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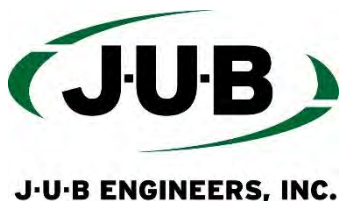
Scoping Report

**Bostwick Park Water Conservancy
District – Flood Prevention,
Agricultural Water Management,
and Fish & Wildlife Project**

Scoping Report

Prepared by: J-U-B ENGINEERS, Inc.

Prepared for: NRCS Colorado



November 2021

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SECTION 1 INTRODUCTION

1.0 Introduction

The United States Department of Agriculture Natural Resources Conservation Service (USDA-NRCS) Watershed Protection and Flood Prevention Act (Public Law (PL) 83-566) helps units of federal, state, local and tribal governments protect and restore watersheds. The program provides financial and technical assistance for erosion and sediment control, watershed protection, flood prevention, water quality improvement, water management, fish and wildlife habitat enhancement, recreation and hydropower.

Bostwick Park Water Conservancy District (BPWCD), co-sponsored by Uncompahgre Valley Water Users Association (UVWUA), Cimarron Canal and Reservoir Company (CC&RC), and Trout Unlimited have received funding from NRCS's PL 83-566 for the proposed Flood Prevention, Agricultural Water Management, and Fish & Wildlife Project (Proposed Project) that would occur in Montrose and Gunnison Counties. As described in the Scoping Letter, the Proposed Project would improve water quality, flood protection, and public safety while decreasing water losses in the project area by stabilizing and lining approximately 1.5 miles of UVWUA open canal, piping several miles of BPWCD laterals, replacing a failing section of existing pipeline, rebuilding the Cimarron Canal diversion structure, and installing an electronic fish screen and temperature monitors in the Cimarron River.

NRCS, as the lead federal agency, has initiated National Environmental Policy Act (NEPA) analysis in the form of a Watershed Plan and Environmental Assessment (Plan-EA) to analyze impacts to the natural and human environment that could result from this project. The Plan-EA will comply with the Council on Environmental Quality's (CEQ) regulations at 40 CFR Parts 1500-1508, which require an evaluation of potential environmental impacts associated with federal projects and actions. The Plan-EA will be comprised of the following elements:

- Alternatives analysis of potential design options that would meet NRCS engineering performance criteria. The alternatives described in the Scoping Letter have been refined during the development of the Plan-EA to include the following:
 - No Action Alternative: The canals would not be piped and would continue to lose water and contribute salt into the Colorado River Basin. Canal banks would remain unstable and continue to deteriorate. Temperature monitors would not be installed in the Cimarron River.
 - Alternative 1: The East/West Laterals would be piped, and the split siphon inlet would be improved. Approximately 1.5 miles of UVWUA open canal would be stabilized and lined. The Slide Point pipeline, Wells Basin pipeline, and Coal Hill Slide pipeline/box culvert would be constructed. Temperature loggers would be installed in the Cimarron River.
 - Alternative 2: This alternative includes all other areas listed in Alternative 1. However, instead of lining the M&D Canal, Alternative 2 would install approximately 16,400 feet of double barrel pipe.

- Detailed analysis of resources with the potential to be impacted by the alternatives that would satisfy the purpose and need for the project.
- Identification of potential mitigation measures that would minimize or eliminate environmental impacts.
- Public participation and government agency coordination through scoping and the development of the Plan-EA.

Public participation is a key component of this project. Those who are interested in or potentially affected by the proposed alternatives were provided with an opportunity to share concerns and provide input regarding the Plan-EA during the initial stages of the process. This Scoping Report outlines the work performed to involve the public and other stakeholders during a public scoping meeting and public comment period, and discusses the comments received from interested agencies during scoping.

1.1 Project Purpose and Need

The purpose of the Proposed Project is to provide flood prevention, watershed protection, improve agricultural water management, and enhance fish habitat and associated public recreation opportunities. Significant storm events occur in the area during the irrigation season that result in flooding, overtopping, and breaching of canals that pose a risk to transportation and residential and commercial infrastructure from potential landslides and flood risks.

The Proposed Project is also needed to prevent and reduce water losses and salinity and selenium loading associated with seepage in the open canals. The Bureau of Reclamation estimates that irrigation practices and water losses contribute approximately 186,000 tons of salt per year to the Lower Gunnison Basin. Ultimately, water losses and salt and selenium loading impact the health of the watershed, agricultural production, and aquatic habitat in the Action Area.

1.2 Scoping Goals and Objectives

The goal of public participation and involvement is to initiate communication between a diverse group of public, government agency, other stakeholders, and interested participants in order to gather input and provide timely information throughout the NEPA process. The primary tasks that accomplish this communication are: 1) establishing ongoing communication with stakeholders, agencies, and the general public; 2) providing information to the public about the environmental review process and each participant's role; and 3) documenting all participation and input.

SECTION 2

SCOPING PROCESS SUMMARY

2.0 Scoping Overview

The scoping process included gathering input on the proposed project from affected federal, state, and local agencies, tribes, adjacent property owners, the public and other interested parties. Scoping questions, comments, and concerns were requested at agency and public scoping meetings. Scoping activities for the Bostwick Park Water Conservancy District Watershed Plan Environmental Assessment (Plan-EA) occurred from December 2020 to January 2021.

Scoping is meant to:

- Identify issues, concerns, and opportunities;
- Define the planning area based on the resources and the geographic areas likely to be affected by project alternatives;
- Determine the extent to which resources will be analyzed; and
- Identify the agency review and consultation requirements and recommendations.

The following summarizes the scoping process and efforts made to engage the public, regulatory agencies, and other interested parties.

2.1 Scoping Terms

The following terms can be generally used during the scoping process to identify specific actions, when necessary:

- Comment: a distinct statement or question about a topic or issue relating to the project.
- Comment Category: a topic to which a comment is addressed.
- Comment Document: a written version of comment(s) submitted by a commenter. One comment document may contain multiple comments.
- Commenter: an individual, organization or agency providing one or more comments.

2.2 Scoping Schedule

The following dates outline the milestones for the scoping process:

- September 17, 2020: Project Kick-Off Meeting
- November 17, 2020: Agency Scoping Letter sent to Agencies
- November 17, 2020: Scoping Notice Posted to NRCS Project Website
- November 19, 2020: Public Notice placed in *The Montrose Daily Press* and *The Gunnison Times*

- December 10, 2020: Virtual Agency and Public Scoping Meetings
- December 10, 2020: Public Comment Period Opened
- January 15, 2021: Public Comment Period Closed

2.3 Scoping Notice

Scoping notices were prepared and sent to interested parties and regulatory agencies on November 17, 2020. The list of recipients was prepared by Trout Unlimited, UVWUA, BPWCD, and J-U-B ENGINEERS, Inc. (J-U-B). The scoping notice gave a description of the Proposed Project, location and overview, and requested public participation and input. The scoping notice also provided details of the scoping meeting, contact information to submit written comments, and the scoping period open and closure dates. The scoping notice was posted to the NRCS Project Website. Copies of the scoping notices are included within Appendix A.

A public meeting announcement was published November 19, 2020 in *The Montrose Daily Press* and *The Gunnison Times* newspapers announcing the Proposed Project and scoping meeting. Copies of the legal notices are included within Appendix A.

The legal notice was posted to the official NRCS website (www.co.nrcs.usda.gov) for the project.

2.4 Scoping Meetings

The primary purpose of the scoping meetings was to gather input and feedback on the Proposed Project while providing a description of the potential Proposed Project alternatives and an overview of the NEPA process. The scoping meeting set up the development of the project purpose and need statement, potential alternatives for consideration, environmental resources to be addressed in the EA, methodologies to be used to evaluate impacts, and the overarching public participation process per NEPA regulations.

Two virtual scoping meetings were held on December 10, 2020 using Zoom, a public video meeting platform. The agency scoping meeting was held from 2:00 to 3:00 P.M. and the public scoping meeting was held from 6:00 to 7:00 P.M on the same day. Scoping meeting presentation slides that were utilized for the meeting can be found in Appendix B.

2.5 Mailing Lists

The mailing list was prepared by NRCS, BPWCD, co-sponsors, and J-U-B to inform the government agencies and general public about the scoping process for the project. A total of six mailings were sent to government agencies. In total, 271 mailings were sent to the public, which represents the BPWCD shareholders, property owners with property adjacent to the Action Area. A copy of the mailing list is included in Appendix A.

SECTION 3 COMMENTS

3.0 Agency & Public Scoping Meetings

The virtual agency and public scoping meetings were conducted on December 10, 2020. Three agency representatives, two members of the public, two NRCS representatives, six project team members, and three project sponsor representatives attended the agency scoping meeting. The Agency Scoping Meeting Summary is also provided in Appendix B. Four members of the public, one NRCS representative, five project team members, and two project sponsor representatives attended the public scoping meeting. Attendance at the meetings was recorded on the Attendance Sheet located in Appendix B.

3.1 Comments Received

Participants were invited to submit comments by mail or e-mail during the scoping comment period. The public comment period officially opened on December 10, 2020 and ended on January 15, 2021. There were zero written comments received from the public. Two members of the project team attended a meeting with the UVWUA board on February 25, 2021. There were two comments received from resource agencies—Colorado Parks and Wildlife Division and the Shavano Conservation District. Copies of these comments and meeting notes are included in Appendix C.

APPENDIX A

SCOPING NOTICES

Scoping Letter

Cooperating Agency Letters

Scoping Flyer

Newspaper Scoping Notices

Scoping Mailing List



United States Department of Agriculture

Natural Resources Conservation Service
Denver Federal Center
Bldg. 56, RM. 2604
P.O. Box 25426
Denver, CO 80225-0426

November 17, 2020

RE: Bostwick Park Water Conservancy District Watershed Plan Environmental Assessment,
Montrose and Gunnison Counties, Colorado

Dear Interested Persons, Organizations, and Agencies:

The United States Department of Agriculture – Natural Resources Conservation Service (USDA-NRCS) is proposing a project (Proposed Project) sponsored by the Bostwick Park Water Conservancy District (BPWCD) as the Signatory Sponsor, and co-sponsored by Uncompahgre Valley Water Users Association (UVWUA), Cimarron Canal and Reservoir Company (CC&RC), and Trout Unlimited that would occur in Montrose and Gunnison Counties, Colorado. The NRCS and Proposed Project sponsors are requesting comments from agencies and the public to inform the development of the Proposed Project and the analysis conducted in the Environmental Assessment (EA). The EA would evaluate the use of federal funds to stabilize and line approximately 1.5 miles of UVWUA open canal, pipe several miles of BPWCD laterals, replace a failing section of existing pipeline, rebuild the Cimarron Canal diversion structure, and install an electronic fish screen and temperature monitors in the Cimarron River.

The Proposed Project Action Area (Action Area) is prone to significant storm events during the irrigation season, which could result in flooding, overtopping, and breaching of canals that pose risks for damage to U.S. Route-50, local roads, agricultural land, and residential properties. BPWCD and UVWUA estimate annual water losses of 939.6 acre-feet and 3,880 acre-feet, respectively, due to seepage from earthen canals. These water losses lead to high dissolved selenium and salt loading within the Lower Gunnison Watershed and increase maintenance costs and contribute to water shortages for irrigation users, which can affect crop yields.

The Proposed Project purpose would be to conserve over 4,800 acre-feet of water annually, to reduce salt and selenium loading in waterways and to protect transportation, residential and commercial infrastructure from potential landslides and flood risks in the Lower Gunnison Watershed. Proposed Project implementation would improve water quality for downstream municipal and agricultural users and improve aquatic habitat in receiving waterbodies. Design and construction would be estimated to occur from fall 2022 to spring 2025, pending environmental and engineering approvals. Construction activities associated with any irrigation systems would occur between October and April, which is outside of the typical irrigation season.

The NRCS will prepare an EA as required by the National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ), and the USDA NEPA implementing regulations. This EA will analyze the potential environmental impacts of the Proposed Project. As required by NEPA, if significant environmental impacts are identified, an Environmental Impact Statement (EIS) will be

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prepared. If no significant impacts are identified as a result of implementing the Proposed Project, the NRCS will issue a Finding of No Significant Impact (FONSI).

This letter begins the process of preparing the aforementioned EA. Its purpose is to provide notice of the Proposed Project, and to invite interested parties to comment on the Proposed Project action and the EA's scope of analysis or raise specific issues that they feel should be incorporated into the Proposed Project or analyzed in the EA. This letter is being sent to interested parties, municipalities, organizations, and agencies that may have interest in the Proposed Project.

Please submit all comments by January 15, 2021, to Autumn Foushee at afoushee@jub.com or via mail to:

Bostwick Park Water Conservancy District Watershed Project
c/o Autumn Foushee
392 E. Winchester St., Suite 300
Salt Lake City, UT 84107

Proposed Project information can be found at the USDA-NRCS website: <https://bit.ly/BostwickPark>.

If you have any further questions or clarifications regarding the Proposed Project, you may reach Autumn via email or at (385) 222-1436. Please include Autumn Foushee in all submitted comments for the EA.

However, for cultural resource concerns, you may also contact Craig Dengel at craig.dengel@usda.gov or via mail for clarifications or comments:

Bostwick Park Water Conservancy District Watershed Project
c/o Craig Dengel, State Cultural Resources Specialist
USDA-Natural Resources Conservation Service
PO Box 25426
Denver, CO 80225-0426

Agency representatives and the public are invited to attend a virtual public scoping meeting on Thursday, December 10, 2020 as part of the EA process to obtain information about the Proposed Project, ask questions, and submit comments and suggestions. Two virtual meeting options will be offered to accommodate schedules. Details are listed below:

Afternoon Virtual Scoping Meeting – A brief presentation will be provided prior to a question and answer session.

- Thursday, December 10, 2020
- 2:00 – 3:00 p.m.
- Online: Visit www.zoom.us/join and enter Meeting ID: 582 582 0012

Evening Virtual Scoping Meeting – A brief presentation will be provided prior to a question and answer session.

- Thursday, December 10, 2020
- 6:00 – 7:00 p.m.
- Online: Visit www.zoom.us/join and enter Meeting ID: 582 582 0012

Thank you for your interest in the Proposed Project and for your participation in this process.



CLINT EVANS
State Conservationist

Attachment: Project Location Exhibit



Natural Resources Conservation Service
Denver Federal Center
Bldg. 56, RM. 2604
P.O. Box 25426
Denver, CO 80225-0426

November 17, 2020

Stephanie Connolly, District Manager
Bureau of Land Management
Colorado Southwest District Office
2465 S. Townsend Ave.
Montrose, CO 81401

RE: Formal request to be a Cooperating Agency in the development of the Bostwick Park Water Conservancy District Watershed Plan Environmental Assessment (Plan-EA) for proposed measures in the Cimarron River and Lower Uncompahgre Watershed, in Montrose and Gunnison Counties, Colorado.

Dear Ms. Connolly:

In accordance with the Council on Environmental Quality (CEQ) regulations implementing the National Environmental Policy Act (NEPA) at 40 CFR Part 1501.6, the Natural Resources Conservation Service (NRCS) is formally requesting that the Bureau of Land Management consider being a cooperating agency in the planning and development of the Bostwick Park Water Conservancy District Watershed Plan-EA. The enclosed agency scoping notice includes Proposed Project information and details on a virtual public scoping meeting scheduled for December 10, 2020. Two virtual meeting options will be offered to accommodate schedules; an afternoon meeting held from 2:00 – 3:00 p.m., and an evening meeting held from 6:00 – 7:00 p.m.

The EA is being prepared to fulfill NRCS's NEPA compliance responsibilities as part of the Watershed Protection and Flood Prevention Act (Public Law 83-566) requirements for financial assistance of this Proposed Project. As your agency may also have NEPA compliance responsibilities concerning this Proposed Project or other future projects that may be evaluated in this EA, preparation of this EA should also assist in fulfilling environmental review requirements for your agency and other federal agencies, and meet NEPA's intent of reducing duplication and delay between agencies.

This request is being made because your agency was identified as having special expertise or jurisdiction by law related to this Proposed Project. The Plan-EA is being prepared to fulfill our NEPA compliance responsibilities pertaining to our federal financial assistance through the Watershed Protection and Flood Prevention Program as authorized through Public Law 83-566.

Upon acceptance of this invitation, roles can be defined in an informal agreement or a memorandum of understanding. If your agency is unable to participate as a cooperating agency, please return a written explanation indicating why your agency cannot participate. Please note that a copy of a response declining to be a cooperating agency must also be submitted to the CEQ in accordance with 40 CFR Section 1501.6(c).

Thank you for your timely assistance and cooperation with this Proposed Project. If you have any questions or comments, please contact Todd Boldt, NRCS Resource Conservationist and Emergency Watershed Protection (EWP) Program Coordinator, at todd.boldt@usda.gov or at (970) 215-9897.

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CLINT EVANS
State Conservationist



Natural Resources Conservation Service
Denver Federal Center
Bldg. 56, RM. 2604
P.O. Box 25426
Denver, CO 80225-0426

November 17, 2020

Chad Stewart, Forest Supervisor
GMUG National Forest Supervisor's Office
2250 South Main St.
Delta, CO 81416

RE: Formal request to be a Cooperating Agency in the development of the Bostwick Park Water Conservancy District Watershed Plan Environmental Assessment (Plan-EA) for proposed measures in the Cimarron River and Lower Uncompahgre Watershed, in Montrose and Gunnison Counties, Colorado.

Dear Mr. Stewart:

In accordance with the Council on Environmental Quality (CEQ) regulations implementing the National Environmental Policy Act (NEPA) at 40 CFR Part 1501.6, the Natural Resources Conservation Service (NRCS) is formally requesting that the U.S. Forest Service consider being a cooperating agency in the planning and development of the Bostwick Park Water Conservancy District Watershed Plan-EA. The enclosed agency scoping notice includes Proposed Project information and details on a virtual public scoping meeting scheduled for December 10, 2020. Two virtual meeting options will be offered to accommodate schedules; an afternoon meeting held from 2:00 – 3:00 p.m., and an evening meeting held from 6:00 – 7:00 p.m.

The EA is being prepared to fulfill NRCS's NEPA compliance responsibilities as part of the Watershed Protection and Flood Prevention Act (Public Law 83-566) requirements for financial assistance of this Proposed Project. As your agency may also have NEPA compliance responsibilities concerning this Proposed Project or other future projects that may be evaluated in this EA, preparation of this EA should also assist in fulfilling environmental review requirements for your agency and other federal agencies, and meet NEPA's intent of reducing duplication and delay between agencies.

This request is being made because your agency was identified as having special expertise or jurisdiction by law related to this Proposed Project. The Plan-EA is being prepared to fulfill our NEPA compliance responsibilities pertaining to our federal financial assistance through the Watershed Protection and Flood Prevention Program as authorized through Public Law 83-566.

Upon acceptance of this invitation, roles can be defined in an informal agreement or a memorandum of understanding. If your agency is unable to participate as a cooperating agency, please return a written explanation indicating why your agency cannot participate. Please note

that a copy of a response declining to be a cooperating agency must also be submitted to the CEQ in accordance with 40 CFR Section 1501.6(c).

Thank you for your timely assistance and cooperation with this Proposed Project. If you have any questions or comments, please contact Todd Boldt, NRCS Resource Conservationist and Emergency Watershed Protection (EWP) Program Coordinator, at todd.boldt@usda.gov or at (970) 215-9897.

A handwritten signature in blue ink that reads "Clint Evnas". The signature is written in a cursive, flowing style.

CLINT EVNAS
State Conservationist

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Natural Resources Conservation Service
Denver Federal Center
Bldg. 56, RM. 2604
P.O. Box 25426
Denver, CO 80225-0426

November 17, 2020

Mike Reynolds, Regional Director
National Park Service
Regions 6, 7, and 8
12795 West Alameda Parkway
Denver, CO 80225

RE: Formal request to be a Cooperating Agency in the development of the Bostwick Park Water Conservancy District Watershed Plan Environmental Assessment (Plan-EA) for proposed measures in the Cimarron River and Lower Uncompahgre Watershed, in Montrose and Gunnison Counties, Colorado.

Dear Mr. Reynolds:

In accordance with the Council on Environmental Quality (CEQ) regulations implementing the National Environmental Policy Act (NEPA) at 40 CFR Part 1501.6, the Natural Resources Conservation Service (NRCS) is formally requesting that the National Park Service consider being a cooperating agency in the planning and development of the Bostwick Park Water Conservancy District Watershed Plan-EA. The enclosed agency scoping notice includes Proposed Project information and details on a virtual public scoping meeting scheduled for December 10, 2020. Two virtual meeting options will be offered to accommodate schedules; an afternoon meeting held from 2:00 – 3:00 p.m., and an evening meeting held from 6:00 – 7:00 p.m.

The EA is being prepared to fulfill NRCS's NEPA compliance responsibilities as part of the Watershed Protection and Flood Prevention Act (Public Law 83-566) requirements for financial assistance of this Proposed Project. As your agency may also have NEPA compliance responsibilities concerning this Proposed Project or other future projects that may be evaluated in this EA, preparation of this EA should also assist in fulfilling environmental review requirements for your agency and other federal agencies, and meet NEPA's intent of reducing duplication and delay between agencies.

This request is being made because your agency was identified as having special expertise or jurisdiction by law related to this Proposed Project. The Plan-EA is being prepared to fulfill our NEPA compliance responsibilities pertaining to our federal financial assistance through the Watershed Protection and Flood Prevention Program as authorized through Public Law 83-566.

Upon acceptance of this invitation, roles can be defined in an informal agreement or a memorandum of understanding. If your agency is unable to participate as a cooperating agency, please return a written explanation indicating why your agency cannot participate. Please note that a copy of a response declining to be a cooperating agency must also be submitted to the CEQ in accordance with 40 CFR Section 1501.6(c).

Thank you for your timely assistance and cooperation with this Proposed Project. If you have any questions or comments, please contact Todd Boldt, NRCS Resource Conservationist and Emergency Watershed Protection (EWP) Program Coordinator, at todd.boldt@usda.gov or at (970) 215-9897.

A handwritten signature in blue ink that reads "Clint Evans". The signature is written in a cursive, flowing style.

CLINT EVANS
State Conservationist



Natural Resources Conservation Service
Denver Federal Center
Bldg. 56, RM. 2604
P.O. Box 25426
Denver, CO 80225-0426

November 17, 2020

Lesley McWhirter, Environmental Planning Group Chief
Bureau of Reclamation
Western Colorado Area Office, Upper Colorado Basin
445 W. Gunnison Ave., Suite 221
Grand Junction, Colorado 81501

RE: Formal request to be a Cooperating Agency in the development of the Bostwick Park Water Conservancy District Watershed Plan Environmental Assessment (Plan-EA) for proposed measures in the Cimarron River and Lower Uncompahgre Watershed, in Montrose and Gunnison Counties, Colorado.

Dear Ms. McWhirter:

In accordance with the Council on Environmental Quality (CEQ) regulations implementing the National Environmental Policy Act (NEPA) at 40 CFR Part 1501.6, the Natural Resources Conservation Service (NRCS) is formally requesting that the Bureau of Reclamation consider being a cooperating agency in the planning and development of the Bostwick Park Water Conservancy District Watershed Plan-EA. The enclosed agency scoping notice includes Proposed Project information and details on a virtual public scoping meeting scheduled for December 10, 2020. Two virtual meeting options will be offered to accommodate schedules; an afternoon meeting held from 2:00 – 3:00 p.m., and an evening meeting held from 6:00 – 7:00 p.m.

The EA is being prepared to fulfill NRCS's NEPA compliance responsibilities as part of the Watershed Protection and Flood Prevention Act (Public Law 83-566) requirements for financial assistance of this Proposed Project. As your agency may also have NEPA compliance responsibilities concerning this Proposed Project or other future projects that may be evaluated in this EA, preparation of this EA should also assist in fulfilling environmental review requirements for your agency and other federal agencies, and meet NEPA's intent of reducing duplication and delay between agencies.

This request is being made because your agency was identified as having special expertise or jurisdiction by law related to this Proposed Project. The Plan-EA is being prepared to fulfill our NEPA compliance responsibilities pertaining to our federal financial assistance through the Watershed Protection and Flood Prevention Program as authorized through Public Law 83-566.

Upon acceptance of this invitation, roles can be defined in an informal agreement or a memorandum of understanding. If your agency is unable to participate as a cooperating agency, please return a written explanation indicating why your agency cannot participate. Please note that a copy of a response declining to be a cooperating agency must also be submitted to the CEQ in accordance with 40 CFR Section 1501.6(c).

Thank you for your timely assistance and cooperation with this Proposed Project. If you have any questions or comments, please contact Todd Boldt, NRCS Resource Conservationist and Emergency Watershed Protection (EWP) Program Coordinator, at todd.boldt@usda.gov or at (970) 215-9897.

A handwritten signature in blue ink that reads "Clint Evans". The signature is written in a cursive, flowing style.

CLINT EVANS
State Conservationist



Natural Resources Conservation Service
Denver Federal Center
Bldg. 56, RM. 2604
P.O. Box 25426
Denver, CO 80225-0426

November 17, 2020

Travis Morse, Regulatory Project Manager
U.S. Army Corps of Engineers
Sacramento District – Grand Junction Field Office
400 Rood Avenue, Room 224
Grand Junction, CO 81501

RE: Formal request to be a Cooperating Agency in the development of the Bostwick Park Water Conservancy District Watershed Plan Environmental Assessment (Plan-EA) for proposed measures in the Cimarron River and Lower Uncompahgre Watershed, in Montrose and Gunnison Counties, Colorado.

Dear Mr. Morse:

In accordance with the Council on Environmental Quality (CEQ) regulations implementing the National Environmental Policy Act (NEPA) at 40 CFR Part 1501.6, the Natural Resources Conservation Service (NRCS) is formally requesting that the U.S. Army Corps of Engineers consider being a cooperating agency in the planning and development of the Bostwick Park Water Conservancy District Watershed Plan-EA. The enclosed agency scoping notice includes Proposed Project information and details on a virtual public scoping meeting scheduled for December 10, 2020. Two virtual meeting options will be offered to accommodate schedules; an afternoon meeting held from 2:00 – 3:00 p.m., and an evening meeting held from 6:00 – 7:00 p.m.

The EA is being prepared to fulfill NRCS's NEPA compliance responsibilities as part of the Watershed Protection and Flood Prevention Act (Public Law 83-566) requirements for financial assistance of this Proposed Project. As your agency may also have NEPA compliance responsibilities concerning this Proposed Project or other future projects that may be evaluated in this EA, preparation of this EA should also assist in fulfilling environmental review requirements for your agency and other federal agencies, and meet NEPA's intent of reducing duplication and delay between agencies.

This request is being made because your agency was identified as having special expertise or jurisdiction by law related to this Proposed Project. The Plan-EA is being prepared to fulfill our NEPA compliance responsibilities pertaining to our federal financial assistance through the Watershed Protection and Flood Prevention Program as authorized through Public Law 83-566.

Upon acceptance of this invitation, roles can be defined in an informal agreement or a memorandum of understanding. If your agency is unable to participate as a cooperating agency, please return a written explanation indicating why your agency cannot participate. Please note that a copy of a response declining to be a cooperating agency must also be submitted to the CEQ in accordance with 40 CFR Section 1501.6(c).

Thank you for your timely assistance and cooperation with this Proposed Project. If you have any questions or comments, please contact Todd Boldt, NRCS Resource Conservationist and Emergency Watershed Protection (EWP) Program Coordinator, at todd.boldt@usda.gov or at (970) 215-9897.



CLINT EVANS
State Conservationist



Natural Resources Conservation Service
Denver Federal Center
Bldg. 56, RM. 2604
P.O. Box 25426
Denver, CO 80225-0426

November 17, 2020

Ann Timberman, Colorado Field Office Supervisor
U.S. Fish & Wildlife, Ecological Services Field Office
Grand Junction Field Office
445 West Gunnison Avenue, Suite 240
Grand Junction, CO 81501-5711

RE: Formal request to be a Cooperating Agency in the development of the Bostwick Park Water Conservancy District Watershed Plan Environmental Assessment (Plan-EA) for proposed measures in the Cimarron River and Lower Uncompahgre Watershed, in Montrose and Gunnison Counties, Colorado.

Dear Ms. Timberman:

In accordance with the Council on Environmental Quality (CEQ) regulations implementing the National Environmental Policy Act (NEPA) at 40 CFR Part 1501.6, the Natural Resources Conservation Service (NRCS) is formally requesting that the U.S. Fish and Wildlife Service consider being a cooperating agency in the planning and development of the Bostwick Park Water Conservancy District Watershed Plan-EA. The enclosed agency scoping notice includes Proposed Project information and details on a virtual public scoping meeting scheduled for December 10, 2020. Two virtual meeting options will be offered to accommodate schedules; an afternoon meeting held from 2:00 – 3:00 p.m., and an evening meeting held from 6:00 – 7:00 p.m.

The EA is being prepared to fulfill NRCS's NEPA compliance responsibilities as part of the Watershed Protection and Flood Prevention Act (Public Law 83-566) requirements for financial assistance of this Proposed Project. As your agency may also have NEPA compliance responsibilities concerning this Proposed Project or other future projects that may be evaluated in this EA, preparation of this EA should also assist in fulfilling environmental review requirements for your agency and other federal agencies, and meet NEPA's intent of reducing duplication and delay between agencies.

This request is being made because your agency was identified as having special expertise or jurisdiction by law related to this Proposed Project. The Plan-EA is being prepared to fulfill our NEPA compliance responsibilities pertaining to our federal financial assistance through the Watershed Protection and Flood Prevention Program as authorized through Public Law 83-566.

Upon acceptance of this invitation, roles can be defined in an informal agreement or a memorandum of understanding. If your agency is unable to participate as a cooperating agency, please return a written explanation indicating why your agency cannot participate. Please note that a copy of a response declining to be a cooperating agency must also be submitted to the CEQ in accordance with 40 CFR Section 1501.6(c).

Thank you for your timely assistance and cooperation with this Proposed Project. If you have any questions or comments, please contact Todd Boldt, NRCS Resource Conservationist and Emergency Watershed Protection (EWP) Program Coordinator, at todd.boldt@usda.gov or at (970) 215-9897.



CLINT EVANS
State Conservationist



Bostwick Park Water Conservancy District Watershed Plan Environmental Assessment

Montrose & Gunnison Counties, CO | Public Scoping Notice

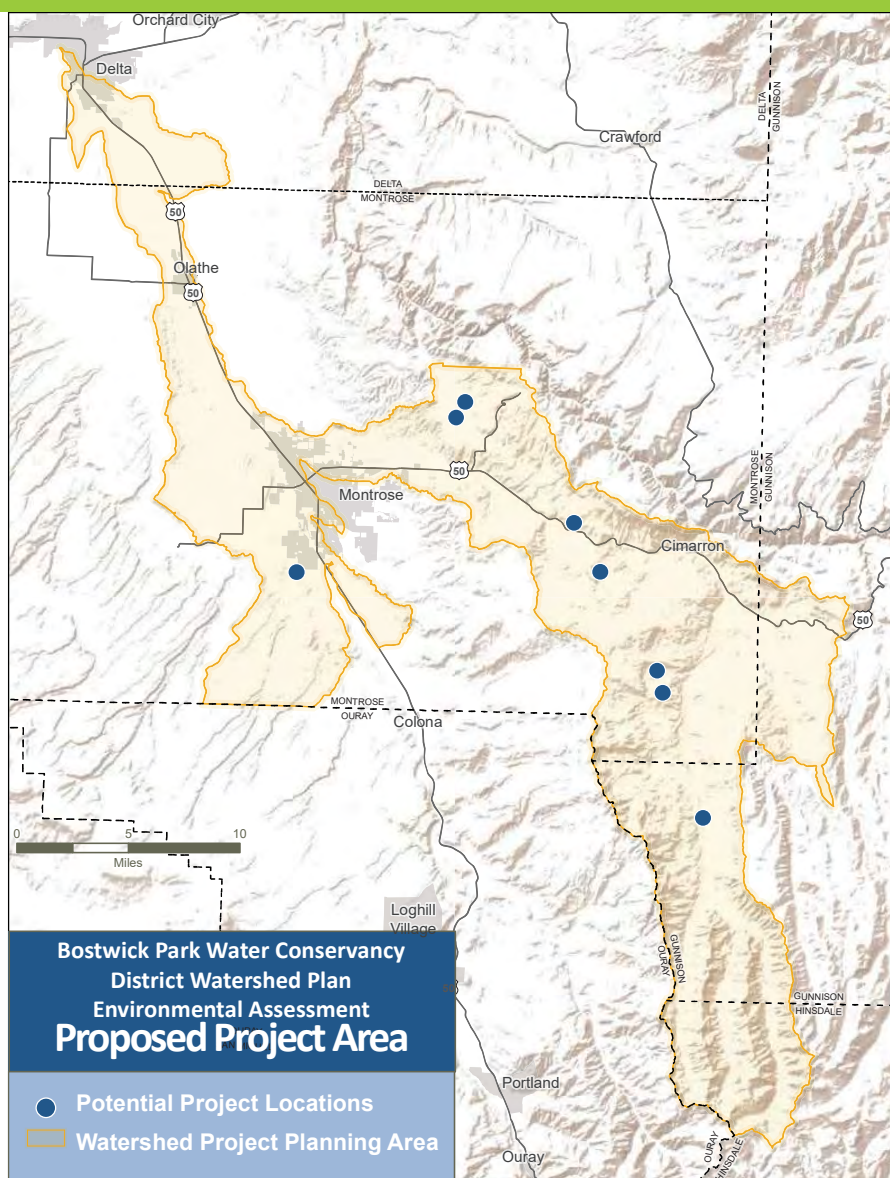
PROJECT OVERVIEW

The United States Department of Agriculture-Natural Resources Conservation Service (USDA-NRCS) is proposing a project (Proposed Project) sponsored by the Bostwick Park Water Conservancy District (BPWCD), and co-sponsored by Uncompahgre Valley Water Users Association (UVWUA), Cimarron Canal and Reservoir Company (CC&RC), and Trout Unlimited that would occur in Montrose and Gunnison Counties.

The Proposed Project would evaluate the use federal funds to stabilize and line approximately 1.5 miles of UVWUA open canal, pipe several miles of BPWCD laterals, replace a failing section of existing pipeline, rebuild the Cimarron Canal diversion structure, and install an electronic fish screen and temperature monitors in the Cimarron River.

HOW TO SUBMIT A COMMENT

Written comments can be submitted remotely during the public scoping period starting **December 10, 2020 and ending on January 15, 2021**. All questions and comments should be directed to:



Bostwick Park Water Conservancy District Watershed Plan Information



392 E Winchester St, Ste 300
Salt Lake City, UT 84107



970-200-2763



BostwickPark@COwatershed.com

Natural
Resources
Conservation
Service

nrcs.usda.gov/



PROJECT WEBSITE
SCAN ME

Comments must be received by Jan. 15, 2021. Additional information may be found at <https://bit.ly/BostwickPark>

Por favor contáctenos al 208-733-2414 ext. 6023 para información en Español.

USDA is an equal opportunity provider, employer, and lender.

The Montrose Daily Press
Montrose, Colorado 81401
AFFIDAVIT OF PUBLICATION

STATE OF COLORADO
COUNTY OF MONTROSE

)
) SS.

I, Diane Webster, do solemnly swear that the MONTROSE DAILY PRESS is a daily newspaper printed, in whole or in part, and published in the City of Montrose, County of Montrose, State of Colorado, and which has general circulation therein; that said newspaper has been continuously and uninterruptedly published for a period of more than six months next prior to the first publication of the annexed legal notice of advertisement, that said newspaper has been admitted to the United States mails as second-class matter under the provisions of the Act of March 3, 1879, or any amendments thereof, and that said newspaper is a daily newspaper duly qualified for publishing legal notices within the meaning of the laws of the State of Colorado; that copies of each number of said newspaper, in which said notice was published, were transmitted by mail or carrier to each of the subscribers of said newspaper, according to the accustomed mode of business in this office.

That the annexed legal notice was published in the regular and entire editions of said newspaper one each week on the same day of each week for the period of **one** consecutive insertion(s); and that the first publication of said notice was in the issue of said newspaper dated **November 19, 2020** and that the last publication of said notice was in the issue of said newspaper dated **November 19, 2020**.

In witness whereof I have hereunto set my hand this 20th day of November, 2020.

Diane Webster Other

Subscribed and sworn to before me this 20th day of November, 2020.

Beth Ann Zentmeyer Notary Public



Bostwick Park Water Conservancy District Watershed Plan Environmental Assessment, Montrose and Gunnison Counties, Colorado
Public Scoping Meeting, Thursday, December 10, 2020

The United States Department of Agriculture-Natural Resources Conservation Service (USDA NRCS) is proposing a project (Proposed Project) sponsored by the Bostwick Park Water Conservancy District (BPWCD) as the Signatory Sponsor, and co-sponsored by Uncompahgre Valley Water Users Association (UVWUA), Cimarron Canal and Reservoir Company (CC&RC), and Trout Unlimited that would occur in Montrose and Gunnison Counties. The NRCS and Proposed Project sponsors are requesting comments from agencies and the public to inform the development of the Proposed Project and the analysis conducted in the Environmental Assessment (EA). The EA would evaluate the use federal funds to stabilize and line approximately 1.5 miles of UVWUA open canal, pipe several miles of BPWCD laterals, replace a failing section of existing pipeline, rebuild the Cimarron Canal diversion structure, and install an electronic fish screen and temperature monitors in the Cimarron River.

The public has two opportunities to attend a virtual public scoping meeting as part of the EA. A brief presentation will be provided during the meeting prior to a question and answer session to provide information on the planning process and proposed project concepts.

Afternoon Scoping Meeting
Date: Thursday, December 10, 2020
Time: 2:00 - 3:00 p.m.

Online: Visit www.zoom.us/join and enter Meeting ID: 582 582 0012

Evening Scoping Meeting
Date: Thursday, December 10, 2020
Time: 6:00 - 7:00 p.m.

Online: Visit www.zoom.us/join and enter Meeting ID: 582 582 0012

Out of an abundance of caution these meetings will be held virtually. Interested parties may also obtain scoping information at the Bostwick Park Water Conservancy District Office located at 400 South 3rd Street, Montrose, Colorado 81401 or online at <https://bit.ly/BostwickPark>.

Written comments can be submitted during the public scoping period starting December 10, 2020 and ending on January 15, 2021. All questions and comments should be directed to:

Attn: The Langdon Group
Bostwick Park Water Conservancy District Watershed Project Team
392 E Winchester Street #300
Salt Lake City, UT 84107
Email: bostwickpark@cowatershed.com

Written comments must be postmarked by January 15, 2021.

Information on the Bostwick Park Water Conservancy District Watershed Plan EA may be obtained through the following methods:

Website: <https://bit.ly/BostwickPark>
Phone: 970-200-2763
Email: bostwickpark@cowatershed.com

*Por favor contactenos al 208-733-2414 ext. 6023 o bostwickpark@cowatershed.com para información en Español.

Published in the Montrose Daily Press November 19, 2020.

L-12114

MEETING NOTICE

**Bostwick Park Water Conservancy
District Watershed Plan Environmental
Assessment, Montrose and Gunnison
Counties, Colorado
Public Scoping Meeting, Thursday,
December 10, 2020**

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Watershed Project Team
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Phone: 970-200-2763

Email: bostwickpark@cowatershed.com

*Por favor contactenos al 208-733-2414 ext. 6023 o bostwickpark@cowatershed.com para informacin en Espaol.

Gunnison Country Times
Gunnison, Colorado
Publication date of November 19, 2020

981

#981 Langdon Group

AFFIDAVIT OF PUBLICATION IN THE GUNNISON COUNTRY TIMES

STATE OF COLORADO,
County of Gunnison

} SS.

I, Chris Dickey,

do solemnly swear that I am the Publisher of
THE GUNNISON COUNTRY TIMES;

that the same is a weekly newspaper printed in whole or in part and published in the County of Gunnison, State of Colorado, and has a general circulation therein; that said newspaper has been published continuously and uninterruptedly in said County of Gunnison for a period of more than fifty-two consecutive weeks prior to the first publication of the annexed legal notice or advertisement; that said newspaper has been admitted to the United States mails as second-class matter under provisions of the Act of March 3, 1879, and any amendments thereof; and that said newspaper is a weekly newspaper duly qualified for publishing legal notices and advertisements within the meaning of the laws of the State of Colorado.

That the legal notice or advertisement of which the attached is a full, true and correct copy, was published in the regular and entire issue of every number of said weekly newspaper for the period of 1 insertions; and that the first publication of said notice was in the issue of said

newspaper dated 11/19, A.D., 2020.

and that the last publication of said notice was in the issue of said newspaper dated , A.D., 2020.

In witness whereof I have hereunto set my hand this

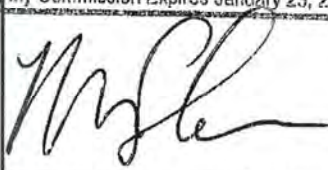
19th day of November, A.D., 2020.

Chris Dickey,
Publisher

By 

Subscribed and sworn to before me, a
notary public in and for the County of
Gunnison, State of Colorado, this

MORGAN SCHAEFER
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID #20184003986
My Commission Expires January 23, 2022



19th day of November

A.D., 2020.

Parcel Number	Owner Name	Owner Mail Address	Mail City	Mail State	Mail Zip Code
4.25105E+11	BURR DAVID MARSHALL	209 WINDMILL OAKS AVE	FREDERICKSBURG	TX	786244486
425105002001	ZEIS ROBERT H III	2357 EL CORONA DR	GRAND JUNCTION	CO	81501
425105002002	FERGUSON PROPERTY MANAGEMENT TRUST	4844 N ARMSTRONG ST	WICHITA	KS	672042822
425105002003	MCCELLELLAN ROGER O	13701 QUAKING ASPEN PL NE	ALBUQUERQUE	NM	871117168
425105002004	HALL BRIAN L	62880 LA SALLE RD UNIT 11	MONTROSE	CO	814018119
425105002005	CANNELL KIRBY B TRUST	6648 5825 RD	OLATHE	CO	814259368
425105002006	HOPKINS LEONARD	62378 GERRY RD	MONTROSE	CO	814037953
425105002007	MAYO JESSE R JR	4309 DALE AVE	NASHVILLE	TN	372044125
425105002015	SMITH RODNEY A	1690 8 RD	MACK	CO	815259707
425105002016	SCHWENDIG WANDA M	53105 N SR 225 NW	BENTON CITY	WA	993209659
425105002017	JACKSON ROBERT D	62613 HIGHWAY 90	MONTROSE	CO	814037802
425105002018	VETERINARY REAL ESTATE LTD	3200 COUNTY ROAD 24	RIDGWAY	CO	814329752
425105002019	YOUNG CAROL P REVOCABLE TRUST	4950 N WYNDHAM CT	WICHITA	KS	672195500
425105002020	ANDERS TAMARRA L	3355 IVORY COURT	MONTROSE	CO	81401
425105002021	BARBERI EUGENE M	70746 BUCKHORN RD	MONTROSE	CO	814038725
425105002035	ELMORE ALFRED HUGO	710 CARRIAGE HILLS BLVD	CONROE	TX	773843613
425105002038	YOUNG CAROL P REVOCABLE TRUST	4950 N WYNDHAM CT	WICHITA	KS	672195500
425105002022	PACKARD GREGORY C	710 N 4TH ST	MONTROSE	CO	814013522
425100000011	SELVIDGE JUDITH E REVOCABLE TRUST	13 AZALEA LN	SAN CARLOS	CA	940701517
425105001013	HASTINGS W JERRY & E DARLENE HASTINGS	4216 MICHIGAN ST	BARTLESVILLE	OK	740061817
425105001014	NOLLET NEWELL ROBERT L	PO BOX 215	CIMARRON	CO	812200215
425105001027	ANDERSON JON	3193 1360 RD	DELTA	CO	814168745
425105001028	BESHOAR BRIAN C	701 N 2ND ST	MONTROSE	CO	814013726
425105001029	BRUCK SHIRLEY K	PO BOX 213	CIMARRON	CO	812200213
425105001030	WITTENWYLER CATHERINE M	5447 REEVE RD	MAZOMANIE	WI	535609372
425105001031	METCALF LANE W	2078 WASHINGTON CREEK LN	CENTERVILLE	OH	454582811
425105001032	TEAGUE MELBA L	8199 WELBY RD APT 607	DENVER	CO	802295645
425105001033	HAWXBY TRUST	1065 ALPINE DR	MONTROSE	CO	814034605
425105001034	ENO ROY H JR	4222 HONEYCOMB	SAN ANTONIO	TX	782301404
425100000012	U S A - FOREST SERVICE	PO BOX 2000	WASHINGTON	DC	200132000
425105000002	CIMARRON & UNCOMPAHGRE VALLEY CANAL & RESERVOIR CO		MONTROSE	CO	
425100000010	ROCKING JL RANCH LLC	1023 GREEN LN	LA CANADA	CA	910112327
425105003003	FREE JAMES C	14920 6000 RD	MONTROSE	CO	814038065
425105003002	BRUCK SHIRLEY K	PO BOX 213	CIMARRON	CO	812200213
404506200015	EGR RANCH LLC	37 OTTAWA AVE NW	GRAND RAPIDS	MI	49503-2647
404301101008	SANBURG KELLEY J	15328 6800 RD	MONTROSE	CO	81401-7422
404301101004	CHUCHURU KEVIN M & HUSTON BRENDA	475 1740 RD	DELTA	CO	81416-3045
404301101005	ALLIES VON K	PO BOX 512	YARNELL	AZ	85362-0512
404301101006	GARDNER CINDY D	62315 IDA RD	MONTROSE	CO	81401-0000
404301101001	CHRISTOPHERSON BRIAN & CHRISTOPHERSON KERRY	PO BOX 173	CIMARRON	CO	81220-0173
404301101002	GARDNER DUANE W & CHUCHURU GENE	1424 DOVER ROAD	MONTROSE	CO	81401-0000
404301101003	RAISH FRED A JR & RAISH DENCIA JEAN	617 CUSTER AVE	AKRON	CO	80720-1033
404505200005	EGR RANCH LLC	37 OTTAWA AVE NW	GRAND RAPIDS	MI	49503-2647
398936100001	EGR RANCH LLC	37 OTTAWA AVE NW	GRAND RAPIDS	MI	49503-2647
404301200006	CIMARRON VEO CREEK RANCH LLC	PO BOX 73	CIMARRON	CO	81220-0073
404301102007	OWEN RONALD G & OWEN DONNA J	4920 S SOL	LOS ALAMOS	NM	87544-3792
398925200001	CIMARRON MOUNTAIN RANCH LLC	1100 CAMALIA BLVD	LAFAYETTE	LA	70508-0000
399317300043	WILLIAMS ERIC & WILLIAMS CHRISTY	18553 SIMS MESA RD	MONTROSE	CO	81403-8570
399317300036	MADSEN CHRISTIAN & MURTHY SHEELA	18601 SIMS MESA RD	MONTROSE	CO	81403-8570
399318100020	BREIDEL ERIC M & BREIDEL SHAWNA R	64218 RANGER RD	MONTROSE	CO	81403-7831
399317102003	LEWIS DUSTY LEE & SARA D	64759 REMNANT TRAIL	MONTROSE	CO	81403-0000
399317100046	M6D LLC	PO BOX 158	MONTROSE	CO	81402-0158
399317202007	CLARK ELTA JACQUELYN LIVING TRUST	PO BOX 1328	MONTROSE	CO	81402-1328
399317202001	CLARK ELTA JACQUELYN LIVING TRUST	PO BOX 1328	MONTROSE	CO	81402-1328
399318100026	WOODLAND LANCE & WOODLAND MARNAE	64234 RANGER RD	MONTROSE	CO	81403-7831
399318100025	NEWMAN TANYA	64244 RANGER RD	MONTROSE	CO	81403-7831
399318100027	KING MARIANNE & KING RICHARD D	64224 RANGER RD	MONTROSE	CO	81403-7831
399317205002					
399317202002	JOHNSON DAN & PERRY KRISTIN	PO BOX 972	MONTROSE	CO	81402-0972
399317203001	BRADFORD WILLIAM C & BRADFORD ROANNE L	18465 6415 CT	MONTROSE	CO	81403-7341
399317202005	KINDALL KEVIN E & KINDALL DANICE A	18448 6415 CT	MONTROSE	CO	81403-0000
399317301002	RODENBURG KENNETH & RODENBURG DEBORAH L	64508 RANGER RD	MONTROSE	CO	81403-7833
399317302003	ALTHAUS PAUL E & ALTHAUS SHARON	64374 RANGER RD	MONTROSE	CO	81403-7831
399317302002	HEINECKE ALISSA C & HEINECKE JOSHUA D	64374 RANGER RD	MONTROSE	CO	81403-0000
399318100002	DOSS KENNETH E & DOSS KAY J	PO BOX 306	CIMARRON	CO	81220-0306
398915400001	FALCON AGRICULTURE LLC	58788 FALCON RD	OLATHE	CO	81425-9310
398916100014	CERRO SUMMIT RANCHES LLC	1185 BETHEL ROAD	MARIETTA	OH	45750
398916100012	CERRO SUMMIT RANCHES LLC	1185 BETHEL ROAD	MARIETTA	OH	45750
398916100015	CERRO SUMMIT RANCHES LLC	1185 BETHEL ROAD	MARIETTA	OH	45750
398916200011	CERRO SUMMIT RANCHES LLC	1185 BETHEL ROAD	MARIETTA	OH	45750
398916400023	LAST CHANCE REAL ESTATE LLC	PO BOX 508	OLATHE	CO	81425-0508
399316303001	CANAAN PARTNERS LLC	18876 6495 RD	MONTROSE	CO	81403-6700
399317402007	BLAKE BARBRA STELLA & MORRISON HANNAH MORGAN	18829 6495 RD	MONTROSE	CO	81403-6700
399317402900	SECLUDED VALLEY RANCH HOMEOWNERS ASSN	18876 6495 RD	MONTROSE	CO	81403-0000
399316301002					
399317402008	KURZ JOHN & KURZ LINDA	213 LOUISIANA ST	STURGEON BAY	WI	54235-2515
399316301001	BROWN GORDON LEE	18738 6495 RD	MONTROSE	CO	81403-6700
399317401003	KERSEN BERNARD J & KERSEN CHRISTINE	18875 6485 RD	MONTROSE	CO	81403-7890
399317401001	MOORE TEDDY MICAH EL	64880 RANGER RD	MONTROSE	CO	81403-7835
399317400003	JUTTEN ROBERT JAMES	64682 RANGER RD	MONTROSE	CO	81403-7835
399317400004	JUTTEN ROBERT J & JUTTEN DENISE CORRINE	64670 W RANGER RD	MONTROSE	CO	81403-7835
399317400900	MONTROSE COUNTY	161 S TOWNSEND AVE	MONTROSE	CO	81401-3955
399317100032	STROH TIMOTHY J & ROSSET CATHERINE S	13560 W 69TH PL	ARVADA	CO	80004-1112
399317103001	18251 6500 RD TRUST	18251 6500 RD	MONTROSE	CO	81403-7874
399317105001	BLAY GORDON E & BLAY ALICE F	18605 6500 RD	MONTROSE	CO	81403-9099
399317100041	KEEP MARK REVOCABLE TRUST	18241 6500 RD	MONTROSE	CO	81403-7874
399317400039	SCHNEIDER JOHNATHAN DAVID & SCHNEIDER GAIL LYNN	236 S 3RD ST	MONTROSE	CO	81401-3618
399317300016	SCHNEIDER JOHNATHAN DAVID & SCHNEIDER GAIL LYNN	236 S 3RD ST	MONTROSE	CO	81401-3618

399317300008	PATTERSON CLAY ALLAN & PATTERSON BARBARA ANNE	18618 SIMS MESA RD		MONTROSE	CO	81403-8559
399317204001	WOLFE DOUGLAS S	PO BOX 697		OPHIR	CO	81426-0697
399317400037	BENNETT RONALD DEAN & BENNETT BEVERLY MAXINE	18908 6485 RD		MONTROSE	CO	81403-9199
399317105002	BLAY GORDON E & BLAY ALICE F	18605 6500 RD		MONTROSE	CO	81403-9099
399317400045	LEONARD LORYN E & LEONARD JOSEPH E	64965 RANGER RD		MONTROSE	CO	81403-7836
399308300015	WINGTON PETROLEUM INC	1306 N 25TH ST	#300	GRAND JUNCTION	CO	81501-5907
399308300032	TROUNCE JASON	17998 6400 RD		MONTROSE	CO	81403-7860
399307400014	HARRINGTON MARC A & HARRINGTON JANE R	17989 6400 RD		MONTROSE	CO	81403-7861
399309301001	CREAMER BRITNEY	17270 6450 RD		MONTROSE	CO	81403-7869
399307400013	METCALF JANET K & METCALF DOUGLAS D	64047 RANGER RD		MONTROSE	CO	81403-7830
399318100019	COLLYER LLOYD DEAN & COLLYER ASHLEY THEODORA	64214 RANGER RD		MONTROSE	CO	81403-7831
399317201001	COMBS ADRIAN & COMBS JOY	64425 REMNANT TRL		MONTROSE	CO	81403-5786
399317102004	JIMENEZ JOSE & ORTIZ MARIA J	28 MONTROSE DR		MONTROSE	CO	81401-4820
399317104001	LEWIS LINDA GAIL	64985 REMNANT TRL		MONTROSE	CO	81403-5786
399317102001	KRAMER JAKE & KRAMER AMANDA	18077 6500 RD		MONTROSE	CO	81403-7853
399307400005	COLLINS DANNIE L & COLLINS CHERIE	17795 6400 RD		MONTROSE	CO	81403-7861
399307100010	CARVER JAMES M & CARVER JOYCE M	701 S 2ND ST		MONTROSE	CO	81401-0000
399307400018	ECKMAN ROBERT	17656 6353 RD		MONTROSE	CO	81403-0000
399307400007	ECKMAN ROBERT A & ECKMAN ARLENE R	17656 6353 RD		MONTROSE	CO	81403-9196
399307400021	ZAHNISER KENNETH ALLEN	18024 6353 RD		MONTROSE	CO	81403-9198
399318101001	BREWSTER GEORGE	63652 RANGER RD		MONTROSE	CO	81403-7896
399318100018	ALLISON DAVID P & ALLISON DENISE C	64208 RANGER RD		MONTROSE	CO	81403-7831
399317200021	GALBRETH SANDRA L FAMILY TRUST	236 S 3RD ST	#183	MONTROSE	CO	81401-3618
399307400011	MITCHELL DENNIS M & MITCHELL PATRICIA A	64116 RANGER RD		MONTROSE	CO	81403-7829
399308300901	USA			WASHINGTON	DC	20250-0000
399308300034	ROBERTSON HOWDY & ROBERTSON DIANN	832 COURTHOUSE PEAK LN		MONTROSE	CO	81403-6468
399308301001	EVANS WILLIAM A & EVANS SHARRON K	64111 RANGER RD		MONTROSE	CO	81403-7830
399308301002	BRADBURN DANIEL L JR & BRADBURN DIANE L	1833 OTTER POND CIR		MONTROSE	CO	81401-9550
399318101002	KELLY APRIL A & KELLY CARL D	63752 RANGER RD		MONTROSE	CO	81403-9186
399317104002	YATES TONI D (LEWIS)	64985 REMNANT TRL		MONTROSE	CO	81403-5786
398916100019	RIDER DALE B & RIDER LYNETTE M	70455 HIGHWAY 50		MONTROSE	CO	81401-9713
398909400009	CERRO SUMMIT RANCHES LLC	1185 BETHEL ROAD		MARIETTA	OH	45750
398909400902	CIMARRON & UNCOMPAHGRE VALLEY CANAL & RESERVOIR COMPANY			CIMARRON	CO	81220-0000
398909400001	MARTINEZ DANIEL G & MARTINEZ TATSIANA A	12747 6530 RD		MONTROSE	CO	81401-8884
398909100004	CERRO SUMMIT RANCHES LLC	1185 BETHEL ROAD		MARIETTA	OH	45750
398909300007	CERRO SUMMIT RANCHES LLC	1185 BETHEL ROAD		MARIETTA	OH	45750
398909300008	CERRO SUMMIT RANCHES LLC	1185 BETHEL ROAD		MARIETTA	OH	45750
398909400006	CERRO SUMMIT RANCHES LLC	1185 BETHEL ROAD		MARIETTA	OH	45750
398909400005	CERRO SUMMIT RANCHES LLC	1185 BETHEL ROAD		MARIETTA	OH	45750
398909100002	CERRO SUMMIT RANCHES LLC	1185 BETHEL ROAD		MARIETTA	OH	45750
398916200010	CERRO SUMMIT RANCHES LLC	1185 BETHEL ROAD		MARIETTA	OH	45750
398904300009	CERRO SUMMIT RANCHES LLC	1185 BETHEL ROAD		MARIETTA	OH	45750
398910400015	FALCON AGRICULTURE LLC	58788 FALCON RD		OLATHE	CO	81425-9310
399317100902	UNCOMPAHGRE VALLEY WATER USERS ASSOCIATION	PO BOX 69		MONTROSE	CO	81402-0069
398909100003	CERRO SUMMIT RANCHES LLC	1185 BETHEL ROAD		MARIETTA	OH	45750
398909100901	CITY OF MONTROSE	433 S 1ST ST	PO BOX 790	MONTROSE	CO	81402-0790
398909400013	RIDER DALE B & RIDER LYNETTE M	70455 HIGHWAY 50		MONTROSE	CO	81401-9713
398904400901	CITY OF MONTROSE	433 S 1ST ST	PO BOX 790	MONTROSE	CO	81402-0790
398903300006	SANBURG KENNETH E	53243 EASTER RD		OLATHE	CO	81425-9742
398904100040	SANBURG KENNETH E	53243 EASTER RD		OLATHE	CO	81425-9742
398905100003	SUBCARRIER COMMUNICATIONS INC	139 WHITE OAK LN		OLD BRIDGE	NJ	08857-2173
404502200900	USA (BLM)	2465 S TOWNSEND AVE		MONTROSE	CO	81401-5436
376923100002	GRAY NICK H	584 6530 RD		MONTROSE	CO	81401-8851
376923100004	CLW PROPERTIES COLORADO LLC	14301 FNB PKWY	STE 115	OMAHA	NE	68154-5299
376924100062	WERNER FARMS LLC	14301 FNB PKWY	STE 115	OMAHA	NE	68154-5299
376914300001	CLW PROPERTIES COLORADO LLC	14301 FNB PKWY	STE 115	OMAHA	NE	68154-5299
376914400025	CLW PROPERTIES COLORADO LLC	14301 FNB PKWY	STE 115	OMAHA	NE	68154-5299
376913300025	WERNER FARMS LLC	14301 FNB PKWY	STE 115	OMAHA	NE	68154-5299
376913400024	WERNER FARMS LLC	14301 FNB PKWY	STE 115	OMAHA	NE	68154-5299
376913300102	WERNER FARMS LLC	14301 FNB PKWY	STE 115	OMAHA	NE	68154-5299
376910300003	NOYER LAWRENCE E & NOYER CHARLENE	6680 MEADOWLARK		SHERIDAN	CA	95681-0000
376910400003	CAMERON FAMILY TRUST	11919 BOSTWICK PARK RD		MONTROSE	CO	81401-9760
376915200030	GYURMAN REDFIELD GROUP LLC	17510 MINGLEWOOD TRL		MONUMENT	CO	80132-2200
376914200023	GLEN HAVEN LLC	11810 BOSTWICK PARK RD		MONTROSE	CO	81401-9755
376913100001	CLW SHINN PARK LLC	14301 FNB PKWY	STE 115	OMAHA	NE	68154-5299
376914105001	COHAN JUDITH ANN & WILLIAM A LIVING TRUST	PO BOX 3448		RANCHO SANTA FE	CA	92067-3448
376914105002	KARGUL FAMILY 2000 TRUST	3819 VISTA BLANCA		SAN CLEMENTE	CA	92672-4545
376914104001	HUBBARD TODD A & HUBBARD ALYCE	12654 BOSTWICK PARK RD		MONTROSE	CO	81401-9717
376914102001						
376913301002	FITZSIMMONS WILLIAM J & FITZSIMMONS MARILYN S	5515 CROSS GATE CT		ATLANTA	GA	30327-4810
376913301001	WERNER FARMS LLC	14301 FNB PKWY	STE 115	OMAHA	NE	68154-5299
376913300024	WERNER FARMS LLC	14301 FNB PKWY	STE 115	OMAHA	NE	68154-5299
376914102007	SELF DAVID RICHARD & SELF AMY JO	12500 BOSTWICK PARK RD		MONTROSE	CO	81401-9717
376914300900	MONTROSE COUNTY SCHOOL DISTRICT REIJ	PO BOX 10000		MONTROSE	CO	81402-9701
376912400001	ROCKING R FARMS INC	5247 N 129TH ST		OMAHA	NE	68164-1776
376911400019	WEIMER ROBERT & WEIMER DIANA	10875 COUNTY ROAD 4		MERINO	CO	80741-9719
376913200022	OLONIA ENTERPRISES LLC	12525 HIGHWAY 347		MONTROSE	CO	81401-9756
376913200021	WEIMER ROBERT & WEIMER DIANA	10875 COUNTY ROAD 4		MERINO	CO	80741-9719
376915100003	SAN JUAN MOUNTAIN VIEW RANCH INC	23 N BEACH RD		HOBE SOUND	FL	33455-2101
376911100001	YANISH EVA MARIE	72824 K73 TRL		MONTROSE	CO	81401-7622
376911100020	72934 K73 TRAIL LLC	72934 K73 TRL		MONTROSE	CO	81401-7622
376910300001	NOYER LAWRENCE E & NOYER CHARLENE	6680 MEADOWLARK		SHERIDAN	CA	95681-0000
376910300002	NOYER LAWRENCE E & NOYER CHARLENE	6680 MEADOWLARK		SHERIDAN	CA	95681-0000
376910400002	CAMERON FAMILY TRUST	11919 BOSTWICK PARK RD		MONTROSE	CO	81401-9760
376911400002	BALLANTYNE FAMILY LIMITED PARTNERSHIP	1119 REGENCY DR		COLUMBUS	OH	43220-4953
376910300004	NOYER LAWRENCE E & NOYER CHARLENE	6680 MEADOWLARK		SHERIDAN	CA	95681-0000
376911300001	GLEN HAVEN LLC	11810 BOSTWICK PARK RD		MONTROSE	CO	81401-9755
376910100022	GLEN HAVEN LLC	11810 BOSTWICK PARK RD		MONTROSE	CO	81401-9755
376911200019	GLEN HAVEN LLC	11810 BOSTWICK PARK RD		MONTROSE	CO	81401-9755

376911200099	GLEN HAVEN LLC	11810 BOSTWICK PARK RD		MONTROSE	CO	81401-9755
376910400004	CAMERON FAMILY TRUST	11919 BOSTWICK PARK RD		MONTROSE	CO	81401-9760
376910400001	CAMERON FAMILY TRUST	11919 BOSTWICK PARK RD		MONTROSE	CO	81401-9760
376910400023	CHASE MYRON F III	11775 BOSTWICK PARK RD		MONTROSE	CO	81401-9760
376910400021	CHASE MYRON F JR & CHASE BERNICE	11775 BOSTWICK PARK RD		MONTROSE	CO	81401-9760
376910400022	WEAVER CHARLES N	11737 BOSTWICK PARK RD		MONTROSE	CO	81401-9760
376904200012	NORTHRUP HAROLD W	10962 BOSTWICK PARK RD		MONTROSE	CO	81401-9770
376902200008	GALM WILLIAM & GALM PATRICIA	48 LOWER JAMES ST		ROSENDALE	NY	12472-9700
376902300007	GALM JOSEPH LAURENCE	48 LOWER JAMES ST		ROSENDALE	NY	12472-9700
376902400001	GALM JOSEPH LAURENCE	48 LOWER JAMES ST		ROSENDALE	NY	12472-9700
376902300006	NORTHRUP ANITA J	10962 BOSTWICK PARK RD		MONTROSE	CO	81401-9770
376902300005	KING CHRISTOPHER D & KING KELLEY E	325 7TH AVE	UNIT 1105	SAN DIEGO	CA	92101-7180
376902400006	BECKER KELLY J	72511 K73 TRL		MONTROSE	CO	81401-7622
376910200001	NORTHRUP HAROLD W	10962 BOSTWICK PARK RD		MONTROSE	CO	81401-9770
376909100001	GYURMAN REDFIELD GROUP LLC	17510 MINGLEWOOD TRL		MONUMENT	CO	80132-2200
376910200016	COGHILL ARCHIE R & COGHILL BARBARA K	14623 6175 RD		MONTROSE	CO	81403-9383
376910100021	NORTHRUP HAROLD W	10962 BOSTWICK PARK RD		MONTROSE	CO	81401-9770
376911200018	NORTHRUP ANITA J	10962 BOSTWICK PARK RD		MONTROSE	CO	81401-9770
376911100003	BALLANTYNE FAMILY LIMITED PARTNERSHIP	1119 REGENCY DR		COLUMBUS	OH	43220-4953
376911100004	CRAFT NICOLE J	72713 K73 TRL		MONTROSE	CO	81401-7622
376903400023	NORTHRUP ANITA J	10962 BOSTWICK PARK RD		MONTROSE	CO	81401-9770
376903400018	HADLEY JAMES R	10614 BOSTWICK PARK RD		MONTROSE	CO	81401-9770
376903400021	NORTHRUP HAROLD W	10962 BOSTWICK PARK RD		MONTROSE	CO	81401-9770
376903201001	NELSON GARY & NELSON LAURIE ANN	10203 BOSTWICK PARK RD		MONTROSE	CO	81401-7500
376903200024	NORTHRUP HAROLD W	10962 BOSTWICK PARK RD		MONTROSE	CO	81401-9770
376903100020	SEELEY JUDITH KAY & SEELEY RONALD E	10356 BOSTWICK PARK RD		MONTROSE	CO	81401-9770
376904100009	NORTHRUP ANITA J	10962 BOSTWICK PARK RD		MONTROSE	CO	81401-9770
376910200017	SINNER R PAUL & SINNER NIKKI A	16014 6830 RD		MONTROSE	CO	81401-7481
376903300008	NORTHRUP ANITA J	10962 BOSTWICK PARK RD		MONTROSE	CO	81401-9770
376903400009	SEELEY MARY M LIVING TRUST	10528 BOSTWICK PARK RD		MONTROSE	CO	81401-0000
371934300006	HICKLE GORDON L & HICKLE SUSAN	9922 BOSTWICK PARK RD		MONTROSE	CO	81401-9700
371933400003	NORTHRUP HAROLD W	10962 BOSTWICK PARK RD		MONTROSE	CO	81401-9770
371934300005	SANBURG HEREFORDS LLC	9106 BOSTWICK PARK RD		MONTROSE	CO	81401-9700
371934300003	NORTHRUP HAROLD W	10962 BOSTWICK PARK RD		MONTROSE	CO	81401-9770
376903300024	NORTHRUP ANITA J	10962 BOSTWICK PARK RD		MONTROSE	CO	81401-9770
376904100002	NORTHRUP HAROLD W	10962 BOSTWICK PARK RD		MONTROSE	CO	81401-9770
376903200010	WISE THOMAS L & WISE CONNIE H	10230 BOSTWICK PARK RD		MONTROSE	CO	81401-9770
377134100038	POVERTY MESA LLLP	9474 S RIVER RD		OLATHE	CO	81425-9366
399317400034	TATE DARLA	18903 6485 RD		MONTROSE	CO	81403-7890
377133100001	SPANISH PEAKS LLC	1125 N PORTER AVE	STE 205	NORMAN	OK	73071-6445
399316300028	BECK JOHN A	64984 RANGER RD		MONTROSE	CO	81403-7835
399316302001	BECK JOHN A	64984 RANGER RD		MONTROSE	CO	81403-7835
399316300022	BARBERI UBALDO	64996 RANGER RD		MONTROSE	CO	81403-7835
399316200007	DRYE STEVEN C & DRYE PATSY G	18502 6500 RD		MONTROSE	CO	81403-9872
399316300025	DRYE STEVEN C & DRYE PATSY G	18502 6500 RD		MONTROSE	CO	81403-9872
371933400001	SANBURG HEREFORDS LLC	9106 BOSTWICK PARK RD		MONTROSE	CO	81401-9700
399308200017	CREAMER BRANDON J	17270 6450 RD		MONTROSE	CO	81403-7869
399308205001	WESTSTAR DEVELOPMENT LLC	699 COBBLE DR		MONTROSE	CO	81403-7813
399308102001	LAZY JB RANCH LLC	17280 6450 RD		MONTROSE	CO	81403-7869
404301101010	SANBURG KELLEY J	15328 6800 RD		MONTROSE	CO	81401-7422
404506300017	BARROW-CIMARRON LLC	3800 W BAY TO BAY BLVD	STE 21	TAMPA	FL	33629-6844
404301400903	MONTROSE COUNTY	161 S TOWNSEND AVE		MONTROSE	CO	81401-3955
404504200005	R & G BUTTE ROCK RANCH LLC	PO BOX 700925		SAN ANTONIO	TX	78270-0925
404301400901	MONTROSE COUNTY	161 S TOWNSEND AVE		MONTROSE	CO	81401-3955
404301400902	MONTROSE COUNTY	161 S TOWNSEND AVE		MONTROSE	CO	81401-3955
371933200002	SANBURG HEREFORDS LLC	9106 BOSTWICK PARK RD		MONTROSE	CO	81401-9700
371933100002	SANBURG HEREFORDS LLC	9106 BOSTWICK PARK RD		MONTROSE	CO	81401-9700
376910201002	GIBSON JOHN E & GIBSON KELLY LYNN	11385 BOSTWICK PARK RD		MONTROSE	CO	81401-6501
376910201001	CABLER MARIANNA F & CUMBY KATHY A	11375 BOSTWICK PARK RD		MONTROSE	CO	81401-6501
376910201003	SINNER R PAUL & SINNER NIKKI A	16014 6830 RD		MONTROSE	CO	81401-7481
399316304001	CANAAN PARTNERS LLC	18876 6495 RD		MONTROSE	CO	81403-6700
399316304002	MCKIE KATHERINE & MCKIE BENJAMIN RICHARD	18876 6495 RD		MONTROSE	CO	81403-6700
376914103002	HUBBARD TODD A & HUBBARD ALYCE	12654 BOSTWICK PARK RD		MONTROSE	CO	81401-9717
376914103001	HUBBARD TODD A & HUBBARD ALYCE	12654 BOSTWICK PARK RD		MONTROSE	CO	81401-9717
376914104002	HUBBARD TODD A & HUBBARD ALYCE	12654 BOSTWICK PARK RD		MONTROSE	CO	81401-9717
	Judith E Selvidge Revocable Trust	13 Azalea Lane		San Carlos	CA	94070
	Cerro Summit Ranches LLC	1185 Bethel Road		Marietta	OH	45750
	Dale B and Lynette M Rider	70455 Highway 50		Montrose	CO	81401
	William J and Marilyn S Fitzsimmons	5515 Cross Gate Court		Atlanta	GA	30327
	Judith Ann Cohan and William A Living Trust	PO Box 3448		Ranco Santa Fe	CA	92067
	Werner Farms LLC	14031 FNB Parkway	Suite 115	Omaha	NE	68154
	Todd A and Alyce Hubbard	12654 Bostwick Park Road		Montrose	CO	81401
	Kargul Family 2000 Trust	3819 Vista Blanca		San Clemente	CA	92672
	Glen Haven LLC	11810 Bostwick Park Road		Montrose	CO	81401
	USA (BLM)	2465 S. Townsend Avenue		Montrose	CO	81401
	Harold W and Anita J Northrup	10962 Bostwick Park Road		Montrose	CO	81401
	William and Patricia Galm	48 Lower James Street		Rosendale	NY	12472
	Judith Kay and Ronald E Seeley	10356 Bostwick Park Road		Montrose	CO	81401
	Thomas L and Connie H Wise	10230 Bostwick Park Road		Montrose	CO	81401
	Gordon L and Susan Hickie	9922 Bostwick Park Road		Montrose	CO	81401
	Sanburg Herefords LLC	9106 Bostwick Park Road		Montrose	CO	81401
	Spanish Peaks LLC	1125 N Porter Avenue	Suite 205	Norman	OK	73071
	Kenneth E Sanburg	53243 Easter Road		Olathe	CO	81425
	Barrow-Cimarron LLC	3800 W Bay to Bay Boulevard	Suite 21	Tampa	FL	33629
	Kelley J Sanburg	15328 6800 Road		Montrose	CO	81401
	EGR Ranch LLC	37 Ottawa Avenue NW	Suite 200	Grand Rapids	MI	49053
	CLW Properties Colorado LLC	14301 FNB Parkway	Suite 115	Omaha	NE	68154
	San Juan Mountain View Ranch Inc.	23 N Beach Road		Hobo Sound	FL	33455
	Cameron Family Trust	11919 Bostwick Park Road		Montrose	CO	81401

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APPENDIX B

SCOPING MEETING MATERIALS

Agency Scoping Meeting Summary

Agency and Public Scoping Meeting Presentation Slides

Agency and Public Scoping Meeting Attendance

**Bostwick Park Watershed Plan EA
Agency Scoping Meeting Agenda and Notes
Dec 10. 2020 | 2:00 - 3:00 p.m.**

Zoom: <https://jubengineers.zoom.us/j/5825820012>

Phone: (253) 215-8782 | **Meeting ID:** 582 582 0012

2:00 p.m. | 6:00 pm – Scoping Meeting Agenda

- 1. Slide: Welcome – Dianne Olson**
 - a. Welcome. Thank you for joining virtually.
 - b. Zoom instructions/overview
 - c. Agenda overview
 - i. Introduce what scoping is and purpose of meeting.
 - ii. Purpose is to go over purpose of BP Environmental Assessment plan, introduce the PL566 program, and the plan for the project so far so you can submit comments during the comment period
- 2. Slide: How we will use Zoom - Dianne**
- 3. Slide: Team Introductions – Dianne to give time to Allen, then acknowledge the rest of the team.**
 - a. **Bostwick Park Welcome (1-minute welcome) – Allen Distel**
 - i. I would like to welcome everyone to the PL566 meeting through the NRCS. My name is Allen Distel, and I am president of the Bostwick Park Water Conservancy District. The Cimarron delivers water to the big Cimarron Valley with direct flows from the Cimarron River. The co-sponsors of this project are Cimarron Canal and Reservoir Company, Trout Unlimited, and Uncompahgre Valley Water Users Association.
 - b. Dianne introduce leads on team, team members to help with Q&A
 - i. NRCS—lead agency, provides the PL566 program, introduce representatives
 - ii. Main Sponsor proposing the project—BPWCD; UVWUA, Co-sponsor; TU, co-sponsor
 - iii. J-U-B, Consultant to the Sponsors and NRCS, design engineers who will do initial develop of engineering alternatives and environmental staff who will complete the environmental assessment and facilitate the environmental process according to NEPA guiding regulations.
 - iv. TLG of J-U-B—lead the public and agency involvement components according to NEPA guiding regulations.

4. Slide: What is the Proposed Project – Luke Gingrich

-Technical difficulty: Luke lost Internet; joined after Autumn

-Autumn: Flood Prevention Program was initially put into law in 1954; helps units of the federal, state, local and tribal governments protect and restore watersheds. They protect and restore watersheds up to 250K acres. Financial and technical assistance is available for a variety of issues, including watershed assistance, water quality improvement, fishing and wildlife habitat enhancement. For the Bostwick Park water project specifically, we have several co-sponsors for the project. The project would be focused in Montrose and Gunnison counties. The Action area was based on a prioritization of considerations for the area that was identified by the sponsor/co-sponsors. We are focused on critical infrastructure, water quality, fish and wildlife improvement.

a. NRCS Introduction to the PL-566 Program

- i. NRCS as authorized agency
- ii. PL-566 program overview
- iii. Around since 1950's.
- iv. 3 phases of funding.

b. Bostwick Park Watershed Project

- i. Describe the proposed project.
- ii. Intent is to provide input on the project and inform agencies on what is proposed and send questions to project team to be addressed as we go through scoping. This will not be the last time to send in input, however. Feedback helps inform analysis that happens after the scoping period. We ask that everyone puts official comments in writing, email, or comment card for them to be official.

5. Slide: Current Water Resource Concerns – Nick Emmendorfer

- a. Map will help bring in context. There are many open canals and ditches that are situated on ditches higher above the land that they irrigate. Critical infrastructure and residences are downgrade from these, and if canals were to breach, they would be put at risk. Poor soils and slope stability issues are particularly vulnerable to breaches. The economic hardship that floods put on irrigators and agriculture users is also aimed to be tackled. The early depletion of reservoirs puts less water in the lakes and streams during this season and reduces recreation opportunities. High seepage causes selenium loading as well.

6. Slide: Project Goals – Nick

- a. Project goals are to reduce flood risk, reduce salinity/selenium, reduce conveyance losses and improve water management, protect/enhance wildlife habitats, and sustain and improve recreation access/duration.

7. Slide: Map – Proposed Project Area – Nick

(Highlight according to Nick’s talking points)

First map: watershed boundary that we’ve selected w/ priority concerns.

- a. Agricultural water management
- b. Environmental protection
- c. Flood Prevention
- d. Flood Prevention and Environmental protection

8. Slide: Map – Panel 1 - Nick

- a. *Describe concerns and Types of project being considered to accomplish the goals*
- b. This map is the watershed boundary that we’ve selected w/ priority concerns. The Cimarron Drainage and the Uncompahgre River are the two main sources of flow. Cimarron River starts in the southeast corner of map and flows north towards the Gunnison River near the town of Cimarron. The canyon you see above is the Black Canyon of Gunnison National Park, with Gunnison River in it. Gunnison River travels North and meets the Colorado River, which then exits the state. Not a ton of detail on this map, but future maps have more detail.

9. Slide: Map – Panel 2 – Nick

- a. Northwest extent of watershed concerns. Montrose is a growing community, and the magnitude of potential damage caused by a flood grows with it. Additionally, the NMD canal is the largest canal on the West side of the Uncompahgre River—without it, there is a significant amount of acreage that would not receive irrigation water and would be lost for a considerable amount of time. This is a spot that has kept the association up at night and has been on the radar for a while.

10. Slide: Map – Panel 3- Nick

- a. Heart of watershed map. We have the national park, BLM, and Forest Service shown on this map for who controls what land. Our two ag management points are both within Bostwick Park. If you’ve ever been to the visitor’s center in Black Canyon, you’ve seen the irrigated lands in Bostwick Park. Point B is BP’s West Lateral, and point C is the East Lateral—irrigate maximum amount of land possible. Both have significant seep and end up draining into Red Rock Canyon, which drains directly into the national park. Point D is one of the principle canals, Vernal Mesa canal. This area has slope stability issues and was piped in the past—however, the pipe is aging and there is notable seepage upstream of the

pipe. Not the full extent of slope stability issues was covered in the past. E+F are on the Cimarron Canal. If this were to breach, there would be a lot of irrigated land that would not receive water. Point E is Coal Hill, high above P77 road (county road in Montrose). Significant slope stability issues here as well. The breach would likely eliminate the road in this section and water delivery to the rest of BP. Eliminating this road would put a damper on recreation opportunities and even limit access to homes.

11. Slide: Map – Panel 4

- a. Focuses on Cimarron drainage. The Cimarron River is a cold-water fishery with a significant wild trout population. Silver Jack Reservoir is just south of Point H. As we get later into the summer every year and things heat up, temperature can increase and a cold temperature is key to keeping a healthy trout population. Increased temperature impacts flow on the river and affects the outcomes of those fish. We're looking at places to monitor temperature to ensure that the trout population is taken care of. Point G is another place we're considering for temperature moderation over the River. Highly variable flows within the Cimarron River, from 300-150 CFS depending on the time of year. No great way to regulate flow within the channel itself, which makes it difficult to pass high flows and if there was to be a big runoff event, you could topple over canal gates and get extra water into the Cimarron system, thus exacerbating flood issues further. A fish barrier is also being considered to prevent fish from going into the Cimarron Canal. Altering diversion would have an environmental benefit as well.

12. Slide: NEPA Process Overview – Autumn Foushee

- a. NEPA Process
 - For anyone who doesn't know what NEPA is—The National Environmental Policy Act. Requires federal agencies to assess the environmental affects of their proposed actions before actions are implemented.
 - We are currently in the scoping process and doing an EA and also develop/refine project purpose and need as we go through scoping
 - We then move into collecting baseline data and analyzing it, while also developing alternatives that will be analyzed in the EA
 - We work together with all of the agencies involved—we have a # of cooperating agencies to develop EA and go through internal reviews.
 - Once we arrive at draft EA, it goes to public review/comment, and then we evaluate comments that come in from that and prepare a final EA
 - NRCS will either issue a "Finding of No Significant Impact" or an "EA Impact Statement" if the impact is found to be significant for the project

- b. Resources that are evaluated in the EA
- c. Anticipated Timeline
 - Star shows you where we are—we are in the EA phase
 - Watershed operations program has 3 separate phases that are funded separately
 - For EA portion, we anticipate that it will take at least 18 months-2 years to complete and are anticipating an outcome by Spring 2022
 - Then, the project, once reviewed at the National level, would move into Project Design/Funding
 - Final Design: Spring 2022-Winter 2022
 - Project would apply for construction funding, and once received, it would get funding and likely end in Spring 2025 (with sub-phases and outside of irrigation season)
- d. Scoping provides opportunities identify issues, ensure thorough analysis and refinement of the alternatives that will be evaluated in the EA.

