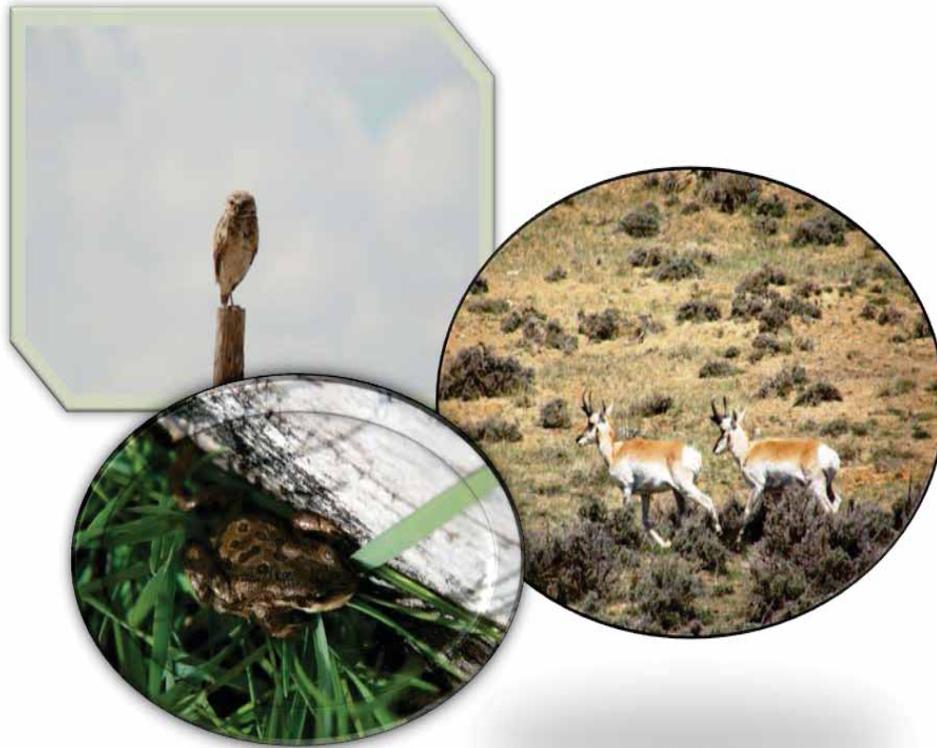


Monitoring Without Borders Report for 2005-2013



Prepared for the
**Continental Divide/Wamsutter II EIS,
Desolation Flats EIS and Atlantic Rim EIS Projects'**
Appendices D & E: Wildlife Protection Plans

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It is the mission of the Bureau of Land Management to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

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CONTENTS

Part 1: Introduction

Record of Decision Environmental Impact Statement Continental Divide/Wamsutter II Natural Gas project, Sweetwater and Carbon Counties, Wyoming Appendix D: Wildlife Protection Plan Monitoring Report: 2005-2013..... 8

Record of Decision Environmental Impact Statement Desolation Flats Natural Gas Field development Project, Sweetwater and Carbon Counties, Wyoming Appendix E: Wildlife Monitoring and Protection Plan Report: 2005-2013..... 9

Record of Decision Environmental Impact Statement for the Atlantic Rim Natural Gas Field Development Project, Carbon County, Wyoming Report: 2005-2013..... 11

Part 2: Implementation Protocol

CD/WII Wildlife Monitoring and Protection Plan Implementation Protocol..... 12

DF Wildlife Monitoring and Protection Plan Implementation Protocol..... 12

AR Wildlife Monitoring and Protection Plan Implementation Protocol..... 13

Part 3: Annual Reports and Meetings

CD/WII Annual Reports and Meetings..... 14

DF EIS Annual Reports and Meetings..... 15

AR EIS Annual Reports and Meetings..... 16

Part 4: CD/WII EIS, DF EIS, and AR EIS Annual Inventory and Monitoring

Raptor Species..... 23

Big Game Species..... 32

General Wildlife..... 48

Threatened, Endangered, Candidate, and Proposed Species..... 49

BLM Wyoming State Director's Sensitive Species..... 87

BLM RFO Programs within the EIS Areas (Cumulative Effects to Wildlife and Habitats
Fire and Fuels Management..... 116
Livestock Grazing..... 116

Off-Highway Vehicles.....	119
Recreation and Visitor Use.....	119
Special Designations and Management Areas.....	120
Transportation and Access.....	121
Vegetation.....	122
Water Quality, Watershed, and Soils.....	122
Wild Horses.....	123
Part 5: CD/WII EIS, DF EIS, and AR EIS Management Actions and/or Protection Measures	
Raptor Species Management Actions and/or Protection Measures.....	124
Big Game Species Management Actions and/or Protection Measures.....	126
Threatened, Endangered, Candidate, and Proposed Species Management Actions and/or Protection Measures.....	128
BLM Wyoming State Director’s Sensitive Species Management Actions and/or Protection Measures.....	131
General Species Management Actions and/or Protection Measures.....	139
BLM RFO Programs within the EIS Areas Management Actions and/or Protection Measures	
Fire and Fuels Management.....	141
Livestock Grazing.....	142
Off-Highway Vehicles.....	142
Recreation and Visitor Use.....	143
Special Designations and Management Areas.....	143
Transportation and Access.....	145
Vegetation.....	146
Water Quality, Watershed, and Soils.....	146
Wild Horses.....	147
Part 6: Analyze the Effectiveness of the Protection Measures and Determine Necessary Subsequent Actions (Adaptive Management)	
Effectiveness of Protection Measures and Actions	147
REFERENCES	148

LIST OF MAPS

Map 1	Continental Divide/Wamsutter II EIS (same area as the Proposed CD-C EIS) in BLUE , Desolation Flats EIS in RED , and Atlantic Rim EIS in GREEN Boundary Area Map...	10
Maps 2a	Elk Seasonal Ranges within the CD/WII, DF and AR EIS areas in 2013.....	34
Map 2b	Mule Deer Seasonal Ranges within the CD/WII, DF and AR EIS areas in 2013.....	35
Map 2c	Pronghorn Seasonal Ranges within the CD/WII, DF and AR EIS areas in 2013.....	36
Map 3	Mule Deer and Pronghorn Winter Range Assessment Survey Areas.....	39
Map 4	Dad Mule Deer Migration Corridors and Crucial Winter Range	43
Map 5	Wild Horse Mule Deer Migration Corridors and Crucial Winter Range	44
Map 6	Black-Footed Ferret Habitat Non-Block Cleared Areas (Complexes).....	53
Map 7	Refined Continental Divide Complex and Desolation Flats Complex.....	54
Map 8	Black-Footed Ferret Spotlight and Snow Track Surveys: 2005-2009.....	58
Map 9a	BLM Spike Treatments within the EIS Areas.....	117
Map 9b	BLM Natural and Prescribed Burns within the EIS Areas.....	118

LIST OF TABLES

Table 1	Individual Dates for Wildlife Species Monitoring Requirements for the CD/WII EIS..	15
Table 2	Individual Meeting Dates for Specific Wildlife Species Monitoring Requirements for the AR EIS.....	17
Table 3a	Number of Individual APDs and ROWs On-Sited from 2005 to 2013 in the CD/WII EIS, DF EIS and AR EIS Areas and Authorized as of 2013.....	19
Table 3b	Individual ROW Descriptions On-Sited and Authorized from 2005 to 2013 in the CD/WII EIS Area.....	20
Table 3c	Individual ROW Descriptions On-Sited and Authorized from 2005 to 2013 in the DF EIS Area.....	21
Table 3d	Individual ROW Descriptions On-Sited and Authorized from 2005 to 2013 in the AR EIS Area.....	22
Table 4	Raptor Nest Activity Nine-Year Trend in the CD/WII, DF, and AR EIS Areas from 2005- 2013.....	24
Table 4a	Raptor Nest Activity (Successful) Nine-Year Trend in the CD/WII, DF, and AR EIS Areas Compared to Nests Monitored from 2005-2013.....	29
Table 4b	Artificial Ferruginous Hawk Nest Activity (Successful) Compared to Natural Nests Monitored in the Nine-Year Trend in the CD/WII, DF, and AR EIS Areas from 2005-2013.....	29
Table 4c	Artificial Golden Eagle Nest Activity (Successful) Compared to Natural Nests Monitored in the Nine-Year Trend in the CD/WII, DF, and AR EIS Areas from 2005-2013.....	30
Table 5a	Mule Deer Winter Range Assessment Analysis.....	40
Table 5b	Pronghorn Winter Range Assessment Analysis.....	41
Table 6	Black-Footed Ferret Surveys within the CD/WII (Continental Divide Complex [CDC]), Desolation Flats (Desolation Flats Complex [DF]) and Atlantic Rim (Dad Complex [DAD]) EIS Areas Between 2005-2013.....	57
Table 7	Greater Sage-Grouse Policy and Administration Years 2005-2013 for BLM...	61
Table 8	Greater Sage-Grouse Policy and Administration Years 2005-2013 for WGFD, State of Wyoming Office of the Governor and State Engineer's Office.....	62

Table 9	Potential Funding Sources for Greater Sage-Grouse Conservation Efforts.....	64
Table 10	Greater Sage-Grouse Lek Monitoring, Activity Status and Peak Male Attendance in the CD/WII, DF, and AR EIS Areas from 2005-2013	71
Table 11	Greater Sage-Grouse Lek Monitoring, Activity Status and Peak Male Attendance in the Control Area from 2005-2013.....	75
Table 12	Bat Species Captured and/or Detected in South-eastern and South-central Wyoming in 2012.....	96
Table 13	Columbian Sharp-tailed Grouse Lek Monitoring, Activity Status and Peak Male Attendance within One Mile of the AR EIS Areas from 2005-2013.....	107
Table 14	Columbian Sharp-tailed Grouse Lek Monitoring, Activity Status and Peak Male Attendance in the Control Area from 2005-2013.....	107
Table 15	Mountain Plover Monitoring Completed in the 2005 Field Season.....	110
Table 16a	Raptor Species Protection Measures Applied to Surface Disturbing and Disruptive Activities within CD/WII, DF, and AR EIS Areas.....	125
Table 16b	Big Game Species Protection Measures Applied to Surface Disturbing and Disruptive Activities within CD/WII, DF, and AR EIS Areas.....	126
Table 16c	T&E Species Protection Measures Applied to Surface Disturbing and Disruptive Activities within CD/WII, DF, and AR EIS Areas.....	128
Table 16d	BLM Sensitive Species Protection Measures Applied to Surface Disturbing and Disruptive Activities within CD/WII, DF, and AR EIS Areas.....	132
Table 16e	General Species Protection Measures Applied to Surface Disturbing and Disruptive Activities within CD/WII, DF, and AR EIS Areas.....	139
Table 16f	Fire and Fuels Management Actions and/or Protection Measures Applied to Surface Disturbing and Disruptive Activities within the CD/WII, DF, and AR EIS Areas....	141
Table 16g	Livestock Grazing Management Actions and/or Protection Measures Applied to Surface Disturbing and Disruptive Activities within the CD/WII, DF, and AR EIS Areas ...	142
Table 16h	OHV Management Actions and/or Protection Measures Applied to Surface Disturbing and Disruptive Activities within the CD/WII, DF, and AR EIS Areas.....	142
Table 16i	Recreation and Visitor Use Management Actions and/or Protection Measures Applied to Surface Disturbing and Disruptive Activities within the CD/WII, DF, and AR EIS Areas.....	143
Table 16j	Special Designations and Management Areas Management Actions and/or Protection Measures Applied to Surface Disturbing and Disruptive Activities within the CD/WII, DF, and AR EIS Areas.....	143
Table 16k	Transportation and Access Management Actions and/or Protection Measures Applied to Surface Disturbing and Disruptive Activities within the CD/WII, DF, and AR EIS Areas.....	145
Table 16l	Vegetation Management Actions and/or Protection Measures Applied to Surface Disturbing and Disruptive Activities within the CD/WII, DF, and AR EIS Areas	146
Table 16m	Water Quality, Watershed, and Soils Management Actions and/or Protection Measures Applied to Surface Disturbing and Disruptive Activities within CD/WII, DF, and AR EIS Areas.....	146
Table 16n	Wild Horses Management Actions and/or Protection Measures Applied to Surface Disturbing and Disruptive Activities within CD/WII, DF, and AR EIS Areas.....	147

LIST OF FIGURES

Figure 1	Natural gas development in the CD/WII EIS area. Educational tour developing partnerships between industry and BLM to teach the process of drilling and its many complexities.....	9
Figure 2	Ferruginous hawks in artificial nesting structure in the CD/WII EIS field.....	23
Figure 3	Herd of elk in the CD/WII EIS field, north of I-80 during summer field season...	33
Figure 4	Pronghorn doe and fawn resting in the CD/WII EIS field, summer 2013.....	37
Figure 5	Mule deer on winter range in 2013.....can you find all 8 deer.....	38
Figure 6	Pronghorn caught and killed in fence.....	46
Figure 7	American badger, American avocet, northern plateau lizard and muskrat in the EIS fields.....	48
Figure 8	Black-footed ferrets captured during nocturnal spotlighting in the Shirley Basin (WGFD).....	51
Figure 9	Greater Sage-Grouse males strutting at the Cherokee Towers Lek.....	60
Figure 10	Greater Sage-Grouse scat compared to a quarter.....	60
Figure 11	Ute ladies'-tresses plant and associated riparian habitat.....	83
Figure 12	Cedar Rim thistle plant with flower heads and associated habitat.....	89
Figure 13	Persistent sepal yellowcress plant with flower heads and associated habitat..	90
Figure 14	Gibben's beardtongue plant with flower heads and associated habitat.....	91
Figure 15	Laramie false sagebrush plant with flower heads and associated habitat.....	92
Figure 16	Spotted bat species (left) and fringed myotis bat species (right) and associated habitats.....	96
Figure 17	Pygmy rabbit (dark ears and tail) and associated habitat.....	98
Figure 18	Wyoming pocket gopher and associated habitat.....	102
Figure 19	White-tailed prairie dogs and associated habitat.....	103
Figure 20	Swift fox and associated habitat.....	104
Figure 21	Columbian sharp-tailed grouse fighting during spring breeding.....	106
Figure 22	Mountain plover eggs (left) and adult bird (right) in suitable habitat.....	109
Figure 23	Loggerhead shrike and its prey impaled on fence.....	112

LIST OF ACRONYMS

ACEC	Area of Critical Environmental Concern
AML	Appropriate Management Level
AMR	Appropriate Management Response
APD	Application for Permit to Drill (an oil or gas well)
APHIS	Animal and Plant Health Inspection Service (USDA)
ANS	Artificial Nesting Structure
AR EIS	Record of Decision Environmental Impact Statement for the Atlantic Rim Natural Gas Field Development Project Carbon County, Wyoming
AREIS BGWG	Atlantic Rim Environmental Impact Statement Big Game Working Group
ARPA	Atlantic Rim Project Area
AR WM&PP	Atlantic Rim Wildlife Monitoring & Protection Plan
AUM	Animal Unit Month
BBS	Breeding Bird Survey
BCR	Bird Conservation Region
BGEPA	Bald and Golden Eagle Protection Act

BLM	Bureau of Land Management (U.S. Department of the Interior)
BMP	Best Management Practice
CBNG	Coalbed Natural Gas
CDC EIS	Continental Divide-Creston Environmental Impact Statement
COA	Conditions of Approval
CD/WII EIS	Continental Divide/Wamsutter II Environmental Impact Statement
CD/WII WM&PP	Continental Divide/Wamsutter II Wildlife Monitoring & Protection Plan
CRCT	Colorado River Cutthroat Trout
CSU	Controlled Surface Use
DFC	Desired Future Condition
DF EIS	Desolation Flats Environmental Impact Statement
DF WM&PP	Desolation Flats Wildlife Monitoring & Protection Plan
DPC	Desired Plant Community
EIS	Environmental Impact Statement
ESA	Endangered Species Act (of 1973)
Final AR EIS	Final Atlantic Rim Environmental Impact Statement
FLPMA	Federal Land Management Policy Act (of 1976)
GIS	Geographic Information System
HWA	Hayden-Wing Associates
HMA	Herd Management Area
IMBCR	Integrated Monitoring in Bird Conservation Regions
LOP	Life of Project
LSRCD	Little Snake River Conservation District
MBTA	Migratory Bird Treaty Act
MOU	Memorandum of Understanding
NEPA	National Environmental Policy Act (of 1969)
NSO	No Surface Occupancy (a stipulation on an oil and gas lease)
NSS	Native Species Status (Wyoming sensitive species category)
OHV	Off-Highway Vehicle
OPPC	Overland Pass Pipeline Company
ORV	Outstandingly Remarkable Value
RFO	Rawlins Field Office
RMP	Resource Management Plan (BLM land use plan under FLPMA)
RMPPA	Resource Management Plan Planning Area
ROW	Right-of-Way
SD/MA	Special Designations/Management Area
T&E	Threatened and/or Endangered Species (as per ESA of 1973)
USDI	United States Department of Interior
USGS	United States Geological Survey
USFWS	United States Fish and Wildlife Service
UW	University of Wyoming
WDEQ	Wyoming Department of Environmental Quality
WM&PP	Wildlife Monitoring & Protection Plan
WSA	Wilderness Study Area
WYNDD	Wyoming Natural Diversity Data Base
WWE	WestWater Engineering
WGFD	Wyoming Game and Fish Department

MONITORING WITHOUT BORDERS 2005-2012 REPORT
Prepared for the Continental Divide/Wamsutter II EIS,
the Desolation Flats EIS and the Atlantic Rim EIS Projects'
Appendices D & E: Wildlife Protection Plans

Part 1: Introduction

The *Continental Divide/Wamsutter II Natural Gas Project, Sweetwater and Carbon Counties, Wyoming Environmental Impact Statement (CD/WII EIS)*, *Desolation Flats Natural Gas Project, Sweetwater and Carbon Counties, Wyoming Environmental Impact Statement (DF EIS)* and *Record of Decision Environmental Impact Statement for the Atlantic Rim Natural Gas Field Development Project Carbon County, Wyoming (AR EIS)* Bureau of Land Management's Rawlins Field Office (BLM RFO) authorized natural gas and coal-bed methane projects are consistent with the President's National Energy Policy and the Energy Policy Act of 2005 by increasing domestic energy supply and helping reduce the country's dependence on foreign sources of oil and gas. A depiction of the natural gas and coal bed methane projects are described below. The *Monitoring without Borders* plan allows the BLM wildlife biologists to sustain the health, diversity, and productivity of the BLM-administered public lands for wildlife and their associated habitats while providing for the use and enjoyment of the lands by present and future generations. This *Monitoring without Borders* report expands the 2005 through 2013 years and associated field seasons and will therefore be much more extensive than an annual report. In the future, this report will be implemented annually, although historic data and analysis will be included.

The *Monitoring without Borders* report and CD/WII EIS, DF EIS and AR EIS Wildlife Monitoring and Protection Plans are designed to comply with the *Record of Decision and Approved Rawlins Resource Management Plan (RFO RMP)* finalized in December 2008. While preparing and implementing these Wildlife Monitoring and Protection Plans, the BLM wildlife biologists consider the following goals identified in the RFO RMP:

- (1) Manage the biological integrity and habitat function of terrestrial and aquatic ecosystems to sustain and optimize distribution and abundance of all native, desirable non-native, and Special Status fish and wildlife species;
- (2) Manage or restore habitat to conserve, recover, and maintain populations of native, desirable non-native, and Special Status Species (e.g., BLM State Sensitive Species, Wyoming Game and Fish Department [WGFD] Species of Greatest Conservation Need, Native Species Status [NSS] 1-2 species, U.S. Fish and Wildlife Service [USFWS] listed/proposed/candidate species) consistent with appropriate local, state, and federal management plans and policies;
- (3) Manage for quality habitat to support the introduction, reestablishment, augmentation, transplant, stocking, and expansion of identified high-priority fish and wildlife species, in consultation and coordination with appropriate local, state, and federal agencies and adjacent landowners; and/or

- (4) Manage wildlife and fish habitat to support recreational and educational benefits and opportunities for the public.

The wildlife biologists use the following management objectives to comply with the goals identified above within and adjacent to the CD/WII, DF, and AR EIS project areas:

- (1) Maintain, restore, or enhance wildlife habitat in coordination and consultation with other local, state, and federal agencies and consistent with other agency plans, policies, and agreements. A full range of mitigation options will be considered when developing mitigation for project-level activities for wildlife and Special Status Species habitats;
- (2) Maintain, restore, or enhance T&E species habitat, in coordination and consultation with the USFWS and other local, state, and federal agencies and consistent with other agency plans, policies, and agreements;
- (3) Maintain, restore, or enhance designated BLM State Sensitive Species habitat to prevent listing under the Endangered Species Act (ESA) of 1973, in coordination and consultation with other local, state, and federal agencies and consistent with other agency plans, policies, and agreements; and/or
- (4) Maintain, restore, or enhance habitat function in crucial winter ranges.

Figure 1: *Natural gas development in the CD/WII EIS area. Educational tour developing partnerships between industry and BLM to teach the process of drilling and its many complexities* shows a representation of the BLM and industry personnel collaborating together to identify appropriate wildlife protection measures while allowing for natural gas development within the RFO area.

RECORD OF DECISION ENVIRONMENTAL IMPACT STATEMENT CONTINENTAL DIVIDE/WAMSUTTER II NATURAL GAS PROJECT, Sweetwater and Carbon Counties, Wyoming APPENDIX D: WILDLIFE PROTECTION PLAN MONITORING REPORT: 2005 to 2013

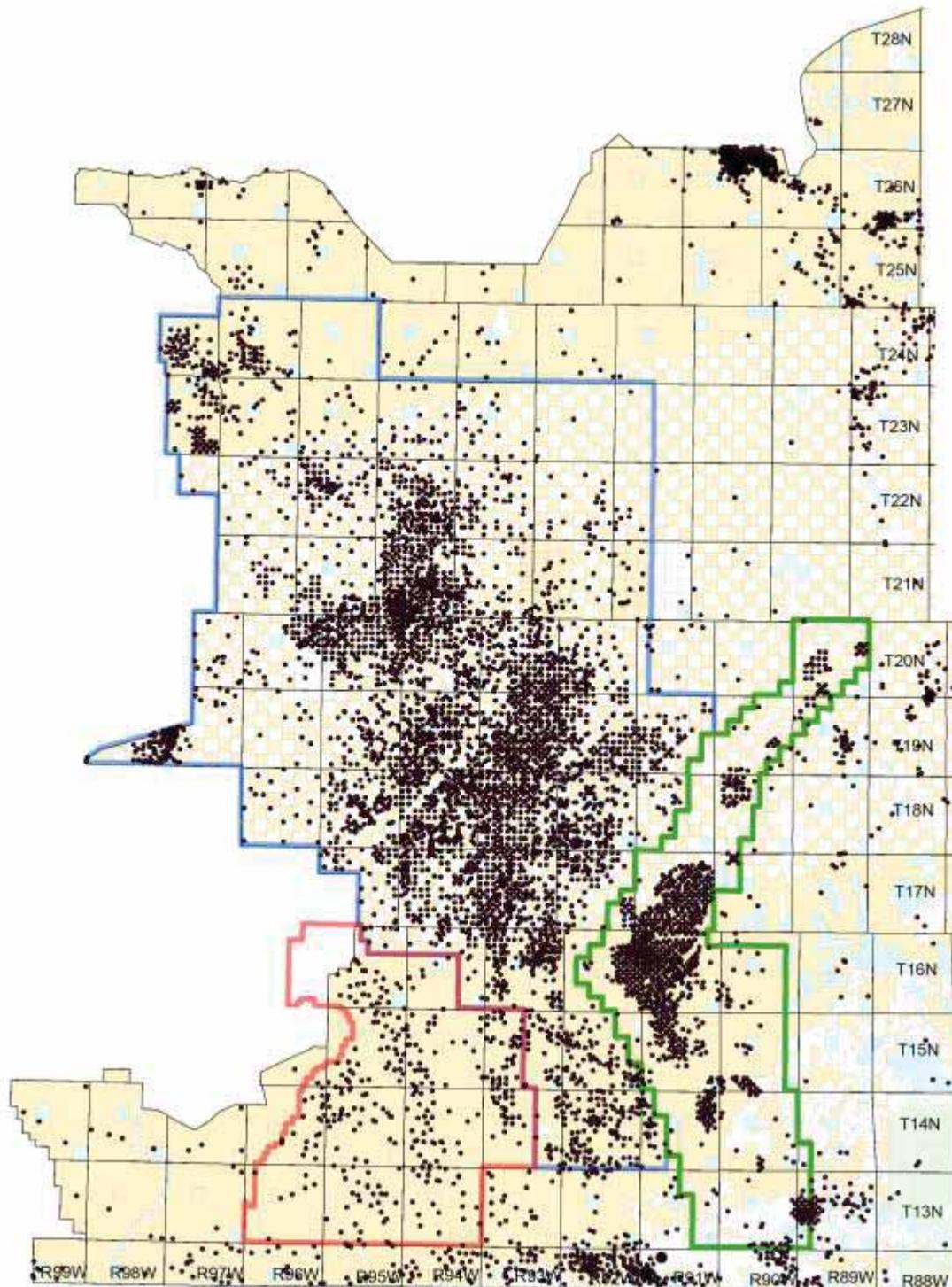
The CD/WII EIS was authorized in May of 2000 and the *CD/WII Wildlife Monitoring and Protection Plan* (CD/WII WM&PP), attached to the CD/WII EIS, was designed to allow natural gas development within this field. The CD/WII EIS area is identified in **Map 1: Continental Divide/Wamsutter II (same area as the Proposed Continental Divide-Creston Environmental Impact Statement [CD-C EIS] area), Desolation Flats, and Atlantic Rim EISs Boundary Area Map** below, and contains the area identified in the proposed *Draft Environmental Impact Statement Continental Divide-Creston Natural Gas Development Project* (CD-C EIS) dated November 2012. The companies are required to avoid and/or minimize adverse impacts to wildlife present on the project-affected areas. The CD/WII EIS plan allowed for the development of a maximum of 3,000 new well locations and associated facilities (roads, pipelines, compressor stations) on the project area for 20 years from the signature of the EIS in 2000. The proposed life-of-project (LOP) was estimated to be from 30 to 50 years. The plan contains the inventory, monitoring, and protection requirements necessary to allow the BLM RFO specialists achieve and maintain desired levels of wildlife productivity and populations within, and adjacent to, the EIS area by minimizing and/or avoiding potential adverse impacts to wildlife species. In addition, the implementation of monitoring and protection measure implementation facilitates the maintenance of the diverse assemblage of wildlife populations within, and adjacent to, the CD/WII EIS habitats (USDI, BLM 2000).

***RECORD OF DECISION ENVIRONMENTAL IMPACT STATEMENT DESOLATION FLATS NATURAL GAS FIELD DEVELOPMENT PROJECT, Sweetwater and Carbon Counties, Wyoming
APPENDIX E: WILDLIFE MONITORING AND PROTECTION PLAN REPORT: 2005 to 2013***

The DF EIS was authorized in July of 2004 and the *DF EIS Wildlife Monitoring and Protection Plan* (DF WM&PP), attached to the DF EIS, was designed to allow natural gas development within this field (Map 1). The companies are required to avoid and/or minimize adverse impacts to wildlife that may be present within the project-affected areas by monitoring and protecting wildlife populations and their associated habitats, as well as maintaining a diverse assemblage of wildlife populations within the DF EIS area. The DF EIS plan allowed for the development of a maximum of 385 new wells at 361 well locations with the associated facilities (roads, pipelines, compressor stations) on the project area for the next 15-20 years from the signature of the EIS in 2004. The LOP was estimated to be from 30 to 50 years. The plan contains the inventory, monitoring, and protection requirements necessary to allow the BLM RFO specialists achieve and maintain desired levels of wildlife productivity and populations within, and adjacent to, the EIS area by minimizing and/or avoiding potential adverse impacts to wildlife species. In addition, the Wildlife Protection Plan was designed to determine the extent of adverse effects, if any, occurring to sensitive wildlife resources, and in the event adverse effects are found, the plan called for increased protection measures (USDI, BLM 2004).



Figure 1: Natural gas development in the CD/WII EIS area. Educational tour developing partnerships between industry and BLM to teach the process of drilling and its many complexities.



Map 1: Continental Divide/Wamsutter II EIS (same area as the Proposed CD-C EIS) in BLUE, Desolation Flats EIS in RED, and Atlantic Rim EIS in GREEN Boundary Area Map

RECORD OF DECISION ENVIRONMENTAL IMPACT STATEMENT for the ATLANTIC RIM NATURAL GAS FIELD DEVELOPMENT PROJECT, Carbon County, Wyoming REPORT: 2005 to 2013

The *Record of Decision Environmental Impact Statement for the Atlantic Rim Natural Gas Field Development Project Carbon County, Wyoming* (AR EIS) was authorized in March of 2007 and the Wildlife Monitoring and Protection Plan (AR WM&PP), attached to the *Environmental Impact Statement Atlantic Rim Natural Gas Field Development Project, Carbon County, Wyoming – Volume 2 of 2: Appendix E: Wildlife Monitoring and Protection Plan* (Final AR EIS , Volume 2 of 2), was designed to allow natural gas development within this field (**Map 1**). The companies are required to limit surface disturbance and perform interim reclamation, monitor air quality with the state of Wyoming, and avoid and/or minimize adverse impacts to wildlife present on the project-affected areas, as well as consult with federal and state agencies. The AR EIS plan allows for the development of approximately 2,000 gas wells and associated facilities (roads, pipelines, compressor stations) to recover energy resources, while limiting total new surface disturbance from the drilling program to a maximum of 7,600 acres, at any given time, and a 6.6-acre/well site short-term (less than six years) disturbance goal. The proposed LOP was estimated to be from 30 to 50 years. The estimated number of gas wells was not a cap or limitation, but an approximation to help establish the surface disturbance limit. This plan includes the use of Performance Goals (Appendix B of the AR EIS) and the option to consider protective measures that are not in conflict with the final decision. There is a 7,600-acre disturbance cap that will be allocated to Operators on a pro-rated mineral leasehold basis. Natural gas development is limited to eight well sites per 640-acre section, which includes coal-bed natural gas (CBNG), conventional, and injection wells. The plan contains the inventory, monitoring, and protection requirements necessary to allow the BLM RFO specialists achieve and maintain desired levels of wildlife productivity and populations within, and adjacent to, the EIS area by minimizing and/or avoiding potential adverse impacts to wildlife species. In addition, the implementation of monitoring and protection measures facilitates the maintenance of the diverse assemblage of wildlife populations within, and adjacent to, the AR EIS habitats (USDI, BLM 2006).

The *Creston-Blue Gap Natural Gas Project Environmental Impact Statement* (Creston/Blue Gap EIS) was authorized in August 1994. The project is located between the CD/WII EIS and the AR EIS areas and involves drilling up to 330 natural gas wells primarily on 160-acre spacing patterns within and adjacent to natural gas units on the project area. The LOP for this project was estimated at approximately 30-50 years; however, by 2012 the majority of the wells had been drilled. In general, this project will not be included in this analysis; however, the area will be analyzed for some species, such as big game and Greater Sage-Grouse. The area will be included in the CD-C EIS document, which is currently at the draft stage, when it is finalized.

Part 2: Implementation Protocol

CD/WII Wildlife Monitoring and Protection Plan Implementation Protocol

The Final CD/WII EIS *Appendix D: Wildlife Monitoring and Protection Plan* is designed to avoid and/or minimize adverse impacts to wildlife present on project-affected areas by monitoring wildlife population trends during the course of project development and by developing appropriate mitigation actions. The wildlife species and associated habitats for which specific inventory, monitoring, and protection procedures are applicable to were identified in the CD/WII WM&PP by the BLM RFO, USFWS, WGFD and individual concerns (Operators) prior to the preparation of the EIS and continuing in meetings to this date. The CD/WII WP&PP is to be implemented with Operator provided assistance. The required annually proposed and implemented agency data collection activities have been consistent with current agency activities. Additionally, during annual planning and throughout the EIS project implementation, all efforts have been made to accommodate agency personnel schedules and responsibilities, and further agency cost-sharing approaches such that public demands and statutory directives are being achieved.

Appendix D of the CD/WII EIS plan provided the wildlife inventory, monitoring, and protection protocol required within the CD/WII EIS area to reduce and/or remove potential impacts to wildlife and their associated habitats. A summary of the general wildlife reporting, inventory and monitoring requirements is identified in Table D-2.1 and additional inventory, monitoring, and protection requirements for areas of intense development were identified in Table D-2.2. A summary of the general applications for an *Application for Permit to Drill* (APD) and/or a *right-of-way* (ROW) field review requirements were identified in Table D-2.3. Since 2000, alternative protocols have been developed in response to specific needs that have been identified in the 2000-2002 annual wildlife reports.

DF EIS Wildlife Monitoring and Protection Plan Implementation Protocol

The Final DF EIS plan contains the *Appendix E: Wildlife Monitoring and Protection Plan* which is designed to avoid and/or minimize adverse impacts to wildlife present on project-affected areas by monitoring wildlife population trends during the course of project development and by developing appropriate mitigation actions. The wildlife species and associated habitats for which specific inventory, monitoring, and protection procedures are applicable to were identified in the DF WM&PP from the *Review Team*, consisting of personnel from the BLM RFO, USFWS, WGFD and Operators identified during the preparation of the DF EIS. The DF WM&PP is to be implemented with Operator provided assistance. The required annually proposed and implemented agency data collection activities have been consistent with current agency activities. In areas where development may reach four well locations per section, additional inventory, monitoring, and protection measures are required, unless otherwise agreed to by the *Review Team*. Additionally, during annual planning and throughout the DF EIS project implementation, all efforts have been made to accommodate agency personnel schedules and responsibilities, and further agency cost-sharing approaches such that public demands and statutory directives are being achieved.

Appendix E, of the DF EIS plan, provided the wildlife inventory, monitoring, and protection protocol required within the DF EIS area to reduce and/or remove potential impacts to wildlife and their associated habitats. A summary of the general wildlife reporting, inventory and monitoring requirements is identified in Table E-1 of the DF EIS document and additional inventory, monitoring, and

protection requirements for areas of intense development were identified in Table E-2 of the DF EIS document.

AR EIS Wildlife Monitoring and Protection Plan Implementation Protocol

In the AR EIS, Operators are responsible for demonstrating successful achievement of Performance Goals. Efforts are required to collect or consolidate resource data to form a baseline against which future monitoring efforts and data would be compared to indicate trends. In the absence of sufficient data illustrating Operator achievement of the Performance Goals, the BLM will use a conservative approach when considering additional approvals. This EIS contains a *Review Team*, consisting of the BLM, cooperating and interested agencies, and the Operators, that are required to evaluate annual and site-specific development proposals and monitoring reports. After an on-site visit, the *Review Team* is required to determine the necessary mitigation measures, BMPs and conditions of approval necessary for processing each proposed project. *Appendix B: Performance-Based Monitoring and Best Management Practices* of the AR EIS contains the Performance Goals which includes an adaptive management approach using incremental adjustments to mitigate and manage restrictions based on how the environment responds to future development and performance requirements. New techniques and technology to reduce oil and gas development impacts can and will be implemented as they become available.

The Final AR EIS, Volume 2 of 2 contains the *Appendix E: Wildlife Monitoring and Protection Plan* which is designed to avoid and/or minimize adverse impacts to wildlife present on project-affected areas by monitoring wildlife population trends during the course of project development and by developing appropriate mitigation actions. The wildlife species and associated habitats for which specific inventory, monitoring, and protection procedures are applied were developed from the BLM RFO, USFWS, WGFD and Operators identified during the preparation of the EIS. The plan is to be implemented with Operator provided assistance. The required annually proposed and implemented agency data collection activities have been consistent with current agency activities. Additionally, during annual planning and throughout the EIS project implementation, all efforts have been made to accommodate agency personnel schedules and responsibilities, and further agency cost-sharing approaches such that public demands and statutory directives are being achieved.

Appendix E of the AR EIS provided the wildlife inventory, monitoring, and protection protocol required within the AR EIS area to reduce and/or remove potential impacts to wildlife and their associated habitats. A summary of the general wildlife reporting, inventory and monitoring requirements is identified in Table E-1 of the AR EIS and a summary of the general applications for an Application for Permit to Drill (APD) and/or a Right-of-Way (ROW) field review requirements were identified in Table E-2 of the AR EIS.

Part 3: Annual Reports and Meetings

CD/WII Annual Reports and Meetings

Reports

The CD/WII WM&PP required Operators to provide an annual inventory and description of all existing project features, including the location, size, and associated level of human activity at each feature, as well as those tentatively proposed for development during the next 12 months of each year. The following describes the process required for the CD/WII WM&PP to be an efficient program:

- (1) The wildlife and associated habitats inventories are required to be submitted to the BLM by Operators no later than October 15 of each calendar year;
- (2) These data will be attached to the annual wildlife inventory, monitoring, and protection data obtained from the previous year and included in the annual report;
- (3) The annual report will be prepared by the BLM:
 - It should be noted that the wildlife inventory, monitoring, and protection data gathered by parties other than the BLM, such as the Operators and/or the WGFD, are required to be to the BLM by October 15 of each calendar year;
- (4) Upon receipt of these data, annual reports will be completed in draft form by the BLM and submitted to the Operators, USFWS, and other interested parties no later than November 15 of each year;
- (5) A one-day meeting organized by the BLM will be held in early December of each year to discuss and modify, as necessary, proposed wildlife inventory, monitoring, and protection protocols for the subsequent year; and
- (6) A final annual report will be issued by the BLM to all potentially affected individuals and groups by early February of each year.

The annual report is required to summarize all of the annual wildlife inventory and monitoring results, note any trends across the years, identify and assess protection measures implemented during past years, specify monitoring and protection measures proposed for the upcoming year, and recommend modifications to the existing CD/WII WM&PP based on the successes and/or failures of past years. The BLM's Geographic Information System (GIS) has been used for information storage, retrieval, planning and annual GIS data updates. Raw data collected each year has been provided to other management agencies, such as the WGFD, the USFWS, the Wyoming Natural Diversity Database (WNDDDB), and Operators at the request of these public agencies. In addition, sources of potential disturbance to wildlife have been identified at the CD/WII WM&PP meetings and additional reports have been prepared to comply with other relevant wildlife laws, rules, and regulations.

Additional Meetings

Meetings have been held each year from 2005 through 2013 by the BLM, Operators, WGFD and USFWS which updated Operator personnel on the findings of each field season's monitoring activities. The attendees at the meetings and briefings discussed: (1) relevant wildlife laws, rules, and regulations; (2) project-specific wildlife monitoring and protection protocols required for the upcoming year; (3) annual Operator input regarding proposed inventory, monitoring, and protection measures; (4) additional information on the nature of the wildlife present in the CD/WII EIS area and potential impacts to wildlife; and (5) appropriate Operator responses to wildlife encounters to avoid or minimize impacts.

Table 1: Individual Dates for Wildlife Species Monitoring Requirements for the CD/WII EIS below identifies individual dates that were held to discuss wildlife species and monitoring requirements within the CD/WII EIS area:

Table 1: Individual Dates for Wildlife Species Monitoring Requirements for the CD/WII EIS

CD/WII EIS Wildlife Monitoring Meetings	
January 23, 2006	
February 21, 2007	
February 28, 2008	December 7, 2008
February 26, 2009	June 25, 2009
June 3, 2010	
March 1, 2011	December 8, 2011
March 13, 2012	October 26, 2012
March 12, 2013	

DF EIS Annual Reports and Meetings

Reports

The following describes the process required for the DF EIS to be an efficient program:

- (1) Operators were required to submit to the BLM an updated inventory and description of all existing project features (i.e., locations, size, and associated human activity at each feature), as well as those tentatively proposed for development by October 15 of each year. These data were designed to be coupled with annual wildlife inventory, monitoring, and protection data obtained from the previous year and included in annual reports prepared by the BLM;
- (2) When annual wildlife inventory, monitoring, and protection data are gathered by parties other than the BLM, such as contractors, the data is required to be submitted to the BLM by October 15 of each year;
- (3) Upon receipt of these data, annual reports will be completed in draft form by the BLM and submitted to Operators, USFWS, and other interested parties no later than December 15 of each year;
- (4) A one-day meeting of the *Review Team* has been organized by the BLM RFO and held in January/February of each year to discuss and modify, as necessary, proposed wildlife inventory, monitoring, and protection protocols for the subsequent field season. Decisions regarding annual Operator-specific financing and personnel requirements will be made at these meetings. A protocol regarding how to accommodate previously unidentified development sites will also be determined during the annual meeting. Final decisions will be made by the BLM based on the input from the *Review Team* and all affected parties; and
- (5) A final annual report is to be issued by the BLM RFO to all potentially affected individuals and groups by February/March of each year. Annual reports are designed to summarize annual wildlife inventory and monitoring results, note any trends across years, identify and assess protection measures implemented during past years, specify monitoring and protection measures proposed for the upcoming year, and recommend modifications to the existing wildlife monitoring/protection plan based on the success, and/or failures of past years (e.g., identification of additional species and/or categories to be monitored). The data

presented in the reports is used to identify potential correlations between development and wildlife productivity and/or abundance. The BLM's GIS is used for information storage, retrieval, and planning, and annual GIS data updates are conducted.

Raw data collected each year also is provided to the WGFD, USFWS, WYNDD, and Operators when requested. In addition, sources of potential disturbance to wildlife are identified, such as development activities and weather conditions, and additional reports have been prepared to comply with other relevant wildlife laws, rules, and regulations (e.g., black-footed ferret survey reports, raptor reports). Additional meetings have been held from 2005-2013 by the BLM, Operators, and USFWS in Rawlins to inform and update Operator personnel on the findings of field seasons. This report is required because an annual report has not been completed since 2004. In addition, Operators have not been submitting their updated inventory and description of all existing projects and those tentatively proposed for development each upcoming year.

Additional Meetings

Meetings have been held each year from 2005 through 2013 by the BLM, Operators, WGFD and USFWS which updated Operator personnel on the findings of each field season's monitoring activities. A description of these meetings is located above for the DF EIS, which were held together, with the requirements of the CD/WII and AR EISs, for the *Monitoring without Borders* program.

AR EIS Annual Reports and Meetings

Reports

The AR WM&PP required Operators to provide an annual inventory and description of all existing project features, including the location, size, and associated level of human activity at each feature, as well as those tentatively proposed for development during the next 12 months of each year. The following describes the process required for the AR WM&PP to be an efficient program:

- (1) The wildlife and associated habitats inventories are required to be submitted to the BLM by Operators no later than October 15 of each calendar year;
- (2) These data will be attached to the annual wildlife inventory, monitoring, and protection data obtained from the previous year and included in the annual report;
- (3) The annual report will be prepared by the Operator's third party contractor with BLM oversight:
 - It should be noted that the wildlife inventory, monitoring, and protection data gathered by parties other than the BLM, such as the Operators and/or the WGFD, are required to be to the BLM by October 15 of each calendar year.
- (4) Annual reports will be completed in draft and submitted to the BLM, operators and other interested parties by November 15 of each year;
- (6) A final annual report will be issued to all potentially affected individuals and groups by early February of each year.

The annual report is required to summarize all of the annual wildlife inventory and monitoring results, note any trends across the years, identify and assess protection measures implemented during past years, specify monitoring and protection measures proposed for the upcoming year, recommend

modifications to the existing AR WM&PP based on the successes and/or failures of past years and identify additional steps/categories to be monitored. The data presented in reports will be used to identify potential correlations between development and wildlife productivity and/or abundance, as well as, sources of potential disturbance to wildlife. The BLM's GIS has been used for information storage, retrieval, planning and annual GIS data updates. Raw data collected each year has been provided to other management agencies, such as the WGFD, the USFWS, WNDD, and operators at the request of these agencies and the public. In addition, sources of potential disturbance to wildlife have been identified at the AR WM&PP meetings and additional reports have been prepared to comply with other relevant wildlife laws, rules, and regulations.

Additional Meetings

Meetings for the *Monitoring without Borders* program, of which the AR EIS has been a part of, have been held each year from 2005 through 2013 by the BLM, Operators, WGFD and USFWS which updated Operator personnel on the findings of each field season's monitoring activities (see Table 1). The AR EIS, Appendix E states that a one day meeting will be organized by the BLM and held in December of each year to discuss and modify, as necessary, the proposed wildlife inventory, monitoring and protection protocol for the next year.

The AR EIS has a *Review Team* that has had additional meetings as well to discuss wildlife monitoring and protection measures to be implemented within the AR EIS area. The group established monitoring protocols and studies for mule deer crucial winter range and migration habitats, songbirds, and Greater Sage-Grouse, which are associated with the Performance Goals for this EIS. Table 2: *Individual Dates for Wildlife Species Monitoring Requirements for the AR EIS* below identifies individual meetings that were held to discuss specific wildlife species and monitoring requirements within the AR EIS area:

Table 2: *Individual Meeting Dates for Specific Wildlife Species Monitoring Requirements for the AR EIS*

Atlantic Rim Wildlife Performance Goal Meetings		
<i>Big Game Meetings</i>	<i>Greater Sage Grouse</i>	<i>Songbirds</i>
	07/18/2007	
	09/18/2007	
02/05/2008	08/21/2008	
	10/28/2008	
	12/03/2008	
01/15/2009	1/14/2009	05/15/2009
07/28/2009	4/27/2009	08/28/2009
07/07/2009	07/07/2009	11/18/2009
08/25/2009	08/24/2009	11/29/2009
11/18/2009	12/10/2009	
04/14/2010	8/4/2010	01/18/2010
05/12/2010		01/29/2010
5/27/2010		02/02/2010
7/22/2010		
7/20/2011	5/16/2011	3/23/2011
9/8/2011	7/11/2011	
12/14/2011		

Atlantic Rim Wildlife Performance Goal Meetings		
<i>Big Game Meetings</i>	<i>Greater Sage Grouse</i>	<i>Songbirds</i>
2/13/2012	4/26/2012	
8/15/2012	8/15/2012	
2/20/2013		
8/27/2013		
11/13/2013		

Part 4: CD/WII EIS, DF EIS, and AR EIS Annual Inventory and Monitoring

The annual inventory and monitoring protocols that have occurred within the CD/WII EIS, DF EIS and AR EIS areas are discussed below for each wildlife species. The BLM, WGFD, USFWS and Operators coordinated at the meetings identified above to determine which inventory and monitoring techniques and specific protection measure implementation that would occur for specific species and their associated habitats within, as well as adjacent to, all three EIS project areas and use the same wildlife inventory and monitoring procedures for each EIS. These decisions were based on the level of development within the CD/WII EIS, DF EIS and the AR EIS areas, and the requirements with increased levels of development. The group discussed the process identified below as one which is required to truly understand potential impacts to wildlife species and their associated habitats as a result of implementing the CD/WII EIS, DF EIS, and AR EIS, as well as adjacent projects:

- (1) Annual inventory and monitoring of species;
- (2) Identify effects and the actions required (mitigation measures) to reduce and/or eliminate those effects (using adaptive management); **and**
- (3) Analyzing the effectiveness of these actions; if they don't work the BLM will need to try something different.

Adaptive management can be tricky and takes time and true scientific analysis to determine its effectiveness. The following sections identify the *minimum* level of effort required for inventory and monitoring in the CD/WII, DF, and AR WM&PPs. It should be noted that site- and species-specific surveys for wildlife and associated habitat analysis will continue to be conducted at the APD and ROW application field reviews. **Table 3a: Number of Individual APDs and ROWs On-Sited from 2005 to 2013 in the CD/WII EIS, DF EIS and AR EIS Areas and Authorized as of 2013** (Witchel 2013a, Grunewald 2013) is shown below. It should be noted that although these projects have been authorized as of 2013, they may not have been physically constructed and/or completed at this time. Since the projects have been authorized, they can be constructed at any time, according to any attached conditions of approval (COAs) and terms and conditions; therefore, they are counted as if they have been constructed.

Table 3a: Number of Individual APDs and ROWs On-Sited from 2005 to 2013 in the CD/WII EIS, DF EIS and AR EIS Areas and Authorized as of 2013

EIS Area →	CD/WII EIS Area				DF EIS Area				AR EIS Area			
	Year ↓	No. of APDs	% RFO	No. of ROWs	% RFO	No. of APDs	% RFO	No. of ROWs	% RFO	No. of APDs	% RFO	No. of ROWs
2005	182	71.7%	164	60.1%	13	5.1%	27	9.9%	14	5.5%	15	5.5%
2006	93	54.4%	214	65.8%	15	8.8%	31	9.5%	12	7.0%	12	3.7%
2007	151	56.1%	174	66.2%	10	3.7%	26	9.9%	86	32.0%	7	2.7%
2008	142	35.2%	159	66.0%	8	2.0%	8	3.3%	191	47.4%	9	3.7%
2009	97	48.3%	153	59.1%	16	8.0%	22	8.5%	52	25.9%	11	4.2%
2010	44	57.1%	114	61.0%	3	3.9%	7	3.7%	0	0.0%	7	3.7%
2011	94	47.5%	124	56.9%	1	0.5%	4	1.8%	32	16.2%	8	3.7%
2012	160	63.2%	190	62.1%	22	8.7%	8	2.6%	21	8.3%	19	6.2%
2013	48	70.6%	58	51.3%	7	10.3%	17	15.0%	9	13.2%	2	1.8%

The total amount of APDs that were field checked and authorized within the three EIS areas compared to the entire RFO area include: (a) 82% for 2005, (b) 70% for 2006, (c) 92% for 2007, (d) 85% for 2008, (e) 82% for 2009, (f) 61% for 2010, (g) 64% for 2011, (h) 80% for 2012, and (i) 94% for 2013. The total amount of ROWs that were field checked and authorized within the three EIS areas compared to the entire RFO area include: (a) 76% for 2005, (b) 79% for 2006, (c) 79% for 2007, (d) 73% for 2008, (e) 72% for 2009, (f) 68% for 2010, (g) 62% for 2011, (h) 71% for 2012, and (i) 68% for 2013. These numbers reflect the large amount of time spent by staff in these three areas for field analyzing and reviewing APDs (61% to 94% range) and ROWs (62% to 79% range) within the RFO from 2005-2013.

