001).....	3.22
Figure 3.3-7	Conceptual Design L/W-040: Clifford Spring Development (Kofford 002)	3.24
Figure 3.4-1	State and Transition Model: Saline Upland (SU) 7-9" Green River and Great Divide Basins	3.27
Figure 3.4-2	State and Transition Model: Shallow Loamy (SwLy) 7-9" Green River and Great Divide Basins	3.28
Figure 3.4-3	State and Transition Model: Sandy (Sy) 7-9" Green River and Great Divide Basins.....	3.30
Figure 3.5-1	Blacks Fork Watershed Phase II: Proposed Storage Project Locations.....	3.32
Figure 3.5-2	Meeks Cabin Reservoir Overview Map.....	3.33
Figure 3.5-3	Stateline Reservoir Overview Map	3.34
Figure 3.5-4	Austin Reservoir Overview Map	3.35
Figure 3.5-5	Moslander Reservoir Overview Map	3.35
Figure 3.5-6	Cottonwood Reservoir Overview Map	3.37
Figure 3.5-7	Proposed Horse Creek Reservoir Overview Map.....	3.39
Figure 3.5-8	Proposed West Fork Smiths Fork Reservoir Overview Map	3.39

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 II Study Area (WDEQ 2014)	2.14
Table 2.2-2	Wyoming Natural Diversity Database: Wildlife Species in the Phase II Study Area.....	2.21
Table 2.3-1	Tabulation of National Land Cover Database: Phase II Subregions.....	2.33
Table 2.3-2	Tabulation of LANDFIRE Existing Vegetation Type Data: Phase II Little Muddy Subregion	2.34
Table 2.3-3	Tabulation of LANDFIRE Existing Vegetation Type Data: Phase II Middle Blacks Fork Subregion	2.34
Table 2.3-4	Tabulation of LANDFIRE Existing Vegetation Type Data: Phase II Muddy Subregion	2.35
Table 2.3-5	Tabulation of LANDFIRE Existing Vegetation Type Data: Phase II Smiths Fork 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 II 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)	3.16
Table 3.3-2	UDC Project Construction Components	3.25
Table 3.5-1	Phase II Water Storage Opportunities	3.31
Table 4.1-1	Conceptual Cost Estimates: Phase II Irrigation System Components.....	4.2

TABLE OF CONTENTS (continued)

Table 4.1-2	Conceptual Cost Estimates: Phase II Livestock / Wildlife (L/W) Components.....	4.3
Table 4.1-3	Conceptual Cost Estimates: Phase II Livestock / Wildlife (L/W) Components (UDC)	4.5
Table 4.1-4	Conceptual Cost Estimates: Storage Opportunities	4.6

LIST OF APPENDICES

Appendix 2A:	Allotment Listing
Appendix 2B:	Stock Reservoir Evaluation
Appendix 3A:	Company Ranch Project Descriptions

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.

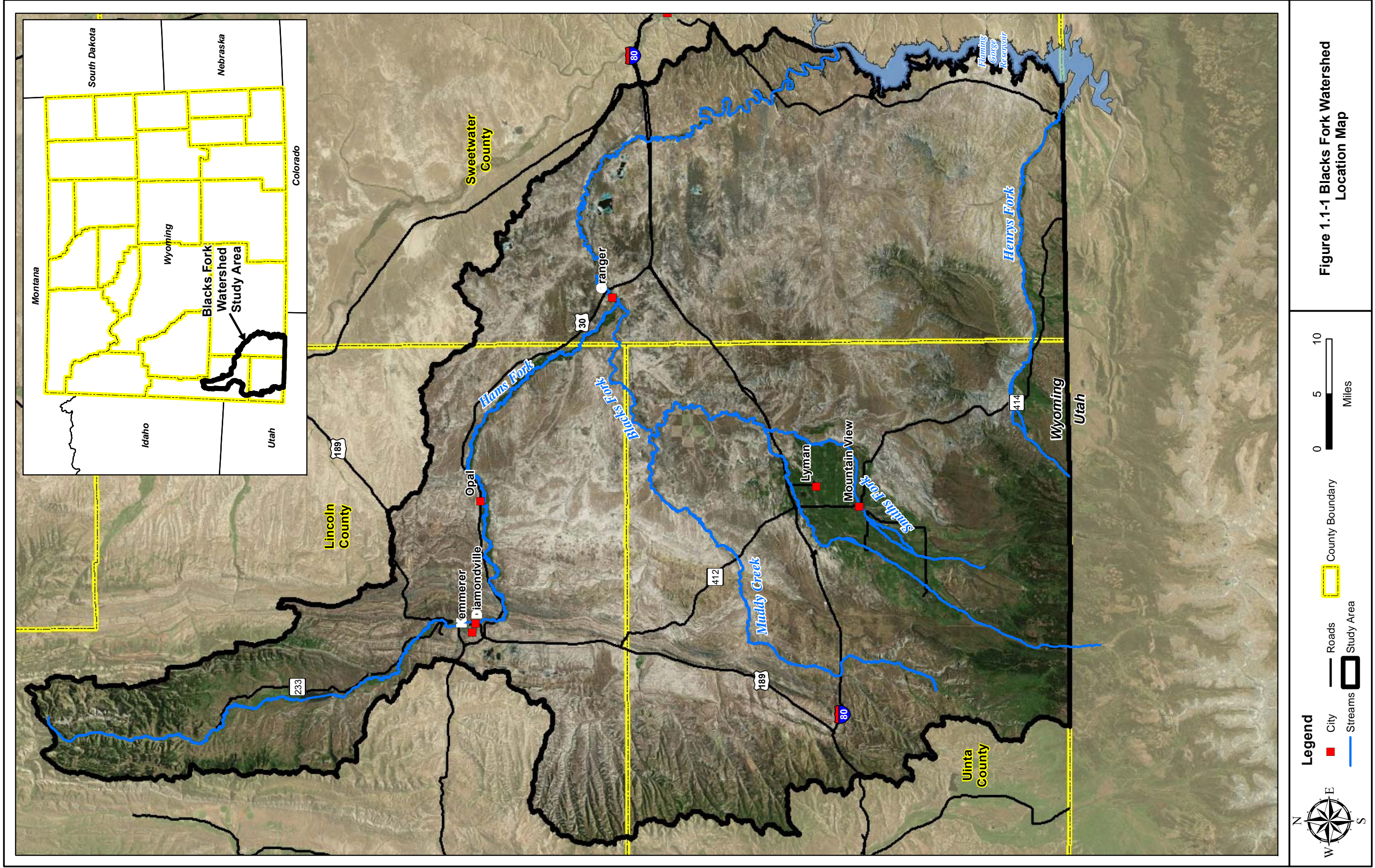


Figure 1.1-1 Blacks Fork Watershed Location Map

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 2: Upper 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
Phase III:	1404010701	Upper Blacks Fork
	1404010710	Big Dry Creek
	1404010708	Lower Blacks Fork
	1404010604	Lower Henrys Fork
	1404010602	Middle Flaming Gorge Reservoir
	1404010709	Sevenmile Gulch
	1404010603	Upper Henrys Fork

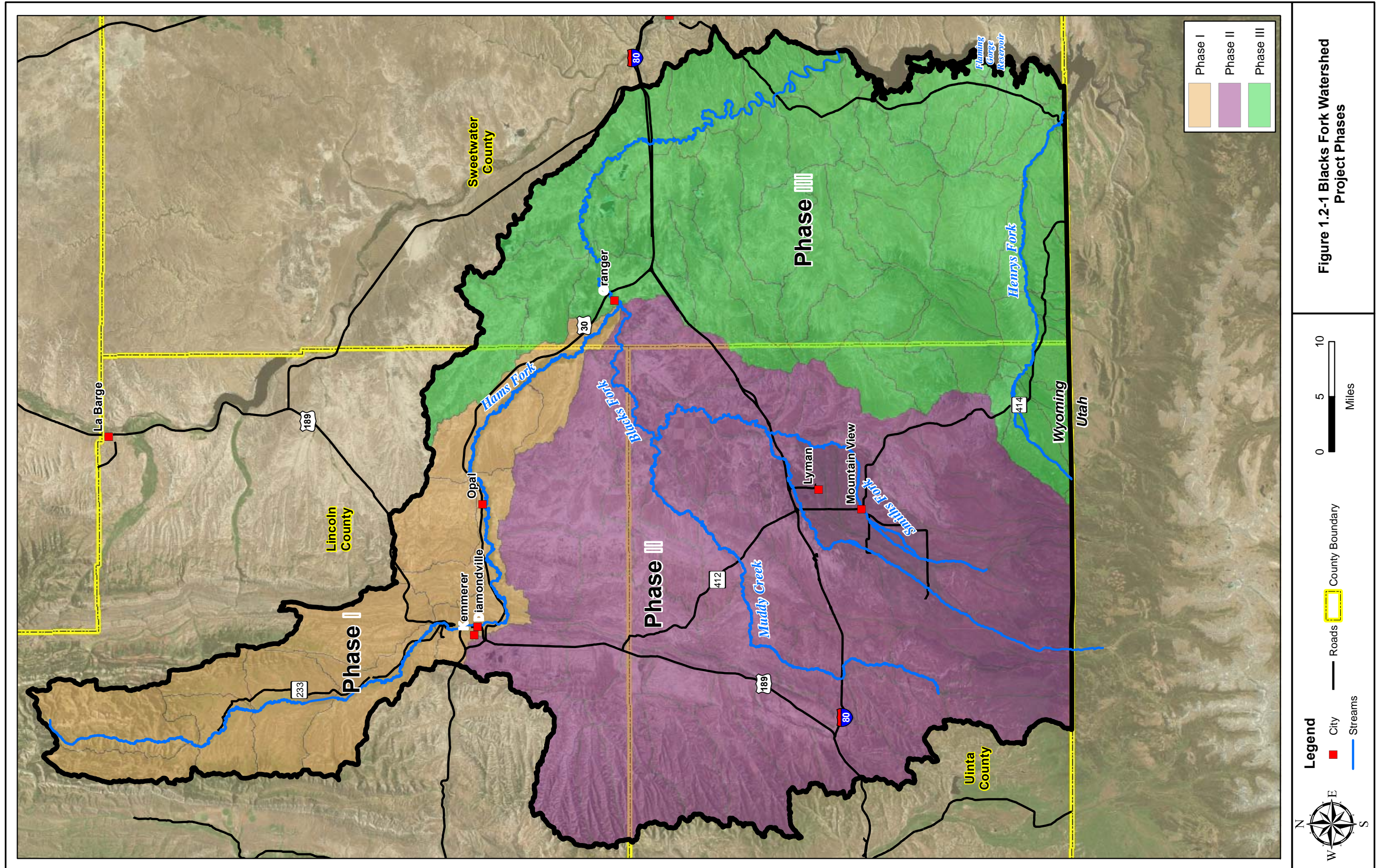
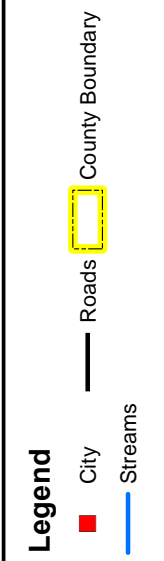
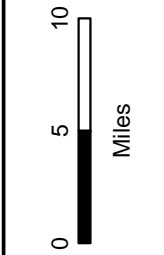


Figure 1.2-1 Blacks Fork Watershed Project Phases



II. PHASE II 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 II study area has been subdivided into four subregions:

- Little Muddy
- Middle Blacks Fork
- Muddy Creek
- Smiths Fork

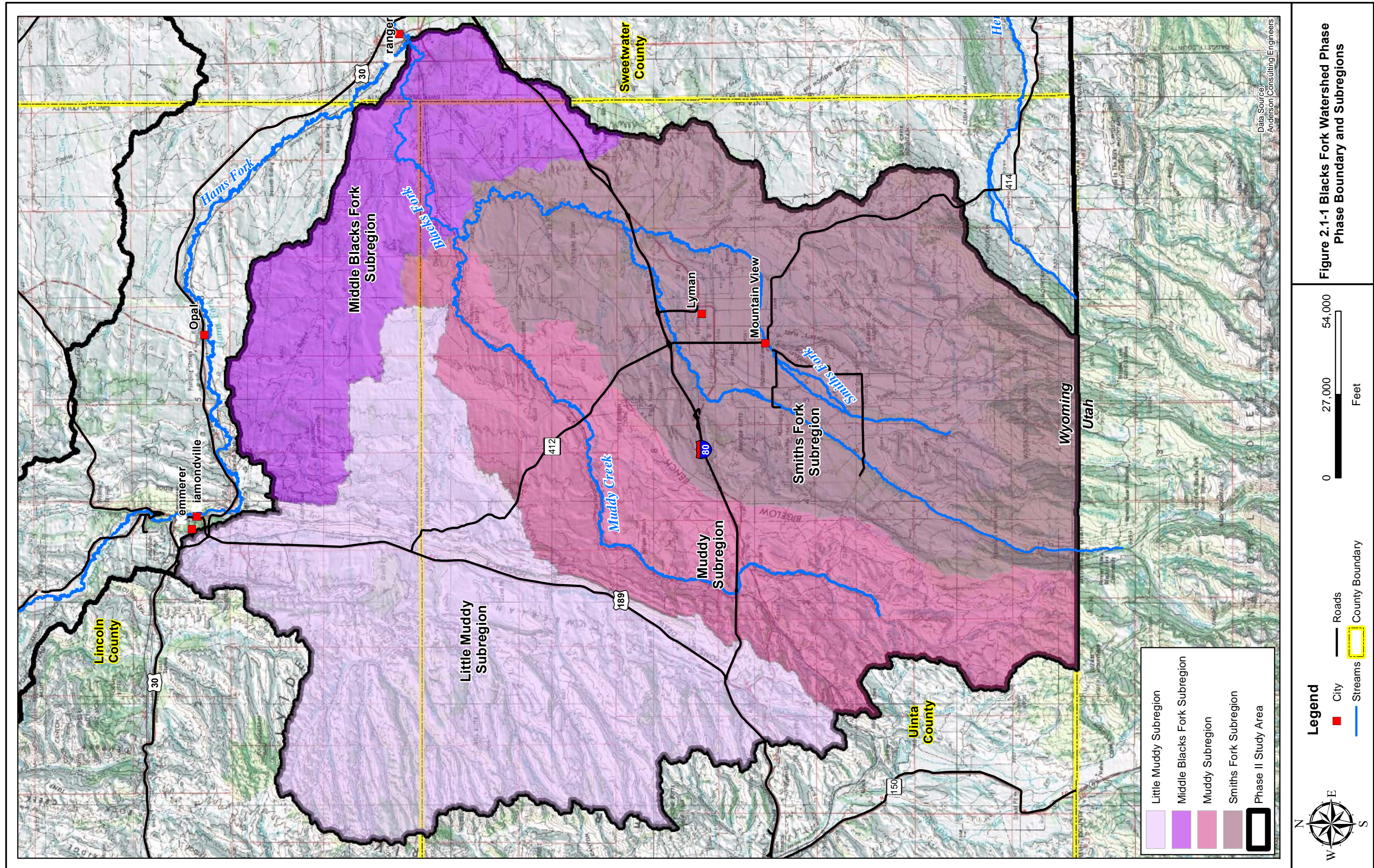
In the following paragraphs, various datasets are discussed in accordance with these subregions. The purpose of this effort is to enable data evaluation at a greater level of detail than would be provided when discussing the Phase II study area as a whole.

2.2 Land Uses and Activities

2.2.1 Land Ownership

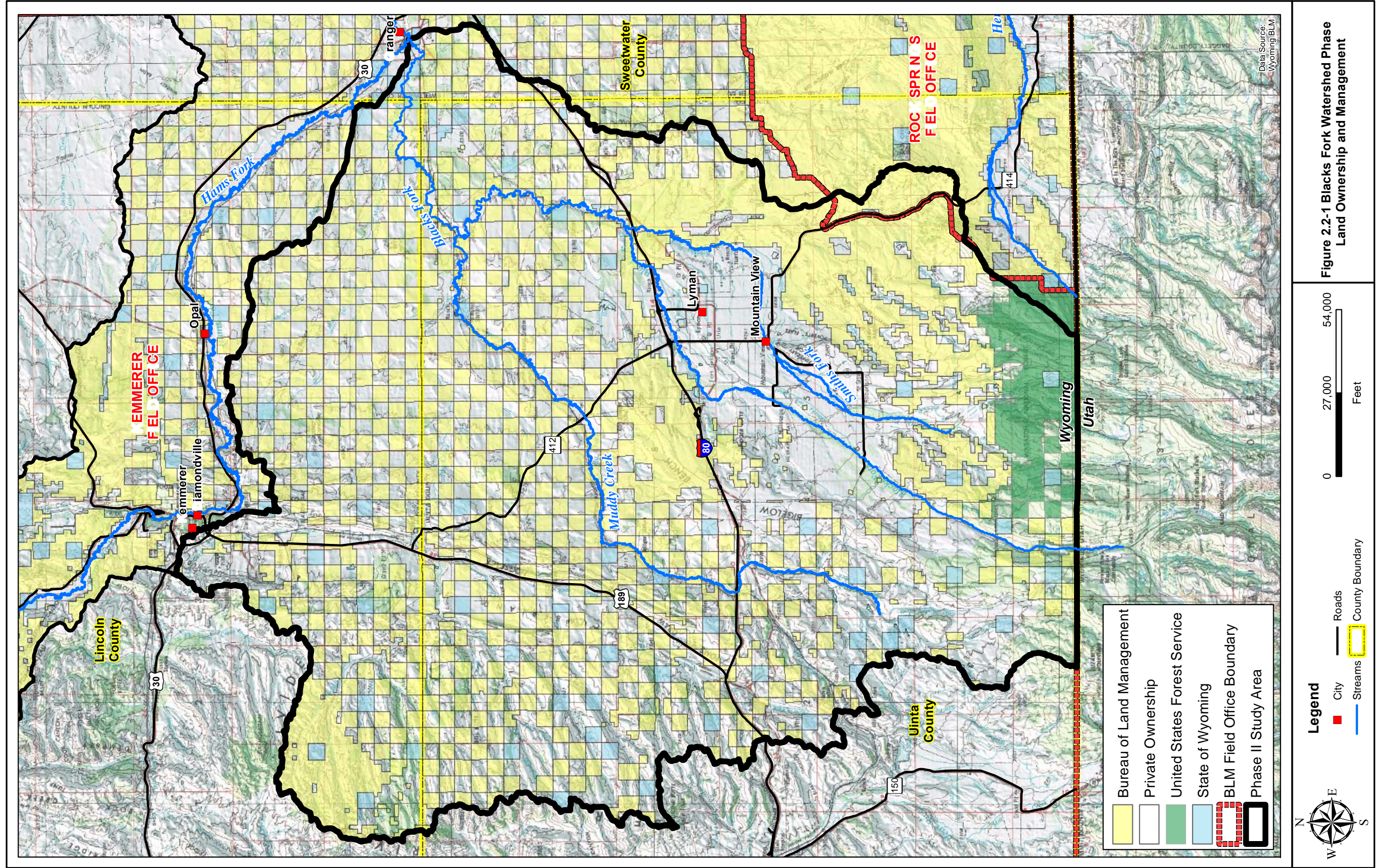
The total land area within the Phase II study area is approximately 1,184,122 acres (1,850.2 square miles). Figure 2.2-1 presents a map indicating the various land ownership categories within the Phase II study area. Uinta County comprises the majority of the area (1,414.2 square miles or 76.4 percent). Lincoln County comprises approximately 405.6 square miles (21.9 percent) and Sweetwater County comprises the remaining 30.4 square miles (1.6 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, the majority of the land in the Phase II study area is privately owned (996.3 square miles or 53.8 percent). Approximately 738.6 square miles (39.9 percent) of the study area is owned and administered by the Bureau of Land Management (BLM). The State of Wyoming owns and administers 61.2 square miles (3.3 percent) of land in the Phase II study area and the United States Forest Service (51.4 square miles or 2.8 percent) rounds out the surface ownership within the study area. A pie chart displaying the relative percentage of land ownership within the watershed is presented as Figure 2.2-3.



Data Source:
Anderson Consulting Engineers

Figure 2.1-1 Blacks Fork Watershed Phase II Study Area Boundary and Subregions



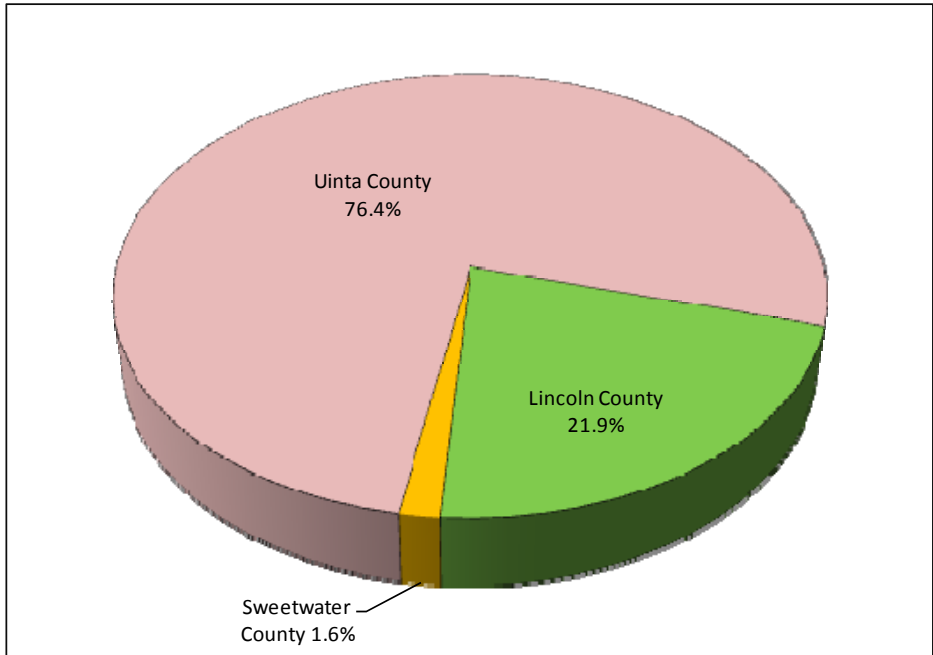


Figure 2.2-2 Distribution of Phase II Study Area among Counties.

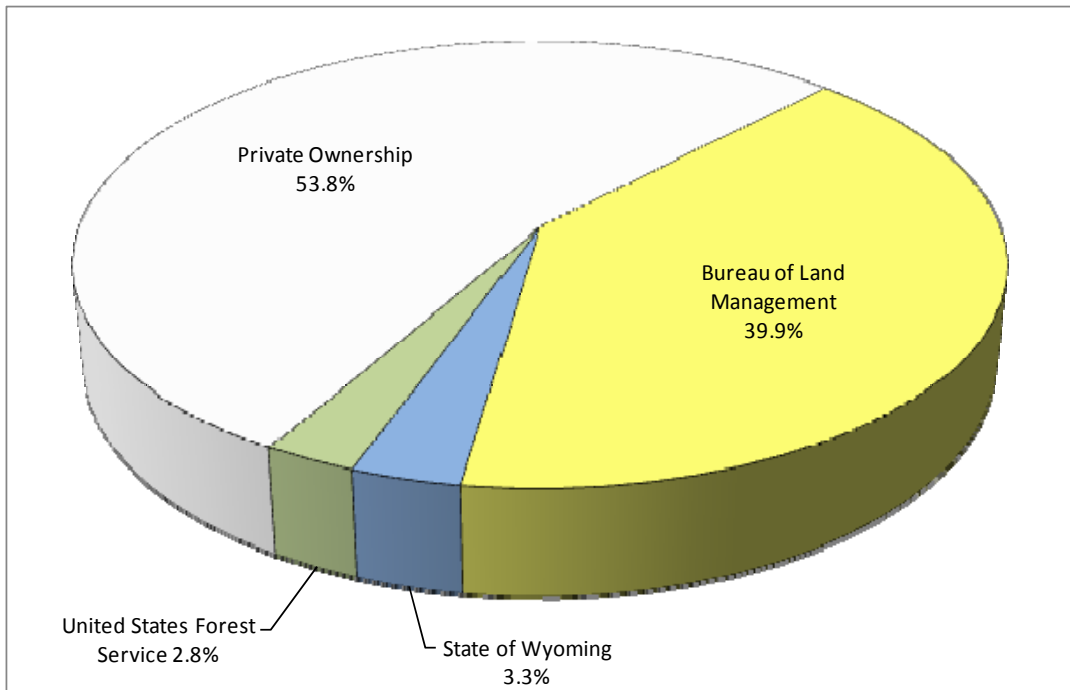


Figure 2.2-3 Distribution of Land Ownership within the Phase II Study Area.

The northern half of the study area (north of Lyman) 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

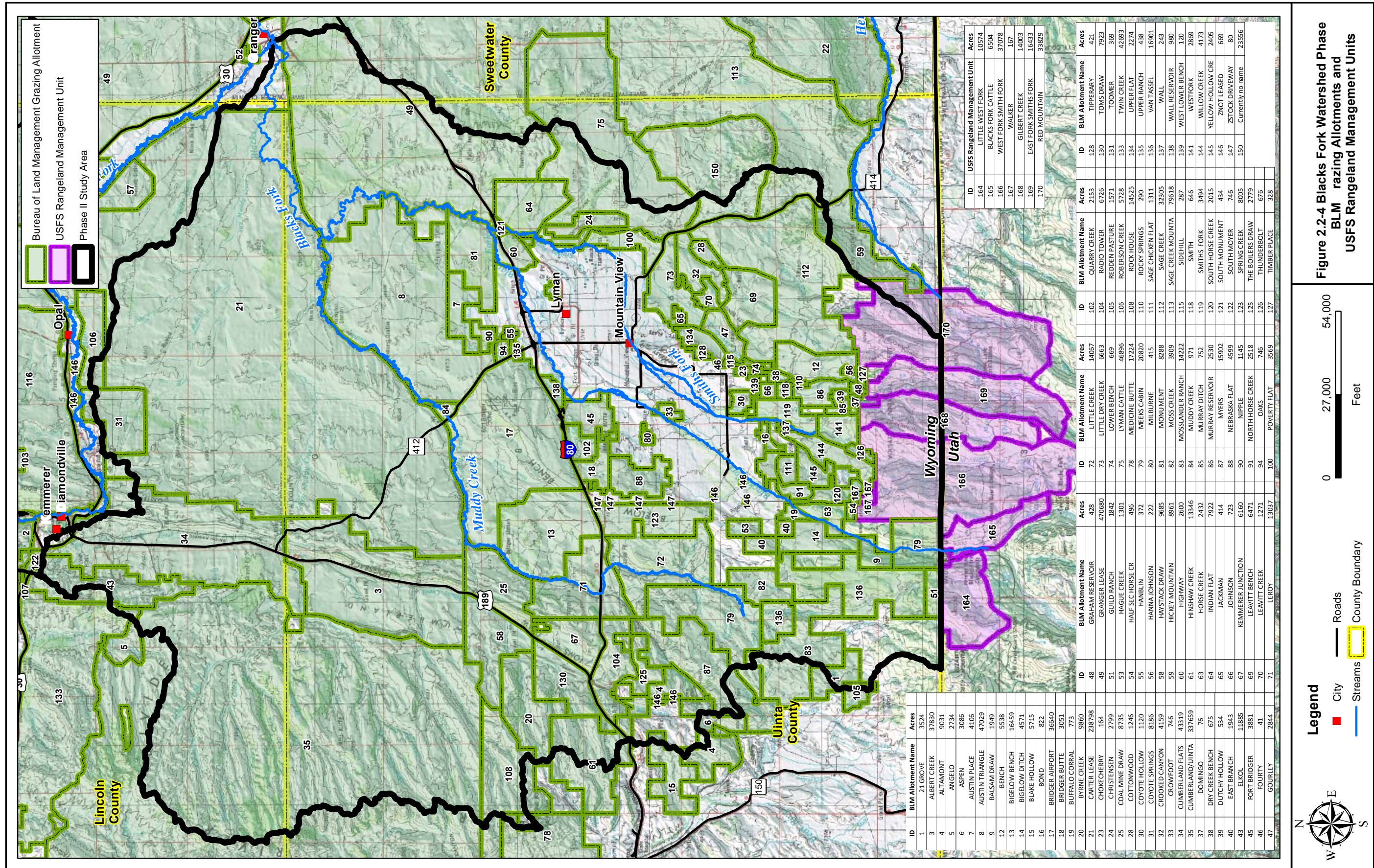
2.2.2.1 Grazing Allotments Administration

Grazing on federal lands within the Phase II 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 southern border of the study area. There are 7 USFS individual allotments and 109 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. The USFS Rangeland Management Units are administered by the Uinta-Cache National Forest (Evanston-Mountain View Ranger District) in Evanston WY, and Mountain View WY.

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.

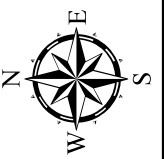
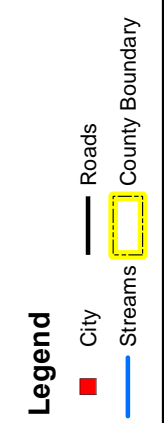
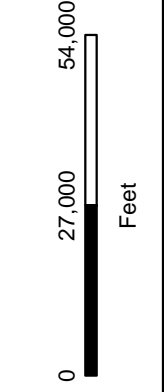


ID	USFS Rangeland Management Unit	Acres
164	LITTLE WEST FORK	10574
165	BLACKS FORK CATTLE	6504
166	WEST FORK SMITH FORK	37078
167	WALKER	167
168	GILBERT CREEK	14003
169	EAST FORK SMITHS FORK	16433
170	RED MOUNTAIN	33829

ID	BLM Allotment Name	Acres
1	GROVE	3524
2	ALBERT CREEK	37830
3	ALTIMONT	9031
4	ANGLO	2734
5	ASPEN	3086
6	AUSTIN PLACE	4106
7	AUSTIN TRIANGLE	47029
8	BALSAM DRAW	1949
9	BENCH	5538
10	BIGELOW BENCH	16459
11	BIGELOW DITCH	4571
12	BLAKE HOLLOW	5715
13	BOND	822
14	BRIDGER AIRPORT	36640
15	BRIDGER BUTTE	3051
16	BUFFALO CORRAL	773
17	BYRNE CREEK	9860
18	CARTER LEASE	238798
19	CHOKECHERRY	164
20	CHRISTENSEN	2799
21	COAL MINE DRAW	8735
22	COTTONWOOD	1246
23	COYOTE HOLLOW	1120
24	COYOTE SPRINGS	8186
25	CROOKED CANYON	4159
26	CROWFOOT	746
27	CUMBERLAND FLATS	43319
28	CUMBERLAND/JUNTA	337659
29	DOMINGO	76
30	DRY CREEK BENCH	675
31	DUTCHY HOLLOW	534
32	EAST BRANCH	1943
33	ELKOL	11885
34	FORT BRIDGER	3881
35	FOURTY	41
36	GOURLEY	2844

BLM Allotment Name	Acres	ID	BLM Allotment Name	Acres	ID	BLM Allotment Name	Acres	ID	BLM Allotment Name	Acres	ID	BLM Allotment Name	Acres	ID	USFS Rangeland Management Unit	Acres
GRAHAM RESERVOIR	428	72	LITTLE CREEK	14067	102	QUARRY CREEK	2153	128	TIPPERARY	421	128	QUARRY CREEK	2153	128	LITTLE WEST FORK	10574
GRANGER LEASE	470680	73	LITTLE DRY CREEK	6663	104	RADIO TOWER	6726	130	TOMIS DRAW	7923	130	RADIO TOWER	6726	130	BLACKS FORK CATTLE	6504
GUILD RANCH	1842	74	LOWER BENCH	669	105	REDDEN PASTURE	1571	131	TOOMER	369	131	REDDEN PASTURE	1571	131	WEST FORK SMITH FORK	37078
HAGUE CREEK	1301	75	LYMAN CATTLE	46906	106	ROBERSON CREEK	5728	133	TWIN CREEK	42693	133	ROBERSON CREEK	5728	133	WALKER	167
HALF SEC HORSE CR	496	76	MEDICINE BUTTE	17224	108	ROCK HOUSE	14525	134	UPPER FLAT	2274	134	ROCK HOUSE	14525	134	GILBERT CREEK	14003
HANBLIN	372	79	NEEK'S CABIN	20820	110	ROCKY SPRINGS	290	135	UPPER RANCH	438	135	ROCKY SPRINGS	290	135	EAST FORK SMITHS FORK	16433
HANNA JOHNSON	222	80	MILBURNE	415	111	SAGE CHICKEN FLAT	1311	136	VAN TASSEL	16901	136	SAGE CHICKEN FLAT	1311	136	RED MOUNTAIN	33829
HAYSTACK DRAW	9685	81	MONUMENT	8288	112	SAGE CREEK	32305	137	WALL	243	137	SAGE CREEK	32305	137		
HICKEY MOUNTAIN	8961	82	MOSS CREEK	3009	113	SAGE CREEK MOUNTA	79618	138	WEST LOWER BENCH	980	138	SAGE CREEK MOUNTA	79618	138		
HIGHWAY	2600	83	MOSSLANDER RANCH	14222	115	SIDHILL	287	139	WEST LOWER BENCH	980	139	SIDHILL	287	139		
HINSHAW CREEK	13346	84	MUDDY CREEK	971	118	SMITH	646	141	WEST FORK	2869	141	SMITH	646	141		
HORSE CREEK	2432	85	MURRAY DITCH	752	119	SMITHS FORK	3494	144	WILLOW CREEK	2869	144	SMITHS FORK	3494	144		
INDIAN FLAT	7932	86	MURRAY RESERVOIR	2530	120	SOUTH HORSE CREEK	2015	145	YELLOW HOLLOW CRE	2405	145	SOUTH HORSE CREEK	2015	145		
JACKMAN	414	87	MYERS	15902	121	SOUTH MONUMENT	434	146	ZNOT LEASED	669	146	SOUTH MONUMENT	434	146		
JOHNSON	723	88	NEBRASKA FLAT	4599	122	SOUTH MOYER	746	147	ZSTOCK DRIVEWAY	80	147	SOUTH MOYER	746	147		
KEMMERER JUNCTION	6160	89	NIPPLE	1145	123	SPRING CREEK	8005	150	Currently no name	23556	150	SPRING CREEK	8005	150		
LEAVITT BENCH	6471	91	NORTH HORSE CREEK	2518	125	THE BOILERS DRAW	2779					THE BOILERS DRAW	2779			
LEAVITT CREEK	1271	94	OAKS	746	126	THUNDERBOLT	676					THUNDERBOLT	676			
LEROY	13037	100	POVERTY FLAT	3569	127	TIMBER PLACE	328					TIMBER PLACE	328			

Figure 2.2-4 Blacks Fork Watershed Phase BLM grazing Allotments and USFS Rangeland Management Units



The data indicates the presence of 1,438 stock reservoirs/ponds within the Phase II 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 929 reservoirs remain “functional” water sources and 264 are “potential” water sources. This analysis also indicates that 245 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 II study area (Figure 2.2-7), there are several ecological sites which are predominant. These ecological sites are:

- Saline Upland (SU) 7-9" Green River and Great Divide Basins
- Shallow Loamy (SwLy) 7-9" Green River and Great Divide Basins
- Sandy (Sy) 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).

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

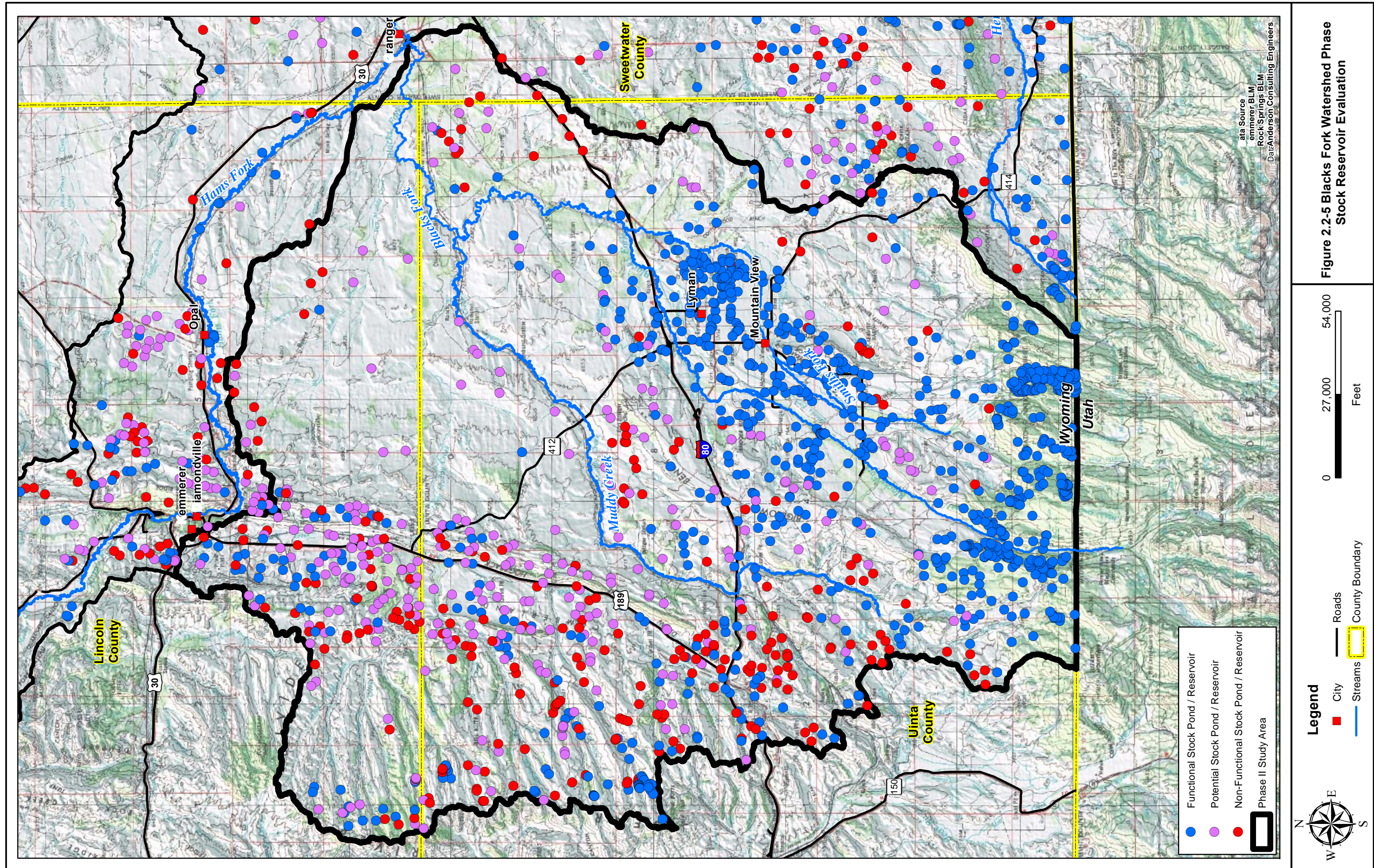


Figure 2.2-5 Blacks Fork Watershed Phase Stock Reservoir Evaluation

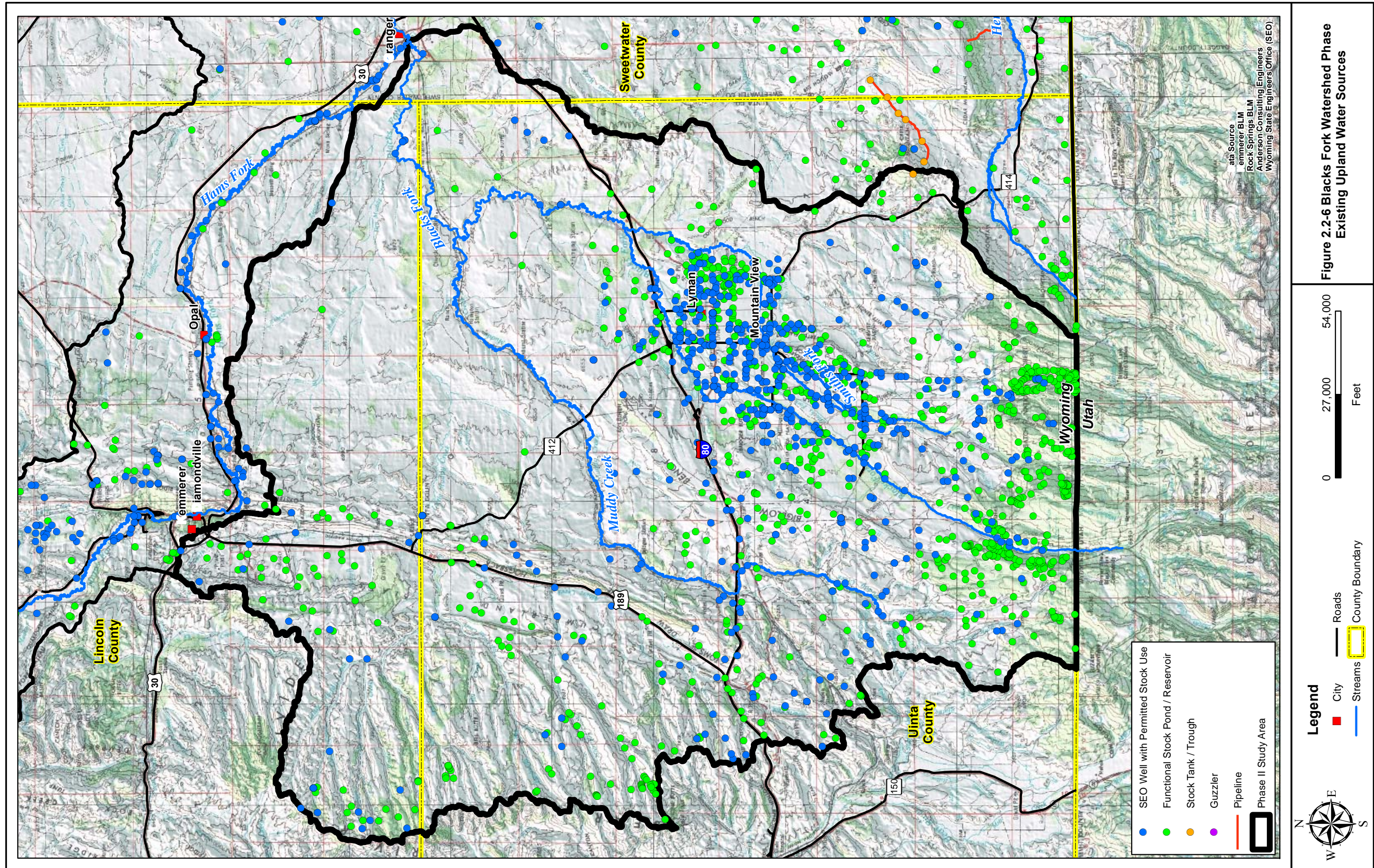
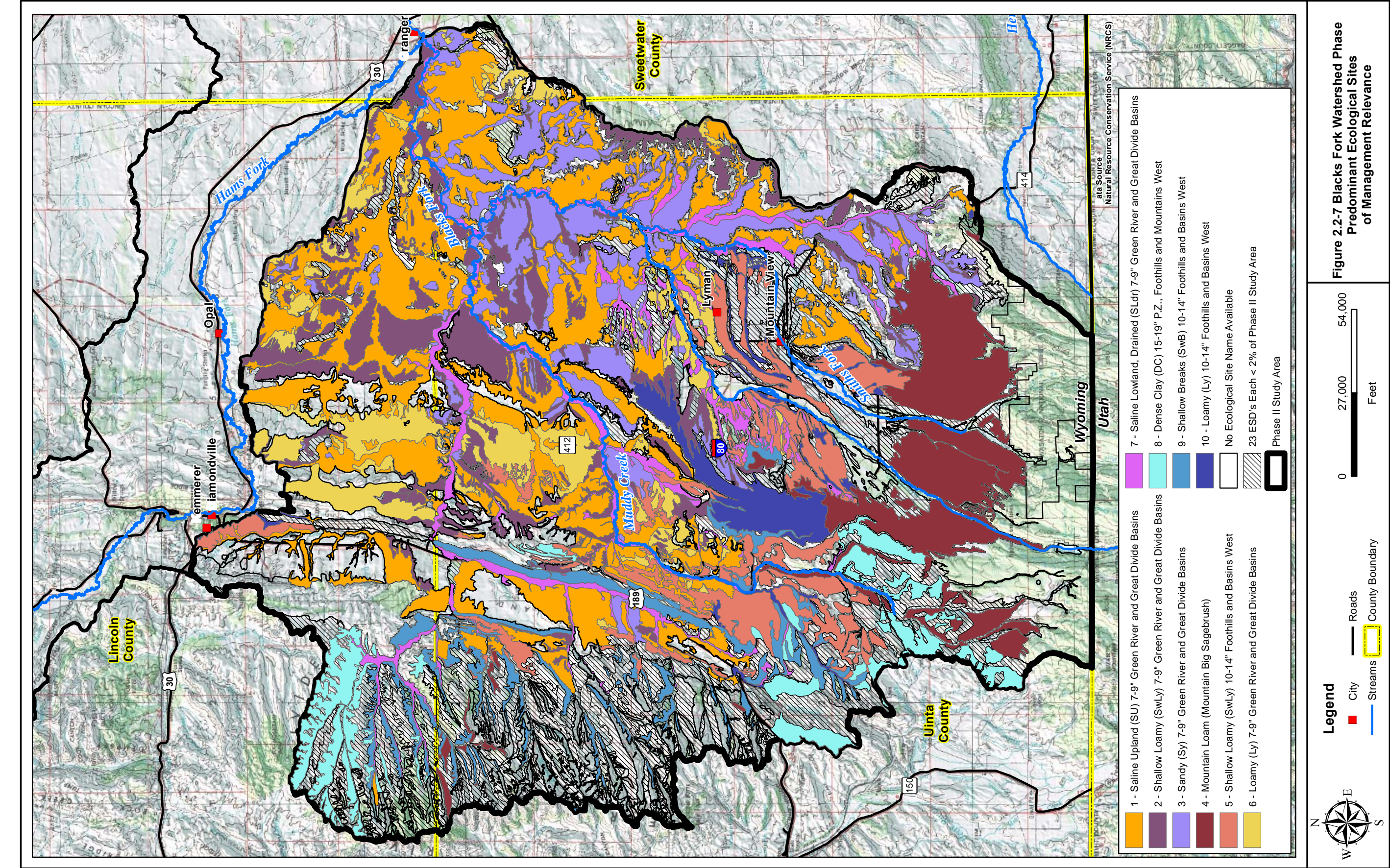


Figure 2.2-6 Blacks Fork Watershed Phase Existing Upland Water Sources

ata Source
 emmerer BLM
 Rock Springs BLM
 Anderson Consulting Engineers
 Wyoming State Engineers Office (SEO)



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.

