Finding of No Significant Impact

Final Environmental Assessment

Tex Creek Wildlife Management Area Instream Habitat Improvement
Bonneville County, Idaho

U.S. Department of the Interior
Bureau of Reclamation
Columbia-Pacific Northwest Region
Snake River Area Office

CPN FONSI # 22-06

Introduction

The Bureau of Reclamation (Reclamation) has prepared this Finding of No Significant Impact (FONSI) to comply with the Council of Environmental Quality regulations for implementing procedural provisions of the National Environmental Policy Act (NEPA). This document briefly describes the proposed action, other alternatives considered, the scoping process, Reclamation's consultation and coordination activities, and Reclamation's finding. The Final Environmental Assessment (EA) fully documents the analyses of the potential environmental effects of implementing the proposed action.

Location and Background

The project is located within the Tex Creek Wildlife Management Area (WMA) in southeastern Idaho, south of Ririe Reservoir in Bonneville County. The city of Idaho Falls is located approximately 20 miles west of the project and Palisades Reservoir is located approximately 20 miles east of the project. The Tex Creek WMA is a 35,218-acre reserve established to mitigate for the fish and wildlife habitat lost when Ririe and Teton Reservoirs were constructed. The Tex Creek WMA includes lands owned by Reclamation, Idaho Department of Fish and Game (IDFG), Bureau of Land Management, Idaho Department of Lands, and the Rocky Mountain Elk Foundation.

IDFG manages Reclamation lands within the WMA. In 2015, Reclamation and IDFG renewed a management agreement (#16-07-14-L0886) that outlines the roles and responsibilities of the two parties in relation to Reclamation-owned land in the Tex Creek WMA. The management agreement gives IDFG the authority and responsibility to manage habitat on Reclamation lands in the Tex Creek WMA.

Historic dry land farming and grazing practices have denuded riparian vegetation and incised the stream channels within the Tex Creek WMA. On top of this historic habitat degradation, the Henry's Creek Fire burned 75 percent of the Tex Creek WMA in 2016. Aerial seeding and manual planting of hundreds of thousands of seedlings has helped revegetation outside of the riparian areas. The incised channels have disconnected riparian areas from the water table. This has slowed the post-fire recovery of riparian areas.

Purpose and Need

Reclamation's purpose and need is to respond to IDFG's request to install habitat structures to improve stream habitat in Tex Creek and Indian Fork. Currently, the creeks are severely incised and have little connection to the floodplain. The proposed instream structures would improve habitat that would attract beaver. The project would raise the water table, which would improve conditions for riparian plants and adjacent meadows. The beaver would provide long-term maintenance and habitat improvement that attracts Yellowstone cutthroat trout (YCT), among other species.

Alternatives Considered and Recommended Action

The range of alternatives developed for this proposed action is based on the purpose and need for the project. The alternatives analyzed include a No Action alternative and the recommended action. The recommended action would allow IDFG to improve stream habitat on Tex Creek and Indian Fork in the Tex Creek WMA by using low-tech process-based restoration. The recommended action would include up to 40 low-tech structures per kilometer would be placed along 23.9 kilometers of Indian Fork and Tex Creek. The project area includes Tex Creek from the confluence of Willow Creek upstream to the WMA boundary and Indian Fork from the confluence with Tex Creek upstream to a current beaver complex. In total, 8.6 kilometers falls on Reclamation lands in the Tex Creek WMA. The habitat structures are intended to create a habitat that would support the expansion of beaver. Once beaver are established, their dam-building activities would provide long-term maintenance for the project and support many other species including YCT.

Beaver dam analogs (BDAs) and post-assisted log structures (PALS) are constructed from natural materials to mimic natural processes during process-based restoration. An all-terrain vehicle (ATV) would be used to transport materials and a pneumatic post pounder from the road to the installation sites. Nothing larger than an ATV would need to travel off of the existing roads.

BDAs are channel-spanning structures built to mimic beaver dams up to 1 meter in height. Untreated wooden posts are driven into the stream bottom, branches from trees/shrubs are woven among the posts, and rocks and dirt from upstream of the structure are used to seal the vegetation and allow for the collection of water. The intention of a BDA is not to impound water permanently but rather to help create deep-water refugia that naturally-occurring beaver can use, as well as to function as a sediment trap.

PALS are instream structures built to increase channel roughness and change current flow patterns. They can be channel-spanning, bank-attached, or mid-channel depending upon project needs.

Untreated wooden posts are driven into the stream bottom to anchor pieces of woody debris as necessary for their function and based on their location.

Instream work would occur during the low flow periods with most of the work occurring in the months of August through November. The whole project is expected to take up to 10 years to complete based on funding and staff availability. The No-Action alternative does not meet the defined purpose and need for action but was evaluated because it provides an appropriate basis to which the recommended action is compared.

Summary of Environmental Effects

The following discussion summarizes the effects the proposed action (Alternative B) would have on each resource category analyzed in the Final EA. For a full analysis and explanation of how each resource was evaluated, readers may reference *Chapter 3 – Affected Environment and Environmental Consequences* in the Final EA.

Hydrology and Fluvial Geomorphology

In general, the effects described in the No Action alternative from regrowth of riparian plants and expansion of beaver are expected to occur under the recommended action at an accelerated pace over a larger spatial scale. BDAs would raise the water table and trap sediment. This would increase growth and survival of the riparian plantings as well as natural regrowth after the fire. Expanding riparian vegetation and some areas of deeper water are expected to accelerate expansion of the beaver population. These processes are expected to affect sediment, temperature, evapotranspiration (ET), flow, groundwater interactions, and water rights.

BDAs would trap sediment and reduce sediment loading to Ririe Reservoir; this should provide a long-term benefit to the storage volume of the reservoir. Overall water temperatures are expected to decrease while temperature heterogeneity would increase.

ET would increase gradually over time as more structures are installed and beaver territory expands. Initially, BDAs are expected to create a smaller increase in ET than beaver-produced dams and their associated channels. Reductions in flow from increases in ET are difficult to estimate for this type of project. One method used for other BDA projects estimates the increase in ET to result in a reduction in summer base flows of 0.5 percent. Other aspects of the project would increase summer base flows. BDAs would back up water and saturate the floodplain during high flow events. This would reduce peak flows. Some of this water would percolate into the groundwater aquifer and some of this water would be lost to ET, while most would slowly be released during low flow periods and increase summer base flows. Overall, the project is expected to result in a minimal decrease in mean annual flow by reducing peak flows while increasing summer base flows.

Water rights in the state of Idaho are administered and managed by the Idaho Department of Water Resources (IDWR). All of the water rights with point of use in the Tex Creek drainage are held by non-governmental organizations or federal/state government agencies. Reclamation owns two separate water rights for wildlife purposes on Indian Fork. IDFG has obtained a permit from IDWR

for this project. As the administrator of water rights in Idaho, IDWR would make the determination if water rights need to be added or changed in order to complete this project under their permit.

Water Quality

Tex Creek and Indian Fork water quality effects are split into two categories, construction activities that are mostly short-term effects and post-construction effects that are mostly mid- to long-term effects. IDFG has obtained the IDWR stream channel alteration permit for construction of BDA/PALS structures.

Construction

Construction effects include the increased disturbance of sediment in channel as the BDAs are being constructed. This could increase turbidity and sediment movement, initially in Indian Fork and then into Tex Creek, as the structures are being built. These effects would be short-term in nature and would be minimized by starting at the downstream section first and moving upstream, thereby containing any sedimentation that could occur due to construction. Also, construction would be done in low flow seasons (August through November), lessening the direct effects to the streams. Construction is expected to take up to 10 years and the effects would be spread out during those 10 years, lessening the magnitude of sedimentation/turbidity on the Tex Creek/Indian Fork aquatic systems. The Idaho State water quality standard for turbidity (instantaneous and 10 consecutive days) and the sediment loading TMDL would not be violated during construction.

Post-Construction

After the first year of construction on Indian Fork, effects should begin to occur as the water pools, flows slow down, and sediment from eroding streambanks begins to deposit in the newly-created pools from the construction of the BDAs/PALS. Eventually, as Indian Fork is completed, the eroded channel would fill in with deposited sediment and a new channel that is not incised would cut through the now expanded floodplain. This is demonstrated by an experiment on Bridge Creek in Oregon (Bouwes et al. 2016; see reference in Final EA) that used BDAs/PALS and improved steelhead habitat. The researchers found that, "…the combination of increasing the dam crest height up to the inset floodplain and channel aggradation behind the dam, allowed surface waters to spill out onto inset floodplains greatly increasing the habitat area" (Bouwes et al. 2016). The researchers also found this was quite beneficial to steelhead habitat. The newly developed floodplain would revegetate with riparian and wetland plants that could hold the soil and sediments in high flows. This ecological process and subsequent water quality effects would be expected to occur on Tex Creek as well.

The long-term water quality effects for Tex Creek and Indian Fork would include an overall decrease in sediment/siltation load from the eroded streambanks. Turbidity would also decrease as the sediments drop out of solution and are physically bound by riparian and wetland vegetation. Water temperatures should be lowered due to shading from the riparian vegetation unless wide, shallow pools form. Water temperatures could increase due to the potential increase in pool water surface area that receives solar radiation. These effects are expected to be of short duration until riparian and wetland vegetation is established that can effectively shade the areas. Also, an increase

in hyporheic exchange due to a rise in the water table and pressure head created by the BDAs/PALs is expected to decrease overall water temperatures and could offset any temperature increases from the increase in surface area.

There is a small risk of a sediment flow through Indian Fork to Tex Creek or Tex Creek when the BDAs/PALS are first established if there were a large storm event that caused a flood sufficient to "wash out" the newly constructed BDAs/PALS. This would cause a pulse of sediment that was held behind these BDAs/PALS to flow down the system, increasing turbidity and sedimentation in the general area. However, this circumstance is unlikely because the 10-year construction widow would allow the proponent to repair any BDAs/PALS that were previously established. This strengthens the system and minimizes the risk of a wash out. The use of pneumatically-driven posts to support the structures has decreased the chances of structures washing out during high flow events compared to BDA techniques used even a few years ago.

Biota – Fish, and Wildlife

Overall effects (direct and indirect) to mammalian, avian, amphibian, reptile, and fisheries/wetland communities within the project area would be a gradual progression of habitat improvement. Wetlands in the project area would be enhanced and improved. Water being held back by beaver dams should provide for ponds and consistent water flow which would provide more fish habitat year-round. The improved conditions for riparian plants and adjacent meadows should attract more moose and other riparian dependent mammals to the area. The additional vegetation may also increase elk and deer overwintering use. The project should create more habitat for waterfowl, amphibians, and other pond/water loving animals along with more potential nesting areas for riparian birds.

Biota – Vegetation

The BDAs would raise the water table and would improve success of riparian plants. Riparian plants which have a more spread-out root system would help stabilize soils compared to the single deep tap roots of sage brush that now occupies some riparian areas because of the incised channels. Some of the existing vegetation would be expected to die because the increased water table would inundate its root systems. The riparian habitat would expand, displacing some of the current terrestrial vegetation. No other negative effects on terrestrial or riparian biota are anticipated, other than the beaver trimming the vegetation down, which only stimulates plant growth and vigor.

Recreation

The combination of short construction times and minimal equipment mean little and short-term effects to recreators during the construction phase of the project. If visitors to the WMA seek solitude on a creek, it would simply be a matter of moving around the next bend to avoid the construction views and disruptions. Hikers, campers, and horseback riders would see little to no adverse effects.

Threatened and Endangered Species

The monarch butterfly (*Danaus plexippus*) is a candidate for listing under the Endangered Species Act. No known surveys for monarch butterfly or their obligate plant host milkweed have been conducted in the area. The project area is within the potential range for both monarch butterfly and milkweed.