Tables 3b-d: Individual ROW Descriptions in the CD/WII EIS, DF EIS and AR EIS Areas (Witchel 2013b) is shown below and separates access roads, pipelines, and other ROW actions within the three EIS areas. Pipeline actions will affect wildlife species and their associated habitats differently from an access road, for example; therefore, monitoring actions will also differ in description and analysis.

Table 3b: Individual ROW Descriptions On-Sited and Authorized from 2005 to 2013 in the CD/WII EIS Area

<i>CD/WII EIS Area</i>												
<i>Action →</i>												
<i>Year ↓</i>	Roads	Federal Highway Department/WYDOT	Material Site	Power Facility	Power Line (all sizes)	Communication Site	Water Facility	Pipeline (all sizes)	Salt Water Disposal	Oil & Gas Facility	Telephone Lines	Other (including wind)
2005	47	0	0	0	1	2	1	103	0	2	0	8
2006	36	0	0	0	3	0	1	162	0	0	0	12
2007	22	0	0	0	6	1	0	134	0	1	0	10
2008	20	0	0	0	2	1	1	130	1	0	0	4
2009	39	0	0	0	2	0	6	104	0	0	0	2
2010	23	0	0	0	3	0	5	79	0	0	0	4
2011	21	0	0	0	3	0	10	82	0	0	0	8
2012	19	0	0	0	7	3	10	143	0	1	0	7
2013	7	1	0	0	1	4	10	28	0	1	0	6

Table 3c: Individual ROW Descriptions On-Sited and Authorized from 2005 to 2013 in the DF EIS Area

<i>DF EIS Area</i>												
<i>Action</i> →												
<i>Year</i> ↓	Roads	Federal Highway Department/WYDOT	Material Site	Power Facility	Power Line (all sizes)	Communication Site	Water Facility	Pipeline (all sizes)	Salt Water Disposal	Oil & Gas Facility	Telephone Lines	Other (including wind)
2005	9	0	0	0	0	1	0	17	0	0	0	0
2006	7	0	0	0	0	1	0	23	0	0	0	0
2007	11	0	0	0	0	0	0	13	0	2	0	0
2008	3	0	0	0	0	0	0	5	0	0	0	0
2009	9	0	0	0	0	0	0	12	0	0	0	1
2010	2	0	0	0	0	0	0	5	0	0	0	0
2011	2	0	0	0	0	0	0	2	0	0	0	0
2012	4	0	0	0	0	0	0	3	1	0	0	0
2013	2	0	0	0	0	0	0	12	0	2	0	1

Table 3d: Individual ROW Descriptions On-Sited and Authorized from 2005 to 2013 in the AR EIS Area

<i>AR EIS Area</i>												
<i>Action→</i>												
<i>Year ↓</i>	Roads	Federal Highway Department/WYDOT	Material Site	Power Facility	Power Line (all sizes)	Communication Site	Water Facility	Pipeline (all sizes)	Salt Water Disposal	Oil & Gas Facility	Telephone Lines	Other (including wind)
2005	7	0	0	0	1	0	0	4	1	1	0	1
2006	1	0	0	0	0	0	0	9	1	0	0	1
2007	1	0	0	0	1	0	0	3	1	1	0	0
2008	4	0	0	0	0	0	0	5	0	0	0	0
2009	1	0	0	0	2	0	0	5	1	0	0	2
2010	4	0	0	0	1	0	0	1	0	0	0	1
2011	2	0	0	0	2	0	1	1	0	0	0	2
2012	4	0	0	0	3	0	1	8	0	1	0	2
2013	2	0	0	0	0	0	0	0	0	0	0	0

The following discusses inventory and monitoring practices that have occurred from the 2005 field season through the 2013 field season for a diversity of wildlife species within the CD/WII, DF and AR EIS areas. It should be noted that additional inventory and monitoring measures have been applied as specified in annual reports. In areas where development levels reach eight or more well locations per section, it is anticipated that detailed cause and effect studies will be implemented. These studies will be discussed further in this report.

In addition, the *Final Overland Pass Pipeline Company Piceance Basin Lateral Environmental Assessment* (Overland Pass Pipeline EA) was finalized in September of 2008 for the Overland Pass Pipeline Company (OPPC) and analyzed the impacts of a 152-mile long, 14-inch pipeline project. The OPPC EA consisted of the analysis for the construction, operation and maintenance of the 14-inch diameter buried steel natural gas liquids (NGL) pipeline and related facilities that begins southwest of Meeker, Colorado and terminates southeast of Wamsutter, Wyoming. The project crosses 55 miles through the DF EIS and CD/WII EIS areas and is located west of State Highway 789. The project also included a 2,000-foot, six-inch diameter lateral pipeline with manual shut-off valves at regular intervals; pigging facilities; and two meter stations. The construction ROW for this pipeline project is 75 feet and the permanent ROW is 50 feet. The pipeline will transport 100,000 barrels of Y-grade NGL per day. Approximately 96-percent of

this pipeline runs parallel to existing pipelines and utility corridors. The ROW for this project was authorized by the BLM on October 15, 2008, the company finished the construction and clean-up of the project by mid-November 2009, the reclamation and erosion control activities for the pipeline occurred from mid-September to December 7, 2009, and the full operation of the pipeline began the last week of October 2009.

RAPTOR SPECIES

Raptor Nest Inventory

Raptor nest inventories within the CD/WII EIS area had been conducted annually from April through July prior to the CD/WII EIS authorization in 2000, the DF EIS authorization in 2003 and the AR EIS authorization in 2007 to determine the location of any new raptor nests and their associated territories, as well as their activity status by the BLM (discussed below). These surveys had been implemented both aerially (e.g., via helicopter) and from the ground. Data collected during the surveys are recorded on the BLM RFO's *Raptor Nesting Record*, *Raptor Observation Data Sheets*. These surveys are required to be conducted every five years, thereafter, for the life-of-the plans to determine new nests and their status; however, for many years surveys in all three EIS areas have been conducted annually. Specific to the CD/WII EIS, prairie dog colonies and other suitable burrowing owl nesting areas (i.e., areas with large numbers of ground squirrel burrows) on and within 0.5 mi of the existing and proposed disturbance areas are required to be searched for western burrowing owls by the BLM or a BLM-Approved Operator-financed biologist during June through August to determine the presence or absence of owl nesting. In addition, efforts will be made to determine reproductive success. Specific to the AR EIS, prairie dog colonies and other suitable burrowing owl nesting areas on and within three-quarter miles of existing and proposed disturbance areas are required to be searched for burrowing owls by the BLM during June through August to determine the presence or absence of these owls. If owls are found, attempts are to be made to determine the reproductive success. In addition to these specific requirements all raptor nests are required to be searched for during the on-site field assessments for APDs and ROWs within the CD/WII, DF and AR EISs project areas.



Figure 2: Ferruginous hawks in artificial nesting structure in the CD/WII EIS field.

Raptor Nest Monitoring

Raptor nest productivity monitoring has been conducted by the BLM within the CD/WII EIS, DF EIS and AR EIS areas between March 1 and mid-July to determine nesting success (i.e., number of nestlings/fledglings). Due to funding, these surveys have been conducted from the ground, and attempts are made to determine the cause of any documented nest failure. Raptor nests are also checked, when applicable, in association with APD and ROW application field reviews. The raptor nest productivity surveys have been conducted using procedures that minimize potential adverse effects to nesting raptors. Although raptor nest monitoring has been ongoing since the 1990's within the EIS fields, **Table 4: Raptor Nest Activity Nine-Year Trend in the CD/WII, DF, and AR EIS Areas from 2005-2013** below identifies only the nine-year trend for raptor nest activity within the CD/WII EIS, DF EIS and AR EIS areas. The BLM contains detailed information in the BLM data base for a detailed description of those nests identified in **Table 4** pertaining to nest monitoring results within the EIS areas. Measures are taken by BLM biologists during the monitoring time periods to reduce detrimental effects to nesting raptors during the survey time periods.

The CD/WII EIS and DF EIS requires additional raptor nest activity and productivity monitoring to occur in areas with ≥four locations/section on and within one mile of the CD/WII EIS and DF EIS areas, as well as selected undeveloped comparison areas. This monitoring is to be conducted during April and May, followed by nest productivity monitoring. The AR EIS requires nest productivity monitoring to be conducted by the BLM at active nests, for selected species, to determine nesting success. If necessary, operators may provide financial assistance for aircraft rental for this monitoring. All of these nest productivity surveys have been conducted using procedures that minimize potential adverse effects to nesting raptors (Grier and Fyfe, 1987; Call, 1978).

Table 4: Raptor Nest Activity Nine-Year Trend in the CD/WII, DF, and AR EIS Areas from 2005-2013¹

Activity Level	2005	2006	2007	2008	2009	2010	2011	2012	2013
<i>Continental Divide/Wamsutter II EIS Area – Raptor Nest Monitoring</i>									
Artificial Ferruginous Hawks									
Active	16	20	20	25	26	28	20	12	12
Inactive	6	7	6	6	8	5	10	5	7
DNLO ²	0	0	0	0	0	0	0	0	0
Occupied ³	10	6	4	2	1	1	0	1	0
Natural Ferruginous Hawks									
Active	6	4	5	6	9	7	6	8	2
Inactive	57	82	61	34	88	164	52	19	39
DNLO	3	15	1	3	9	100	9	3	14

¹ Raptor data has been obtained from the BLM and Grasslands Consulting, Hayden-Wing Associates and TRC.

² DNLO=Did Not Locate Nest

³ Occupied=the nest was originally used, but may have either been predated, destroyed by weather, or abandoned.

Activity Level	2005	2006	2007	2008	2009	2010	2011	2012	2013
Occupied	2	5	5	2	4	6	0	2	1
Artificial Golden Eagles									
Active	3	3	2	1	1	4	2	1	0
Inactive	5	3	5	5	8	7	8	2	4
DNLO	0	0	0	0	0	0	0	0	0
Occupied	2	2	1	1	0	0	0	0	0
Natural Golden Eagles									
Active	8	4	4	3	3	1	2	1	1
Inactive	16	8	7	16	13	16	7	2	0
DNLO	0	0	0	0	1	1	1	0	0
Occupied	2	0	4	2	0	5	0	1	1
Burrowing Owls									
Active	2	1	2	1	2	7	1	0	0
Inactive	0	0	1	1	0	6	0	1	4
DNLO	0	0	2	0	2	5	0	0	0
Occupied	2	1	1	0	3	0	0	1	0
Great-horned Owls									
Active	0	0	2	0	0	1	0	2	0
Inactive	0	1	2	0	1	2	0	0	0
DNLO	0	0	1	1	0	0	0	0	0
Occupied	0	0	0	0	0	0	0	0	0
Kestrels									
Active	0	0	0	1	1	2	0	0	0
Inactive	0	0	1	1	0	3	0	0	0
DNLO	3	0	2	0	0	1	0	0	0
Occupied	2	1	1	0	0	1	0	0	0
Long-eared Owls									
Active	0	0	0	0	0	0	0	0	0
Inactive	0	1	1	0	0	1	0	0	0
DNLO	0	0	0	0	0	0	0	0	0
Occupied	0	0	0	0	0	0	0	0	0
Northern Harriers									
Active	1	0	0	1	1	0	0	0	0
Inactive	0	0	0	0	1	1	0	0	0
DNLO	0	2	1	0	0	4	0	0	2
Occupied	0	0	1	0	1	0	0	1	0
Prairie Falcons									
Active	0	0	1	1	0	2	0	0	0
Inactive	0	1	0	0	7	3	0	1	0
DNLO	1	0	2	1	1	1	0	0	0
Occupied	1	0	0	0	0	1	0	1	0
Red-tailed Hawks									
Active	0	0	2	2	0	1	1	0	0

Activity Level	2005	2006	2007	2008	2009	2010	2011	2012	2013
Inactive	3	3	5	4	3	6	1	0	0
DNLO	0	0	0	0	0	2	1	0	0
Occupied	1	1	3	2	0	3	0	0	0
Swainson's Hawks									
Active	0	0	0	2	3	0	0	1	1
Inactive	0	0	0	0	8	5	0	1	3
DNLO	0	0	0	0	0	1	0	0	0
Occupied	0	0	0	0	1	1	0	0	0
Unidentified Raptors									
Active	0	0	0	0	0	1	0	0	0
Inactive	2	6	6	2	7	17	0	2	1
DNLO	0	2	0	2	0	4	0	0	1
Occupied	1	0	1	0	0	0	0	0	1
<i>Desolation Flats EIS Area – Raptor Nest Monitoring</i>									
Artificial Ferruginous Hawks									
Active	0	0	0	0	0	0	0	0	0
Inactive	2	1	2	1	1	2	2	1	2
DNLO	0	0	0	0	0	0	0	0	0
Occupied	0	0	0	0	0	0	0	0	0
Natural Ferruginous Hawks									
Active	1	0	0	0	0	0	1	1	0
Inactive	3	2	2	5	8	6	10	9	6
DNLO	0	1		0	0	0	1	0	0
Occupied	0	1	1	0	2	0	0	0	0
Burrowing Owls									
Active	2	0	0	1	0	0	0	1	0
Inactive	0	0	0	0	0	0	0	0	0
DNLO	1	0	0	0	1	1	0	0	0
Occupied	0	0	0	0	0	0	0	0	0
Natural Golden Eagles									
Active	2	1	0	1	0	1	0	0	0
Inactive	3	10	6	1	0	5	10	4	0
DNLO	0	2	0	2	0	1	0	0	0
Occupied	0	0	0	1	0	0	0	0	0
Great-horned Owls									
Active	0	0	0	0	0	0	0	0	0
Inactive	0	0	0	0	0	1	0	0	0
DNLO	0	0	0	0	0	0	1	0	0
Occupied	0	0	0	0	0	1	0	0	0
Kestrels									
Active	0	0	0	0	0	0	0	0	0

Activity Level	2005	2006	2007	2008	2009	2010	2011	2012	2013
Inactive	0	1	0	0	0	0	0	0	0
DNLO	0	0	0	0	0	0	0	0	0
Occupied	1	0	0	0	0	0	1	0	0
Prairie Falcons									
Active	0	0	0	0	0	0	0	1	0
Inactive	1	0	0	0	0	2	0	0	0
DNLO	0	0	0	0	0	0	0	0	0
Occupied	0	0	0	0	0	0	2	0	0
Red-tailed Hawks									
Active	0	2	1	2	0	1	0	0	0
Inactive	4	3	1	6	0	5	1	6	0
DNLO	1	4	0	0	0	0	0	0	0
Occupied	1	0	0	0	0	0	0	0	0
Unidentified Raptors									
Active	0	0	0	0	0	0	0	0	0
Inactive	3	6	3	11	0	5	3	4	0
DNLO	0	2	0	2	0	0	0	0	0
Occupied	0	0	0	1	0	0	0	0	0
<i>Atlantic Rim EIS Area – Raptor Nest Monitoring</i>									
Artificial Ferruginous Hawks									
Active	1	1	0	1	1	1	1	2	1
Inactive	0	0	1	0	0	0	4	7	4
DNLO	0	0	0	0	0	0	0	0	0
Occupied	0	0	0	0	0	0	0	0	0
Natural Ferruginous Hawks									
Active	0	0	1	1	1	0	1	1	0
Inactive	14	40	8	30	33	32	36	39	66
DNLO	0	2	2	5	2	1	0	0	6
Occupied	2	3	1	4	5	4	0	0	0
Burrowing Owls									
Active	0	1	0	2	5	4	1	0	2
Inactive	0	0	0	0	0	2	5	7	4
DNLO	0	0	0	0	2	2	2	0	6
Occupied	0	0	0	1	0	1	1	4	2
Cooper's Hawks									
Active	0	2	0	0	0	0	0	0	0
Inactive	1	2	0	16	1	0	0	0	0
DNLO	2	8	2	5	0	0	0	0	0
Occupied	0	0	0	0	0	1	1	0	0
Golden Eagles									
Active	1	1	1	0	0	1	1	0	0

Activity Level	2005	2006	2007	2008	2009	2010	2011	2012	2013
Inactive	9	21	10	22	13	10	7	10	13
DNLO	5	4	0	2	3	1	1	1	2
Occupied	4	0	1	1	0	3	0	0	0
Great-horned Owls									
Active	0	1	1	0	1	0	1	1	0
Inactive	3	4	1	1	4	3	5	3	5
DNLO	0	2	0	1	1	0	0	0	0
Occupied	0	0	1	0	0	1	0	1	0
Kestrels									
Active	0	1	0	0	0	0	1	1	0
Inactive	1	1	1	3	4	3	3	3	5
DNLO	0	0	0	0	1	0	0	0	0
Occupied	1	1	0	1	0	0	0	0	0
Long-eared Owls									
Active	0	0	0	0	0	0	0	0	0
Inactive	0	1	0	0	0	0	0	0	0
DNLO	0	1	0	1	0	0	0	0	0
Occupied	0	0	0	0	0	0	0	0	0
Northern Harriers									
Active	0	0	0	1	0	0	0	0	0
Inactive	0	0	0	0	0	0	0	0	0
DNLO	0	0	0	0	1	0	0	0	0
Occupied	0	0	0	0	0	0	0	0	0
Prairie Falcons									
Active	0	1	1	1	3	2	3	3	3
Inactive	2	7	1	5	5	2	2	4	7
DNLO	1	1	2	0	0	0	0	0	0
Occupied	0	0	0	1	0	2	2	2	0
Red-tailed Hawks									
Active	1	5	6	4	2	4	7	7	5
Inactive	4	17	2	20	17	11	8	15	22
DNLO	1	8	1	2	4	2	4	3	1
Occupied	3	2	1	2	1	3	1	1	0
Sharp-shinned Hawks									
Active	0	0	0	0	0	0	0	0	0
Inactive	0	0	0	0	1	0	0	0	1
DNLO	0	0	0	0	0	0	0	0	1
Occupied	0	1	0	0	0	1	0	0	0
Swainson's Hawks									
Active	0	0	0	1	0	0	1	2	3
Inactive	0	3	2	0	5	3	2	1	5
DNLO	0	1	0	0	1	0	0	1	1
Occupied	0	2	0	1	0	0	0	2	0

Activity Level	2005	2006	2007	2008	2009	2010	2011	2012	2013
Unidentified Raptors									
Active	0	0	0	0	0	0	2	0	0
Inactive	18	59	17	20	26	45	67	91	107
DNLO	0	2	0	1	4	2	3	2	5
Occupied	0	0	1	0	3	3	1	1	3

It should be noted that raptor nests have been monitored previously to this report and the data is available at the RFO in detail for further information. Based on the BLM budgets each fiscal year, the amount of monitoring has changed with decreasing funds since the past five-plus years. **Table 4a: Raptor Nest Activity (Successful) Nine-Year Trend in the CD/WII, DF, and AR EIS Areas Compared to Nests Monitored from 2005-2013** is identified below which compares the three EIS areas for nest success in relation to the number of total raptor nests that were monitored from the 2005-2013 field seasons. In addition, the artificial ferruginous hawk nests and golden eagle nests are compared to natural nest activity for both species in **Table 4b: Artificial Ferruginous Hawk Nest Activity (Successful) Compared to Natural Nests Monitored in the Nine-Year Trend in the CD/WII, DF, and AR EIS Areas from 2005-2013** and **Table 4c: Artificial Golden Eagle Nest Activity (Successful) Compared to Natural Nests Monitored in the Nine-Year Trend in the CD/WII, DF, and AR EIS Areas from 2005-2013** below.

Table 4a: Raptor Nest Activity (Successful) Nine-Year Trend in the CD/WII, DF, and AR EIS Areas Compared to Nests Monitored from 2005-2013

YEAR	CD/WII EIS	DF EIS	AR EIS
2005	36/148 (24%)	6/23 (26%)	3/65 (5%)
2006	32/160 (20%)	3/27 (11%)	13/177 (7%)
2007	38/154 (25%)	6/16 (38%)	10/58 (17%)
2008	43/121 (36%)	11/30 (37%)	11/139 (8%)
2009	46/200 (23%)	5/11 (45%)	13/131 (10%)
2010	54/308 (18%)	9/29 (31%)	12/142 (8%)
2011	32/110 (29%)	2/30 (7%)	19/164 (12%)
2012	8/26 (31%)	2/10 (20%)	17/208 (8%)
2013	16/77 (21%)	0/8 (0%)	14/258 (5%)

Table 4b: Artificial Ferruginous Hawk Nest Activity (Successful) Compared to Natural Nests Monitored in the Nine-Year Trend in the CD/WII, DF, and AR EIS Areas from 2005-2013

YEAR	CD/WII EIS		DF EIS		AR EIS	
	Artificial	Natural	Artificial	Natural	Artificial	Natural
2005	16/32 (50%)	6/65 (9%)	0/2 (0%)	1/4 (25%)	1/1 (100%)	0/16 (0%)
2006	20/33 (61%)	4/91 (4%)	0/1 (0%)	0/3 (0%)	1/1 (100%)	0/43 (0%)
2007	20/30 (67%)	5/71 (7%)	0/2 (0%)	0/3 (0%)	0/1 (0%)	1/10 (10%)
2008	25/33 (76%)	6/42 (14%)	0/1 (0%)	0/5 (0%)	1/1 (100%)	1/35 (3%)
2009	26/35 (74%)	9/101 (9%)	0/1 (0%)	0/10 (0%)	1/1 (100%)	1/39 (3%)
2010	28/34 (82%)	7/177 (4%)	0/2 (0%)	0/6 (0%)	1/1 (100%)	0/36 (0%)

YEAR	CD/WII EIS		DF EIS		AR EIS	
	Artificial	Natural	Artificial	Natural	Artificial	Natural
2011	20/30 (67%)	6/58 (10%)	0/2 (0%)	1/11 (9%)	1/5 (20%)	1/37 (3%)
2012	12/18 (67%)	8/9 (89%)	0/0 (0%)	1/1 (0%)	2/9 (22%)	1/40 (3%)
2013	12/19 (63%)	2/42 (5%)	0/2 (0%)	0/6 (0%)	1/5 (20%)	0/66 (0%)

Table 4c: Artificial Golden Eagle Nest Activity (Successful) Compared to Natural Nests Monitored in the Nine-Year Trend in the CD/WII, DF, and AR EIS Areas from 2005-2013

YEAR	CD/WII EIS		DF EIS		AR EIS	
	Artificial	Natural	Artificial	Natural	Artificial	Natural
2005	3/10 (30%)	8/26 (31%)	0/0 (0%)	2/5 (40%)	0/0 (0%)	1/14 (7%)
2006	3/8 (38%)	4/12 (33%)	0/0 (0%)	1/11 (9%)	0/0 (0%)	1/22 (5%)
2007	2/8 (25%)	4/15 (27%)	0/0 (0%)	0/6 (0%)	0/0 (0%)	1/12 (8%)
2008	1/7 (14%)	3/21 (14%)	0/0 (0%)	1/3 (33%)	0/0 (0%)	0/23 (0%)
2009	1/9 (11%)	3/16 (19%)	0/0 (0%)	0/0 (0%)	0/0 (0%)	0/13 (0%)
2010	4/11 (36%)	1/22 (5%)	0/0 (0%)	1/6 (17%)	0/0 (0%)	1/14 (7%)
2011	2/10 (20%)	2/9 (22%)	0/0 (0%)	0/10 (0%)	0/0 (0%)	1/8 (13%)
2012	1/3 (33%)	0/2 (0%)	0/0 (0%)	0/0 (0%)	0/0 (0%)	0/10 (0%)
2013	0/4 (0%)	1/2 (50%)	0/0 (0%)	0/0 (0%)	0/0 (0%)	0/13 (0%)

Raptor nest productivity surveys were completed for the Samson Resources Company by West Water Engineering (WWE) during the 2011 field season and by Hayden-Wing Associates, LLC (HWA) during the 2012 field season for the Endurance and Barricade lease area. The study area is located approximately 26 miles north-west of Baggs, Wyoming, in Sweetwater County. The project area contains both existing development and a number of proposed developments in T. 14 N., R. 95-96 W., and T. 15 N., R. 95-96 W., within the DF EIS area. The purpose of the surveys was to document the presence and status of raptor nest sites in the Barricade and Endurance Lease Units. The WWE completed nest monitoring during June 6-10, 2011, using pedestrian surveys which focused on determining the vacancy status and condition of known nests as well as detecting new nests in the leased area. The survey included the use of binoculars and spotting scopes, and call back tapes in prairie dog towns to determine burrowing owl nest activity. Seven new nest locations were recorded and 19 previously known nests were evaluated. The coordinates were corrected for five nest locations and updated in the data base and six nests were removed from the data base as they had been completely destroyed (Table 4)(WestWater Engineering 2011). The HWA completed nest monitoring on May 2, May 31-June 1, and July 5, 2012, in and within one mile of the proposed and existing development project area. Twenty-five raptor nests sites and four common raven sites were located within one mile of the project area. Three nests had deteriorated beyond use and were confirmed gone and eight nests were new or previously undocumented (Table 4)(Hayden-Wing Associates, LLC 2012). These two reports are located at the RFO for further review.

Ground surveys for raptor nests were conducted during the 2013 field season for BP America (BP) for an exception request for a five well (BP America Production Company Wansutter Exception Request Carbon and Sweetwater Counties, Wyoming 2013) project by HWA. Then BP requested HWA to conduct research and monitoring in relation to the seasonal wildlife exception requests for five federal well pads: Coal Bank #20-20D (T. 18 N., R. 92 W., section20), CG Road Unit #10-10D (T. 20 N., R. 94 W., section10), CG Road Unit #4-30D (T. 20 N., R. 94 W., section 4), Frewen Unit #32-30D (T. 20 N., R. 94 W., section 32),

and the Frewen Unit #18-100D (T. 19 N., R. 94 W., section 18). In this exception request, ground disturbance, including the construction of the access roads and all five well pads, was completed during the summer and fall of 2012; this exception request pertains only to the well drilling and completion activities for these five wells. Ground surveys were completed within one mile of each project beginning in April of 2013 to determine activity status of any known nests and to search for new or previously undocumented raptor nests. Follow-up surveys for all active raptor nests were conducted during May and July to determine nest fate and productivity.

Ground surveys for raptor nests were conducted by HWA during the week of April 29, 2013 for BP for the Latham Draw #8-70D well located in T. 20 N., R. 93 W., Section 8 in Sweetwater County. This was completed to determine activity status of any known nests and to search for new or previously undocumented nests. Accurate GPS locations of any raptor nests were recorded at the nest site, and the nest status, condition, and the substrate and species of raptor were either updated or documented (Hayden-Wing Associates, LLC May 2013).

Grasslands Consulting, Inc. (Grasslands) completed raptor monitoring for two proposed Anadarko projects on June 5 and 6, 2013. The proposed Separation Peak 1891-13-24 access road project is located in T. 18 N., R. 90 W., sections 5, 7, 8 and 18 and T. 18 N., R. 91 W., section 13 and the proposed Hadsell Draw 2188-33-44 access road project is located in T. 21 N., R. 88 W., section 33 and T. 20 N., R. 88 W., sections 5-7 in the north-east corner of the AR EIS project area. Grasslands conducted a nesting raptor survey within 1 mile of the proposed Separation Peak access road project on June 5 and 6, 2013 and the proposed Hadsell Draw access road project on June 5, 2013. Prior to conducting both surveys, Trimble GPS units were loaded with each project infrastructure, a surrounding 1-mile survey area, and historic raptor nest locations from the BLM and Grasslands database. Surveys were conducted by visually searching all potential raptor nesting habitats (predominantly ridges and rock outcrops) with both survey areas for raptor species or signs of recent nesting activity. Observations of raptor species and raptor nests were recorded using a Trimble GPS unit, and photos were taken to document the current conditions of raptor nests and potential nesting habitats within both survey areas (Grasslands Consulting, Inc. June 12, 2013, Grasslands Consulting, Inc., June 17, 2013).

Raptor Results

The raptor data suggests that the CD/WII EIS area contains more active raptor nests compared to the AR EIS and DF EIS areas, possibly due to the open habitats where food bases are easier for the birds to hunt. The trend for raptor nest activity from 2005 through 2013 appears to be stable for all three EIS areas. It is possible that the artificial ferruginous hawk nest structures are pulling these birds away from the Desolation Flats and Atlantic Rim habitat areas where natural nests are located. It is interesting to note that the ferruginous hawks use more artificial nest structures compared to golden eagles, which appear to use both artificial and natural nests somewhat equally. It should be noted that ferruginous hawks have used the artificial structures designed for golden eagles and vice-versa; therefore, it can be difficult to analyze overall productivity for raptors using these artificial nests over time.

The results obtained by HWA for the *BP America Production Company Wansutter Exception Request Carbon and Sweetwater Counties, Wyoming, 2013* project included 20 nests being documented: one burrowing owl, eight ferruginous hawks, three unknown raptors, and eight common ravens were observed.

Ground surveys for raptor nests that were conducted by HWA during the week of April 29, 2013 for BP had the following results: only golden eagles and northern harriers were observed within the one-mile buffer surrounding the Latham Draw #8-70D proposed project location. The one ferruginous hawk nest (FH20930902) that had been previously documented within one-mile of the project was not active, only stick remnants remained for nest condition, and no adults were present in the vicinity. Additionally no new raptor nests were discovered (Hayden-Wing Associates, LLC May 2013).

Grasslands Consulting, Inc. (Grasslands) completed raptor monitoring for the proposed Separation Peak 1891-13-24 access road project located in T. 18 N., R. 90 W., sections 5, 7, 8 and 18 and T. 18 N., R. 91 W., section 13 on June 5 and 6, 2013 in the north-east corner of the AR EIS project area. A total of approximately 8 square miles (proposed project and 1-miler buffer) were surveyed for nesting raptors. The survey area contained four known historic nest sites (FH18911301, FH18911401, FH18912301, and GCI-FH18900501) and three unknown nests (GCI-UR18912301, GCI-UR18912302, and GCI-SH18900501). No nest structure or signs of nesting activity was observed near the FH18912301 GPS point. The GCI-SH18900501 nest located approximately 10 feet high on a serviceberry shrub was active on 6/6/2013 with two adult Swainson's hawks displaying fidelity to the nest. The other six nests were not active during the monitoring time period (Grasslands Consulting, Inc., June 17, 2013). Grasslands completed raptor monitoring for the proposed Hadsell Draw 2188-33-44 access road project located in T. 21 N., R. 88 W., section 33 and T. 20 N., R. 88 W., sections 5-7 on June 5, 2013 in the north-east corner of the AR EIS project area. A total of approximately 6 square miles (proposed project and 1-miler buffer) were surveyed for nesting raptors. The survey area contained three historic nest sites (FH21882801, FH20880701, and GE20880701) and no additional nests structures were documented during the field survey. The BLM data base indicated that the FH20880701 and the GE20880701 nests represent the same nest structure that was used by different species in different years. The three nests were not active during the June 5th survey (Grasslands Consulting, Inc., June 12, 2013).

BIG GAME SPECIES

Field data for big game species, including elk, mule deer and pronghorn, are collected by the combined efforts of the Lander and Green River Region Wildlife Divisions which include District Wildlife Biologists, District Game Wardens, the Habitat Biologist, the Wildlife Management Coordinator and Region Supervisor, and other Department personnel working at check stations. The WGFD have identified a variety of big game habitat types including: (1) winter, (2) crucial winter, (3) winter yearlong; (4) spring, summer, fall; (5) crucial winter/yearlong; (6) yearlong; and (7) parturition habitats for big game species. These habitat types for elk, mule deer and pronghorn species located within the CD/WII, DF and AR EIS areas are identified below in **Maps 2a-c: Elk, Mule Deer and Pronghorn Seasonal Ranges within the CD/WII, DF and AR EIS areas in 2013**. Protection measures within the RFO area for big game species focus on crucial winter range habitat and migration corridors and are discussed in further detail.



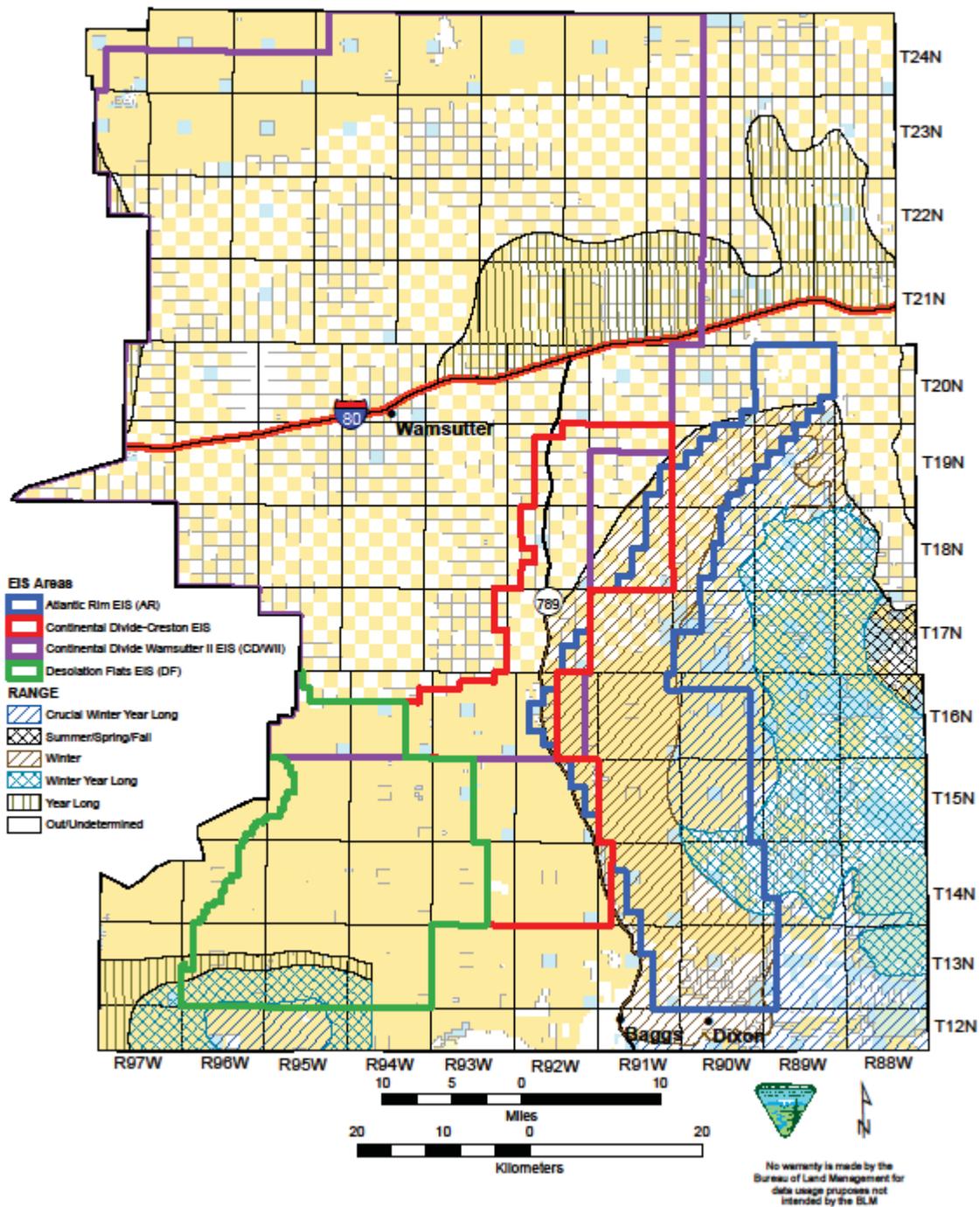
Figure 3: Herd of elk in the CD/WII EIS field, north of I-80 during summer field season.

The WGFD complete annual Job Completion Reports (JCRs) which identify management evaluations for each hunt area. These evaluations discuss the current management objective, management strategy, post-season population estimate and proposed post-season population estimate for each hunt area. In addition, management issues; habitat and weather, field, harvest data and population; management summary and a map are discussed for each big game species in the hunt area.

Big Game Crucial Winter Range Habitat Inventory

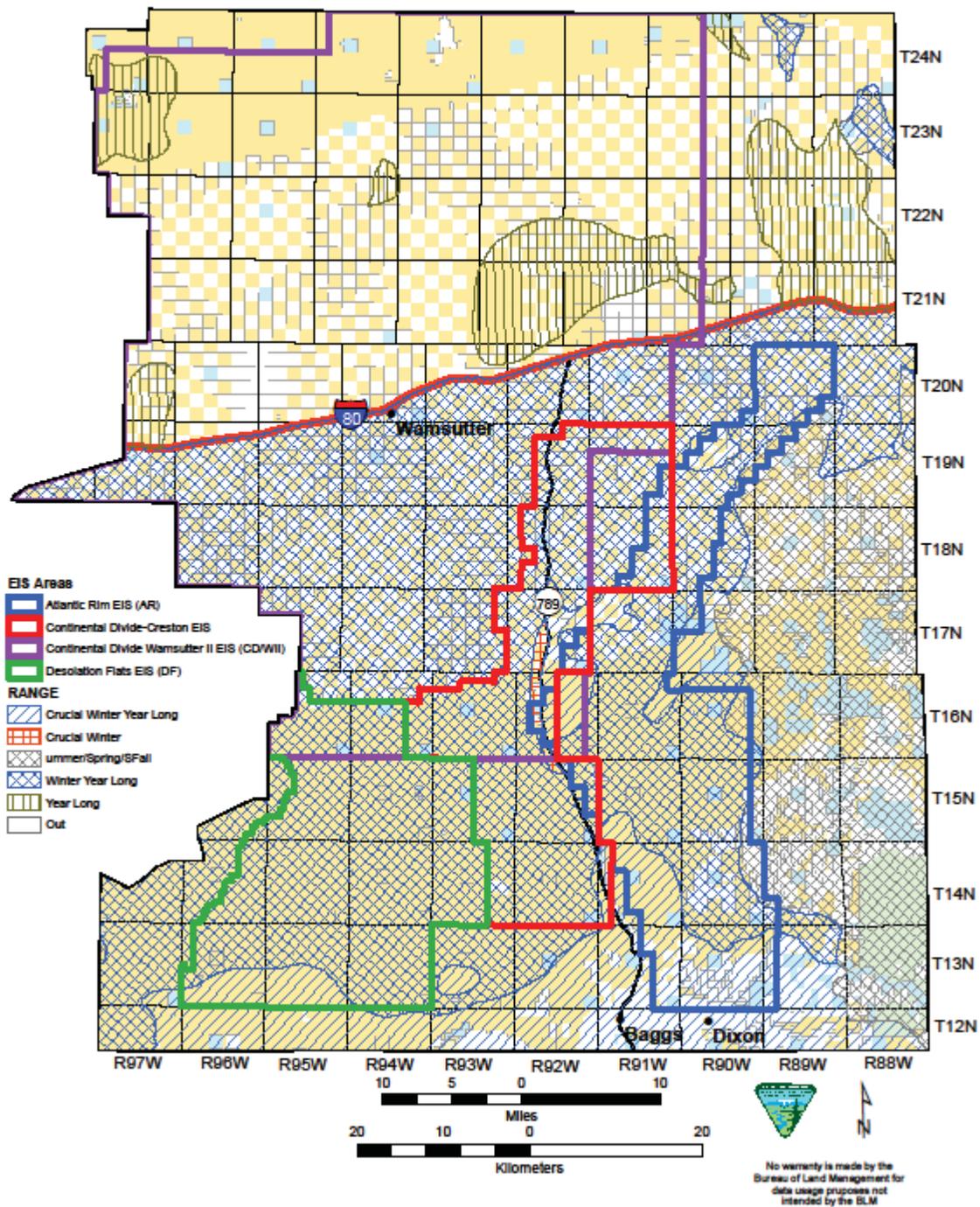
Information pertaining to the identification of big game crucial winter range habitats, specifically for mule deer and pronghorn, and their associated seasonal stipulations are identified within the CD/WII EIS, DF EIS and AR EIS areas. The assessment for potential impacts to these big game species occurring within these EIS areas have been discussed at the *Monitoring without Borders* team meetings annually. The WGFD determines changes to big game crucial winter habitat boundaries, in coordination with the BLM, and identifies any new changes to these areas. This occurs every five years and to date the BLM has the most updated big game crucial winter range maps.

Elk Seasonal Ranges within the CD/WII, DF and AR EIS Areas in 2013



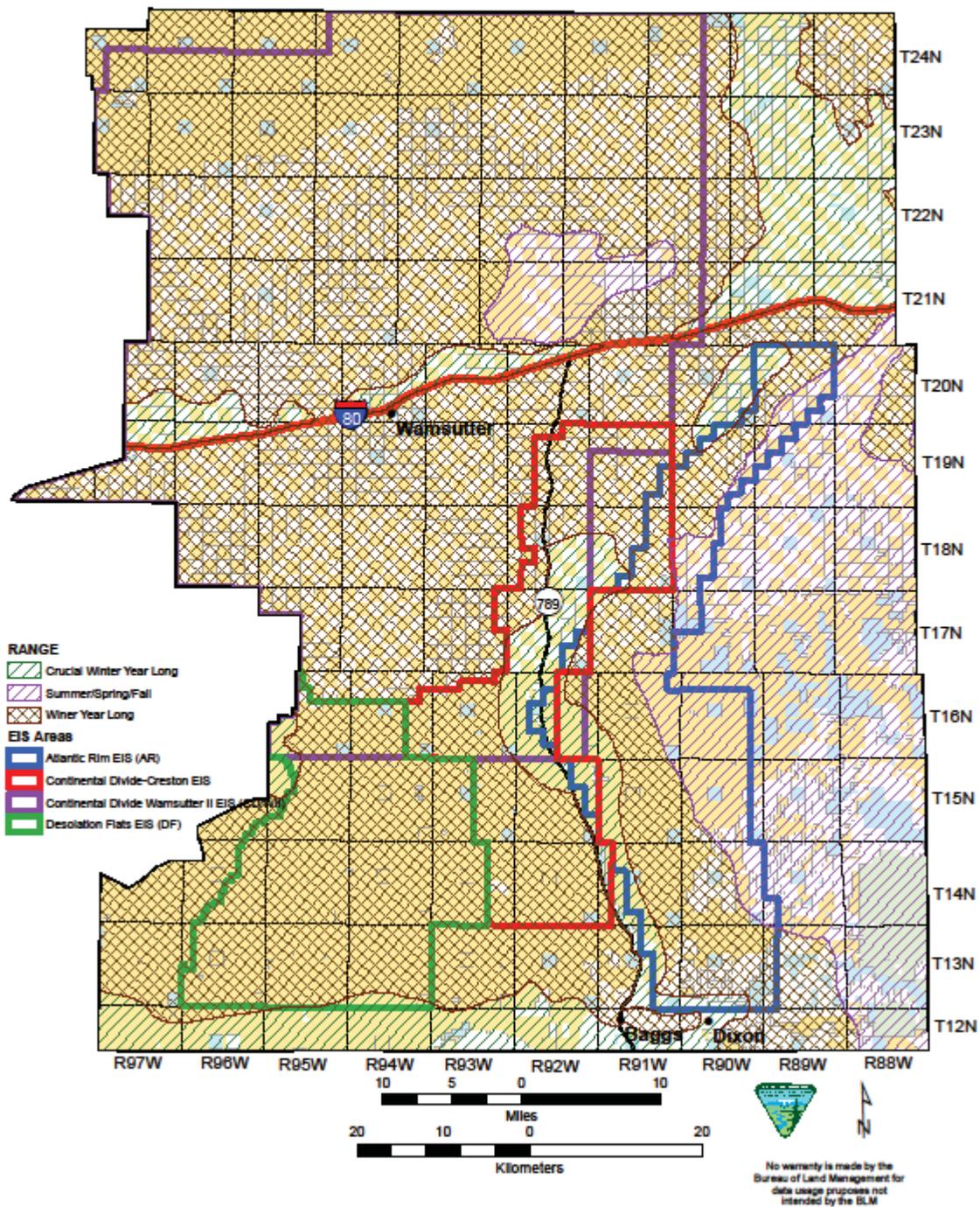
Map 2a: Elk Seasonal Ranges within the CD/WII, DF and AR EIS areas in 2013.

Muledeer Seasonal Ranges within the CD/WII, DF and AR EIS Areas in 2013



Map 2b: Mule Deer Seasonal Ranges within the CD/WII, DF and AR EIS areas in 2013.

Antelope Seasonal Ranges within the CD/WII, DF and AR EIS Areas in 2013



Map 2c: Pronghorn Seasonal Ranges within the CD/WII, DF and AR EIS areas in 2013.

Big Game Migration Corridor Habitat Inventory

The BLM and WGFD are working with Operators to identify big game migration corridors within and adjacent to the EIS areas, specifically for mule deer and pronghorn species. Based on the natural requirements of migrating mule deer and pronghorn, the study area specifically includes the CD/WII, DF EIS and AR EIS areas.



Figure 4: Pronghorn doe and fawn resting in the CD/WII EIS field, summer 2013.

Big Game Crucial Winter Range Use Monitoring

Big game crucial winter range condition class monitoring surveys for mule deer and pronghorn were conducted at nine pre-determined sites in 2007, 2008 and 2010 to assess range conditions within the CD/WII EIS area for the CD-C EIS. The analysis was designed to answer the question concerning



potential impacts to big game crucial winter ranges from natural gas development. Two sites assessed range condition for mule deer and seven sites assesses range condition for pronghorn (**Map 3: Mule Deer and Pronghorn Winter Range Assessment Survey Areas**). The study established these particular sites to determine and track age class and form class (which identifies plant vigor), utilization, cover (both visual and ground),

density, leader-growth and pellet groups. In addition, exclosures were set up for these permanent transects.

The BLM and contractors completed four field forms at each site during the 2007, 2008, and 2010 field seasons. These forms included the: (1) Study Location and Documentation Data; (2) Density Board Form [BLM NV 6630-4, June 1982]; (3) Utilization Study Data-Extensive Browse Method; and (4) Line Intercept Form [BLM NV 6630-3, June 1982]. Five digital images were taken at each study site. Twenty-six plant species were recorded during the surveys and included the following: (1) shrub/sub-shrub diversity ranged from 1-5 species; (2) forb diversity ranged from 1-6 species; and (3) grasses were

common at all sites. The most common shrub, forb, and grass species encountered during the line intercept transects were *Artemisia tridentata* (*wyomingensis* and *vaseyana*), *Phlox hoodii*, and *P. secunda*, respectively (Hayden-Wing 2008). Data from 2007 and 2008 were collected by Hayden-Wing and BLM Wildlife Biologists and data from 2010 was collected by BLM Wildlife Biologists. Copies of the original field forms are located at the BLM RFO.

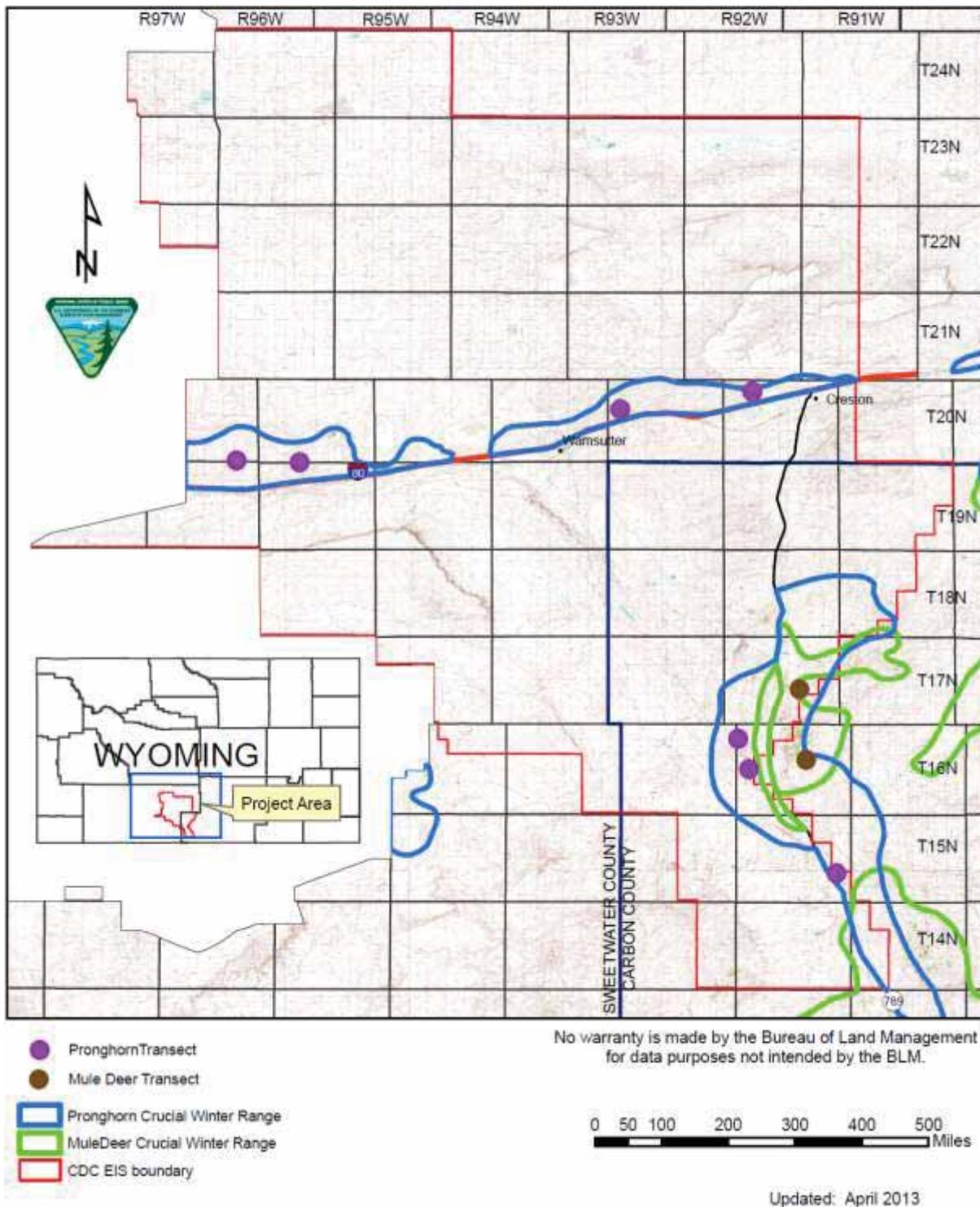


Figure 5: Mule deer on winter range in 2013.....can you find all eight deer?