Shallow Loamy (SwLy) 7-9" Green River and Great Divide Basins

The Historic Climax Plant Community (HCPC) for this Ecological Site is the Bluebunch/Winterfat Plant Community (HCPC). Suitable thermal and escape cover for most wildlife is limited due to the low height and density of woody plants. However, winterfat provides important winter forage for mule deer and antelope. Open and bare ridges are suitable locations for sage grouse leks. 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.

The Low 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 Low Sagebrush/Cheatgrass 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 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:

- *Bluebunch Wheatgrass/Winterfat (HCPC) 200-450 lb./ac and .11 AUM/ac*
- *Low Sagebrush/Rhizomatous Wheatgrass 100-300 lb./ac and .06 AUM/ac*
- *Low Sagebrush/Cheatgrass 50-200 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.

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, 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.

2.2.3 Mining and Mineral Resources

At the time of this report, there were sixteen mine permits on record with the WDEQ within the Phase II study area (Table 2.2-1). Ten of these were active permits associated with sand and/or gravel operations or classified as other. Three sand and/or gravel mines were classified as terminated and released and three as forfeited. Figure 2.2-8 displays the locations of these mines.

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)

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

Permit Number	Company Name	Mine Name	Mine Type	Mineral	Status
ET1238	NIX, G T CONST INC	FRAUGHTON	Limited Mining Operation	Sand and/or Gravel	Active
ET1247	READY ROCKS INC	WARD	Limited Mining Operation	Sand and/or Gravel	Active
ET1542	SIMS SHEEP CO LLC	SIMS	Limited Mining Operation	Sand and/or Gravel	Active
ET1273	SNYDER SAND & GRAVEL LLC	SNYDER	Limited Mining Operation	Sand and/or Gravel	Active
ET1379	GRAVEL WORKS INC	LUPHER	Limited Mining Operation	Sand and/or Gravel	Active
ET1405	LINDLEY CONST INC	BROADBENT	Limited Mining Operation	Other	Active
ET0389	ELLINGFORD BROS INC	DELBERT JAMES	Limited Mining Operation	Sand and/or Gravel	Active
SP0575	GRAVEL WORKS INC	<Null>	Small Mine Permit	Sand and/or Gravel	Active
SP0686	CUMBERLAND GAP HEARTH STONE ASSN	<Null>	Small Mine Permit	Other	Active
ET1372	READY ROCKS INC	BLUEMEL	Limited Mining Operation	Sand and/or Gravel	Active
ET0870	BRIDGER VALLEY GRAVEL	BYRNE PIT	Limited Mining Operation	Sand and/or Gravel	Forfeited
ET1225	BLAZE-ON CONSTRUCTION	BLAZON GAP PIT	Limited Mining Operation	Sand and/or Gravel	Forfeited
ET0593	BRIDGER VALLEY GRAVEL	LUPHER PIT	Limited Mining Operation	Sand and/or Gravel	Forfeited
ET1184	GUILD, EARL & KELLY	GUILD	Limited Mining Operation	Sand and/or Gravel	Terminated and released
ET1338	E H OFTEDAL & SONS INC	<Null>	Limited Mining Operation	Sand and/or Gravel	Terminated and released
ET1360	HAMBLIN RANCH	HAMBLIN	Limited Mining Operation	Sand and/or Gravel	Terminated and released

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).

Most of the abandoned mine sites in the Phase II study area are associated with coal mining activities. These features 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.



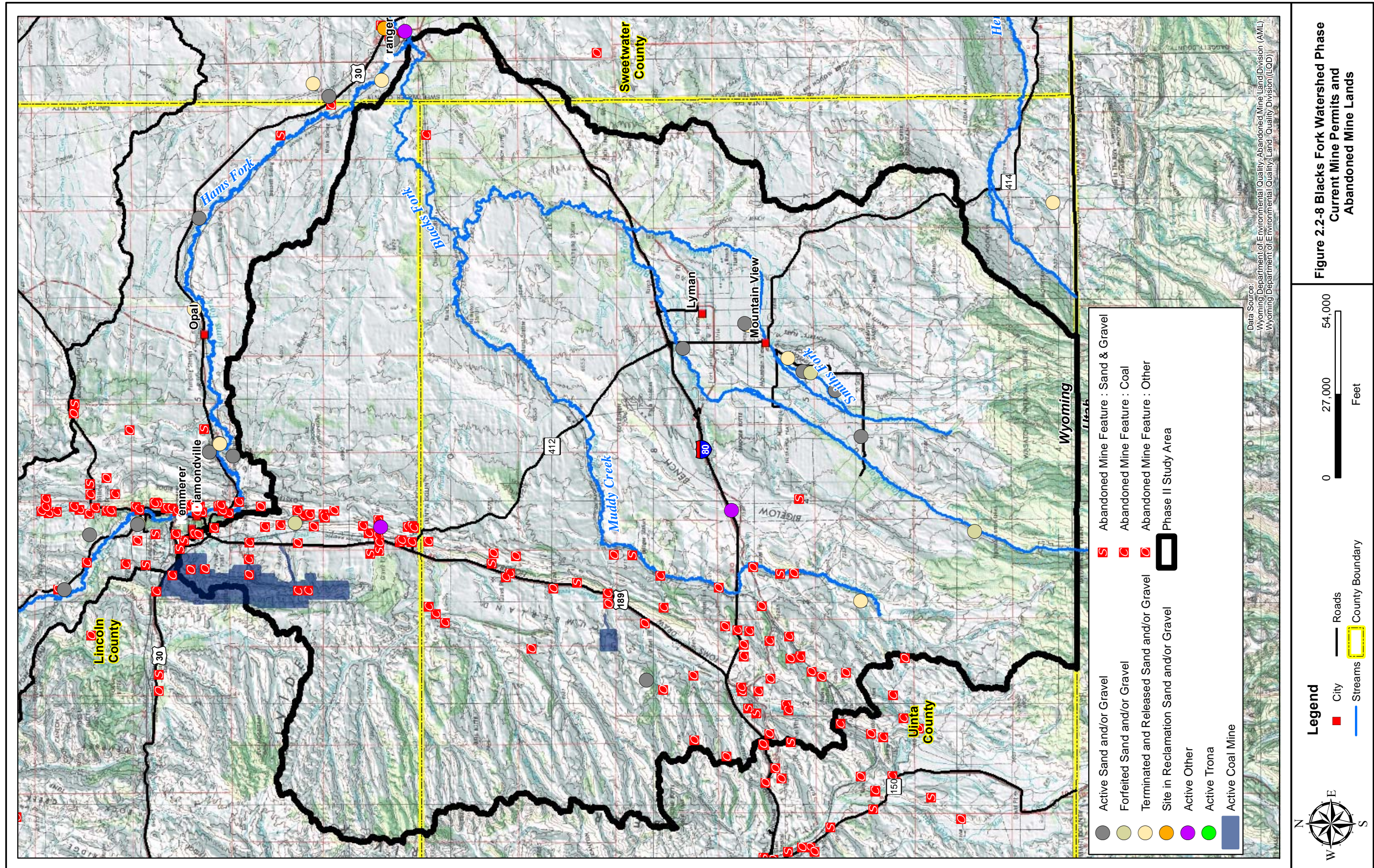
Figure 2.2-9 WDEQ Abandoned Coal Mine near Muddy Creek (Phase II Study Area).

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 II 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 II study area, approximately 400,486 acres (roughly 34 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 stream corridors within the study area (Blacks Fork, Smiths Fork, Muddy Creek, Cottonwood and Sage Creek). There is also significant amounts of crucial range located in the Cumberland Flats and higher elevation areas such as Mumford Ridge, Sage Creek and Hickey Mountains, and the Bigelow Bench. The only species shown



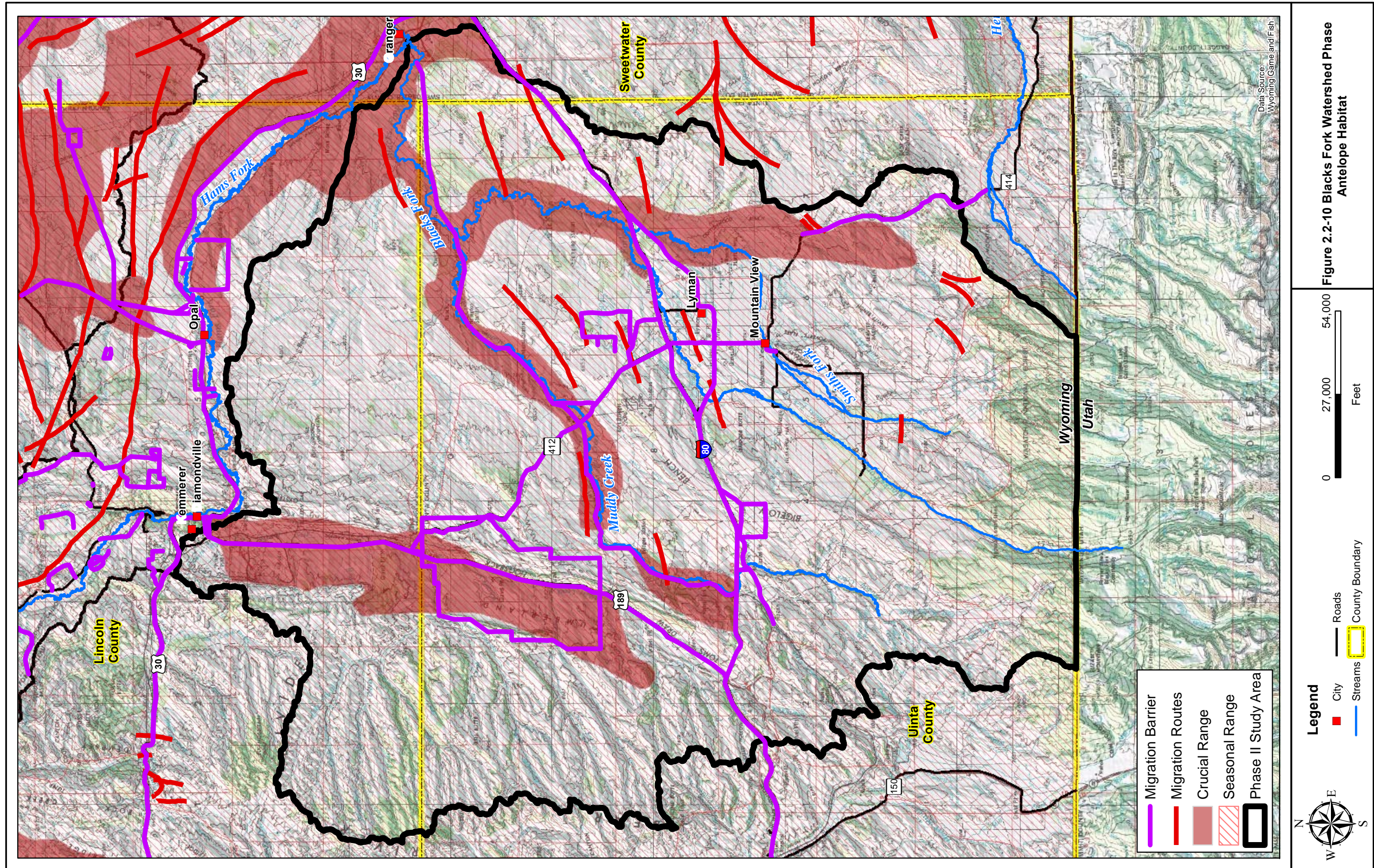
to have parturition areas within the study is elk. These birthing areas are located only in the upper reaches of the Phase II study area stretching from Mumford Ridge in the west towards Hickey Mountain in the east.

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 stream corridors and highland areas previously mentioned.

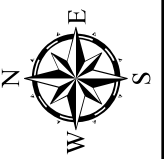
The Wyoming Natural Diversity Database (WYNDD) lists numerous non-game species of concern within the study area, including amphibians, birds, mammals, fish, molluscs and reptiles. Originally initiated by the Nature Conservancy, the WYNDD became a research and service unit of the University of Wyoming 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 II study area has been broken in to four subregions: Little Muddy, Middle Blacks Fork, Muddy, and Smiths Fork. 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 two endangered species known to have been observed within the study area; the Whooping Crane (*Grus americana*), and the Black Footed Ferret (*Mustela nigripes*). There are also two species listed as threatened within the study area; the Canada Lynx (*Lynx Canadensis*), and the Grizzley Bear (*Ursus arctos arctos*). 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 population areas within the Phase II study area are also delineated in Figure 2.2-14. As is evident in this figure, the sage grouse core areas in the Phase II study area affect two distinct areas of land bisected by the towns of Mountain View and Lyman. The core area to the northwest of the Mountain View and Lyman encompasses a total of 287,113 acres, while the area to the southwest contains 97,207 acres. This totals 384,319 acres of sage grouse core areas located within the Phase II study area. While there are 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.



Date Source:
Wyoming Game and Fish



Legend

- City
- Roads
- Streams
- County Boundary

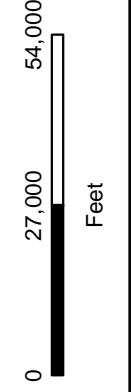


Figure 2.2-10 Blacks Fork Watershed Phase Antelope Habitat

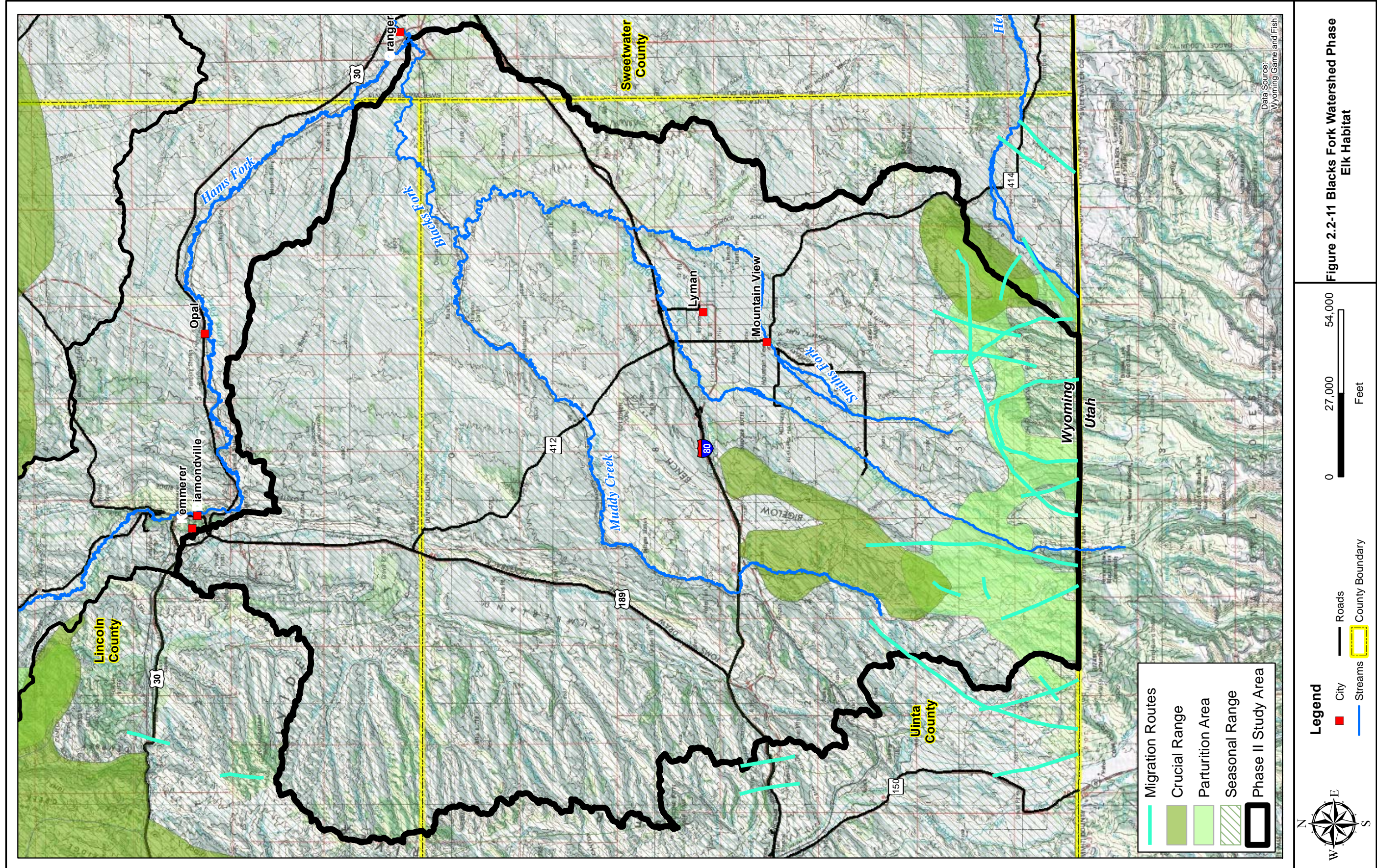
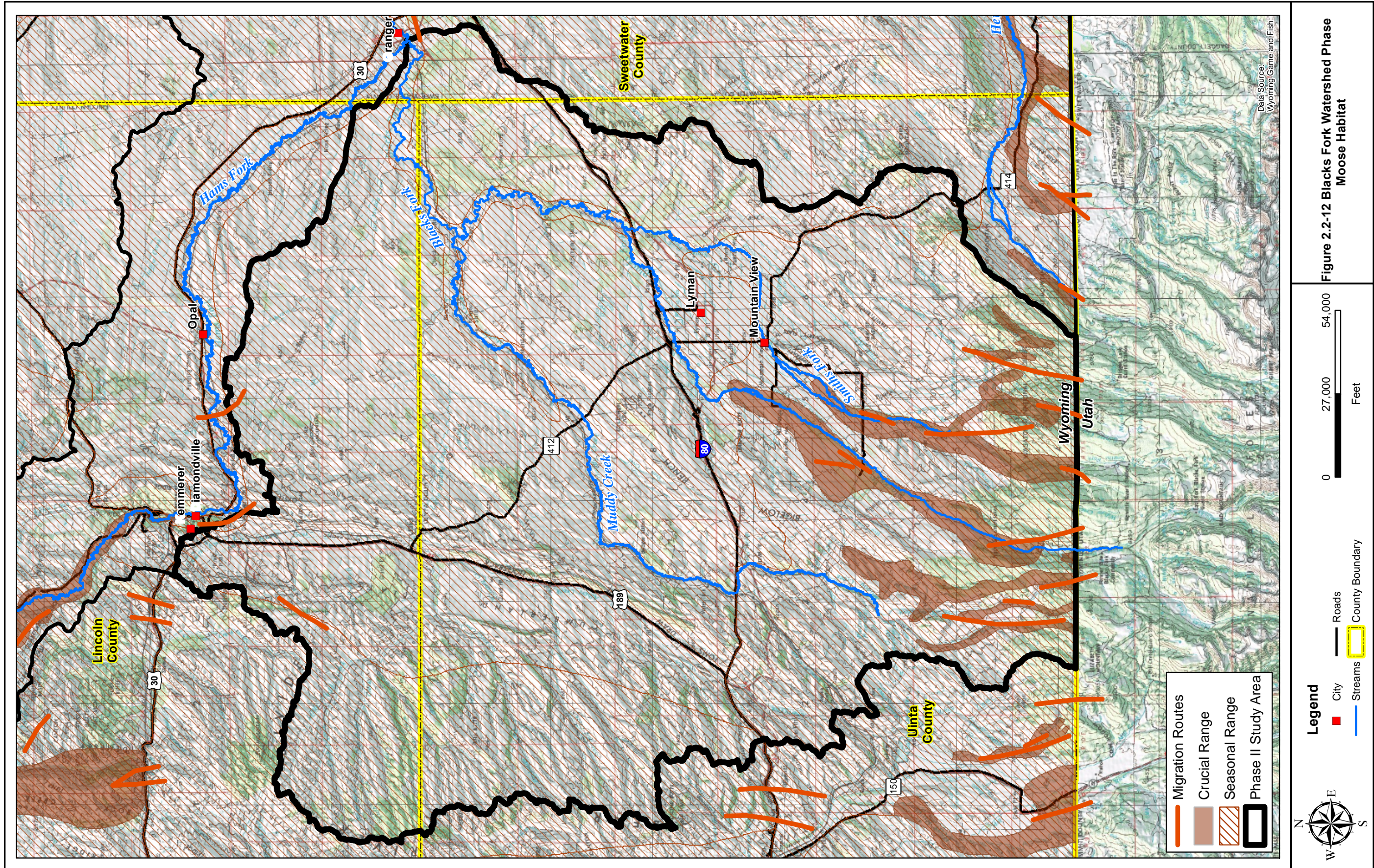


Figure 2.2-11 Blacks Fork Watershed Phase II Elk Habitat



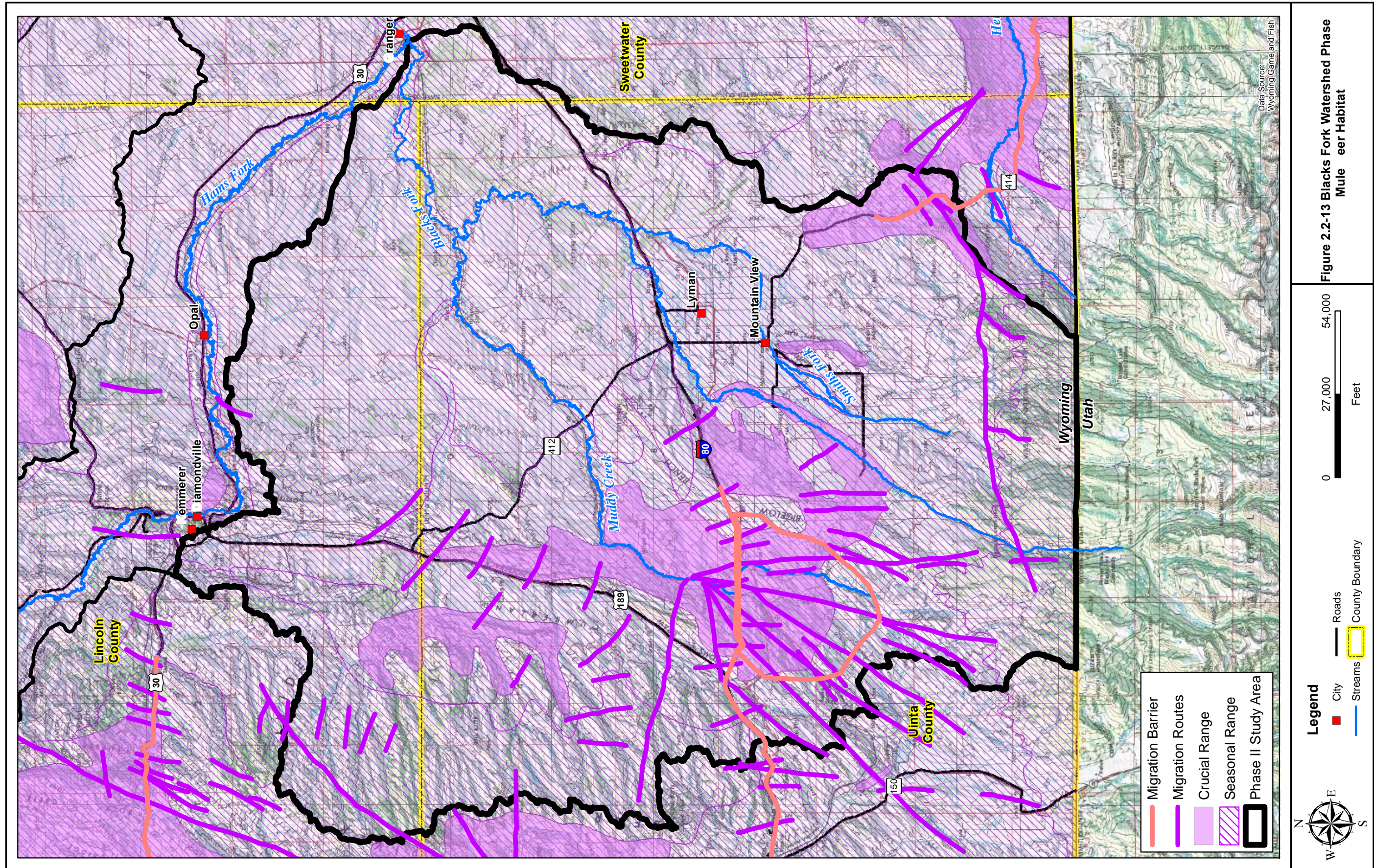
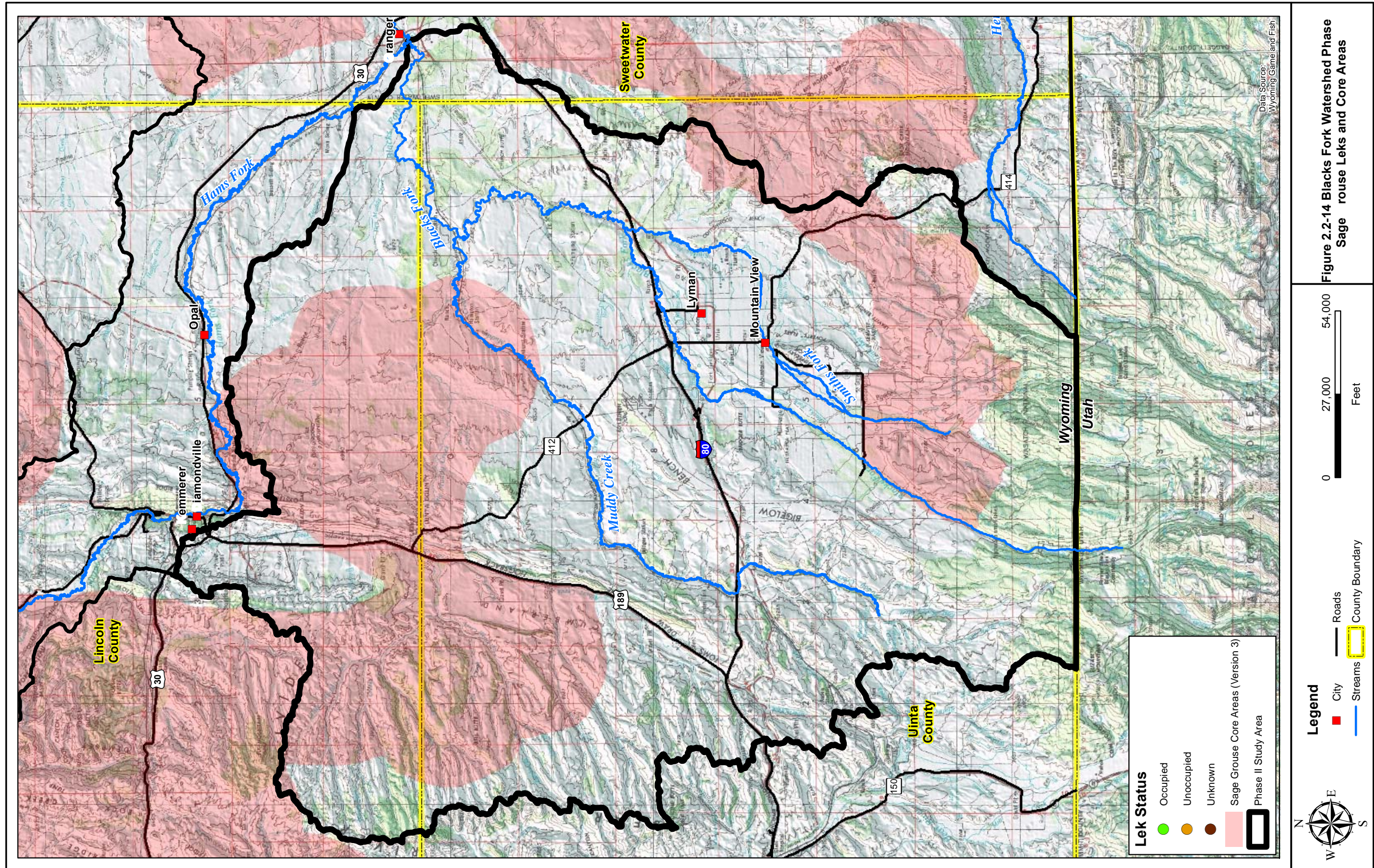


Table 2.2-2 Wyoming Natural Diversity Database: Wildlife Species in the Phase II Study Area.

Common Name	Scientific Name	Subregion				Listing Status	Tracked /Watched
		Smiths Fork	Muddy Creek	Little Muddy Creek	Middle Blacks Fork River		
Amphibians							
Eastern Clade Western Toad	Anaxyrus boreas - Eastern Clade	x	x			Petition Under Review (UR)	Tracked
Great Basin Spadefoot	Spea intermontana	x		x	x		Tracked
Northern Leopard Frog	Lithobates pipiens	x	x		x	Not Warranted for Listing (NW)	Tracked
Tiger Salamander	Ambystoma mavortium	x	x	x	x		Watched
Birds							
American Avocet	Recurvirostra americana	x	x	x	x		Watched
American Bittern	Botaurus lentiginosus	x	x	x			Tracked
American Dipper	Cinclus mexicanus	x		x			Watched
American Three-toed Woodpecker	Picoides dorsalis	x		x			Tracked
American White Pelican	Pelecanus erythrorhynchos	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 Tern	Chlidonias niger	x		x			Tracked
Black-crowned Night-Heron	Nycticorax nycticorax	x		x			Watched
Black-necked Stilt	Himantopus mexicanus	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 cucularia	x	x	x	x		Tracked
Bushtit	Psaltriparus minimus	x	x	x			Tracked
California Gull	Larus californicus	x		x			Watched
Canyon Wren	Catherpes mexicanus	x	x	x			Watched
Cassin's Sparrow	Peuceea cassinii			x			Watched
Common Goldeneye	Bucephala clangula	x	x	x	x		Watched
Common Loon	Gavia immer	x	x	x			Tracked
Common Tern	Sterna hirundo	x					Watched
Eastern Phoebe	Sayornis phoebe	x		x			Watched
Eastern Screech-Owl	Megascops asio	x		x			Watched
Ferruginous Hawk	Buteo regalis	x	x	x	x		Tracked
Forster's Tern	Sterna forsteri	x		x			Tracked
Golden Eagle	Aquila chrysaetos	x	x	x	x		Watched
Grasshopper Sparrow	Ammodramus savannarum	x	x				Watched
Greater Sage-Grouse	Centrocercus urophasianus	x	x	x	x	Candidate; Warranted but Precluded (C)	Tracked
Hammond's Flycatcher	Empidonax hammondi			x			Watched
Herring Gull	Larus argentatus	x		x			Watched
Juniper Titmouse	Baeolophus ridgwayi	x	x	x			Tracked
Least Bittern	Ixobrychus exilis	x					Watched
Lewis's Woodpecker	Melanerpes lewis	x					Tracked
Loggerhead Shrike	Lanius ludovicianus	x	x	x	x		Tracked
Long-billed Curlew	Numenius americanus	x	x	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		Not Warranted for Listing (NW)	Tracked
Northern Pygmy-Owl	Glaucidium gnoma	x					Tracked
Osprey	Pandion haliaetus	x		x			Watched
Peregrine Falcon	Falco peregrinus	x	x	x		Delisted, formally monitored (DM)	Tracked
Pygmy Nuthatch	Sitta pygmaea	x					Tracked
Ring-billed Gull	Larus delawarensis	x	x	x			Watched
Ring-necked Duck	Aythya collaris	x	x	x			Watched
Rose-breasted Grosbeak	Pheucticus ludovicianus	x					Watched
Sage Thrasher	Oreoscoptes montanus	x	x	x	x		Watched
Sagebrush Sparrow	Artemisospiza nevadensis	x	x	x	x		Tracked
Sandhill Crane	Grus canadensis	x	x	x	x		Watched
Short-eared Owl	Asio flammeus	x	x	x			Tracked
Snowy Egret	Egretta thula	x		x			Watched
Trumpeter Swan	Cygnus buccinator	x	x	x		Not Warranted for Listing (NW)	Tracked
Tundra Swan	Cygnus columbianus	x	x	x			Watched
Virginia Rail	Rallus limicola	x					Watched
Virginia's Warbler	Oreothlypis virginiae		x	x			Tracked
Western Yellow-billed Cuckoo	Coccyzus americanus occidentalis	x	x	x		Proposed Threatened (PT)	Tracked
White-faced Ibis	Plegadis chihi	x	x	x	x		Tracked
Whooping Crane	Grus americana	x	x	x		Listed Endangered (LE), and Endangered - Nonessential Experimental Population (NEEP)	Tracked
Williamson's Sapsucker	Sphyrapicus thyroideus	x					Tracked
Fish							
Bluehead Sucker	Catostomus discobolus	x	x		x		Tracked
Colorado River Cutthroat Trout	Oncorhynchus clarkii pleuriticus	x	x			Not Warranted for Listing (NW)	Tracked
Flannelmouth Sucker	Catostomus latipinnis	x	x		x		Tracked
Mountain Sucker	Catostomus platyrhynchus	x	x	x	x		Watched
Mountain Whitefish	Prosopium williamsoni	x					Watched
Northern Leatherside Chub	Lepidomeda copei		x	x		Not Warranted for Listing (NW)	Tracked
Roundtail Chub	Gila robusta	x	x	x	x		Tracked
Mammals							
American Pika	Ochotona princeps	x				Not Warranted for Listing (NW)	Watched
Black-footed Ferret	Mustela nigripes	x	x	x		Listed Endangered (LE), and Endangered - Nonessential Experimental Population (NEEP)	Tracked
Canada Lynx	Lynx canadensis	x	x			Listed Threatened (LT)	Tracked
Dwarf Shrew	Sorex nanus	x		x			Watched
Grizzly Bear	Ursus arctos arctos	x	x	x		Listed Threatened (LT)	Tracked
Idaho Pocket Gopher	Thomomys idahoensis	x	x				Tracked
Little Brown Myotis	Myotis lucifugus	x				Petition Under Review (UR)	Watched
Long-legged Myotis	Myotis volans			x			Watched
North American Water Vole	Microtus richardsoni	x					Tracked
Northern River Otter	Lontra canadensis	x					Tracked
Plains Bison	Bos bison bison	x		x	x	Not Warranted for Listing (NW)	Tracked
Preble's Shrew	Sorex preblei	x		x			Tracked
Pygmy Rabbit	Brachylagus idahoensis	x	x	x	x	Not Warranted for Listing (NW)	Tracked
Ringtail	Bassariscus astutus	x					Watched
Silver-haired Bat	Lasiorycteris noctivagans	x					Watched
Uinta Ground Squirrel	Urocitellus armatus	x	x	x	x		Watched
Utah Cliff Chipmunk	Neotamias dorsalis utahensis	x					Tracked
Western Small-footed Myotis	Myotis ciliolabrum		x	x			Watched
White-tailed Prairie Dog	Cynomys leucurus	x	x	x	x	Not Warranted for Listing (NW)	Tracked
Wyoming Ground Squirrel	Urocitellus elegans	x					Watched
Molluscs							
California Floater	Anodonta californiensis			x			Tracked
Marsh Pondsnaill	Stagnicola elodes	x					Tracked
Western Pearlshell	Margaritifera falcata		x				Tracked
Reptiles							
Great Plains Earless Lizard	Holbrookia maculata maculata	x					Tracked
Midget Faded Rattlesnake	Crotalus oreganus concolor				x		Tracked
Plains Gartersnake	Thamnophis radix	x	x				Watched
Plateau Fence Lizard	Sceloporus tristichus	x					Tracked
Spiny Softshell	Apalone spinifera		x	x			Watched
Flowering Plants							
Dorn's twinpod	Physaria dornii			x		Not Warranted for Listing (NW)	Tracked
Hayden's milkvetch	Astragalus bisulcatus var. haydenianus			x	x		Tracked
Large-fruited bladderpod	Lesquerella macrocarpa				x		Tracked
Nelson phacelia	Phacelia salina			x			Tracked
Opal phlox	Phlox opalensis			x	x		Watched
Payson Beardtongue	Penstemon paysoniorum			x			Watched
Prostrate bladderpod	Lesquerella prostrata			x			Tracked
Swallen's ricegrass	Achnatherum swallenii				x		Tracked
Tufted twinpod	Physaria condensata			x	x		Watched



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

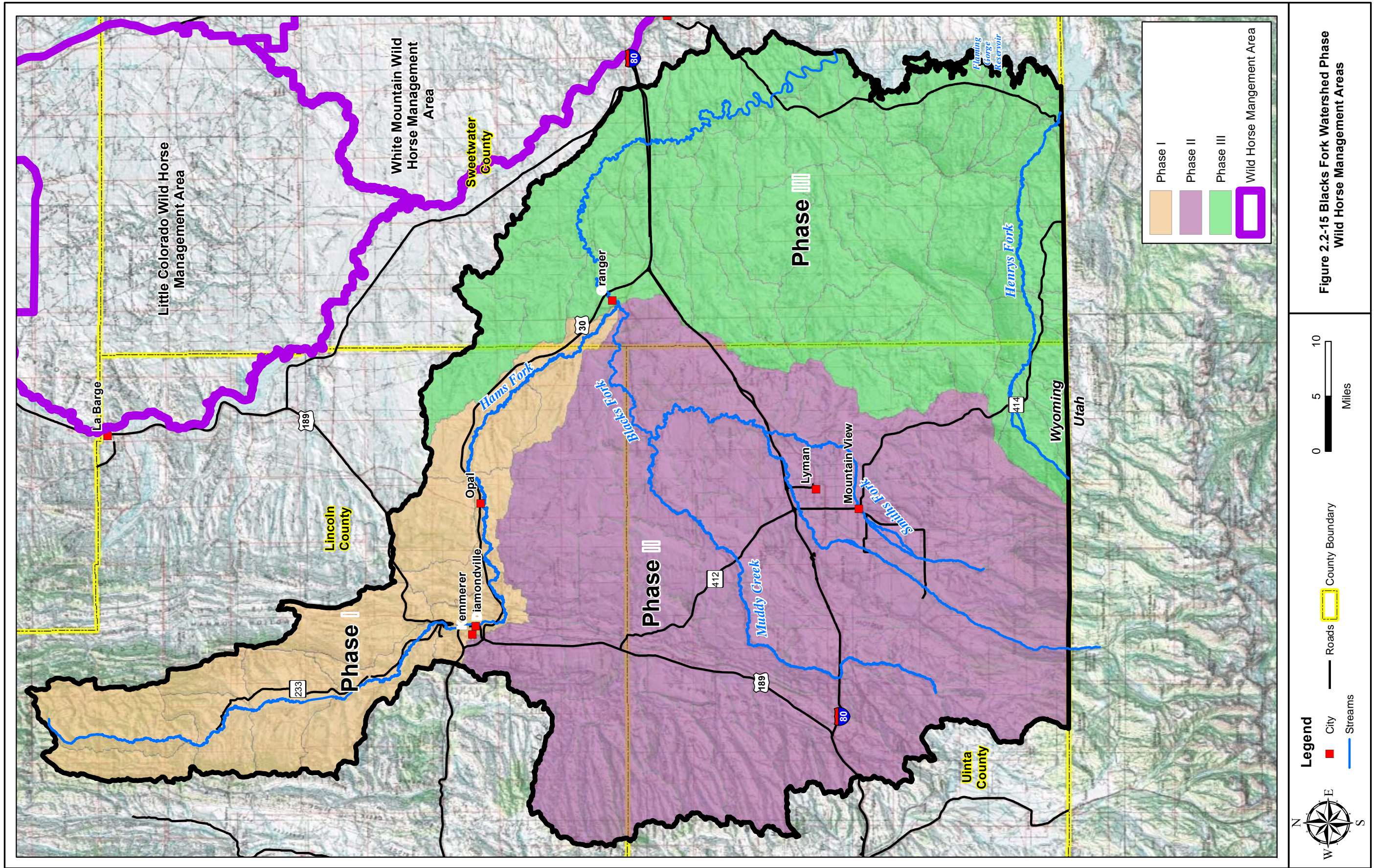
Following passage of the Wild, Free-Roaming Horse and Burro Act in 1971, BLM was charged with management of wild horses or burros in "herd management areas" (HMAs). The BLM establishes an "appropriate management level" (AML) for each HMA. The AML is the population objective for the HMA that will ensure 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.

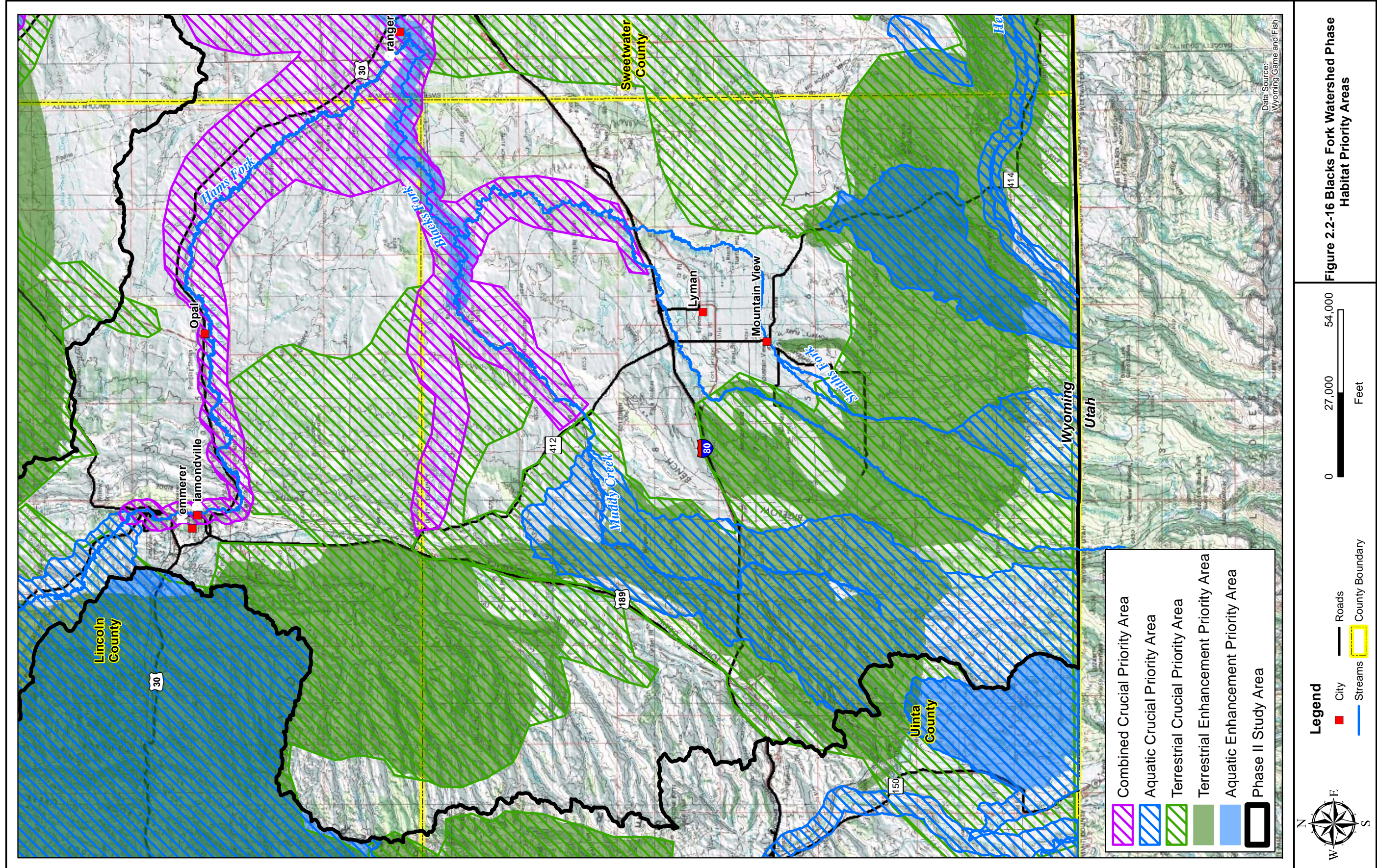
Within the Phase II study area, there are no HMAs as indicated in Figure 2.2-15.