Where some riparian vegetation still exists after the fire, as well as areas that may begin to regrow throughout the duration of the project, there is the chance of disturbing milkweed and/or monarch during construction. Transporting equipment from the road to the work site has the potential to trample milkweed or other nectaring plants. Gathering of riparian material to weave into the structures may also unintentionally disturb milkweed or other nectaring plants. These effects would be short term. As the water table increases and the riparian area expands, milkweed and other nectaring plants would become more prevalent in the longer term.

Staff conducting work on the ground would include individuals trained by IDFG to identify milkweed. Prior to transporting the equipment and supplies on the ATV, a survey for milkweed plants would be completed along the route and in the work area and plants would be flagged for avoidance. If milkweed cannot be avoided, the lowest density access route would be identified and used.

Unaffected Resources

The recommended action would not cause any short- or long-term, direct or indirect effects to the following resource categories:

- Lands and realty
- Indian trust assets
- Treaty rights
- Cultural resources
- Indian sacred sites
- Environmental justice

Consultation, Coordination, and Public Involvement

On January 7, 2022, Reclamation mailed a scoping document including a letter, project information, and a map, to agencies, Indian Tribes, members of Congress, organizations, and individuals, soliciting their help in identifying any issues and concerns related to the Proposed Action. Reclamation received one letter of support for the project during the scoping period.

Reclamation initiated consultation with the Idaho State Historic Preservation Office (SHPO), the Shoshone-Bannock Tribes, and the Eastern Shoshone Tribe on June 21, 2022. SHPO concurrence

with Reclamation's finding of No Historic Properties Affected for the project area was received on July 12, 2022.

IDFG has received permits from IDWR covering requirements under Section 401 and 42-3805, Idaho Code. These permits cover work on all of Indian Fork within the project area and a 2-mile stretch of Tex Creek. The permits are good through December 31, 2024. New permits from IDWR would be applied for in the future by IDFG to expand the area in Tex Creek and extend the timeframe past 2024. IDFG has applied for but has not yet received a 404 permit from USACE. All permits would be in place before any in stream work would begin.

Reclamation summarized the project at a staff-to-staff meeting on October 12, 2021 and mailed scoping letters to the Shoshone-Bannock Tribes on December 29, 2021. No concerns from the Tribes were brought forward.

Full records of each of these consultation actions are included in the appendices of the Final EA.

Finding

Based on the analysis of the environmental effects presented in the Final EA and consultation with potentially affected agencies, Tribes, organizations, and the general public, Reclamation concludes that implementation of the Proposed Action will not have a significant impact on the quality of the human environment or natural and cultural resources. The effects of the Proposed Action will be minor, temporary, and localized. Therefore, preparation of an Environmental Impact Statement is not required.

Decision

Based on the analysis in the Final EA, it is my decision to select for implementation the Proposed Action (Alternative B). The Proposed Action will best meet the purpose and need identified in the Final EA.

Recommended:

ANTHONY PRISCIANDARO Digitally signed by ANTHONY PRISCIANDARO
Date: 2022.09.13 13:20:17 -06'00'

Anthony Prisciandaro
Fish Biologist
Snake River Area Office, Boise, Idaho

Date

Approved:

MELANIE PAQUIN Digitally signed by MELANIE PAQUIN
Date: 2022.10.06 13:51:52 -06'00'

Melanie Paquin
Snake River Area Manager
Columbia-Pacific Northwest Region, Boise, Idaho

Date

BUREAU OF RECLAMATION

Environmental Assessment

Tex Creek Wildlife Management Area Instream Habitat Improvement

Ririe and Teton Projects
Columbia-Pacific Northwest Region

U.S. Department of the Interior

September 2022

Mission Statements

The U.S. Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated Island Communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Cover photograph: example of a beaver dam analog installed in a stream (Idaho Department of Fish and Game photograph)

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Appendices

Acronyms and Abbreviations

Acronym or Abbreviation	Definition
Agreement	Management Agreement #16-07-14-L0886
APE	Area of potential effect
ATV	All-terrain vehicle
BDA	Beaver dam analog
BMPs	Best management practices
BP	Before present
CFR	Code of Federal Regulations
cfs	cubic feet per second
CWA	Clean Water Act
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ET	Evapotranspiration
FONSI	Finding of No Significant Impact
ft^3	cubic feet
GIS	Geographic information system
IDEQ	Idaho Department of Environmental Quality
IDFG	Idaho Department of Fish and Game
IDWR	Idaho Department of Water Resources
IPaC	Information for Planning and Conservation
ITAs	Indian Trust Assets
NEPA	National Environmental Policy Act
NTU	nephelometric turbidity units
PALS	Post-assisted log structure
Reclamation	Bureau of Reclamation
RMP	Resource Management Plan
SGCN	Species of greatest conservation need
SHPO	State Historic Preservation Office

Acronym or Abbreviation	Definition
TMDL	Total maximum daily load
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
WMA	Wildlife Management Area
YCT	Yellowstone cutthroat trout

Chapter 1 Purpose and Need

1.1 Introduction

The Bureau of Reclamation (Reclamation) prepared this Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA). This EA analyzes the potential environmental effects that could result from the project proposal from the Idaho Department of Fish and Game (IDFG) to install instream habitat structures on sections of Tex Creek and Indian Fork in the Tex Creek Wildlife Management Area (WMA).

This EA serves as a tool to aid the authorized official in making an informed decision that is in conformance with applicable federal laws and regulations. The proposed action and alternatives are described in Chapter 2, and the effects (direct, indirect, and cumulative environmental effects) of each alternative are evaluated for each of the affected resource areas in Chapter 3.

The NEPA process requires analysis of any federal action that may have an impact on the human environment. This EA is being prepared to assist Reclamation in finalizing a decision on the proposed action, and to determine whether to issue a Finding of No Significant Impact (FONSI) or a notice of intent to prepare an Environmental Impact Statement (EIS).

1.2 Location, Background, and Action Area

1.2.1 Location

The project is located within the Tex Creek WMA in southeastern Idaho, south of Ririe Reservoir in Bonneville County, Idaho (Figure 1). The city of Idaho Falls is located approximately 20 miles west of the project and Palisades Reservoir is located approximately 20 miles east of the project.

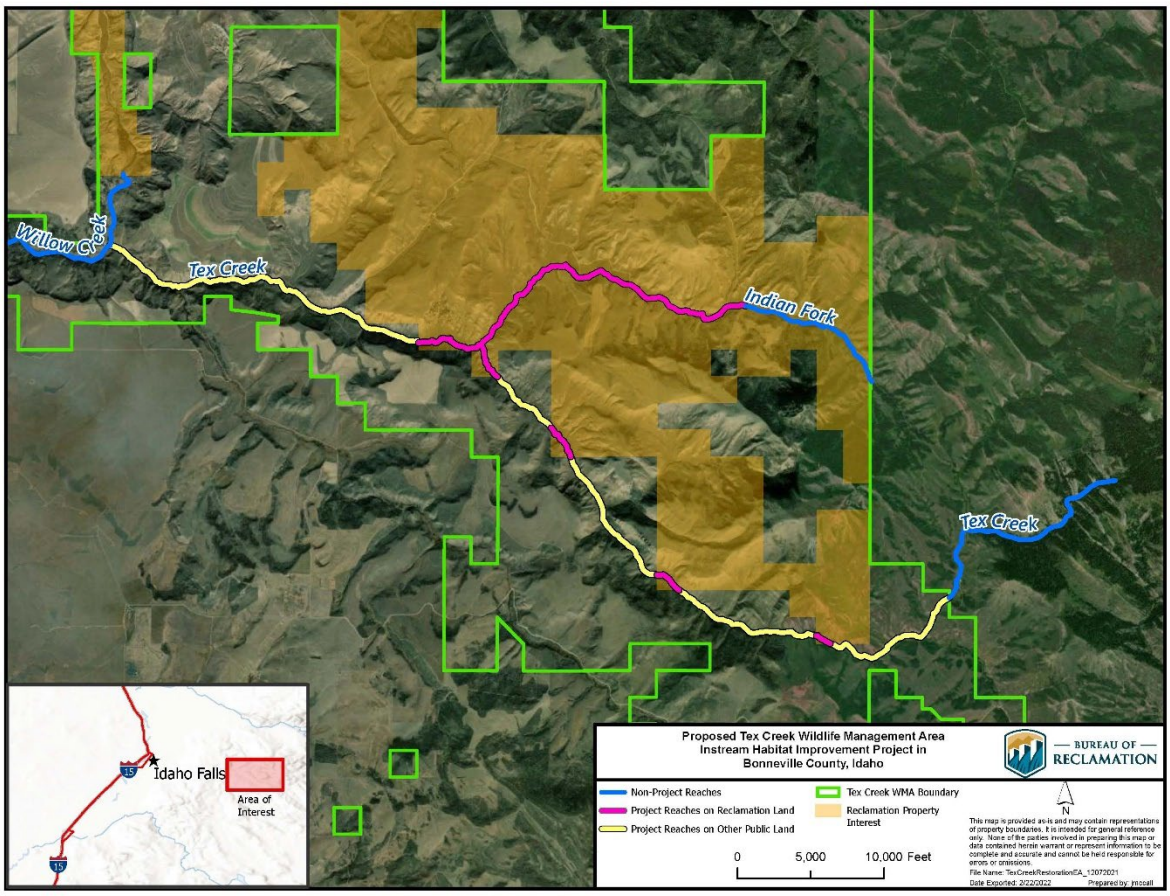

Figure 1. Project location – stream reaches where the project overlaps Reclamation land are highlighted in pink. Habitat structures would also be installed along other sections of Tex Creek within the Tex Creek WMA. Beaver already occur on the upper sections of Indian Fork.

1.2.2 Background

The Tex Creek WMA is a 35,218-acre reserve on the southern part of Ririe Reservoir. It was established to mitigate for the fish and wildlife habitat lost when Ririe and Teton Reservoirs were constructed. Tex Creek WMA includes lands owned by Reclamation, IDFG, Bureau of Land Management, Idaho Department of Lands, and the Rocky Mountain Elk Foundation. Tex Creek is managed by IDFG and provides important winter range habitat for elk and mule deer, as well as habitat for upland game birds.

In 2015, Reclamation and IDFG renewed a management agreement (#16-07-14-L0886) that outlines the roles and responsibilities of the two parties in relation to Reclamation-owned land in the Tex Creek WMA. The management agreement gives IDFG the authority and responsibility to manage habitat on Reclamation lands in the Tex Creek WMA. Reclamation's Ririe Reservoir Resource Management Plan (RMP) further outlines the roles, responsibilities, and the long-term goals and strategies for management of the Tex Creek WMA (Reclamation 2001).

The 2001 RMP provides background information for many of the topics covered in this EA. This information includes a description of the historic land use practices that led to the current condition of the Tex Creek WMA. Historic dry land farming and grazing practices have denuded riparian vegetation within the Tex Creek WMA. On top of this historic habitat degradation, the Henry's Creek Fire burned 75 percent of the Tex Creek WMA in 2016. Aerial seeding and manual planting of hundreds of thousands of seedlings has helped revegetation outside of the riparian areas. The impacts from the Henry's Creek Fire on the stream channel and riparian corridor were extensive, as seen in aerial imagery (Figure 2). Small beaver populations exist on both Tex Creek and Indian Fork upstream of the proposed project area. The fire did not have as large an impact on the riparian vegetation in these areas and the stream channel remains stable (Figure 3).