Table 5a: *Mule Deer Winter Range Assessment Analysis* and Table 5b: *Pronghorn Winter Range Assessment Analysis* below identifies the field attributes that were collected during the 2007, 2008, and 2010 field seasons. The mule deer tables include the study site number; percentage of use; age class, form class, forage quality, cover, and disturbance ratings; a subtotal with the correction factor; a total site score; and habitat site rating. The age class rating and the form class rating provide information for browse vigor. The data for the 2007 mule deer surveys were collected on April 23 and May 11, 2007; the data for the 2008 mule deer surveys were collected on May 27 and May 29, 2008; and the data for the 2010 mule deer surveys were collected on April 19 and April 28, 2010.

The age class rating for the Mule Deer Study Site #1 was based on the fact that there are no young or seedling plants in the stands, there is a high percentage of mature sagebrush plants (78-percent are available), and the plants are severely hedged. The cover rating was adjusted up two points because of the ample

Continental Divide-Creston Pronghorn and Mule Deer Winter Range Condition Class Transects 2007, 2008 and 2010



Map 3: Mule Deer and Pronghorn Winter Range Assessment Survey Areas

amount of thermal, escape and hiding cover within one-half mile of the study site. The disturbance rating is based on the proximity of the gravel pit (within one-half mile) and the amount of natural gas development and associated activities in the area in the last 10 years.

The age class rating for the Mule Deer Study Site #2 was based on the fact that there are no young or seedling plants in the stand, that the stand is 73-percent mature plants, and is 27-percent decadent. The form class rating was based on the fact that 54-percent of the stand is all available and severely hedged, as well as 9-percent dead. The cover rating was adjusted up two points because of the adjacent juniper trees and rugged terrain. Similar to Site #1, the disturbance rating was based on the amount of gas development and associated activities in the area within the last 10 years.

Table 5a: Mule Deer Winter Range Assessment Analysis

2007 Mule Deer Crucial Winter Range Analysis

Mule Deer Study Site	Age Class Rating	Form Class Rating	Forage Quality Rating	Cover Rating	Disturbance Rating	Subtotal	Correction Factor	Site Score	Site Rating	
#1	65.42	4	4	15	7	7	37	1.47	54.39	Fair
#2	57.6	4	4	17	10	9	44	1.47	64.68	Good

2008 Mule Deer Crucial Winter Range Analysis

Mule Deer Study Site	Age Class Rating	Form Class Rating	Forage Quality Rating	Cover Rating	Disturbance Rating	Subtotal	Correction Factor	Site Score	Site Rating	
#1	44.4	4	4	3	11	7	29	1.47	42.63	Poor
#2	51.9	4	4	15	10	9	42	1.47	61.74	Good

2010 Mule Deer Crucial Winter Range Analysis

Mule Deer Study Site	Age Class Rating	Form Class Rating	Forage Quality Rating	Cover Rating	Disturbance Rating	Subtotal	Correction Factor	Site Score	Site Rating	
#1	25.4	4	4	15	7	7	37	1.47	54.39	Fair
#2	19.2	4	4	15	11	9	43	1.47	63.21	Good

The pronghorn tables include the study site; percentage of use; water quality availability, forb cover, grass cover, shrub cover, vegetation quantity (total percent cover), and vegetation height ratings (average height); a total score; and a habitat rating. The forb cover, grass cover, and shrub cover ratings provide information for the vegetation quality rating. The data for the 2007 pronghorn surveys were collected from May 8-10, 2007; the data for the 2008 pronghorn surveys were collected from May 27-29, 2008; and the data for the 2010 pronghorn surveys were collected from April 19-20, on April 28 and May 5, 2010.

The water availability rating was based on office records and aerial photo interpretation for water within the associated crucial winter ranges. This was done to determine the suitability of the range as yearlong range and to maintain integrity of the method. The average vegetation height was calculated based on

height measurements taken while performing the extensive browse method. It should be noted that winterfat, budsage, and Gardner's saltbush were all considered shrubs for this analysis. In addition, cactus was considered a forb for this analysis and desert alyssum was treated as bare ground (since it has no forage or cover value for pronghorn).

Table 5b: Pronghorn Winter Range Assessment Analysis

<i>2007 Pronghorn Crucial Winter Range Analysis</i>									
<i>Pronghorn Study Site</i>	<i>% Use</i>	<i>Water Availability Rating</i>	<i>Forb Cover Rating</i>	<i>Grass Cover Rating</i>	<i>Shrub Cover Rating</i>	<i>Total % Cover</i>	<i>Avg. Height (inches)</i>	<i>Site Score</i>	<i>Site Rating</i>
#1		7	5	17	3	10	10	52	Fair
#2		7	0	6	1	10	10	34	Fair
#3		7	3	5	1	10	10	36	Fair
#4		7	10	15	3	10	5	50	Fair
#5		20	20	9	4	10	10	73	Good
#6		20	1	7	1	10	5	44	Poor
#7		20	3	2	1	10	5	41	Fair-Poor
<i>2008 Pronghorn Crucial Winter Range Analysis</i>									
<i>Pronghorn Study Site</i>	<i>% Use</i>	<i>Water Availability Rating</i>	<i>Forb Cover Rating</i>	<i>Grass Cover Rating</i>	<i>Shrub Cover Rating</i>	<i>Total % Cover</i>	<i>Avg. Height (inches)</i>	<i>Site Score</i>	<i>Site Rating</i>
#1		7	5	11	2	10	5	40	Fair
#2		7	0	10	1	10	5	33	Fair
#3		7	8	2	1	10	5	33	Fair
#4		7	15	13	4	10	5	54	Fair
#5		20	17	6	3	10	10	66	Fair
#6		20	2	6	1	10	5	44	Poor
#7		20	6	4	1	10	5	46	Fair
<i>2010 Pronghorn Crucial Winter Range Analysis</i>									
<i>Pronghorn Study Site</i>	<i>% Use</i>	<i>Water Availability Rating</i>	<i>Forb Cover Rating</i>	<i>Grass Cover Rating</i>	<i>Shrub Cover Rating</i>	<i>Total % Cover</i>	<i>Avg. Height (inches)</i>	<i>Site Score</i>	<i>Site Rating</i>
#1		7	5	7	1	10	10	40	Fair
#2	Site not read								
#3		7	4	1	0	10	5	27	Poor
#4		7	16	9	3	10	5	50	Fair
#5		20	20	5	3	10	5	63	Fair
#6		20	7	7	2	10	5	51	Fair
#7		20	7	5	1	10	5	48	Fair

Big Game Migration Corridor Use Monitoring

Mule Deer

The AR EIS Mule Deer Collaring Study began in 2005 and extended through 2010; however, the study has not been funded for the 2011-2013 field seasons. The study included the following:

In April 2007, Hall Sawyer completed Phase I of a mule deer study in the AR EIS area that obtained baseline data and identified seasonal distributions, including the fall, winter, and spring ranges, and migration routes of mule deer, specifically the Baggs Mule Deer Herd. This study was required prior to the initiation of newly approved coal bed methane development (Sawyer, 2007). Shortly after, the BLM approved the development of approximately 2,000 new wells as described in the AR EIS. A final report was completed.

From 2008 to 2010, Phase II of the study was conducted to determine the effects of the new field development activity on mule deer use of migration routes and crucial winter range, specifically within the areas of Dry Cow Creek and Wild Horse Basin. The final report on Phase II found that “In contrast to much of the published literature, our results from Wild Horse Basin suggest that mule deer can migrate through moderate levels of development without any noticeable effects on migratory patterns or movement rates. However in areas like Dry Cow Creek with more intensive development, our results suggest that disturbance can affect mule deer migration by decreasing the overall use of migration routes, accelerating movement rates, and reducing the size of migration corridors” Sawyer and Nielson 2011. A final report was completed.

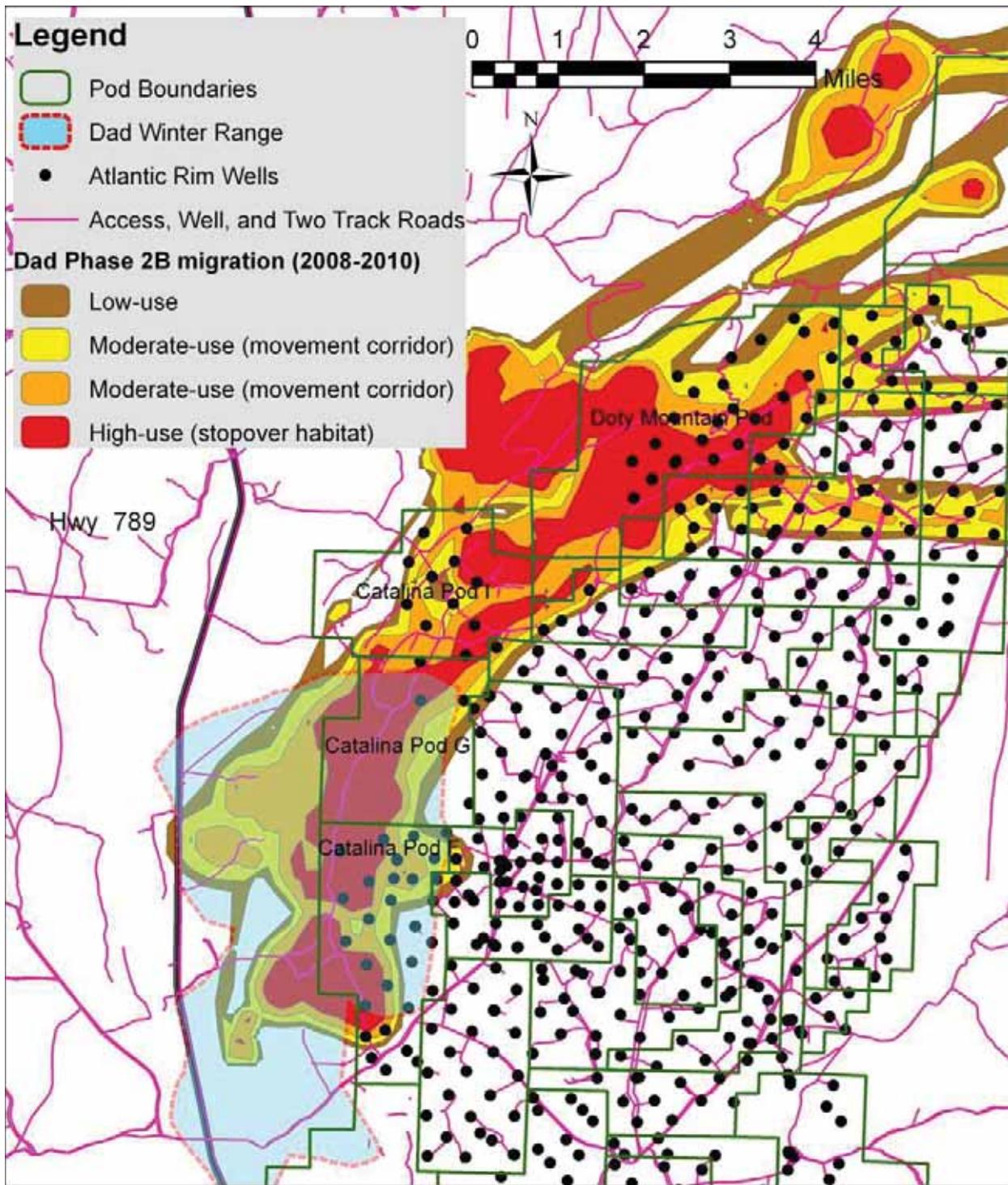
From 2011 to 2013, Phase III of the study was anticipated to be conducted; however, funding for continued monitoring for five more years has not been received at this time.

Map 4: Dad Mule Deer Migration Corridors and Crucial Winter Range and **Map 5: Wild Horse Mule Deer Migration Corridors and Crucial Winter Range** both illustrate the current locations of existing roads, planned roads, existing well sites and approved future well sites to date relative to the locations of these two mule deer crucial winter ranges and migration corridors.

Some roads and wells may not be illustrated on **Map 4** and **Map 5** because they have not yet been entered into the BLM GIS system. As can be seen on these maps, the level of existing and planned field development is substantial, yet this level represents only about 40-percent of the potential development that was projected by the 2007 AR EIS.

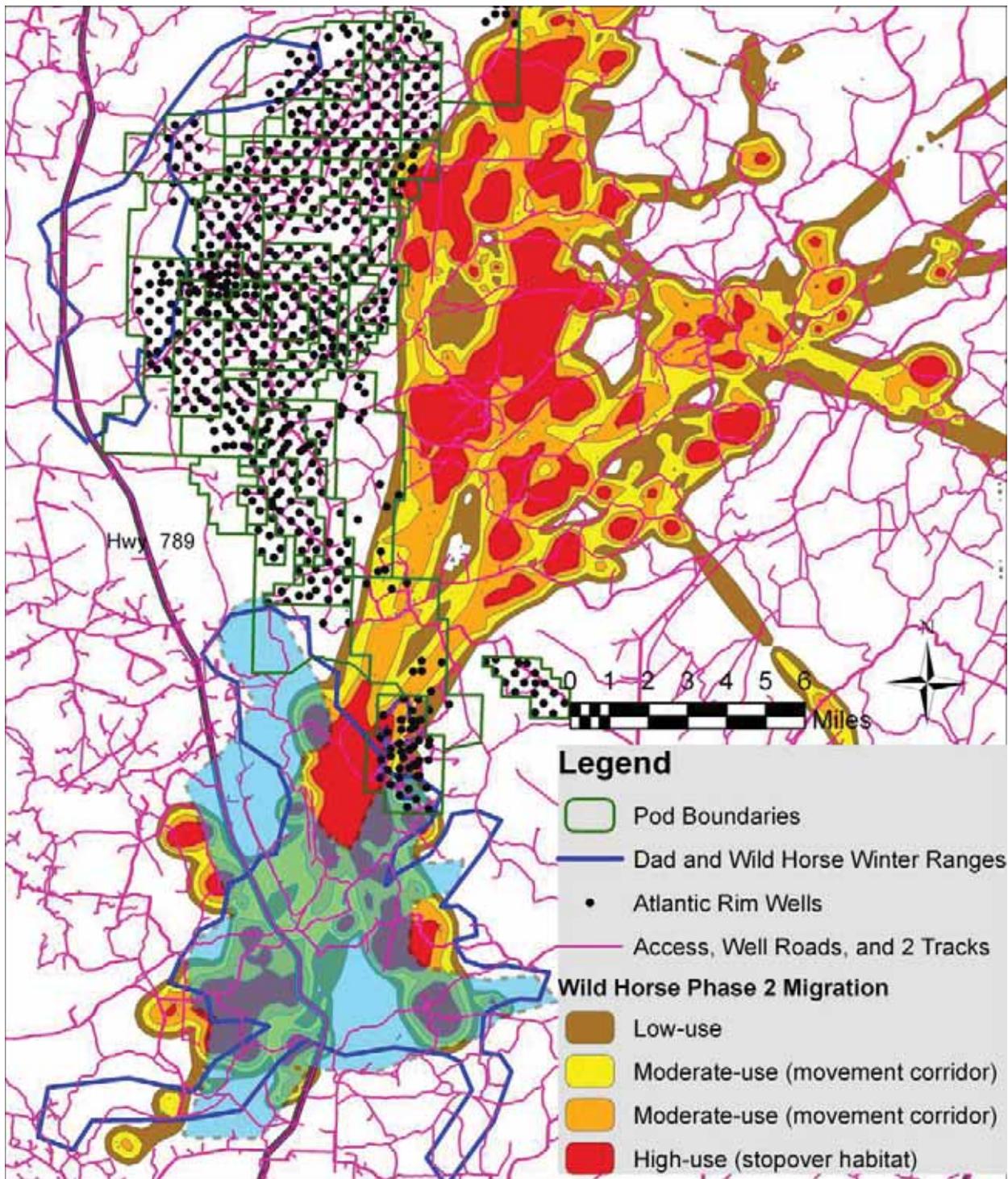
In addition, West, Inc. completed transects for vegetation monitoring within migration corridors during the 2010 field season in the AR EIS area. They completed the *Atlantic Rim Vegetation Study Wild Horse Range* dated February 8, 2011. The BLM, WGFD and the Little Snake River Conservation District (LSRCD) re-read a portion of these transects during the 2012 field season. The AR EIS BGWG is presently assessing the following:

- (1) Prioritizing fences to convert during upcoming field seasons;
- (2) Defining terms from the Big Game Performance Goals; and
- (3) Develop triggers for adaptive management for the performance goals.



No warranty is made by the Bureau of Land management for the use of data for purposes not intended by the BLM. Prepared 02/14/2012.

Map 4: Dad Mule Deer Migration Corridors and Crucial Winter Range



No warranty is made by the Bureau of Land Management for the use of data for purposes not intended by the BLM. Prepared 02/14/2012.

Map 5: Wild Horse Mule Deer Migration Corridors and Crucial Winter Range

The AR EIS BGWG is currently developing adaptive management based on the results of the above analysis. The group presented this to management at the *Review Team* meeting in March 2013.

Pronghorn

In the CD/WII EIS area, both the Baggs Pronghorn Herd (WGFD Herd Unit 438) and the Bitter Creek Pronghorn Herd (WGFD Herd Unit 414) are under increasing pressure from increasing human presence and have seen declines in numbers and the ability to recover from hard winters. The Bitter Creek Herd has declined over the last 20 years from an estimated 25,000 animals to about 9,000 currently. The Baggs Herd recently suffered a hard winter that decreased population estimate numbers by half from an estimated 12,000 pronghorn to approximately 6,000 pronghorn currently in the herd. Despite historical data indicating a traditional quick recovery time, there are few indications of recovery for these herds since the 2007–2008 winter seasons.

In the CD/WII plan, Appendix D, page D-5, titled “Additional Wildlife Inventory and Monitoring Measures On and Adjacent to Areas with High Levels of Development (≥ 4 Locations/Section), Continental Divide/Wamsutter II Natural Gas Project, Sweetwater and Carbon Counties, Wyoming, 1999” it states that “Other studies on areas with ≥ 8 locations/section and selected undeveloped comparison areas” will be required. The dates of the study are year-long and in any year as deemed necessary by the BLM. The responsible entity includes the BLM with Operator- and other party-provided financial assistance (Operator assistance will not exceed \$5,000 in any year). There are areas within the CD/WII EIS area that contain ≥ 8 locations/section. Tony Mong, WGFD, and Mary Read, BLM, have contacted industry in 2013 to discuss funding a pronghorn migration study project. The pronghorn study has also been discussed in the January 2006, February 2008, June 2010, March 2011, February 2012 and March 2012 meetings and it is critical that industry provide support for this project to stay in compliance with Appendix D of the CD/WII EIS. To date, several natural gas companies have committed financial support for this project and the WGFD and the BLM have also gained support from grants and foundations; however, there are remaining companies that have not shown financial support at this time.

Despite a lack of information on the influence of oil and gas development on pronghorn survival, reproductive success, habitat selection, and migration patterns there are indications that pronghorn may habituate to oil and gas production more readily than other ungulate species. However, as discussed above, both the Bitter Creek and Baggs Herds have shown decreases in productivity and size over the last 20 years. These same areas have also seen an increase in oil and gas activities within the CD/WII, Desolation Flats and Atlantic Rim EIS areas over the same time period which leads to the question of what is impacting these herds negatively. The pronghorn crucial winter range and migration habitat study is designed to complete the following:

- (1) To evaluate and compare pronghorn survival and reproductive output in two areas that contain oil and gas fields and one control site in south-central Wyoming;
- (2) To identify areas of crucial pronghorn winter range and migration corridors in south-central Wyoming;
- (3) To evaluate and compare pronghorn behavioral and physiological responses to infrastructure associated with well pads and a low use control site in south-central Wyoming; and
- (4) To determine if there are fences that may be impeding habitat selection or migration movements within each of three study areas in south-central Wyoming.



Figure 6: Pronghorn caught and killed in fence.

Big Game Results

The big game crucial winter range condition class monitoring surveys for both mule deer and pronghorn were designed to answer the question concerning potential impacts to big game crucial winter ranges from natural gas development. Two sites assessed range condition for mule deer and seven sites assesses range condition for pronghorn. The study established the study sites to determine and track age class, form class, utilization, cover, density, leader growth, and pellet groups. In addition, exclosures were set up for permanent transects. The AREIS BGWG analyzed the study results for Phase I and II of the mule deer study and determined that the AREIS ROD performance goals for mule deer migration corridors and crucial winter ranges are currently being met in the AR EIS area. However, based on the level of development approved by the ROD, the AREIS BGWG assumption is that energy development and field operations are likely to expand well into the future depending on market prices for natural gas. The AREIS BGWG believes that the level of monitoring effort must be consistent with the level of energy development and disturbance associated with field operations in the AR EIS area. As development continues to expand into key habitats such as crucial winter ranges and migration corridors for big game species, more intensive monitoring efforts are warranted.

The recent approval of Plans of Development (POD) for Catalina Unit POD G and Pod I will now result in field development and operation disturbance effects directly within the crucial winter ranges and migration corridors habitats for big game considered vital to the Baggs Mule Deer Herd. As illustrated on **Map 4** above, the infrastructure associated with development of Catalina POD G, Catalina Pod I, and Catalina Pod F will overlap a portion of the Dad mule deer crucial winter range and also straddle the

mule deer migration corridor that is used by this segment of the herd to reach the Dad area crucial winter range. Further field development within the Brown Cow POD A, if requested by industry and approved by the BLM, would also completely bisect the migration corridor to the Wild Horse mule deer crucial winter range. The AREIS BGWG believes that the approved development of Catalina POD G, Catalina Pod I, and Catalina Pod F greatly increases the potential for adverse effects on this segment of the Baggs Mule Deer Herd. Effects of developing these vital habitats include the risk of greater than normal winter-spring mortality coupled with an associated decline of population productivity and population size.

The AR EIS clearly acknowledges the potential for significant adverse effects on the Baggs Mule Deer Herd as a result of coal-bed methane development in crucial habitats. However, the BLM ROD which approves the development of Catalina POD G and Catalina Pod I specifically states, on page six of this document, that 'Additional mule deer monitoring is required to determine the effects of development and operational activities for the AR EIS project area including Catalina POD G and Catalina Pod I. The AREIS BGWG is charged with developing a monitoring study for mule deer to track their response to development and operational activities within the AREIS project area future.' The monitoring study outlined in the attached Phase III proposal, as recommended by the AREIS BGWG, is a science-based monitoring method that will help determine the effects of field development on the Baggs mule deer population and also help determine the need to implement adaptive management or other types of mitigation measures. The objectives of the attached Phase III study are to:

- (1) determine winter habitat use patterns of mule deer during the next five-years of energy development, both annually and cumulatively at the end of the study;
- (2) evaluate and compare mule deer use of migration corridors as documented in Phase I & II with any changes in mule deer movement patterns identified by the Phase III five-year study effort; and
- (3) evaluate how energy development and year-round field operations may influence overwinter survival of mule deer using the crucial winter ranges and high-value stop-over sites found along the migration corridors.

The Phase III study results would provide necessary pieces of information needed by the AREIS BGWG and the Review Team to determine if certain threshold levels or previously defined triggers have been reached (or tripped). These triggers may stimulate a number of possible responses, including: (1) the need to consider implementation of adaptive management actions that would include consideration of numerous possible mitigation measures, (2) further analysis of the existing situation, (3) implementation of different kinds or types of monitoring studies, or (4) modification or continuation of the Phase III study proposal. The AR EIS ROD states that: the **Review Team**, the BLM or both will identify the level of effort required for performance-based monitoring and develop associated monitoring plans. The AREIS BGWG has attempted to identify one component of 'the level of effort required for performance based monitoring'. The AREIS BGWG believes the attached Phase III monitoring study proposal is a key component of the 'science-based monitoring' identified in the ARPA ROD that is needed to provide data for making credible determinations about achievement of the AR EIS project area big game performance goals. Analyses of the annual and final results of the Phase III study, along with data from other monitoring efforts (e.g. annual WGFD JCR data and vegetation monitoring) would provide a solid foundation for making credible, science-based determinations regarding the future achievement of the mule deer crucial winter range and migration corridors performance goals identified in the AR EIS.

GENERAL WILDLIFE

General Wildlife Inventory

At this time, the BLM wildlife biologists have been observing and/or recording general wildlife species within the CD/WII, DF and AR EIS areas including mammals, birds, amphibians, and reptiles. However, due to time and budget constraints the inventory focus is on raptors, big game, T&E species and BLM Sensitive Species at this time. **Figure 7: American badger, American avocet, northern plateau lizard and muskrat in the EIS fields** below shows a diversity of wildlife species that inhabit the CD/WII, DF and AR EIS areas.

General Wildlife Monitoring

At this time, the BLM wildlife biologists have been observing and/or recording general wildlife species within the CD/WII, DF and AR EIS areas; however, due to time and budget constraints the monitoring focus is also on raptors, big game, T&E species and BLM Sensitive Species. The Monitoring without Borders team identifies species of interest at the annual meetings and new species may need to be inventories and monitored based on need. The BLM Sensitive Species program focuses on determining which species may be experiencing population declines and/or habitat losses early in time to avoid listing of these species under the ESA.



Figure 7: American badger, American avocet, northern plateau lizard and muskrat in the EIS fields.

General Wildlife Results

Due to time and budget constraints, inventory and monitoring results for general wildlife species has not been completed at this time. The BLM wildlife biologists are observing general wildlife when they are in the field and take notes, but in general, a specific report for general wildlife species has not been completed at this time. The WGFD records species and that data is available in annual reports. Contract biologists analyzing proposed projects and/or monitoring potential impacts to wildlife in the area from constructed projects are also observing and recording general wildlife species in the areas. In addition, other agency personnel will record wildlife species and report these species to the BLM wildlife biologists when they come back into the office from the field.

THREATENED, ENDANGERED, CANDIDATE, and PROPOSED SPECIES

Threatened, Endangered, Candidate, and Proposed Species Inventory

The Endangered Species Act of 1973 (ESA), as amended (16 USC 1531 *et seq*) prohibits the take of a listed species without proper permits and places an additional requirement on activities funded, authorized or carried out by federal agencies to ensure that such actions will not jeopardize the continued existence of any listed species. The USFWS is the federal regulatory agency responsible for the ESA. The level of inventory required for Threatened, Endangered, Candidate, and Proposed species (T&E species) have been determined based on an established protocol for each potentially affected species. Survey protocols for species and associated habitats inventory have been developed in conjunction with the CD/WII Biological Assessment (CD/WII BA) and CD/WII Biological Opinion (CD/WII BO), DF Biological Assessment (DF BA) and DF Biological Opinion (DF BO) and the AR Biological Assessment (AR BA) and AR Biological Opinion (AR BO) for the wildlife protection plan. These plans require that the methodologies and results of these inventory surveys are included in this annual report. A description of each T&E species and/or habitats that have been inventoried and monitored from 2005 through 2013 within the CD/WII EIS area, as well as adjacent DF EIS and AR EIS areas, is located in the individual following sections. In addition to EIS level planning, site- and species specific T&E species inventory requirements are determined at the APD and ROW application field reviews.

The Threatened Preble's meadow jumping mouse (*Zapus hudsonius preblei*), Threatened Canada lynx (*Lynx canadensis*), Proposed Shirley Basin black-footed ferret Experimental/Non-essential population (*Mustela nigripes*), Candidate Western yellow-billed cuckoo (*Coccyzus americanus*), Endangered Wyoming toad (*Bufo baxteri*), Endangered blowout penstemon plant (*Penstemon haydenii*), Threatened Colorado butterfly plant (*Gaura neomexicana coloradensis*) and its Critical Habitat, Threatened and Endangered Platte River species-Interior population of the least tern (*Sterna antillarum*), pallid sturgeon (*Scaphirhynchus albus*), piping plover (*Charadrius melodus*), Western prairie fringed orchid (*Platanthera praeclara*) and whooping crane (*Grus americana*) and its designated Critical Habitat and Endangered Colorado River species – bonytail (*Gila elegans*), Colorado pikeminnow (*Ptychocheilus lucius*), humpback chub (*Gila cypha*) and razorback sucker (*Xyrauchen texanus*) and their Critical Habitat will not be discussed further as these species and their associated habitat types are either not located within the EIS areas or the projects within the EIS areas are not incurring a water depletion as a connected action. The black-footed ferret (*Mustela nigripes*), Greater Sage-Grouse (*Centrocercus urophasianus*), and Ute ladies'-tresses plant (*Spiranthes diluvialis*) will be discussed further as they are known to occur, or have the potential to occur, within the EIS project areas. Since the authorization of the EISs, the Greater Sage-Grouse has shifted from a BLM Wyoming State Director's Sensitive Species (BLM Sensitive Species)

to a USFWS Candidate species and the mountain plover has shifted from a USFWS Proposed species to a BLM Sensitive Species.

In general, surveys for other T&E species are required to be conducted by the BLM, or a BLM-approved Operator-financed biologist, in areas of potential habitat within one-half mile of proposed disturbance sites prior to disturbance. These surveys may be implemented in conjunction with surveys for other species or as components of the APD and/or ROW application processes. In addition, in areas where four or more surface locations are developed, the entire section plus a one mile buffer, as well as selected undeveloped comparison areas, will be surveyed annually during spring and summer for selected T&E species. If any T&E species are observed, the observations will be noted on appropriate data forms and efforts will be made to determine their activities (e.g., breeding, nesting, foraging, hunting, etc.). If any management agency (e.g., BLM, USFWS) identifies a potential for concern regarding any of these species, additional inventory and monitoring may be implemented as specified in annual reports. The BLM completed, and currently complete, on-site field visits for all proposed actions within the CD/WII, DF, and AR EIS areas and determines required surveys at that time. In addition, the *Monitoring without Borders Team* identifies required surveys and APD/ROW requirements during the annual meetings in coordination with the BLM, USFWS, WGFD, and Operators.

Threatened, Endangered, Candidate, and Proposed Species Monitoring

The level of monitoring required for each T&E species have been determined based on an established protocol for each potentially affected species. Survey protocols for species monitoring have been developed in conjunction with the CD/WII BA and the CD/WII BO, DF BA and DF BO, and AR BA and AR BO for the wildlife protection plan. This plan requires that the methodologies and results of any monitoring are included in this annual report. In general, surveys for other T&E species are required to be conducted by the BLM, or a BLM-Approved Operator-financed biologist, in areas of potential habitat within one-half mile of proposed disturbance sites prior to disturbance. In general, monitoring for other T&E species are required to be conducted by the BLM, or a BLM-Approved Operator-financed biologist, in areas of potential habitat within one-half mile of proposed disturbance sites prior to disturbance; this is discussed above in the previous paragraph.

Threatened, Endangered, Candidate, and Proposed Species Results

The results obtained for the black-footed ferret, Greater Sage-Grouse, Ute ladies'-tresses plant and Colorado River depletion are identified below in the individual sections.

Black-footed Ferret Inventory

The black-footed ferret (*Mustela nigripes*) was listed as an endangered species in 1967, prior to the ESA under the Endangered Species Preservation Act of 1966. The black-footed ferret has been found within the CD/WII EIS area during the 1970's and possibly in the 1980's; however, it is highly unlikely that there are wild ferrets present within the project area today. **Figure 8: Black-footed ferrets captured during nocturnal spotlighting in the Shirley Basin** shows the black-footed ferret in the Shirley Basin, west of the EIS areas; however, ferrets have not been observed within the EIS areas in several decades. The USFWS developed the 1989 *Black-footed Ferret Survey Guidelines for Compliance with the Endangered Species Act* (1989 Survey Guidelines) to assist with ESA Section 7 consultation for ferrets. The 1989 Survey Guidelines provided a mechanism to evaluate the possibility of locating existing ferrets in prairie dog colonies by examination of the size, density, and juxtaposition of existing prairie dog towns (colonies).

The key points were to determine the existence of ferrets or an area's potential for ferret recovery during Section 7 consultation to determine if an action may adversely affect ferrets. Drawbacks to the guidelines were the requirements for repetitive surveys in the same location or surveys in areas that did not present any realistic opportunities for ferret reintroductions. Consultation between the USFWS and the WGFD identified an initial list of blocks of habitat that were not likely to be inhabited by the black-footed ferret (block cleared). In these areas, "take" of an individual ferret and effects to a wild population was not an issue and surveys for ferrets were not required. Although ferret surveys are not required in these areas, the area may still maintain value for the survival and recovery of the species in the future. Areas remained that did require ferret surveys (non-block cleared) in potential habitat. The USFWS identified eight *Black-Footed Ferret Habitat Non-Block Cleared Areas* within the RFO and three of these, the **Continental Divide Complex**, the **Dad Complex** and the **Desolation Flats Complex** are located within and adjacent to the CD/WII, DF, and AR EIS areas. **Map 6: Black-Footed Ferret Habitat Non-Block Cleared Areas (Complexes)** identifies all of the complexes within the RFO, including those three complexes that are located completely or partially within the CD/WII, DF and AR EIS areas.



Figure 8: *Black-footed ferrets captured during nocturnal spotlighting in the Shirley Basin (WGFD)*

The BLM biologists determine the presence and absence of prairie dog colonies at the individual APD and ROW application field review. In all three EIS project areas, prairie dog colonies related to potential black-footed ferret habitat have been mapped and burrow densities have been determined, by a BLM-approved, operator-financed contract biologists, and are discussed below. Black-footed ferret surveys were completed where proposed projects were located in potential black-footed ferret non-block cleared habitat, by a USFWS-certified, operator-financed surveyors and are discussed in the *Black-footed Ferret Monitoring* section below. In these cases, consultation between the USFWS and the BLM occurred.

Continental Divide Complex

On September 26, 2000; November 2, 2000; and November 13, 2000, the BLM RFO requested informal consultation with the USFWS in accordance with Section 7 of the Act as amended (16 U.S.C. 1531 et. seq.) and the Interagency Cooperation Regulations (50 CFR 402) to discuss the **Continental Divide Complex** and mapping protocols.

The USFWS required the RFO wildlife biologists to aerially map and analyze prairie dog colonies within the project area to determine if suitable black-footed ferret habitat was present. High-resolution aerial

photographs of the project area were taken during the summer of 2001. Locations that appeared to have prairie dog burrows were interpreted and delineated from 0.3-m per pixel imagery for those portions of the project area where prairie dogs were expected to occur, and from 0.9-m per pixel imagery for the remaining portions. Delineated burrow areas (polygons) were then entered into a GIS for mapping and analyzed to determine where they had sufficient coverage and proximity to qualify as suitable black-footed ferret habitat. That analysis identified three qualifying complexes: **Complex 1** (153,710 acres), **Complex 2** (4,713 acres), and **Complex 3** (3,321 acres)(**Map7: Refined Continental Divide Complex and Desolation Flats Complex**).

The BLM then contracted Michael J. Behl, of Sage Ecological USFWS's, and David P. Kane, Kane & Associates, in September 2002 to conduct the needed ground surveys of the prairie dogs in the CD/WII EIS project area. In April 2003, Sage Ecological USFWS's proposed a study design for assessing white-tailed prairie dog (*Cynomys leucurus*) activity, and burrow density within the CD/WII EIS area, as well as associated required maps. The study then occurred during the summer of 2003 to assess the accuracy of the aerial photography interpretation. The report *Adequacy of Ground Surveys to Assess White-Tailed Prairie Dog Mapping, Activity, and Burrow Density in the Continental Divide/Wamsutter II Project Area* was completed in August 1, 2003. A second report, *Mapping Accuracy, Activity, and Burrow Density of White-tailed Prairie Dog Complexes Comprising Potential Habitat for Black-footed Ferrets in the Continental Divide/Wamsutter II Project Area, was also completed by Sage Ecological USFWSs on October 31, 2003.*

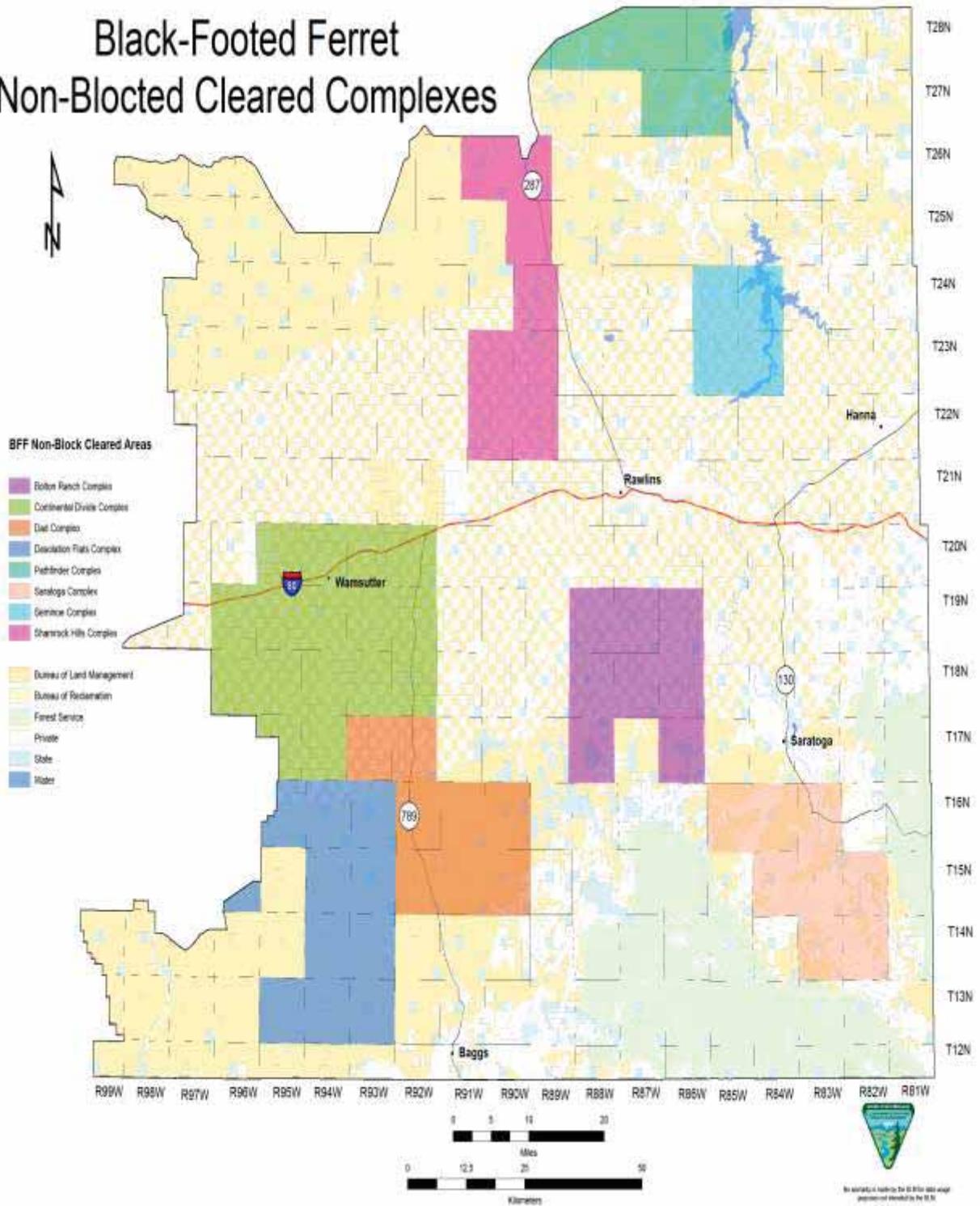
The BLM consulted with the USFWS on November 17, 2003, regarding these two reports for black-footed ferret habitat mapping within the CD/WII EIS natural gas project area. The USFWS reviewed the report and concurred with the accuracy of the report on December 16, 2003 (ES-61411/W.O 2/WY7838). In order to be exempt from the prohibitions of Section 9 of the Endangered Species Act (ESA), the BLM was required to comply with eight identified Terms and Conditions of the CD/WII BO, which implement five identified Reasonable and Prudent measures for the black-footed ferret. The USFWS letter stated that the report was in compliance with the Terms and Condition Number Four of the CD/WII BO. The letter stated that pursuant to Terms and Condition Number Six, no surveys will be required on towns or complexes that fail to meet the definition of suitable habitat as described in the CD/WII BO (≥ 27 burrows/acre, ≥ 1000 acres, and ≥ 0.9 miles apart) as long as they have been included in the area-wide mapping effort for the CD/WII area. Otherwise, the *1989 Black-Footed Ferret Survey Guidelines* would apply. The exact definition is as follows:

“Suitable habitat will consist of colonies having a mean active burrow density of 27 burrows per acre, and a minimum area of 1,000 acres or be part of a complex with a minimum of 1,000 acres. A complex is defined as a group of colonies individually having mean active burrow densities of 27 burrows per acre and occurring within 0.9 mile of one another, as delineated by Biggens et al. (1993). This definition updates and super-cedes the criteria set in the *1989 Black-Footed Ferret Survey Guidelines* for this project. Hereafter, the term ‘suitable habitat’ (for black-footed ferrets) will refer to this definition”.

Desolation Flats Complex

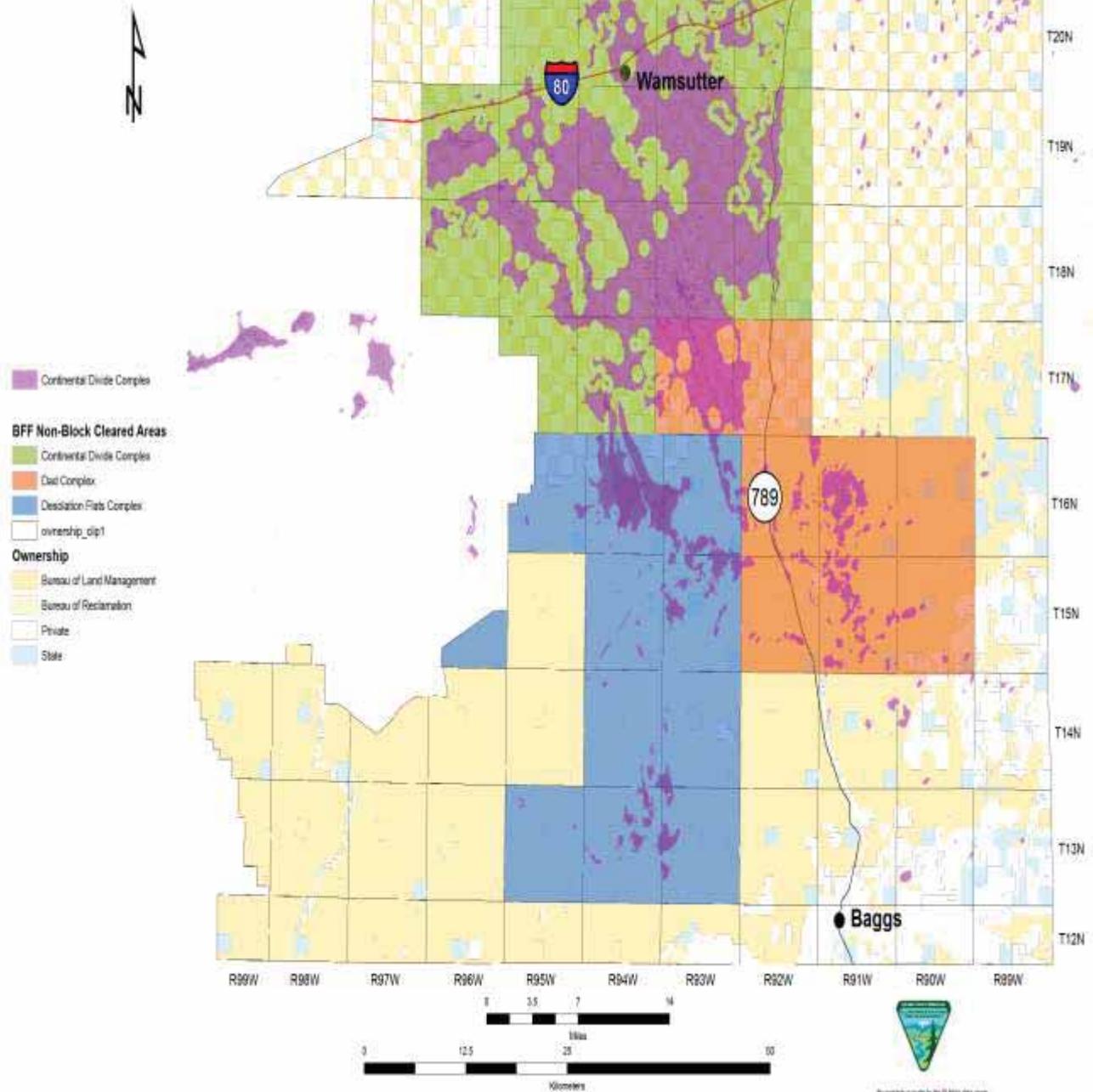
On April 20, 2006, the BLM RFO requested informal consultation with the USFWS in accordance with Section 7 of the Act as amended (16 U.S.C. 1531 et. seq.) and the Interagency Cooperation Regulations (50 CFR 402) to discuss the **Desolation Flats Complex** and mapping protocols. The DF EIS was finalized in July 2004 and permits the development of up to 385 natural gas wells within the project area, located

Black-Footed Ferret Non-Blocked Cleared Complexes



Map 6 Black-Footed Ferret Habitat Non-Block Cleared Areas (Complexes)

Refined Black-Footed Ferret Continental Divide, Dad and Desolation Flats Complexes



Map 7: Refined Continental Divide Complex and Desolation Flats Complex

south of the CD/WII EIS area. The DF EIS area was mapped for potential black-footed ferret complexes in April 2000 and ground-truthed during the 2004 and 2005 field seasons. The parameters were based on the *1989 Black-Footed Ferret Survey Guidelines* which describe a black-footed ferret complex as being at least 200 acres in size, having >eight burrows per acre, and the towns needed to be within 4.34 miles from each other. There were two Complexes identified: **Complex 1** (18,623 acres) and **Complex 2** (555 acres) of potential black-footed ferret habitat.

In 2006, the DF EIS project area was also mapped using the CD/WII black-footed ferret parameters (a Complex was identified as being: >27 burrows/acre, >1,000 acres in size, and the towns were within 0.9 miles of each other). This mapping protocol identified five Complexes: **Complex 1** (3,796 acres), **Complex 2** (124 acres); **Complex 3** (208 acres); **Complex 4** (14,332 acres) and **Complex 5** (500 acres) of potential black-footed ferret habitat. The BLM stated that the 1,000-acre definition of a Black-Footed Ferret Complex provided suitable habitat for potential black-footed ferrets, as opposed to the 200-acre definition of a Black-Footed Ferret Complex. On April 20, 2006, the BLM requested that the USFWS refine the Desolation Flats Black-Footed Ferret Habitat Non-Block Cleared Complex using the 1,000 acres and >0.9 miles distance parameters, a variance from the *1989 Black-Footed Ferret Survey Guidelines*, to be consistent with the CD/WII. The USFWS spot-checked the BLM mapping exercise in August of 2006 and analyzed towns 23, 11, and 12. In a letter to the BLM dated October 2, 2006, the USFWS stated that information obtained from black-footed ferret re-introduction sites indicates that the 200 acre/4.34 mile criteria is no longer adequate to support black-footed ferrets. The USFWS approved the use of the requested variance to the 1989 Guidelines. That analysis identified the five qualifying complexes listed above and shown in **Map 7: Refined Continental Divide Complex and Desolation Flats Complex**).

Dad Complex

A portion of the AR EIS area coincides with the **Dad Complex** which require black-footed ferret surveys in areas that would likely result in the “take” of a ferret during project implementation. **Map 6: Black-Footed Ferret Habitat Non-Block Cleared Areas** identifies the specific Black-Footed Ferret Non-Block Cleared Area which is located within the AR EIS project area. The BLM, in coordination with contractors, completed the prairie dog mapping for the AR EIS area which included the **Dad Complex**. A portion of this complex is located within the CD-C EIS area and mapping was completed for this portion as well. At this time, a letter has not been forwarded to the USFWS to re-define this complex; however, new information has emerged and black-footed ferret complex protection requirements are no longer viable, as described in further detail below.

Black-footed Ferret Monitoring

In a letter sent to the BLM State Director on February 3, 2004 (ES-61411/BFF/WY7746d), the USFWS determined that black-footed ferret surveys would no longer be necessary in black-tailed prairie dog towns (colonies) statewide or in white-tailed prairie dog towns (colonies), except those identified as *Black-Footed Ferret Habitat Non-Block Cleared Areas*. Previously, surveys for black-footed ferrets were recommended during interagency consultation under section 7 (a)(2) of the ESA of 1973 (50 C.F.R. §402.13). The CD/WII EIS area is located within the **Continental Divide Complex** and has been ground-verified to refine the larger complex into three smaller black-footed ferret complexes. The DF EIS area is located within the **Desolation Flats Complex** and has also been refined to identify two smaller black-footed ferret complexes. The AR EIS is located within the **Dad Complex** and has been refined to identify smaller complexes. In addition, the BLM is still required to evaluate the effects of authorized actions on the survival and recovery of the ferret. The use of smaller black-footed ferret complexes, within the

CD/WII, DF and AR EIS areas, does simplify the consultation process while allowing both the BLM and the USFWS to focus survey efforts and resources on those areas where the likelihood of discovering wild ferrets is greatest.