13. Slide: How can you be involved? – Dianne

- a. Comment process for scoping. Dec 10 – Jan 15, 2021.
- b. Questions in the meeting are not considered formal comments.
- c. Formal comments should be submitted through:
 - i. Email, letter, Comment card at BPWCD office
 - ii. Phone is available if needed.
 - iii. Comments must be received by or postmarked by January 15th.
 - iv. Comments allow team to conduct full analysis
- d. Team will provide responses to comments and questions directly to those who comment, and all comments and responses will be documented in EA. Team is also available to address questions and concerns throughout the EA process.
- e. Scoping information available
 - i. Online – flier, meeting recording, presentation materials
 - ii. Bostwick Park Office
- f. Next public comment opportunity would be when the Draft Environmental Assessment is available. It will include alternatives analysis, 30% design and the proposed preferred alternative that will be identified through the analysis.

14. Open Q&A – Dianne

- a. Lesley McWhirter, Bureau of Reclamation: just looking forward to working with team as we put more details on what actions will look like/where they can be

located—then, the Bureau of Reclamation can provide more informed comments/questions

- b. John: the gentleman earlier talked about wildlife mitigation, but we went right by it. I'm interested in what they call the "Hairpin Ditch" by Bostwick Park—what are you going to do about wildlife mitigation if the Hairpin Ditch is closed?
 - i. We've been working on the development of the Hairpin lateral project. It is outside the scope of this particular project, but we're trying to add in wildlife waterers to that piping project—an NRCS design. We'll be integrating wildlife waterers into our system as well to provide water to deer, bear, etc.
 - ii. You show the two green dots on the map—what are they for? The green dots are for the E/W laterals. The Hairpin lateral is a project that we're undertaking with the Bureau of Reclamation with the salinity reduction program. It is outside the scope of this particular project, but they are in different places in the system.
 - iii. This project in particular is funded by the NRCS—it is a different project than what Nick brought up.
- c. Autumn: once we conclude scoping, we begin alternatives development during scoping period. If there are specific questions about specific areas that might be considered for specific solutions, you can contact project team if that would help generate questions/comments. We'll move into Alternatives Development and will occur over the next 5-6 months as EA is developed and analysis is performed. Iterative process.

15. Adjourn – Dianne

- a. Next steps or closing thoughts from project team.
- b. **Slide: How can you be involved?**
 - Involvement slide: can submit comments through email, comment card, and mail
 - Our team is available to schedule a call/meeting to address any other questions for attendees to make informed comments that lead to a full and robust study
 - EA document will go over comments and write responses, or commenters can request consistent updates on the project even after submitting comments
 - Recording will be made available and accessible on the site (bit.ly/BostwickPark)
- c. Thank you for your time and we look forward to working with you throughout this process.

Bostwick Park Water Conservancy District
Watershed Plan Environmental Assessment
Public Scoping Meeting

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WELCOME

Bostwick Park Water Conservancy District Watershed Plan Environmental Assessment Public Scoping Meetings

Thursday, December 10, 2020

Afternoon Meeting

2:00 – 3:00 p.m.
Zoom

Evening Meeting

6:00 – 7:00 p.m.
Zoom

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Ava Pecora

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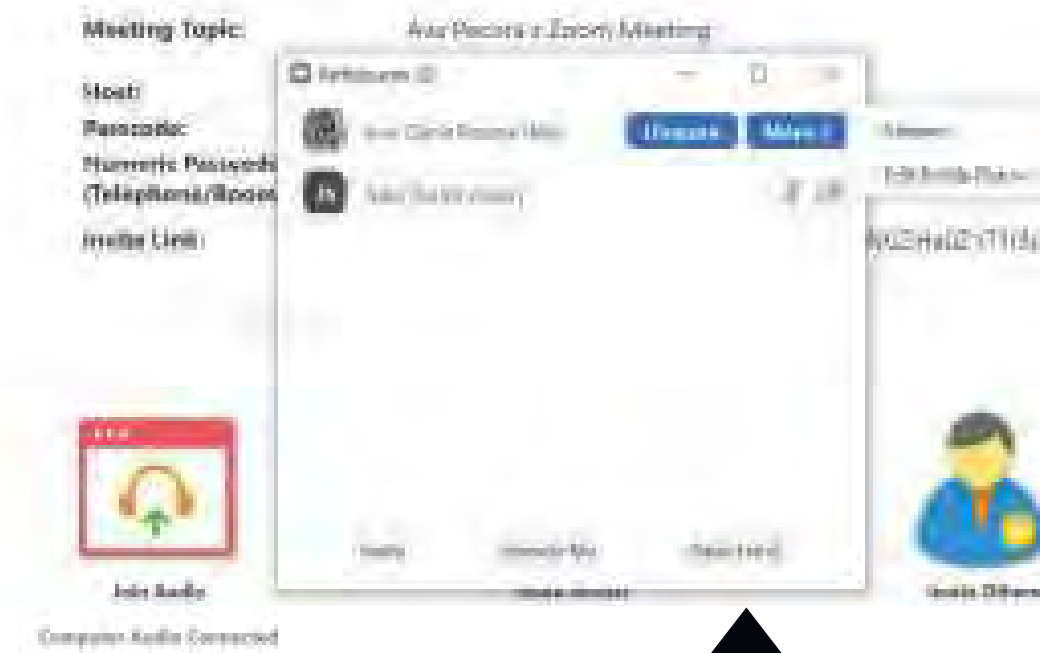
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Select "Participants" from
the menu below, find your
name, select "more" and
click "Rename" to change
your name

Select "Raise Hand" to ask a question

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INTRODUCTIONS

Lead Agency

Todd Boldt
Resource Conservationist/EWP Specialist
USDA NRCS



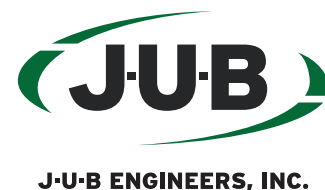
Project Sponsors & Co-Sponsors

Allen Distel
Bostwick Park Water
Conservancy District (BPWCD)
Cimarron Canal and
Reservoir Company

Cary Denison
Project Coordinator
Trout Unlimited

Steve Anderson
Manager
**Uncompahgre Valley
Water Users Association (UVWUA)**

Bostwick Park Watershed Plan Team



THE
LANGDON
GROUP



GATEWAY
MAPPING
INC.

OTHER J-U-B COMPANIES

Luke Gingerich
Project Manager
J-U-B ENGINEERS

Nick Emmendorfer
Project Engineer
J-U-B ENGINEERS

Autumn Foushee
Environmental Lead
J-U-B ENGINEERS

Dianne Olson
Public Involvement Lead
THE LANGDON GROUP

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WHAT IS THE PROPOSED PROJECT?

NRCS WATERSHED PROTECTION & FLOOD PREVENTION PROGRAM

The NRCS Watershed Protection and Flood Prevention Program helps units of federal, state, local and tribal governments protect and restore watersheds. The program provides financial and technical assistance for erosion and sediment control, watershed protection, flood prevention, water quality improvement, water management, fish and wildlife habitat enhancement, recreation and hydropower.

BOSTWICK PARK WATERSHED PROJECT

Bostwick Park Water Conservancy District (BPWCD), co-sponsored by Uncompahgre Valley Water Users Association (UVWUA), Cimarron Canal and Reservoir Company (CC&RC), and Trout Unlimited have received funding from NRCS's Watershed Protection and Flood Prevention Program for a Proposed Project that would occur in Montrose and Gunnison Counties. The Proposed Project Action Area relies on long, open, earthen canals for irrigation, which are both inefficient and often situated above residences and critical infrastructure, posing increased flood risk. The Proposed Project would address these issues and improve **water quality, flood protection, and public safety** while decreasing water losses in the project area.

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CURRENT WATER RESOURCE CONCERNS

FLOOD PROTECTION

- Flooding, overtopping, and breaching of canals that pose risks for damage to U.S. Route-50, local roads, agricultural land, and residential properties.
- Canal breaches and blockages create further issues by withholding any and all irrigation water from the land until the canal(s) can be fixed, resulting in economic hardship for irrigators.



ENVIRONMENT & RECREATION

- Water management issues and early depletion of reservoirs results in:
 - poor wildlife habitat conditions
 - fewer fishing and flat water recreation user days



- High-dissolved selenium and salt loading within the Lower Gunnison Watershed.
- Conveyance losses in open canals result in early depletion of stored water within the basin, effecting agricultural uses.

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PROJECT GOALS

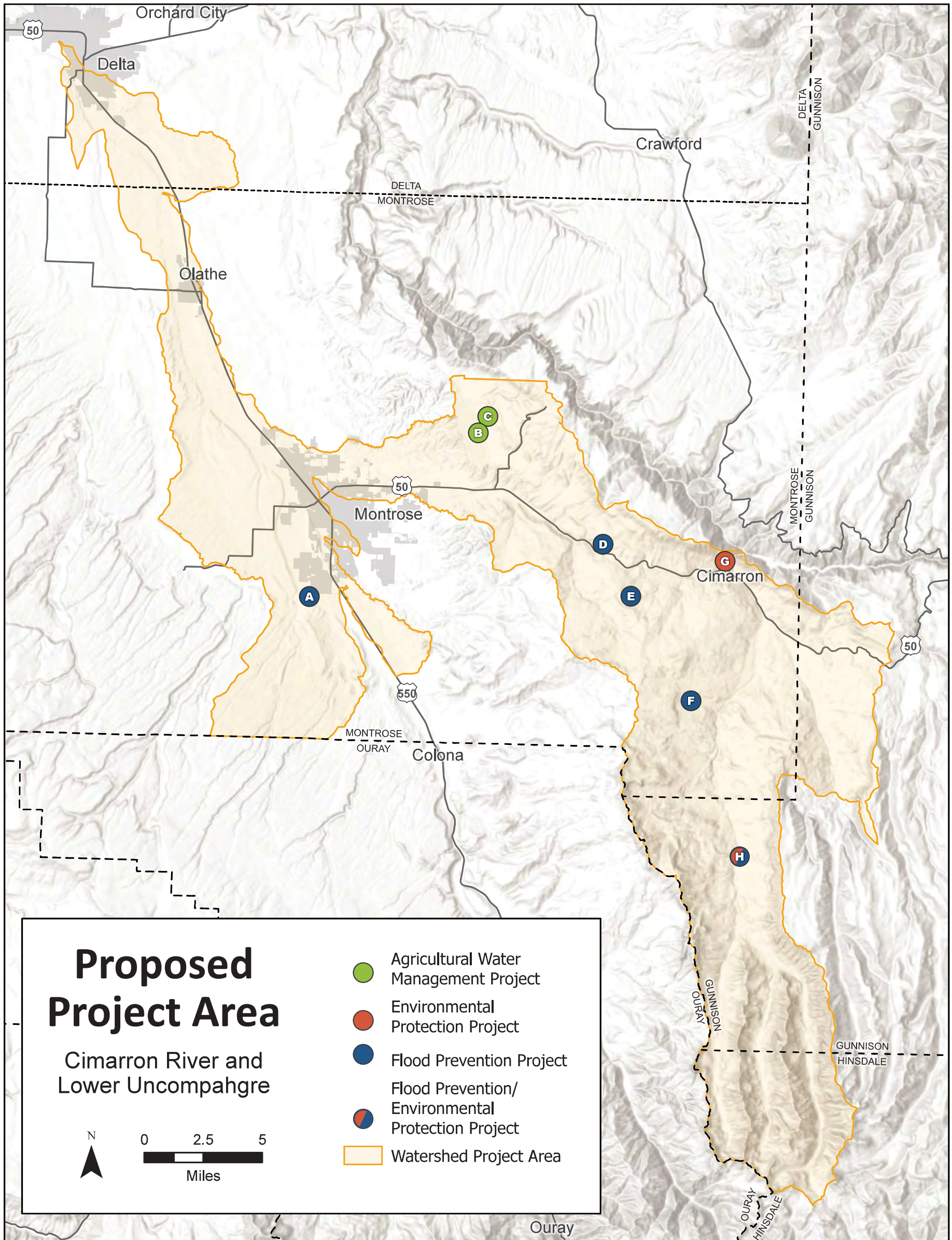
- 1 Flood Risk Mitigation
- 2 Salinity & Selenium Reduction
- 3 Reduce Conveyance Losses & Improve Water Management
- 4 Wildlife Habitat Protection & Enhancement
- 5 Sustain and improve recreation access and duration

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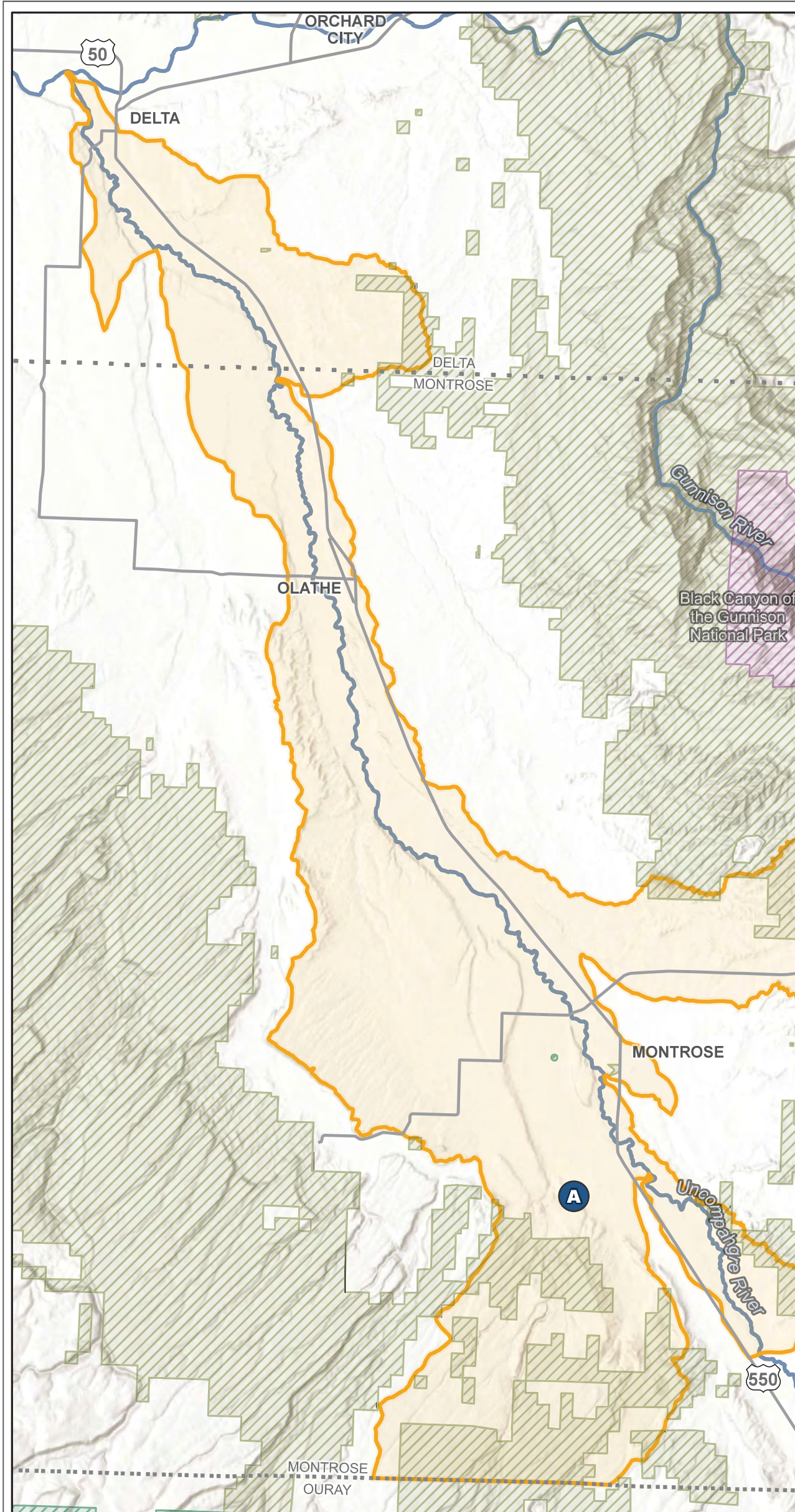


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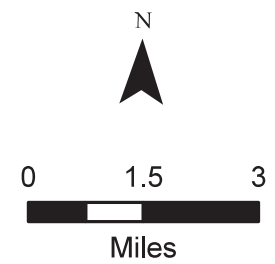
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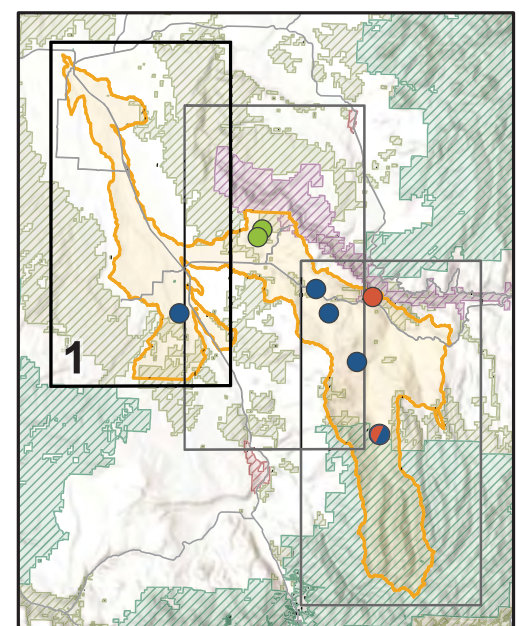


Proposed Project Area

Cimarron River and Lower Uncompahgre



- Agricultural Water Management Project
- Environmental Protection Project
- Flood Prevention Project
- Flood Prevention/Environmental Protection Project
- Watershed Project Area
- Bureau of Land Management
- Bureau of Reclamation
- Forest Service
- National Park Service

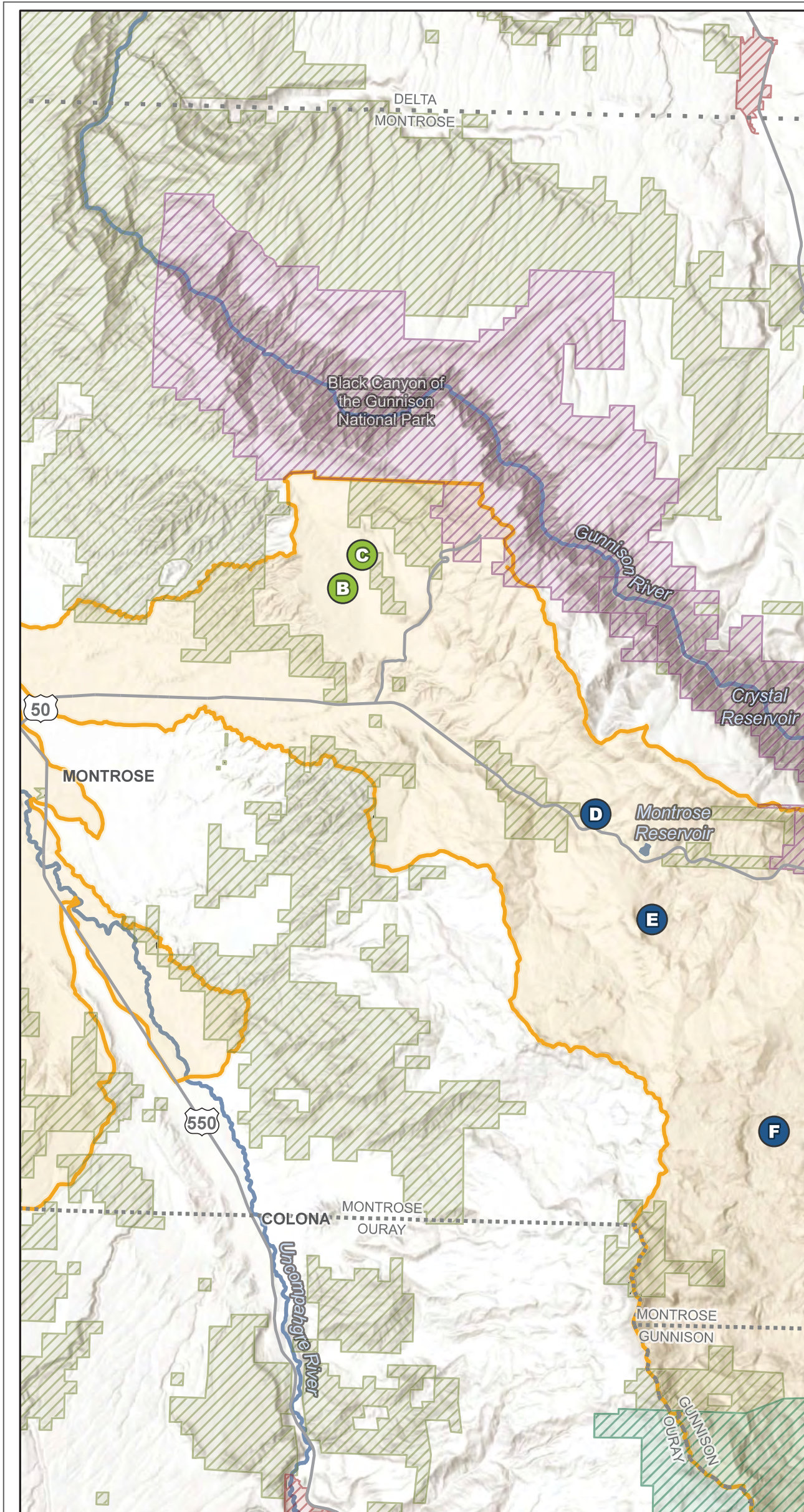


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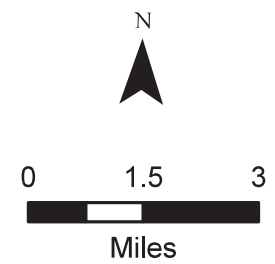
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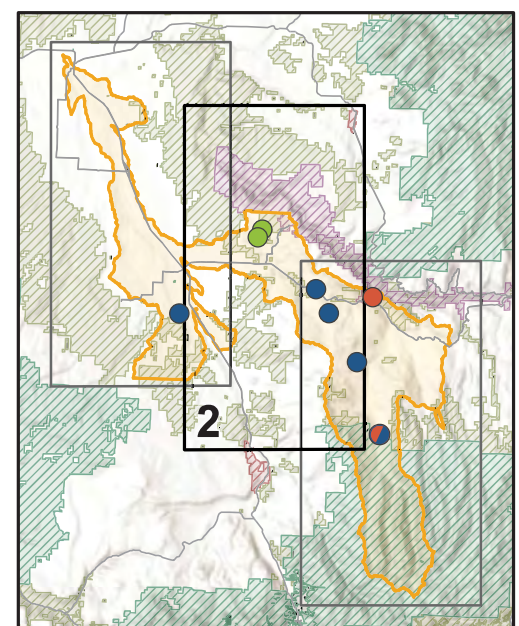


Proposed Project Area

Cimarron River and Lower Uncompahgre



- Agricultural Water Management Project
- Environmental Protection Project
- Flood Prevention Project
- Flood Prevention/Environmental Protection Project
- Watershed Project Area
- Bureau of Land Management
- Bureau of Reclamation
- Forest Service
- National Park Service



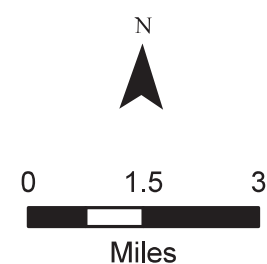
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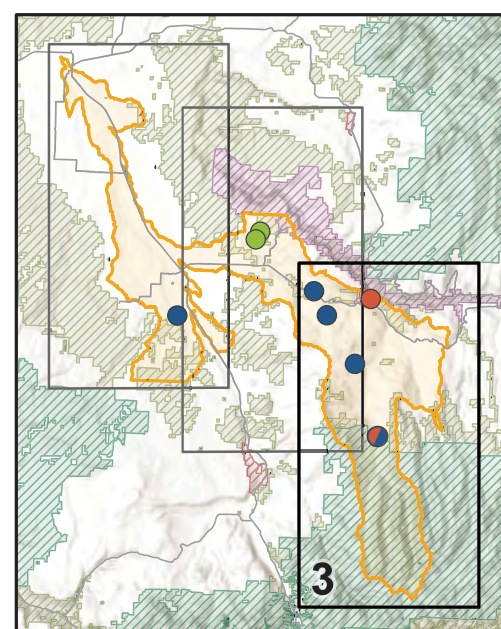
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Proposed Project Area

Cimarron River and Lower Uncompahgre



-  Agricultural Water Management Project
-  Environmental Protection Project
-  Flood Prevention Project
-  Flood Prevention/
Environmental Protection Project
-  Watershed Project Area
-  Bureau of Land Management
-  Bureau of Reclamation
-  Forest Service
-  National Park Service



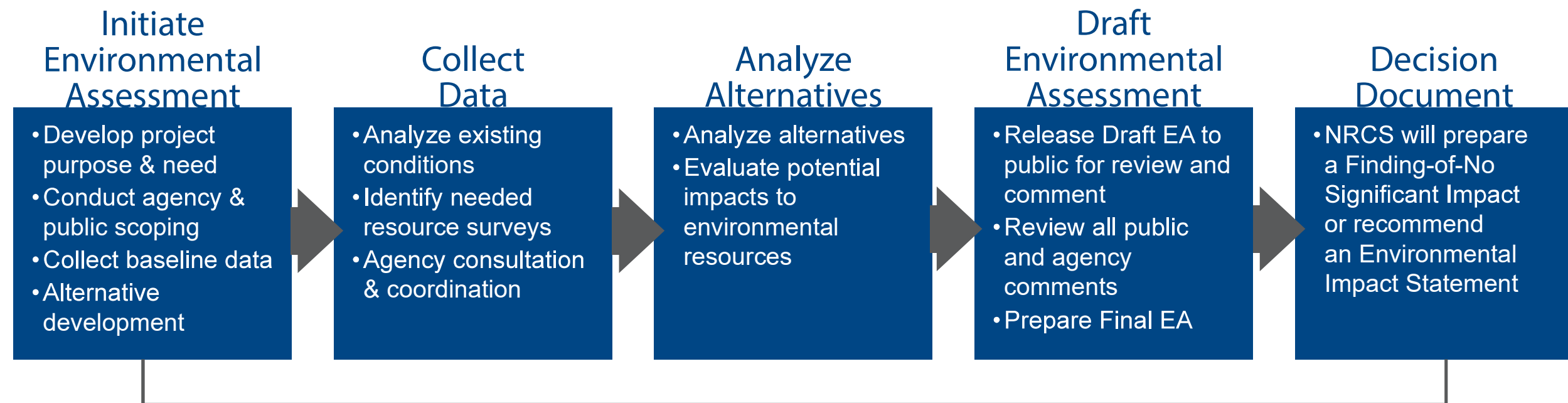
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NEPA PROCESS



WE ARE HERE



ANTICIPATED TIMELINE

Bostwick Park Water Conservancy District Watershed Plan Environmental Assessment Public Scoping Meeting

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HOW CAN YOU BE INVOLVED?

Submit your written or emailed comments on the project between **Dec. 10, 2020** and **Jan. 15, 2021**.

How to Submit a Comment:



Email

BostwickPark@COwatershed.com

Subject Line: Bostwick Park Watershed
Plan Comment



Comment Card

Leave a comment at:
**Bostwick Park Water Conservancy
District Office**
400 South 3rd Street
Montrose, CO 81401



Mail

**Bostwick Park Watershed Plan
C/O The Langdon Group**
392 E Winchester Street #300
Salt Lake City, Utah 84107

Contact the Study Team at (970) 200-2763 for more information

**Por favor contáctenos al 385-274-6053 o BostwickPark@COwatershed.com
para información en Español*

Visit the project website at <https://bit.ly/BostwickPark> for project information slides and more.

AGENCY SCOPING MEETING ATTENDEES:

John Donna: John.donna74@yahoo.com

David Harold, madmanflyboy3@yahoo.com

Dianne Olson, J-U-B

Allen Distel, BPWCD and CC&RC

Nick E, J-U-B

Autumn F, J-U-B

Luke Gingerich, JUB

Steve Anderson, UVWUA

Brian Deeter, J-U-B

Lesley Mcwhirter, Bureau of Reclamation

Jenny Ward, Bureau of Reclamation

Cary Denison, Trout Unlimited

Jeremy Omvig, USDA-NRCS

Todd Boldt, USDA-NRCS

Josh Durham, BOR

Ava Pecora, J-U-B

PUBLIC SCOPING MEETING ATTENDEES:

Dianne Olson, J-U-B

Ava Pecora, J-U-B

Autumn Foushee, J-U-B

Luke Gingerich, J-U-B

Nick Emmendorfer, J-U-B

Cary Denison, Trout Unlimited

Heidi Ramsey, NRCS

Allen Distel, BPWCD CC&RC

John Andrews

Timothy Stroh, property owner

(720) 281-1324

Tom Wise, property owner/irrigator

APPENDIX C

SCOPING COMMENTS

Scoping Comments

Post-Scoping Comments



SHAVANO CONSERVATION DISTRICT

102 Par Place Ste#4, Montrose, Colorado 81401

Office (970) 964-3584

December 10, 2020

Bostwick Park Water Conservancy District Watershed Project
c/o Autumn Foushee
392 E. Winchester St., Suite 300
Salt Lake City, UT 84107

cc: Clint Evans/NRCS State Conservationist

To whom it may concern:

Shavano Conservation District supports the Bostwick Park Water Conservancy District Watershed Plan Environmental Assessment project.

The Shavano Conservation District agrees that the proposed project will help in the conservation efforts of not only water but also habitat improvement. A high resource concern for the Shavano Conservation District is water quality/quantity. In periods of drought, federal mandates on water quality and the increasing demands on the Colorado River and the Gunnison-Dolores River Watershed requires our District to work to improve water quality/quantity and conservation techniques through public education, outreach and project management.

Through this project, we believe that the conservation efforts made by all parties will support water and habitat improvement goals. We strongly encourage approval of this important project under the funded by USDA/NRCS.

Shavano Conservation District Board of Directors

Ken Lipton

Ken Lipton, President

District Manager – Penny Bishop
(970) 964-3584



COLORADO

Parks and Wildlife

Department of Natural Resources

Montrose Service Center
2300 S. Townsend Avenue
Montrose, CO 81401
P 970.252.6000 | F 970.252.6053

January 26, 2021

Autumn Foushee

Bostwick Park Water Conservancy District Watershed Project

392 E. Winchester St., Suite 300

Salt Lake City, UT 84107

RE: Bostwick Park Water Conservancy District Watershed Plan Environmental Assessment,
Montrose and Gunnison Counties, Colorado

Dear Ms. Foushee,

Thank you for the opportunity to comment on the Bostwick Park Water Conservancy District Watershed Plan Environmental Assessment in Montrose and Gunnison Counties, Colorado. Colorado Parks and Wildlife (CPW) staff has visited the site of the proposed project, and does have concerns with possible impacts to wildlife.

The proposed project site lies inside the Cimarron River drainage in southwest Gunnison County and eastern Montrose County, and in the Uncompahgre River drainage in eastern Montrose County. The habitat consists of aspen, spruce, and pine forest, oak scrubland, sagebrush, pinon and juniper forest, hay meadows and seasonal wetlands.

Some areas of the proposed Project site lie inside CPW mapped winter range for elk and mule deer. The area does support high densities of wintering elk and mule deer. CPW would recommend construction activities not be performed between December 1st through April 30th each year in the mapped elk and mule deer winter range, to reduce impacts to wintering elk and mule deer.

Portions of the proposed project lie inside CPW mapped Gunnison Sage-grouse occupied habitat. CPW would recommend construction activities be limited from March 1st through June 30th each year, and no activity permitted within one mile of any lek site from March 1st through June 30th each year.

The proposed project will rebuild the Cimarron Canal diversion structure and install an electronic fish barrier and temperature monitors in the Cimarron River. CPW has observed severely low flows in the Cimarron River in recent years. CPW would recommend insurances that minimum instream flows are maintained in the Cimarron River throughout the proposed



project. Additionally, any in-channel work conducted in the Cimarron River should be avoided between March 1 and June 15 to protect the spawning and rearing periods for wild brown and rainbow trout downstream. We also recommend installing a thermometer at the headgate that will allow remote monitoring of the water temperatures in the Cimarron River to inform water releases that benefit the downstream fishery.

As the proposed project plans are developed, CPW would like the opportunity to address the specific impacts to wildlife species of concern in the planning process.

Again, thank you for the opportunity to comment on the Bostwick Park Water Conservancy District Watershed Plan Environmental Assessment, in Montrose and Gunnison Counties, Colorado. If you have further questions or concerns please contact me at matt.ortega@state.co.us or at 970-252-6011.

Sincerely,

A handwritten signature in black ink, appearing to read "Matt Ortega", with a stylized flourish at the end.

Matt Ortega
District Wildlife Manager

cc:
Rachel Sralla, Area Wildlife Manager
Cory Chick, Southwest Region Manager
Brian Magee, Land Use Coordinator
Eric Garduino, Aquatic Biologist
File

Aquatic Resource Delineation

**Aquatic Resource Delineation Report for the
Bostwick Park Water Conservancy District
Flood Prevention, Agricultural Water Management, and Fish &
Wildlife Watershed Plan Project**
Montrose and Gunnison Counties, Colorado

Prepared for
USDA-Natural Resources Conservation Service

Prepared by
J-U-B Engineers, Inc.
2760 W. Excursion Lane, Suite 400
Meridian, Idaho 83642

September 2023

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Appendix D: Plant List
Appendix E: Wetland Delineation Determination Forms
Appendix F: Aquatic Resource Excel Sheet

1 Introduction

The United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), Bostwick Park Water Conservancy District (BPWCD), Uncompahgre Valley Water Users Association (UVWUA), Cimarron Canal and Reservoir Company (CC&RC), and Trout Unlimited are proposing the BPWCD Flood Prevention, Agricultural Water Management, and Fish & Wildlife Project (Proposed Project) in Montrose and Gunnison Counties, Colorado (Appendix B: Figure 1). The Proposed Project would stabilize and line approximately 1.5 miles of UVWUA open canal, pipe several miles of BPWCD laterals, replace a failing section of existing pipeline, rebuild the Cimarron Canal diversion structure, and install an electronic fish screen and temperature monitors in the Cimarron River.

The Proposed Project Study Area (Study Area) encompasses approximately 15.4 miles of open ditch and is split into six main areas in Montrose County: Montrose and Delta (M&D) Canal, West Lateral, East Lateral, Slide Point, Coal Hill, and Wells Basin (Appendix B: Figures 2–5). Three small areas are also included in the Study Area: a diversion in Gunnison County at the confluence of the Cimarron Canal and the Cimarron River, where water is diverted from the River to the Cimarron Canal, and two temperature loggers (one in Gunnison County and one in Montrose County) on the Cimarron River (Appendix B: Figures 6–7). It should be noted here that only one temperature logger—occurring on USFS land in Gunnison County—was selected for project implementation. However, because both temperature loggers were originally included in the Study Area and analysis, both loggers are discussed in this report. The Study Area occurs within 46 different sections in 12 townships.

The M&D Canal is part of the UVWUA system and situated west of Highway 550 between Montrose and Vernal, Colorado. The East and West Laterals are part of the BPWCD system and located in the Bostwick Park area, adjacent to agricultural fields. Both the Coal Hill and Wells Basin areas occur along the Cimarron Canal. The Slide Point area is situated along the Vernal Mesa Ditch, north of Highway 50, west of the Cerro Summit/Montrose Reservoir and the Cerro Summit State Wildlife Area. The Vernal Mesa Ditch conveys water to the BPWCD system. The U.S. Forest Service (USFS) and County Road temperature loggers are on the Cimarron River; the County Road logger is on private land in Montrose County and the USFS logger occurs in Gunnison County on USFS land.

This report includes the results of a wetlands and waters delineation conducted by J-U-B ENGINEERS, Inc. (J-U-B) for the Study Area. The Study Area includes canal features and a 50-foot buffer from the edge of the canal (creating a 100-foot corridor) and encompasses approximately 270.5 acres. However, wetlands adjacent to the Study Area that are potentially induced by canal seepage/leakage are also included in this report. Both state and federal waters were investigated. The delineation and report were completed for the Proposed Project to:

- Document existing site conditions;
- Determine the presence of wetlands and waters that occur in the Study Area using standardized diagnostic criteria; and,

- Delineate wetland and ordinary high water mark (OHWM) boundaries for features that may be under the jurisdictional authority of the U.S. Army Corps of Engineers (USACE).

Tasks that were completed include:

- Reviewing previous environmental reports, topographic maps and aerial photography;
- Reviewing National Wetlands Inventory (NWI) data and maps, National Hydrography Dataset (NHD) and topographic maps, and published soil survey data and maps;
- Conducting a field survey of the Study Area to locate and map all potential waters of the U.S., including wetlands;
- Documenting soil conditions, hydrological conditions, and plant community composition of potential wetlands in accordance with the *1987 Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (USACE 2008a), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (USACE 2010), and using the *National Wetland Plant List: 2018 Wetland Ratings* to determine plant wetland status (USACE 2018); and,
- Determining potential waters of the U.S. at the Ordinary High Water Mark (OHWM) using *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008b).

This report summarizes the distribution of wetland and water features that were found in the Study Area. It follows the minimum standards for delineation guidelines outlined by the USACE Sacramento District (USACE 2016).

2 Methods

A literature review and database search were conducted prior to performing field investigations. The NWI (USFWS 2021) was searched for known and estimated occurrences of wetlands, and USGS 7.5-minute topographic maps and the NHD were evaluated for the presence of known natural drainage features and other potential waters occurring in and near the Study Area (USGS 2021). Aerial imagery was reviewed to identify differences in vegetative cover, slope, and general terrain that can be indicative of the presence of waters (ArcGIS Online 2021; Google Earth 2021). Weather and precipitation data were obtained from the Western Regional Climate Center (WRCC; WRCC 2021) and soils data were obtained from the Web Soil Survey (USDA-NRCS 2021a).

Four J-U-B biologist/wetland specialists conducted a field investigation on June 14 and 15, 2021, to identify and delineate wetlands and waters in and near the Study Area using routine delineation methodology. The delineation was conducted in a manner to ensure 100 percent visual coverage of the Study Area. Wetlands identified adjacent to the Study Area were visually identified via binoculars due to lack of access on private property; these features are included in this report because they are adjacent to the Study Area and rely upon the canal for hydrology. The Study Area was evaluated for the presence of wetlands and natural drainages, and the

delineation was conducted in accordance with methods described in the *1987 Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987) and the most recent version of the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (USACE 2008a) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (USACE 2010). The Slide Point, Coal Hill, and Wells Basin sites occur within the Western Mountains, Valleys, and Coast Region, approximately 6.3 miles east (at the farthest point) of the USACE boundary for the Arid West Region. However, these portions of the Study Area are generally hot and dry with less than 10 inches of rain (WRCC 2021) and little conifer forest cover in or near the sites. Vegetation communities typically consisted of riparian, grassland, and shrub communities. Soils were poorly developed in the Study Area with low organic matter. As such, the regional supplement for the Arid West was used for these sites. The diversion and U.S. Forest Service temperature logger locations are in the Western Mountains, Valleys, and Coast Region areas, but no wetlands occurred in these areas. Accordingly, all methodology described below followed guidance in the Arid West Regional Supplement.

The Study Area was inspected for wetland indicators such as hydric soils, hydrophytic vegetation, and hydrology. When potential wetland conditions were identified, paired sample points were located on the wetland and upland sides of each feature boundary to obtain information describing both wetland and upland conditions and to identify the boundary of the wetland. Sample points were not taken for inaccessible wetlands outside the Study Area. At each sample point, the presence or absence of hydrologic indicators was noted, soils were characterized, and vegetation was analyzed following standard procedures. These data were recorded in USACE Arid West Region Wetland Determination Data Forms (Appendix E).

Sample points and wetland boundaries were mapped with an EOS Arrow 100 Geographic Positioning System (GPS) unit to collect sub-meter accurate data points. Representative photographs of delineated waters were recorded (Appendix C). Delineation maps were produced by overlaying the survey GPS data with recent color aerial imagery (Appendix A: Map Book).

2.1 Hydrophytic Vegetation

Hydrophytic plants are those adapted to wet conditions. Dominant plant species were identified in accordance with the USACE 50/20 Rule. The *2018 National Wetland Plant List* was used to determine the wetland indicator classification of plant species identified at the sampling points and throughout the Study Area (USACE 2018). As necessary, plant species were identified using *Weeds of the West* (Whitson et al. 2012) and descriptions from the USDA NRCS Plants Database (USDA-NRCS 2021b).

2.2 Wetland Hydrology

Analysis of wetland hydrology examines the presence, behavior, and indicators of water movement in wetlands. The *Regional Supplement to the Corps of Engineers Wetland Delineation*

Manual: Arid West Region (Version 2.0) separates wetland hydrologic indicators into four groups (USACE 2008a):

- Group A: direct observation of surface water or groundwater
- Group B: evidence the area is subject to flooding or ponding
- Group C: evidence the soil is, or was recently, saturated
- Group D: vegetation and soil features that indicate recent (rather than historical) wet conditions

Within each group, indicators are divided into primary or secondary. In the absence of a primary indicator, two secondary indicators must be identified. These categories were used when determining if hydrologic indicators were present.

2.3 Hydric Soils

The NRCS defines hydric soils as those that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part of the soil profile (above 12- to 20-inch depth, depending on soil texture) (NRCS 2010). Soil samples were excavated, and soils were inspected to characterize soil profiles at each sample plot, when possible. Soil horizonation, texture, moisture content, depth to saturation, and/or standing water was noted for each soil pit. The presence or absence of particulate organic matter, redoximorphic features, depleted matrices, and other diagnostic characteristics were noted, as appropriate. Soil colors were determined using Munsell soil-color charts (*sensu* Munsell 2009).

2.4 Ordinary High Water Mark

Linear water features were assessed using methodologies and diagnostic characteristics presented in *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008b). The OHWM is delineated by identifying a variety of physical characteristics, primarily a topographic break in slope, change in vegetation characteristics, and change in sediment characteristics. Supporting indicators include drift/wrack, erosion/scour, bank undercutting, root exposure, point bars, water staining, litter removal, silt deposits, shelving, headcut, and macroinvertebrates (USACE 2008b).

3 Existing Conditions

3.1 Topography and Land Use

M&D Canal

Land use along and near the M&D Canal includes rural residential, agricultural, sagebrush steppe, and riparian habitat along the canal. Moderate hills occurred on either side of the canal and areas north/east of the canal were generally lower in elevation. Elevation in this area ranges from 5,904 feet to 6,044 feet.

East Lateral and West Lateral

Land use along and near the East and West Laterals includes agricultural land bordered by sagebrush steppe natural communities, which occasionally encroached within the Study Area. These laterals are situated within a valley with higher elevations to the east and west. Elevation in this area ranges from 6,989 feet to 7,223 feet on the East Lateral and ranges from 6,952 feet to 7,055 feet for the West Lateral.

Slide Point

Land use along and near the Slide Point site includes undisturbed natural areas, predominantly sagebrush steppe community, Gambel oak woodlands, and steep topography south and west of the Vernal Mesa Ditch. The Study Area in this location is approximately 800 feet north of Highway 50 and occurs west of the Cerro Summit/Montrose Reservoir and the Cerro Summit State Wildlife Area, which is situated in a mostly undisturbed grassland sagebrush steppe natural community. Elevation in this area ranges from 7,961 feet to 7,973 feet.

Coal Hill

Land use along and near the Coal Hill site includes undisturbed natural areas, such as grassland, sagebrush steppe, Gambel oak woodlands, and a few nearby wetlands and side ditches. Moderate hills occurred on the west side of the site and areas east of the Cimarron Canal were generally lower in elevation. Elevation in this area ranges from 8,236 feet to 8,256 feet.

Wells Basin

Land use along and near the Wells Basin site includes undisturbed natural areas, such as grassland, sagebrush steppe, Gambel oak woodlands, and a few nearby wetlands. Slight to moderate hills occurred to the west/north of the site, with elevation generally lower south and east of the site. Elevation in this area ranges from 8,368 feet to 8,410 feet.

Cimarron Canal Diversion and Temperature Loggers

Land use at and near the Cimarron Canal Diversion site includes aspen conifer forest with rural residences scattered throughout. The Cimarron River flows north through the site and contains significant rocky outcroppings in and adjacent to the approximately 65-foot wide channel (as estimated at the diversion point). Both temperature loggers occur in a similar environment as they occur in the river. Elevation in the diversion area ranges from 8,562 feet to 8,585 feet. Elevation for the County Road temperature logger, which occurs north of the diversion, ranges from 7,187 feet to 7,195 feet. Elevation for the temperature logger on USFS land, which occurs south of the diversion, ranges from 8,652 feet to 8,655 feet.

3.2 Watersheds and Regional Hydrology

The Study Area occurs in six subwatersheds within the Cimarron River and Lower Uncompahgre Watersheds. The subwatersheds include Happy Canyon Creek (Hydrologic Unit Code [HUC] HUC 140200060403), Long Gulch Gunnison River (HUC 140200021103), Hairpin Creek Cedar Creek

(HUC 140200060404), Lower Cimarron River (HUC 140200020906), Middle Cimarron River (HUC 140200020902), and the Upper Cimarron River (HUC 140200020902). Two of the most significant water features in the region are the Gunnison River and Cimarron River. The Cimarron River begins in the Uncompahgre National Forest and flows north through Silver Jack Reservoir and eventually joins the Gunnison River just north of the town of Cimarron, Colorado. The Gunnison River is the second largest river in Colorado; it begins at the Continental Divide and flows westward until it flows into the Colorado River in Grand Junction.

M&D Canal

The M&D Canal occurs in the Happy Canyon Creek Subwatershed (HUC 140200060403), which lies within the Uncompahgre Watershed (HUC 14020006). The nearest streams to the M&D Canal are Happy Canyon Creek, which cross the site, and Dolores Creek, which occurs northeast of the site. The remaining subwatersheds occur within the Upper Gunnison Watershed (HUC 14020002).

East Lateral and West Lateral

The East and West Laterals occur in Long Gulch-Gunnison River subwatershed (HUC 140200021103). The nearest stream is Cedar Creek approximately 1.5 miles south of the West Lateral; the Gunnison River occurs approximately 3.3 miles east of the East Lateral.

Slide Point

Slide Point occurs in the Hairpin Creek-Cedar Creek subwatershed (HUC 140200060404). The nearest stream is Cedar Creek, which is approximately 0.2 miles south of the site.

Coal Hill

Coal Hill occurs in the Lower Cimarron River subwatershed (HUC 140200020906). The nearest stream is Cedar Creek, which is approximately 0.95 miles north of the site.

Wells Basin and the County Road Temperature Logger

Wells Basin and the County Road temperature logger occur in the Middle Cimarron River subwatershed (HUC 140200020905). The nearest stream is Veo Creek, approximately 0.25 miles north of the site.

Cimarron Canal Diversion and USFS Temperature Logger

The Cimarron Canal Diversion and the USFS temperature logger occur in the Upper Cimarron River subwatershed (HUC 140200020902). The diversion occurs where the Cimarron Canal branches off from the Cimarron River.

3.3 Climate

Climatic data was obtained from the WRCC Cooperative Observer Program (COOP) ID 055717, located in Montrose, Colorado. On average, temperatures at this station range from an average minimum of 12.3 degrees Fahrenheit (°F) in January to an average maximum of 88.3 °F in July

(WRCC 2021). The average annual precipitation is 9.35 inches, with rain occurring most between November and April (WRCC 2021). The average annual snowfall is 25.1 inches and occurs primarily from November to April (WRCC 2021). Climatic data was also obtained from the COOP location in Cimarron (ID 051609), about four miles east of Slide Point. On average, temperatures at this station range from an average minimum of 0.5 degrees Fahrenheit (°F) in January to an average maximum of 85.3 °F in July (WRCC 2021). The average annual precipitation is 13.45 inches, with rain occurring every month of the year, mostly in September (WRCC 2021). The average annual snowfall is 64.9 inches and occurs primarily from November to April (WRCC 2021).

The NRCS WETS table for Montrose, Colorado is the nearest WETS station. The WETS table indicated that the growing season extends from April 19 to October 26 during the normal growing period (28°F or higher @ 70 percent) (NRCS-USDA 2021c). The maximum temperature during the survey days was 99°F, which is higher than the normal high temperature of 85° for that date (NRCS-USDA 2021c). The month of June in 2021 was warmer than average.

3.4 Floodplains

Most of the Study Area occurs in Zone X, area of no flood zones. However, a few small portions of the Study Area do occur in an area with 1% annual chance of floods.

M&D Canal

M&D Canal occurs in FEMA FIRM panel 08085C0767D, and a small portion occurs in Flood Zone A (1% annual chance of flood).

East Lateral and West Lateral

The East and West Laterals occur in FIRM panels 08085C0475D and 08085C0500D, entirely in Zone X.

Slide Point and Coal Hill

Slide Point and Coal Hill occur in FIRM panel 08085C0825D, also entirely in Zone X.

Wells Basin

Wells Basin occurs in FIRM panel 08085C1175D, entirely in Zone X.

Cimarron Canal Diversion

The Cimarron Diversion Canal also occurs in FIRM panel 08085C1175D, but within Flood Zone A.

Temperature Loggers

The County Road temperature logger site occurs in FIRM panel 08051C1425D, within Flood Zone A. The USFS temperature logger site occurs in FIRM panel 08051C1750D and is outside the FEMA limits of study; given it occurs along the Cimarron River, it is likely located within Flood Zone A.

3.5 Soils

Twenty-five soil types occur in the Study Area (Table 1). Xeribrush loam (24.7% of Study Area) Persayo-Briny rarely flooded complex (18.2% of Study Area), Zeribrush extremely stony-Signalhill (10.7% of Study Area), and Cerro-Swansonlake complex (10.6% of Study Area) soils are the dominant soils in the Study Area (Table 1; Appendix B: Figures 8–13). Nine soil types in the Study Area have a hydric rating as shown in the table below (USDA-NRCS 2021a):

Table 1: Soil Types in Study Area Separated by Site

Soil Type	Acres	Hydric Rating	Percent of Study Area
East Lateral			
Xeribrush Loam	46	0	9.05
Zeribrush, extremely stony-Signalhill, very stony complex	54.2	0	10.67
Parkelei-Signalhill, very stony complex	4	0	0.79
West Lateral			
Xeribrush-Mudcal complex	3	0	0.59
Xeribrush loam	79.3	0	15.61
Wellsbasin-Xeribrush complex	10	0	1.97
Parkelei-Signalhill, very stony complex	11.3	0	2.22
Barboncito, extremely flaggy-Badland complex	0.8	0	0.16
M&D Canal			
Cameo sandy loam	2.5	0	0.49
Sagers silty clay loam	0.6	5	0.12
Gyprockmesa gravelly loam	0.2	0	0.04
Mesa gravelly loam	32.2	0	6.34
Mesa clay loam	34.2	0	6.73
Mesa gravelly clay loam	11.3	0	2.22
Gyprockmesa-Grunnell, stony complex	0.4	0	0.08
Briny clay loam	12.9	90	2.54
Persayo-Badland complex	4.6	5	0.91
Persayo-Briny rarely flooded complex	92.6	20	18.23
Barboncito, extremely flaggy-Badland complex	9.1	0	1.79
Walknolls-Rock outcrop complex	0.2	0	0.04
Slide Point			
Barboncito, extremely flaggy-Badland complex	1	0	0.20
Cerro-Swansonlake complex	3.6	20	0.71
Cerro, extremely stony-Shermap-Curecanti complex	14.6	10	2.87
Cerro-Curecanti, extremely stony complex	5	0	0.98
Mudcap loam	0.1	0	0.02
Coal Hill			
Beachcanyon, extremely bouldery-Gothic-Woodhall rubbly complex	0.4	10	0.08
Cerro-Swansonlake complex	24.8	20	4.88
Cerro very stony-Curecanti, extremely stony complex	4.4	10	0.87
Wells Basin			
Beachcanyon, extremely bouldery-Gothic-Woodhall rubbly complex	2.4	10	0.47
Cerro-Swansonlake complex	25.5	20	5.02
Cerro very stony-Curecanti, extremely stony complex	11.7	10	2.30
Cerro-Curecanti, extremely stony complex	3.8	0	0.75
Cimarron Canal Diversion			

Soil Type	Acres	Hydric Rating	Percent of Study Area
Frisco, very stony-Rock outcrop-Silverjack complex	1	0	0.20
Temperature Loggers			
Frisco, very stony-Rock outcrop-Silverjack complex	0.2	0	0.04
Beachcanyon, extremely bouldery-Gothic-Woodhall rubbly complex	0	10	0
Vastine fine sandy loam (County Road)	0.2	85	0.04
Total	508.1		100

3.6 USGS Topographic Drainages and National Wetlands Inventory

NHD and NWI features shown on maps in/near the Study Area are in Appendix B: Figures 13–18.

M&D Canal

The NHD identified the M&D Canal and Happy Canyon Creek as occurring in this area. The M&D Canal is part of the Proposed Project and it runs in a southeast-northwest trajectory along this portion. Happy Canyon Creek crosses the Study Area. Both features were field confirmed as present.

The NWI database identified nine features as occurring within this portion of the Study Area. Five freshwater emergent wetlands (two PEM1B, one PEM1C, and two PEM1F features), and four riverine features (one each of R4SBC, R5UBFx, R2UBFx, and R3UBFx features). The PEM1B classification is palustrine, emergent, persistent, seasonally saturated features; PEM1C classification is palustrine, emergent, persistent, seasonally flooded; PEM1F classification is palustrine, emergent, persistent, semi-permanently flooded. The R4SBC classification is riverine, intermittent, streambed, seasonally flooded; R5UBFx is riverine, unknown perennial, unconsolidated bottom, semi-permanently flooded, and excavated; R2UBFX is riverine, lower perennial, unconsolidated bottom, semi-permanently flooded, and excavated.

East Lateral

The NHD identified three features as occurring in this portion of the Study Area. The main feature is the East Lateral, with just a small segment of the West Lateral branching off the East Lateral. Vernal Mesa Ditch is shown as connecting to the East Lateral. The East Lateral feature identified by NHD is the same East Lateral that is part of the Proposed Project.

The NWI identified three riverine features as occurring with this portion of the Study Area. The riverine classifications included R4SBC and R5UBFx, previously described, and R4SBCx. The R4SBCx classification is the same as R4SBC with the added modifier of excavated. The riverine features were field-confirmed as present and are assumed to be the same feature as East Lateral.

West Lateral

The NHD identified only one feature, the West Lateral, as occurring in this portion of the Study Area. This feature is the same West Lateral that is part of the Proposed Project. The West Lateral branches off from the East Lateral.

The NWI identified eight features as occurring within this portion of the Study Area. Two freshwater ponds (PABFh), two freshwater emergent wetlands (PEM1C), and four riverine features (three R4SBCx and R5UBFx feature). The classification PABFh is for a palustrine, aquatic bed, semi-permanently flooded, diked/impounded feature. Classifications for PEM1C, R4SBCx and R5UBFx were previously described. The riverine features were field-confirmed as present and are assumed to be the same feature as West Lateral.

Slide Point

The NHD identified only one feature, Vernal Mesa Ditch, as occurring in this portion of the Study Area. This feature is the same Vernal Mesa Ditch that is part of the Proposed Project and which connects with the East Lateral. Vernal Mesa Ditch branches off from the Cimarron Ditch.

The NWI identified four features as occurring within this portion of the Study Area. Three freshwater emergent wetlands (PEM1C) and one riverine feature (R4SBCx). These classifications were previously described. No emergent wetlands occurred within the Study Area, though some were observed adjacent to the Study Area. The riverine feature is assumed to be the Vernal Mesa Ditch and was confirmed as present.

Coal Hill

The NHD identified only one feature, the Cimarron Ditch, as occurring in this portion of the Study Area. This feature is the same Cimarron Canal that is part of the Proposed Project.

The NWI identified only one riverine feature as occurring with this portion of the Study Area. The classification was R4SBCx, which was previously described. This riverine feature is assumed to be the Cimarron Ditch and was confirmed as present.

Wells Basin

The NHD identified four features as occurring in this portion of the Study Area. The main feature is the Cimarron Ditch. Three unnamed features cross this portion of the Study Area—two continue on past the Study Area and one appears to join with the Cimarron Ditch. These unnamed features originated from a singular unnamed feature that extends from the Cimarron River.

The NWI identified eight features as occurring within this portion of the Study Area. One freshwater emergent wetland (PEM1B), and seven riverine features (four R4SBC, two R5UBFx, and one R4SBCx feature). These classifications were previously described. One NWI emergent wetland was identified as occurring; another was identified adjacent to the Study Area. The scrub-shrub wetland was not observed. Three riverine features were observed during the survey and are assumed to be the Cimarron Ditch.

Cimarron Canal Diversion

The NHD identified two features as occurring in this portion of the Study Area. The main feature is the Cimarron River, which travels north of this site. The other feature is the Cimarron Ditch, which branches off from the river via a diversion structure.

The NWI identified two riverine features as occurring within this portion of the Study Area. One riverine feature is classified as R4SBCx, previously described, and one as R3UBH, which is classified as riverine, upper perennial, unconsolidated bottom, permanently flooded. The Cimarron River is assumed to be the same feature as the R3UBH feature, and the Cimarron Ditch is assumed to be the same feature as the R4SBCx feature, based on geographic location. These features were confirmed as present.

Temperature Loggers

The NHD identified the Cimarron River as occurring where the County Road and USFS temperature loggers occur. The NWI identified a riverine feature, R3UBH, as occurring where the temperature loggers occur. It is assumed that the Cimarron River is the same feature as this R3UBH feature.

4 Aquatic Resources

4.1 Type and Condition of Aquatic Resources

Four types of water features were mapped in the Study Area: wetlands, canals, a creek, and a river. Portions of 12 wetlands, five canals, one creek, and one river were mapped in the Study Area (Appendix A: Map Book). Wetland boundaries generally matched where vegetation transitions occurred, and upland or riparian species began to dominate. Based on topography and landscape position (wetlands downslope of canal), all wetlands rely, to some degree, upon the canal seepage for hydrology. All 12 wetlands are classified as palustrine emergent wetlands, persistent (PEM1) (Cowardin et al. 1979). In general, palustrine wetlands include all non-tidal wetlands (freshwater) dominated by trees, shrubs, and persistent emergent species. The emergent wetland locations in the Study Area are dominated by herbaceous vegetation communities and have a temporary flooded water regime (i.e., seepage from canals during irrigation season), but some wetlands were bordered by shrub/forest communities and had a few shrubs and trees within the wetland boundary. The wetlands appear to be in good condition, though some wetlands (Wetlands 2–5) show mild human disturbance and some wetlands (Wetlands 10–11) show evidence of grazing.

Collectively, 5.69 acres of wetlands and 25.83 acres of linear features were delineated within and near the Study Area (Table 2; Appendix A: Map Book). Of the 5.69 acres of wetland mapped, only 0.05 acres occur within the Study Area representing the Proposed Project Action Area. Several wetlands extend beyond the mapped boundary, and this is noted in the descriptions below.

M&D Canal

Six wetlands (Wetlands 1–6) and two linear features (M&D Canal and Happy Canyon Creek) occur in this portion of the Study Area. The wetlands occur east of County Road 6400 in/near the southeastern portion of the Study Area.

Wetland 1 is approximately 1.62 acres and occurs just north of the canal. Of the 1.62 acres that were mapped, approximately 0.01 acres occur within the Study Area. This wetland is dominated by rush (*Juncus* sp.), sedge (*Carex* sp.), and cattail (*Typha latifolia*). A narrow drainage approximately 1.5 feet wide runs through a portion of the wetland (outside the Study Area). Water was visible flowing through the drainage during the survey. The wetland's hydrology likely comes from canal seepage and the drainage. The drainage appears to end in agricultural fields north of the Study Area.

Wetland 2 is approximately 1.71 acres and occurs north of the Study Area. This wetland appears to be dominated by rush and sedge. The wetland's hydrology likely comes from canal seepage. Based on aerial imagery, this wetland may extend farther east, but still outside the Study Area.

Wetland 3 is approximately 0.16 acres and occurs east of the Study Area. This wetland appears to be dominated by rush and sedge. The wetland's hydrology likely comes from canal seepage. Based on aerial imagery, this wetland may have an outlet that continues north to another wetland. Some disturbance was visible along the edges of the wetland.

Wetland 4 is approximately 0.05 acres and occurs east of the Study Area. This wetland appears to be dominated by rush and sedge. The wetland's hydrology likely comes from canal seepage. Some disturbance was visible along the edges of the wetland.

Wetland 5 is approximately 0.08 acres and occurs east of the Study Area. This wetland is dominated by cattail and juncus. A pipe extends from the edge of the dirt access road along the canal; below the pipe is a narrow ditch that meanders outside the Study Area and flows into the wetland. A dirt road borders the east edge of the wetland.

Wetland 6 is approximately 0.67 acres and occurs east of the Study Area. This wetland appears to be dominated by saltgrass (*Distichlis spicata*), narrowleaf willow (*Salix exigua*), *juncus spp.*, and cattail. The wetland's hydrology likely comes from canal seepage. Some disturbance was visible along the eastern edges of the wetland.

M&D Canal runs the length of the Study Area. It encompasses approximately 14.51 acres and is approximately 3.26 miles in length in the Study Area. M&D Canal receives water from the Uncompahgre River, but it does not contribute water to any water of the U.S. (WOTUS), instead spreading out in agricultural areas. Happy Canyon Creek encompasses approximately 0.01 acres and is approximately 80 feet long within the Study Area. This creek continues north and joins with the Uncompahgre River, which later joins with the Gunnison River.

East Lateral

One canal, East Lateral, was mapped within this portion of the Study Area. It encompasses approximately 2.32 acres and approximately 4.26 miles of the lateral are within in the Study Area. No wetlands were observed in or near the Study Area. A small portion of West Lateral occurs in the eastern area as it comes off East Lateral, but it is not part of the Proposed Project and was not mapped.

West Lateral

One canal, West Lateral, occurs in this portion of the Study Area. It encompasses approximately 1.15 acres and approximately 3.99 miles of the lateral are within the Study Area. No wetlands were observed in or near the Study Area.

Slide Point

One canal (Vernal Mesa Ditch) occurs in this portion of the Study Area. Three wetlands (Wetland 7–9) occur just south of the Study Area and are included here for discussion.

Wetland 7 encompasses approximately 0.60 acres and occurs on a slope south of the Study Area. This wetland appears to be dominated by rush and sedge. The wetland's hydrology likely comes from canal seepage. The wetland appears to narrow into a swale or drainage and join with another drainage that travels southwest.

Wetland 8 encompasses approximately 0.11 acres and occurs on a slope south of the Study Area. This wetland appears to be dominated by rush and sedge. The wetland's hydrology likely comes from canal seepage.

Wetland 9 encompasses approximately 0.47 acres and occurs on a slope south of the Study Area. This wetland appears to be dominated by rush and sedge. The wetland's hydrology likely comes from canal seepage. The wetland is adjacent to a drainage that travels southwest and joins a larger drainage.

Vernal Mesa Ditch runs the length of this portion of the Study Area, but it is piped on the northwestern portion. It encompasses approximately 1.10 acres and approximately 0.94 miles of the ditch are within the Study Area.

Coal Hill

One canal, Cimarron Canal, occurs in this portion of the Study Area. It encompasses approximately 2.06 acres and approximately 1.17 miles of the canal are within the Study Area. No wetlands were observed in or near the Study Area.

Wells Basin

Three wetlands (Wetlands 10–12) and one canal (Cimarron Canal) occur in this portion of the Study Area.

Wetland 10 encompasses approximately 0.11 acres and occurs south of the Study Area. The wetland is separated into two units on the map. This wetland was dominated by rush and orchardgrass (*Dactylis glomerata*). The wetland's hydrology likely comes from canal seepage. The wetland units appear to narrow into a swale and continue farther south than what was mapped.

Wetland 11 encompasses approximately 0.08 acres and occurs east of the canal within a portion of the Study Area. The wetland is separated into three units on the map. Of the 0.08 acres, 0.01 acres occur within the Study Area. This wetland was dominated by rush. The wetland's hydrology

likely comes from canal seepage. The wetland units appear to continue east into a larger wetland mosaic.

Wetland 12 encompasses approximately 0.03 acres and occurs west of the canal within the Study Area. This wetland was inaccessible, but visible with binoculars. It was dominated by cattail and corn lily (*Veratrum californicum*).

One canal, Cimarron Canal, occurs in this portion of the Study Area. It encompasses approximately 4.2 acres and approximately 1.62 miles of the canal are within the Study Area.

Cimarron Canal Diversion

One river, the Cimarron River, and one canal, the Cimarron Canal occur in this portion of the Study Area. The Cimarron River encompasses approximately 0.27 acres and approximately 240 feet of the river are within the Study Area. The Cimarron Canal encompasses approximately 0.05 acres and approximately 122 feet of the canal are within the Study Area. The river travels from the south to the north in this segment, and the canal begins on the west side of the river and travels north and then west.

Temperature Loggers

The USFS and County temperature loggers each occur in the Cimarron River. The County temperature logger is north (downstream) of the diversion area and the USFS temperature logger is south (upstream) of the diversion area. The Cimarron River encompasses approximately 0.08 acres and 0.11 acres within the Study Area for the USFS-land logger and the County Road logger, respectively. The Cimarron River extends approximately 96 feet and 90 feet within the Study Area for the USFS-land logger and the County Road logger, respectively.

Jurisdictional Status Discussion

Wetlands 1–6 are hydrologically connected to the M&D Canal, which is an artificial linear feature that receives water from a WOTUS but does not contribute water to a WOTUS; as such, it lacks federally jurisdictional status as a WOTUS. Associated Wetlands 1, and 4-6 are not jurisdictional WOTUS. Though NWI shows a drainage running through the wetland up north to Happy Canyon Creek, aerial imagery does not support this connection. Instead, the drainage appears to flow into an agricultural field and dissipate—no drainage exit from the field is visible in aerial imagery. However, Wetlands 2 and 3 appear to be hydrologically connected to a larger wetland complex to the east outside the Study Area; this complex extends to the northwest where it appears (via aerial imagery) to overlap with Happy Canyon Creek.

Wetlands 7 and 9 receive seepage water from the Vernal Mesa Ditch, which appears to contribute water, via a natural drainage, to Cedar Creek, which is a jurisdictional WOTUS due to its connection with the Uncompahgre River. Accordingly, Vernal Mesa Ditch and Wetlands 7 and 9 are jurisdictional WOTUS. Wetland 8, however, appears to be isolated with no connections to neighboring wetlands or linear features. As such, Wetland 8 is not jurisdictional.

Wetlands 10–12 are seepage induced, receiving water from the Cimarron Canal. The canal connects to Vernal Mesa Ditch and may also contribute water to Hairpin Creek, which, via Dry Cedar Creek, connects to Cedar Creek, a jurisdictional WOTUS. Accordingly, the canal is a jurisdictional WOTUS. However, Wetlands 10-12 do not contribute water or have a direct surface connection to any other aquatic features. No jurisdictional wetlands occur with the Study Area; 0.05 acres of non-jurisdictional wetlands occur in the Study Area. West Lateral, Cimarron River, and Happy Canyon Creek are also WOTUS within the Study Area.

Table 2. Delineated Waters in the Study Area

Feature ID	Mapped Acreage#	Acres in Study Area	Length (miles)	Classification (Cowardin)	Coordinates (Lat/long)	Study Area Portion
Wetland Features						
Wetland 1	1.62	0.01	NA	PEM1	38.421560, -107.88987	M&D Canal
Wetland 2	1.71	0	NA	PEM1	38.424073, -107.88728	M&D Canal
Wetland 3	0.16	0	NA	PEM1	38.420916, -107.88303	M&D Canal
Wetland 4	0.05	0	NA	PEM1	38.420299, -107.88219	M&D Canal
Wetland 5	0.08	0	NA	PEM1	38.418612, -107.87993	M&D Canal
Wetland 6	0.67	0	NA	PEM1	38.415282, -107.87725	M&D Canal
Wetland 7	0.60	0	NA	PEM1	38.454739, -107.65233	Slide Point
Wetland 8	0.11	0	NA	PEM1	38.455291, -107.65179	Slide Point
Wetland 9	0.47	0	NA	PEM1	38.455106, -107.65088	Slide Point
Wetland 10	0.11	0	NA	PEM1	38.363938, -107.58269	Wells Basin
Wetland 11	0.08	0.03	NA	PEM1	38.359101, -107.58495	Wells Basin
Wetland 12	0.03	0.01	NA	PEM1	38.362303, -107.58623	Wells Basin
Total Wetlands	5.69 acres	0.05 acres				
Linear Features						
M&D Canal	14.51	14.51	3.26	Intermittent	38.428185, -107.89186	M&D Canal
East Lateral	2.32	2.32	4.26	Intermittent	38.530429, -107.74296	East Lateral
West Lateral	1.15	1.15	3.99	Intermittent	38.526117, -107.76026	West Lateral
Vernal Mesa Ditch	1.10	1.10	1.10	Intermittent	38.455517, -107.65273	Slide Point
Cimarron Canal	6.31	6.31	2.80	Intermittent	38.360414, -107.58190*	Coal Hill/Wells Basin
Cimarron River	0.45	0.45	0.08	Perennial	38.266163, -107.54219**	Diversion/Temp. loggers
Happy Canyon Creek	0.01	0.01	0.02	Intermittent	38.420264, -107.89283	M&D Canal
Total Streams	25.83	25.83	15.50 miles			
Total All Waters	31.50 acres	25.95	15.50 miles			
# Sum differs due to rounding						
*Centroid in Wells Basin area						
**Centroid in Diversion Area						

4.2 Wetland Hydrology

Wetland hydrology indicators were noted at soil test pits and data collected at the sampling points are provided in Appendix E. Soil test pits were not dug at all sites.

M&D Canal

The primary hydrologic indicator observed in the field was saturation (A3). The A3 indicator includes visual observation of saturated soil conditions 12 inches or less from the soil surface; saturated soil conditions would be indicated by water glistening on the surface or broken interior faces of soil samples. The secondary indicator observed in the field was a combination of drainage patterns (B10), saturation visible on aerial imagery (C9), and meeting criteria for the FAC-neutral test (D5).

East Lateral

Due to lack of hydrophytic vegetation and no observable topographic features suggesting potential wetland hydrology, no soil test pits were dug in this area to collect data.

West Lateral

Due to lack of hydrophytic vegetation and no observable topographic features suggesting potential wetland hydrology, no soil test pits were dug in this area to collect data.

Slide Point

Due to lack of hydrophytic vegetation and no observable topographic features suggesting potential wetland hydrology, no soil test pits were dug in this area to collect data. However, three potential wetlands were observed as occurring south of the Study Area that are likely influenced by canal seepage. Data sheets were not filled out for these wetlands, and wetland area was based on confirmed presence of wetland vegetation combined with the NWI data.

Coal Hill

Due to lack of hydrophytic vegetation and no observable topographic features suggesting potential wetland hydrology, no wetland soil test pits were dug in this area to collect data.

Wells Basin

The only primary hydrologic indicator observed in the field was saturation (A3). See above for description of this indicator.

Cimarron Canal Diversion

Due to occurring within surface water features (Cimarron Canal and Cimarron River), no soil test pits were dug in this area to collect data.

Temperature Loggers

Due to occurring within surface water features (Cimarron River), no soil test pits were dug in this area to collect data.

4.3 Hydric Soil

Descriptions below come from the *Arid West Regional Supplement* (USACE 2008b). Hydric soil data collected at the sampling points are provided in Appendix E. Soil test pits were not dug at all sites.

M&D Canal

The primary hydric soil indicators observed in this were Histic Epipedon (A2) and Hydrogen Sulfide Odor (A4). The A2 indicator is a histic epipedon (i.e., eight inches or more thick horizon of organic soil material) underlain by mineral soil material with chroma of 2 or less. Indicator A4 has soils with a hydrogen sulfide (rotten egg) odor within 12 inches of the soil surface, and it is often found in areas that are permanently saturated or inundated, where the odor is due to sulfur reduction.

East Lateral

Due to lack of hydrophytic vegetation and no observable topographic features suggesting potential wetland hydrology, no soil test pits were dug in this area to collect data.

West Lateral

Due to lack of hydrophytic vegetation and no observable topographic features suggesting potential wetland hydrology, no soil test pits were dug in this area to collect data.

Slide Point

Due to lack of hydrophytic vegetation and no observable topographic features suggesting potential wetland hydrology, no soil test pits were dug in this area to collect data. However, three potential wetlands were observed as occurring south of the Study Area that are likely influenced by canal seepage. Data sheets were not filled out for these wetlands, and wetland area was based on confirmed presence of wetland vegetation combined with the NWI data.

Coal Hill

Due to lack of hydrophytic vegetation and no observable topographic features suggesting potential wetland hydrology, no wetland soil test pits were dug in this area to collect data.

Wells Basin

The primary hydrologic indicators observed in the field were loamy mucky mineral (F1) and redox dark surface (F6). The F1 indicator is a layer of mucky modified loamy or clayey soil four inches or more thick starting within six inches of the surface; “mucky” is a texture modifier for mineral soils with at least eight percent organic carbon. The F6 indicator is a layer at least four inches thick within the upper 12 inches of the soil and has a low value and chroma with redox concentrations.

Cimarron Canal Diversion

Due to occurring within surface water features (Cimmaron Canal and Cimarron River), no soil test pits were dug in this area to collect data.

Temperature Loggers

Due to occurring within surface water features (Cimmaron River), no soil test pits were dug in this area to collect data.

4.4 Hydrophytic Vegetation

Three vegetation communities occur in the Study Area: riparian, wetland, woodland, and sagebrush shrubland. Descriptions for each site are discussed below. A list of common plant species identified during the survey are listed in Appendix D.

M&D Canal

Vegetation within the M&D Canal area includes sections of coyote willow (*Salix exigua*) and established narrowleaf and Fremont cottonwoods (*Populus spp.*), and open areas that include a shrub layer constituted mostly by big sagebrush, skunkbush sumac (*Rhus trilobata*), greasewood (*Sarcobatus vermiculatus*), rock clematis (*Clematis columbiana*), and sack saltbush (*Atriplex saccaria*). Banks upland and below the M&D Canal have been disturbed; infestations of noxious species including Russian olive (*Elaeagnus angustifolia*), spotted knapweed (*Centaurea stoebe*), whitetop (*Lepidium draba*) and rush skeletonweed (*Chondrilla juncea*) were observed. Wetland vegetation observed includes Baltic rush (*Juncus balticus*), cattail (*Typha latifolia*), and sedge (*Carex sp.*).

East Lateral

A pinyon juniper ecotype is present on the east side of the East Lateral with agricultural fields bordering the west side. Sparse willow (*Salix sp.*), rabbitbrush (*Ericameria nauseosa*) and alfalfa (*Medicago sativa*) were the dominant plants observed along the East Lateral. No wetland vegetation community was observed in this area.

West Lateral

The West Lateral is bordered by agricultural fields (alfalfa). No wetland vegetation community was observed in this area.

Slide Point

This area is characterized by upland vegetation. Gambel oak (*Quercus gambelii*), rabbitbrush, Western serviceberry (*Amelanchier alnifolia*), roundleaf snowberry (*Symphoricarpos rotundifolius*), big sagebrush, and Woods' rose (*Rosa woodsii*) are the dominant species present along the alignment. Some noxious species like Canada thistle (*Cirsium arvense*) and white top are present throughout the Proposed Project alignment. No wetland vegetation community was observed in this area. Wetlands near the area consisted primarily of Baltic rush.

Coal Hill

The dominant vegetation cover in this area is characterized by Gambel oak, rabbitbrush, roundleaf snowberry, and Wood's rose. No wetland vegetation community was observed in this area.

Wells Basin

The dominant vegetation cover in this area is characterized by Gambel oak, rabbitbrush, roundleaf snowberry, and Wood's rose. Wetland vegetation observed mostly included Baltic rush and cattail.

Cimarron Canal Diversion

Due to occurring within swift moving surface water features (Cimarron Canal and Cimarron River), no vegetation was present in these areas.

Temperature Loggers

Due to occurring within swift moving surface water features (Cimarron River), no vegetation was present in these areas.

5 Conclusion

A total of 12 wetlands, five canals, one creek, and one river were mapped in and near the Study Area (Appendix A: Map Book). Approximately 5.69 acres of wetlands were mapped during the field survey, and all 12 wetlands are freshwater emergent wetlands. Of these 5.69 acres, only 0.05 acres occur within the Study Area. Of these 0.05 acres, none are WOTUS (Wetland 1, Wetland 11, and Wetland 12). Approximately 25.83 acres of linear features were mapped within the Study Area. Jurisdictional linear features in the Study Area include West Lateral, Vernal Mesa Ditch, Cimarron Canal, the Cimarron River, and Happy Canyon Creek.

M&D Canal

Six wetlands (Wetlands 1–6) and two linear features (M&D Canal and Happy Canyon Creek) occur in this portion of the Study Area. M&D Canal runs the length of the Study Area and encompasses approximately 14.51 acres and is approximately 3.26 miles in length in the Study Area. M&D Canal receives water from the Uncompahgre River, but it does not contribute water to any WOTUS, instead spreading out in agricultural areas. Happy Canyon Creek encompasses approximately 0.01 acres and is approximately 80 feet long within the Study Area. This creek continues north and joins with the Uncompahgre River, which later joins with the Gunnison River.

Wetlands 1–6 are hydrologically connected to the M&D Canal, which is an artificial linear feature that receives water from a WOTUS (Uncompahgre River) but does not contribute water to a WOTUS; as such, it lacks federally jurisdictional status as a WOTUS. Associated Wetlands 1, and 4-6 are not jurisdictional WOTUS. However, Wetlands 2 and 3 appear to be hydrologically

connected to a larger wetland complex to the east outside the Study Area that connects with Happy Canyon Creek, thus establishing a surface connection, meaning the wetlands are WOTUS.

East Lateral

One canal, East Lateral, was mapped within this portion of the Study Area. It encompasses approximately 2.32 acres and approximately 4.26 miles of the lateral are within in the Study Area. No wetlands were observed in or near the Study Area. This lateral receives water from a WOTUS (i.e., Vernal Mesa Ditch), but does not contribute water to a WOTUS.

West Lateral

One canal, West Lateral, occurs in this portion of the Study Area. It encompasses approximately 1.15 acres and approximately 3.99 miles of the lateral are within the Study Area. No wetlands were observed in or near the Study Area. Because it contributes water to a WOTUS, it is also a jurisdictional WOTUS.

Slide Point

One canal (Vernal Mesa Ditch) occurs in this portion of the Study Area. Three wetlands occur outside the Study Area. Wetlands 7 and 9 receive seepage water from the Vernal Mesa Ditch, which is a jurisdictional WOTUS due to its connection with the Uncompahgre River. Accordingly, Vernal Mesa Ditch and Wetlands 7 and 9 are jurisdictional WOTUS. Wetland 8, however, appears to be isolated with no connections to neighboring wetlands or linear features. As such, Wetland 8 is not jurisdictional.

Coal Hill

One canal, Cimarron Canal, occurs in this portion of the Study Area. It encompasses approximately 2.06 acres and approximately 1.17 miles of the canal are within the Study Area. No wetlands were observed in or near the Study Area. Because the Cimarron Canal connects to Vernal Mesa Ditch and may also contribute water to Hairpin Creek, which, via Dry Cedar Creek, connects to Cedar Creek, a jurisdictional WOTUS, the canal is also a jurisdictional WOTUS.

Wells Basin

Three wetlands (Wetlands 10–12) and one canal (Cimarron Canal) occur in this portion of the Study Area. Wetlands 10–12 are seepage induced, receiving water from the Cimarron Canal. The canal connects to Cedar Creek, a jurisdictional WOTUS. Accordingly, the canal is a jurisdictional WOTUS. However, Wetlands 10-12 do not contribute water or have a direct surface connection to any other aquatic features and are, as such, non-jurisdictional.

No jurisdictional wetlands occur with the Study Area; 0.05 acres of non-jurisdictional wetlands occur in the Study Area. West Lateral, Cimarron River, and Happy Canyon Creek are also WOTUS within the Study Area.