Figure 2. Example of stream and riparian conditions along the project area on Indian Fork in 2016 (top), before the Henry's Creek Fire, and in 2017 (bottom), after the fire

Figure 3. Example of stream and riparian conditions upstream of the project area where a beaver colony already existed on Indian Fork in 2016 (top), before the Henry's Creek Fire, and in 2017 (bottom), after the fire

The incised channels and disconnection from the floodplain make it more difficult for the riparian areas to recover from the fire (Figure 4). The existing conditions in the project area have led to a flashy hydrograph, where water and sediment are quickly transported downstream. The structures that would be installed are intended to create a short-term benefit by raising the water table to increase water available to riparian plants and encouraging beavers to expand downstream from their current established population. The healthy riparian vegetation and beaver activity would then increase the benefits and maintain the improved habitat over the long term.

Figure 4. A common view of a down-cut section of Tex Creek where the stream is disconnected from the floodplain

Even before the impacts of the Henry's Creek Fire, the RMP states that riparian habitat improvement along streams within Tex Creek was a management priority (Reclamation 2001). IDFG also manages the land as critical overwintering habitat for elk and mule deer. The 2015 management agreement between Reclamation and the IDFG for the Tex Creek and Cartier Slough WMAs requires IDFG to manage and maintain habitat for fish and wildlife within the WMAs. With the understanding that riparian habitat improvement is a shared management goal, the management agreement states: "Reclamation has determined that the management by the Department [IDFG] would not conflict with project operations and authorized uses of Reclamation projects."

1.2.3 Action Area

The project is in southeastern Idaho, south of the Snake River at an elevation range from 5,500 feet to 6,000 feet. The Caribou Mountains rise to the southeast of the project area and the city of Idaho Falls is located 20 miles to the west. The overall project on Tex Creek and Indian Fork in the Tex Creek WMA consists of 23.9 kilometers of stream channel, 8.6 kilometers of which falls on Reclamation lands. Access to the site would be via long-established roads using an all-terrain vehicle (ATV) to get equipment and supplies to the stream channel.

1.3 Purpose and Need

Reclamation's purpose and need is to respond to IDFG's request to install habitat structures to improve stream habitat in Tex Creek and Indian Fork. Currently, the creeks are severely incised and have little connection to the floodplain. The proposed instream structures would improve habitat that would attract beavers. The project would raise the water table, which would improve conditions for riparian plants and adjacent meadows. The beavers would provide the long-term maintenance and habitat improvement that attracts Yellowstone cutthroat trout (YCT), among other species.

1.4 Regulatory Compliance

The following major laws, executive orders, and secretarial orders apply to the proposed project, and compliance with their requirements is documented in this EA:

- NEPA
- Endangered Species Act (ESA)
- National Historic Preservation Act
- Clean Water Act
- Section 42-3805, Idaho Code
- Executive Order 13007 Indian Sacred Sites
- Executive Order 12898 Environmental Justice
- Executive Order 13175 Consultation and Coordination with Tribal Governments
- Secretarial Order 3175 Department Responsibilities for Indian Trust Assets (ITAs)
- Secretarial Order 3398 Revocation of Secretary's Orders Inconsistent with Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis

1.5 Scoping Summary

The scoping process provides an opportunity for the public, governmental agencies, and Tribes to identify their concerns or other issues and aids in developing a full range of potential

alternatives that address meeting the project's purpose and need as stated in this document. To accomplish this, on January 7, 2022, Reclamation (1) provided information to the public through a mailed/emailed preliminary information package, and (2) solicited comments from the public, governmental agencies, and potentially affected Tribes. Details regarding the public and agency scoping are presented in Chapter 4.

Chapter 2 Description of Alternatives

2.1 Introduction

This chapter describes the two alternatives analyzed in this EA: Alternative A – No Action Alternative; and Alternative B – Proposed Action.

2.2 Alternative Development

The alternatives presented in this chapter were developed based on the purpose and need for the project, as described in Chapter 1, and the issues raised during internal, external, and Tribal scoping. The alternatives analyzed in this document include the No Action alternative and the Proposed Action alternative. A no action alternative is evaluated because it provides an appropriate basis to which the other alternative is compared. No new alternatives were identified during the scoping process.

2.3 Alternative A – No Action

Under the No Action alternative, Reclamation would not allow IDFG to install habitat structures on Reclamation-owned land. IDFG may still install habitat structures on non-Reclamation land in the Tex Creek WMA. However, for purposes of this analysis, the assumption is that the entire project would not go forward, so that the environmental effects associated with taking no action can be compared to the proposed action as required under NEPA.

Under the No Action alternative, no structures would be installed. The area would continue to be managed by IDFG as it was previously. The streams would continue to down-cut due to erosional processes causing sediment to be washed downstream. Riparian areas would continue to diminish.

2.4 Alternative B – Tex Creek Wildlife Management Area Instream Habitat Improvement Project (Proposed Action)

Over the next 10 years, IDFG would improve stream habitat on Tex Creek and Indian Fork in the Tex Creek WMA by using low-tech process-based restoration. This project would include up to 40 low-tech structures per kilometer that would be placed along 23.9 kilometers of Indian Fork and Tex Creek. The project area includes Tex Creek from the confluence of Willow Creek upstream to the WMA boundary and Indian Fork from the confluence with Tex Creek upstream to a current beaver complex. In total, 8.6 kilometers falls on Reclamation lands in the Tex Creek WMA. The habitat structures are intended to create a habitat that would support the expansion of beaver. Once beavers are established, their dam-building activities would provide long-term maintenance for the project and support many other species including YCT.

Beaver dam analogs (BDAs) and post-assisted log structures (PALS) are constructed from natural materials to mimic natural processes during process-based restoration. An ATV would be used to transport materials and a pneumatic post pounder from the road to the installation sites. Nothing larger than an ATV would need to travel off of the existing roads.

BDAs are channel-spanning structures built to mimic beaver dams up to 1 meter in height (Figure 5). Untreated wooden posts are driven into the stream bottom, branches from trees/shrubs are woven among the posts, and rocks and dirt from upstream of the structure are used to seal the vegetation and allow for the collection of water. The intention of a BDA is not to impound water permanently but rather to help create deep-water refugia that naturally-occurring beavers can use, as well as to function as a sediment trap.

PALS are instream structures built to increase channel roughness and change current flow patterns (Figure 6). They can be channel-spanning, bank-attached, or mid-channel depending upon project needs. Untreated wooden posts are driven into the stream bottom to anchor pieces of woody debris as necessary for their function based on their location.

Structures would be located throughout the project area following an assessment and design by Anabranch Solutions and IDFG staff. The design approach of up to 40 structures per kilometer mimics the maximum number of structures used by beavers in natural systems. Work would begin on Indian Fork at the confluence of Tex Creek and move upstream along Indian Fork. Work on Tex Creek would begin after structures have been placed upstream to the existing beaver population on Indian Fork.

In general, it is important to understand that materials and design of the proposed BDA and PAL structures is based on lessons learned from many previous projects. Literature and agency reports show a wide variety of structures being called BDAs (Pilliod et al. 2018). These range from rock weirs, T-posts, and tarps to the proposed wooden posts, substrate, and woven branches. Some of the perceived negative effects of BDAs (e.g., frequent sediment plumes from blowouts, fish migration barriers etc.) can be attributed to these early designs and are not likely to be issues with this project. The design and materials outlined in the Low-Tech Process-Based

Restoration of Riverscapes Design Manual use the lessons learned from early projects to create structures that are much more stable than many designs in the literature (Wheaton et al. 2019).

Timing and Duration – Instream work would occur during the low flow periods with most of the work occurring in the months of August through November. More specific timing requirements may come out of the Idaho Department of Water Resources (IDWR)/U.S. Army Corps of Engineers (USACE) permitting process. The whole project is expected to take up to 10 years to complete based on funding and staff availability.

Material Sources – Untreated posts would be brought in from off site. In areas where local riparian vegetation is plentiful, it would be cut and used for weaving into the structures. In areas already lacking in riparian vegetation, materials would be brought in from other areas of the Tex Creek WMA. After structure placement, willow or red-osier dogwood cuttings would be used to stabilize banks and promote riparian revegetation as needed in areas that are devoid of riparian shrubs.

Permitting – IDFG would conduct all necessary permitting. At a minimum, this would include IDWR 401 and USACE 404 permitting for the instream structures. The IDWR 401 permitting also covers requirements under Section 42-3805, Idaho Code.

Operation and Maintenance – During the 10 years it is expected to complete work on all 23.9 kilometers, some BDAs or PALS may have to be added to after high flow events. Long-term, the goal is to entice beaver colonization and have them maintain the system.

Monitoring – Monitoring would occur over the life of the project to measure success. This monitoring would include water temperature, locations of beaver activity, and extent of the riparian area. Drone flights would be able to document changes to the stream path and the extent of riparian cover.