While authorized activities located within the **Continental Divide Complex**, the **Desolation Flats Complex** and the **Dad Complex**, but outside of refined black-footed ferret habitats, do not require a black-footed ferret survey and is not likely to result in take of individuals, it should be noted that an action could have an adverse effect upon the value of a prairie dog town in those areas as a future reintroduction site for ferrets. Actions are required to be evaluated at the APD and ROW on-sites to determine the significance of associated effects and reduce potential disturbance to the ecosystem for a possible future black-footed ferret reintroduction project. Therefore, consultation with the USFWS is appropriate for an APD and/or ROW action that may result in an effect significant enough to diminish a site's value as a future reintroduction site. Additionally, the block clearance of an area does not imply that other values of maintaining the integrity of the prairie dog ecosystem are unimportant. The BLM has taken a proactive approach at all on-sites for APDs and ROWs between 2005 and 2013 to protecting prairie dogs, a BLM Sensitive Species, as well as a keystone species for other wildlife inhabiting the area. Therefore, the BLM has not had the need to consult with the USFWS on any projects that have the potential to affect potential reintroduction sites.

There have been eleven black-footed ferret surveys conducted on a site-specific basis between 2005 and 2013, in accordance with the USFWS guidelines (USFWS 1989) and consultation, in the CD/WII, DF and AR EIS areas. These surveys are identified in **Table 6: Black-Footed Ferret Surveys Within the CD/WII EIS (Continental Divide Complex), Desolation Flats EIS (Desolation Flats Complex) and Atlantic Rim EIS (Dad Complex) Areas Between 2005-2013** below. In addition, the night-time spotlight survey areas are shown in **Map 8: Black-Footed Ferret Spotlight and Snow Track Surveys 2005-2009**. No black-footed ferrets or sign indicating the presence of black-footed ferrets were observed during any of these surveys.

There has only been one day-time snow track survey conducted on a site-specific basis between 2005 and 2013 in the CD/WII, DF, and AR EIS areas. This was in the AR EIS area and was a coordinated effort between the BLM and the USFWS. Although limited in numbers, **Map 8 Black-Footed Ferret Spotlight and Snow Track Surveys 2005-2009** identifies the location of these survey areas within the EIS areas. No black-footed ferrets or sign indicating the presence of black-footed ferrets were observed during any of these surveys.

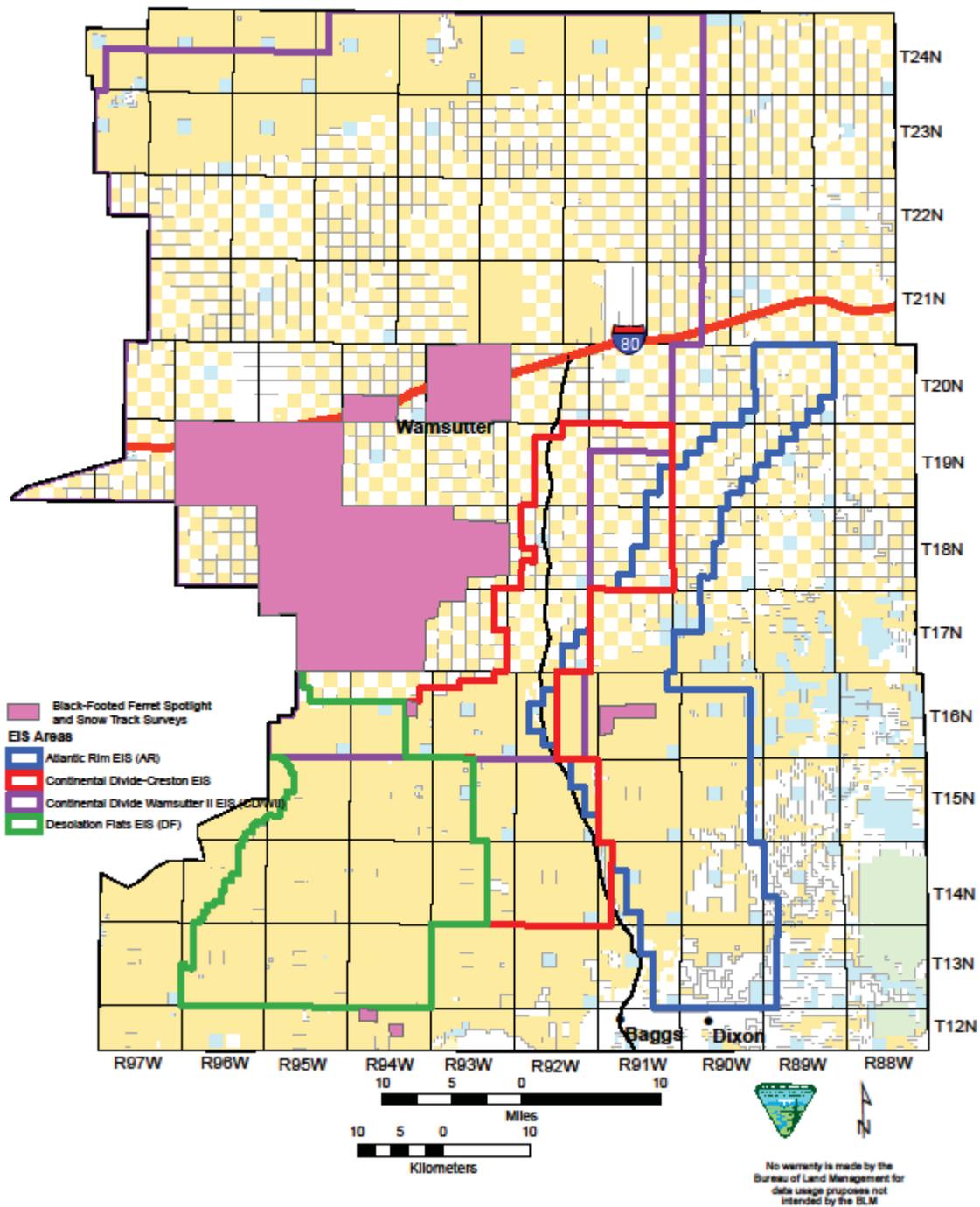
Black-footed Ferret Results:

The BLM RFO wildlife biologists have been practicing the required protection measures as identified by the USFWS for the black-footed ferret for numerous years. The BLM was notified of a letter that the USFWS sent to the WGFD dated March 6, 2013, (FWS/R6) in response to the WGFD's request to "block clear" the state of Wyoming for wild black-footed ferrets and develop a statewide rule, under Section 10(j) of the ESA (16 U.S.C. 1531 *et seq.* [Act]) for black-footed ferrets. The letter, *United States Department of the Interior, Fish and Wildlife USFWS, Mountain-Prairie Region (FWS/R6, dated March 6, 2013) Letter for Black-Footed Ferret Block-Clearance in Wyoming* is located at the RFO for review. The USFWS stated in the letter that the WGFD submitted a document to the USFWS entitled "Reevaluation of the Block Clearance Process for the Black-Footed Ferret in Wyoming with Recommendations to the U.S. Fish and Wildlife USFWS" (Block Clearance Document) which was a cooperative effort between the WGFD, the BLM, the U.S. Forest (USFS) and the USFWS. The block clearance would alleviate the

Table 6: Black-Footed Ferret Surveys Within the CD/WII (Continental Divide Complex [CDC]), Desolation Flats (Desolation Flats Complex [DF]) and Atlantic Rim (Dad Complex [DAD]) EIS Areas Between 2005-2013

<i>Project Name</i>	<i>Project and BFF Survey Location</i>	<i>Dates BFF Survey (Survey Type)</i>	<i>BFF or Sign Present</i>
Piceance Basin Expansion Project (CDC and DF Complexes)	T. 20 N., R. 94 W., Sec 27-34 T. 18 N., R. 94 W., Sec. 19-30 T. 17 N., R. 94 W., Sec. 27-34 T. 16 N., R. 94 W., Sec 14 T. 12 N., R. 94 W., Sec. 5 & 10	August 2-8, 2005 (Nocturnal)	None
Western Expansion Pipeline Project (CDC Complex)	T. 19 N., R. 95 & 96 W., Sec.-var. T. 20 N., R. 93-95 W., Sec.-var.	Sept. 8-14, 2005 (Nocturnal)	None
South Wamsutter Loop Pipeline Project (CDC Complex)	T. 18 N., R. 94 W., Sec. 31 to T. 17 N., R. 94 W., Sec. 6-30	September 27-29, 2005 (Nocturnal)	None
Wamsutter Firefly 3-D Seismic Line Project (CDC Complex)	T. 17 N., R. 94-95 W., Sec.-var. T. 18 N., R. 94-95 W., Sec.-var.	July 5-8, 2006 (Nocturnal)	None
Wamsutter F61-F85 Pipeline (CDC and DF Complexes)	T. 17 N., R. 95 W., Sec. 1-12 T. 17 N., R. 94 W., Sec. 3-29 T. 18 N., R. 94 W., Sec. 29-33 T. 18 N., R. 95 W., Sec. 25-36 T. 15 N., R. 95 W., Sec-var.	Aug. 8-10, 2006 (Nocturnal)	None
Coal Gulch 60-4 Well (CDC and DF Complexes)	T. 17 N., R. 93 W., Sec. 4 T. 18 N., R. 93 W., sec. 33	October 3-5, 2006 (Nocturnal)	None
Lost Creek Lateral 16-inch Pipeline (CDC Complex)	T. 20 N., R. 94 W., Sec. 27-32	July 1-4, 2007 (Nocturnal)	None
Wamsutter F-265 Loop Pipeline (CDC Complex)	T. 18 N., R. 93 W., Sec. 5-32 T. 17 N., R. 93 W., Sec 5-7 T. 17 N., R. 94 W., Sec. 1-12	July 1-6, 2007 (Nocturnal)	None
Wamsutter F-193 Loop Pipeline (CDC Complex)	T. 18 N., R. 93 W., Sec. 32 & T. 17 N., R. 93 W., Sec. 6-7	July 1-6, 2007 (Nocturnal)	None
Atlantic Rim Fed. 1691-02-19 & 1691-02-19, Atlantic Rim State 1691-06-16 wells (Dad Complex)	T. 16 N., R. 91 W., Sec. 15- 19	July 10-12, 2007 (Nocturnal)	None
Delaney Rim Federal #41-8 Well (CDC Complex)	T. 18 N., R. 95 W., Sec. 4-9	August 10-12, 2007 (Nocturnal)	None

Black-Footed Ferret Spotlight and Snow Track Surveys 2005-2009



Map 8: Black-Footed Ferret Spotlight and Snow Track Surveys 2005-2009

requirements to conduct presence/absence surveys for black-footed ferrets prior to developing projects. The change would be accomplished by expanding the block clearance area currently in place for black-tailed prairie dog range in eastern Wyoming and in portions of the white-tailed prairie dog range to include the entire state of Wyoming. The statewide 10(j) would ensure that safeguards for land management practices within the current 10(j) area would apply to the entire state, protecting landowners and land managers in the event ferrets disperse out of the current 10(j) area in the Shirley Basin, or if future statewide reintroductions are supported by the WGFD. The USFWS stated that the WGFD request for the statewide block clearance is warranted and timely.

Surveys completed over the years by the BLM, Industry, WGFD and the USFWS, have led to the conclusion that there have been no verified reports of any extant black-footed ferret individuals or populations in any prairie dog complexes since the discovery of a wild black-footed ferret population in 1981. Recent data on the demography of the black-footed ferret suggests that they can be extirpated quickly in the absence of recruitment in unproductive environments, yet they are capable of rapid population growth and therefore, can recover quickly in productive environments. The WGFD report concluded that it is unlikely that black-footed ferret populations in Wyoming have persisted through drastic reductions of prairie dog complexes, and that ferret populations have not rebounded even though prairie dog complexes have begun to expand. At this time, the USFWS does not believe that the Section 7 consultation process is the appropriate mechanism to promote prairie dog and ferret conservation and recovery activities. In addition, no Section 7 ferret surveys have ever yielded definitive evidence of extant ferrets outside of reintroduction areas. The USFWS is hopeful that more attention may be focused on identification and management of suitable habitats to support long-range recovery goals instead of using limited resources to conduct Section 7 surveys. The USFWS will initiate development of a complementary statewide 10(j) “experimental and nonessential” rule for Wyoming, in collaboration with the WGFD (USFWS 2013).

Greater Sage-Grouse Inventory

Greater Sage-Grouse (*Centrocercus urophasianus*) and its habitat on western rangelands are considered in scientific and public policy arenas to be a species of significant conservation concern (WGFD January 29, 2008) and high public interest in recent years. Because much of the grouse habitat occurs on public lands managed by the BLM, this species’ welfare and management is also of significant concern to the agency. **Figure 9: Greater Sage-Grouse males strutting at the Cherokee Towers Lek** and **Figure 10: Greater Sage-Grouse scat compared to a quarter** identify Greater Sage-Grouse habitat use within the EIS areas. Since the authorization of the EISs, the Greater Sage-Grouse has shifted from a BLM Wyoming State Director’s Sensitive Species (BLM Sensitive Species) to a USFWS Candidate species.

There have been numerous strategies finalized by both the BLM and the WFGD since 2005 pertaining to Greater Sage-Grouse habitat management policy on BLM-Administered public lands, including the Federal Mineral Estate, to provide general guidance and consistency for the BLM field offices for the conservation of the grouse and their habitats (USDI-BLM 2006b). Documents submitted by the BLM that include the various strategies implemented each year to manage Greater Sage-Grouse habitat, as well as those provided by the WGFD, are identified in **Table 7: Greater Sage-Grouse Policy and Administration Years 2005-2013 for BLM** below.



Figure 9: *Greater Sage-Grouse males strutting at the Cherokee Towers Lek*



Figure10: *Greater Sage-Grouse scat compared to a quarter*

Table 7: Greater Sage-Grouse Policy and Administration Years 2005-2013 for BLM

BLM FISCAL YEAR	AGENCY-ADMINISTERED POLICY By the BLM	POLICY REFERENCE NUMBER
2006	Statement of Policy Regarding Greater Sage-Grouse Management Definitions and Use of Protective Stipulations and Conditions of Approval (COAs) (December 8, 2005)	BLM Instruction Memorandum No. WY-030-2006-001 ⁴ [In Reply Refer to: 6500 (I)]
2007	Guidance for Use of Standardized Surface Use Definitions (1 attachment) (September 4, 2007)	BLM Information Bulletin No. WY-2007-029 ⁵ [In Reply Refer to: 1610 (930) P]
2008		
2009		
2010	Greater Sage-Grouse Habitat Management Policy on Wyoming Bureau of Land Management (BLM) Administered Public Lands including the Federal Mineral Estate (4 attachments)(December 29, 2009)	BLM Instruction Memorandum No. WY-2010-012 ⁶ [In Reply Refer to: 6500 (930) P]
	Oil and Gas Leasing Screen for Greater Sage Grouse (2 attachments) (December 29, 2009)	BLM Instruction Memorandum No. WY-2010-013 ⁷ [In Reply Refer to: 6500 (930) P]
	Managing Structures for the Safety of Sage-grouse, Sharp-tailed grouse, and Lesser Prairie-chicken (December 2, 2009)	BLM Instruction Memorandum No. 2010-022 ⁸ [In Reply Refer to: 6500 (230) P]
	Gunnison and Greater Sage-Grouse Management Considerations for Energy Development (Supplement to <i>National Sage-Grouse Habitat Conservation Strategy</i>)(March 5, 2010)	BLM Instruction Memorandum No. 2010-071 ⁹ [In Reply Refer to: 1110 (230/300) P]
	Grasshopper and Mormon Cricket Treatments within Sage-grouse habitat (March 24, 2010)	BLM Instruction Memorandum No. 2010-084 ¹⁰ [In Reply Refer to: 1790, 9011 (220) P]
	Sage-Grouse Conservation Related to Wildland Fire and Fuels Management (2 attachments) (June 21, 2010)	BLM Instruction Memorandum FA IM-2010-149 ¹¹ [In Reply Refer to: 6711, 9217 (230/400) P]
2011	Sagebrush Treatment Protocols (November 29, 2010)	BLM [In Reply Refer to: BLM, Rawlins Field Office, Wildlife Staff]
2012	Greater Sage-Grouse Habitat Management Policy on Wyoming Bureau of Land	BLM Instruction Memorandum No. WY-2012-019 ¹² [In Reply Refer to: 6840 (930) P]

⁴ USDI-BLM Rawlins Field Office, P.O. Box 2407, 1300 North Third Street, Rawlins, Wyoming 82301.

⁵ USDI-BLM Wyoming State Office, P.O. Box 1828, Cheyenne, Wyoming 82009-1828.

⁶ Ibid

⁷ Ibid

⁸ USDI-BLM Washington, D.C. 20240 (<http://www.blm.gov>)

⁹ Ibid

¹⁰ Ibid

¹¹ Ibid

BLM FISCAL YEAR	AGENCY-ADMINISTERED POLICY By the BLM	POLICY REFERENCE NUMBER
	Management (BLM) Administered public Lands Including the federal Mineral Estate (9 attachments)(February 10, 2012) including the WGFD Density/Disturbance Calculation Too (DDCT) Revised April 16, 2012	
2013	Pending RMP revisions	

Since 2005, the BLM RFO has been coordinating with the WGFD members on the *Monitoring without Borders* Team pertaining to Greater Sage-Grouse habitat management. The BLM works closely with the WGFD, as identified in **Table 7**, and the WGFD have produced and implemented Greater Sage-Grouse management guidance under the direction provided by the Governor's Sage grouse Executive Order. **Table 8** *Greater Sage-Grouse Policy and Administration Years 2005-2013 for WGFD, State of Wyoming Office of the Governor and State Engineer's Office* identifies measures that the WGFD have developed to protect Greater Sage-Grouse and associated habitat types that the BLM utilizes in coordination with the WGFD and each BLM field office.

Table 8: Greater Sage-Grouse Policy and Administration Years 2005-2013 for WGFD, State of Wyoming Office of the Governor and State Engineer's Office

YEAR	AGENCY-ADMINISTERED POLICY By the WGFD	POLICY REFERENCE NUMBER
2006	Wyoming Sage-Grouse Definitions (revised 12/08/06)	WGFD [In Reply Refer to: WGFD, 5400 Bishop Blvd., Cheyenne, WY 82006] ¹³ http://gf.state.wy.us
2007	South-Central Sage-Grouse Conservation Plan (March 14, 2007)	Working Group representation includes the WGFD, the BLM, the U.S.D.A. Natural Resources Conservation USFWS (NRCS), agriculture, mining, oil and gas, conservation groups, citizens at-large, and sportspersons ¹⁴
2008	Sage-Grouse Habitat Management Guidelines for Wyoming (July 24, 2007)	Prepared by Joe Bohne, WGFD, Tom Rinkes, BLM, and Steve Kilpatrick, WGFD ¹⁵
	Multi-State Sage-Grouse Coordination and Research-based Recommendations (January 28, 2008)	WGFD [In Reply Refer to: WGFD, 5400 Bishop Blvd., Cheyenne, WY 82006] http://gf.state.wy.us
	State Of Wyoming Executive Department Executive Order, Order 2008-2, Greater	State of Wyoming , Office of the Governor [In Reply Refer to: Office of the Governor,

¹² USDI-BLM Wyoming State Office, P.O. Box 1828, Cheyenne, Wyoming 82009-1828

¹³ Wyoming Game and Fish Department, 5400 Bishop Blvd., Cheyenne, WY 82006 (307) 777-4600

¹⁴ Randy Phipps-Industry, Karen Larsen-At-large, Tom Clayson-Industry, John Espy-Agriculture, Jack Berger-Agriculture, Frank Blomquist-BLM, Glen Leavengood-Conservation Districts, Bill Nation-Carbon County, Roger Cox-retired- NRCS, Barbara Parsons-Conservation, Mike Cuin-Conservation, Tim Woolley-WGFD, Chris Burkett-Facilitator, Michelle Zitek-Facilitator 2004-2006

¹⁵ Joe Bohne, WGFD, Alpine, WY; Tom Rinkes, BLM, Lander, WY; and Steve Kilpatrick, WGFD, Jackson, WY

YEAR	AGENCY-ADMINISTERED POLICY By the WGFD	POLICY REFERENCE NUMBER
	Sage-Grouse Core Area Protection (August 1, 2008)	State Capitol, Cheyenne, WY 82002] ¹⁶
	Sage-Grouse Core Breeding Areas Version 2 Map (August 15, 2008)	WGFD, Governor's Sage-Grouse Implementation Team [In Reply Refer to: WGFD, Nyssa Whitford, Nongame GIS Analyst, Lander Regional Office, Lander, WY] ¹⁷
2009	Fence Marking to Reduce Greater Sage Grouse (<i>Centrocercus urophasianus</i>) Collisions and Mortality near Farson, Wyoming – Summary of Interim Results (October 26, 2009)	Tom Christiansen, Sage-Grouse Program Coordinator, WGFD ¹⁸ tom.christiansen@wyo.gov
2010	State Engineer's Office: Sage Grouse Conservation (Water Permits) (November 13, 2009)	Wyoming State Engineer's Office [In Reply Refer to: Patrick T. Tyrrell, State Engineer] ¹⁹
	State Of Wyoming Executive Department Executive Order, 2010-4 (Replaces 2008-2) Greater Sage-Grouse Core Area Protection (3 attachments)(August 18, 2010)	State of Wyoming , Office of the Governor [In Reply Refer to: Office of the Governor, State Capitol, Cheyenne, WY 82002] ²⁰
	Sage Grouse Management and Connectivity Areas Version 3 (September 27, 2012) and associated shapefiles	WGFD, Governor's Sage-Grouse Implementation Team [In Reply Refer to: WGFD, Nyssa Whitford, Nongame GIS Analyst, Lander Regional Office, Lander, WY] ²¹
	Core Areas with Land Ownership and Township , Range, and Section Lines (July 7, 201) shapefiles	WGFD, Governor's Sage-Grouse Implementation Team [In Reply Refer to: WGFD, Nyssa Whitford, Nongame GIS Analyst, Lander Regional Office, Lander, WY] ²²
	Sage-Grouse Habitat Assessment Framework Multi-Scale Habitat Assessment Tool (August 2010)	Edited by Stan J. Stiver, E. Thoomas Rinkes and David E. Naugle ²³
	Hunting and Sage-Grouse: A Technical Review of Harvest Management on a Species of Concern in Wyoming (Revised September 2010)	Tom Christiansen, Sage-Grouse Program Coordinator, WGFD ²⁴ Tom.christiansen@wyo.gov

¹⁶ The State of Wyoming, Office of the Governor, State Capitol, Cheyenne, WY 82002 (307) 777-7434

¹⁷ Wyoming Game and Fish Department, Lander Regional Office, 260 Buena Vista, Lander, WY (307) 332-2688

¹⁸ Tom Christiansen, WGFD, 351 Astle, Green River, WY 82935 (307) 875-3223

¹⁹ State Engineer's Office, Herschler Building, 4th Floor East, Cheyenne, WY 82002 (307) 777-6150

²⁰ The State of Wyoming, Office of the Governor, State Capitol, Cheyenne, WY 82002 (307) 777-7434

²¹ Wyoming Game and Fish Department, Lander Regional Office, 260 Buena Vista, Lander, WY (307) 332-2688

²² Ibid

²³ Stiver, S.J., E.T Rinkes, and D.E. Naugle. 2010. Sage-grouse Habitat Assessment Framework. U.S. Bureau of Land Management. Unpublished Report. U.S. Bureau of Land Management, Idaho State Office, Boise, Idaho.

²⁴ Tom Christiansen, WGFD, 351 Astle, Green River, WY 82935 (307) 875-3223

YEAR	AGENCY-ADMINISTERED POLICY By the WGFD	POLICY REFERENCE NUMBER
2011	State Of Wyoming Executive Department Executive Order, Order 2011-5 (Replaces 2010-4) Greater Sage-Grouse Core Area Protection (3 attachments) (June 2, 2011) including the Density/Disturbance Calculation Tool (DDCT)	State of Wyoming , Office of the Governor [In Reply Refer to: Office of the Governor, State Capitol, Cheyenne, WY 82002] ²⁵
	WGFD Protocols for Treating Sagebrush to be Consistent with Wyoming Executive Order 2011-5 (Greater Sage-Grouse Core Area Protection) (July 7, 2011)	WGFD [In Reply Refer to: WGFD, 5400 Bishop Blvd., Cheyenne, WY 82006] http://gf.state.wy.us
	Sage Grouse Update Newsletter (February 18, March 16, May 13, June 21, September 7, and November 7, 2011)	Sagegrouse_update@ewyoming.gov
2012	Density/Disturbance Calculation Tool (DDCT) Revised June 12, 2012 (covers 2008-2012)	WyGIS [In Reply Refer to: Wyoming Geographic Information Science Center & WGFD] ²⁶ ngraf1@uwyo.edu
	Sage Grouse Update Newsletter (February 24, and June 19, 2012)	Sagegrouse_update@ewyoming.gov
2013	No new policies	

Wyoming Greater Sage-Grouse conservation efforts potential funding sources is all encompassing. The BLM, WGFD, NRCS and other various private foundations, companies and individuals will partner in conservation efforts; however, finding and making contact with these potential partners is best accomplished at the local CD-C, DF, and AR EIS levels. **Table 9 Potential Funding Sources for Greater Sage-Grouse Conservation Efforts** contains a list of funding sources that can address various scales of projects ranging from the individual landowner (federal, state and private) to multi-state efforts and in which participants within the *Monitoring without Borders* programs have applied for in past years. Funding for private lands can be partnered with federally-administered projects to protect and enhance grouse habitats.

Table 9 Potential Funding Sources for Greater Sage-Grouse Conservation Efforts

SOURCE – Federal, State, Private	TYPE OF FUNDING
<i>State of Wyoming Sources:</i>	
Wyoming Wildlife and Natural Resource Trust Account	Created by legislative action in 2005 for the purposes of preserving and enhancing Wyoming's wildlife and natural resources. Income from the trust account is used to fund a wide variety of conservation programs.

²⁵ Ibid

²⁶ Nicholas Graf, Wyoming Geographic Information Science Center, University of Wyoming, 1000 E. University St., Laramie, WY 82071 (307) 766-4928

SOURCE – Federal, State, Private	TYPE OF FUNDING
<i>State of Wyoming Sources (continued):</i>	
Wyoming Game and Fish Department (WGFD) Trust Fund	Matching grants program for riparian or upland habitat improvement, water development, and industrial water projects. http://gf.state.wy.us
WGFD/U.S. Fish & Wildlife USFWS – Landowner Incentive Program (LIP)	Provides Federal funds to enhance habitats for sensitive fish and wildlife species on private lands. Priorities in Wyoming are grassland, sagebrush and prairie watersheds. Matching funds, goods or USFWSs are required. http://gf.state.wy.us
WGFD/Wyoming State General Fund – Wyoming Sage	Grouse Conservation Fund - Funding approved by the legislature via the Governor’s budget request designed to implement projects identified in local Sage-Grouse Conservation Plans. http://gf.state.wy.us
Wyoming Animal Damage Management Board (ADMB)	Provides funding for the purposes of mitigating damage caused to livestock, wildlife and crops by predatory animals, predacious birds and depredating animals or for the protection of human health and safety. http://www.wyadmb.com
<i>Federal Sources:</i>	
U.S. Dept. of Interior, Fish and Wildlife USFWS (http://www.fws.gov)	
Partners for Fish and Wildlife Program	Provides assistance to private landowners who want to restore or improve habitat on their property. The landowner is reimbursed based on the cost sharing formula in the agreement, after project completion.
Private Stewardship Program	Provides grants or other assistance to individuals and groups engaged in private conservation efforts that benefits species listed or proposed as endangered or threatened under the Endangered Species Act, candidate species, or other at-risk species on private lands. Maximum Federal share is 90%.
Cooperative Conservation Initiative	Supports efforts to restore natural resources and

SOURCE – Federal, State, Private	TYPE OF FUNDING
	establish or expand wildlife habitat. Maximum Federal share is 50%.
U.S. Dept. of Interior, Fish and Wildlife USFWS (http://www.fws.gov)(continued)	
Multistate Conservation Grant Program	Supports sport fish and wildlife restoration projects identified by the International Association of Fish and Wildlife Agencies. Maximum Federal share is 100%.
Conservation Grants	Provides financial assistance to States to implement wildlife conservation projects such as habitat restoration, species status surveys, public education and outreach, captive propagation and reintroduction, nesting surveys, genetic studies and development of management plans. Maximum Federal share is 75 % for a single state or 90% for two or more states implementing a joint project.
Bureau of Land Management (http://www.blm.gov)	
Challenge Cost Share	This program is designed to leverage funds with partners to monitor and inventory resources; implement habitat improvement projects; develop recovery plans; protect or document cultural resources; provide enhanced recreational experiences; and to better manage wild horse and burro populations. Matching funds, goods or USFWSs are required.
Cooperative Conservation Initiative (CCI)	CCI was designed to remove barriers to citizen participation in the stewardship of our natural resources and to help people take conservation into their own hands by undertaking projects at the local level. Projects must seek to achieve the actual restoration of natural resources and/or the establishment or expansion of habitat for wildlife. Matching funds, goods or USFWSs are required.
<i>Other potential funding sources include but are not limited to:</i>	
Wildlife Heritage Foundation of Wyoming	The Wyoming Wildlife Heritage Foundation is an independent, charitable organization whose purpose is to provide financial support, through

SOURCE – Federal, State, Private	TYPE OF FUNDING
	philanthropy, to critical wildlife conservation efforts in Wyoming. http://whfw.org
<i>Other potential funding sources include but are not limited to (continued):</i>	
Wyoming Governor's Big Game License Coalition	Funding generated from the sale of Governor's licenses placed in five accounts: bighorn sheep, moose, elk, mule deer and general wildlife. Funds administered by the Wildlife Heritage Foundation of Wyoming. http://whfw.org
National Fish and Wildlife Foundation (NFWF)- General Matching Grant Program	Provides matching grants to priority projects that address fish and wildlife conservation and the habitats on which they depend, work proactively to involve other conservation and community interests, leverage NFWF funding, and evaluate project outcomes. Government agencies, educational institutions, and nonprofit organizations may apply. Grants typically range from \$10,000-\$150,000. http://www.nfwf.org
National Fish and Wildlife Foundation - Native Plant Conservation Initiative (NPCI)	NPCI grants of federal dollars are provided to non-profit organizations and agencies for conservation of native plants. NPCI grants range from \$5,000 to \$40,000, averaging \$15,000. Non-Federal matching funds, goods or USFWSs are required. There is a strong preference for "on-the-ground" projects that involve local communities and citizen volunteers in the restoration of native plant communities. http://www.nfwf.org/programs/npci.cfm
National Fish and Wildlife Foundation - Pulling Together Initiative (PTI)	Provides support for the formation of local Weed Management Area (WMA) partnerships. These partnerships engage federal resource agencies, state and local governments, private landowners, and others in developing weed management projects within an integrated pest management strategy. Non-Federal matching funds, goods or USFWSs are required. http://www.nfwf.org/programs/pti.cfm
Intermountain West Joint Venture (IWJV) - Joint Venture Cost-Share	Habitats within the IWJV area support nearly 100% of the range of all high priority sagebrush steppe landbird species, such as: Sage Sparrow, Sage Thrasher, Sage-Grouse and Brewer's Sparrow. The

SOURCE – Federal, State, Private	TYPE OF FUNDING
	purpose of Cost-Share is long-term conservation of bird habitat through partnerships. http://iwjv.org/costshare.htm
<i>Other potential funding sources include but are not limited to (continued):</i>	
The Nature Conservancy (TNC)	TNC works with conservation supporters and partner organizations to create funding for conservation worldwide using a variety of creative methods. http://nature.org
Rocky Mountain Elk Foundation (RMEF)	RMEF is a wildlife conservation organization with an emphasis on elk. It advocates sustainable, ethical use of resources and seeks common ground among stakeholders. RMEF funds habitat restoration and improvement projects, acquires land or conservation easements. http://www.rmef.org
Mule Deer Foundation (MDF)	MDF's goals center on restoring, improving and protecting mule deer habitat. MDF achieves its goals through partnering with state and federal wildlife agencies, conservation groups, businesses and individuals to fund and implement habitat enhancement projects on both public and private lands. http://www.muledeer.org
One Shot Antelope Foundation	Water for Wildlife - Water for Wildlife is a conservation program designed to benefit wildlife and the environment in arid regions of the West. Emphasis focuses on the development of supplemental water resources in areas where both the habitat and wildlife are being impaired by lack of this vital resource. http://www.waterforwildlife.com
North American Grouse Partnership (NAGP)	Promotes the conservation of prairie grouse and the habitats necessary for their survival and reproduction. http://www.grousepartners.org

The CD/WII EIS required grouse lek inventories to occur every five years from May 2000 on the EIS project area and a two-mile buffer to determine new lek locations. These inventories were to be conducted by the BLM during March and April and each inventory was to occur at a minimum of ten days apart. The survey could be conducted aerially, with operator-provided financial assistance for

aircraft rental, or on the ground, as deemed appropriate by the BLM. The aerial surveys were only used to determine lek locations. In areas with four or more wells per section, aerial inventories were to be conducted annually on affected sections, with a two-mile buffer of disturbance areas, and in selected undeveloped comparison areas.

The DF EIS required that in general, Greater Sage-Grouse lek inventories would be conducted, and a two-mile buffer, every five years to determine lek locations. The EIS states that a **Review Team** and/or BLM can recommend that monitoring occur on an annual basis, or earlier than every five years. Inventories are to be conducted by the BLM during March-April and surveys would either be conducted aerially, which would include Operator-provided financial assistance, or on the ground, as deemed appropriate by the BLM. Aerial surveys would be used only to determine lek locations. In areas with four or more wells per section, aerial inventories were to be conducted annually on affected sections, with a two-mile buffer of disturbance areas, and in selected undeveloped comparison areas.

As stated above, the Greater Sage-Grouse has shifted from a BLM Sensitive Species to a USFWS Candidate species. At this time, the BLM is currently updating its RMP in order to provide for long-term Greater Sage-Grouse conservation and special emphasis is being placed on oil and gas development.

Winter Habitat Inventory: Greater Sage-Grouse winter habitat surveys within the CD/WII and DF EIS areas are conducted when both weather conditions and finances permit it to determine the use of the areas and or any changes that may have occurred in these habitat types. Snow cover must be adequate to determine actual winter use in these areas. Winter habitat was identified within the CD/WII and the DF EIS areas during the 2001-2002 winters. Winter habitat was identified within the AR EIS area during the 2007-2010 winters and is discussed below. Winter habitat maps have been updated and are located at the RFO.

In the AR EIS area, flights were conducted to track the life history movements of collared grouse and associated winter habitat during three winters (2007-2008, 2008-2009, and 2009-2010). During these flights, winter habitat was identified in northwestern Colorado and south-central Wyoming. In 2012, Kurt Smith, Christopher Kirol and Jeffrey Beck with the University of Wyoming (UW) and Frank Blomquist, BLM RFO, drafted a report *Prioritizing Winter Habitat Quality for Greater Sage-Grouse in an Energy Disturbed Landscape* that addressed grouse habitat prioritization in disturbed habitats. They identified resource selection and survival risk models for wintering female grouse. These models are designed to provide a spatial representation of habitat quality to inform management and conservation of critical wintering habitats. This report is critical since grouse nesting and brood-rearing habitat studies far exceed those focused on winter habitat. Adult female survival in the winter can have consequential implications to grouse population persistence (Smith et al, 2012).

Greater Sage-Grouse Monitoring

Lek Monitoring: The CD/WII, DF and AR EISs required that selected leks within two-miles of existing and proposed disturbance areas would be monitored annually to determine lek attendance by the BLM between March 1 and May 15, such that all the leks within these areas would be monitored at least once every three (3) years. In areas where there are more than four (4) well locations per section, the responsibility for lek monitoring will include a BLM-Approved, operator-financed contract biologist is required. In these cases, monitoring efforts are required at all leks present on affected sections, plus a two-mile buffer and selected undeveloped comparison areas. The BLM is required to direct the lek monitoring efforts, including timing and locations, such that all efforts are made to have the same

individuals monitor the same leks within and across the years for data accuracy and consistency. Contractors have been provided with data sheets (Sage Grouse Lek Records). The EIS also states that standard site- and species-specific sage grouse lek surveys will continue to be conducted as necessary in association with all APD and ROW application field reviews. To date, the BLM, WGFD, and industry have partnered to monitor all of the leks within and adjacent to the CD/WII, DF, and AR EIS projects between March and April each year. Leks in undeveloped comparison areas have also been monitored; however, a detailed analysis has not been completed to determine differences in lek attendance. This report should trigger that requirement.

In addition, Christopher P. Kirol completed a Master of Science (M.S.) degree in rangeland ecology and watershed management for Greater Sage-Grouse analysis within the AR EIS area. The report, *Quantifying Habitat Importance for Greater Sage-Grouse (Centrocercus urophasianus) Population Persistence in an Energy Development Landscape* was finalized in May 2012. The objective of the study was to model habitat quality and source sink habitats for Greater Sage-Grouse in the AR EIS area. He modeled habitat selection, as resource selection functions, and habitat-specific survival using data from female sage-grouse monitored from May through August 2008 and 2009. He spatially predicted habitat quality as well as sink and source habitats on the AR EIS landscape by coupling the final habitat selection models and survival models in a GIS framework. He then evaluated relationships between the environmental cover and anthropogenic spatial variables and habitat selection and survival at three landscape scales. His results showed a suite of environmental and anthropogenic variables at multiple spatial scales that are predictive of occurrence. Specific environmental variables that were robust predictors of nest occurrence in both areas (Control and Atlantic Rim) included big sagebrush canopy cover and litter (dead standing woody vegetation and organic matter). Both early and late brood-rearing hens showed selection for large patches of moderate sagebrush cover, but avoided areas with the highest sagebrush cover available. His research showed that even though there is some habitat overlap, during the summer, non-brooding females did not select for the same habitat characteristics as females with broods. Late non-brooding females selected habitats closer to forest edge. Anthropogenic variables related to coal-bed natural development were predicted in all of his occurrence models, suggesting that anthropogenic features were negatively influencing habitat selection through all summer life-stages of female grouse. The source-sink map predicted that 40-percent was a selected source, 42-percent was a non-selected source, 14-percent was a selected sink and 4-percent was a non-selected sink of the AR EIS area. Source-sink dynamics may be shifting as a result of coal-bed methane development. The shift is mainly resulting in selected source habitats becoming non-selected source habitats (Kirol 2012).

Dr. Christopher Kirol and Dr. Jeff Beck, Department of Ecosystem Science and Management at the University of Wyoming, in Laramie, Wyoming, also completed a report titled *Completion Report Identifying Habitats for Greater Sage-Grouse Population Persistence within the Atlantic Rim, Wyoming*. This report was completed on January 23, 2012, and was prepared for the Anadarko Petroleum Corporation, BLM, the South-Central Local Sage Grouse Work Group and the WGFD. This report provided a map of Sink/Source Greater Sage-Grouse habitats within the AR EIS area.

In addition, for the AR EIS Greater Sage-Grouse trend monitoring, Dr. Brad Fedy, subcontracted by the USGS, has developed a model to compare statistically rigorous sage-grouse trend models for the Atlantic Rim Project Area and selected control sites. The ROD for the AR EIS project area requires resource monitoring as part of the annual planning process. The purpose of monitoring is to assess the status of the performance goals, measure and detect trends, or detect any other undesired effects. Sage-grouse populations in the Atlantic Rim area and across Wyoming cycle on a regular interval. Thus,

fundamentally, the analysis of population trends must be non-linear to account for these natural fluctuations. The BLM and Industry have funded this model and Brad began this study in the 2013 field season.

Table 10 *Greater Sage-Grouse Lek Monitoring, Activity Status and Peak Male Attendance in the CD/WII, DF, and AR EIS Areas from 2005-2013* identifies the trend in peak male lek attendance by male grouse each year for each lek within an EIS area. Detailed lek attendance for each lek can be obtained from the WGFD. In general, there have usually been 67 leks monitored in the CD/WII EIS area, four leks monitored in the DF EIS area, and 64 leks monitored in the AR EIS area, barring weather conditions and the ability for an observer to get to a specific lek that year.

There was a new lek found in the AR EIS area in T. 17 N., R. 90 W., Section 18 NENE (UTM: 285582E and 4592468N) Grasslands Consulting, Inc. wildlife biologists monitored this lek in 2011 and 2012. In 2011 the lek had 20 males at its peak number and in 2012 the lek had 20 males at its peak number. The new lek was called North Willows lek and is identified in **Table 10** below.

Table 10: *Greater Sage-Grouse Lek Monitoring, Activity Status and Peak Male Attendance in the CD/WII, DF, and AR EIS Areas from 2005-2013*²⁷

Lek Name	Activity Status	Year Monitored/Peak Male Attendance At Leks								
		2005	2006	2007	2008	2009	2010	2011	2012	2013
CD/WII EIS Area										
Broken Windmill	Active	-	-	-	-	14	11	13	-	14
Buck Draw	Active	-	-	-	-	0	0	0	0	0
10-High Point	Active	0	25	12	14	28	-	-	36	27
25-Continental Divide	Active	75	114	110	10	76	49	44	63	50
25-Creston	Unknown	0	0	-	0	0	0	-	-	0
9-Continental Divide	Inactive	3	1	1	0	2	0	0	0	0
9-High Point	Active	11	8	16	12	8	4	2	8	1
Badwater	Active	20	42	37	20	18	17	18	24	15
Bens	Inactive	11	20	9	12	1	0	0	3	0
Blue Gap	Inactive	0	0	0	0	0	-	-	-	0
Bobs	Active	23	62	74	53	48	42	23	25	0
Chain Lakes Rim	Active	47	65	61	46	33	49	24	20	19
Cherokee Mine	Active	33	44	24	22	18	-	12	7	6
Cherokee Towers	Active	9	18	5	6	7	12	13	5	3
Coal Gulch	Active	38	3	43	-	32	-	-	26	28

²⁷ Lek data has been obtained from the BLM, WGFD (Greg Hiatt, Bill Brinegar, Tony Mong), Service, Grasslands Consulting (Chris Gayer), Hayden-Wing Associates (Chad Olson), TRC (Jan K. Hart), and private landowners Niels and John Hansen

Lek Name	Activity Status	Year Monitored/Peak Male Attendance At Leks								
		2005	2006	2007	2008	2009	2010	2011	2012	2013
Corral	Unknown	0	0	0	0	0	0	0	0	0
Delaney Rim 1	Active	-	56	37	33	-	-	39	22	27
Delaney Rim 2	Active	-	-	64	51	-	-	24	20	37
Delaney Rim 3	Active	-	55	40	7	-	-	15	13	14
Dike	Inactive	-	0	0	0	0	0	0	0	0
East Duck Lake	Active	30	47	32	15	16	8	-	21	15
East Seaverson	Active	62	69	43	40	41	39	42	41	34
Fenced Well	Active	40	45	38	-	30	30	25	27	15
Fillmore Creek	Active	60	63	50	60	58	34	32	24	25
Fivemile Bend	Active	17	4	14	7	17	18	16	13	12
Fivemile Ditch	Unknown	0	0	0	0	0	0	0	0	0
Fivemile Junction	Unknown	8	9	7	7	1	0	0	0	0
Fourmile	Inactive	0	0	0	-	0	0	0	0	0
Holler Divide	Inactive	-	8	1	0	2	2	0	0	0
Holler Draw	Inactive	0	0	-	-	0	0	0	0	0
Holler Draw 1	Inactive	0	0	0	0	0	-	-	0	0
Horseshoe Bend	Active	21	21	18	10	8	13	9	10	0
Lake Bed	Active	2	41	11	21	7	7	28	14	11
Little Robber	Active	54	74	48	61	30	30	25	33	24
Luman Road	Active	45	18	32	12	16	22	9	18	1
Marathon	Unknown	0	0	0	0	0	0	0	0	0
May Day	Unknown	14	8	8	4	2	0	0	0	0
Monument Lake	Active	16	23	20	9	8	8	5	4	1
Mud Springs	Active	0	29	0	22	15	40	20	18	18
Mulligan Draw	Active	0	26	38	15	26	22	42	20	19
N. Barrel Springs	Inactive	-	11	8	0	0	-	-	0	0
North High Point	Inactive	-	6	3	0	0	-	-	0	0
North Wamsutter	Inactive	1	0	0	-	0	0	0	0	0
P&R	Active	-	100	83	69	76	43	43	4	22
Peach Orchard	Active	14	20	31	15	18	9	11	14	13
Rasmussen	Active	23	16	23	12	12	18	8	8	7
Red Lakers	Active	31	33	21	22	8	6	5	5	3
Ruby Knolls North	Unknown	0	-	0	-	-	0	-	0	0
Ruby Knolls South	Active	33	43	47	19	53	68	55	45	22
Ruby Knolls West	Active	34	29	22	21	21	31	2	23	11
Salt Sage Draw	Active	42	51	34	-	15	0	19	14	2
Soap Hole Wash	Inactive	0	7	4	0	0	0	-	0	0
Sourdough	Unknown	5	2	0	0	0	0	0	0	0
Sourdough Mine	Active	20	26	22	22	-	18	12	10	9
South Cherokee	Active	-	34	17	12	11	11	12	7	6
South Seaverson	Inactive	0	0	0	0	0	0	0	0	0
Standard Draw	Active	8	14	11	5	0	1	1	0	0

Lek Name	Activity Status	Year Monitored/Peak Male Attendance At Leks								
		2005	2006	2007	2008	2009	2010	2011	2012	2013
Stratton	Active	-	72	60	36	36	39	29	21	19
Stratton Camp	Active	-	-	-	-	-	26	20	9	13
SW Riner	Active	8	14	0	4	4	13	1	7	1
Tipton North	Unknown	18	14	-	-	0	-	-	-	6
Twin Barns	Active	7	10	7	5	6	13	14	8	4
Upper Buck Draw	Active	-	-	-	-	-	-	39	31	14
West Badwater	Inactive	0	0	0	1	0	0	0	0	0
West Seaverson	Unknown	-	0	0	0	0	0	0	0	0
West Towers	Active	24	24	15	13	16	8	12	10	7
Windmill Draw	Inactive	0	0	0	0	0	-	0	0	0
Desolation Flats EIS Area										
Lek Name	Activity Status	Year Monitored/ Peak Male Attendance At Leks								
		2005	2006	2007	2008	2009	2010	2011	2012	2013
Hangout Ridge	Active	2	0	18	-	4	0	1	17	16
Lonnie's	Active	-	-	23	28	28	-	18	23	8
Shallow Creek	Active	8	27	18	15	10	-	6	18	7
Willow Cr. Rim 2	Unknown	3	12	12	13	16	9	0	7	0
Atlantic Rim EIS Area										
Lek Name	Activity Status	Year Monitored/ Peak Male Attendance At Leks								
		2005	2006	2007	2008	2009	2010	2011	2012	2013
Bird Gulch 1	Unknown	2	-	0	-	-	-	-	0	0
5-Buttes	Active	0	-	0	-	-	-	-	15	20
Cherokee Creek 1	Inactive	-	1	0	0	0	0	5	0	0
Cherokee Creek 2	Active	12	149	107	112	101	89	72	96	83
Cherokee Creek 3	Inactive	0	0	-	-	0	0	0	0	0
Cow Crk. Butte Rd	Active	23	32	36	2	6	14	13	7	0
Dad Basin 1		-	0	0	-	0	0	-	0	0
Dad Junipers	Active	-	9	2	1	0	1	0	0	0
Deep Creek	Active	63	-	-	-	11	-	-	27	29
Dolan Mesa		0	-	0	-	0	0	0	0	0

Lek Name	Activity Status	Year Monitored/Peak Male Attendance At Leks								
		2005	2006	2007	2008	2009	2010	2011	2012	2013
Doty Mountain	Unknown	0	0	-	-	0	0	0	0	0
Dry Cow 2	Inactive	0	0	0	-	0	0	0	0	0
Dry Cow 3	Inactive	1	0	1	-	0	0	0	0	0
Dry Cow 4	Inactive	17	41	31	19	6	1	0	0	0
Dutch Joe 1	Active	4	0	0	-	0	3	0	17	33
Dutch Joe 2	Inactive	-	0	0	-	0	0	0	25	0
Dutch Joe 3	Active	50	-	0	-	0	17	0	30	16
Eagle Creek										0
East Dad Road	Inactive	0	0	0	-	0	0	0	0	0
East Doty Mountain	Active	-	-	-	32	22	13	10	9	11
East Dry Cow	Unknown	-	-	-	-	0	0	0	0	0
Eversole Basin	Unknown	0	-	-	-	-	-	-	-	0
Fillmore Cabins	Unknown	3	0	-	0	0	-	0	0	0
Fillmore Hilltop	Active	4	1	-	2	0	-	0	-	0
Fillmore Ranch	Active	99	99	69	70	28	19	18	26	31
Fillmore Turnoff	Unknown	0	0	-	-	0	-	0	0	0
Fox Farm	Active	-	19	11	36	47	28	-	-	26
Garden Gulch 1	Unknown	-	0	-	-	-	0	-	41	0
Garden Gulch 2	Active	18	41	48	15	21	24	7	38	28
Garden Gulch 3	Unknown	-	0	0	-	0	-	-	0	0
Hay Gulch	Unknown	-	-	0	-	-	1	0	0	0
Hogback	Unknown	-	0	-	-	-	-	-	-	0
Low Ridge	Inactive	-	0	-	-	0	-	-	0	0
Midnight Valley	Active	0	7	28	8	-	-	-	-	0
N.S. Satellite	Unknown	-	0	-	-	-	-	-	0	0
NE Muddy Mtn.	Active	16	-	-	-	50	-	-	69	86
Nicholson 1	Unknown	-	0	-	-	-	-	-	0	0
North Fillmore	Active	2	8	-	-	7	-	9	-	3
North Willows	Active	1	1	1	1	1	1	2	20	1
Olson Divide	Unknown	0	5	0	-	-	-	-	-	0
Olson Draw	Unknown	-	0	-	-	-	-	-	-	0
Pipeline	Active	6	4	5	9	1	0	6	8	21
Ram Canyon	Active	4	85	71	66	-	-	-	-	0
Red Rim	Active	5	27	37	16	19	17	-	-	0
Red Rim Basin	Unknown	0	0	0	-	0	0	-	-	0
Rendle Rim	Active	8	-	0	-	-	-	-	0	0
Sand Dunes 1	Unknown	0	-	0	-	-	0	0	0	0
Sandhills Rd.	Inactive	0	0	-	-	0	0	0	0	0
Savery	Active	0	-	0	-	-	-	-	0	0
Scottys Peak	Active	-	2	24	29	-	-	-	-	0
Separation Hilltop	Active	57	42	33	-	28	9	8	-	15

Lek Name	Activity Status	Year Monitored/Peak Male Attendance At Leks								
		2005	2006	2007	2008	2009	2010	2011	2012	2013
25-Separation Creek	Active	-	0	1	0	0	-	-	0	5
Sixteen Mile	Unknown	0	0	-	-	0	0	0	-	0
Sulphur Springs	Unknown	0	-	0	-	-	0	0	0	0
Twentymile Road	Active	-	0	15	15	11	6	-	17	18
Upper Cottonwood	Unknown	0	0	0	-	0	-	-	0	0
Upper Wild Cow Creek	Active	75	54	61	42	12	1	24	25	24
West Fillmore Ranch	Active	38	42	30	21	17	10	15	16	14
West J.O.	Inactive	0	0	-	-	0	0	0	0	0
Wild Cow	Unknown	-	-	-	-	-	15	0	0	0
Wild Horse Basin 2	Active	10	115	130	-	90	33	0	42	55
Wild Horse Basin 3	Inactive	-	-	0	0	0	0	-	2	20
Wild Horse Mtn.	Active	0	-	-	-	0	5	0	0	0
Willows 1	Unknown	0	-	-	-	-	0	0	0	0
Willows 2	Active	56	98	84	65	58	48	26	27	22
Willows 3	Active	30	24	30	10	6	4	0	0	0

Table 11 *Greater Sage-Grouse Lek Monitoring, Activity Status and Peak Male Attendance in the Control Areas from 2005-2013* identifies the trend in peak male lek attendance by male grouse each year for each lek within this control area. There are 59 leks identified within the control area. As stated above, detailed lek attendance for each lek can be obtained from the WGFD. The control leks were identified using a 12-mile buffer (two townships) around the three EIS areas to mimic the habitat types as closely as possible and where natural gas development is either not presently occurring or is present, but at reduced numbers. The leks located within the Choke Cherry/Sierra Madre Wind Farm Project were not used as part of the control analysis since that project may alter lek activity and introduce other variables to the analysis.