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>

"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."





Data Source:
Wyoming Game and Fish

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

Upper Muddy Creek (3BF): Aquatic Crucial Area

- *Reason Selected:*
Habitat for the sensitive native fish assemblage warrants protection. This crucial habitat area may provide a biological opportunity to restore the entire native cold and warm water fish species assemblage within the crucial area if landowners are willing to participate.
- *Primary species or assemblages of species:*
Colorado River cutthroat trout, flannelmouth sucker, bluehead suckers, roundtail chubs
- *Solutions or actions:*
Advocate sound livestock grazing practices throughout the watershed. Advocate sound water management practices that improve habitat conditions for the fishery. Work with landowners to gain support and approval for restoring the native fish assemblage.
- *Additional Information:*
Irrigation of native hay crops, in many instances, depletes river flows during late summer, thus diminishing habitat function for fish. There is a trans basin water diversion from Van Tassel Creek to the Bear River drainage, and there may be others. Livestock grazing management could be improved to restore and enhance riparian habitat and watershed function.

Gilbert Creek: Aquatic Crucial Area

- *Reason Selected:*
Protect habitat for a conservation population of Colorado River cutthroat trout and the associated native fish species assemblage.
- *Primary species or assemblages of species:*
Colorado River cutthroat trout, mountain sucker, mottled sculpin.
- *Solutions or actions:*
Promote efforts to enhance watershed segments that maintain potential for restoring aspen, willow, and other woody riparian vegetation. Encourage expansion of beaver colonies into

suitable habitat where populations can be sustained over the long term. Advocate sound grazing management practices.

- **Additional Information:**

The loss of healthy aspen stands to conifer encroachment has deteriorated overall watershed productivity and function. Loss of aspen communities in or near riparian areas has deteriorated or eliminated suitable beaver habitat. Inactive relict beaver pond complexes exist in upland areas of the watershed along spring/seep tributary drainages to Gilbert Creek and Little Gilbert Creek. Pine bark beetles are destroying coniferous forest throughout the Uinta Mountain Range, and a catastrophic wild fire could destroy CRC populations by warming the water during the fire above lethal thresholds.

Sage Creek (3BF): Aquatic Crucial Area

- **Reason Selected:**

Protect habitat for a conservation population of Colorado River cutthroat trout and the associated native fish species assemblage.

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

Colorado River cutthroat trout

- **Solutions or actions:**

Work with the private landowner to develop a comprehensive CRC population and habitat restoration project for Sage Creek. Work with the Wasatch-Cache National Forest and private landowner to advocate sound aspen restoration efforts and grazing practices. 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. Advocate sound water management practices that improve CRC habitat conditions. Investigate and address potential for non-native trout movement between Cottonwood Creek and Sage Creek via trans basin irrigation diversion ditch. Investigate the need for removal of mature conifers that have invaded the riparian area on some reaches of Sage Creek. Consider removal of these conifers thereby releasing the riparian community, which is currently suppressed by the overgrowth of conifers.

- **Additional Information:**

Trans basin water diversions may allow movement of undesirable fish species into Sage Creek. Pine bark beetles are destroying coniferous forest throughout the Uinta Mountain Range. A catastrophic wild fire could destroy CRC populations in the headwaters by warming the water during the fire above lethal thresholds, and introduce ash and silt which will adversely affect spawning habitat and aquatic insect life. The private ranch lands changed ownership in 2007, and the new owner is interested in managing the private lands reach of the stream for Colorado River cutthroat trout. The landowner is also interested in stream habitat improvements to benefit CRC. This may afford the opportunity to implement a complete CRC habitat and population restoration project for the entire Sage Creek drainage.

Bear River/Southern Wyoming Range (BRSWR): Terrestrial Crucial Area

- *Reason Selected:*
Crucial winter range for elk, mule deer, pronghorn and moose, big game migration corridors, Governor's Sage-grouse Implementation Team (GSGIT) sage-grouse core breeding area, and numerous SGCN listed in the Wyoming Comprehensive Wildlife Conservation Strategy Plan.
- *Primary Species or assemblages of species:*
Mule deer, elk, moose, greater sage-grouse, other sagebrush obligates (including pygmy rabbits), and other SGCN listed in the Wyoming Comprehensive Wildlife Conservation Strategy plan.
- *Solutions or actions:*
A significant number of habitat treatments have been conducted in the area, primarily to address improving habitats for wintering ungulates and greater sage-grouse. These investments need to be protected and continued in the future. 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 where energy development is permitted. Additional analysis of existing habitats should be conducted to assess the need for treatment and/or improved livestock management. Improvements to grazing operations are needed in some portions of the area, especially on the Rock Creek grazing allotment. Development of a cooperative plans with the USFWS, BLM and grazing permittees to rotate/rest livestock from Rock Creek Ridge to the Cokeville Refuge will enhance and improve habitat for wildlife in this area. Cooperative plans with WYDOT and the UP Railroad needs to continue to enhance migration and reduce mule deer vehicle collisions in the Nugget Canyon area along US Highway 30. Conservation easement opportunities should be pursued where possible.
- *Additional Information:*
This area is under increasing threat from a variety of energy development proposals, including wind farms, oil and gas development, and major energy corridors. Efforts to preserve this area from these threats and to improve livestock management need to continue to protect the world-class wildlife values in this area. US Highway 30 has undergone significant revision to reduce mule deer-vehicle collisions and maintain traditional migration corridors for the world-renowned Wyoming Range Mule Deer Herd. Major habitat types include sagebrush-grassland, mixed mountain shrubs, aspen, mixed conifer and true mountain mahogany. Large stands of curleaf mountain mahogany also exist in portions of the area.

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.

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 II 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 II 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 II study area has been broken into four subregions based on their physiographic characteristics. The four subregions are: Little Muddy, Middle Blacks Fork, Muddy, and Smiths Fork. Table 2.3-1 presents the results of National Land Cover Database analysis for these subregions. All four of the subregions in the Phase II study area are dominated by the Shrub/Scrub classification, ranging from 58% coverage in the Smiths Fork subregion to 95% in the Middle Blacks Fork subregion. The Smiths Fork subregion exhibits the most vegetative diversity with 9 classifications, while the other subregions contain 5 or less classifications.

2.3.1.3 LANDFIRE

In order to more accurately analyze the distribution of the LANDFIRE dataset, the Phase II study area has been broken into subregions based on their physiographic characteristics. The Phase II study area has been broken in to four subregions. The four subregions are: Little Muddy, Middle Blacks Fork, Muddy, and Smiths Fork. Existing vegetative type within each Phase II 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.

Little Muddy Subregion

The LANDFIRE existing vegetation data indicate 13 different vegetation classifications make up 94% of the land area within the Little Muddy Subregion. As is indicated in the data, the major sagebrush community (Inter-Mountain Basins Big Sagebrush Shrubland) dominates coverage of the subregion totaling approximately 40% 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 Little Muddy subregion.

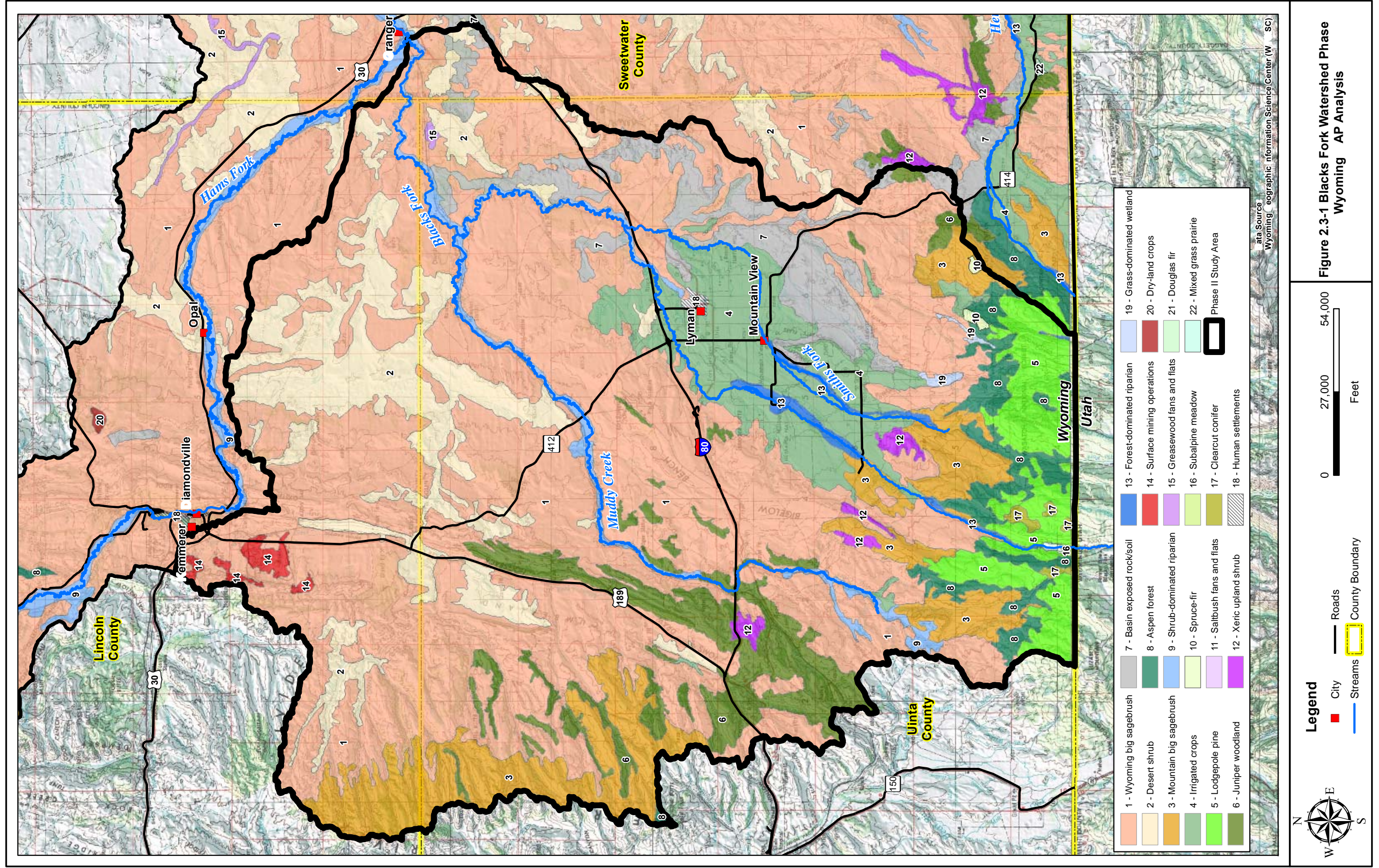


Table 2.3-1 Tabulation of National Land Cover Database: Phase II Subregions.

Blacks Fork Watershed Phase II : Little Muddy 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.	274,635	75.2%
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.	68,492	18.7%
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.	5,921	1.6%
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.	4,789	1.3%
Other	Areas with less than 1% of Subregion Area	11,580	3.2%
Total		365,416	100%
Blacks Fork Watershed Phase II :Middle 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.	153,577	94.6%
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.	5,819	3.6%
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.	1,689	1.0%
Other	Areas with less than 1% of Subregion Area	1,284	0.8%
Total		162,368	100%
Blacks Fork Watershed Phase II : Muddy 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.	205,707	83.7%
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.	12,492	5.1%
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.	9,669	3.9%
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.	6,357	2.6%
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.	2,450	1.0%
Other	Areas with less than 1% of Subregion Area	9,235	3.8%
Total		245,911	100%
Blacks Fork Watershed Phase II : Smiths 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.	238,954	58.2%
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.	57,171	13.9%
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.	43,404	10.6%
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.	19,152	4.7%
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.	18,054	4.4%
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.	10,383	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.	7,357	1.8%
Mixed Forest	Areas dominated by trees generally greater than 16 feet tall, and greater than 20% of total vegetation cover. Neither deciduous nor evergreen species are greater than 75% of total tree cover.	4,811	1.2%
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.	4,514	1.1%
Other	Areas with less than 1% of Subregion Area	6,442	1.6%
Total		410,241	100%

Table 2.3-2 Tabulation of LANDFIRE Existing Vegetation Type Data: Phase II Little Muddy Subregion.

Blacks Fork Watershed Phase II : Little Muddy Subregion			
Existing Vegetation Type	Acres	Percent of Subregion	Cumulative Percent
Inter-Mountain Basins Big Sagebrush Shrubland	143441.78	39.211%	39.211%
Mountain Big Sagebrush Shrubland Alliance	82795.47	22.633%	61.843%
Inter-Mountain Basins Big Sagebrush Steppe	24139.81	6.599%	68.442%
Inter-Mountain Basins Mat Saltbush Shrubland	23251.57	6.356%	74.798%
Wyoming Basins Dwarf Sagebrush Shrubland and Steppe	19559.15	5.347%	80.145%
Rocky Mountain Subalpine/Upper Montane Riparian Systems	12565.96	3.435%	83.580%
Rocky Mountain Aspen Forest and Woodland	7771.13	2.124%	85.704%
Inter-Mountain Basins Greasewood Flat	7722.65	2.111%	87.815%
Rocky Mountain Montane Riparian Systems	5198.03	1.421%	89.236%
Inter-Mountain Basins Sparsely Vegetated Systems	5092.17	1.392%	90.628%
Barren	4756.80	1.300%	91.928%
Inter-Mountain Basins Montane Sagebrush Steppe	4356.04	1.191%	93.119%
Northern Rocky Mountain Lower Montane-Foothill-Valley Grassland	4051.36	1.107%	94.226%
All other classes less than 1% each	21120.81	5.774%	100.00%

Middle Blacks Fork Subregion

The LANDFIRE existing vegetation data indicate 8 different vegetation classifications make up 97% of the land area within the Middle Blacks Fork 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 43% 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 Middle Blacks Fork subregion.

Table 2.3-3 Tabulation of LANDFIRE Existing Vegetation Type Data: Phase II Middle Blacks Fork Subregion.

Blacks Fork Watershed Phase II : Middle Blacks Fork Subregion			
Existing Vegetation Type	Acres	Percent of Subregion	Cumulative Percent
Inter-Mountain Basins Big Sagebrush Shrubland	70633.16	43.472%	43.472%
Inter-Mountain Basins Mat Saltbush Shrubland	30290.58	18.643%	62.115%
Inter-Mountain Basins Big Sagebrush Steppe	16994.05	10.459%	72.574%
Inter-Mountain Basins Semi-Desert Grassland	16067.78	9.889%	82.463%
Inter-Mountain Basins Sparsely Vegetated Systems	8816.61	5.426%	87.889%
Introduced Upland Vegetation-Annual and Biennial Forbland	6330.68	3.896%	91.785%
Barren	5814.28	3.578%	95.364%
Inter-Mountain Basins Greasewood Flat	2145.44	1.320%	96.684%
All other classes less than 1% each	5387.51	3.316%	100.00%

Muddy Subregion

The LANDFIRE existing vegetation data indicate 14 different vegetation classifications make up 92% of the land area within the Little Muddy Subregion. As is indicated in the data, the major sagebrush community (Inter-Mountain Basins Big Sagebrush Shrubland) dominates coverage of the subregion totaling approximately 40% of the area. The table presents valuable information pertaining to the vegetation types present to a much lesser extent. Table 2.3-4 summarizes the distribution of the vegetation communities within the Muddy subregion.

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

Blacks Fork Watershed Phase II : Muddy Subregion			
Existing Vegetation Type	Acres	Percent of Subregion	Cumulative Percent
Inter-Mountain Basins Big Sagebrush Shrubland	99343.40	40.361%	40.361%
Mountain Big Sagebrush Shrubland Alliance	45170.77	18.352%	58.712%
Inter-Mountain Basins Big Sagebrush Steppe	19046.09	7.738%	66.450%
Inter-Mountain Basins Mat Saltbush Shrubland	13835.83	5.621%	72.071%
Rocky Mountain Aspen Forest and Woodland	9261.17	3.763%	75.834%
Rocky Mountain Lodgepole Pine Forest	7101.28	2.885%	78.719%
Rocky Mountain Subalpine/Upper Montane Riparian Systems	6372.27	2.589%	81.308%
Rocky Mountain Montane Riparian Systems	4753.02	1.931%	83.239%
Inter-Mountain Basins Sparsely Vegetated Systems	4289.55	1.743%	84.982%
Wyoming Basins Dwarf Sagebrush Shrubland and Steppe	3835.42	1.558%	86.540%
Inter-Mountain Basins Semi-Desert Grassland	3561.20	1.447%	87.987%
Inter-Mountain Basins Montane Sagebrush Steppe	3460.01	1.406%	89.393%
Inter-Mountain Basins Greasewood Flat	3449.34	1.401%	90.794%
Inter-Mountain Basins Aspen-Mixed Conifer Forest and Woodland	3219.61	1.308%	92.102%
All other classes less than 1% each	19440.17	7.8980%	100.00%

Smiths Fork Subregion

The LANDFIRE existing vegetation data indicate 17 different vegetation classifications make up 91% of the land area within the Smiths Fork Subregion. The Smiths Fork subregion is the most diverse in regards to the existing vegetation type within the Phase II Study Area. Even though the Inter Mountain Basins Big Sagebrush Shrubland still dominates the coverage of the subregion (28% of the area), there are a variety of grassland and woodland vegetation types in larger percentages than anywhere else in the Phase II study 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 Smiths Fork Subregion.

Table 2.3-5 Tabulation of LANDFIRE Existing Vegetation Type Data: Phase II Smiths Fork Subregion.

Blacks Fork Watershed Phase II : Smiths Fork Subregion			
Existing Vegetation Type	Acres	Percent of Subregion	Cumulative Percent
Inter-Mountain Basins Big Sagebrush Shrubland	117444.53	28.606%	28.606%
Pasture and Hayland	60588.27	14.757%	43.363%
Mountain Big Sagebrush Shrubland Alliance	43510.82	10.598%	53.961%
Rocky Mountain Lodgepole Pine Forest	31151.46	7.588%	61.549%
Rocky Mountain Aspen Forest and Woodland	18776.10	4.573%	66.122%
Inter-Mountain Basins Semi-Desert Grassland	14021.75	3.415%	69.537%
Inter-Mountain Basins Big Sagebrush Steppe	12606.65	3.071%	72.608%
Rocky Mountain Subalpine/Upper Montane Riparian Systems	11220.02	2.733%	75.341%
Inter-Mountain Basins Mat Saltbush Shrubland	10518.15	2.562%	77.902%
Inter-Mountain Basins Aspen-Mixed Conifer Forest and Woodland	9774.46	2.381%	80.283%
Western Great Plains Floodplain Systems	8640.47	2.105%	82.388%
Rocky Mountain Montane Riparian Systems	7685.29	1.872%	84.260%
Inter-Mountain Basins Montane Sagebrush Steppe	6616.90	1.612%	85.871%
Inter-Mountain Basins Greasewood Flat	6457.45	1.573%	87.444%
Inter-Mountain Basins Sparsely Vegetated Systems	5697.08	1.388%	88.832%
Developed Ruderal Shrubland	5498.26	1.339%	90.171%
Developed-Roads	5095.95	1.241%	91.412%
All other classes less than 1% each	35258.42	8.588%	100.00%

2.3.1.4 WYNDD

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

Table 2.3-6 Wyoming Natural Diversity Database: Flowering Plants by Subregion.

Common Name	Scientific Name	Subregion				Listing Status	Tracked/ Watched
		Smiths Fork	Muddy Creek	Little Muddy Creek	Middle Blacks Fork River		
Flowering Plants							
Dorn's twinpod	Physaria dornii			x		Not Warranted for Listing (NW)	Tracked
Hayden's milkvetch	Astragalus bisulcatus var. haydenianus			x	x		Tracked
Large-fruited bladderpod	Lesquerella macrocarpa				x		Tracked
Nelson phacelia	Phacelia salina			x			Tracked
Opal phlox	Phlox opalensis			x	x		Watched
Payson Beardtongue	Penstemon paysoniorum			x			Watched
Prostrate bladderpod	Lesquerella prostrata			x			Tracked
Swallen's ricegrass	Achnatherum swallenii				x		Tracked
Tufted twinpod	Physaria condensata			x	x		Watched

2.3.1.5 Wetlands

Existing wetlands mapping data within each Phase II 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 2.3-7 Tabulation of NWI Wetlands by Subregion.

Phase II NWI Inventory	
Subregion	Total NWI Acres
Little Muddy	1949.14
Middle Blacks Fork	872.57
Muddy	3560.30
Smiths Fork	39343.73
Total Acres	45725.73

Table 2.3-8 summarizes the distribution of the LANDFIRE wetland and riparian vegetation communities within each Phase II 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 Vegetation). Figure 2.3-2 displays the LANDFIRE wetland classifications for the entire Phase II study area.

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

Blacks Fork Watershed Phase II : Little Muddy Subregion			
Existing Vegetation Type	Acres	Percent of Watershed	Cumulative Percent
Rocky Mountain Subalpine/Upper Montane Riparian Systems	12565.96	3.435%	3.435%
Rocky Mountain Montane Riparian Systems	5198.03	1.421%	4.856%
Western Great Plains Floodplain Systems	1853.66	0.507%	5.363%
Rocky Mountain Wetland-Herbaceous	711.22	0.194%	5.557%
Western Great Plains Depressional Wetland Systems	83.62	0.023%	5.580%
Blacks Fork Watershed Phase II : Middle Blacks Fork Subregion			
Existing Vegetation Type	Acres	Percent of Watershed	Cumulative Percent
Rocky Mountain Subalpine/Upper Montane Riparian Systems	1519.62	0.935%	0.935%
Western Great Plains Floodplain Systems	329.14	0.203%	1.138%
Rocky Mountain Wetland-Herbaceous	247.53	0.152%	1.290%
Rocky Mountain Montane Riparian Systems	89.85	0.055%	1.345%
Western Great Plains Depressional Wetland Systems	0.22	0.0001%	1.346%
Blacks Fork Watershed Phase II : Muddy Subregion			
Existing Vegetation Type	Acres	Percent of Watershed	Cumulative Percent
Rocky Mountain Subalpine/Upper Montane Riparian Systems	6372.27	2.589%	2.589%
Rocky Mountain Montane Riparian Systems	4753.02	1.931%	4.520%
Western Great Plains Floodplain Systems	2114.53	0.859%	5.379%
Rocky Mountain Wetland-Herbaceous	763.04	0.310%	5.689%
Western Great Plains Depressional Wetland Systems	161.01	0.065%	5.754%
Blacks Fork Watershed Phase II : Smiths Fork Subregion			
Existing Vegetation Type	Acres	Percent of Watershed	Cumulative Percent
Rocky Mountain Subalpine/Upper Montane Riparian Systems	11220.02	2.733%	2.733%
Western Great Plains Floodplain Systems	8640.47	2.105%	4.837%
Rocky Mountain Montane Riparian Systems	7685.29	1.872%	6.709%
Rocky Mountain Wetland-Herbaceous	2628.04	0.640%	7.349%
Western Great Plains Depressional Wetland Systems	240.85	0.059%	7.408%
Introduced Riparian Vegetation	2.00	0.0005%	7.409%

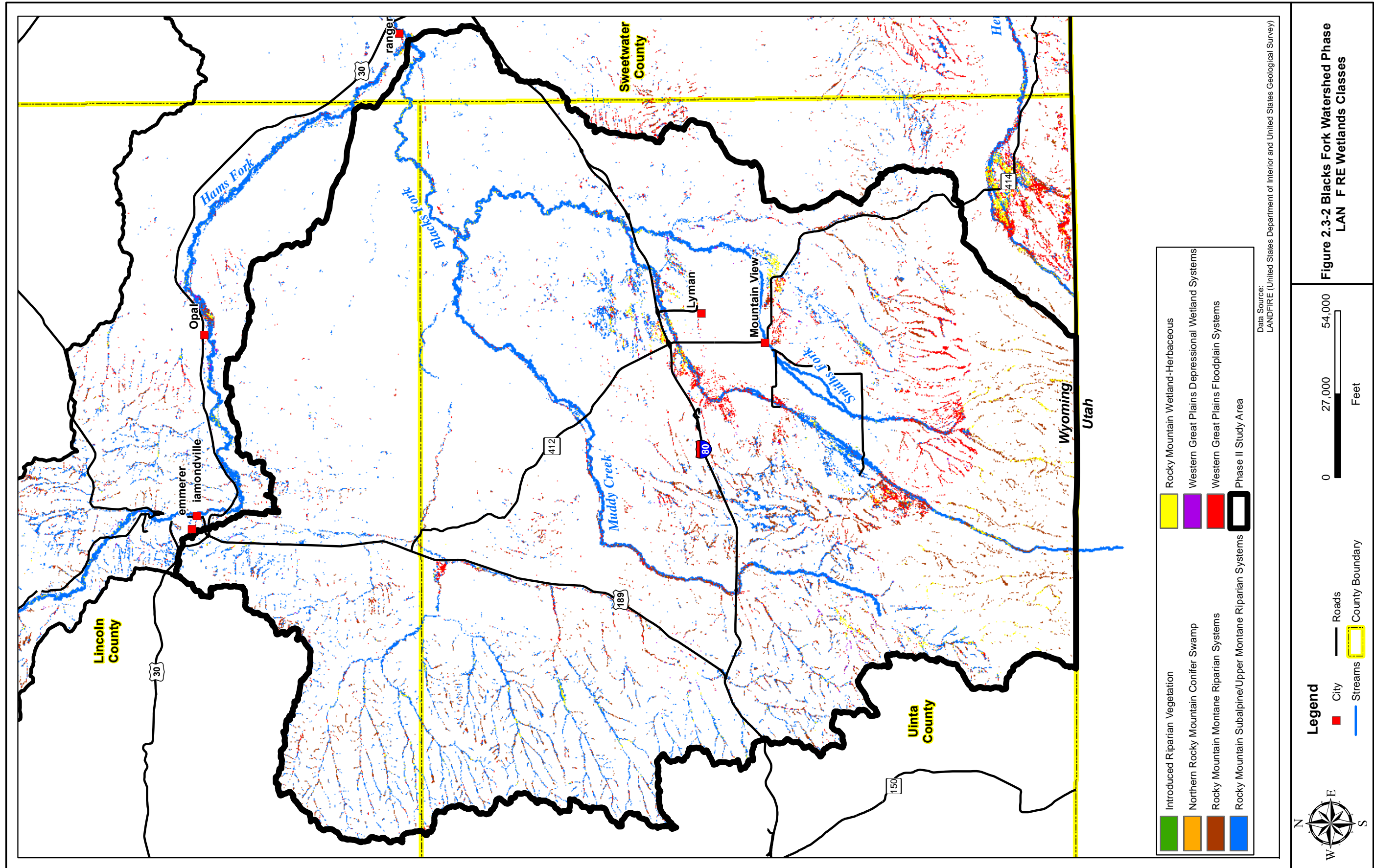


Figure 2.3-2 Blacks Fork Watershed Phase IAN F RE Wetlands Classes

III. PHASE II WATERSHED MANAGEMENT AND REHABILITATION PLAN (UPPER 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 II investigation (Upper 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 II 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 II										
I-005	Eyre 001	Twin Buttes Canal Measurement Devices			3					
I-006	Eyre 002	Twin Buttes Canal Measurement Devices			1					
I-007	Eyre 003	Twin Buttes Canal Measurement Devices			1					
I-008	Eyre 004	Twin Buttes Canal Measurement Devices			1					
I-009	Kofford 003	Graham Reservoir Enhancement Project	1		1			1		
I-010	Kofford 004	Graham Reservoir Diversion Supply Ditch	1		1					
I-011	Mecham 001	Bridger Butte Canal Farm Turnout Rehabilitation		1						
I-012	Mecham 002	Bridger Butte Canal Diversion Structure	1	1						
I-013	Micheli 001	Twin Buttes Canal Rehabilitation	1	1						

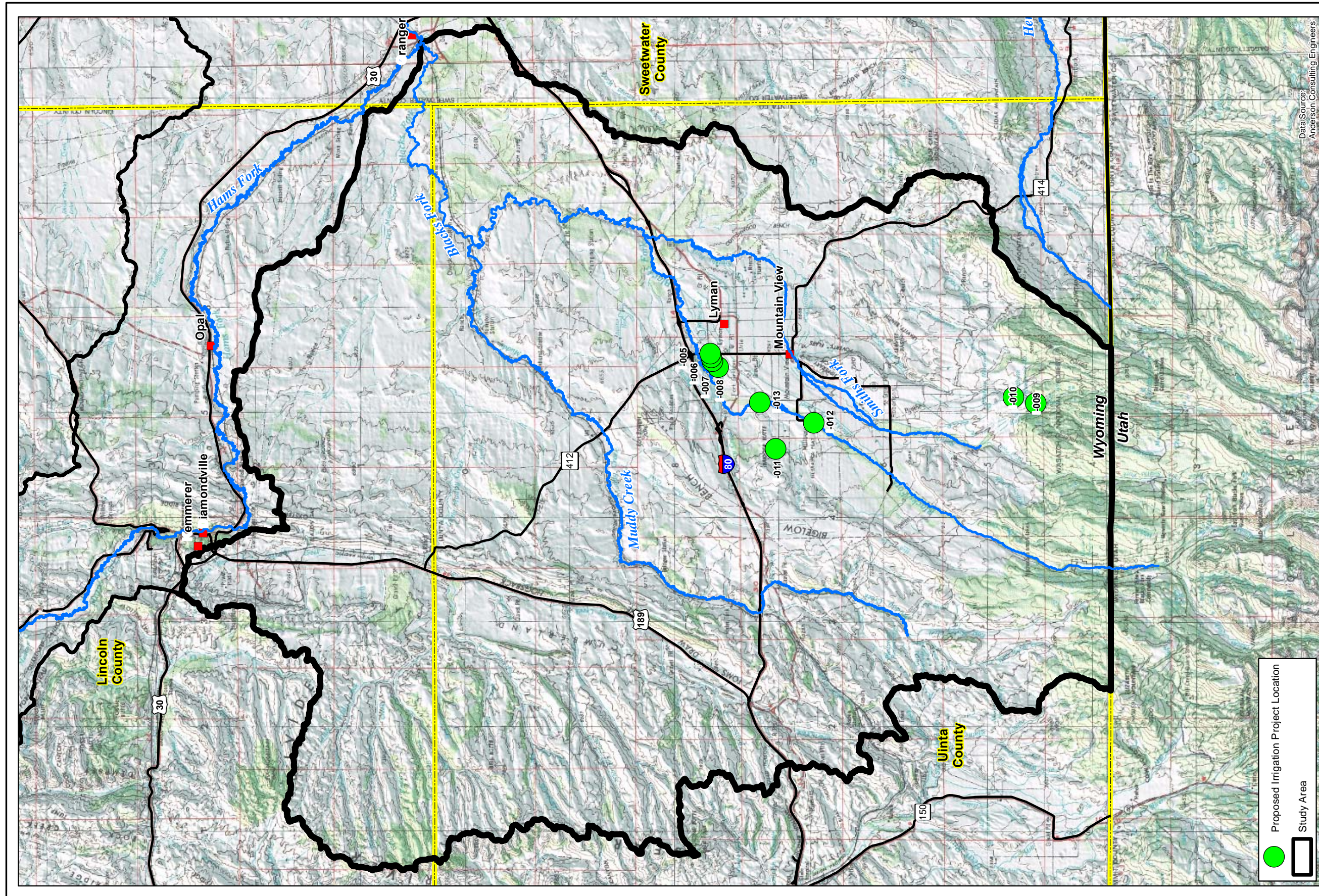
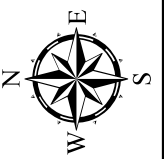
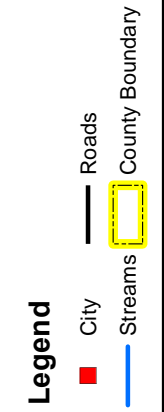
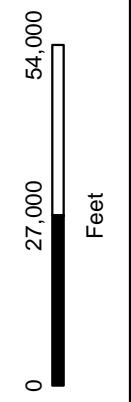


Figure 3.2-1 Blacks Fork Watershed Phase Proposed Irrigation Project Locations



3.2.1 I-005 through I-008 Twin Buttes Canal Measurement Devices (Project ID: Eyre-001, Eyre 002, Eyre 003 and Eyre 004)

Measurement devices on the Twin Buttes Canal are recommended at several locations based upon discussions with the current ditch rider. Ditch conditions vary from site to site, therefore site specific design would need to be considered prior to final design of any structures. Figure 3.2-2 displays the locations of the proposed ditch improvements. Site Eyre 001 is located where the ditch splits to several users, consequently three individual measurement devices would be required at this location. In addition, channel slope at this location is very low, consequently special attention to measurement device type and design must be considered.

3.2.2 I-009 Graham Reservoir Enhancement Project (Project ID: Kofford 003)

This proposed project would involve construction of a trans-basin diversion to provide additional supply for the Milich Ditch.

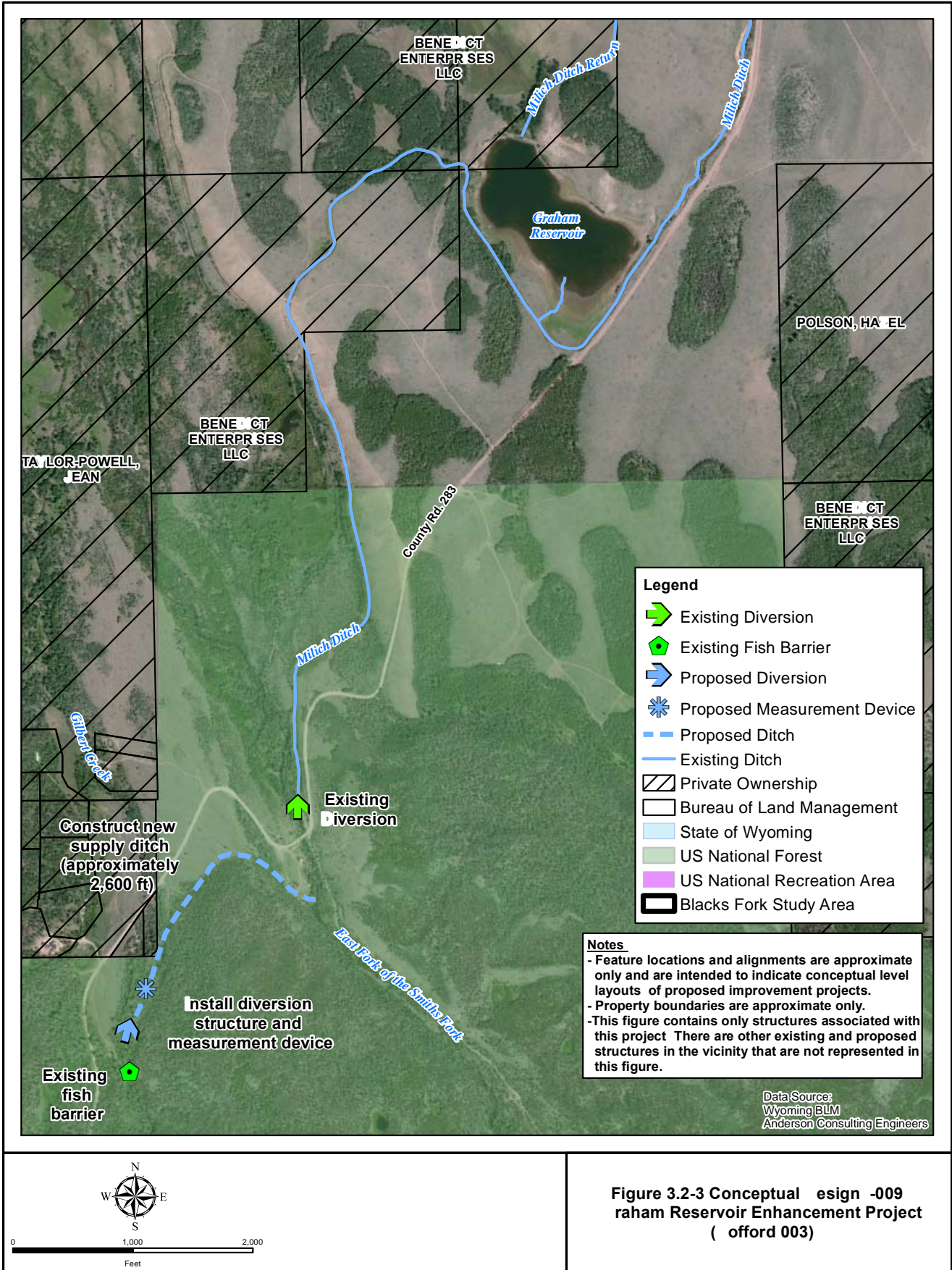
Currently, the Milich Ditch diverts water from the East Fork of the Smiths Fork River and conveys it to acres of irrigated lands downstream. As indicated in Figure 3.2-3, the Graham Reservoir can store water conveyed by the ditch and release it back to the Milich Ditch at a later time. Prior to construction of the Stateline Reservoir in 1979, reservoir owners had no problems filling the reservoir during the spring flood flows. However, with the completion of Stateline Reservoir, these flows have been reduced and filling of Graham Reservoir has become problematic.

In an effort to augment supply sources, Graham Reservoir owners have initiated investigation of diverting flows from nearby Gilbert Creek for storage in the reservoir.

The proposed project would involve the following components:

- Construction of diversion structure on Gilbert Creek downstream of an existing fish barrier constructed by the USFS, WGF, and TU. The purpose of the barrier is to act as a barrier to fish moving upstream and thereby protect genetic purity of Colorado River Cutthroat Trout populations upstream. Placement of the new diversion downstream of the barrier would not affect its function.
- Construction of a supply ditch from the new diversion structure to the East Fork of the Smiths Fork River where diverted flows would join the East Fork of the Smiths Fork River to be picked up at the existing Milich Ditch Diversion structure located approximately 1,000 feet downstream.
- A measurement device would be installed near the new diversion to monitor flows into the new supply ditch.





Completion of this project would involve federally owned lands managed by the USFS. Permits would be required to construct the diversion facilities on Gilbert Creek and the new supply canal. In addition, water rights to complete the project would need to be obtained through the WSEO.

3.2.3 I-010 Graham Reservoir Supply Ditch (Project ID: Kofford 004)

This proposed project would involve replacement of an existing diversion and installation of a measurement device on the Graham Reservoir Supply Ditch. As indicated in Figure 3.2-4, the Graham Reservoir can store water conveyed by the ditch and release it back to the Milich Ditch at a later time.

The proposed project would involve the following components:

- At the location of the existing diversion structure on the Milich Ditch at the Graham Reservoir, a new structure would be built to facilitate diversion of flows into the reservoir or allowing it to continue on downstream in the Milich Ditch.
- A measurement device would be built at this location to monitor flows into the reservoir.

3.2.4 I-011 Bridger Butte Canal Farm Turnout Rehabilitation (Project ID: Mecham 001)

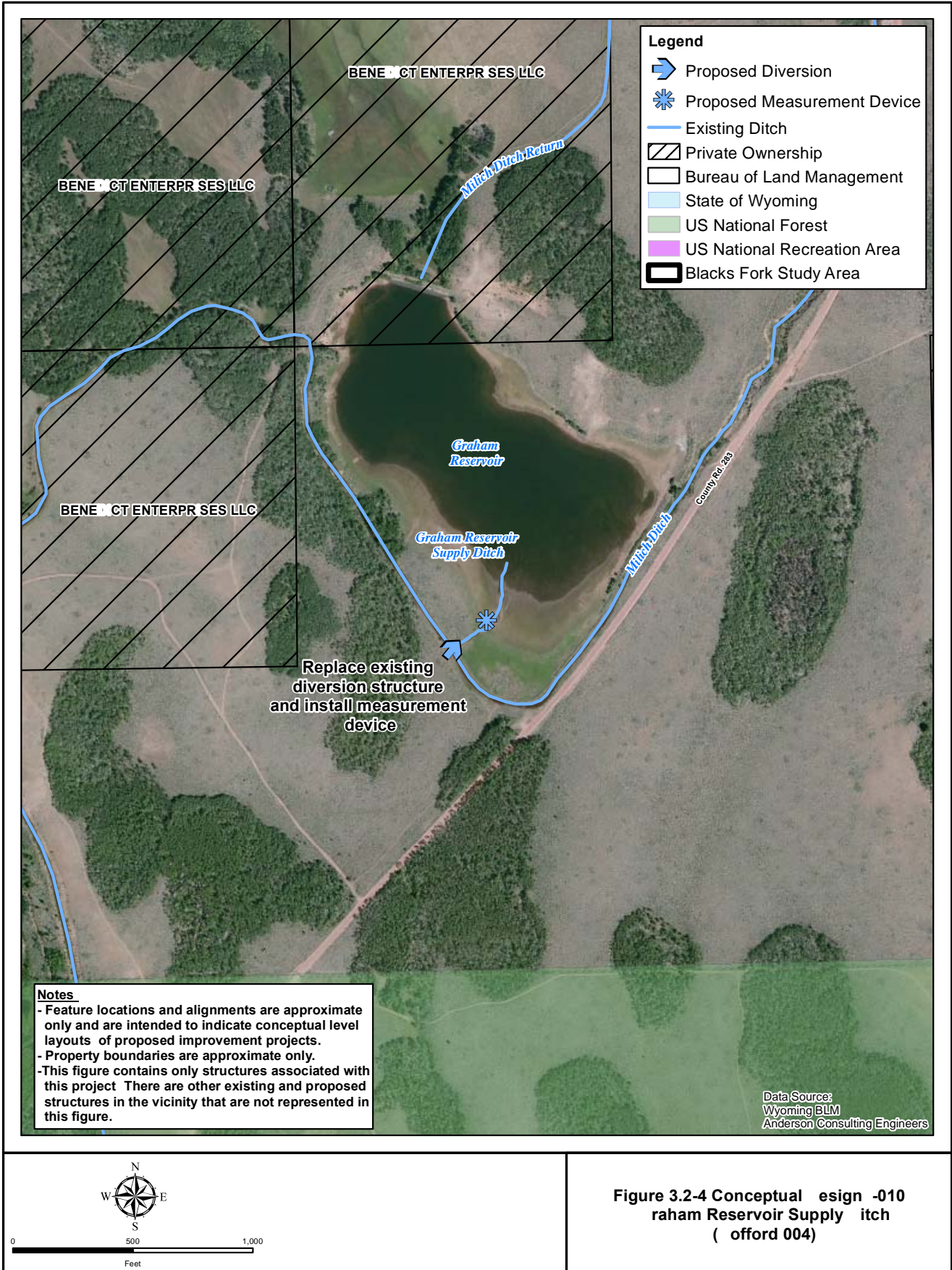
This project involves the rehabilitation of a farm headgate on the Bridger Butte Canal. The headgate is located in the Northwest corner of Section 13, Township 15 North, Range 116 West. Figure 3.2-5 displays a photo of the headgate in its current condition and displays the approximate angle the headwall is leaning. The headgate and headwall appear to be in good condition, however, the entire structure currently leans toward the canal and is unstable. Separation from the culvert under the canal maintenance road has resulted in seepage around the pipe. Figure 3.2-6 displays an overview of the project area.