Cimarron Canal Diversion

One river, the Cimarron River, and one canal, the Cimarron Canal occur in this portion of the Study Area. The Cimarron River encompasses approximately 0.27 acres and approximately 240 feet of the river are within the Study Area. The Cimarron Canal encompasses approximately 0.05 acres and approximately 122 feet of the canal are within the Study Area. The river travels from the south to the north in this segment, and the canal begins on the west side of the river and travels north and then west. Due to connection with the Cimarron River via other features, described above, this feature is a jurisdictional WOTUS.

Temperature Loggers

The USFS and County temperature loggers each occur in the Cimarron River. The County temperature logger is north (downstream) of the diversion area and the USFS temperature logger is south (upstream) of the diversion area. The Cimarron River encompasses approximately 0.08 acres and 0.11 acres within the Study Area for the USFS-land logger and the County Road logger, respectively. The Cimarron River extends approximately 96 feet and 90 feet within the Study Area for the USFS-land logger and the County Road logger, respectively.

Proposed Project implementation could potentially result in permanent impacts to federal and/or state jurisdictional wetlands and other waters identified in the Study Area. The Proposed Project improvements to the jurisdictional artificial linear features are covered under RGP 5. Impacts to jurisdictional waters may require preparing a Section 401 permit application for Colorado Department of Public Health and Environment (Water Quality Certification). It should be noted that the final authority regarding jurisdictional determination and wetland delineations rests with the appropriate regulatory agencies.

6 References

ArcGIS Online. 2021. Aerial Imagery.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. Washington, D.C.: U.S. Fish and Wildlife Service.

Environmental Laboratory, 1987. *Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1. Vicksburg, Mississippi: USACE Waterways Experiment Center.

Google Earth. 2021. Aerial Imagery.

Munsell. 2000. *Munsell Soil Color Charts*. Munsell Color, Grand Rapids, MI. 10pp. plus 9 charts.

USACE. 2008a. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)*. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

----. 2008b. *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States*.

----. 2018. *National Wetland Plant List: 2018 Wetland Ratings*.

U.S. Department of Agriculture-Natural Resources Conservation Service (USDA-NRCS). 2021a. On-line Soil Maps. Accessed July 28, 2021. <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>

----. 2021b. Plants Database. Accessed July 28, 2021. <https://plants.sc.egov.usda.gov/java/>.

----. 2021c. WETS Tables. Montrose, Colorado. <http://agacis.rcc-acis.org/?fips=08085> Accessed July 28, 2021.

U.S. Fish and Wildlife Service (USFWS). National Wetland Inventory (NWI). 2021. On-line National Wetlands Inventory. GIS Data. <http://www.fws.gov/wetlands/Data/mapper.html>.

U.S. Geological Survey (USGS). 2021. National Hydrography Dataset (NHD). GIS data. <https://nhd.usgs.gov/data.html>.

Western Region Climate Center (WRCC). 2021. *Cooperative Climatological Data Summaries*. Accessed July 28, 2021. <http://www.wrcc.dri.edu/climatedata/climsum/>

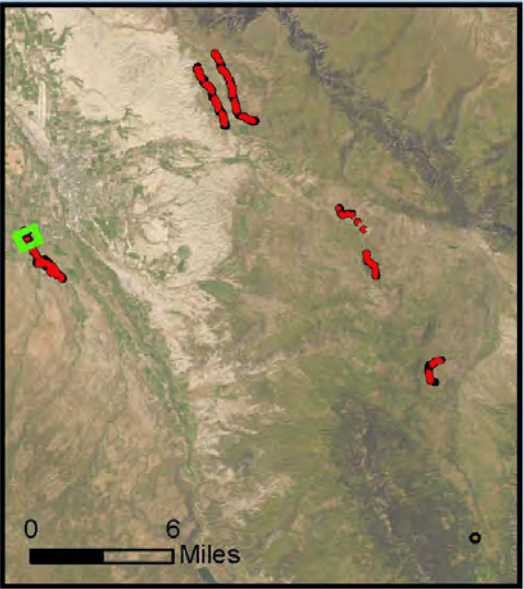
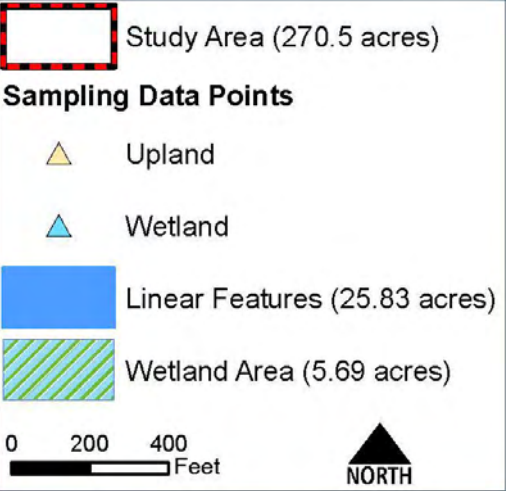
Whitson, T.D. (ed.) et al. 2012. *Weeds of the West*. Western Society of Weed Science in cooperation with Cooperative Extension, University of Wyoming. Laramie, Wyoming.

Appendix A: Aquatic Resource Delineation Maps



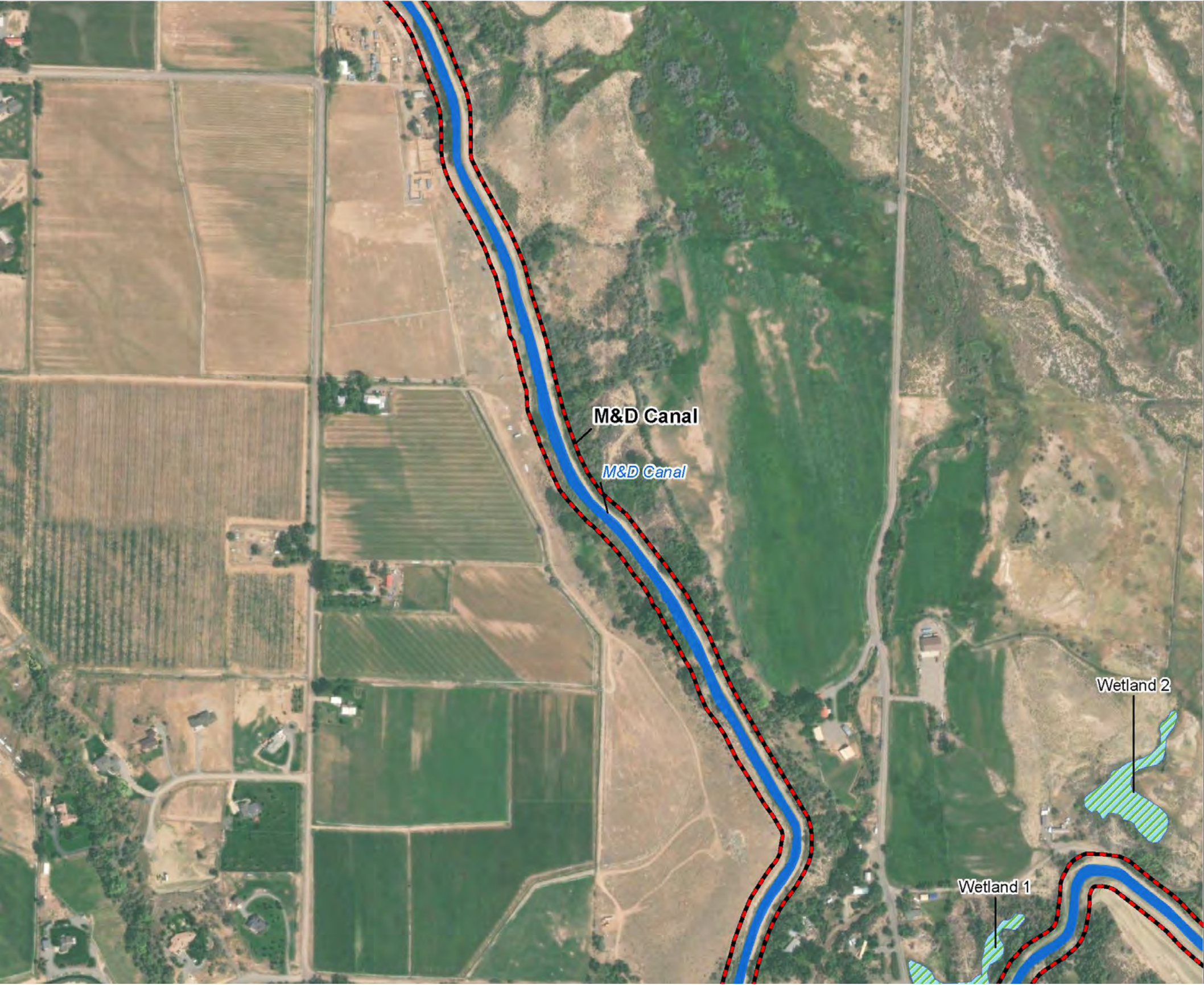
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M&D Canal



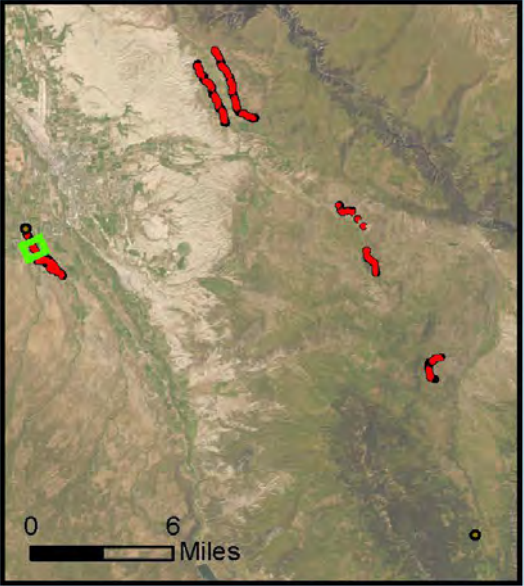
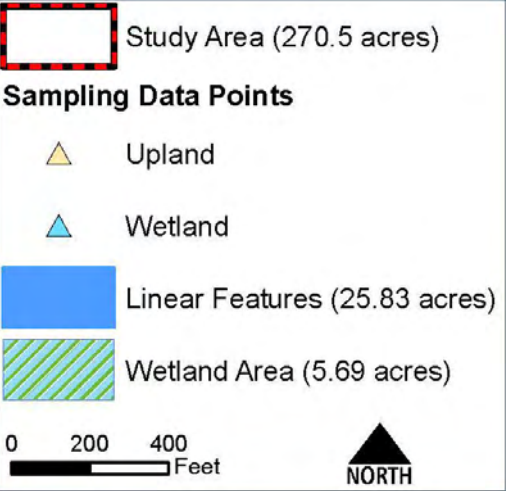
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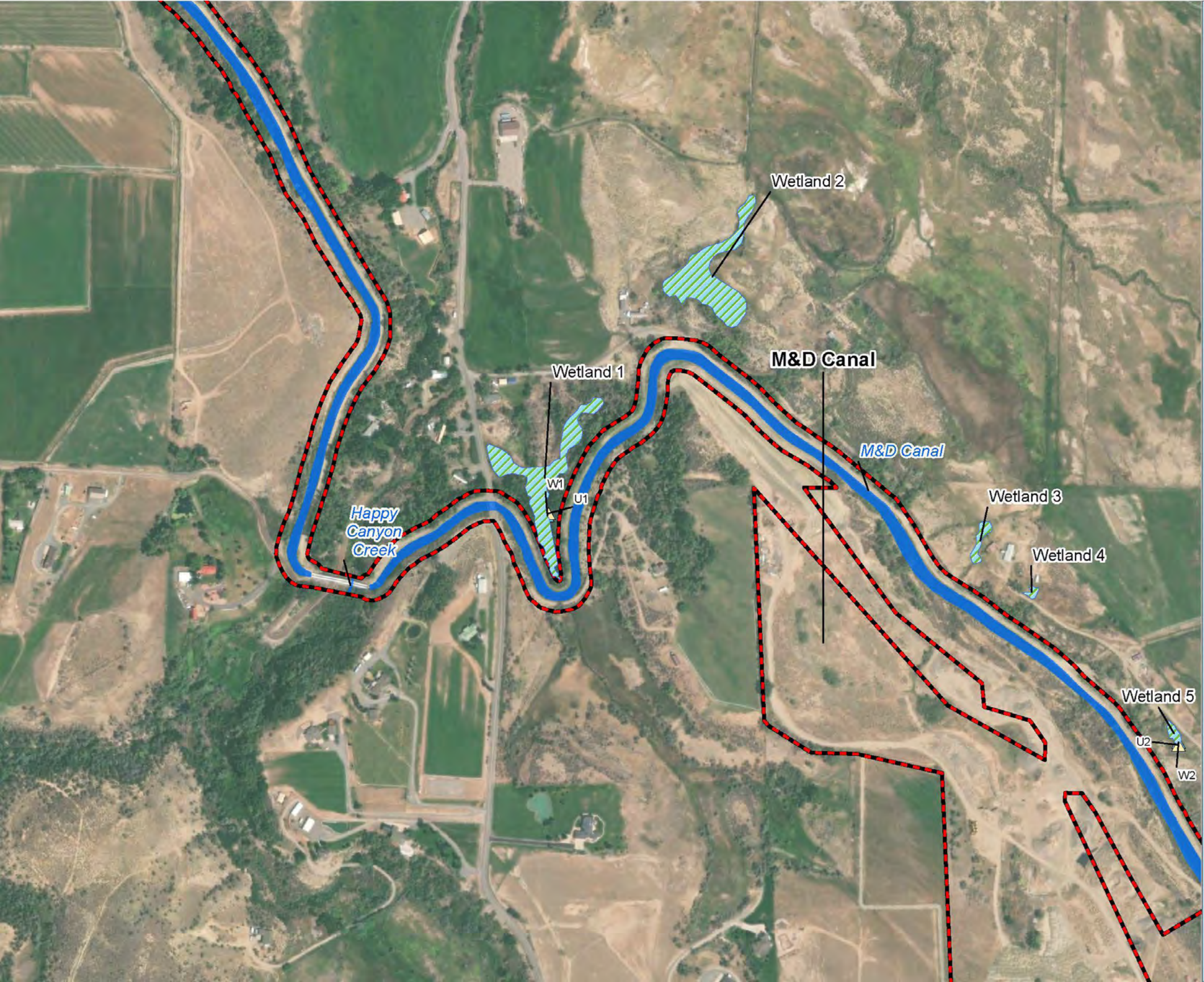
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M&D Canal

Study Area (270.5 acres)

Sampling Data Points

Upland

Wetland

Linear Features (25.83 acres)

Wetland Area (5.69 acres)

0200400

Feet

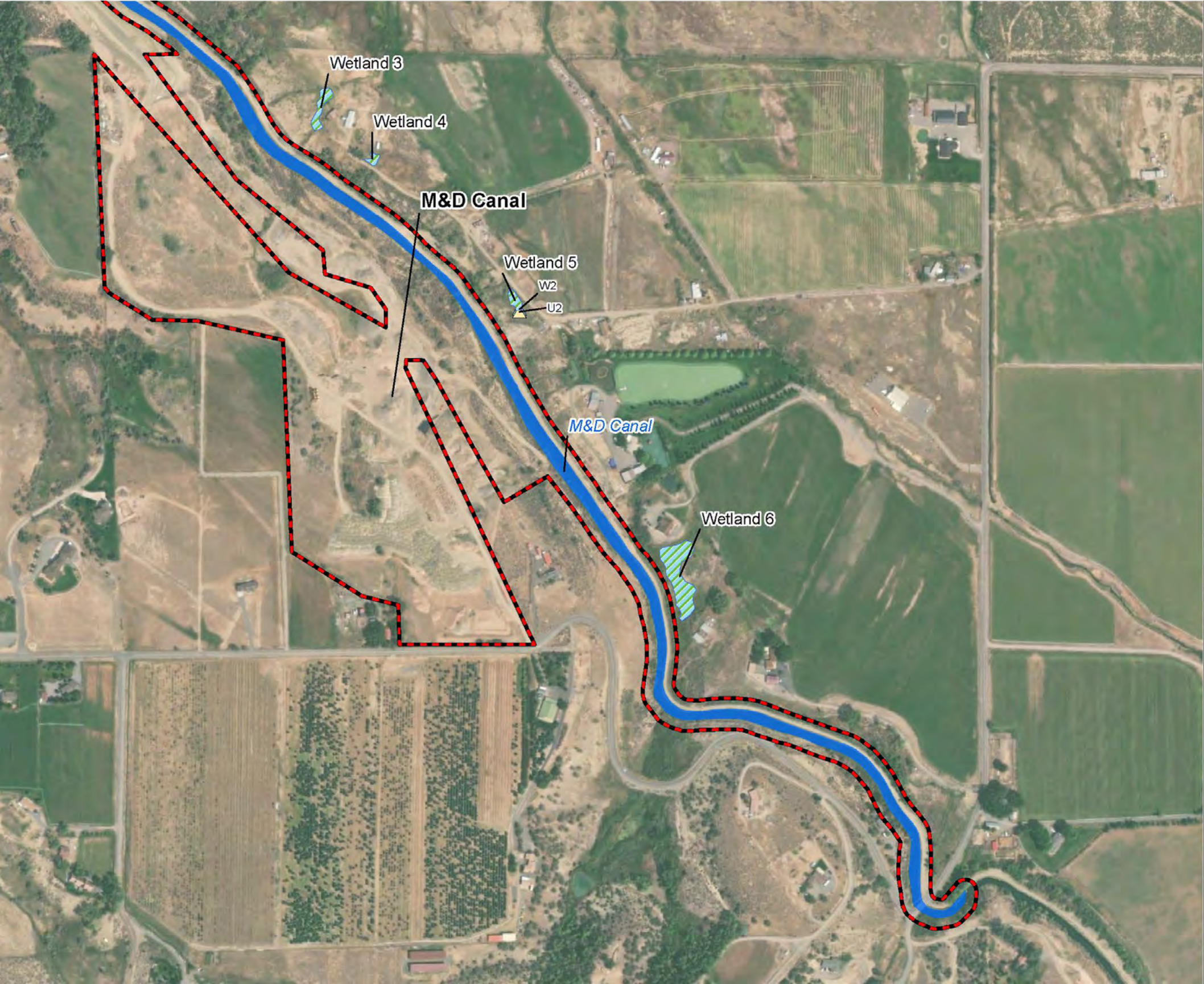
NORTH

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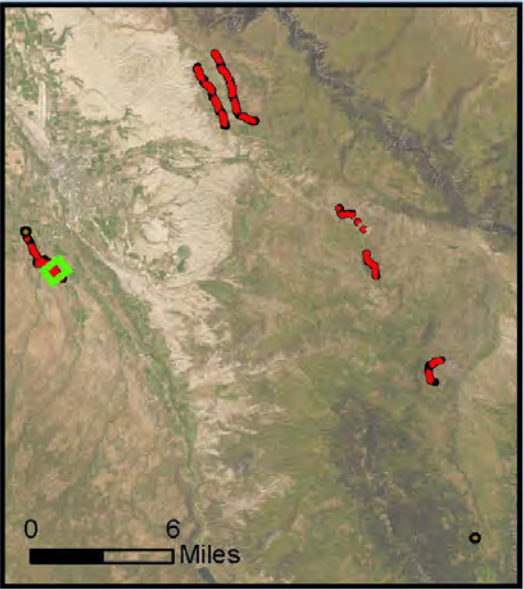
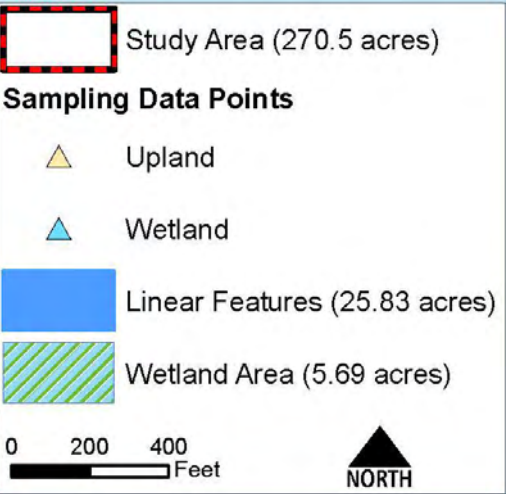
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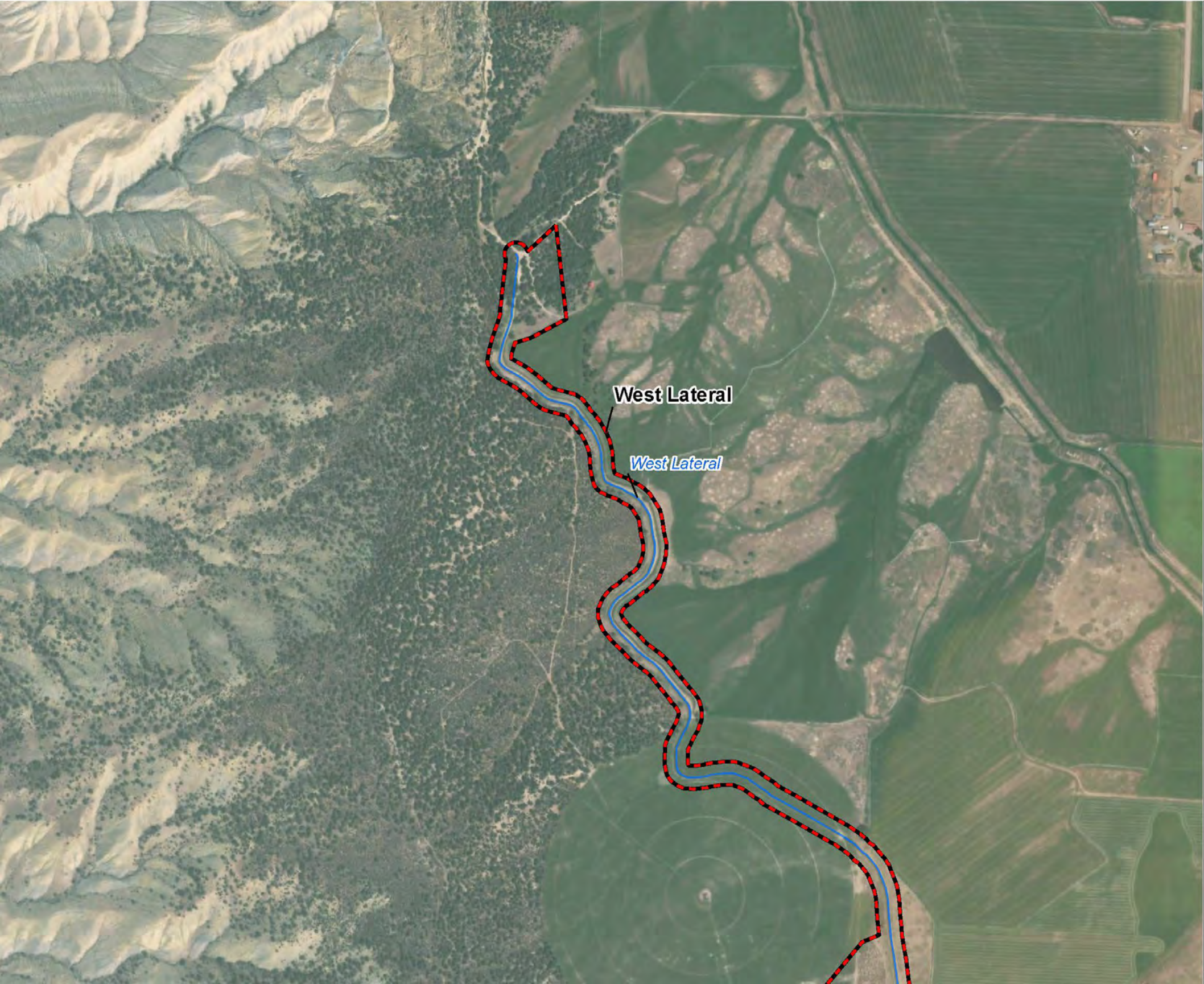
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M&D Canal



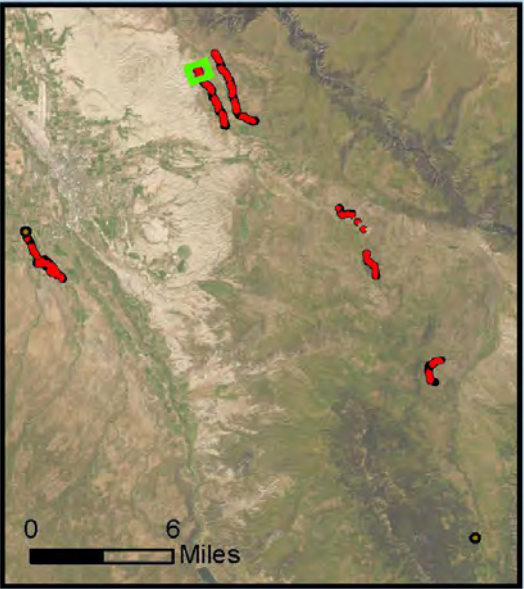
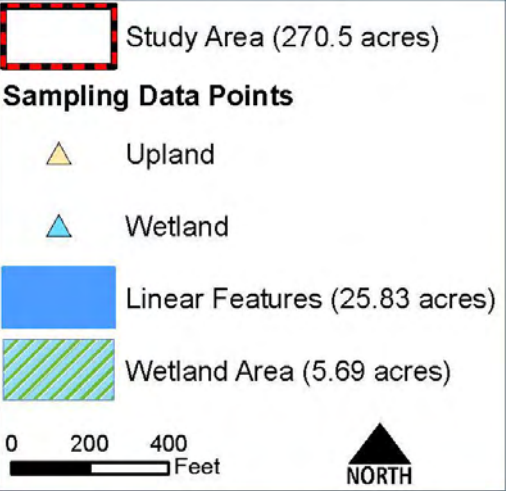
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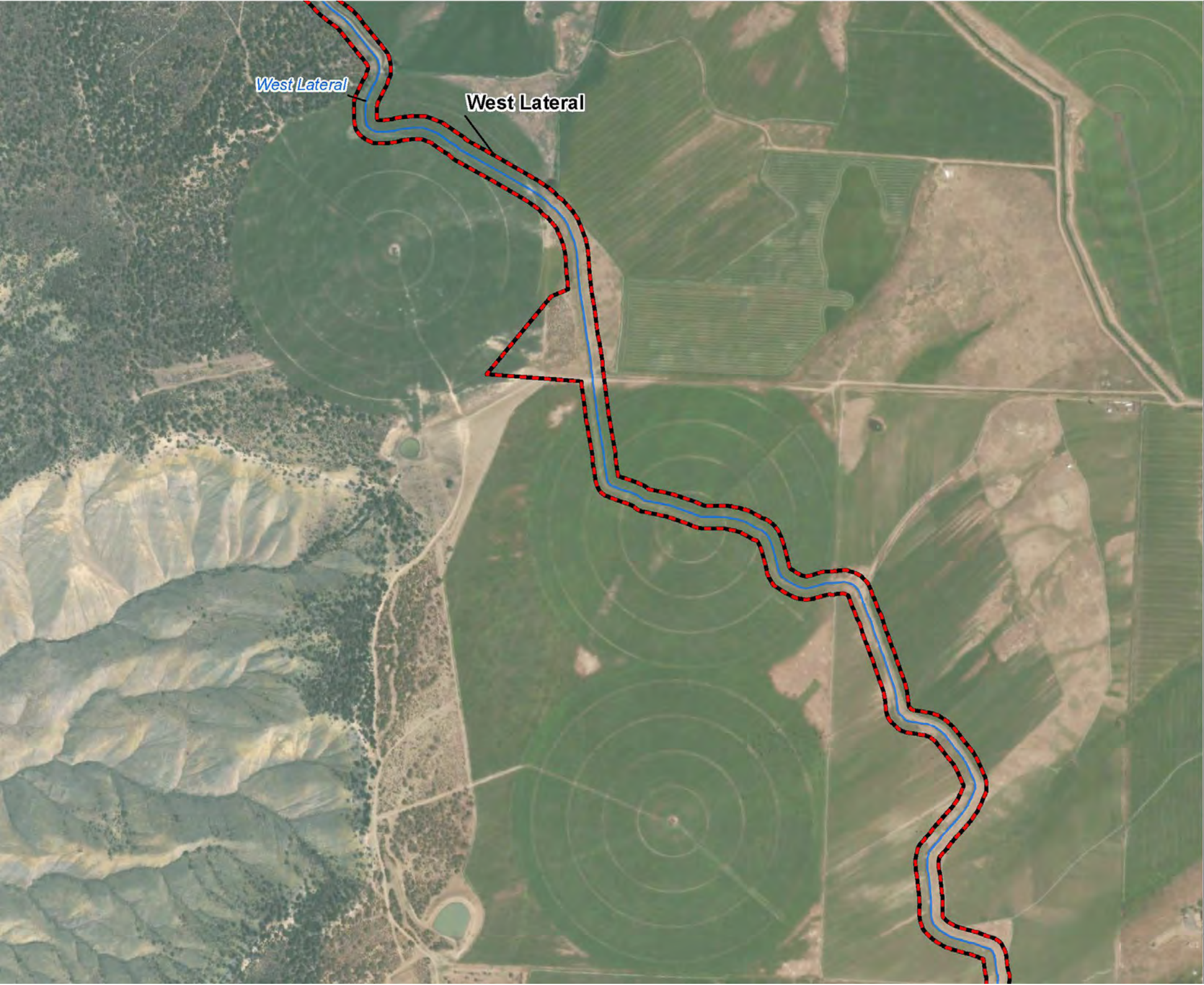
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West Lateral



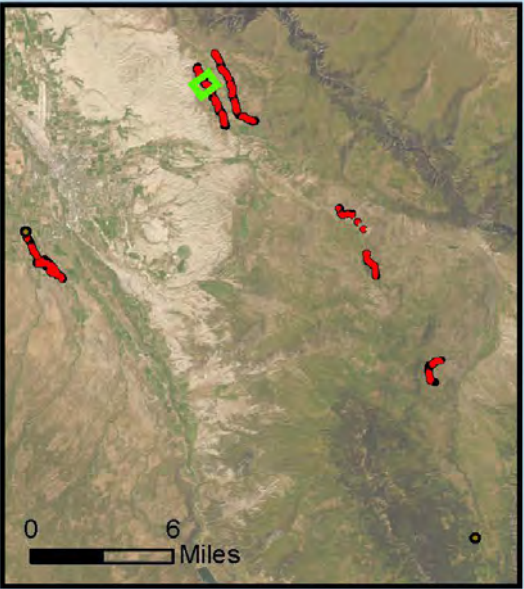
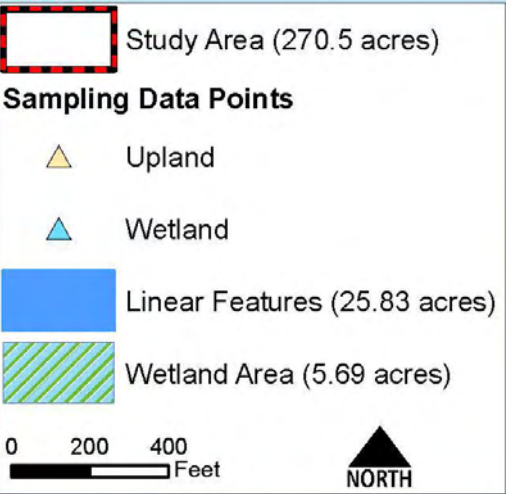
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West Lateral



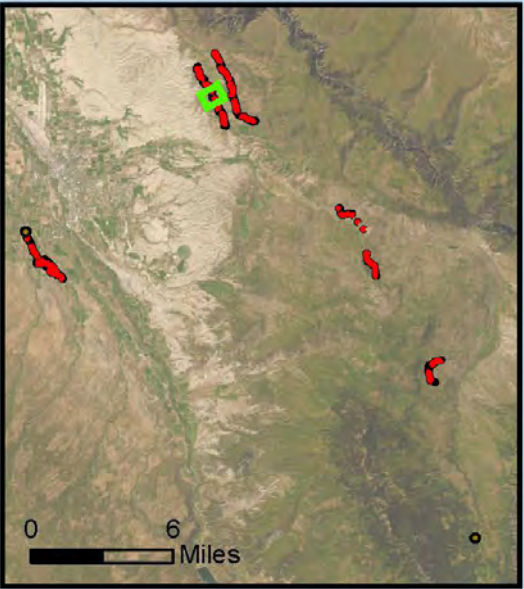
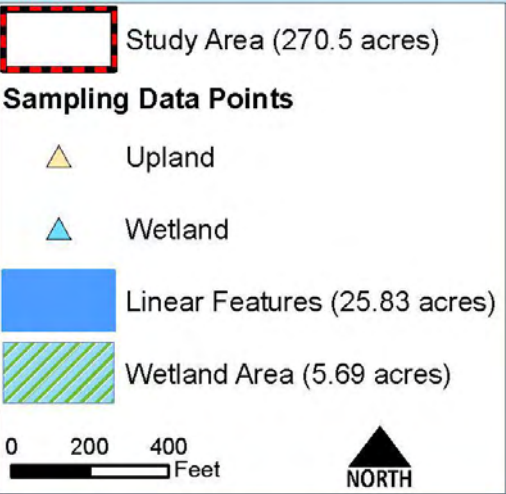
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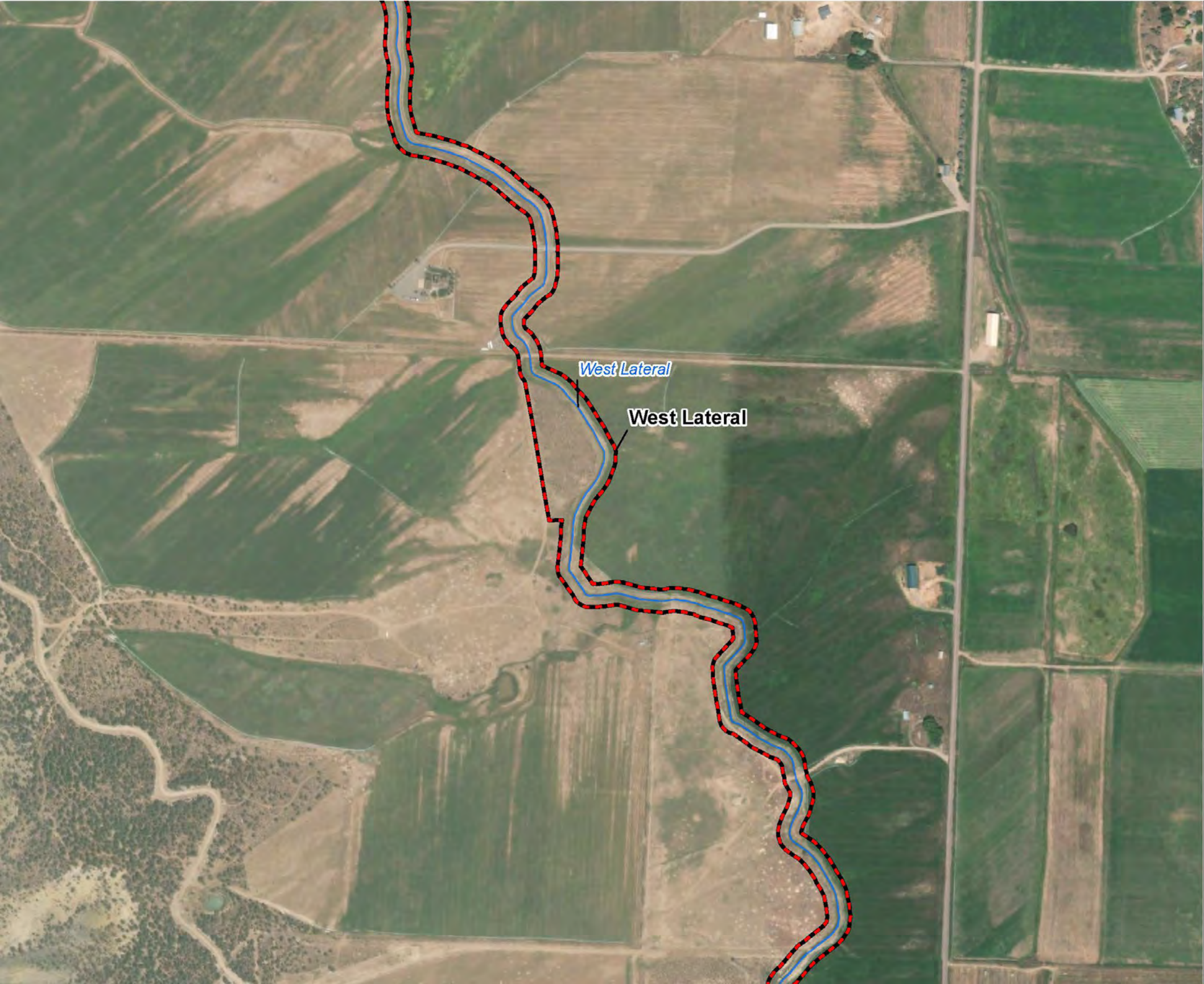
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West Lateral



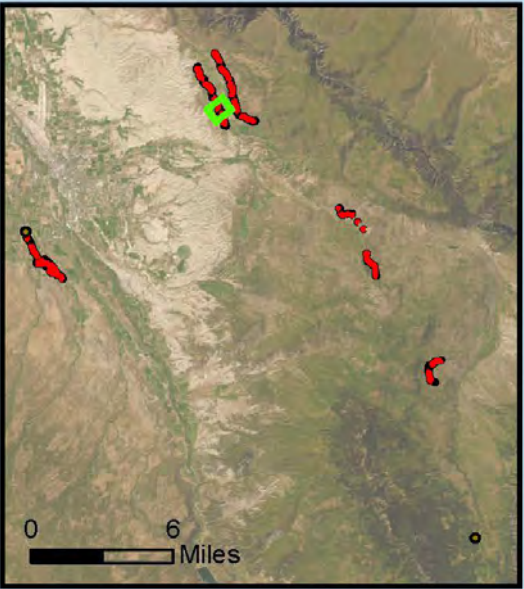
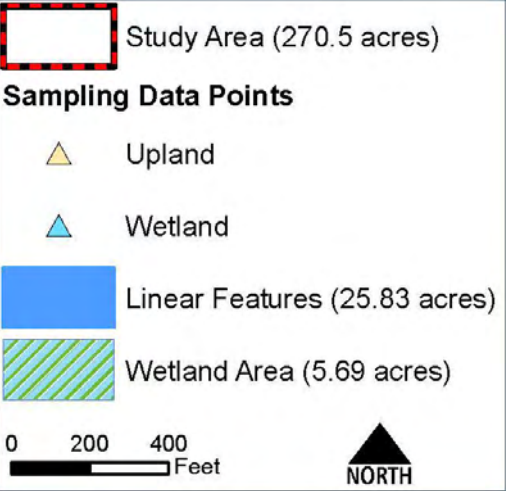
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West Lateral



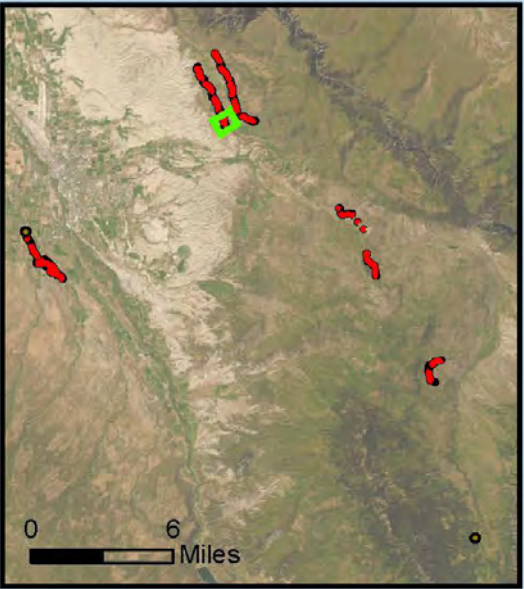
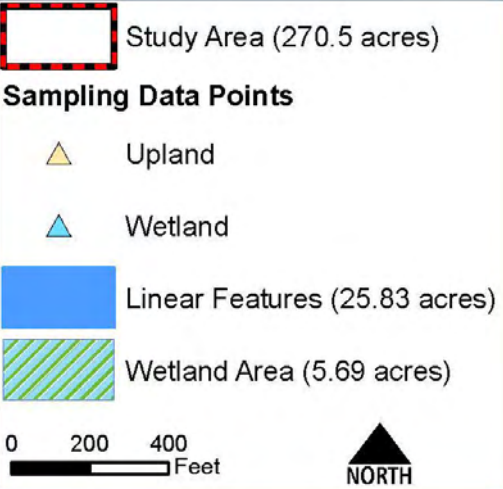
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West Lateral



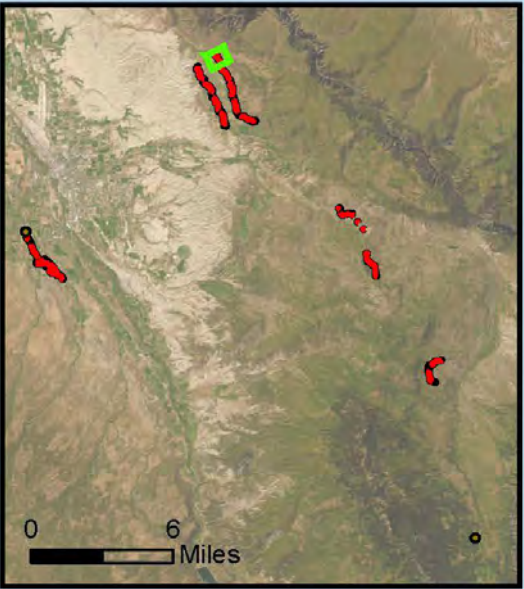
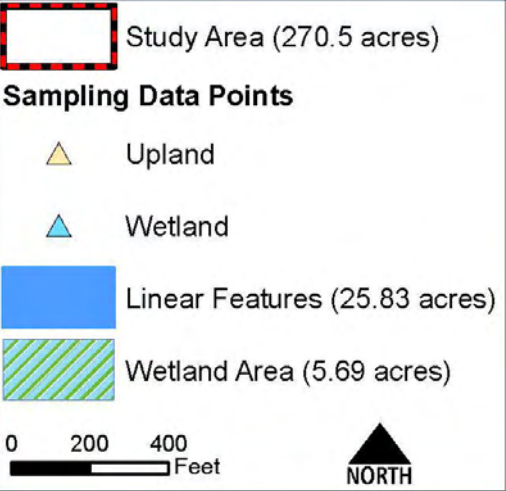
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Colorado South FIPS 0503 Feet
Datum: GCS North American 1983

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East Lateral



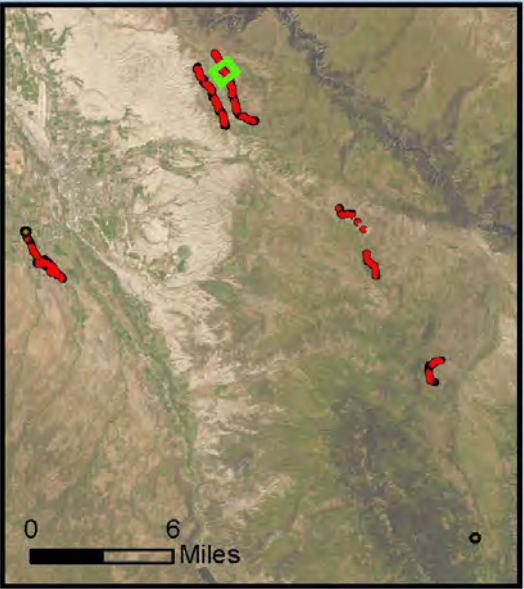
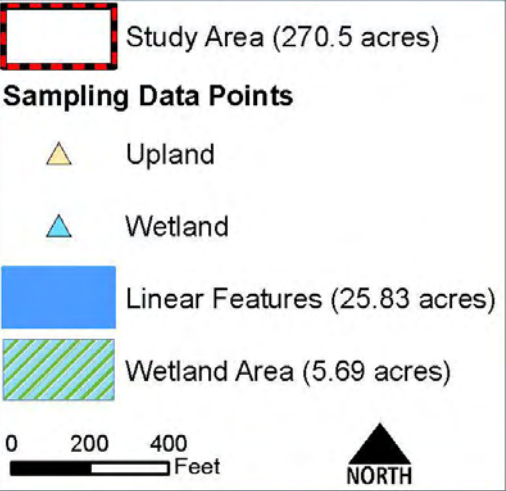
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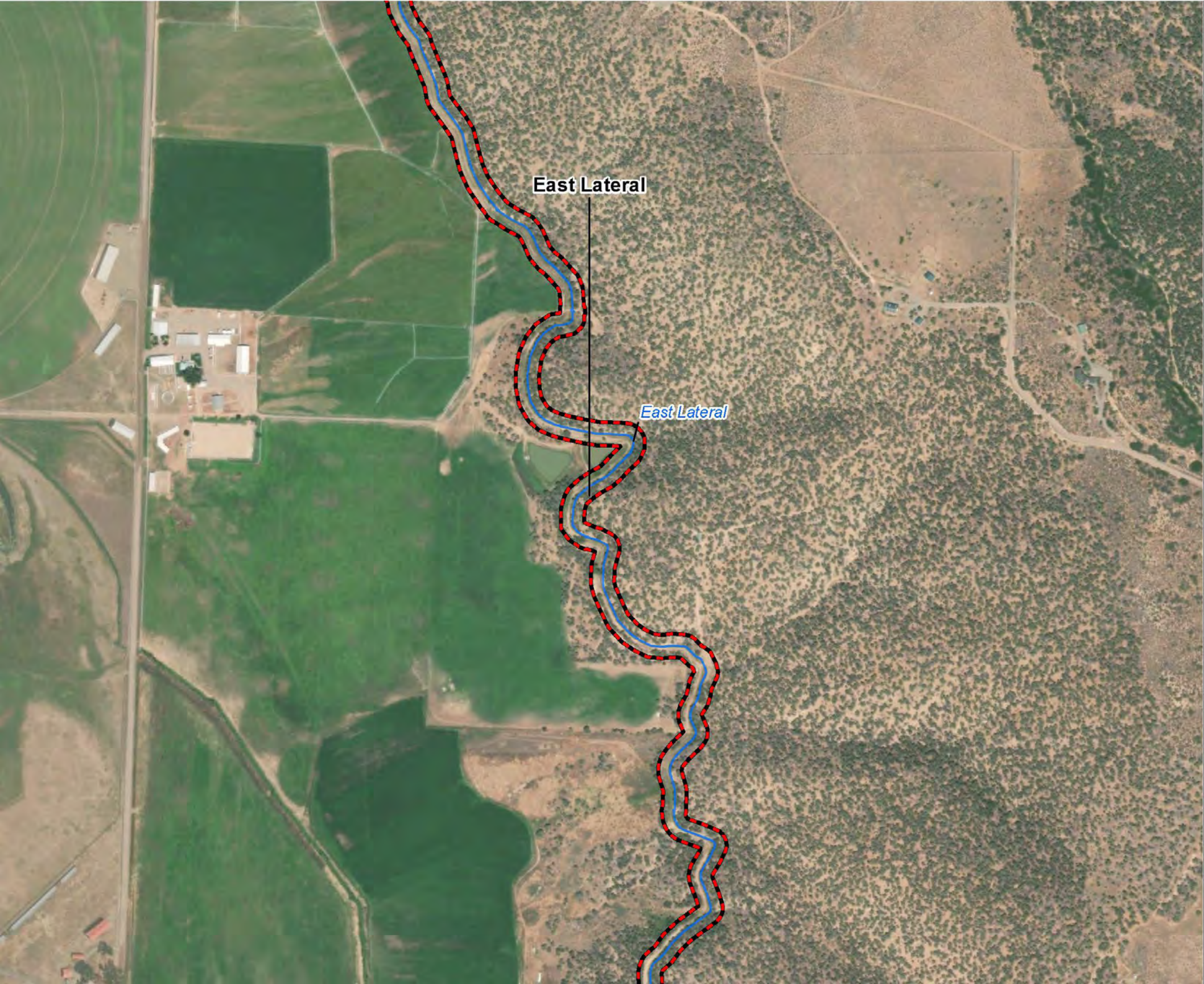
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East Lateral



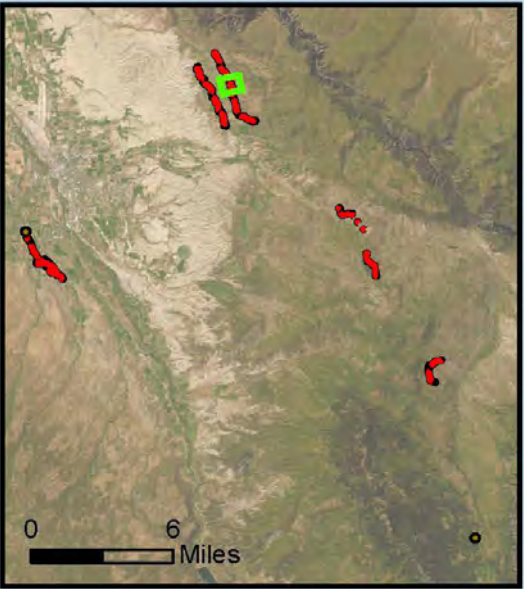
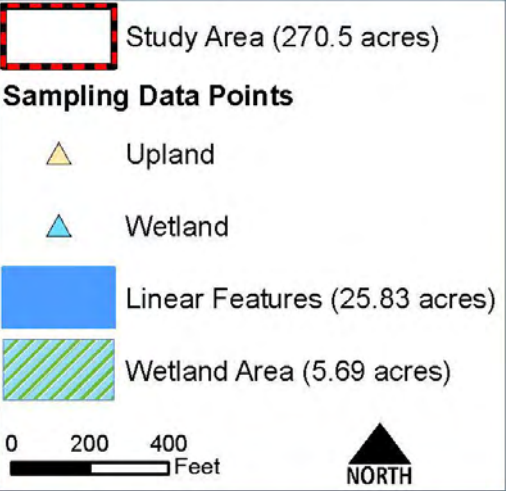
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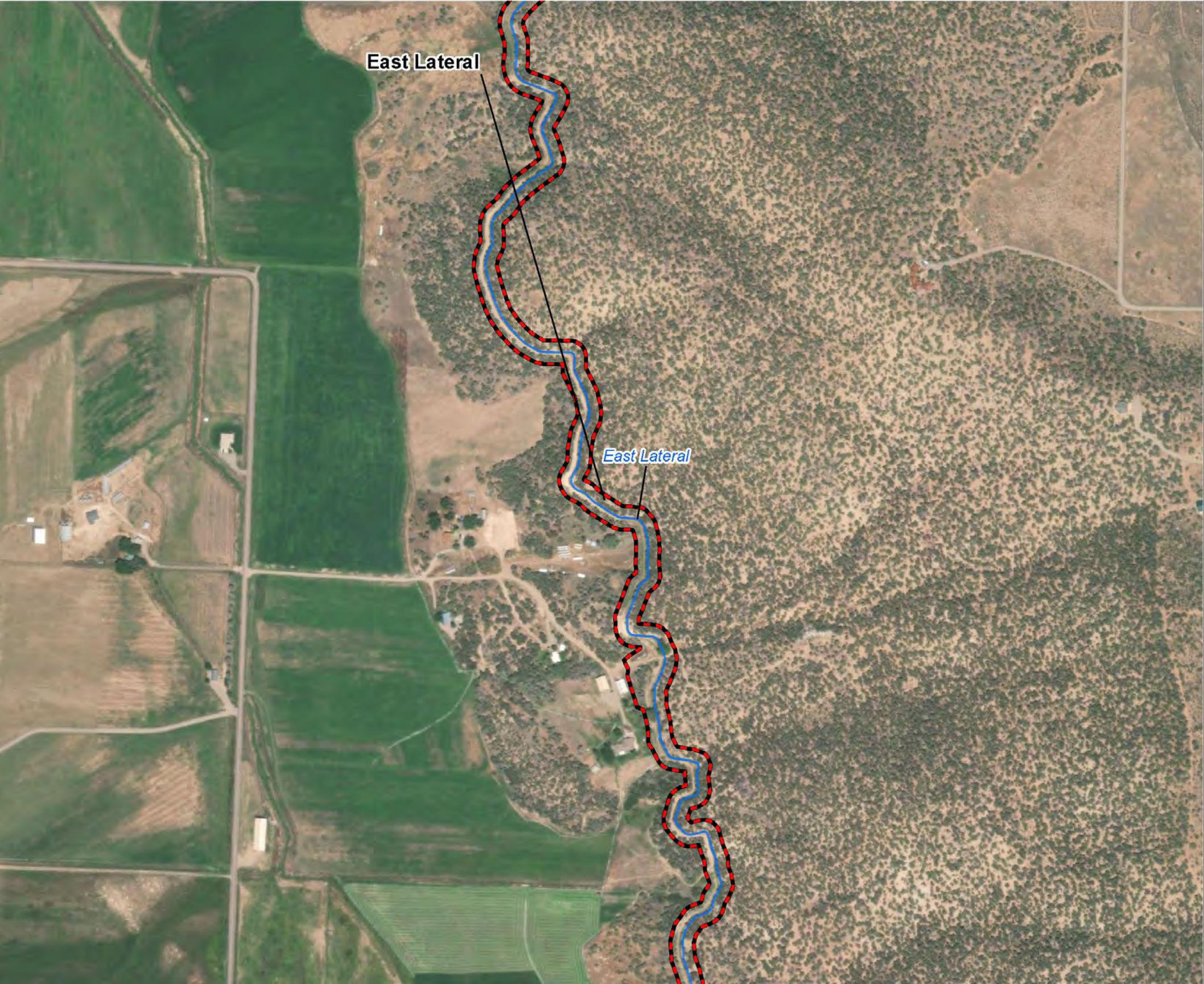
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East Lateral



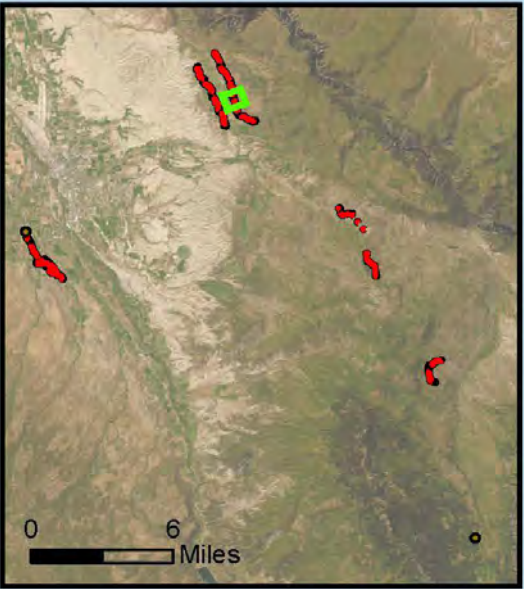
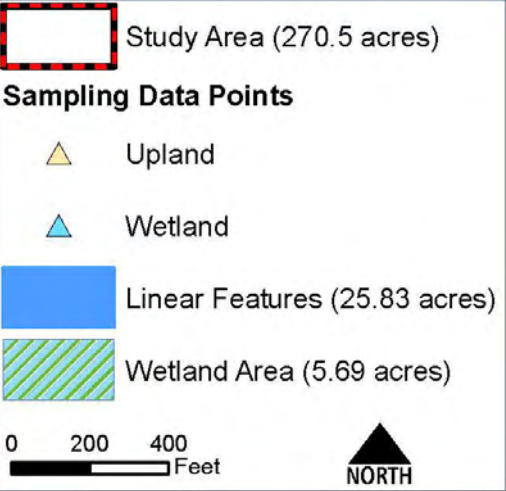
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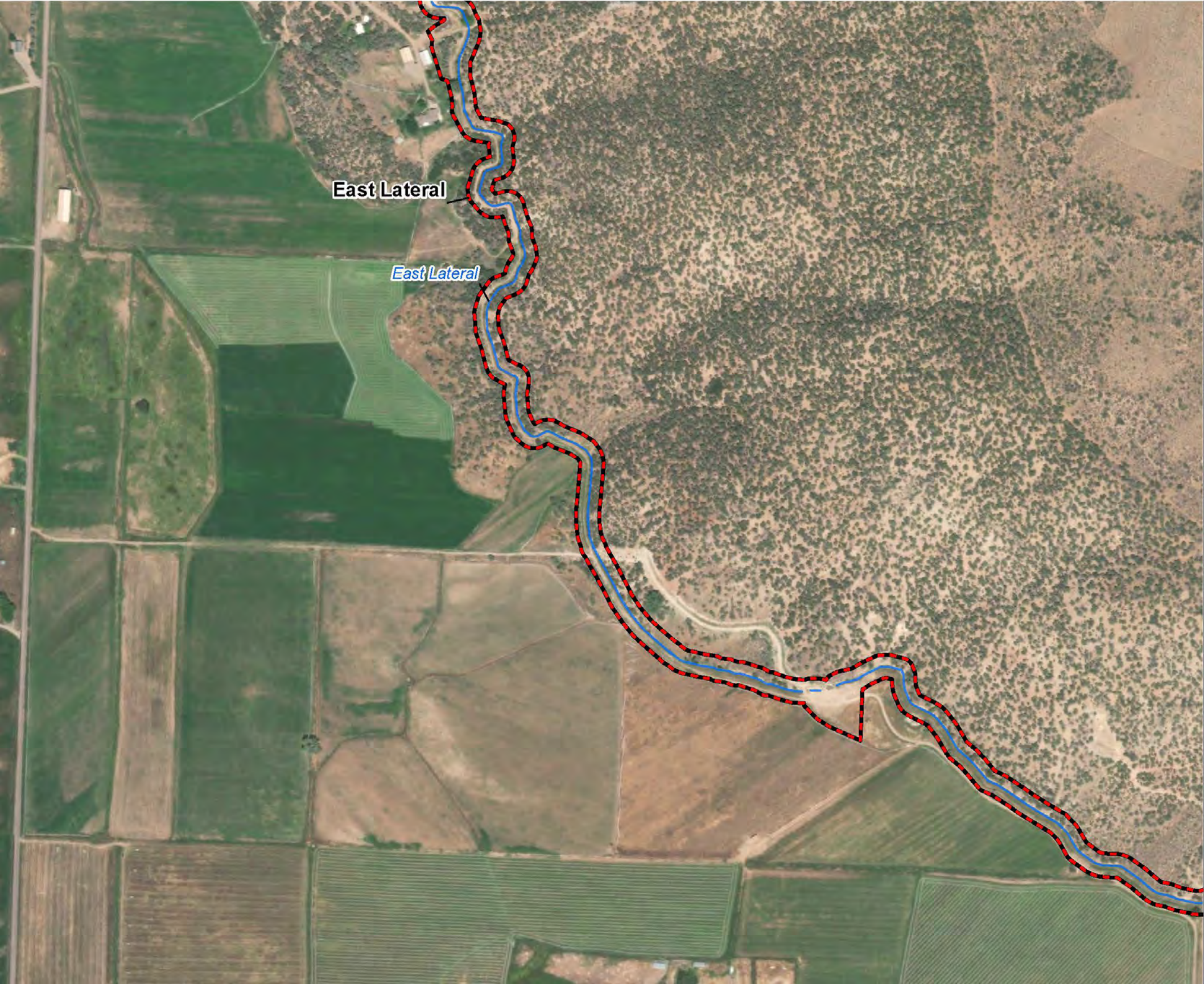
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East Lateral




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East Lateral


 Study Area (270.5 acres)

Sampling Data Points


 Upland

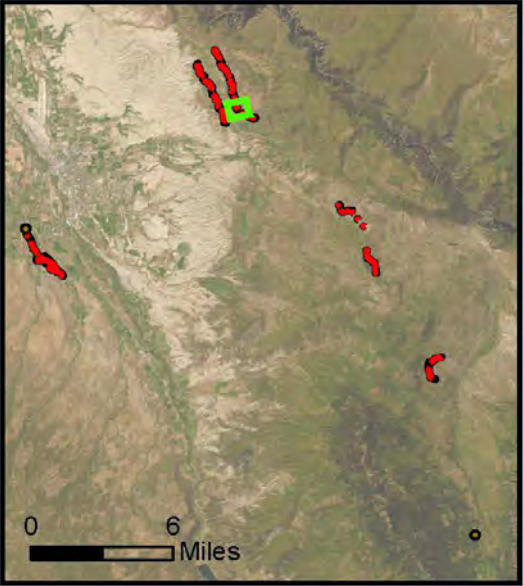
 Wetland

 Linear Features (25.83 acres)

 Wetland Area (5.69 acres)

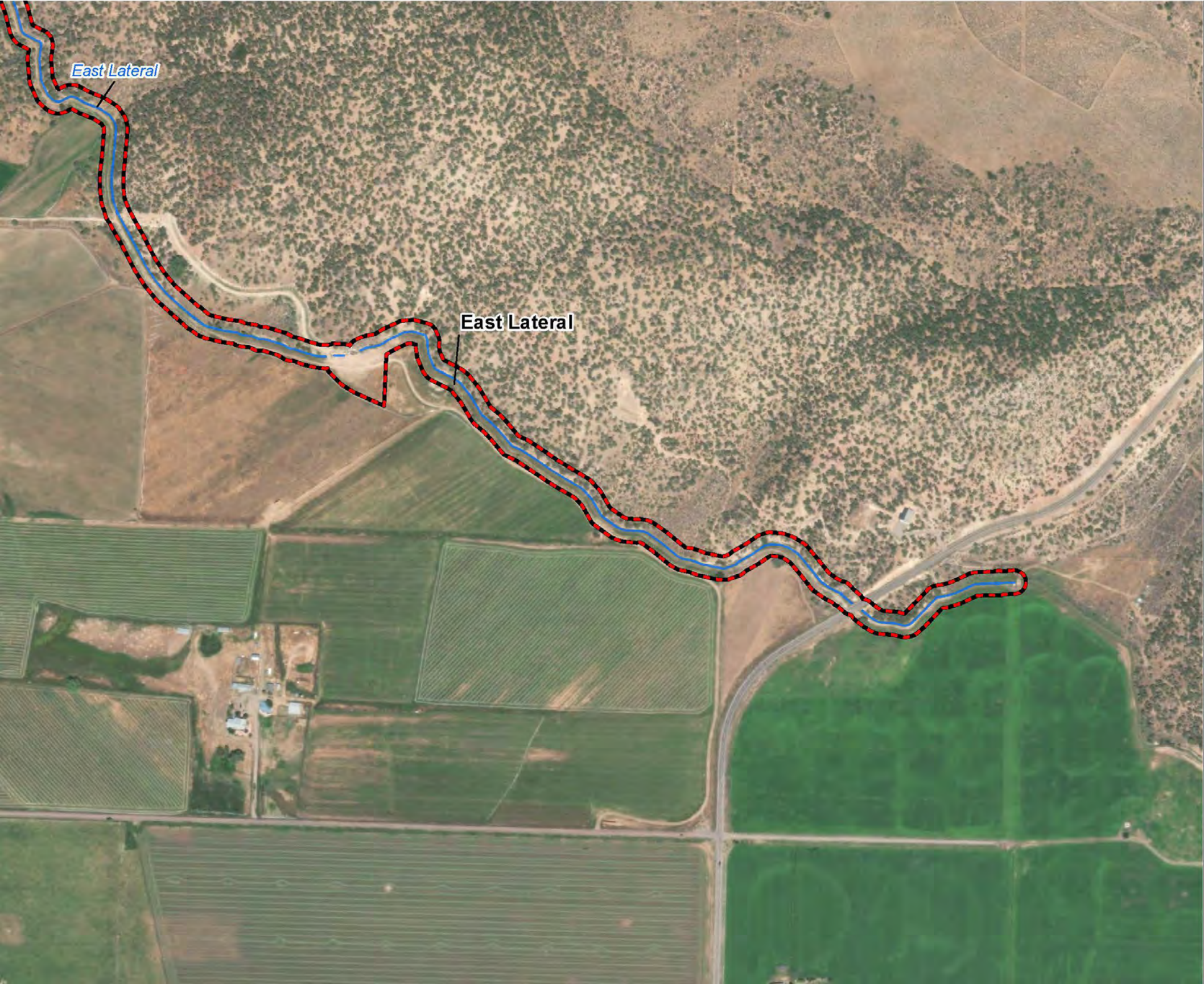
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 NORTH



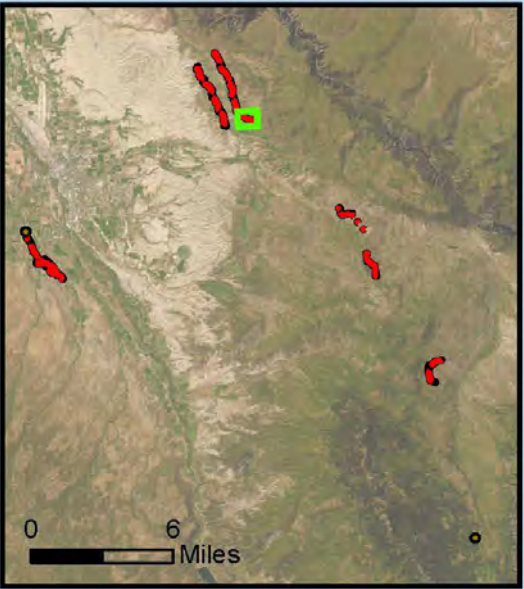
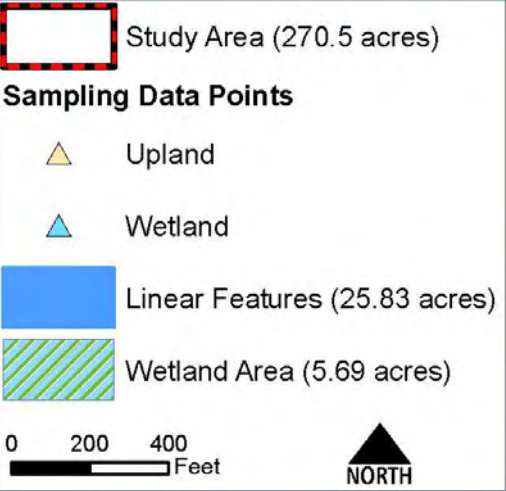
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East Lateral



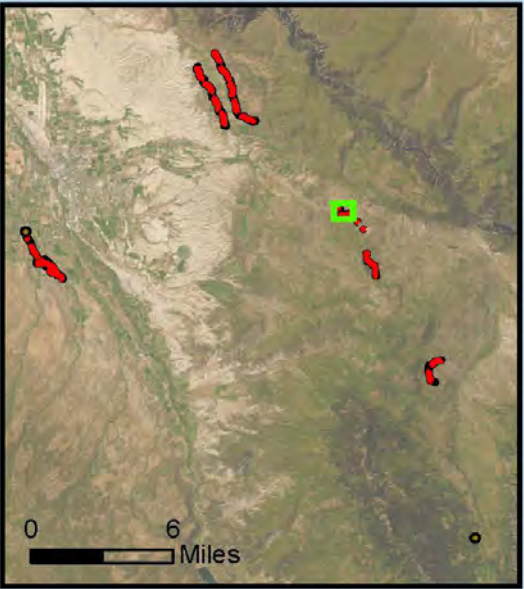
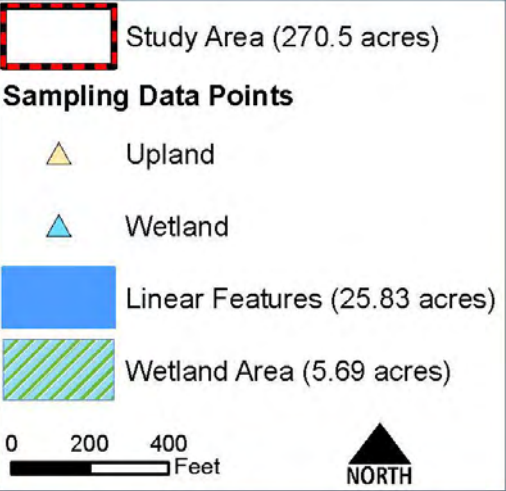
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Slide Point



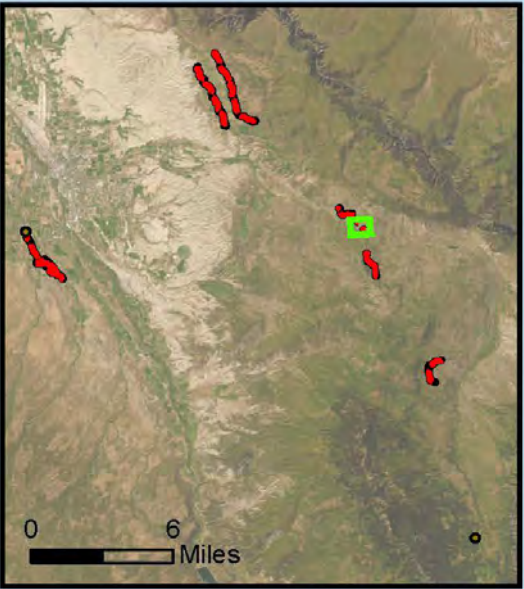
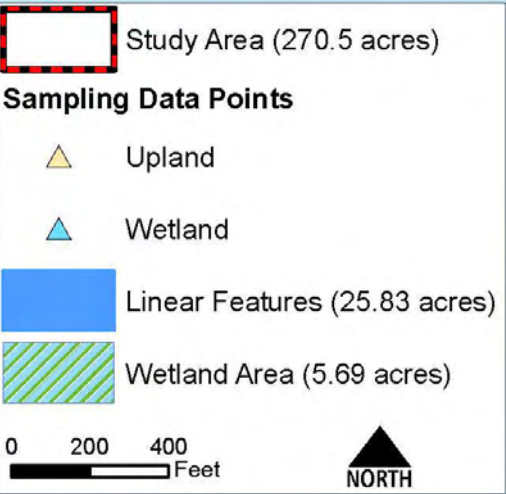
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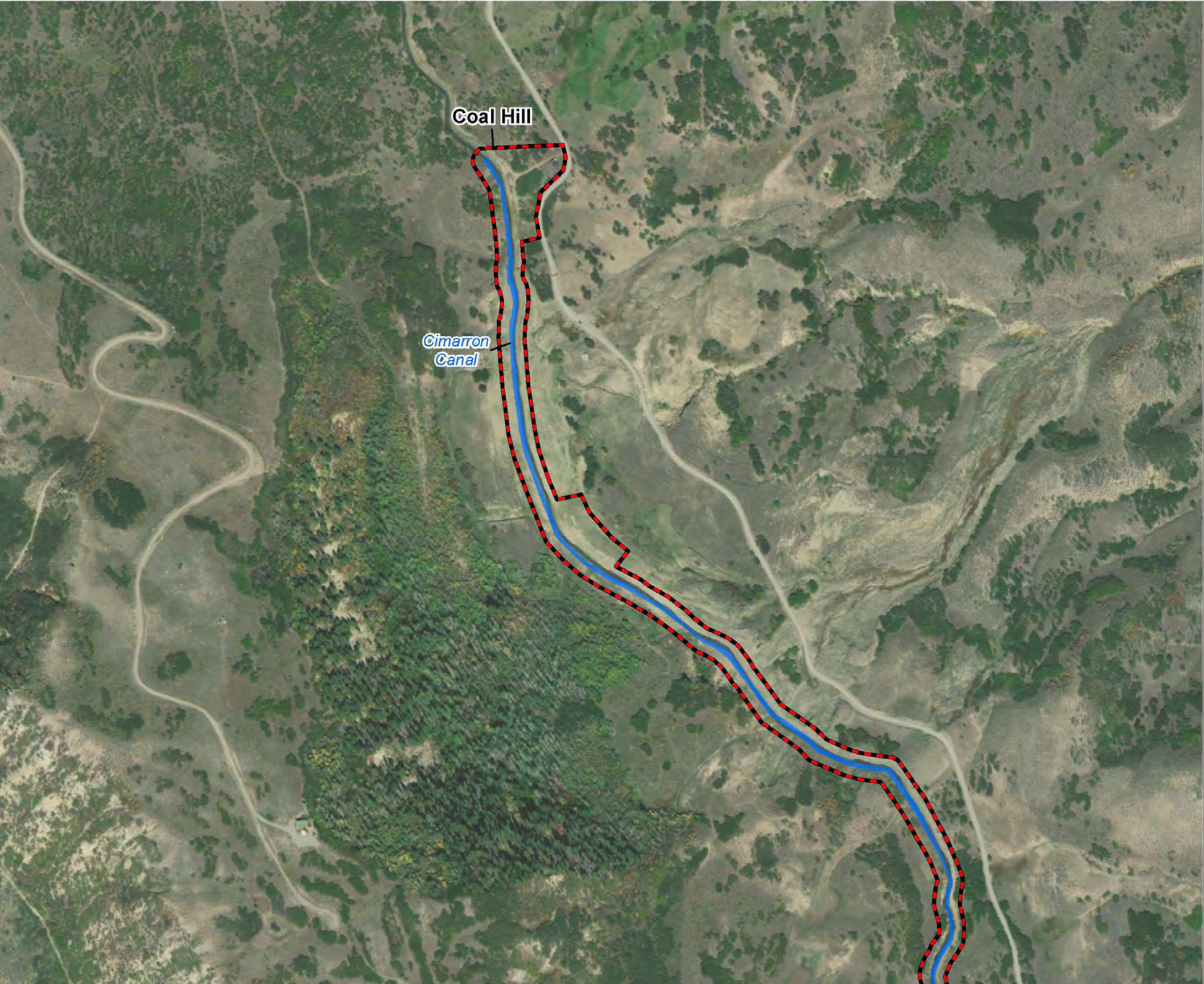
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Slide Point



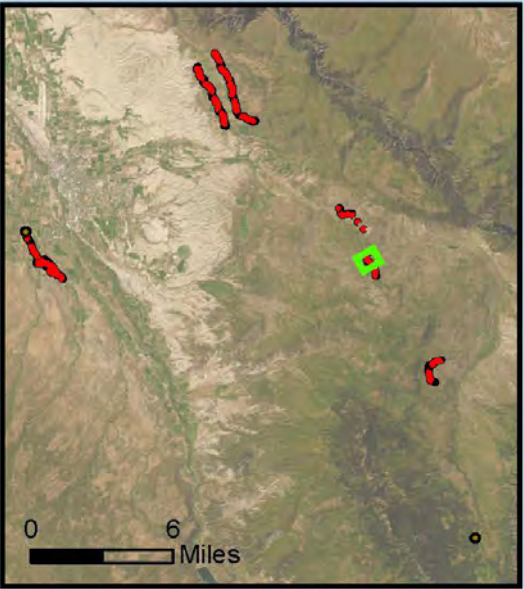
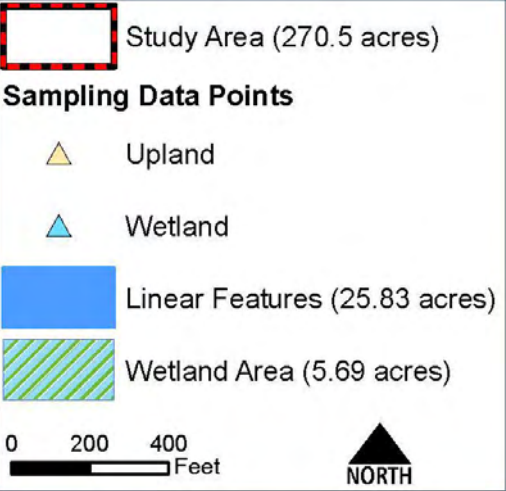
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Colorado South FIPS 0503 Feet
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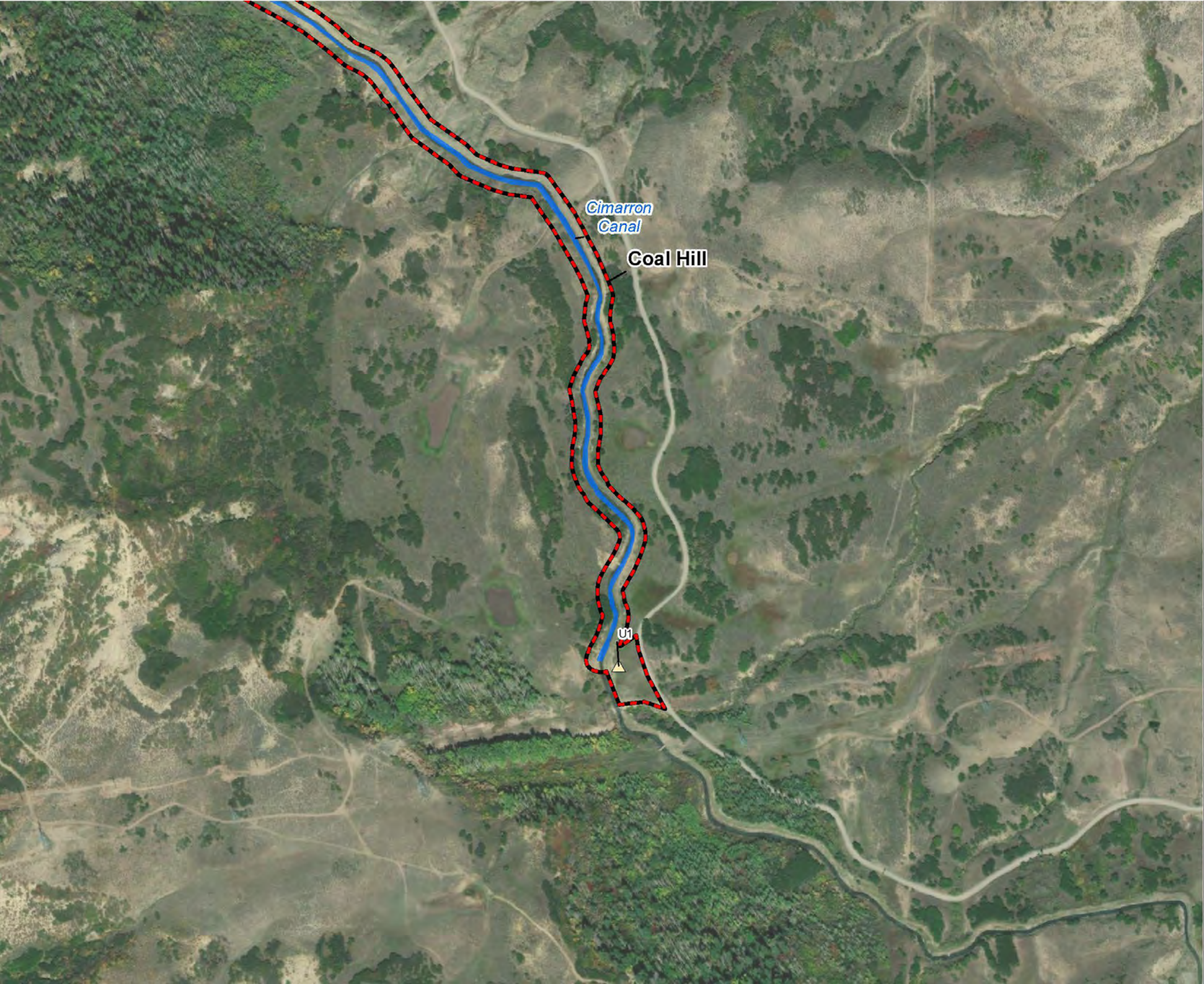
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Coal Hill



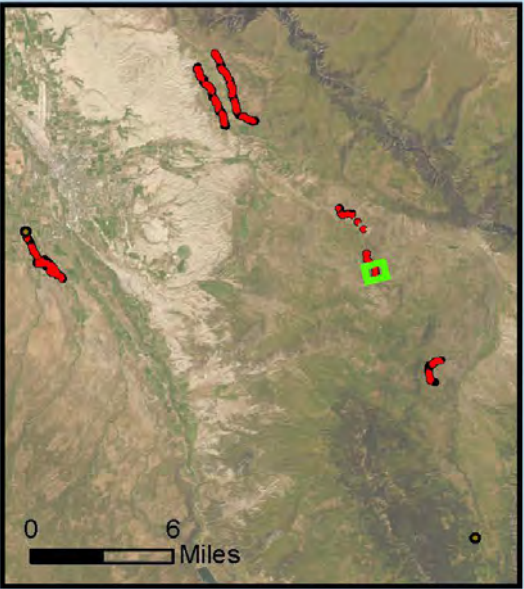
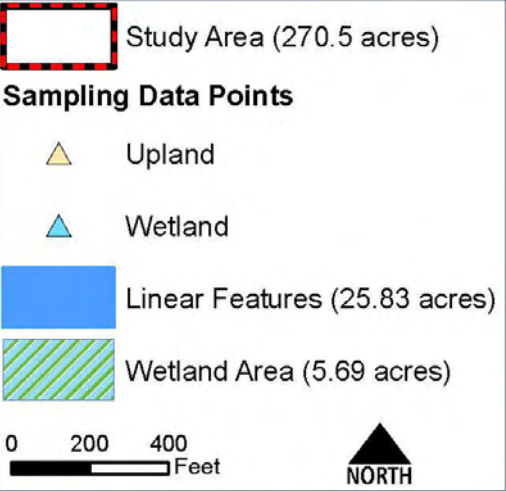
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Coal Hill