Table 11: Greater Sage-Grouse Lek Monitoring, Activity Status and Peak Male Attendance in the Control Area from 2005-2013

Lek Name	Activity Status	Year Monitored/Peak Male Attendance At Leks								
		2005	2006	2007	2008	2009	2010	2011	2012	2013
Control Area – Leks within a 12-mile Buffer from the CD/WII, DF and AR EISs (except those located in the Choke Cherry/Sierra Madre Wind Farm Project)										
Alkali Well	Active	44	41	49	-	1	28	-	33	0
Basin Well		0	0	0	-	-	0	-	0	0
Black Rock Flat	Active	11	25	26	-	0	0	0	0	0

Lek Name	Activity Status	Year Monitored/Peak Male Attendance At Leks								
		2005	2006	2007	2008	2009	2010	2011	2012	2013
Benchmark		0	-	-	-	0	0	0	0	0
Big Gulch 1		0	-	0	-	-	0	-	8	5
Big Gulch 2		-	-	0	-	-	-	-	4	0
Bird Gulch 2	Active	50	9	0	-	-	-	-	0	0
Boyer International	Active	50	-	6	-	-	-	8	31	41
Bull Springs	Active	33	25	16	11	16	22	22	25	20
Cherokee		0	4	-	-	0	0	0	0	0
Cherokee Trail	Active	7	9	0	4	0	-	-	-	0
Chicken Spring	Active	19	184	181	146	135	111	109	90	70
Coal Bank Wash		-	0	16	0	-	0	-	0	0
Cow Creek Reservoir		1	1	1	1	1	1	1	9	24
Cow Spring	Active	21	33	22	0	15	18	8	9	6
Crooked Well		0	0	4	0	0	0	0	0	0
Desert Springs North	Active	-	-	-	-	19	18	22	14	1
Dirty Man	Active	30	9	0	0	-	-	-	0	0
Discover	Active	28	69	37	104	22	15	11	6	2
Discover East	Active	-	22	12	5	0	0	0	1	0
Discover South	Active						19	19	20	8
Eagles Nest	Unknown	24	23	17	0	14	6	4	4	0
Eagles Nest Fence	Active	59	146	132	108	66	59	46	39	17
Eagles Nest Reservoir		0	-	-	-	-	0	0	0	0
East Luman	Active	0	0	0	0	0	0	-	0	0
Fort LaClede	Active	76	79	82	62	46	37	0	34	0
Green Ridge	Active	34	63	87	58	56	46	44	55	32
Hadsell Crossing	Active	48	24	53	43	10	44	38	35	10
Hadsell Road		0	0	0	0	0	0	0	0	0
Ketchum Buttes		0	0	0	-	-	-	-	0	0
Larsen North Well	Active	30	42	34	20	29	26	23	18	12
Little Savery 1	Active	75	32	0	-	-	-	-	30	30
Little Savery 2		0	0	-	-	-	-	-	-	0
Luman Rim		0	0	0	-	-	0	-	0	0
Minex West	Active	18	22	24	13	10	4	8	5	1
Mud Lake		-	0	0	0	0	-	0	0	1
Mud Lake North	Active	-	38	34	25	35	34	34	21	18
Muir Reservoir	Active	-	-	-	-	24	-	53	66	56
Mysterious		2	0	0	0	0	0	0	1	0
Negro Creek 1		0	-	0	-	-	-	-	0	0
North Fork	Active	75	-	12	-	-	-	-	0	0
Prospects South	Active	-	-	10	9	2	0	3	0	0
Red Creek Well	Active	85	80	79	49	57	32	33	29	16
Rye Gulch		0	0	0	0	0	0	-	0	0

Lek Name	Activity Status	Year Monitored/Peak Male Attendance At Leks								
		2005	2006	2007	2008	2009	2010	2011	2012	2013
Saint Patrick's	Active	21	17	10	9	2	3	0	0	
Saxon	Active	26	32	36	-	-	15	19	0	4
9-Separation Creek	Active	24	-	-	-	26	31	32	27	0
SK Well		0	0	-	0	0	0	0	0	0
Sooner	Active	17	34	37	28	23	28	24	19	4
Sooner Oil	Active	-	0	0	0	3	0	7	0	0
South Hangout		-	0	0	-	-	0	0	-	0
Southland Well	Active	57	81	69	57	54	49	49	32	20
Stateline	Active	28	30	65	34	37	56	40	63	35
Stewart Creek	Active	56	68	59	50	55	68	52	43	30
Stratton Solar Well	Active						24	28	15	8
Sugarloaf Mountain		0	0	0	0	0	0	-	-	0
Texas Oil		0	0	0	0	0	0	0	0	0
Willow Creek Rim 1	Active	28	57	34	27	22	17	31	33	13
Willow Spring		0	0	0	0	0	0	0	0	0

There were **nine (9) new leks** discovered and monitored from 2005 through 2013. These leks are identified below. One of these leks (North Willows lek) is located within the AR EIS area and the other seven leks are located in the Control Area.

- (1) **Cow Creek Reservoir** - discovered in 2013 (9 males); 24 males in 2013.
- (1) **Desert Springs North Lek** – discovered in 2009: (19 males in 2009, 18 males in 2010, 22 males in 2011, and 14 males in 2012);
- (2) **Discover East Lek** - discovered in 2006 (22 males in 2006, 12 males in 2007, 5 males in 2008, 0 males from 2009-2011, and 1 males in 2012);
- (3) **Discover South Lek** - discovered in 2009 (19 males in 2012, 19 males in 2011, and 20 males in 2012);
- (4) **Muir Reservoir Lek** - discovered in 2009 (24 males in 2009, 53 males in 2011, and 66 males in 2012);
- (5) **North Willows Lek** – discovered in 2011, 20 males in 2012;
- (6) **Prospects South Lek** - discovered in 2007 (10 males in 2007, 9 males in 2008, 2 males in 2009, and 3 males in 2011);
- (7) **Saint Patrick's Lek** - discovered in 2006 (21 males in 2006, 17 males in 2007, 10 males in 2008, 9 males in 2009, 2 males in 2010, and 3 males in 2011); and

- (8) **Stratton Solar Well Lek** – discovered in 2010 (24 males in 2010, 28 males in 2011, and 15 males in 2012).

Greater Sage-Grouse lek location and productivity surveys was completed for the Samson Resources Company by WestWater Engineering (WWE) during the 2011 field season and by Hayden-Wing Associates, LLC (HWA) during the 2012 field season for the Endurance and Barricade lease area. The study area is located approximately 26 miles north-west of Baggs, Wyoming in Sweetwater County. The project area contains both existing development and a number of proposed developments in T. 14 N., R. 95-96 W., and T. 15 N., R. 95-96 W., within the DF EIS area. The purpose of the surveys was to document the presence of Greater Sage-Grouse and to identify potential lek sites in the Barricade and Endurance Lease Units. WWE completed lek monitoring using aerial surveys on April 5, 15, and 27, 2011 and pedestrian surveys were conducted from June 6-10, 2011 focusing on the detection of concentrated Greater Sage-Grouse sign, such as fecal and cecal droppings, feathers, and tracks, to support and supplement the aerial observations. Five male grouse were observed on the third survey flight near a site where strutting males had previously been documented, but no other strutting areas were detected and no other grouse were observed during aerial surveys (Table 10). Recent grouse sign was detected near each of the previously known strutting areas during the pedestrian surveys. Sign was also detected near the site where grouse were observed during aerial surveys. No grouse nests were detected during the surveys and no Greater Sage-Grouse were observed in the lease area (WestWater Engineering 2011). HWA surveyed all known leks in and within two miles of the project area on March 13-22, 2012 and on May 16-18, 21-24 and June 12-14, 2012. Two grouse leks were active in 2012 within the project area and information pertaining to these leks is located in Table 10 above (Hayden-Wing Associates, LLC 2012).

The BP America (BP) corporation requested HWA to conduct research and monitoring in relation to the seasonal wildlife exception requests for five federal well pads: Coal Bank #20-20D (T. 18 N., R. 92 W., section 20), CG Road Unit #10-10D (T. 20 N., R. 94 W., section 10), CG Road Unit #4-30D (T. 20 N., R. 94 W., section 4), Frewen Unit #32-30D (T. 20 N., R. 94 W., section 32), and the Frewen Unit #18-100D (T. 19 N., R. 94 W., section 18). In this exception request, all of the ground disturbance, including the construction of the access roads and all five well pads, was completed during the summer and fall of 2012; this exception request pertains only to the disruptive activities associated with well drilling and completion activities, such as traffic and noise, for these five wells. Behavioral observations were conducted at the Coal Gulch (treatment), Badwater (reference) and East Seaverson (reference) leks to evaluate potential behavioral responses to well development activity at the nearby Coal Bank #20-20D well location. HWA conducted eight separate observations at each of the three leks from mid-March to early-May to document behavioral observations. To document pre-, during, and post-disruptive activities, behavioral observations are proposed for the next two consecutive years at the treatment lek and both reference leks. Night-time spot light surveys for female grouse were conducted on four of the five proposed well locations. Baseline noise monitoring was conducted near the Coal Bank #20-20D well and will occur for three consecutive years, beginning in 2013 to estimate noise levels during pre- (2013), disruption (2014) and post- (2015) activities for that well. Lastly, glucocorticoid fecal analysis is planned for three consecutive years, beginning in the 2013 field season, to investigate potential stress response of grouse to development activity.

Ground surveys for nesting Greater Sage-Grouse were conducted by HWA during the 2013 field season for BP for the Latham Draw #8-70D well located in T. 20 N., R. 93 W., Section 8 in Sweetwater County. This was completed to determine whether nesting Greater Sage-Grouse occupied the area surrounding the proposed project well pad. HWA constructed a ¼-mile buffer around the well pad using ArcGIS 10.1

(ESRI, Redlands, CA) and then overlaid a grid of survey transects that ran in a north to south direction. Transects were spaced 50 meters apart, and there were a total of 22 transects of varying lengths. HWA conducted pellet counts along these transects on May 6-7, 2013 to determine the presence of Greater Sage-Grouse. HWA walked these transects in an attempt to locate grouse pellet groups. Once pellet groups were located then a GPS location was recorded, along with the number of pellets, whether they were recent or old, and what type of pellet sample was recorded [intestinal, cecal, or clocker] (Hayden-Wing Associates, LLC May 2013).

Winter Habitat Monitoring:

To date, there have been very little studies on the effects of energy infrastructure to winter grouse survival within the CD/WII and DF EIS areas.

In the AR EIS project area, the BLM monitored 105 radio-marked female grouse (538 locations) from 18 fixed-wing flights conducted between November 1 and March 15, 2007 through 2010. There were 20 mortalities over the study period during these three winters which will be used to analyze the survival.

Greater Sage-Grouse Results:

There are 55 leks (82-percent) within the CD/WII EIS area, 63 leks (95-percent) within the AR EIS area, and 59 leks (95-percent) within the Control area that showed some fluctuation over the last nine years (even previously observing the WGFD data base from as far back as 20 years), but in general these leks remain stable and productive. **Table 10** shows the twelve (12) yellow-highlighted leks (18-percent) that did show a downward trend within the CD/WII EIS area and the three (3) yellow-highlighted leks (5-percent) that did show a downward trend within the AR EIS area. **Table 11** shows the three (3) yellow-highlighted leks (5-percent) that did show a downward trend within the Control Area. The DF EIS area leks all showed a stable trend within the nine year time period for this report, as well as for the previous years after observing the WGFD data base.

There are two strategies regarding the quantitative analysis of the downward trend from 2005 to 2012 for all of these leks and even going back 20 years. Based on data from the WGFD pertaining to the 12 leks within the CD/WII EIS area that reflect a general fluctuating trend, having both highs and lows from the 1970's to 2013, the following leks appear to be stable at this time: (1) Cherokee Mine; (2) Delaney Rim 2; (3) Holler Divide; (4) Soap Hole Wash; and (5) Standard Draw. However, the following seven (7) leks within the CD/WII EIS have **continued to show a downward trend**. Activities that may have contributed to these trends are attached and include the following:

- (1) **P&R Lek**: Downward trend started in 2006; golden eagle seen on lek for two years in 2006 & 2007; 2008 a new gas road was constructed, backhoe on lek was observed, pipeline within six-tenths of a mile of the lek, one well within six-tenths of a mile of the lek.
- (2) **Fivemile Junction Lek**: Downward trend started in 2006; lek is next to a well road; vehicle traffic observed near lek in 2005, 2006, 2007 and 2011; 2006 traffic observed flushing birds at least two times; pipeline within one-quarter of a mile of the lek; lek near road junction.

(3) **North High Point Lek**: Downward trend started in 2006; two wells are located within one-quarter mile of the; one well was constructed in 2000 and 1 well was constructed in 2002; well road next to lek location.

(4) **May Day Lek**: Downward trend started in 2005; 2000 a pipeline was constructed one and a half miles from the lek using noisy equipment; 2003 drill rig was operating three-quarters of a mile from the lek; 2004 birds stopped strutting when golden eagle flew over lek; 2005 predated male grouse by golden eagle, well road constructed through middle of lek (although this road may have been constructed in 1978), one well within six-tenths of a mile from the lek (built in 1978), one well was constructed in 1996 outside one-quarter of a mile buffer; 2008 males stopped strutting when golden eagle flew over lek.

(5) **Monument Lake Lek**: Downward trend started in 2007; 1997 drilling rig heard at lek and 20 natural gas wells in sight of lek; 1998 drilling rig heard at lek; 1999 heard and felt drilling rig; 2000 access road staked near lek; 2001 drilling rig heard at lek; 2003 new natural gas well 400 meters from lek; 2004 pipeline places through lek, constructing gas well less than 1kilometer away from the lek.

(6) **N. Barrel Springs Lek**: Downward trend started in 2007; 2006 well was constructed outside of one-quarter of a mile of the lek and pipeline was constructed within one-quarter of a mile of the lek; 2007 new well was constructed within one-quarter of a mile of the lek; 2008 new well pad close by lek.

(7) **Red Lakers Lek**: Downward trend started in 2008; 2001 cattle in area; 2003 several wells in area, two pipelines within one-quarter of a mile of the lek, road within one-quarter of a mile of the lek, one well outside one-quarter of a mile of the lek-construction date unknown-one well was constructed outside one-quarter of a mile buffer of the lek.

Based on data from the WGF D pertaining to the three leks within the AR EIS area that reflect a general fluctuating trend, having both highs and lows from the 1970's to 2013, the following lek appears to be stable at this time: (1) Separation Hilltop. The following leks within the AR EIS have continued to show a downward trend. Activities that may have contributed to these trends are attached and include the following:

(1) **Dry Cow 4 Lek**: Downward trend started in 2008; 2008 there were wells surrounding lek with one well 0.13 miles near lek and one well was constructed at 0.19 miles from lek; 2009 compressor noise heard at lek; 2010 compressor noise heard at lek; 2011 compressor noise heard at lek.

(2) **Willows 3 Lek**: Downward trend not identified; 2013 1 well was constructed 0.35 miles from lek and one well was constructed at 0.29 miles from lek.

Based on data from the WGF D pertaining to the three leks within the Control area that reflect a general fluctuating trend, having both highs and lows from the 1970's to 2012, all of the leks appears to be showing a downward trend. Activities that may have contributed to this trend are attached and include the following:

- (1) **Crooked Well Lek**: Downward trend started in 2007; 2009 uranium well was constructed less than 100 meters from lek.
- (2) **Mysterious Lek**: Downward trend not identified; 2002 new fence was constructed within one-quarter of a mile of the lek buffer; 2003 truck stuck at lek location, Shell Creek Truck trail road located within one mile of lek buffer.
- (3) **Willow Spring Lek**: Downward trend not identified; 1988 well was constructed 0.11 miles from lek.

The BLM is presently analyzing the four to seven year trend of these leks in relation to natural gas development within both a two-mile and four-mile buffer around each lek. Research has shown lek attendance to decline after a four year time period within natural gas fields and other types of project areas; therefore, this data analysis within the three EIS areas will be required to compare trend type within developed and control areas. As stated above, 82-percent of the CD/WII EIS area leks, 100-percent of the DF EIS areas leks, 95-percent of the AR EIS area leks, and 95-percent of the Control Area leks have remained stable from 2005 through 2013.

The BP America Corporation requested HWA to conduct research and monitoring in relation to the seasonal wildlife exception requests for five federal well pads with some results following. In this exception request, all of the ground disturbance, including the construction of the access roads and all five well pads, was completed during the summer and fall of 2012; this exception request pertains only to the disruptive activities associated with well drilling and completion activities. Eight observations videos were recorded at each lek, approximately 120 hours of video were recorded across all three leks, and at this time, HWA is currently analyzing the results of the behavioral study; the behavioral observations will be analyzed using Blickley 2013 methods. Lek count survey results are identified above in Table 10. HWA conducted 19.5 person hours of nocturnal spot-light surveys on April 23 and 24, 2013 and no grouse were detected during these surveys. Noise monitors were placed in four different locations within 285 meters of the center of the Coal Gulch lek and results were analyzed. Eight glucocorticoid samples were collected from each lek, with a total of 73 fecal samples collected during the 2103 field season, and HWA will have those samples analyzed when they determine which laboratory to use. Surveys also identified 18 bird species and nine mammal species during the 2013 field season, of which five birds (Brewer's sparrow, loggerhead shrike, sage sparrow, sage thrasher, and ferruginous hawk) and one mammal (pygmy rabbit) are on the BLM RFO Sensitive Species list.

Results from the ground surveys for nesting Greater Sage-Grouse that were conducted by HWA during the 2013 field season for BP for the Latham Draw #8-70D well located in T. 20 N., R. 93 W., Section 8 in Sweetwater County include locating two (2) grouse pellet piles. Both piles were classified as old. No grouse were observed within the ¼-mile buffer surrounding the proposed well pad. HWA did opportunistically observe one female grouse approximately 0.43 miles northeast of the proposed well pad crossing a well pad access road. There is a GP collared female grouse that was captured and fitted with a rump-mount transmitter near the North Wamsutter lek in April 2013 that has been consistently located near the eastern edge of the well pad one-mile boundary since the beginning of May 2013. The hen was on an active nest in 2013, approximately 0.93 miles from the Latham Draw #8-70D proposed well pad; however, note that this is a single bird and the behavior and general locations of this bird are not representative of the grouse population in the Chain Lakes and Wamsutter area (Hayden-Wing Associates, LLC May 2013).

Winter Habitat Results

The BLM will update their GIS system with any winter habitat information based on winter habitat flights, specifically those conducted within the AR EIS area during three winters from 2007-2010, and any associated reports' findings with concurrence from the WGFD. Current management focuses on male lek attendance protection measures, as opposed to winter use population models, which affords limited protection; however, since sage-grouse are a landscape-scale species the BLM should continue to protect nesting females in their entirety as well (as is done in the RFO RMP), and not just within a two- or four-mile nesting habitat protection buffer.

In the AR EIS project area, Smith concluded from the study that winter sage-grouse occurrence was positively associated with landscape variables including variability in shrub height and wetness potential. In the study area, the winter quality map indicated that effective winter habitat (high occurrence-high survival) was limited, only representing 22-percent of the study area. Displacement from these limited, high-quality winter habitats could have consequences to population persistence and that it is important to link survival to habitat use when assessing habitat quality since this can prioritize conservation efforts focused on population persistence of declining species. In the model, total shrub cover (at its quadratic form) and standard deviation of shrub height, as well as the topographical wetness index (TWI), both had a strong positive correlation with winter occurrence. The study did not detect an association between anthropogenic variables (surface disturbance and count of energy wells) and female survival risk in the winter. The model was a good predictor of winter habitat selection by female sage-grouse. Wintering sage-grouse selected areas with higher TWI, intermediate total shrub cover, higher variability in shrub height, and less heterogeneity in Wyoming big sagebrush and total shrub cover across three spatial scales. TWI may be a proxy for high quality sagebrush that protrudes above snow and is likely of greater importance to grouse winter habitat selection following major snow accumulation events. Although studies on sage-grouse suggest that oil and gas development influences populations through lowered male lek attendance, declining lek persistence, lower yearling male recruitment to disturbed leks, lower nest initiation rates, lower annual adult female survival, and increased chick mortality or brood loss, this study did not detect an association between oil and gas infrastructure variables and winter female survival; even though the model did show avoidance of highly disturbed areas which is a loss of effective habitat. This model can provide winter habitat quality maps critical for conservation planning (Smith et al, 2012).

Ute ladies'-Tresses Plant

The Ute ladies'-tresses orchid (*Spiranthes diluvialis*) is a perennial, terrestrial orchid with erect, glandular-pubescent stems eight to 20 inches (20-50 cm) tall, arising from tuberous-thickened roots. Its narrow leaves are about 11 inches (28 cm) long at the base of the stem and become reduced in size going up the stem. This species flowers from late-July through September. Plants probably do not flower every year and may remain dormant below ground during drought years. The flowers consist of three to 15 small white- to ivory-colored flowers clustered into a spike arrangement at the top of the stem. Whitish, stout, spirally arranged flowers characterize the species. The sepals and petals, except for the lip, are rather straight, although the lateral sepals are variably oriented, with these often spreading abruptly from the base of the flower. Sepals are sometimes free to the base. The lip lacks a dense cushion of trichomes on the upper surface near the apex. The rachis is sparsely to densely pubescent, with the longest trichomes 0.008 inches (0.2 cm) long or longer.

Blooms were recorded as early as early-July and as late as early-October. Reproduction is strictly sexual.

Reproductively mature plants do not flower every year. These plants may take five to 10 years to reach reproductive maturity. The Ute ladies'-tresses orchid is endemic to moist soils in mesic or wet meadows; sub-irrigated or seasonally flooded soils in valley bottoms; gravel bars; old oxbows; or floodplains bordering springs, lakes, rivers, or perennial streams between 1,780-6,800 feet in elevation).



Figure 11: Ute ladies'-tresses plant and associated riparian habitat

Figure 11: *Ute ladies'-tresses plant and associated riparian habitat* identifies the plant and its associated riparian habitat, generally east of the EIS areas. The species occurs primarily in areas where the vegetation is relatively open and not overly dense, overgrown or overgrazed. Populations have been documented from alkaline sedge meadows, riverine floodplains, flooded alkaline meadows adjacent to ponderosa pine-Douglas fir woodlands, sagebrush steppe, and streamside floodplains. Known sites of this species often have low vegetative cover and may be subjected to periodic disturbances (e.g., flooding or grazing). Populations are often dynamic and shift within a watershed as disturbances create new habitat or succession eliminates old habitat. The Ute ladies'-tresses orchid is well adapted to disturbances from stream movement and is tolerant of other disturbances, such as light grazing, that are common to grassland riparian habitats and which reduce competition between the orchid and other plants. The species is known to establish in heavily disturbed sites, such as re-vegetated gravel pits, heavily grazed riparian edges, and along well traveled foot trails (USDI, BLM 2008).

Ute Ladies'-Tresses Inventory

The Ute ladies' tresses orchid is known to occur from western Nebraska, southeastern Wyoming, north-central Colorado, northeastern and southern Utah, east-central Idaho, southwestern Montana, and north-central Washington. The total population is approximately 20,500 individuals. The Ute ladies' tresses occur at four locations in Wyoming and one of these is in Laramie County on private lands (USDI, BLM 2008). To date no populations of Ute ladies'-tresses are known to occur on public lands within the RFO and the potential to occur within the EIS areas is very low.

Ute Ladies'-Tresses Monitoring

At this time, monitoring of this plant is not occurring within the EIS areas. Projects are analyzed at the site-specific level to determine if the potential for the plant to occur is present and projects are generally kept 500 feet from riparian habitat, which ultimately protects this plant. It is highly unlikely that this plant is located within the EIS areas. If a project will cause a potential impact to the plant then informal and/or formal consultation with the USFWS will occur to facilitate the conservation of the plant.

Ute Ladies'-Tresses Results

The species is threatened primarily by habitat loss and modification, though its small populations and low reproductive rate make it vulnerable to other threats. The riparian and wetland habitats required by this species have been heavily impacted by urban development, heavy grazing, stream channelization, water diversions, other watershed and stream alterations that reduce the natural dynamics of the stream system, recreation, and invasion of habitat by exotic plant species - the majority of which have occurred outside of the EIS areas. Wyoming's populations of Ute ladies' tresses are largely not threatened under current management, but could become vulnerable by changes in land uses which include the following potential threats: (1) urbanization, (2) grazing, (3) mowing, (4) flood control, (5) pesticide use, (6) competition from introduced noxious and invasive weeds, (7) natural herbivory, (8) loss of pollinators, (9) recreation, and (10) over-collection. The effects of grazing are largely unknown. The largest populations of the species, in Utah and Colorado, are grazed during the winter, when they are dormant, with no noticeable effect on the species. It is plausible that moderate winter grazing may be beneficial to the species.

Colorado River System Depletion

Several fish species occurring as residents or migrants in the Colorado River basins (inclusive of major tributaries) have experienced material declines in abundance, distribution, and the availability of suitable habitats since the turn of the 20th century. The reasons for these declines are multifarious, but the two most pervasive and encompassing reasons are (1) the effects of water developments, including dam construction, diversion, and consumptive use of water, and concomitant changes in river flow and channel characteristics; and (2) introductions of non-native aquatic species. Water developments such as dams, reservoirs, and irrigation diversions have altered natural surface water hydrographs (timing, magnitude, and duration). Altered hydrographs can indicate negative effects on the ecosystems of river-dependent species. Habitat alterations and habitat fragmentation due to dams, reservoirs, and regulated flows have resulted in changes in habitat availability, habitat distribution, and habitat quality. In addition, introductions of non-native fishes, such as rainbow trout, brown trout, and channel catfish, have resulted in competitive exclusion and diminished abundance of native fishes in much of their historic ranges. Such impacts have reduced populations of federally listed fishes in the upper Colorado River Basin, such as the Colorado pikeminnow. Finally, the inundation or diminution of wetland habitats due to flow regulation and reduced water availability can negatively impact wetland plants. Water depletions, though they occur hundreds of miles upstream, can affect population abundance and the availability of suitable habitats for federally listed fishes in the upper Colorado River basins. The BLM has historically authorized several types of activities and associated infrastructure within the project area that constitute water depletions in the Colorado River basins—a depletion to river flows occurs when tributary surface water or groundwater is removed from its source (to the extent that some of the

water is not returned to its source) to be used elsewhere for a beneficial use. These activities include oil and gas development (USDI, BLM 2008).

Colorado pikeminnow: The Colorado pikeminnow, formerly known as the Colorado squawfish (*Ptychocheilus lucius*) is a torpedo-shaped fish with an olive-green and gold back, silver sides, and white belly. These fish spawn between late June and early September, when they are five to six years old and at least 16 inches (41 cm) long. Similar to salmon, Colorado pikeminnow can migrate more than 200 miles to spawn. The largest minnow in North America and one of the largest in the world, the Colorado pikeminnow at one time may have lived 50 or more years, growing to nearly six feet (1.8 m) long and weighing up to 80 pounds (36 kg). The species was listed as Endangered (32 FR 4001, March 11, 1967) in 1967, except in the Salt and Verde River drainages in Arizona. The Colorado pikeminnow is listed as Threatened by the State of Colorado and is legally protected by the State of Utah. The Colorado pikeminnow was historically abundant in the Colorado River and most of its major tributaries, such as the Yampa River and Green River. Though a single individual was collected in 1990 from the Little Snake River, the Colorado pikeminnow is currently thought to be extirpated from Wyoming (USDI, BLM 2008). There is no Critical Habitat identified in Wyoming; however there is Critical Habitat identified downstream in Colorado and Utah. The Colorado pikeminnow prefers eddies and pools in large, deep rivers such as the Colorado River and Green River (USDI, BLM 2008).

Razorback sucker: One of the largest suckers in North America, the razorback sucker (*Xyrauchen texanus*) can grow to up to 13 pounds (5.9 kg) and lengths exceeding three feet (0.9 m). The razorback is brownish-green, with a yellow to white-colored belly; and has an abrupt bony hump on its back shaped like an upside-down boat keel. The razorback sucker was historically well-distributed in the Colorado River and in many of its major tributaries. Presently the razorback sucker is listed as Endangered under the ESA. In addition, the razorback sucker is listed as Endangered in the state of Colorado and is legally protected by the State of Utah. There is no Critical Habitat identified in Wyoming; however there is Critical Habitat identified downstream in Colorado and Utah. The razorback sucker does not occur within the RFO and this fish prefers fast, turbid waters in large rivers, such as the Colorado River and Green River.

Bonytail chub: The body of an adult bonytail chub (*Gila elegans*) is highly streamlined, a greenish-gray, with a dusky color on its back, silvery sides, and a white belly. The bonytail chub may reach up to 24 inches (0.6 m) in length and weigh over two pounds (0.9 kg). Young fish in riverine habitats eat primarily chironomid larvae and mayfly nymphs. Small fish become more dependent on floating food as they grow, and juvenile chub eat a more diversified diet, including terrestrial and aquatic insects. Adult bonytail chub feed on terrestrial insects, gastropods, and caddis worms. The diet of bonytail chub in reservoirs appears to be primarily plankton and algae, and the bonytail may also eat rainbow trout fry less than two and a half inches (6.4 cm). The bonytail is listed as Endangered under the ESA, is listed as Endangered in the State of Colorado, and it is legally protected by the State of Utah. Historically the bonytail was abundant in the Colorado River and in its major tributaries, such as the Green River and the Yampa River. At present the bonytail is precariously extant in the Colorado River downstream of Lake Powell, and the bonytail is nearly extinct upstream of Lake Powell. There is no Critical Habitat identified in Wyoming; however there is Critical Habitat identified downstream in Colorado and Utah. The Bonytail does not occur within the RFO and this fish prefers fast-flowing, turbid waters in large, deep rivers in the upper Colorado River Basin, such as the Green River and Colorado River (USDI, BLM 2008).

Humpback chub: The humpback chub (*Gila cypha*) is a member of the Cyprinidae family and is distinguishable from other chubs by a pronounced hump that arises above the gills and extends to the

origin of the dorsal fin. It has a flattened, concave head; small eyes; sub-terminal, beak-like mouth; a long snout that protrudes over the lower jaw; and large fins. The humpback chub is gray or olive-colored on its back, with silver sides and a white belly. During the spawning season, adults will develop rosy-red fins and gill coverings. Some areas of the Colorado River are turbulent, consequently it is believed that the hump causes the humpback chub to be pushed to the bottom where water velocities are lower and where the chub can hold its position without exerting excess energy. Grooves associated with the hump may aid in directing water to the fish's gills and the long snout and beak-like mouth may allow the fish to feed without the mouth becoming filled with rushing water. The Humpback chub's diet includes aquatic and terrestrial arthropods, small fishes, diatoms, planktonic crustaceans and algae. The humpback chub is listed as Endangered under ESA, is listed as Endangered by the State of Colorado, and it is legally protected by the State of Utah. Historically the humpback chub was abundant in the canyons of the Colorado River and in the canyons of four tributaries: the Green River, the Yampa River, the White River, and the Little Colorado River. Presently two stable populations of humpback chubs are known to exist, both near the Colorado-Utah border: Westwater Canyon (Utah) and Black Rocks (Colorado). The largest known population of humpback chubs exists in the Little Colorado River in the Grand Canyon. Smaller populations of humpback chubs can be found in the main stem of the Colorado River in Arizona and in sections of its tributaries, such as the Green River in Utah and Colorado and the Yampa River near Dinosaur National Monument. There is no Critical Habitat identified in Wyoming; however there is Critical Habitat identified downstream in Colorado and Utah. The humpback chub does not occur within the RFO and this fish prefers fast waters in habitats, such as the riffles and rapids of river canyons and their tributaries in the Colorado River Basin (USDI, BLM 2008).

Colorado River System Depletion Inventory

The Bureau completed a formal consultation for the reauthorization of livestock watering facilities in the Colorado River Basin in October 2000. Most water depletions include the development of small impoundments (usually for livestock management activities and wetland creation), stock water development and wells at campgrounds, as opposed to well construction and associated pipelines. The use of water during well drilling and operation activities has been calculated by estimating the average volume of water used for all activities associated with production per well (1.1 acre-feet per well for conventional gas wells and 0.3 acre-feet per well for coalbed methane wells) and multiplying by the estimated number of conventional and coalbed methane wells. Well construction activities include well drilling and completion operations, hydrostatic testing for local pipelines, and dust abatement. Estimating total water usage by well construction activities and hydrostatic testing does not necessarily represent water depletions, as only a portion of water used would exit the system or be unavailable during critical periods downstream. Well construction activities, including pipelines, have been calculated to deplete 0/65 acre-feet per well (USDI, BLM 2008).

Colorado River System Depletion Monitoring

The RFO has completed the following depletion analysis within the three EIS areas for these four endangered fish species between 2005 and 2013: (1) AR EIS 2008 Project: 10.3 acre-feet per year for the entire project area. Because water depletion due to this project is less than 100 acre-feet per year, a mitigation fee would not be applicable; (2) Sinclair/Little America Westvaco Pipeline Project: this project was consulted on with the USFWS on September 3, 2011; this caused a depletion of 131.3 acre-feet; the mitigation fee paid by the company was \$2,058.70.

Colorado River System Depletion Results

The BLM RFO will continue to participate in the Colorado River Recovery Program for projects that cause depletions to the Colorado River system. If a project will cause water depletion to the Colorado River system, then formal consultation with the USFWS will occur to facilitate the conservation of the Colorado River species and its Critical Habitat located downstream in Colorado and Utah. In addition, when developing or improving a water source in the Colorado River system, the RFO will consider development designs such as water wells and guzzlers, rather than surface impoundments, to minimize impacts to surface water hydrology resulting from attenuation of flood peaks and evaporative loss.

BLM WYOMING STATE DIRECTOR'S SENSITIVE SPECIES

Many wildlife and plant species have experienced population declines prior to and during the development of the CD/WII, DF and AR EISs. The Wyoming BLM has developed a BLM Wyoming State Director's Sensitive Species (BLM Sensitive Species) list to better manage these species and their habitats. The goal is to ensure that any actions on public lands consider the overall welfare of these species and do not contribute to their decline. The BLM policy on these species is implemented to ensure actions authorized, funded or carried out by the BLM do not contribute to the need for any species to become listed as a candidate, or any Candidate Species to become listed as Threatened or Endangered. As with T&E species identified above, this list of species is dynamic and can change throughout the life of these three EISs projects.

BLM Wyoming State Director's Sensitive Species Inventory

The level of inventory required for sensitive species have been determined based on an established protocol for each potentially affected species. Surveys for BLM Sensitive Species have been conducted by the BLM or a BLM-approved, Operator-finance biologist, in areas of potential and/or known habitat where the *Monitoring without Borders Team* have identified. In addition, site- and species specific BLM Sensitive Species inventory requirements are determined at the APD and ROW application field reviews. There are several species that **will not be discussed further** as these species and their associated habitat types are not located within or adjacent to the EIS areas. These species include the following: (1) **Plants**: meadow milkvetch, Laramie Columbine and limber pine; (2) **Mammals**: black-tailed prairie dog; (3) **Birds**: Baird's sparrow, white-faced ibis, trumpeter swan, and northern goshawk; (4) **Amphibians**: Western boreal toad; (5) **Reptiles**: none; and (6) **Fish**: hornyhead chub. In addition, the CD/WII EIS and the DF EIS states that in areas where four well locations are developed the entire section plus a one-mile buffer, as well as selected undeveloped comparison areas, will be surveyed annually during the spring and summer by the BLM or a BLM-approved, Operator-finance biologist, for selected BLM Sensitive Species. If species are found, efforts will be made to determine activities, such as breeding, nesting, foraging and hunting. The AR EIS requires surveys to be conducted in areas of potential habitat within one-half mile of proposed disturbance prior to disturbance. The *Monitoring without Borders Team* identifies these needs at the annual meetings and will continue to do so for future inventory requirements.

The following species will be discussed further as these species and their associated habitat types do have the potential, or are known to occur, within the EIS areas. These species include:

- (1) **Plants**: Cedar Rim Thistle, Gibben's beardtongue, persistent sepal yellowcress, and Laramie false sagebrush;

- (2) **Mammals:** long-eared myotis, fringed myotis, spotted bat, Townsend's big-eared bat, pygmy rabbit, Wyoming pocket gopher, swift fox, white-tailed prairie dog;
- (3) **Birds:** loggerhead shrike, sage thrasher, Brewer's sparrow, sage sparrow, long-billed curlew, Columbian sharp-tailed grouse, bald eagle, ferruginous hawk, peregrine falcon, mountain plover, burrowing owl;
- (4) **Amphibians:** northern leopard frog, Great Basin spadefoot; and
- (5) **Fish:** Colorado River cutthroat trout, roundtail chub, flannel mouth sucker, bluehead sucker.

BLM Wyoming State Director's Sensitive Species Habitat Use Monitoring

The level of monitoring required for the sensitive species have been determined based on an established protocol for each potentially affected species. Monitoring for BLM Sensitive Species have been conducted by the BLM or a BLM-approved, Operator-finance biologist, in areas of potential and/or known habitat where the *Monitoring without Borders Team* have identified from 2005-2013, as well as in previous field seasons. The *Monitoring without Borders Team* identifies these needs at the annual meetings and will continue to do so for future monitoring requirements.

BLM Sensitive Plants Inventory

There are seven BLM RFO sensitive plant species that are identified by BLM wildlife biologists within the RFO area which include the meadow milkvetch, Laramie columbine, Cedar Rim thistle, Gibben's beardtongue, persistent sepal yellowcress, Laramie false sagebrush, and limber pine. The meadow milkvetch, Laramie columbine, and limber pine are not located within the CD/WII, DF, and AR EIS project areas. The BLM RFO Sensitive Plants that have the potential to occur within the project areas, but that have not had extensive surveys completed at this time include the Cedar Rim Thistle, Gibben's beardtongue, persistent sepal yellowcress, and Laramie false sagebrush. However, the following describes some inventory efforts that have been completed to date by the WYNDD and BLM.

Cedar Rim Thistle Inventory:

The Cedar Rim thistle (*Cirsium aridum*) is a perennial, tap-rooted herb with loosely to densely woolly-hairy stems up to 30 cm tall. The leaf surface is loosely white gray hairy above and densely white-wooly below (Figure 12: Cedar Rim thistle plant with flower heads and associated habitat). One to four heads of lavender flowers are crowded at the tip of the stem. The fruit of this plant (achens) are cream-colored with fine brown streaks and lack a yellow collar at the top. The plant's flowering and fruiting period occurs from June through July. The WYNDD completed some inventory studies to determine the locations of this plant in Wyoming. This plant is restricted to the Green River Basin in Sublette County, Beaver Rim area in Fremont County, Sweetwater River Valley in Carbon County, and highlands on the east side of Flaming Gorge in Sweetwater County; therefore, the known occurrences for this plant are on lands managed by the BLM Lander, Pinedale, Rawlins and Rock Springs Field Offices. This plant typically occurs on barren slopes, fans, and draws on whitish-gray sandstone, chalk, tufaceous colluvium, or clay substrates derived from the Split Rock, White River, Wagon Bed, Wind River, Green River, and Wasatch formations.

Populations are found mostly in sparsely vegetated openings within Wyoming big sagebrush grasslands at 5800-7500 feet. The population abundance is estimated to be 40,000-50,000 plants and is probably stable at present, although long-term trend data are lacking. This species may be capable of colonizing semi-disturbed roadsides in the Beaver Rim area and may actually be increasing locally.

The main threat to this species may be herbicide spraying or release of bio-control insects intended to control populations of Canada thistle or musk thistle. Mineral development activities occur within much of the plant's range, but are usually confined to lower-lying areas, not inhabited by this plant. Soil erosion or displacement of plants by off-road vehicles is also a potential threat. The plant is not readily grazed and does not appear to be impacted by livestock (Fertig 2000a).



Figure 12: Cedar Rim thistle plant with flower heads and associated habitat.

Surveys for this plant in Carbon County and Sublette County were conducted by revisiting the four known locations of this plant. To date, the only known location of this plant in Carbon County is the Ferris Mountain area. The model shows this plant has the potential to be located within the EIS areas; however, to date, surveys have been limited. In addition, the taxonomic status of this plant was brought into question and is being evaluated by the experts.

Persistent Sepal Yellowcress Inventory :

The persistent sepal yellowcress (*Rorippa calycina*) is a rhizomatous perennial herb with stems 10-40 cm tall. The flowers are borne in terminal and axillary inflorescences and have four yellow petals three to five mm long and four sepals that persist in fruit (Figure 13: Persistent sepal yellowcress plant with flower heads and associated habitat). Fruits are ovoid to nearly globose, two to four mm long, and conspicuously pubescent with unbranched hairs that are broadest at the base. The plant's flowering and fruiting period occurs from late-May to August, although blooming may extend into October under favorable circumstances. The WYNDD completed some inventory studies to determine the locations of this plant in Wyoming. This plant is a regional endemic of south-central Montana, western North Dakota, and central Wyoming, with a disjunct population 2,500 miles to the north on the Arctic coast of Canada's Northwest Territories. In Wyoming, it is known from the Bighorn Basin, North Platte River drainage, and Great Divide, Green River, and Wind River basins in Albany, Big Horn, Carbon, Fremont, Park, Sweetwater, and Washakie counties. There are 24 known occurrences for this plant in Wyoming, all of which have been observed since 1977. The total population of this plant consists of more than 70 subpopulations, some of which were formerly recognized as separate occurrences. Eleven populations are on protected lands managed by the Nature Conservancy (Red Canyon Ranch), the USFWS

(Pathfinder National Wildlife Refuge), the BLM Lander Field Office (BLM Red Canyon ACEC), and Wyoming State Parks (Boysen, Buffalo Bill and Seminoe). All other known populations are on public or private lands managed for multiple uses (Fertig 2005).



Figure 13: *Persistent sepal yellowcress plant with flower heads and associated habitat.*

This plant is found primarily along moist sandy to muddy banks of streams, stock ponds, and man-made reservoirs near the high-water line at 3660-6800 feet. Most populations are in semi-disturbed or recently flooded openings in small inlets or bays, but these plants can also be found on grassy shores or openings. The population abundance is estimated at 15,000-25,000 plants. Long-term trend data are not available for most populations and individual populations appear to vary in size and area from year to year in response to flooding levels.

The primary threat to this plant is from changes in water management that reduce the periodic flooding. Other threats include competition from exotic plants, herbicide spraying, trampling by livestock, recreational activities, and coal mining (Fertig 2000b). In Carbon County this plant has been found along the Seminoe Reservoir, the Bolton Ranch, and in Sweetwater County within Hay Reservoir. The model shows this plant has the potential to be located within the EIS areas; however, to date, surveys have been limited.

Gibben's Beardtongue Inventory

The Gibben's beardtongue (*Penstemon gibbensii*) is a perennial herb with one to many erect, pubescent (rarely glabrous) stems 4-14 inches tall. The inflorescence and flowers (including the sepals) are glandular-hairy (Figure 14: *Gibben's beardtongue plant with flower heads and associated habitat*). The corolla is tube shaped, bright blue and one-half to three-quarters inches long. Fruits are oval, tawny-brownish capsules. The flowering phenology occurs from early-June to late-July, depending on summer moisture conditions, although there appear to be differences between populations as to the start of flowering with higher populations flowering the earliest. Prolonged flowering into September has been reported. This plant is a regional endemic of south-central Wyoming in Carbon and Sweetwater Counties, northwest Colorado in Moffat County and northeastern Utah in Daggett County. In Wyoming, this plant is restricted to the southern Washakie Basin, north and west of Baggs. It is also in the Upper North Platte River valley, north of Saratoga. In Colorado and Utah, it is found in the Green River

watershed. The three areas of distribution span a distance of about 120 miles and are all part of inter-montane basins within the Wyoming Basins Ecoregion.

The Gibben's penstemon plant is found primarily on barren shale or sandstone slopes of the Browns Park Formation or Laney member of the Green River shale. Often, habitat is located below cap rock, on the steep, upper middle slopes eroding out below the resistant layer. The settings are sparsely vegetated grasslands with scattered shrubs at 6200-7700 feet. Based on 2008 surveys results, there are



Figure 14: *Gibben's beardtongue plant with flower heads and associated habitat.*

now six Wyoming occurrences and the current total number of plants in Wyoming is estimated at 6,000-9,000 plants. In Colorado there are no more than 5,000 plants. In general this plant appears to have minimal reproductive success in most years due to dry conditions. The latest surveys have shown a total plant area of approximately 270 acres in size, but it should be noted that the species' local distribution patterns are not continuous where they are present, and the species may occupy anywhere from five to 50-percent of an area as mapped so any map of population boundaries over-represents occupied habitat. The tally of occupied habitat in Colorado is 25 acres (in the two occurrences) and in Utah is 10 acres (in the one occurrence). The restricted and specialized habitat of this plant makes this species vulnerable to habitat degradation and loss. Grazing, mineral development, recreation, roads and weeds are potential threats. Drought, climate conditions and big game herbivory may directly or indirectly impact the species and erode its habitat (Heidel 2009). The plant has been identified in association with volcanic ash as a component of the soil. The model shows this plant has the potential to be located within the EIS areas; however, to date, surveys have been limited within the EIS areas.

Laramie False Sagebrush Inventory

The Laramie false sagebrush (*Sphaeromeria simplex*) is a perennial herb with a branched woody caudex and stems less than 12 cm tall (Figure 15: Laramie false sagebrush plant with flower heads and associated habitat). Flowering stems have two to three small, linear leaves and a single, terminal flower head of 30-50+ yellow disk flowers with silvery sage-like leaves. This plant has previously been described as mat forming, but recent drought conditions have exacerbated the "break-up" of mats.

Fruits are ovate to obovate, in two rows, with slightly thickened greenish midribs canescent or glabrous, margins scarios. The plant's flowering occurs from mid-May to early-July and fruiting occurs from late-May to mid-August. The WYNDD completed some inventory studies to determine the locations of this plant in Wyoming. This plant is endemic to the Shirley Mountains, Shirley Basin, and western foothills of the Laramie Range in Carbon, Natrona, Converse, and Albany counties in south-central Wyoming.

This plant occurs on windswept ridges, rims, buttes, and barren slopes of rocky or gravelly limestone-sandstone, dominated by cushion plant communities or occasionally by low sagebrush. The sparsely vegetated habitat is found from open plains to lower montane settings within more densely, vegetated big sagebrush, mountain mahogany, juniper, or limber pine stands at 6880-8700 feet. The population abundance is estimated at over 1.6 million plants based on the most recent 2009 surveys. Population numbers may be determined differently depending on what is interpreted as constituting an individual. At this time, trend data are not available for any sites except at the Laramie Quarry; however, those are difficult to determine due to different estimation models. The model shows this plant has the potential to be located within the EIS areas; however, this potential is limited to limestone/sandstone outcrops which are limited within the EIS project areas. To date, surveys have been limited within the EIS areas.