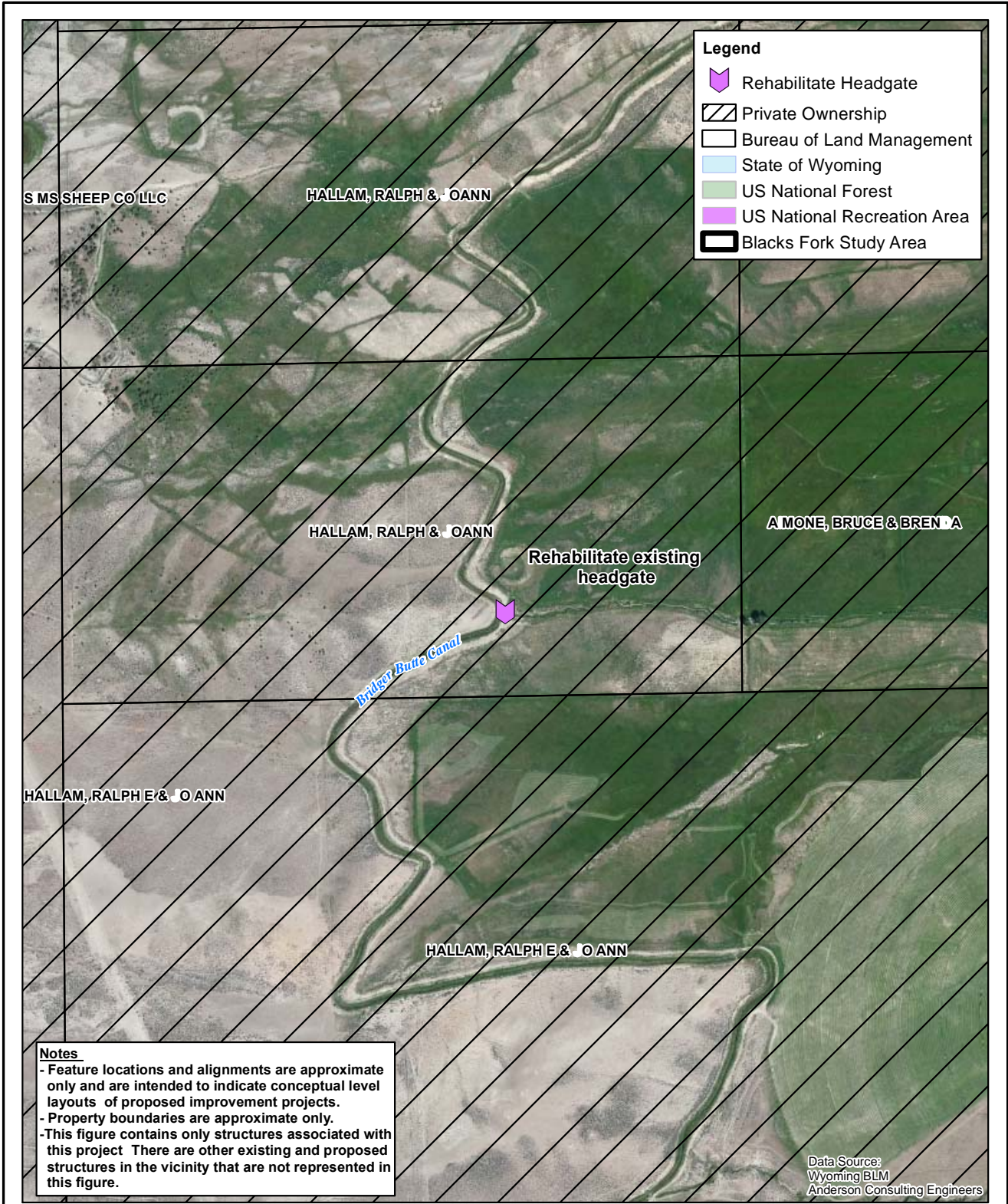


Figure 3.2-5. Failing Farm Turnout Headgate on Bridger Butte Canal.

The following components are recommended for completion of this project:

- Inspection of the existing culvert to verify its structural integrity. Should inspection determine the culvert to be unsound or its integrity threatened, it should be replaced. The existing culvert is 18 inches in diameter and 25 feet long.
- The headgate and headwall should be removed and reinstalled ensuring adequate connection to the culvert to eliminate seepage and leakage.



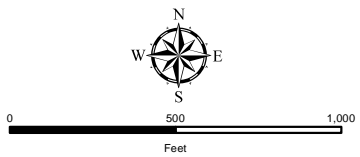


- Legend**
-  Rehabilitate Headgate
 -  Private Ownership
 -  Bureau of Land Management
 -  State of Wyoming
 -  US National Forest
 -  US National Recreation Area
 -  Blacks Fork Study Area

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.

Data Source:
Wyoming BLM
Anderson Consulting Engineers



**Figure 3.2-6 Conceptual Design -011
Bridger Butte Canal Farm
Turnout Rehabilitation
(Mecham 001)**

3.2.5 I-012: Bridger Butte Canal Diversion Structure Rehabilitation (Project ID: Mecham 002)

This diversion and headgate serve the Bridger Butte Canal on the Blacks Fork River in Section 30, Township 15 North, Range 115 West. According to records available through the Wyoming State Engineers Office, the total irrigated acreage served by the ditch in Wyoming is as follows:

Permit	Priority Date	Irrigated Acres	Cubic Feet Per Second
P2064	12/22/1898	1,844.43	26.37
P1443	9/25/1905	60.0	.86
Total		1,904.43	27.23

At the request of ditch representatives, the diversion structure and headgate were evaluated. The ditch headgate appears to be in fair condition. The structure is composed of concrete and wood of unknown age. There is no headgate or other means of controlling diverted quantities at this location. Figure 3.2-7 shows the Bridger Butte Canal Diversion Structure



Figure 3.2-7 Bridger Butte Diversion Structure.

A wasteway in good condition is located approximately 900 feet downstream. At that location, the ditch company can regulate their diversions by spilling unwanted water back to the river. The WSEO has installed a telemetered measurement device approximately 1,400 feet downstream of the canal headgate.

According to the ditch representative, it is our understanding that maintenance of the diversion structure is problematic. Annual maintenance requirements of the diversion include construction of a “push up” dam in the channel to provide diversion capability. High flows in the Blacks Fork River frequently obliterate the dams rendering diversion difficult afterwards.

At this time, a replacement of the failing diversion structure is recommended. This effort would include construction of a new concrete diversion dam on the Blacks Fork and replacement of the existing diversion structure. Preliminary design considerations are based upon construction of a concrete diversion dam to provide the desired water surface elevation for optimal diversions at both high and low

stream discharges. Consultation with Trout Unlimited should be arranged to determine the likelihood of potential partnering on the project.

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. Figure 3.2-8 displays the general project location.

3.2.6 I-013 Twin Buttes Canal Diversion Rehabilitation (Project ID: Micheli-001)

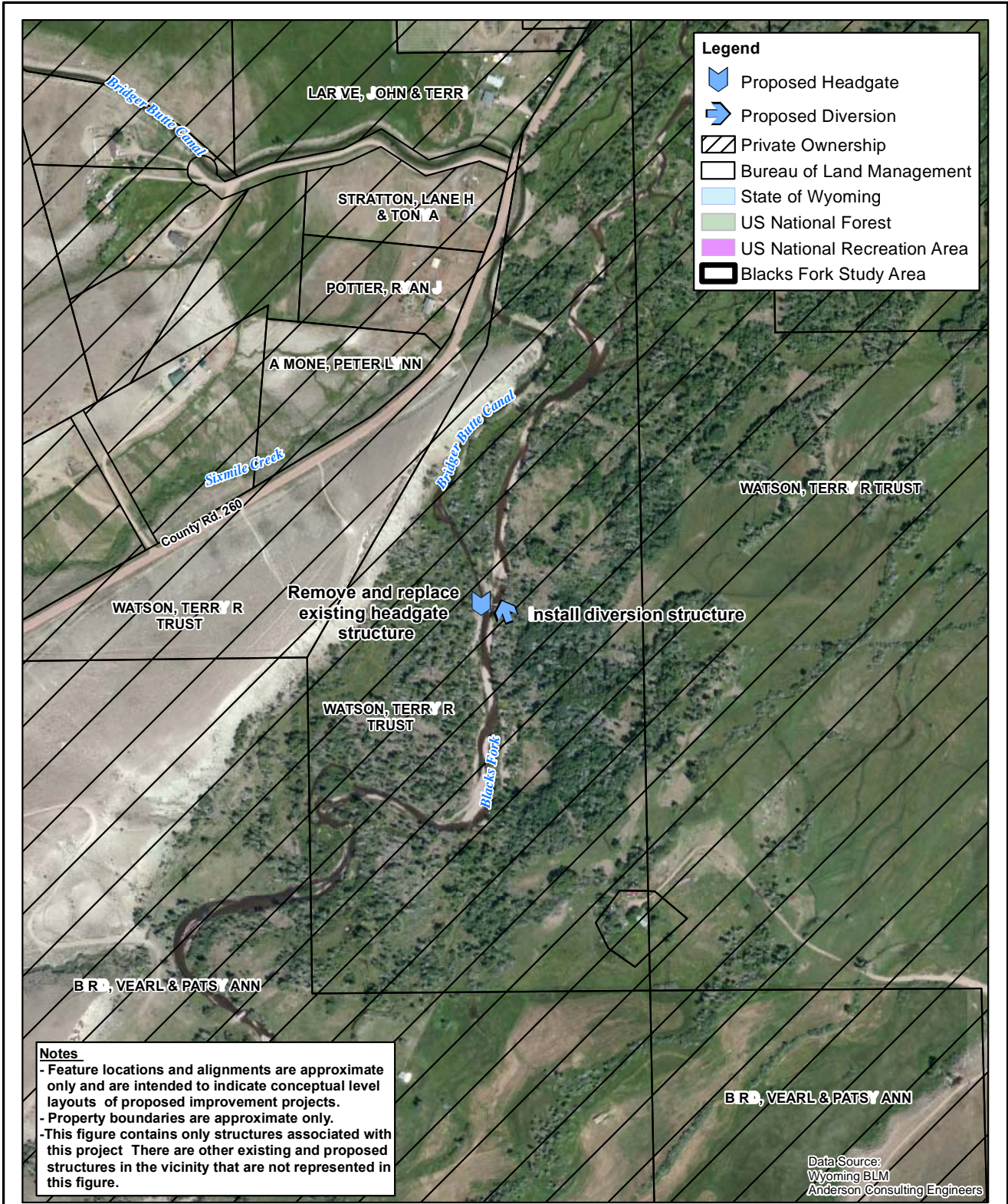
The Twin Buttes Canal diversion structure is located on the Blacks Fork River in Section 9, Township 15 North, Range 115 West. A change in point of diversion and conveyance of the Shurtliff and Early Ditch resulted in the Twin Buttes Canal conveying water for both systems. Consequently, several water rights are associated with the canal; most senior of which carries a priority date of 1887.

According to ditch representatives, the diversion structure on the Blacks Fork River is poorly aligned with respect to the channel approach. The diversion structure is not aligned perpendicular to the current channel configuration; during low flow periods the canal headgate can be left “high and dry” because the stream impinges upon the left (far) side of the river. Consequently, during low flow periods, the ditch company must rework the channel to bring water back to the diversion structure. Figure 3.2-9 shows the locations of the diversion structure and headgate.

Based upon a preliminary review of the structure and its configuration, it appears that the structure could be reconfigured in place to push the water during low flow periods to the right (near) bank of the river where diversion could be facilitated. The exposed concrete of the diversion structure appears to be competent and in fair to good condition. It is our understanding that a concrete apron underlies river gravels upstream of the diversion dam. A concrete wall across the channel and upstream of the existing vertical drop, could conceivably be constructed which would pass high flows while diverting low flows towards the headgate. Actual alignment and configuration of the remediation would be determined during the design process should ditch management decide to move forward with this project.

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

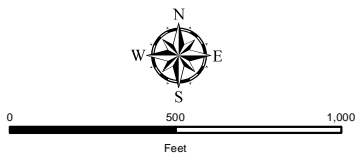
As presented in the Basinwide volume of this report, water sources deemed “viable” were mapped within the project GIS. Based upon the premise that existing water sources are capable of providing water to livestock within a one mile radius, buffers were drawn around the mapped sources (Figure 3.3-1). 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.



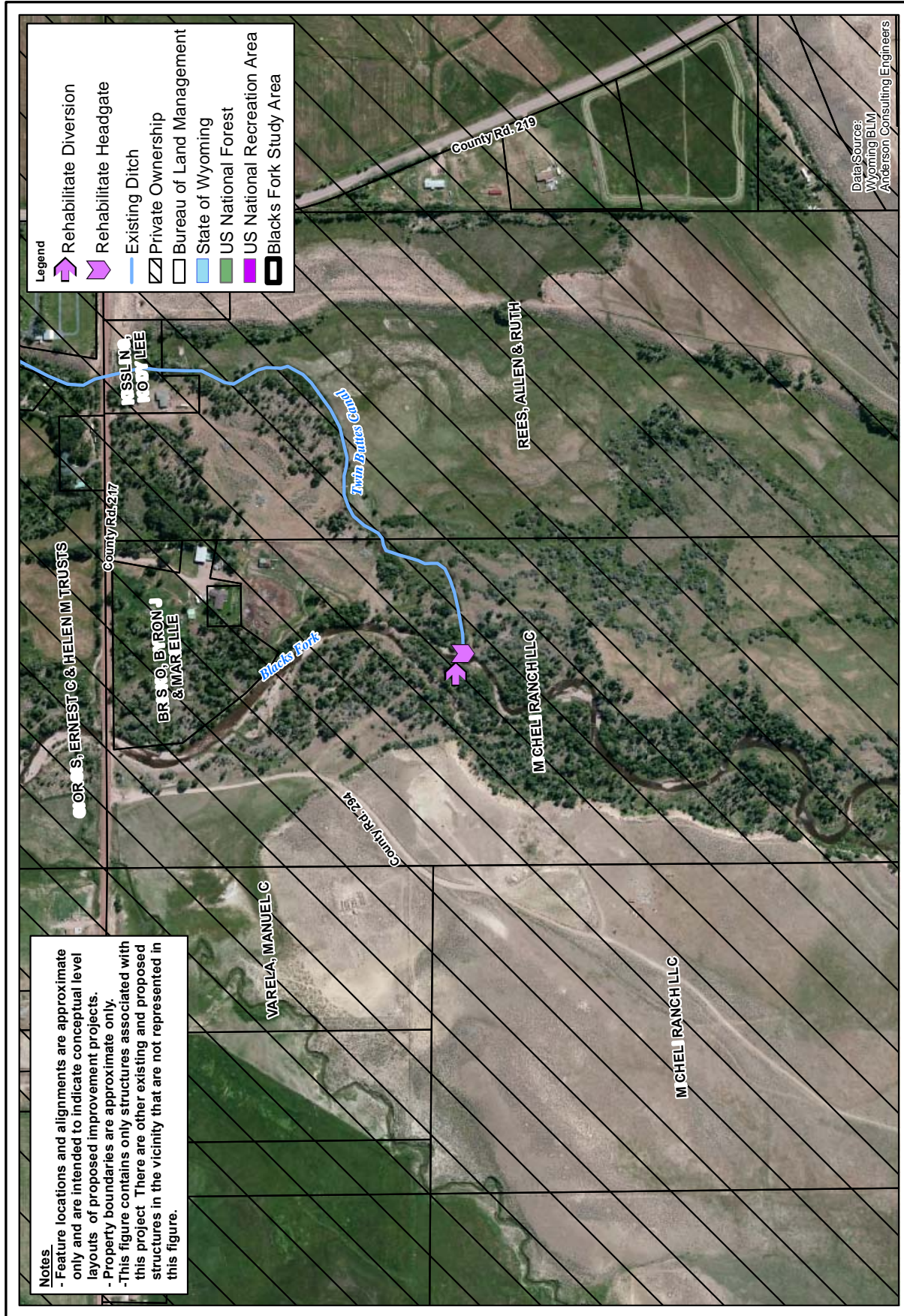
Notes

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



**Figure 3.2-8 Conceptual Design -012
Bridger Butte Canal Farm
Turnout Rehabilitation
(Mecham 002)**



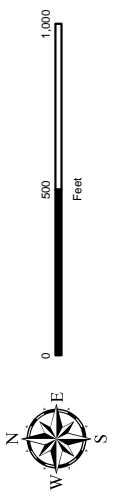
Notes

- 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**
- Rehabilitate Diversion
 - Rehabilitate Headgate
 - Existing Ditch
 - 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 esign -013
Twin Buttes Canal Rehabilitation
(Micheli 001)



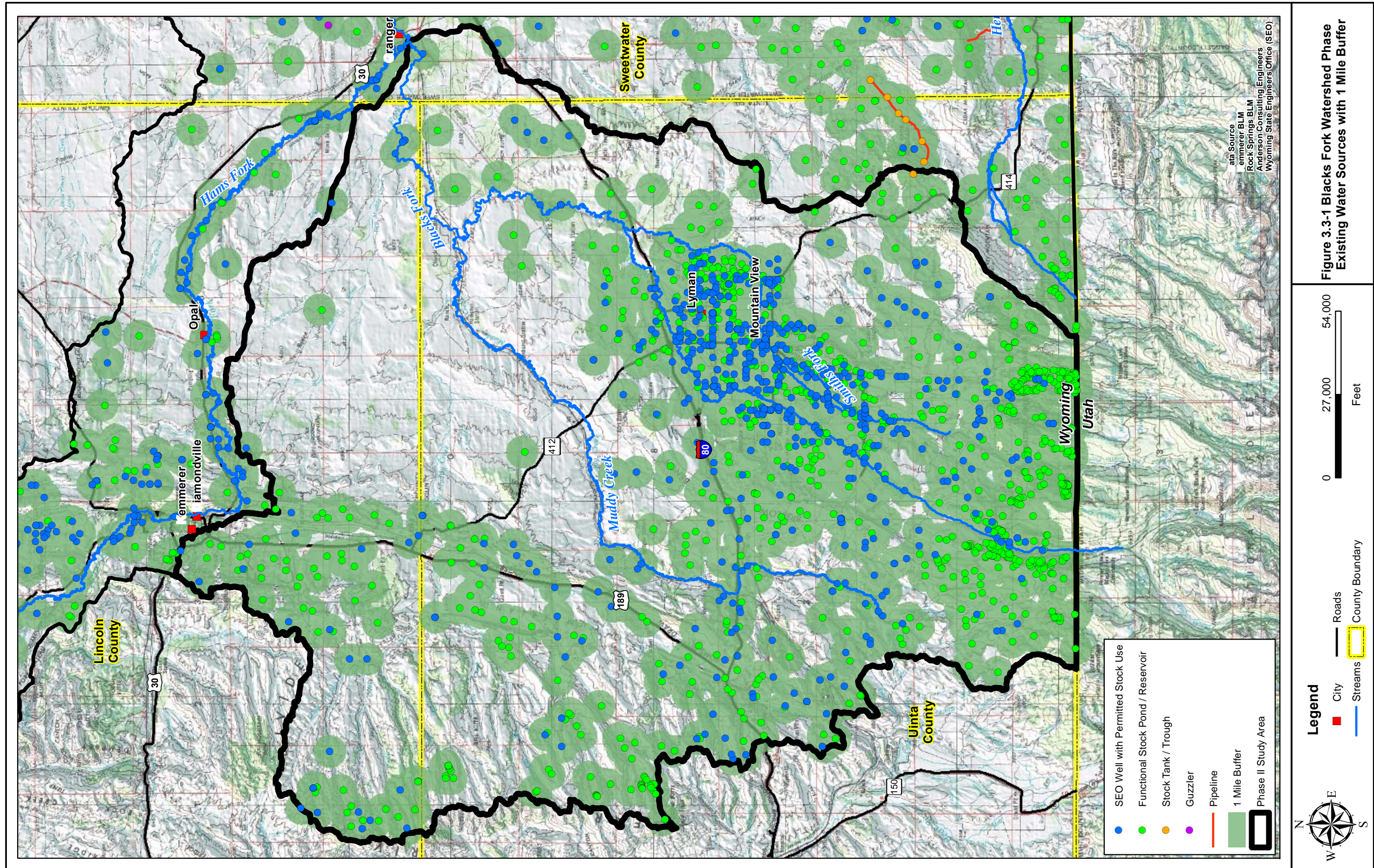
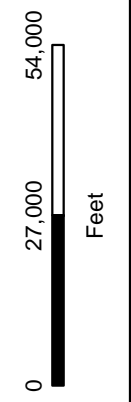
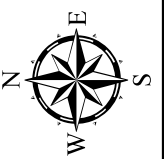


Figure 3.3-1 Blacks Fork Watershed Phase Existing Water Sources with 1 Mile Buffer

ata Source
 emmerer BLM
 Rock Springs BLM
 Anderson Consulting Engineers
 Wyoming State Engineers Office (SEO)

- SEO Well with Permitted Stock Use
- Functional Stock Pond / Reservoir
- Stock Tank / Trough
- Guzzler
- Pipeline
- 1 Mile Buffer
- Phase II Study Area

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



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 II 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.

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.

3.3.1 L/W-019 through L/W-036 Company Ranch Projects (Project IDs CR-001 through CR-018)

The Company Ranch is located in the northwestern portion of the project study area. In coordination with NRCS staff in Pinedale, Wyoming, eighteen projects have been delineated. The Company Ranch and the NRCS are currently in the process of designing the projects and applications for funding through the NRCS EQIP program have been completed.

These projects all fall within the eligibility guidelines of the WWDC SWPP. Consequently, there is opportunity for partnering among Federal and State agencies to provide funding opportunities.

NRCS staff have written descriptions of each project which are incorporated in this report as Appendix 3A. Figure 3.3-3 displays the general location of the projects.

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

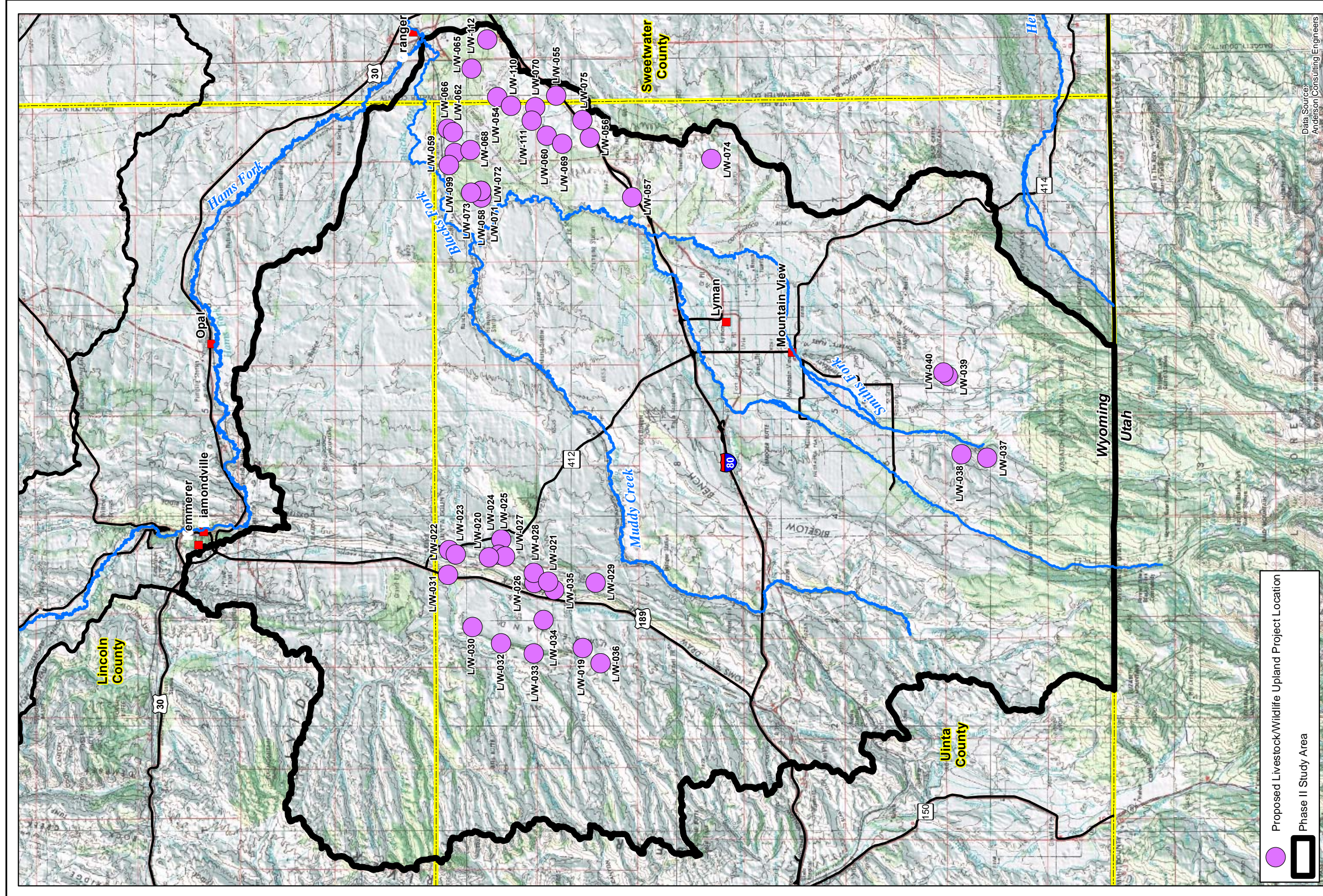
Watershed Management Plan Component	Project ID	Project Name	Spring Development	Pipeline	Stock Tank	Storage Tank	Well Construction/Rehabilitation	Solar Pump/Generator	Stock Reservoir Rehabilitation	Stock Reservoir Construction	Guzler Construction
Phase II											
L/W-019	CR001	Meadow Draw #6	1	5,890	2	1					
L/W-020	CR002	Section 19 Seep/Spring on Anadarko	1	200	1						
L/W-021	CR003	Bridger Well No. 13 on Anadarko	1	400	1						
L/W-022	CR004	Section 6 Well on BLM		5,280	2	1		1			
L/W-023	CR005	Cumberland No. 9 on Anadarko							1		
L/W-024	CR006	Cumberland No.31 Pond							1		
L/W-025	CR007	Cumberland No. 22 Well on Anadarko	1	400	1						
L/W-026	CR008	Bridger Pond No. 3 on Anadarko									1
L/W-027	CR009	Section 30 Spring on BLM	1	200	1						
L/W-028	CR010	Albert Creek Well #1 on State Lands		11,880	2	1		1			
L/W-029	CR011	Bridger No. 10 Pond on Anadarko/BLM		1,320	1	1	1	1			
L/W-030	CR012	Elkol No. 3 Pond							1		
L/W-031	CR013	Section 1 Well on Anadarko		200	1			1			
L/W-032	CR014	Section 20 Spring/Pipeline on BLM/Anadarko	1	13,200	3						
L/W-033	CR015	Section 31 Spring/Pipeline on Anadarko/BLM	1	5,280	3	1					
L/W-034	CR016	Section 4 Pond on BLM							1		
L/W-035	CR017	Bridger No. 14 Well and Bridger No. 7 Pond on Anadarko	1	200	1						
L/W-036	CR018	Section 19 Well/Pipeline on Anadarko/BLM		10,560	2	1	1	1			
L/W-037	Hamilton 001	West Fork of Smith Fork Pipeline Project		20,000	1						
L/W-038	Hamilton 002	Cold Spring Pipeline Project	1	570	1						
L/W-039	Kofford 001	Wildflower Spring Development Project 1	1	200	1						
L/W-040	Kofford 002	Clifford Spring Development	1	200	1						
L/W-054	UDC-012	South-East Stock Reservoir							1		
L/W-055	UDC-013	Wildcat #3 Stock Reservoir							1		
L/W-056	UDC-014	Wildcat #1 Stock Reservoir							1		
L/W-057	UDC-015	Stock Reservoir							1		
L/W-058	UDC-016	Outer Blackfork #7		300	1		1				
L/W-059	UDC-017	BP American Champlin Unit Well No. 186-B1		300	1		1				
L/W-060	UDC-018	Section 5 Spring	1	300	1						
L/W-062	UDC-020	Stock Reservoir							1		
L/W-065	UDC-023	Stock Reservoir							1		
L/W-066	UDC-024	Stock Reservoir							1		
L/W-068	UDC-026	Stock Reservoir							1		
L/W-069	UDC-027	Wildcat #4	1	300	1						
L/W-070	UDC-028	Flowing Well		300			1		1		
L/W-071	UDC-029	Bruff Wsw #1		300	1		1				
L/W-072	UDC-030	Stock Reservoir							1		
L/W-073	UDC-031	Stock Reservoir							1		
L/W-074	UDC-032	Mud Springs	1	300	1				1		
L/W-075	UDC-033	Bluemel Stock Reservoir							1		
L/W-099	UDC-057	Stock Reservoir							1		
L/W-110	UDC-068	Spring	1	300	1						
L/W-111	UDC-069	Spring	1	300	1						
L/W-112	UDC-070	Spring	1	300	1						

3.3.2 L/W-037: West Fork of Smith Fork Pipeline Project (Project ID: Hamilton 001)

This alternative would involve the installation of a pipeline originating at the terminus of an existing irrigation ditch to convey water downslope to an existing stock water pit. The project would be located in Township 13 North, Range 116 West, Sections 11, 12, 14, 23, 26, and 27. The project would supply water to a portion of the watershed lacking adequate alternative livestock and wildlife upland water sources. Figure 3.3-4 displays the conceptual design of the project.

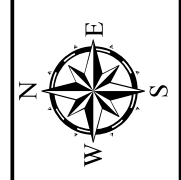
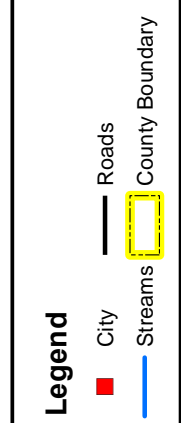
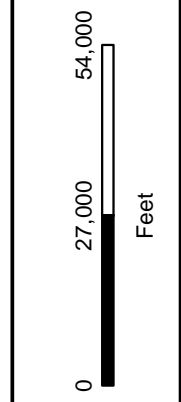
Under this alternative, the following components would be employed:

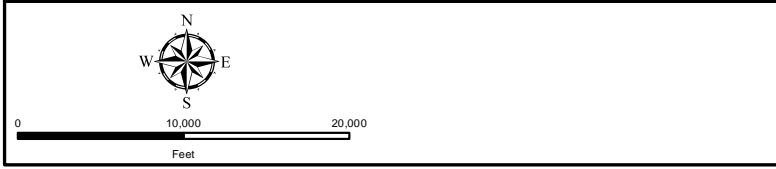
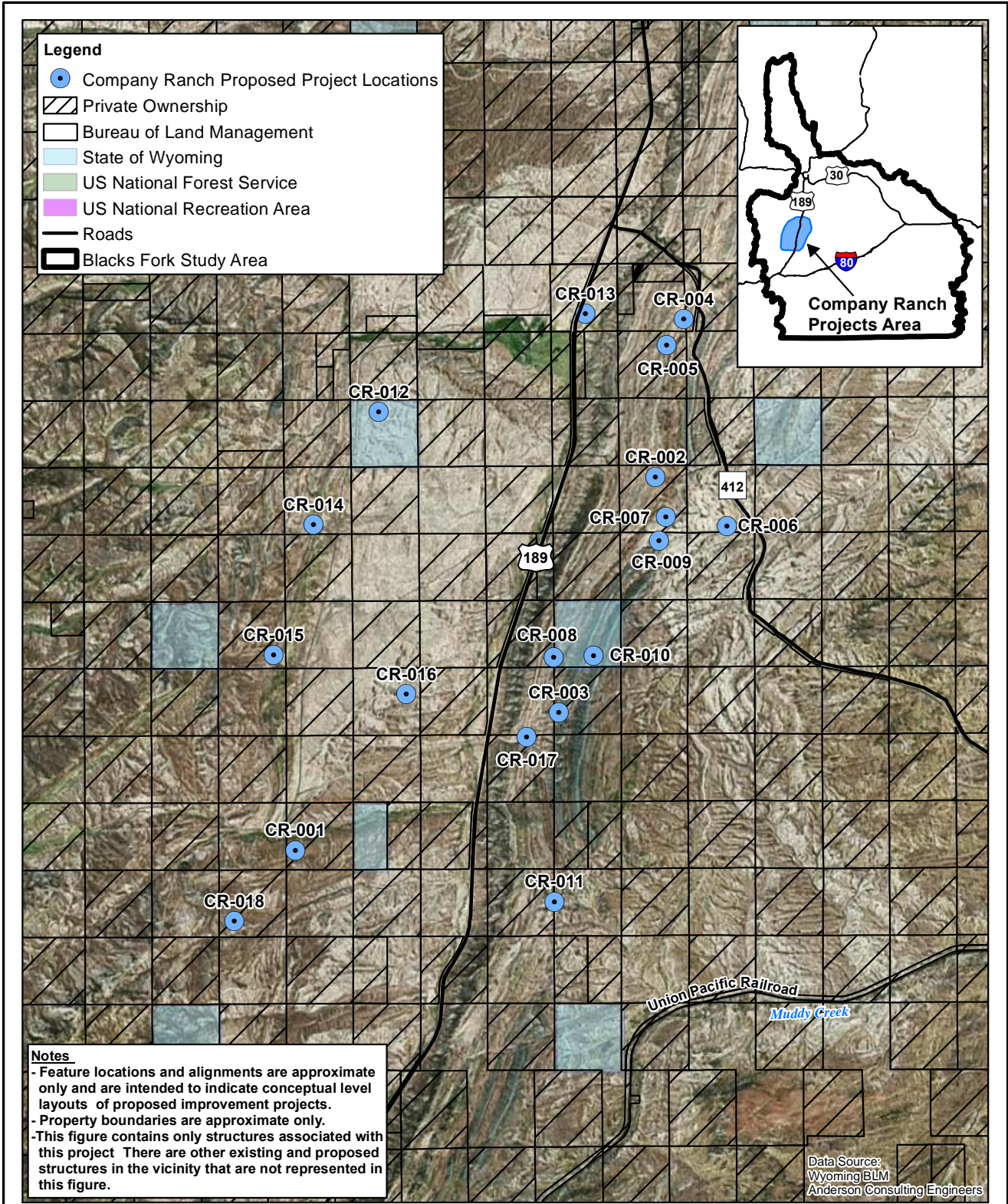
- Water conveyed via the Hamilton Enlargement of the Cold Springs Ditch (Permit No. P6770.OE) would be conveyed via a 1 ½ inch buried HDPE pipe.
- The pipeline would extend approximately 20,000 feet downslope to a 1,200 gallon stock tank.
- Overflow from the stock tank would be captured in an existing stock water reservoir.



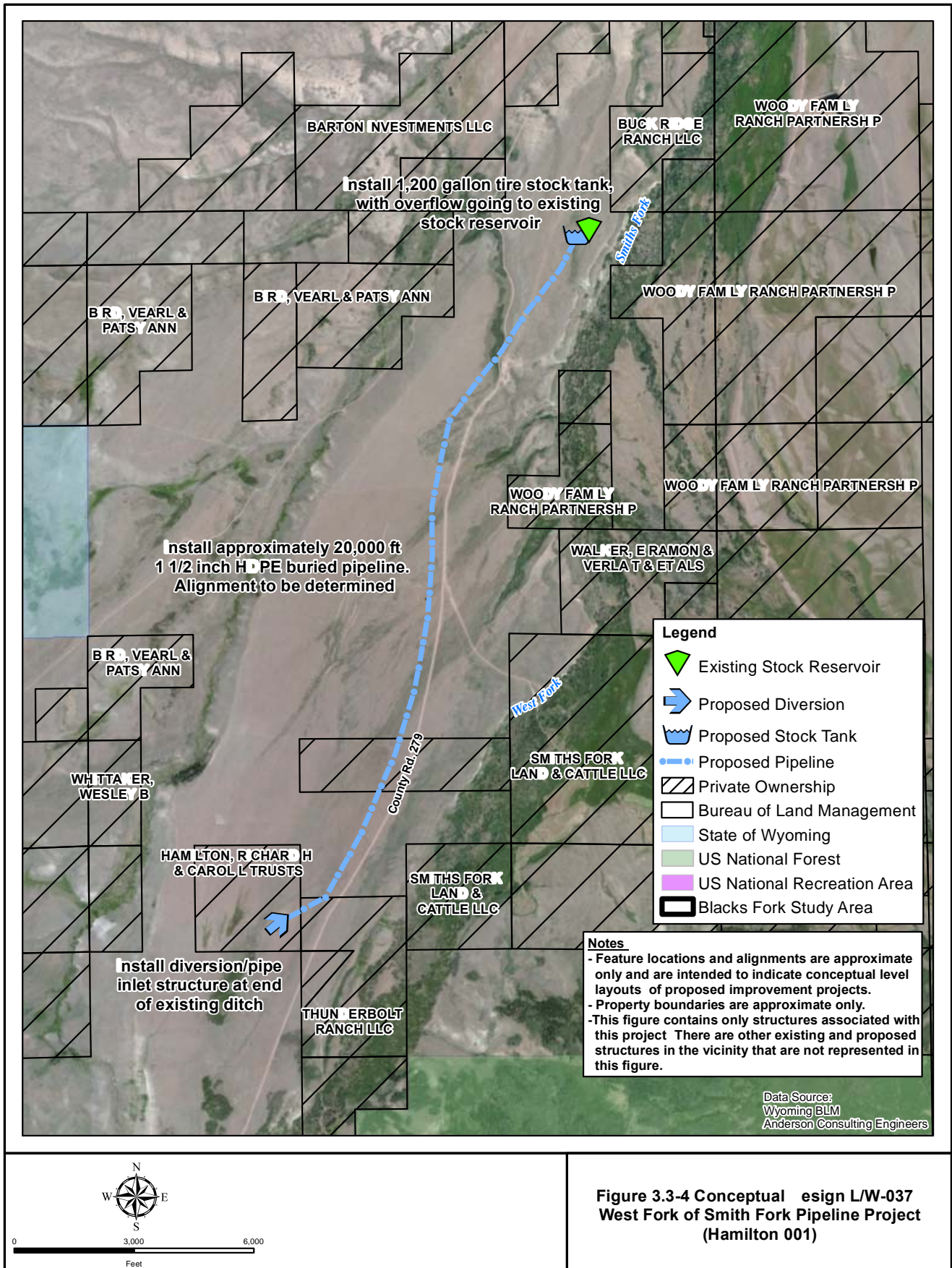
Data Source:
Anderson Consulting Engineers

Figure 3.3-2 Blacks Fork Watershed Phase II Proposed Livestock/Wildlife Upland Project Locations





**Figure 3.3-3 L/W-019 through L/W-036
Company Ranch Proposed
Project Locations**



**Figure 3.3-4 Conceptual Design L/W-037
West Fork of Smith Fork Pipeline Project
(Hamilton 001)**

- 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 this involves both privately owned and federally owned lands (BLM).

3.3.3 L/W-038: Cold Spring Pipeline Project (Project ID: Hamilton 002)

This alternative would involve the development of an existing spring in the Willow Creek subwatershed. The alternative would supply water to a portion of the watershed lacking adequate alternative livestock and wildlife upland water sources. Figure 3.3-5 displays the conceptual design of the project.

Under this alternative, the following components would be employed:

- An existing spring would be developed in Section 11, Township 13 North, Range 116 West. A valve would be included for management of pipeline flows.
- From the spring, water would be routed north westerly via a pipeline to a 1,200 gallon stock tank.
- Approximately 570 linear feet of buried 1 ½ inch HDPE low-pressure pipeline would be required.
- 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.
- The spring vicinity would be fenced to prevent spring development damage from livestock and wildlife.

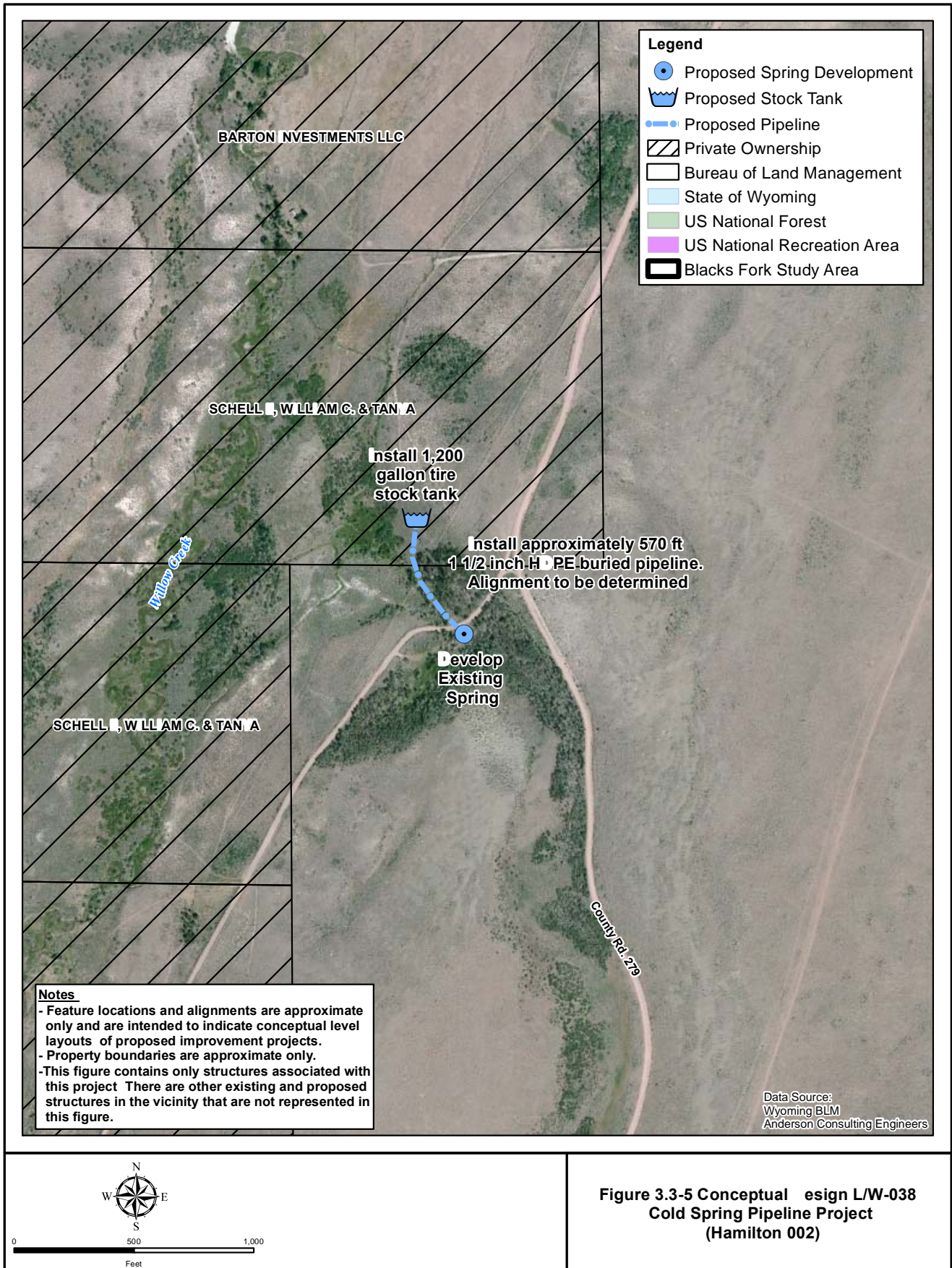
Note that this involves both privately owned and federally owned lands (BLM).