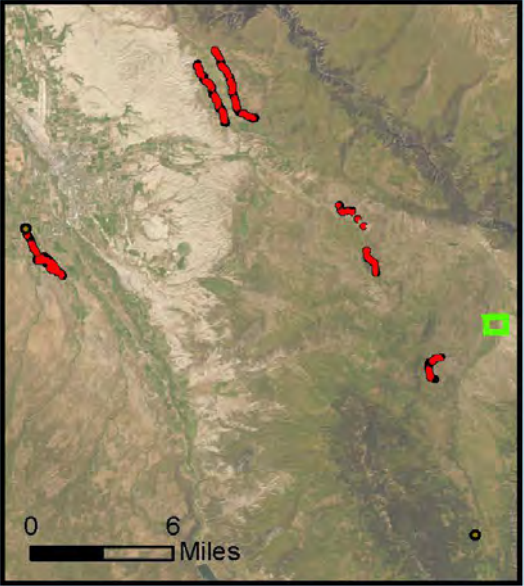
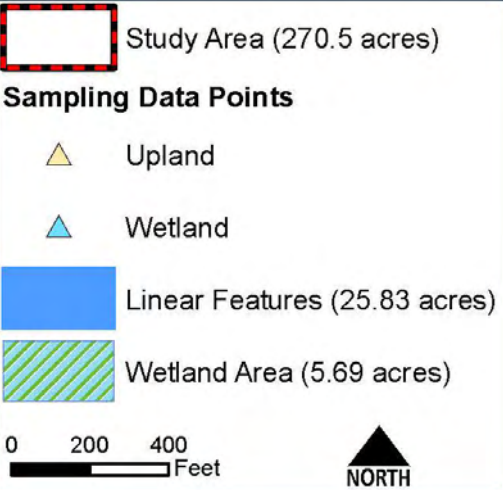
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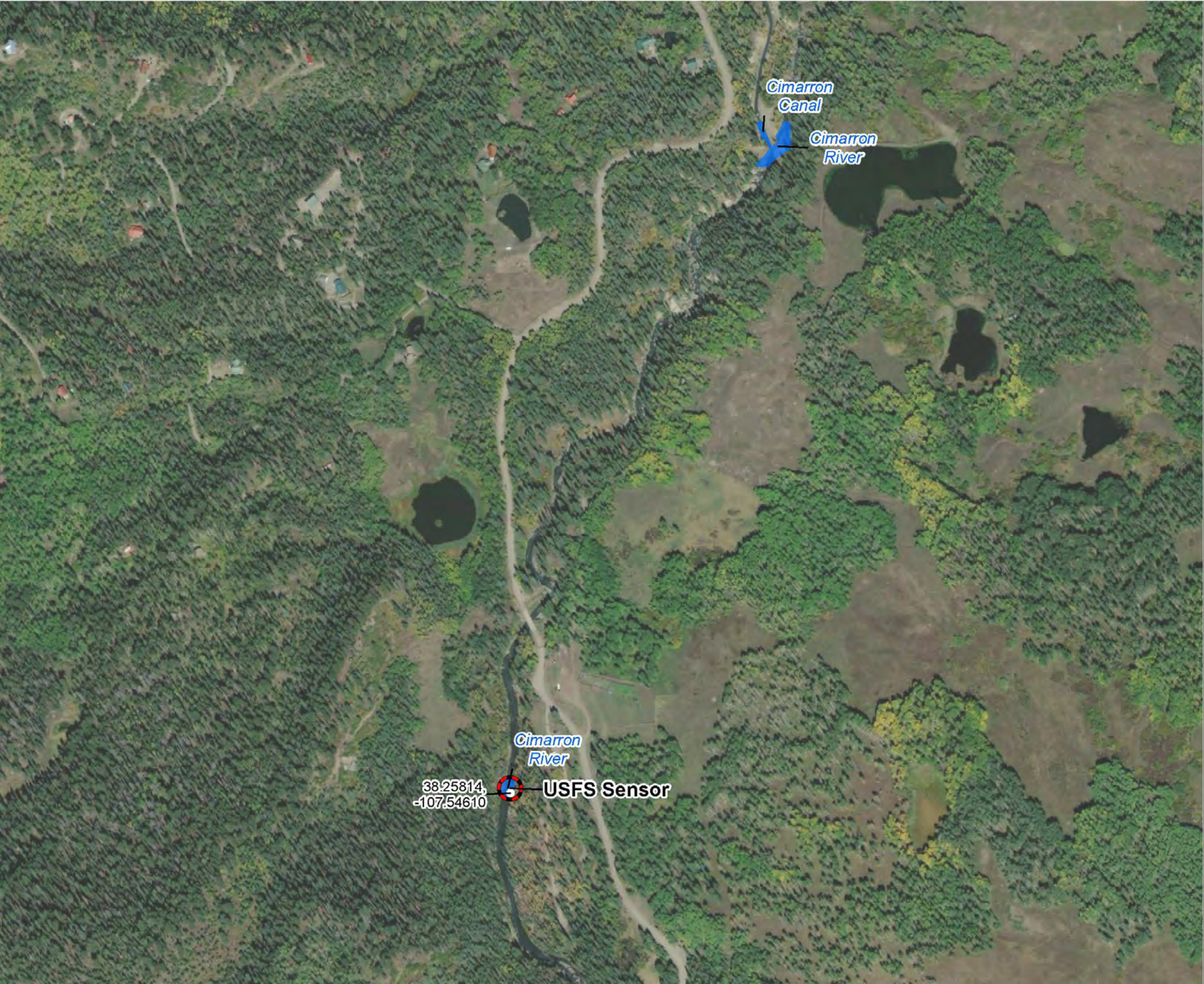
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**Cimarron Canal/River Diversion
and Temperature Loggers**



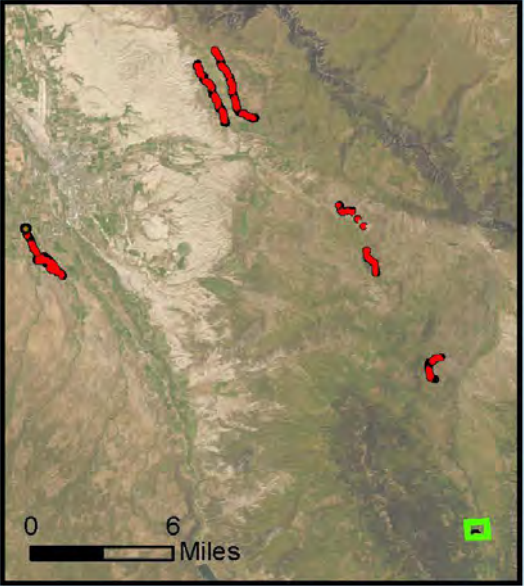
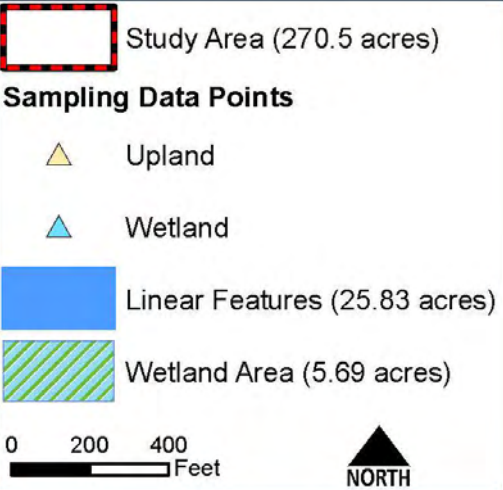
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**Cimarron Canal/River Diversion
and Temperature Loggers**



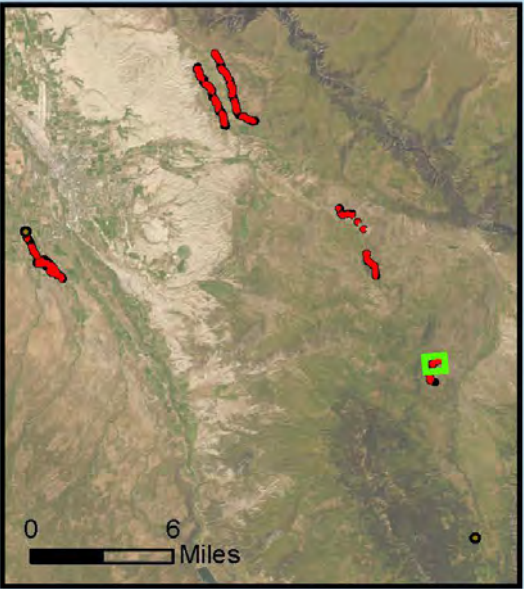
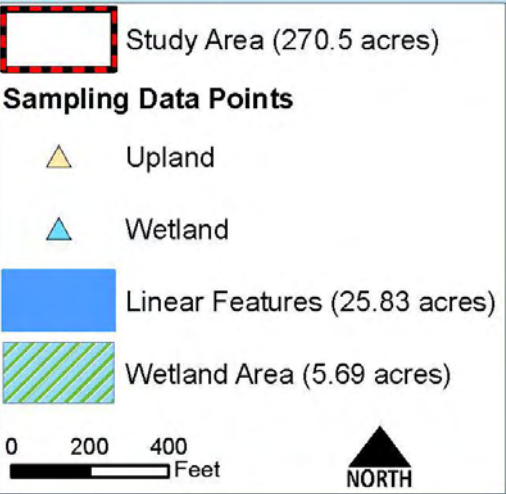
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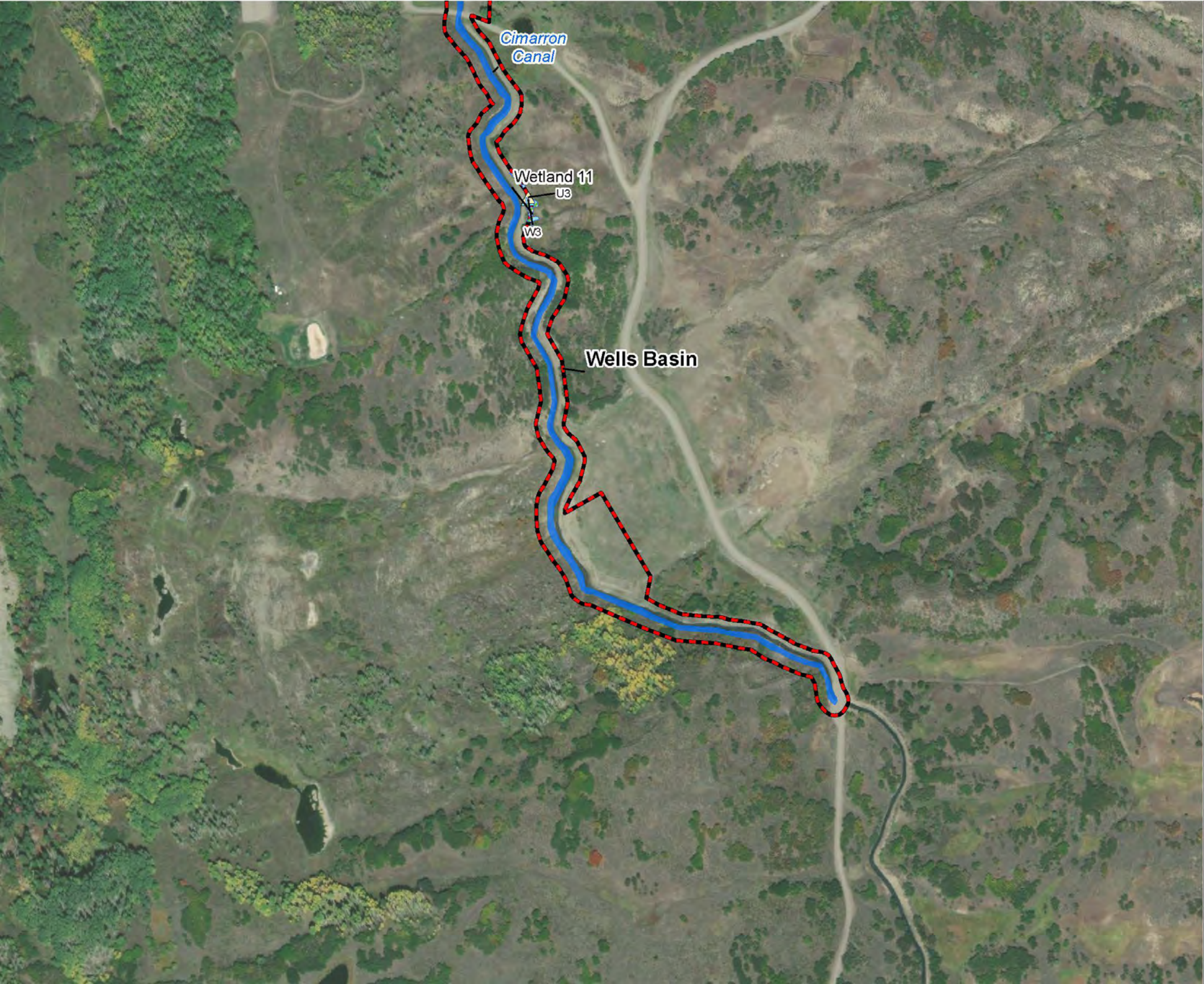
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Wells Basin



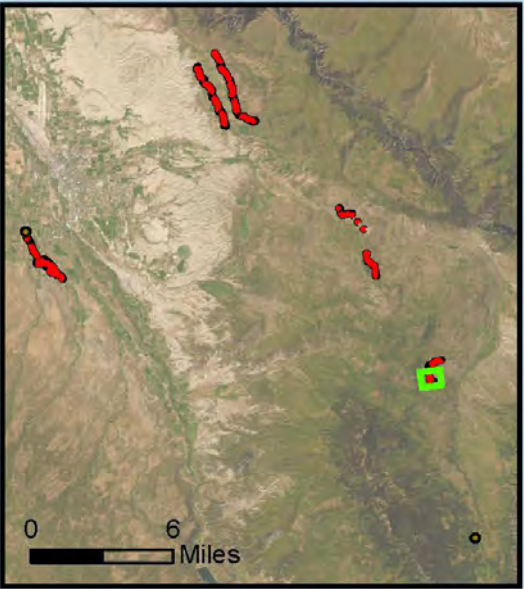
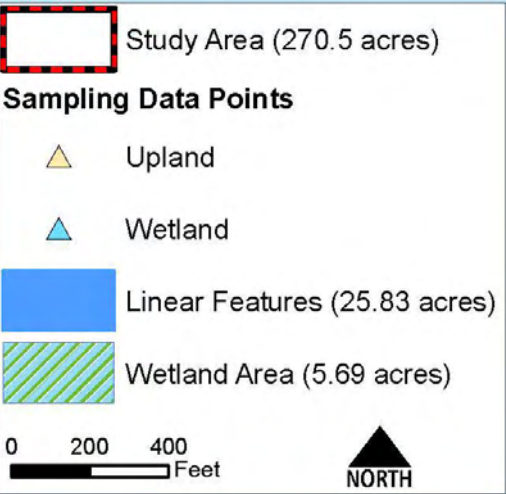
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Colorado South FIPS 0503 Feet
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Wells Basin



Service Layer Credits: ESRI and contributors;
Projected Coordinate System: NAD_1983 StatePlane
Colorado South FIPS 0503 Feet
Datum: GCS North American 1983

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Appendix B: Supporting Maps

Figure 1: Vicinity

Figure 2: Study Area, M&D Canal

Figure 3: Study Area, East Lateral and West Lateral

Figure 4: Study Area, Slide Point and Coal Hill

Figure 5: Study Area, Wells Basin

Figure 6: Study Area, Diversion and USFS Temperature Logger

Figure 7: Study Area, County Temperature Logger

Figure 8: Soils at M&D Canal

Figure 9: Soils at East Lateral and West Lateral

Figure 10: Soils at Slide Point and Coal Hill

Figure 11: Soils at Wells Basin

Figure 12: Soils at Diversion and USFS Temperature Logger

Figure 13: Soils at County Temperature Logger

Figure 14: NWI and NHD Features, M&D Canal

Figure 15: NWI and NHD Features, East Lateral and West Lateral

Figure 16: NWI and NHD Features, Slide Point and Coal Hill

Figure 17: NWI and NHD Features, Wells Basin

Figure 18: NWI and NHD Features, Diversion and USFS Temperature Logger

Figure 19: NWI and NHD Features, County Temperature Logger

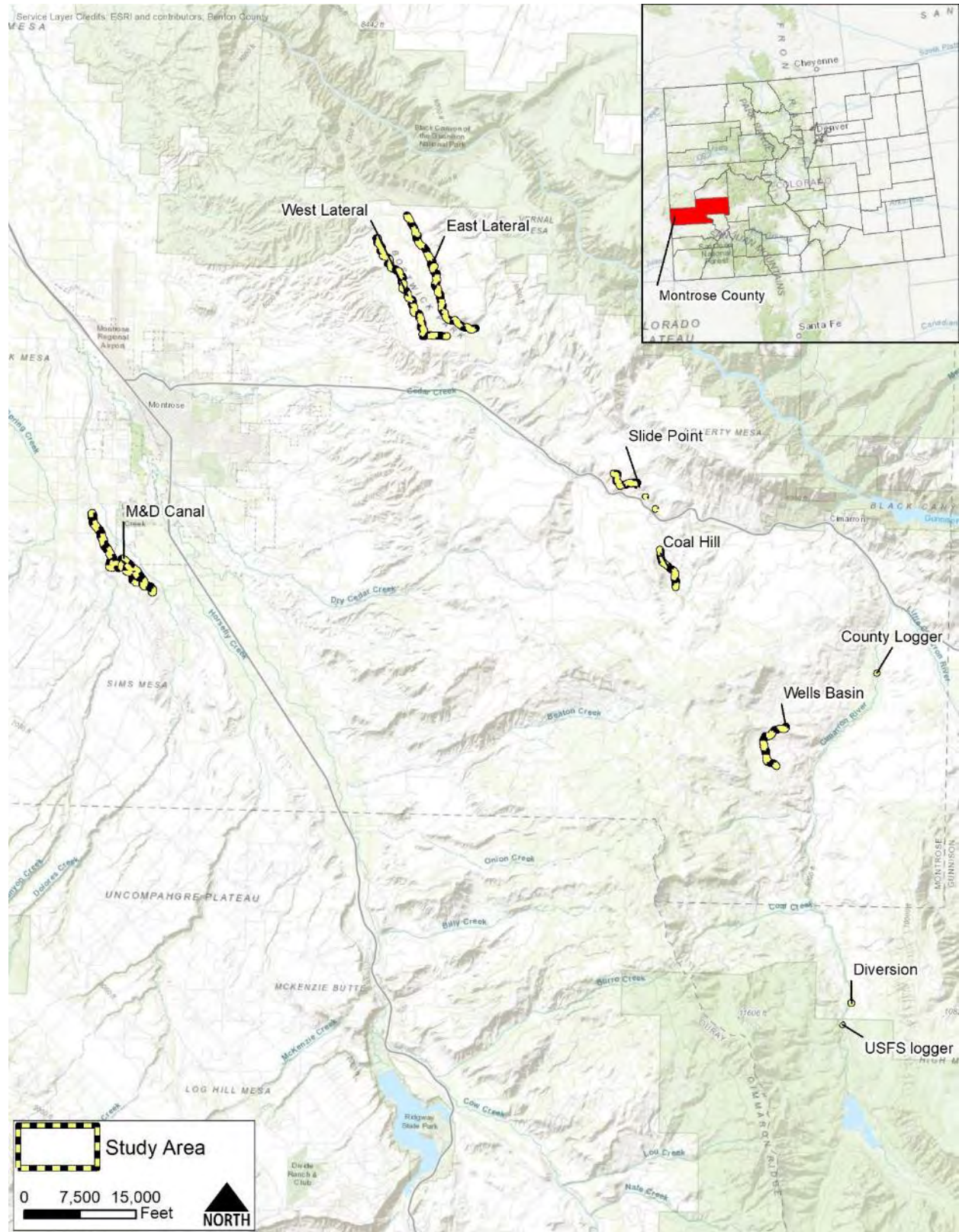
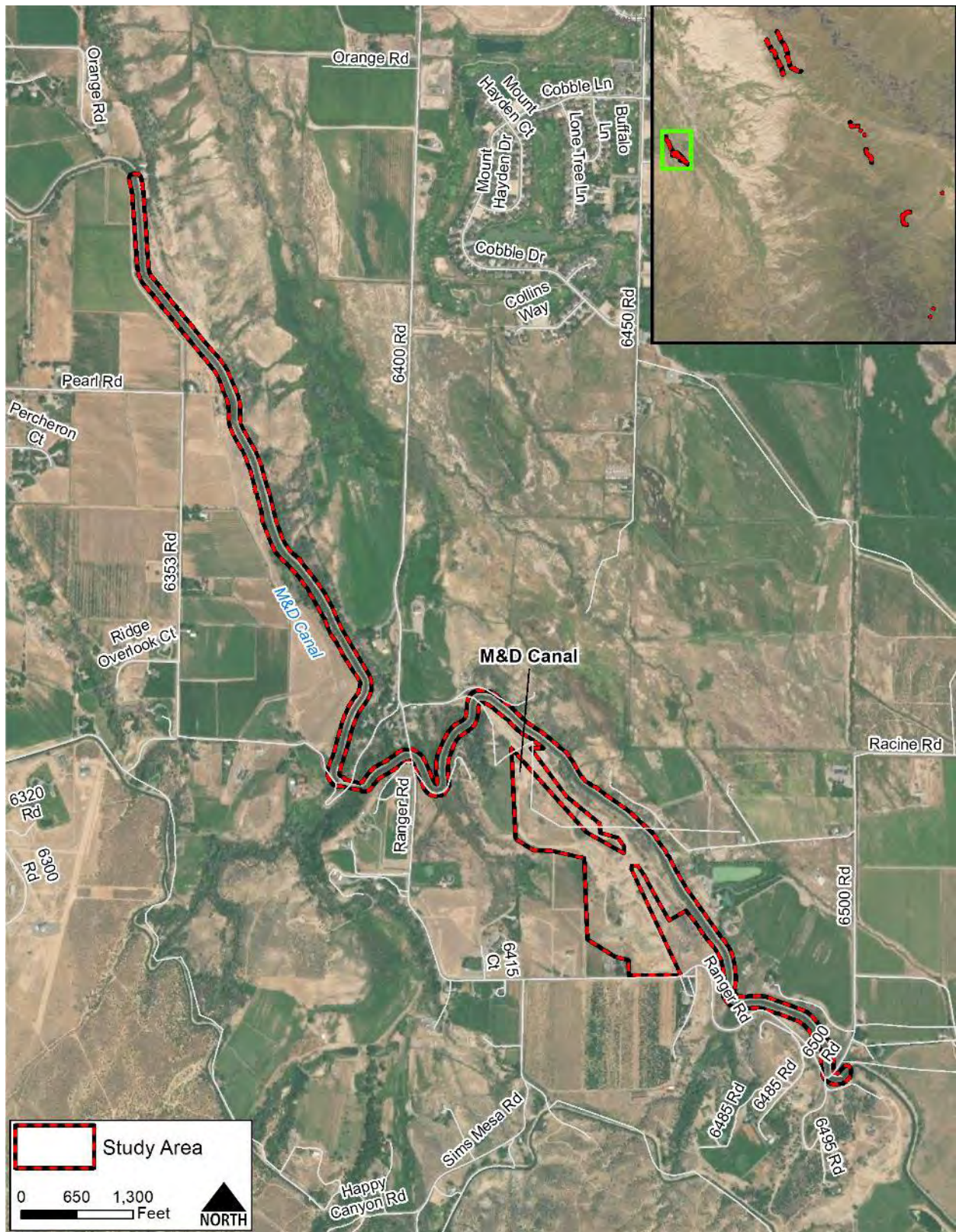


Figure 1: Vicinity



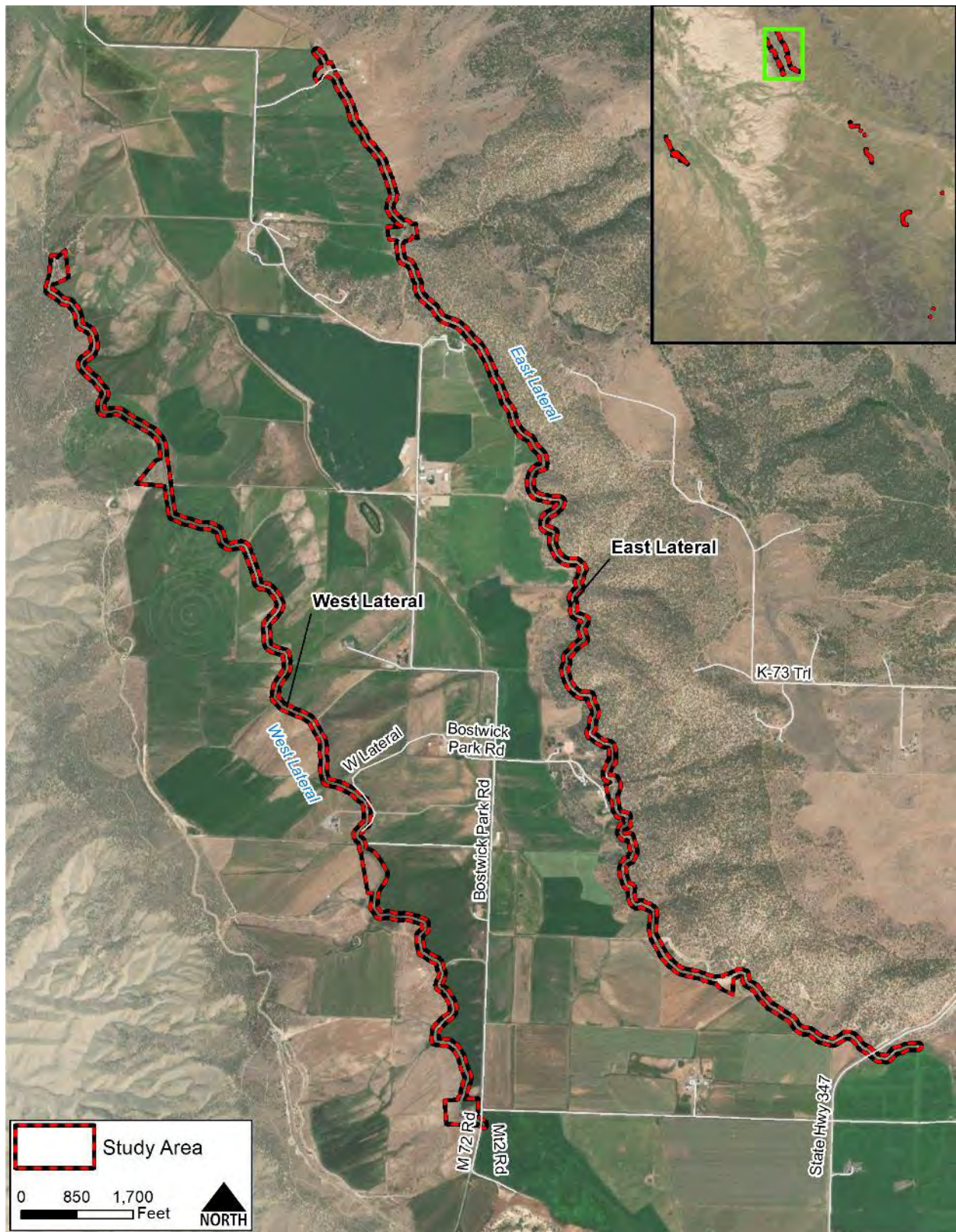


Figure 3: Study Area, East Lateral and West Lateral

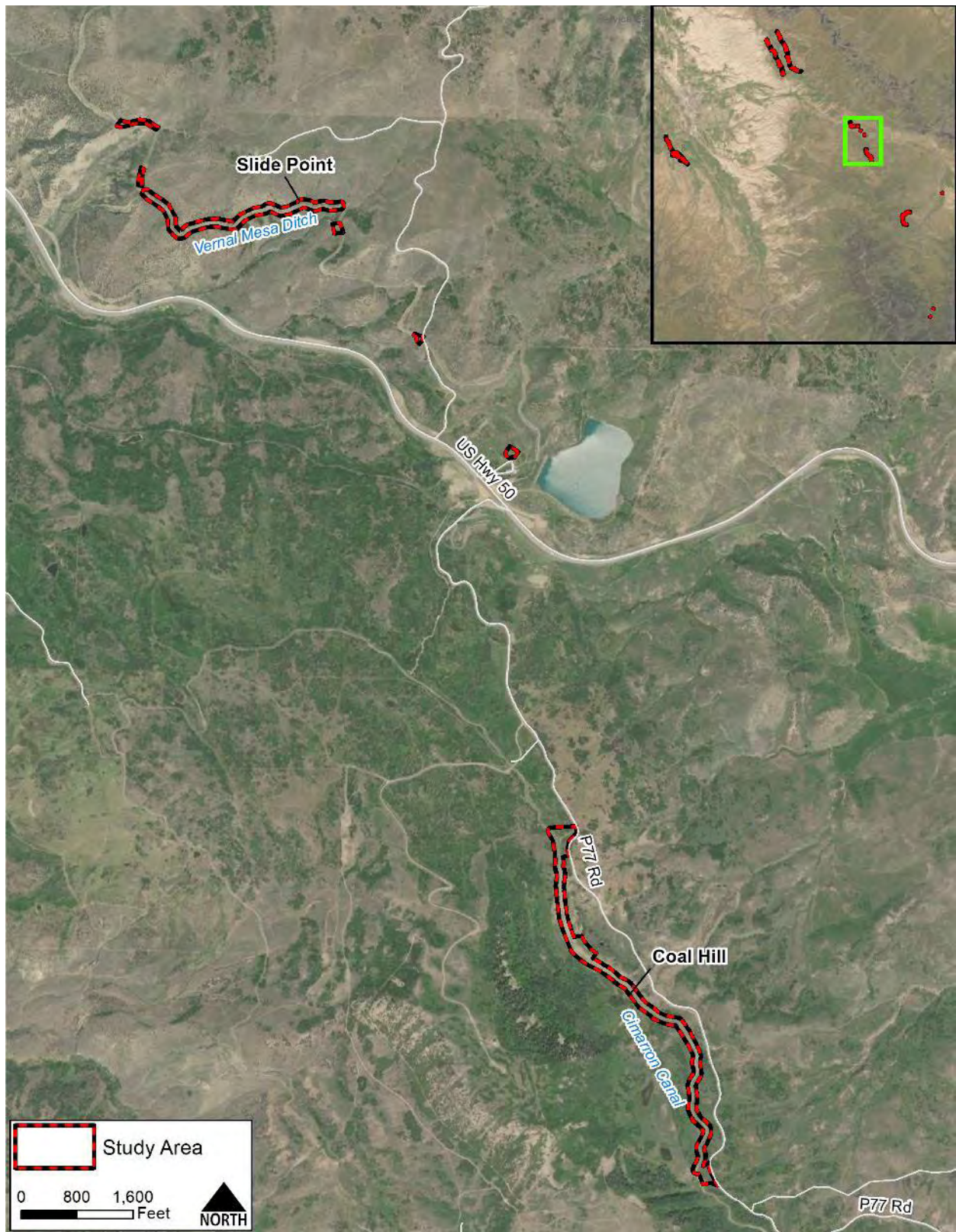


Figure 4: Study Area, Slide Point and Coal Hill



Figure 5: Study Area, Wells Basin

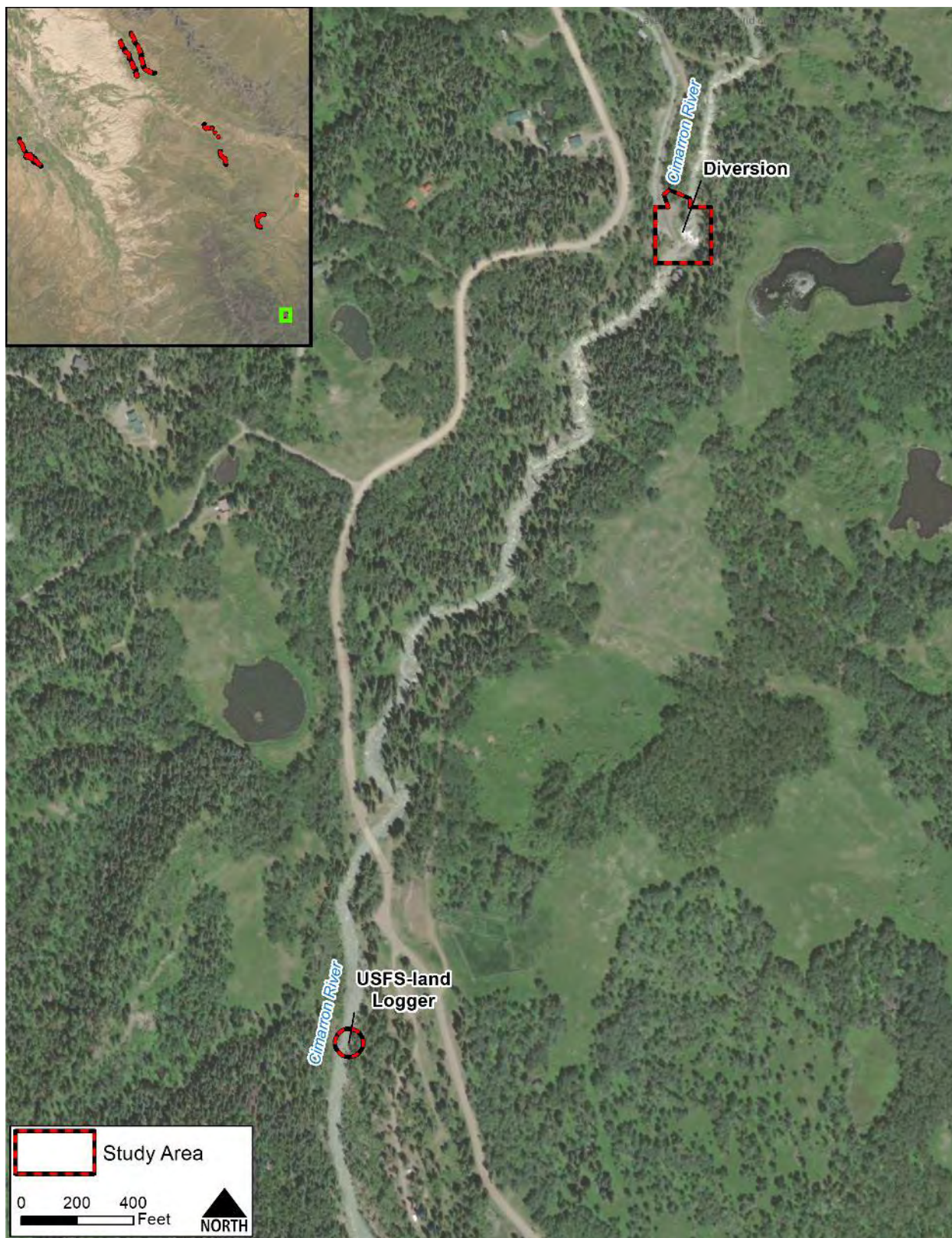


Figure 6: Study Area, Diversion and USFS Temperature Logger



Figure 7: Study Area, County Road Temperature Logger

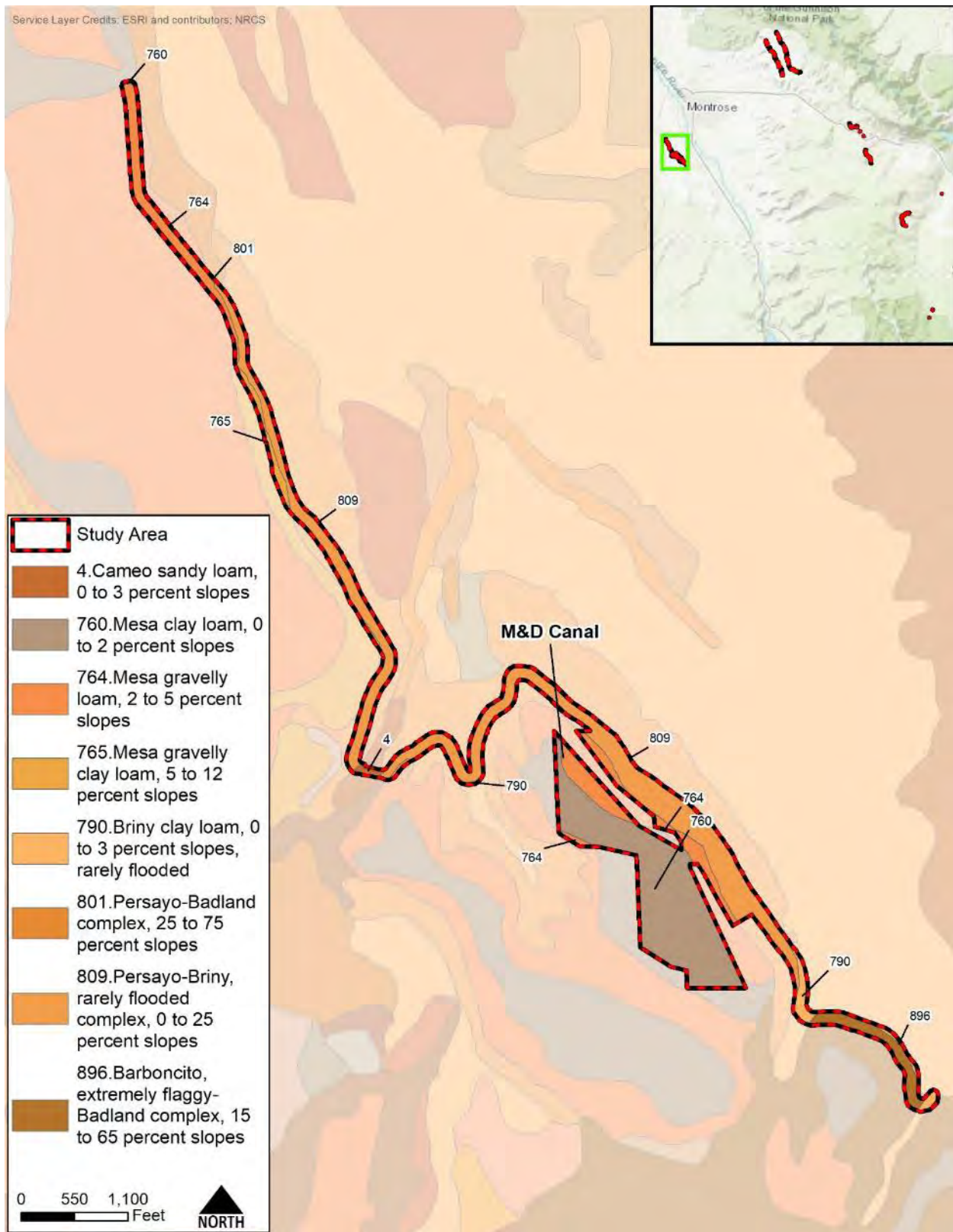


Figure 8: Soils, M&D Canal

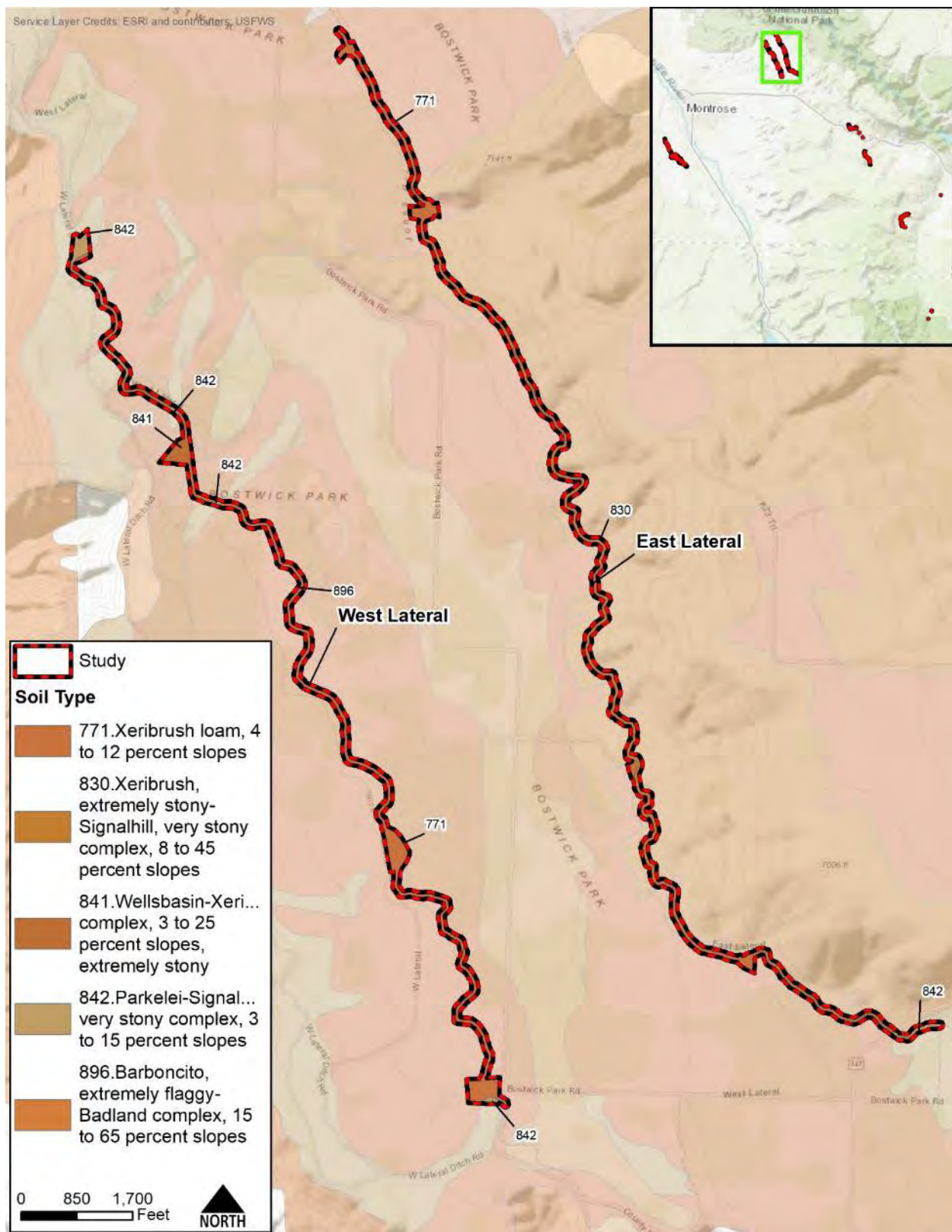


Figure 9: Soils, East Lateral and West Lateral

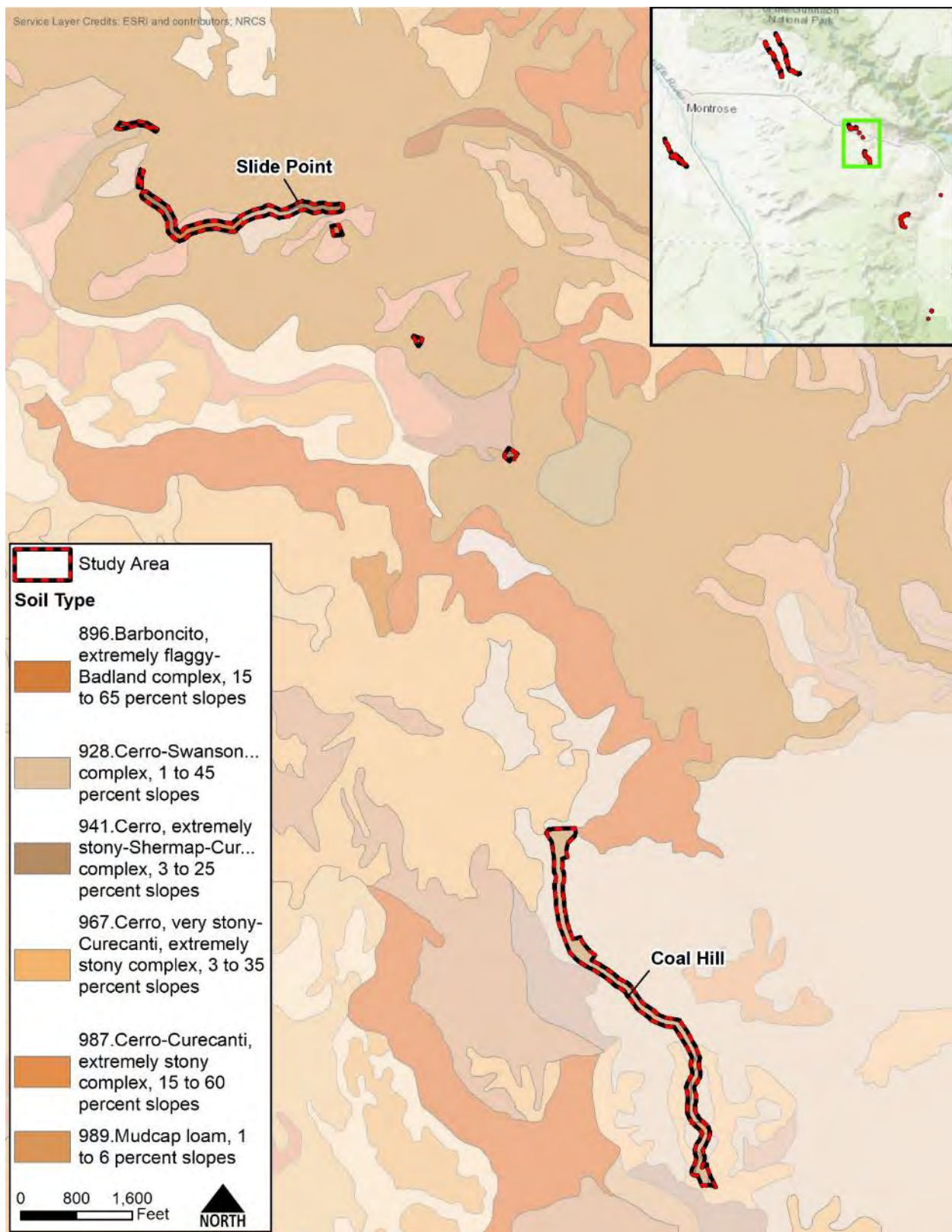


Figure 10: Soils, Slide Point and Coal Hill

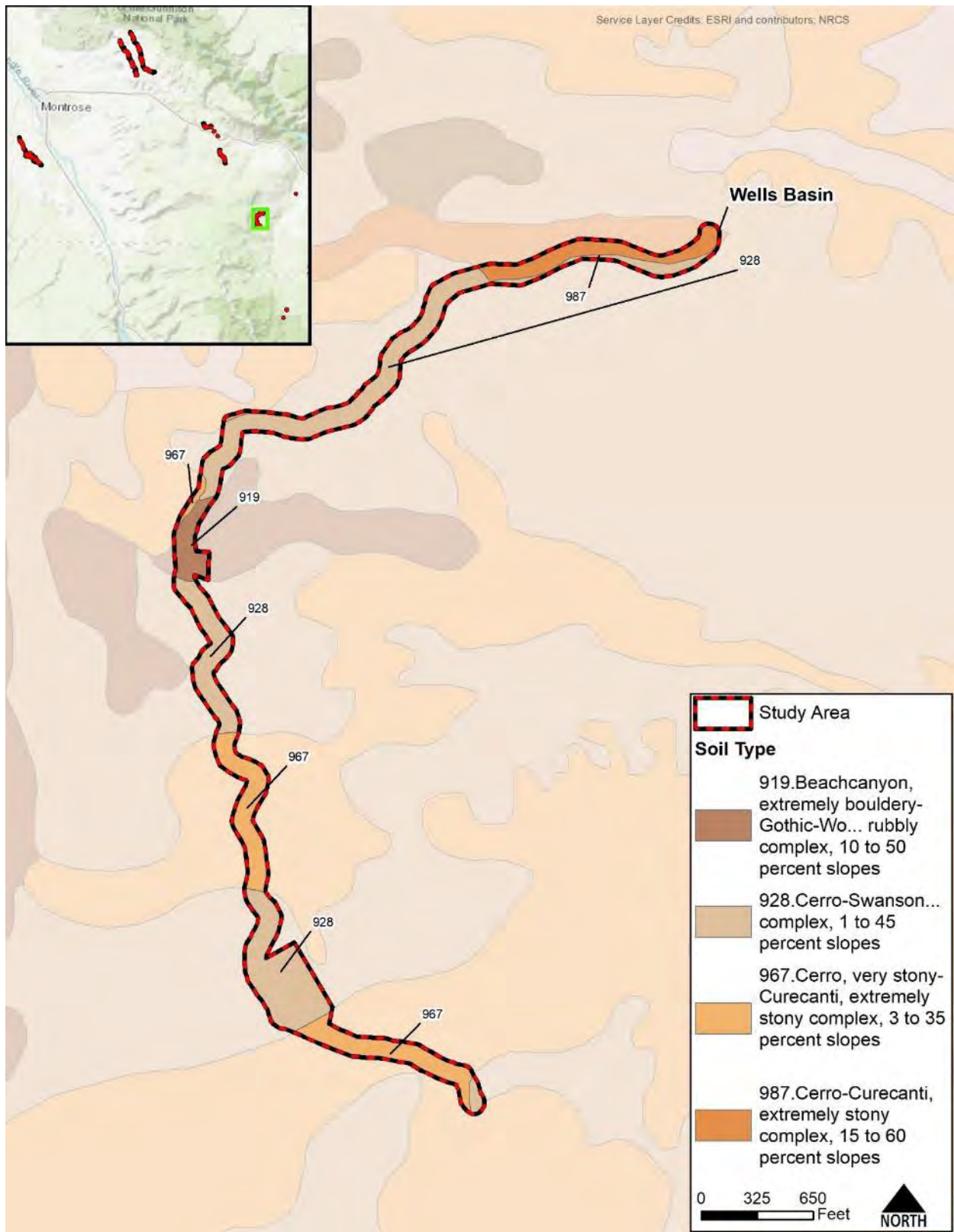


Figure 11: Soils, Wells Basin

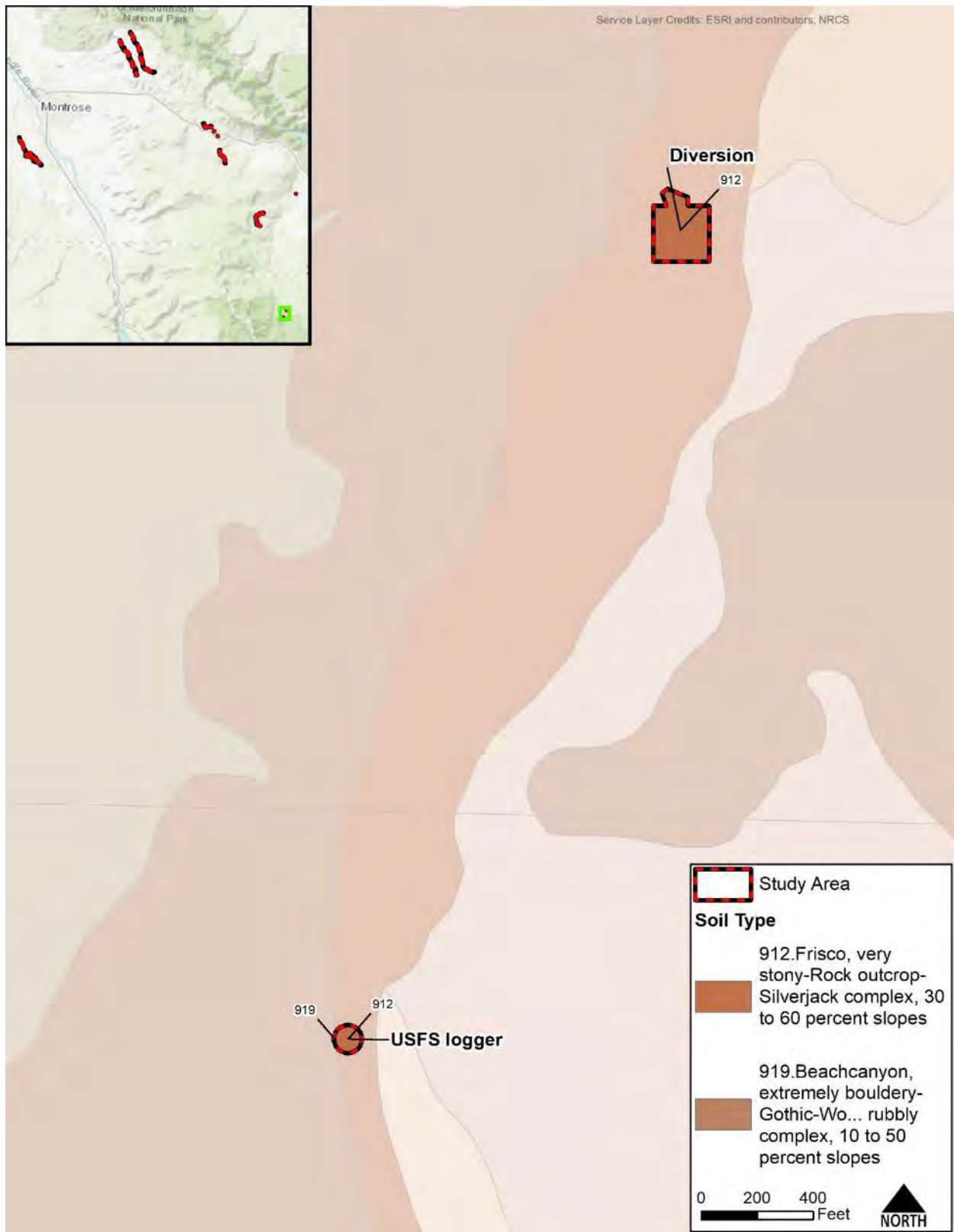


Figure 12: Soils, Diversion and USFS Temperature Logger

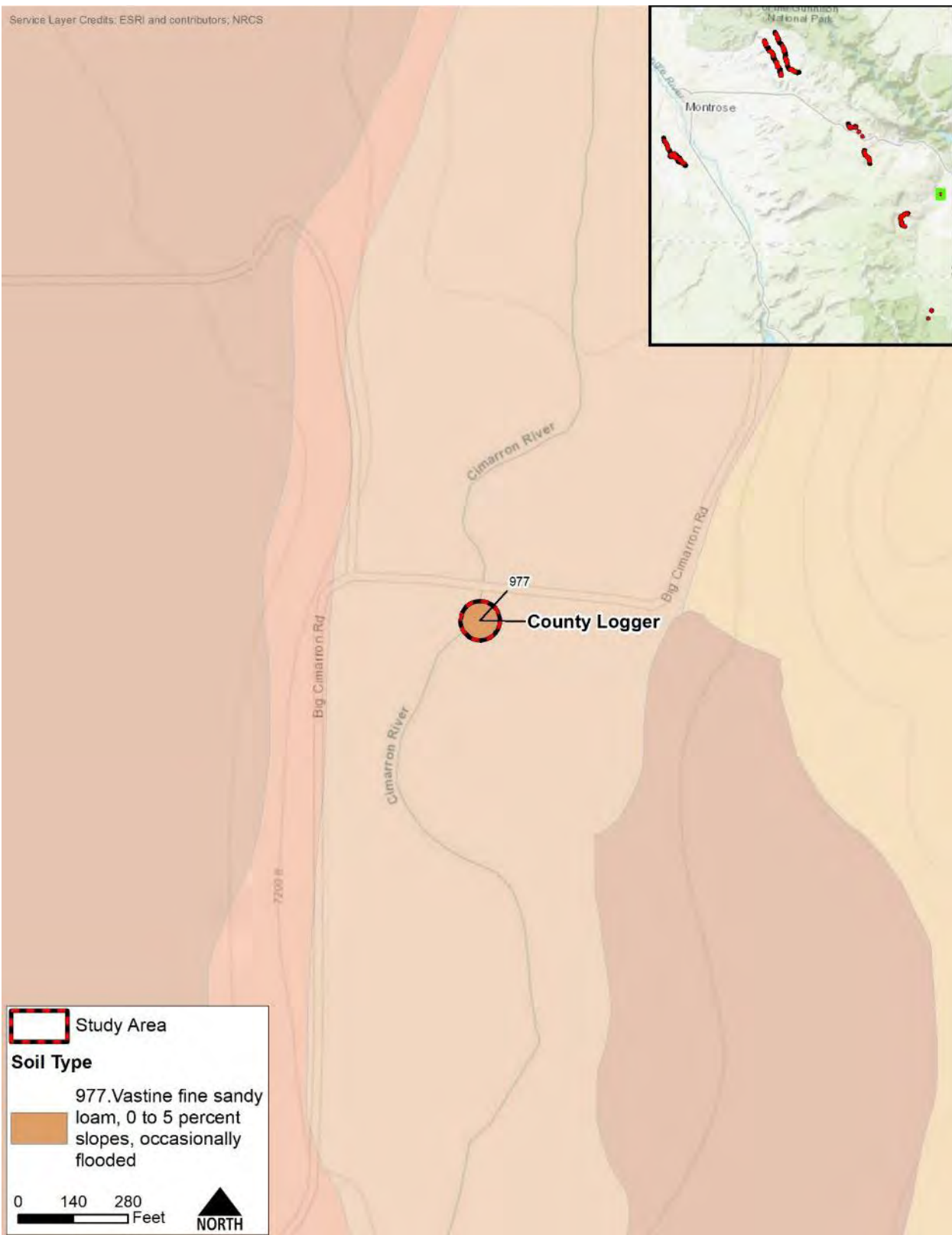
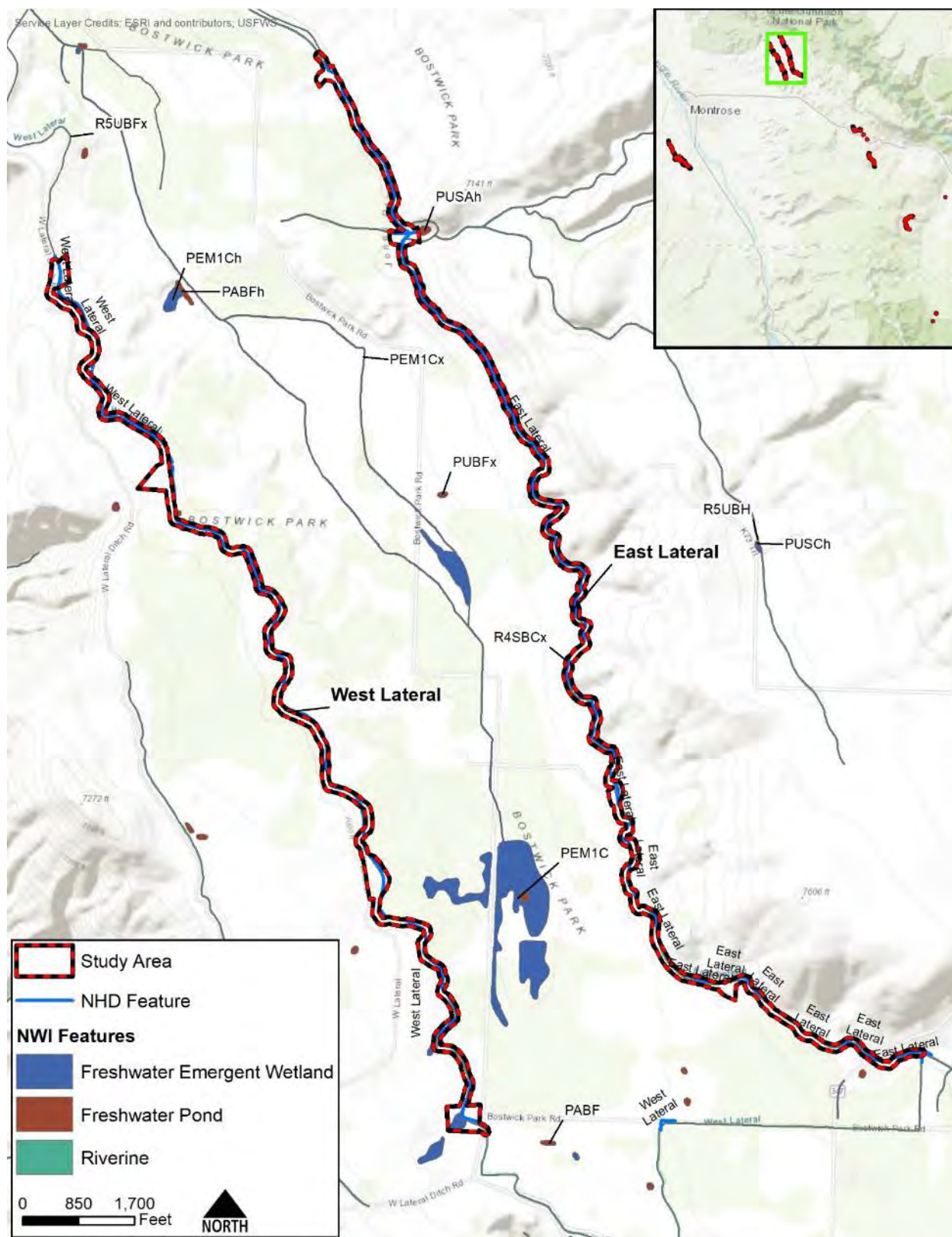


Figure 13: Soils, County Temperature Logger



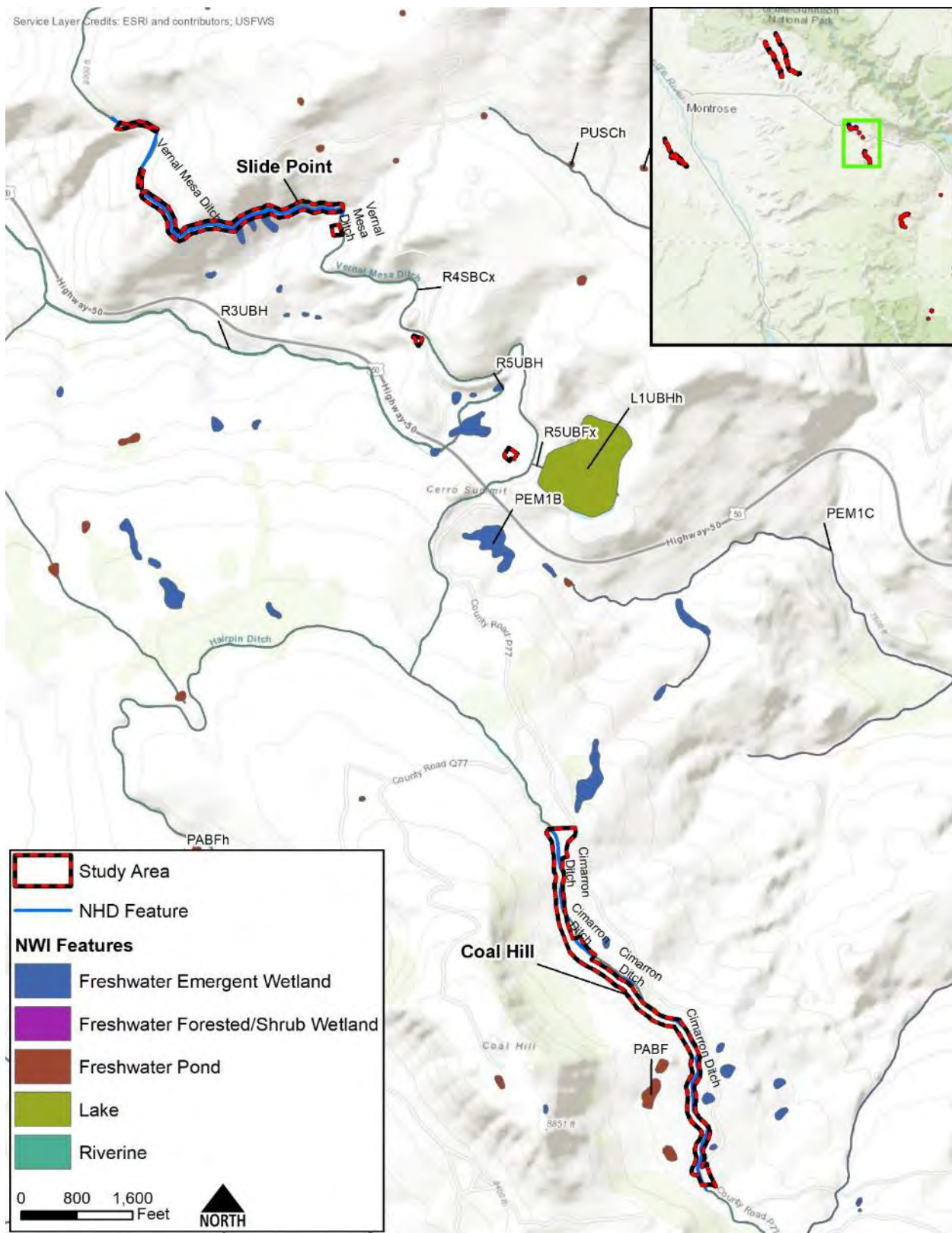


Figure 16: NWI and NHD Features, Slide Point and Coal Hill

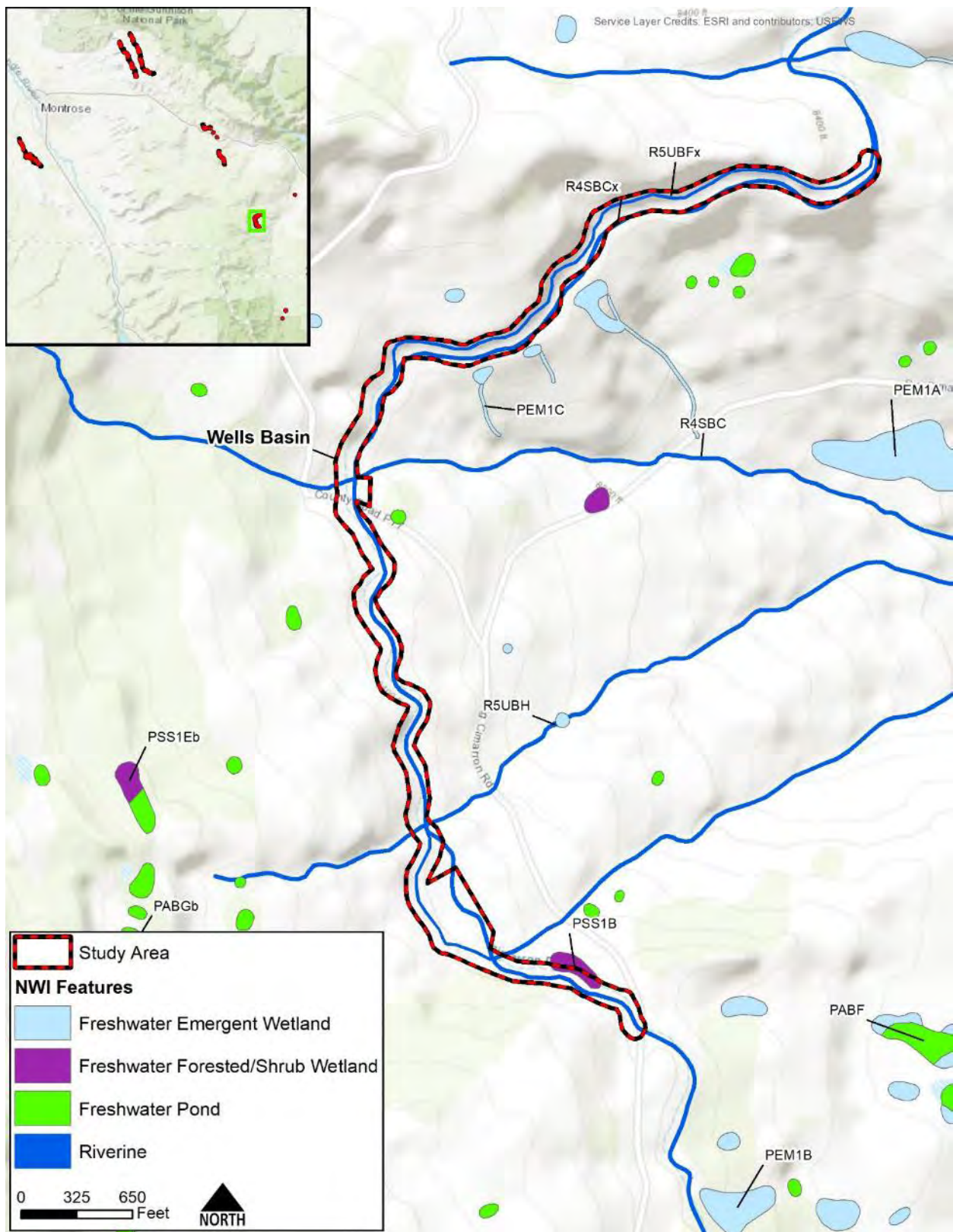


Figure 17: NWI and NHD Features, Wells Basin

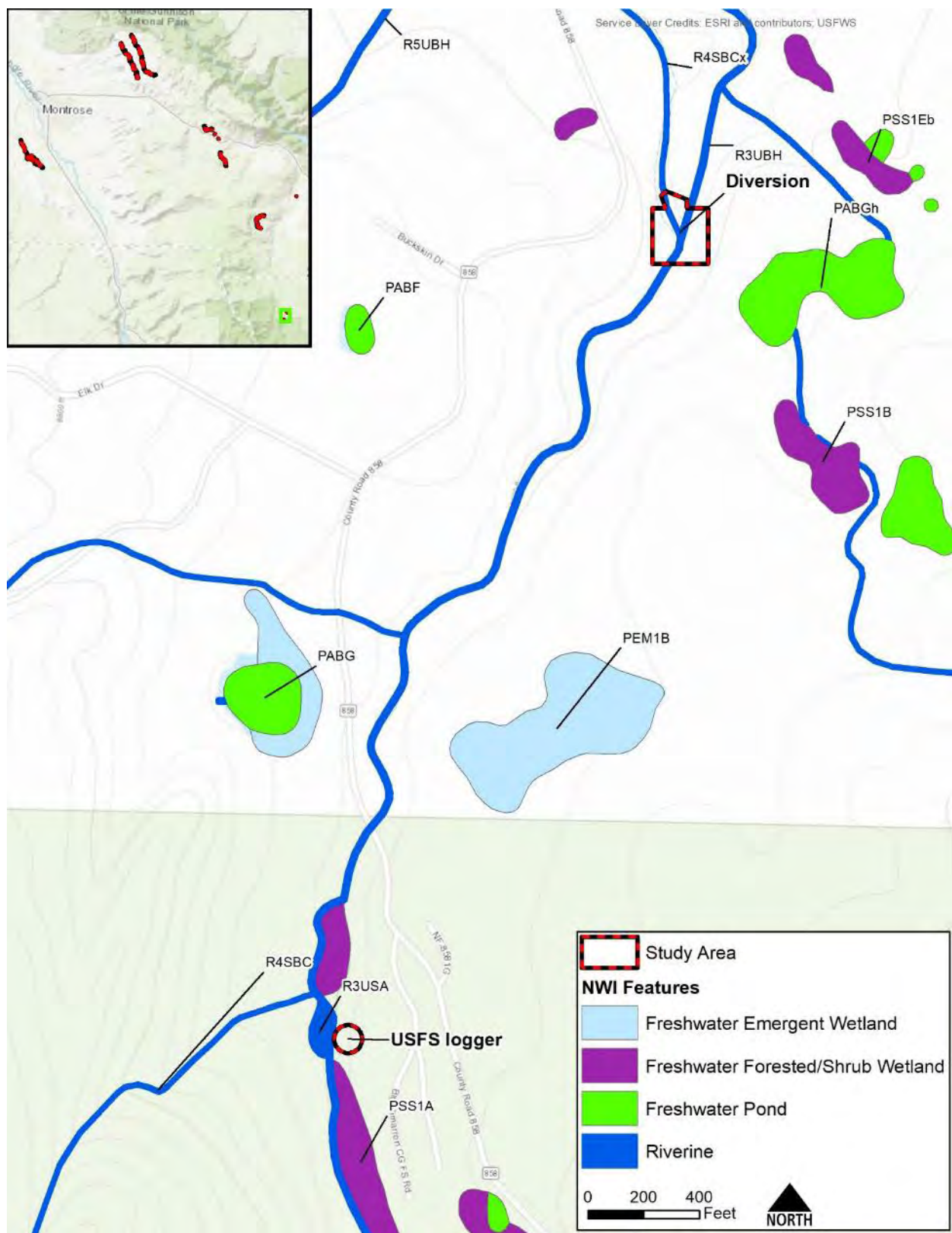


Figure 18: NWI and NHD Features, Diversion and USFS Temperature Logger



Appendix C: On-site Representative Photographs



Photograph 1: Southeast view of M&D Canal, south of Wetland 1



Photograph 2: North view of Wetland 1



Photograph 3: NE view Wetland 2 in background



Photograph 4: Aerial view of Wetlands 3 and 4



Photograph 5: Northeast view of Wetland 5



Photograph 6: Northeast view Wetland 6



Photograph 7: South view of East Lateral



Photograph 8: North view of West Lateral



Photograph 9: West view of Vernal Mesa Ditch at Slide Point Area



Photograph 10: Aerial view of Wetlands 7, 8, and 9



Photograph 11: South view of Wetland 9 downslope (red circle)



Photograph 12: North view of Cimarron Canal at Coal Hill area



Photograph 13: West view of Cimarron Canal at Wells Basin area



Photograph 14: West view of Wetland 10



Photograph 15: East view of Wetland 11



Photograph 16: West view of Wetland 12 across canal



Photograph 17: South view of Cimarron River at Diversion Area. Cimarron Canal diverts to bottom right of photo (west side)

Appendix D: Plant List

Table: Common Plant Species Identified in and Near Study Area

Scientific Name	Common Name	Wetland Indicator Status
<i>Achillea millefolium</i>	yarrow	FACU
<i>Acroptilon repens</i>	Russian knapweed	UPL
<i>Allium brevistylum</i>	short-style onion	UPL
<i>Alyssum alyssoides</i>	yellow alyssum	UPL
<i>Amelanchier alnifolia</i>	western serviceberry	FACU
<i>Artemisia tridentata</i>	big sagebrush	UPL
<i>Asclepias fascicularis</i>	narrow-leaved milkweed	FAC
<i>Astragalus sp.</i>	vetch	UNK
<i>Atriplex saccaria</i>	sack saltbush	UPL
<i>Bassia scoparia</i>	kochia	FAC
<i>Bromus inermis</i>	smooth brome	UPL
<i>Bromus tectorum</i>	cheat grass	UPL
<i>Carex hystericina</i>	beaked sedge	OBL
<i>Centaurea stoebe</i>	spotted knapweed	UPL
<i>Cirsium arvense</i>	Canada thistle	FACU
<i>Clematis columbiana</i>	rock clematis	UPL
<i>Convolvulus arvensis</i>	field bindweed	UPL
<i>Cynoglossum officinale</i>	houndstongue	FACU
<i>Dactylis glomerata</i>	orchard grass	FACU
<i>Distichlis spicata</i>	salt grass	FAC
<i>Elaeagnus angustifolia</i>	Russian olive	FAC
<i>Equisetum hyemale</i>	scouring rush	FACW
<i>Elymus lanceolatus</i>	streambank wheatgrass	UPL
<i>Ericameria nauseosa</i>	rubber rabbitbrush	UPL
<i>Hordeum murinum</i>	bulbous barley	FACU
<i>Hydrophyllum fendleri</i>	Fender's waterleaf	FAC
<i>Juncus balticus</i>	Baltic rush	FACW
<i>Juncus compressus</i>	round-fruited rush	OBL
<i>Lepidium draba</i>	white top	UPL
<i>Mertensia ciliata</i>	streamside blue bells	FACW
<i>Oryzopsis hymenoides</i>	Indian ricegrass	FACW
<i>Phalaris arundinacea</i>	reed canarygrass	FACW
<i>Populus angustifolia</i>	narrow leaved cottonwood	FACW
<i>Potentilla pulcherrima</i>	beautiful cinquefoil	FAC
<i>Quercus gambelii</i>	Gambel oak	UPL
<i>Rhaponticum repens</i>	Russian knapweed	UPL
<i>Rhus trilobata</i>	skunkbush sumac	UPL
<i>Rosa woodsii</i>	Woods' rose	FACU
<i>Salix exigua</i>	narrowleaf willow	FACW
<i>Sarcobatus vermiculatus</i>	greasewood	FACU
<i>Symphoricarpos rotundifolius</i>	roundleaf snowberry	UPL
<i>Taraxacum officinale</i>	dandelion	FACU
<i>Typha latifolia</i>	broad-leaf cattail	OBL
<i>Urtica dioica</i>	stinging nettle	FAC

Appendix E: Wetland Delineation Determination Forms

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Bostwick Park City/County: Montrose County Sampling Date: 6/14/2021
 Applicant/Owner: BPWCD State: CO Sampling Point: U1
 Investigator(s): Tyler Schade, Becky Hendricks Section, Township, Range: S17, T48N, R9W
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): concave Slope (%): 3-5
 Subregion (LRR): D - Interior Deserts Lat: 38.421089 Long: -107.88981 Datum: NAD 1983
 Soil Map Unit Name: Persayo-Briny, rarely flooded complex NWI classification: R4SBC
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland?	Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>		
Wetland Hydrology Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>		
Remarks:			

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> % (A/B)
1.				
2.				
3.				
4.				
Sapling/Shrub Stratum				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u> </u> x 1 = <u>0</u> FACW species <u> </u> x 2 = <u>0</u> FAC species <u> </u> x 3 = <u>0</u> FACU species <u> </u> x 4 = <u>0</u> UPL species <u> </u> x 5 = <u>0</u> Column Totals: <u> </u> (A) <u>0</u> (B) Prevalence Index = B/A = <u>2.80</u>
1.				
2.				
3.				
4.				
5.				
Total Cover: <u> </u> %				
Herb Stratum				Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
1. <i>Carex sp.</i>	20	Yes	OBL	
2. <i>Juncus sp.</i>	15		FACW	
3. <i>Cirsium arvense</i>	50	Yes	FACU	
4. <i>Equisetum</i>	15		FACW	
5.				
6.				
7.				
8.				
Total Cover: <u>100</u> %				
Woody Vine Stratum				Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
1.				
2.				
Total Cover: <u> </u> %				
% Bare Ground in Herb Stratum <u> </u> %	% Cover of Biotic Crust <u> </u> %			
Remarks:				

Sampling Point: U1

HYDROLOGYUS Army Corps of Engineers

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: <u>Bostwick Park</u>		City/County: <u>Montrose County</u>	Sampling Date: <u>6/14/2021</u>
Applicant/Owner: <u>BPWCD</u>		State: <u>CO</u>	Sampling Point: <u>U2</u>
Investigator(s): <u>Tyler Schade, Becky Hendricks</u>		Section, Township, Range: <u>S17, T48N, R9W</u>	
Landform (hillslope, terrace, etc.): <u>slope</u>		Local relief (concave, convex, none): <u>none</u>	Slope (%): <u>2-5</u>
Subregion (LRR): <u>D - Interior Deserts</u>		Lat: <u>38.418468</u>	Long: <u>-107.87984</u> Datum: <u>NAD 1983</u>
Soil Map Unit Name: <u>Persayo-Briny, rarely flooded complex</u>		NWI classification: <u>PEM1C</u>	
Are climatic / hydrologic conditions on the site typical for this time of year? Yes <input checked="" type="radio"/> No <input type="radio"/> (If no, explain in Remarks.)			
Are Vegetation <input type="checkbox"/>	Soil <input type="checkbox"/>	or Hydrology <input type="checkbox"/>	significantly disturbed? Yes <input checked="" type="radio"/> No <input type="radio"/>
Are Vegetation <input type="checkbox"/>	Soil <input type="checkbox"/>	or Hydrology <input type="checkbox"/>	naturally problematic? Yes <input checked="" type="radio"/> No <input type="radio"/> (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	
Wetland Hydrology Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	
Remarks:		

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> % (A/B)
1.				
2.				
3.				
4.				
Sapling/Shrub Stratum				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>0</u> (A) <u>0</u> (B) Prevalence Index = B/A = <u>3.30</u>
1.				
2.				
3.				
4.				
Herb Stratum	Total Cover: <u>0</u> %			Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
1. <i>Distichlis spicata</i>	80	Yes	FAC	
2. <i>Lepidium draba</i>	10		UPL	
3. <i>Hordeum murinum</i>	10		FACU	
4.				
5.				
6.				
7.				
Woody Vine Stratum	Total Cover: <u>100</u> %			Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
1.				
2.				
% Bare Ground in Herb Stratum <u>0</u> % % Cover of Biotic Crust <u>0</u> %				
Remarks:				

Sampling Point: U2

HYDROLOGYUS Army Corps of Engineers

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Bostwick Park City/County: Montrose County Sampling Date: 6/15/2021
 Applicant/Owner: BPWCD State: CO Sampling Point: U3
 Investigator(s): Tyler Schade, Becky Hendricks Section, Township, Range: S1, T47N, R7W
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): none Slope (%): 2-5
 Subregion (LRR): D - Interior Deserts Lat: 38.359231 Long: -107.584973 Datum: NAD 1983
 Soil Map Unit Name: Cerro-Swansonlake complex NWI classification: NA
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland?	Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present?	Yes <input checked="" type="radio"/> No <input checked="" type="radio"/>		
Wetland Hydrology Present?	Yes <input checked="" type="radio"/> No <input checked="" type="radio"/>		
Remarks:			

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33.3</u> % (A/B)
1.				
2.				
3.				
4.				
Sapling/Shrub Stratum				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u> </u> x 1 = <u>0</u> FACW species <u> </u> x 2 = <u>0</u> FAC species <u> </u> x 3 = <u>0</u> FACU species <u> </u> x 4 = <u>0</u> UPL species <u> </u> x 5 = <u>0</u> Column Totals: <u> </u> (A) <u>0</u> (B) Prevalence Index = B/A = <u>3.60</u>
1.				
2.				
3.				
4.				
Herb Stratum	Total Cover: <u> </u> %			Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
1. <i>Juncus balticus</i>	10		FACW	
2. <i>Equisetum hymale</i>	20	Yes	FACW	
3. <i>Dactylis glomerata</i>	40	Yes	FACU	
4. <i>Quercus gambelii</i>	20	Yes	UPL	
5. <i>Achillea millefolium</i>	5		FACU	
6. <i>Cirsium arvense</i>	5		FACU	
7.				
8.				
Woody Vine Stratum	Total Cover: <u>100</u> %			
1.				Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>
2.				
Total Cover: <u> </u> %				
% Bare Ground in Herb Stratum <u> </u> %	% Cover of Biotic Crust <u> </u> %			
Remarks:				

Sampling Point: U3

HYDROLOGYUS Army Corps of Engineers

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Bostwick Park City/County: Montrose County Sampling Date: 6/15/2021
 Applicant/Owner: BPWCD State: CO Sampling Point: U4
 Investigator(s): Tyler Schade, Becky Hendricks Section, Township, Range: S1, T47N, R7W
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): none Slope (%): 2-5
 Subregion (LRR): D - Interior Deserts Lat: 38.363675 Long: -107.583518 Datum: NAD 1983
 Soil Map Unit Name: Cerro-Swansonlake complex NWI classification: PEM1B
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland?	Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present?	Yes <input checked="" type="radio"/> No <input checked="" type="radio"/>		
Wetland Hydrology Present?	Yes <input checked="" type="radio"/> No <input checked="" type="radio"/>		
Remarks:			

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> % (A/B)
1.				
2.				
3.				
4.				
Sapling/Shrub Stratum				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>0</u> (A) <u>0</u> (B) Prevalence Index = B/A = <u>4.30</u>
1.				
2.				
3.				
4.				
Herb Stratum	Total Cover: <u>0</u> %			Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0' <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
1. <i>Juncus balticus</i>	10		FACW	
2. <i>Quercus gambelii</i>	50	Yes	UPL	
3. <i>Dactylis glomerata</i>	40	Yes	FACU	
4.				
5.				
6.				
7.				
Woody Vine Stratum	Total Cover: <u>100</u> %			Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>
1.				
2.				
Total Cover: <u>0</u> %				
% Bare Ground in Herb Stratum <u>0</u> %	% Cover of Biotic Crust <u>0</u> %			
Remarks:				

Sampling Point: U4

HYDROLOGY

US Army Corps of Engineers

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Bostwick Park City/County: Montrose County Sampling Date: 6/15/2021
 Applicant/Owner: BPWCD State: CO Sampling Point: U5
 Investigator(s): Tyler Schade, Becky Hendricks Section, Township, Range: S1, T47N, R7W
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): none Slope (%): 2-5
 Subregion (LRR): D - Interior Deserts Lat: 38.364291 Long: -107.582227 Datum: NAD 1983
 Soil Map Unit Name: Cerro-Swansonlake complex NWI classification: NA
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland?	Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present?	Yes <input checked="" type="radio"/> No <input checked="" type="radio"/>		
Wetland Hydrology Present?	Yes <input checked="" type="radio"/> No <input checked="" type="radio"/>		
Remarks:			

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33.3</u> % (A/B)
1.				
2.				
3.				
4.				
Sapling/Shrub Stratum				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u> </u> x 1 = <u>0</u> FACW species <u> </u> x 2 = <u>0</u> FAC species <u> </u> x 3 = <u>0</u> FACU species <u> </u> x 4 = <u>0</u> UPL species <u> </u> x 5 = <u>0</u> Column Totals: <u> </u> (A) <u>0</u> (B) Prevalence Index = B/A = <u>3.83</u>
1.				
2.				
3.				
4.				
Herb Stratum	Total Cover: <u> </u> %			Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0' <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
1. <i>Juncus balticus</i>	20	Yes	FACW	
2. <i>Artemisia tridentata</i>	25	Yes	UPL	
3. <i>Dactylis glomerata</i>	45	Yes	FACU	
4.				
5.				
6.				
7.				
Woody Vine Stratum	Total Cover: <u>90</u> %			Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>
1.				
2.				
Total Cover: <u> </u> %				
% Bare Ground in Herb Stratum	<u>10</u> %	% Cover of Biotic Crust	<u> </u> %	
Remarks:				

Sampling Point: U5

HYDROLOGY

US Army Corps of Engineers

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: <u>Bostwick Park</u>		City/County: <u>Montrose County</u>	Sampling Date: <u>6/14/2021</u>
Applicant/Owner: <u>BPWCD</u>		State: <u>CO</u>	Sampling Point: <u>W1</u>
Investigator(s): <u>Tyler Schade, Becky Hendricks</u>		Section, Township, Range: <u>S17, T48N, R9W</u>	
Landform (hillslope, terrace, etc.): <u>slope</u>		Local relief (concave, convex, none): <u>concave</u>	Slope (%): <u>2-5</u>
Subregion (LRR): <u>D - Interior Deserts</u>		Lat: <u>38.421089</u>	Long: <u>-107.88981</u> Datum: <u>NAD 1983</u>
Soil Map Unit Name: <u>Persayo-Briny, rarely flooded complex</u>		NWI classification: <u>R4SBC</u>	
Are climatic / hydrologic conditions on the site typical for this time of year? Yes <input checked="" type="radio"/> No <input type="radio"/> (If no, explain in Remarks.)			
Are Vegetation <input type="checkbox"/>	Soil <input type="checkbox"/>	or Hydrology <input type="checkbox"/>	significantly disturbed? Yes <input checked="" type="radio"/> No <input type="radio"/>
Are Vegetation <input type="checkbox"/>	Soil <input type="checkbox"/>	or Hydrology <input type="checkbox"/>	naturally problematic? Yes <input checked="" type="radio"/> No <input type="radio"/> (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>		
Wetland Hydrology Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>		
Remarks:			

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> % (A/B)
1.				
2.				
3.				
4.				
Sapling/Shrub Stratum				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species x 1 = <u>0</u> FACW species x 2 = <u>0</u> FAC species x 3 = <u>0</u> FACU species x 4 = <u>0</u> UPL species x 5 = <u>0</u> Column Totals: (A) <u>0</u> (B) <u>0</u> Prevalence Index = B/A = <u>1.30</u>
1.				
2.				
3.				
4.				
Herb Stratum				Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
Total Cover: <u>100</u> %				
1. <i>Carex sp.</i>	60	Yes	OBL	
2. <i>Juncus sp.</i>	30	Yes	FACW	
3. <i>Typha latifolia</i>	10		OBL	
Woody Vine Stratum				Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
1.				
2.				
Total Cover: <u>100</u> %				
% Bare Ground in Herb Stratum <u>0</u> %	% Cover of Biotic Crust <u>0</u> %			
Remarks:				

Sampling Point: W1

HYDROLOGY

US Army Corps of Engineers

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: <u>Bostwick Park</u>		City/County: <u>Montrose County</u>	Sampling Date: <u>6/14/2021</u>
Applicant/Owner: <u>BPWCD</u>		State: <u>CO</u>	Sampling Point: <u>W2</u>
Investigator(s): <u>Tyler Schade, Becky Hendricks</u>		Section, Township, Range: <u>S17, T48N, R9W</u>	
Landform (hillslope, terrace, etc.): <u>slope</u>		Local relief (concave, convex, none): <u>none</u>	Slope (%): <u>2-5</u>
Subregion (LRR): <u>D - Interior Deserts</u>		Lat: <u>38.418501</u>	Long: <u>-107.879851</u> Datum: <u>NAD 1983</u>
Soil Map Unit Name: <u>Persayo-Briny, rarely flooded complex</u>		NWI classification: <u>PEM1C</u>	
Are climatic / hydrologic conditions on the site typical for this time of year? Yes <input checked="" type="radio"/> No <input type="radio"/> (If no, explain in Remarks.)			
Are Vegetation <input type="checkbox"/> Soil <input type="checkbox"/> or Hydrology <input type="checkbox"/> significantly disturbed? Are "Normal Circumstances" present? Yes <input checked="" type="radio"/> No <input type="radio"/>			
Are Vegetation <input type="checkbox"/> Soil <input type="checkbox"/> or Hydrology <input type="checkbox"/> naturally problematic? (If needed, explain any answers in Remarks.)			