Figure 15: *Laramie false sagebrush* plant with flower heads and associated habitat

Threats to the Laramie false sagebrush plant include grazing, wind energy development, mining and extractive energy development, roads, recreation, and weeds. The *Sphaeromeria* genus has glandular leaves and flowers, and a fragrance of crushed leaves that resembles the fragrance of *Artemisia*, suggesting chemical similarities that render the plant unpalatable. Wind development may impact the plant due to the placement of towers that follow rims and ridges as topographic features that corresponds with the specie's distribution. Wind energy turbines may also affect the plants by causing desiccation of the surrounding vegetation due to the wind-churning effects. (Handley et al 2010).

BLM Sensitive Plants Monitoring

Cedar Rim Thistle Monitoring

The taxonomic placement of this species remains controversial (Fertig 2005); therefore, monitoring requirements for this plant within the EIS areas may need to defer to the taxonomic question at hand. Although monitoring is required, the BLM RFO biologists will need to determine the next monitoring

steps necessary to effectively analyze potential impacts to the Cedar Rim thistle plant species from projects authorized within the CD/WII, DF, and AR EIS areas.

Persistent Sepal Yellowcress Monitoring

Although monitoring is required, the BLM RFO biologists will need to determine the next monitoring steps necessary to effectively analyze potential impacts to the persistent sepal yellowcress plant species from projects authorized within the CD/WII, DF, and AR EIS areas. The BLM plans to establish monitoring transects for this plant within Hay Reservoir.

Gibben's Beardtongue Monitoring

There are two monitoring studies for this plant in Wyoming which have provided insights into the life history and species' vulnerabilities from monitoring data re-collected along permanent belt transects. Monitoring has shown that the seedling establishment stage has been the most restrictive life history stage in recent years, that the sites without gravel and skeletal material on the soil surface may be far more vulnerable to erosion as exacerbated by drought, and that available seed biology information suggests that this species is likely to have a seed bank and the phenology of germination is set in large part by spring precipitation. The BLM monitors the plant using belt transects at two locations. Cherokee Basin has been monitored eight times as of 2011. An initial increase of the plant followed the construction of the enclosure in 1992, there were 2000 plants in 1995, there was an episode of high seedling numbers around 1997, then a sharp decline of both seedlings and established plants (10 times) had occurred and only 50-100 plants observed in 2007. No seedlings were found in 2008 despite moist spring conditions.

The monitoring at Flat Top was set up in 1995 using three transects and repeated in 2008. These plants have declines greater than five times over the 13-year interval. No seedlings were found in 1995 and only three were found in 2008. The Flat Top monitoring indicates that trends are localized; two showed sharp declines while the third has modest declines. There was a 5-percent browse level identified in both 1995 and 2008, regardless of both plant and stem numbers, which does not indicate high levels of herbivory at the Flat Top Mountain site, as was originally suggested. The layout running perpendicular to the slope rather than parallel to it introduces a great degree of habitat variability across the transect and risks habitat destabilization and accelerated erosion associated with reading the transect. The demographic monitoring needs to be re-designed and commitments made to annual monitoring (Heidel 2009).

The BLM established the Sand Creek monitoring in 2011. Monitoring is analyzing established belt transects and monitoring is planned to occur every three to five years by the BLM. Although monitoring has occurred, the BLM RFO biologists will need to determine the next monitoring steps necessary to effectively analyze potential impacts to the Gibben's beardtongue plant species from projects authorized within the CD/WII, DF, and AR EIS areas.

The BLM RFO biologists will need to determine the next monitoring steps necessary to effectively analyze potential impacts to the Gibben's beardtongue plant species from projects authorized within the CD/WII, DF, and AR EIS areas.

Laramie False Sagebrush Monitoring

A monitoring program with permanent markers and coordinates recorded with a GPS unit, detailed record of methods, and photo-points were established in 2009 at the Laramie Quarry. It is recommended by the WYNDD that any new, long-term monitoring also evaluate methods of measuring cover devised for mat-forming plants as an alternative to recording individuals (Handley et al 2010).

Although monitoring for this plant is required, the BLM biologists will need to determine the next monitoring steps necessary to effectively analyze potential impacts to the Laramie false sagebrush plant species from projects authorized within the CD/WII, DF, and AR EIS areas.

*BLM Sensitive Plants Results**Cedar Rim Thistle Results*

The BLM field office biologists have not thoroughly inventoried potential habitats for this plant within the EIS areas. In addition, monitoring potential impacts to this plant as a result of natural gas development has not occurred to date. The taxonomic question needs to be answered and then the BLM can move forward from there.

Persistent Sepal Yellowcress Results

The BLM field office biologists have not thoroughly inventoried potential habitats for this plant within the EIS areas. In addition, monitoring potential impacts to this plant as a result of natural gas development has not occurred to date.

Gibben's Beardtongue Results

The BLM field office biologists will continue to monitor this plant within the three known monitoring sites to determine population stability. The BLM will continue to inventory for this plant within the EIS areas and if populations are found the BLM will establish new monitoring sites.

Laramie False Sagebrush Results

Although habitat is limited within the EIS areas, to date, the BLM field office biologists have not thoroughly inventoried potential habitats for this plant within the EIS areas. In addition, monitoring potential impacts to this plant as a result of natural gas development has not occurred to date.

BLM Sensitive Mammals Inventory

There are nine BLM RFO sensitive mammal species that are identified by BLM wildlife biologists within the RFO area which include the long-eared myotis, fringed myotis, spotted bat (**Figure 16: Spotted bat species [left] and fringed myotis bat species [right] and associated habitats**), Townsend's big-eared bat, pygmy rabbit, Wyoming pocket gopher, swift fox, white-tailed prairie dog and black-tailed prairie dog. The black-tailed prairie dog is not located within the CD/WII, DF, and AR EIS project areas. The inventory protocol for the BLM sensitive mammals that have the potential to occur within the CD/WII, DF and AR EIS areas includes four bat species: the long-eared myotis, fringed myotis, spotted bat and

Townsend's big-eared bat; and three mammals: the pygmy rabbit, Wyoming pocket gopher, swift fox and white-tailed prairie dog and are discussed below.

Bat Species Inventory

WYNDD completed some inventory studies to determine which bat species may be present within south-central Wyoming. **Table 12: Bat Species Captured and/or Detected in Southeastern and South-Central Wyoming in 2012** is shown below which identifies species and numbers detected. Although this study extended further east than the EIS project areas it still identified bat species that are known to occur within the natural gas development projects areas west of Rawlins, Wyoming. A large part of the study area was located within the EIS area and detailed maps are located at the RFO for review. The objectives for this study in 2012 were to:

- (1) Conduct an inventory of bat species and their habitats in central Wyoming;
- (2) Validate summer distribution models for nine bat species and fall migration (stopover and foraging) models for three bat species; and
- (3) Refine these models using validation results and additional occurrence locations.

Another objective of the study was to model zones of bat vulnerability to impacts from wind energy development during the summer and migration seasons. The survey methods that were used included:

- Mist-netting over water bodies;
- Passive recording with Anabats, Song Meters, and EM3s.

Acoustic sites were then selected using a stratified random sampling design. The study was designed specifically to validate and refine the summer distribution models for nine of the bat species and fall migration models for three bat species while continuing to inventorying bats across south-central Wyoming. The preliminary findings included the following: (1) acoustic data is still being analyzed, so this list will only get larger; (2) 421 bat occurrences were collected; (3) 383 bats from 87 mist net sites representing 12 species were captured in mist nets; (4) 306 occurrences were obtained from acoustic monitoring that represented 11 species; (5) the most common bat species were the Western small-footed bat, little brown bat, and Western long-eared bat; (6) hoary bats were more common than anticipated and were often found in open country far from shelter or water (Hoary bats have the highest mortality rates at most wind facilities and are therefore a major focus of the research for wind farms); (7) portions of the Red Desert were extraordinarily bat rich, having high rates of detections and captures and higher- than-anticipated species diversity; (8) bats are everywhere! Very few of the acoustic sites had no detections of bats, even sites that were considerable distances from what is normally considered bat habitat; (9) the study will have anticipated changes to the current bat distribution models as a result of the 2012 surveys; (10) Yuma myotis (males, lactating female, and juvenile individuals) were captured near Baggs; (11) acoustic detections of a spotted bat were found north and east of previous occurrences near Flaming Gorge; (12) Pallid bat seems to occur throughout the Red Desert and into the western foothills of the Sierra Madre mountains; and (13) Townsend's Big-eared bats (including a lactating female) were captured in the Red Desert.

WYNDD finished the 2012 season data analysis. The analysis contains a species and habitat analyses, a validation and refinement of the summer distribution models for nine species, an overlay to highlight areas of predicted high use by bats in general, and a validation and refinement of the fall migration models focusing on Wyoming's three migratory species: hoary bat, eastern red bat & silver-haired bat.

Current models used a “nearest neighbor” approach to identify potential stopover and foraging locations. Future iterations may employ a least-cost path approach based on roosting and foraging habitat and migration energetics.



Figure 16: Spotted bat species (left) and fringed myotis bat species (right) and associated habitats.

Table 12: Bat Species Captured and/or Detected in South-eastern and South-central Wyoming in 2012

Bat Species Common Name	Bat Species Scientific Name	Number of Occurrences
Little Brown Bat	<i>Myotis lucifugus</i>	80
Western Small-footed Myotis	<i>Myotis ciliolabrum</i>	96
Hoary Bat	<i>Lasiurus cinereus</i>	36
Long-legged Myotis	<i>Myotis volans</i>	19
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	34
Western Long-eared Myotis	<i>Myotis evotis</i>	79
Big Brown Bat	<i>Eptesicus fuscus</i>	22
Fringed Myotis	<i>Myotis thysanodes</i>	4
Pallid Bat	<i>Antrozous pallidus</i>	19
Townsend’s Big-eared Bat	<i>Corynorhinus townsendii</i>	16
Eastern Red Bat	<i>Lasiurus borealis</i>	1
Spotted Bat	<i>Euderma maculatum</i>	2
Yuma Myotis	<i>Myotis yumanensis</i>	13

Bat Species Monitoring

WYNDD has stated that they would like to continue with the bat inventory and monitoring program. Possible directions from the 2013 field season include expanding the modeling area and inventory work into southwestern Wyoming (Green River watershed); increase the passive survey effort, but also include mist netting to confirm species presence, check disease status etc.; continue to conduct more passive surveys in arid habitats such as sagebrush, grassland, and salt-scrub; and continue to refine the species/habitat characterizations and models currently underway (include “negative” presence sites to help inform models). Although monitoring is required, the BLM RFO biologists will need to determine the next monitoring steps necessary to effectively analyze potential impacts to these bat species from projects authorized within the CD/WII, DF, and AR EIS areas.

Bat Species Reults

The BLM field office biologists, in coordination with WYNDD and the WGFD, will continue to monitor bat species within the EIS project areas to determine population stability and potential impacts to bats from natural gas development if they are identified.

Pygmy Rabbit Inventory

The pygmy rabbit is located in basin prairie and riparian shrub and tall sagebrush in dense patches in sandy and loose soils within the EIS areas (**Figure 17: Pygmy rabbit [dark ears and tail] and associated habitat**). This rabbit can be diurnal, but is mostly nocturnal and crepuscular. They are the only rabbit to dig their own burrow, and there are usually three or more entrances. This species feeds primarily on sagebrush. The CD/WII, DF and AR EIS areas have maps of potential pygmy rabbit habitat within the project areas, as well as known occurrences. The BLM wildlife biologists determine if pygmy rabbit habitat is or is not located on or adjacent to proposed APDs, ROWs and other site-specific projects within the EIS areas, map the identified habitats, and identify required protection measures at the site-specific level.

Pygmy Rabbit Monitoring

There has been very little actual pygmy rabbit monitoring within the CD/WII, DF and AR EIS areas. The only site-specific pygmy rabbit monitoring that is occurring at this time includes the CG Road Unit 2-110, 10D, 40D, 60D, 90D, 100D, 115D, 120D, 140D and 150D multi-well located in T. 19 N., R. 94 W., section 2. The APD was field checked in 2009 and in order to protect the identified pygmy rabbit habitat, presence/absence surveys for pygmy rabbits was conducted prior to the initial surface disturbance. The surveys were to be repeated four (4) years post disturbance in the appropriate associated habitat within one-quarter mile of the edge of the project’s surface disturbance. The Rawlins Field Office Pygmy Rabbit Survey Protocol, adapted from the Interagency Pygmy Rabbit Working Group 2004 survey protocol, is located at the RFO for review. The project area was initially mapped on April 12, 2011, to determine the pygmy rabbit habitat locations. Monitoring occurred again on June 3, 2011 and in 2013, to determine the effects of this project to pygmy rabbit within one-quarter mile of the well pad.

Pygmy rabbit habitat located in T. 20 N., R. 95 W., section 23, E½ of the NW¼ had a remote camera placed within it during the 2013 field season to observe potential effects to these rabbits within the CD/WII EIS area. The habitat is located approximately one-quarter mile east-northeast from an existing well pad.



Figure 17: Pygmy rabbit (dark ears and tail) and associated habitat.

There is a two-track that nears the habitat to the north-west and travels in a north-east/south-west direction.

Tammy Wilson and her colleagues, Utah State University, analyzed the effects of sagebrush removal treatments on pygmy rabbits (*Brachylagus idahoensis*), which at this time are not well understood. They studied the responses of the pygmy rabbits to treatments using snow tracking during the 2006-2007 winter and radio telemetry from May 2008 through April 2009. The objectives of the study were to evaluate the effects of experimental sagebrush treatment on eight radio-collared pygmy rabbits between and within home range habitat selection using Monte Carlo simulation from null models. Pygmy rabbits were not extirpated from those plots containing the habitat treatments, and they found no evidence that treatments affected home range placement. The average (mean) treatment distance of observed home range centers did not differ from repeated trials of random points. However, they found evidence of within home range selection against treatments from two of eight rabbits located close to the treatments. The mean treatment distance of all observed locations for these two rabbits was greater than expected based on a null model. They also used snow tracking to show that pygmy rabbits entered treatments in four out of 21 trials, which was less often than expected by chance. Conservatively, sagebrush removal treatments should not be conducted on active or recently active pygmy rabbit burrows. Elsewhere near known pygmy rabbit sites, treated patches should be small and connected by untreated corridors to prevent potentially limiting movement of rabbits among the untreated habitat (Wilson et al 2010).

Gregory S. Burak completed his thesis, *Home Ranges, Movements, and Multi-Scale Habitat Use of Pygmy Rabbits (*Brachylagus idahoensis*) in Southwestern Idaho*, in December 2006 and determined that movements and home range estimates for pygmy rabbits in the Owyhee uplands indicated that males had more core areas and traveled longer distances than females. In addition, observed overlap of core areas was greater between sexes than within, indicating that male movements were partially driven by the locations of females. While males traveled longer distances compared to females, once they were in a core area, their movements were confined and site specific. Within his study area, adult males moved an average distance of 220 meters and females moved 64 meters during the breeding season. The maximum distance one male in his study was 1521 meters and the maximum distance that a female moved in his study was 1018 meters. Since pygmy rabbits are generally restricted to areas of dense and

tall shrub and sagebrush patches, the spatial layout of patches may partially dictate the size of areas of individual rabbits use. His study area was characterized by linear and elongated patches of sagebrush along the bases of slopes, and rolling topography with deeper soils and denser sagebrush found amongst rockier ridges. Additional research is needed to gain an understanding of the effects of altering habitat conditions on pygmy rabbit movements and home ranges. In his study area, females generally had more than one core area within their home range. During the breeding season, several females moved their core area temporarily and returned to the original core area where they were first observed. Three of the four natal burrows that he found during the study were outside of the original home range core area for each female pygmy rabbit. For one of those natal burrows, that female stayed within a second core area that included the natal burrow, and returned to her original core area when the natal burrow became inactive. This pattern of establishing natal burrows away from the pygmy rabbit's core area is similar to the findings in Lemhi Valley, Idaho, where average 30-meter distances between a natal burrow and an active burrow system were greater than 35 meters. One possible explanation for this pattern is that females are locating natal burrows away from core areas to deter predation, thereby increasing their young's chances of survival until they are mobile enough to effectively escape predators on their own. The large number of overlap pairings between males and females (10 out of 14 possible pairings) is likely the result of breeding activity; males were moving among females in search of breeding opportunities. The relatively low number of pairings for females and females (two out of nine possible pairings) may indicate that female pygmy rabbits exhibit territorial behavior. The same was true of males (one out of four possible pairings), but larger sample sizes are needed to provide a critical test of this idea. Why female pygmy rabbits would exhibit territoriality is unknown; possible explanations include reliance on sagebrush and its relative abundance, distribution and slow renewal rate and defense of kits from infanticide also might explain territoriality among females. Given an unknown explanation, additional pygmy rabbit behavioral studies, coupled with research on energetic requirements, could provide needed information to evaluate hypothesis about territoriality in this species. Pygmy rabbits in the Owyhee uplands of southwestern Idaho were found to move longer distances, and females had larger home ranges, than previous estimates for this species during the breeding season. Rabbits readily traveled greater than one kilometer between core areas (Burak 2006).

Although monitoring has occurred, the BLM RFO biologists will need to continue to determine the next monitoring steps necessary to effectively analyze potential impacts to the pygmy rabbit species from projects authorized within the CD/WII, DF, and AR EIS areas.

Ground surveys for pygmy rabbits were conducted by HWA during the 2013 field season for BP for the Latham Draw #8-70D well located in T. 20 N., R. 93 W., Section 8 in Sweetwater County to determine presence/absence of pygmy rabbits. HWA surveyed within a ¼-mile buffer from the proposed well pad by searching for pygmy rabbit pellet groups and burrow systems during the search for the Greater Sage-Grouse pellet groups. HWA followed the same 22 line transects within the ¼-mile buffer that they did for the grouse, focusing on areas and patches of potential pygmy rabbit habitat. Once the patches were located, HWA then investigated the patch for signs of recent pygmy rabbit activity. HWA documented the presence of pellets, burrow systems, and sightings within the patch using a GPS unit. Pellets were classified as old, recent, or old and recent, and collected in Ziplock bags as documentation (Hayden-Wing Associates, LLC May 2013).

Pygmy Rabbit Results

Pygmy rabbits are believed to be reluctant to use open habitats and are considered sensitive to habitat and population fragmentation. However, pygmy rabbits have been observed to cross large expanses of open habitat during dispersal, suggesting that coarse scale movements may not be affected by treatments. The group found that modern sagebrush restoration treatments designed to create mosaics of treated patches in an untreated matrix may not be as detrimental for pygmy rabbits as historic, systematic sagebrush removal over large areas. The results did suggest that the treatment patches were used less frequently than the adjacent untreated sagebrush and this may limit the ability of pygmy rabbits to move about the landscape freely. Sagebrush removal treatments of any type should be avoided in areas with current pygmy rabbit activity. However, they did not observe that treatments affected the general placement of pygmy rabbit home ranges within treated plots; therefore, further limiting the placement of treatments by creating large no-treatment buffers around active rabbit burrows may be unnecessary. Additionally, sagebrush treatments near occupied pygmy rabbit burrows should be small, narrow, and widely spaced relative to the home range of a breeding male. They recommend that in lieu of islands of intact sagebrush in a matrix of treatments, treatments mosaics should more closely resemble islands of treatment in an untreated matrix (Wilson et al 2010).

Given the ability for this sagebrush obligate to travel long distances between core areas, careful consideration should be given to managing pygmy rabbit habitat so as to maintain suitable habitat patch size and connectivity for this sensitive species. Additional information concerning minimum viable population analysis, coupled with known habitat and size requirements, would possibly benefit the BLM and WGF. During the breeding season male pygmy rabbit movements appear to be driven by the spatial arrangement of female rabbits. Movements by females also may be associated with breeding, especially in relation to the spatial placement of natal burrows. The role that adult females play in the wild in caring for young once they leave their natal burrow is unknown, so further field investigations are needed to determine the additional effect, if any, that caring for emerged young might have on movements by adult female pygmy rabbits. In general, mating and resource availability play an important role in the size of home ranges for pygmy rabbits. In addition, habitat quality also may be a determining factor in home range size, with suitable habitat as a source for food and cover playing a role. Given this additional information for this little understood species, the spatial arrangement and size of remaining pygmy rabbit habitat patches should, at a minimum, be maintained at current levels. If increasing the number and size of populations is a management objective for this sensitive species, conservation and restoration of potential pygmy rabbit habitat should take into account its spatial requirements (Burak 2006).

Ground surveys for pygmy rabbits were conducted by HWA during the 2013 field season for BP for the Latham Draw #8-70D well located in T. 20 N., R. 93 W., Section 8 in Sweetwater County to determine presence/absence of pygmy rabbits. HWA covered approximately 17.2 miles while conducting the pellet surveys, and documented 29 locations with pygmy rabbit sign (13 sites with old sign and 16 sites with old and/or recent sign). At five of the locations, HWA documented only pellets, but no visible burrow system. HWA also used ArcGIS and heads-up digitizing to delineate 11 patches of contiguous pygmy rabbit habitat (large, dense patches of sagebrush generally along and/or near drainage bottoms) (Hayden-Wing Associates, LLC May 2013).

Wyoming Pocket Gopher Inventory

The Wyoming pocket gopher (*Thomomys clusius*) is a small, lighter-colored mammal, with a length of

6.44-7.36 inches and a weight of 44-72 grams. The species is characterized by very strong front limbs with long nails used for digging, small ears, small eyes, and fur-lined cheek pouches used to carry food. Pocket gophers are fossorial, living most of their lives in burrow systems and underground tunnels (**Figure 18: Wyoming pocket gopher and associated habitat**). Once pocket gophers establish territories and burrows, they may shift to other areas based on environmental conditions or interactions with other pocket gophers, but they generally do not move to an entirely new area. Very little is known about the Wyoming pocket gopher, and assumptions about its distribution, ecology, and status are based on a few museum records and anecdotal reports from about 30 years ago.

Distribution of the species is believed to be restricted to Sweetwater and Carbon Counties in Wyoming, with a possible occurrence in very northern Colorado. Recent efforts to document gophers at several historic locations were inconclusive, leading to speculation about population declines and the rarity of the species. The range of the Wyoming pocket gopher occurs within the range of the northern pocket gopher (*Thomomys talpoides*), but the Wyoming pocket gopher is not likely sympatric with other pocket gophers. The Wyoming pocket gopher is believed to occupy well-drained, gravelly ridges instead of the valley bottoms and riparian areas with deeper soils preferred by the northern pocket gopher. Based on the characterization of the species' size and habitat, it appears to fit the island model of isolation displayed by other species of pocket gophers specifically adapted to the soils of an area (Miller 1964, pp. 259-260). The Wyoming pocket gopher is limited in its distribution, which may be due to the species' habitat specialization. Wyoming pocket gophers likely do not live more than two breeding seasons, reproduce the calendar year following birth, and have one litter with four to six young per year. The species' diet is likely primarily the roots, stems, and leaves of forbs, with some consumption of grasses and shrubs. Pocket gophers may cut their food into small pieces and carry it in their cheek pouches back to the burrow where it is consumed, stored for winter, used for nest building, or taken into runways and later pushed to the surface. In general, the extensive tunneling activity of pocket gophers can affect soil formation, hydrology, nutrient flows, and the competitive interactions of plants. These effects can be important to ecosystem function, but also create undesirable interactions with human activities that lead to extermination efforts (USFWS 2009).

The USFWS announced on April 14, 2010, that it has completed a status review of the Wyoming pocket gopher and had determined it did not warrant protection as a threatened or endangered species under the ESA. The USFWS made this finding after a thorough review of all the available scientific and commercial information regarding the status of the Wyoming pocket gopher and potential impacts to the species.

The Wyoming pocket gopher is located within the EIS areas. Although BLM wildlife biologists do map identified Wyoming pocket gopher locations when they are in the field, the CD/WII, DF and AR EIS areas have not been mapped in their entirety for this species at this time. The BLM wildlife biologists determine if Wyoming pocket gopher habitat is or is not located on or adjacent to proposed APDs, ROWs and other projects within the EIS areas, map the identified habitats, and identify required protection measures at the site-specific level.

Wyoming Pocket Gopher Monitoring

Although monitoring is required, the BLM RFO biologists will need to determine the next monitoring steps necessary to effectively analyze potential impacts to the Wyoming pocket gopher species from projects authorized within the CD/WII, DF, and AR EIS areas.

Wyoming Pocket Gopher Results

Although habitat has been identified within the EIS areas, to date, the BLM field office biologists have not thoroughly inventoried potential habitats for the Wyoming pocket gopher within the EIS areas. In



Figure 18: *Wyoming pocket gopher and associated habitat.*

addition, monitoring potential impacts to the Wyoming pocket gopher as a result of natural gas development has not occurred to date.

White-tailed Prairie Dog Inventory

In all three EIS project areas, prairie dog colonies related to potential black-footed ferret habitat have been mapped by BLM-Approved, operator-financed contract biologists and BLM biologists. Although this was completed to inventory habitat for the black-footed ferret, the BLM biologists determined the habitat for the white-tailed prairie dogs as a distinct species regardless of whether the burrow density did or did not qualify as potential black-footed ferret habitat. In addition, the BLM biologists also determine the presence of all white-tailed prairie dogs at the individual APD and ROW application field review which further refines prairie dog habitats (**Figure 19: White-tailed prairie dogs and associated habitat**).

White-tailed Prairie Dog Monitoring

A field inventory and monitoring survey for white-tailed prairie dogs was conducted for the proposed Williams Trunk-N-Loop pipeline project on April 16-17, 2005 from the Wamsutter Compressor Station (MP0.0) west and south for 12 miles to MP12.0 in Sweetwater County, Wyoming. The area had extensive prairie dog towns from east of Interstate 80 to MP 15.0, based on aerial photography of the region. Only one active prairie dog town was located along the project ROW south of the Wamsutter Compressor Station and contained approximately 51 acres. A small town of approximately 22 acres was located at MP13.5, but this town was located outside of the project area. In addition, burrows along 15 miles were analyzed and contained mostly ground squirrels. The towns were too small to require a black-footed ferret survey. The project was not expected to have an adverse impact on the white-tailed

prairie dog. The pipeline project did proceed approximately 820 feet with an 80-foot ROW through the town located at MPO.0, near the Wamsutter Compressor Station. The pipeline project disturbed 1.6 acres of the town, no equipment or vehicles were left overnight within 300 feet of the town, and traffic through the town was limited to a one-time pipeline installation pass. The project was reseeded during reclamation. During the actual construction in the town, the following mitigation occurred: (1) activity in and near the town was limited to construction presence, (2) no parking of vehicles occurred, (3) no lunch breaks took place in the town, (4) construction was completed as soon as possible, and (5) during trenching, an environmental inspector/biologist was present and accompanied the trenching machine and track hoes looking for black-footed ferrets (Grant 2005).



Figure 19: *White-tailed prairie dogs and associated habitat.*

Although monitoring has occurred, the BLM RFO biologists will need to continue to determine the next monitoring steps necessary to effectively analyze potential impacts to the white-tailed prairie dog species from projects authorized within the CD/WII, DF, and AR EIS areas.

White-tailed Prairie Dog Results

Although habitat has been identified within the EIS areas, this data is starting to become outdated (8-10 years old) and to date the BLM field office biologists have not updated these white-tailed prairie dog towns within the EIS areas. In addition, since the BLM biologists avoid disturbing white-tailed prairie dog towns when projects are analyzed, monitoring potential impacts to the white-tailed prairie dogs as a result of natural gas development has not occurred to date.

Swift Fox Inventory

The swift fox is located in grasslands habitat which is generally to the east of the EIS areas; however, they have the potential to occur in open deserts as well (**Figure 20: Swift fox and associated habitat**).

There have been some sightings of swift fox in these EIS areas in the past. Swift fox feed mostly on small mammals, but have been known to feed on insects as well. The species dens in ground burrows. This fox can be diurnal, but is mostly nocturnal. The CD/WII, DF and AR EIS areas have the potential habitat for the swift fox, although observations have been uncommon.



Figure 20: Swift fox and associated habitat

Swift Fox Monitoring

Although monitoring for the swift fox is required, the BLM biologists will need to determine the next monitoring steps necessary to effectively analyze potential impacts to the swift fox species from projects authorized within the CD/WII, DF, and AR EIS areas.

Swift Fox Results

Although habitat has been identified within the EIS areas, to date, the BLM field office biologists have not thoroughly inventoried potential habitats for the swift fox within the EIS areas. In addition, monitoring potential impacts to the swift fox as a result of natural gas development has not occurred to date.

BLM Sensitive Birds Inventory

There are fifteen BLM RFO sensitive bird species that are identified by BLM wildlife biologists within the RFO area which include upland game birds, migratory raptors, songbirds, shorebirds, and waterfowl, as well as each species' associated habitats. The upland game bird species include the Columbian sharp-tailed grouse; the migratory raptors include the bald eagle, northern goshawk, ferruginous hawk, peregrine falcon, and burrowing owl; the songbirds include the loggerhead shrike, sage thrasher, Brewer's sparrow, sage sparrow, and mountain plover; and the shorebirds include the white-faced ibis and long-billed curlew. The northern goshawk, Baird's sparrow, and trumpeter swan are not located within the CD/WII, DF and AR EIS areas.

The inventory protocol for the BLM sensitive migratory raptors including the bald eagle, ferruginous hawk and burrowing owl have been discussed above in the raptor section of this report. The BLM complies with three federal statutes that afford protection to bird species which include the: (1) Migratory Bird Treaty Act (MBTA) (16 USC 703-712); (2) the Bald and Golden Eagle Protection Act (BGEPA) (16 USC 668-668d); and (3) the Endangered Species Act (ESA). The MBTA was enacted in 1918 and affords protection to 836 species of migratory birds including waterfowl, shorebirds, songbirds, raptors, wading birds and seabirds. The act applies to adults, eggs, young and active nests. The BGEPA was enacted in 1940 for bald eagles and 1962 for golden eagles. The BGEPA protects bald and golden eagles, their nests, eggs and parts. The ESA(16 USC 1531 et seq) prohibits the take of a listed species, including migratory birds, without proper permits and places an additional requirement on activities funded, authorized or carried out by federal agencies to ensure that such actions will not jeopardize the continued existence of any listed species. The USFWS is the federal regulatory agency responsible for these three laws.

BLM Sensitive Birds Monitoring

The monitoring protocol for the BLM sensitive raptors including the bald eagle, peregrine falcon, ferruginous hawk and burrowing owl have been discussed above.

The monitoring protocol for the BLM sensitive Columbian sharp-tailed grouse, mountain plover, loggerhead shrike, sage thrasher, Brewer's sparrow, sage sparrow, white-faced ibis and long-billed curlew are discussed below.

BLM Sensitive Birds Results

The results from monitoring the bald eagle, peregrine falcon, ferruginous hawk and burrowing owl have been discussed above. The results from monitoring the Columbian sharp-tailed grouse, mountain plover, loggerhead shrike, sage thrasher, Brewer's sparrow, sage sparrow, white-faced ibis and long-billed curlew are discussed below.

Columbian Sharp-tailed Grouse Inventory

The Columbian sharp-tailed grouse uses the high mountain shrub-grassland community and associated edges closer to the Baggs, Wyoming area. These birds are most commonly found in high elevation grassland areas interspersed with serviceberry, chokecherry, sagebrush, snowberry, and aspen. Shrubs and small trees play an important role in sharp-tailed grouse ecology, especially in winter when they provide both food and cover. Weed-grass types and cultivated crops may be utilized in spring and summer. Where available, birds may associate with drainages lined with willows or other riparian shrubs. Unlike sage or dusky grouse, sharp-tails may utilize agricultural fields and feed on waste grain and associated insects.

Similar to the Greater Sage Grouse, sharp-tailed grouse breed on leks or traditional strutting grounds. These leks are typically located on knolls or ridge-tops, and in general an average of 14 birds display and breed on an area of around 100 feet in diameter. Males begin displaying in late-March or April and these birds can be seen on lekking areas with 100-percent snow cover (**Figure 21: Columbian sharp-tailed grouse fighting during spring breeding**). During the breeding season, males exhibit orange eyecombs and purple air sacs which form an integral part of the courtship ritual. Sharp-tailed grouse males "dance" by stomping their feet and running in a circle to attract females. After breeding, females build a ground nest in grass or near shrubs. A typical clutch is 10-12 eggs and the hen incubates for approximately 23 days. After hatching, the chicks are tended by the female. Broods are largely dependent for six to eight weeks and then disperse.

In late fall and winter, the birds form small flocks and are dependent on shrubs for food and cover. As is common with other grouse species, snow roosting is an important means of thermoregulation during the winter months. In spring the males head toward the leks and the cycle begins again (2013, Colorado Parks and Wildlife). Surveys for sharp-tailed grouse leks must occur on the ground since it is difficult to impossible to locate new leks from the air.

Columbian Sharp-tailed Grouse Monitoring

The CD/WII, DF and AR EISs required that selected leks within two-miles of existing and proposed disturbance areas would be monitored annually to determine lek attendance by the BLM between March 1 and May 15, such that all the leks within these areas would be monitored at least once every

three years; however, only the AR EIS area has sharp-tailed leks present. In areas where there are more than four wells per location, the use of a BLM-Approved, operator-financed contract biologist is required. In these cases, monitoring efforts are required at all leks present on affected sections, plus a two-mile buffer and selected undeveloped comparison areas. The BLM is required to assist with the lek



Figure 21: *Columbian sharp-tailed grouse fighting during spring breeding*

monitoring efforts, including timing and locations, such that all efforts are made to have the same individuals monitor the same leks within and across the years for data accuracy and consistency. The EIS also states that standard site- and species-specific grouse lek surveys will continue to be conducted as necessary in association with all APD and ROW application field reviews. Only the BLM and WGFD wildlife biologists monitor the sharp-tailed leks within one mile, and adjacent to, the AR EIS project between March and April each year. Eight occupied sharp-tailed grouse lek locations have been documented on or within one mile of the AR AEIs project area and are identified below in **Table 13: Columbian Sharp-tailed Grouse Lek Monitoring, Activity Status and Peak Male Attendance within One Mile of the AR EIS Areas from 2005-2013**. There are 10 leks located in the undeveloped comparison areas within a 12-mile buffer that have also been monitored; however, an analysis has not been completed to determine differences in lek attendance. This report should trigger that requirement.

Table 14: Columbian Sharp-tailed Grouse Lek Monitoring, Activity Status and Peak Male Attendance in the Control Areas from 2005-2013 identifies the trend in peak male lek attendance by male sharp-tailed grouse each year for each lek within this control area. There are 10 leks identified within the Control Area. A more detailed lek attendance table for each lek is located at the RFO. The control leks were identified using a 12-mile buffer (two townships) around the three EIS areas to mimic the habitat types as closely as possible and where natural gas development is either not presently occurring or is

Table 13: *Columbian Sharp-tailed Grouse Lek Monitoring, Activity Status and Peak Male Attendance within One Mile of the AR EIS Areas from 2005-2013*

Lek Name	Activity Status	Year Monitored/Peak Male Attendance At Leks									
		2005	2006	2007	2008	2009	2010	2011	2012	2013	
AR/WII EIS Area – data pending from WGFD analysis											
Nicholson Sandhills											
Dutch Joe #1											
Negro Creek											
Vessels #3											
Nicholson Draw											
Loco Creek											
17902801											

present, but at reduced numbers. Again, basically the AR EIS project area is the only area with sharp-tailed grouse leks nearby.

Table 14: *Columbian Sharp-tailed Grouse Lek Monitoring, Activity Status and Peak Male Attendance in the Control Area from 2005-2013*

Control Area – Leks within a 12-mile Buffer from the AR EISs - data pending from WGFD analysis											
Lek Name	Activity Status	Year Monitored/Peak Male Attendance At Leks									
		2005	2006	2007	2008	2009	2010	2011	2012	2013	
Boyer											
Wren											
Big Gulch											
Reader #1											
Reader #2											
Battle Mountain											
Tullis #2											
Tullis #1											
North Battle Mte.											
Upper Big Gulch #2											

Columbian Sharp-tailed Grouse Results

Results from monitoring Columbian sharp-tailed grouse inventory and monitoring of leks will be analyzed in coordination with the WGFD and submitted in a separate report.

Mountain Plover Inventory

Applicable to the CD/WII EIS and in association with an APD and ROW application field reviews, suitable mountain plover habitat (i.e., areas with vegetation less than four inches high) within 656 feet (200 meters) of proposed disturbance areas will be surveyed within two weeks of disturbance by the BLM, or a BLM-Approved Operator-financed biologist, to detect the presence of plovers (**Figure 22: Mountain plover eggs (left) and adult bird (right) in suitable habitat**). These surveys will be conducted on these areas during the period of April 15 through June 30. The following was identified in the CD/WII EIS to occur:

- (a) If plovers are not found, no additional surveys will be conducted.
- (b) If plovers are discovered, observations will continue to determine if a mountain plover nest is present. If no nesting is discovered, no additional surveys will be conducted.
- (c) If nesting is discovered, surveys will be conducted on and within 656 feet of areas proposed for development during the period of April 15 through June 30 no more than 14 days prior to the date that the ground-disturbing activities are initiated.
- (d) If development is proposed for the period of April 15-April 30 or June 15-June 30, a single survey will be required; however, if ground-disturbing activities are proposed for the period of May 1-June 15, three surveys will be required.
- (e) If three surveys are required, these surveys will be made at least 14 days apart, with the last survey no more than 14 days prior to the initiation of ground-disturbing activities.
- (f) Where access roads and/or well locations have been constructed prior to the mountain plover nesting season and use of these areas has not been initiated for development actions, site investigations of these disturbed areas will be conducted prior to use to determine whether mountain plover are present.

The BLM wildlife biologist completes an on-site investigation for all proposed projects within the CD/WII and the DF EIS areas and determines at that time if there is known and/or potential mountain plover habitat at that project location. If habitat is present, the action is required to comply with the mitigation measures identified to protect breeding and nesting mountain plover (timing and/or occupied nesting mountain plover habitat stipulations).

The AR EIS requires mountain plover habitat to be mapped within proposed disturbance areas prior to development by the BLM, or a BLM-Approved Operator-financed biologist. The areas are to be surveyed annually from May 1-June 30 to detect the presence of mountain plover. In addition, standard site-specific habitat surveys in association with an APD and ROW application are required.

Mountain Plover Monitoring

Monitoring for the mountain plover has occurred in some areas since 2005. Intensive survey routes were monitored from 2000-2003 in the EIS areas; however, these routes have not been monitored as intensely since then, based on budget. Surveys were not completed during the 2006 and 2008-2013 field seasons. Mountain plover survey routes were monitored during the 2012-2013 field seasons, but these routes are located outside of the EIS project areas. There were mountain plover monitoring survey routes monitored in the EIS areas during the 2005 and 2007 field seasons. The 2005 data are located below in **Table 15: Mountain plover monitoring completed during the 2005 field season**.

Natasha Kotliar with the USGS completed mountain plover monitoring west of the Wamsutter/Dad Road, south to Mexican Flats and north to the Cyclone Rim area during the 2007 field season. I-80

basically bisected the monitoring area. There is a wide range of well densities across this large area and mountain plovers were detected across the entire area. The monitoring is designed to determine the potential effects of natural gas development on mountain plover breeding and nesting productivity. The GIS staff developed well and road density maps of the area to allow Natasha to randomly stratify plots for surveys during the 2008 and 2009 field seasons. Natasha then ground-truthed the plots for habitat verification that mountain plover habitat is present. In addition to selecting the study sites, another objective of the field season was to develop the sampling design, since this bird is a low density, secretive species, and it is critical to design a statistically valid study. The plot was then identified as being 256-ha in size. The numbers of mountain plovers detected per plot ranges from 0 to 11; therefore, the plot size allows the team to evaluate density changes across a gradient of wells and roads. Plots were intended to be visited three times: (1) early nesting; (2) mid-nesting [when most birds are incubating]; and (3) fledgling time. There were 180 mountain plover observed during the 2007 field season (including repeat sightings) in the 20 plots sampled, plus additional transects monitored parallel



Figure 22: *Mountain plover eggs (left) and adult bird (right) in suitable habitat*

to roads. The team spent ¼-of the time sampling habitats that did not appear to be optimal mountain plover habitat (too much slope, too much cover, too much greasewood) to make sure they weren't

omitting potential habitat. They did find some birds occasionally using these habitat types, but not very many. The team did account for control of variation resulting from observer and sampling time periods to calculate densities, as well as the need to have a verifiable sample size. Finally, Natasha was working on developing a multi-scale habitat assessment that quantifies the patchy nature of mountain plover habitat.

Table 15: *Mountain Plover Monitoring Completed in the 2005 Field Season*

Route Name	Monitoring Date	Number of Adults	Number of Juvenile
2005 Field Season			
2003-186	5/3/2005	0	0
2003-188	5/3/2005	0	0
2003-187	5/3/2005	0	0
2003-194	5/4/2005	0	0
Sec 15 East	5/2/2005	0	0
8 Mile Road	5/2/2005	0	0
Creston North	5/3/2005	3	0
Creston North	7/6/2005	2	3
Creston West	5/5/2005	1	0
Creston West	7/6/2005	0	0
Creston South	5/2/2005	1	0
Creston South	7/5/2005	1	Eggs
8-mile west	5/3/2005	2	0
8-mile west	7/5/2005	0	0

Mountain Plover Results

Although intensive studies were completed for mountain plover from 2000-2003, approximately 95+ routes were monitored, there has not been as much monitoring activity in the EIS areas since then. Mountain plover are present north and south of I-80 with some locations having higher densities of the birds, such as the Mexican Flats area and south-west of Wamsutter. The EIS areas have all been mapped for mountain plover habitat and the *Monitoring without Borders* team will need to determine future actions to take for this species to determine population stability and if there are identified impacts to the mountain plover either during the breeding and/or nesting time periods.

Other BLM RFO Sensitive Bird Species Inventory

Other BLM RFO sensitive song bird species include the loggerhead shrike (**Figure 23: Loggerhead shrike and its prey impaled on fence post**), sage thrasher, Brewer's sparrow, and sage sparrow; other BLM sensitive shorebirds include the white-faced ibis and long-billed curlew – all of which have the potential to be located in the EIS areas. Other BLM sensitive raptor species include the northern goshawk and peregrine falcon; other BLM sensitive songbird species include the Baird's sparrow; and other BLM

sensitive waterfowl species include the trumpeter swan – all of which do not inhabit the CD/WII, DF, and AR EIS areas.

Other BLM RFO Sensitive Bird Species Monitoring

Monitoring is an essential component of wildlife management and conservation science and can identify species that are at-risk due to small or declining populations, provide an understanding of how management actions affect populations, evaluate population responses to landscape alteration and climate change; and provide basic information on species distributions. Given the large-scale declines of avian populations and the loss, fragmentation and degradation of native habitats, the need for extensive and rigorous neo-tropical migratory bird monitoring programs is greater than ever.

In 2007 the North American Bird Conservation Initiative developed a report *Opportunities for Improving Avian Monitoring* (NABCI 2007). This report outlined goals and recommendations to further improve avian monitoring programs including: using more rigorous statistical methodology, integrating monitoring programs, and making data and results widely accessible to land managers and the public. With these recommendations in mind, bird conservation partners from across much of the western United States have collaborated to implement a new broad-scale all-lands monitoring program known as “Integrated Monitoring in Bird Conservation Regions” (IMBCR) (Skorkowsky et al., in prep.). The IMBCR design has since updated many long-term monitoring programs such as *Monitoring Colorado Birds*, *Monitoring Wyoming Birds* and the *Northern Rockies Landbird Monitoring Program*. The AR EIS Songbird Working Group have evaluated both the Breeding Bird Survey (BBS) and the Integrated Monitoring in Bird Conservation Regions (IMBCR) Monitoring methodologies since 2010 and have recommended to management to drop the BBS methodology in favor of the IMBCR monitoring protocol.

Objectives of the IMBCR program are to: 1) provide a framework to integrate bird monitoring efforts across bird conservation regions; 2) provide robust population density and occupancy estimates that account for incomplete detection and are comparable at different geographic extents; 3) use annual population estimates to monitor population trend and evaluate causes of population change; 4) provide basic habitat association data for most landbird species to address habitat management issues; 5) maintain a high-quality database that is accessible to all of our collaborators as well as to the public over the internet, in the form of raw and summarized data; and 6) generate decision support tools that help guide conservation efforts and provide a quantitative measure of conservation success.

Using the intersection of Bird Conservation Regions (BCR) and state boundaries as the primary level of stratification, substrata are defined by IMBCR partners based on areas to which inferences are needed. Spatially balanced samples are selected within each substratum using a generalized random tessellation stratification algorithm (Stevens and Olsen 2004). This sampling design allows direct comparison of density and occupancy estimates among geographic areas and across spatial scales. Birds are surveyed from a grid of points within each sample unit during a six minute period. Observers then record distances to each bird and the one minute interval during which each bird was detected. These data are used to estimate occupancy rates at two spatial scales (Pavlacky et al. 2011) and density using distance sampling theory (Buckland et al. 2001). The IMBCR program was first pilot tested in Colorado in 2008. This all-lands program has since expanded to include all of Wyoming and Montana, the entire Badlands and Prairies Bird Conservation Region (BCR 17), the National Forests and Grasslands within the Shortgrass Prairie Bird Conservation Region (BCR 18), Coconino and Prescott National Forests in the Sierra Madre Occidental Bird Conservation Region (BCR 34), three National Forests in the Idaho portion of the Northern Rockies Bird Conservation Region (BCR 10) and Kaibab National Forest in BCR 34 and the

Southern Rockies/Colorado Plateau Bird Conservation Region (BCR 16). Partners to this program currently include the U.S. Forest Service (Regions 1, 2 and portions of 3 & 4); BLM (SD, ND, CO, WY and MT); Colorado Division of Parks and Wildlife; WGFD; Montana Fish, Wildlife and Parks; USFWS Great Plains and Great Northern Landscape Conservation Cooperatives; Northern Great Plains Joint Venture; Intermountain West Joint Venture; Rocky Mountain Bird Observatory; Avian Science Center; Idaho Bird Observatory; WNDDDB; Montana Natural Heritage Program; and Audubon Wyoming.



Figure 23: *Loggerhead shrike and its prey impaled on fence*

In the AR EIS area, *Shrub Dependent Song Bird Survey* reports using the BBS methodology have been completed for the 2008 through the 2012 field seasons by Grasslands Consultants. The BBS methodology was dropped and the IMBCR monitoring methodology was used from the 2010 field season through the 2013 field season by the Rocky Mountain Bird Observatory contractor. Provided funding availability in 2014, the IMBCR monitoring will continue and an analysis completed.

Other BLM RFO Sensitive Bird Species Results

The BLM field office biologists have not thoroughly inventoried potential habitats for other BLM Sensitive bird species within the CD/WII and DF EIS areas. In addition, monitoring potential impacts to these species as a result of natural gas development has not occurred to date.

In 2013, the Atlantic Rim Shrub-Dependent Songbird (SDSB) Working Group identified two monitoring thresholds for shrub dependent songbirds in the AR EIS project area, based on the Integrated IMBCR method, that, if met or exceeded, would trigger a mitigation and/or adaptive management process that

would initiate consideration of measures that would contribute to achievement of the Performance Goal identified for these birds. The two thresholds are detailed below:

(1) A 10-percent decline in occupancy at the 1 km² scale demonstrated with 90-percent confidence compared to the baseline estimates produced in 2010 and 2011, for any priority species (Brewer's Sparrow, Sage Thrasher, Sage Sparrow, and Green Tailed Towhee) within the high-development zone stratum. In addition, declines in occupancy must exceed any detected negative decline within in the low-development zone stratum or the surveyed control stratum of Bird Conservation Region 10 under the IMBCR program by more than 2%.

(2) A 25-percent decline in occupancy at the 1 km² scale demonstrated with 90-percent confidence compared to the baseline estimates produced in 2010 and 2011, for any non-priority songbird species. The declines in occupancy must exceed any detected negative decline observed in the low-development zone stratum or the surveyed control stratum of the Bird Conservation Region 10 under the IMBCR program by at least 2-percent.

The IMBCR method of monitoring of songbirds will continue. Should the above thresholds be met, a mitigation and/or adaptive management process will be initiated. The development of these thresholds followed the protocol outlined in BLM Instruction Memorandum (IM) No. WYD-030-2012-003, *Recommendations For Changes to Monitoring Procedures for the Atlantic Rim Natural Gas Development Project of March 28, 2012*, and were recommended by the Review Team and Dennis Carpenter, BLM RFO Field Manager.

BLM Sensitive Amphibians Inventory

There are three (3) BLM RFO sensitive amphibian species that are identified by BLM wildlife biologists within the RFO area which include the northern leopard frog, Western boreal toad, and Great Basin spadefoot toad. The Western boreal toad is not located within the CD/WII, DF, and AR EIS project areas. The following describes inventory efforts that have been completed to date by the WYND and BLM. To date, there has not been a large-scale inventory project completed for these three amphibians within the CD/WII, DF EIS and AR EIS project areas.

BLM Sensitive Amphibian Species Monitoring

Although monitoring for BLM Sensitive amphibians is required, the BLM biologists will need to determine the next monitoring steps necessary to effectively analyze potential impacts to these species from projects authorized within the CD/WII, DF, and AR EIS areas.

BLM Sensitive Amphibian Species Results

Although habitat has been identified within the EIS areas, to date, the BLM field office biologists have not thoroughly inventoried potential habitats for BLM Sensitive amphibian species within the EIS areas. In addition, monitoring potential impacts to these species as a result of natural gas development has not occurred to date.

BLM Sensitive Fish Species Inventory

There are five BLM RFO sensitive fish species that are identified by BLM wildlife biologists within the RFO area which include the Colorado River cutthroat trout, roundtail chub, flannelmouth sucker, bluehead sucker and hornyhead chub. The hornyhead chub is not located within the CD/WII, DF, and AR EIS project areas. An inventory for fish species has occurred within the CD/WII and the AR EIS areas for the Colorado River cutthroat trout, roundtail chub, flannelmouth sucker and bluehead sucker located in the upper Muddy Creek watershed of southern Carbon County, Wyoming. These species are found in perennial stream channels located within the Muddy Creek and Little Snake River tributaries. The majority of research to date has focused on the upper Muddy Creek reaches, whereas there is currently limited information on lower Muddy Creek and the Little Snake River itself. Muddy Creek is the only system in Wyoming where viable populations of the roundtail chub, bluehead sucker, flannelmouth sucker, and Colorado River cutthroat trout coexist. The Muddy Creek watershed is typically divided into the upper and lower sections and this is divided at the location of a large head-cut stabilization structure east of HWY 789.