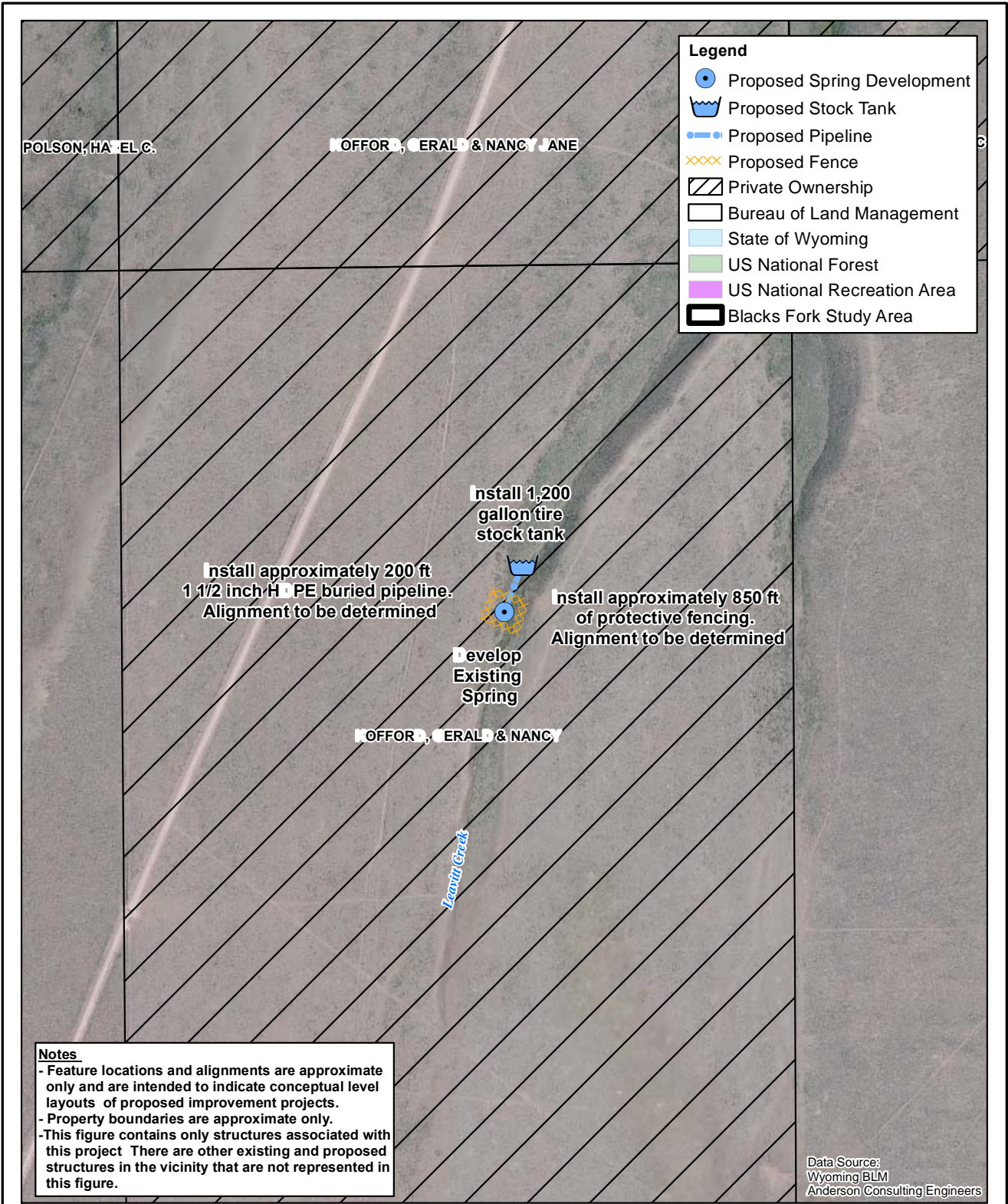
3.3.4 L/W-039: Wildflower Spring Development Project 1 (Project ID: Kofford 001)

This alternative would involve the development of an existing spring in the Leavitt Creek subwatershed (tributary to the Smiths Fork). According to the WSEO online database, the spring is called the Wildflower Spring and is permitted to Gerald and Nancy Kofford under permit number P200238W. The proposed project is located entirely on privately owned property. The alternative would provide a reliable supply water to a portion of the watershed lacking adequate alternative livestock and wildlife upland water sources. Figure 3.3-6 displays the conceptual design of the project.

Under this alternative, the following components would be employed:

- An existing spring would be developed in Section 3, Township 13N, Range 115W. A valve would be included for management of pipeline flows.
- From the spring, water would drain downslope (northeasterly) to a 1,200 gallon stock tank.
- Approximately 200 linear feet of buried 1 ½ inch HDPE low-pressure pipeline would be required.

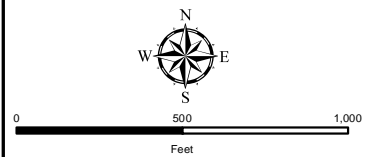




Notes

- 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.

Data Source:
Wyoming BLM
Anderson Consulting Engineers



**Figure 3.3-6 Conceptual Design L/W-039
Wildflower Spring development Project 1
(offord 001)**

- 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.
- The spring vicinity would be fenced to prevent spring development damage from livestock and wildlife.

Note that the proposed project as delineated would involve only privately owned lands for pipeline alignment and stock tank placement.

3.3.5 L/W-040: Clifford Spring Development (Project ID: Kofford 002)

This alternative would involve the development of an existing spring in the Leavitt Creek subwatershed (tributary to the Smiths Fork). According to the WSEO online database, the spring is called the Clifford Spring and is permitted to Gerald and Nancy Kofford under permit number P200237.0W. The proposed project is located entirely on privately owned property. The alternative would provide a reliable supply water to a portion of the watershed lacking adequate alternative livestock and wildlife upland water sources. Figure 3.3-7 displays the conceptual design of the project.

Under this alternative, the following components would be employed:

- An existing spring would be developed in Section 34, Township 14N, Range 115W. A valve would be included for management of pipeline flows.
- From the spring, water would drain downslope (northeasterly) to a 1,200 gallon stock tank.
- Approximately 200 linear feet of buried 1 ½ inch HDPE low-pressure pipeline would be required.
- 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.
- The spring vicinity would be fenced to prevent spring development damage from livestock and wildlife.

Note that the proposed project as delineated would involve only privately owned lands for pipeline alignment and stock tank placement.

3.3.6 UDC Projects

Twenty two (22) 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 associated with these 22 projects. *As presented in the Basinwide Report, conceptual designs and narratives of UDC projects were not prepared in this Level I investigation.*

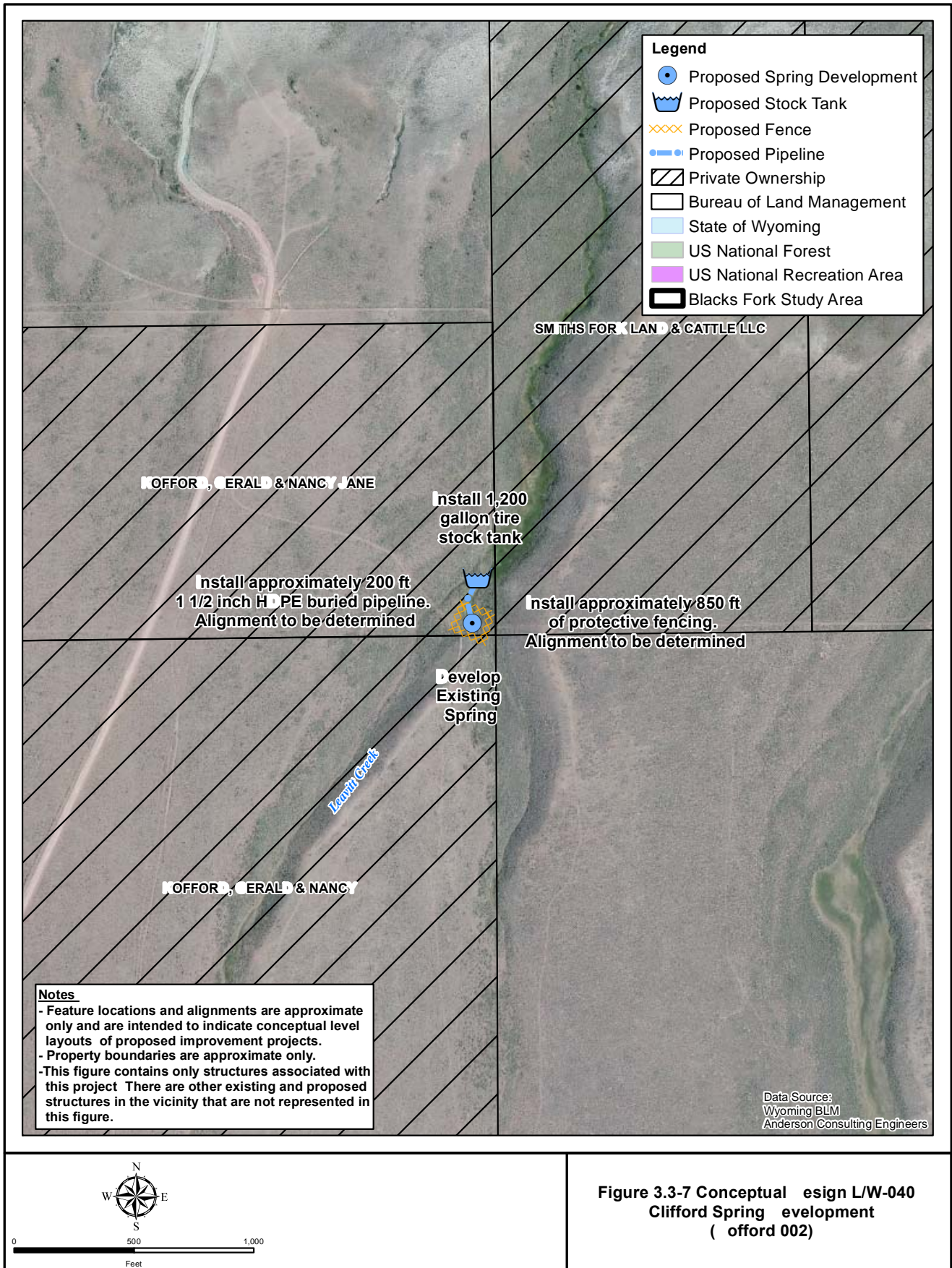


Table 3.3-2. UDC Project Construction Components.

Project Name	UDC Waypoint	Priority	Develop Source	Fence Source - E50'	Diversion Repair	Supply Ditch- Earthwork	Supply Ditch-Rock	Excavate Pond/Pit (Sediment Removal)	Use Pond/Pit (Benzotie)	Install Principal Outlet (Agr+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)	QQ	Section	Town	Range	Pasture
Watershed Component L/W-054 (UDC-012)	25	Mid						x			x	x				41.5228	-110.042	SESE	22	T 18 N	R 11 2	CHURCH BUTTES
Watershed Component L/W-055 (UDC-013)	27	Low						x	x	x	x					41.4721	-110.041	SENE	10	T 17 N	R 112 W	CHURCH BUTTES
Watershed Component L/W-056 (UDC-014)	28	Low			x	x		x	x		x	x	x			41.4436	-110.09	NENW	20	T 17 N	R 112 W	CHURCH BUTTE
Watershed Component L/W-057 (UDC-015)	29	Low							x		x					41.4079	-110.158	SESE	34	T 17 N	R 113 W	CHURCH BUTTE
Watershed Component L/W-058 (UDC-016)	31	High		x										x	x	41.5374	-110.157	SESE	15	T 18 N	R 113 W	CHURCH BUTTES
Watershed Component L/W-059 (UDC-017)	32	High		x										x	x	41.56	-110.106	NWNE	7	T 18 N	R 112 W	CHURCH BUTTES
Watershed Component L/W-060 (UDC-018)	34	High	x	x										x	x	41.4807	-110.087	NWSE	5	T 17 N	R 112 W	CHURCH BUTTES
Watershed Component L/W-062 (UDC-020)	37	Low			x			x	x							41.5606	-110.081	NENE	8	T 18 N	R 112 W	CHURCH BUTTES
Watershed Component L/W-065 (UDC-023)	40	Low				x		x	x		x	x				41.5445	-110.009	SWNE	13	T 18 N	R 112 W	CHURCH BUTTES
Watershed Component L/W-066 (UDC-024)	41	Mid			x			x	x				x			41.5657	-110.078	SESE	5	T 18 N	R 112 W	CHURCH BUTTES
Watershed Component L/W-068 (UDC-026)	46	Low									x					41.5464	-110.102	NWNE	18	T 18 N	R 112 W	CHURCH BUTTES
Watershed Component L/W-069 (UDC-027)	48	High	x	x										x	x	41.4673	-110.096	NWSW	8	T 17 N	R 112 W	CHURCH BUTTE
Watershed Component L/W-070 (UDC-028)	49	High		x				x	x				x			41.4902	-110.054	NWNW	3	T 17 N	R 112 W	CHURCH BUTTES
Watershed Component L/W-071 (UDC-029)	50	Low	x											x	x	41.5375	-110.149	SWSW	14	T 18 N	R 113 W	CHURCH BUTTES
Watershed Component L/W-072 (UDC-030)	51	Low			x			x	x	x	x	x				41.5375	-110.149	SESW	11	T 18 N	R 113 W	CHURCH BUTTES
Watershed Component L/W-073 (UDC-031)	52	Mid			x			x	x							41.5461	-110.151	NWNW	14	T 18 N	R 113 W	CHURCH BUTTES
Watershed Component L/W-074 (UDC-032)	54	High	x	x				x						x	x	41.3396	-110.115	SENW	26	T 16 N	R 112	MASSACRE HILL
Watershed Component L/W-075 (UDC-033)	56	Low						x	x	x	x	x				41.4498	-110.07	SESW	16	T 17 N	R 112 W	MASSACRE HILL
Watershed Component L/W-099 (UDC-057)	96	Mid			x			x	x				x			41.5649	-110.119	SESE	1	T 18 N	R 113 W	CHURCH BUTTES
Watershed Component L/W-110 (UDC-068)	240	Mid	x	x										x	x	41.5111	-110.052	NESW	27	T 18 N	R 112 W	CHURCH BUTTES
Watershed Component L/W-111 (UDC-069)	241	Mid	x	x										x	x	41.4934	-110.07	SESW	33	T 18 N	R 112 W	CHURCH BUTTES
Watershed Component L/W-112 (UDC-070)	248	Mid	x	x										x	x	41.5308	-109.976	NENW	20	T 18 N	R 111 W	CHURCH BUTTES

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 II study area (see Figure 2.2-7), there are several ecological sites which are predominant. These ecological sites are:

- Saline Upland (SU) 7-9" Green River and Great Divide Basins
- Shallow Loamy (SwLy) 7-9" Green River and Great Divide Basins
- Sandy (Sy) 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).

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:

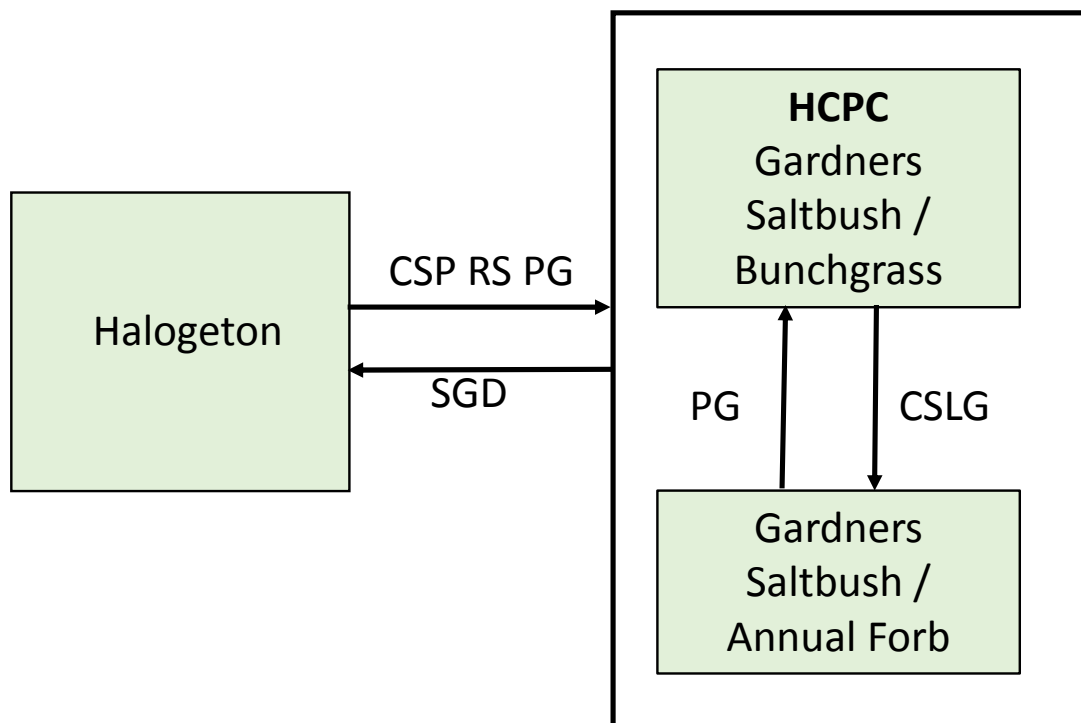
- *Severe Ground Disturbance will convert this plant community to the Halogeton State.*
- *Continuous Season-long Grazing will convert this plant community to the Gardner's Saltbush/Annual Forb State.*

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

Shallow Loamy (SwLy) 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 70% grasses or grass-like plants, 10% forbs, and 20% woody plants. The major grasses include bluebunch wheatgrass, needleandthread, Indian ricegrass, and thickspike wheatgrass. Other grasses include Letterman needlegrass, Sandberg bluegrass, prairie junegrass, bottlebrush squirreltail, Salina wildrye, and needleleaf sedge. Winterfat is the major woody plant. Other woody plants include black, low, and big sagebrush, and green rabbitbrush.

A typical plant composition for this state consists of bluebunch wheatgrass 20-40%, needleandthread 10-20%, Indian ricegrass 10-20%, thickspike wheatgrass 10-20%, other grasses and grass-like plants 5-15%, perennial forbs 5-15%, winterfat 1-10%, and 5-15% other woody species. Ground cover, by ocular estimate, varies from 10-30%.



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

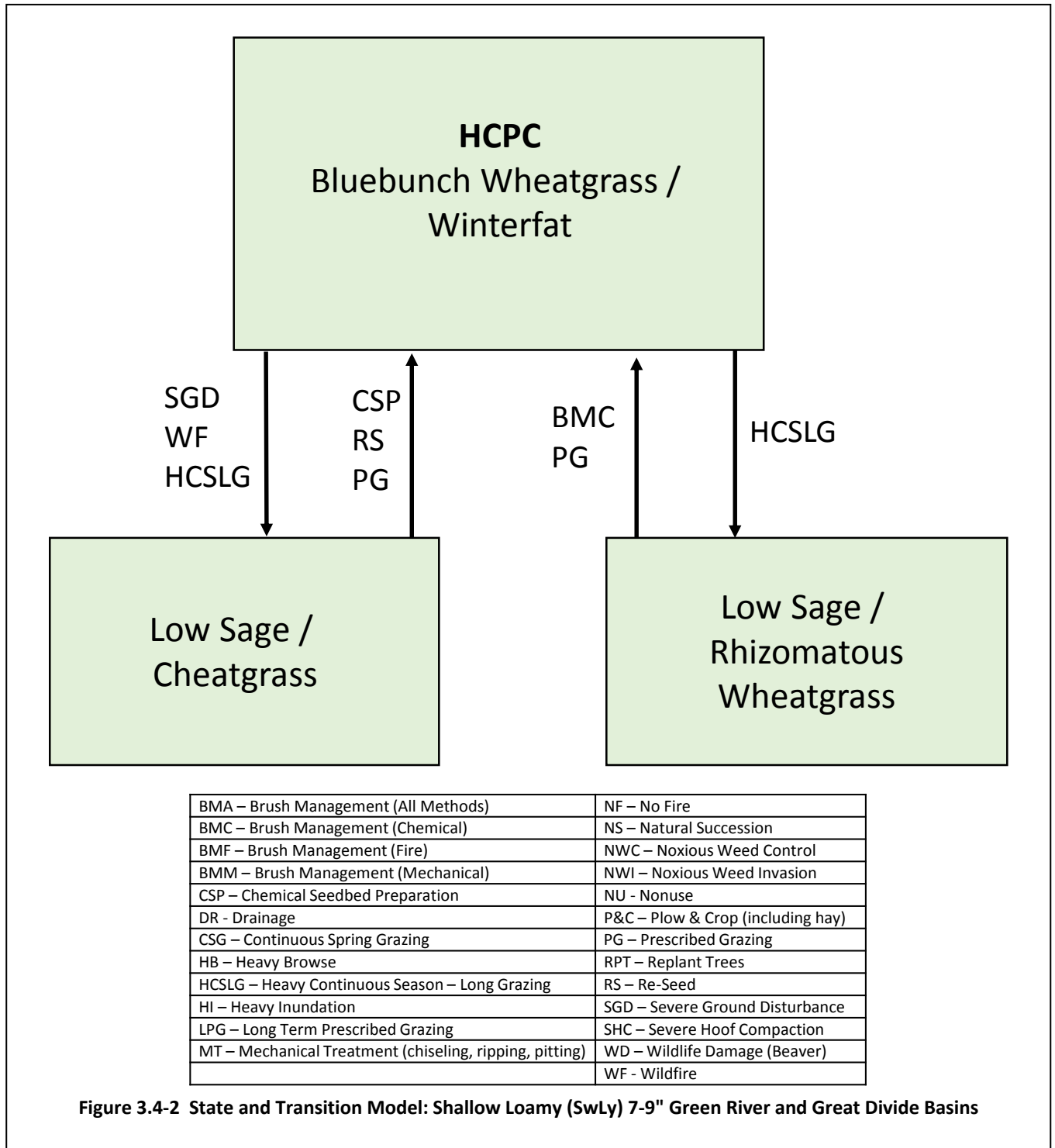
The total annual production (air-dry weight) of this state is about 350 pounds per acre, but it can range from about 200 lbs./acre in unfavorable years to about 450 lbs./acre in above average years. The state is extremely stable and well adapted to the Cool Central Desertic Basins and Plateaus climatic conditions. The diversity in plant species allows for high drought 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:

- *Wildfire or Severe Ground Disturbance followed by Heavy Continuous Season-long Grazing will convert this plant community to the Low Sagebrush/Cheatgrass State.*

- Heavy Continuous Season-long Grazing will convert this plant community to the Low Sagebrush/Rhizomatous Wheatgrass State.

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



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, threeawn, 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%.

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).

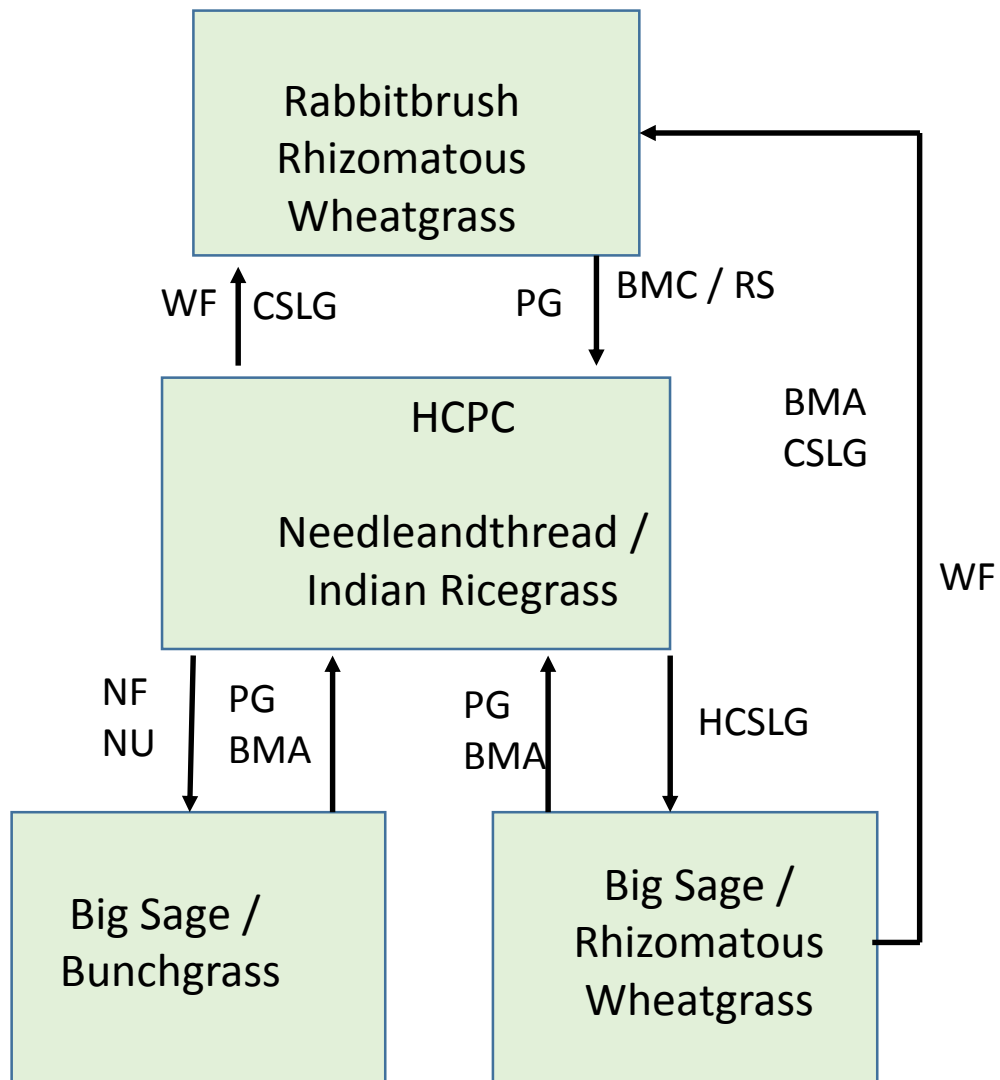
Transitions or pathways leading to other plant communities are as follows:

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

3.5 Water Storage Opportunities

Seven potential reservoir storage projects were identified within this phase of the Blacks Fork Watershed investigation. Potential projects include construction of new reservoirs approximately 200 acre feet in size, rehabilitation of existing facilities in need of update or repair, and enlargement of existing facilities. Table 3.5-1 tabulates the projects and pertinent information. Figure 3.5-1 shows their location.



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 3.4-3 State and Transition Model: Sandy (Sy) 7-9" Green River and Great Divide Basins

Table 3.5-1 Phase II Water Storage Opportunities.

Phase II Watershed Plan Component: Storage Opportunities (S)						
Watershed Plan Component	Study Area Phase	Project name	Action	Source	Storage	
					Existing	New Construction / Enlarged
Large Reservoirs						
S-002	II	Meeks Cabin	Enlargement	East Fork Smiths Fork	32,470	+3,750 - 4,000
S-003	II	Stateline	Enlargement	East Fork Smiths Fork	14,000	+2,000
S-006	II	Austin Reservoir	Rehabilitation	Austin Canal /	2,295	N/A
Small Reservoirs						
S-007	II	Moslander Reservoir	Rehabilitation	Cold Spring Creek	310	+75 - 100
S-008	II	Cottonwood Reservoir	Rehabilitation	Cottonwood Creek	92	+350
S-010	II	Horse Creek Reservoir	New Construction	Horse Creek	N/A	200
S-011	II	West Fork Smiths Fork	New Construction	West Fork Smiths Fork	N/A	200

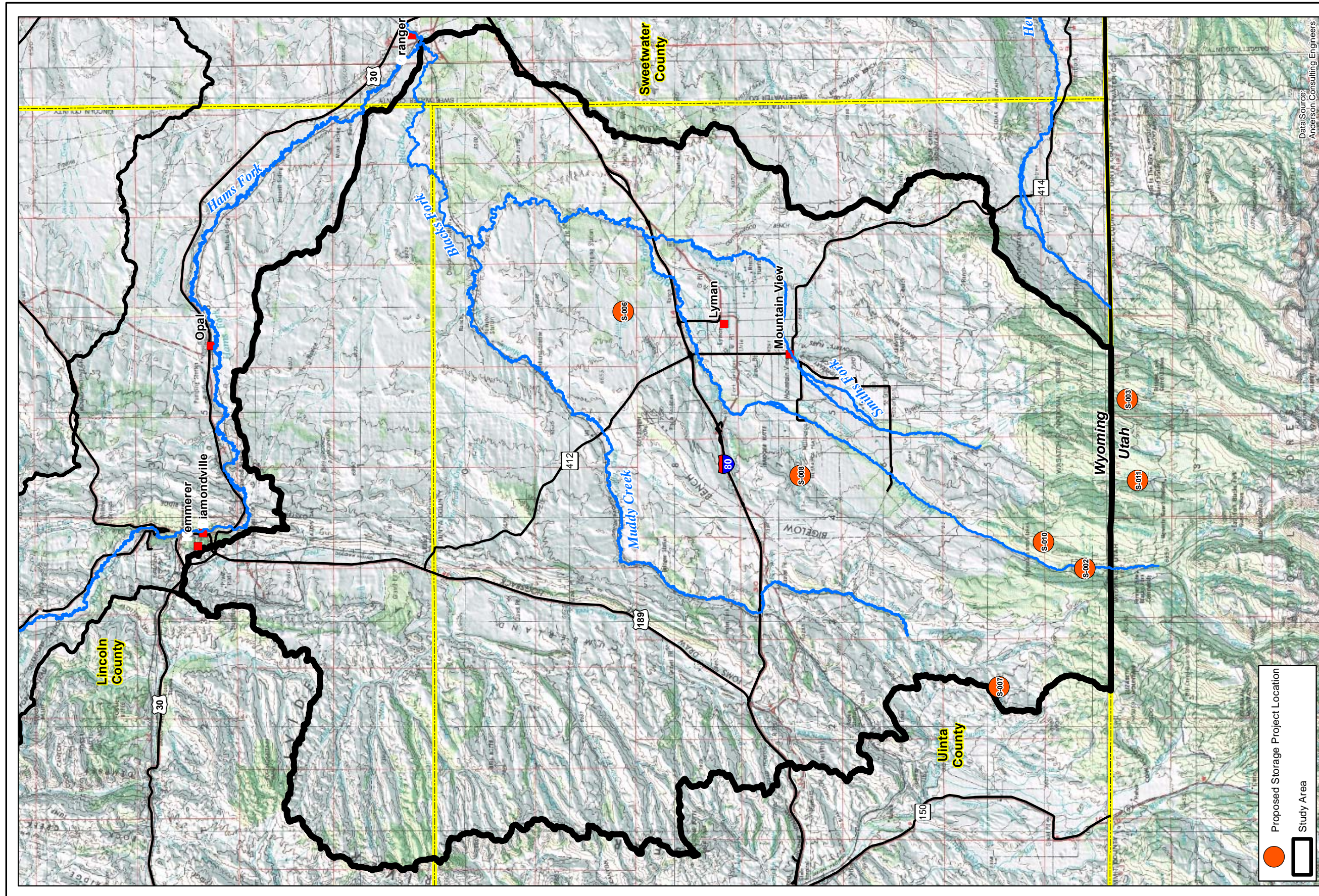
3.5.1 S-002 Meeks Cabin Reservoir Enlargement

Meeks Cabin Reservoir represents one component of the United States Bureau of Reclamation Lyman Project. The Lyman Project lands lie entirely within the project study area and regulates flows of the Blacks Fork and East Fork of Smiths Fork for irrigation, municipal and industrial use, fish and wildlife conservation, and recreation. Meeks Cabin Dam is one of two reservoirs within the project; the other being Stateline Reservoir. Meeks Cabin Dam is situated on the Blacks Fork River about 2 miles north of the Wyoming State land (Figure 3.5-2). Water impounded from the dam extends south into Utah. The operation and maintenance of the Project is administered by the Bridger Valley Water Conservatory District (BVCD), established May 14, 1959.

According to the United States Bureau of Reclamation:

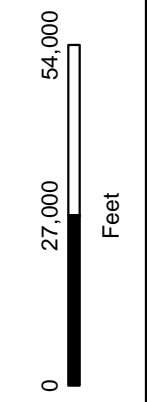
"Meeks Cabin Dam, located in Uinta County, about 2 miles north of the Utah-Wyoming state line and 22 miles southwest of Fort Bridger, is a rolled earth and rockfill structure with a height of 184.5 feet above streambed and a crest 3,162 feet long and 30 feet wide. The embankment contains 3,587,000 cubic yards of material. The spillway, with a discharge capacity of 6,250 cubic feet per second, has an uncontrolled concrete overflow crest at elevation 8686.4 feet with a 30 foot wide by 15 foot high rectangular conduit through the dam along the left abutment and a stilling basin at river level. The outlet works is located under the dam along the right abutment and has a maximum discharge capacity of 1,070 cubic feet per second at the maximum water surface elevation of 8699.5 feet. Meeks Cabin Reservoir has a total capacity of 32,470 acre-feet, covering an area of 473 acres." (USBR at http://www.usbr.gov/projects/Project.jsp?proj_Name=Lyman%20Project)

Numerous comments were received from area landowners and producers throughout the duration of this Level I investigation through public meetings, workshops, and correspondence. In addition, the BVCD has expressed interest in feasibility and costs of enlarging the reservoir by raising the embankment 5 to 10 feet. Such an enlargement could potentially provide an additional 3,000 to 5,000 acre feet of storage. Based upon conversations with representatives of the BVCD, it is our

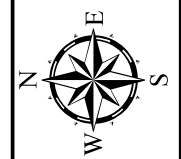


Data Source:
Anderson Consulting Engineers

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



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



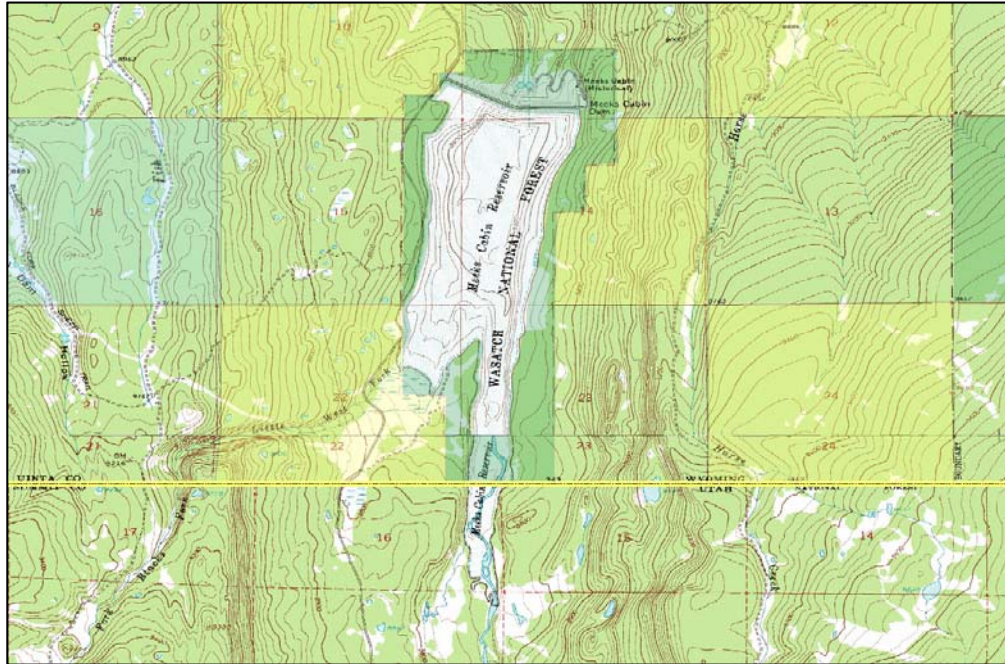


Figure 3.5-2 Meeks Cabin Reservoir Overview Map.

understanding that raising the embankment is feasible and that the BOR is of the opinion that a lift of as much as twelve feet could be completed. One of the issues faced during an enlargement project would be the design and construction of an emergency spillway. Presently, there is no emergency spillway structure; the structure incorporates a free-flowing overflow crest. According to the BVCD, modifications would be required to facilitate control of flood waters. An early warning system is currently a component of the BVCD's evacuation plan.

3.5.2 S-003 Stateline Reservoir Enlargement

Previous investigations have identified Stateline Reservoir as a potential candidate for enlargement in an effort to mitigate water shortages downstream (ECI, 2004). According to the ECI report, the 48 square mile basin contributing to the reservoir would yield an additional 1,000 to 1,500 acre-feet per year above the average 10,000 to 12,000 acre feet that is stored yearly. Releases from the reservoir would then be available for users downstream on Smiths Fork Creek. Figure 3.5-3 provides an overview of the reservoir location in the State of Utah.

The ECI investigation determined the dam would need to be raised approximately 5-feet to provide the additional storage necessary to store the 1,500 acre-feet available to store. The enlargement would inundate an additional 300 acres. The modified dam crest would be 2,900 feet long, 30 feet wide and reach an elevation of 9,1280 feet msl.

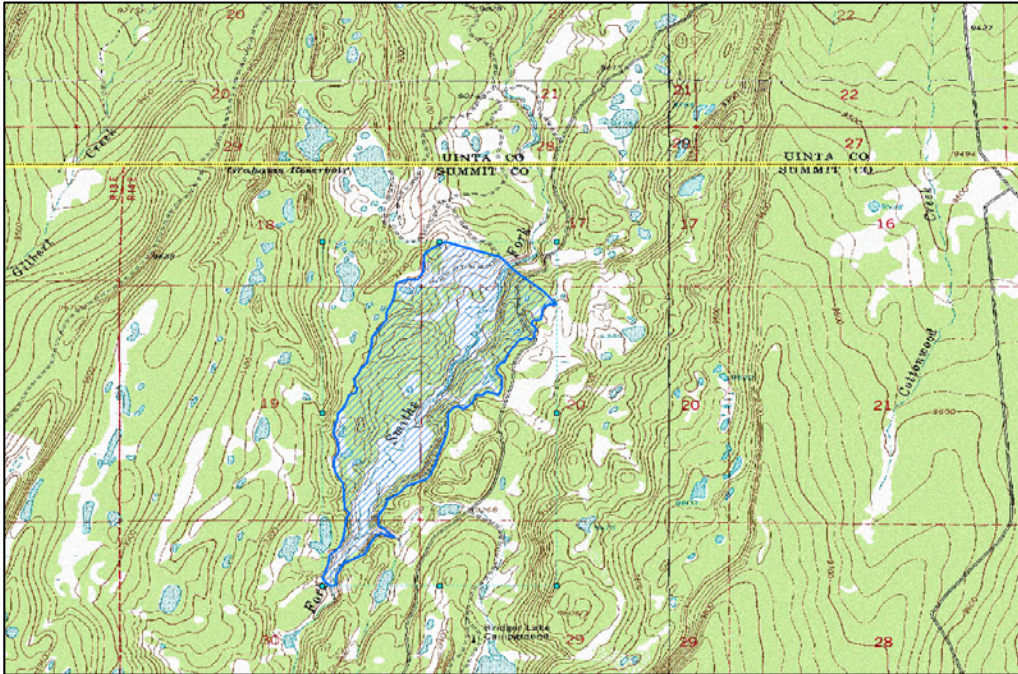


Figure 3.5-3 Stateline Reservoir Overview Map.

3.5.3 S-006 Austin Reservoir (Isom Reservoir) Rehabilitation

Austin Reservoir (Isom Reservoir) is an uncompleted reservoir located approximately 6 miles north of Lyman on Austin Wash. The construction of the reservoir initially began in the mid-1970's, however, according to records available through the WSEO, it was not completed due to financial constraints of the landowner. Following a series of extensions granted by the WSEO, the permit was ultimately cancelled in 2007. Cancellation of the permit in 2007 does not preclude its ultimate completion. Once financial resources are available, the landowner/applicant would need to submit a new application along with the appropriate plans and specifications for review. (Note that WSEO records refer to the reservoir as Isom Reservoir while the USGS quadrangles label it Austin Reservoir as indicated in Figure 3.5-4).

The original permit application (P7787R) states that the reservoir would have an active capacity of 2217.5 acre-feet (irrigation) and an inactive capacity of 77.5 acre-feet (recreation). The most recent dam inspection report completed in 2004, states that the embankment is "in a state of total disrepair". At this time, the reservoir is included in the Blacks Fork Watershed Management Plan as a potential project by virtue of the fact that if reconstructed, it could provide a valuable source of valuable water for irrigation, livestock and wildlife, and provide valuable habitat for waterfowl.

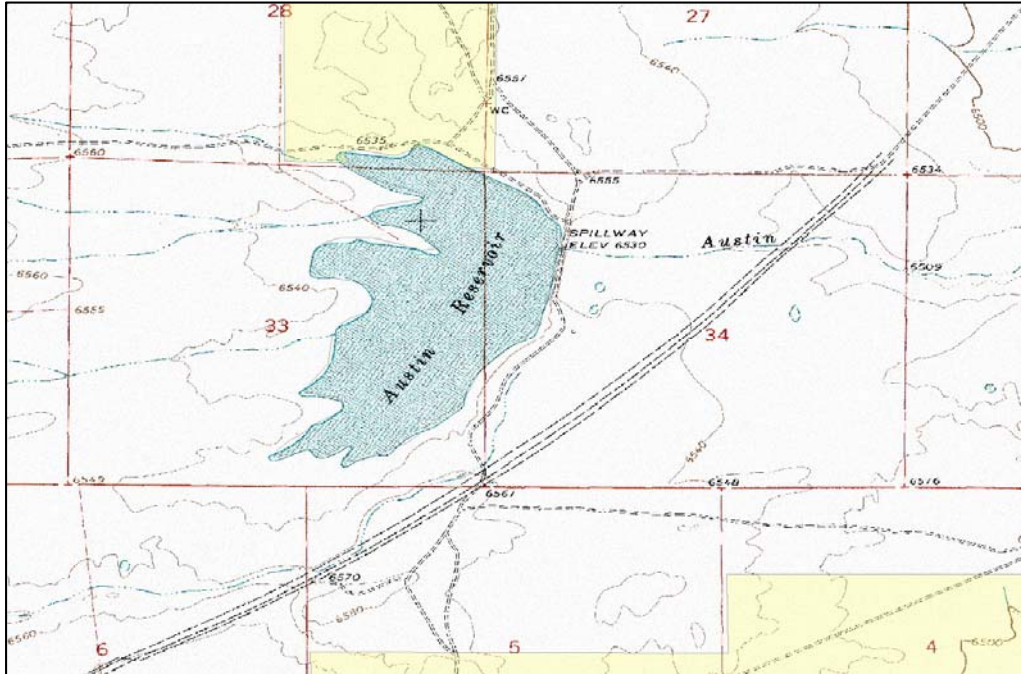


Figure 3.5-4 Austin Reservoir Overview Map.

3.5.4 S-007 Moslander Reservoir Enlargement

Moslander Reservoir is an irrigation and stockwater storage reservoir located in Section 22, Township 13 North, Range 118 West (Permit). This reservoir is located on Cold Springs Creek, a tributary to West Muddy Creek which is tributary to Muddy Creek. The reservoir has a permitted storage capacity of 310.07 acre feet (WSEO Permit P5511.0R). The reservoir currently appears to be in good condition and provides a valuable source of late season irrigation water as well as a year round source of water for livestock and wildlife. Figure 3.5-5 displays a photo of the site.

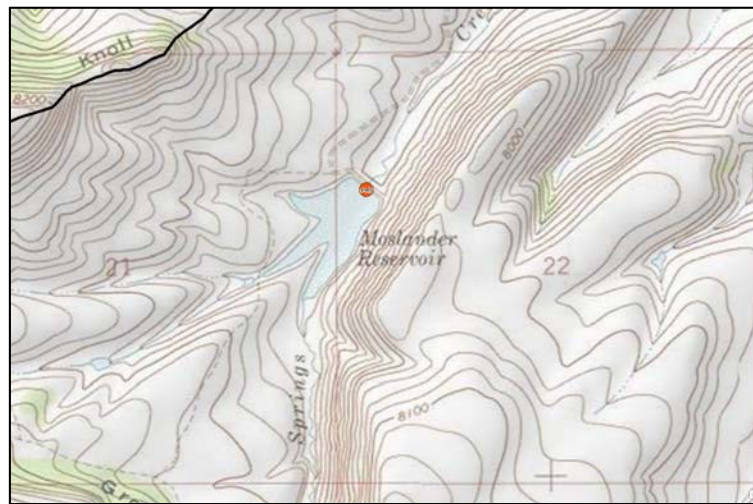


Figure 3.5-5 Moslander Reservoir Overview Map.

Under this alternative, the reservoir would be enlarged by raising the embankment approximately 5 feet which would effectively add approximately 130 to 150 acre feet of storage capacity to the site.