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>		
Wetland Hydrology Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>		
Remarks:			

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> % (A/B)
1.				
2.				
3.				
4.				
Sapling/Shrub Stratum				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species x 1 = <u>0</u> FACW species x 2 = <u>0</u> FAC species x 3 = <u>0</u> FACU species x 4 = <u>0</u> UPL species x 5 = <u>0</u> Column Totals: <u>(A)</u> <u>0</u> (B) Prevalence Index = B/A = <u>1.95</u>
1.				
2.				
3.				
4.				
Herb Stratum				Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
Total Cover: <u>100</u> %				
1. <i>Juncus balticus</i>	50	Yes	FACW	
2. <i>Typha latifolia</i>	30	Yes	OBL	
3. <i>Asclepias fascicularis</i>	15		FAC	
4. <i>Cirsium arvense</i>	5		FACU	
5.				
6.				
7.				
8.				
Woody Vine Stratum				Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
Total Cover: <u>100</u> %				
1.				
2.				
Total Cover: <u>100</u> %				
% Bare Ground in Herb Stratum <u>0</u> %	% Cover of Biotic Crust <u>0</u> %			
Remarks:				

Sampling Point: W2

HYDROLOGY

US Army Corps of Engineers

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: <u>Bostwick Park</u>		City/County: <u>Montrose County</u>	Sampling Date: <u>6/15/2021</u>
Applicant/Owner: <u>BPWCD</u>		State: <u>CO</u>	Sampling Point: <u>W3</u>
Investigator(s): <u>Tyler Schade, Becky Hendricks</u>		Section, Township, Range: <u>S1, T47N, R7W</u>	
Landform (hillslope, terrace, etc.): <u>slope</u>		Local relief (concave, convex, none): <u>none</u>	Slope (%): <u>2-5</u>
Subregion (LRR): <u>D - Interior Deserts</u>	Lat: <u>38.359200</u>	Long: <u>-107.584980</u>	Datum: <u>NAD 1983</u>
Soil Map Unit Name: <u>Cerro-Swansonlake complex</u>		NWI classification: <u>N/A</u>	
Are climatic / hydrologic conditions on the site typical for this time of year? Yes <input checked="" type="radio"/> No <input type="radio"/> (If no, explain in Remarks.)			
Are Vegetation <input type="checkbox"/> Soil <input type="checkbox"/> or Hydrology <input type="checkbox"/> significantly disturbed?	Are "Normal Circumstances" present? Yes <input checked="" type="radio"/> No <input type="radio"/>		
Are Vegetation <input type="checkbox"/> Soil <input type="checkbox"/> or Hydrology <input type="checkbox"/> naturally problematic?	(If needed, explain any answers in Remarks.)		

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>		
Wetland Hydrology Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>		
Remarks:			

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> % (A/B)
1.				
2.				
3.				
4.				
Sapling/Shrub Stratum				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species x 1 = <u>0</u> FACW species x 2 = <u>0</u> FAC species x 3 = <u>0</u> FACU species x 4 = <u>0</u> UPL species x 5 = <u>0</u> Column Totals: (A) <u>0</u> (B) <u>0</u> Prevalence Index = B/A = <u>2.30</u>
1.				
2.				
3.				
4.				
Herb Stratum	Total Cover: <u>100</u> %			Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0' <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
1. <i>Juncus balticus</i>	70	Yes	FACW	
2. <i>Carex sp.</i>	10		OBL	
3. <i>Dacylis glomerata</i>	20	Yes	FACU	
4.				
5.				
6.				
7.				
Woody Vine Stratum	Total Cover: <u>100</u> %			Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
1.				
2.				
% Bare Ground in Herb Stratum <u>5</u> % % Cover of Biotic Crust <u> </u> %				
Remarks:				

Sampling Point: W3

HYDROLOGYUS Army Corps of Engineers

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Bostwick Park City/County: Montrose County Sampling Date: 6/15/2021
 Applicant/Owner: BPWCD State: CO Sampling Point: W4
 Investigator(s): Tyler Schade, Becky Hendricks Section, Township, Range: S1, T47N, R7W
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): none Slope (%): 2-4
 Subregion (LRR): D - Interior Deserts Lat: 38.363661 Long: -107.583476 Datum: NAD 1983
 Soil Map Unit Name: Cerro-Swansonlake complex NWI classification: N/A
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>		
Wetland Hydrology Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>		
Remarks:			

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> % (A/B)
1.				
2.				
3.				
4.				
Sapling/Shrub Stratum				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u> </u> x 1 = <u>0</u> FACW species <u> </u> x 2 = <u>0</u> FAC species <u> </u> x 3 = <u>0</u> FACU species <u> </u> x 4 = <u>0</u> UPL species <u> </u> x 5 = <u>0</u> Column Totals: <u> </u> (A) <u>0</u> (B) Prevalence Index = B/A = <u>2.95</u>
1.				
2.				
3.				
4.				
5.				
Total Cover: <u> </u> %				
Herb Stratum				Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
1. <i>Juncus balticus</i>	50	Yes	FACW	
2. <i>Cirsium arvense</i>	5		FACU	
3. <i>Dactylis glomerata</i>	40	Yes	FACU	
4.				
5.				
6.				
7.				
8.				
Total Cover: <u>95</u> %				
Woody Vine Stratum				¹ Indicators of hydric soil and wetland hydrology must be present.
1.				
2.				
Total Cover: <u> </u> %				
% Bare Ground in Herb Stratum <u>5</u> %	% Cover of Biotic Crust <u> </u> %			Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks:				

Sampling Point: W-4

HYDROLOGY

US Army Corps of Engineers

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Bostwick Park City/County: Montrose County Sampling Date: 6/15/2021
 Applicant/Owner: BPWCD State: CO Sampling Point: W5
 Investigator(s): Tyler Schade, Becky Hendricks Section, Township, Range: S1, T47N, R7W
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): none Slope (%): 2-4
 Subregion (LRR): D - Interior Deserts Lat: 38.364255 Long: -107.582237 Datum: NAD 1983
 Soil Map Unit Name: Cerro-Swansonlake complex NWI classification: NA
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>		
Wetland Hydrology Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>		
Remarks:			

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> % (A/B)
1.				
2.				
3.				
4.				
Sapling/Shrub Stratum				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u> </u> x 1 = <u>0</u> FACW species <u> </u> x 2 = <u>0</u> FAC species <u> </u> x 3 = <u>0</u> FACU species <u> </u> x 4 = <u>0</u> UPL species <u> </u> x 5 = <u>0</u> Column Totals: <u> </u> (A) <u>0</u> (B) Prevalence Index = B/A = <u>2.48</u>
1.				
2.				
3.				
4.				
5.				
Total Cover: <u> </u> %				
Herb Stratum				Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
1. <i>Juncus balticus</i>	80	Yes	FACW	
2. <i>Cirsium arvense</i>	5		FACU	
3. <i>Dactylis glomerata</i>	20	Yes	FACU	
4.				
5.				
6.				
7.				
8.				
Total Cover: <u>105</u> %				
Woody Vine Stratum				¹ Indicators of hydric soil and wetland hydrology must be present.
1.				
2.				
Total Cover: <u> </u> %				
% Bare Ground in Herb Stratum <u> </u> %	% Cover of Biotic Crust <u> </u> %			Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks:				

Sampling Point: W5

HYDROLOGY

US Army Corps of Engineers

Appendix F: Aquatic Resource Excel Sheet

Waters_Name	State	Cowardin_Code	HGM_Code	Meas_Type	Amount	Units	Waters_Type	NWPR_Determine_Code	Latitude	Longitude
Wetland 1	COLORADO	PEM	DEPRESS	Area	1.62	ACRE	B7ARTIRR		38.42156	-107.88987
Wetland 2	COLORADO	PEM	SLOPE	Area	1.71	ACRE	B7ARTIRR		38.424073	-107.88728
Wetland 3	COLORADO	PEM	SLOPE	Area	0.16	ACRE	B7ARTIRR		38.420916	-107.88303
Wetland 4	COLORADO	PEM	SLOPE	Area	0.05	ACRE	B7ARTIRR		38.420299	-107.88219
Wetland 5	COLORADO	PEM	SLOPE	Area	0.08	ACRE	B7ARTIRR		38.418612	-107.87993
Wetland 6	COLORADO	PEM	SLOPE	Area	0.67	ACRE	B7ARTIRR		38.415282	-107.87725
Wetland 7	COLORADO	PEM	SLOPE	Area	0.6	ACRE	B7ARTIRR		38.454739	-107.65233
Wetland 8	COLORADO	PEM	SLOPE	Area	0.11	ACRE	B7ARTIRR		38.455291	-107.65179
Wetland 9	COLORADO	PEM	SLOPE	Area	0.47	ACRE	B7ARTIRR		38.455106	-107.65088
Wetland 10	COLORADO	PEM	SLOPE	Area	0.11	ACRE	B7ARTIRR		38.363938	-107.58269
Wetland 11	COLORADO	PEM	SLOPE	Area	0.08	ACRE	B7ARTIRR		38.359101	-107.58495
Wetland 12	COLORADO	PEM	SLOPE	Area	0.03	ACRE	B7ARTIRR		38.362303	-107.58623
M&D Canal	COLORADO	R5UB	RIVERINE	Area	14.51	ACRE	B5DITCH		38.428185	-107.89186
East Lateral	COLORADO	R4SB	RIVERINE	Area	2.32	ACRE	B5DITCH		38.530429	-107.74296
West Lateral	COLORADO	R4SB	RIVERINE	Area	1.15	ACRE	B5DITCH		38.526117	-107.76026
Vernal Mesa Ditch	COLORADO	R4SB	RIVERINE	Area	1.1	ACRE	B5DITCH		38.455517	-107.65273
Cimarron Canal	COLORADO	R4SB	RIVERINE	Area	6.31	ACRE	B5DITCH		38.360414	-107.5819
Cimarron River	COLORADO	R4SB	RIVERINE	Area	0.45	ACRE	A2TRIBINT		38.266163	-107.54219
Happy Canyon Creek	COLORADO	R3UB	RIVERINE	Area	0.01	ACRE	A2TRIBPER		38.420264	-107.89283

Biological Assessment

Biological Assessment for BPWCD Agricultural Water Management and Fish and Wildlife Project

Montrose County and Gunnison County, Colorado

Prepared for:

The Bostwick Park Water Conservancy District and

The U.S. Department of Agriculture

Natural Resources Conservation Service

Prepared by:

J-U-B ENGINEERS, Inc.

305 S. Main Street, Unit 6

P.O. Box 1161

Palisade, CO 81526

March 2023

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Appendices

Appendix A – Vicinity Maps
Appendix B – USFWS IPaC Reports
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1 Project Coordination/Consultation

The United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), the Bostwick Park Water Conservancy District (BPWCD), Uncompahgre Valley Water Users Association (UVWUA), Cimarron Canal and Gunnison Counties (CC&RC), and Trout Unlimited propose to use federal funds to implement an agricultural water management, and fish and wildlife project (Proposed Project) within the Bostwick Park and Montrose, CO areas (Appendix A). Official Species Lists for each project segment were generated on February 22, 2021 from the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) system and last updated on March 1, 2023 (Appendix B; USFWS 2023). On September 13, 2022, the USFWS announced a proposal to list the tricolored bat (*Pipistrellus subflavus*) as endangered under the Endangered Species Act (ESA). The USFWS IPaC did not list this species. This species is described in this BA, pursuant to NRCS' ESA compliance responsibility. A species list was obtained from the Colorado Natural Heritage Program (CNHP) to identify additional species of concern with potential to occupy the Action Area, and the Colorado Division of Parks and Wildlife (CPW) was consulted to identify state listed threatened, endangered or species of concern with potential to occur in the Action Area.

On April 21, 2021, J-U-B ENGINEERS, Inc. (J-U-B; Autumn Foushee Davies) and NRCS (Krystal Phillips) discussed the Proposed Project over a Microsoft Teams meeting with USFWS biologist Creed Clayton to establish the scope and nature of this consultation. It was determined during the meeting that potential impacts to ESA-listed species and critical habitat will be mitigated and disclosed if present. USFWS stated that only poor to marginal habitat for the Gunnison sage-grouse exists within the Proposed Project footprint. USFWS confirmed that there is no suitable habitat for the yellow-billed cuckoo or for the Canada lynx present within the Action Area. Additionally, no Mexican spotted owl habitat is present within the Action Area because of the absence of cliff structure and the appropriate forest/cliff composition. The Upper Colorado River Programmatic Biological Opinion (PBO) issued by the USFWS in 1999 (USFWS 1999; TAILS FWS/R6 ES/GJ-6-CO-99-F-033) was referenced to support determinations of effects from the Proposed Project on the four endangered Colorado fishes. This PBO addressed the impacts related to water depletions that occur above the confluence with the Colorado and Gunnison Rivers and impacts on critical habitat from Rifle to Lake Powell. The Bureau of Reclamation (Reclamation) projects included in the PBO are the following: Colorado-Big Thompson Project, Fryingpan-Arkansas Project, Collbran Project, Grand Valley Project, and Silt Project. The PBO addressed the continuation of existing depletions and 120,000 acre-feet (ac-ft) per year of new depletions above the confluence with the Gunnison River. The PBO found that the Upper Colorado River Endangered Fish Recovery Program (Recovery Program), established in 1988, is the reasonable and prudent alternative to avoid jeopardy to the endangered Colorado River fishes (bonytail chub, Colorado pikeminnow, humpback chub, and razorback sucker) and avoid adverse modification of designated critical habitat. The Recovery Program is a partnership of public and private organizations working to recover the four species while allowing continued and future water development. No other endangered species concerns are identified for the Proposed Action and no formal consultation will be required.

On October 18, 2021, NRCS (Krystal Phillips) discussed with the USFWS (Creed Clayton) the designation of the monarch butterfly as a candidate species on the USFWS IPaC resource list in Colorado and the scope of consultation required (Appendix B). Because the monarch butterfly is a candidate species, no

formal consultation is necessary for this species, however an effects analysis is presented for the monarch and Great Basin silverspot butterflies.

Prior to completing a field survey, a desktop analysis of the Action Area was conducted using digital maps and available GIS data. Surveys of the sites were completed between June 14 and June 15, 2021. J-U-B has prepared this Biological Assessment (BA) on behalf of the BPWCD and for the NRCS, in compliance with Section 7(a)(2) of the ESA (16 U.S.C. 1536(c)), to evaluate the effects that the Proposed Project may have on biological resources, should it be implemented.

2 Proposed Action

Through the provisions of the Watershed and Flood Prevention Operations Program (WFPO), the Proposed Project would stabilize and line approximately 1.5 miles of UVWUA open canal, pipe several miles of BPWCD laterals, replace a failing section of existing pipeline, and install temperature monitors in the Cimarron River. The activities proposed by the cooperating entities would address flood risk reduction, water conservation, and salt and selenium loading. The Proposed Project would occur at several sites (elements) in the region.

2.2 Action Area

The Proposed Project footprint (Action Area) is divided into several elements that are scattered throughout Montrose and Gunnison Counties in Western Colorado. Six separate elements will be evaluated in this report: West Lateral, East Lateral, M&D Canal, Slide Point, Coal Hill, and Wells Basin. This BA was prepared to provide technical information regarding the Proposed Project actions and biological resources within the Action Area. Maps of the Project Action Areas surveyed are detailed in Appendix A.

2.3 Summary of Project Elements

The East and West Laterals are part of the BPWCD system and located in the Bostwick Park area, adjacent to agricultural fields. The M&D Canal is part of the UVWUA system and situated west of Highway 550 between Montrose and Vernal, Colorado. Both the Coal Hill and Wells Basin Proposed Project elements are situated on the Cimarron Canal. The Slide Point component is situated along the Vernal Mesa Canal, north of Highway 50 near the Montrose Reservoir. The Vernal Mesa Canal conveys water to the BPWCD system. The Cimarron Canal and the M&D Canal are supplied originally from the Cimarron Diversion in Gunnison County, at the confluence of the Cimarron Canal and the Cimarron River, where water is diverted from the River to the Cimarron Canal. Details on existing environmental conditions within each Proposed Project element are explained in Section 5.

Schedule

Construction of the Proposed Project would be anticipated to occur from winter 2024 to fall 2025.

3 Best Management Practices and Conservation Measures

The following Best Management Practices (BMPs) and conservation measures are intended to minimize adverse effects to biological resources and habitat that may support federally protected or state-listed sensitive species. These conservation measures are integral components of the Proposed Project and would ensure that project activities are completed with minimal impacts to biological resources.

Construction BMPs shall include, but are not limited to, the following:

1. All construction activities, equipment storage, and materials staging would be conducted within the Action Area.
2. Temporary erosion and sediment control (TESC) devices would be incorporated in active construction areas to prevent sediment discharges to surface waters. These devices must remain in place until the potential for sediment migration is no longer a risk.
3. Care should be taken to retain and protect native, existing vegetation to the greatest extent practicable.
4. All construction activities should be scheduled to occur outside of nesting bird season.
5. If vegetation removal would occur during the breeding and nesting season for migratory birds, a nesting survey would be required by a qualified biologist, no less than 7 days prior to the removal of trees and shrubs to identify any active nests in the Action Area.
6. If tree removal would occur between non-hibernating seasons for the tri-colored bat (Spring – Fall), a clearance survey for roosting bats would be required by a qualified biologist, no less than 7 days prior to the removal of trees in the Action Area.
7. Excavated sediment and debris shall be disposed of at a pre-approved area no less than 200 feet from any surface water feature.
8. An approved native seed mix appropriate to the Action Area would be applied, where applicable, to areas where ground disturbance has occurred.

Chemical pollution measures shall include, but are not limited to, the following:

1. A Colorado Discharge Permit System (CDPS) General Permit would be required prior to construction. A CDPS General Permit, and associated Stormwater Management Plan (SWMP), and Spill Prevention and Countermeasure Control (SPCC) Plan would be implemented to protect water quality and to prevent water pollution from runoff, spills, leaks, and leaching. All construction equipment shall be decontaminated with high pressure water prior to mobilization to the job site to remove all surface oil, grease, dirt, and plant matter. Proper decontamination is particularly critical to prevent the spread of noxious and/or non-native vegetation into agricultural fields.
2. Machinery will be fueled or lubricated no less than 150 feet from live water. Machinery will be fueled over a surface that will facilitate spill remediation. Machinery shall be maintained in a petroleum leak-free condition to reduce levels of groundwater contamination.
3. Major maintenance of equipment such as changing fluids, overhaul, tune-ups, and similar types of regularly scheduled maintenance shall be performed at an approved off-site facility or staging area.
4. Petroleum products and hazardous, toxic, and/or deleterious materials shall not be stored, disposed of, or accumulated adjacent to or in the immediate vicinity of live water.

5. Emergency spill procedures shall be in place and may include personnel trained in emergency spill response procedures and spill response kits (e.g., oil absorbent booms or other equipment).
6. Vegetable-based hydraulic fluid should be used in equipment operating near a waterbody.
7. Portable toilets shall not be placed adjacent to streams, lakes, wetlands, wells, or springs. They shall be located no less than 150 feet from these areas to prevent contamination of any water sources. At the completion of construction, these facilities shall be removed and taken to an off-site location.

5 Existing Environmental Conditions

Conditions within the Proposed Projects elements varied in elevation and general habitat type. They are grouped below by similar location and habitat type. A photo inventory to illustrate habitat conditions observed within the Action Area is included in Appendix C.

5.1 West and East Laterals

The West and East Laterals extend through a relatively flat agricultural area, at about 7,000 feet above mean sea level (AMSL) outside of the community of Montrose. The West Lateral is bordered by agricultural fields, and active cattle grazing was observed near the lateral during surveys. Prairie dogs (*Cynomys sp.*) were abundant at the West Lateral element. A pinyon juniper ecotype is present on the east side of the East Lateral with agricultural fields bordering the west side. Sparse willow (*Salix sp.*), rabbitbrush (*Ericameria nauseosa*) and alfalfa (*Medicago sativa*) were the dominant plants observed along the East Lateral. Eroded banks were noted at both laterals. Four proposed staging areas are located along each lateral, in the adjacent agricultural fields.

5.2 M&D Canal

The M&D Canal sits an elevation of about 6,032 feet AMSL and runs through sections of coyote willow (*Salix exigua*) and established narrowleaf and Fremont cottonwoods (*Populus spp.*), and open areas that include a shrub layer constituted mostly by big sagebrush, skunkbush sumac (*Rhus trilobata*), greasewood (*Sarcobatus vermiculatus*), rock clematis (*Clematis columbiana*), and sack saltbush (*Atriplex saccaria*). The M&D alignment runs among lowlands within the community of Montrose and is bordered by agricultural fields along the southern half of its alignment. Banks upland and below the M&D Canal have been disturbed; infestations of noxious species including Russian olive (*Elaeagnus angustifolia*), spotted knapweed (*Centaurea stoebe*), whitetop (*Lepidium draba*) and Russian knapweed (*Acroptilon repens*) were observed. One adult and four great horned owl fledglings (*Bubo virginianus*) were observed roosting in trees along the M&D alignment. One wetland occurs within the Action Area at M&D, east of County Road 6400 in/near the southeastern portion of the Study Area. This wetland is approximately 2.65 acres, occurs just north of the canal alignment, and is hydrologically maintained by seasonal seepage from canals, during irrigation season. Freshwater emergent wetlands were observed below the alignment to the northeast in five locations, outside of the Action Area. A proposed staging area is located upslope of the southern/central portion of the M&D Canal, within an actively disturbed staging and construction yard (See Action Area Map in Appendix A).

5.3 Slide Point

The Vernal Mesa Canal at Slide Point is in an upland area above Montrose Valley at approximately 8,000 feet AMSL. The area is characterized by upland vegetation. Gambel oak (*Quercus gambelii*), rabbitbrush, Western serviceberry (*Amelanchier alnifolia*), roundleaf snowberry (*Symphoricarpos rotundifolius*), big sagebrush and Woods' rose (*Rosa woodsii*) are the dominant species present along the alignment. Some noxious species like Canada thistle (*Cirsium arvense*) and white top are present throughout the Proposed Project alignment. No wetland areas were determined to exist inside the Action Area, however some likely seepage induced wetlands were seen at a distance downslope from the canal, characterized by the presence of rush (*Juncus sp.*). Mule deer (*Odocoileus hemionus*) were observed moving along the hillsides above the Slide Point Canal. Overall, habitat is dry, open and upland on both sides of the canal. Two proposed staging areas are located within disturbed, barren soil areas located at the northern terminus of the Slide Point Canal, and three additional proposed staging areas are located along the access road to the Vernal Mesa Canal alignment, and along the existing canal, before reaching the Action Area.

5.4 Coal Hill & Wells Basin

Both the Coal Hill (8,250 feet AMSL) element and the Wells Basin element (8,300 feet AMSL) are in a high elevation, subalpine mountain environment. Along the Cimarron Canal alignment at these locations, the dominant vegetation cover is primarily characterized by Gambel oak, rabbitbrush, roundleaf snowberry, and Wood's rose. White top and Canada thistle are common at both sites. Both areas have been heavily grazed by cattle, and are also currently grazed by horses, which were observed during site surveys. Three wetlands occur within the Action Area at Wells Basin. The hydrology for all three identified wetland originates from canal seepage. The area of the three wetlands are as follows: approximately 0.18 acres; approximately 0.12 acres; and, approximately 0.04 acres. Seepage was noted and evaluated below the Cimarron Canal alignment at both Coal Hill and Wells Basin, outside of the Action Area. Proposed staging areas are located at the northern and southern termini of both Coal Hill and Wells Basin. These areas are directly adjacent to the canal access roads, and flat and vegetated with low growing native and non-native herbaceous vegetation. These locations were previous disturbed by canal construction and maintenance activities.

6 ESA Species & Habitat

Species of Concern

Table 1 summarizes the Proposed, Candidate, and Threatened and Endangered Species (TES) listed in the USFWS IPaC report as having the potential to occur in each Proposed Project element area (Appendix B). The report identified designated critical habitat for the Gunnison sage-grouse (*Centrocercus minimus*) in three Proposed Project element areas. No refuge lands were identified within the Action Area. Bird species protected under the Migratory Bird Treaty Act (MBTA Species) and under the Bald and Golden Eagle Protection Act (BGEPA) that have the potential to occur in each Proposed Project element area according to the IPaC report are outlined in Table 2.

Table 1. USFWS Threatened and Endangered Species and Critical Habitat by Proposed Project Element¹

Wildlife TES	BPWCD Segment Location					
	W Lateral	E Lateral	Coal Hill	M&D Canal	Slide Point	Wells Basin
Gunnison sage-grouse (<i>Centrocercus minimus</i>)	X	X	X	X	X	X
yellow-billed cuckoo (<i>Coccyzus americanus</i>)	-	-	-	X	-	X
Mexican spotted owl (<i>Strix occidentalis lucida</i>)	X	X	X	-	X	X
Canada lynx (<i>Lynx canadensis</i>)	-	-	-	-	-	X
Gray wolf (<i>Canis lupus</i>)	X	X	X	X	X	X
Monarch butterfly (<i>Danaus plexippus</i>)	X	X	X	X	X	X
Great Basin silverspot butterfly (<i>Speyeria nokomis nokomis</i>)	X	X	X	X	X	X
Fish TES						
bonytail (<i>Gila elegans</i>)	X	X	X	X	X	X
Colorado pikeminnow (<i>Ptychocheilus lucius</i>)	X	X	X	X	X	X
humpback chub (<i>Gila cypha</i>)	X	X	X	X	X	X
razorback sucker (<i>Xyrauchen texanus</i>)	X	X	X	X	X	X
Critical Habitat						
Gunnison sage-grouse (<i>Centrocercus minimus</i>)	-	-	X	-	X	X

Species Descriptions

Yellow-billed cuckoo

The yellow-billed cuckoo (YBCU; *Coccyzus americanus*) was listed as threatened by the USFWS on November 3, 2014. Yellow-billed cuckoos are considered a riparian obligate and are usually found in large tracts of cottonwood/willow habitat with dense sub-canopies (below 33 feet). In Colorado, the YBCU is dependent on large areas of woody, riparian vegetation that combine a dense shrubby understory for nesting and a cottonwood overstory for foraging. Suitable breeding and nesting habitat for the species must be at least 300-feet-wide and a minimum of 12 contiguous acres (USFWS 2023). The most recent and nearest recorded occurrence of YBCU in western Colorado was located along the North Fork of the Gunnison River, near Hotchkiss, Colorado. The nearest Critical Habitat for the YBCU occurs approximately 15 miles outside of the Action Area (see Species' Critical Habitat and Ranges Map in Appendix A).

In May of 2021, the USFWS updated the designation of 298,845 acres of critical habitat for the YBCU western distinct population segment (DPS) in Arizona, California, Colorado, Idaho, New Mexico, Texas, Utah and Wyoming (86 FR 20798). The USFWS IPaC Report did not identify any proposed or designated

¹ The tri-colored bat was not shown to occur within any project element on the USFWS IPaC reports. This species is evaluated within this Biological Assessment at the request of NRCS.

final critical habitat for the species in the Action Area. The nearest designated Critical Habitat occurs along the North Fork of the Gunnison River, approximately 4.17 miles to the northwest of the East Lateral segment of the Proposed Project. Primary threats to the YBCU include conversion of riparian habitat to agriculture and other uses, dam construction, stream channelization and stabilization and livestock grazing (USFWS 2017).

Tri-colored bat

The tri-colored bat was proposed to be listed as endangered under the ESA, on September 13, 2022. The tri-colored bat is a small bat with a wide range that includes eastern and portions of central U.S. They roost within caves or cave like structures, such as culverts (USFWS 2022a). The tri-colored bat will also roost in trees, especially outside of the winter season, and can be associated with deciduous forests. The tri-colored bat is not migratory (CPW 2022). The only documented occurrence of this species in Colorado occurred in September 1987 in town of Greeley, which is outside of the bat's typical range. The primary threat to the tri-colored bat is white-nose syndrome, which is caused by a fungal pathogen. This disease has spread rapidly across the range of the tri-colored bat, since first being described in 2006 in New York state. The disease has led to a decline in winter colony abundance of the tri-colored bat by approximately 90% to 100% where the white nose syndrome is found (USFWS 2022a).

Gunnison sage-grouse

The Gunnison sage-grouse (*Centrocercus minimus*) was listed as Threatened by the USFWS in 2014. The range-wide population of the Gunnison sage-grouse is estimated at only 5,000 birds across a total of eight areas in Colorado and one area near Monticello, Utah, with 86% of individuals residing in the Gunnison Basin in Colorado (USFWS 2021a). This species occurs below 9,500 ft AMSL. Suitable habitat for the Gunnison sage-grouse is characterized by big sagebrush (*Artemisia tridentata*) dominant ecotypes, where good shrub cover exists, adjacent to mesic meadow or riparian areas. (Sage-Grouse Initiative 2017). The primary threat to this grouse species is habitat loss, degradation and fragmentation due to human development. Other development, including mineral, water and fence construction are also harmful to habitat for this species, as well as overgrazing, invasive plant infestations, fire, piñon-juniper encroachment, and predation (USFWS 2021a). Critical Habitat and potentially occupied habitat (undocumented historical lek) for the Gunnison sage-grouse overlaps with the Slide Point and Coal Hill project elements, within the Action Area (see Species' Critical Habitat and Ranges Map in Appendix A).

Mexican spotted owl

The Mexican spotted owl (MSO; *Strix occidentalis lucida*) was listed as Threatened by the USFWS in 1993. This owl species resides in old growth or mature forests, and canyons with conifer forests and riparian elements. Suitable habitat for the MSO includes canyons with rocky cliffs and rock walls with caves, ledges and other areas that provide protected roosting locations and nest sites. Foraging habitat for this owl includes forest and riparian areas, canyon bottoms and rims, and cliff faces. Direct threats to populations of the MSO include removal of mature or old growth forests. High human activity near nesting, roosting or foraging sites may result in nest abandonment (USFWS 2021b). No Critical Habitat for the MSO is located near the Action Area. Because of the distance of known MSO Critical Habitat from the Action Area, which is more than 25 miles from the Action Area, this habitat data was not included in the attached Species' Critical Habitat and Ranges Map (Appendix A).

Canada lynx

The Canada lynx (*Lynx canadensis*) is a medium-sized cat that has long legs, large paws, tufted ears and a short, black-tipped tail. The Canada lynx was listed as Threatened by U.S. Fish and Wildlife Service on March 24, 2000. This cat species is widely distributed across the U.S. and Canada, and is strongly associated with moist, cool, boreal spruce-fir forests, where its primary prey (the snowshoe hare, *Lepus americanus*) is also found. Populations of the Canada lynx usually occur where annual continuous snow cover persists four months or longer. The population in western Colorado is an introduced population and occurs above 8,000 AMSL (USFWS 2021c). The primary concern for populations of Canada lynx is habitat loss and fragmentation, including snowshoe hare habitat loss and population decline. The species range for the Canada lynx overlaps with the Wells Basin project element, within the Action Area (see Species' Critical Habitat and Ranges Map in Appendix A).

Gray wolf

The gray wolf (*Canis lupus*) is an adaptable, keystone predator species that can exist in a wide range of habitats, including temperate forests, boreal forests, mountain areas, tundra, grasslands, and deserts. The gray wolf was first listed as endangered on the subspecies level (*C. lupus*), in the contiguous U.S. and Mexico on March 9, 1978, except for the Minnesota gray wolf population, which was listed as threatened. The Northern Rocky Mountains gray wolf population was delisted in 2011, due to recovery, except for populations in Wyoming which were delisted in 2017 (USFWS 2022b). Remaining U.S. wolf populations in the U.S. were delisted in 2021 due to recovery. However, as of February 10, 2022, gray wolves in the contiguous 48 states and Mexico, except for the Northern Rocky Mountain population, are protected under the ESA. Gray wolves are listed as threatened in Minnesota and endangered in the remaining states (USFWS 2022c). The gray wolf is also a state listed endangered species in Colorado. In North America, the gray wolf is primarily a predator of medium and large hooved animals, including moose (*Alces alces*), elk (*Cervus canadensis*), white-tailed deer (*Odocoileus virginianus*) and caribou (*Rangifer tarandus*). Its historic range in the U.S. includes two-thirds of the U.S. Today, populations of the gray wolf are found in Alaska, northern Michigan, northern Wisconsin, western Montana, northern Idaho, northeast Oregon, and the Yellowstone area of Wyoming. The gray wolf is native to Colorado and was eradicated in the state by the mid-1940's but has recently been documented as having re-entered the state. Suitable habitat for gray wolf is present in Colorado due to the extensive public lands that support an abundant prey base. Historic and current threats to the gray wolf are lethal human interactions, which include predator-control programs and hunting. No predator management program is included under the Proposed Project.

Bonytail

In 1980, the USFWS listed the bonytail chub (*Gila elegans*) as an endangered species under the ESA. Bonytail chub is a minnow that is native to the Colorado River system. The near extinction of the bonytail chub can be linked back to flow regulation or alteration, habitat loss, and competition and predation by non-native fishes. Bonytail chub are opportunistic feeders; their prey includes insects, zooplankton, algae, and higher plant matter. Bonytail chub spawn in spring and summer over gravel substrate. Currently, many bonytail chub are raised in fish hatcheries and released into the wild when they are large enough to survive in their natural environment. Bonytail chub prefer stream habitat that

consists of eddies, pools, and backwaters near swift currents in large rivers (Colorado River Recovery 2021). The nearest Critical Habitat for the bonytail is located approximately 17 miles outside of the Action Area (see Species' Critical Habitat and Ranges Map in Appendix A).

Colorado pikeminnow

The Colorado pikeminnow (*Ptychocheilus lucius*) is native to the Colorado River system of the western United States and Mexico. The Colorado pikeminnow was added to the list of endangered species in 1967. Their current range is limited to the upper Colorado River system. The near extinction of the Colorado pikeminnow can be linked to flow regulation or alterations (e.g., the installation of dams), habitat loss, and competition and predation by non-native fishes. Colorado pikeminnows are mainly piscivorous; younger pikeminnows also eat insects and other invertebrates. They spawn in the summer over gravel or smaller cobble substrate situated in riffle habitat. Adult Colorado pikeminnows prefer medium to large rivers and the juveniles prefer slow-moving backwaters. Historical accounts of six-foot long Colorado pikeminnows make this species the largest minnow in North America (Colorado River Recovery 2021). The nearest Critical Habitat for the Colorado pikeminnow is located approximately 17 miles outside of the Action Area (see Species' Critical Habitat and Ranges Map in Appendix A).

Humpback Chub

The humpback chub (*Gila cypha*) is a minnow that is native to the upper Colorado River system including the Green, Yampa, White, and Little Colorado Rivers (USFWS 2014). The USFWS listed the humpback chub as endangered under the ESA in 1967 (USFWS 1990). The humpback chub originally thrived in the fast, deep, white-water areas of the Colorado River and its major tributaries. Human-induced flow alteration, like dams and irrigation diversions, have eliminated habitat and migration routes for the species. Documented occurrences of the humpback chub in Utah are now confined to a few whitewater areas in the Colorado, Green, and White Rivers. The species spawns during the spring and summer in shallow, backwater areas with cobble substrate. Younger chub reside in shallower, turbid habitats until they are large enough to move into whitewater areas (USFWS 2014). The nearest Critical Habitat for the humpback chub is located approximately 17 miles outside of the Action Area (see Species' Critical Habitat and Ranges Map in Appendix A).

Razorback Sucker

The razorback sucker (*Xyrauchen texanus*) is a federally endangered sucker fish that is native to the Colorado River system. Recent reports of this species have only come from the lower Colorado, lower Yampa, and Green Rivers (USFWS 2014a). The near extinction of the razorback sucker can be linked to flow regulation or alterations (e.g., the installation of dams and irrigation diversions), habitat loss, and competition and predation by non-native fishes. They spawn between February and June. Adult razorback suckers prefer slow backwater habitats (USFWS 2014a). The nearest Critical Habitat for the razorback sucker is located approximately 17 miles outside of the Action Area (see Species' Critical Habitat and Ranges Map in Appendix A).

Monarch Butterfly

The monarch butterfly (*Danaus plexippus*) was designated as a candidate species under the ESA on December 15, 2020. This species has black and orange wings that span 4 inches on average, with black

veins and white spots along wing margins. These butterflies migrate approximately 1,200 to 2,800 miles from breeding grounds in Canada and the United States to hibernation grounds in central Mexico or southern California. In many regions, monarchs breed year-round. Milkweed (*Asclepias* spp.) is an obligate plant species in the monarch butterfly's lifecycle. Breeding monarchs lay their eggs in milkweed plants and larvae emerge between two to five days later. After larvae have emerged, they will feed on milkweed as they develop into a chrysalis. Nectar and milkweed resources for monarch butterflies are often associated with riparian corridors. Primary threats to the monarch butterfly include climate change, which affects weather conditions in both the wintering grounds and summer breeding grounds. Climate change-influenced patterns of drought and rainfall can increase adult butterfly mortality and reduce food availability for monarch caterpillars (WWF 2021). Habitat loss and fragmentation from development and pesticide use, which impacts milkweed abundance (the primary food plant for the monarch) also contribute to decline in populations of the monarch butterfly (USFWS 2021d).

Great Basin Silverspot Butterfly

The Great Basin silverspot butterfly (*Speyeria nokomis nokomis*) was first proposed as an ESA-threatened species on July 3, 1978 and was proposed most recently for ESA listing under the Section 4(d) Rule on May 4, 2022. This butterfly is a subspecies of the Nokomis fritillary (*Speyeria nokomis*) and has an orange-brown wing color with black markings, and a wingspan that ranges from 6.3 to 7.9 cm (USFWS 2013). The range of the Great Basin silverspot is limited and includes small regions in Colorado, New Mexico, Utah and Arizona, which totals approximately 8,000 square miles. This subspecies does not migrate (USFWS 2013). The Great Basin silverspot is associated with desert environments, and pinyon-juniper and mixed evergreen forest types. Its habitat typically includes wet meadows, seepage areas, wetlands, marshes and streamsides. The larval food plant for the Great Basin silverspot is the Northern bog violet (*Viola nephrophylla*) and adults feed on other nectar sources (USFWS 2013). The Great Basin silverspot must be able to complete its life cycle in nearby suitable habitats of close, because of its specific habitat needs and lack of migratory behavior. Additionally, this butterfly only produces one generation each calendar year (USFWS 2013). The success of populations of this subspecies depends on availability of habitat with the presence of bog violets and other nectarous food sources, and connectivity with riparian zones. Conversion of land, and loss and fragmentation of wetland and riparian habitat within the range of the Great Basin silverspot are the biggest threats to this species.

Migratory Birds

Fourteen MTBA-protected species and one BGEPA-protected species were indicated by USFWS to occur across respective elements in the Action Area (Table 2). One eagle species, the bald eagle, is included in the MTBA and BGEPA species list. Eagles require nesting sites high above the ground in tree canopies that are open and accessible. Bald eagles typically breed in forested areas adjacent to large bodies of water (USFWS 2021e).

Black swifts occur across a wide range of elevations in Canada and the U.S., usually over 6,800 ft AMSL. They nest near water, often on cliff edges behind or near waterfalls in cup nests made of mud and moss (Cornell 2022a). The Western grebe and lesser yellowlegs can be found in freshwater wetlands, including marshes, pond and lake edges, wet meadows, sewage ponds and flooded irrigation fields. The lesser yellowlegs will also inhabit brackish wetlands (Cornell 2022b; Cornell 2022c). Virginia's warblers

and pinyon jays nest and breed in piñon pine-juniper habitat, oak scrub and chaparral habitats as high as 7,800 feet AMSL (Cornell 2022d; Cornell 2022e). The Grace's warbler also nests and winters in mountain habitats, in mature pine and pine-oak forests (Cornell 2022f). The olive-sided flycatcher and Cassin's finch breed in boreal forests and western coniferous forests from sea level to higher than 10,000 AMSL in parts of the Rocky Mountains. The olive-sided flycatcher can prefer forest openings or edges like meadows, rivers and streams, recent burns or partially logged areas, while the Cassin's finch often lives in mature forests of lodgepole and ponderosa pine (Cornell 2022g; Cornell 2022h). Long-eared owls will roost and nest in dense vegetation and will forage in open habitats like grasslands and shrublands and also in open coniferous or deciduous woodlands (Cornell 2022i). The evening grosbeak breeds in mature and second-growth coniferous forests of northern North America and the Rocky Mountains, including spruce-fir, pine-oak, pinyon-juniper, and aspen forests (Cornell 2022j). The black rosy-finch and the brown-capped rosy finch breed in high elevation areas, usually above tree line in areas with cliffs or rock outcroppings. Outside breeding season, both finches can migrate to lower elevations and forage in parks and valleys where there is less snow (Cornell 2022k; Cornell 2022l). The Clark's nutcracker and the Lewis's woodpeckers can be found breeding in open coniferous forests. The Clark's nutcracker typically inhabits shrubby whitebark or limber pine, and forests mixed with fir, spruce or other pines near creeks, small lakes, or moist meadows (Cornell 2022m). Habitat for the Lewis's woodpecker includes ponderosa pine forests, burned forests, and forests with a high number of standing snags. In breeding and non-breeding seasons, suitable habitat for this woodpecker includes areas near water, most typically streams, in oak woodland and pinyon-juniper woodlands (Cornell 2022n).

Table 2. Bird species protected under the MBTA and/or the BGEPA with potential to occur in the Action Area

MBTA Species	W Lateral	E Lateral	Coal Hill	M&D Canal	Slide Point	Wells Basin
*bald eagle	X	X	-	X	X	-
black swift	X	X	-	-	X	-
black rosy-finch	-	-	X	-	-	-
brown-capped rosy-finch	-	X	X	X	-	-
Cassin's finch	X	X	X	X	X	X
Clark's nutcracker	X	X	X	X	X	-
evening grosbeak	X	X	-	X	X	-
Grace's warbler	X	X	-	-	X	-
Lesser yellowlegs	X	X	-	-	-	-
Lewis's woodpecker	X	X	X	-	X	X
Long-eared owl	-	X	-	-	-	-
olive sided flycatcher	X	X	X	X	X	-
pinyon jay	X	X	-	X	X	-
Virginia's warbler	X	X	X	X	X	-
Western grebe	X	X	-	X	-	-

*These species are also protected under the BGEPA.

Colorado Listed Species & Species of Concern

Within the vicinity of the Action Area, there is the potential for three Colorado state-listed species of concern to occur: the Northern leopard frog (*Lithobates Pipiens*), the American peregrine falcon (*Falco peregrinus anatum*) and the mountain sucker fish (*Catostomus platyrhynchus*) are all listed by CPW as a species of State Special Concern (SC). Utilizing CNHP occurrence data, the species were determined to have the potential to occur in the Proposed Project vicinity, although there were no records of occurrence within the Action Area. The CNHP uses a standardized ranking system to track rare species and natural communities. Species and ecosystems are ranked on the Global (G), National (N), and Subnational/State/province (S) levels (CNHP 2021). The following includes information regarding each species. Table 3, under the Section 9, provides a summary of the species and effect analyses.

Northern Leopard Frog

The Northern leopard frog is ranked as a Globally Secure (G5), and State Vulnerable (S2) by the Colorado Natural Heritage Program (CPW 2020a). This species has a Colorado State Status of State Special Concern (CPW 2021). The leopard frog breeds and forages in different habitats at different points in its life cycle, but generally is found in wet locations. Preferred breeding and forging habitat for this species is characterized by wet meadows, riparian areas and may include uplands. This species will overwinter where there is deep water that does not freeze solid (CPW 2020a).

American Peregrine Falcon

The American peregrine falcon is Globally Ranked Apparently Secure (G5) with a Subspecies or Variety in Question Critically Imperiled (T4), and State Ranked as Subnational Imperiled - Breeding Population (S2B). This species has a Colorado State Status of SC (CPW 2021). This species inhabits areas with an open habitat, usually associated with high cliffs and bluffs overlooking rivers and coasts, where they will establish nests. (CPW 2020b).

Mountain Sucker

The mountain sucker is a small freshwater fish that is ranked Globally as G5 and has a State Ranking of S2, which indicates that its State Rank is not yet assessed. This species has a Colorado State Status of SC (CPW 2021). It commonly occurs in rocky riffles and runs of clear mountain streams, and small to medium-sized rivers (Fishbase 2021).

7 ESA Species Effects Determinations

Effect analyses were developed for each Proposed Project element, with the potentially occurring ESA species considered for each, respectively. Analyses are determined with the assumption that all Proposed Project BMPs will be implemented and adhered to throughout the duration of the Proposed Project, including BMPs that dictate temporal restrictions for the work performed. A summary of the effect analyses for each species can be found in Table 4. Effects analyses for ESA species at each Proposed Project element location are detailed in the following sections.

7.1 West and East Laterals

No suitable habitat for any of the ESA-listed species was identified during site surveys of the West and East Laterals. The surrounding habitat was found to be actively disturbed by grazing and agricultural activities. No suitable or sizable contiguous sagebrush and mesic grassland habitat for the Gunnison sage-grouse was identified, and no critical habitat for the Gunnison sage-grouse is present. There is no cliff structure or rock outcrops in the Action Area that would provide suitable habitat for the Mexican spotted owl. No suitable cave or forest habitat exists within the Action Area to support roosting and breeding tri-colored bats. Sufficient riparian corridor vegetation is not present to support YBCU habitat. Although lone and dispersing wolves may occur throughout this part of Colorado, no suitable habitat and no abundant prey populations are present at the West and East Laterals for the gray wolf. Additionally, no predator management program is included under the Proposed Project. The Upper Colorado River PBO issued by the USFWS in 1999 (USFWS 1999; TAILS FWS/R6 ES/GJ-6-CO-99-F-033) addressed the impacts related to water depletions that occur above the confluence with the Colorado and Gunnison Rivers and impacts on critical habitat from Rifle to Lake Powell. The PBO addressed the continuation of existing depletions and 120,000 ac-ft per year of new depletions above the confluence with the Gunnison River. The PBO found that the Upper Colorado River Endangered Fish Recovery Program (Recovery Program), established in 1988, is the reasonable and prudent alternative to avoid jeopardy to the endangered Colorado River fishes (bonytail chub, Colorado pikeminnow, humpback chub, and razorback sucker) and avoid adverse modification of designated critical habitat (USFWS 1999). The Proposed Project would cause no additional depletions and the Action Area is outside of the range for Colorado River fishes (see Species' critical habitat and Ranges Map in Appendix A). No fish were present in the canals, nor would the conditions in the canals be suitable for any of the Colorado River fishes listed by USFWS (Table 1). Neither milkweed, the larval food source for the monarch, nor an abundance of nectarous plants were identified in this area. The violet bog was not identified at either the West or East Lateral, and as such no suitable habitat for the Great Basin silverspot butterfly is present. As a result, **No Effect** is anticipated for Wildlife, Fish or Insect TES from the Proposed Project activities.

7.2 M&D Canal

Vegetation adjacent to the M&D Canal includes willow and established cottonwood (*Populus spp.*) habitat, and open areas that include big sagebrush (*Artemisia tridentata*). No suitable or sizable contiguous sagebrush and mesic grassland habitat for the Gunnison sage-grouse was found and no critical habitat for the Gunnison sage-grouse is present. Although lone and dispersing wolves may occur throughout this part of Colorado, no suitable habitat and no abundant prey populations are present at the M&D Canal for the gray wolf. Additionally, no predator management program is included under the Proposed Project. No suitable cave or forest habitat exists within the Action Area to support roosting and breeding tri-colored bats. The YBCU requires a dense mid-story with a mature overstory of willow/cottonwood that is at least 300 feet wide and comprised of a minimum of 12 contiguous acres. A narrow riparian corridor with willow and cottonwood is present along the canal alignment, however the corridor is less than 100 feet wide in most locations, with agricultural or residential land uses on either side. Therefore, the immediate Action Area would not be considered suitable breeding or nesting habitat for the species. The Proposed Project would cause no additional depletions and the Action Area is outside of the range for Colorado River fishes (see Species' critical habitat and Ranges Map in

Appendix A). No suitable fish habitat occurs within the alignment in the Action Area. Neither milkweed, the larval food source for the monarch, nor an abundance of nectarous plants were identified in this area. The violet bog was not identified near the M&D Canal, and as such no suitable habitat for the Great Basin silverspot butterfly is present. Proposed Project improvements to the M&D Canal Proposed Project are likely to result in **No Effect** for Wildlife, Fish or Insect TES.

7.3 Slide Point

Although the Slide Point project element falls within the USFWS designated critical habitat designation for the Gunnison sage-grouse and is identified as within Gunnison sage-grouse Occupied Habitat by Colorado Parks and Wildlife (CPW), the site survey on June 15 did not record suitable habitat for this species present within the Action Area. Big Sagebrush grows above slope and below slope along Vernal Mesa Canal and canal roads but is not continuous throughout the Action Area; Gambel oak-woodland and a shrub midstory line the canal in most of the Action Area. While contiguous areas of sagebrush exist nearby the Action Area at Slide Point, no suitable sage-grouse habitat occurs immediately within the footprint of the Proposed Project, nor would present sagebrush be impacted by project activities. Additionally, no riparian or wetland areas were identified within the Action Area at Slide Point. The nearest wetland area was located downslope of the Vernal Mesa Canal, approximately 0.5 miles outside of the Action Area. Conservation measures that would be implemented during the Proposed Project would limit construction to the project footprint within the canal right-of-way (ROW), and would avoid disturbance and removal of native vegetation, including sagebrush, wherever possible. However, while the Proposed Project is not anticipated to directly impact sagebrush and wet meadow habitat within the Action Area where construction will occur, because of the close proximity of project activities to critical habitat for the Gunnison sage-grouse and the potential to cause indirect disturbance to this habitat, the Proposed Project **May Affect, is Not Likely to Adversely Affect** the Gunnison sage-grouse and critical habitat for the Gunnison sage-grouse.

The Vernal Mesa Canal at Slide Point does not have a dense riparian corridor along the alignment; the vegetation is open and dominated by upland species like Gambel oak, rabbitbrush, Western serviceberry, roundleaf snowberry, big sagebrush and Woods' rose. Therefore, there is no suitable habitat for the YBCU within or adjacent to the Action Area. Little to no overstory trees were present, nor was there cliff structure or rock outcrops that would support the Mexican spotted owl. No suitable cave or forest habitat exists within the Action Area to support roosting and breeding tri-colored bats. Although lone and dispersing wolves may occur throughout this part of Colorado, no suitable habitat and no abundant prey populations are present at Slide Point for the gray wolf. Additionally, no predator management program is included under the Proposed Project. The Proposed Project would cause no additional depletions and the Action Area is outside of the range for Colorado River fishes (see Species' critical habitat and Ranges Map in Appendix A). No suitable habitat exists for any of the Colorado fish species due to the seasonal nature of the irrigation flows in the canal. Neither milkweed, the larval food source for the monarch, nor an abundance of nectarous plants were identified in this area. The violet bog was not identified at Slide Point and as such no suitable habitat for the Great Basin silverspot butterfly is present. Based on existing conditions and lack of suitable habitat, the Proposed Project **May Affect, is Not Likely to Adversely Affect** the Gunnison sage-grouse and critical habitat for the Gunnison sage-grouse, and would have **No Effect** on the Mexican spotted owl, the tri-colored bat, the gray wolf,

the monarch butterfly, the Great Basin silverspot butterfly, and the Colorado River fishes at the Slide Point element.

7.4 Coal Hill & Wells Basin

The Coal Hill project element falls within the USFWS critical habitat designation for the Gunnison sage-grouse and is identified as within Gunnison sage-grouse CPW designated Occupied Habitat. The Wells Basin element falls just outside of USFWS designated critical habitat for the Gunnison sage-grouse and is not within CPW designated Occupied Habitat (Table 1). Site surveys on June 15, 2021 recorded a small, isolated area of sagebrush habitat and wet meadow habitat adjacent to the Action Area, near the southern terminus of the Coal Hill element. Large areas of contiguous sagebrush habitat are a hallmark of suitability for the Gunnison sage-grouse to occupy an area. The limited size of this patch disqualifies it from being suitable habitat. No other locations along the Cimarron Canal in the Coal Hill or Wells Basin elements constituted sufficient sagebrush coverage, within the Action Area. No sagebrush or vegetation outside of the Action Area footprint would be disturbed from Proposed Project. Indirect impacts from the Proposed Project, such as noise would be avoided by performing work outside of breeding season for this species. Conservation measures that would be implemented during the Proposed Project would limit construction to the project footprint within the canal ROW, and would avoid disturbance and removal of native vegetation, including sagebrush, wherever possible. Construction for the Proposed Project would be anticipated to occur outside irrigation season from late November to early March, which would avoid breeding, nesting, and brood-rearing seasons for the Gunnison sage-grouse. However, while the Proposed Project is not anticipated to directly impact sagebrush and wet meadow habitat within the Action Area where construction will occur, because of the close proximity of project activities to critical habitat for the Gunnison sage-grouse and the potential to cause disturbance to this habitat, the Proposed Project **May Affect, is Not Likely to Adversely Affect** the Gunnison sage-grouse and critical habitat for the Gunnison sage-grouse.

No mature riparian overstory is present at either site; Gambel oak is the primary tree species near the canals at each element, and they grow outside of the footprint of the Action Area. As a result, no suitable habitat was determined to occur for the YBCU at these elements, nor within a ½-mile of the Action Area. No suitable cave or forest habitat exists within the Action Area to support roosting and breeding tri-colored bats. Although lone and dispersing wolves may occur throughout this part of Colorado, no suitable habitat and no abundant prey populations are present at Coal Hill or Wells Basin for the gray wolf. Additionally, no predator management program is included under the Proposed Project. The Proposed Project would cause no additional depletions and the Action Area is outside of the range for Colorado River fishes (see Species' critical habitat and Ranges Map in Appendix A). The canals do not support suitable conditions for any of the Colorado fish TES given the controlled, seasonal water regime of the canals. Neither milkweed, the larval food source for the monarch, nor an abundance of nectarous plants were identified in this area. The violet bog was not identified at Coal Hill or Wells Basin, and as such no suitable habitat for the Great Basin silverspot butterfly is present. The USFWS IPaC report indicated that the Canada lynx has the potential to occur at Wells Basin (Table 1). While spruce forest habitat above 8,000 feet that could support lynx and snowshoe hare populations exists in the vicinity of the Wells Basin element, no suitable habitat for this species exists along the alignment within the Action Area, or directly adjacent to the Action Area. Human disturbance is present in the general vicinity, which would likely also deter lynx from utilizing the Action Area. Based on the lack of suitable habitat for the

ESA-listed species, it is determined that the Proposed Project **May Affect, is Not Likely to Adversely Affect** the Gunnison sage-grouse and critical habitat for the Gunnison sage-grouse and that there would be **No Effect** on the yellow-billed cuckoo, the Mexican spotted owl, the tri-colored bat, the Canada lynx, the gray wolf, the monarch butterfly, the Great Basin silverspot butterfly, and the Colorado River fishes as a result of the Proposed Project at the Coal Hill and Wells Basin elements.

8 Impacts to Migratory Birds

As mentioned in Section 5.2, an adult and four fledgling great-horned owls were observed roosting in a cottonwood tree adjacent to the M&D Canal alignment, but outside the Action Area. No nest was identified. While removal of these mature cottonwoods or other vegetation that supports nesting and foraging habitat for bird species is not planned as part of the Proposed Project, it is possible that trees and other shrubs that depend on seepage from the canal may not be supported over time. This could cause indirect impacts to habitat for MTBA/BGEPA species, however the extent of which would be unknown because the level to which canal seepage supports existing vegetation is unknown. This vegetation loss as a result of seepage loss from piping agricultural canals may occur within all Proposed Project elements, where canals would be piped. Temporary disturbance from noise related to construction of the Proposed Project can result in temporary displacement of nesting bird species within all Proposed Project elements. This would be avoided by scheduling work outside of nesting bird season. Construction for the Proposed Project would be timed outside of the irrigation season, which would coincide with timing to be outside the breeding and nesting seasons for migratory birds and many raptors. While loss of vegetation may eventually cause a shift in use by avian species, the extent to which this would occur is unknown. No direct adverse effects are expected while avoidance and conservation measures are adhered to for the Proposed Project implementation. In conclusion, the Proposed Project would have no effect to bird species protected under the MBTA and BGEPA. If an active migratory bird or raptor nest were to be identified within, or adjacent to, the Action Area, work would be paused and the NRCS Biologist and USFWS would be notified immediately in order to determine the appropriate course of action.

9 Colorado Listed Species & Species of Concern Effects Analysis

The following Table 3 includes a summary of each Colorado Listed Species and Species of Concern and an analysis of potential impacts to those species as a result of the Proposed Project.

Table 3. Summary Analysis of Colorado Listed Species & Species of Concern with potential to occur in the Action Area

Species	G Ranking	S Ranking	CO Status	Suitable Habitat Present?	Effects Analysis
Northern Leopard Frog (<i>Lithobates pipiens</i>)	G5, S3	S3	SC	Yes	At the Coal Hill element and the Wells Basin element, within the Action Area, suitable wet meadow and riparian habitat exists along the edges of the canal alignments in some locations. However, it is unlikely that this species overwinters within the Action Area because flows through the canal alignments are seasonal and because it requires deep water that will not freeze to survive the winter season. Proposed Project work would be performed outside of irrigation season, which should create a temporal avoidance of this species since water will not be present at the time. Because of this, the Proposed Project would not impact the Northern leopard frog.
American Peregrine Falcon (<i>Falco peregrinus anatum</i>)	G4T4	S2B	SC	No	Open high cliff and bluff habitat is absent within all Proposed Project elements, and absent within 0.5 miles of all elements. Furthermore, with the exception of the canal segments, which do not support sustained fish habitat, there is no quality open water for foraging present within 0.5 miles of the Action Area, near any element. If a nest were to be identified at any time within the Action Area, the Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors, set forth by CPW (CPW 2020c) would be followed to observe the appropriate buffers and timing to avoid disturbance to the species. No impacts to breeding habitat or populations of the American peregrine falcon would occur as a result of the Proposed Project.
Mountain Sucker (<i>Catostomus platyrhynchus</i>)	G5	S2?	SC	No	Fish habitat is not present within the canal segments in the Action Area. Because suitable habitat for the mountain sucker is absent, there would be no impact to this species.

10 Determination of Effects to Threatened and Endangered Species

After considering the available scientific information regarding the biological requirements and the status of ESA-listed species considered in this BA, the environmental baseline for the Action Area, the limited scope of the Proposed Project, the determination of no permanent impacts to suitable habitat from the Proposed Action, and/or lack of suitable and occupied habitat in the Action Area, the following effect determinations have been made for ESA-listed species and their critical habitat (if designated) known to occur in Montrose and Gunnison Counties, Colorado (Table 4):

Table 4. Determination of effects for USFWS ESA-Listed Species.

Wildlife TES	ESA Status	Known/Suspected to be Present?	Suitable Habitat Present?	Designated Critical Habitat Present or Could be Affected?	Rationale if Not Carried Forward for Analysis	Effects Analysis
Gunnison sage-grouse (<i>Centrocercus minimus</i>)	Threatened	Yes	Yes	Yes		MANLAA
Tri-colored bat (<i>Pipistrellus subflavus</i>)	Proposed Endangered	No	No	No	Eliminated. No suitable cave or forest habitat exists within the Action Area to support roosting and breeding tri-colored bats.	No Effect
Yellow-billed cuckoo (<i>Coccyzus americanus</i>)	Threatened	No	No	No	Eliminated. The yellow-billed cuckoo occurs in dense riparian habitat with cottonwood overstory. Riparian habitat is present in the vicinity of the Action Area.	No Effect
Mexican spotted owl (<i>Strix occidentalis lucida</i>)	Threatened	No	No	No	Eliminated. Cliff habitat for the Mexican spotted owl is present nearby the Action Area, in the Gunnison River canyon. However, no suitable habitat for the Mexican spotted owl occurs within the Action Area.	No Effect
Canada lynx (<i>Lynx canadensis</i>)	Threatened	No	No	No	Eliminated. Habitat nearby to the vicinity of the Action Area may be suitable habitat and is at the correct elevation for the Canada lynx to occur. However, no suitable habitat occurs within the Action Area.	No Effect
Gray wolf (<i>Canis lupus</i>)	Endangered	No	No	No	Eliminated. Although lone and dispersing wolves may occur throughout this part of Colorado, no suitable habitat and no abundant prey populations are present within the Action Area. Additionally, no predator management program is included under the Proposed Project; therefore, there will be no effect to populations of the gray wolf.	No Effect
Monarch butterfly (<i>Danaus plexippus</i>)	Candidate	Yes	No	N/A	Eliminated. Although considered a breeding zone, Colorado is not included in the two migratory populations of the monarch butterfly. No suitable habitat, including milkweed, the larval food source for the monarch, nor an abundance of nectarous plants were identified within the Action Area.	No Effect

Wildlife TES	ESA Status	Known/Suspected to be Present?	Suitable Habitat Present?	Designated Critical Habitat Present or Could be Affected?	Rationale if Not Carried Forward for Analysis	Effects Analysis
Great Basin silverspot (<i>Speyeria nokomis nokomis</i>)	Proposed Threatened	No	No	N/A	Eliminated. The specific habitat needs for this subspecies, including the presence of the Northern bog violet and an abundance of nectarous plants, are not met by habitat conditions within the Action Area.	No Effect
Fish TES						
Bonytail (<i>Gila elegans</i>)	Endangered	No	No	No	Eliminated. Although the Gunnison River corridor occurs nearby the Action Area, no suitable habitat for the Colorado fishes exists within the canal systems.	No Effect
Colorado pikeminnow (<i>Ptychocheilus lucius</i>)	Endangered	No	No	No	Eliminated. Although the Gunnison River corridor occurs nearby the Action Area, no suitable habitat for the Colorado fishes exists within the canal systems.	No Effect
Humpback chub (<i>Gila cypha</i>)	Endangered	No	No	No	Eliminated. Although the Gunnison River corridor occurs nearby the Action Area, no suitable habitat for the Colorado fishes exists within the canal systems.	No Effect
Razorback sucker (<i>Xyrauchen texanus</i>)	Endangered	No	No	No	Eliminated. Although the Gunnison River corridor occurs nearby the Action Area, no suitable habitat for the Colorado fishes exists within the canal systems.	No Effect
Critical Habitat						
Gunnison sage-grouse (<i>Centrocercus minimus</i>)	N/A	Yes	Yes	Yes		MANLAA

It should be noted that the final authority regarding species effect determinations rests with the appropriate regulatory authority.

11 References

- 86 FR 20798. 2021. Department of the Interior, Fish and Wildlife Service. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Western Distinct Population Segment of the Yellow-Billed Cuckoo.
- Colorado Natural Heritage Program (CNHP). 2021. <https://cnhp.colostate.edu/ourdata/help/heritage/>. Accessed 05 November 2021.
- Colorado Parks & Wildlife (CPW). 2020a. Leopard Frogs.
https://cpw.state.co.us/Documents/LandWater/WetlandsProgram/PrioritySpecies/Factsheet-and-Habitat-Scorecard_LeopardFrogs.pdf. Accessed 05 November 2021.
- CPW. 2020b. Wildlife Species: American Peregrine Falcon.
<https://cpw.state.co.us/learn/Lists/Wildlife%20Species/DispForm.aspx?ID=133>. Accessed 05 November 2021.
- CPW. 2020c. Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors.
<https://cpw.state.co.us/Documents/WildlifeSpecies/LivingWithWildlife/Raptor-Buffer-Guidelines.pdf>. Accessed 05 November 2021.
- CPW. 2021. Threatened and Endangered List. <https://cpw.state.co.us/learn/Pages/SOC-ThreatenedEndangeredList.aspx>. Accessed 05 November 2021.
- CPW. 2022. Species Profiles: Eastern pipistrelle, or tri-colored bat.
<https://cpw.state.co.us/learn/Pages/SpeciesProfiles.aspx>. Accessed 20 October 2022.
- Cornell. 2022a All About Birds. Black Swift: Life History.
https://www.allaboutbirds.org/guide/Black_Swift/lifehistory#habitat. Accessed 1 August 2022.
- Cornell. 2022b. All About Birds. Western Grebe: Life History.
https://www.allaboutbirds.org/guide/Western_Grebe/lifehistory. Accessed 1 August 2022.
- Cornell. 2022c. All About Birds. Lesser Yellowlegs: Life History.
https://www.allaboutbirds.org/guide/Lesser_Yellowlegs/lifehistory. Accessed 1 August 2022.
- Cornell. 2022d. Virginia's Warbler: Life History.
https://www.allaboutbirds.org/guide/Virginias_Warbler/lifehistory#habitat. Accessed 1 August 2022.
- Cornell. 2022e. All About Birds. Pinyon Jay: Life History.
https://www.allaboutbirds.org/guide/Pinyon_Jay/lifehistory. Accessed 1 August 2022.
- Cornell. 2022f. All About Birds. Grace's Warbler: Life History.
https://www.allaboutbirds.org/guide/Graces_Warbler/lifehistory. Accessed 1 August 2022.
- Cornell. 2022g. All About Birds. Olive-sided Flycatcher: Life History.
https://www.allaboutbirds.org/guide/Olive-sided_Flycatcher/lifehistory#habitat. Accessed 1 August 2022.

- Cornell. 2022h. All About Birds. Cassin's Finch: Life History.
https://www.allaboutbirds.org/guide/Cassins_Finch/lifehistory. Accessed 1 August 2022.
- Cornell. 2022i. All About Birds. Long-eared owl: Life History. https://www.allaboutbirds.org/guide/Long-eared_Owl/lifehistory. Accessed 1 August 2022.
- Cornell. 2022j. All About Birds: Evening Grosbeak: Life History.
https://www.allaboutbirds.org/guide/Evening_Grosbeak/lifehistory. Accessed 1 August 2022.
- Cornell. 2021k. All About Birds. Black Rosy-finch: Life History.
https://www.allaboutbirds.org/guide/Black_Rosy-Finch/lifehistory#habitat. Accessed 1 August 2022.
- Cornell 2022l. All About Birds. Brown-capped Rosy Finch: Life History.
https://www.allaboutbirds.org/guide/Brown-capped_Rosy-Finch/lifehistory#habitat. Accessed 1 August 2022.
- Cornell. 2022m. All About Birds. Long-eared owl: Life History.
https://www.allaboutbirds.org/guide/Long-eared_Owl/lifehistory. Accessed 1 August 2022.
- Cornell. 2022n. All About Birds. Lewis' Woodpecker.
https://www.allaboutbirds.org/guide/Lewiss_Woodpecker/lifehistory#habitat. Accessed 1 August 2022.
- FishBase. 2021. *Catostomus platyrhynchus* (Cope, 1874) Mountain sucker.
<https://www.fishbase.se/summary/Catostomus-platyrhynchus.html>. Accessed 05 November 2021.
- Natural Resources Conservation Service (NRCS). 2012. Plant Fact Sheet: Clay-Loving Wild Buckwheat (*Eriogonum pelinophilum*). Available:
https://www.nrcs.usda.gov/Internet/FSE_PLANTMATERIALS/publications/copmsfs11207.pdf.
- Sage Grouse Initiative. 2017. Gunnison Basin Wet Meadow and Riparian Restoration and Resilience-Building Project. Available: http://www.sagegrouseinitiative.com/wp-content/uploads/2017/06/2017.06.08_ExecSummary_GunnisonWetMeadows-sm-Final.pdf.
- Upper Colorado River Endangered Fish Recovery Program (Colorado River Recovery). 2021.
<https://www.coloradoriverrecovery.org/index.html>. Accessed 30 July 2021.
- U.S. Fish and Wildlife Service (USFWS). 1990. *Humpback Chub Recovery Plan*. 2nd Revised Recovery Plan. September 19, 1990.
- USFWS. 1999. Final Programmatic Biological Opinion for the Bureau of Reclamation's Operations and Depletions, Other Depletions, and Funding and Implementation of Recovery Program Actions in the Upper Colorado River Above the Confluence with the Gunnison River.
<https://www.coloradoriverrecovery.org/documents-publications/section-7-consultation/15mile/FinalPBO.pdf>. Accessed 01 January 2021.

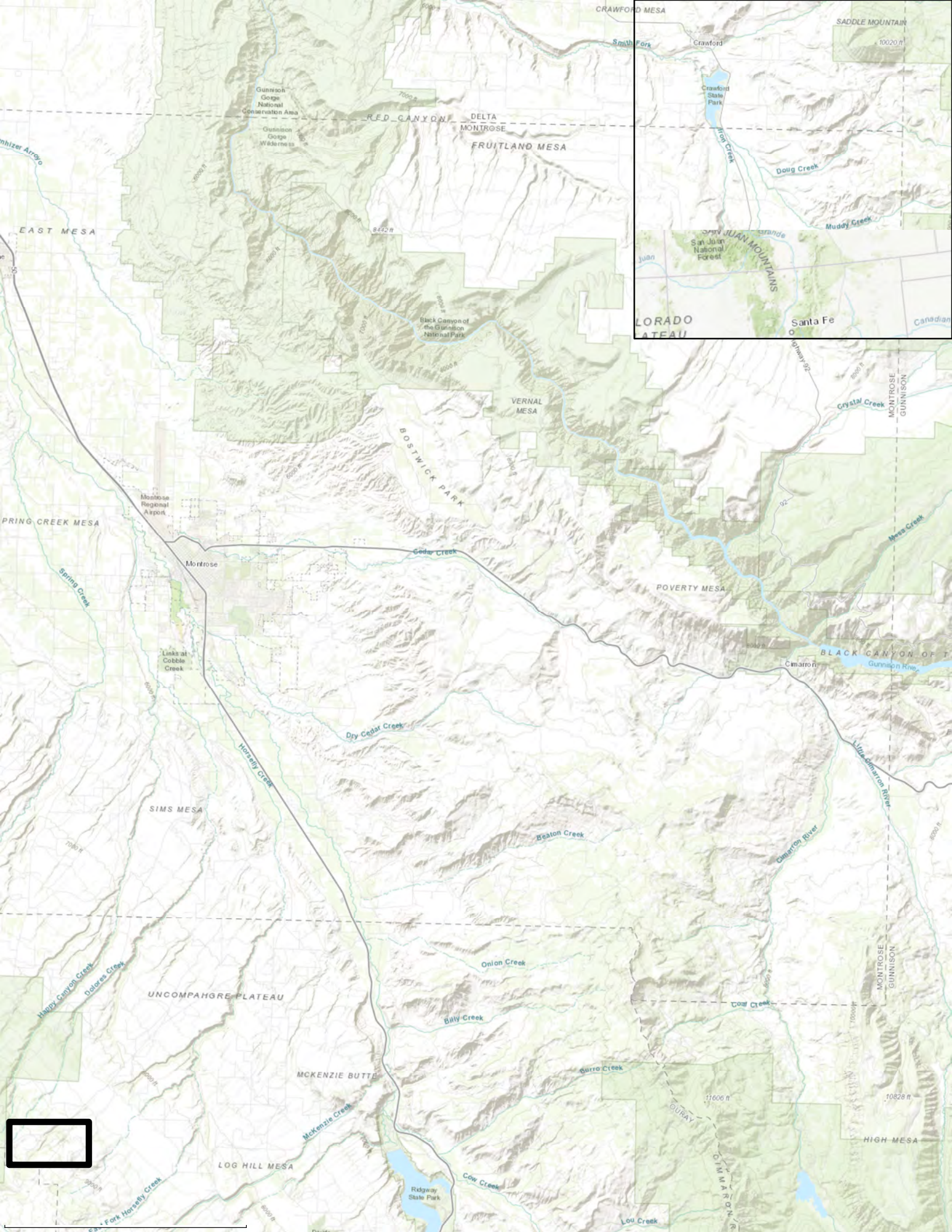
- USFWS. 2013. Petition to List the Great Basin Silverspot (*Speyeria nokomis nokomis*) under the Endangered Species Act. <https://ecos.fws.gov/docs/tess/petition/710.pdf>. Accessed 2 March 2023.
- USFWS. 2014. "Humpback Chub (*Gila cypha*) fact sheet." *USFWS Nevada Fish and Wildlife Office*. https://www.fws.gov/nevada/protected_species/fish/species/humpback_chub.html. Accessed June 21 2021.
- USFWS. 2014a. "Razorback Sucker (*Xyrauchen texanus*) fact sheet." *USFWS Nevada Fish and Wildlife Office*. https://www.fws.gov/nevada/protected_species/fish/species/rzbk_sucker.html. Accessed 11 June 2021.
- USFWS. 2017. Species Information: Yellow-billed Cuckoo (*Coccyzus americanus*). <https://ecos.fws.gov/ecp0/profile/speciesProfile?sPCODE=B06R>. Accessed 11 June 2021.
- USFWS. 2021a. Sagebrush Ecosystem: Gunnison Sage-Grouse. <https://www.fws.gov/sagebrush/wildlife/gunnison-sage-grouse/index.html>. Accessed 11 June 2021.
- USFWS. 2021b. Environmental Conservation Online System (ECOS). Species Profile: Mexican spotted owl (*Strix occidentalis lucida*). <https://ecos.fws.gov/ecp0/profile/speciesProfile?sPCODE=B074#lifeHistory>. Accessed 11 June 2021.
- USFWS. 2021c. Environmental Conservation Online System (ECOS). Species Profile: Canada lynx (*Lynx canadensis*). <https://www.fws.gov/mountain-prairie/es/canadaLynx.php#:~:text=The%20Canada%20lynx%20is%20a%20mid-sized%20boreal%20forest,to%20bobcats%20%28Lynx%20rufus%29%20in%20size%20and%20appearance>. Accessed 11 June 2021.
- USFWS. 2021d. Monarch Butterfly. <https://www.fws.gov/savethemonarch/>. Accessed 04 November 2021.
- USFWS. 2021e. ECOS. Species Profile: Bald eagle. <https://ecos.fws.gov/ecp0/profile/speciesProfile?sPCODE=B008#lifeHistory>. Accessed 11 June 2021.
- USFWS. 2022a. Tricolored Bat. <https://www.fws.gov/species/tricolored-bat-perimyotis-subflavus>. Accessed 19 October 2022.
- USFWS. 2022b. Gray Wolf Questions and Answers. <https://www.fws.gov/media/2022-gray-wolf-questions-and-answers>. Accessed 1 August 2022.
- USFWS. 2022c. *Canis lupus*. <https://www.fws.gov/species/gray-wolf-canis-lupus>. Accessed 11 April 2022.
- USFWS. 2023. Information for Planning and Consultation (IPaC). Species Lists. <https://ecos.fws.gov/ipac/>. Generated 1 March 2023.