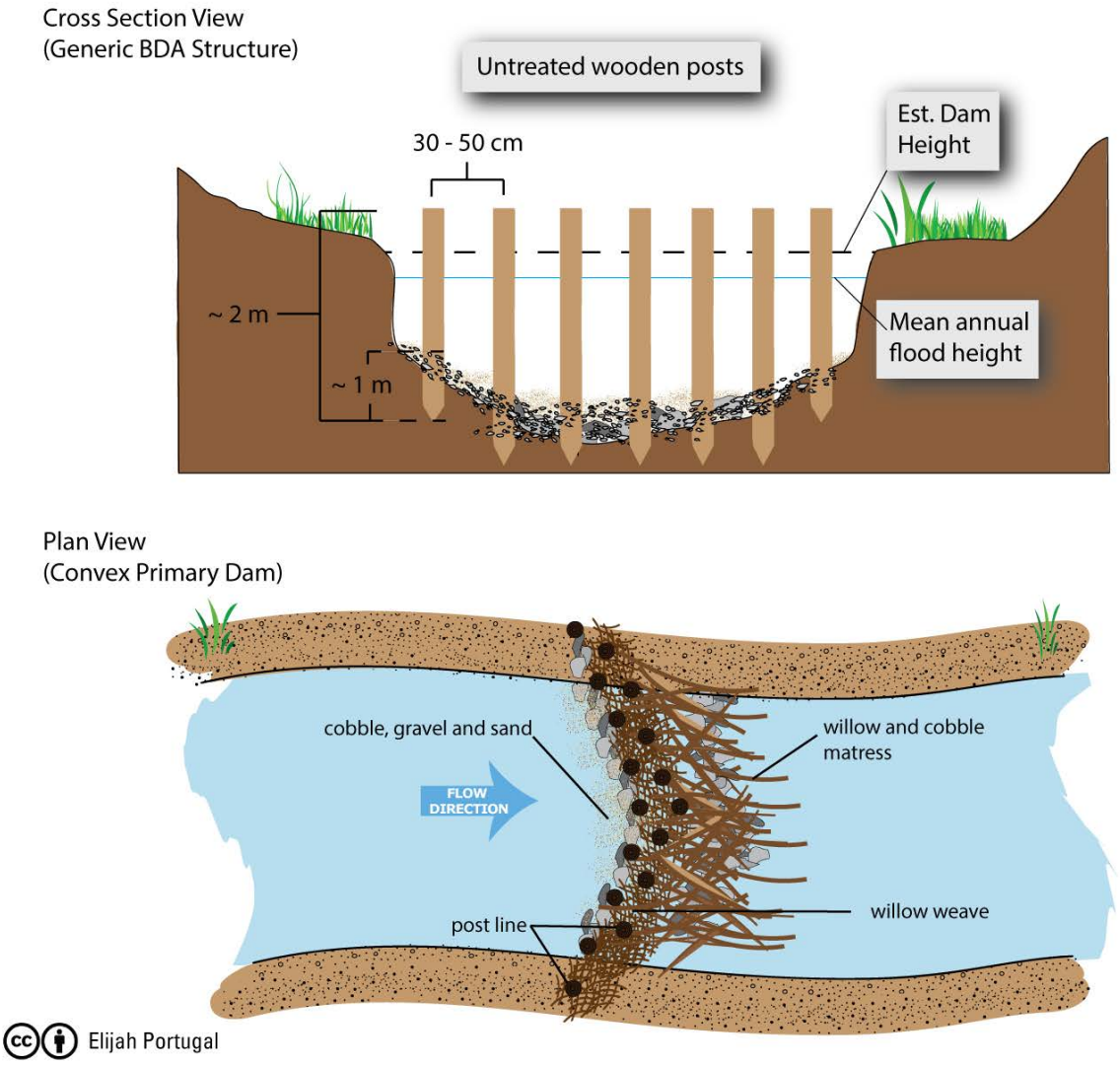

Figure 5. Example cross-section and overhead view of typical beaver dam analog

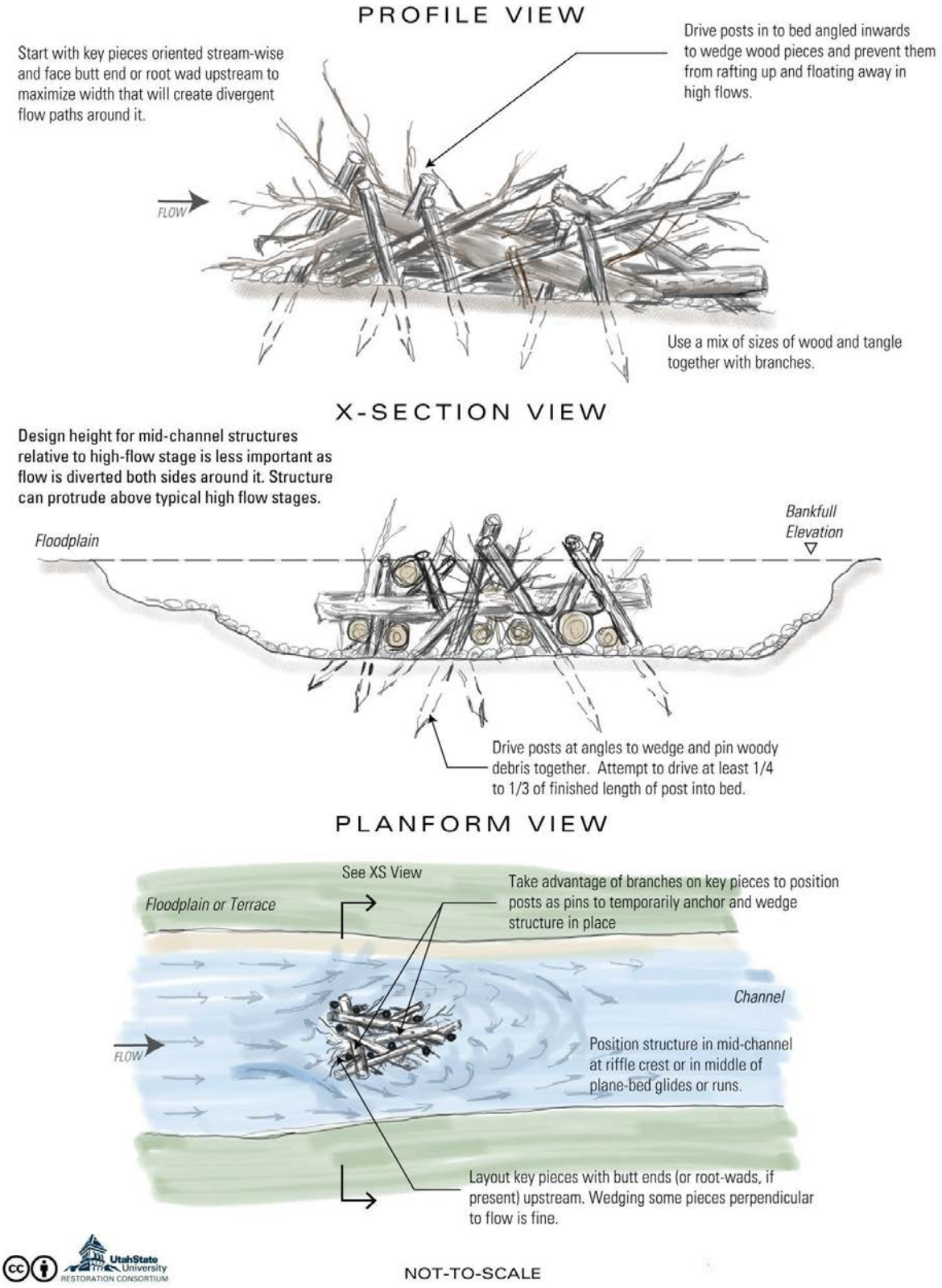

Figure 6. Example cross-section and overhead view of typical post-assisted log structure

2.5 Alternatives Considered but Eliminated from Further Study

NEPA encourages the consideration of alternatives developed through the scoping process. However, only those alternatives that are within the agency's authority that are reasonable and meet the purpose and need of the proposed action must be analyzed as per the Council on Environmental Quality's 2021 Proposed Rule titled "National Environmental Policy Act Implementing Regulations" (40 CFR Parts 1502, 1507, and 1508). There were no alternatives presented through the public and agency scoping process.

Chapter 3 Affected Environment and Environmental Consequences

3.1 Introduction

The Affected Environment chapter evaluates the environmental consequences of implementing each of the alternatives described in Chapter 2. The level and depth of the environmental analysis corresponds to the context and intensity of the impacts anticipated for each environmental component (resource). The affected environment (proposed action area) addressed in this EA is defined in varied contexts depending on the affected resource being analyzed.

Resources evaluated in this document and analyzed in Chapter 3 were selected based on: Reclamation requirements; compliance with laws, statutes, and executive orders; public and internal scoping; and the potential for resources to be affected by the proposed action.

3.2 Hydrology and Fluvial Geomorphology

3.2.1 Affected Environment

Tex Creek encompasses 7.6 percent of the total Willow Creek drainage area upstream from Ririe Dam. USGS StreamStats estimates the mean annual flow of Tex Creek at 11.3 cubic feet per second (cfs), which is 6.2 percent of the estimated mean annual flow of the drainage area upstream from Ririe Dam. The estimates for low flow conditions suggest a higher contribution of Tex Creek to the overall flow than drainage size or mean annual flow would suggest. Low flow estimates suggest Tex Creek contributes 0.36 to 0.89 cfs (18.8 to 22.7 percent) of summer minimum flows above Ririe Dam.

The current hydrology and geomorphology of Tex Creek and Indian Fork have been shaped by two main influences. The first is historic dry land farming and grazing practices, and the second is the Henry's Creek Fire that burned 75 percent of the Tex Creek WMA in 2016. These influences have combined to create a flashy hydrologic regime with incised channels, unstable banks, and high sediment loads. Historic grazing practices depleted the riparian vegetation and the incised channel disconnected vegetation from the water table. The Ririe Reservoir RMP noted soil erosion as a serious problem in 2001 and parts of the project area were listed as impaired by the State of Idaho due to sediment/silt as well as temperature in 2004 (Reclamation 2001; IDEQ 2004). These conditions amplified the impacts of the 2016 fire (Figure 2 and Figure 4 above).

3.2.2 Environmental Consequences

Alternative A – No Action

Effects to hydrology and geomorphology would continue to be driven by historic land use effects and recovery from the 2016 wildfire. Post-fire recovery of riparian vegetation would continue to occur at a slow rate. This post-fire recovery and expansion of the riparian area may lead to decreases in evaporation due to increased stream shading as well as increases in transpiration from the recovering riparian plants. Due to the incised channel and associated disconnection of the floodplain from the water table, the riparian plants and the associated transpiration of water would likely not return to pre-fire densities or spatial distribution. Root systems from trees and shrubs that died in the fire would typically take years to decompose with the highest rates of soil erosion typically occurring 5 to 10 years post-fire (Wondzell and King 2003). The last high flow event occurred 3.5 years post-fire. The continued decay of root systems and slow riparian recovery would likely lead to increased sediment loads during future high flow events through at least 2026. This would lead to further incised channels, increased sediment loading of the reservoir, and a long-term reduction in reservoir storage capacity. The volume of sediment would vary substantially depending on the magnitude and timing of high flow events in relationship to the decomposition of dead riparian vegetation roots as well as regeneration of new vegetation.

Beaver may naturally expand downstream from their existing territories as the riparian vegetation recovers. This would likely be a slow process (estimated to be over 20 years) in the degraded habitat of Tex Creek and Indian Fork. Beaver have also recently expanded activity in areas along Willow Creek outside of the project area (Figure 7). Any flow or sediment effects from the continued natural expansion of beaver would be hard to attribute to activities within versus outside the project area. This natural beaver expansion would likely result in lower peak flows, slightly lower average flows, and higher base flows (Puttock et al. 2021). In years with flood control operations, beaver dam expansion would allow for a reduction in peak flows and a slower release of the water. This would provide more usable water in flood control years than would be available prior to beaver expansion. This would become more important as climate change limits the ability to store water as snow in higher elevations.

Although some research shows a reduction in summer base flows in basins with beaver dams (Woo and Waddington 1990), the arid climate and low summer rainfall at the project site is likely

to lead to an increase in summer base flows (Rosell et al. 2005). In other arid climates, BDAs and beaver have combined to provide permanent flows in streams that once seasonally dried up (Pilliod et al. 2018; Rosell et al. 2005).

Figure 7. Aerial Imagery of newly constructed beaver dams on Willow Creek between June and October of 2021 (43.3507173213, -111.735914169)

Alternative B – Tex Creek Wildlife Management Area Instream Habitat Improvement Project (Proposed Action)

In general, the effects described in the no action alternative from regrowth of riparian plants and expansion of beaver are expected to occur under the Proposed Action at an accelerated pace over a larger spatial scale. BDAs would raise the water table and trap sediment. This would increase growth and survival of the riparian plantings as well as natural regrowth after the fire. Expanding riparian vegetation and some areas of deeper water are expected to accelerate expansion of the beaver population. These processes are expected to affect sediment, temperature, evapotranspiration (ET), flow, groundwater interactions, and water rights. These effects are covered in detailed sections below.

Sediment

To address sediment issues in Tex Creek and Indian Fork identified by IDWR, as well as restoration recommendations in Reclamation's Erosion and Sedimentation Manual (2006), a restoration of dynamic equilibrium of sediment could improve water quality and reduce reservoir sedimentation. Large wood structures like BDAs and PALs, as well as restoration of riparian plants, have been shown to trap sediment and help return a disturbed system to this natural dynamic equilibrium. In this condition, sediment volumes from upstream sources are passed through the stream system but the storage and release of sediment within the project reach would be at equilibrium (Reclamation 2006). Although trap efficiency varies widely among reservoirs depending on reservoir size, bathymetry, and operations (McCully 1996), Mahmood (1987) estimated that overall, sedimentation fills in almost 1 percent of global reservoir volume each year. Most of this sediment settles out in the varial zone where conditions change from lentic to lotic as water levels change (Figure 8 and Figure 9, Reclamation 2006).