Enlargement of the reservoir would require engineering and design efforts beyond the scope of this Level I investigation. However, based upon a preliminary review of the facility, the following design components and observations are noted:

- The reservoir embankment would be of such a height (> 20 ft) that adherence to Wyoming Dam Safety Requirements would be necessary
- The proposed lift would require approximately 25,000 to 30,000 cubic yards of suitable material.
- Materials for the embankment lift are potentially available from the hillside east of the reservoir.
- An enlarged and emergency spillway would likely be required
- The existing primary outlet would likely need to be replaced.
- Additional rock riprap would be required on the upstream face

3.5.5 S-008 Cottonwood Reservoir Enlargement / Rehabilitation

This project would involve the improvement/rehabilitation of an existing reservoir. Cottonwood Reservoir (WSEO Permit No. P360R) has a storage capacity of approximately 92 acre-feet according to records of the WSEO. The reservoir is located in Section 22, Township 15 North, Range 116 West (Figure 3.5-6).

In 2013, the site was evaluated by representatives of the USFWS in conjunction with the landowner's application for funding through the WLCI program. Field observations made during the completion of the current study were consistent with these conclusions and recommendations. However, during the current Level I study, survey measurements were not completed. The following description of the reservoir was extracted from their report.

"Cottonwood Reservoir is an irrigation supply reservoir constructed in 1902. Currently the reservoir typically goes dry in mid to late summer. In the high snow year of 2011, the reservoir dam overtopped in at least one location in the spring. The landowner was able to prevent the dam from breaching at the time of crisis with some backhoe work. Sometime since the construction of the reservoir in 1902, the original wide, flat emergency spillway has been abandoned and a 5-10' wide ditch-like spillway was cut on the other side of the reservoir. This narrow spillway can drift in with snow and also erodes down every year. In addition, the only principal spillway is 10" diameter PVC pipe. This principal spillway also serves as the irrigation supply pipe. As a result the "emergency spillway" is not just for emergencies. It typically flows every year, but doesn't have the capacity to handle the true flood events. Lastly, the freeboard on the dam has been reduced over the last 100+ years such that the low spots on the dam are only 1.8' above the existing excavated "spillway" and about 1.2' below the original emergency spillway from the 1902 construction."

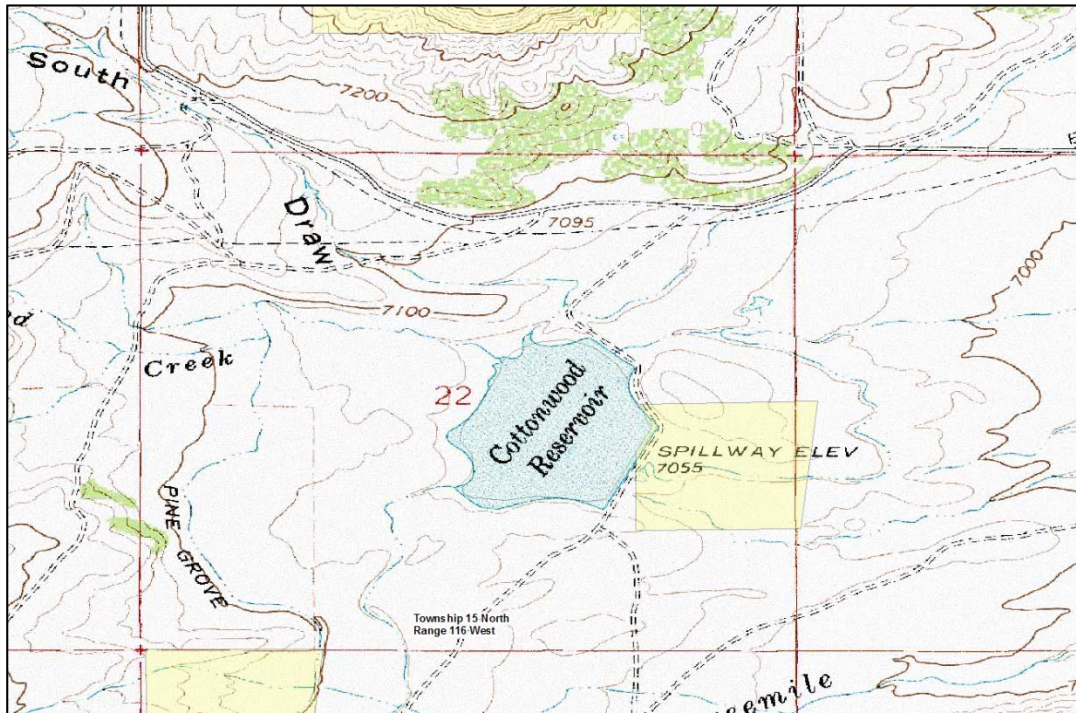


Figure 3.5-6 Cottonwood Reservoir Overview Map.

Rehabilitation of Cottonwood Reservoir would include the following efforts:

1. The dam embankment would be raised approximately 4 feet to protect it from overtopping and to restore storage capacity of the reservoir. Based upon preliminary estimates, approximately 25,000 to 30,000 cubic yards of fill would be required to complete the lift. Raising the embankment would provide 3 ft of freeboard above the emergency spillway elevation.
2. The “excavated spillway” located at the south end of the embankment would be equipped with a controlled outlet to facilitate control of reservoir releases and maintenance of desired water surface elevation for habitat enhancement. Currently, the spillway consists of an open uncontrolled cut in the embankment at an elevation lower than the emergency spillway. During winter months, the ditch fed by the spillway, fills with snow creating flooding issues. Installation of a controllable outlet (ex. AgriDrain) would enable the owner to control releases and would cause the emergency spillway to fulfill its designed purpose.
3. Grading in the vicinity of the emergency spillway would be completed in order to restore the functionality of the spillway.
4. The principal outlet consists of a 10-inch PVC pipe with a slide gate. This structure would be replaced with a controllable outlet (ex. AgriDrain).

Completion of this project would require permitting through the Wyoming State Engineers Office. Because the height of the dam would exceed 20 feet, compliance with State Dam Safety requirements would be necessary.

WLCI funds have been granted to the landowner to apply towards completion of this project. According to the USFWS memo, a minimum pool for wildlife of at least 20% of the capacity of the reservoir will be retained (surface area would be approximately 23 acres). Larger minimum pool areas are acceptable to the landowner. Design of the replacement reservoir outlet would leave a dead pool commensurate with this amount. The reservoir reportedly is important habitat for migratory waterfowl, summer waterfowl, and shorebird nesting.

Phased construction of this project is recommended. The higher priority items associated with this project include the replacement outlet and the headgate control for the southern spillway. Construction of these components will restore functionality of the reservoir and allow the owner to manage releases as well as protecting the integrity of the embankment. Design and construction of the infrastructure could accommodate the potential future water surface elevations associated with raising the embankment. This effort would constitute Phase I of the project. Raising the embankment would be accomplished under Phase II at a future date.

Construction of this project would entail deeded property and federally owned lands managed by the Bureau of Land Management.

3.5.6 S-010 Horse Creek Reservoir Construction

Horse Creek Reservoir is a proposed reservoir located on Horse Creek in Section 1, Township 12 North, Range 117 West (Figure 3.5-7). The project was proposed by landowners as a source of late season irrigation water. The proposed reservoir would be designed to store approximately 200 acre-feet of water or less. The contributing watershed area at this location is approximately 7 square miles.

3.5.7 S-011 West Fork Smiths Fork Reservoir Construction

West Fork Smiths Fork Reservoir is a proposed reservoir located in Section 28, Township 3 North, Range 13 East (Figure 3.5-8). The site is located in the State of Utah. The project was proposed by landowners as a source of late season irrigation water for lands in the State of Wyoming. The proposed reservoir would be designed to store approximately 200 acre-feet of water or less. The contributing watershed area at this location is approximately 20 square miles.

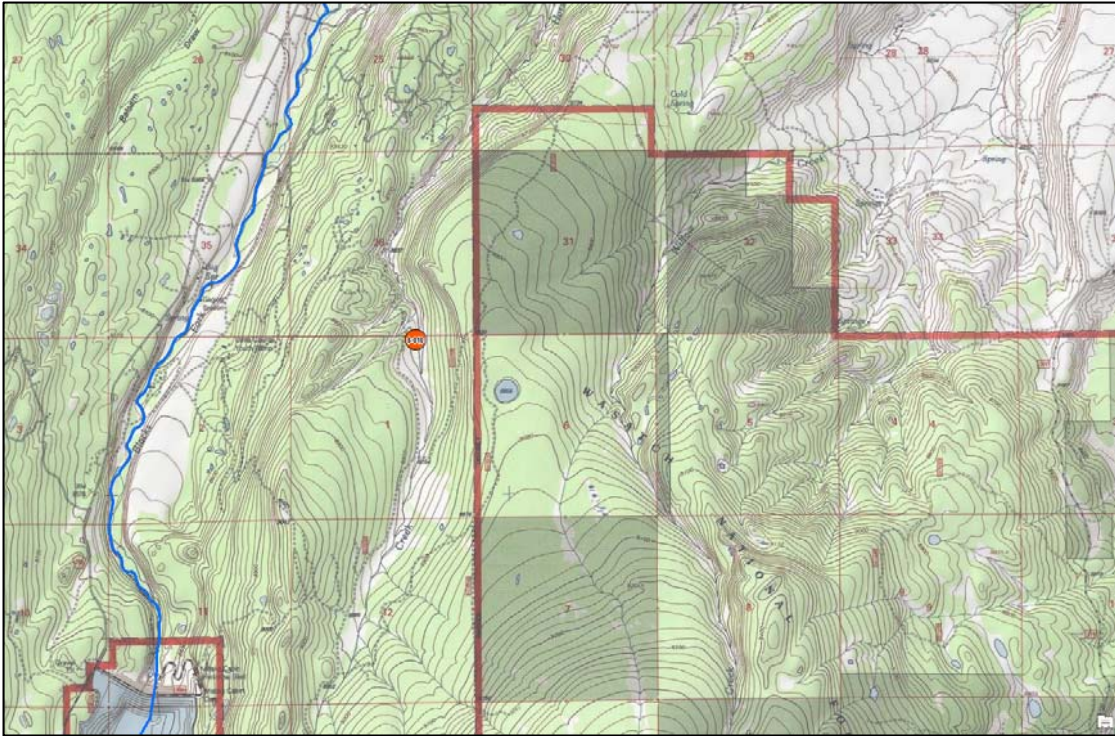


Figure 3.5-7 Proposed Horse Creek Reservoir Overview Map.

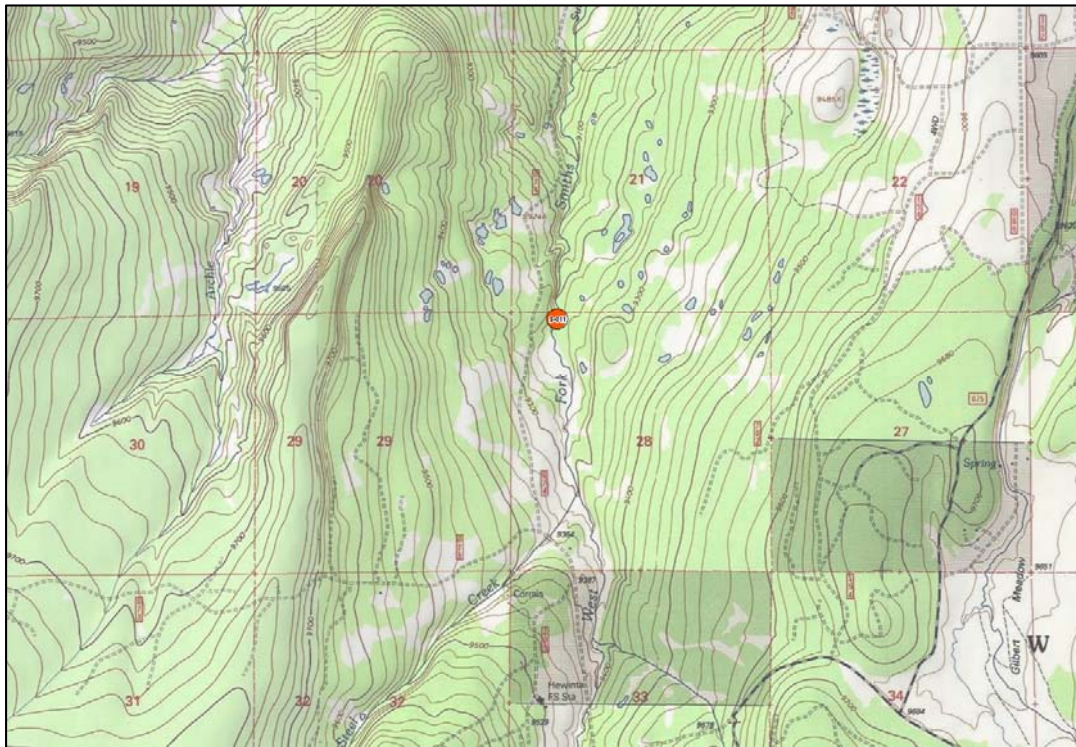


Figure 3.5-8 Proposed West Fork Smiths Fork Reservoir Overview Map.

IV. COST ESTIMATES

4.1 Phase II 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: Livestock/Wildlife (L/W) Components

Table 4.1-3: Livestock/Wildlife (L/W) Components (UDC)

Table 4.1-4: Storage Opportunities

Table 4.1-1-1 Conceptual Cost Estimates: Phase II 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-005	Phase II	Eyre 001	\$15,000	\$1,500	\$16,500	\$2,475	\$18,975	\$2,500	\$0	\$0	\$21,475
I-006	Phase II	Eyre 002	\$4,000	\$400	\$4,400	\$660	\$5,060	\$2,500	\$0	\$0	\$7,560
I-007	Phase II	Eyre 003	\$4,000	\$400	\$4,400	\$660	\$5,060	\$2,500	\$0	\$0	\$7,560
I-008	Phase II	Eyre 004	\$4,000	\$400	\$4,400	\$660	\$5,060	\$2,500	\$0	\$0	\$7,560
I-009	Phase II	Kofford 003	\$62,000	\$6,200	\$68,200	\$10,230	\$78,430	\$2,500	\$0	\$500	\$81,430
I-010	Phase II	Kofford 004	\$14,000	\$1,400	\$15,400	\$2,310	\$17,710	\$2,500	\$0	\$500	\$20,710
I-011	Phase II	Mecham 001	\$40,000	\$4,000	\$44,000	\$6,600	\$50,600	\$2,500	\$0	\$0	\$53,100
I-012	Phase II	Mecham 002	\$110,000	\$11,000	\$121,000	\$18,150	\$139,150	\$2,500	\$0	\$1,000	\$142,650
I-013	Phase II	Michelli 001	\$36,000	\$3,600	\$39,600	\$5,940	\$45,540	\$2,500	\$0	\$1,000	\$49,040

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

Project Phase		Phase II	Phase II	Phase II	Phase II	Phase II	Phase II	Phase II	Phase II	Phase II	Phase II	Phase II
		Watershed Component	Watershed Component	Watershed Component	Watershed Component	Watershed Component	Watershed Component	Watershed Component	Watershed Component	Watershed Component	Watershed Component	Watershed Component
Project Number:		L/W-019	L/W-020	L/W-021	L/W-022	L/W-023	L/W-024	L/W-025	L/W-026	L/W-027	L/W-028	L/W-029
		CR 001	CR 002	CR 003	CR 004	CR 005	CR 006	CR 007	CR 008	CR 009	CR 010	CR 011
Description:		Spring Development / Pipeline / Stock Tank Construction	Spring Development / Pipeline / Stock Tank Construction	Spring Development / Pipeline / Stock Tank Construction	Well Rehabilitation / Pipeline / Stock Tank Construction	Stock Pond Rehabilitation	Stock Pond Rehabilitation	Spring Development / Pipeline / Stock Tank Construction	Guzzler Construction	Spring Development / Pipeline / Stock Tank Construction	Well Rehabilitation / Pipeline / Stock Tank Construction	Well / Pipeline / Stock Tank Construction
Project Name:		Meadow Draw #6	Section 19 Seep/Spring on Anadarko	Bridger Well No. 13 on Anadarko	Section 6 Well on BLM	Cumberland No. 9 on Anadarko	Cumberland No.31 Pond	Cumberland No. 22 Well on Anadarko	Bridger Pond No. 3 on Anadarko	Section 30 Spring on BLM	Albert Creek Well #1 on State Lands	Bridger No. 10 Pond on Anadarko/BLM
Water Source:		Existing Spring	Existing Spring	Existing Spring	Existing Well	Rehabilitate Reservoir	Rehabilitate Reservoir	Existing Spring	Proposed Guzzler	Existing Spring	Existing Well	Proposed Well
Mobilization		\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$0	\$3,000	\$3,000	\$3,000
Source:		Existing Spring	Existing Spring	Existing Spring				Existing Spring		Existing Spring		Proposed Well
Well Construction / Spring Development	Units (each)	1	1	1				1		1		1
	Depth Each	NA	NA	NA				NA		NA		200
	Unit Cost (\$/LF wells or \$/EA springs)	\$3,600	\$3,600	\$3,600	NA	NA	NA	\$3,600	NA	\$3,600	NA	\$100
	Well Screen (LF each well)	NA	NA	NA				NA		NA		NA
	Well Screen (\$/LF)	NA	NA	NA				NA		NA		NA
	Component Subtotal	\$3,600	\$3,600	\$3,600				\$3,600		\$3,600		\$20,000
Stock Pond / Guzzler Construction / Rehabilitation	Units (each)					1	1		1			
	Earthwork (Stock Pond)					\$10,000	\$10,000		\$10,000			
	Agri-Drain Installation (Stock Pond)					NA	NA		NA			
	Rock Stabilization (Stock Pond)	NA	NA	NA	NA	\$4,000	\$4,000	NA	NA	NA	NA	NA
	Bentonite Lining (Stock Pond)					NA	NA		NA			
	Guzzler Installation (Materials and Labor)					NA	NA		\$5,000			
	Pond/ Guzzler Component Subtotal					\$14,000	\$14,000		\$15,000			
Pump	Units (EA)				1						1	1
	Type				Solar Pump						Generator and Fuel Storage	Solar Pump
	Unit Cost (EA)	NA	NA	NA		NA	NA	NA	NA	NA	\$1,000	\$8,500
	Component Subtotal				\$8,500						\$1,000	\$8,500
Pipeline	Low Pressure 1 1/2 in Pipe Diameter:	1.5	1.5	1.5	1.5			1.5		1.5	1.5	1.5
	Units (LF)	5,890	200	400	5,280	NA	NA	400	NA	200	11,880	1,320
	Unit Cost (EA)	\$3.34	\$3.34	\$3.34	\$3.34			\$3.34		\$3.34	\$3.34	\$3.34
	Component Subtotal	\$19,673	\$668	\$1,336	\$17,635			\$1,336		\$668	\$39,679	\$4,409
	Other Pipe											
	Units (LF)											
	Unit Cost (EA)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Component Subtotal												
Additional Storage Tanks	Units (EA)	1			1						1	1
	Size (gal)	5000			5000						5000	5000
	Unit Cost (\$/gal)	\$1	NA	NA	\$1	NA	NA	NA	NA	NA	\$1	\$1
	Component Subtotal	\$5,000			\$5,000						\$5,000	\$5,000
Livestock / Wildlife Water Tanks	Units (EA)	2	1	1	2			1		1	2	1
	Size (gal)	1,200	1,200	1,200	1,200			1,200		1,200	1,200	1,200
	Unit Cost	\$3,000	\$3,000	\$3,000	\$3,000			\$3,000		\$3,000	\$3,000	\$3,000
	Component	\$6,000	\$3,000	\$3,000	\$6,000			\$3,000		\$3,000	\$6,000	\$3,000
Miscellaneous	Item	Fencing	Fencing	Fencing	Fencing			Fencing		Fencing		
	Units (Each)	500	850	850	850			850		850		
	Unit Cost (\$/ea)	\$5.00	\$5.00	\$5.00	\$5.00			\$5.00		\$5.00		
	Component Subtotal	\$2,500.00	\$4,250.00	\$4,250.00	\$4,250.00			\$4,250.00		\$4,250.00		
Construction Subtotal		\$39,773	\$14,518	\$15,186	\$44,385	\$17,000	\$17,000	\$15,186	\$15,000	\$14,518	\$54,679	\$43,909
Engineering (10%)		\$3,977	\$1,452	\$1,519	\$4,439	\$1,700	\$1,700	\$1,519	\$1,500	\$1,452	\$5,468	\$4,391
Construction and Engineering Subtotal		\$43,750	\$15,970	\$16,705	\$48,824	\$18,700	\$18,700	\$16,705	\$16,500	\$15,970	\$60,147	\$48,300
Contingency (15%)		\$6,562	\$2,395	\$2,506	\$7,324	\$2,805	\$2,805	\$2,506	\$2,475	\$2,395	\$9,022	\$7,245
Total Construction Cost		\$50,312	\$18,365	\$19,210	\$56,147	\$21,505	\$21,505	\$19,210	\$18,975	\$18,365	\$69,169	\$55,545
Final Plans and Specs		\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500
Additional		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Permitting / Legal Fees / Access and Rights of Way		\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000
Total Project Cost		\$52,812	\$20,865	\$21,710	\$58,647	\$24,005	\$24,005	\$21,710	\$21,475	\$20,865	\$71,669	\$58,045

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

Project Phase		Phase II	Phase II	Phase II	Phase II	Phase II	Phase II	Phase II	Phase II	Phase II	Phase II	Phase II	
		Watershed Component	Watershed Component	Watershed Component	Watershed Component	Watershed Component	Watershed Component	Watershed Component	Watershed Component	Watershed Component	Watershed Component	Watershed Component	
		L/W-030	L/W-031	L/W-032	L/W-033	L/W-034	L/W-035	L/W-036	L/W-037	L/W-038	L/W-039	L/W-040	
Project Number:		CR 012	CR 013	CR 014	CR 015	CR 016	CR 017	CR 018	Hamilton 001	Hamilton 002	Kofford 001	Kofford 002	
Description:		Stock Pond Rehabilitation	Well Rehabilitation / Pipeline / Stock Tank Construction	Spring Development / Pipeline / Stock Tank Construction	Spring Development / Pipeline / Stock Tank Construction	Stock Pond Rehabilitation	Spring Development / Pipeline / Stock Tank Construction	Well Rehabilitation / Pipeline / Stock Tank Construction	Pipeline / Stock Tank Construction	Pipeline / Stock Tank Construction	Spring Development / Pipeline / Stock Tank Construction	Spring Development / Pipeline / Stock Tank Construction	
Project Name:		Elkol No. 3 Pond	Section 1 Well on Anadarko	Section 20 Spring/Pipeline on BLM/Anadarko	Section 31 Spring/Pipeline on Anadarko/BLM	Section 4 Pond on BLM	Bridger No. 14 Well and Bridger No. 7 Pond on Anadarko	Section 19 Well/Pipeline on Anadarko/BLM	West Fork of Smith Fork Pipeline Project	Cold Spring Pipeline Project	Wildflower Spring Development Project 1	Clifford Spring Development	
Water Source:		Rehabilitate Reservoir	Existing Well	Existing Spring	Existing Spring	Rehabilitate Reservoir	Existing Spring	Existing Well	Existing Ditch	Existing Spring	Existing Spring	Existing Spring	
Mobilization		\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	
Well Construction / Spring Development	Source:	NA	NA	Existing Spring	Existing Spring	NA	Existing Spring	Proposed Well	NA	Existing Spring	Existing Spring	Existing Spring	
	Units (each)			1	1		1	1		1	1		
	Depth Each			NA	NA		NA	NA		200	NA		
	Unit Cost (\$/LF wells or \$/EA springs)			\$3,600	\$3,600		\$3,600	\$3,600		\$40	\$3,600	\$3,600	\$3,600
	Well Screen (LF each well)			NA	NA		NA	NA		NA	NA	NA	NA
	Well Screen (\$/LF)			NA	NA		NA	NA		NA	NA	NA	NA
	Component Subtotal			\$3,600	\$3,600		\$3,600	\$3,600		\$3,600	\$8,000	\$3,600	\$3,600
Stock Pond / Guzzler Construction / Rehabilitation	Units (each)	1	NA	NA	NA	1	NA	NA	NA	NA	NA	NA	
	Earthwork (Stock Pond)	\$10,000				\$10,000							
	Agri-Drain Installation (Stock Pond)	NA				NA							
	Rock Stabilization (Stock Pond)	\$4,000				NA							
	Bentonite Lining (Stock Pond)	NA				NA							
	Guzzler Installation (Materials and Labor)	NA				NA							
Pond/ Guzzler Component Subtotal	\$14,000	\$10,000											
Pump	Units (EA)	NA	1	NA	NA	NA	NA	1	NA	NA	NA	NA	
	Type		Solar Pump					Solar Pump					
	Unit Cost (EA)		\$8,500					\$8,500					
	Component Subtotal		\$8,500					\$8,500					
Pipeline	Low Pressure 1 1/2 in Pipe Diameter:	NA	1.5	1.5	1.5	NA	1.5	1.5	1.5	1.5	1.5	1.5	
	Units (LF)		200	13,200	5,280		200	10,560	20,000	570	200	200	
	Unit Cost (EA)		\$3.34	\$3.34	\$3.34		\$3.34	\$3.34	\$3.34	\$3.34	\$3.34	\$3.34	
	Component Subtotal		\$668	\$44,088	\$17,635		\$668	\$35,270	\$66,800	\$1,904	\$668	\$668	
	Other Pipe		NA	NA	NA		NA	NA	NA	NA	NA	NA	
Additional Storage Tanks	Units (EA)	NA	NA	NA	NA	NA	NA	1	NA	NA	NA	NA	
	Size (gal)							5000					5000
	Unit Cost (\$/gal)							\$1					\$1
	Component Subtotal							\$5,000					\$5,000
Livestock / Wildlife Water Tanks	Units (EA)	NA	1	3	3	NA	1	2	1	1	1	1	
	Size (gal)		1,200	1,200	1,200		1,200	1,200	1,200	1,200	1,200		
	Unit Cost		\$3,000	\$3,000	\$3,000		\$3,000	\$3,000	\$3,000	\$3,000	\$3,000		
	Component		\$3,000	\$9,000	\$9,000		\$3,000	\$6,000	\$3,000	\$3,000	\$3,000		
Miscellaneous	Item	NA	NA	Fencing	NA	NA	NA	Fencing	NA	NA	Fencing	Fencing	
	Units (Each)			850				850			850		
	Unit Cost (\$/ea)			\$5.00				\$5.00			\$5.00		
	Component Subtotal			\$4,250.00				\$4,250.00			\$4,250.00		
Construction Subtotal		\$17,000	\$15,168	\$63,938	\$38,235	\$13,000	\$14,518	\$65,770	\$72,800	\$11,504	\$14,518	\$14,518	
Engineering (10%)		\$1,700	\$1,517	\$6,394	\$3,824	\$1,300	\$1,452	\$6,577	\$7,280	\$1,150	\$1,452	\$1,452	
Construction and Engineering Subtotal		\$18,700	\$16,685	\$70,332	\$42,059	\$14,300	\$15,970	\$72,347	\$80,080	\$12,654	\$15,970	\$15,970	
Contingency (15%)		\$2,805	\$2,503	\$10,550	\$6,309	\$2,145	\$2,395	\$10,852	\$12,012	\$1,898	\$2,395	\$2,395	
Total Construction Cost		\$21,505	\$19,188	\$80,882	\$48,368	\$16,445	\$18,365	\$83,200	\$92,092	\$14,552	\$18,365	\$18,365	
Final Plans and Specs		\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,000	\$1,000	\$1,000	\$1,000	
Additional		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Permitting / Legal Fees / Access and Rights of Way		\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,500	\$1,500	\$500	\$500	
Total Project Cost		\$24,005	\$21,688	\$83,382	\$50,868	\$18,945	\$20,865	\$85,700	\$94,592	\$17,052	\$19,865	\$19,865	

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%)	Constuction 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-054 (UDC-012)	Stock Reservoir	25	\$26,000	\$26,000	\$2,600	\$28,600	\$4,290	\$32,890	\$1,000	\$0	\$500	\$34,390
Watershed Component L/W-055 (UDC-013)	Stock Reservoir	27	\$26,000	\$26,000	\$2,600	\$28,600	\$4,290	\$32,890	\$1,000	\$0	\$500	\$34,390
Watershed Component L/W-056 (UDC-014)	Stock Reservoir	28	\$26,000	\$26,000	\$2,600	\$28,600	\$4,290	\$32,890	\$2,000	\$0	\$500	\$35,390
Watershed Component L/W-057 (UDC-015)	Stock Reservoir	29	\$15,000	\$15,000	\$1,500	\$16,500	\$2,475	\$18,975	\$1,000	\$0	\$500	\$20,475
Watershed Component L/W-058 (UDC-016)	Flowing Well	31	\$9,750	\$9,750	\$975	\$10,725	\$1,609	\$12,334	\$500	\$0	\$500	\$13,334
Watershed Component L/W-059 (UDC-017)	Flowing Well	32	\$9,750	\$9,750	\$975	\$10,725	\$1,609	\$12,334	\$500	\$0	\$500	\$13,334
Watershed Component L/W-060 (UDC-018)	Spring Development	34	\$14,850	\$14,850	\$1,485	\$16,335	\$2,450	\$18,785	\$500	\$0	\$1,000	\$20,285
Watershed Component L/W-062 (UDC-020)	Stock Reservoir	37	\$26,000	\$26,000	\$2,600	\$28,600	\$4,290	\$32,890	\$2,000	\$0	\$500	\$35,390
Watershed Component L/W-065 (UDC-023)	Stock Reservoir	40	\$26,000	\$26,000	\$2,600	\$28,600	\$4,290	\$32,890	\$2,000	\$0	\$500	\$35,390
Watershed Component L/W-066 (UDC-024)	Stock Reservoir	41	\$26,000	\$26,000	\$2,600	\$28,600	\$4,290	\$32,890	\$1,500	\$0	\$500	\$34,890
Watershed Component L/W-068 (UDC-026)	Stock Reservoir	46	\$5,000	\$5,000	\$500	\$5,500	\$825	\$6,325	\$1,500	\$0	\$500	\$8,325
Watershed Component L/W-069 (UDC-027)	Wildcat #4 Spring	48	\$14,850	\$14,850	\$1,485	\$16,335	\$2,450	\$18,785	\$1,500	\$0	\$500	\$20,785
Watershed Component L/W-070 (UDC-028)	Flowing Well	49	\$26,000	\$26,000	\$2,600	\$28,600	\$4,290	\$32,890	\$1,500	\$0	\$500	\$34,890
Watershed Component L/W-071 (UDC-029)	Water Well	50	\$14,000	\$14,000	\$1,400	\$15,400	\$2,310	\$17,710	\$1,500	\$0	\$500	\$19,710
Watershed Component L/W-072 (UDC-030)	Stock Reservoir	51	\$26,000	\$26,000	\$2,600	\$28,600	\$4,290	\$32,890	\$1,500	\$0	\$500	\$34,890
Watershed Component L/W-073 (UDC-031)	Stock Reservoir	52	\$15,000	\$15,000	\$1,500	\$16,500	\$2,475	\$18,975	\$1,500	\$0	\$500	\$20,975
Watershed Component L/W-074 (UDC-032)	Mud Springs	54	\$14,850	\$14,850	\$1,485	\$16,335	\$2,450	\$18,785	\$1,500	\$0	\$500	\$20,785
Watershed Component L/W-075 (UDC-033)	Stock Reservoir	56	\$26,000	\$26,000	\$2,600	\$28,600	\$4,290	\$32,890	\$1,500	\$0	\$500	\$34,890
Watershed Component L/W-099 (UDC-057)	Stock Reservoir	96	\$26,000	\$26,000	\$2,600	\$28,600	\$4,290	\$32,890	\$1,500	\$0	\$500	\$34,890
Watershed Component L/W-110 (UDC-068)	Spring	240	\$14,850	\$14,850	\$1,485	\$16,335	\$2,450	\$18,785	\$1,500	\$0	\$500	\$20,785
Watershed Component L/W-111 (UDC-069)	Spring	241	\$14,850	\$14,850	\$1,485	\$16,335	\$2,450	\$18,785	\$1,500	\$0	\$500	\$20,785
Watershed Component L/W-112 (UDC-070)	Spring	248	\$14,850	\$14,850	\$1,485	\$16,335	\$2,450	\$18,785	\$1,500	\$0	\$500	\$20,785

Table 4.1-4 Conceptual Cost Estimates: Storage Opportunities.

Watershed Plan Component	Priority	Study Area Phase	Project name	Action	Conceptual Project Cost
Large Reservoirs					
S-002	1	II	Meeks Cabin	Enlargement	\$5-10M
S-003	2	II	Stateline	Enlargement	\$5-10M
Small Reservoirs					
S-006		II	Austin Reservoir	Rehabilitation	\$500,000
S-007		II	Moslander Reservoir	Rehabilitation	\$425,000
S-008		II	Cottonwood Reservoir	Rehabilitation	\$325,000
S-010		II	Horse Creek Reservoir	New Construction	\$200,000
S-011		II	West Fork Smiths Fork	New Construction	\$200,000

APPENDIX 2A

ALLOTMENT LISTING

BLM Grazing Allotments

Field Office Name	Allotment Number	Allotment Name	Public AUMs	Private AUMs	State AUMs	Acres	ACE_ID
Kemmerer	11533	21 GROVE	50			3524.49	1
Kemmerer	11202	ALBERT CREEK	2252	2000	100	37829.77	3
Kemmerer	11540	ALTAMONT	408			9031.17	4
Kemmerer	1461	ANGELO	233	364		2733.54	5
Kemmerer	21514	ASPEN	152			3086.47	6
Kemmerer	11311	AUSTIN PLACE	30	106		4105.85	7
Kemmerer	11312	AUSTIN TRIANGLE	706	328	10	47029.25	8
Kemmerer	11529	BALSAM DRAW	43			1949.12	9
Kemmerer	1418	BENCH	1150	15		5538.42	12
Kemmerer	11318	BIGELOW BENCH	571	405	36	16459.23	13
Kemmerer	21511	BIGELOW DITCH	80			4570.76	14
Kemmerer	11525	BLAKE HOLLOW	280	598		5715.07	15
Kemmerer	1434	BOND	42			822.39	16
Kemmerer	11317	BRIDGER AIRPORT	2477	698		36640.34	17
Kemmerer	1440	BRIDGER BUTTE	300	200		3050.67	18
Kemmerer	1433	BUFFALO CORRAL	58	60		773.09	19
Kemmerer	21505	BYRNE CREEK	284			9859.90	20
Kemmerer	11306	CARTER LEASE	13184	16699	945	238798.19	21
Kemmerer	1455	CHOCHECHERRY	6			163.87	23
Kemmerer	11108	CHRISTENSEN	40	78		2799.46	24
Kemmerer	11319	COAL MINE DRAW	225	219		8735.17	25
Kemmerer	11414	COTTONWOOD	68	120		1246.35	28
Kemmerer	1419	COYOTE HOLLOW	15			1120.38	30
Kemmerer	11304	COYOTE SPRINGS	168	154	27	8186.07	31
Kemmerer	1442	CROOKED CANYON	344			4159.26	32
Kemmerer	1439	CROWFOOT	6			746.03	33
Kemmerer	1458	CUMBERLAND FLATS	1561	1872	90	43318.70	34
Kemmerer	1206	CUMBERLAND/JUINTA	29447	17882	2799	337658.85	35
Kemmerer	1426	DOMINGO	7			75.74	37
Kemmerer	11417	DRY CREEK BENCH	60	33		675.16	38
Kemmerer	1444	DUTCHY HOLLOW	28			533.54	39
Kemmerer	11522	EAST BRANCH	86			1942.76	40
Kemmerer	1460	ELKOL	304			11885.05	43
Kemmerer	11402	FORT BRIDGER	10			3880.55	45
Kemmerer	1448	FOURTY	23			41.44	46
Kemmerer	11412	GOURLEY	45			2844.22	47
Kemmerer	1424	GRAHAM RESERVOIR	56			427.77	48
Kemmerer	11302	GRANGER LEASE	13865	15172	727	470679.64	49
Kemmerer	11528	GUILD RANCH	58			1841.68	51
Kemmerer	1527	HAGUE CREEK	80			1300.72	53
Kemmerer	1451	HALF SEC HORSE CR	31			495.94	54
Kemmerer	11314	HANBLIN	44	10		372.19	55
Kemmerer	1445	HANNA JOHNSON	40			222.16	56
Kemmerer	21510	HAYSTACK DRAW	474	395		9684.73	58
Rock Sprg	4013	HICKEY MOUNTAIN	678	84		8961.45	59
Kemmerer	1447	HIGHWAY	96			2599.54	60
Kemmerer	21507	HINSHAW CREEK	427	1027	79	13346.25	61
Kemmerer	1438	HORSE CREEK	88			2432.10	63
Kemmerer	11324	INDIAN FLAT	578			7922.11	64
Kemmerer	11410	JACKMAN	3			414.08	65
Kemmerer	1420	JOHNSON	8			722.77	66
Kemmerer	11541	KEMMERER JUNCTION	278	453		6159.86	67
Kemmerer	11413	LEAVITT BENCH	402	245		6471.42	69
Kemmerer	1456	LEAVITT CREEK	66	30		1271.46	70
Kemmerer	11320	LEROY	759	801	20	13036.90	71
Kemmerer	11406	LITTLE CREEK	286	785		14067.23	72
Kemmerer	1450	LITTLE DRY CREEK	511			6663.02	73
Kemmerer	11409	LOWER BENCH	70			668.62	74
Kemmerer	11303	LYMAN CATTLE	2313	1075	45	46896.37	75
Kemmerer	21501	MEDICINE BUTTE	928	1117	115	17223.91	78
Kemmerer	11512	MEEKS CABIN	642			20820.43	79
Kemmerer	11404	MILBURNE	30	53		414.67	80
Kemmerer	11308	MONUMENT	186	467	91	8287.93	81

Field Office Name	Allotment Number	Allotment Name	Public AUMs	Private AUMs	State AUMs	Acres	ACE_ID
Kemmerer	11539	MOSS CREEK	94			3909.20	82
Kemmerer	11534	MOSSLANDER RANCH	370			14222.25	83
Kemmerer	1552	MUDDY CREEK	37	45		971.38	84
Kemmerer	1427	MURRAY DITCH	30			752.47	85
Kemmerer	1423	MURRAY RESERVOIR	190			2529.65	86
Kemmerer	11535	MYERS	452			15902.31	87
Kemmerer	11403	NEBRASKA FLAT	34			4599.39	88
Kemmerer	11313	NIPPLE	30			1144.56	90
Kemmerer	1435	NORTH HORSE CREEK	435			2518.02	91
Kemmerer	11315	OAKS	37			745.84	94
Kemmerer	11408	POVERTY FLAT	443			3569.06	100
Kemmerer	1446	QUARRY CREEK	85			2153.00	102
Kemmerer	11542	RADIO TOWER	229	472		6726.01	104
Kemmerer	21001	REDDEN PASTURE	35			1571.31	105
Kemmerer	11325	ROBERSON CREEK	130	201	41	5728.33	106
Kemmerer	11503	ROCK HOUSE	565	1189		14525.36	108
Kemmerer	1443	ROCKY SPRINGS	77			289.69	110
Kemmerer	1436	SAGE CHICKEN FLAT	57			1311.20	111
Kemmerer	1449	SAGE CREEK	2378			32305.08	112
Rock Sprg	3200	SAGE CREEK MOUNTA	11844	184	220	79618.10	113
Kemmerer	11415	SIDEHILL	10			286.91	115
Kemmerer	1421	SMITH	25			645.78	118
Kemmerer	1422	SMITHS FORK	100			3494.33	119
Kemmerer	1437	SOUTH HORSE CREEK	360			2015.26	120
Kemmerer	11310	SOUTH MONUMENT	10			434.23	121
Kemmerer	11054	SOUTH MOYER	5	81		745.68	122
Kemmerer	11405	SPRING CREEK	87			8005.02	123
Kemmerer	11521	THE BOILERS DRAW	200			2778.80	125
Kemmerer	1429	THUNDERBOLT	50			676.08	126
Kemmerer	1425	TIMBER PLACE	17			327.60	127
Kemmerer	11411	TIPPERARY	4			420.61	128
Kemmerer	21508	TOMS DRAW	311	489		7922.69	130
Kemmerer	11401	TOOMER	2			368.60	131
Kemmerer	1459	TWIN CREEK	4255	270	435	42693.19	133
Kemmerer	1452	UPPER FLAT	136			2274.18	134
Kemmerer	11316	UPPER RANCH	7	60		438.42	135
Kemmerer	11544	VAN TASSEL	395	1378	158	16901.26	136
Kemmerer	1432	WALL	12			242.90	137
Kemmerer	1453	WALL RESERVOIR	45			979.88	138
Kemmerer	11416	WEST LOWER BENCH	24			120.47	139
Kemmerer	1428	WESTFORK	227			2869.36	141
Kemmerer	1430	WILLOW CREEK	1205	51		4173.14	144
Kemmerer	1431	YELLOW HOLLOW CRE	78			2404.72	145
Kemmerer	N/L	ZNOT LEASED	0			668.52	146
Kemmerer	ST-DR	ZSTOCK DRIVEWAY	0			80.34	147
		Currently no name	0			23555.90	150

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
41904	Evanston-Mountain View Ranger District	41904	502	EAST FORK SMITHS FORK	YES	NO	NO	NO	NO	ACTIVE	169	16,433
41904	Evanston-Mountain View Ranger District	41904	515	GILBERT CREEK	YES	NO	NO	NO	NO	ACTIVE	168	14,003
41904	Evanston-Mountain View Ranger District	41904	516	WALKER	NO	NO	NO	NO	NO	VACANT	167	167
41904	Evanston-Mountain View Ranger District	41904	501	WEST FORK SMITH FORK	YES	NO	NO	NO	NO	ACTIVE	166	37,078
41904	Evanston-Mountain View Ranger District	41904	402	BLACKS FORK CATTLE	YES	NO	NO	NO	NO	ACTIVE	165	6,504
41904	Evanston-Mountain View Ranger District	41904	406	LITTLE WEST FORK	NO	NO	NO	NO	YES	ACTIVE	164	10,574