The bluehead suckers use swifter velocity, higher gradient streams with rocky substrate and their body has a cartilaginous biting ridge for feeding on algae and invertebrates. The flannelmouth suckers have large fleshy lips which are used to forage on macro-invertebrate species in warm-water pools and these fish have been known to commonly hybridize with white suckers. Roundtail chubs prefer pools with complex habitat, can withstand water temperatures up to 102°F and feed on fish and invertebrates. The Colorado River cutthroat trout is the only native trout in the Little Snake River Drainage. This species was recently petitioned for listing under the ESA, and occurs in the headwaters of Muddy Creek and throughout Littlefield Creek.

BLM Sensitive Fish Species Monitoring

Rangewide studies have shown that the bluehead sucker distribution has declined by 45-percent, the flannelmouth sucker distribution has declined by 50-percent, and the roundtail chub distribution has declined by 45-percent. In 2002, a range wide conservation plan was implemented for these species. Consequently a series of studies were conducted to learn more about the species within the Muddy Creek watershed. Monitoring of fish in the Muddy Creek watershed had occurred prior to this; however, the first formal study wasn't initiated until 2005. From 2005 to the current time period, there have been numerous studies and much of what we know about the species today has come from the Muddy Creek watershed.

Studies that have been conducted within the Muddy Creek drainage include:

- (1) *Distributions and habitat associations of bluehead suckers, flannelmouth suckers, and roundtail chubs in the upper Muddy Creek watershed of southern Carbon County, Wyoming* (Bower 2005);
- (2) *Catostomid Spawning Migrations and Late-Summer Fish Assemblages in Lower Muddy Creek, an Intermittent Watershed in Southern Carbon County, Wyoming* (Beatty 2005);
- (3) *Population fragmentation and white sucker introduction affect populations of bluehead suckers, flannelmouth suckers, and roundtail chubs in a headwater stream system, Wyoming* (Compton 2007);

(4) *Final report on genetics of catostomid suckers in the Muddy Creek drainage, WY.* (McDonald 2006);

(5) Oil and natural gas monitoring, specifically within the AR EIS area for sensitive fish species, included a **Monitoring Plan** to determine the geomorphology in upper Muddy Creek, bank stability, substrate, and over-hanging vegetation. Specific tasks included completing and understanding a *Level II Geomorphic Survey* (longitudinal profile, cross sections, permanent cross sections, rifle-pool spacing, and residual pool depth), *Bed Measurements* (bed material size, embeddedness), *Bank Stability* (erosion pin measurement, bank hazard erosion index), and *Aquatic Habitat Features* (overhanging vegetation cover (USDI, BLM 2008); and

(6) Additional monitoring is required to determine toxicity levels in these reaches, monitor water quality throughout the watershed, obtain a better understanding of the fish assemblage in lower Muddy Creek, monitor fish movement between the Little Snake River and Muddy Creek, monitor fish movement between Muddy Creek and tributaries and identify fish passage criteria.

BLM Sensitive Fish Species Results

The three studies by the University of Wyoming, BLM, and WGFD included an inventory of the distributions and habitat associations of the bluehead sucker, flannelmouth sucker, roundtail chub, and Colorado River cutthroat trout. Results from these studies have identified a “Core Population” and these native fish species were commonly found in pools with rock substrate. Non-native species and hybrids were also common (Bower 2005).

Monitoring completed prior to and including the 2005 field season showed that the lower Muddy Creek was dominated by non-native species. Wetlands contained only non-native species. There was movement of native fish from the Little Snake River into Muddy Creek in 2002; however, there was only white sucker movement in 2004 (Beatty 2005).

Monitoring reports completed in 2007 showed that white suckers were the most abundant, that in-stream structures prevented upstream movement, and provided for population estimates of native species (Compton 2007). Tributary monitoring in 2005 on ephemeral tributaries to lower Muddy Creek by the WGFD revealed fishless tributaries existed, and monitoring in 2007 and 2008 indicated seasonal use was dominated by non-natives. To date, the fish interactions between Muddy Creek and these tributaries is still unknown.

Results from the study of genetics of catostomid suckers in the Muddy Creek drainage (McDonald 2006) indicated a high level of hybridization within the system. However, there is still a genetically pure, intact assemblage within the watershed. This study identified a major threat to the fish species within Muddy Creek and also provided insight into the path of hybridization between species.

Atlantic Rim/Muddy Creek watershed studies were conducted from 2009 to 2011. These studies, discussed above, did establish the baseline conditions in geomorphology in upper Muddy Creek, bank stability, substrate, and over-hanging vegetation. These studies included the following: (a) *Level II Geomorphic Survey* (longitudinal profile, cross sections, permanent cross sections, rifle-pool spacing, and residual pool depth), (b) *Bed Measurements* (bed material size, embeddedness), (c) *Bank Stability*

(erosion pin measurement, bank hazard erosion index), and (d) *Aquatic Habitat Features* (http://www.blm.gov/wy/st/en/field_offices/Rawlins/AtlanticRim.html).

As part of the Catalina Produced water project a monitoring plan was implemented to assess impacts to water quality and water temperature. However, shortly after monitoring was implemented, the company stopped producing water and monitoring ceased. Results from these studies were submitted to the DEQ but a formal report was never prepared. Results from the aquatic toxicity study are still pending.

BLM RFO PROGRAMS within the EIS AREAS (Cumulative Effects to Wildlife and Habitats)

Fire and Fuels Management:

The management goals for the fire and fuels program within the CD/WII, DF and AR EIS areas are to protect human life, property, communities at risk, and other communities, and enhance and protect the public land resources through fuels management and appropriate management response (AMR). These goals consider values to be protected and costs of suppression, complement and support state and local wildland fire actions through AMR, manage fire to restore natural ecosystem functions, reduce losses from catastrophic wildland fire, and protect multiple-use values. These goals must be considered while analyzing the cumulative impacts when implementing the fire and fuels management program to wildlife and associated habitats within the EIS areas on BLM-Administered public lands.

The management objectives in this program that are applicable within the EIS areas and that have the potential to cumulatively impact wildlife and associated habitats include the following:

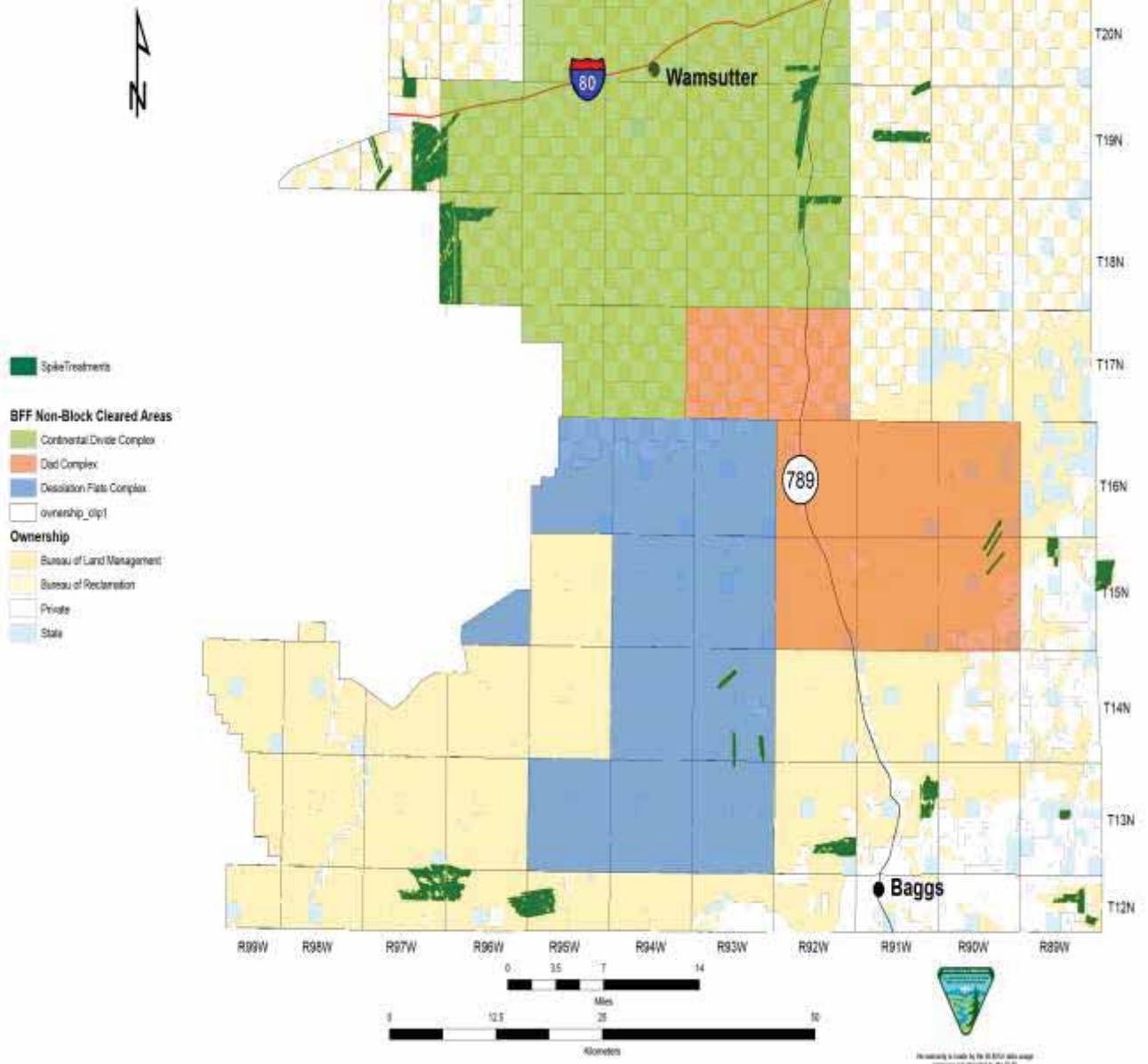
- (1) Obtain input from private landowners, partners, and local, state, and other federal agencies on development of the RFO Fire Management Plan;
- (2) Working with private landowners, partners, and local, state, and other federal agencies, identify areas for potential wildland fire use for the improvement of vegetation communities through collaborative development of wildland fire use plans;
- (3) Consult and cooperate with private landowners, partners, and local, state, and other federal agencies on individual treatments (such as prescribed fire and biological, mechanical, and chemical treatments) designed to reduce or modify hazardous fuels accumulations;
- (4) Minimize disturbances resulting from fire suppression activities on public lands; and/or
- (5) Suppress wildland fires in identified priority areas, including those in wildland-urban and industrial interface areas adjacent to private lands and in the areas of campgrounds and significant cultural sites.

There have been some prescribed burn activities and chemical treatments located within and adjacent to the EIS areas. Map 9a: BLM Spike Treatments within the EIS Areas and Map 9b: Natural and Prescribed Burns within the EIS areas shows these actions that have affected vegetation within and adjacent to the natural gas fields.

Livestock Grazing:

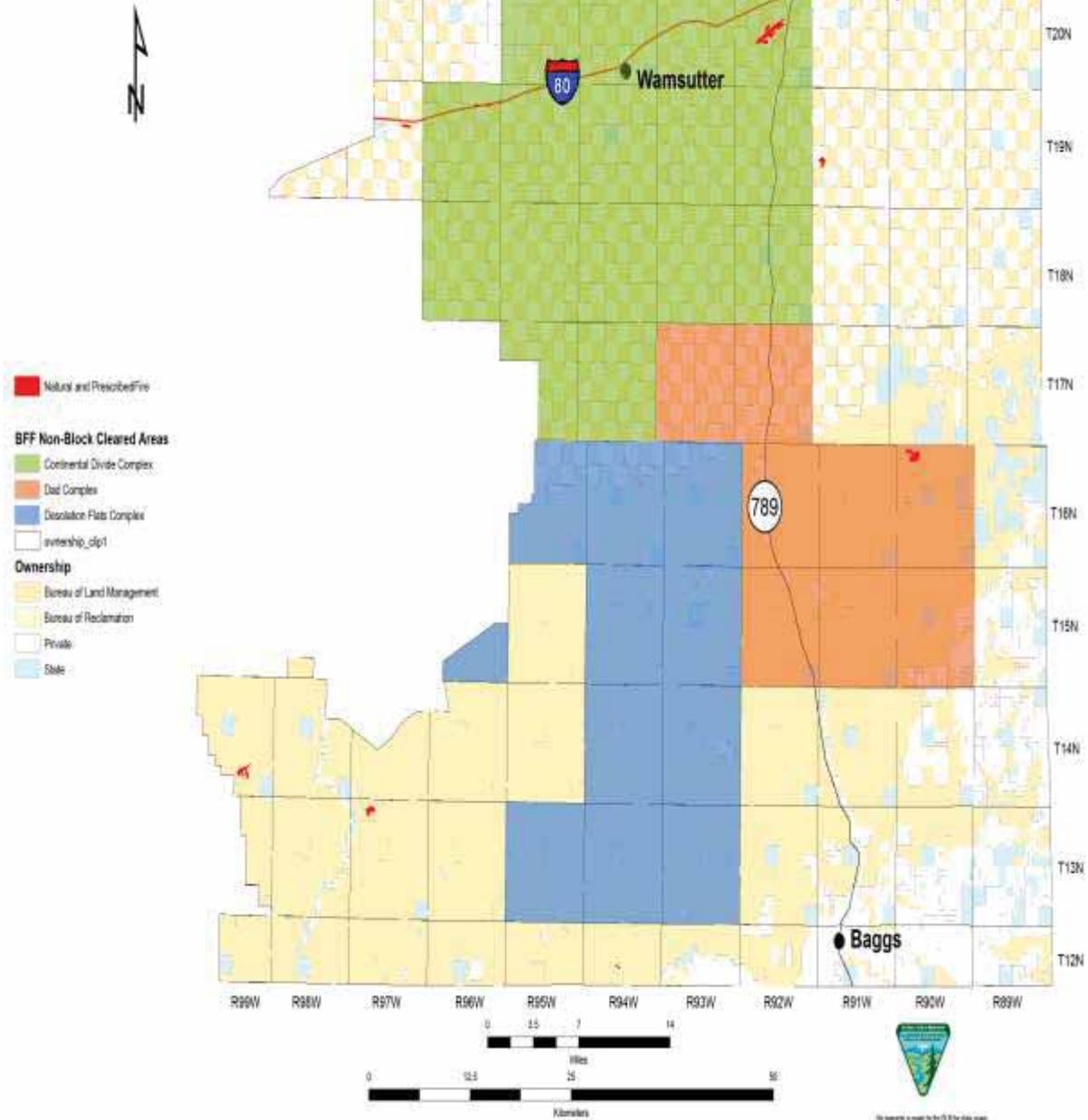
The management goal for the livestock grazing program within the CD/WII, DF and AR EIS areas is to maintain and/or enhance livestock grazing opportunities and rangeland health. This goal must be considered while analyzing the cumulative impacts from implementing the livestock grazing program to wildlife and associated habitats within the EIS areas on BLM-Administered public lands.

Chemical Treatments (Spike)
Continental Divide, Dad and
Desolation Flats Complexes
2006-2012



Map 9a: BLM Spike Treatments within the EIS Areas

Natural and Prescribed Fire Continental Divide, Dad and Desolation Flats Complexes



Map 9b: BLM Natural and Prescribed Burns within the EIS Areas

The management objectives in this program that are applicable within the EIS areas and that have the potential to cumulatively impact wildlife and associated habitats include the following:

- (1) Maintain, restore, and enhance livestock grazing to meet Wyoming Standards for Healthy Rangelands and achieve allotment objectives;
- (2) Utilize livestock grazing management techniques (RFO RMP Appendix 19) to maintain vegetation communities and ecosystem functions, in consultation and coordination with the grazing permittees and with participation by the interested public. Utilize data collected from

scientifically based inventory and monitoring techniques to support decisions that authorize livestock grazing levels and management;

- (3) When feasible, and providing Wyoming Standards for Healthy Rangelands are met, maintain and/or increase animal unit month (AUM) levels for livestock grazing;
- (4) Identify opportunities and implement range and vegetation improvement projects to sustain and enhance livestock grazing and meet Wyoming Standards for Healthy Rangelands in cooperation, consultation, and coordination with the grazing permittees and the interested public; and/or
- (5) Mitigate direct, indirect, and cumulative livestock forage losses and impacts to livestock grazing (including impacts on livestock grazing operational capabilities and production performance) where opportunities exist.

Off-Highway Vehicles:

The management goal for the Off-Highway Vehicle (OHV) program within the CD/WII, DF and AR EIS areas is to manage the OHV use and ensure the continued availability of OHV opportunities. This goal must be considered while analyzing the cumulative impacts from implementing the OHV program to wildlife and associated habitats within the EIS areas on BLM-Administered public lands.

The management objectives in this program that are applicable within the EIS areas and that have the potential to cumulatively impact wildlife and associated habitats include the following:

- (1) Locate and manage OHV use to prevent or mitigate resource damage resulting from OHV uses;
- (2) Coordinate with other programs to minimize conflicts and adverse impacts on OHV opportunities; and/or
- (3) Provide public education regarding appropriate use of BLM lands.

Recreation and Visitor Use:

The management goals for the recreation and visitor use program within the CD/WII, DF and AR EIS areas are to ensure the continued availability and accessibility of outdoor recreation opportunities and to manage recreation resources to accommodate existing and future uses. These goals must be considered while analyzing the cumulative impacts from implementing the recreation and visitor use program to wildlife and associated habitats within the EIS areas on BLM-Administered public lands.

The management objectives in this program that are applicable within the EIS areas and that have the potential to cumulatively impact wildlife and associated habitats include the following:

- (1) Prevent or mitigate resource damage resulting from recreation uses;
- (2) Coordinate with other programs to minimize conflicts and adverse impacts on recreational opportunities;
- (3) Provide public education regarding appropriate use of BLM lands; and/or
- (4) Provide opportunities for public use, interpretation, education, and appreciation of natural and cultural resources.

Special Designations and Management Areas:

A portion of the Sand Hills/JO Ranch Area of Environmental Concern (ACEC), the Upper Muddy Creek/Grizzly Wildlife Habitat Management Area (WHMA), and the Cow Butte/Wild Cow WHMA are all located within the AR EIS area. Only one section of the Red Rim-Daley WHMA is located in the AR EIS area; therefore, this WHMA will not be discussed further. The Chain Lakes WHMA is located within the CD/WII EIS area. The Jep Canyon WHMA is located within both the AR and CD/WII EIS areas. The management goals and objectives for these programs are applicable within the EIS areas and have the potential to cumulatively impact wildlife and associated habitats

The management goals for the Sand Hills/JO Ranch ACEC are to manage the resources in the area to protect the unique vegetation community complex, maintain wildlife habitat values, minimize soil erosion, and promote recreational opportunities, as well as to manage the JO Ranch for historical and cultural values. The management objectives in this program that are applicable within the EIS areas and that have the potential to cumulatively impact wildlife and associated habitats include the following:

- (1) Preserve the JO Ranch as an example of ranching culture, including public interpretation and education;
- (2) Provide recreational access while maintaining vegetation community and wildlife values; and/or
- (3) Maintain, restore, or enhance the unique vegetation community and wildlife and livestock use.

The management goals for the Upper Muddy Creek/Grizzly WHMA are to manage habitat for the Colorado River fish species unique to the Muddy Creek watershed, manage crucial winter habitat for elk and mule deer, and seek the cooperation of owners of adjacent property in management of the habitat. The management objectives in this program that are applicable within the EIS areas and that have the potential to cumulatively impact wildlife and associated habitats include the following:

- (1) Maintain, restore, and enhance crucial winter habitat for elk and mule deer;
- (2) Maintain, restore, and enhance habitat for the Colorado River fish species unique to the Muddy Creek watershed;
- (3) Implement an Memorandum of Understanding (MOU) with appropriate state or local agency having jurisdiction or ownership of state lands and pursue opportunities for partnership and cooperative management with adjacent property owners;
- (4) Utilize inventory and monitoring data to support habitat management; and/or
- (5) Utilize an integrated management approach (e.g., mechanical, chemical, biological, prescribed fire, wildlife, and livestock grazing) to enhance vegetation communities to achieve objectives of the area.

The management goals for the Cow Butte/Wild Cow WHMA are to manage to protect crucial winter habitat for elk, mule deer, and important habitat for Columbian sharp-tailed grouse and to manage to maintain or enhance aspen and mountain shrub complexes. The management objectives in this program that are applicable within the EIS areas and that have the potential to cumulatively impact wildlife and associated habitats include the following:

- (1) Maintain, restore, and enhance crucial winter habitat for elk and mule deer;
- (2) Utilize vegetation inventory and monitoring data to support management for improved seral stage and class structure; and/or
- (3) Utilize an integrated management approach (e.g., mechanical, chemical, biological, and prescribed fire) to enhance vegetation communities to achieve objectives of the area.

One management goal for the Chain Lakes WHMA is to manage the unique, fragile, and rare alkaline desert lake system and wildlife habitat values associated with the lake system. Other goals are to manage pronghorn winter habitat and other wildlife habitat values, as well as to seek the cooperation of owners of adjacent property in management of the habitat. The management objectives in this program that are applicable within the EIS areas and that have the potential to cumulatively impact wildlife and associated habitats include the following:

- (1) Maintain, restore, and protect the unique, fragile, and rare alkaline desert lake system;
- (2) Maintain, restore, and protect habitat for pronghorn and other wildlife;
- (3) Identify components of the unique, fragile, and rare alkaline desert lake system;
- (4) Implement the Chain Lakes MOU with WGFD; and/or
- (5) Utilize inventory and monitoring data to support the goals of the WHMA.

The management goals for the Jep Canyon WHMA are to manage the resources in Jep Canyon area to protect crucial winter habitat for elk and nesting habitat for raptors, as well as to seek the cooperation of owners of adjacent property in management of the habitat. The management objectives in this program that are applicable within the EIS areas and that have the potential to cumulatively impact wildlife and associated habitats include the following:

- (1) Maintain, restore, and enhance crucial winter habitat for elk;
- (2) Maintain, restore, and enhance raptor nesting habitat and the productivity of nesting raptor pairs; and/or
- (3) Pursue opportunities for partnership and cooperative management with adjacent property owners.

Transportation and Access:

The management goal for the transportation and access program within the CD/WII, DF and AR EIS areas is to develop and maintain a transportation management system to accommodate public demand for legal access through and across public land and to meet resource management needs and objectives. This goal must be considered while analyzing the cumulative impacts from implementing the transportation and access program to wildlife and associated habitats within the EIS areas on BLM-Administered public lands.

The management objectives in this program that are applicable within the EIS areas and that have the potential to cumulatively impact wildlife and associated habitats include the following:

- (1) Maintain or expand, as determined necessary, existing access, including the right of access by a non-federal-land in-holder;
- (2) Abandon or close redundant or unnecessary access roads; reclaim after consultation with local government and interested parties;
- (3) Conduct transportation planning to manage existing and new access in a manner that ensures compatibility with resource values and management objectives; and/or
- (4) Incorporate existing state and county road systems into BLM transportation system to accurately show existing access. Coordinate access issues with state and local governments.

Vegetation:

The management goals for the vegetation program within the CD/WII, DF, and AR EIS areas are to manage vegetation to achieve and maintain proper ecosystem function; manage vegetation communities to restore, maintain, or enhance vegetation community health, composition, and diversity to benefit multiple resources and their uses, consistent with site potential; manage to protect, preserve, or enhance T&E and BLM State Sensitive plant species, as well as the unique plant communities; and manage to control noxious and invasive species. These goals must be considered while analyzing the cumulative impacts from implementing the vegetation program to wildlife and associated habitats within the EIS areas on BLM-Administered public lands.

The management objectives in this program that are applicable within the EIS areas and that have the potential to cumulatively impact wildlife and associated habitats include the following:

- (1) Maintain, restore, and enhance vegetation communities to facilitate a healthy mix of successional stages, identified in activity plans, that incorporate age class, structure, and species composition into each vegetation type, consistent with site potential;
- (2) Control the introduction and proliferation of noxious and invasive species and reduce established populations to acceptable levels determined through cooperation, consultation, and coordination with local, state, other federal plans, policies, and agency agreements;
- (3) Maintain, restore, and enhance the health and diversity of plant communities through the use of management prescriptions (such as prescribed natural fire, burning, plantings, seedings, and chemical, mechanical, biological, and grazing treatments or other treatments) in coordination with local, state, and federal management plans and policies;
- (4) Maintain, restore, and enhance T&E and BLM State Sensitive plant species and unique plant communities;
- (5) Utilize inventory and monitoring data to support vegetation management; and/or
- (6) Maintain connectivity between large contiguous blocks of federal land by minimizing fragmentation of vegetative communities.

Water Quality, Watershed, and Soils:

The management goals for the water quality, watershed, and soils program within the CD/WII, DF, and AR EIS areas are to maintain or improve surface and groundwater quantity and quality consistent with applicable state and federal standards and regulations; control or remediate sources and causes of pollution on federal lands in cooperation with other federal, local, and state agencies and private entities; maintain or reestablish proper watershed, wetland, aquifer, riparian, and stream functions to

support natural or desired surface flow regimes that meet state water quality standards; minimize or control contributions of nonpoint source pollution from federal lands to all receiving waters; minimize or control elevated levels of salt contribution from federal lands to the Colorado River system, consistent with WDEQ water quality regulations; and provide for availability of water to support uses authorized on federal lands where appropriate. These goals must be considered while analyzing the cumulative impacts from implementing these resource programs to wildlife and associated habitats within the EIS areas on BLM-Administered public lands.

The management objectives in these three programs that are applicable within the EIS areas and that have the potential to cumulatively impact wildlife and associated habitats include the following:

- (1) Maintain or improve water quality by managing surface land use and groundwater resources, where practical and within the scope of the BLM's authority, according to the State of Wyoming Water Quality Rules and Regulations;
- (2) Maintain the hydrologic and water quality conditions needed to support riparian/wetland areas; minimize flood and sediment damage to water resources from human and natural causes; analyze and, where possible, minimize levels of salt loading in watersheds; and protect water resources used by the public (including impoundments, reservoirs, pipelines, and irrigation ditches) and by federal, state, and local agencies for fisheries, wildlife, livestock, agricultural, recreational, municipal, and industrial uses;
- (3) Address all accidental spills of environmental pollutants on federal lands;
- (4) Implement intensive management of surface disturbing activities in watersheds contributing to water-bodies listed on the Wyoming 303d list of water-bodies with water quality impairments or threats, within the BLM's authority; and/or
- (5) Activities that would cause water depletion within the Colorado River system will comply with existing agreements, decrees, rules, and regulations.

Wild Horses:

The management goals for the wild horses program within the CD/WII, DF, and AR EIS areas are to manage to protect, maintain, and control viable, healthy herds of wild horses while retaining their free-roaming nature, provide adequate habitat for free-roaming wild horses while maintaining the multiple-use relationships and thriving natural ecological balance, and provide opportunities for public viewing of wild horses; and to manage to preserve and maintain existing genotypes. These goals must be considered while analyzing the cumulative impacts from implementing these resource programs to wildlife and associated habitats within the EIS areas on BLM-Administered public lands.

The management objectives in the wild horses program that are applicable within the EIS areas and that have the potential to cumulatively impact wildlife and associated habitats include the following:

- (1) Maintain wild horse populations within the appropriate management levels (AML) of the HMA (located in the EIS areas);
- (2) Maintain habitat for existing AMLs; and/or
- (3) Conduct all activities in compliance with relevant court orders and agreements, including the Consent Decree (August 2003).

These goals and management objectives for all of these programs within the EIS areas must be taken into consideration during the planning on natural gas development, as well as in the mitigation measures applicable for wildlife and their associated habitats protections. Working in close coordination with the BLM staff in these programs will reduce and or eliminate conflicts between different BLM-Administered programs and ensure compliance with the 2008 RFO RMP.

Part 5: CD/WII EIS, DF EIS, and AR EIS Management Actions and/or Protection Measures

The wildlife management actions and/or protection measures for the CD/WII, DF, and AR EISs have been developed from previously authorized natural gas developments in Wyoming, as well as from the 2008 RFO RMP. Additional habitat improvement, management actions and protection measures may be included and existing measures may be modified in any given year as allowable and as deemed appropriate by the BLM, in consultation with agencies, Operators and/or other interested parties. These measures are required to be discussed in annual reports. Based on these reports and analysis, some management actions and protection measures may be removed if they are determined unnecessary by the BLM, whereas others may be added. The management actions and/or protection measures have been implemented by Operators with assistance from and in consultation with the BLM and these measures have also been modified on a site-specific basis by the BLM after completion of an APD and ROW application field reviews. The *Tables 16a-n* shown below identify the management actions and/or protection measures applied to surface disturbing and disruptive activities to update readers on the protection measures that have been authorized since the last 2004 *Monitoring without Borders* report.

These management actions and/or protection measures are applied at the site-specific project level, as identified by the wildlife biologists analyzing that site-specific project in the field, to determine the species- and project-specific measures required to be implemented. These reduce impacts to wildlife, including, but not limited to, breeding and nesting raptors, wintering and migrating big game species, Greater Sage-Grouse breeding and nesting habitats, and crucial breeding and wintering habitats for T&E and BLM Sensitive Species. Based on site-specific field investigations, exceptions to these protection measures can be reviewed. It should be noted that protection measures identified to protect other resources, such as vegetation and surface water resources, may provide additional protection for wildlife.

RAPTOR SPECIES MANAGEMENT ACTIONS and/or PROTECTION MEASURES

The primary protection measure for raptor species within the CD/WII, DF, and AR EIS areas is avoidance of active nest locations during the breeding season. These EISs defined an active raptor nest as any raptor nest that has been used within the last three years; however, the revised RFO RMP approved in 2008 defined an active raptor nest site as any identified raptor nest site that could provide a nesting opportunity for a raptor. Temporal and spatial stipulations will be applied to proposed projects within the EIS areas. *Table 16a: Raptor Species Protection Measures Applied to Surface Disturbing and Disruptive Activities within the CD/WII, DF, and AR EIS Areas* is shown below to update readers on current RFO RMP protection measures. The seasonal buffer distance and exclusion dates may vary, depending on factors such as nest activity, species, natural topographic barriers, and line-of-sight distances.

Table 16a: Raptor Species Protection Measures Applied to Surface Disturbing and Disruptive Activities within CD/WII, DF, and AR EIS Areas

RAPTOR SPECIES MANAGEMENT ACTIONS and/or PROTECTION MEASURES

Surface disturbing and disruptive activities will be intensively managed in all raptor concentration areas (RCAs) to reduce physical disturbance of raptor habitat and disturbance to the birds. This will entail a case-by-case examination of proposals. RCAs are open to oil and gas leasing.

Surface disturbing and disruptive activities potentially disruptive to nesting raptors are prohibited within the following distances during the following time periods:

- a. 1-mile buffer: golden eagle, ferruginous hawk, and bald eagle
- b. Three-quarter mile buffer: all other raptors
- c. February 1-July 15: golden eagle, barn owl, red-tailed hawk, great-horned owl, other raptors
- d. April 1-July 31: osprey, merlin, sharp-shinned hawk, kestrel, prairie falcon, northern harrier, Swainson's hawk, Cooper's hawk
- e. March 1-July 31: short-eared owl, long-eared owl, ferruginous hawk, peregrine falcon, screech owl
- f. April 15-September 15: burrowing owl
- g. April 1-August 31: goshawk
- h. February 1-August 15: bald eagle

Well locations, roads, ancillary facilities, and other surface structures requiring a repeated human presence will not be allowed within 825 feet of active raptor nests (ferruginous hawks, 1,200 feet).

Operators are required to notify the BLM immediately if raptors are found nesting on or within 1,200 feet of project facilities, and Operators assist the BLM in erecting artificial nesting structures (ANSs), as appropriate. The use of an ANS is considered as a last resort for raptor protection. If nest manipulation or a situation requiring a "taking" of a raptor nest becomes necessary, a special permit will be obtained from the Denver USFWS Office, Permit Section. The permit acquisition is coordinated with the Wyoming State USFWS Office in Cheyenne and is initiated with sufficient lead time to allow for development of any identified mitigation. Required corresponding permits will be obtained from the WGFD in Cheyenne. Consultation and coordination with the USFWS and WGFD will be conducted for all protection activities relating to raptors.

Project activities that could potentially affect raptor nesting on or adjacent to the EIS areas, as determined from decreased raptor productivity, nesting or nest abandonment/failure, may require the use of ANSs at a rate of up to two ANSs for one impacted nest. Existing degraded raptor nests may be upgraded or reinforced to minimize potential impacts. The location, design, and other pertinent data regarding ANSs or nests proposed for upgrading have been identified in raptor annual reports. The ANSs have, and will continue to be, been located within the nesting territory of the affected raptor pair(s) and outside of the line-of-sight or nest buffer of the nesting pairs, where possible. Operators will be responsible for the annual maintenance of ANSs throughout the life-of-the-plan for the EISs. Annual ANS maintenance activities are completed by the BLM after August 1 (August 15 for the AR EIS) and prior to October 15 each year, as necessary. ANSs are placed within the nesting territories of potentially affected raptor pairs at sites sufficiently removed from development activities to minimize or avoid potential adverse effects. All ANSs on public lands have become the property of the BLM upon completion of the project. Pertinent data regarding ANSs or nests proposed for upgrading will be identified in annual reports.

In cases where existing project features, such as well locations, are located within the nest buffers of active raptor nests, no extensive or prolonged maintenance activities (e.g., work-over rigs) will be allowed during the critical breeding and nesting periods. The exact dates of exclusion are identified above in this table.

RAPTOR SPECIES MANAGEMENT ACTIONS and/or PROTECTION MEASURES

Power-line construction within the EIS areas must follow the recommendations of the Avian Power Line Interaction Committee (APLIC) (APLIC 1994, 1996) and Olendorff et al. (1981) to avoid collisions and electrocution of raptors.

Additional measures will be applied on a species- or site-specific basis, as deemed appropriate by the USFWS and/or BLM and specified in conditions of approval for individual APDs and ROWs.

BIG GAME SPECIES PROTECTION MANAGEMENT ACTIONS and/or MEASURES

The primary protection measure for big game species within the CD/WII, DF, and AR EIS areas is avoidance of crucial winter range during winter months and migration corridors during the fall and spring seasons. Temporal and spatial stipulations will be applied to proposed projects within the EIS areas. **Table 16b: *Big Game Species Protection Measures Applied to Surface Disturbing and Disruptive Activities within the CD/WII, DF, and AR EIS Areas*** is shown below to update readers on current RFO RMP protection measures for big game species and their associated habitats.

Table 16b: *Big Game Species Protection Measures Applied to Surface Disturbing and Disruptive Activities within CD/WII, DF, and AR EIS Areas*

BIG GAME SPECIES MANAGEMENT ACTIONS and/or PROTECTION MEASURES

Surface disturbing and disruptive activities within big game crucial winter range will not be allowed during the period of November 15 to April 30. This includes work-over rigs.

Disruptive activities within big game crucial winter range will require the use of Best Management Practices (BMPs) designed to reduce the amount of human presence and activity during the winter months. The RFO RMP contains these BMPs.

Surface disturbing and disruptive activities within identified big game parturition areas will not be allowed during the period of May 1 to June 30. At this time there are not any known parturition areas within the EISs areas, but areas may be identified in the future.

Surface disturbing and disruptive activities will be managed, on a case-by-case basis, in identified big game migration and transitional ranges to maintain their integrity and function for big game species in these areas.

New fences are allowed in big game migration corridors, provided they meet BLM fence standards for facilitating wildlife movement. No road or pipeline ROW fencing is proposed for these projects; however, if ROW fencing is required, it will be kept to a minimum, and the fences identified to be a problem to big game migration will meet BLM/WGFD approval for facilitating wildlife movement. Wildlife-proof fencing will be used only to enclose areas that are potentially hazardous to wildlife species, or reclaimed areas where it is determined that wildlife species are impeding successful vegetation establishment.

Snow-fences, if used, will be limited to segments of 0.25 mile or less. Project personnel will also be advised to minimize stopping and exiting their vehicles in big game winter habitat while there is snow on the ground and during crucial winter periods. In addition, escape openings will be provided along roads in big game crucial winter ranges, as designated by the BLM, to facilitate exit of big game animals from snow-plowed roads.

The use of gates on roads within development areas would also preclude or limit motorized public access in sensitive wildlife areas.

Potential increases in poaching from increased human access within the EIS areas will be reduced

BIG GAME SPECIES MANAGEMENT ACTIONS and/or PROTECTION MEASURES

through employee and contractor awareness and education regarding wildlife laws. If violations are discovered, Operators will immediately notify the WGFD, and if the violation is committed by an employee or contractor, said employee or contractor will be disciplined and may be dismissed by the Operator and/or prosecuted by the WGFD and/or USFWS.

Additional habitat and protection improvement measures may also be applied in any given year as directed by the BLM, in consultation with operators and other agencies, and specified in annual reports.

BIG GAME MIGRATION CORRIDORS

To protect the migration corridor, surface occupancy or use within 1/4-mile of the identified big game migration corridor will be restricted or prohibited unless the operator/project proponent and the BLM arrive at an acceptable plan for mitigation of impacts.

To protect the **identified** big game migration corridor, surface disturbing activities are prohibited between March 1 to May 15 (spring) and Oct 15 to Dec 15 (fall) to protect big game during migration movements.

To protect the **identified** big game migration corridor, mitigation will be required as determined by the BLM.

To protect the **identified** big game migration corridor, the access road will be re-aligned and will not run parallel with the migration corridor, but will cut across the corridor to reduce impacts to migrating species.

To accommodate big game movements through corridors, gaps in snow berms along roads will be required every one-quarter mile. Gaps in the snow berms should be at least 100 feet wide.

Monitor wells using remote sensing to reduce the number of well site visits needed within the **identified** big game migration corridor.

Locate the proposed project below ridgelines or behind topographic feature(s) to minimize visual and auditory effects to big game using **identified** migration corridors.

Pipe produced fluids off of the migration corridor to a storage facility to reduce water truck travel.

Gate single-purpose roads and/or close or reclaim all unnecessary or obsolete roads.

Install housing and/or muffler around noisy equipment that may cause disturbance to big game using **identified** migration corridors.

To protect the **identified** big game migration corridor, when fences are constructed, mitigation will be required as determined by the BLM.

To protect and/or reduce physical injury, disturbance, or disruption within the **identified** big game migration corridor, mitigation will be required as determined by the BLM.

Directionally drill bore holes to petroleum-bearing formations from less sensitive surface locations where technically and economically feasible. Co-locate drill holes from a single pad to multiple formations where feasible to reduce disturbance to big game using migration corridors.

To protect the **identified** big game migration corridor, traffic speed and volume (via car-pooling, etc.) will be limited during night-time hours between April 1 to May 15 (spring) and October 15 to December 15 (fall) to protect big game during migration movements.

To protect the **identified** big game migration corridor, work schedules and shift changes will be modified between April 1 to May 15 (spring) and October 15 to December 15 (fall) to protect big game during migration movements.

To protect the **identified** big game migration corridor, mitigation will be required as determined by the BLM.

THREATENED, ENDANGERED, CANDIDATE, and PROPOSED SPECIES MANAGEMENT ACTIONS and/or PROTECTION MEASURES

The primary protection measure for T&E Species within the CD/WII, DF, and AR EIS areas is avoidance of important habitats during site-specific seasons. Temporal and spatial stipulations will be applied to proposed projects within the EIS areas. **Table 16c: T&E Species Protection Measures Applied to Surface Disturbing and Disruptive Activities within the CD/WII, DF, and AR EIS Areas** is shown below to update readers on current RFO RMP protection measures for T&E species and their associated habitats. In cases where proposed projects may affect T&E species habitats, consultation and coordination will be conducted with the USFWS for all protection activities relating to these species and their habitats. Where possible, these actions will be specified in advance in the annual reports. Survey methods and results, when required, will be prepared and submitted to the USFWS and BLM in accordance with section 7 of the ESA of 1973, as amended, and the Interagency Cooperation Regulations. If any management agency identifies a potential for impacts to any T&E species, additional measures may be implemented as specified in annual reports.

The black-footed ferret protection measures for the EIS and RFO areas have been modified (*United States Department of the Interior, Fish and Wildlife USFWS, Mountain-Prairie Region [FWS/R6, dated March 6, 2013] Letter for Black-Footed Ferret Block-Clearance in Wyoming*). The USFWS requested to “block-clear” the balance of Wyoming for wild black-footed ferrets, and develop a statewide rule, under section 10(j) of the ESA, for black-footed ferrets in collaboration with the WGFD. The block clearance will alleviate the requirement to conduct presence/absence surveys for black-footed ferrets prior to developing projects. The development of a statewide 10(j) rule would ensure that safe guards for land management practices would apply to the entire state, protecting landowners in the event that ferrets, at some point in the future, disperse out of the current 10(j) area in the Shirley Basin, or if future statewide reintroductions are supported by the WGFD. The USFWS determined that the WGFD Block Clearance Document was sound and that the WGFD’s request for statewide block clearance was both warranted and timely.

Table 16c: T&E Species Protection Measures Applied to Surface Disturbing and Disruptive Activities within CD/WII, DF, and AR EIS Areas

T&E SPECIES MANAGEMENT ACTIONS and/or PROTECTION MEASURES

ALL T&E SPECIES

Informal conferencing and consultation with the USFWS will occur for authorized activities that would potentially affect the habitat for endangered, threatened, proposed, and candidate species within the CD/WII, DF, and AR EIS areas.

Habitat and species conservation measures for Threatened, Endangered, Candidate, and Proposed species are identified in the biological assessment and the biological opinion for the RFO RMP, as well as in each EIS. All of the documents will be adhered to for compliance with the ESA and the BLM Wyoming State Director’s Sensitive Species List (BLM Manual 6840). Conservation measures will be applied to all surface disturbing and disruptive activities, as appropriate. Appendix 14 of the RFO RMP lists all of the current reasonable and prudent measures and terms and conditions for threatened and endangered species and conservation measures for proposed and candidate species.

If, during surveys of areas within 0.5 mi of proposed disturbance sites, nests or other crucial features for any T&E species are found, avoidance of these features will be accomplished in consultation and

T&E SPECIES MANAGEMENT ACTIONS and/or PROTECTION MEASURES

coordination with the BLM, USFWS, and WGFD. Construction activities in these areas will be curtailed until there is concurrence between BLM, USFWS, and WGFD on what activities can be authorized. Activities will, in most cases, be delayed until such time that no adverse effects will occur (e.g., after fledging).

If any management agency, such as the BLM, WGFD, or USFWS, identifies a potential for impacts to any T&E species, additional measures may be implemented as specified in annual reports.

If any proposed development will lead to water depletions (consumption) in the Colorado River system, then formal consultation with the USFWS will be required to reduce impacts to those species.

BLACK-FOOTED FERRET

If prairie dog towns/complexes suitable as black-footed ferret habitat are present, attempts will be made to avoid locating surface disturbing activities within 164 feet (50 meters) of a town. If a black-footed ferret non-block cleared town/complex cannot be avoided, then a black-footed ferret survey is required pursuant to BLM and/or USFWS decisions made during informal consultation. The survey protocol will adhere to the USFWS guidelines established in 1989 (USFWS 1989), in consultation with the BLM, and will be conducted by the BLM or a USFWS-qualified, BLM-Approved biologist, a minimum of one-year in advance of the proposed disturbance. Reports identifying survey methods and results will be prepared and submitted to the BLM in accordance with Section 7 of the Endangered Species Act of 1973, as amended, and the Interagency Cooperation Regulations. Surveys will be financed by the Operators.

In the event a black-footed ferret is found, the BLM will be notified immediately and consultation with the USFWS will be initiated to develop strategies that ensure no adverse effects to the species occur. At this point, all activities will be stopped and before ground-disturbing activities are re-initiated in black-footed ferret habitat, authorization to proceed must be received from the BLM, in consultation with the USFWS.

GREATER SAGE-GROUSE

Surface disturbing activities or occupancy are prohibited on and within one-quarter mile of the perimeter of an occupied greater sage-grouse lek.

Disruptive activities are prohibited between 6:00 p.m. and 9:00 a.m. from March 1 to May 20 on and within one-quarter mile of the perimeter of an occupied Greater Sage-Grouse lek.

Nesting/early brood-rearing habitat: Avoid surface disturbing and disruptive activities, geophysical surveys, and organized recreational activities (events) that require a special use permit in suitable Greater Sage-Grouse nesting and early brood rearing habitat within two miles of the perimeter of an occupied Greater Sage-Grouse lek or in identified Greater Sage-Grouse nesting and early brood rearing habitat, from March 1 to July 15.

Surface disturbing or disruptive activities within greater sage-grouse breeding or nesting habitat will require the use of BMPs designed to reduce both the direct loss of habitat and disturbance to the birds during the critical breeding and nesting seasons.

High-profile structures (e.g., buildings, storage tanks, overhead power lines, wind turbines, towers, windmills) will be authorized on a case-by-case basis from one-quarter mile to one mile of an occupied Greater Sage-Grouse lek.

Power lines will not be constructed within one-sixth of a mile of leks, as necessary to protect leks from raptor predation.

If an active sage-grouse nest is identified in an area proposed for disturbance, surface-disturbing activities will be delayed in the area until nesting is completed, and the proposed disturbance areas will

T&E SPECIES MANAGEMENT ACTIONS and/or PROTECTION MEASURES

be relocated, where possible, to avoid nest locations.

Surface disturbing and disruptive activities potentially disruptive to delineated Greater Sage-Grouse winter concentration areas are prohibited during the period of November 15 to March 14 for the protection of Greater Sage-Grouse winter concentration areas.

In order to minimize noise disturbances to strutting or dancing grouse, compressor stations and generators will be muffled with hospital style mufflers. Additional noise reduction techniques may be required if research shows that current techniques are not adequate.

Implement Instruction Memorandum 2010-022 which provides guidance to effectively address sage-grouse, sharp-tailed grouse, and lesser prairie-chicken collisions with fences and other structures.

Building naturalized berms around pads to reduce potential noise impacts to strutting grouse.

UTE LADIES'-TRESSES PLANT

Informal conferencing and consultation with the USFWS will occur for authorized activities that would potentially affect the habitat for endangered, threatened, proposed, and candidate species within the CD/WII, DF, and AR EIS areas.

The BLM will manage stream habitats with known populations of Ute ladies'-tresses to retain, re-create, or mimic natural hydrology, water quality, and related vegetation dynamics. Projects that may alter natural hydrology or water quality, change the vegetation of the riparian ecosystem and cause direct ground disturbance. These projects may adversely affect the orchid. These projects will be evaluated and redesigned to ensure that adverse effects to known populations of Ute ladies'-tresses do not occur.

Biological control of noxious plant species will be prohibited within one mile from known Ute ladies'-tresses orchid habitat until the impact of the control agent has been fully evaluated and determined not to adversely affect the plant population. The Bureau will monitor biological control vectors.

Except in cases of extreme ecological health (insect or weed outbreaks/infestations), herbicide treatment of noxious plants/weeds will be well-regulated within one-quarter miles of known populations of the orchid and insecticide treatments will be well-regulated within one mile of known populations of Ute ladies'-tresses orchids to protect pollinators. Where insect or weed outbreaks have the potential to degrade area ecological health inside the buffers listed above, at the discretion of the Bureau's authorized officer and with concurrence by the USFWS, the following will apply: where needed and only on a case-by-case basis, a pesticide use proposal or other site specific plan will address concerns of proper timing, methods of use, and chemicals. Pesticides specific to dicots will be preferred where these are adequate to control the noxious weeds present. Aerial application of herbicides will be carefully planned to prevent drift in areas near known populations of Ute ladies'-tresses orchids (outside of the one-quarter mile buffer). The Bureau will work with the Animal and Plant Health Inspection USFWS (APHIS), the USFWS, and County Weed and Pest Agencies to select pesticides and methods of application that will most effectively manage the infestation and least affect Ute ladies'-tresses orchids.

The BLM will apply a condition of approval (COA) on all applications for APDs oil and gas wells for sites within one-quarter miles of any known populations of Ute ladies'-tresses orchids. This condition will prohibit all authorized surface disturbance and OHV travel from sites containing populations of Ute ladies'-tresses orchids. Operations outside of the one-quarter mile buffer of orchid populations, such as "directional drilling" to reach oil or gas resources underneath the orchid's habitat, would be acceptable.

For known Ute ladies'-tresses populations, the BLM will place a Controlled Surface Use (CSU) stipulation prohibiting all surface disturbances on new oil and gas leases, buffering the area within one-quarter miles of known Ute ladies'-tresses populations. For existing oil and gas leases with known Ute ladies'-tresses populations (these would be for newly discovered populations not currently

T&E SPECIES MANAGEMENT ACTIONS and/or PROTECTION MEASURES

documented), the BLM will include the same one-quarter mile buffer area around those newly discovered populations of the orchid for new APDs.

All proposed ROW projects (power-lines, pipelines, roads, etc.) will be designed and locations selected at least one-quarter miles from any known Ute ladies'-tresses orchid habitat to minimize disturbances. If avoidance of adverse effects is not possible, the Bureau will re-initiate consultation with the USFWS.

All proposed projects will be designed and locations selected to minimize disturbances to known Ute ladies'-tresses orchid populations, and if the avoidance of adverse effects to known populations is not possible, the BLM will re-initiate consultation with the USFWS. Projects will not be authorized closer than one-quarter miles from any known Ute ladies'-tresses populations without concurrence/re-initiation of consultation of the USFWS and the Bureau authorized officer. No ground disturbing construction activities will be authorized within one-quarter miles of any known Ute ladies'-tresses orchid populations during the essential growing season time period (from July through September, the growing, flowering and fruiting stages) to reduce impacts to the species.