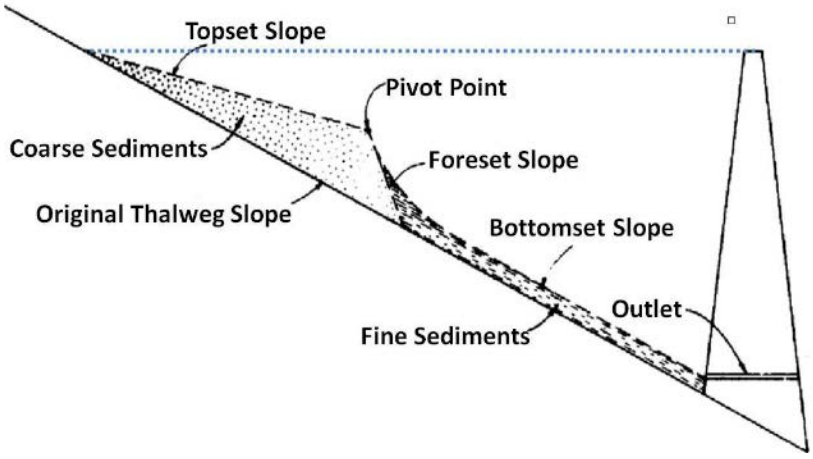

Figure 8. Cross-sectional view of a typical sedimentation pattern in a reservoir (Reclamation 2006)

Figure 9. Sediment deposition in the Trail Creek Varial Zone at Deadwood Reservoir in central Idaho

One of the first noticeable impacts of BDAs is expected to be the buildup of sediment upstream from each structure after high flow events. This sediment retained above BDAs would otherwise travel downstream to Ririe Reservoir. Initially, water may pool upstream from the BDAs. The large volumes of sediment mobilized due to the existing conditions in the project area would instead increase the elevation of the streambed as structures trap sediment upstream. BDAs in Triple Creek (in northeastern Washington), for example, often did not create pools of water but trapped sediment (Figure 10). The habitat in Triple Creek looks very similar system to Tex Creek with incised channels and high sediment loads (Figure 11 and Figure 12).

Figure 10. Sediment retention by a BDA on Triple Creek. Note the arrow pointing to the top of the same staff gage in both photos. Photo credit: Okanogan Highlands Alliance.

Figure 11. Typical incised channel in the project area. Photo credit Nikki Polson, May 2022.

Figure 12. Example of existing unstable banks in the project area. Photo credit Nikki Polson, May 2022.

When constructed, Ririe Reservoir had a total capacity of 100,500 acre-feet with a 4,000-acre-foot dead pool in addition to 6,000 acre-feet of inactive space for a minimum pool of 10,000 acre-feet. A sedimentation survey has not been conducted at Ririe Reservoir since construction of the dam. It is unknown how much of the dead pool or reservoir as a whole has been filled with sediment since construction. Ririe Reservoir is typically held well above 10,000 acre-feet and has not dropped below 35,000 acre-feet since 2005. This means the reservoir never goes to run-of-river to clear out these sediments. Some of the finer sediment load may remain suspended and pass through the reservoir. However, larger particles settle out at each year's low water level and reduce the overall storage capacity of the reservoir (Fan and Morris 1992; Reclamation 2006). Any sediment retained by the BDAs and maintained upstream of the basin by future beaver activity would reduce the future loss of reservoir storage volume.

Some early BDA projects increased sediment load to the basin due to scour below the dams and/or lack of longevity. Techniques and materials have been improved since that time. All BDA and PAL structures for this project would be secured with pneumatically-driven wooden posts that would improve longevity. Creating multiple BDAs together in a complex would raise the entire stream bed rather than creating a scour point below each individual dam (Wheaton et al. 2019). The structures themselves are built with no vertical drop. Material on the downstream side gets wider towards the bottom and dissipates the energy of the water to limit scour (Wheaton et al. 2019). The presence of beaver in the upper reaches of both tributaries suggests that with improved habitat and riparian vegetation from the BDAs, beaver would likely move in and maintain the system long term. This would reduce the chances of sediment being sent downstream as the structures age and degrade.

One year after installation, sediment volumes retained by individual BDA structures in two Colorado creeks ranged from 39 to 145 cubic feet (ft^3) (Scamardo and Wohl 2020). Using this range in sediment volume, it would take between 300 and 1,117 BDAs to retain 1 acre foot of sediment in the first year. The volume stored by BDAs alone would expand over time. Using the sediment storage estimates of a well-established beaver population (Rosell et al. 2005), beaver expansion into 23.9 km of project area could reduce sediment input to Ririe Reservoir by 193 acre-feet. The time frame for storage of this potential 193 acre-feet would depend on how quickly beaver expand into the areas with BDAs. In the short term, individual BDAs without any beaver influence would still store sediment. Each system and BDA location is unique, but after one year, BDAs on Fish and Campbell creeks stored an average of 75 ft^3 of sediment which accounted for 42 percent of the pool volumes created by BDAs. Although no volume calculations could be found in the literature for Triple Creek, some systems or high flow conditions can have much higher sediment volumes and ratios of sediment to water stored above BDAs (e.g., Figure 10). If 42 percent of the pool volume is sediment, then only 8 percent of the water stored in the pool is not offset by a reduction in sedimentation in just the first year. Infilling in subsequent years, as well as increased summer base flows and acting as another reservoir (similar to snowpack) in flood control years, may offset more of the potential water loss.

Reservoir storage loss due to sedimentation can be estimated at a few Reclamation reservoirs where multiple sedimentation surveys have been conducted. Bighorn Reservoir, for example, has

lost 118,629 acre-feet (8.6 percent) of storage capacity between 1965 and 2017 (Reclamation 2020). Approximately 15,214 acre-feet (12.8 percent) of that loss was in the 11 years between 2007 and 2017. Similarly, Arrowrock Reservoir has lost 19,376 acre-feet (7.1 percent) between 1915 and 1997 (Reclamation 1998). This averages out to 235.4 acre-feet (0.09 percent) per year loss. Tiber Reservoir has lost 45,562 acre-feet (3.3 percent) of capacity between 1956 and 2021 (Reclamation 2022) to sedimentation, filling approximately 44 percent of the dead pool. Only 17 percent of total sedimentation was captured in the dead pool. The rest of the sedimentation occurred above the dead pool elevation and resulted in a loss in storage volume. There has not been a sedimentation survey conducted at Ririe Reservoir. Data from these other reservoirs shows that reservoir storage loss due to sedimentation is occurring at all reservoirs. Reductions in sediment loading to Ririe Reservoir as a result of the Proposed Action should provide a long-term benefit to the storage volume of the reservoir.

Temperature

The increased surface area created by BDAs and beaver dams is often presumed to lead to increased water temperatures (Rosell et al. 2005). However, many of these studies are limited to short time periods or small spatial scales. Rosell et al. 2005 also notes that regional climate and site-specific characteristics can lead to a wide range in temperature effects from beaver dams. On the heavily studied Bridge Creek drainage in eastern Oregon, both BDA installation and a natural increase in beaver dams were shown to decrease daily maximum temperatures during the summer (Weber et al. 2017). This is due to increased hyporheic exchange from the water surface elevation differences created by the structures. Other studies in Curtis Creek have documented temperature increases where side channels are backwatered as BDAs and the associated sediments increase water levels (Majerova et al. 2020). Each system would react differently to BDAs based on surficial geology, flow volumes, channel slope, historic land use, etc. The narrow floodplain width and lack of disconnected historic channels would suggest the temperature regimes in the project area may react more similarly to Bridge Creek where overall temperatures decreased and temperature heterogeneity increased.

Evapotranspiration

Water can be lost to the atmosphere directly through evaporation or indirectly through transpiration from plants. Evaporation is increased with increased surface area, increased water temperature, additional solar radiation as well as wind. Transpiration is based on the species and density of plants in the riparian area as well as local climate conditions. Both evaporation and transpiration are increased as humidity decreases. ET can be difficult to quantify and identifying a change in ET due to a project has not been successful in many cases. ET in different environments has been estimated to range from 0 to 30 percent of total basin water yield (Lupon et al. 2018). In a slightly warmer climate than the project area, a study in northeastern Spain showed that riparian ET accounted for 5.5 to 8.4 percent of the annual modeled water budget and up to 26 percent of summer base flows (Lupon et al. 2018).

A recent comprehensive analysis of the impacts of beaver dams on ecosystem processes notes that very few analyses of beaver influence on ET can be found in the literature (Larsen et al. 2021). Even fewer analyses can be found for BDAs. Estimates of the increase in ET with beaver

activity range from 40 to 150 percent (Fairfax and Small 2018; Woo and Waddington 1990). The higher end of this range was documented in small drainages in northern Nevada. Prior to changes in grazing practices and extensive beaver damming, these systems in Nevada would typically run dry during the summer (Fairfax and Small 2018). BDAs are expected to create a smaller increase in ET than beaver produced dams and their associated channels. The 50 to 150 percent increase in ET in the Fairfax and Small 2018 study was comparing areas with and without beaver dams in the same drainages. Beaver are not likely to establish at high density throughout the entire project area. If all other variables (temperature, humidity, solar radiation, wind, etc.) were the same, this shows that the maximum 150 percent increase in ET would only be when and where extensive beaver activity would exist and not an average increase for the entire drainage. Beaver expansion into the project area would be expected. Some areas may experience beaver activity at similar densities to the Fairfax and Small study, but average beaver densities for the whole project area are not expected to approach the densities.

It is also important to note the differences in climactic variables between the Fairfax and Small study in Nevada and the project area. For example, mean August temperatures in 2021 were 9 degrees Fahrenheit warmer and mean humidity was 26 percent lower in Nevada compared to the project area in eastern Idaho. The Woo and Waddington 1990 study may also be an overestimation of ET for the project site. Their study area has wider floodplains and a lower gradient that would produce much larger backwatered areas than the Tex Creek WMA. There would be some increased ET from the initial BDA installations as well as an increase over time as beaver and riparian vegetation are expected to expand in the project area. The literature suggests quantifying this increased ET as a decrease in flow downstream would be difficult with current technology (Larsen et al 2021). Predicting any future difference in downstream flow between this small decrease in downstream flow under the Proposed Action and the even smaller decrease in flow expected from a slower and less extensive riparian recovery and beaver expansion under the no action alternative is not possible given the current data sets and technology.

Pre-European settlement, the project area likely had large numbers of beavers and their associated dams. Prior to the Henry's Creek Fire, this area still had a riparian corridor in many areas, although it had been degraded from historic dryland farming practices and a lowered water table. Due to this degraded condition, the 2016 fire wiped out all of the existing riparian shrubs in many areas. The current condition is likely leading to increased evaporation from the lack of riparian shading with decreased transpiration due to the lack of riparian plants. The proposed project would add riparian vegetation to provide stream shading and raise the water table to ensure the riparian vegetation survives and expands. Over time, the riparian vegetation and total wetted area are likely to expand beyond pre-fire conditions; however, they are not likely to return to pre-European settlement conditions. This would lead to an increase in ET compared to current and pre-fire conditions.

The literature suggests ET can be estimated by the diurnal fluctuation in stream flow (Gribovszki et al. 2010). However, the literature also shows an order of magnitude in difference between methods of estimating ET (Gribovszki et al. 2010). The timing of diurnal peaks and troughs at the stream gauge on Willow Creek below the confluence with Tex Creek is the

opposite of what is expected when using this method. Peaks occur in late afternoon when ET should be highest, and troughs occur overnight when ET should be lowest. In August 2021, a hot and dry year, the peaks and troughs represented up to a 20 percent diurnal change in stream flow (Reclamation Hydromet). This is within the range of 8 to 26 percent documented in Mediterranean environments (Lupon et al. 2018). Since the timing of peaks and troughs is not what is expected, it is hard to tie this diurnal fluctuation back to ET. If this 20 percent fluctuation in flow does represent the current (2021) evapotranspiration and Tex Creek accounts for 7.6 percent of the total drainage area, a 40 percent project area average increase (Woo and Waddington 1990) in ET for all of the Tex Creek drainage would average 0.08 cfs during the hottest time of the year. This estimate would equal a reduction in summer base flows of 0.5 percent for the entire Willow Creek drainage entering Ririe Reservoir.