APPENDIX 2B

STOCK RESERVOIR EVALUATION

ACE ID	Name	Source	Condition	Water Source	Notes	Lattitude	Longitude	Phase	HUC 12 Name	Allotment	Land Owner	T	R	S
579	Unknown	ACE Mapscan	Wet	Yes		41.40	-110.30	Phase II	Austin Reservoir	Monument	Private	16N	114W	5
580	Unknown	ACE Mapscan	Wet	Yes		41.40	-110.65	Phase II	Middle Albert Creek	Haystack Draw	Private	16N	117W	6
581	Unknown	ACE Mapscan	Wet	Yes		41.40	-110.18	Phase II	Blacks Fork-Jackknife Draw	Granger Lease	BLM	16N	113W	6
582	Unknown	ACE Mapscan	Dry	No	BREACHED	41.40	-110.78	Phase II	Clear Creek-Shurtleff Creek	Rock House	Private	16N	119W	1
583	Unknown	ACE Mapscan	Dry	No	BREACHED	41.40	-110.52	Phase II	Muddy Creek-Lost Draw	Bridger Airport	Private	16N	116W	5
584	Unknown	ACE Mapscan	Dry	No	SEDIMENT	41.40	-110.51	Phase II	Muddy Creek-Lost Draw	Bridger Airport	BLM	16N	116W	4
585	Unknown	ACE Mapscan	Dry	No	BREACHED	41.40	-110.52	Phase II	Muddy Creek-Lost Draw	Bridger Airport	Private	16N	116W	5
586	Unknown	ACE Mapscan	Dry	No	BREACHED	41.40	-110.45	Phase II	Rock Creek-Spring Creek	Bridger Airport	BLM	16N	116W	2
587	Unknown	ACE Mapscan	Dry	No	BREACHED	41.40	-110.43	Phase II	Rock Creek-Spring Creek	Bridger Airport	Private	16N	116W	1
588	Unknown	ACE Mapscan	Dry	No	BREACHED	41.40	-110.86	Phase II	Clear Creek-Shurtleff Creek	Rock House	Private	16N	119W	5
589	Unknown	ACE Mapscan	Dry	No	BREACHED	41.40	-110.44	Phase II	Rock Creek-Spring Creek	Bridger Airport	Private	16N	116W	1
590	Unknown	ACE Mapscan	Dry	No	SEDIMENT	41.40	-110.45	Phase II	Rock Creek-Spring Creek	Bridger Airport	BLM	16N	116W	2
591	Unknown	ACE Mapscan	Dry	No	BREACHED	41.40	-110.85	Phase II	Clear Creek-Shurtleff Creek	Rock House	BLM	16N	119W	4
592	Unknown	ACE Mapscan	Dry	No	SEDIMENT	41.40	-110.78	Phase II	Clear Creek-Shurtleff Creek	Rock House	Private	16N	119W	1
593	Unknown	ACE Mapscan	Wet	Yes		41.39	-110.86	Phase II	Clear Creek-Shurtleff Creek	Rock House	Private	16N	119W	5
594	Unknown	ACE Mapscan	Wet	Yes		41.39	-110.83	Phase II	Clear Creek-Shurtleff Creek	Rock House	Private	16N	119W	3
595	Unknown	ACE Mapscan	Dry	Potential		41.39	-110.51	Phase II	Rock Creek-Spring Creek	Bridger Airport	Private	16N	116W	5
596	Unknown	ACE Mapscan	Wet	Yes		41.39	-110.81	Phase II	Clear Creek-Shurtleff Creek	Rock House	Private	16N	119W	2
597	Unknown	ACE Mapscan	Dry	Potential		41.39	-110.44	Phase II	Rock Creek-Spring Creek	Bridger Airport	BLM	16N	116W	1
598	Unknown	ACE Mapscan	Wet	Yes		41.39	-110.27	Phase II	Blacks Fork-Rollins Reservoir	No Allotment	BLM	16N	114W	4
599	Unknown	ACE Mapscan	Dry	No	BREACHED	41.39	-110.47	Phase II	Rock Creek-Spring Creek	Bridger Airport	BLM	16N	116W	3
600	Unknown	ACE Mapscan	Wet	Yes		41.39	-110.26	Phase II	Blacks Fork-Rollins Reservoir	No Allotment	Private	16N	114W	9
601	Unknown	ACE Mapscan	Wet	Yes		41.39	-110.34	Phase II	Blacks Fork-Rollins Reservoir	Oaks	Private	16N	115W	11
602	Unknown	ACE Mapscan	Dry	No	BREACHED	41.39	-110.48	Phase II	Rock Creek-Spring Creek	Bridger Airport	Private	16N	116W	10
603	Unknown	ACE Mapscan	Dry	No	BREACHED	41.39	-110.85	Phase II	Clear Creek-Shurtleff Creek	Rock House	State of Wyoming	16N	119W	9
604	Unknown	ACE Mapscan	Dry	No	BREACHED	41.39	-110.85	Phase II	Clear Creek-Shurtleff Creek	Rock House	State of Wyoming	16N	119W	8
605	Unknown	ACE Mapscan	Dry	No	BREACHED	41.39	-110.85	Phase II	Clear Creek-Shurtleff Creek	Rock House	State of Wyoming	16N	119W	8
606	Unknown	ACE Mapscan	Dry	No	BREACHED	41.39	-110.85	Phase II	Clear Creek-Shurtleff Creek	Rock House	Private	16N	119W	9
607	Unknown	ACE Mapscan	Dry	Potential		41.39	-110.60	Phase II	Muddy Creek-Lost Draw	Coal Mine Draw	BLM	16N	117W	10
608	Unknown	ACE Mapscan	Wet	Yes		41.39	-110.86	Phase II	Clear Creek-Shurtleff Creek	Rock House	State of Wyoming	16N	119W	8
609	Unknown	ACE Mapscan	Wet	Yes		41.39	-110.86	Phase II	Clear Creek-Shurtleff Creek	Rock House	State of Wyoming	16N	119W	8
610	Unknown	ACE Mapscan	Wet	Yes		41.39	-110.86	Phase II	Clear Creek-Shurtleff Creek	Rock House	State of Wyoming	16N	119W	8
611	Unknown	ACE Mapscan	Wet	Yes		41.39	-110.86	Phase II	Clear Creek-Shurtleff Creek	Rock House	State of Wyoming	16N	119W	8
612	Unknown	ACE Mapscan	Dry	No	SEDIMENT	41.39	-110.76	Phase II	Middle Albert Creek	Byrne Creek	Private	16N	118W	7
613	Unknown	ACE Mapscan	Wet	Yes		41.39	-110.86	Phase II	Clear Creek-Shurtleff Creek	Rock House	State of Wyoming	16N	119W	8
614	Unknown	ACE Mapscan	Wet	Yes		41.39	-110.86	Phase II	Clear Creek-Shurtleff Creek	Rock House	State of Wyoming	16N	119W	8
615	Unknown	ACE Mapscan	Wet	Yes		41.38	-110.86	Phase II	Clear Creek-Shurtleff Creek	Rock House	State of Wyoming	16N	119W	8
616	Unknown	ACE Mapscan	Wet	Yes		41.38	-110.66	Phase II	Middle Albert Creek	Haystack Draw	Private	16N	117W	7
617	Unknown	ACE Mapscan	Dry	No	SEDIMENT	41.38	-110.74	Phase II	Middle Albert Creek	Byrne Creek	BLM	16N	118W	8
618	Unknown	ACE Mapscan	Dry	No	BREACHED	41.38	-110.33	Phase II	Blacks Fork-Rollins Reservoir	Hanblin	Private	16N	115W	12
619	Unknown	ACE Mapscan	Wet	Yes		41.38	-110.85	Phase II	Clear Creek-Shurtleff Creek	Rock House	Private	16N	119W	9
620	Unknown	ACE Mapscan	Wet	Yes		41.38	-110.34	Phase II	Blacks Fork-Rollins Reservoir	Oaks	Private	16N	115W	11
621	Unknown	ACE Mapscan	Wet	Yes		41.38	-110.85	Phase II	Clear Creek-Shurtleff Creek	Rock House	Private	16N	119W	9
622	Unknown	ACE Mapscan	Dry	No	SEDIMENT	41.38	-110.51	Phase II	Rock Creek-Spring Creek	Bridger Airport	BLM	16N	116W	8
623	Unknown	ACE Mapscan	Wet	Yes		41.38	-110.85	Phase II	Clear Creek-Shurtleff Creek	Rock House	Private	16N	119W	9
624	Unknown	ACE Mapscan	Wet	Yes		41.38	-110.28	Phase II	Blacks Fork-Rollins Reservoir	No Allotment	Private	16N	114W	8
625	Unknown	ACE Mapscan	Wet	Yes		41.38	-110.66	Phase II	Middle Albert Creek	Haystack Draw	BLM	16N	118W	12
626	Unknown	ACE Mapscan	Wet	Yes		41.38	-110.86	Phase II	Clear Creek-Shurtleff Creek	Rock House	State of Wyoming	16N	119W	8
627	Unknown	ACE Mapscan	Wet	Yes		41.38	-110.86	Phase II	Clear Creek-Shurtleff Creek	Rock House	State of Wyoming	16N	119W	8
628	Unknown	ACE Mapscan	Dry	Potential		41.38	-110.63	Phase II	Muddy Creek-Mussleman Creek	Coal Mine Draw	BLM	16N	117W	8
629	Unknown	ACE Mapscan	Dry	Potential		41.38	-110.63	Phase II	Muddy Creek-Mussleman Creek	Coal Mine Draw	BLM	16N	117W	8
630	Unknown	ACE Mapscan	Dry	Potential		41.38	-110.34	Phase II	Blacks Fork-Rollins Reservoir	Upper Ranch	Private	16N	115W	11
631	Unknown	ACE Mapscan	Wet	Yes		41.38	-110.86	Phase II	Clear Creek-Shurtleff Creek	Rock House	State of Wyoming	16N	119W	8
632	Unknown	ACE Mapscan	Wet	Yes		41.38	-110.86	Phase II	Clear Creek-Shurtleff Creek	Rock House	State of Wyoming	16N	119W	8
633	Unknown	ACE Mapscan	Wet	Yes		41.37	-110.86	Phase II	Clear Creek-Shurtleff Creek	Rock House	State of Wyoming	16N	119W	8
634	Unknown	ACE Mapscan	Wet	Yes		41.37	-110.55	Phase II	Muddy Creek-Lost Draw	Bigelow Bench	BLM	16N	117W	12
635	Unknown	ACE Mapscan	Wet	Yes		41.37	-110.33	Phase II	Blacks Fork-Rollins Reservoir	No Allotment	Private	16N	115W	13
636	Unknown	ACE Mapscan	Wet	Yes		41.37	-110.87	Phase II	Clear Creek-Shurtleff Creek	Rock House	State of Wyoming	16N	119W	8
637	Unknown	ACE Mapscan	Wet	Yes		41.37	-110.35	Phase II	Blacks Fork-Rollins Reservoir	Upper Ranch	Private	16N	115W	14
638	Unknown	ACE Mapscan	Wet	Yes		41.37	-110.33	Phase II	Blacks Fork-Rollins Reservoir	No Allotment	Private	16N	115W	13
639	Unknown	ACE Mapscan	Wet	Yes		41.37	-110.30	Phase II	Blacks Fork-Rollins Reservoir	No Allotment	Private	16N	114W	18
640	Unknown	ACE Mapscan	Wet	Yes	WET IN TWO YEARS OF PHOTOGRAPHY	41.37	-110.71	Phase II	Middle Albert Creek	Byrne Creek	Private	16N	118W	15
641	Unknown	ACE Mapscan	Wet	Yes		41.37	-110.42	Phase II	Blacks Fork-Quarry Creek	Bridger Airport	Private	16N	115W	18
642	Unknown	ACE Mapscan	Dry	No	BREACHED	41.37	-110.77	Phase II	Middle Albert Creek	Byrne Creek	BLM	16N	118W	18
643	Unknown	ACE Mapscan	Wet	Yes		41.37	-110.31	Phase II	Blacks Fork-Rollins Reservoir	No Allotment	Private	16N	114W	18
644	Unknown	ACE Mapscan	Dry	No	SEDIMENT	41.37	-110.82	Phase II	Middle Albert Creek	Rock House	Private	16N	119W	15
645	Unknown	ACE Mapscan	Wet	Yes		41.37	-110.81	Phase II	Middle Albert Creek	Byrne Creek	Private	16N	119W	14
646	Unknown	ACE Mapscan	Wet	Yes		41.37	-110.74	Phase II	Middle Albert Creek	Byrne Creek	State of Wyoming	16N	118W	16
647	Unknown	ACE Mapscan	Wet	Yes		41.37	-110.30	Phase II	Blacks Fork-Rollins Reservoir	No Allotment	Private	16N	114W	18
648	Unknown	ACE Mapscan	Wet	Yes		41.37	-110.30	Phase II	Blacks Fork-Rollins Reservoir	No Allotment	Private	16N	114W	18
649	Unknown	ACE Mapscan	Dry	Potential		41.37	-110.76	Phase II	Middle Albert Creek	Byrne Creek	Private	16N	118W	18
650	Unknown	ACE Mapscan	Dry	No	SEDIMENT	41.37	-110.78	Phase II	Middle Albert Creek	Byrne Creek	Private	16N	119W	13
651	Unknown	ACE Mapscan	Wet	Yes		41.36	-110.90	Phase II	Clear Creek-Shurtleff Creek	No Allotment	Private	16N	120W	13
652	Unknown	ACE Mapscan	Dry	Potential		41.36	-110.59	Phase II	Muddy Creek-Mussleman Creek	Bigelow Bench	Private	16N	117W	15
653	Unknown	ACE Mapscan	Wet	Yes		41.36	-110.34	Phase II	Blacks Fork-Rollins Reservoir	No Allotment	Private	16N	115W	14

ACE ID	Name	Source	Condition	Water Source	Notes	Lattitude	Longitude	Phase	HUC 12 Name	Allotment	Land Owner	T	R	S
1036	Unknown	ACE Mapscan	Wet	Yes		41.20	-110.37	Phase II	Upper Smiths Fork	No Allotment	Private	14N	115W	10
1037	Unknown	ACE Mapscan	Wet	Yes		41.20	-110.37	Phase II	Upper Smiths Fork	No Allotment	Private	14N	115W	10
1038	Unknown	ACE Mapscan	Wet	Yes		41.20	-110.36	Phase II	Upper Smiths Fork	No Allotment	Private	14N	115W	10
1039	Unknown	ACE Mapscan	Wet	Yes		41.20	-110.38	Phase II	Upper Smiths Fork	No Allotment	Private	14N	115W	9
1040	Unknown	ACE Mapscan	Wet	Yes		41.20	-110.36	Phase II	Upper Smiths Fork	No Allotment	Private	14N	115W	10
1041	Unknown	ACE Mapscan	Wet	Yes		41.20	-110.42	Phase II	Upper Smiths Fork	No Allotment	Private	14N	115W	7
1042	Unknown	ACE Mapscan	Dry	Potential		41.20	-110.70	Phase II	Muddy Creek-Little Creek	Myers	Private	14N	118W	10
1043	Unknown	ACE Mapscan	Wet	Yes		41.20	-110.68	Phase II	Muddy Creek-Little Creek	Meeks Cabin	Private	14N	118W	12
1044	Unknown	ACE Mapscan	Wet	Yes		41.20	-110.76	Phase II	Antelope Creek	Aspen	Private	14N	118W	7
1045	Unknown	ACE Mapscan	Wet	Yes		41.20	-110.37	Phase II	Upper Smiths Fork	No Allotment	Private	14N	115W	15
1046	Unknown	ACE Mapscan	Wet	Yes		41.20	-110.51	Phase II	Blacks Fork-Sixmile Creek	No Allotment	Private	14N	116W	16
1047	Unknown	ACE Mapscan	Wet	Yes		41.20	-110.71	Phase II	Muddy Creek-Little Creek	Myers	Private	14N	118W	15
1048	Unknown	ACE Mapscan	Wet	Yes		41.20	-110.48	Phase II	Blacks Fork-Sixmile Creek	No Allotment	Private	14N	116W	15
1049	Unknown	ACE Mapscan	Dry	No	BREACHED	41.20	-110.32	Phase II	Little Dry Creek-Smiths Fork	Gourley	Private	14N	115W	13
1050	Unknown	ACE Mapscan	Dry	No	SEDIMENT	41.20	-110.62	Phase II	Muddy Creek-Little Creek	No Allotment	State of Wyoming	14N	117W	16
1051	Unknown	ACE Mapscan	Wet	Yes		41.20	-110.44	Phase II	Upper Smiths Fork	No Allotment	Private	14N	116W	13
1052	Unknown	ACE Mapscan	Dry	No	BREACHED	41.20	-110.69	Phase II	Muddy Creek-Little Creek	Meeks Cabin	State of Wyoming	14N	118W	14
1053	Unknown	ACE Mapscan	Dry	No	SEDIMENT	41.20	-110.60	Phase II	Muddy Creek-Little Creek	No Allotment	Private	14N	117W	15
1054	Unknown	ACE Mapscan	Wet	Yes		41.19	-110.42	Phase II	Upper Smiths Fork	No Allotment	Private	14N	115W	18
1055	Unknown	ACE Mapscan	Wet	Yes		41.19	-110.42	Phase II	Upper Smiths Fork	No Allotment	Private	14N	115W	18
1056	Unknown	ACE Mapscan	Wet	Yes		41.19	-110.37	Phase II	Upper Smiths Fork	No Allotment	Private	14N	115W	15
1057	Unknown	ACE Mapscan	Wet	Yes		41.19	-110.38	Phase II	Upper Smiths Fork	No Allotment	Private	14N	115W	16
1058	Unknown	ACE Mapscan	Dry	No	BREACHED	41.19	-110.59	Phase II	Muddy Creek-Little Creek	No Allotment	Private	14N	117W	15
1059	Unknown	ACE Mapscan	Wet	Yes		41.19	-110.55	Phase II	Muddy Creek-Little Creek	No Allotment	Private	14N	117W	13
1060	Unknown	ACE Mapscan	Wet	Yes		41.19	-110.75	Phase II	Antelope Creek	Myers	Private	14N	118W	17
1061	Unknown	ACE Mapscan	Wet	Yes		41.19	-110.75	Phase II	Antelope Creek	Myers	Private	14N	118W	17
1062	Unknown	ACE Mapscan	Wet	Yes		41.19	-110.44	Phase II	Willow Creek-Yellow Hollow Creek	No Allotment	Private	14N	116W	13
1063	Unknown	ACE Mapscan	Dry	No	BREACHED, LOOK PURPOSELY BREACHED TO DIRECT WATER IN CERTAIN DIRECTIONS	41.19	-110.34	Phase II	Little Dry Creek-Smiths Fork	Gourley	Private	14N	115W	14
1064	Unknown	ACE Mapscan	Wet	Yes		41.19	-110.47	Phase II	Upper Smiths Fork	No Allotment	Private	14N	116W	14
1065	Unknown	ACE Mapscan	Wet	Yes		41.19	-110.39	Phase II	Upper Smiths Fork	No Allotment	Private	14N	115W	16
1066	Unknown	ACE Mapscan	Dry	Potential		41.19	-110.55	Phase II	Muddy Creek-Little Creek	No Allotment	Private	14N	117W	13
1067	Unknown	ACE Mapscan	Wet	Yes		41.19	-110.45	Phase II	Willow Creek-Yellow Hollow Creek	No Allotment	Private	14N	116W	13
1068	Unknown	ACE Mapscan	Wet	Yes		41.19	-110.34	Phase II	Little Dry Creek-Smiths Fork	Gourley	Private	14N	115W	14
1069	Unknown	ACE Mapscan	Wet	Yes		41.19	-110.37	Phase II	Upper Smiths Fork	No Allotment	Private	14N	115W	15
1070	Unknown	ACE Mapscan	Dry	No	BREACHED, LOOK PURPOSELY BREACHED TO DIRECT WATER IN CERTAIN DIRECTIONS	41.19	-110.35	Phase II	Little Dry Creek-Smiths Fork	Gourley	Private	14N	115W	23
1071	Unknown	ACE Mapscan	Wet	Yes		41.19	-110.40	Phase II	Upper Smiths Fork	No Allotment	Private	14N	115W	20
1072	Unknown	ACE Mapscan	Dry	No	SEDIMENT	41.19	-110.62	Phase II	Muddy Creek-Little Creek	Moss Creek	Private	14N	117W	21
1073	Unknown	ACE Mapscan	Dry	No	BREACHED, LOOK PURPOSELY BREACHED TO DIRECT WATER IN CERTAIN DIRECTIONS	41.19	-110.34	Phase II	Little Dry Creek-Smiths Fork	Gourley	Private	14N	115W	23
1074	Unknown	ACE Mapscan	Wet	Yes		41.18	-110.40	Phase II	Upper Smiths Fork	No Allotment	Private	14N	115W	20
1075	Unknown	ACE Mapscan	Wet	Yes		41.18	-110.46	Phase II	Upper Smiths Fork	No Allotment	Private	14N	116W	23
1076	Unknown	ACE Mapscan	Wet	Yes		41.18	-110.47	Phase II	Upper Smiths Fork	No Allotment	Private	14N	116W	23
1077	Piedmont Reservoir	ACE Mapscan	Wet	Yes		41.18	-110.65	Phase II	Muddy Creek-Little Creek	Meeks Cabin	Private	14N	117W	19
1079	Unknown	ACE Mapscan	Dry	No	BREACHED	41.18	-110.76	Phase II	Antelope Creek	Myers	Private	14N	118W	19
1080	Unknown	ACE Mapscan	Wet	Yes		41.18	-110.46	Phase II	Willow Creek-Yellow Hollow Creek	No Allotment	Private	14N	116W	23
1081	Unknown	ACE Mapscan	Dry	Potential		41.18	-110.60	Phase II	Muddy Creek-Little Creek	No Allotment	Private	14N	117W	22
1082	Unknown	ACE Mapscan	Wet	Yes		41.18	-110.45	Phase II	Willow Creek-Yellow Hollow Creek	No Allotment	Private	14N	116W	23
1083	Unknown	ACE Mapscan	Wet	Yes		41.18	-110.40	Phase II	Upper Smiths Fork	No Allotment	Private	14N	115W	20
1084	Unknown	ACE Mapscan	Dry	No	BREACHED, LOOK PURPOSELY BREACHED TO DIRECT WATER IN CERTAIN DIRECTIONS	41.18	-110.35	Phase II	Little Dry Creek-Smiths Fork	Gourley	Private	14N	115W	23
1085	Unknown	ACE Mapscan	Wet	Yes		41.18	-110.38	Phase II	Upper Smiths Fork	No Allotment	Private	14N	115W	21
1086	Unknown	ACE Mapscan	Wet	Yes		41.18	-110.56	Phase II	Muddy Creek-Little Creek	Hague Creek	BLM	14N	117W	24
1087	Unknown	ACE Mapscan	Dry	No	SEDIMENT	41.18	-110.71	Phase II	Muddy Creek-Little Creek	Meeks Cabin	BLM	14N	118W	22
1088	Unknown	ACE Mapscan	Dry	No	BREACHED, LOOK PURPOSELY BREACHED TO DIRECT WATER IN CERTAIN DIRECTIONS	41.18	-110.35	Phase II	Little Dry Creek-Smiths Fork	Gourley	Private	14N	115W	23
1089	Unknown	ACE Mapscan	Dry	No	BREACHED	41.18	-110.69	Phase II	Muddy Creek-Little Creek	Meeks Cabin	Private	14N	118W	23
1090	Unknown	ACE Mapscan	Wet	Yes		41.18	-110.46	Phase II	Willow Creek-Yellow Hollow Creek	No Allotment	Private	14N	116W	23
1091	Unknown	ACE Mapscan	Dry	No	BREACHED	41.18	-110.61	Phase II	Muddy Creek-Little Creek	Moss Creek	Private	14N	117W	21
1092	Unknown	ACE Mapscan	Wet	Yes		41.18	-110.40	Phase II	Upper Smiths Fork	Coyote Hollow	Private	14N	115W	20
1093	Unknown	ACE Mapscan	Wet	Yes		41.18	-110.46	Phase II	Willow Creek-Yellow Hollow Creek	No Allotment	Private	14N	116W	23
1094	Unknown	ACE Mapscan	Dry	No	SEDIMENT	41.17	-110.40	Phase II	Upper Smiths Fork	Coyote Hollow	Private	14N	115W	20
1096	Unknown	ACE Mapscan	Dry	No	SEDIMENT	41.17	-110.68	Phase II	Muddy Creek-Little Creek	Meeks Cabin	Private	14N	118W	26
1097	Unknown	ACE Mapscan	Wet	Yes		41.17	-110.44	Phase II	Upper Smiths Fork	No Allotment	Private	14N	116W	25
1098	Unknown	ACE Mapscan	Wet	Yes		41.17	-110.43	Phase II	Upper Smiths Fork	No Allotment	Private	14N	115W	30
1099	Unknown	ACE Mapscan	Dry	No	BREACHED	41.17	-110.71	Phase II	Muddy Creek-Little Creek	Mosslander Ranch	Private	14N	118W	27
1100	Unknown	ACE Mapscan	Dry	Potential		41.17	-110.45	Phase II	Willow Creek-Yellow Hollow Creek	No Allotment	Private	14N	116W	26
1101	Unknown	ACE Mapscan	Wet	Yes		41.17	-110.49	Phase II	Blacks Fork-Sixmile Creek	No Allotment	Private	14N	116W	28
1102	Unknown	ACE Mapscan	Dry	No	SEDIMENT	41.17	-110.41	Phase II	Upper Smiths Fork	Coyote Hollow	Private	14N	115W	29
1103	Unknown	ACE Mapscan	Dry	No	SEDIMENT	41.17	-110.69	Phase II	Muddy Creek-Little Creek	Meeks Cabin	State of Wyoming	14N	118W	26
1104	Unknown	ACE Mapscan	Wet	Yes		41.17	-110.16	Phase II	Sage Creek-Reed Reservoir	Currently No Name	BLM	14N	113W	28
1105	Unknown	ACE Mapscan	Dry	Potential		41.17	-110.30	Phase II	Upper Cottonwood Creek-Blacks Fork	Leavitt Bench	BLM	14N	114W	30
1106	Unknown	ACE Mapscan	Wet	Yes		41.17	-110.43	Phase II	Upper Smiths Fork	No Allotment	Private	14N	115W	30
1107	Unknown	ACE Mapscan	Dry	Potential		41.16	-110.46	Phase II	Willow Creek-Yellow Hollow Creek	No Allotment	Private	14N	116W	26
1109	Unknown	ACE Mapscan	Dry	No	SEDIMENT	41.16	-110.70	Phase II	Muddy Creek-Little Creek	Meeks Cabin	State of Wyoming	14N	118W	26
1111	Unknown	ACE Mapscan	Wet	Yes		41.16	-110.42	Phase II	Upper Smiths Fork	Smiths Fork	Private	14N	115W	30
1112	Guild Reservoir	ACE Mapscan	Wet	Yes		41.16	-110.67	Phase II	West Muddy Creek	Meeks Cabin	Private	14N	118W	25
1114	Unknown	ACE Mapscan	Wet	Yes		41.15	-110.68	Phase II	West Muddy Creek	Van Tassel	Private	14N	118W	35
1115	Unknown	ACE Mapscan	Dry	Potential		41.15	-110.47	Phase II	Willow Creek-Yellow Hollow Creek	No Allotment	BLM	14N	116W	35

ACE ID	Name	Source	Condition	Water Source	Notes	Lattitude	Longitude	Phase	HUC 12 Name	Allotment	Land Owner	T	R	S
1206	Unknown	ACE Mapscan	Wet	Yes		41.08	-110.62	Phase II	East Muddy Creek	Van Tassel	BLM	13N	117W	28
1207	Unknown	ACE Mapscan	Wet	Yes		41.08	-110.66	Phase II	East Muddy Creek	Van Tassel	Private	13N	117W	30
1208	Unknown	ACE Mapscan	Wet	Yes		41.08	-110.61	Phase II	Blacks Fork-Sixmile Creek	Van Tassel	BLM	13N	117W	28
1209	Unknown	ACE Mapscan	Wet	Yes		41.08	-110.63	Phase II	East Muddy Creek	Van Tassel	Private	13N	117W	29
1210	Unknown	ACE Mapscan	Wet	Yes		41.08	-110.45	Phase II	West Fork Smiths Fork	Westfork	Private	13N	116W	26
1211	Unknown	ACE Mapscan	Wet	Yes		41.08	-110.47	Phase II	Upper Smiths Fork	Willow Creek	Private	13N	116W	27
1212	Unknown	ACE Mapscan	Wet	Yes		41.08	-110.59	Phase II	Blacks Fork-Sixmile Creek	Van Tassel	Private	13N	117W	27
1213	Unknown	ACE Mapscan	Dry	No	BREACHED	41.08	-110.72	Phase II	West Muddy Creek	21 Grove	Private	13N	118W	28
1214	Unknown	ACE Mapscan	Wet	Yes		41.08	-110.59	Phase II	Blacks Fork-Sixmile Creek	Van Tassel	Private	13N	117W	27
1215	Unknown	ACE Mapscan	Wet	Yes		41.08	-110.57	Phase II	Blacks Forks-Meeks Cabin Reservoir	Bigelow Ditch	Private	13N	117W	26
1216	Unknown	ACE Mapscan	Dry	No	SEDIMENT	41.08	-110.74	Phase II	West Muddy Creek	Redden Pasture	Private	13N	118W	29
1217	Unknown	ACE Mapscan	Wet	Yes		41.08	-110.55	Phase II	Blacks Forks-Meeks Cabin Reservoir	No Allotment	Private	13N	117W	25
1218	Unknown	ACE Mapscan	Wet	Yes		41.08	-110.39	Phase II	Upper Smiths Fork	Graham Reservoir	Private	13N	115W	28
1219	Unknown	ACE Mapscan	Dry	Potential		41.08	-110.47	Phase II	Upper Smiths Fork	Willow Creek	BLM	13N	116W	27
1220	Unknown	ACE Mapscan	Wet	Yes		41.07	-110.59	Phase II	Blacks Forks-Meeks Cabin Reservoir	Van Tassel	Private	13N	117W	27
1221	Unknown	ACE Mapscan	Wet	Yes		41.07	-110.54	Phase II	Blacks Forks-Meeks Cabin Reservoir	Half Sec Horse Cr	BLM	13N	116W	30
1222	Unknown	ACE Mapscan	Wet	Yes		41.07	-110.58	Phase II	Blacks Forks-Meeks Cabin Reservoir	Bigelow Ditch	Private	13N	117W	26
1223	Unknown	ACE Mapscan	Wet	Yes		41.07	-110.55	Phase II	Blacks Forks-Meeks Cabin Reservoir	No Allotment	Private	13N	117W	25
1224	Unknown	ACE Mapscan	Wet	Yes		41.07	-110.58	Phase II	Blacks Forks-Meeks Cabin Reservoir	Bigelow Ditch	Private	13N	117W	26
1225	Unknown	ACE Mapscan	Wet	Yes		41.07	-110.57	Phase II	Blacks Forks-Meeks Cabin Reservoir	Bigelow Ditch	Private	13N	117W	26
1226	Unknown	ACE Mapscan	Wet	Yes		41.07	-110.58	Phase II	Blacks Forks-Meeks Cabin Reservoir	Bigelow Ditch	Private	13N	117W	26
1227	Unknown	ACE Mapscan	Dry	No	BREACHED	41.07	-110.42	Phase II	West Fork Smiths Fork	Murray Ditch	Private	13N	115W	30
1228	Unknown	ACE Mapscan	Wet	Yes		41.07	-110.55	Phase II	Blacks Forks-Meeks Cabin Reservoir	No Allotment	Private	13N	117W	25
1229	Unknown	ACE Mapscan	Wet	Yes		41.07	-110.57	Phase II	Blacks Forks-Meeks Cabin Reservoir	Bigelow Ditch	Private	13N	117W	26
1230	Unknown	ACE Mapscan	Wet	Yes		41.07	-110.59	Phase II	Blacks Fork-Sixmile Creek	Van Tassel	Private	13N	117W	27
1231	Unknown	ACE Mapscan	Wet	Yes		41.07	-110.64	Phase II	East Muddy Creek	Van Tassel	Private	13N	117W	29
1232	Unknown	ACE Mapscan	Wet	Yes		41.07	-110.56	Phase II	Blacks Forks-Meeks Cabin Reservoir	No Allotment	Private	13N	117W	25
1233	Unknown	ACE Mapscan	Wet	Yes		41.07	-110.59	Phase II	Blacks Forks-Meeks Cabin Reservoir	Van Tassel	Private	13N	117W	27
1234	Unknown	ACE Mapscan	Wet	Yes		41.07	-110.58	Phase II	Blacks Forks-Meeks Cabin Reservoir	Bigelow Ditch	Private	13N	117W	26
1235	Unknown	ACE Mapscan	Wet	Yes		41.07	-110.58	Phase II	Blacks Forks-Meeks Cabin Reservoir	Bigelow Ditch	Private	13N	117W	26
1236	Unknown	ACE Mapscan	Wet	Yes		41.07	-110.55	Phase II	Blacks Forks-Meeks Cabin Reservoir	No Allotment	Private	13N	117W	25
1237	Unknown	ACE Mapscan	Wet	Yes		41.07	-110.55	Phase II	Blacks Forks-Meeks Cabin Reservoir	No Allotment	Private	13N	117W	25
1238	Graham Reservoir No 1	ACE Mapscan	Wet	Yes		41.07	-110.39	Phase II	Upper Smiths Fork	Graham Reservoir	Private	13N	115W	28
1239	Unknown	ACE Mapscan	Wet	Yes		41.07	-110.58	Phase II	Blacks Forks-Meeks Cabin Reservoir	Bigelow Ditch	Private	13N	117W	26
1241	Unknown	ACE Mapscan	Wet	Yes		41.07	-110.59	Phase II	Blacks Forks-Meeks Cabin Reservoir	Balsam Draw	BLM	13N	117W	34
1243	Unknown	ACE Mapscan	Wet	Yes		41.07	-110.72	Phase II	West Muddy Creek	No Allotment	Private	13N	118W	33
1244	Unknown	ACE Mapscan	Wet	Yes		41.07	-110.56	Phase II	Blacks Forks-Meeks Cabin Reservoir	No Allotment	State of Wyoming	13N	117W	36
1245	Unknown	ACE Mapscan	Wet	Yes		41.07	-110.43	Phase II	West Fork Smiths Fork	Gilbert Creek	USFS	13N	115W	31
1246	Unknown	ACE Mapscan	Wet	Yes		41.07	-110.58	Phase II	Blacks Forks-Meeks Cabin Reservoir	Balsam Draw	Private	13N	117W	35
1247	Unknown	ACE Mapscan	Wet	Yes		41.07	-110.56	Phase II	Blacks Forks-Meeks Cabin Reservoir	No Allotment	State of Wyoming	13N	117W	36
1248	Unknown	ACE Mapscan	Wet	Yes		41.07	-110.43	Phase II	West Fork Smiths Fork	Gilbert Creek	USFS	13N	115W	31
1249	Unknown	ACE Mapscan	Wet	Yes		41.07	-110.43	Phase II	West Fork Smiths Fork	Gilbert Creek	USFS	13N	115W	31
1250	Unknown	ACE Mapscan	Wet	Yes		41.07	-110.58	Phase II	Blacks Forks-Meeks Cabin Reservoir	Balsam Draw	Private	13N	117W	35
1251	Unknown	ACE Mapscan	Wet	Yes		41.07	-110.56	Phase II	Blacks Forks-Meeks Cabin Reservoir	No Allotment	State of Wyoming	13N	117W	36
1252	Unknown	ACE Mapscan	Wet	Yes		41.07	-110.43	Phase II	West Fork Smiths Fork	Gilbert Creek	USFS	13N	115W	31
1253	Unknown	ACE Mapscan	Wet	Yes		41.07	-110.56	Phase II	Blacks Forks-Meeks Cabin Reservoir	No Allotment	State of Wyoming	13N	117W	36
1254	Unknown	ACE Mapscan	Wet	Yes		41.06	-110.43	Phase II	West Fork Smiths Fork	Gilbert Creek	USFS	13N	116W	36
1255	Unknown	ACE Mapscan	Wet	Yes		41.06	-110.58	Phase II	Blacks Forks-Meeks Cabin Reservoir	Balsam Draw	Private	13N	117W	35
1256	Unknown	ACE Mapscan	Wet	Yes		41.06	-110.56	Phase II	Blacks Forks-Meeks Cabin Reservoir	No Allotment	State of Wyoming	13N	117W	36
1257	Unknown	ACE Mapscan	Wet	Yes		41.06	-110.42	Phase II	Gilbert Creek	Gilbert Creek	USFS	13N	115W	31
1258	Unknown	ACE Mapscan	Wet	Yes		41.06	-110.56	Phase II	Blacks Forks-Meeks Cabin Reservoir	No Allotment	State of Wyoming	13N	117W	36
1259	Unknown	ACE Mapscan	Wet	Yes		41.06	-110.52	Phase II	Willow Creek-Yellow Hollow Creek	No Allotment	Private	13N	116W	32
1260	Unknown	ACE Mapscan	Wet	Yes		41.06	-110.56	Phase II	Blacks Forks-Meeks Cabin Reservoir	No Allotment	State of Wyoming	13N	117W	36
1261	Unknown	ACE Mapscan	Wet	Yes		41.06	-110.58	Phase II	Blacks Forks-Meeks Cabin Reservoir	Balsam Draw	Private	13N	117W	35
1262	Unknown	ACE Mapscan	Wet	Yes		41.06	-110.54	Phase II	Willow Creek-Yellow Hollow Creek	West Fork Smith Fork	Private	13N	116W	31
1263	Unknown	ACE Mapscan	Wet	Yes		41.06	-110.59	Phase II	Blacks Forks-Meeks Cabin Reservoir	Balsam Draw	BLM	13N	117W	34
1264	Unknown	ACE Mapscan	Wet	Yes		41.06	-110.56	Phase II	Blacks Forks-Meeks Cabin Reservoir	No Allotment	State of Wyoming	13N	117W	36
1265	Unknown	ACE Mapscan	Wet	Yes		41.06	-110.56	Phase II	Blacks Forks-Meeks Cabin Reservoir	No Allotment	State of Wyoming	13N	117W	36
1266	Unknown	ACE Mapscan	Wet	Yes		41.06	-110.65	Phase II	East Muddy Creek	Van Tassel	Private	13N	117W	31
1267	Unknown	ACE Mapscan	Wet	Yes		41.06	-110.56	Phase II	Blacks Forks-Meeks Cabin Reservoir	No Allotment	State of Wyoming	13N	117W	36
1268	Unknown	ACE Mapscan	Wet	Yes		41.06	-110.34	Phase II	Upper Cottonwood Creek-Blacks Fork	Red Mountain	USFS	13N	115W	35
1269	Unknown	ACE Mapscan	Wet	Yes		41.06	-110.56	Phase II	Blacks Forks-Meeks Cabin Reservoir	No Allotment	State of Wyoming	13N	117W	36
1270	Unknown	ACE Mapscan	Wet	Yes		41.06	-110.56	Phase II	Blacks Forks-Meeks Cabin Reservoir	No Allotment	State of Wyoming	13N	117W	36
1271	Unknown	ACE Mapscan	Wet	Yes		41.06	-110.58	Phase II	Blacks Forks-Meeks Cabin Reservoir	Balsam Draw	Private	13N	117W	35
1272	Unknown	ACE Mapscan	Wet	Yes		41.06	-110.59	Phase II	Blacks Forks-Meeks Cabin Reservoir	Balsam Draw	BLM	13N	117W	34
1273	Unknown	ACE Mapscan	Wet	Yes		41.06	-110.58	Phase II	Blacks Forks-Meeks Cabin Reservoir	Balsam Draw	BLM	13N	117W	34
1274	Unknown	ACE Mapscan	Wet	Yes		41.06	-110.42	Phase II	Gilbert Creek	Gilbert Creek	USFS	13N	115W	31
1275	Unknown	ACE Mapscan	Wet	Yes		41.06	-110.59	Phase II	Blacks Forks-Meeks Cabin Reservoir	Balsam Draw	BLM	13N	117W	34
1276	Unknown	ACE Mapscan	Wet	Yes		41.06	-110.59	Phase II	Blacks Forks-Meeks Cabin Reservoir	Balsam Draw	BLM	13N	117W	34
1277	Unknown	ACE Mapscan	Wet	Yes	WET IN 3 YEARS OF PHOTOGRAPHY	41.06	-110.29	Phase II	Sage Creek-Reed Reservoir	Red Mountain	USFS	13N	114W	32
1278	Unknown	ACE Mapscan	Wet	Yes		41.06	-110.59	Phase II	Blacks Forks-Meeks Cabin Reservoir	Balsam Draw	BLM	13N	117W	34
1279	Unknown	ACE Mapscan	Wet	Yes		41.06	-110.59	Phase II	Blacks Forks-Meeks Cabin Reservoir	Balsam Draw	BLM	13N	117W	34
1280	Unknown	ACE Mapscan	Wet	Yes		41.06	-110.34	Phase II	Upper Cottonwood Creek-Blacks Fork	Red Mountain	Private	13N	115W	35
1281	Unknown	ACE Mapscan	Wet	Yes		41.06	-110.58	Phase II	Blacks Forks-Meeks Cabin Reservoir	Balsam Draw	Private	13N	117W	35
1282	Unknown	ACE Mapscan	Wet	Yes		41.06	-110.34	Phase II	Upper Cottonwood Creek-Blacks Fork	Red Mountain	Private	13N	115W	35