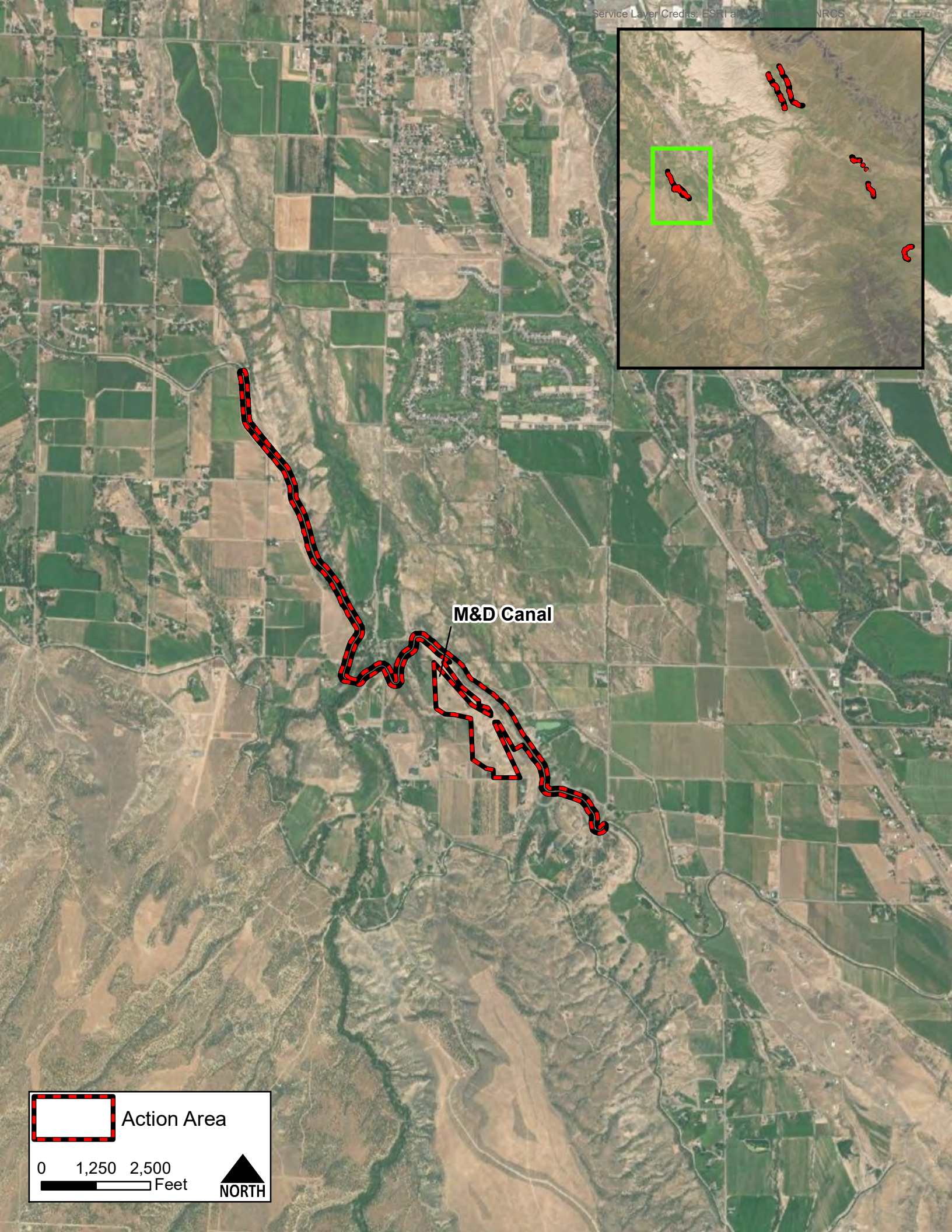
Utah Natural Heritage Program (UNHP). 2005. Plant Information Compiled by the Utah Natural Heritage Program: A Progress Report. <https://dwrcdc.nr.utah.gov/ucdc/ViewReports/plantrpt.htm>. Accessed 20 July 2021.

World Wildlife Federation (WWF). 2021. Monarch Butterfly. <https://www.worldwildlife.org/species/monarch-butterfly>. Accessed 05 November 2021.

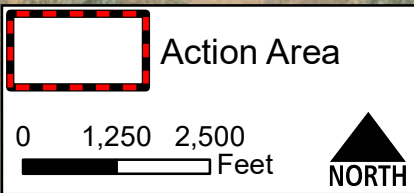
Appendix A

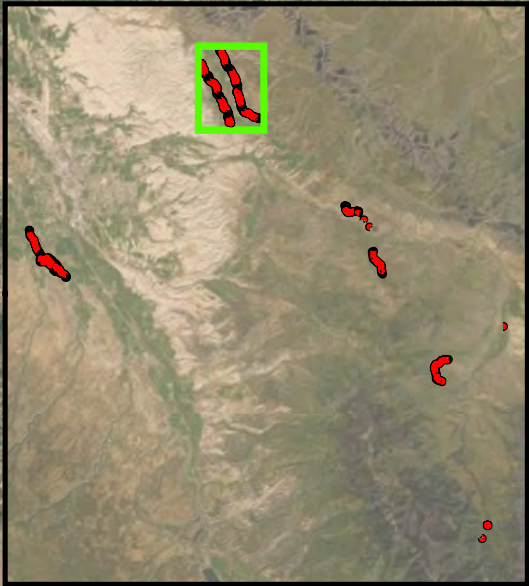
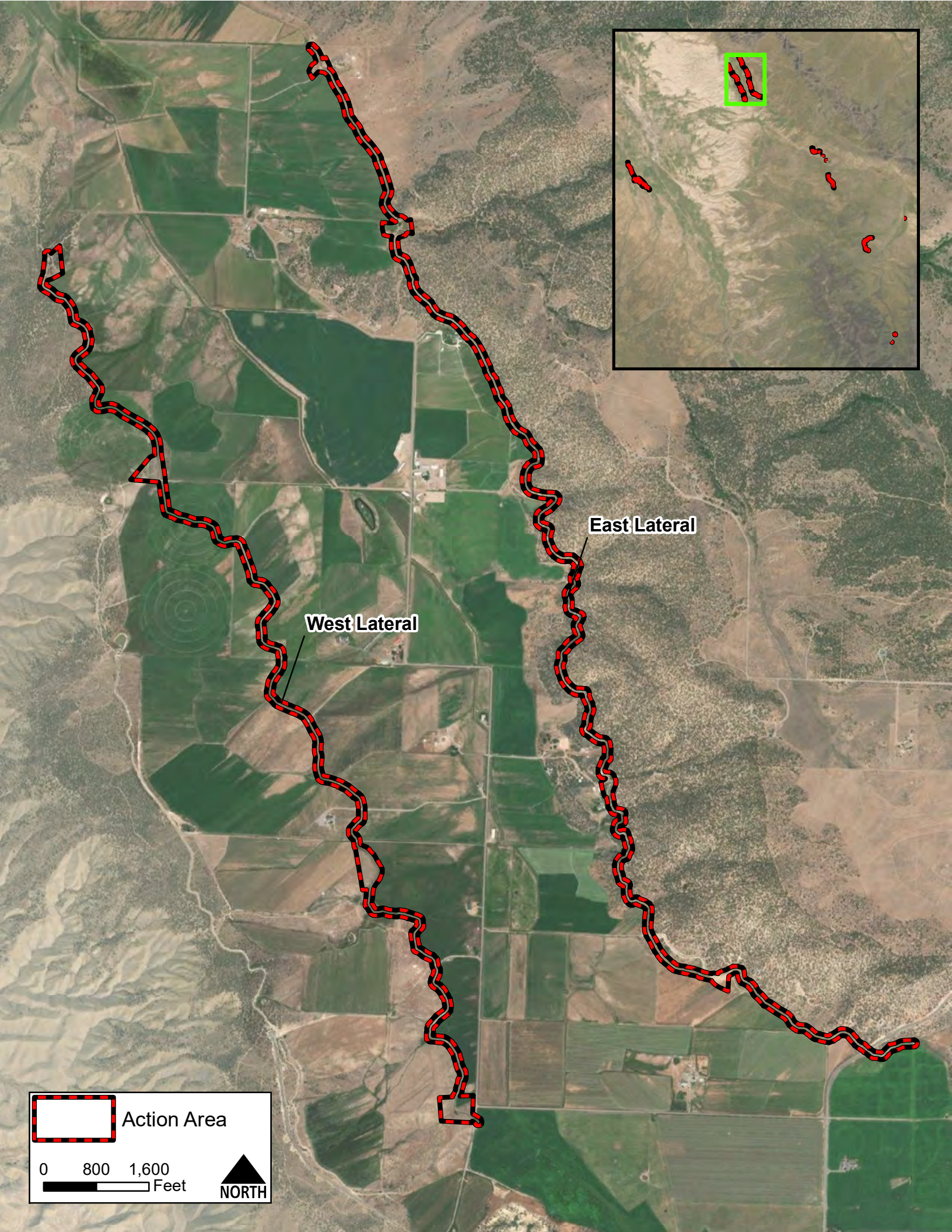
Vicinity Map, Maps of Action Areas,
and Species' Critical Ranges and
Habitats Map






M&D Canal






West Lateral

East Lateral




Action Area

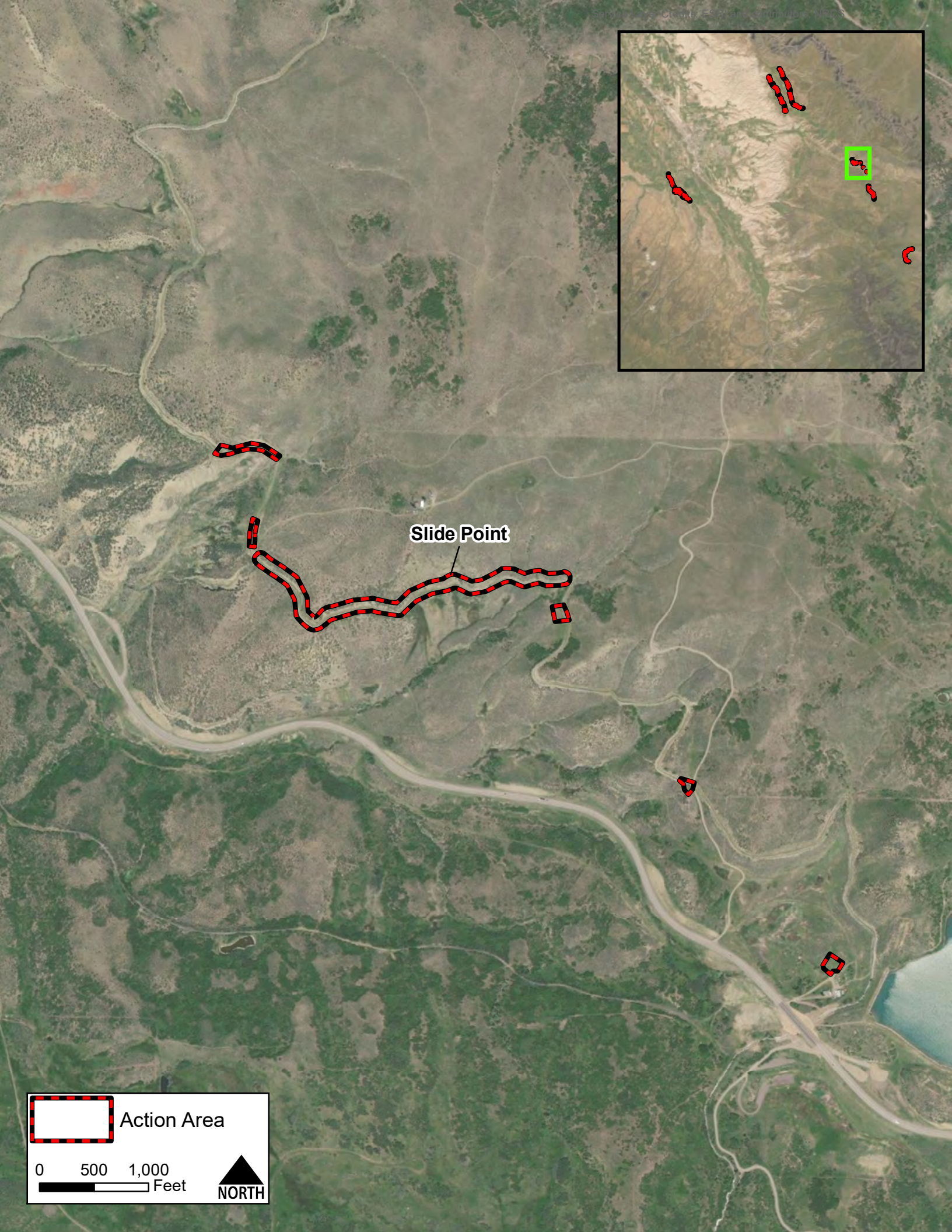
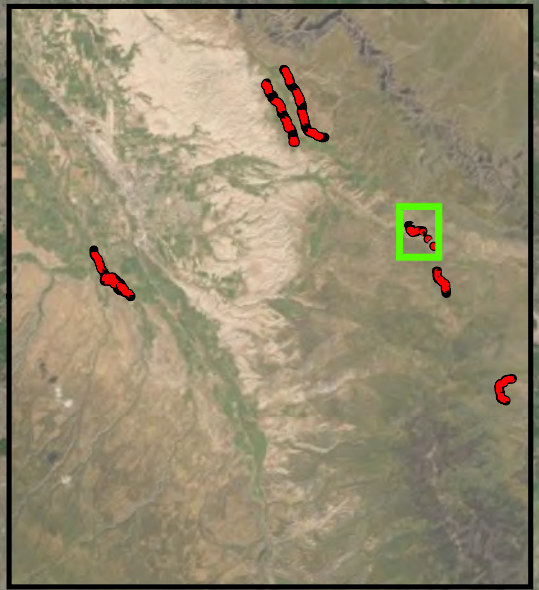
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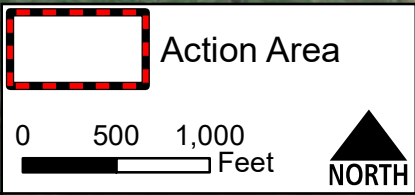
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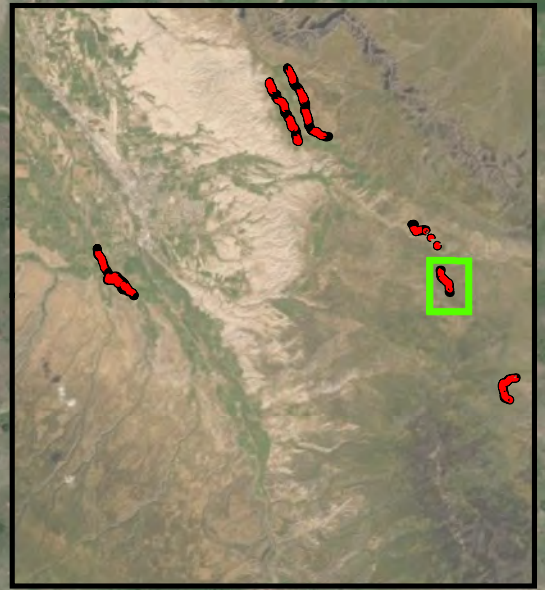


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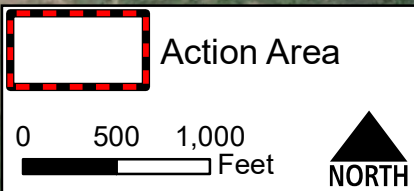


Slide Point

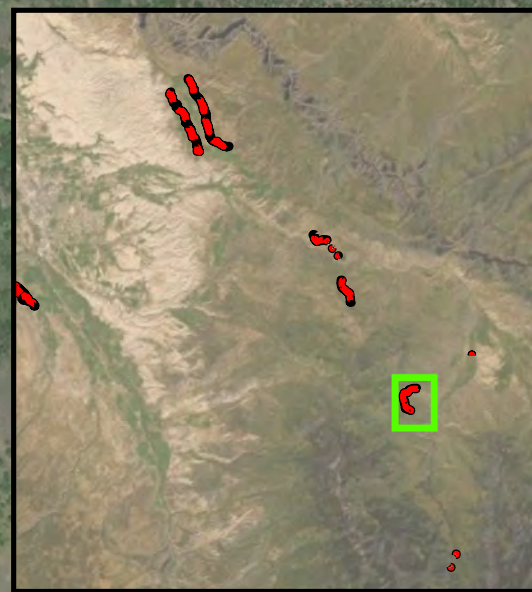
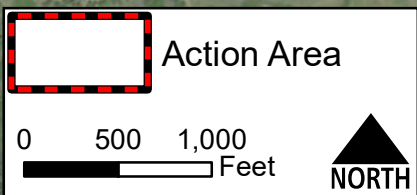




Coal Hill



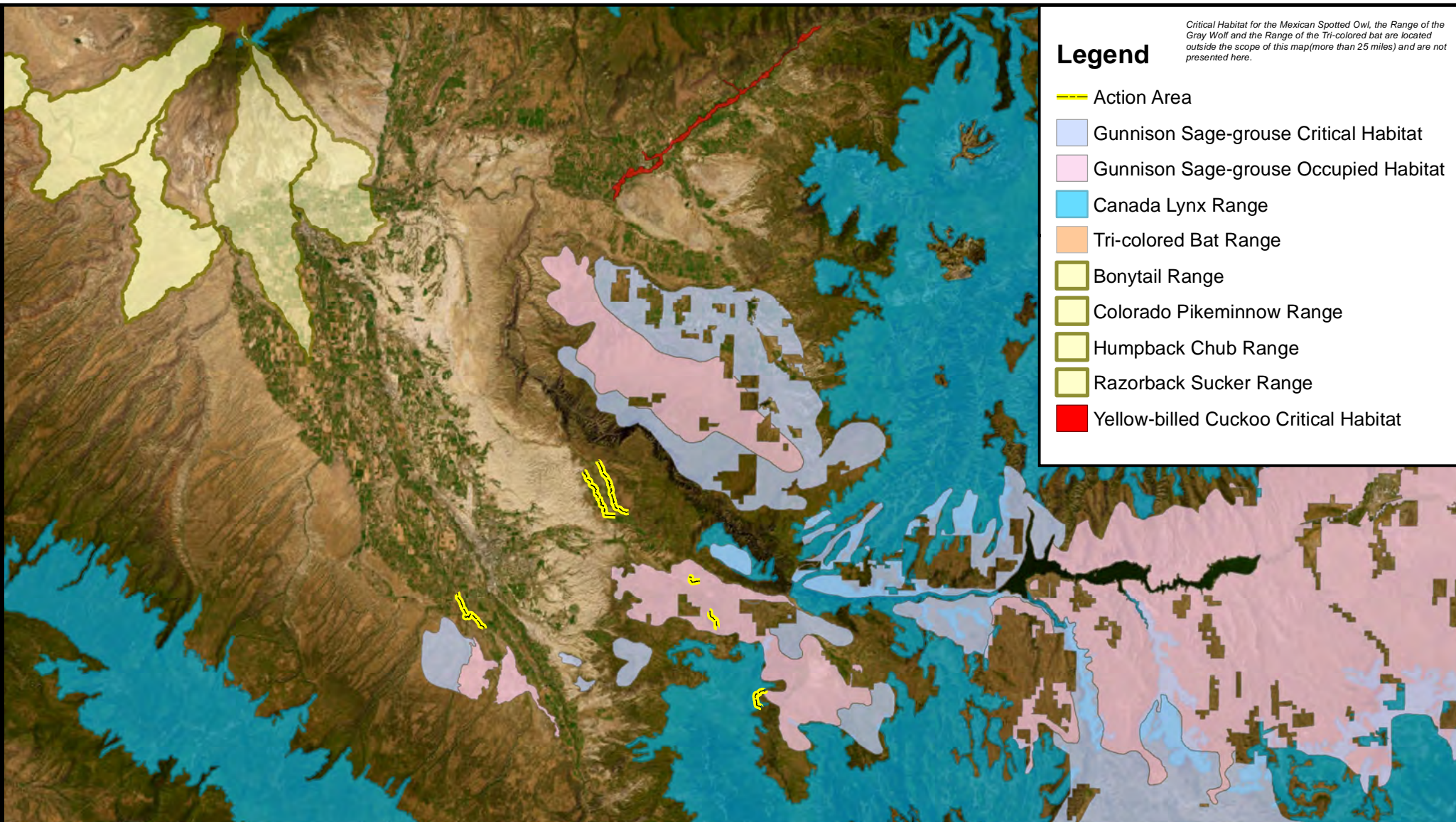
Wells Basin



Critical Habitat for the Mexican Spotted Owl, the Range of the Gray Wolf and the Range of the Tri-colored bat are located outside the scope of this map(more than 25 miles) and are not presented here.

Legend

- Action Area
- Gunnison Sage-grouse Critical Habitat
- Gunnison Sage-grouse Occupied Habitat
- Canada Lynx Range
- Tri-colored Bat Range
- Bonytail Range
- Colorado Pikeminnow Range
- Humpback Chub Range
- Razorback Sucker Range
- Yellow-billed Cuckoo Critical Habitat



Appendix B

USFWS IPaC Reports
from February 2021 and March 2023
for Seperate Project Elements



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Western Colorado Ecological Services Field Office

445 West Gunnison Avenue, Suite 240

Grand Junction, CO 81501-5711

Phone: (970) 628-7180 Fax: (970) 245-6933

<http://www.fws.gov/mountain-prairie/es/Colorado/>

<http://www.fws.gov/platteriver/>

In Reply Refer To:

February 23, 2021

Consultation Code: 06E24100-2021-SLI-0277

Event Code: 06E24100-2021-E-00568

Project Name: BPWCD Flood Prevention, Agricultural Water Management, and Fish & Wildlife Project - West Lateral

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at:

<http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>;

<http://www.towerkill.com>; and

[http://](http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html)

www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds
- Wetlands

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Western Colorado Ecological Services Field Office

445 West Gunnison Avenue, Suite 240

Grand Junction, CO 81501-5711

(970) 628-7180

Project Summary

Consultation Code: 06E24100-2021-SLI-0277

Event Code: 06E24100-2021-E-00568

Project Name: BPWCD Flood Prevention, Agricultural Water Management, and Fish & Wildlife Project - West Lateral

Project Type: STREAM / WATERBODY / CANALS / LEVEES / DIKES

Project Description: The Proposed Project would stabilize and line approximately 1.5 miles of UVWUA open canal, pipe several miles of BPWCD laterals, replace a failing section of existing pipeline, rebuild the Cimarron Canal diversion structure, and install an electronic fish screen and temperature monitors in the Cimarron River.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@38.5259317,-107.7593786,1990393,14z>



Counties: Montrose County, Colorado

Endangered Species Act Species

There is a total of 7 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Birds

NAME	STATUS
Gunnison Sage-grouse <i>Centrocercus minimus</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/6040	Threatened
Mexican Spotted Owl <i>Strix occidentalis lucida</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/8196	Threatened

Fishes

NAME	STATUS
Bonytail <i>Gila elegans</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/1377	Endangered
Colorado Pikeminnow (=squawfish) <i>Ptychocheilus lucius</i> Population: Wherever found, except where listed as an experimental population There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3531	Endangered
Humpback Chub <i>Gila cypha</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3930	Endangered
Razorback Sucker <i>Xyrauchen texanus</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/530	Endangered

Flowering Plants

NAME	STATUS
Clay-loving Wild Buckwheat <i>Eriogonum pelinophilum</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3348	Endangered

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

-
1. The [Migratory Birds Treaty Act](#) of 1918.
 2. The [Bald and Golden Eagle Protection Act](#) of 1940.
 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31
Black Swift <i>Cypseloides niger</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8878	Breeds Jun 15 to Sep 10

NAME	BREEDING SEASON
Golden Eagle <i>Aquila chrysaetos</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31
Pinyon Jay <i>Gymnorhinus cyanocephalus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9420	Breeds Feb 15 to Jul 15
Rufous Hummingbird <i>selasphorus rufus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8002	Breeds elsewhere
Virginia's Warbler <i>Vermivora virginiae</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9441	Breeds May 1 to Jul 31
Willow Flycatcher <i>Empidonax traillii</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/3482	Breeds May 20 to Aug 31

Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

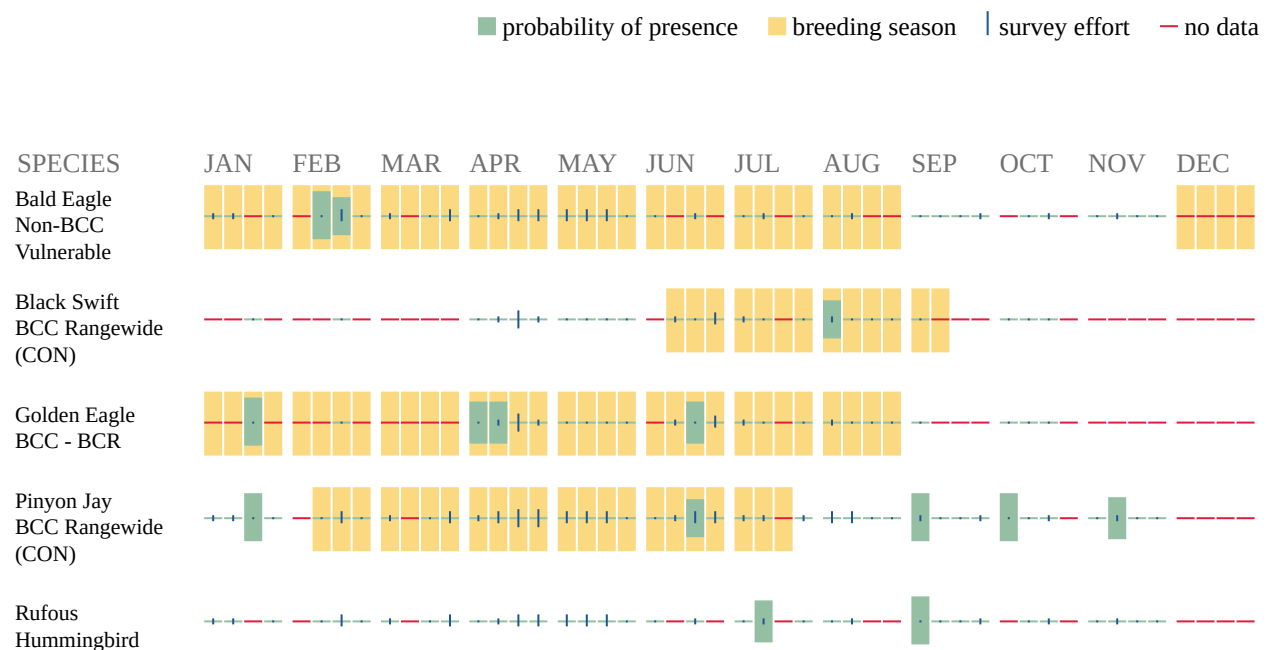
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (—)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

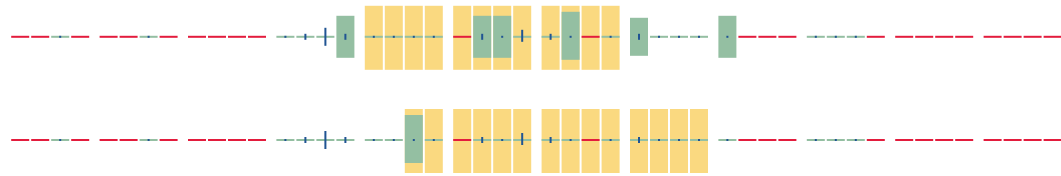
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



BCC Rangewide
(CON)

Virginia's Warbler
BCC Rangewide
(CON)

Willow Flycatcher
BCC - BCR



Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides

birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Wetlands

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER POND

- [PABFh](#)

FRESHWATER EMERGENT WETLAND

- [PEM1C](#)

RIVERINE

- [R4SBCx](#)
- [R5UBFx](#)



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Western Colorado Ecological Services Field Office

445 West Gunnison Avenue, Suite 240

Grand Junction, CO 81501-5711

Phone: (970) 628-7180 Fax: (970) 245-6933

<http://www.fws.gov/mountain-prairie/es/Colorado/>

<http://www.fws.gov/platterriver/>



In Reply Refer To:

February 22, 2021

Consultation Code: 06E24100-2021-SLI-0261

Event Code: 06E24100-2021-E-00535

Project Name: BPWCD Flood Prevention, Agricultural Water Management, and Fish & Wildlife Project - East Lateral

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at:

<http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>;

<http://www.towerkill.com>; and

[http://](http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html)

www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds
- Wetlands

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Western Colorado Ecological Services Field Office

445 West Gunnison Avenue, Suite 240

Grand Junction, CO 81501-5711

(970) 628-7180

Project Summary

Consultation Code: 06E24100-2021-SLI-0261

Event Code: 06E24100-2021-E-00535

Project Name: BPWCD Flood Prevention, Agricultural Water Management, and Fish & Wildlife Project - East Lateral

Project Type: STREAM / WATERBODY / CANALS / LEVEES / DIKES

Project Description: The Proposed Project would stabilize and line approximately 1.5 miles of UVWUA open canal, pipe several miles of BPWCD laterals, replace a failing section of existing pipeline, rebuild the Cimarron Canal diversion structure, and install an electronic fish screen and temperature monitors in the Cimarron River.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@38.5317354,-107.74471068630629,14z>



Counties: Montrose County, Colorado

Endangered Species Act Species

There is a total of 6 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Birds

NAME	STATUS
Gunnison Sage-grouse <i>Centrocercus minimus</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/6040	Threatened
Mexican Spotted Owl <i>Strix occidentalis lucida</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/8196	Threatened

Fishes

NAME	STATUS
Bonytail <i>Gila elegans</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/1377	Endangered
Colorado Pikeminnow (=squawfish) <i>Ptychocheilus lucius</i> Population: Wherever found, except where listed as an experimental population There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3531	Endangered
Humpback Chub <i>Gila cypha</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3930	Endangered
Razorback Sucker <i>Xyrauchen texanus</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/530	Endangered

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

-
1. The [Migratory Birds Treaty Act](#) of 1918.
 2. The [Bald and Golden Eagle Protection Act](#) of 1940.
 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31
Black Swift <i>Cypseloides niger</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8878	Breeds Jun 15 to Sep 10

NAME	BREEDING SEASON
Brewer's Sparrow <i>Spizella breweri</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9291	Breeds May 15 to Aug 10
Golden Eagle <i>Aquila chrysaetos</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31
Gray Vireo <i>Vireo vicinior</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8680	Breeds May 10 to Aug 20
Olive-sided Flycatcher <i>Contopus cooperi</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31
Pinyon Jay <i>Gymnorhinus cyanocephalus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9420	Breeds Feb 15 to Jul 15
Rufous Hummingbird <i>selasphorus rufus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8002	Breeds elsewhere
Virginia's Warbler <i>Vermivora virginiae</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9441	Breeds May 1 to Jul 31
Willow Flycatcher <i>Empidonax traillii</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/3482	Breeds May 20 to Aug 31

Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (—)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

■ probability of presence ■ breeding season | survey effort — no data

SPECIES JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC



Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly

important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of

certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Wetlands

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

RIVERINE

- [R4SBC](#)
- [R4SBCx](#)
- [R5UBFx](#)



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Western Colorado Ecological Services Field Office

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<http://www.fws.gov/mountain-prairie/es/Colorado/>

<http://www.fws.gov/platterriver/>

In Reply Refer To:

February 22, 2021

Consultation Code: 06E24100-2021-SLI-0262

Event Code: 06E24100-2021-E-00537

Project Name: BPWCD Flood Prevention, Agricultural Water Management, and Fish & Wildlife Project - M&D Canal

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at:

<http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>;

<http://www.towerkill.com>; and

[http://](http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html)

www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds
- Wetlands

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Western Colorado Ecological Services Field Office

445 West Gunnison Avenue, Suite 240

Grand Junction, CO 81501-5711

(970) 628-7180

Project Summary

Consultation Code: 06E24100-2021-SLI-0262

Event Code: 06E24100-2021-E-00537

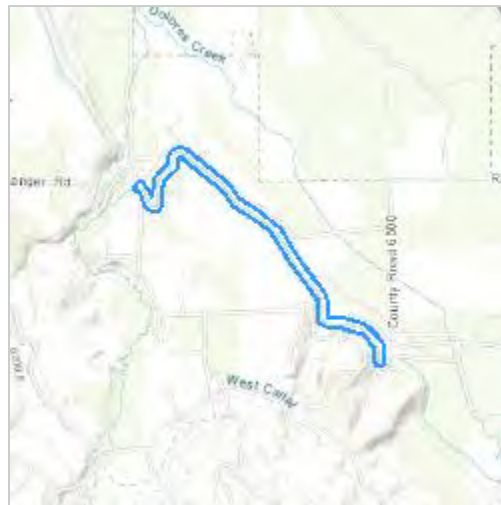
Project Name: BPWCD Flood Prevention, Agricultural Water Management, and Fish & Wildlife Project - M&D Canal

Project Type: STREAM / WATERBODY / CANALS / LEVEES / DIKES

Project Description: The Proposed Project would stabilize and line approximately 1.5 miles of UVWUA open canal, pipe several miles of BPWCD laterals, replace a failing section of existing pipeline, rebuild the Cimarron Canal diversion structure, and install an electronic fish screen and temperature monitors in the Cimarron River.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@38.41727025,-107.88004277527247,14z>



Counties: Montrose County, Colorado

Endangered Species Act Species

There is a total of 7 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Birds

NAME	STATUS
Gunnison Sage-grouse <i>Centrocercus minimus</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/6040	Threatened
Yellow-billed Cuckoo <i>Coccyzus americanus</i> Population: Western U.S. DPS There is proposed critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Fishes

NAME	STATUS
Bonytail <i>Gila elegans</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/1377	Endangered
Colorado Pikeminnow (=squawfish) <i>Ptychocheilus lucius</i> Population: Wherever found, except where listed as an experimental population There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3531	Endangered
Humpback Chub <i>Gila cypha</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3930	Endangered
Razorback Sucker <i>Xyrauchen texanus</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/530	Endangered

Flowering Plants

NAME	STATUS
Clay-loving Wild Buckwheat <i>Eriogonum pelinophilum</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3348	Endangered

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

-
1. The [Migratory Birds Treaty Act](#) of 1918.
 2. The [Bald and Golden Eagle Protection Act](#) of 1940.
 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31
Golden Eagle <i>Aquila chrysaetos</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31

NAME	BREEDING SEASON
Pinyon Jay <i>Gymnorhinus cyanocephalus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9420	Breeds Feb 15 to Jul 15
Virginia's Warbler <i>Vermivora virginiae</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9441	Breeds May 1 to Jul 31

Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

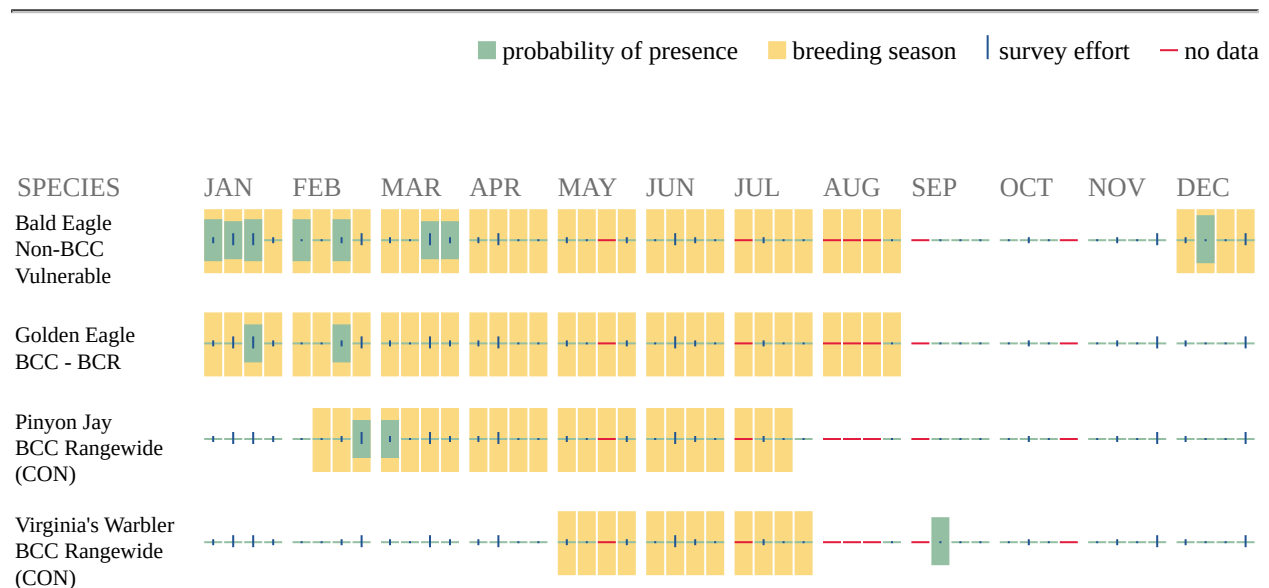
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (—)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your

project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

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2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no

data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Wetlands

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER EMERGENT WETLAND

- [PEM1B](#)
- [PEM1C](#)

RIVERINE

- [R2UBFx](#)
- [R4SBC](#)



United States Department of the Interior



FISH AND WILDLIFE SERVICE

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<http://www.fws.gov/mountain-prairie/es/Colorado/>

<http://www.fws.gov/platteriver/>

In Reply Refer To:

February 22, 2021

Consultation Code: 06E24100-2021-SLI-0263

Event Code: 06E24100-2021-E-00539

Project Name: BPWCD Flood Prevention, Agricultural Water Management, and Fish & Wildlife Project - Slide Point

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at:

<http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>;

<http://www.towerkill.com>; and

[http://](http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html)

www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds
- Wetlands

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Western Colorado Ecological Services Field Office

445 West Gunnison Avenue, Suite 240

Grand Junction, CO 81501-5711

(970) 628-7180

Project Summary

Consultation Code: 06E24100-2021-SLI-0263

Event Code: 06E24100-2021-E-00539

Project Name: BPWCD Flood Prevention, Agricultural Water Management, and Fish & Wildlife Project - Slide Point

Project Type: STREAM / WATERBODY / CANALS / LEVEES / DIKES

Project Description: The Proposed Project would stabilize and line approximately 1.5 miles of UVWUA open canal, pipe several miles of BPWCD laterals, replace a failing section of existing pipeline, rebuild the Cimarron Canal diversion structure, and install an electronic fish screen and temperature monitors in the Cimarron River.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@38.45693255,-107.65804934728179,14z>



Counties: Montrose County, Colorado

Endangered Species Act Species

There is a total of 6 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Birds

NAME	STATUS
Gunnison Sage-grouse <i>Centrocercus minimus</i> There is final critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6040	Threatened
Mexican Spotted Owl <i>Strix occidentalis lucida</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/8196	Threatened

Fishes

NAME	STATUS
Bonytail <i>Gila elegans</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/1377	Endangered
Colorado Pikeminnow (=squawfish) <i>Ptychocheilus lucius</i> Population: Wherever found, except where listed as an experimental population There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3531	Endangered
Humpback Chub <i>Gila cypha</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3930	Endangered
Razorback Sucker <i>Xyrauchen texanus</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/530	Endangered

Critical habitats

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Gunnison Sage-grouse <i>Centrocercus minimus</i> https://ecos.fws.gov/ecp/species/6040#crithab	Final

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

-
1. The [Migratory Birds Treaty Act](#) of 1918.
 2. The [Bald and Golden Eagle Protection Act](#) of 1940.
 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Black Swift <i>Cypseloides niger</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8878	Breeds Jun 15 to Sep 10
Brewer's Sparrow <i>Spizella breweri</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9291	Breeds May 15 to Aug 10

NAME	BREEDING SEASON
Golden Eagle <i>Aquila chrysaetos</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31
Pinyon Jay <i>Gymnorhinus cyanocephalus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9420	Breeds Feb 15 to Jul 15
Virginia's Warbler <i>Vermivora virginiae</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9441	Breeds May 1 to Jul 31
Willow Flycatcher <i>Empidonax traillii</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/3482	Breeds May 20 to Aug 31

Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12

(0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.

3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

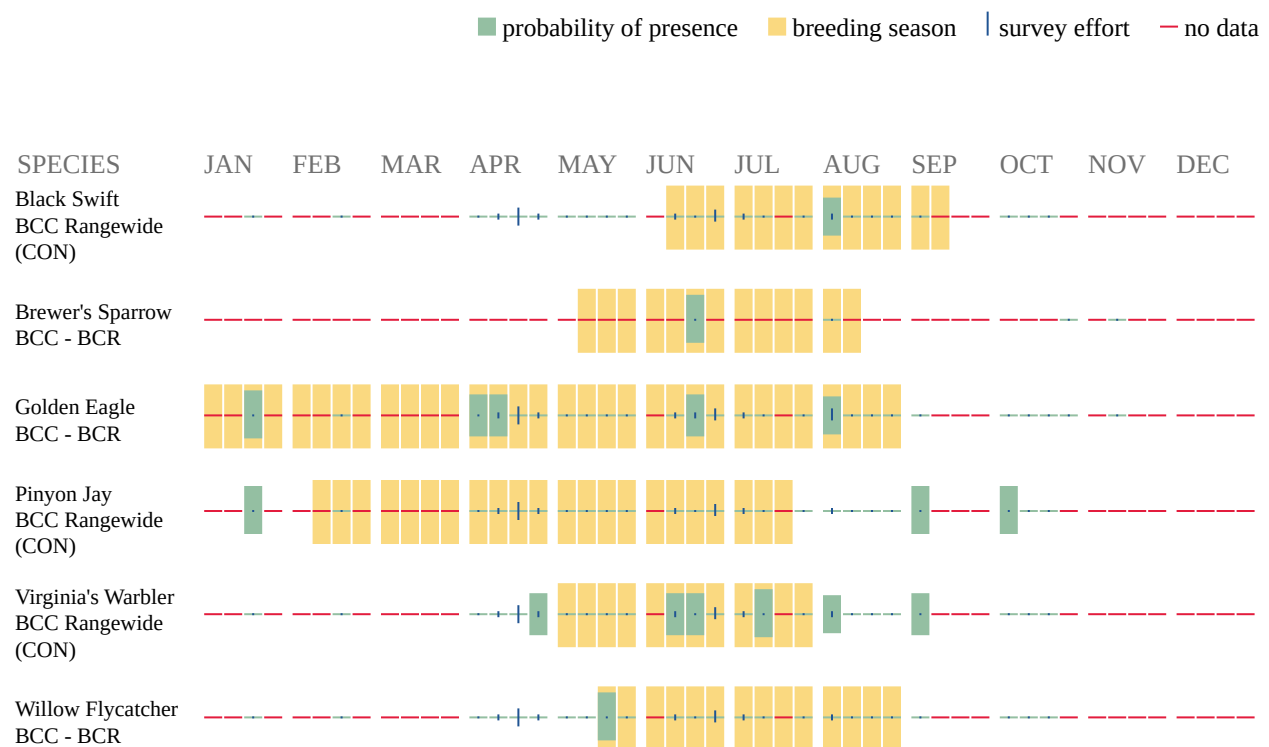
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (—)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Wetlands

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER EMERGENT WETLAND

- [PEM1C](#)

RIVERINE

- [R4SBCx](#)



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Western Colorado Ecological Services Field Office

445 West Gunnison Avenue, Suite 240

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Phone: (970) 628-7180 Fax: (970) 245-6933

<http://www.fws.gov/mountain-prairie/es/Colorado/>

<http://www.fws.gov/platterriver/>

In Reply Refer To:

February 22, 2021

Consultation Code: 06E24100-2021-SLI-0259

Event Code: 06E24100-2021-E-00531

Project Name: BPWCD Flood Prevention, Agricultural Water Management, and Fish & Wildlife Project - Coal Hill

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

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If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

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We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

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This species list is provided by:

Western Colorado Ecological Services Field Office

445 West Gunnison Avenue, Suite 240

Grand Junction, CO 81501-5711

(970) 628-7180

Project Summary

Consultation Code: 06E24100-2021-SLI-0259

Event Code: 06E24100-2021-E-00531

Project Name: BPWCD Flood Prevention, Agricultural Water Management, and Fish & Wildlife Project - Coal Hill

Project Type: STREAM / WATERBODY / CANALS / LEVEES / DIKES

Project Description: The Proposed Project would stabilize and line approximately 1.5 miles of UVWUA open canal, pipe several miles of BPWCD laterals, replace a failing section of existing pipeline, rebuild the Cimarron Canal diversion structure, and install an electronic fish screen and temperature monitors in the Cimarron River.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@38.4245931,-107.6289419593232,14z>



Counties: Montrose County, Colorado

Endangered Species Act Species

There is a total of 6 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

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Birds

NAME	STATUS
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Fishes

NAME	STATUS
Bonytail <i>Gila elegans</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/1377	Endangered
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Humpback Chub <i>Gila cypha</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3930	Endangered
Razorback Sucker <i>Xyrauchen texanus</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/530	Endangered

Critical habitats

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Gunnison Sage-grouse <i>Centrocercus minimus</i> https://ecos.fws.gov/ecp/species/6040#crithab	Final

USFWS National Wildlife Refuge Lands And Fish Hatcheries

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THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

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 2. The [Bald and Golden Eagle Protection Act](#) of 1940.
 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Black Rosy-finch <i>Leucosticte atrata</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9460	Breeds Jun 15 to Aug 31
Brewer's Sparrow <i>Spizella breweri</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9291	Breeds May 15 to Aug 10
Brown-capped Rosy-finch <i>Leucosticte australis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jun 15 to Sep 15

NAME	BREEDING SEASON
Golden Eagle <i>Aquila chrysaetos</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31
Lewis's Woodpecker <i>Melanerpes lewis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9408	Breeds Apr 20 to Sep 30
Virginia's Warbler <i>Vermivora virginiae</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9441	Breeds May 1 to Jul 31

Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

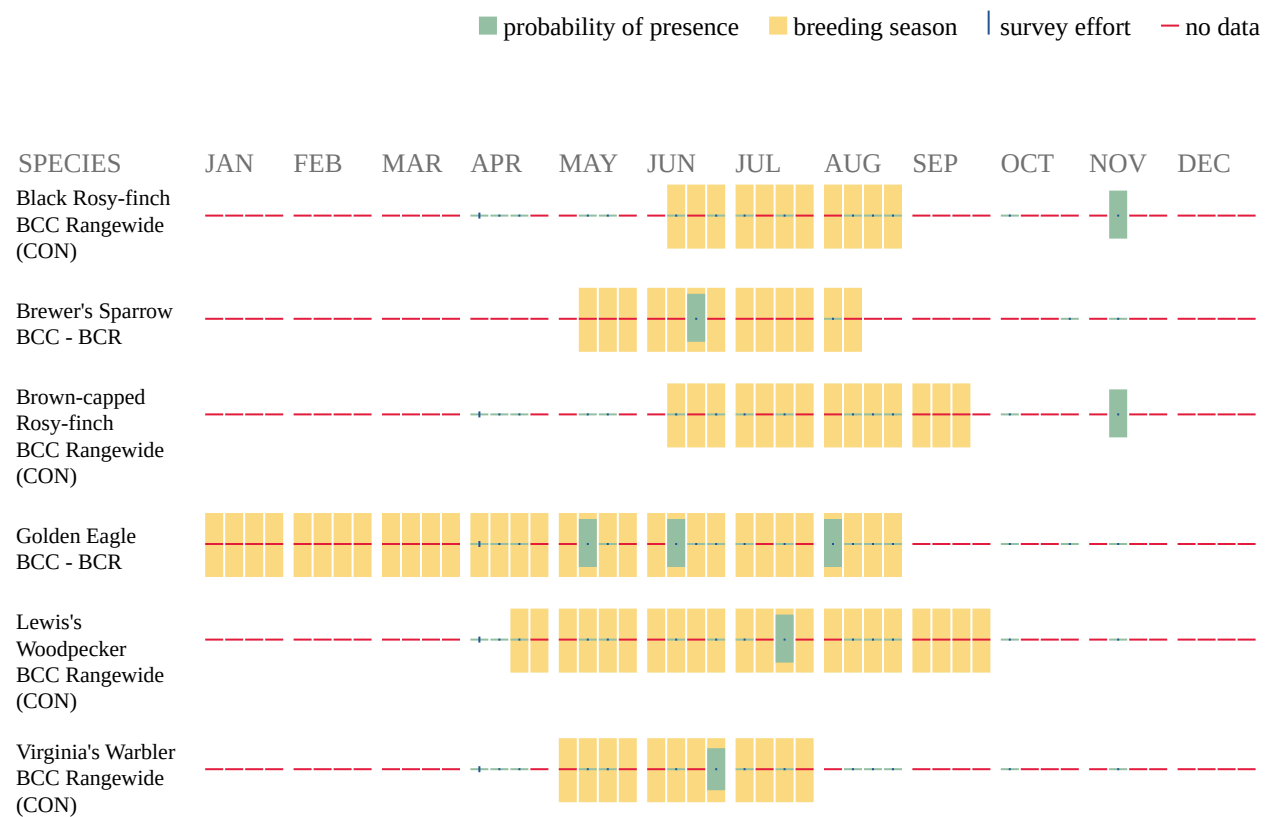
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (—)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>

- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Wetlands

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER POND

- [PABF](#)

FRESHWATER EMERGENT WETLAND

- [PEM1B](#)

RIVERINE

- [R4SBCx](#)



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Western Colorado Ecological Services Field Office

445 West Gunnison Avenue, Suite 240

Grand Junction, CO 81501-5711

Phone: (970) 628-7180 Fax: (970) 245-6933

<http://www.fws.gov/mountain-prairie/es/Colorado/>

<http://www.fws.gov/platterriver/>

In Reply Refer To:

February 22, 2021

Consultation Code: 06E24100-2021-SLI-0265

Event Code: 06E24100-2021-E-00543

Project Name: BPWCD Flood Prevention, Agricultural Water Management, and Fish & Wildlife Project - Wells Basin

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at:

<http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>;

<http://www.towerkill.com>; and

[http://](http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html)

www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds
- Wetlands

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Western Colorado Ecological Services Field Office

445 West Gunnison Avenue, Suite 240

Grand Junction, CO 81501-5711

(970) 628-7180

Project Summary

Consultation Code: 06E24100-2021-SLI-0265

Event Code: 06E24100-2021-E-00543

Project Name: BPWCD Flood Prevention, Agricultural Water Management, and Fish & Wildlife Project - Wells Basin

Project Type: STREAM / WATERBODY / CANALS / LEVEES / DIKES

Project Description: The Proposed Project would stabilize and line approximately 1.5 miles of UVWUA open canal, pipe several miles of BPWCD laterals, replace a failing section of existing pipeline, rebuild the Cimarron Canal diversion structure, and install an electronic fish screen and temperature monitors in the Cimarron River.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@38.36016065,-107.58588917063094,14z>



Counties: Montrose County, Colorado

Endangered Species Act Species

There is a total of 8 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Canada Lynx <i>Lynx canadensis</i> Population: Wherever Found in Contiguous U.S. There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3652	Threatened

Birds

NAME	STATUS
Gunnison Sage-grouse <i>Centrocercus minimus</i> There is final critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6040	Threatened
Mexican Spotted Owl <i>Strix occidentalis lucida</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/8196	Threatened
Yellow-billed Cuckoo <i>Coccyzus americanus</i> Population: Western U.S. DPS There is proposed critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Fishes

NAME	STATUS
Bonytail <i>Gila elegans</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/1377	Endangered
Colorado Pikeminnow (=squawfish) <i>Ptychocheilus lucius</i> Population: Wherever found, except where listed as an experimental population There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3531	Endangered
Humpback Chub <i>Gila cypha</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3930	Endangered
Razorback Sucker <i>Xyrauchen texanus</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/530	Endangered

Critical habitats

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Gunnison Sage-grouse <i>Centrocercus minimus</i> https://ecos.fws.gov/ecp/species/6040#crithab	Final

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

-
1. The [Migratory Birds Treaty Act](#) of 1918.
 2. The [Bald and Golden Eagle Protection Act](#) of 1940.
 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Lewis's Woodpecker <i>Melanerpes lewis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9408	Breeds Apr 20 to Sep 30
Rufous Hummingbird <i>selasphorus rufus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8002	Breeds elsewhere

Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

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Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

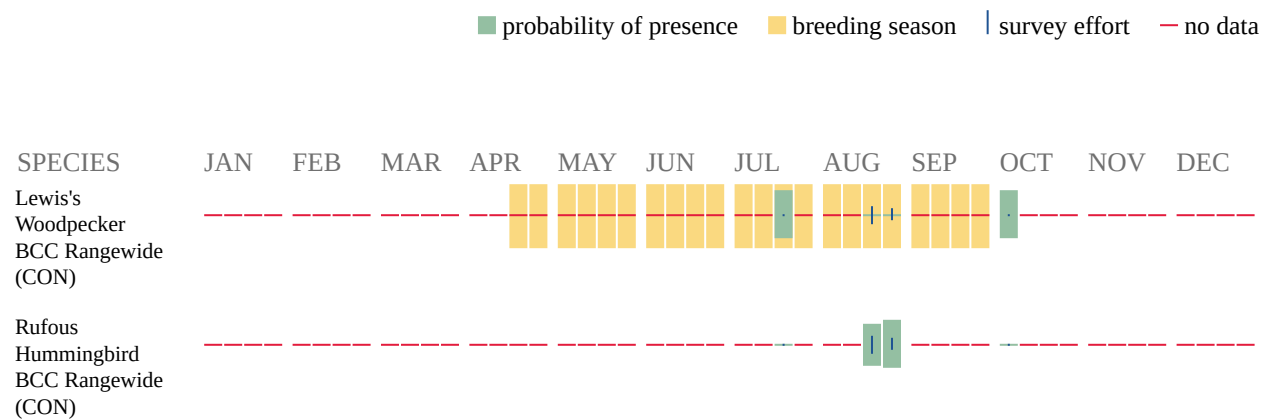
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No Data (—)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Additional information can be found using the following links:

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- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

Migratory Birds FAQ

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Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Wetlands

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER EMERGENT WETLAND

- [PEM1B](#)

FRESHWATER FORESTED/SHRUB WETLAND

- [PSS1B](#)

RIVERINE

- [R4SBC](#)
- [R5UBFx](#)
- [R4SBCx](#)



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Western Colorado Ecological Services Field Office
445 West Gunnison Avenue, Suite 240
Grand Junction, CO 81501-5711
Phone: (970) 628-7180 Fax: (970) 245-6933



In Reply Refer To:

March 01, 2023

Project Code: 2022-0027722

Project Name: BPWCD Flood Prevention, Agricultural Water Management, and Fish & Wildlife Project - West Lateral

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2))

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see <https://www.fws.gov/birds/policies-and-regulations.php>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see <https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Western Colorado Ecological Services Field Office

445 West Gunnison Avenue, Suite 240

Grand Junction, CO 81501-5711

(970) 628-7180

PROJECT SUMMARY

Project Code: 2022-0027722

Project Name: BPWCD Flood Prevention, Agricultural Water Management, and Fish & Wildlife Project - West Lateral

Project Type: Irrigation

Project Description: The Proposed Project would stabilize and line approximately 1.5 miles of UUVWUA open canal, pipe several miles of BPWCD laterals, replace a failing section of existing pipeline, rebuild the Cimarron Canal diversion structure, and install an electronic fish screen and temperature monitors in the Cimarron River.

Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@38.52593625,-107.75937573442025,14z>



Counties: Montrose County, Colorado

ENDANGERED SPECIES ACT SPECIES

There is a total of 9 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 3 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Gray Wolf <i>Canis lupus</i> Population: U.S.A.: All of AL, AR, CA, CO, CT, DE, FL, GA, IA, IN, IL, KS, KY, LA, MA, MD, ME, MI, MO, MS, NC, ND, NE, NH, NJ, NV, NY, OH, OK, PA, RI, SC, SD, TN, TX, VA, VT, WI, and WV; and portions of AZ, NM, OR, UT, and WA. Mexico. There is final critical habitat for this species. This species only needs to be considered under the following conditions: <ul style="list-style-type: none"> ▪ Lone, dispersing gray wolves may be present throughout the state of Colorado. If your activity includes a predator management program, please consider this species in your environmental review. Species profile: https://ecos.fws.gov/ecp/species/4488	Endangered

BIRDS

NAME	STATUS
Gunnison Sage-grouse <i>Centrocercus minimus</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6040	Threatened
Mexican Spotted Owl <i>Strix occidentalis lucida</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8196	Threatened

FISHES

NAME	STATUS
Bonytail <i>Gila elegans</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. This species only needs to be considered under the following conditions: <ul style="list-style-type: none"> Water depletions in the upper Colorado River basin adversely affect this species and its critical habitat. Effects of water depletions must be considered even outside of occupied range. Species profile: https://ecos.fws.gov/ecp/species/1377	Endangered
Colorado Pikeminnow <i>Ptychocheilus lucius</i> Population: Wherever found, except where listed as an experimental population There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3531	Endangered
Humpback Chub <i>Gila cypha</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3930	Threatened
Razorback Sucker <i>Xyrauchen texanus</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. This species only needs to be considered under the following conditions: <ul style="list-style-type: none"> Water depletions in the upper Colorado River basin adversely affect this species and its critical habitat. Effects of water depletions must be considered even outside of occupied range. Species profile: https://ecos.fws.gov/ecp/species/530	Endangered

INSECTS

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate
Silverspot <i>Speyeria nokomis nokomis</i> There is proposed critical habitat for this species. Species profile: https://ecos.fws.gov/ecp/species/2813	Proposed Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

MIGRATORY BIRDS

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

-
1. The [Migratory Birds Treaty Act](#) of 1918.
 2. The [Bald and Golden Eagle Protection Act](#) of 1940.
 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern \(BCC\)](#) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Dec 1 to Aug 31
Black Swift <i>Cypseloides niger</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8878	Breeds Jun 15 to Sep 10

NAME	BREEDING SEASON
<p>Cassin's Finch <i>Carpodacus cassinii</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p> <p>https://ecos.fws.gov/ecp/species/9462</p>	Breeds May 15 to Jul 15
<p>Clark's Nutcracker <i>Nucifraga columbiana</i></p> <p>This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA</p>	Breeds Jan 15 to Jul 15
<p>Evening Grosbeak <i>Coccothraustes vespertinus</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds May 15 to Aug 10
<p>Grace's Warbler <i>Dendroica graciae</i></p> <p>This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA</p>	Breeds May 20 to Jul 20
<p>Lesser Yellowlegs <i>Tringa flavipes</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p> <p>https://ecos.fws.gov/ecp/species/9679</p>	Breeds elsewhere
<p>Lewis's Woodpecker <i>Melanerpes lewis</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p> <p>https://ecos.fws.gov/ecp/species/9408</p>	Breeds Apr 20 to Sep 30
<p>Olive-sided Flycatcher <i>Contopus cooperi</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p> <p>https://ecos.fws.gov/ecp/species/3914</p>	Breeds May 20 to Aug 31
<p>Pinyon Jay <i>Gymnorhinus cyanocephalus</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p> <p>https://ecos.fws.gov/ecp/species/9420</p>	Breeds Feb 15 to Jul 15
<p>Virginia's Warbler <i>Vermivora virginiae</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p> <p>https://ecos.fws.gov/ecp/species/9441</p>	Breeds May 1 to Jul 31
<p>Western Grebe <i>aechmophorus occidentalis</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p> <p>https://ecos.fws.gov/ecp/species/6743</p>	Breeds Jun 1 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

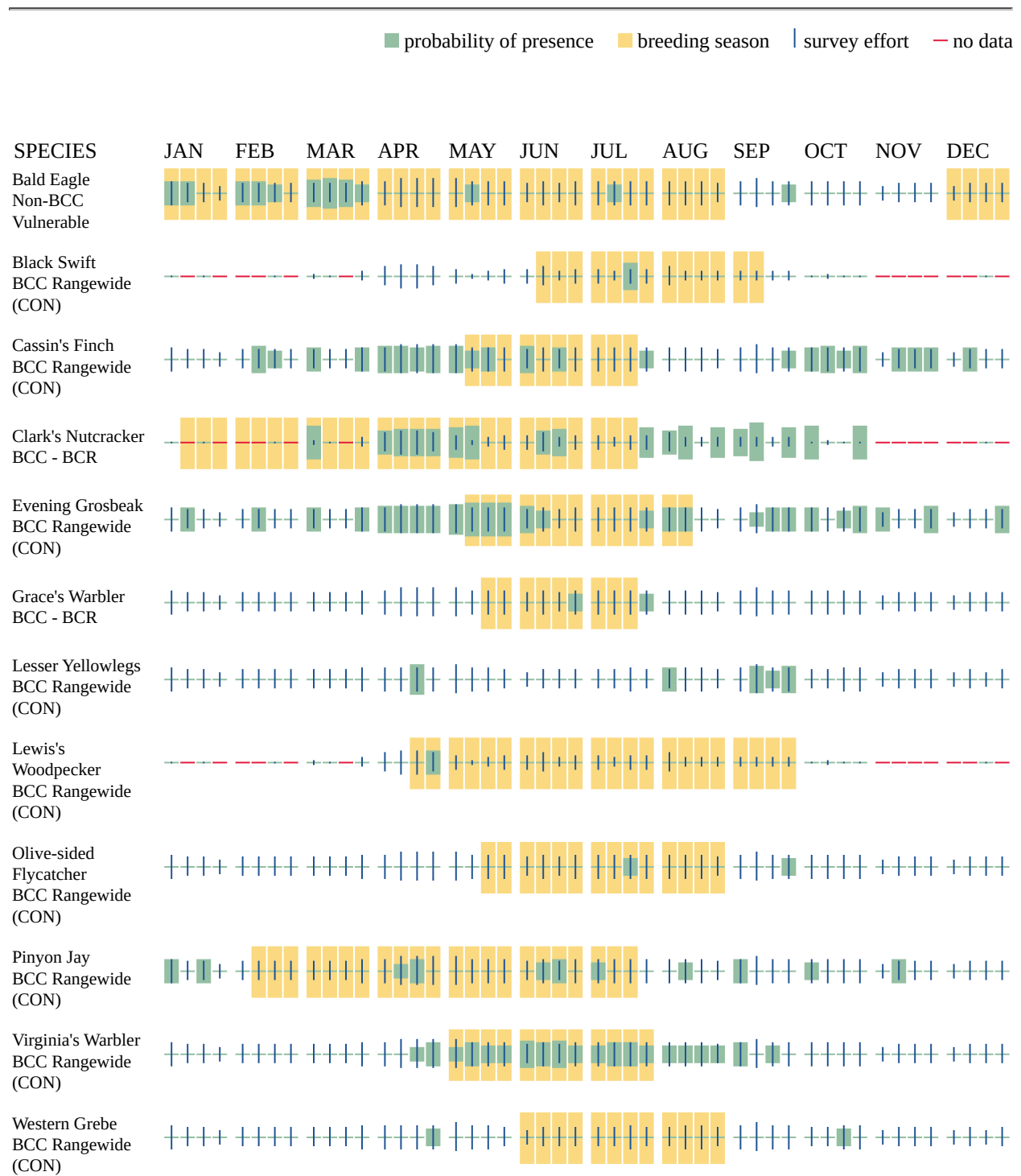
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (—)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Additional information can be found using the following links:

- Birds of Conservation Concern <https://www.fws.gov/program/migratory-birds/species>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>

MIGRATORY BIRDS FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and

how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the [RAIL Tool](#) and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

WETLANDS

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

THERE ARE NO WETLANDS WITHIN YOUR PROJECT AREA.



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Western Colorado Ecological Services Field Office
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Grand Junction, CO 81501-5711
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In Reply Refer To:

March 01, 2023

Project Code: 2022-0027720

Project Name: BPWCD Flood Prevention, Agricultural Water Management, and Fish & Wildlife Project - East Lateral

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2))

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see <https://www.fws.gov/birds/policies-and-regulations.php>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see <https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Western Colorado Ecological Services Field Office

445 West Gunnison Avenue, Suite 240

Grand Junction, CO 81501-5711

(970) 628-7180

PROJECT SUMMARY

Project Code: 2022-0027720

Project Name: BPWCD Flood Prevention, Agricultural Water Management, and Fish & Wildlife Project - East Lateral

Project Type: Irrigation

Project Description: The Proposed Project would stabilize and line approximately 1.5 miles of UUVWUA open canal, pipe several miles of BPWCD laterals, replace a failing section of existing pipeline, rebuild the Cimarron Canal diversion structure, and install an electronic fish screen and temperature monitors in the Cimarron River.

Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@38.5317564,-107.74473657076949,14z>



Counties: Montrose County, Colorado

ENDANGERED SPECIES ACT SPECIES

There is a total of 9 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 3 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Gray Wolf <i>Canis lupus</i> Population: U.S.A.: All of AL, AR, CA, CO, CT, DE, FL, GA, IA, IN, IL, KS, KY, LA, MA, MD, ME, MI, MO, MS, NC, ND, NE, NH, NJ, NV, NY, OH, OK, PA, RI, SC, SD, TN, TX, VA, VT, WI, and WV; and portions of AZ, NM, OR, UT, and WA. Mexico. There is final critical habitat for this species. This species only needs to be considered under the following conditions: <ul style="list-style-type: none"> ▪ Lone, dispersing gray wolves may be present throughout the state of Colorado. If your activity includes a predator management program, please consider this species in your environmental review. Species profile: https://ecos.fws.gov/ecp/species/4488	Endangered

BIRDS

NAME	STATUS
Gunnison Sage-grouse <i>Centrocercus minimus</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6040	Threatened
Mexican Spotted Owl <i>Strix occidentalis lucida</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8196	Threatened

FISHES

NAME	STATUS
Bonytail <i>Gila elegans</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. This species only needs to be considered under the following conditions: <ul style="list-style-type: none"> Water depletions in the upper Colorado River basin adversely affect this species and its critical habitat. Effects of water depletions must be considered even outside of occupied range. Species profile: https://ecos.fws.gov/ecp/species/1377	Endangered
Colorado Pikeminnow <i>Ptychocheilus lucius</i> Population: Wherever found, except where listed as an experimental population There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3531	Endangered
Humpback Chub <i>Gila cypha</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3930	Threatened
Razorback Sucker <i>Xyrauchen texanus</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. This species only needs to be considered under the following conditions: <ul style="list-style-type: none"> Water depletions in the upper Colorado River basin adversely affect this species and its critical habitat. Effects of water depletions must be considered even outside of occupied range. Species profile: https://ecos.fws.gov/ecp/species/530	Endangered

INSECTS

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate
Silverspot <i>Speyeria nokomis nokomis</i> There is proposed critical habitat for this species. Species profile: https://ecos.fws.gov/ecp/species/2813	Proposed Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

MIGRATORY BIRDS

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

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1. The [Migratory Birds Treaty Act](#) of 1918.
 2. The [Bald and Golden Eagle Protection Act](#) of 1940.
 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern \(BCC\)](#) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Dec 1 to Aug 31
Black Swift <i>Cypseloides niger</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8878	Breeds Jun 15 to Sep 10

NAME	BREEDING SEASON
Brown-capped Rosy-finch <i>Leucosticte australis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jun 15 to Sep 15
Cassin's Finch <i>Carpodacus cassinii</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9462	Breeds May 15 to Jul 15
Clark's Nutcracker <i>Nucifraga columbiana</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Jan 15 to Jul 15
Evening Grosbeak <i>Coccothraustes vespertinus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 15 to Aug 10
Grace's Warbler <i>Dendroica graciae</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds May 20 to Jul 20
Lesser Yellowlegs <i>Tringa flavipes</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Lewis's Woodpecker <i>Melanerpes lewis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9408	Breeds Apr 20 to Sep 30
Long-eared Owl <i>asio otus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3631	Breeds Mar 1 to Jul 15
Olive-sided Flycatcher <i>Contopus cooperi</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31
Pinyon Jay <i>Gymnorhinus cyanocephalus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9420	Breeds Feb 15 to Jul 15
Virginia's Warbler <i>Vermivora virginiae</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9441	Breeds May 1 to Jul 31

NAME	BREEDING SEASON
Western Grebe <i>aechmophorus occidentalis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/6743	Breeds Jun 1 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

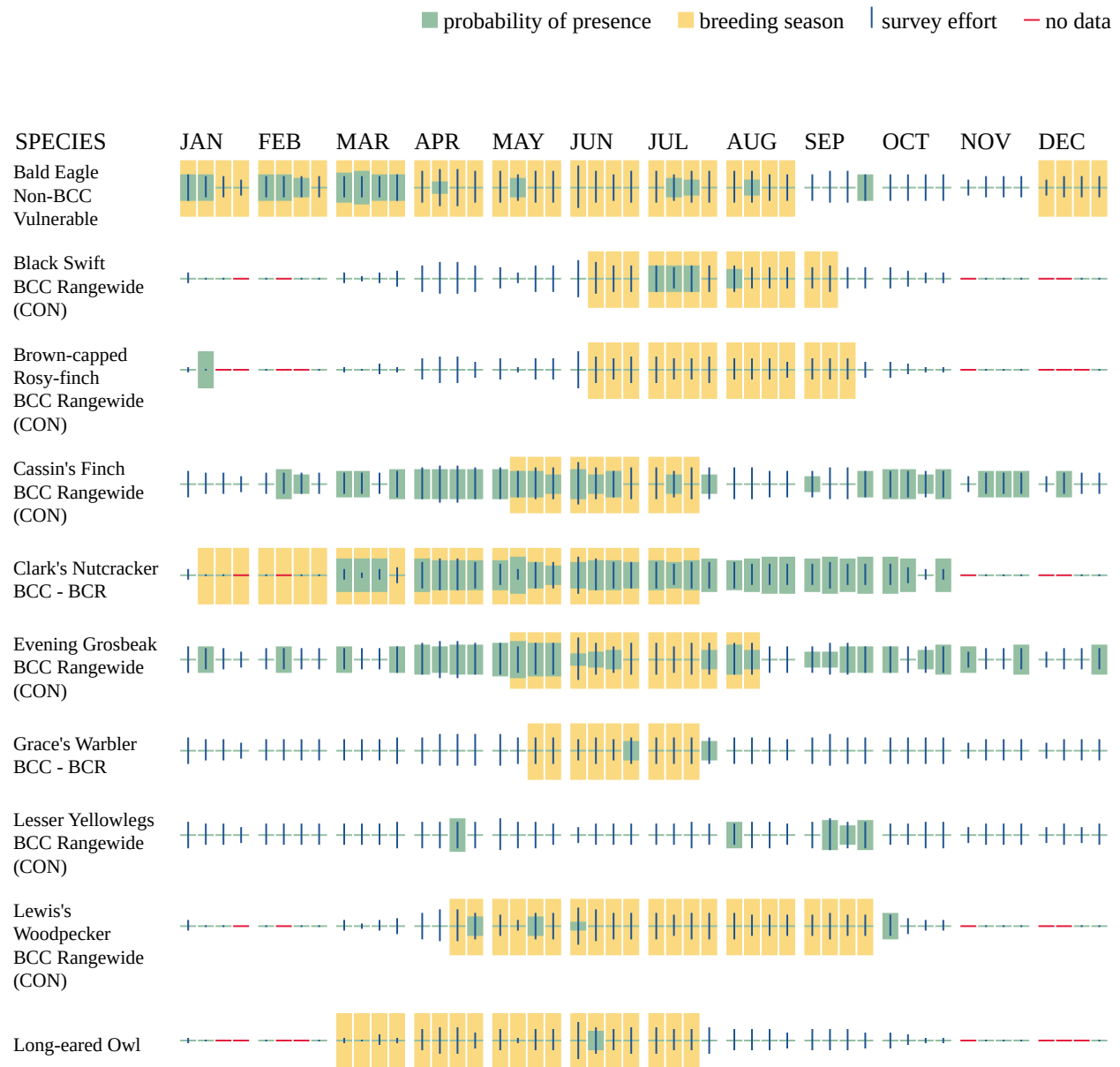
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (—)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



BCC Rangewide
(CON)

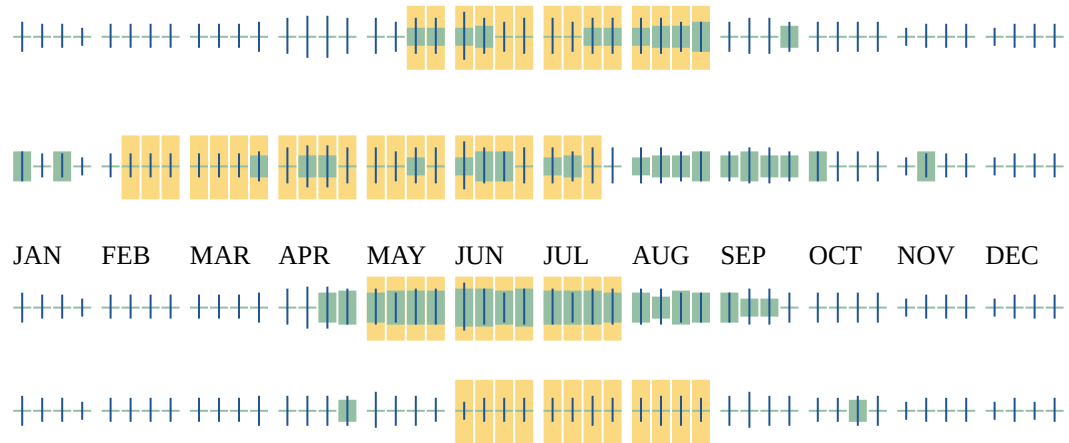
Olive-sided
Flycatcher
BCC Rangewide
(CON)

Pinyon Jay
BCC Rangewide
(CON)

SPECIES

Virginia's Warbler
BCC Rangewide
(CON)

Western Grebe
BCC Rangewide
(CON)



Additional information can be found using the following links:

- Birds of Conservation Concern <https://www.fws.gov/program/migratory-birds/species>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>

MIGRATORY BIRDS FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as

warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the [RAIL Tool](#) and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

WETLANDS

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

THERE ARE NO WETLANDS WITHIN YOUR PROJECT AREA.



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Western Colorado Ecological Services Field Office
445 West Gunnison Avenue, Suite 240
Grand Junction, CO 81501-5711
Phone: (970) 628-7180 Fax: (970) 245-6933



In Reply Refer To:

March 01, 2023

Project Code: 2022-0027698

Project Name: BPWCD Flood Prevention, Agricultural Water Management, and Fish & Wildlife Project - M&D Canal

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2))

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

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The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see <https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Western Colorado Ecological Services Field Office

445 West Gunnison Avenue, Suite 240

Grand Junction, CO 81501-5711

(970) 628-7180

PROJECT SUMMARY

Project Code: 2022-0027698

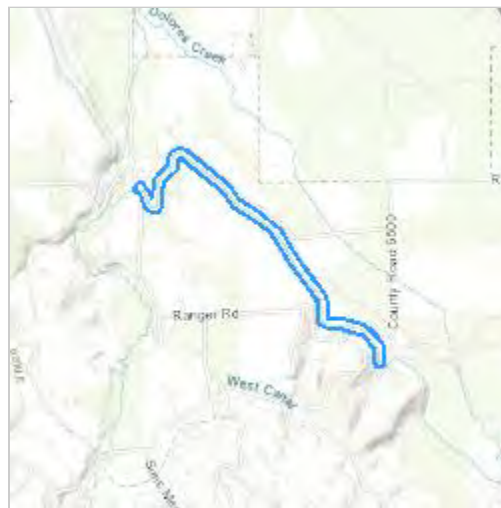
Project Name: BPWCD Flood Prevention, Agricultural Water Management, and Fish & Wildlife Project - M&D Canal

Project Type: Irrigation

Project Description: The Proposed Project would stabilize and line approximately 1.5 miles of UVWUA open canal, pipe several miles of BPWCD laterals, replace a failing section of existing pipeline, rebuild the Cimarron Canal diversion structure, and install an electronic fish screen and temperature monitors in the Cimarron River.

Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@38.41735715,-107.88011744299274,14z>



Counties: Montrose County, Colorado

ENDANGERED SPECIES ACT SPECIES

There is a total of 9 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 3 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
<p>Gray Wolf <i>Canis lupus</i></p> <p>Population: U.S.A.: All of AL, AR, CA, CO, CT, DE, FL, GA, IA, IN, IL, KS, KY, LA, MA, MD, ME, MI, MO, MS, NC, ND, NE, NH, NJ, NV, NY, OH, OK, PA, RI, SC, SD, TN, TX, VA, VT, WI, and WV; and portions of AZ, NM, OR, UT, and WA. Mexico.</p> <p>There is final critical habitat for this species.</p> <p>This species only needs to be considered under the following conditions:</p> <ul style="list-style-type: none"> ▪ Lone, dispersing gray wolves may be present throughout the state of Colorado. If your activity includes a predator management program, please consider this species in your environmental review. <p>Species profile: https://ecos.fws.gov/ecp/species/4488</p>	Endangered

BIRDS

NAME	STATUS
<p>Gunnison Sage-grouse <i>Centrocercus minimus</i></p> <p>There is final critical habitat for this species. Your location does not overlap the critical habitat.</p> <p>Species profile: https://ecos.fws.gov/ecp/species/6040</p>	Threatened
<p>Yellow-billed Cuckoo <i>Coccyzus americanus</i></p> <p>Population: Western U.S. DPS</p> <p>There is final critical habitat for this species. Your location does not overlap the critical habitat.</p> <p>Species profile: https://ecos.fws.gov/ecp/species/3911</p>	Threatened

FISHES

NAME	STATUS
Bonytail <i>Gila elegans</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. This species only needs to be considered under the following conditions: <ul style="list-style-type: none"> Water depletions in the upper Colorado River basin adversely affect this species and its critical habitat. Effects of water depletions must be considered even outside of occupied range. Species profile: https://ecos.fws.gov/ecp/species/1377	Endangered
Colorado Pikeminnow <i>Ptychocheilus lucius</i> Population: Wherever found, except where listed as an experimental population There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3531	Endangered
Humpback Chub <i>Gila cypha</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3930	Threatened
Razorback Sucker <i>Xyrauchen texanus</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. This species only needs to be considered under the following conditions: <ul style="list-style-type: none"> Water depletions in the upper Colorado River basin adversely affect this species and its critical habitat. Effects of water depletions must be considered even outside of occupied range. Species profile: https://ecos.fws.gov/ecp/species/530	Endangered

INSECTS

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate
Silverspot <i>Speyeria nokomis nokomis</i> There is proposed critical habitat for this species. Species profile: https://ecos.fws.gov/ecp/species/2813	Proposed Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

MIGRATORY BIRDS

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

-
1. The [Migratory Birds Treaty Act](#) of 1918.
 2. The [Bald and Golden Eagle Protection Act](#) of 1940.
 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern \(BCC\)](#) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Dec 1 to Aug 31
Brown-capped Rosy-finch <i>Leucosticte australis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jun 15 to Sep 15

NAME	BREEDING SEASON
Cassin's Finch <i>Carpodacus cassinii</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9462	Breeds May 15 to Jul 15
Clark's Nutcracker <i>Nucifraga columbiana</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Jan 15 to Jul 15
Evening Grosbeak <i>Coccothraustes vespertinus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 15 to Aug 10
Olive-sided Flycatcher <i>Contopus cooperi</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31
Pinyon Jay <i>Gymnorhinus cyanocephalus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9420	Breeds Feb 15 to Jul 15
Virginia's Warbler <i>Vermivora virginiae</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9441	Breeds May 1 to Jul 31
Western Grebe <i>aechmophorus occidentalis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/6743	Breeds Jun 1 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

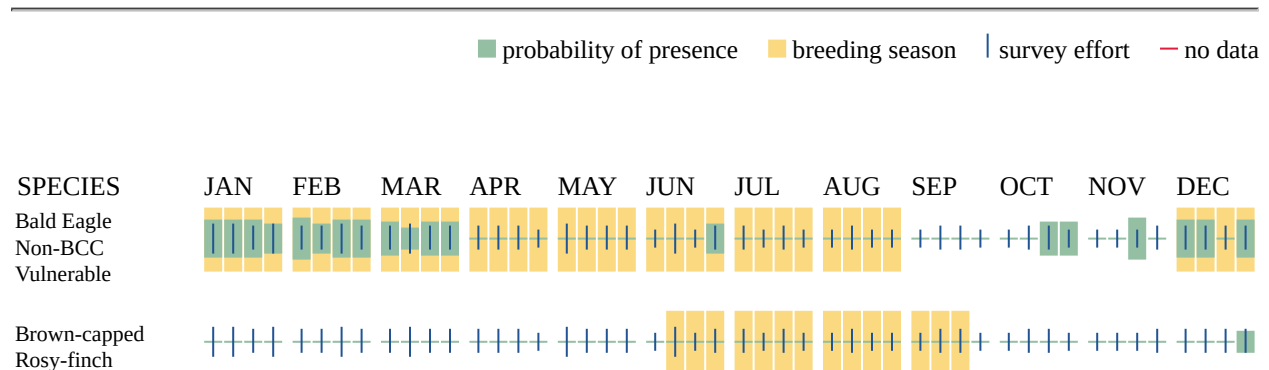
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (—)

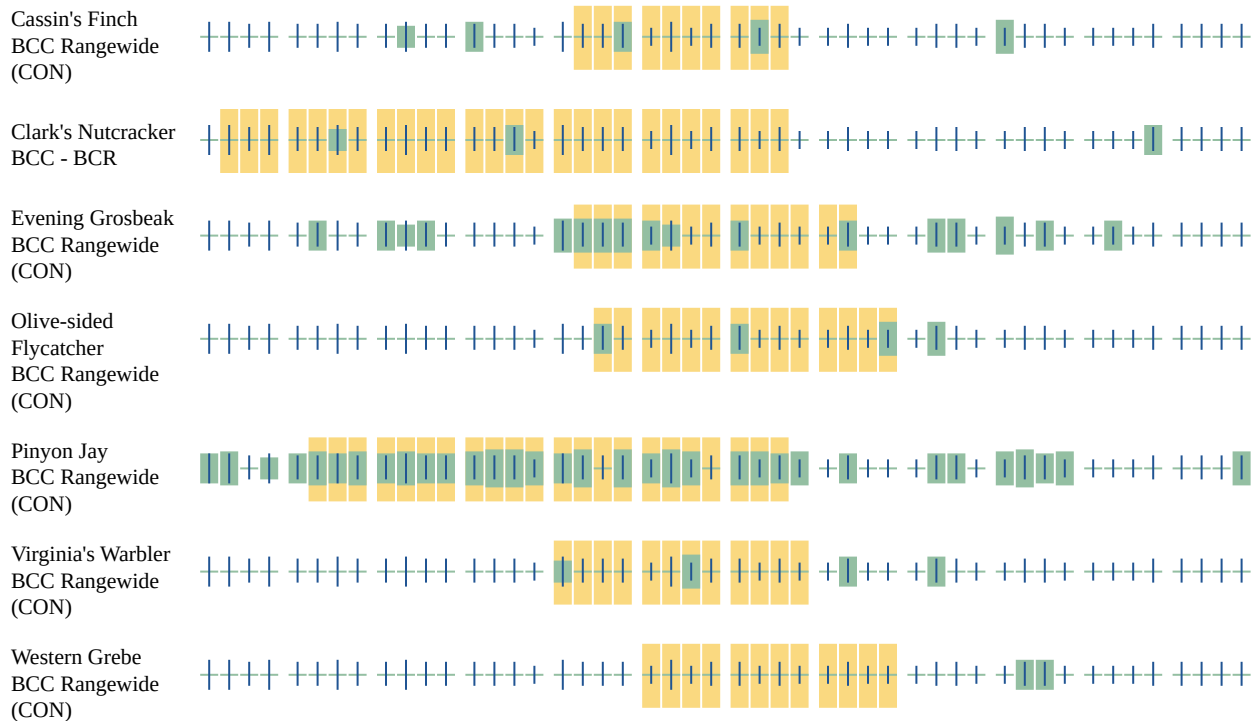
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



BCC Rangewide (CON)



Additional information can be found using the following links:

- Birds of Conservation Concern <https://www.fws.gov/program/migratory-birds/species>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>

MIGRATORY BIRDS FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the [RAIL Tool](#) and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles)

potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

WETLANDS

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

THERE ARE NO WETLANDS WITHIN YOUR PROJECT AREA.



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Western Colorado Ecological Services Field Office
445 West Gunnison Avenue, Suite 240
Grand Junction, CO 81501-5711
Phone: (970) 628-7180 Fax: (970) 245-6933



In Reply Refer To:

March 01, 2023

Project Code: 2022-0027670

Project Name: BPWCD Flood Prevention, Agricultural Water Management, and Fish & Wildlife Project - Slide Point

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see <https://www.fws.gov/birds/policies-and-regulations.php>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see <https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Western Colorado Ecological Services Field Office

445 West Gunnison Avenue, Suite 240

Grand Junction, CO 81501-5711

(970) 628-7180

PROJECT SUMMARY

Project Code: 2022-0027670

Project Name: BPWCD Flood Prevention, Agricultural Water Management, and Fish & Wildlife Project - Slide Point

Project Type: Irrigation

Project Description: The Proposed Project would stabilize and line approximately 1.5 miles of UUVWUA open canal, pipe several miles of BPWCD laterals, replace a failing section of existing pipeline, rebuild the Cimarron Canal diversion structure, and install an electronic fish screen and temperature monitors in the Cimarron River.

Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@38.45695095,-107.65804830653224,14z>



Counties: Montrose County, Colorado

ENDANGERED SPECIES ACT SPECIES

There is a total of 9 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 3 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Gray Wolf <i>Canis lupus</i> Population: U.S.A.: All of AL, AR, CA, CO, CT, DE, FL, GA, IA, IN, IL, KS, KY, LA, MA, MD, ME, MI, MO, MS, NC, ND, NE, NH, NJ, NV, NY, OH, OK, PA, RI, SC, SD, TN, TX, VA, VT, WI, and WV; and portions of AZ, NM, OR, UT, and WA. Mexico. There is final critical habitat for this species. This species only needs to be considered under the following conditions: <ul style="list-style-type: none"> ▪ Lone, dispersing gray wolves may be present throughout the state of Colorado. If your activity includes a predator management program, please consider this species in your environmental review. Species profile: https://ecos.fws.gov/ecp/species/4488	Endangered

BIRDS

NAME	STATUS
Gunnison Sage-grouse <i>Centrocercus minimus</i> There is final critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6040	Threatened
Mexican Spotted Owl <i>Strix occidentalis lucida</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8196	Threatened

FISHES

NAME	STATUS
Bonytail <i>Gila elegans</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. This species only needs to be considered under the following conditions: <ul style="list-style-type: none"> Water depletions in the upper Colorado River basin adversely affect this species and its critical habitat. Effects of water depletions must be considered even outside of occupied range. Species profile: https://ecos.fws.gov/ecp/species/1377	Endangered
Colorado Pikeminnow <i>Ptychocheilus lucius</i> Population: Wherever found, except where listed as an experimental population There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3531	Endangered
Humpback Chub <i>Gila cypha</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3930	Threatened
Razorback Sucker <i>Xyrauchen texanus</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. This species only needs to be considered under the following conditions: <ul style="list-style-type: none"> Water depletions in the upper Colorado River basin adversely affect this species and its critical habitat. Effects of water depletions must be considered even outside of occupied range. Species profile: https://ecos.fws.gov/ecp/species/530	Endangered

INSECTS

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate
Silverspot <i>Speyeria nokomis nokomis</i> There is proposed critical habitat for this species. Species profile: https://ecos.fws.gov/ecp/species/2813	Proposed Threatened

CRITICAL HABITATS

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Gunnison Sage-grouse <i>Centrocercus minimus</i> https://ecos.fws.gov/ecp/species/6040#crithab	Final

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

MIGRATORY BIRDS

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

-
1. The [Migratory Birds Treaty Act](#) of 1918.
 2. The [Bald and Golden Eagle Protection Act](#) of 1940.
 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern \(BCC\)](#) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Dec 1 to Aug 31
Black Swift <i>Cypseloides niger</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8878	Breeds Jun 15 to Sep 10

NAME	BREEDING SEASON
Cassin's Finch <i>Carpodacus cassinii</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9462	Breeds May 15 to Jul 15
Clark's Nutcracker <i>Nucifraga columbiana</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Jan 15 to Jul 15
Evening Grosbeak <i>Coccothraustes vespertinus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 15 to Aug 10
Grace's Warbler <i>Dendroica graciae</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds May 20 to Jul 20
Lewis's Woodpecker <i>Melanerpes lewis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9408	Breeds Apr 20 to Sep 30
Olive-sided Flycatcher <i>Contopus cooperi</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31
Pinyon Jay <i>Gymnorhinus cyanocephalus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9420	Breeds Feb 15 to Jul 15
Virginia's Warbler <i>Vermivora virginiae</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9441	Breeds May 1 to Jul 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see

below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

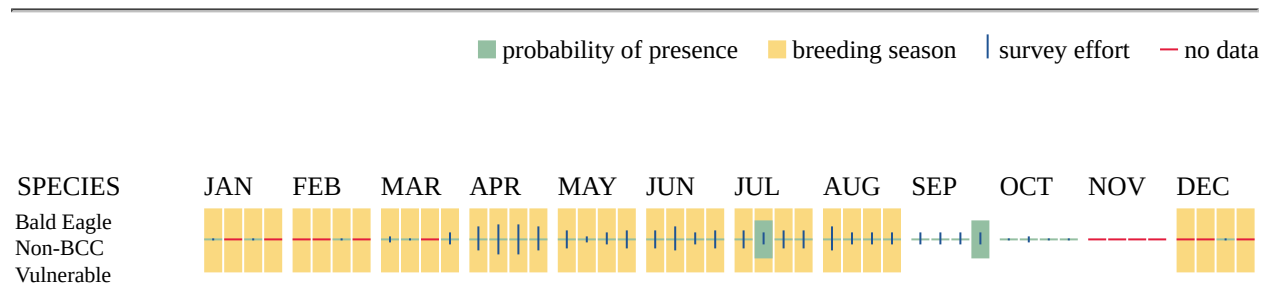
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (—)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.





Additional information can be found using the following links:

- Birds of Conservation Concern <https://www.fws.gov/program/migratory-birds/species>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>

MIGRATORY BIRDS FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#)

may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the [RAIL Tool](#) and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);

2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities,

should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

WETLANDS

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

RIVERINE

- [R4SBCx](#)

FRESHWATER EMERGENT WETLAND

- [PEM1C](#)



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Western Colorado Ecological Services Field Office
445 West Gunnison Avenue, Suite 240
Grand Junction, CO 81501-5711
Phone: (970) 628-7180 Fax: (970) 245-6933



In Reply Refer To:

March 01, 2023

Project Code: 2022-0027727

Project Name: BPWCD Flood Prevention, Agricultural Water Management, and Fish & Wildlife Project - Coal Hill

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2))

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see <https://www.fws.gov/birds/policies-and-regulations.php>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see <https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Western Colorado Ecological Services Field Office

445 West Gunnison Avenue, Suite 240

Grand Junction, CO 81501-5711

(970) 628-7180

PROJECT SUMMARY

Project Code: 2022-0027727

Project Name: BPWCD Flood Prevention, Agricultural Water Management, and Fish & Wildlife Project - Coal Hill

Project Type: Irrigation

Project Description: The Proposed Project would stabilize and line approximately 1.5 miles of UVWUA open canal, pipe several miles of BPWCD laterals, replace a failing section of existing pipeline, rebuild the Cimarron Canal diversion structure, and install an electronic fish screen and temperature monitors in the Cimarron River.

Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@38.424572600000005,-107.6289238222003,14z>



Counties: Montrose County, Colorado

ENDANGERED SPECIES ACT SPECIES

There is a total of 9 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 3 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Gray Wolf <i>Canis lupus</i> Population: U.S.A.: All of AL, AR, CA, CO, CT, DE, FL, GA, IA, IN, IL, KS, KY, LA, MA, MD, ME, MI, MO, MS, NC, ND, NE, NH, NJ, NV, NY, OH, OK, PA, RI, SC, SD, TN, TX, VA, VT, WI, and WV; and portions of AZ, NM, OR, UT, and WA. Mexico. There is final critical habitat for this species. This species only needs to be considered under the following conditions: <ul style="list-style-type: none"> ▪ Lone, dispersing gray wolves may be present throughout the state of Colorado. If your activity includes a predator management program, please consider this species in your environmental review. Species profile: https://ecos.fws.gov/ecp/species/4488	Endangered

BIRDS

NAME	STATUS
Gunnison Sage-grouse <i>Centrocercus minimus</i> There is final critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6040	Threatened
Mexican Spotted Owl <i>Strix occidentalis lucida</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8196	Threatened

FISHES

NAME	STATUS
Bonytail <i>Gila elegans</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. This species only needs to be considered under the following conditions: <ul style="list-style-type: none"> Water depletions in the upper Colorado River basin adversely affect this species and its critical habitat. Effects of water depletions must be considered even outside of occupied range. Species profile: https://ecos.fws.gov/ecp/species/1377	Endangered
Colorado Pikeminnow <i>Ptychocheilus lucius</i> Population: Wherever found, except where listed as an experimental population There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3531	Endangered
Humpback Chub <i>Gila cypha</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3930	Threatened
Razorback Sucker <i>Xyrauchen texanus</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. This species only needs to be considered under the following conditions: <ul style="list-style-type: none"> Water depletions in the upper Colorado River basin adversely affect this species and its critical habitat. Effects of water depletions must be considered even outside of occupied range. Species profile: https://ecos.fws.gov/ecp/species/530	Endangered

INSECTS

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate
Silverspot <i>Speyeria nokomis nokomis</i> There is proposed critical habitat for this species. Species profile: https://ecos.fws.gov/ecp/species/2813	Proposed Threatened

CRITICAL HABITATS

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Gunnison Sage-grouse <i>Centrocercus minimus</i> https://ecos.fws.gov/ecp/species/6040#crithab	Final

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

MIGRATORY BIRDS

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

-
1. The [Migratory Birds Treaty Act](#) of 1918.
 2. The [Bald and Golden Eagle Protection Act](#) of 1940.
 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern \(BCC\)](#) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Black Rosy-finch <i>Leucosticte atrata</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9460	Breeds Jun 15 to Aug 31
Brown-capped Rosy-finch <i>Leucosticte australis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jun 15 to Sep 15
Cassin's Finch <i>Carpodacus cassinii</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9462	Breeds May 15 to Jul 15

NAME	BREEDING SEASON
Clark's Nutcracker <i>Nucifraga columbiana</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Jan 15 to Jul 15
Lewis's Woodpecker <i>Melanerpes lewis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9408	Breeds Apr 20 to Sep 30
Olive-sided Flycatcher <i>Contopus cooperi</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31
Virginia's Warbler <i>Vermivora virginiae</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9441	Breeds May 1 to Jul 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.

3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

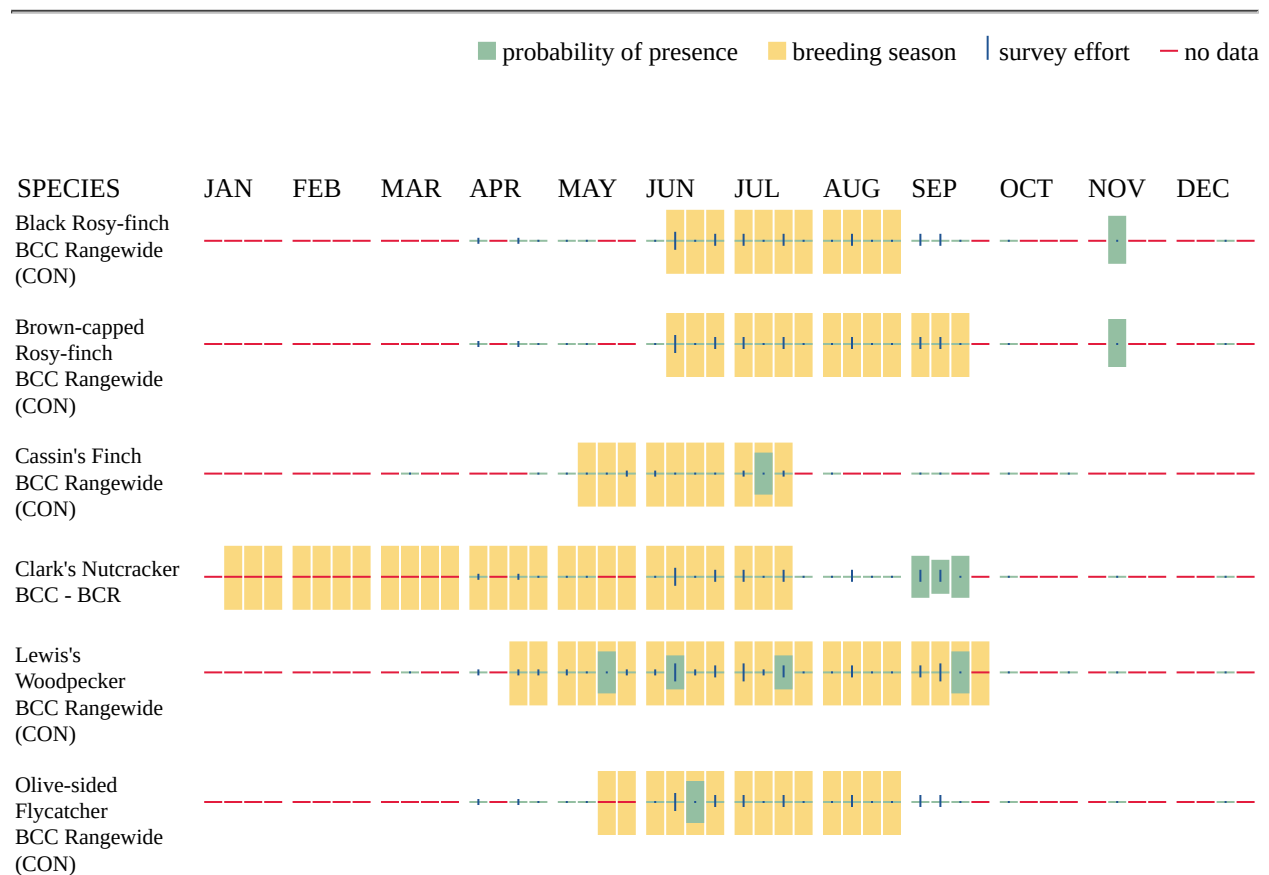
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (—)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Virginia's Warbler
BCC Rangewide
(CON)



Additional information can be found using the following links:

- Birds of Conservation Concern <https://www.fws.gov/program/migratory-birds/species>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>

MIGRATORY BIRDS FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the [RAIL Tool](#) and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
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3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

WETLANDS

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

RIVERINE

- [R4SBCx](#)

FRESHWATER POND

- [PABF](#)

FRESHWATER EMERGENT WETLAND

- [PEM1B](#)



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Western Colorado Ecological Services Field Office
445 West Gunnison Avenue, Suite 240
Grand Junction, CO 81501-5711
Phone: (970) 628-7180 Fax: (970) 245-6933



In Reply Refer To:

March 01, 2023

Project Code: 2022-0027714

Project Name: BPWCD Flood Prevention, Agricultural Water Management, and Fish & Wildlife Project - Wells Basin

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2))

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see <https://www.fws.gov/birds/policies-and-regulations.php>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see <https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Western Colorado Ecological Services Field Office

445 West Gunnison Avenue, Suite 240

Grand Junction, CO 81501-5711

(970) 628-7180

PROJECT SUMMARY

Project Code: 2022-0027714

Project Name: BPWCD Flood Prevention, Agricultural Water Management, and Fish & Wildlife Project - Wells Basin

Project Type: Irrigation

Project Description: The Proposed Project would stabilize and line approximately 1.5 miles of UVWUA open canal, pipe several miles of BPWCD laterals, replace a failing section of existing pipeline, rebuild the Cimarron Canal diversion structure, and install an electronic fish screen and temperature monitors in the Cimarron River.

Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@38.36014245,-107.58590225895061,14z>



Counties: Montrose County, Colorado

ENDANGERED SPECIES ACT SPECIES

There is a total of 11 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 3 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Canada Lynx <i>Lynx canadensis</i> Population: Wherever Found in Contiguous U.S. There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3652	Threatened
Gray Wolf <i>Canis lupus</i> Population: U.S.A.: All of AL, AR, CA, CO, CT, DE, FL, GA, IA, IN, IL, KS, KY, LA, MA, MD, ME, MI, MO, MS, NC, ND, NE, NH, NJ, NV, NY, OH, OK, PA, RI, SC, SD, TN, TX, VA, VT, WI, and WV; and portions of AZ, NM, OR, UT, and WA. Mexico. There is final critical habitat for this species. This species only needs to be considered under the following conditions: <ul style="list-style-type: none"> ▪ Lone, dispersing gray wolves may be present throughout the state of Colorado. If your activity includes a predator management program, please consider this species in your environmental review. Species profile: https://ecos.fws.gov/ecp/species/4488	Endangered

BIRDS

NAME	STATUS
<p>Gunnison Sage-grouse <i>Centrocercus minimus</i></p> <p>There is final critical habitat for this species. Your location overlaps the critical habitat.</p> <p>Species profile: https://ecos.fws.gov/ecp/species/6040</p>	Threatened
<p>Mexican Spotted Owl <i>Strix occidentalis lucida</i></p> <p>There is final critical habitat for this species. Your location does not overlap the critical habitat.</p> <p>Species profile: https://ecos.fws.gov/ecp/species/8196</p>	Threatened
<p>Yellow-billed Cuckoo <i>Coccyzus americanus</i></p> <p>Population: Western U.S. DPS</p> <p>There is final critical habitat for this species. Your location does not overlap the critical habitat.</p> <p>Species profile: https://ecos.fws.gov/ecp/species/3911</p>	Threatened

FISHES

NAME	STATUS
<p>Bonytail <i>Gila elegans</i></p> <p>There is final critical habitat for this species. Your location does not overlap the critical habitat.</p> <p>This species only needs to be considered under the following conditions:</p> <ul style="list-style-type: none"> Water depletions in the upper Colorado River basin adversely affect this species and its critical habitat. Effects of water depletions must be considered even outside of occupied range. <p>Species profile: https://ecos.fws.gov/ecp/species/1377</p>	Endangered
<p>Colorado Pikeminnow <i>Ptychocheilus lucius</i></p> <p>Population: Wherever found, except where listed as an experimental population</p> <p>There is final critical habitat for this species. Your location does not overlap the critical habitat.</p> <p>Species profile: https://ecos.fws.gov/ecp/species/3531</p>	Endangered
<p>Humpback Chub <i>Gila cypha</i></p> <p>There is final critical habitat for this species. Your location does not overlap the critical habitat.</p> <p>Species profile: https://ecos.fws.gov/ecp/species/3930</p>	Threatened
<p>Razorback Sucker <i>Xyrauchen texanus</i></p> <p>There is final critical habitat for this species. Your location does not overlap the critical habitat.</p> <p>This species only needs to be considered under the following conditions:</p> <ul style="list-style-type: none"> Water depletions in the upper Colorado River basin adversely affect this species and its critical habitat. Effects of water depletions must be considered even outside of occupied range. <p>Species profile: https://ecos.fws.gov/ecp/species/530</p>	Endangered

INSECTS

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate
Silverspot <i>Speyeria nokomis nokomis</i> There is proposed critical habitat for this species. Species profile: https://ecos.fws.gov/ecp/species/2813	Proposed Threatened

CRITICAL HABITATS

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Gunnison Sage-grouse <i>Centrocercus minimus</i> https://ecos.fws.gov/ecp/species/6040#crithab	Final

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

MIGRATORY BIRDS

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

-
1. The [Migratory Birds Treaty Act](#) of 1918.
 2. The [Bald and Golden Eagle Protection Act](#) of 1940.
 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern \(BCC\)](#) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Cassin's Finch <i>Carpodacus cassinii</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9462	Breeds May 15 to Jul 15
Lewis's Woodpecker <i>Melanerpes lewis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9408	Breeds Apr 20 to Sep 30

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
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Survey Effort (|)

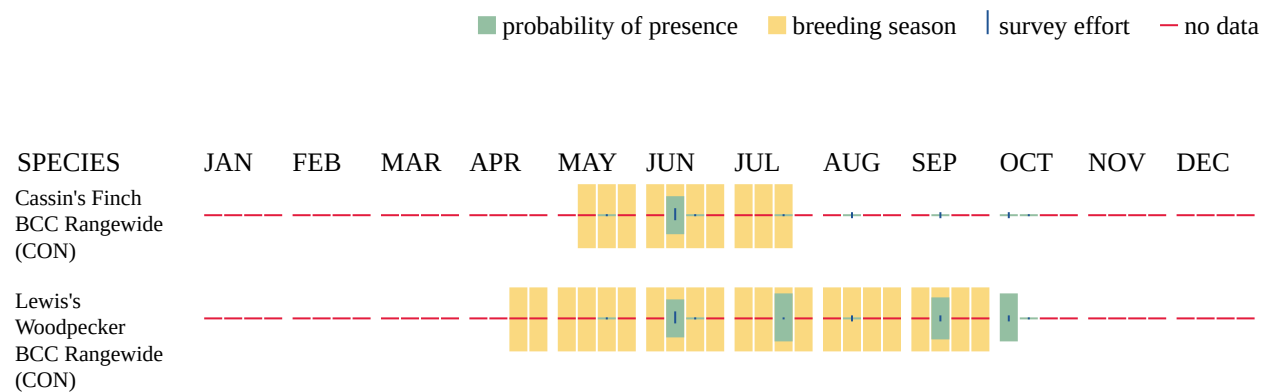
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Additional information can be found using the following links:

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MIGRATORY BIRDS FAQ

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warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

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Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

WETLANDS

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER FORESTED/SHRUB WETLAND

- [PSS1B](#)

RIVERINE

- [R5UBFx](#)
- [R4SBCx](#)
- [R4SBC](#)

FRESHWATER EMERGENT WETLAND

- [PEM1B](#)

Appendix C

Photo Inventory

Photo Inventory

Photos were taken during field surveys conducted on June, 14 2021 and June 15 2021.



Photograph 1: Southeast view of a central section of the M&D Canal and surrounding vegetation. No suitable habitat for YBCU, Gunnison sage-grouse or clay-loving buckwheat was observed during field surveys.



Photograph 2: West view of a western section of the M&D Canal and canal road. Insufficient riparian corridor habitat is present along the canal, to support suitable YBCU habitat.



Photograph 2: North view of agricultural habitat adjacent to the M&D Canal on an eastern section of the canal. No suitable, or contiguous, sagebrush habitat is present for the Gunnison sage-grouse.



Photograph 3: Southwest view of a central section of the M&D Canal, adjacent to a rural residential and agricultural area. Russian olive grows on the bank of the canal.



Photograph 4: Southwest view of East Lateral Canal and surrounding agricultural land. No suitable sagebrush habitat for the Gunnison sage-grouse was observed during surveys. No forest or cliff habitat suitable for the MSO is present.



Photograph 5: East view of East Lateral Canal and proposed staging area.



Photograph 6: West view of proposed staging area in East Lateral area.



Photograph 7: North view of West Lateral and surrounding habitat. No suitable sagebrush habitat for the Gunnison sage-grouse was observed during surveys. No suitable habitat for the clay-loving buckwheat is present. No forest or cliff habitat suitable for the MSO is present.



Photograph 8: West view of Vernal Mesa Ditch at Slide Point area. No suitable sagebrush habitat for the Gunnison sage-grouse was observed during surveys. No forest or cliff habitat suitable for the MSO is present.



Photograph 9: West view of road and adjacent native vegetation along Vernal Mesa Ditch at Slide Point area.



Photograph 10: South view of adjacent downslope habitat in Slide Point area.



Photograph 11: West end of Vernal Mesa Ditch alignment, looking at a proposed staging area.



Photograph 12: South view of a proposed staging are at south end of the Vernal Mesa Ditch alignment in the Slide Point Area.



Photograph 13: North view of Cimarron Canal at Coal Hill area and surrounding habitat. No suitable sagebrush habitat for the Gunnison sage-grouse was observed during surveys. No forest or cliff habitat suitable for the MSO is present. Insufficient riparian corridor habitat is present along the canal, to support suitable YBCU habitat.



Photograph 14: South view of Cimarron Canal at Coal Hill area and surrounding habitat.



Photograph 15: West view of Cimarron Canal at Wells Basin area and surrounding habitat. No suitable sagebrush habitat for the Gunnison sage-grouse was observed during surveys. No forest or cliff habitat suitable for the MSO is present. Insufficient riparian corridor habitat is present along the canal, to support suitable YBCU habitat. No suitable habitat for the Canada lynx was observed during field surveys.



Photograph 16: Northeast view of Cimarron Canal at Wells Basin area and surrounding habitat.



Photograph 17: North view of Cimarron Canal at Wells Basin area and proposed staging area.

Water Loss Memorandum

MEMORANDUM

DATE: December 12, 2022

TO: Blongshia Cha, Watershed Program Specialist, U.S. Department of Agriculture,
Natural Resources Conservation Service

CC:

FROM: Nick Emmendorfer, P.E. (Lead Project Engineer, J-U-B ENGINEERS, Inc.)

SUBJECT: Cimarron River-Lower Uncompahgre Watershed Project – PL 83-566 Plan-EA Water
Loss Calculations

As part of the alternatives analysis for the Cimarron River-Lower Uncompahgre Watershed Project Watershed Plan and Environmental Assessment (hereafter referred to as the Plan-EA), water loss calculations were performed by J-U-B ENGINEERS, Inc. (J-U-B) on behalf of the Bostwick Park Water Conservancy District (BPWCD), the signatory sponsor. Water conservation (and by proxy, water loss) is a large driver in the economic analysis for evaluating the benefit-cost ratio of potential project implementation. Accurate water loss calculations, therefore, are critical to the conclusions of the Plan-EA. This memo summarizes the methods and results of the water loss calculations for the areas of concern in the Plan-EA.

Method

The water loss analysis for the Plan-EA determined seepage losses for each canal using published unit seepage losses for various soil types. The United States Department of Agriculture (USDA) provides seepage losses (in $\text{ft}^3/\text{ft}^2/\text{day}$) for various canal conveyance materials (soils) in Part 623 of the National Engineering Handbook. Total seepage loss for a canal is the product of the unit seepage loss, the wetted canal perimeter, and the duration of flow in the canal. The graph published by USDA, which gives a range for seepage losses in each conveyance material, is provided in Figure 1.

Soil types were found on the NRCS Web Soil Survey (WSS) website (<https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>). Since soil type varies throughout each canal/ditch alignment, each alignment was broken into discrete sections for analysis based on soil type. For calculations, a seepage loss value was assumed for each material as the midpoint of the provided range in Figure 1 (since exact soil characteristics are unknown).

The wetted surface area of each canal was determined using on-site survey data (which included canal invert locations and periodic ditch cross sections). Canal and ditch surveys for the Plan-EA were conducted outside of the irrigation season. Since wetted surface area excludes canal surface area above the water line, accurate water depths were required. For the larger canals, water depth was measured during the irrigation season with an Acoustic Doppler Current Profiler (ADCP). The smaller laterals (West Lateral and East Lateral) utilized Manning's Equation with design rates and an assumed roughness coefficients to estimate depth. Figure 2 illustrates the areas of the canals and ditches excluded for wetted surface area calculations.

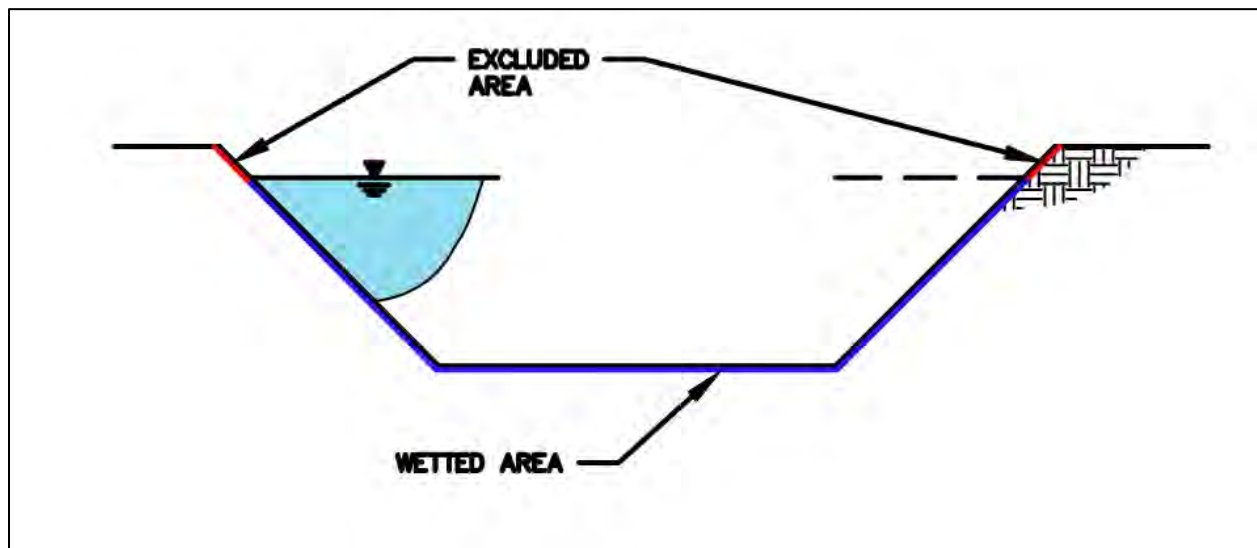


Figure 2. Illustration of Canal Areas Excluded for Wetted Surface Area Calculations

Results

The above methodology was applied to each area of concern described in the Plan-EA. Tables 1-6, below provide geometry calculations and the resultant water loss estimates given the

assumed seepage losses described above. Water loss from evaporation was excluded from analysis due to its relatively small magnitude.

Table 1. Estimated Water Loss in Wells Basin Section of Cimarron Canal

Wells Basin			
Geometry Calculations		Water Loss Estimates	
Est. Length (ft):	8588	Assumed Seepage Loss (ft ³ /ft ² /day):	0.4-1
No. Cross Sections*:	3	Water Loss Per Day (ac-ft/day):	3.843
ADCP Depth Range (ft):	2.9 to 4.3	Irrigation Season Length (days):	138
Wetted Perimeter Range (ft):	31.3 to 35.2	Annual Water Loss from Seepage (ac-ft):	530.39
Total Wetted Area (sq. ft):	284734		

*Cross Sections were not evenly distributed over area of interest; wetted perimeter interpolated over area of interest.

Table 2. Estimated Water Loss in Coal Hill Section of Cimarron Canal

Coal Hill			
Geometry Calculations		Water Loss Estimates	
Est. Length (ft):	6180	Assumed Seepage Loss (ft ³ /ft ² /day):	0.4
No. Cross Sections*:	2	Water Loss Per Day (ac-ft/day):	0.996
ADCP Depth Range (ft):	2.65 to 3.95	Irrigation Season Length (days):	138
Wetted Perimeter Range (ft):	13.14 to 21.68	Annual Water Loss from Seepage (ac-ft):	137.4
Total Wetted Area (sq. ft):	108400		

*Cross Sections were not evenly distributed over area of interest; wetted perimeter interpolated over area of interest.

Table 3. Estimated Water Loss in Slide Point Section of Vernal Mesa Canal

Slide Point			
Geometry Calculations		Water Loss Estimates	
Est. Length (ft)*:	3440	Assumed Seepage Loss (ft ³ /ft ² /day):	0.4-0.62
No. Cross Sections**:	2	Water Loss Per Day (ac-ft/day):	0.878
ADCP Depth Range (ft):	2.25 to 3.3	Irrigation Season Length (days):	138
Wetted Perimeter Range (ft):	18.55 to 20.85	Annual Water Loss from Seepage (ac-ft):	121.16
Total Wetted Area (sq. ft):	67742.7		

*Estimated length excludes sections of canal currently in pipe (approximately 1440 feet)

**Cross Sections were not evenly distributed over area of interest; wetted perimeter interpolated over area of interest.

Table 4. Estimated Water Loss in Bostwick Park East Lateral

East Lateral			
Geometry Calculations		Water Loss Estimates	
Est. Length (ft):	22475	Assumed Seepage Loss (ft ³ /ft ² /day):	0.7-0.8
No. Cross Sections*:	3	Water Loss Per Day (ac-ft/day):	3.444
ADCP Depth Range (ft):	N/A	Irrigation Season Length (days):	138
Wetted Perimeter Range (ft):	7.2 to 10.6	Annual Water Loss from Seepage (ac-ft):	475.3
Total Wetted Area (sq. ft):	193079		

*Cross Sections were not evenly distributed over area of interest; wetted perimeter interpolated over area of interest.

Table 5. Estimated Water Loss in Unlined Sections of Bostwick Park West Lateral

West Lateral			
Geometry Calculations		Water Loss Estimates	
Est. Length (ft)*:	18407	Assumed Seepage Loss (ft ³ /ft ² /day):	0.7-1
No. Cross Sections**:	3	Water Loss Per Day (ac-ft/day):	1.732
ADCP Depth Range (ft):	N/A	Irrigation Season Length (days):	138
Wetted Perimeter Range (ft):	4.0 to 6.1	Annual Water Loss from Seepage (ac-ft):	238.96
Total Wetted Area (sq. ft):	101320		

*Estimated length excludes sections of lateral currently in pipe (approximately 2650 feet)

**Cross Sections were not evenly distributed over area of interest; wetted perimeter interpolated over area of interest.

Table 6. Estimated Water Loss in Area of Concern on M&D Canal

M&D Canal			
Geometry Calculations		Water Loss Estimates	
Est. Length (ft):	8200	Assumed Seepage Loss (ft ³ /ft ² /day):	0.65-1
No. Cross Sections*:	2	Water Loss Per Day (ac-ft/day):	5.584
ADCP Depth Range (ft):	4.7 to 5.5	Irrigation Season Length (days):	214
Wetted Perimeter Range (ft):	39.6 to 43.8	Annual Water Loss from Seepage (ac-ft):	1195.04
Total Wetted Area (sq. ft):	341940		

*Cross Sections were not evenly distributed over area of interest; wetted perimeter interpolated over area of interest.

References

The United States Department of Agriculture (USDA). (1993). Part 623 National Engineering Handbook, Irrigation Water Requirements.

BPWCD Plan-EA National Economic Efficiency
Benefit-Cost Analysis of Alternatives



**Bostwick Park Water
Conservancy District
Watershed Plan and
Environmental Assessment
National Economic Efficiency
Benefit-Cost Analysis of
Alternatives**

Draft Final Report
November 2023

Bostwick Park Water Conservancy District Watershed Plan and Environmental Assessment National Economic Efficiency Benefit-Cost Analysis of Alternatives

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Bostwick Park Water Conservancy District Watershed Plan and Environmental Assessment National Economic Efficiency Benefit-Cost Analysis of Alternatives

D.1 Introduction

This report estimates the benefits and costs of the proposed Bostwick Park Water Conservancy District (BPWCD) Watershed Plan and Environmental Assessment. The purpose of the plan is to improve agricultural water management and enhance public fish and wildlife habitat. The plan is needed to address water losses associated with seepage, reduce salinity and selenium loading in the watershed, improve irrigation water management and delivery efficiency, and to protect fish habitat and recreational activities through enhanced water quality monitoring. The plan would also mitigate the risk of future damages to the BPWCD irrigation delivery system and corresponding losses of water supply and crop production. Landslides above the Uncompahgre Valley Water Users Association's M&D Canal, and around the Coal Hill and Wells Basin areas of the Cimarron Canal (BPWCD) are causing the canals to overtop and breach. Severe seepage in the Vernal Mesa Canal is decreasing canal stability, which has caused the canal to breach in the past. The Proposed Project would mitigate damages to approximately 28,788.2 acres of agricultural lands in the BPWCD and UVWUA service areas from canal breaching.

The BPWCD facilities are in the Cimarron River and Lower Uncompahgre watershed in Montrose County and Gunnison County, in Western Colorado. Cimarron River is a tributary to the Gunnison River, which flows into the Colorado River at Grand Junction, Colorado in Mesa County. In addition to the irrigation delivery infrastructure, which is the primary focus of the plan, BPWCD operates the Silver Jack Reservoir (the Reservoir) on the mainstem of Cimarron River.

Trout Unlimited considers the waters in Cimarron River below the Reservoir to be a Gold Medal fishery. Recreation facilities in proximity to the Reservoir are managed by the Uncompahgre National Forest.

The objective of this report is to estimate the benefits and costs of two potential action alternatives – Alternative 1 (BPWCD's preferred alternative) and Alternative 2. Both of the action alternatives include six measures intended to improve agricultural water management and reduce the risk of breaches to the irrigation distribution system and one measure intended to improve the quality of fish habitat and recreational fishing in the Cimarron River. The proposed measures are evaluated in conformance with the Principles, Requirements and Guidelines (PR&G) for federal investments in water resource projects (NRCS, 2014a) for watershed projects. Specifically, this report uses an ecosystem services framework to consider the benefits and costs of the action alternatives. Those benefits and costs are compared against a baseline of no action, which is also referred to as the Future Without Federal Investment (FWOFI).

This report proceeds as follows: section D.2 discusses the economics of system improvements and the federal guidelines for the economic evaluation of watershed improvement projects.

Section D.3 describes the alternatives and the ecosystem services evaluated, while section D.4 discusses the methodologies and data used in the National Economic Efficiency (NEE) benefit- cost

analysis (BCA). Section D.5 describes the current economic damages of the FWOFI. The final section (D.6) presents the results of the analysis using the Economic and Structural Tables (NWPM Part 506, NRCS 2014b).

D.2 Federal Guidelines of National Economic Efficiency Analysis of Watershed Improvement Measures

The National Economic Efficiency Benefit-Cost Analysis (NEE BCA) conducted as part of this report uses federal water resource project and Natural Resources Conservation Service (NRCS) guidelines for the evaluation of benefits and costs of the no action and action alternatives. The analysis primarily relies on the PR&G (NRCS, 2014a), the NRCS Natural Resources Economics Handbook (NRCS 1998), and the National Watershed Program Manual (NRCS 2014b).

With the federal law passage of the 2007 Water Resources Development Act, Congress directed the federal government to update and consolidate its past guidance on evaluating the costs and benefits of federal investments. The original Principles and Guidelines (P&G) was replaced by PR&G as of April 2019. The PR&G allow for:

“... maximizing public benefits (of all types) relative to costs, the use of quantified and unquantified information in the tradeoff analysis, flexibility in decision making to promote localized solutions, ability to rely on the best available science and objectivity, and advance transparency for Federal investments in water resources.”

The PR&G further state:

“Federal investments in water resources as a whole should strive to maximize public benefits, with appropriate consideration of costs. Public benefits encompass environmental, economic and social goals; include monetary and non-monetary effects; and allow for the consideration of both quantified and unquantified measures.”

The PR&G also require benefits and costs to be evaluated in an ecosystem service framework. An ecosystem is a natural unit of living and non-living things that function together to create goods and services valued by people (Olander et al., 2016). Ecosystem services is a broad term used to describe the benefits humanity receives from ecosystems as a byproduct of their functioning.

By putting nature at the center, ecosystem service frameworks give economic, social, and environmental costs and benefits equal standing in decision making processes and therefore help to accomplish the federal objective of maximizing NEE, helping to ensure federal investments protect and restore ecosystem functions and values and avoid irreversible impacts (NRCS, 2014a). Economic efficiency requires that resources are used in their highest valued use. Projects that create more benefits than costs utilize resources more efficiently than baseline conditions and therefore increase NEE. The ecosystem framework used in this report is shown in Table D-1.

Table D-1. Ecosystem Service Framework Used to Evaluate Benefits and Costs

Service Type	Examples
Provisioning	The supply of food, fuel, fiber, water, timber, genetic resources, etc.
Regulating	The regulation of air, climate, natural hazards, water quality, pests, and disease
Cultural	Services that enhance cultural values, like aesthetics, recreation, tourism, and spiritual or religious values
Supporting	Nutrient cycling, soil formation, and primary production

Source: USDA, 2014b.

As Table D-1 shows, ecosystem services can be placed into one of four categories. Provisioning services
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BENEFIT-COST ANALYSIS OF ALTERNATIVES

supply goods that directly benefit people. The production of crops, fuel, water, timber, and other raw materials are all provisioning services. Regulating services describe the benefits people receive from an ecosystem's ability to regulate things like air quality, climate, and hazards, both natural and manmade. Cultural services describe the benefits people derive from an ecosystem's ability to provide a good view, a recreation opportunity, a place to travel and visit, or spiritual or religious values. Table D-2 provides a summary of the ecosystem services quantified and valued as part of the NEE analysis. Ecosystem services values are reported in average annualized values (AAV).

Table D-2. Summary and Comparison of Project Alternatives and Associated Ecosystem Services

	Alternatives		
	FWOFI	Alternative 1	Alternative 2
Alternatives			
Locally Preferred	The FWOFI would maintain the existing conditions and would not improve agricultural infrastructure.	Alternative 1 is locally preferred as the community in the project area is agriculturally focused; therefore, agricultural infrastructure improvements would provide the greatest benefit to the community. Alternative 1 would optimize water delivery against costs. No public comments were received during the scoping period.	Although Alternative 2 would provide similar agricultural infrastructure improvements as Alternative 1, Alternative 2 is not the locally preferred alternative due to the high cost of piping the M&D Canal and hydraulic considerations. Piping the M&D Canal under Alternative 2 would decrease hydraulic energy available at the downstream end of the project and could result in reduced water delivery to water users downstream of the project. No public comments were received during the scoping period.
Non-structural	The FWOFI is the non-structural alternative. The FWOFI would maintain the existing conditions and would not implement structural changes.	Alternative 1 would implement structural changes.	Alternative 2 would implement structural changes.
Environmentally Preferable	The FWOFI would maintain existing conditions in the project area. Water would continue to be lost to seepage and evaporation and salinity and selenium loading would continue to occur.	Alternative 1 is the environmentally preferred alternative. Alternative 1 would improve agricultural water delivery, conserve water, improve water quality, and would not result in significant impacts to human health or the environment.	Alternative 2 would conserve water, improve water quality, and would not result in significant impacts to human health or the environment. However, Alternative 2 would result in the loss of M&D Canal as an open water feature. Therefore, Alternative 2 is somewhat less favorable than Alternative 1 from an environmental perspective.
Total Project Investment	\$0	\$25,178,335	\$39,772,629
Monetized Net Benefits (AAV)	\$0	\$1,118,366	\$1,124,071

BWPCD WATERSHED PLAN AND ENVIRONMENTAL ASSESSMENT NATIONAL ECONOMIC EFFICIENCY
BENEFIT-COST ANALYSIS OF ALTERNATIVES

	Alternatives		
	FWOFI	Alternative 1	Alternative 2
Regulating Services (AAV)			
Reduced infrastructure damages	\$0	\$84,674	\$84,674
Reduced income loss	\$0	\$439,745	\$439,745
Reduced downstream damages	\$0	\$441,817	\$447,520
Provisioning Services (AAV)			
Increased agricultural income	\$0	\$144,806	\$144,806
Riparian vegetation	-	Reduction of 82 acres	Reduction of 82 acres
Water access for wildlife	-	Loss of a water source	Loss of a water source
Wetlands	-	Possible adverse impacts to 5.69 acres of existing wetlands; No mitigation anticipated	Possible adverse impacts to 5.69 acres of existing wetlands; No mitigation anticipated
Cultural Services (AAV)			
Increased recreation benefits	\$0	\$7,326	\$7,326

Note: The benefits of the Action Alternatives are calculated as the *additional value* that would be created as a result of the proposed actions. The benefits of the Action Alternatives are not estimates of total damages under the FWOFI and proposed conditions.

D.3 Alternatives and Ecosystem Services Evaluated

To reduce the risk of breaches to the BPWCD irrigation delivery system, associated repair costs and lost agricultural production and income, the BPWCD developed two action alternatives that were evaluated alongside a No Action Alternative as part of the NEE BCA analysis. Action Alternative 1 is BPWCD's preferred alternative and Action Alternative 2 provides another option to meet BPWCD's objectives, albeit at a higher cost. The No Action Alternative, also known as the FWOFI, describes the most likely future if no federal investment is made in the watershed. The action alternatives describe the proposed actions to be taken to prevent future breaches to BPWCD's canals, lost agricultural production and income, salinity deposition into the Cimarron River and, ultimately, the Colorado River and to improve recreational fishing in Cimarron River.

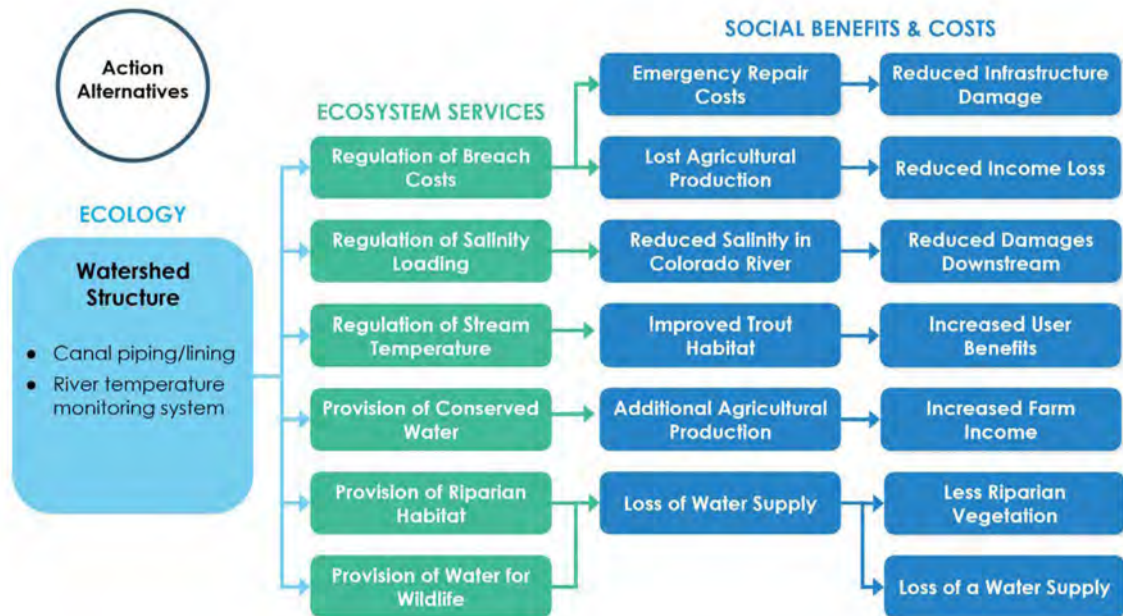
D.3.1 Alternatives Evaluated. Under the FWOFI, the BPWCD irrigation delivery system would be at continued risk of breaches similar in size and magnitude to events experienced in the past. Under both action alternatives, irrigation canals would be piped or lined and stabilized to reduce the potential for breaches, and conserve water currently lost due to seepage for additional agricultural production. Under both action alternatives, BPWCD would also install a temperature monitoring system to facilitate timely releases to Cimarron River for the benefit of trout habitat and recreational fishing.

D.3.2 Types of Services Impacted. Figure D-1 shows the causal chain describing how the action alternatives would create social benefits and costs in the watershed. Causal chains are models describing how changes to the structure of an ecosystem affect its functioning and the goods and services it provides to society (Olander et al., 2016). When used as part of a NEE analysis, a causal chain assessment of ecosystem services impacts traces changes in ecosystem composition all the way through to effects on social outcomes and human well-being.

As Figure D-1 shows, the action alternatives would change the ecological structure of the watershed through the "hardening" of the irrigation delivery system by piping or lining canals. This action would

also reduce salinity loading in the river and conserve water currently lost to seepage for use in local irrigation. The action alternatives would also include a temperature monitoring system to allow BPWCD to time the releases of conserved water to benefit the Gold Medal trout habitat in Cimarron River. These changes would impact the value of ecosystem services generated by the watershed.

Figure D-1. Description of Alternatives Evaluated in the BPWCD Watershed Plan and Environmental Assessment and Anticipated Impacts on Ecosystem Services



The change in watershed structure would regulate costs for emergency repairs associated with canal breaches, lost irrigation supply due to breaches affecting local farmers and ranchers, and salinity loading affecting users downstream throughout the Gunnison River and Colorado River watersheds. The provision of agricultural output would be affected by the action alternatives because water currently lost to leakage and seepage would be conserved and used by local irrigators to enhance crop production and income. By incorporating a proposed stream temperature monitoring system, the timing of releases of the conserved water would also be used to regulate stream temperature to benefit the Gold Medal trout fishery below the Bostwick Park system. The action alternatives could also adversely affect the watershed by reducing the acreage of land supporting riparian vegetation and by removing a source of water for wildlife.

D.3.3 Ability to characterize, quantify, and monetize services. The ecosystem services described in Figure D-1 can be characterized, quantified, and monetized to varying degrees. The frequency and costs of emergency repairs to breaches in the canal system can be estimated based on BPWCD's historical experience. Reduced damages to crops from irrigation supplies lost due to breaches, or the benefit of additional irrigation supplies from eliminating leakage and seepage in the canals can be quantified and valued using publicly available information describing cropping patterns, crop yields and prices, and gross and net income¹ from crop production in the Gunnison River Basin. The value of reductions in salinity in the river system can be valued based on the reduced costs for

¹ References to agricultural net income in this analysis reflect gross income net of variable operating costs – both of which are dependent on the number of acres in production. Fixed farm and ranch costs such as land and management costs are not included.

federal programs to reduce salinity in the Colorado River system. Improvements in trout habitat through temperature regulation can be valued based on estimates of recreation value per day for visitors which represent the consumer surplus obtained from recreational fishing in the gold medal waters below Silver Jack Reservoir.

D.3.4 Metrics to Evaluate Services. Regulating services are evaluated by quantifying and valuing changes to annual emergency repair costs to BPWCD, and annual net income losses to crop production due to breaches in the system. Reductions in salinity in the system are evaluated based on the reduced costs per ton for federal salinity reduction programs in the Gunnison River Basin. Improvements in trout habitat and the probability of fishing success through temperature regulation are valued using the United States Army Corps of Engineers' (USACE's) unit day values for recreation and counts of the number of visitors to the Silver Jack Reservoir facilities managed by the Forest Service's Uncompahgre National Forest. Additional provisioning services – in this case irrigation supplies saved from leakage and seepage – are valued based on the number of acres they can supply, local cropping patterns, and corresponding agricultural net income estimates. Adverse impacts to riparian vegetation are reported in acres, while the potential to reduce water supplies for wildlife is discussed qualitatively.

D.3.5 Prioritizing Services. Services were prioritized based on their expected contribution to the project's primary purpose of reducing the risk of breaches in the irrigation delivery system. As a result, the regulating services shown in Figure D-1 were prioritized for analysis as part of the evaluation of the action alternative's impact on National Economic Efficiency. While the primary benefits are from regulating services, the project would also result in smaller changes in provisioning services due to water that would be conserved and available for local irrigation.

D.4 National Economic Efficiency Analysis Data and Methodology

Benefits and costs were calculated based on the expected effects of the action alternatives on the ecosystem services shown in Table D-1 as compared against the FWOFI or No Action Alternative. The NEE analysis evaluated the costs of the action alternatives based on cost estimates from J-U- B ENGINEERS, Inc. (J-U-B), which included costs for property, permitting, engineering, construction, administration, and operations and maintenance (O&M) of proposed improvements to the BPWCD irrigation delivery system. These were compared against benefits received by regulating costs associated with breaches to the system, salinity loading to the river and adverse impacts on local trout habitat due to high temperatures.

Effects of both action alternatives were evaluated over a 102-year time horizon including the two-years required to complete installation. Benefits are expected to begin accruing the year after the improvements are installed and continue to accrue until the end of the 102-year time horizon. Since most of the project elements have design lives of 100-years, replacement costs were only included in the analysis for project elements with design lives less than 100 years (PR&G Section 9, NWPM 501.37.B and the Economics Handbook, Part 611, 1.12.). The temperature sensor included in the action alternatives has a design life of 50 years. As a result, its replacement cost was included in the analysis. Should installation take longer, the project costs and benefits would be discounted by an additional year. While this would change the results, the conclusions in this report would still hold.

Projected benefits and costs are based on a full employment economy and assume no change in relative prices during the period of analysis. Benefits and costs are discounted at the rate for federal projects of 2.25 percent for 2022 (NRCS, 2022). Results are reported in both annual terms and as annualized averages in 2022 dollars.

The unit of analysis in this study is the system of projects combined under the action alternatives. For this study, costs and benefits are estimated jointly for all seven components of the action alternatives. Section D.6 considers the impact of each component separately, beginning with the most beneficial component and ending with the least beneficial component, as part of the incremental analysis (390-NWPH, Part 606, Subpart B, Section 606.20).

D.4.1 Reduced Costs for Emergency Repairs and Agricultural Income Losses due to Canal Breaches. Reduced costs for breaches of Bostwick Park and UVWUA canals were estimated based on the historical experience of the system and the number of acres, by crop type, that would lose their irrigation supply due to such breaches in the system.

D.4.1.1 Reduced emergency repair costs. The Bostwick Park and UVWUA irrigation distribution systems have been plagued by periodic failures since the mid-1960s, partly due to unstable slopes composed of Mancos shale. Landslides above the UVWUA M&D Canal have caused it to overtop and breach. During initial construction of the Bostwick Park project in 1969, landslides caused substantial damage to the project. By 1979, BPWCD provided a report to the U.S. Bureau of Reclamation (Reclamation) documenting evidence of smaller landslides over the preceding 15 years, leading to a contract with BPWCD in 1984 for emergency repairs to damaged features². Data from BPWCD obtained by J-U-B indicates that components of the system have failed on multiple other occasions during the 1980s, 2000s and 2010s.

Based on this history, J-U-B was able to estimate both the probability (frequency) of catastrophic component failures and the cost of emergency repairs to those components. As shown in Table D-2, emergency repair costs are estimated to range from about \$470,000 to over \$620,000 by component, with an anticipated annual probability of occurrence of between 2.7 percent (e.g., once every 37 years) to 5.8 percent (once every 17.2 years). In total, across the four components with quantified cost estimates, annual emergency repairs costs are estimated at about \$87,000 per year.

Table D-3. Annual Costs for Emergency Repairs to Bostwick Park and UVWUA Irrigation Distribution Systems

Canal/Component	Emergency Repair Cost	Annual Probability	Annual Cost
Cimarron Canal – Wells Basin	\$471,336	5.8%	\$27,337
Cimarron Canal – Coal Hill	\$471,336	5.8%	\$27,337
Vernal Mesa Canal – Slide Point	\$435,600	3.5%	\$15,284
M&D Canal	\$623,170	2.7%	\$16,842
Total	\$2,001,441		\$86,800

Source: J-U-B Engineers, 2022.

D.4.1.2 Reduced agricultural income losses. Catastrophic emergencies in the Bostwick Park and UVWUA irrigation distribution systems during the growing season can lead to the failure of crops dependent on those irrigation supplies. The failure of headgates, ditches, and other distribution system components is more likely during the irrigation season, which typically runs from late spring to early fall. This increased risk is primarily due to the stress on the system when it is being used to divert and convey water. During the irrigation season, water flows at a higher volume and pressure through the system, which can expose or exacerbate any weaknesses or vulnerabilities in the infrastructure. Additionally, the soil surrounding ditches and canals is often saturated with water, making it more susceptible to erosion, seepage, or collapse. In contrast, outside of the irrigation season when the

² Linenberger, T.R. *The Bostwick Park Project: Colorado River Storage Project*. U.S. Bureau of Reclamation. 1999.

system is largely inactive, water flows are minimal or nonexistent, reducing the likelihood of failures due to physical stress or erosion. Furthermore, in the winter, water is often frozen, which can help stabilize the soil and prevent erosion, further lowering the risk of failure.

Based on the number of acres and types of crops potentially affected by failures of specific components of the Bostwick Park and UVWUA systems, and the annual probability of failure of those components shown in Table D-3, the probable annual loss of agricultural income can be estimated. As shown in Table D-4, the annual probable loss of agricultural net income due to Bostwick Park and UVWUA irrigation canal failures is estimated to be about \$451,000 per year. That estimate is based on Gunnison Basin or Western Colorado- specific long-term average yields, prices and net income for the most frequently grown crops in the Basin (and in the BPWCD) – grass hay, corn and alfalfa hay – discussed in section D.5.1.2.1. Based on the discussion above, the analysis assumes that any damages would occur during the growing season, resulting in direct damages to crops.

Table D-4. Probable Annual Agricultural Income Losses from Failures of Bostwick Park and UVWUA Irrigation Distribution System Components

Cimarron Canal – Wells Basin	8,439	Grass Hay	\$455	\$284	5.8%	\$222,705	\$139,007
Cimarron Canal – Coal Hill	8,439	Grass Hay	\$455	\$284	5.8%	\$222,705	\$139,007
Vernal Mesa Canal – Slide Point	3,411	Grass Hay	\$455	\$284	3.5%	\$54,320	\$33,905
M&D Canal	20,349	Grass Hay, Corn & Alfalfa	\$571	\$253	2.7%	\$313,721	\$139,004
Total	40,638					\$813,451	\$450,923

Note: Annual benefits are reported as the values received in one year. They differ from the values reported in the economic structural tables shown in the watershed plan, which have been discounted over the time horizon of the benefit cost analysis, summed, and amortized.

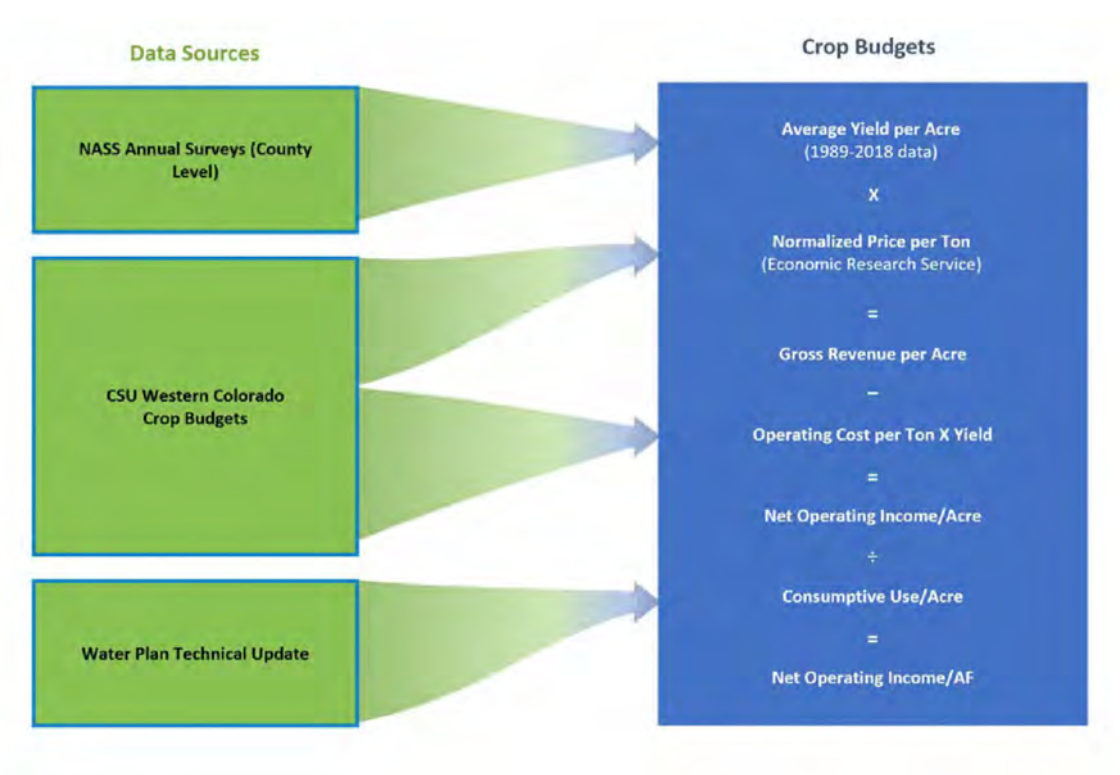
Source: J-U-B Engineers, 2022; BBC Research & Consulting, 2020 and BLS Consumer Price Index Calculator, May 2022.

D.4.1.2.1 Agricultural Income Estimates. The estimates of agricultural income per acre by crop shown above in Table D-4, and used later to estimate the value of additional water available to irrigators as a result of the action alternatives, are based on data developed for a 2020 regional study of the economics of a potential water demand management program in Western Colorado.³ That study included analysis of long-term average yields, prices and operating expenses for irrigated grass hay and alfalfa in each of the major river basins in Western Colorado– including the Gunnison River Basin in which the proposed project is located. Crop budgets for irrigated corn were estimated for the western Colorado region as a whole, because there was insufficient county level data to estimate historical yields by river basin. Figure D-2 illustrates the data sources used to develop these estimates.

The estimated crop budgets for grass hay and alfalfa in the Gunnison Basin, and for corn throughout Western Colorado, are shown in Tables D-5 through D-7. Prices and costs shown in these tables were first estimated in 2020 dollars but updated to 2022 based on changes in the Consumer Price Index between 2020 and 2022.

³ Upper Basin Demand Management Economic Study in Western Colorado Revised Final Report. BBC Research & Consulting ERO Resources Corporation and Headwaters Corporation. September 2020.

Figure D-2. Development of Basin-specific Crop Budgets for Western Colorado, 2020



Water use information from the Technical Update to the Colorado State Water Plan was used to derive the average net income per AF. According to the Technical Update, 3.3 million acres of agricultural land are irrigated in Colorado, and annual agricultural diversions are approximately 13 million AF per year (Colorado Department of Natural Resources, Colorado Water Conservation Board 2019). This equates to an average agricultural water use of approximately 4 AF per acre. Since irrigation efficiency (the ratio of the total amount of water diverted for an irrigation use to the volume of water the crop consumes through evapotranspiration) varies with delivery efficiency, net income per AF was estimated for each crop assuming an average efficiency of 4.5 acre-feet per acre.

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Table D-5. Grass Hay Yields, Revenue, and Net Operating Income per Acre for Gunnison River Basin (2022 dollars)

Year	Avg. Yield (tons/ acre)	Normalized Price (\$/ton)	Gross Revenue (\$/acre)	Operating Expense (\$/acre)	Net Operating Income (\$/acre)	Operating Expense per AF	Net Income per AF
2018	2.40	\$207	\$497	\$232	\$265	\$51.56	\$58.89
2017	1.82	\$207	\$377	\$110	\$267	\$24.44	\$59.33
2016	1.97	\$207	\$408	\$113	\$295	\$25.11	\$65.56
2015	2.43	\$207	\$503	\$122	\$381	\$27.11	\$84.67
2014	2.44	\$207	\$505	\$163	\$342	\$36.22	\$76.00
2013	2.23	\$207	\$462	\$176	\$286	\$39.11	\$63.56
2012	1.87	\$207	\$387	\$148	\$239	\$32.89	\$53.11
2011	2.11	\$207	\$437	\$167	\$270	\$37.11	\$60.00
2010	2.06	\$207	\$426	\$202	\$224	\$44.89	\$49.78
2009	2.67	\$207	\$553	\$277	\$276	\$61.56	\$61.33
2016-18 Avg.	2.06	\$207	\$427	\$152	\$275	\$33.78	\$61.11
10-Year Avg.	2.20	\$207	\$455	\$171	\$284	\$38.00	\$63.11

Source: Yield data from the USDA National Agricultural Statistics Service Annual Surveys [USDA, 2009 - 2018]. Crop price data from <https://www.ers.usda.gov/data-products/normalized-prices/>. Western Colorado-specific prices were not available for 2011-2013 for grass hay, so statewide averages were used for those years. Operating expenses per ton in 2011- 2013 are based on average expenses per ton from CSU crop enterprise budgets from 2009 to 2018.

Table D-6. Alfalfa Yields, Revenue, and Net Operating Income per Acre for Gunnison River Basin (2022 Dollars)

Year	Avg. Yield (tons/ acre)	Avg. Price (\$/ton)	Gross Revenue (\$/acre)	Operating Expense (\$/acre)	Net Operating Income (\$/acre)	Operating Expense per AF	Net Income per AF
2018	2.94	\$239	\$702	\$296	\$406	\$65.78	\$90.22
2017	3.25	\$201	\$654	\$334	\$321	\$74.22	\$71.33
2016	3.20	\$173	\$552	\$292	\$260	\$64.89	\$57.78
2015	3.68	\$223	\$823	\$340	\$482	\$75.56	\$107.11
2014	3.05	\$238	\$727	\$255	\$473	\$56.67	\$105.11
2013	2.79	\$300	\$837	\$273	\$565	\$60.67	\$125.56
2012	3.31	\$308	\$1,019	\$323	\$696	\$71.78	\$154.67
2011	3.14	\$255	\$803	\$282	\$521	\$62.67	\$115.78
2010	3.01	\$171	\$514	\$213	\$301	\$47.33	\$66.89
2009	3.63	\$190	\$688	\$365	\$323	\$81.11	\$71.78
2016-18 Avg.	3.13	\$204	\$636	\$307	\$329	\$68.22	\$73.11
10-Year Avg.	3.20	\$230	\$731	\$297	\$435	\$66.00	\$96.67

Source: Yield data from the USDA National Agricultural Statistics Service Annual Survey [USDA, 2009 - 2018]. Crop price data from CSU crop enterprise budgets because normalized prices were not available for alfalfa. Western Colorado-specific prices were not available for 2012-2013 for alfalfa, so statewide averages were used for those years. Operating expenses per ton in 2011-2013 are based on average expenses per ton from CSU crop enterprise budgets from 2008 to 2018.

Table D-7. Corn for Grain Yields, Revenue, and Net Operating Income per Acre for Western Colorado (2022 Dollars)

Year	Avg. Yield (bu/acre)	Normalized Price (\$/bu)	Gross Revenue (\$/acre)	Operating Expense (\$/acre)	Net Operating Income (\$/acre)	Operating Expense per AF	Net Income per AF
2018	193	\$3.78	\$730	\$646	\$84	\$144	\$19
2017	145	\$3.78	\$548	\$618	-\$70	\$137	-\$16
2016	174	\$3.78	\$658	\$810	-\$152	\$180	-\$34
2015	190	\$3.78	\$718	\$635	\$83	\$141	\$18
2014	180	\$3.78	\$680	\$634	\$46	\$141	\$10
2013	NA	\$3.78	NA	NA	NA	NA	NA
2012	NA	\$3.78	NA	NA	NA	NA	NA
2011	NA	\$3.78	NA	NA	NA	NA	NA
2010	200	\$3.78	\$756	\$624	\$132	\$139	\$29
2009	179	\$3.78	\$677	\$545	\$132	\$121	\$29
2008	172	\$3.78	\$650	\$568	\$82	\$126	\$18
2016-18 Avg.	171	\$3.78	\$645	\$691	-\$46	\$154	-\$10
10-Year Avg.	179	\$3.78	\$677	\$635	\$42	\$141	\$9

Source: Crop price data from <https://www.ers.usda.gov/data-products/normalized-prices/>. All other data from CSU crop enterprise budgets for Western Colorado.

D.4.2 Reduced Salinity Control Costs. The effects of salinity in the Colorado River system are a major concern in both the United States and Mexico. As of 2014, annual salinity damages were estimated to be about \$382 million per year despite 1.2 million tons of annual salinity controls from programs sponsored by Reclamation and NRCS⁴. NRCS began implementing salinity control projects in the Lower Gunnison Basin in 1988, including piping or lining irrigation ditches and small laterals and improving the on-farm irrigation systems.⁵

There are two potential approaches to estimating the annual benefits from the salinity reductions that would result from the Proposed Project action alternatives. Benefits could be estimated based on the reduction in salinity-related damages to water users downstream throughout the Colorado River system. Alternatively, benefits can be estimated based on the reduced cost of additional salinity control projects in the Gunnison Basin. The latter approach produces more “conservative” benefit estimates – e.g., lower values per ton – and was employed in this analysis.

Table D-8 shows the annual salinity reductions that would be obtained from the various components in the Proposed Project action alternatives. In total, the preferred alternative (Alternative 1) would reduce annual salinity loading by an estimated 2,247 tons per year. Alternative 2 would produce slightly larger annual salinity reductions of 2,276 tons per year. Table D-8 also shows two similar values per ton for salinity control in the area. The lower value of \$202 per ton, based on the average cost per ton of salinity controls in the Lower Gunnison Basin in 2015 as reported by Reclamation – updated to 2022 dollars – was used in this analysis.

Table D-8. Annual Benefits from Bostwick Park Action Alternatives Salinity Reductions (2022 Dollars)

Project Component	Salinity Reduction (tons)	Reduced Costs of Control (Value per Ton)		Annual Benefit	
		Low	High	Low	High
Cimarron Canal - Wells Basin	NA				
Cimarron Canal - Coal Hill	NA				
Vernal Mesa Canal - Slide Point	267	\$202	\$206	\$53,820	\$55,093
East Lateral Piping	786	\$202	\$206	\$158,436	\$162,183
West Lateral Piping	637	\$202	\$206	\$128,402	\$131,439
M&D Canal – Alternative 1	557	\$202	\$206	\$112,276	\$114,931
M&D Canal -- Alternative 2	586	\$202	\$206	\$118,121	\$120,915
Total Alternative 1	2,247			\$452,933	\$463,646
Total Alternative 2	2,276			\$458,779	\$469,630

Note: Annual benefits are reported as the values received in one year. They differ from the values reported in the economic structural tables shown in the watershed plan, which have been discounted over the time horizon of the benefit cost analysis, summed, and amortized.

Source: J-U-B Engineers, 2022; *Quality of Water. Colorado River Basin. Progress Report No. 25.* U.S. Bureau of Reclamation. 2017; *Colorado River Salinity Control Program. State of Colorado Salinity Control Unit Summary. Fiscal Year 2020.* Natural Resources Conservation Service. 2020. and BLS Consumer Price Index Calculator, May 2022.

D.4.3 Recreation Benefits from Regulation of Stream Temperature. Under either of the two action alternatives, temperature sensors would be installed to monitor trout habitat conditions to best utilize water conserved in the Bostwick Park/Cimarron Canal system through reduced seepage. By timing releases of the conserved water to help lower high summer temperatures, habitat in the Gold Medal fishery in Cimarron River would be improved and the chance of fishing success would increase

⁴ *Quality of Water. Colorado River Basin. Progress Report No. 25.* U.S. Bureau of Reclamation. 2017. Page 1

⁵ *Colorado River Salinity Control Program. State of Colorado Salinity Control Unit Summary. Fiscal Year 2020.* Natural Resources Conservation Service. 2020. Page 1.

for recreational visitors.⁶ While improved fishing quality could result in an increase in the number of visitors to the recreation facilities near Silver Jack Reservoir, that effect is uncertain and difficult to quantify. However, the value of the recreation experience, measured in terms of consumer surplus, is likely to increase. Consumer surplus is defined as the economic value of a recreation activity above what must be paid by the recreationist to enjoy the activity.

The U.S. Army Corps of Engineers (USACE) unit-day values, which measure the consumer surplus recreationists receive from participating in an activity for a period of one day, were used to value the recreational experience under existing conditions and with improved fishing quality (USACE 2021). The NRCS urges caution when using the USACE values because they have been found to systematically undercount recreation benefits (NRCS, n.d.). The travel cost method is an alternative way of estimating changes in recreation values, but no existing data were available to implement the method, and collecting new data was beyond the scope and budget for this effort. Still, the USACE values can provide a conservative, lower-bound estimate of the impacts on recreation values. Moreover, if recreation benefits estimated with the USACE values outweigh the project costs, it provides a strong indicator that realized impacts on recreation values would be likely to exceed estimates.

The USACE unit-day method provides a range of daily recreation values for general and specialized recreation that range from \$4.50 to \$53.46 in 2022 dollars (Table D-9). General recreation refers to recreation activities that are accessible to the majority of a site's visitors without any specialized planning, equipment, or skills. General recreation often refers to activities like hiking, swimming, boating, picnicking, and fishing. Specialized recreation, in contrast, refers to activities where participation is limited by requiring some combination of special facilities, equipment, and skill. More specialized versions of fishing, boating, hunting, and similar activities are included in the USACE definition of specialized recreation (USACE 2021).

The exact amount used to value recreation user days relies on the evaluation of the type of recreation experience and the quality of experience available at a site. Sites are evaluated based on the number of recreation activities available, the number of alternative sites nearby, and the site's carrying capacity, accessibility, and environmental quality. Each criterion is associated with a score range. Once each criterion has been evaluated, the scores are added and the point total is used to select a daily use value that is applied to the number of annual recreation user days to estimate the total consumer surplus of recreational visitors.

Table D-9. User Day Values for General and Specialized Recreation Based on Site Point Values (2022 Dollars)

Site Point Values	General Recreation Values	Specialized Fishing and Hunting Values
0	\$4.50	\$31.51
10	\$5.35	\$32.35
20	\$5.91	\$32.92
30	\$6.75	\$33.76
40	\$8.44	\$34.61
50	\$9.57	\$37.98
60	\$10.41	\$41.36
70	\$10.97	\$43.89
80	\$12.10	\$47.27
90	\$12.94	\$50.64
100	\$13.50	\$53.46

⁶ Trout Unlimited web site, June 2022.

Source: USACE, 2021.

Based on the definitions of the five components of the USACE's recreation value system and the characteristics of the Bostwick Park recreation facilities on Cimarron River, the current site point value is conservatively estimated to be about 54 out of 100 possible points. Each additional point of value is worth about \$0.34 per person, per day.⁷

The last known annual visitor count for the facilities in close proximity to Silver Jack Reservoir dates back to 1992, when 22,000 visits occurred. To be as conservative as possible, the analysis assumes no increase in visitation in the last 30 years and a one point increase in recreation value from 54 to 55 points resulting from advantageous timing of releases using the temperature monitoring system that would be installed under the action. This would add approximately \$0.34 to the consumer surplus of each visitor. The annual benefit of a one point increase in the specialized recreation value of the Gold Medal fishery would be \$7,500 per year.⁸

D.4.4 Additional Agricultural Income from Use of Conserved Water. Piping or lining the canals in the Bostwick Park and UVWUA irrigation distribution system is expected to save substantial amounts of water that are currently lost to leakage and seepage. In total, more than 2,600 acre-feet per year are projected to be saved and to become available to provide additional irrigation.

The economic benefit of additional irrigation supplies depends on the total yield of crops grown with the water, and the financial characteristics of crop production in the area. The additional water could be used to bring new areas under cultivation or to add additional water to existing areas currently using deficit irrigation. However, this analysis models the economic benefit of the additional irrigation water assuming it is applied to fields under deficit irrigation, where it would generate marginal income.

To estimate the marginal value of the conserved water, each acre-foot is multiplied by the average net income per acre-foot reported in Tables D-5 through D-7 to approximate the marginal revenue and expenses associated with adding an additional acre-foot of water to existing cropland in the study area.