Groundwater

The Willow Creek Aquifer is connected to the Eastern Snake River Plain Aquifer (IWRRI 2011). As the water table increases and dams create differences in hydraulic head, interactions between surface and groundwater would increase. Some volume of water would likely be lost to the Willow Creek Aquifer. It is unknown if this water may return to the channel downstream or if it would stay underground and end up in the Eastern Snake River Plain Aquifer.

Flow

Flow reduction downstream of beaver dams and BDAs falls into three main categories: storage in ponds, groundwater infiltration, and ET (Denman and Ruggerone 1994). There would be a short-term reduction in flow as each individual BDA backs surface and groundwater up after completion. There is expected to be a reduction and delay in peak flows as the BDAs slow flow and increase saturation of the water table (Larsen et al. 2021; Puttock et al. 2021). Base flows are expected to increase as this increased groundwater is slowly released (Nyssen et al. 2011; Parker 1986). BDAs are expected to increase ET by increasing the wetted surface area as well as increasing riparian vegetation over time (Fairfax and Small 2018; Woo and Waddington 1990). The sediment retained by the project is expected to reduce the loss of storage volume in Ririe Reservoir (Reclamation 2006; Scamardo and Wohl 2020). Over time, this may offset some if not all of the losses from increased ET.

The total volume of water that may be lost to ET and the aquifer is unknown. It is likely that the greatest reduction in downstream flow would be from the initial backing up of water as structures are constructed. Over time, the number of structures would increase and expansion of the riparian areas as well as beaver activity would slowly increase the volume of water lost. In years with flood control releases the volume of usable water available to downstream users would increase as the BDAs and beaver dams reduce peak flows and act as a storage reservoir to release summer base flows in higher volumes than would exist without the project. The many interacting factors that influence how BDAs and beaver would influence flows in the future make it hard to quantify a range in potential effects to downstream flows.

Water Rights

Water rights in the state of Idaho are administered and managed by IDWR. All of the water rights with point of use in the Tex Creek Drainage are held by non-governmental organizations or federal/state government agencies. Reclamation owns two separate water rights for wildlife purposes on Indian Fork. IDFG received Permit Number S25-20045 from IDWR for this project (Appendix A). As the administrator of water rights in Idaho, IDWR would make the determination if water rights need to be added or changed in order to complete this project under their permit.

3.3 Water Quality

3.3.1 Affected Environment

Tex Creek and Indian Fork are within the Willow Creek watershed. Their water quality is managed by the State of Idaho under the framework of the Clean Water Act (CWA). Idaho has established water quality standards for specific physical and chemical parameters to provide suitable conditions to support beneficial uses, including irrigation water supply, public water supply, recreation, and aquatic life (IDEQ 2008). The designated beneficial uses of Tex Creek and Indian Fork include cold water aquatic life, agricultural/industrial water supply, aesthetics, primary and secondary contact recreation, and wildlife habitat (IDEQ 2020).

Section 303(d) of the CWA requires states and Tribes to identify water bodies that do not meet water quality standards. The most recent approved 303(d) list is the 2018/2020 Integrated Report (IDEQ 2020). For lakes, rivers, and streams identified on this list, states and Tribes must develop water quality improvement plans known as total maximum daily loads (TMDLs). These TMDLs establish the amount of a pollutant a water body can carry and still meet water quality standards.

The Idaho Department of Environmental Quality (IDEQ) has determined that Tex Creek (8.85 miles) and Indian Fork (40.54 miles) are not meeting the cold water aquatic life criteria based on sediment/siltation and water temperature (IDEQ 2020). Tex Creek was placed on the TMDL list for sediment/siltation and water temperature on June 30, 2004. IDEQ states in the Willow Creek Subbasin Assessment and TMDL (2004) that, "*the magnitude of sediment loading within the subbasin is widespread, predominantly attributable to streambank erosion from over-utilization of riparian habitat. Some additional sources of sediment loading are poor road maintenance, road crossings, and limited mass wasting (downward movement of earth and rock due to the force of gravity.)*" (IDEQ 2004). Additionally, the 2016 Henry's Creek Fire burned 75 percent of the Tex Creek WMA and removed riparian vegetation along several segments of Tex Creek and Indian Fork (see Figure 2).

Applicable Water Quality Standards

The water quality criteria (narrative and numeric) that protect the designated and existing beneficial uses for Tex Creek and Indian Fork are discussed below.

Numeric water quality standards have been developed by IDEQ (2008) for temperature and for turbidity, among other water quality properties:

- Water temperature standard
  - Cold water aquatic life
    - Maximum daily maximum temperature no greater than 22°C (71.6°F)
    - Maximum daily average temperature no greater than 19°C (66.2°F)
- Turbidity standard
  - Cold water aquatic life
    - Turbidity below any applicable mixing zone shall not exceed background turbidity by more than 50 nephelometric turbidity units (NTU) instantaneously, or
    - More than 25 NTU for more than 10 consecutive days

The standards for sediment are narrative standards and state that the level of a pollutant cannot exceed quantities that impair beneficial uses (IDEQ 2008). Because these pollutants do not have numeric standards, surrogate numeric targets are often proposed in TMDLs or water quality assessments.

- The standard for excess sediment indicates that "sediment shall not exceed quantities which impair designated beneficial uses"

Tex Creek TMDLs

- Water temperature – The TMDL calls for 46 percent and 50 percent reductions in maximum and average daily water temperatures, respectively (IDEQ 2004)
- Sedimentation/siltation – The TMDL prescribes a 50 percent reduction in sediment loading rate from an estimated 8 tons/mile/year down to 4 tons/mile/year (IDEQ 2004)

3.3.2 Environmental Consequences

Alternative A- No Action

Effects to water quality would continue to follow the same patterns as those described in the Affected Environment section. Tex Creek and Indian Fork water quality would continue to change based on anthropogenic and natural upstream watershed inputs, snowpack/precipitation events, and drought. Streambank erosion would continue to occur. If left unaided, it is unlikely the riparian area would recover sufficiently to slow erosion and shade the waterbodies for decades due to their current condition. However, through the TMDL process, water temperatures and sedimentation/siltation could slowly decrease (improve) due to implementation of best management practices (BMPs) from other surrounding entities such as private landowners and IDFG to meet future TMDLs. These improvements could take decades to significantly affect the water quality.

Alternative B – Tex Creek Wildlife Management Area Instream Habitat Improvement Project (Proposed Action)

Tex Creek and Indian Fork water quality effects are split into two categories: construction activities that are mostly short-term effects, and post-construction effects that are mostly mid- to long-term effects. IDFG has obtained a stream channel alteration permit (Number S25-20045; Appendix A) from IDWR for construction of BDAs/PALS structures.

Construction

Construction effects include the increased disturbance of sediment in channel as the BDAs are being constructed. This could increase turbidity and sediment movement, initially in Indian Fork and then into Tex Creek, as the structures are being built. These effects would be short-term in nature and would be minimized by starting at the downstream section first and moving upstream, thereby containing any sedimentation that could occur due to construction. Also, construction would be done in low flow seasons (August through November), lessening the direct effects to the stream. Construction is expected to take up to 10 years and the effects would be spread-out during those 10 years, lessening the magnitude of sedimentation/turbidity on the Tex Creek/Indian Fork aquatic systems. The Idaho State water quality standards for turbidity (instantaneous and 10 consecutive days) and the sediment loading TMDL would not be violated during construction.

Post-Construction

After the first year of construction on Indian Fork, effects should begin to occur as the water pools, flows slow down, and sediment from eroding streambanks begins to deposit in the newly created pools from the construction of the BDAs/PALS. Eventually, as Indian Fork is completed, the eroded channel would fill in with deposited sediment and a new channel that is not incised would cut through the now expanded floodplain. This is demonstrated by an experiment on Bridge Creek (in Oregon) by Bouwes et al. (2016) that used BDAs/PALS and improved steelhead habitat. The researchers found that, "…the combination of increasing the dam crest height up to the inset floodplain and channel aggradation behind the dam, allowed surface waters to spill out onto inset floodplains greatly increasing the habitat area" (Bouwes et al. 2016). The researchers also found this was quite beneficial to steelhead habitat. The newly developed floodplain would revegetate with riparian and wetland plants that could hold the soil and sediments in high flows. This ecological process and subsequent water quality effects would be expected to occur on Tex Creek as well.

The long-term water quality effects for Tex Creek and Indian Fork would include an overall decrease in sediment/siltation load from the eroded streambanks. Turbidity would also decrease as the sediments drop out of solution and are physically bound by riparian and wetland vegetation. Water temperatures should be lowered due to shading from the riparian vegetation unless wide, shallow pools form. Water temperatures could increase due to the potential increase in pool water surface area that receive solar radiation. These effects are expected to be of short duration until riparian and wetland vegetation is established that can effectively shade the areas. Also, an increase in hyporheic exchange due to a rise in the water table and pressure head

created by the BDAs/PALs is expected to decrease overall water temperatures and could offset any temperature increases from the increase in surface area.

There is a small risk of a sediment flow through Indian Fork to Tex Creek or Tex Creek when the BDAs/PALS are first established if there were a large storm event that causes a flood sufficient to "wash out" the newly constructed BDAs/PALS. This would cause a pulse of sediment held behind these BDAs/PALS to flow down the system, increasing turbidity and sedimentation in the general area. However, this circumstance is unlikely because the 10-year construction widow would allow the proponent to repair any BDAs/PALS that were previously established. This "strengthens" the system and minimizes the risk of a "wash out." The use of pneumatically-driven posts to support the structures has decreased the chances of structures washing out during high flow events compared BDA techniques used even a few years ago (Wheaton et al. 2019).

3.4 Fish and Wildlife

3.4.1 Affected Environment

Indian Fork and portions of Tex Creek are managed by IDFG for Reclamation. These areas were originally acquired by Reclamation and the Corps of Engineers for mitigating fish and wildlife habitat losses (Reclamation 2001). These losses resulted from Teton and Ririe dam construction and impoundment, as well as flooding and the subsequent damage caused by the failure of the Teton Dam. At the time of acquisition, the Indian Fork and Pipe Creek areas wintered 1,400 elk (Reclamation 2001). The acquisition and cooperative management of these areas has ensured that these big game herds and other fish and wildlife species will continue to have suitable habitat. The primary funding for Tex Creek WMA operations comes from Reclamation with additional funding provided by IDFG and Bonneville Power Administration mitigation funds.

In August of 2016, the Henry's Creek Fire burned approximately 75 percent of the Tex Creek WMA area, including Indian Fork. The following spring there was heavy soil erosion and runoff into most of the streams which negatively affected the water quality and fishery habitat. After three years of reseeding and rehabilitating the upland area, good habitat has grown back in the uplands.

Wildlife – Mammals

The Tex Creek WMA, as a whole, currently winters approximately 2,500-3,000 elk (*Cervus elaphus*) and 2,500-3,500 mule deer (*Odocoileus hemionus*) annually (Walker 2021, pers. comm.). Moose (*Alces alces*) occur in unknown numbers throughout the greater Tex Creek landscape and are fairly common. Predators that may be encountered include mountain lion (*Felis concolor*), bobcat (*Lynx rufus*), numerous coyotes (*Canis latrans*), gray wolf (*Canis lupus*), and black bears (*Ursus americanus*) (Reclamation 2001).

Beaver naturally occur in areas above the proposed project area of Indian Fork and within Tex Creek proper, although specific population numbers are not known. They do not inhabit the

project area primarily because of the lack of deep water habitat and necessary vegetation components such as willow and woody material.

These and some less common mammal species that can be found in the analysis area are listed in Table 1.