Maintain and restore the dynamics of stream systems to benefit Ute ladies' tresses, including the movement of streams within their floodplains, which are vital for the life cycle of this plant. Flow timing, flow quantity, and water table characteristics should be evaluated to ensure that the riparian system is maintained where these plants occur.

The BLM should continue water use in a manner that maintains suitable habitat for the Ute ladies' tresses orchid to benefit the species.

COLORADO RIVER WATER DEPLETION

The BLM will continue participation in the Colorado River Recovery Program.

For projects that cause depletions to the Colorado River system, the Bureau will initiate formal consultation with the USFWS. Conservation measures are binding measures which the Bureau will implement to facilitate the conservation of the Colorado River species.

Water depletions are defined simply as diversions less return flows. Depletions include water diverted from a river, as well as evaporation from reservoirs and other impoundments such as stock ponds. Depletions represent an annual reduction in the volume of stream flow that would have reached the critical habitat of endangered fish or wildlife species residing in the Colorado River Basin. If a water depletion from the Colorado River Basin is requested, then a RFO BLM *Water Depletion Determination Form* (February 2011) is required.

When developing or improving water source in the Colorado River system, the BLM would consider development designs such as water wells and guzzlers, rather than surface impoundments, to minimize impacts to surface water hydrology resulting from attenuation of flood peaks and evaporative loss.

BLM WYOMING STATE DIRECTOR'S SENSITIVE SPECIES MANAGEMENT ACTIONS and/or PROTECTION MEASURES

The primary protection measure for BLM Sensitive Species within the CD/WII, DF, and AR EIS areas is avoidance of important habitats during site-specific seasons. Temporal and spatial stipulations will be applied to proposed projects within the EIS areas; however, the BLM's management authority for BLM Sensitive Species is not as specifically structured as for T&E species. The management mandate is less regulatory, and more administrative. **Table 16d:** *BLM Sensitive Species Protection Measures Applied to Surface Disturbing and Disruptive Activities within the CD/WII, DF, and AR EIS Areas* is shown below to update readers on current RFO RMP protection measures for BLM Sensitive Species and their associated habitats.

In cases where proposed projects may affect BLM Sensitive Species habitats then avoidance of the project will be attempted. Consultation and coordination can be conducted with the USFWS and the WGFD to implement proactive conservation relating to these species and their habitats. The BLM is not required to: (1) participate in the development of formal recovery plans or critical habitat designations for BLM Sensitive Species, although the BLM can participate in conservation plans and agreements; (2) enter into ESA Section 7 consultation in Federal actions, although the BLM can request technical assistance from the USFWS, or other entities; and (3) be concerned with the “take” provisions of biological opinions, or the prohibition of section 9 of the ESA. Construction activities in these areas can be curtailed until there is concurrence between the BLM, USFWS and/or WGFD on what activities can be authorized, as well as at such time that no adverse effects will occur. Where possible, and if any agency identified a potential for impacts to any BLM Sensitive Species, additional measures may be implemented and these actions will be specified in advance in the annual reports.

Table 16d: BLM Sensitive Species Protection Measures Applied to Surface Disturbing and Disruptive Activities within CD/WII, DF, and AR EIS Areas

BLM SENSITIVE SPECIES MANAGEMENT ACTIONS and/or PROTECTION MEASURES

ALL BLM SENSITIVE SPECIES

Surface disturbing and disruptive activities that would potentially affect the habitat of Special Status Species will be intensively managed on a case-by-case basis.

Surface disturbing and disruptive activities will be intensively managed to minimize impacts on identified crucial habitat for sensitive species for the purpose of protecting these species and their associated habitats.

If, during surveys of areas within one-half mi of proposed disturbance sites, nests or other crucial features for any BLM Sensitive Species are found, avoidance of these features will be accomplished in consultation and coordination with the BLM, USFWS, and/or WGFD, based on need. Construction activities in these areas will be curtailed until there is concurrence between BLM, USFWS, and WGFD on what activities can be authorized. Activities will, in most cases, be delayed until such time that no adverse effects will occur (e.g., after fledging).

If any management agency, such as the BLM, WGFD, and/or USFWS, identifies a potential for impacts to any BLM Sensitive Species, additional measures may be implemented as specified in annual reports.

BLM SENSITIVE PLANT SPECIES

Gibben's Beardtongue Plant

Summer grazing by livestock and mule deer is a threat, especially herbivory to flowering stems.

Mineral development and seismic operations are potential threats, including the spread of exotic species and ORV use. Wind energy developments at ridge-tops might affect downslope habitats, as well as the wind-churning effects of the turbines.

Trampling by off-road vehicles may result in direct mortality of plants and lead to soil erosion.

Visitation of occupied habitat, such as by botanists, should be kept to a minimum to prevent excessive erosion.

Road construction and use is a threat to the plant. Close or re-route roads to minimize trampling impacts.

Exotic species competition and noxious weed encroachment have been identified as a potential threat.

BLM SENSITIVE SPECIES MANAGEMENT ACTIONS and/or PROTECTION MEASURES

Drought is a natural threat to the plant, but plant is vulnerable to erosion after droughts, especially if erosion removes seed banks.

Periodic inspections of known sites every three to five years to monitor trend is warranted.

In areas where extirpation is documented then propagation and re-introduction may be warranted.

Provide other agencies and organizations, such as WYNDD, with information on the locations of the plant, and vis-versa, to prevent disturbance to the plant from proposed projects.

Laramie False Sagebrush

A distribution model created by WYNDD is recommended for continued use in project reviews. Un-surveyed areas may warrant surveys on the ground if they lie in polygons predicted as high probability habitat, or within about two miles of them. Aerial photographs which can indicate areas of rocky, calcareous habitat should be used.

Provide other agencies and organizations, such as WYNDD, with information on the locations of the plant, and vis-versa, to prevent disturbance to the plant from proposed projects.

The largest populations at Cave Creek and Chalk Mountain, the most extensive population at Seven-mile Creek, and the other three populations, all on BLM-Administered lands, warrant special protection and consideration .

Wind energy developments at ridge-tops may affect these plants, as well as the wind-churning effects of the turbines.

Road construction for quarrying and use is a threat to the plant. Close or re-route roads to minimize trampling impacts.

Re-evaluate BLM lands considered for disposal and survey for the plant.

BLM SENSITIVE MAMMAL SPECIES

White-Tailed Prairie Dog

Surface disturbing and disruptive activities in white-tailed prairie dog towns will be avoided.

Motorized vehicle use within white-tailed prairie dog towns is limited to either designated roads and vehicle routes or existing roads and vehicle routes, depending on the landownership pattern in the area of specific white-tailed prairie dog complexes.

Prairie dog poisoning is prohibited in white-tailed and black-tailed prairie dog towns/complexes, except for demonstrated reasons of human health and safety.

Anti-raptor perching devices will be considered, on a case-by-case basis, for any above-ground facilities within one-quarter mile of prairie dog towns.

Placement of power poles within prairie dog towns will be avoided; however, in the event that power poles are required to be placed within these towns, raptor anti-perch devices will be required.

Pygmy Rabbit

To protect the **identified** pygmy rabbit habitat, avoid the tall and dense sagebrush habitat patches where possible.

To protect the **identified** pygmy rabbit habitat, and to avoid potential impacts to pygmy rabbits, a fence will be constructed, prior to any other ground disturbing activities, as determined by the BLM. The fence will be constructed so that it is clear that no surface disturbance should occur beyond the fence in that area. The fence shall remain in place until completion of final reclamation.

To protect the **identified** pygmy rabbit habitat, subsequent to surface disturbing activities, presence/absence surveys for pygmy rabbits will be conducted prior to any surface disturbance, and once again four years post disturbance in the appropriate associated habitat within one-quarter mile of the edge of the proposed surface disturbance. The surveys must be performed by a wildlife biologist familiar with pygmy rabbits and their associated habitat. The survey protocol is available from the BLM

BLM SENSITIVE SPECIES MANAGEMENT ACTIONS and/or PROTECTION MEASURES

RFO.

To protect the **identified** pygmy rabbit habitat, mitigation will be required as determined by the BLM.

To protect **potential** pygmy rabbit habitat, prior to any surface disturbance, a presence/absence survey for pygmy rabbits will be conducted in all potential habitat within one-quarter mile of the edge of the proposed surface disturbance. Surveys are to be performed by a wildlife biologist familiar with pygmy rabbits and their associated habitat. The survey protocol is available from the BLM RFO upon request. If evidence of pygmy rabbits is found during the pre-construction survey, then additional stipulations may apply, and another survey will be required four years after the initial disturbance.

To protect the **potential** pygmy rabbit habitat, mitigation will be required as determined by the BLM.

The spatial arrangement and size of remaining pygmy rabbit habitat patches should, at a minimum, be maintained at current levels.

Wyoming Pocket Gopher

To protect **potential** Wyoming pocket gopher habitat, prior to any surface disturbance, a presence/absence survey for active pocket gopher mounds will be conducted in all potential habitat within the area proposed for surface disturbance. Surveys are to be performed by a wildlife biologist familiar with pocket gopher life history and their associated habitat. The survey protocol is available from the BLM RFO upon request. If evidence of pocket gophers is found during the preconstruction survey, then additional stipulations may apply.

In the event that active pocket gopher mounds have been identified by the presence/absence survey, the proposed surface disturbing activities will avoid the active pocket gopher mounds by 75-meters. Eight t-posts or rebar stakes will be placed at a 75-meter radius around the active pocket gopher mounds prior to any other ground disturbing activities. The posts/stakes will be used to identify the area of avoidance associated with the active pocket gopher mounds. The posts/stakes shall remain in place until completion of the associated surface disturbing activity.

The proponent for this surface disturbing activity does not wish to avoid the active pocket gopher mounds by 75-meters; therefore, a classification survey (via live capture) must be completed to identify the associated pocket gopher to the species level. If the results conclude that the associated species is a Wyoming pocket gopher then the "Occupied Wyoming Pocket Gopher Habitat Protection Measures" will apply. If the results conclude that the associated species is a Northern pocket gopher, then the proposed surface disturbance may proceed without any mitigation. If the classification survey fails to conclusively identify the associated pocket gopher to the species level, then it will be assumed that the species is a Wyoming pocket gopher and the "Occupied Wyoming Pocket Gopher Habitat Protection Measures" will apply.

To protect the **potential** Wyoming pocket gopher habitat, mitigation will be required as determined by the BLM.

To protect the **identified** Wyoming pocket gopher habitat, and to avoid potential impacts to Wyoming pocket gophers, eight t-posts or rebar stakes will be placed at a 75-meter radius around the active pocket gopher mounds prior to any other ground disturbing activities. The posts/stakes will be used to identify the area of avoidance associated with the active Wyoming pocket gopher mounds. The posts/stakes shall remain in place until completion of the associated surface disturbing activity.

To protect the **identified** Wyoming pocket gopher habitat, mitigation will be required as determined by the BLM.

BLM SENSITIVE BIRD SPECIES

The protection protocol generally will be as described for raptors above. Additional protection measures will be applied on a species- or site-specific basis, as deemed appropriate by the USFWS

BLM SENSITIVE SPECIES MANAGEMENT ACTIONS and/or PROTECTION MEASURES

and/or BLM, and specified in annual reports.

Bald Eagle

In the event species occurrence is verified, the project proponent may be required to modify operational plans, at the discretion of the authorized officer, to include the appropriate measures for minimization of effects to the bald eagle and its habitats.

Surface disturbing and other identified activities, as well as habitat alterations, that may disturb bald eagles will be restricted within suitable habitats that occur within the following bald eagle buffer zones:

Zone 1: This area is intended to protect active and alternative nests located within one-half mile of the proposed surface disturbing activity. Between February 1 and August 15, minimal human activity levels will be allowed during the period of first occupancy to two weeks after fledging in this area.

Zone 2: This area is intended to protect bald eagle primary use areas located within one-half to one mile of the proposed surface disturbing activity. Between February 1 and August 15, light human activity levels will be allowed in this area.

Zone 3: This area is designated to protect foraging/concentration areas year-round and would include one of two larger areas, depending on habitat types: (a) two and a half miles extending in all directions from the nest or (b) one-half mile from the stream-bank of all streams within two and a half miles of the nest. Site-specific habitat types and foraging areas will be evaluated to determine which Zone 3 buffer applies. Zone delineation depends on habitat types.

No ground disturbing activities will be permitted within one mile of active roost sites year round. Other activities that may disturb bald eagles within one mile of known communal winter roosts will be restricted during the period of November 1 through April 1.

BLM-Administered lands that are within one mile of an integral part of bald eagle habitats including nests, communal winter roosts, and foraging/concentration areas should not be exchanged or sold.

Power lines should be built to the standards identified by the Avian Power Line Interaction Committee (APLIC 2006) guidance document.

Proponents of BLM authorized actions should be advised that roadside carrion can attract foraging bald eagles and potentially increase the risk of vehicle collisions with bald eagles feeding on carrion. When large carrion occurs on the road, appropriate officials should be notified for necessary removal.

Proposed and future water projects should not be designed to discharge into drainages or reservoirs occurring within 500-feet of county roads and highways. This measure is intended to minimize vehicle collisions with wildlife using the water source and subsequent eagle-vehicle collisions.

BLM should provide educational information to project proponents pertaining to the following topics: appropriate vehicle speeds and the associated benefit of reduced vehicle collisions with wildlife; use of lead shot (particularly over water bodies); use of lead fishing weights; and general ecological awareness of habitat disturbance.

In the event a dead or injured bald eagle is observed, the BLM RFO Wildlife Biologist should be notified within 24-hours of discovery.

Projects with the **potential** to disturb bald eagles should be implemented in the least amount of time and during periods least likely to affect the bald eagle. The BLM will coordinate with the project proponent to identify opportunities to modify current land stewardship practices that may impact the bald eagle and its habitat.

Projects with the **potential** to disturb bald eagles or their habitats should be monitored, and the monitoring results should be considered in the design and implementation of future projects. The monitoring responsibility will be determined by the BLM in coordination with the project proponent.

To protect the **identified** bald eagle habitat, mitigation will be required as determined by the BLM.

Appropriately timed surveys in bald eagle habitats should be conducted prior to activities and

BLM SENSITIVE SPECIES MANAGEMENT ACTIONS and/or PROTECTION MEASURES

subsequent authorization that may disturb bald eagles or their habitats. A qualified biologist would be approved by the BLM to conduct these surveys. All nest surveys should be conducted using procedures that minimize the potential for adverse effects to nesting raptors. Consultation with the BLM to identify the appropriate survey methodology.

To protect the **potential** bald eagle habitat, mitigation will be required as determined by the BLM.

Burrowing Owl

Surface disturbing and disruptive activities will be intensively managed. BMPs (RFO RMP Appendices 1, 10, 14 and/or 15) will be applied to surface disturbing and disruptive activities to maintain or enhance burrowing owls and their habitats.

To protect the identified burrowing owl habitat, motorized vehicle use within white-tailed prairie dog towns is limited to either designated roads and vehicle routes or existing roads and vehicle routes, depending on the landownership pattern in the area of specific white-tailed prairie dog complexes. This will apply to seismic line activity.

To protect the identified burrowing owl, prairie dog poisoning is prohibited in white-tailed prairie dog towns/complexes, except for demonstrated reasons of human health and safety. In addition, hazing of the owls will not be authorized, since owls tend to hide in burrows when alarmed under these conditions.

To protect the identified burrowing owl habitat, raptor perch inhibitors, will be considered, on a case-by-case basis, for any above-ground facilities within one-quarter mile of prairie dog towns.

To protect the identified burrowing owl habitat, placement of power poles within prairie dog towns will be avoided; however, in the event that power poles are required to be placed within these towns, raptor anti-perch devices will be required.

Surveys should be conducted during times when burrowing owls may be present on prairie dog towns (or other suitable habitat, such as badger holes, etc.), generally between March 15 and October 31. The BLM RFO *Final Burrowing Owl Protection Measures (February 2011)* protocol will be used for surveys.

Mountain Plover

To protect the **identified** mountain plover occupied habitat, the proposed activity will not be allowed as proposed. An alternative such as moving the facility, directional drilling, piping and storage of condensate off the identified mountain plover occupied habitat to a centralized facility, or other technique for the minimization of ground disturbance and habitat degradation will be required.

To protect the **identified** mountain plover occupied habitat, the proposed facility will be moved one-half mile from the identified occupied habitat.

Access roads would be re-aligned to avoid the mountain plover occupied habitat area in **identified** occupied mountain plover habitat.

Speed limits would be posted at 25-miles per hour (MPH) on resource roads and 35-mph on local roads during the brood rearing period of June 1-July 10 within one-half mile of the **identified** mountain plover occupied habitat area.

To protect the **identified** mountain plover occupied habitat, power lines will be either buried or poles will include a perch-inhibitor in their design. This will be required within one-half mile of the identified mountain plover occupied habitat.

Fences, storage tanks and other elevated structures would be either constructed as low as possible and/or would incorporate perch-inhibitors into their design in **identified** occupied mountain plover habitat.

Road-killed animals will be promptly removed from areas within one-half mile the **identified** mountain plover occupied habitat.

To protect the **identified** mountain plover occupied habitat, seed mixes and application rates for

BLM SENSITIVE SPECIES MANAGEMENT ACTIONS and/or PROTECTION MEASURES

reclamation will be designed to produce stands of sparse, low-growing vegetation suitable for plover nesting.

To minimize destruction of nests and disturbance to breeding mountain plovers, no reclamation activities or other ground-disturbing activities will occur from April 10 to July 10 unless surveys consistent with the Plover Guidelines or other USFWS approved method find that no plovers are nesting in the area.

A plugged and abandoned well within one-half mile of the **identified** mountain plover occupied habitat area would be identified with a marker four feet tall with a perch inhibitor on the top of the marker.

To protect the **identified** mountain plover occupied habitat and because mountain plover adults and broods may forage along roads during the night, traffic speed and traffic volume will be limited during night-time hours from April 10 to July 10.

To protect the **identified** mountain plover occupied habitat, work schedules and shift changes will be modified from June 1-July 10 to avoid the periods of activity from one-half hour before sunrise to one-half hour after sunset.

To protect the **identified** mountain plover occupied habitat, traffic will be minimized from June 1-July 10 by car-pooling and organizing work activities to minimize trips on roads within one-half mile of the mountain plover occupied habitat.

Mountain plover habitats will be avoided where practical, and where these habitats will be disturbed, reclamation will utilize procedures designed to re-establish suitable plover habitat. If an active mountain plover nest is observed within survey areas, planned development activities will be delayed at least 37 days or one week post-hatching. If a brood of flightless chicks is discovered, planned activities will be delayed at least seven days.

Road construction and maintenance projects located in **potential** mountain plover habitat (i.e., grading) activities will be minimized from May 25 to June 30 and no new surface-disturbing activities will be conducted from April 10 to July 10 within identified mountain plover occupied habitat.

Surface disturbing and disruptive activities located in **potential** mountain plover habitat are prohibited during the reproductive period of April 10 to July 10 for the protection of breeding and nesting mountain plover. Additional protection measures will be applied if this area is later determined to be within occupied habitat. Occupied habitat is defined as areas where broods and adults have been found.

Exceptions to construct during the timing stipulation period for the mountain plover may be granted provided that the *Mountain Plover Survey Guidelines*, USFWS, March 2003 are followed. If an active mountain plover nest is observed within the survey areas, planned development activities will be delayed at least 37 days or one week post-hatching. If a brood or flightless chicks is discovered, planned activities will be delayed at least seven days.

Waterfowl Species

If utilized as mitigation, important waterfowl production areas, as they are identified, will be managed for Desired Plant Community (DPC) of aquatic habitat and associated wetlands.

Upland Game Birds, Neo-Tropical Migratory Birds & Other Migratory Birds

To maintain or enhance BLM Sensitive upland game bird species, neo-tropical and other migratory bird species, and their habitats, surface disturbing activities and disruptive activities will be intensively managed and BMPs will be applied.

Columbian Sharp-Tailed Grouse

Surface disturbing activities or occupancy are prohibited on and within one-quarter mile of the perimeter of an occupied Columbian sharp-tailed grouse lek (Map 3-13).

Disruptive activities are prohibited between 6:00 p.m. and 9:00 a.m. from March 1 to May 20 on and within one-quarter mile of the perimeter of an occupied Columbian sharp-tailed grouse lek.

BLM SENSITIVE SPECIES MANAGEMENT ACTIONS and/or PROTECTION MEASURES

In order to minimize noise disturbances to strutting or dancing grouse, compressor stations and generators will be muffled with hospital style mufflers. Additional noise reduction techniques may be required if research shows that current techniques are not adequate.

Surface disturbing and disruptive activities potentially disruptive to delineated Columbian sharp-tailed grouse winter concentration areas are prohibited during the period of November 15 to March 14 for the protection of sharp-tailed grouse winter concentration areas.

High-profile structures (e.g., buildings, storage tanks, overhead power lines, wind turbines, towers, windmills) will be authorized on a case-by-case basis from one-quarter mile to one mile of an occupied Columbian sharp-tailed grouse lek.

Power lines will not be constructed within sixth-tenths of a mile of leks, as necessary to protect leks from raptor predation.

Nesting/early brood-rearing habitat: Avoid surface disturbing and disruptive activities, geophysical surveys, and organized recreational activities (events) that require a special use permit in suitable Columbian sharp-tailed grouse nesting and early brood rearing habitat and within one mile of the perimeter of a sharp-tailed grouse lek, or in identified Columbian sharp-tailed grouse nesting and early brood rearing habitat, from March 1 to July 15.

BLM SENSITIVE REPTILE SPECIES

Surface disturbing and disruptive activities will be intensively managed using BMPs to maintain or enhance BLM Sensitive reptile species and their habitats.

BLM SENSITIVE AMPHIBIAN SPECIES

Surface disturbing and disruptive activities will be intensively managed using BMPs to maintain or enhance BLM Sensitive amphibian species and their habitats.

For the protection of BLM Sensitive amphibian species and their habitats, surface disturbing and disruptive activities will be avoided in the following areas: (1) identified 100-year floodplains, (2) areas within 500 feet of perennial waters, springs, wells, and wetlands, and (3) areas within 100 feet of the inner gorge of ephemeral channels.

BLM SENSITIVE FISH SPECIES

Impoundments and in-stream structures will be designed to minimize impacts on BLM Sensitive fish species and their habitats.

Road crossings of water-bodies that potentially support BLM Sensitive fish for a portion of the year will be designed to simulate natural stream processes.

To protect habitat where BLM sensitive fish species may occur, in-stream construction activities will be prohibited between March 1 and June 15 for the protection of spawning habitat. Minimize the duration of construction and concentrate activities during dry conditions.

To protect fish habitat, align roads perpendicular to channels and wetlands on moderate grades with a side-slope, and ensure adequate drainage.

To protect fish habitat, low water crossings will be armored to reduce impacts to fish species (upstream, downstream, and approaches).

To protect fish habitat, linear utilities will be bored or directionally drilled under channels. Bores/drills will begin and end in upland areas or 500-feet from riparian area.

To avoid or minimize loss of riparian vegetation at crossings, replace lost riparian woody vegetation at a ratio of 2:1, and replace lost mature trees or shrubs at a rate of 10:1.

To protect fish habitat, employ silt curtains, dikes, coffer dams, or other suitable erosion control

BLM SENSITIVE SPECIES MANAGEMENT ACTIONS and/or PROTECTION MEASURES

measures.

To protect fish migration, placement of in-stream structures (i.e., culverts, bridges, and low water crossings) will be completed in a manner that will allow for fish passage under natural conditions, unless a barrier is intended for fisheries management objectives. Reshape/reclaim disturbed channels to their approximate original configuration.

To protect water quality important to fisheries, surface discharge of well water will require waterborne selenium/other constituents monitoring and will meet the following requirements:

Selenium levels-2ppb: no additional monitoring sites are required.

Selenium levels -2ppb:

Tributary to Muddy Creek or Little Snake River:

Selenium levels-2ppb monitoring is required at Muddy Creek or Little Snake River:

Selenium levels -2ppb conduct hazard assessment of Selenium to endangered Colorado River fishes in coordination with the USFWS.

Muddy Creek or Little Snake River:

Selenium levels-2ppb conduct hazard assessment of Se to endangered Colorado River Fishes in coordination with the USFWS.

Other Drainages: _____

Other Constituents: _____

To protect fish habitat, mitigation will be required as determined by the BLM.

Fencing may be appropriate to protect riparian areas under reclamation.

GENERAL SPECIES MANAGEMENT ACTIONS and/or PROTECTION MEASURES

The primary protection measure for general wildlife species within the CD/WII, DF, and AR EIS areas is avoidance of important habitats during site-specific seasons. Temporal and spatial stipulations will be applied to proposed projects within the EIS areas, where applicable. **Table 16e: General Species Protection Measures Applied to Surface Disturbing and Disruptive Activities within the CD/WII, DF, and AR EIS Areas** is shown below to update readers on current RFO RMP protection measures for general wildlife species and their associated habitats. In cases where proposed projects may affect species habitats, consultation and coordination can be conducted with the WGFD for all protection activities relating to these species and their habitats. Where possible, these actions will be specified in advance in the annual reports.

Table 16e: General Species Protection Measures Applied to Surface Disturbing and Disruptive Activities within CD/WII, DF, and AR EIS Areas

GENERAL SPECIES MANAGEMENT ACTIONS and/or PROTECTION MEASURES

Wildlife habitat objectives will be considered in all reclamation activity.

Manage projects through facility placement and minimization of construction disturbance to maintain connectivity between large contiguous blocks of undisturbed habitat.

Surface disturbing activities and disruptive activities will be intensively managed and BMPs will be applied to surface disturbing and disruptive activities to maintain or enhance upland game bird species, neo-tropical and other migratory bird species, and their habitats.

Surface disturbing and disruptive activities will be intensively managed using BMPs to maintain or enhance reptile and amphibian species and their habitats.

For the protection of amphibian species and their habitats, surface disturbing and disruptive activities

GENERAL SPECIES MANAGEMENT ACTIONS and/or PROTECTION MEASURES

will be avoided in the following areas: (1) identified 100-year floodplains, (2) areas within 500 feet of perennial waters, springs, wells, and wetlands, and (3) areas within 100 feet of the inner gorge of ephemeral channels.

If utilized as mitigation, fish habitats will be managed to achieve desired future condition (DFC).

Road crossings of water-bodies that potentially support fish for a portion of the year will be designed to simulate natural stream processes.

All roads on and adjacent to the EIS areas that are required for a proposed project will be appropriately constructed, improved, maintained, and signed to minimize potential wildlife and vehicle collisions and facilitate wildlife (most notably big game) movement through the area. Appropriate speed limits will be adhered to on all project roads, and Operators will advise employees and contractors regarding these speed limits. Some existing roads on and surrounding transportation planning areas may be reclaimed if they become redundant or closed (gated and locked) to deny unnecessary access during critical winter periods.

To protect important habitat located within project areas, such as ephemeral draws dominated by basin big sagebrush greater than three feet tall, projects will be placed to avoid this habitat where possible.

Reserve, work-over, and flare pits and other locations potentially hazardous to wildlife will be adequately protected by netting and/or fencing as directed by the BLM to prohibit wildlife access.

No surface water or shallow ground water in connection with surface water will be utilized for the proposed project.

In-stream work will occur during the low flow period of July 15-September 30.

If dead or injured raptors, big game, migratory birds, or unusual wildlife are observed within the EIS areas, Operator personnel will contact the appropriate BLM and WGFD offices. Under no circumstances will dead or injured wildlife be approached or handled by Operator personnel.

Operators will implement policies designed to control poaching and littering and will notify all employees (contract and company) that conviction of a major violation could result in disciplinary action. Contractors will be informed that any intentional game law violation or littering within the EIS areas could result in dismissal.

In the event that four or more locations occur on a section, further project-specific wildlife protection measures may be applied. These measures may include the installation of remote well monitoring devices at well locations to avoid unnecessary visits by Operator personnel and the installation of water and/or condensate pipelines from well locations to central processing facilities to avoid repeated trucking of condensate and water from these well locations.

Additional project- and site-specific measures may be added in future years as specified in annual reports.

Migratory bird stipulation - Surface disturbing and disruptive activities are PROHIBITED during the period of April 10 – July 10 of each year to protect neo-tropical and other migratory bird species and their habitats.

BLM RFO PROGRAMS within the EIS AREAS MANAGEMENT ACTIONS and/or PROTECTION MEASURES

Fire and Fuels, Livestock Grazing, OHV, Recreation and Visitor USFWSs, Special Designations and Management Areas, Transportation and Access, Vegetation, and Water Quality, Watershed, and Soils Management and/or Protection Measures

Management actions within these eight programs may directly, indirectly and/or cumulatively affect wildlife species and their associated habitats. The overall goals and management objectives for these programs are identified above. Management actions are identified below which have been implemented, or may be implemented in the future, within the EIS areas and can have positive or negative effects on wildlife species. These actions can cause both additive and interactive effects to wildlife species and their associated habitats on a cumulative basis between these programs and the minerals and lands program in the EIS areas. These should then be analyzed to determine such effects and direct the BLM to continue, cease, or adjust specific management actions based on the outcomes of these effects. The following tables are shown below to update readers on current RFO RMP protection measures:

- (1) *Table 16f: Fire and Fuels Management Actions and/or Protection Measures Applied to Surface Disturbing and Disruptive Activities within the CD/WII, DF, and AR EIS Areas;*
- (2) *Table 16g: Livestock Grazing Management Actions and/or Protection Measures Applied to Surface Disturbing and Disruptive Activities within the CD/WII, DF, and AR EIS Areas;*
- (3) *Table 16h: OHV Management Actions and/or Protection Measures Applied to Surface Disturbing and Disruptive Activities within the CD/WII, DF, and AR EIS Areas;*
- (4) *Table 16i: Recreation and Visitor USFWSs Management Actions and/or Protection Measures Applied to Surface Disturbing and Disruptive Activities within the CD/WII, DF, and AR EIS Areas;*
- (5) *Table 16j: Special Designations and Management Areas Management Actions and/or Protection Measures Applied to Surface Disturbing and Disruptive Activities within the CD/WII, DF, and AR EIS Areas;*
- (6) *Table 16k: Transportation and Access Management Actions and/or Protection Measures Applied to Surface Disturbing and Disruptive Activities within the CD/WII, DF, and AR EIS Areas;*
- (7) *Table 16l: Vegetation Management Actions and/or Protection Measures Applied to Surface Disturbing and Disruptive Activities within the CD/WII, DF, and AR EIS Areas;*
- (8) *Table 16m: Water Quality, Watershed, and Soils Management Actions and/or Protection Measures Applied to Surface Disturbing and Disruptive Activities within CD/WII, DF, and AR EIS Areas; and*
- (9) *Table 16n: Wild Horses Management Actions and/or Protection Measures Applied to Surface Disturbing and Disruptive Activities within CD/WII, DF, and AR EIS Areas.*

Table 16f: Fire and Fuels Management Actions and/or Protection Measures Applied to Surface Disturbing and Disruptive Activities within CD/WII, DF, and AR EIS Areas

FIRE AND FUELS MANAGEMENT ACTIONS and/or PROTECTION MEASURES

Public lands within the checkerboard or other intermixed landownership areas will be managed in association with the private, state, and other federal agency lands and AMR will most often result in suppression activities.

FIRE AND FUELS MANAGEMENT ACTIONS and/or PROTECTION MEASURES

AMRs for Special designation (SD)/Management Area (MA)s will protect or enhance the relevant and important values of the SD/MAs requiring special management attention.

A high priority for fire management activities will be given to areas identified as communities at risk, industrial interface areas, and areas containing resource values considered high priority.

Fuel treatments, including prescribed fire, mechanical, chemical, and biological treatments will be used for fuels reduction and to meet other multiple-use resource objectives, including returning fire to its natural role in the ecosystem. Wildland-urban interfaces (WUI) and communities at risk will receive priority for fuels reduction.

Rehabilitation and restoration efforts specific to a fire event will be undertaken to protect and sustain ecosystems, public health and safety, and to help communities protect infrastructure.

Wildland fire suppression activities in the entire RMPPA will be managed for AMR. Wildland fire for resource benefit will be used in identified locations to protect, maintain, and enhance resources, and, as nearly as possible, allow fire to function in its natural ecological role.

Table 16g: *Livestock Grazing Management Actions and/or Protection Measures Applied to Surface Disturbing and Disruptive Activities within CD/WII, DF, and AR EIS Areas*

LIVESTOCK GRAZING MANAGEMENT ACTIONS and/or PROTECTION MEASURES

The entire RFO is available for livestock grazing. Areas such as developed recreation areas, wetland/riparian spring enclosures, and sensitive plant species enclosures will be excluded from grazing.

The current amounts, kinds, and seasons of livestock grazing use will be authorized until such monitoring, field observations, ecological site inventory, or other data acceptable to the BLM indicates a grazing use adjustment is needed, as appropriate. Requests for changes in season-of-use or kind-of-livestock will be considered on a case-by-case basis. Any decision regarding changes in grazing use will include cooperation, consultation, and coordination with the grazing permittees and the interested public.

Management of domestic sheep and goats will be in accordance with national BLM policy and will recognize and use to the extent possible the recommendations of the Wyoming Bighorn/Domestic Sheep Interaction Working Group.

Manage livestock grazing to meet the Wyoming Standards for Healthy Rangelands.

Grazing systems and range improvements will be designed to achieve the management goals for livestock grazing and to achieve and maintain healthy rangelands.

Conversions from cattle or sheep to domestic bison will not be allowed in areas of blocked federal surface landownership.

New fence construction will be authorized according to BLM standards unless modified following consultation with affected parties. Existing fences will be modified according to current BLM standards and according to wildlife and livestock management needs.

Table 16h: *OHV Management Actions and/or Protection Measures Applied to Surface Disturbing and Disruptive Activities within CD/WII, DF, and AR EIS Areas*

OHV MANAGEMENT ACTIONS and/or PROTECTION MEASURES

With some exceptions, the RFO is open to use of motorized, over-the-snow vehicles provided they do not adversely affect wildlife or vegetation

The RFO is divided into areas that are open, limited, or closed to OHV travel. Those areas that are designated limited may have seasonal restrictions or travel limitations to either existing or designated

OHV MANAGEMENT ACTIONS and/or PROTECTION MEASURES

roads and vehicle routes or any combination of these. Until the designation process is completed, travel in limited to designated Areas will remain limited to existing roads and vehicle routes. Travel on parcels of public land not having legal public access will remain limited to existing roads and vehicle routes.

Travel on parcels of public land that do not have legal public access will remain limited to existing roads and vehicle routes. Travel management areas (TMA) within the RMPPA are defined as those areas identified as OHV areas as “Limited to Designated Roads and Trails,” “Closed,” or “Open” and defined as those areas selected as “Limited to Designated Roads and Trails,” “Closed,” or “Open”

Off-road motor vehicle use is allowed for necessary tasks except in WSAs and specific SD/Mas.

In localized areas, temporary, seasonal, or permanent closures to motorized vehicle use may occur for public health and safety concerns or for the protection of resources.

OHV use to retrieve big game kills is allowed within 300 feet of existing roads and vehicle routes, except where roads and vehicle routes are closed and in Wilderness Study Area (WSA)s and specific SD/MAs.

OHV use to access camping sites is limited to within 300 feet of existing roads and vehicle routes, except where roads and vehicle routes are closed and in WSAs and specific SD/MAs.

Table 16i: *Recreation and Visitor Use Management Actions and/or Protection Measures Applied to Surface Disturbing and Disruptive Activities within CD/WII, DF, and AR EIS Areas*

RECREATION AND VISITOR USFWS MANAGEMENT ACTIONS and/or PROTECTION MEASURES

Additional recreation sites will be considered for development based on need or demand, site suitability, and legal public access.

The entire RFO is open to dispersed recreation with the exception of specific areas that must be excluded to protect public health and safety or special resource values.

Special recreation permits will not be issued for prairie dog hunting.

Table 16j: *Special Designations and Management Areas Management Actions and/or Protection Measures Applied to Surface Disturbing and Disruptive Activities within CD/WII, DF, and AR EIS Areas*

SPECIAL DESIGNATION AND MANAGEMENT ACTIONS and/or PROTECTION MEASURES

Sand Hills/JO Ranch ACEC

No surface occupancy is allowed on the 18 acres around the JO Ranch buildings. Developments, uses, and facilities will be managed spatially to avoid damage to vegetation.

The ACEC is designated an AMR area with emphasis on fire suppression.

The area is open to federal oil and gas leasing. Surface disturbing activities on oil and gas leases will be intensively managed to meet the objectives of the ACEC.

Big game seasonal closures to motor vehicle use will be implemented as needed.

Off-road motor vehicle use for “necessary tasks” is allowed.

OHV use in the Sand Hills/JO Ranch ACEC is limited to designated roads and vehicle routes and closed to over-the-snow vehicles.

The unique vegetation complex of the Sand Hills ACEC will be protected from sources of disturbance through intensive management of surface disturbing activities. Case-by-case examination of any proposed surface disturbing and disruptive activity will be made to determine potential adverse effects and appropriate mitigation to minimize those effects.

New fence construction will be authorized to BLM standards. Existing fences will be modified to current BLM standards.

SPECIAL DESIGNATION AND MANAGEMENT ACTIONS and/or PROTECTION MEASURES

Upper Muddy Creek Watershed/Grizzly WHMA

Rehabilitation of degraded stream reaches will be carried out in specific problem areas. Livestock grazing use will be managed for the protection or enhancement of resource values for which the WHMA was designated.

The area is closed to new oil and gas leasing. Surface disturbing activities on existing leases will be intensively managed.

Public lands are open to the operation of the public land laws.

Off-road motor vehicle use for “necessary tasks” is allowed.

Motorized vehicle use is limited to designated roads and vehicle routes. Closures of specific roads and vehicle routes, including seasonal closures, will be considered on a case-by-case basis to meet the objectives of Upper Muddy Creek Watershed/Grizzly WHMA.

OHV use to retrieve big game kills or access camp sites is prohibited off designated roads and vehicle routes.

Surface disturbing activities will avoid identified 100-year floodplains, 500 feet from perennial surface water and/or wetland and riparian areas, and 100 feet from ephemeral channels. Exceptions to this would be granted by the BLM based on an environmental analysis and site-specific engineering and mitigation plans. Only those actions within areas that cannot be avoided and that provide protection for the aquatic resources in the Upper Muddy Creek Watershed/Grizzly WHMA will be approved.

New fence construction will be authorized according to BLM standards. Modification of existing fences to current BLM standards will be actively pursued. Specific locations will be modified according to wildlife and livestock needs.

In-stream structures that interfere with the movement of native fishes among habitats will be removed, reconstructed, or retrofitted to allow fish passage. Barriers built to facilitate reintroduction efforts will be maintained until they have completed their purpose.

Actively pursue, in cooperation with WGFD, USFS, and private landowners, opportunities to expand reintroduction efforts for Colorado River Cutthroat Trout (CRCT) and other native cold and warm water fishes into adjacent habitats within the Upper Muddy Creek watershed.

Surface disturbing and disruptive activities in aspen communities will be avoided. Aspen stands will be managed to increase distribution and improve seral structure.

The area is designated an AMR fire suppression area.

Water impoundments in the Upper Muddy Creek Watershed/Grizzly WHMA that would result in storage of greater than one acre-foot per project in Muddy Creek will not be allowed.

Cow Butte/Wild Cow WHMA

Surface disturbing and disruptive activities will be intensively managed on a case-by-case basis to prevent loss of significant habitat or loss of habitat effectiveness. Development, uses, and facilities will be located to minimize damage to vegetation and wildlife habitat.

The area is designated an AMR fire suppression area.

Surface disturbing and disruptive activities in aspen communities will be avoided. Aspen stands will be managed to increase distribution and improve seral structure.

Surface disturbing and disruptive activities in mountain shrub communities will be avoided. Mountain shrub communities will be managed to increase distribution and improve seral structure.

New fence construction will be authorized to BLM standards. Existing fences will be modified to current BLM standards.

The area is closed to new oil and gas leasing. Surface disturbing and disruptive activities on existing

SPECIAL DESIGNATION AND MANAGEMENT ACTIONS and/or PROTECTION MEASURES

leases will be intensively managed.

Motorized vehicle use is limited to designated roads and vehicle routes. Closures of specific roads and vehicle routes, including seasonal closures, will be considered on a case-by-case basis to meet the objectives of the WHMA.

Off-road motor vehicle use for “necessary tasks” is allowed.

Chain Lakes WHMA

The area is open to oil and gas leasing with intensive management of surface disturbing and disruptive activities.

AMR for wildland fire on public lands within the checkerboard or other intermixed landownership areas will be managed in association with the private and state lands therein.

Off-road motor vehicle use for “necessary tasks” is allowed.

Surface disturbing activities within the unique alkaline desert wetland communities will be intensively managed.

Jep Canyon WHMA

Surface disturbing and disruptive activities will be intensively managed to prevent loss of significant habitat. Management will be applied on a case-by-case basis. Developments, uses, and facilities will be managed to avoid damage to vegetation and wildlife habitat.

The area is open to oil and gas leasing. Surface disturbing activities on oil and gas leases will be intensively managed to meet the objectives of the WHMA.

As opportunities arise, acquisition of adjacent lands or easements to improve public access will be considered and evaluated.

Off-road motor vehicle use for “necessary tasks” is allowed.

OHV use is limited to designated roads and vehicle routes and closed to over-the-snow vehicles.

Surface disturbing and disruptive activities in aspen communities will be avoided. Aspen stands will be managed to increase distribution and improve seral structure.

Public lands within the checkerboard or other intermixed landownership areas will be managed in association with the private and state lands therein. AMR will most often result in suppression activities.

Table 16k: *Transportation and Access Management Actions and/or Protection Measures Applied to Surface Disturbing and Disruptive Activities within CD/WII, DF, and AR EIS Areas*

TRANSPORTATION AND ACCESS MANAGEMENT ACTIONS and/or PROTECTION MEASURES

The public land transportation system will be maintained or modified to provide for public health and safety and adequate access to public lands.

Routing and construction standards will be adjusted based on route analysis and engineering design.

When roads constructed under other initiatives are no longer needed for their original purposes, and prior to termination and obliteration of the road, BLM will assess its utility for addition to the BLM transportation system.

In close coordination with state and county governments, inventory all roads on public land and determine which roads are owned by the state and the respective counties. Based on the inventory and road determinations, develop a transportation plan to identify roads or trails under the jurisdiction of the BLM for closure, modification, or maintenance within the life of the plan. The plan will include goals, objectives, and maintenance standards for roads or trails to be retained for public use, and will contain specific measures to accomplish road closure. Roads or trails that are eroding beyond a reasonable level

TRANSPORTATION AND ACCESS MANAGEMENT ACTIONS and/or PROTECTION MEASURES

will be fixed or closed.

Road density will be considered during the analysis process and during authorization of surface disturbing and disruptive activities.

Table 16l: *Vegetation Management Actions and/or Protection Measures Applied to Surface Disturbing and Disruptive Activities within CD/WII, DF, and AR EIS Areas*

VEGETATION MANAGEMENT ACTIONS and/or PROTECTION MEASURES

All forms of control for noxious and invasive species are allowed in the EIS areas on a case-by-case basis. Minimize disturbance to vegetation through application of BMPs, mitigation, as appropriate and practical, and reclamation practices.

Known habitat for BLM Wyoming State Sensitive plant species is open to oil and gas leasing with intensive management of surface disturbing and disruptive activities.

T&E, candidate, and proposed species and habitat conservation measures identified in the RFO RMP biological assessment will be adhered to for compliance with the ESA. These measures will be applied to all surface disturbing activities, as appropriate, to ensure compliance with Section 9 of the ESA. In addition, conservation measures and reasonable and prudent measures and terms and conditions identified in any biological assessment and opinion will be implemented within the EIS areas.

Management practices identified on a case-by-case basis will be applied to surface disturbing activities to maintain or enhance BLM Sensitive Plant Species and their habitat.

Occupied habitat for T&E and proposed and candidate plant species is open to oil and gas leasing with an NSO stipulation.

Priority for control of noxious and invasive species is to reduce and eliminate, where possible, small new infestations and to control large infestations.

Table 16m: *Water Quality, Watershed, and Soils Management Actions and/or Protection Measures Applied to Surface Disturbing and Disruptive Activities within CD/WII, DF, and AR EIS Areas*

WATER QUALITY, WATERSHED, and SOILS MANAGEMENT ACTIONS and/or PROTECTION MEASURES

Intensive management of surface disturbing activities will be implemented in watersheds contributing to water-bodies listed on the State's 303d list of impaired water-bodies in consultation and cooperation with affected interests.

Surface disturbing activities will be avoided on unstable areas, such as landslides, slopes of greater than 25 percent, slumps, and areas exhibiting soil creep. Reclamation practices and BMPs will be applied as appropriate for surface disturbing activities.

Surface disturbing activities will be avoided in the following areas: (1) identified 100-year floodplains, (2) areas within 500 feet of perennial waters, springs, and wetland and riparian areas, and (3) areas within 100 feet of the inner gorge of ephemeral channels. Exceptions to this will be granted by the BLM based on an environmental analysis and site-specific engineering and mitigation plans. Only those actions within areas that cannot be avoided and that provide protection for the resource identified will be approved.

Muddy Creek Watershed

Surface disturbing activities will be intensively managed within those portions of the Muddy Creek drainage that contribute to degradation of reaches previously or currently listed on the 303d list.

WATER QUALITY, WATERSHED, and SOILS MANAGEMENT ACTIONS and/or PROTECTION MEASURES

Water Quality for Class 1 Waters and Waters with Threats or Impairments

Manage surface land use and groundwater resources within its jurisdiction to maintain or improve water quality according to the uses and numerical standards specified by the State of Wyoming's classification of water resources in the RFO. Proposed projects above Class 1 waters and impaired bodies on the State's 303d list will receive special consideration during the NEPA process to ensure that project actions will not degrade these waterbodies beyond the uses specified. Intensive management of surface disturbing activities approved by the BLM will be implemented in watersheds contributing to waterbodies listed on the State's 303d list.

Produced Water from Fluid Mineral Development

Surface discharge of produced water that meets Wyoming surface water standards is allowed in the Colorado River Basin and Great Divide Basin. Individual projects will be considered on a site-specific basis.

Table 16n: *Wild Horses Management Actions and/or Protection Measures Applied to Surface Disturbing and Disruptive Activities within CD/WII, DF, and AR EIS Areas*

WILD HORSES MANAGEMENT ACTIONS and/or PROTECTION MEASURES

Utilize monitoring and evaluation data to maintain habitat within HMAs.

The AML for the Adobe Town HMA will remain at 700 adults; the AML for the Stewart Creek HMA will remain at 150 adults. These AMLs could change based on future monitoring.

These management actions and protection measures for all of these programs within the EIS areas must be taken into consideration during the planning for natural gas development, as well as in determining mitigation measures applicable for wildlife and their associated habitats protections. Working in close coordination with BLM staff in these programs when designing and implementing these management actions and protection measures will reduce and or eliminate conflicts between different BLM-Administered programs and ensure compliance with the 2008 RFO RMP.

Part 6: Analyze the Effectiveness of the Protection Measures and Determine Necessary Subsequent Actions (Adaptive Management)

EFFECTIVENESS OF PROTECTION MEASURES and ACTIONS REQUIRED

The effectiveness of the protection measures identified in the EISs and the associated actions required to adjust these actions have not been analyzed to date. There can be company voluntary protection measures and required protection measures. At this time the *Monitoring without Borders* team have basically completed species inventory and monitoring protocols over the last decade and are beginning to identify potential impacts to species as a result of authorizing proposed actions within the CD/WII, DF and AR EIS fields. It is very difficult and extremely time consuming to determine true cause and effect relationships between species and their associated habitats and implementing proposed actions. Once these relationships can be identified then adaptive management will be implemented to resolve

conflicts. The *Monitoring without Borders* team have been working recently on steps 2 and step 3 from the following list identified earlier in the report:

- (1) Annual inventory and monitoring of species;
- (2) Identify effects and the actions required (mitigation measures) to reduce and/or eliminate those effects (using adaptive management); and
- (3) Analyzing the effectiveness of these actions; if they don't work we will need to try something different.

The group will continue to move forward to resolve conflicts that may occur in the CD/WII, DF and AR EIS project areas to wildlife species and their associated habitats. One example, although simple, of conflicts between natural gas development and wildlife habitat quality, and that the team recognizes is trash in the area. The effectiveness of identified protection measures and actions required are stated below for this example. Other examples that the team are currently working on include conflicts that wildlife have with a diversity of fences located throughout the project areas (see **Figure 6: Pronghorn caught and killed in fence**) and off-highway vehicle (OHV) uses. These conflicts have negative impacts to wildlife and through the three steps identified above, the team can identify resolutions to reduce and/or eliminate these conflicts in the field.

Trash in Field

Effectiveness of Protection Measures

There has been a large amount of trash on the majority of the roads within all three EIS areas. The companies are responsible for the clean-up of their roads and well pads; however, there are still many areas where bottles, cans, metal and general garbage are still along the roads within these three EIS areas. The BLM coordinated with Jack Engstrom, BP Field Environmental Coordinator, and completed a BLM-Industry Partnership Environmental Day. The project included the BLM RFO staff and industry working together to clean up bottles, cans and other garbage along identified routes within the EIS areas. The BLM focused on solid-block areas and industry (BP) focused on checkerboard areas; however, some paths crossed both types of land administrations. This allowed BLM and industry to partner together in these types of non-confrontational projects which strengthens the partnerships and builds trust. The EIS do not appear to be working when it comes to the large amount of garbage that is still out in the field along all of the roads and well pad areas.

Actions Required

The companies need to have their staff identify specific roads and keep them clear of garbage. This needs to be completed on an annual basis.

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