Most of the water conserved by the improvements is likely to be used to irrigate grass hay. However, water conserved by lining (in Alternative 1) or piping the M&D Canal (in Alternative 2) could irrigate a wide array of crops ranging from grass hay and alfalfa to vegetables, fruits and orchards. An estimated 78 percent of the acres that could be irrigated with that water are currently planted in forage crops (grass hay, alfalfa and corn for grain).⁹ Given the lack of available data on the economics of production for the other crops, a simplified cropping pattern of 53 percent grass hay, 26 percent corn for grain and 21 percent alfalfa was assumed for this analysis. Based on the values of net income per acre-foot reported in tables D-5 through D-7, this crop mix equates to an average net income of \$56.15 per acre-foot after accounting for production costs.

As shown in Table D-10, crop irrigation with the water that would be conserved by the improvements under the action alternatives is projected to produce more than \$151,400 per year in additional net income for local farmers and ranchers under Alternative 1. The estimated income gains from conservation savings in the M&D Canal are likely conservative, given that some of the conserved water

⁷ The unit-day value of 50 points is \$37.98 and the unit-day value of 60 points is \$41.36. The difference between the points is \$3.38, meaning each additional point is worth $\$3.38/10 = \0.34

⁸ Annual benefits are reported as the values received in one year. They differ from the values reported in the economic structural tables shown in the watershed plan, which have been discounted over the time horizon of the benefit cost analysis, summed, and amortized.

⁹ Historical Crop Consumptive Use Analysis. Gunnison River Basin. Final Report 2015. State of Colorado. Colorado Water Conservation Board

could be used to irrigate higher value crops.

Table D-10. Estimated Agricultural Income Generated from Use of Conserved Water from the Action Alternatives

Canal/Project	Conserved Water (AFY)	Net Income per AF	Annual Income Benefit
			Net Income
Cimarron Canal –Wells Basin	530.4	\$56.15	\$29,782
Cimarron Canal – Coal Hill	137.4	\$56.15	\$7,715
Vernal Mesa Canal –Slide Point	121.2	\$56.15	\$6,805
East Lateral	475.3	\$56.15	\$26,688
West Lateral	239.0	\$56.15	\$13,420
M&D Canal Lining Alt #1 and #2	1,195.0	\$56.15	\$67,099
Total Alt #1	2,698	\$56.15	\$151,493
Total Alt #2	2,698	\$56.15	\$151,493

D.4.5 Costs. Project costs include all expenses incurred as part of the development, installation, operation, and maintenance of a project. In addition, there are other direct costs and adverse effects that must be accounted for. Costs were estimated for each structure included as part of the action alternatives.

D.4.5.1 Installation costs. Preliminary engineering work on design, permitting, construction, and operation and maintenance requirements for the structures included as part of the action alternatives was completed by J-U-B, who were hired by the BPWCD to lead design and planning work on the watershed plan. Based on this work, J-U-B provided cost estimates for the installation of the structures included in the action alternatives. The cost estimates were allocated to particular cost categories, which included:

- Land acquisitions
- Design and engineering
- Permitting
- Procurement
- Construction

Installation costs were estimated using the bottom-up approach. This method breaks projects and structures into lower-level components and then costs those components for their direct costs, including labor, materials, and professional services. In addition, installation cost estimates include a cost contingency of 15 percent for construction and indirect costs for design, engineering and project administration.

Tables D-11 through D-19 show the estimated installation costs for all seven components included in the action alternatives. Alternative 1 (BPWCD's preferred alternative) and Alternative 2 have the same costs for the first five components shown in Tables D-11 through D-15. The alternatives differ in their proposed solutions to improving the M&D Canal as shown in tables D-16 and D-17, and for monitoring temperatures in Cimarron River as shown in Tables D- 18 and D-19.

Table D-11. Estimated Installation Costs of the Wells Basin Piping Project of the Action Alternatives, BPWCD Watershed Plan and Environmental Assessment, Colorado (2022 Dollars).

ESTIMATE OF QUANTITIES					
Item #	Description	Unit	Quantity	Unit Price	Amount
INDIRECT COSTS					
1.	Design Plans and Specifications	LS	1	\$324,000.00	\$324,000.00
2.	Construction Engineering	LS	1	\$324,000.00	\$324,000.00
3.	Project Administration (NRCS)	LS	1	\$162,213.00	\$162,213.00
4.	Project Administration (Sponsor)	LS	1	\$1,650.00	\$1,650.00
5.	Permits	LS	1	\$46,600.00	\$46,600.00
Indirect Costs - Total					\$858,463.00
CONSTRUCTION COSTS					
6.	Mobilization	LS	1	\$329,000.00	\$329,000.00
7.	Remove and Dispose of Steel Wasteway	LS	1	\$5,000.00	\$5,000.00
8.	New Concrete Structure Wasteway Poured in Place	CY	18.2	\$2,000.00	\$36,400.00
9.	63" C-10 Canal Gates for Wasteway	EA	2	\$15,000.00	\$30,000.00
10.	Inlet Structure	EA	1	\$35,000.00	\$35,000.00
11.	Furnish 63" SDR 41 HDPE	LF	8,590	\$262.10	\$2,251,439.00
12.	Install 63" SDR 41 HDPE	LF	8,590	\$110.25	\$947,047.00
13.	Outlet Structure	EA	1	\$35,000.00	\$35,000.00
14.	3/4" Crushed Rock to Bed Pipe to 70% of Pipe Dia	TON	5,011	\$40.00	\$200,440.00
15.	HDPE Mainline Pipe Fittings	EA	22	\$5,000.00	\$110,000.00
16.	Air Vents	EA	8	\$2,000.00	\$16,000.00
17.	P77 Road Crossing	LS	1	\$50,000.00	\$50,000.00
18.	End of Pipeline Riprap	LS	1	\$10,000.00	\$10,000.00
Construction Costs - Subtotal					\$4,055,326.00
Contingency				15%	\$608,298.00
Total Construction Costs					\$4,663,625.00
GRAND TOTAL					\$5,522,088

Source: J-U-B Engineers. Prepared June 2022.

Table D-12. Estimated Installation Costs of the Coal Hill Piping Project of the Action Alternatives, BPWCD Watershed Plan and Environmental Assessment, Colorado (2022 Dollars).

ESTIMATE OF QUANTITIES					
Item #	Description	Unit	Quantity	Unit Price	Amount
INDIRECT COSTS					
1.	Design Plans and Specifications	LS	1	\$223,000.00	\$223,000.00
2.	Construction Engineering	LS	1	\$223,000.00	\$223,000.00
3.	Project Administration (NRCS)	LS	1	\$111,632.00	\$111,632.00
4.	Project Administration (Sponsor)	LS	1	\$1,650.00	\$1,650.00
5.	Permitting	LS	1	\$32,100.00	\$32,100.00
Indirect Costs - Total					\$591,382.00
CONSTRUCTION COSTS					
6.	Mobilization	LS	1	\$230,000.00	\$230,000.00
7.	Removal and Reconstruction of 10" Turnout	LS	1	\$10,000.00	\$10,000.00
8.	Inlet Structure Modification	EA	1	\$20,000.00	\$20,000.00
9.	Furnish 63" SDR 41 HDPE	LF	6,180	\$262.10	\$1,619,778.00
10.	Install 63" SDR 41 HDPE	LF	6,180	\$110.25	\$681,345.00
11.	Outlet Structure Headwall	EA	1	\$20,000.00	\$20,000.00
12.	3/4" Crushed Rock to Bed Pipe to 70% of Pipe Dia	TON	3,605	\$40.00	\$144,200.00
13.	HDPE Mainline Pipe Fittings	EA	6	\$5,000.00	\$30,000.00
14.	Air Vents	EA	6	\$2,000.00	\$12,000.00
15.	Turnout	EA	1	\$13,500.00	\$13,500.00
16.	End of Pipeline Riprap	LS	1	\$10,000.00	\$10,000.00
Construction Costs - Subtotal					\$2,790,823.00
				Contingency 15%	\$418,623.45
Total Construction Costs					\$3,209,446.45
GRAND TOTAL					\$3,800,829.00

Source: J-U-B Engineers. Prepared June 2022.

Table D-13. Estimated Installation Costs of the Slide Point Piping Project of the Action Alternatives, BPWCD Watershed Plan and Environmental Assessment, Colorado (2022 Dollars).

ESTIMATE OF QUANTITIES					
Item #	Description	Unit	Quantity	Unit Price	Amount
INDIRECT COSTS					
1.	Design Plans and Specifications	LS	1	\$157,000.00	\$157,000.00
2.	Construction Engineering	LS	1	\$157,000.00	\$157,000.00
3.	Project Administration (NRCS)	LS	1	\$78,687.00	\$78,687.00
4.	Project Administration (Sponsor)	LS	1	\$1,650.00	\$1,650.00
5.	Permitting	LS	1	\$22,600.00	\$22,600.00
Indirect Costs - Total					\$416,937.00
CONSTRUCTION COSTS					
6.	Mobilization	LS	1	\$161,000.00	\$161,000.00
7.	Remove and Dispose of 48" Steel Pipe	LF	1,438	\$58.20	\$83,691.60
8.	Remove and Dispose of Steel Inlet Structure	LBS	5,496	\$0.90	\$4,946.40
9.	Remove and Dispose of Steel Inlet Structure	CY	6	\$1,000.00	\$5,920.00
10.	Replacement of Inlet Structure	EA	1	\$40,000.00	\$40,000.00
11.	Furnish 54" SDR 32.5 HDPE	LF	2,800	\$241.11	\$675,108.00
12.	Install 54" SDR 32.5 HDPE	LF	2,800	\$94.50	\$264,600.00
13.	Furnish 48" SDR 32.5 HDPE	LF	2,078	\$190.47	\$395,796.66
14.	Install 48" SDR 32.5 HDPE	LF	2,078	\$72.00	\$149,616.00
15.	Outlet Structure	EA	1	\$15,000.00	\$15,000.00
16.	3/4" Crushed Rock to Bed Pipe to 70% of Pipe Dia	TON	2,913	\$40.00	\$116,520.00
17.	HDPE Mainline Pipe Fittings	EA	7	\$5,000.00	\$35,000.00
18.	Air Vents	EA	5	\$2,000.00	\$10,000.00
19.	End of Pipeline Riprap	LS	1	\$10,000.00	\$10,000.00
Construction Costs - Subtotal					\$1,967,198.66
Contingency				15%	\$295,079.80
Total Construction Costs					\$2,262,278.46
GRAND TOTAL					\$2,679,216

Source: J-U-B Engineers. Prepared June 2022.

Table D-14. Estimated Installation Costs of the East Lateral Piping Project of the Action Alternatives, BPWCD Watershed Plan and Environmental Assessment, Colorado (2022 Dollars).

ESTIMATE OF QUANTITIES					
Item #	Description	Unit	Quantity	Unit Price	Amount
INDIRECT COSTS					
1.	Design Plans and Specifications	LS	1	\$271,000.00	\$271,000.00
2.	Construction Engineering	LS	1	\$271,000.00	\$271,000.00
3.	Project Administration (NRCS)	LS	1	\$135,520.00	\$135,520.00
4.	Project Administration (Sponsor)	LS	1	\$1,650.00	\$1,650.00
5.	Permitting	LS	1	\$39,000.00	\$39,000.00
Indirect Costs - Total					\$718,170.00
CONSTRUCTION COSTS					
6.	Mobilization	LS	1	\$280,000.00	\$280,000.00
7.	Clearing, Grubbing, Rock Removal	FT	22,475	\$5.43	\$121,994.00
8.	Trash Screen Structure	CY	20	\$2,300.00	\$46,000.00
9.	Screen/Split/Spill Structure	LS	1	\$200,000.00	\$200,000.00
10.	Hydraulic Spill Structure	CY	25	\$2,000.00	\$50,000.00
11.	Furnish 36" DR 32.5 HDPE	LF	1,160	\$107.16	\$124,307.00
12.	Install 36" DR 32.5 HDPE	LF	1,160	\$45.00	\$52,200.00
13.	Furnish 30" DR 32.5 HDPE	LF	14,250	\$74.39	\$1,060,086.00
14.	Install 30" DR 32.5 HDPE	LF	14,250	\$37.50	\$534,375.00
15.	Furnish 24" DR 32.5 HDPE	LF	2,100	\$47.52	\$99,800.00
16.	Install 24" DR 32.5 HDPE	LF	2,100	\$30.00	\$63,000.00
17.	Furnish 24" DR 26 HDPE	LF	3,000	\$58.90	\$176,712.00
18.	Install 24" DR 26 HDPE	LF	3,000	\$30.00	\$90,000.00
19.	Furnish 18" DR 26 HDPE	LF	1,975	\$33.14	\$65,451.50
20.	Install 18" DR 26 HDPE	LF	1,975	\$27.00	\$53,325.00
21.	Import Pipe Embedment/Foundation Material	YD	1,800	\$28.75	\$51,750.00
22.	HDPE Mainline Pipe Fittings	LS	1	\$38,000.00	\$38,000.00
23.	Air Vents	EA	20	\$2,000.00	\$40,000.00
24.	Unpressurized Turnout (TO#1 and TO #2)	EA	2	\$13,500.00	\$27,000.00
25.	Pressurized Turnout (TO#3 through TO#16)	EA	14	\$13,500.00	\$189,000.00
26.	CO-347 Highway Crossing	LS	1	\$25,000.00	\$25,000.00
Construction Costs - Subtotal					\$3,388,002.00
Contingency 15%					\$508,200.00
Total Construction Costs					\$3,896,202.00
GRAND TOTAL					\$4,614,372.00

Source: J-U-B Engineers. Prepared June 2022.

Table D-15. Estimated Installation Costs of the West Lateral Piping Project of the Action Alternatives, BPWCD Watershed Plan and Environmental Assessment, Colorado (2022 Dollars).

ESTIMATE OF QUANTITIES					
Item #	Description	Unit	Quantity	Unit Price	Amount
INDIRECT COSTS					
1.	Design Plans and Specifications	LS	1	\$162,000.00	\$162,000.00
2.	Construction Engineering	LS	1	\$162,000.00	\$162,000.00
3.	Project Administration (NRCS)	LS	1	\$80,940.00	\$80,940.00
4.	Project Administration (Sponsor)	LS	1	\$1,650.00	\$1,650.00
5.	Permitting	LS	1	\$23,300.00	\$23,300.00
Indirect Costs - Total					\$429,890.00
CONSTRUCTION COSTS					
6.	Mobilization	LS	1	\$167,000.00	\$167,000.00
7.	Clearing, Grubbing, Rock Removal	FT	21,060	\$5.43	\$114,313.00
8.	Furnish 24" DR 32.5 HDPE	LF	12,290	\$47.52	\$584,069.00
9.	Install 24" DR 32.5 HDPE	LF	12,290	\$30.00	\$368,700.00
10.	Furnish 18" DR 32.5 HDPE	LF	7,300	\$26.74	\$195,202.00
11.	Install 18" DR 32.5 HDPE	LF	7,300	\$27.00	\$197,100.00
12.	Furnish 16" DR 32.5 HDPE	LF	1,510	\$21.12	\$31,894.00
13.	Install 16" DR 32.5 HDPE	LF	1,510	\$24.00	\$36,240.00
14.	Intake Structure	YD	25	\$2,000.00	\$50,000.00
15.	Import Pipe Embedment/ Foundation Material	YD	1,200	\$25.00	\$30,000.00
16.	HDPE Mainline Pipe Fittings	LS	1	\$20,000.00	\$20,000.00
17.	Air Vents	EA	16	\$1,500.00	\$24,000.00
18.	Pressurized Turnout (TO#5 through TO#17)	EA	16	\$12,000.00	\$192,000.00
19.	Overflow Termination Structure	YD	4	\$2,000.00	\$8,000.00
20.	Bostwick Park Road Crossing	LS	1	\$5,000.00	\$5,000.00
Construction Costs - Subtotal					\$2,023,519.00
Contingency				15%	\$303,527.00
Total Construction Costs					\$2,327,047.00
GRAND TOTAL					\$2,756,938.00

Source: J-U-B Engineers. Prepared June 2022.

Table D-16. Estimated Installation Costs of the M&D Canal Lining and Hill Stabilization Project – Alternative 1 (Lining), BPWCD Watershed Plan and Environmental Assessment, Colorado (2022 Dollars).

ESTIMATE OF QUANTITIES					
Item #	Description	Unit	Quantity	Unit Price	Amount
INDIRECT COSTS					
1.	Design Plans and Specifications	LS	1	\$340,000.00	\$340,000.00
2.	Construction Engineering	LS	1	\$340,000.00	\$340,000.00
3.	Project Administration (NRCS)	LS	1	\$169,893.00	\$169,893.00
4.	Project Administration (Sponsor)	LS	1	\$1,750.00	\$1,750.00
5.	Permitting	LS	1	\$47,900.00	\$47,900.00
Indirect Costs - Total					\$899,543.00
CONSTRUCTION COSTS					
6.	Mobilization	LS	1	\$351,000.00	\$351,000.00
7.	Dewatering System Rental	LS	1	\$100,000.00	\$100,000.00
8.	Canal Excavation	CY	6,834	\$3.50	\$23,919.00
9.	Import Borrow Material	CY	17,750	\$65.00	\$1,153,750.00
10.	Place, Compact and Shape Top 6" of Finish Grade	CY	6,204	\$7.00	\$43,428.00
11.	Furnish and Install 30 mil PVC liner	SF	394,979	\$0.80	\$315,983.00
12.	Furnish and Install 12 oz Lower Layer Geotextile	SF	394,979	\$0.50	\$197,489.00
13.	Furnish and Install 10 oz Upper Layer Geotextile	SF	394,979	\$0.40	\$157,991.00
14.	Furnish and Apply 3" Shotcrete Lining	SY	43,887	\$25.00	\$1,097,175.00
15.	Excavation for Underdrain	CY	684	\$12.00	\$8,208.00
16.	Furnish and Install Underdrain Geotextile	SF	61,500	\$0.40	\$24,600.00
17.	Furnish and Install Underdrain Perforated Pipe (6")	LF	8,200	\$9.00	\$73,800.00
18.	Earthwork for Hill Stabilization	CY	200,000	\$3.50	\$700,000.00
Construction Costs - Subtotal					\$4,247,344.00
Contingency 15%					\$637,101.00
Total Construction Costs					\$4,884,445.00
GRAND TOTAL					\$5,783,989.00

Source: J-U-B Engineers. Prepared June 2022.

Table D-17. Estimated Installation Costs of the M&D Canal Piping Project – Alternative 2, BPWCD Watershed Plan and Environmental Assessment, Colorado (2022 Dollars).

ESTIMATE OF QUANTITIES					
Item #	Description	Unit	Quantity	Unit Price	Amount
INDIRECT COSTS					
1.	Design Plans and Specifications	LS	1	\$1,205,000.00	\$1,205,000.00
2.	Construction Engineering	LS	1	\$1,205,000.00	\$1,205,000.00
3.	Project Administration (NRCS)	LS	1	\$602,307.00	\$602,307.00
4.	Project Administration (Sponsor)	LS	1	\$1,750.00	\$1,750.00
5.	Permitting	LS	1	\$47,900.00	\$47,900.00
Indirect Costs - Total					\$3,061,957.00
CONSTRUCTION COSTS					
6.	Mobilization	LS	1	\$1,243,000.00	\$1,243,000.00
7.	Inlet Structure (2x) Outlet Structure (x2)	EA	2	\$45,000.00	\$90,000.00
8.	120" RSC160 Profile Wall HDPE Pipe Double Barrel	LF	16,400	\$539.09	\$8,841,076.00
9.	Install 120" Pipe Double Barrel	LF	16,400	\$210.00	\$3,444,000.00
10.	3/4" Crushed Rock to Bed Pipelines to Spring Line	TON	35,990	\$40.00	\$1,439,600.00
Construction Costs - Subtotal					\$15,057,676.00
Contingency 15%					\$2,258,651.00
Total Construction Costs					\$17,316,327.40
GRAND TOTAL					\$20,378,284.00

Source: J-U-B Engineers. Prepared June 2022.

Table D-18. Estimated Installation Costs of the Cimarron Creek Temperature Monitoring System – Alternatives 1 and 2, BPWCD Watershed Plan and Environmental Assessment, Colorado (2022 Dollars).

ESTIMATE OF QUANTITIES					
Item #	Description	Unit	Quantity	Unit Price	Amount
INDIRECT COSTS					
1.	Design	LS	1	\$1,120.00	\$1,120.00
2.	Engineering	LS	1	\$1,120.00	\$1,120.00
3.	Project Administration (NRCS)	LS	1	\$560.00	\$560.00
4.	Project Administration (Sponsor)	LS	1	\$1,000.00	\$1,000.00
5.	Permitting	LS	1	\$1,000.00	\$1,000.00
Indirect Costs – Total					\$4,800.00
CONSTRUCTION COSTS					
5.	Temperature Sensor	EA	1	\$2,000.00	\$2,000.00
6.	Building	EA	1	\$4,000.00	\$4,000.00
7.	Installation	EA	1	\$8,000.00	\$8,000.00
Construction Costs – Subtotal					\$14,000.00
Contingency					15%
Total Construction Costs					\$16,100.00
GRAND TOTAL					\$20,900.00

Source: J-U-B Engineers. Prepared June 2022.

D.4.5.2 Other direct costs & adverse effects. According to the PR&G:

Other direct costs and adverse effects include uncompensated losses caused by the installation, operation, maintenance, and replacement of a project or group of projects.

These other direct costs and adverse impacts can include costs caused by downstream flood

damages cause by channel modifications, levies, dikes, and other structures, erosion of land along streambanks created by dams that prevent sediment export downstream, and through lost use value of the land where flood mitigation structures are cited (NRCS, 2014).

The action alternatives have one primary category of other direct costs, which are directly related to the operations and maintenance activities necessary to maintain the installed works of improvement. In addition, the project adversely affects riparian vegetation, existing wetlands, and the supply of water available to wildlife. The nature of and methods used to calculate these other direct costs are discussed in more detail, below.

D.4.5.2.1 Operations and maintenance. Once the structures are built, overheads for O&M will be required for the structures to continue generating the benefits for which they were designed. O&M costs were estimated to be about 0.75 percent of each structure’s project cost, with the exceptions of Wells Basin, Coal Hill, and Slide Point, which use a multiplier of 0.18 percent to reflect their simpler design. The replacement cost for the temperature sensor, which has a 50- year life, was incorporated into the annual O&M costs. These assumptions follow the approach used by other engineering firms in the preparation of similar analyses.¹⁰ The estimated O&M costs were reviewed by the project sponsors and determined to be consistent with their expectations. Estimated annual O&M costs for each structure are shown in Table D-19, below.

Table D-19: Estimated Annual Operations and Maintenance Costs for Structures Included in the Action Alternatives (2022 Dollars)

Alternative(s)	Name	Project Cost	Annual O&M Costs
Alternatives 1 and 2	Wells Basin Piping Project	\$5,522,089	\$9,940
Alternatives 1 and 2	Coal Hill Piping Project	\$3,800,829	\$6,841
Alternatives 1 and 2	Slide Point Piping Project	\$2,679,216	\$4,823
Alternatives 1 and 2	East Lateral Piping Project	\$4,614,373	\$34,608
Alternatives 1 and 2	West Lateral Piping Project	\$2,756,939	\$20,677
Alternatives 1 and 2	Cimarron Creek Temperature Monitoring System	\$20,900	\$357 ¹
Alternative 1	M&D Canal Lining and Hill Stabilization Project (Lining)	\$5,783,990	\$43,380
Alternative 2	M&D Canal Lining and Hill Stabilization Project (Piping)	\$20,378,284	\$152,837
Total – Alternative 1		\$25,178,335	\$120,626
Total – Alternative 2		\$39,772,630	\$230,083

Note: 1. The temperature monitoring system has a design life and must be replaced after 50 years at a cost of \$10,000. The cost of the replacement is factored into the analysis on an annual basis. Annual O&M costs are assumed to equal 0.75 percent of project costs, with the exceptions of Wells Basin, Coal Hill, and Slide point projects, which use a multiplier of 0.18 percent based on feedback from the project sponsors. Numbers may not sum to totals due to rounding. Source: J-U-B Engineers, 2022.

D.4.5.2.2 Adverse effects. Both action alternatives adversely affect riparian vegetation and the supply of water available for wildlife. Seepage from the existing unlined canals supports riparian vegetation. The vegetation primarily exists within a 50-foot-wide corridor running parallel to the canals. Under the action alternatives, approximately 82 acres of riparian vegetation would lose access to water and transition to another type of vegetative cover. Piping the canals is also anticipated to permanently remove a source of water for wildlife in the area and could potentially have adverse impacts on 5.69 acres of existing wetlands. However, the study area will continue to support several other water sources. The M&D Canal will remain open, as will most of the Cimarron Canal, and the Vernal-Mesa

¹⁰ For example, JEO Consulting Group, a Nebraska-based firm, uses a 0.75 percent cost multiplier to estimate O&M costs of water management structures on more than half a dozen PL-566 projects. The estimated O&M costs were also evaluated by the project sponsor and were deemed to be reasonable approximations of the expenses expected by the sponsor.

Canal. Additionally, other natural sources, including more than 20 natural drainages, Silver Jack Reservoir, and Cerro Summit Reservoir, will continue to be accessible by wildlife.

These adverse effects are included in the cost-benefit analysis both quantitatively, by reporting the reduction in acres supporting riparian vegetation, and in a qualitative manner, by noting the potential impacts to wildlife's access to water.

D.5 Current Economic Damages

Average annual costs of emergency repairs to the BPWCD and UVWUA irrigation distribution systems and average annual crop losses from canal breaches under the FWOFI were estimated to serve as a benchmark of comparison with the action alternatives and are shown in Table D-20, below (NWPM 501.36). In total, average annual damages under the FWOFI are approximately

\$537,723 per year, including \$86,800 of repair costs and \$450,923 in crop yield damages. Damages to crop yields were valued in terms of lost net income to local irrigators, as discussed previously in section D.4.1.2.

Table D-20. Average Annual Damages Under Existing Conditions, BPWCD Watershed Plan and Environmental Assessment, Colorado (2022 Dollars)

Alternative	Average Annual Damages		
	Repairs	Crop Yield Damages	Total
FWOFI	\$86,800	\$450,923	\$537,723
Total	\$86,800	\$450,923	\$537,723

Source: J-U-B Engineers, 2022 and BBC Research & Consulting, 2022.

D.6 Economic and Structural Tables

The results of the NEE analysis for the action alternatives are compared against the FWOFI or No Action Alternative and serve as the best estimate of the additional economic value that would be created under the action alternatives. Results are presented using the Economic and Structural Tables (NWPM Part 506, NRCS 2014b) as shown below.

Table D-21 (National Watershed Program Manual [NWPM] 506.11, Economic Table 1; NRCS 2014), Table D-22 (NWPM 506.12, Economic Table 2; NRCS 2014), and Table D-23 (NWPM 506.18, Economic Table 4) below summarize installation costs, distribution of costs, and total annual average costs for the action alternatives.

BWPCD WATERSHED PLAN AND ENVIRONMENTAL ASSESSMENT NATIONAL ECONOMIC EFFICIENCY
BENEFIT-COST ANALYSIS OF ALTERNATIVES

Table D-21. Economic Table 1—Estimated Installation Cost of the Action Alternatives, BPWCD Watershed Plan and Environmental Assessment, Colorado (2022 Dollars).^{1,2}

Works of Improvement	Unit	Number			Estimated Cost (Dollars)						
		Federal Land	Non-Federal Land	Total	Public Law 83-566 Funds			Other Funds			Total
					Federal Land	Non-Federal Land	Total	Federal Land	Non-Federal Land	Total	
Wells Basin Piping Project	Miles	0	1.63	1.63	\$0	\$4,307,932	\$4,307,932	\$0	\$1,214,156	\$1,214,156	\$5,522,088
Coal Hill Piping Project	Miles	0	1.17	1.17	\$0	\$2,964,718	\$2,964,718	\$0	\$836,111	\$836,111	\$3,800,829
Slide Point Piping Project	Miles	0	0.92	0.92	\$0	\$2,089,397	\$2,089,397	\$0	\$589,819	\$589,819	\$2,679,216
East Lateral Piping Project	Miles	0.31	3.94	4.26	\$264,270	\$3,335,402	\$3,599,672	\$74,494	\$940,207	\$1,014,701	\$4,614,373
West Lateral Piping Project	Miles	0	3.99	3.99	\$0	\$2,150,227	\$2,150,227	\$0	\$606,712	\$606,712	\$2,756,939
M&D Canal Lining and Hill Stabilization Project	Acres	9.40	4.80	14.20	\$2,987,630	\$1,525,598	\$4,513,228	\$841,209	\$429,553	\$1,270,762	\$5,783,990
Temperature Sensors	Each	1	0	1	\$14,875	\$0	\$14,875	\$6,025	\$0	\$6,025	\$20,900
Total	Miles	0.31	11.65	11.97	\$3,266,774	\$16,373,275	\$19,640,049	\$921,728	\$4,616,558	\$5,538,286	\$25,178,335
	Acres	9.40	4.80	14.20							
	Each	1.00	0.00	1.00							

Notes: Totals may not sum due to rounding. Prepared: December 2022.

1. Price base: 2022 dollars. 2. Project cost prepared by J-U-B Engineers.

BWPCD WATERSHED PLAN AND ENVIRONMENTAL ASSESSMENT NATIONAL ECONOMIC EFFICIENCY
BENEFIT-COST ANALYSIS OF ALTERNATIVES

Of the total installation cost, which is presented in the structural tables in the following section, approximately 85 percent of installation costs are related to construction, 6 percent are related to design, 6 percent are related to construction engineering, and 3 percent are related to administration.

Table D-22. Economic Table 2—Estimated Action Alternative 1 Cost Distribution, BPWCD Watershed Plan and Environmental Assessment, Colorado (2022 Dollars).^{1,2}

Work of Improvement	PL 83-566	Other Funds	PL 83-566	Other Funds	PL 83-566	Other Funds	PL 83-566	Other Funds	PL 83-566	Other Funds	PL 83-566	Other Funds	PL 83-566	Other Funds	PL 83-566	Other Funds	Grand Total
	Construction		Engineering		Construction Engineering		Permits		Real Property Rights		Relocation Payments		Project Administration		Total		
Wells Basin Piping Project	\$3,497,719	\$1,165,906	\$324,000	\$0	\$324,000	\$0	\$0	\$46,600	\$0	\$0	\$0	\$0	\$162,213	\$1,650	\$4,307,932	\$1,214,156	\$5,522,089
Coal Hill Piping Project	\$2,407,085	\$802,362	\$223,000	\$0	\$223,000	\$0	\$0	\$32,100	\$0	\$0	\$0	\$0	\$111,633	\$1,650	\$2,964,718	\$836,112	\$3,800,829
Slide Point Piping Project	\$1,696,709	\$565,570	\$157,000	\$0	\$157,000	\$0	\$0	\$22,600	\$0	\$0	\$0	\$0	\$78,688	\$1,650	\$2,089,397	\$589,820	\$2,679,216
East Lateral Piping Project	\$2,922,152	\$974,051	\$271,000	\$0	\$271,000	\$0	\$0	\$39,000	\$0	\$0	\$0	\$0	\$135,520	\$1,650	\$3,599,672	\$1,014,701	\$4,614,373
West Lateral Piping Project	\$1,745,286	\$581,762	\$162,000	\$0	\$162,000	\$0	\$0	\$23,300	\$0	\$0	\$0	\$0	\$80,941	\$1,650	\$2,150,227	\$606,712	\$2,756,939
M&D Canal Lining and Hillside Stabilization Project (Alt 1)	\$3,663,334	\$1,221,111	\$340,000	\$0	\$340,000	\$0	\$0	\$47,900	\$0	\$0	\$0	\$0	\$169,894	\$1,750	\$4,513,228	\$1,270,761	\$5,783,990
Temperature Sensor Installation Project	\$12,075	\$4,025	\$1,120	\$0	\$1,120	\$0	\$0	\$1,000	\$0	\$0	\$0	\$0	\$560	\$1,000	\$14,875	\$6,025	\$20,900
Total	\$15,944,360	\$5,314,787	\$1,478,120	\$0	\$1,478,120	\$0	\$0	\$212,500	\$0	\$0	\$0	\$0	\$739,449	\$11,000	\$19,640,049	\$5,538,287	\$25,178,335

Notes: Totals may not sum due to rounding. Prepared: December 2022.

1. Price base: 2022 dollars. 2. Project cost prepared by J-U-B Engineers.

BWPCD WATERSHED PLAN AND ENVIRONMENTAL ASSESSMENT NATIONAL ECONOMIC EFFICIENCY
BENEFIT-COST ANALYSIS OF ALTERNATIVES

Table D-23. Economic Table 2—Estimated Action Alternative 2 Cost Distribution, BPWCD Watershed Plan and Environmental Assessment, Colorado (2022 Dollars).^{1,2}

Work of Improvement	PL 83-566	Other Funds	PL 83-566	Other Funds	PL 83-566	Other Funds	PL 83-566	Other Funds	PL 83-566	Other Funds	PL 83-566	Other Funds	PL 83-566	Other Funds	PL 83-566	Other Funds	Grand Total
	Construction		Engineering		Construction Engineering		Permits		Real Property Rights		Relocation Payments		Project Administration		Total		
Wells Basin Piping Project	\$3,497,719	\$1,165,906	\$324,000	\$0	\$324,000	\$0	\$0	\$46,600	\$0	\$0	\$0	\$0	\$162,213	\$1,650	\$4,307,932	\$1,214,156	\$5,522,089
Coal Hill Piping Project	\$2,407,085	\$802,362	\$223,000	\$0	\$223,000	\$0	\$0	\$32,100	\$0	\$0	\$0	\$0	\$111,633	\$1,650	\$2,964,718	\$836,112	\$3,800,829
Slide Point Piping Project	\$1,696,709	\$565,570	\$157,000	\$0	\$157,000	\$0	\$0	\$22,600	\$0	\$0	\$0	\$0	\$78,688	\$1,650	\$2,089,397	\$589,820	\$2,679,216
East Lateral Piping Project	\$2,922,152	\$974,051	\$271,000	\$0	\$271,000	\$0	\$0	\$39,000	\$0	\$0	\$0	\$0	\$135,520	\$1,650	\$3,599,672	\$1,014,701	\$4,614,373
West Lateral Piping Project	\$1,745,286	\$581,762	\$162,000	\$0	\$162,000	\$0	\$0	\$23,300	\$0	\$0	\$0	\$0	\$80,941	\$1,650	\$2,150,227	\$606,712	\$2,756,939
M&D Canal Piping Project (Alt 2)	\$12,987,246	\$4,329,082	\$1,205,000	\$0	\$1,205,000	\$0	\$0	\$47,900	\$0	\$0	\$0	\$0	\$602,307	\$1,750	\$15,999,553	\$4,378,732	\$20,378,284
Temperature Sensor Installation Project	\$12,075	\$4,025	\$1,120	\$0	\$1,120	\$0	\$0	\$1,000	\$0	\$0	\$0	\$0	\$560	\$1,000	\$14,875	\$6,025	\$20,900
Total	\$25,268,271	\$8,422,757	\$2,343,120	\$0	\$2,343,120	\$0	\$0	\$212,500	\$0	\$0	\$0	\$0	\$1,171,862	\$11,000	\$31,126,373	\$8,646,257	\$39,772,630

Notes: Totals may not sum due to rounding. Prepared: December 2022.

1. Price base: 2022 dollars. 2. Project cost prepared by J-U-B Engineers.

In addition to the installation costs, the action alternatives will entail costs associated with O&M. These costs are included as “Other Direct Costs” in Table D-24.

Table D-24. Economic Table 4—Estimated Average Annual NEE Costs, BPWCD Watershed Plan and Environmental Assessment, Colorado (2022 Dollars).¹

Action Alternative Component	Project Outlays (Amortization of Installation Cost)	Other Direct Costs ²	Total Cost	Adverse Effects
Wells Basin Piping Project	\$136,235	\$9,695	\$145,930	82-acre reduction in habitat supporting riparian vegetation; A source of water for wildlife is removed; Potential Adverse Impacts to 5.69 acres of existing wetland area.
Coal Hill Piping Project	\$93,770	\$6,673	\$100,443	
Slide Point Piping Project	\$66,099	\$4,823	\$70,922	
East Lateral Piping Project	\$113,840	\$33,754	\$147,594	
West Lateral Piping Project	\$68,016	\$20,167	\$88,183	
M&D Canal Lining and Hill Stabilization Project (Alternative 1)	\$142,696	\$42,310	\$185,006	
M&D Canal Lining and Hill Stabilization Project (Alternative 2)	\$502,749	\$149,067	\$651,816	
Temperature Sensors	\$516	\$348	\$864	
Total (Alternative 1)	\$621,172	\$117,770	\$738,942	-82 acres of riparian habitat; Reduction in water sources for wildlife; Potential Adverse Impacts to 5.69 acres of existing wetland area.
Total (Alternative 2)	\$981,225	\$224,527	\$1,205,752	

Notes: Totals may not sum due to rounding. Prepared: December 2022.

1. Price base: 2022 dollars. Other direct costs have been discounted using a discount rate of 2.25 percent and annualized over a 100-year time period relative to their values as shown in Table D-20.

2. Other direct costs include annual operations and maintenance associated with installation, operation or replacement of project structures.

The impact of the action alternatives on ecosystem flows and values is shown in Table D- 25, below. The action alternatives would positively impact regulating services in the watershed by reducing costs of catastrophic repairs, reducing farm income losses due to failures in the irrigation distribution system, and reducing costs from salinity in the Gunnison River basin and the Colorado River basin. Salinity reductions are the largest single benefit of the action alternatives, closely followed by reduced losses in farm and ranch net income. In total, Alternative 1 would create average annual gross benefits of approximately \$1,118,366 per year. Alternative 2 would create slightly larger annual gross benefits of about \$1,124,071 per year income basis, though it could be argued that a large portion of the variable costs that are excluded in the net income calculations would be spent locally and would benefit the regional economy. The calculation of net income from the use of conserved water also assumes a relatively low irrigation efficiency of about 38 percent between the locations where the water is conserved and the consumptive use by the crops. The benefits of salinity reductions were estimated based on the reduced cost of salinity control measures, rather than the greater benefit of reduced salinity damages to downstream users. Finally, the estimated benefit of additional consumer surplus for recreational users was based on an annual visitation count that is now 30 years old and likely underestimates current visitation given population growth in the region and across Colorado

since 1992.

Using the resulting benefits and costs from the previous two table, Table D-25 (NWPM 506.21, Economic Table 6, NRCS 2014b) presents a comparison of the NEE average annual benefits and average annual costs for the action alternatives. In total, BPWCD's preferred alternative (Alternative 1) will generate average annual benefits of \$1,118,366 compared to average annual costs of \$738,942, for a benefit-cost ratio of 1.5. Action Alternative 2 would generate slightly larger annual benefits of \$1,124,071 at a substantially higher annual cost of \$1,205,752 for a benefit-cost ratio of 0.9.

BWPCD WATERSHED PLAN AND ENVIRONMENTAL ASSESSMENT NATIONAL ECONOMIC EFFICIENCY
BENEFIT-COST ANALYSIS OF ALTERNATIVES

Table D-25. Economic Table 6—Comparison of Average Annual NEE Costs, Reduced Damages and Benefits, BPWCD Watershed Plan and Environmental Assessment, Colorado (2022 Dollars).¹

Works of Improvement	Agriculture-related			Non-agriculture Related		Average Annual Benefits Total	Average Annual Cost	Benefit Cost Ratio
	Reduced Property Loss, Critical Facility Loss, and Income Loss	Reduced Crop Yield Damages	Increased Water Supply	Reduced Salinity Control Costs	Increased Recreation Consumer Surplus			
Wells Basin Piping Project	\$26,672	\$135,553	\$28,022			\$190,247	\$145,930	1.3
Coal Hill Piping Project	\$26,672	\$135,553	\$7,281			\$169,506	\$100,443	1.7
Slide Point Piping Project	\$14,903	\$33,049	\$6,400	\$51,693		\$106,045	\$70,922	1.5
East Lateral Piping Project			\$25,110	\$153,310		\$178,420	\$147,594	1.2
West Lateral Piping Project			\$12,624	\$124,151		\$136,775	\$88,183	1.6
M&D Canal Lining and Hill Stabilization Project (Alternative 1)	\$16,427	\$135,590	\$65,367	\$112,663		\$330,047	\$185,006	1.3
M&D Canal Lining and Hill Stabilization Project (Alternative 2)	\$16,427	\$135,590	\$65,367	\$118,366		\$335,750	\$651,816	0.5
Temperature Sensors					\$7,326	\$7,326	\$864	8.5
Total (Alternative 1)	\$84,674	\$439,745	\$144,806	\$441,817	\$7,326	\$1,118,366	\$738,942	1.5
Total (Alternative 2)	\$84,674	\$439,745	\$144,806	\$447,520	\$7,326	\$1,124,368	\$1,205,752	0.9

Notes: Totals may not sum due to rounding. Prepared: December 2022. The values presented here may differ from the benefit values presented in Section 4 due to the fact that the values from Section 4 Were discounted at a rate of 2.25 percent, projected over the analysis period of 102-years, summed, and amortized so they could be reported in terms of annualized averages.

1. Price base: 2022 dollars.

Short Term Construction Impacts Memorandum

MEMORANDUM

To: Nicholas Emmendorfer
From: Michael Verdone
Re: Short-term construction impacts of Bostwick Park construction
Date: September 19, 2022

Background

BBC has been asked to estimate the short-term employment impact that would be expected to occur due to the construction of works improvement proposed as part of the Bostwick Park Water Conservancy District Watershed Plan.

BBC derived estimates of the short-term employment impacts of the Bostwick Park Water Conservancy District Watershed Plan using IMPLAN¹ economic multipliers from Environmental Impact Statements (EIS's) from two agricultural water supply projects in Wyoming for the proposed Leavitt Reservoir and Alkali Reservoir projects. While the employment multipliers for these two projects are not specific to the Bostwick Park planning area, they are representative of employment impacts created by agricultural water supply projects in rural areas with agricultural economies and can therefore be used to calculate order-of-magnitude estimates of employment impacts.

Short Term Employment Impacts

The proposed Action Alternatives would have construction costs totaling \$25.331 million for Alternative 1 and \$39.944 million for Alternative 2, respectively. The construction phase of the proposed Action Alternatives would take approximately 14 months to complete, corresponding to annual construction expenditures of approximately \$21.83 million for Alternative 1 and \$34.43 million per year for Alternative 2, respectively. The IMPLAN multipliers for Sector 58: Reservoir, pump station, and water pipeline construction, suggest that every one million dollars of construction output is associated with approximately 1.4 direct jobs, 1.6 indirect jobs, and 0.7 induced jobs.

¹ IMPLAN is an input-output model originally developed for use by the U.S. Forest Service that is now widely used for impact analysis by public and private sector economists throughout the United States.

Based on this annual rate of expenditure and the above multipliers, construction activities for Alternative 1 would be expected to directly employ an annual average of 31 employees during the 14-month construction period as shown in Table 1. The number of workers would likely vary from month to month and could peak at more than 40 workers on site during periods of high construction activity. Alternative 2 would be expected to directly employ an annual average of approximately 48 workers during the 14-month construction period.

Both Action Alternatives would also generate indirect and induced employment impacts in the study area as a result of construction firms purchasing goods and services from local business (indirect effects) and from construction workers spending part of their income on goods and services (induced effect). For Alternative 1, the indirect and induced employment effects would be expected to generate approximately 50 jobs over the 14-month construction period while Alternative 2 would be expected to create about 79 jobs over the same interval.

Table 1. Average Annual Employment Effects of Bostwick Park Water Conservancy District Watershed Plan Action Alternatives over 14-month Construction Period

Employment Effect	Annual Employment (Alternative 1)	Annual Employment (Alternative 2)
Direct effect	31	48
Indirect effect	35	55
Induced effect	15	24
Total effect	81	127

Source: BBC Research & Consulting, IMPLAN.

Note: Results are for an industry change in IMPLAN Sector 58: Reservoir, pump station and water pipeline construction.

Complete List of Best Management Practices

Appendix E. Complete List of Best Management Practices

The following BMPs would be implemented during and post-construction to avoid and minimize impacts to environmental resources in the project area that could occur as a result of the Preferred Alternative.

Best Management Practices	Relevant Resource Category	Section of EA / Resource Report Identified
Disturbed areas would be restored after construction completion. Disturbed areas would be reseeded to encourage the establishment of native vegetation, and native seed mixes appropriate to the surrounding habitat would be utilized to re-establish vegetation in all areas with ground disturbance to prevent construction related erosion and sediment delivery.	Soils & Geology; Riparian Areas & Ecologically Critical Areas; Wildlife and Wildlife Habitat; Migratory Birds/Bald Eagles	EA Sections 5.1.1, 5.4.4, 5.5.1, 5.5.3 Biological Assessment
The installation of Temporary Erosion Controls (TECs) would be employed in active construction areas to control sediment and erosion and to prevent sediment discharges to surface waters to protect water quality. These devices must remain in place until the potential for sediment migration is no longer a risk.	Soils & Geology; Water Resources; Wildlife and Wildlife Habitat	EA Sections 5.1.1, 5.5.1 Biological Assessment
Excavated sediment and debris shall be disposed of at a pre-approved area no less than 200 feet from any surface water feature.	Water Quality; Special Status Species	EA Section 5.2 Biological Assessment
Construction activities would be timed to occur outside of the irrigation season (early May through end of September).	Water Resources; Wildlife and Wildlife Habitat; Migratory Birds/Bald Eagles	EA Sections 5.2, 5.5.1, 5.5.2., 5.5.3 Biological Assessment
Construction equipment would be prevented from entering the Cimarron River.	Water Resources; Wildlife and Wildlife Habitat	EA Section 5.5.1
A Colorado Discharge Permit System (CDPS) General Permit would be required prior to construction. A CDPS General Permit, and associated Stormwater Management Plan (SWMP), and Spill Prevention and Countermeasure Control (SPCC) Plan would be implemented to protect water quality and to prevent water pollution from runoff, spills, leaks, and leaching.	Water Resources; Wildlife and Wildlife Habitat; Special Status Animal Species	EA Sections 5.2.1, 5.6.4 Biological Assessment
Equipment will be fueled or lubricated no less than 150 feet from live water. Machinery will be fueled over a surface that will facilitate spill remediation. Machinery shall be maintained in a petroleum leak-free condition to reduce levels of groundwater contamination.	Water Resources; Special Status Species	EA Section 5.2 Biological Assessment
Construction equipment would be fueled offsite at a commercial facility, when possible. On site equipment refueling and containment, and waste management would be employed if offsite fueling is not feasible. Additionally, major maintenance of equipment such as changing fluids, overhaul, tune-ups, and similar types of regularly scheduled maintenance shall be performed at an approved off-site facility or staging area.	Hazardous Materials; Wildlife and Wildlife Habitat; Special Status Species	EA Section 5.5.1 Biological Assessment

Appendix E. Complete List of Best Management Practices

Best Management Practices	Relevant Resource Category	Section of EA / Resource Report Identified
Petroleum products and hazardous, toxic, and/or deleterious materials shall not be stored, disposed of, or accumulated adjacent to or in the immediate vicinity of live water.	Hazardous Materials; Water Resources; Special Status Species	EA Sections 5.2, 5.5.2, 5.6.4, Biological Assessment
Emergency spill procedures shall be in place and may include personnel trained in emergency spill response procedures and spill response kits (e.g., oil absorbent booms or other equipment).	Hazardous Materials; Water Resources	EA Sections 5.2, 5.6.4 Biological Assessment
Vegetable-based hydraulic fluid should be used in equipment operating near a waterbody.	Hazardous Materials; Water Resources	EA Sections 5.2, 5.6.4 Biological Assessment
Portable toilets shall not be placed adjacent to streams, lakes, wetlands, wells, or springs. They shall be located no less than 150 feet from these areas to prevent contamination of any water sources. At the completion of construction, these facilities shall be removed and taken to an off-site location.	Hazardous Materials; Water Resources	EA Sections 5.2, 5.6.4 Biological Assessment
The project would adhere to all local, state, and federal regulations.	Air Quality; Water Resources; Wildlife and Wildlife Habitat; Special Status Animal Species	EA Sections 5.2, 5.3, 5.5.1, 5.5.2 Biological Assessment
Fugitive dust would be suppressed by the following: Materials would be hauled in properly tarped or sealed containers; Vehicle speeds would be restricted within the project area; The size and number of excavations would be minimized to the extent practicable; and, construction equipment would be required to meet all air quality standards, including properly functioning mufflers.	Air Quality; Wildlife and Wildlife Habitat	EA Sections 5.3.2.1, 5.5.1
Construction activities would be confined to the project footprint to preserve and to minimize impacts to existing and native vegetation. The construction activity footprint would be limited to the smallest extent practicable within the project area.	Noxious Weeds and Invasive Plants; Riparian Areas & Ecologically Critical Areas; Soils and Geology; Wildlife and Wildlife Habitat; Special Status Animals Species	EA Sections 5.4.3, 5.4.4, 5.5.1, 5.5.2 Biological Assessment
Non-desirable plant species would be controlled by cleaning equipment prior to delivery to the project site, eradicating these species before the start and during construction as discovered, and routinely monitoring after construction completion.	Noxious Weeds and Invasive Plants; Riparian Areas & Ecologically Critical	EA Sections 5.5.1, 5.4.3, 5.4.4

Appendix E. Complete List of Best Management Practices

Best Management Practices	Relevant Resource Category	Section of EA / Resource Report Identified
	Areas; Wildlife and Wildlife Habitat.	
A Post-construction Rehabilitation Plan would be developed that would include mechanisms for addressing weed establishment and treatment. The Post-Construction Rehabilitation Plan standard protocols would be written into the post-construction specifications.	Plants; Noxious Weeds and Invasive Plants	EA Sections 5.4, 5.4.3
If construction activities occur during migratory bird breeding/nesting periods, the project area and surrounding habitats would be surveyed by a qualified biologist for active nests no less than 7 days prior to the commencement of work. If active nests are found during surveys, spatial buffers would be established around such in coordination with U.S. Fish and Wildlife Service (USFWS), Colorado Parks and Wildlife (CPW), and Natural Resources Conservation Service (NRCS). Construction activities within the buffer areas would be prohibited until a qualified biologist confirmed that all nests are no longer active.	Migratory Birds/Bald Eagles	EA Sections 5.5.1, 5.5.2, 5.5.3 Biological Assessment
Pipeline trenches left open overnight would be kept to a minimum and would be covered to reduce the potential for entrapment or harm to large game animals and other smaller mammals. Covers would be secured in place and strong enough to support the weight of a bull moose (1,000+ pounds) and prevent wildlife and livestock from falling through. Both trench covers and wildlife escape ramps would be utilized at all times.	Wildlife and Wildlife Habitat	EA Section 5.5.1
If tree removal would occur between non-hibernating seasons for the tri-colored bat (Spring – Fall), a clearance survey for roosting bats would be required by a qualified biologist, no less than 7 days prior to the removal of trees in the Action Area.	Special Status Species	EA Section 5.5.2 Biological Assessment
Spatial buffers would be established around known sensitive bird nesting areas in coordination with USFWS, CPW, and NRCS.	Migratory Birds/Bald Eagles	EA Sections 5.5.2, 5.5.3 Biological Assessment
Clearing of vegetation for project measures would be performed outside of the nesting season to the greatest extent possible.	Migratory Birds/Bald Eagles	EA Section 5.5.3 Biological Assessment
In accordance with 36 CFR Part 800.6, NRCS would mitigate the adverse effects to the National Register of Historic Places (NRHP)-eligible canal segments through the development of a Memorandum of Agreement (MOA). The MOA was developed in consultation with the Colorado State Historic Preservation Office (SHPO). The MOA specifies measures to minimize and mitigate the effects to the historic sites and would be implemented	Cultural, Historic & Paleontological Resources	EA Section 5.6.3

Appendix E. Complete List of Best Management Practices

Best Management Practices	Relevant Resource Category	Section of EA / Resource Report Identified
pursuant to compliance with Section 106 of the National Historic Preservation Act (NHPA).		
A Post-Review Discovery Plan has been prepared and is included in Appendix B of the MOA. If construction activities uncover any materials of cultural or historic significance (i.e., bone fragments, pottery, stone tools, burial features, etc.), construction would halt and coordination with the SHPO, Tribal Historic Preservation Office (THPO), and Montrose and/or Gunnison County Sheriff would occur.	Cultural, Historic & Paleontological Resources	EA Section 5.6.3
A paleontological monitor will oversee the earthwork at the East Lateral and document any fossil discoveries. If construction of the East Lateral results in any fossil discoveries, earthwork shall cease and the findings reported to the BLM Uncompahgre Field Office Authorized Officer. The operator shall suspend earthwork in the area until written authorization to proceed is issued by the authorized officer.	Cultural, Historic & Paleontological Resources	EA Section 5.6.3
Unanticipated Discovery Plan for paleontological resources would be implemented. The Unanticipated Discovery Plan would include: 1) A description of and the location of paleontological deposits (fossils) discovered during the project implementation phase (design investigation or construction activities) would be recorded in the project records; the landowner (federal, state or private) and the Colorado NRCS state geologist would be notified of all findings as soon as practicable after the discovery; and the handling and disposition of any findings would be in accordance with applicable federal and state laws.	Cultural, Historic & Paleontological Resources	EA Section 5.6.3
Established daytime working hours would be employed and properly functioning equipment mufflers would be used during construction to minimize temporary noise impacts.	Noise	EA Section 5.6.10
Flaggers would be utilized, where necessary, to control construction traffic along roadways.	Transportation & Infrastructure	EA Section 5.6.9

30% Design Report

CIMARRON RIVER-LOWER UNCOMPAHGRE WATERSHED PROJECT

30% DESIGN REPORT

FOR

AGRICULTURAL WATER MANAGEMENT FACILITIES

SEPTEMBER 2023



Prepared By
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List of Acronyms

CFS – Cubic Feet Per Second

HDPE – High Density Polyethylene

HGL – Hydraulic Grade Line

ID – Inside Diameter

OD – Outside Diameter

OPC – Opinion of Probable Cost

PVC – Polyvinyl Chloride

WSE – Water Surface Elevation

INTRODUCTION

The Cimarron River-Lower Uncompahgre Watershed Project Plan-EA proposes multiple piping and lining projects to address concerns at various locations in the watershed. These locations are:

- The Wells Basin area of the Cimarron Canal
- The Coal Hill area of the Cimarron Canal
- The Slide Point area of the Vernal Mesa Canal
- The Bostwick Park East Lateral
- The Bostwick Park West Lateral
- The M&D Canal

The economic, environmental, and cultural impacts assumed in the Plan-EA are predicated on the feasibility on the proposed measures of improvement for these areas. The intent of this report is to provide brief summaries of the design criteria for each measure of improvement, and to describe the characteristics of the proposed measures to illustrate their feasibility.

1 WELLS BASIN

The Wells Basin section of the Cimarron Canal was identified as an area of the canal with a high risk of breaching. The sections below provide insights into the preliminary design of a pipeline for the Wells Basin section.

1.1 Selection of Material

It is anticipated that a breach (landslide) in the Wells Basin section of the Cimarron Canal would likely come from saturation of the soil profile on the steep banks on the downhill side (right side) of the canal. Piping or lining the canal would help to mitigate this risk factor. In the event that a slide still occurred, encapsulation (piping) of the canal would decrease the risk of a canal breach. Additionally, piping eliminates susceptibility to livestock interference and damage that may occur due to the existence of pastures adjacent to the canal.

Numerous piping materials exist; however, most large diameter pipelines are constructed from High Density Polyethylene (HDPE), Polyvinyl Chloride (PVC), and steel. Solid wall HDPE was selected for three primary reasons:

- HDPE pipe is better able to conform to the sinuosity of the existing ditch, requiring fewer elbow/bend fittings.
- Once installed, HDPE is “monolithic” and therefore is far less likely to develop leaks during the project life.
- HDPE is better able to resist minor shifts in soils surrounding the pipeline without developing leaks or failing.

1.2 Design Criteria

The 30% design performed on Wells Basin is in general conformance with applicable NRCS conservation practice standards. Standards include Code 430 (Irrigation Pipeline) and Code 587 (Structure for Water Control). As designs are furthered, continued conformance with applicable standards will be required.

Since the project will provide piping for a specific section of the Cimarron Canal, it is important that the pipeline is adequately sized to convey all flow while not overtopping the canal upstream the Wells Basin section. Accordingly, intake structures must be configured to provide sufficient entry head for the pipeline, while not raising the existing water surface elevation (WSE) in the Cimarron Canal. To limit entry head requirements, the pipeline must flow in an open channel condition immediately downstream of entry structures. Pipeline hydraulics were generally analyzed using Manning's Equation ($n=0.09$ for HDPE pipe) while considering downstream effects that set specific hydraulic grade line (HGL) elevations. To meet the requirements of the Cimarron Canal system, the project must be designed to convey 135 cubic feet per second (cfs) of water.

Large diameter flexible pipe requires stiff lateral support to maintain its shape and ensure the structural integrity of the pipeline. Lateral support is provided by a combination of trench wall stiffness and that of the initial backfill/haunching material. To ensure that this criterion will be met in final design, $\frac{3}{4}$ " crushed rock to 70% of the pipe outside diameter (OD) is assumed at the 30% level.

1.3 Project Design Characteristics

As described in Section 1.2, the preliminary pipeline design for Wells Basin allows for conveyance of 135 cfs. Table 1.3.1 provides a summary of Wells Basin proposed pipeline characteristics when conveying 135 cfs. The open channel flow expected in the first 200 feet of the pipeline is indicative of adequate pipeline capacity.

Table 1.3.1. Wells Basin Proposed Pipeline Characteristics

Station Start:	Station End:	Slope:	Proposed Pipe Size:	Flow Condition:	Notes:
10+00	12+00	1.87%	63" DR 41	Open Channel	Open Channel from inlet will prevent backup into unlined canal
12+00	22+72	0.33%	63" DR 41	Open Channel	Pressurization from downstream sections extends approx. 200 feet into this section
22+72	36+00	0.10%	63" DR 41	Pressurized	Pressurized due to slope
36+00	46+26	0.23%	63" DR 41	Pressurized	HGL from downstream sections forces pressurization in this section
46+26	73+50	0.11%	63" DR 41	Pressurized	Pressurized due to slope
73+50	88+13	0.21%	63" DR 41	Open Channel	Pressurization from downstream section extends approx. 200 feet into this section
88+13	95+88	0.10%	63" DR 41	Pressurized	Pressurized due to slope

The HGL created for the pipeline profile illustrated locations of transition between open channel and pressurized flow. This informed the location of air vents and air valves in the pipeline, in addition to maintaining minimum spacing in accordance with NRCS Practice Code 430. Air vents and other appurtenance are included in the design as needed; their inclusion is reflected in the 30% drawings and the opinion of probable cost (OPC) for Wells Basin.

2 COAL HILL

As with Wells Basin, the Coal Basin section of the Cimarron Canal was identified as an area of the canal with a high risk of breaching. The sections below provide insights into the preliminary design of a pipeline for the Coal Hill section of the Cimarron Canal.

2.1 Selection of Material

Similar to Wells Basin, it is anticipated that a breach in the Coal Hill section of the Cimarron Canal would likely come from saturation of the soil profile on the steep banks on the downhill side (right side) of the canal. Unlike Wells Basin, however, Coal Hill has steep banks on the uphill side of the canal. This makes canal encapsulation (piping) particularly beneficial, as it would both stop saturation beneath the canal, and reduce the risk of canal overtopping and breaching due to slides above of the canal.

Most large diameter irrigation pipelines are constructed from either HDPE, PVC, or steel. Solid wall HDPE was selected for three primary reasons:

- HDPE pipe is better able to conform to the sinuosity of the existing ditch, requiring fewer elbow/bend fittings.

- Once installed, HDPE is “monolithic” and therefore is far less likely to develop leaks during the project life.
- HDPE is better able to resist minor shifts in soils surrounding the pipeline without developing leaks or failing.

2.2 Design Criteria

The 30% design performed on Coal Hill is in general conformance with applicable NRCS conservation practice standards. Standards include Code 430 (Irrigation Pipeline) and Code 587 (Structure for Water Control). As designs are furthered, continued conformance with applicable standards will be required.

Since the project will provide piping for a specific section of the Cimarron Canal it is important that the pipeline is adequately sized to convey all flow while not overtopping the canal upstream the Coal Hill section. Accordingly, intake (and intermediate pipeline) structures must be configured to provide sufficient entry head for the pipeline, while not raising the existing WSE in the Cimarron Canal. To limit entry head requirements, the pipeline must flow in an open channel condition immediately downstream of entry structures. Pipeline hydraulics were generally analyzed using Manning’s Equation ($n=0.09$ for HDPE pipe) while considering downstream effects that set specific HGL elevations. To meet the requirements of the Cimarron Canal system, the project must be designed to convey 135 cfs of water.

Large diameter flexible pipe requires stiff lateral support to maintain its shape and ensure the structural integrity of the pipeline. Lateral support is provided by a combination of trench wall stiffness and initial backfill/haunching material. To ensure that this criterion will be met in final design, $\frac{3}{4}$ ” crushed rock to 70% of the pipe OD is assumed at the 30% level.

2.3 Project Design Characteristics

As described in Section 2.2, the preliminary pipeline design for Coal Hill allows for conveyance of 135 cfs. Table 2.3.1 provides a summary of Coal Hill proposed pipeline characteristics when conveying 135 cfs.

Table 2.3.1. Coal Hill Proposed Pipeline Characteristics

Station Start:	Station End:	Slope:	Proposed Pipe Size:	Flow Condition:	Notes:
10+00	20+01	-0.25%	63" DR 41	Open Channel	Open Channel from inlet will prevent backup into unlined canal
20+01	29+60	-0.20%	63" DR 41	Open Channel	Pressurization from downstream sections extends approx. 335 feet into this section
29+60	33+76	-0.56%	63" DR 41	Pressurized	Pressurized due to down stream HGL
33+76	46+00	-0.22%	63" DR 41	Pressurized	Pressurized due to down stream HGL
46+00	52+49	-0.20%	63" DR 41	Pressurized	Pressurized due to down stream HGL
52+49	71+80	-0.10%	63" DR 41	Pressurized	Returns to unlined canal after station 71+80. Water level in canal is above pipeline outlet and is the control point for the HGL

The HGL created for the pipeline profile illustrated locations of transition between open channel and pressurized flow. This informed the location of air vents and air valves in the pipeline, in addition to maintaining minimum spacing in accordance with NRCS Practice Code 430. Air vents and other appurtenance are included in the design as needed; their inclusion is reflected in the 30% drawings and the OPC for Coal Hill.

3 SLIDE POINT

Slide Point is an area on the Vernal Mesa Canal, which conveys irrigation water from the end of the Cimarron Canal to the irrigated lands of Bostwick Park. Approximately 1,440 feet of the Vernal Mesa Canal within the Slide Point area was already piped with 48" steel pipe in the 1960s. The proposed action would remove and replace the existing 48" pipe (due to poor condition) while also piping the adjacent sections of canal, which are at a high risk of canal breach.

3.1 Selection of Material

Full encapsulation of the Vernal Mesa Canal in the Slide Point area is preferable to lining, for reasons similar to those outlined for Wells Basin and Coal Hill. As described in those sections, most large diameter irrigation pipelines are constructed from either HDPE, PVC, or steel. Solid wall HDPE was selected for three primary reasons:

- HDPE pipe is better able to conform to the sinuosity of the existing ditch, requiring fewer elbow/bend fittings.
- Once installed, HDPE is "monolithic" and therefore is far less likely to develop leaks during the project life.

- HDPE is better able to resist minor shifts in soils surrounding the pipeline without developing leaks or failing.

3.2 Design Criteria

The 30% design performed on Slide Point is in general conformance with applicable NRCS conservation practice standards. Standards include Code 430 (Irrigation Pipeline) and Code 587 (Structure for Water Control). As designs are furthered, continued conformance with applicable standards will be required.

Since the project will provide piping for a specific section of the Vernal Mesa Canal it is important that the pipeline is adequately sized to convey all flow while not overtopping the upstream canal. Accordingly, intake and intermediate pipeline structures must be configured to provide sufficient entry head for the pipeline, while not raising the existing WSE in the Vernal Mesa Canal. To limit entry head requirements, the pipeline must flow in an open channel condition immediately downstream of entry structures. Pipeline hydraulics were generally analyzed using Manning's Equation ($n=0.09$ for HDPE pipe) while considering downstream effects that set specific HGL elevations. To meet the requirements of the canal system, the project must be designed to convey 85 cfs of water.

Large diameter flexible pipe requires stiff lateral support to maintain its shape and ensure the structural integrity of the pipeline. Lateral support is provided by a combination of trench wall stiffness and initial backfill/haunching material. To ensure that this criterion will be met in final design, $\frac{3}{4}$ " crushed rock to 70% of the pipe OD is assumed at the 30% level.

3.3 Project Design Characteristics

As described in Section 3.2, the preliminary pipeline design for Slide Point allows for conveyance of 85 cfs. Table 3.3.1 provides a summary of Slide Point proposed pipeline characteristics when conveying 85 cfs.

Table 3.3.1. Slide Point Proposed Pipeline Characteristics

Station Start:	Station End:	Slope:	Proposed Pipe Size:	Flow Condition:	Notes:
10+00	12+30	-0.35%	54" DR 32.5	Open Channel	Open Channel from inlet will prevent backup into unlined canal
12+30	19+00	-0.30%	54" DR 32.5	Open Channel	Open Channel Flow
19+00	29+00	-0.15%	54" DR 32.5	Open Channel	Open Channel Flow
29+00	38+00	-0.15%	54" DR 32.5	Open Channel	Open Channel Flow
38+00	42+00	-0.10%	48" DR 32.5	Pressurized	Pressurized due to pipe size reduction and slope
42+00	46+00	-0.25%	48" DR 32.5	Open Channel	Open Channel Flow
46+00	58+78	-0.43%	48" DR 32.5	Open Channel	Returns to unlined canal after station 58+78. Water level in canal will be at the same elevation as water level in pipeline or lower

The HGL created for the pipeline profile illustrated locations of transition between open channel and pressurized flow. This informed the location of air vents and air valves in the pipeline, in addition to maintaining minimum spacing in accordance with NRCS Practice Code 430. Air vents and other appurtenance are included in the design as needed; their inclusion is reflected in the 30% drawings and the OPC for Slide Point.

4 EAST LATERAL

To improve watershed water quality and efficiency, it is proposed that the Bostwick Park East Lateral be piped. Piping the East Lateral immediately after the split with the West Lateral will eliminate approximately 22,500 feet of open, unlined ditch. The proposed pressurized irrigation system will both eliminate canal seepage and provide the added benefit of eliminating excess discharge from the end of the lateral into Red Rock Canyon. The discharge quantity that would be eliminated is unknown, however, it is anticipated to be significant in quantity, reduce unnecessary diversion from the Cimarron River, and reduce reservoir drawdown during the later stages of the irrigation season.

4.1 Selection of Material

The service area and topography surrounding East Lateral require that the ditch stay primarily within its existing alignment. While this would be achievable in many pipe materials, the significant sinuosity of the ditch would require a large number of fittings, likely resulting in very high costs. The flexibility of solid wall HDPE pipe allows it to conform to existing ditch alignments, making it ideal for this application. The fusion welds of HDPE pipe are also far less likely to develop leaks than typical bell and spigot pipes, further making HDPE an ideal choice for pipe material.

4.2 Design Criteria

The 30% design performed on East Lateral is in general conformance with applicable NRCS conservation practice standards. Standards include Code 430 (Irrigation Pipeline) and Code 587 (Structure for Water Control). As designs are furthered, continued conformance with applicable standards will be required.

Since the project will provide piping for the entirety of the East Lateral (and will be capped at the end), pipeline pressure ratings must exceed the hydrostatic pressure of a full pipeline and allow for the potential of surge pressure (as required by Code 430). Given the many miles of upstream canal, the pipeline intake must also allow for overflow at an appropriate location. To meet the irrigation demands on the East Lateral, the project must be designed to convey 23 cfs of water at its start; demand and conveyance requirements decrease along the East Lateral. Pipeline hydraulics were generally analyzed using Manning's Equation ($n=0.09$ for HDPE pipe).

Smaller diameter HDPE also requires rigid trench walls and backfill to prevent excessive deflection of structural failure of the pipeline. Previous experience piping in the area of East Lateral, however, indicates that much of the native material (~90%) will provide suitable backfill.

4.3 Project Design Characteristics

The proposed piping project will begin with construction of a concrete headwall/trashrack attached to approximately 1,150 feet of 36" DR 32.5 HDPE. 30" DR 32.5 HDPE will provide adequate capacity for the next 2,600 feet of pipeline, at which point the Siphon Lateral will split from the East Lateral. It is anticipated that the existing screening structure at the Siphon Lateral/East Lateral split will need to be heavily modified or replaced. A hydraulic spill structure approximately 1,250 feet downstream of the split structure will set a maximum water surface elevation for the pipeline downstream of the split, allowing for significantly thinner walled pipe to be used for the downstream pipeline. Excess water at the spill structure will be piped to the natural drainage approximately 2,100 feet away; an overflow termination structure will be required at the end of the overflow pipe to dissipate energy and prevent erosion in the natural draw.

The East Lateral proposed pipeline will contain two unpressurized turnouts, located upstream of the screen/split structure. Downstream of the hydraulic spill structure, 14 pressurized turnouts will be needed causing demand to decrease along the length of the pipeline (as described in Section 4.2). The pipeline downstream of the spill structure will gradually taper from 30" DR 32.5 to 18" DR 26 pipe. Table 4.3.1 provides a summary of East Lateral proposed pipeline characteristics at full demand.

Table 4.3.1. East Lateral Proposed Pipeline Characteristics

Station Start:	Station End:	Slope:	Proposed Pipe Size:	Flow Condition**:	Pressure*:	Notes:
10+00	21+58	0.48% - 2.82%	36" DR 32.5	Open Channel	Max Operating: 0 psi Hydrostatic: N/A Pipe Rating: 64 psi	Open channel from inlet will prevent backup into open canal
21+58	26+00	3.58% - 6.70%	30" DR 32.5	Open Channel	Max Operating: 0 psi Hydrostatic: N/A Pipe Rating: 64 psi	Open channel due to pipe slopes
26+00	40+60	0.49% - 3.58%	30" DR 32.5	Pressurized	Max Operating: 2.6 psi Hydrostatic: N/A Pipe Rating: 64 psi	Pipe pressurizes due to 0.49% slope and forces pressurization up to 3.58% section
40+60	47+00	1.28% - 11.61%	30" DR 32.5	Open Channel	Max Operating: 0 psi Hydrostatic: N/A Pipe Rating: 64 psi	Open channel due to pipe slopes
47+00	59+50	0.43% - 9.82%	30" DR 32.5	Open Channel	Max Operating: 0 psi Hydrostatic: N/A psi Pipe Rating: 64 psi	Open channel from split structure through sections due to pipe slopes
59+50	164+00	0.39% - 1.54%	30" DR 32.5	Pressurized	Max Operating: 15.2 psi Hydrostatic: 24.0 psi Pipe Rating: 64 psi	Pressurized due to closed pipeline design
164+00	185+00	0.44% - 0.64%	24" DR 32.5	Pressurized	Max Operating: 16.1 psi Hydrostatic: 28.5 psi Pipe Rating: 64 psi	Pressurized due to closed pipeline design
185+00	215+00	0.26% - 0.49%	24" DR 26	Pressurized	Max Operating: 16.2 psi Hydrostatic: 32.7 psi Pipe Rating: 81 psi	Pressurized due to closed pipeline design
215+00	234+75	0.13% - 0.59%	18" DR 26	Pressurized	Max Operating: 15.2 psi Hydrostatic: 36.2 psi Pipe Rating: 81 psi	Pressurized due to closed pipeline design

*Maximum operating pressures listed are at maximum flow rate. Pipeline flow rates subtract turnouts which are not shown in table.

**Flow condition assumes available intake equals or exceeds demand. Pipeline design rates vary along length based on downstream demand.

Air vents and other appurtenance are included in the design as needed (in accordance with NRCS Code 430); their inclusion is reflected in the 30% drawings and the OPC for East Lateral.

5 WEST LATERAL

Piping the remaining 21,000 feet of open ditch of the Bostwick Park West Lateral would provide significant improvements to watershed water quality and efficiency. The proposed pressurized irrigation system will eliminate canal seepage and provide the added benefit of eliminating discharge into Red Rock Canyon. The improvements in efficiency would help reduce reservoir drawdown during the latter stages of the irrigation season.

5.1 Selection of Material

As with the East Lateral, the service area and topography surrounding West Lateral require that the ditch stay primarily within its existing alignment. While this would be achievable in many pipe materials, the significant sinuosity of the ditch would require a large number of fittings, likely resulting in very high costs. The flexibility of solid wall HDPE pipe allows it to conform to existing ditch alignments, making it ideal for this application. The fusion welds of HDPE pipe are also far less likely to develop leaks than typical bell and spigot pipes, further making HDPE an ideal choice for pipe material.

5.2 Design Criteria

The 30% design performed on West Lateral is in general conformance with applicable NRCS conservation practice standards. Standards include Code 430 (Irrigation Pipeline) and Code 587 (Structure for Water Control). As designs are furthered, continued conformance with applicable standards will be required.

Since the project will result in the complete piping of West Lateral, including capping the end, pipeline pressure ratings must exceed the hydrostatic pressure of a full pipeline and allow for the potential of surge pressure (as required by Code 430). A significant amount of the West Lateral has already been piped; the current pipeline currently ends at a location where spilling is permitted. The existing, upstream pipeline is designed to flow open channel, so the new pipeline, must overflow at this location. To meet the irrigation demands on the West Lateral, the project must be designed to convey 13 cfs of water at its start; demand and conveyance requirements decrease along the West Lateral. Pipeline hydraulics were generally analyzed using Manning's Equation ($n=0.09$ for HDPE pipe).

Smaller diameter HDPE also requires rigid trench walls and backfill to prevent excessive deflection or structural failure of the pipeline. Previous experience of piping West Lateral, however, indicates that much of the native material will provide suitable backfill. It is expected that only 10% of required backfill will be imported.

5.3 Project Design Characteristics

The proposed piping project will begin with a hydraulic overflow structure at the end of the previously piped section. The pipeline will be pressurized for the entire duration and will provide pressurized turnouts to the 13 headgates downstream of the overflow structure. The capped pipeline end will allow for design rate reduction as the pipeline moves downstream of turnouts. This, in-turn, allows for a pipe sizing to be tapered. 24" DR 32.5 HDPE is anticipated for the initial 12,250 feet of the pipeline. From there, 7,300 feet of 18" DR 32.5 followed by 1,500 feet of 16" DR 32.5 are anticipated to provide adequate capacity and pressure rating for the remainder of the pipeline. Table 5.3.1 provides a summary of West Lateral Proposed Pipeline Characteristics at full demand.

Table 5.3.1. West Lateral Proposed Pipeline Characteristics

Station Start:	Station End:	Slope:	Proposed Pipe Size:	Flow Condition**:	Pressure*:	Notes:
4+50	127+00	0.04% - 1.78%	24" DR 32.5	Pressurized	Max Operating: 21.3 psi Hydrostatic: 31.3 psi Pipe Rating: 64 psi	Pressurized due to closed pipeline design
127+00	200+00	0.04% - 1.13%	18" DR 32.5	Pressurized	Max Operating: 20.7 psi Hydrostatic: 39.6 psi Pipe Rating: 64 psi	Pressurized due to closed pipeline design
200+00	215+07	0.13% - 4.11%	16" DR 32.5	Pressurized	Max Operating: 19.8 psi Hydrostatic: 46.6 psi Pipe Rating: 64 psi	Pressurized due to closed pipeline design

*Maximum operating pressures listed are at maximum flow rate.

**Flow condition assumes available intake equals or exceeds demand. Pipeline design rates vary along length based on downstream demands.

Air vents and other appurtenance are included in the design as needed (in accordance with NRCS Code 430); their inclusion is reflected in the 30% drawings and the OPC for West Lateral.

6 M&D CANAL

Improvement designs for the M&D Canal are focused on mitigating a risk of breach due to the adjacent hillside sloughing into the canal, decreasing water loss, and decreasing salinity inflows into the Uncompahgre River due to canal seepage. Two viable options were considered:

- Lining the canal while taking measures to stabilize the unstable hillside.
- Piping the canal.

Both options would eliminate local seepage in the canal. Heavy earthwork to reduce the slope of the adjacent hillside would be used to stabilize the hillside. Piping the canal would provide encapsulation, so that a slide of the adjacent hillside would not threaten to overtop or breach the canal. Both options were designed to convey the full 627 cfs water right of the M&D Canal.

6.1 Lining and Hillside Stabilization

6.1.1 Design Criteria

The 30% design performed on the M&D Canal is in general conformance with applicable NRCS conservation practice standards. Standards include Code 428 (Irrigation Ditch Lining). As designs are furthered, continued conformance with applicable standards will be required.

Canal lining projects have the following additional criteria:

- Canal footprint must not increase, and existing alignment must be followed.
- Existing freeboard must not decrease. It is estimated that freeboard is under 1 foot in many parts of this section of the M&D.

- Canal must be able to convey full 627 cfs.

UVWUA recently performed hillside stabilization on a limited section of the M&D that involved benching and grading the hillside to mitigate the chance of slope failure. It appears that this technique was useful in mitigating slope failure; a similar technique should likely be used for this project.

6.1.2 Project Design Characteristics

The proposed lining consists of a 30 mil PVC membrane between two layers of geotextile fabric, covered with a 3" layer of shotcrete. The existing canal prism varies, between a trapezoid and a half-trapezoid. The proposed canal prism will maintain approximately the same shape. Table 6.2.1 outlines the cross-section shapes of the proposed canal prism.

Table 6.2.1. M&D Canal Proposed Cross-Sections

Shape Name:	Left Slope:	Bottom Width:	Right Slope:	Top Width:	Depth of Canal:
Trapezoid 1	1:2	11 ft	1:2	37 ft	6.5 ft
Half Trapezoid	1:2	13 ft	Existing Vertical Wall	26 ft	6.5 ft
Trapezoid 2	1:2	15 ft	1:2	41 ft	6.5 ft

Table 6.2.2. provides the flow characteristics when the proposed cross-sections are applied to the M&D Canal. The velocities and freeboard heights indicate that the proposed cross-sections are appropriate for the project.

Table 6.2.2. M&D Canal Lining Characteristics

Station Start:	Station End:	Slope:	Lining Shape:	Velocity:	Flow Depth:	Freeboard:	Notes:
10+00	61+50	-0.10%	Trapezoid 1	5.27 fps	5.42 ft	1.08 ft	Considerations need to be made about the effects of upstream unlined canal. Grades may need to be changed or shape of lining may need to be made depending on modeling
61+50	72+51	-0.13%	Half Trapezoid	6.22 fps	5.44 ft	1.06 ft	Considerations need to be made about the transition of the two shapes of linings
72+51	92+00	-0.07%	Trapezoid 2	4.45 fps	5.42 ft	1.08 ft	Considerations need to be made about the effects of exiting the canal lining back to unlined canal and the water surface level. Grades and/or shapes of canal lining may need to be adjusted

6.2 Piping

6.2.1 Design Criteria

The 30% design performed for M&D Canal piping is in general conformance with applicable NRCS conservation practice standards. Standards include Code 430 (Irrigation Pipeline) and Code 587 (Structure for Water Control). As designs are furthered, continued conformance with these and other applicable standards will be required. As with the lining alternative, piping the M&D must allow for full conveyance of 627 cfs and must stay within the existing canal alignment.

6.2.2 Project Design Characteristics

Initial design on M&D Canal piping is expected to require double barrel 120" pipe due to the high rate and mild slope of the canal. Material options for 120" pipe are limited, however, initial cost estimates indicate that profile wall HDPE pipe is likely a cost effective pipe material. Piping the canal would eliminate significant earthwork on the project as hillside improvement would likely not be required. Table 7.1 Provides flow characteristics for the M&D piping project using 120" profile wall pipe.

Table 7.1. Flow Characteristics for M&D Piping Project at 627 CFS

Station Start:	Station End:	Slope:	Proposed Pipe Size:	Flow Condition:	Notes:
10+00	61+50	-0.10%	120" RSD 160	Open Channel	Open Channel from inlet will prevent backup into unlined canal
61+50	72+51	-0.13%	120" RSD 160	Open Channel	Open Channel Flow
72+51	92+00	-0.07%	120" RSD 160	Open Channel	Returns to unlined canal after station 92+00. Considerations will have to be made about water surface level in pipeline and canal. Grades may need to be changed

SUMMARY

The preceding sections provide the design requirements and characteristics of the improvement measures described in the Cimarron River-Lower Uncompahgre Watershed Project Plan-EA. The requirements highlight the general conformance with NRCS standards and describe the criteria that each measure must meet. The characteristics provide evidence of each measure's feasibility. Significantly more detail for project designs can be ascertained through the project design plan sheets, which are attached to the Plan-EA as Appendix C.