Table 1. Common mammals found on Reclamation land within the project area

Common Name	Scientific Name
Mule deer	*Odocoileus hemionus*
Shiras moose	*Alces alces*
Elk	*Cervus elaphus*
Mountain lion	*Felis concolor*
Bobcat	*Felis rufus*
Coyote	*Canis latrans*
Red fox	*Vulpes*
Gray wolf	*Canis lupus*
Black bear	*Ursus americanus*
Grizzly bear	*Ursos arctos*
Yellow-bellied marmot	*Marmota flaviventris*
American beaver	*Castor canadensis*
American mink	*Neovison vison*
American marten	*Martes americana*
Weasel	*Mustela spp.*
Racoon	*Procyon lotor*
Skunk	*Mephitis*
Badger	*Taxidea taxus*
Porcupine	*Erethizon dorsatum*
Several rodent spp.	*Peromyscus maniculatus spp.*
Several bat spp.	*Vespertilionidae*
Several squirrel spp.	*Sciuridae*

Source: Reclamation 2001

Wildlife – Birds

The bald eagle (*Haliaeetus leucocephalus*) and Sage Thrasher (*Oreoscoptes montanus*) are species of concern that might be found in the project area. Bald eagles are known to exist around Ririe Reservoir and could forage in the area of Indian Fork. Sage Thrashers are sagebrush obligates and their habitat exists in the project area. Neither bird has been studied to any extent on Tex Creek WMA, so there is limited data related to population status.

Significant concentrations of Columbian sharp-tailed grouse (*Tympanuchus phasianellus columbianus*) reside on the Tex Creek WMA and within the Tex Creek mainstem and Indian Fork areas. There are approximately 65 leks (currently active and/or historic) documented in the immediate

vicinity of the Tex Creek WMA (Walker 2021, pers. comm.). The area is a destination for hunters seeking to harvest a Columbian sharp-tailed grouse (Walker 2022, pers. comm.).

Sandhill cranes (*Antigone canadensis*) in the Tex Creek vicinity are part of the Rocky Mountain Population. Tex Creek WMA provides potential breeding habitat for sandhill crane. Prior to the 2016 fire, Indian Fork was suitable for a breeding sandhill crane pair (Reclamation 2001).

Ririe Reservoir provides transitional habitat for many Idaho waterbird species of greatest conservation need (SGCNs) including common loon (*Gavia immer*), trumpeter swan (*Cygnus buccinator*), northern pintail (*Anas acuta*), lesser scaup (*Aythya affinis*), hooded merganser (*Lophodytes cucullatus*), Clark's grebe (*Aechmophorus clarkii*), red-necked grebe (*Podiceps grisegena*), American white pelican (*Pelecanus erythrorhynchos*), great egret (*Casmerodius albus*), snowy egret (*Egretta thula*), cattle egret (*Bubulcus ibis*), black-crowned night heron (*Nycticorax nycticorax*), Wilson's phalarope (*Phalaropus tricolor*), Franklin's gull (*Leucophaeus pipixcan*), California gull (*Larus californicus*), Caspian tern (*Hydroprogne caspia*), Forster's tern (*Sterna forsteri*), and black tern (*Chlidonias niger*). Most do not use the project area but may be found there if seasonal water flows allow (Reclamation 2001).

Some of the more common or sensitive avian species include those listed in Table 2 as well as many neotropical migrants. Many species of raptors use the area depending on the season; they are also listed below.

Table 2. Birds found on Reclamation land within the project area

Common Name	Scientific Name	Status (Idaho)
Columbian sharp-tailed grouse	*Tympanuchus phasianellus*	Species of concern
Loggerhead shrike	*Lanius ludovicianus*	Rare and uncommon
Brewer's sparrow	*Spizella breweri*	Common
Grasshopper sparrow	*Ammodramus savannarum*	Rare and uncommon
Lewis's woodpecker	*Melenerpes lewis*	Rare and uncommon
Calliope hummingbird	*Selasphorus calliope*	Common
Willow flycatcher	*Empidonax traillii*	Common
Long-billed curlew	*Numenius americanus*	Imperilled because of rarity
Sandhill crane	*Grus canadensis*	Rare and uncommon
Bald eagle	*Haliaeetus leucocephalus*	Widespread and abundant
Ferruginous hawk	*Buteo regalis*	Common
Swainson's hawk	*Buteo swainsoni*	Widespread and abundant
Northern goshawk	*Accipiter gentilis*	Widespread and abundant
Peregrine falcon	*Falco Peregrinus*	Rare and uncommon
Prairie falcon	*Falco mexicanus*	Common
Burrowing owl	*Athene cunicularia*	Imperilled because of rarity

Common Name	Scientific Name	Status (Idaho)
Short-eared owl	*Asio flammeus*	Rare and uncommon
Flammulated owl	*Psiloscops flammeolus*	Rare and uncommon
Great gray owl	*Strix nebulosa*	Rare and uncommon
Canada geese	*Branta Canadensis*	Widespread and abundant
Mallard	*Anas platyrhynchos*	Widespread and abundant
Trumpeter swans	*Cygnus buccinator*	Critically imperilled
Mourning dove	*Zenaida macroura*	Widespread and abundant
Black-billed magpie	*Pica pica*	Widespread and abundant
Common nighthawk	*Chordeiles minor*	Common
Hummingbirds	*Trochilidae*	Widespread and abundant
Killdeer	*Charadrius vociferus*	Common
Sandpipers and allies	*Scolopacidae*	Common
Several woodpecker spp.	*Picidae*	Widespread and abundant
American robin	*Turdus migratorius*	Widespread and abundant

Sources: Reclamation 2001; Levine et al. 1998

Amphibians and Reptiles

Amphibians and reptiles that are likely to occur in the analysis area include the western rattlesnake (*Crotalus viridus lutosus*), yellow-bellied racer (*Coluber constrictor mormon*), western terrestrial garter snake (*Thamnophis elegans*), common garter snake (*T. sirtalis*), gopher snake (*Pituophis melanoleucus deserticola*), sagebrush lizard (*Sceloporus graciosus*) rubber boa (*Charina bottae*) and northern leopard frog (*Rana pipiens*) (Reclamation 2001).

These and other common or sensitive amphibians and reptiles are listed in Table 3.

Table 3. Common or sensitive amphibians and reptiles found within the project area

Common Name	Scientific Name	Status (Idaho)
Western rattlesnake	*Crotalus viridus lutosus*	Common
Yellow-bellied racer	*Coluber constrictor mormon*	Widespread and abundant
Western terrestrial garter snake	*Thamnophis elegans*	Common
Common garter snake	*T. sirtalis*	Common
Gopher snake	*Pituophis melanoleucus deserticola*	Common
Sagebrush lizard	*Sceloporus graciosus*	Common
Rubber boas	*Charina bottae*	Widespread and abundant

Common Name	Scientific Name	Status (Idaho)
Northern leopard frogs	*Rana pipiens*	Imperilled because of rarity
Boreal chorus frog	*Pseudacris maculata*	Common
Columbia spotted frog	*Rana luteiventris*	Common
Wester toad	Anaxyrus borea	Imperilled because of rarity

Sources: Reclamation 2003; Groves et al. 1997

Fisheries and Wetlands

The majority of the fish residing in Tex Creek and Indian Fork are introduced rainbow trout (*Oncorhynchus mykiss*). Rainbow trout were planted in these streams and in Ririe Reservoir by IDFG decades ago and are managed as a put-and-take species for fisherman (High 2021, pers. comm.).

The most vulnerable and aggressively managed fish species are the Yellowstone cutthroat trout (YCT, *Oncorhynchus clarkii bouvieri*). YCT are found in the Snake River watershed above Shoshone Falls and in the Yellowstone River watershed (Gresswell 2009). Prior to the Ririe Dam construction, the Tex Creek watershed was important habitat for this salmonid. After the inundation of Ririe Reservoir, this area remains a species stronghold for YCT even though it has been altered from the pre-dam conditions and contains many introduced fish species (IDFG 2007).

There is also potential for fish species existing in Ririe Reservoir such as Kokanee (*Oncorhynchus nerka*) to migrate up the Tex Creek drainage and use the waters within the project area (Reclamation 2001).

Some of the most abundant or common fish species that can be found in the analysis area are listed in Table 4.

Table 4. Common fish species found within the project area

Common Name	Scientific Name	Status (Idaho)
Yellowstone cutthroat trout	*Oncorhynchus clarkii bouvieri*	Common
Rainbow trout	*Oncorhynchus mykiss*	Common
Cutthroat-rainbow trout hybrid	*Oncorhynchus clarkii x O. mykiss*	Common
Brown trout	*Salmo trutta*	Common
Brook trout	*Salvelinus fontinalis*	Common
Mountain whitefish	*Prosopium williamsoni*	Common
Sucker spp.	*Catostomus*	Common

Sources: Reclamation 2003; Groves et al. 1997

3.4.2 Environmental Consequences

Alternative A- No Action

Mammalian Communities

Under the No Action alternative, IDFG would continue their role to manage Reclamation lands within the WMA. The effects of the 2016 fire would persist as the woody component of the riparian would be slow to re-establish. There are some stands of willow, but the water table is not high enough to provide quick regeneration of trees and willow expansion.

Beaver may naturally expand downstream from their existing territories as the riparian vegetation re-establishes. This would likely be a slow process (estimated to be over 20 years) in the degraded habitat of Tex Creek and Indian Fork. Moose would have little to browse on until the riparian vegetation recovers to pre-fire densities. Upland habitat where most of the elk and deer overwinter has already been seeded with native vegetation that recovers much faster than the woody riparian species.

Avian Communities

Under the No Action alternative, IDFG would continue their role to manage Reclamation lands within the WMA. The effects of the 2016 fire would persist as the woody component of the riparian would be slow to re-establish. There are some stands of willow, but the water table is not high enough to provide quick regeneration of trees and willow expansion.

Riparian nesting birds would experience a slow post-fire recovery of their nesting habitat. Bald eagles are not expected to nest in the area and could forage in other habitats as the riparian community recovers. The Sage Thrasher may periodically forage in riparian areas, but nests and spends most of their time in the sagebrush habitat. Overall, the No Action alternative would have little influence on the avian community.

Amphibian and Reptile Communities

Under the No Action alternative, IDFG would continue their role to manage Reclamation lands within the WMA. The effects of the 2016 fire would persist as the woody component of the riparian would be slow to re-establish. There are some stands of willow, but the water table is not high enough to provide quick regeneration of trees and willow expansion. The creeks would remain entrenched and channelized. It would take years for adequate vegetation to establish and bring beaver into the area. The project area would not contain enough wetland/riparian habitat to improve the population of amphibians and reptiles.

Fisheries and Wetland Communities

Under the No Action alternative, IDFG would continue their role to manage Reclamation lands within the WMA. The effects of the 2016 fire would persist as the woody component of the riparian would be slow to re-establish. There are some stands of willow, but the water table is not high enough to provide quick regeneration of trees and willow expansion. There would be no additional adverse impacts on the fisheries and wetland communities. Indian Fork and Tex Creek would remain entrenched and channelized. It would take years for adequate vegetation to

establish and bring beaver into the area. The project area won't contain enough wetland/riparian habitat to improve the population of fisheries and wetland communities.

Alternative B – Tex Creek Wildlife Management Area Instream Habitat Improvement Project (Proposed Action)

Overall effects (direct and indirect) to mammalian, avian, amphibian, reptile, and fisheries/wetland communities within the project area would be a gradual progression of habitat improvement. Over the next 10 years, IDFG would improve stream habitat on Tex Creek and Indian Fork by using low-tech process-based restoration using BDAs and PALS. This project would include up to 40 low-tech structures per kilometer placed along 23.9 kilometers of Indian Fork and Tex Creek. Impacts associated with the Proposed Action and effects, if any, are presented below.