ACE ID	Name	Source	Condition	Water Source	Notes	Latitude	Longitude	Phase	HUC 12 Name	Allotment	Land Owner	T	R	S
1542	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.52	Phase II	West Fork Smiths Fork	West Fork Smith Fork	USFS	12N	116W	20
1543	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.40	Phase II	East Fork Smiths Fork	East Fork Smiths Fork	USFS	12N	115W	20
1544	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.39	Phase II	East Fork Smiths Fork	East Fork Smiths Fork	USFS	12N	115W	20
1545	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.51	Phase II	West Fork Smiths Fork	West Fork Smith Fork	Private	12N	116W	21
1546	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.39	Phase II	East Fork Smiths Fork	East Fork Smiths Fork	USFS	12N	115W	21
1547	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.38	Phase II	East Fork Smiths Fork	East Fork Smiths Fork	USFS	12N	115W	21
1548	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.47	Phase II	West Fork Smiths Fork	West Fork Smith Fork	Private	12N	116W	23
1549	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.51	Phase II	West Fork Smiths Fork	West Fork Smith Fork	Private	12N	116W	21
1550	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.52	Phase II	West Fork Smiths Fork	West Fork Smith Fork	USFS	12N	116W	20
1553	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.51	Phase II	West Fork Smiths Fork	West Fork Smith Fork	Private	12N	116W	21
1554	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.39	Phase II	East Fork Smiths Fork	East Fork Smiths Fork	USFS	12N	115W	21
1556	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.40	Phase II	East Fork Smiths Fork	East Fork Smiths Fork	USFS	12N	115W	20
1557	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.38	Phase II	East Fork Smiths Fork	East Fork Smiths Fork	USFS	12N	115W	21
1558	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.40	Phase II	East Fork Smiths Fork	East Fork Smiths Fork	USFS	12N	115W	20
1560	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.44	Phase II	Gilbert Creek	Gilbert Creek	USFS	12N	116W	24
1561	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.47	Phase II	West Fork Smiths Fork	West Fork Smith Fork	Private	12N	116W	23
1562	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.38	Phase II	East Fork Smiths Fork	East Fork Smiths Fork	USFS	12N	115W	21
1563	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.47	Phase II	West Fork Smiths Fork	West Fork Smith Fork	Private	12N	116W	23
1564	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.38	Phase II	East Fork Smiths Fork	East Fork Smiths Fork	USFS	12N	115W	21
1565	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.47	Phase II	West Fork Smiths Fork	West Fork Smith Fork	USFS	12N	116W	22
1566	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.38	Phase II	East Fork Smiths Fork	East Fork Smiths Fork	USFS	12N	115W	21
1567	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.47	Phase II	West Fork Smiths Fork	West Fork Smith Fork	USFS	12N	116W	22
1568	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.47	Phase II	West Fork Smiths Fork	West Fork Smith Fork	USFS	12N	116W	22
1569	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.47	Phase II	West Fork Smiths Fork	West Fork Smith Fork	Private	12N	116W	23
1570	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.38	Phase II	East Fork Smiths Fork	East Fork Smiths Fork	USFS	12N	115W	21
1572	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.44	Phase II	Gilbert Creek	Gilbert Creek	USFS	12N	116W	24
1573	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.47	Phase II	West Fork Smiths Fork	West Fork Smith Fork	USFS	12N	116W	22
1574	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.38	Phase II	East Fork Smiths Fork	East Fork Smiths Fork	USFS	12N	115W	21
1575	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.39	Phase II	East Fork Smiths Fork	East Fork Smiths Fork	USFS	12N	115W	21
1576	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.38	Phase II	East Fork Smiths Fork	East Fork Smiths Fork	USFS	12N	115W	21
1577	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.37	Phase II	East Fork Smiths Fork	East Fork Smiths Fork	USFS	12N	115W	21
1578	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.66	Phase II	East Muddy Creek	Guild Ranch	Private	12N	117W	19
1579	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.38	Phase II	East Fork Smiths Fork	East Fork Smiths Fork	USFS	12N	115W	21
1580	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.39	Phase II	East Fork Smiths Fork	East Fork Smiths Fork	USFS	12N	115W	21
1581	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.70	Phase II	West Muddy Creek	No Allotment	Private	12N	118W	23
1582	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.39	Phase II	East Fork Smiths Fork	East Fork Smiths Fork	USFS	12N	115W	21
1583	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.38	Phase II	East Fork Smiths Fork	East Fork Smiths Fork	USFS	12N	115W	21
1584	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.39	Phase II	East Fork Smiths Fork	East Fork Smiths Fork	USFS	12N	115W	29
1585	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.40	Phase II	East Fork Smiths Fork	East Fork Smiths Fork	USFS	12N	115W	29
1586	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.38	Phase II	East Fork Smiths Fork	East Fork Smiths Fork	USFS	12N	115W	28
1587	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.39	Phase II	East Fork Smiths Fork	East Fork Smiths Fork	USFS	12N	115W	28
1588	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.37	Phase II	East Fork Smiths Fork	East Fork Smiths Fork	USFS	12N	115W	28
1589	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.38	Phase II	East Fork Smiths Fork	East Fork Smiths Fork	USFS	12N	115W	28
1591	Unknown	ACE Mapscan	Wet	Yes		41.00	-110.39	Phase II	East Fork Smiths Fork	East Fork Smiths Fork	USFS	12N	115W	28
1593	Grahams Reservoir	ACE Mapscan	Wet	Yes		40.99	-110.39	Phase II	East Fork Smiths Fork	East Fork Smiths Fork	USFS	12N	115W	29
1645	Unknown	Kemmerer BLM	Dry	Potential	RIPS DATABASE	41.73	-110.63	Phase II	Upper North Fork Little Muddy Creek	Elkol	BLM	20N	117W	10
1646	Unknown	Kemmerer BLM	Dry	Potential	no water present, immediately beside other reservoir	41.73	-110.64	Phase II	Upper North Fork Little Muddy Creek	Elkol	BLM	20N	117W	9
1647	Unknown	Kemmerer BLM	Dry	Potential	no water present, immediately beside other reservoir	41.73	-110.64	Phase II	Upper North Fork Little Muddy Creek	Elkol	BLM	20N	117W	9
1648	Unknown	Kemmerer BLM	Wet	Yes	WET IN TWO YEARS OF PHOTOGRAPHY, RIPS DATABASE	41.72	-110.60	Phase II	Upper North Fork Little Muddy Creek	Elkol	BLM	20N	117W	14
1649	Unknown	Kemmerer BLM	Dry	No	Unknown status by BLM, not considered a watersource	41.72	-110.65	Phase II	Upper North Fork Little Muddy Creek	Twin Creek	State of Wyoming	20N	117W	16
1650	Unknown	Kemmerer BLM	Wet	Yes	RIPS DATABASE	41.71	-110.59	Phase II	Upper North Fork Little Muddy Creek	Cumberland Flats	BLM	20N	117W	24
1652	Unknown	Kemmerer BLM	Wet	Yes	water pesent	41.70	-110.51	Phase II	Dry Muddy Creek-Little Round Mountain Spring	Cumberland Flats	BLM	20N	116W	22
1653	Unknown	Kemmerer BLM	Dry	Potential	no water	41.70	-110.51	Phase II	Dry Muddy Creek-Little Round Mountain Spring	Cumberland Flats	BLM	20N	116W	22
1654	Unknown	Kemmerer BLM	Dry	No	BREACHED, RIPS DATABASE	41.69	-110.65	Phase II	Lower North Fork Little Muddy Creek	Cumberland/Uinta	BLM	20N	117W	28
1655	Unknown	Kemmerer BLM	Dry	No	SEDIMENT, RIPS DATABASE	41.69	-110.57	Phase II	Upper North Fork Little Muddy Creek	Cumberland Flats	BLM	20N	116W	30
1656	Unknown	Kemmerer BLM	Dry	No	REMOVED BY MINING ACTIVITIES, RIPS DATABASE	41.68	-110.62	Phase II	Upper North Fork Little Muddy Creek	Elkol	BLM	20N	117W	34
1657	Unknown	Kemmerer BLM	Dry	No	BREACHED, RIPS DATABASE	41.68	-110.67	Phase II	Lower North Fork Little Muddy Creek	Cumberland/Uinta	BLM	20N	117W	32
1658	Unknown	Kemmerer BLM	Dry	Potential	RIPS DATABASE	41.68	-110.67	Phase II	Lower North Fork Little Muddy Creek	Cumberland/Uinta	BLM	20N	117W	32
1659	Unknown	Kemmerer BLM	Dry	No	BREACHED, RIPS DATABASE	41.67	-110.67	Phase II	Lower North Fork Little Muddy Creek	Cumberland/Uinta	BLM	20N	117W	32
1660	Unknown	Kemmerer BLM	Dry	Potential	RIPS DATABASE	41.67	-110.73	Phase II	Little Muddy Creek-Chicken Creek	Cumberland/Uinta	BLM	20N	118W	34
1661	Unknown	Kemmerer BLM	Dry	No	REMOVED BY MINING ACTIVITY, RIPS DATABASE	41.67	-110.62	Phase II	Upper North Fork Little Muddy Creek	Elkol	BLM	20N	117W	34
1662	Unknown	Kemmerer BLM	Dry	No	POTENTIALLY BREACHED, RIPS DATABASE	41.67	-110.67	Phase II	Lower North Fork Little Muddy Creek	Cumberland/Uinta	BLM	20N	117W	32
1663	Unknown	Kemmerer BLM	Dry	Potential	RIPS DATABASE	41.66	-110.68	Phase II	Little Muddy Creek-Chicken Creek	Cumberland/Uinta	BLM	19N	117W	6
1664	Unknown	Kemmerer BLM	Dry	Potential	RIPS DATABASE	41.66	-110.61	Phase II	Upper North Fork Little Muddy Creek	Cumberland Flats	BLM	19N	117W	2
1665	Unknown	Kemmerer BLM	Dry	Potential	RIPS DATABASE	41.66	-110.65	Phase II	Lower North Fork Little Muddy Creek	Cumberland/Uinta	BLM	19N	117W	4
1666	Unknown	Kemmerer BLM	Dry	Potential	RIPS DATABASE	41.66	-110.60	Phase II	Lower North Fork Little Muddy Creek	Cumberland Flats	BLM	19N	117W	2
1667	Unknown	Kemmerer BLM	Dry	Potential	RIPS DATABASE	41.65	-110.60	Phase II	Lower North Fork Little Muddy Creek	Cumberland Flats	BLM	19N	117W	2
1668	Unknown	Kemmerer BLM	Wet	Yes	RIPS DATABASE	41.65	-110.58	Phase II	Lower North Fork Little Muddy Creek	Cumberland Flats	BLM	19N	117W	12
1669	Unknown	Kemmerer BLM	Wet	Yes	RIPS DATABASE	41.65	-110.59	Phase II	Lower North Fork Little Muddy Creek	Cumberland Flats	BLM	19N	117W	12
1670	Unknown	Kemmerer BLM	Wet	Yes	water present	41.64	-110.64	Phase II	Lower North Fork Little Muddy Creek	Cumberland/Uinta	Private	19N	117W	9
1671	Unknown	Kemmerer BLM	Dry	Potential	dam face not blown out, good condition	41.63	-110.88	Phase II	Carter Creek	Cumberland/Uinta	State of Wyoming	19N	119W	16
1672	Unknown	Kemmerer BLM	Wet	Yes	possible overflow water present	41.63	-110.90	Phase II	Carter Creek	Cumberland/Uinta	Private	19N	119W	17
1673	Unknown	Kemmerer BLM	Dry	Potential	no water present	41.63	-110.66	Phase II	Lower North Fork Little Muddy Creek	Cumberland/Uinta	Private	19N	117W	17
1674	Unknown	Kemmerer BLM	Dry	No	Listed as "Blown Out" by BLM, no water present	41.62	-110.58	Phase II	Lower North Fork Little Muddy Creek	Cumberland Flats	Private	19N	117W	13
1675	Unknown	Kemmerer BLM	Dry	Potential	no water present	41.62	-110.67	Phase II	Little Muddy Creek-Bell Creek	Cumberland/Uinta	Private	19N	117W	17

ACE ID	Name	Source	Condition	Water Source	Notes	Lattitude	Longitude	Phase	HUC 12 Name	Allotment	Land Owner	T	R	S
1751	Unknown	Kemmerer BLM	Dry	Potential	No Water Present	41.45	-110.79	Phase II	Clear Creek-Shurtleff Creek	Cumberland/Uinta	Private	17N	118W	17
1752	Unknown	Kemmerer BLM	Dry	Potential	no water present overflow pipe present	41.45	-110.79	Phase II	Clear Creek-Shurtleff Creek	Cumberland/Uinta	Private	17N	118W	17
1753	Unknown	Kemmerer BLM	Dry	Potential	no water present	41.45	-110.82	Phase II	Clear Creek-Shurtleff Creek	Cumberland/Uinta	Private	17N	119W	13
1754	Unknown	Kemmerer BLM	Dry	Potential	No Water Present	41.45	-110.82	Phase II	Clear Creek-Shurtleff Creek	Cumberland/Uinta	Private	17N	119W	13
1755	Unknown	Kemmerer BLM	Wet	Yes	water present overflow pipe present	41.45	-110.78	Phase II	Clear Creek-Shurtleff Creek	Cumberland/Uinta	Private	17N	118W	17
1756	Unknown	Kemmerer BLM	Wet	Yes	Water Present	41.45	-110.77	Phase II	Clear Creek-Shurtleff Creek	Cumberland/Uinta	Private	17N	118W	20
1757	Unknown	Kemmerer BLM	Dry	Potential	RIPS DATABASE	41.45	-110.63	Phase II	Lower Albert Creek	Albert Creek	BLM	17N	117W	22
1758	Unknown	Kemmerer BLM	Dry	Potential	RIPS DATABASE	41.45	-110.47	Phase II	Muddy Creek-Town of Carter	Carter Lease	BLM	17N	116W	24
1759	Unknown	Kemmerer BLM	Wet	Yes	Water Present	41.45	-110.77	Phase II	Clear Creek-Shurtleff Creek	Cumberland/Uinta	Private	17N	118W	20
1760	Unknown	Kemmerer BLM	Dry	Potential	No Water Present	41.44	-110.77	Phase II	Clear Creek-Shurtleff Creek	Cumberland/Uinta	Private	17N	118W	20
1761	Unknown	Kemmerer BLM	Wet	Yes	Water Present	41.44	-110.79	Phase II	Clear Creek-Shurtleff Creek	Cumberland/Uinta	Private	17N	118W	20
1762	Unknown	Kemmerer BLM	Dry	No	BREACHED, RIPS DATABASE	41.44	-110.62	Phase II	Lower Albert Creek	Albert Creek	BLM	17N	117W	22
1763	Unknown	Kemmerer BLM	Wet	No	Listed as "Blown Out" by BLM, Water Present, Channelization has occurred: Not a watersource because BLM lists it as "blown out"	41.44	-110.79	Phase II	Clear Creek-Shurtleff Creek	Cumberland/Uinta	Private	17N	118W	19
1764	Unknown	Kemmerer BLM	Dry	Potential	RIPS DATABASE	41.44	-110.63	Phase II	Lower Albert Creek	Albert Creek	BLM	17N	117W	22
1765	Unknown	Kemmerer BLM	Wet	Yes	Water Present	41.44	-110.80	Phase II	Clear Creek-Shurtleff Creek	Cumberland/Uinta	Private	17N	118W	19
1766	Unknown	Kemmerer BLM	Dry	No	SEDIMENT, RIPS DATABASE	41.44	-110.66	Phase II	Lower Albert Creek	Albert Creek	BLM	17N	117W	20
1767	Unknown	Kemmerer BLM	Dry	Potential	RIPS DATABASE	41.43	-110.68	Phase II	Lower Albert Creek	Albert Creek	BLM	17N	117W	30
1768	Unknown	Kemmerer BLM	Dry	Potential	RIPS DATABASE	41.43	-110.61	Phase II	Muddy Creek-Lost Draw	Albert Creek	BLM	17N	117W	26
1769	Unknown	Kemmerer BLM	Dry	Potential	RIPS DATABASE	41.43	-110.69	Phase II	Lower Albert Creek	Albert Creek	BLM	17N	117W	30
1770	Unknown	Kemmerer BLM	Wet	Yes	RIPS DATABASE	41.38	-110.36	Phase II	Blacks Fork-Rollins Reservoir	Bridger Airport	BLM	16N	115W	10
1771	Unknown	Kemmerer BLM	Dry	Potential	RIPS DATABASE	41.38	-110.39	Phase II	Blacks Fork-Rollins Reservoir	Bridger Airport	BLM	16N	115W	9
1772	Unknown	Kemmerer BLM	Dry	Potential	RIPS DATABASE	41.38	-110.45	Phase II	Rock Creek-Spring Creek	Bridger Airport	BLM	16N	116W	12
1773	Unknown	Kemmerer BLM	Dry	Potential	RIPS DATABASE	41.37	-110.39	Phase II	Blacks Fork-Rollins Reservoir	Bridger Airport	BLM	16N	115W	16
1774	Unknown	Kemmerer BLM	Wet	Yes	RIPS DATABASE	41.37	-110.15	Phase II	Lower Smiths Fork-Blacks Fork	Indian Flat	BLM	16N	113W	16
1775	Unknown	Kemmerer BLM	Dry	Potential	RIPS DATABASE	41.37	-110.41	Phase II	Blacks Fork-Rollins Reservoir	Bridger Airport	BLM	16N	115W	17
1776	Unknown	Kemmerer BLM	Dry	Potential	RIPS DATABASE	41.36	-110.64	Phase II	Muddy Creek-Mussleman Creek	Coal Mine Draw	BLM	16N	117W	18
1777	Unknown	Kemmerer BLM	Dry	Potential	RIPS DATABASE	41.36	-110.43	Phase II	Blacks Fork-Quarry Creek	Bridger Airport	BLM	16N	115W	19
1778	Unknown	Kemmerer BLM	Wet	Yes	WET IN TWO YEARS PHOTOGRAPHY, RIPS DATABASE	41.36	-110.48	Phase II	Rock Creek-Spring Creek	Bridger Airport	BLM	16N	116W	22
1779	Unknown	Kemmerer BLM	Dry	Potential	RIPS DATABASE	41.35	-110.55	Phase II	Muddy Creek-Mussleman Creek	Bigelow Bench	BLM	16N	117W	24
1780	Unknown	Kemmerer BLM	Dry	No	SEDIMENT, RIPS DATABASE	41.35	-110.45	Phase II	Blacks Fork-Quarry Creek	Bridger Airport	BLM	16N	116W	23
1781	Unknown	Kemmerer BLM	Dry	Potential	RIPS DATABASE	41.34	-110.79	Phase II	Middle Albert Creek	Byrne Creek	BLM	16N	119W	24
1782	Unknown	Kemmerer BLM	Wet	Yes	RIPS DATABASE	41.34	-110.58	Phase II	Muddy Creek-Mussleman Creek	Bigelow Bench	Private	16N	117W	26
1783	Unknown	Kemmerer BLM	Dry	Potential	RIPS DATABASE	41.34	-110.15	Phase II	Lower Cottonwood Creek-Blacks Fork	Indian Flat	BLM	16N	113W	28
1784	Unknown	Kemmerer BLM	Dry	Potential	RIPS DATABASE	41.34	-110.15	Phase II	Lower Cottonwood Creek-Blacks Fork	Indian Flat	BLM	16N	113W	28
1785	Unknown	Kemmerer BLM	Dry	Potential	RIPS DATABASE	41.33	-110.08	Phase II	Lower Cottonwood Creek-Blacks Fork	Lyman Cattle	BLM	16N	112W	30
1786	Unknown	Kemmerer BLM	Wet	Yes	RIPS DATABASE	41.33	-110.17	Phase II	Lower Cottonwood Creek-Blacks Fork	Indian Flat	BLM	16N	113W	32
1787	Unknown	Kemmerer BLM	Dry	No	SEDIMENT, RIPS DATABASE	41.32	-110.59	Phase II	Muddy Creek-Mussleman Creek	Leroy	BLM	16N	117W	34
1788	Bigelow Bench Reservoir	Kemmerer BLM	Dry	Potential	RIPS DATABASE	41.32	-110.51	Phase II	Blacks Fork-Quarry Creek	Bigelow Bench	BLM	16N	116W	32
1789	Unknown	Kemmerer BLM	Wet	Yes	RIPS DATABASE	41.32	-110.17	Phase II	Lower Cottonwood Creek-Blacks Fork	Lyman Cattle	BLM	15N	113W	5
1790	Unknown	Kemmerer BLM	Dry	Potential	RIPS DATABASE	41.31	-110.58	Phase II	Muddy Creek-Mussleman Creek	Leroy	BLM	15N	117W	2
1791	Unknown	Kemmerer BLM	Wet	Yes	RIPS DATABASE	41.31	-110.47	Phase II	Blacks Fork-Quarry Creek	Quarry Creek	BLM	15N	116W	2
1792	Unknown	Kemmerer BLM	Wet	Yes	RIPS DATABASE	41.30	-110.48	Phase II	Blacks Fork-Quarry Creek	Bridger Butte	BLM	15N	116W	3
1793	Unknown	Kemmerer BLM	Dry	Potential	RIPS DATABASE	41.30	-110.45	Phase II	Blacks Fork-Quarry Creek	Quarry Creek	BLM	15N	116W	1
1794	Unknown	Kemmerer BLM	Wet	Yes	RIPS DATABASE	41.30	-110.70	Phase II	Middle Albert Creek	Radio Tower	BLM	15N	118W	10
1795	Unknown	Kemmerer BLM	Wet	Yes	RIPS DATABASE TWO RIPS NUMBERS: 944927, 940479	41.28	-110.15	Phase II	Lower Cottonwood Creek-Blacks Fork	Lyman Cattle	BLM	15N	113W	16
1796	Cliff Graham Reservoir No.3	Kemmerer BLM	Wet	Yes	RIPS DATABASE	41.26	-110.25	Phase II	Upper Smiths Fork	No Allotment	Private	15N	114W	22
1797	Unknown	Kemmerer BLM	Dry	No	BREACHED, RIPS Database	41.18	-110.21	Phase II	Sage Creek-Reed Reservoir	Sage Creek	BLM	14N	114W	24
1798	Unknown	Kemmerer BLM	Dry	Potential	RIPS Database	41.16	-110.24	Phase II	Sage Creek-Reed Reservoir	Sage Creek	BLM	14N	114W	26
1799	Reed Reservoir	Kemmerer BLM	Wet	Yes	RIPS Database	41.15	-110.23	Phase II	Sage Creek-Reed Reservoir	Sage Creek	Private	14N	114W	35
1800	Unknown	Kemmerer BLM	Dry	Potential	RIPS DATABASE	41.15	-110.47	Phase II	Willow Creek-Yellow Hollow Creek	North Horse Creek	BLM	14N	116W	34
1801	Unknown	Kemmerer BLM	Dry	Potential	RIPS DATABASE	41.14	-110.47	Phase II	Willow Creek-Yellow Hollow Creek	North Horse Creek	BLM	14N	116W	34
1802	Unknown	Kemmerer BLM	Dry	Potential	RIPS DATABASE	41.14	-110.49	Phase II	Willow Creek-Yellow Hollow Creek	North Horse Creek	BLM	14N	116W	34
1803	Unknown	Kemmerer BLM	Wet	Yes	RIPS Database	41.14	-110.34	Phase II	Leavitt Creek	Sage Creek	BLM	13N	115W	1
1804	Unknown	Kemmerer BLM	Dry	Potential	RIPS DATABASE	41.14	-110.49	Phase II	Willow Creek-Yellow Hollow Creek	Sage Chicken Flat	BLM	13N	116W	3
1805	Unknown	Kemmerer BLM	Wet	Yes	RIPS Database	41.13	-110.35	Phase II	Leavitt Creek	Bench	BLM	13N	115W	2
1806	Unknown	Kemmerer BLM	Wet	Yes	RIPS Database	41.13	-110.40	Phase II	Upper Smiths Fork	Smith	BLM	13N	115W	5
1807	Unknown	Kemmerer BLM	Dry	Potential	RIPS DATABASE	41.12	-110.51	Phase II	Willow Creek-Yellow Hollow Creek	North Horse Creek	BLM	13N	116W	8
1808	Unknown	Kemmerer BLM	Wet	Yes	RIPS DATABASE	41.08	-110.51	Phase II	Willow Creek-Yellow Hollow Creek	South Horse Creek	BLM	13N	116W	29
1809	Unknown	Kemmerer BLM	Wet	Yes	RIPS DATABASE	41.07	-110.60	Phase II	Blacks Fork-Sixmile Creek	Balsam Draw	BLM	13N	117W	34
1901	Cedar Mountain Reservoir #6	Rock Springs BLM	Dry	No	BREACHED	41.18	-110.16	Phase II	Sage Creek-Reed Reservoir	Currently No Name	BLM	14N	113W	21
1910	Cedar Mountain Reservoir #5	Rock Springs BLM	Wet	Yes		41.17	-110.17	Phase II	Sage Creek-Reed Reservoir	Currently No Name	BLM	14N	113W	29
1917	Unknown	Rock Springs BLM	Wet	Yes		41.16	-110.19	Phase II	Sage Creek-Reed Reservoir	Sage Creek Mountain	BLM	14N	113W	30
1932	Cedar Mountain Reservoir #4	Rock Springs BLM	Wet	Yes		41.13	-110.17	Phase II	Sage Creek-Reed Reservoir	Sage Creek Mountain	BLM	13N	113W	5
1937	Hickey Reservoir No. 2	Rock Springs BLM	Wet	Yes		41.12	-110.16	Phase II	Sage Creek-Reed Reservoir	Sage Creek Mountain	BLM	13N	113W	9
2032	Unknown	UDCo	Dry	Potential	See UDCo pdf Summary	41.57	-110.08	Phase II	Porter Hollow	Granger Lease	Private	18N	112W	5
2033	Unknown	UDCo	Dry	Potential	See UDCo pdf Summary	41.56	-110.12	Phase II	Blacks Fork-Church Buttes Siding	Granger Lease	Private	18N	113W	1
2034	Unknown	UDCo	Wet	Yes	WET IN TWO YEARS OF PHOTOGRAPHY, See UDCo pdf Summary	41.56	-110.08	Phase II	Porter Hollow	Granger Lease	State of Wyoming	18N	112W	8
2035	Unknown	UDCo	Dry	No	WASHED OUT, See UDCo pdf Summary	41.56	-110.08	Phase II	Porter Hollow	Granger Lease	State of Wyoming	18N	112W	8
2037	Unknown	UDCo	Dry	No	WASHED OUT, See UDCo pdf Summary	41.55	-110.09	Phase II	Porter Hollow	Granger Lease	Private	18N	112W	8
2038	Unknown	UDCo	Dry	Potential	See UDCo pdf Summary	41.55	-110.10	Phase II	Porter Hollow	Granger Lease	Private	18N	112W	18
2039	Unknown	UDCo	Wet	Yes	See UDCo pdf Summary	41.55	-110.15	Phase II	Blacks Fork-Church Buttes Siding	Granger Lease	BLM	18N	113W	14
2041	Unknown	UDCo	Dry	No	See UDCo pdf Summary	41.54	-110.11	Phase II	Porter Hollow	Granger Lease	Private	18N	112W	18
2042	Unknown	UDCo	Dry	Potential	NEEDS A LOT OF WORK, See UDCo pdf Summary	41.54	-110.01	Phase II	Blacks Fork-Church Buttes Siding	Granger Lease	Private	18N	112W	13
2043	B. B. RESERVOIR	UDCo	Dry	No	WASHED OUT, See UDCo pdf Summary	41.54	-110.11	Phase II	Porter Hollow	Granger Lease	Private	18N	112W	18
2044	Unknown	UDCo	Dry	No	See UDCo pdf Summary	41.54	-110.08	Phase II	Porter Hollow	Granger Lease	Private	18N	112W	17

ACE ID	Name	Source	Condition	Water Source	Notes	Lattitude	Longitude	Phase	HUC 12 Name	Allotment	Land Owner	T	R	S
2045	CHURCH BUTTES #1	UDCo	Dry	No	See UDCo pdf Summary	41.54	-110.15	Phase II	Blacks Fork-Church Buttes Siding	Granger Lease	BLM	18N	113W	14
2049	TELEPHONE STOCK RESERVOIR	UDCo	Dry	No	SEDIMENT, See UDCo pdf Summary	41.53	-110.05	Phase II	Porter Hollow	Granger Lease	BLM	18N	112W	22
2051	SOUTH-EAST STOCK RESERVOIR	UDCo	Dry	No	BREACHED, See UDCo pdf Summary	41.52	-110.04	Phase II	Porter Hollow	Granger Lease	BLM	18N	112W	22
2052	BRUFF DRAW STOCK RESERVOIR	UDCo	Dry	Potential	See UDCo pdf Summary	41.52	-110.08	Phase II	Porter Hollow	Granger Lease	Private	18N	112W	29
2053	CATERPILLAR DRAW STOCK RESERVOIR	UDCo	Dry	Potential	See UDCo pdf Summary	41.52	-110.06	Phase II	Porter Hollow	Granger Lease	BLM	18N	112W	28
2054	CHURCH BUTTES 26-030	UDCo	Wet	Yes	WET IN TWO YEARS OF PHOTOGRAPHY, See UDCo pdf Summary	41.51	-110.14	Phase II	Porter Hollow	Granger Lease	Private	18N	113W	26
2060	Unknown	UDCo	Dry	No	ABANDON, See UDCo pdf Summary	41.48	-110.11	Phase II	Porter Hollow	Granger Lease	Private	17N	112W	7
2061	WILDCAT #3 STOCK RESERVOIR	UDCo	Dry	No	WASHED OUT, See UDCo pdf Summary	41.47	-110.04	Phase II	Porter Hollow	Granger Lease	BLM	17N	112W	10
2067	BLUEMEL STOCK RESERVOIR	UDCo	Dry	No	BREACHED, See UDCo pdf Summary	41.45	-110.07	Phase II	Porter Hollow	Granger Lease	State of Wyoming	17N	112W	16
2070	WILDCAT #1 STOCK RESERVOIR	UDCo	Dry	No	WASHED OUT, See UDCo pdf Summary	41.44	-110.09	Phase II	Porter Hollow	Granger Lease	BLM	17N	112W	20
2075	Unknown	UDCo	Dry	No	ABANDON, See UDCo pdf Summary	41.43	-110.11	Phase II	Porter Hollow	Granger Lease	BLM	17N	112W	30
2079	Unknown	UDCo	Wet	Yes	See UDCo pdf Summary	41.41	-110.16	Phase II	Blacks Fork-Jackknife Draw	Granger Lease	BLM	17N	113W	34
2091	Unknown	UDCo	Wet	Yes		41.28	-110.13	Phase II	Lower Cottonwood Creek-Blacks Fork	Lyman Cattle	Private	15N	113W	15



APPENDIX 3A

COMPANY RANCH PROJECT DESCRIPTIONS





Natural Resources Conservation Service
1625 West Pine Street
PO Box 36
Pinedale, Wyoming 82941

September 13, 2012

To: Jeff Lewis, District Conservationist Lyman Field Office

Re: Trip Report for September 11th site visit to The Company Ranch/Albert Creek Allotment

Present: Bill Sears, leasee; Erik Norelius, Biologist BLM; Ben Wise, Habitat Biologist WGFD; Dave Kimble, Biologist USFWS; Karen Clause, RMS NRCS; Meghann Durbrow, SGI Planner NRCS; Jeff Lewis, DC NRCS

Cooperating agencies met to conduct onsite investigations for potential water projects on the east side of Highway 189 in the Albert Creek Allotment. Once a decision to proceed with project planning/design and a priority is established for each project, an individual project proposal will be drafted with a map. Below is a summary of the areas visited, and an attached map.

Section 6 Well on BLM (Sec 6 T18N R116W)

This is an existing well with water levels above ground surface in the casing (aka non-flowing artesian well). It looks like it spills into the adjacent pond at least seasonally, but is not currently a functioning perennial water source for livestock or wildlife. It looks to be a very old well, possibly from the 1910s using the old drilling process with steel cable on a wheel set on wood pilings. It is likely a cultural resource that will need to be considered during planning of the project. No water right information could be found using the SEO online water rights database. The preferred alternative consists of a solar pump and PVC sleeve into existing casing with a pipeline taking water uphill to a storage tank and then gravity feed to approximately 2 trough locations. Well site will be fenced with a steel jack fence (non-ground-disturbing). Project will cross both BLM and private land. It is in a sage grouse Core Area as well as winter range for pronghorn and mule deer. NEPA will be required. At this point, project is considered a high priority because of the reliability of water and current lack of perennial within 2 miles.



Well with overflow to pond (non-functioning)



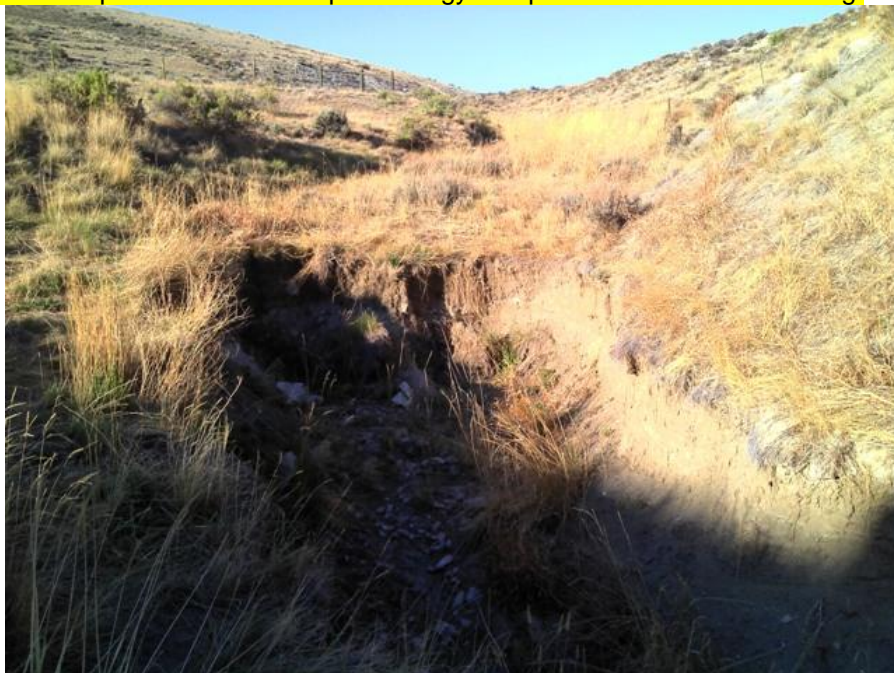
Cumberland No. 9 on Anadarko (Sec 7 T18N R116W)

This is an existing pond that is breached with active head-cutting, however it may still hold some seasonal water in wet years. The pond has a small watershed, and if the Section 6 well/pipeline project is implemented, it will not be a necessary water source. However, it would be beneficial to wildlife as well as the vegetation and soil resource to fix the breach and stop the head-cutting. It is in a sage grouse Core Area as well as winter range for pronghorn and mule deer. Its priority will be low until decisions can be made regarding the Section 6 Well/Pipeline project.



Cumberland No. 9 breach and head-cut in existing pond embankment

While onsite to discuss this project, we investigated and discussed a bigger erosion problem. The problem is occurring in the WYDOT right-of-way (ROW) adjacent to the pond. A series of severe head-cuts are located in the ROW, and look to be caused by highway drainage and reclaimed slopes. It was recommended to first contact WYDOT (District Engineer in Rock Springs?) so that they can address the problem. If a solution is not forth-coming, the BLM and Anadarko may need to take precautionary measures by installing grade control structures outside the ROW to assure the problem does not continue to impact their lands. The potential solution by those present include a plunge pool on the outlet side of highway culvert and a minimum of 2 drop structures to dissipate energy and prevent further head-cutting.



Upper-most head-cut in ROW moving towards fence.

Section 20 Pond on BLM (Sec 20 T18N R116W)

This is an existing pond with active head-cutting in the emergency spill-way that is impacting one of the main access roads into this area. However, it still holds some seasonal water in wet years, and all present agreed that this pond was well designed. The pond is fed by a relatively small watershed, with an un-developed seep at the head-waters and another pond (Cumberland No. 16) between the seep and this pond. If seep were developed with troughs, it will not be a necessary water source. However, it would be beneficial to wildlife and as well as the vegetation and soil resource to fix the breach and stop the head-cutting. It is in winter and yearlong range for pronghorn and mule deer. Recreationists have already begun to re-route the road above the erosion, and while not ideal will avoid further impact to the road. Its priority will be low until decisions can be made regarding the seep above the Cumberland No. 16 pond.

Section 19 Seep/Spring on Anadarko (Sec 19 T18N R116W)

This is an undeveloped seep with only one small hole bearing surface water. The hydrophytic vegetation (Baltic rush) indicates a consistent water source within several feet of the surface. There is much evidence of sage grouse, coyote, antelope, and other wildlife around this water hole that is the size of a cow hoof print. Digging hands into the hole, yielded a chorus frog. Below the seep is the Cumberland No. 16 Pond which appears to be in good shape and holds seasonal water in most years. A three foot test hole was recommended to see what kind of water yield could be expected. If water source is good, an Elgin drain is recommended, with or without a collection box, to develop and pipe water via gravity to a covered tank near the pond to reduced evaporation. The spring source will be fenced to protect development. In normal years, it is anticipated that the pond will function as a seasonal water source for wildlife. It is in winter and yearlong range for pronghorn and mule deer. This project is a high priority due to its location in the pasture and on private land, and the potential reliability of the water source.



Seep/Spring surface water in hole the size of a cow hoof print



Cumberland No. 16 Pond looking upstream toward seep/spring

Cumberland No. 22 Well on Anadarko (Sec 19 T18N R116W)

This is a seep currently with surface water in a more incised drainage. There is a water right filing on this seep as a developed shallow well, and we found evidence of digging a trench (trench with spoil in the riparian area). The trench is currently dry and surface water is above the point of disturbance, which has now caused a head-cut. There is lots of hydrophytic vegetation (Nebraska sedge and Baltic rush) as well as Canada thistle. Currently, the vegetation surrounding the surface water shows signs of impact from watering wildlife (no livestock in this pasture this year). Antelope have been very effective at controlling seed production on the thistle. Below the seep is the Cumberland No. 14 Pond which appears to be in good condition and holds perennial water in most years. It is currently dry, but was full one month ago (with over 60 head of antelope onsite), and this is the driest year in 70 years. An Elgin drain is recommended with 2 gravity pipelines, one to supply water immediately back to the drainage and prevent impacts to the riparian area and the other to a covered trough located below and outside the riparian vegetation. The spring source will be fenced to protect development. In normal years, it is anticipated that the pond will function as a perennial water source for wildlife. It is in winter and yearlong range for pronghorn and mule deer. This project is a high priority due to its location in the pasture and on private land, its existing water right, and the reliability of the water source.



Cumberland No. 14 Pond looking upstream toward Cumberland No. 22 Well (seep/spring)

Bridger No. 3 Pond on Anadarko (Sec 35 T18N R117W)

This is an existing pond with a breach in the center of the embankment. It is located in an area with some wetter vegetation (Baltic rush, inland saltgrass), and soils look like bentonite clay. Because of its location in rough topography, any project to develop water would be more for wildlife than livestock. This was discussed as a good wildlife guzzler location with corrugated metal apron and a buried fiberglass tank. It is in crucial winter range for mule deer and yearlong range for pronghorn. Although pond repair was discussed, no clear alternative to do so agreed upon. Its priority will be low until decisions can be made regarding the funding source for a guzzler and what would need to happen to fix the pond.



Bridger Well No. 13 on Anadarko (Sec 1 T17N R117W)

This is an existing spring development that is marginally functional. It has a metal CMP collection box that is crushed and rusty with questionable water quality, and a PVC pipe underground for approximately 30 feet that daylight and flows onto the ground next to a silted in metal sheep trough. There is a water right filing on this seep as a developed shallow well. Recommended action is to re-develop just 2 feet above existing collection box with plastic materials and provide 2 gravity flow pipelines, one to immediately return flow to the drainage to protect riparian values and the other to a trough downstream and out of the drainage (near Bridger No. 4 Pond). It is in crucial winter range for mule deer and yearlong range for pronghorn. This project is a high priority due to its location in the pasture and on private land, its existing water right, and the reliability of the water source.



Bridger Well No. 13 collection box



Outlet of spring development looking up toward collection box

Section 30 Spring on BLM (Sec 30 T18N R116W)

This is a drainage with high concentration of Baltic rush that had moisture earlier in the season. Although soil moisture was evident below the surface and hydric soils were encountered, no water was found while onsite. This project is low priority because of its location on BLM land and the amount of time necessary to obtain the clearance needed to dig a test hole to look for water.

Albert Creek Well #1 on State Lands (Sec 36 T18N R117W)

This is an existing well that is 625 feet deep with 25gpm flow and existing pump in the casing. It was water righted in 1992. A number of energy sources were discussed to get water up to a storage tank, but because of depth it was felt that a generator was the only practical alternative. From storage tank, the water could be taken 2 different directions gravity flow to troughs. To the south, it could be taken 1 ¼ miles to the cross-fence just before BLM lands with the intent to someday tie into the system and take it further south once BLM NEPA process is complete. To the north, it could be taken approximately 1 mile without going onto BLM lands. Because Bill and George do not currently hold the state land lease (it is still in Broadbent's name), it will complicate this project. It is in crucial winter range for mule deer and yearlong range for pronghorn. This project is a high priority due to its location in the pasture, its existing water right, and the reliability of the water source. However, it is low priority until state lands issues are resolved (we left a message with Michael Henn earlier in the day, and will update status when he returns our call).

Southeast Pasture Cross-Fence (Secs 1,2,11,12 T17N R117W)

This is an existing 5-6 strand barbed wire fence that is very unfriendly to migrating and wintering pronghorn and mule deer. The recommendation is to modify or replace this 2 miles (10,722ft) of fence with a 3-4-strand wildlife friendly fence with proper spacing and smooth bottom wire. It is in crucial winter range for mule deer and yearlong range for pronghorn.

While in route to look at Bridger No. 10 Pond, it was discovered that the existing cross-fence had been rendered non-functional by the removal of all steel t-posts. Brace posts remained as well as all 5-6 wires were laying on the ground. While running vegetation baseline transects in the area on August 24th, Meghann and I witnessed a white crew cab truck (possibly with flat bed, maybe tank on the back) with a minimum of 2 men working in the area of the Cumberland No. 29 Well and Cumberland No. 26 Pond at approximately 8am. We later (approximately 3pm) witnessed the same truck and men working on this fence and assumed they were maintaining it for Bill and George. In addition, the shrubs show evidence of much higher browse and clubbing in this pasture. When onsite in August, it was observed that the gate in the southern boundary fence was open. There is a question if this site is still receiving winter sheep use or if all use can be attributed to wintering wildlife. Bill phoned me the next morning (September 12th) after investigating Cumberland No. 29 Well and associated pond and troughs. It appears that the fiberglass tank has been removed and spring shut down, but otherwise appears functional.



Southeast Pasture Cross-Fence with t-posts removed and wire on ground

Bridger No. 10 Pond on Anadarko/BLM (Sec 23 & 24 T17N R117W)

This is an existing set of ponds with a breach in the center of the embankment. The lowest pond is located on BLM in Sec 24 with a blown out emergency spillway that greatly reduces capacity. This pond has not water right associated with it. Above are two ponds (only 1 pond is permitted), the first is the primary permitted structure and shows evidence of 3 separate breaching events. There are 2 bermed spillways that had blown out and then a breach in the center of the embankment. The uppermost pond was constructed by digging out the bottom of the drainage and piling spoil in the shape of an embankment, but it is clear that no compaction happened during construction. It is located in an area with some wetter vegetation (Baltic rush, inland saltgrass), and soils are highly erosive with high amounts of clay and salts. We also found bull thistle in the bottom of the upper pond.

One of the spillway blowouts exposed a sandstone contact zone with a coal seam and there is a small amount of surface water trickling out of this seam. It is evident by the trailing that all game in the vicinity have been using this small water source, and it is likely the only surface water in this entire southeast pasture and within several miles. It is in crucial winter range for mule deer and yearlong range for pronghorn. This was discussed as a good wildlife guzzler location, and all agreed that a pond in this location is not feasible. In fact, a project should be made of removing the existing ponds and reclaiming the area to stabilize the drainage and soil erosion that is occurring. Several attempts were made to generate an alternative that developed the existing surface water while keeping the project on private land, but it is right on the section line and will require at a minimum a legal survey to determine land ownership for the project area. A hydro-geologic investigation is recommended to determine the appropriate drilling location for a shallow well to develop the seep. While onsite, a bison jaw and tooth were found in the drainage below the second pond. The priority of this project is high because of the lack of reliable and perennial water in this pasture, however it is anticipated that there will be many issues to resolve such as NEPA, reclamation, project design, and cultural resources prior to construction of a project so estimated timeline will be several years down the road.



Breach in Bridger No. 10 Pond embankment



unpermitted pond on BLM in Sec 24 T17N R117W



Uppermost pond with un-compacted embankment



Bison jaw and tooth found below permitted structure in drainage bottom

On the attached map, all project sites that were visited on September 11th are circled in red. Other identified potential projects, some of which have been visited by only some of the cooperating entities, are circled in purple. A similar type site visit will likely be necessary in order to progress in our planning of these projects. This visit will be coordinated by the NRCS and leasees at a future date.

Below is a brief summary of those projects:

Elkol No. 3 Pond

This is an existing pond that looks like it provides good seasonal water in the North Pasture, but the spillway has a head cut. It is located on state land, and therefore has the same issues as Albert Creek Well #1, but since this fix may be inexpensive, it is possible that it is worth the leasees repairing it on their own to protect the integrity of the structure.



Head cut in spillway



View of pond looking downstream at embankment

Section 1 Well on Anadarko (Sec 1 T18N R117W)

This is an existing well in the Little Muddy Creek riparian pasture that is east of highway 189 (originally part of East Pasture). Development of this offsite water source may help accelerate riparian recovery in this pasture. No water right information could be found in the SEO online water rights database.



Section 1 Well

Little Muddy Creek Riparian Pasture Cross Fence (Secs 1 & 6 T18N R117W)

This existing fence is a 5-6 wire barbed fence that is very unfriendly to migrating and wintering pronghorn and mule deer. The recommendation is to modify or replace this 2 ¾ miles (14,364ft) of fence with a 4-strand wildlife friendly fence with proper spacing and smooth bottom wire. Note: There are a number of other fences adjacent to The Company Ranch headquarters that could be modified or removed to reduce mortality of pronghorn and mule deer (length estimated at 7 miles).

Section 20 Spring/Pipeline on BLM/Anadarko (Sec 20 T18N R117W)

This is a previously developed spring with a pipeline extending approximately 2 miles into the North Pasture. The spring originates on BLM and pipeline runs through both BLM and Anadarko lands. It is no longer a functional system, and the previous leased had installed it without the proper permits or NEPA analysis and BLM approval. Although the implementation was poorly executed, the intent and purpose for the project was and still is good. Recommend same basic plan with spring development and then a gravity pipeline to service existing breached pond (Sec 20 Pond submitted in 2012 as a project repair breach) as well as 3 troughs located in close proximity to existing ponds (Elkol No. 5 and 7 Ponds as well as un-permitted pond in Sec 22 on BLM). The spring source would be fenced for protection. This project has been discussed onsite with USFWS and BLM during 2012 project site visit, and recommended for later submission as a project.

Section 31 Spring/Pipeline on Anadarko/BLM (Sec 31 T18N R117W)

This is a previously developed pond that is breached with willows and cottonwoods growing in bottom of drainage. Above the pond has Baltic rush, indicated water near the surface, but there is currently no water on the surface (as per July 2012). An alternative would be to develop seep as a shallow well with storage tank and gravity flow a pipeline to service troughs located in close proximity to existing ponds (Sec 5 unpermitted pond, Meadow Draw #1, and Elkol No. 9). It is not anticipated that fencing will be necessary as livestock access is limited by the terrain. The spring area originates on Anadarko and pipeline would run through both BLM and Anadarko lands. This project has been discussed onsite with USFWS and with leasees, however not onsite.



Pond bottom looking at breached embankment and from embankment looking downstream

Section 4 Pond on BLM (Sec 4 T17N R117W)

This is an existing seasonal pond with breaching occurring. If the Sec 31 Spring/Pipeline Project is implemented, it will lessen need for water in this area. Also, there is another seasonal pond nearby, so priority may be low.

Bridger No. 14 Well and Bridger No. 7 Pond on Anadarko

Although currently permitted facilities, they do not actually exist onsite. There may have been some excavation for the spring seep, but no embankment is readily visible on the landscape at this location. There is good surface water at this location and upstream in several places. The headwater is the Bridger No. 13 Well spring development. Although the location is not ideal to protect riparian and soil resources, development would provide a more reliable water source in the Southeast Pasture that currently does not exist. Fencing would protect the spring source. The water source was shown to the leasees, but no alternatives presented at that time.

Section 19 Well/Pipeline on Anadarko/BLM (Secs 19,20,16 T17N R117W)

This is an existing water well associated with previous coal bed methane exploration. The leasees have proposed installing a storage tank and running a gravity pipeline for approximately 2 miles with trough locations on BLM in Sec 20 and on Anadarko in Sec 16 just east of state land. The well originates on Anadarko and pipeline would run through BLM, state, and Anadarko lands. Energy source has not been selected and will depend on the depth to water in the well.

The next course of action will be for all participating entities to provide feedback on this report, project priorities, and resources, both technical and financial, they may have available to implement identified high priority projects. If another day of site visits can be scheduled in the fall of 2012, it may help focus those priorities. For projects identified as low priority due to project complexities such as land ownership and/or design, a timeline and strategy will need to be developed using all available resources to assure that the required NEPA analysis is completed and progress is made toward their implementation.

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Encl 2013 Project Overview Map



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