Mammalian Communities

Under the Proposed Action description, the creeks which are severely incised and have little connection to the floodplain should improve. The proposed instream structures would improve habitat that would attract beaver. The project would raise the water table, which would improve conditions for riparian plants and adjacent meadows. The beaver would likely expand into the improved habitat and would provide long-term maintenance and habitat improvement. No negative effects on mammalian communities are anticipated. The improved conditions for riparian plants and adjacent meadows should attract more moose and other riparian dependent mammals to the area. The additional vegetation may also increase elk and deer overwintering use.

Avian Communities

Under the Proposed Action description, the creeks which are severely incised and have little connection to the floodplain should improve. The proposed instream structures would improve habitat that would attract beaver. The project would raise the water table, which would improve conditions for riparian plants and adjacent meadows. The beaver would provide the long-term maintenance and habitat improvement. No negative effects on avian communities are anticipated. The project should create more habitat for waterfowl and other pond/water loving birds along with more potential nesting areas for riparian birds. Bald eagles could benefit due to establishment of perching trees. Sage Thrashers could benefit from the additional vegetative cover and water availability for rearing young.

Amphibian and Reptile Communities

Under the Proposed Action description, the creeks which are severely incised and have little connection to the floodplain should improve. The proposed instream structures would improve habitat that would attract beaver. The project would raise the water table, which would improve conditions for riparian plants and adjacent meadows. The beaver would provide long-term maintenance and habitat improvement. No negative effects on amphibian and reptile communities are anticipated. The project should create more habitat for amphibians and some reptiles.

Fisheries and Wetlands

Under the Proposed Action description, the creeks which are severely incised and have little connection to the floodplain should improve enough to be considered a functional riparian area. There would be a short-term reduction in flow as each individual BDA backs surface and groundwater up after completion. Base flows are expected to increase as this increased groundwater is slowly released (Nyssen et al. 2011; Parker 1986). BDAs are expected to increase the wetted surface area as well as increasing riparian vegetation over time (Fairfax and Small 2018; Woo and Waddington 1990).

The proposed instream structures would improve habitat that would attract beaver. The project would raise the water table, which would improve conditions for riparian plants and adjacent meadows. The beaver would provide the long-term maintenance and habitat improvement. There is concern that beaver dams would block fish passage and movement, but beaver dams naturally leak and fish find a way through them. No other negative effects on fisheries and wetlands are anticipated. Wetlands in the project area would be enhanced and improved. With water being held back by beaver dams, the related ponds and consistent water flow would provide more fish habitat year-round.

3.5 Vegetation

3.5.1 Affected Environment

Habitat – Terrestrial and Riparian Vegetation

The vegetive community within Indian Fork and Tex Creek is highly influenced by the moisture from winter months and the soil type of the area. Soils in the Tex Creek and Indian Fork areas are highly varied and range from deep well-drained silt loams formed from loess to shallow stony soils (Pierce et. al. 1992). Significant amounts of heavy clay soils are also present. Soil erosion can be severe during spring runoff and summer storm events. The vegetative growing season is generally less than 90 days and light frosts are common during the summer months. Most precipitation falls as snow and spring rains (Pierce et. al. 1992). The majority of streams and creeks in the Tex Creek WMA are intermittent with spring snowmelt, running in the spring and drying by mid to late summer.

The riparian vegetative community is contained in a small corridor within the incised channels and doesn't extend onto the historic floodplain. The stream acts like a ditch and the riparian plants have a small area in which to grow. During spring runoff, the water table would rise to a level allowing some growth beyond a couple of feet, but the summer months limit the diversity of natural spreading of riparian plants.

The 2016 wildfire burned up much of the existing riparian and woody vegetation in the project area. Many of the willows grew back naturally next to the water, but most of the woody plants did not due to lack of moisture. The area was not replanted with shrubs, willows, or woody/tree vegetation after the fire, but the uplands surrounding Indian Fork were seeded with an alfalfa cover type.

Vegetation in the area is diverse with good interspersion of different habitat types. Inter-Mountain Basins Big Sagebrush Steppe is the largest single ecological system type. Big sagebrush (*Artemisia tridentata ssp. wyomingensis*), black sagebrush (*Artemisia nova*), threetip sagebrush (*Artemisia tripartita*), and bitterbrush (*Purshia tridentata*) characterize the uplands. Serviceberry (*Amelanchier* spp.) and snowberry (*Symphoricarpos* spp.) deciduous shrub fields are common. Bluebunch wheatgrass (*Pseudoroegneria spicata*) is the most frequently encountered native grass. Aspen (*Populus tremuloides*) is the predominant tree cover type and junipers (*Juniperus scopulorum*) also regularly occur. Riparian zones in upper Tex Creek and Indian Fork support water birch (*Betula occidentalis*), willows (*Salix* spp.), and red-osier dogwood (*Cornus sericea*). Geyer's willow (*Salix geyeriana*) is common in higher elevation springs and riparian areas. Northwest Territory sedge (*Carex utriculata*) occupies wet meadows, while other sedges and Kentucky bluegrass (*Poa pratensis*) are found in drier mesic meadows and seeps. Most of the historical cropland on the Tex Creek WMA has been converted back to permanent herbaceous cover, generally a mix of perennial forbs (e.g., alfalfa, Lewis blue flax, small burnett) and bunch grasses (e.g., Sherman var. bluebunch wheatgrass) (Reclamation 2001).

Noxious Weeds

Noxious weeds have been actively controlled by the IDFG along with Reclamation weed contractors. Control measures include proper land management practices such as biological control, physical removal, and spraying. The five main weed species being controlled are musk thistle (*Carduus nutans*), Canada thistle (*Cirsium arvense*), cheat grass (*Bromus tectorum*), leafy spurge (*Euphorbia esula*), and Russian olive (*Elaeagnus angustifolia*) (Reclamation 2001).

The long-term noxious weed control objective is to allow the IDFG to use the best available practices to eliminate problem weed species by use of chemical control. Reclamation has helped co-fund bio-control measures on cheat grass in the area with limited success.

Some of the most abundant or common native and noxious vegetation that can be found in the analysis area are listed in Table 5.

Table 5. Vegetation species found within the project area

Common Name	Scientific Name	Status
Big sagebrush	*Artemisia tridentata ssp. wyomingensis*	Native
Black sagebrush	*Artemisia nova*	Native
Threetip sagebrush	*Artemisia tripartita*	Native
Bitterbrush	*Purshia tridentata*	Native
Serviceberry	*Amelanchier spp.*)	Native
Snowberry	*Symphoricarpos spp.*)	Native
Bluebunch wheatgrass	*Pseudoroegneria spicata*	Native
Aspen	*Populus tremuloides*	Native

Common Name	Scientific Name	Status
Junipers	*Juniperus scopulorum*	Native
Water birch	*Betula occidentalis*	Native
Willows	*Salix spp.*	Native
Red-osier dogwood	*Cornus sericea*	Native
Geyer's willow	*Salix geyeriana*	Native
Northwest Territory sedge	*Carex utriculata*	Native
Kentucky bluegrass	*Poa pratensis*	Native
Musk thistle	*Carduus nutans*	Noxious Weed
Canada thistle	*Cirsium arvense*	Noxious Weed
Cheat grass	*Bromus tectorum*	Noxious Weed
Leafy spurge	*Euphorbia esula*	Noxious Weed
Russian olive	*Elaeagnus angustifolia*	Noxious Weed

3.5.2 Environmental Consequences

Alternative A- No Action

Terrestrial and Riparian Biota

Under the No Action alternative, IDFG would continue their role to manage Reclamation lands within the WMA. The effects of the 2016 fire would persist as the woody component of the riparian would be slow to re-establish. There would be no adverse impacts on the aquatic and terrestrial biota. The stream channel on Indian Fork would remain incised and there would be no riparian plant growth beyond this small corridor. Sediment loss from the uplands would continue because there is not sufficient vegetation in the channel to trap it. Woody/tree vegetation lost in the 2016 wildfire would take a long time to establish and may never return to pre-fire conditions. Over the long term, the incised channel could get deeper and wider during spring runoff that would no longer support riparian vegetation.

Alternative B – Tex Creek Wildlife Management Area Instream Habitat Improvement Project (Proposed Action)

Overall effects (direct and indirect) to terrestrial biota within the project area would be a gradual natural progression of habitat improvement. Over the next 10 years, IDFG would improve stream and riparian habitat on Tex Creek and Indian Fork by using low-tech process-based restoration using BDAs and PALS. This project would include up to 40 low-tech structures per kilometer placed along 23.9 kilometers of Indian Fork and Tex Creek.

Under the Proposed Action description, the creeks which are severely incised and have little connection to the floodplain should improve. BDAs are expected to increase the wetted surface area as well as increasing riparian vegetation over time (Fairfax and Small 2018; Woo and

Waddington 1990). The BDAs would raise the water table and would improve success of riparian plants. Riparian plants which have a more spread-out root system would help stabilize soils compared to the single deep tap roots of sage brush that now occupies some riparian areas because of the incised channels. Some of the existing upland vegetation would be expected to die because the increased water table would inundate their root systems.

The proposed BDAs would improve habitat that would attract beaver and provide the long-term maintenance and habitat improvement. The riparian habitat would expand, displacing some of the current terrestrial vegetation. No other negative effects on terrestrial or riparian biota are anticipated other than the beaver would trim the vegetation down, which only stimulates plant growth and vigor.

3.6 Recreation and Aesthetics

3.6.1 Affected Environment

Tex Creek WMA was established in 1976 and is approximately 35,218 acres of mixed state and federal lands managed by IDFG for wildlife and wildlife-related recreation. Located approximately 15 miles east of Idaho Falls, Tex Creek is a popular destination for sportsmen looking for wildlife-related recreation. According to the U.S. Census Bureau, Idaho Falls had a population of approximately 64,000 people in 2020, many of which contribute to the estimated 17,000 yearly visitors. The WMA is accessible by approximately 31 miles of county- and state-maintained roads, but four-wheel drive vehicles are recommended, especially during spring and fall when weather may affect road conditions. No off-road motorized travel is allowed at any time of year, except for administrative purposes. Most of the roads are closed December 1 to April 15 to protect wintering mule deer, elk, and moose. Hunting for big game, small game, and upland species are allowed and popular uses of the WMA. Trapping is also allowed except for beaver. Fishing can be very good in the reservoir along the WMA and also in the creeks that feed it and flow through the uplands. While most people come to Tex Creek WMA to hunt, fish, and watch wildlife, some come to hike or horseback ride 20 plus miles of non-motorized trails and to camp in the approved campsites.

3.6.2 Environmental Consequences

Alternative A- No Action

Continued poor habitat for fish populations and recruitment would affect recreation negatively. Continued erosion, streambank degradation, and reduced riparian recovery would diminish visual resources for visitors. The No Action alternative would continue the current trends on the landscape with little benefit to the fish and wildlife which are the major draws to the area for recreating public. However, visitors to the area would be able to access any part of the waterways without interference from construction work.

Alternative B – Tex Creek Wildlife Management Area Instream Habitat Improvement Project (Proposed Action)

BDAs and PALS are constructed from natural materials to mimic natural processes during process-based restoration. An ATV would be used to transport materials and a pneumatic post pounder from the road to the installation sites. Nothing larger than an ATV would need to travel off of the existing roads. Individual BDAs and PALS are typically built in a matter of hours rather than days. The combination of short construction times and minimal equipment mean little and short-term effects to recreators during the construction phase of the project. If visitors to the WMA seek solitude on a creek, it is simply a matter of moving around the next bend to avoid the construction views and disruptions. Hikers, campers, and horseback riders would see little to no adverse effects.

After construction is completed, BDAs and PALS do appear to mimic natural beaver construction except for the tops of the poles driven into the ground used to secure the structures. These pole tops are small in comparison to the landscape and would begin to blend in as they are affected by weather, creating a short-term and minor visual effect that would fade over time. The goal of a project like this is to improve the riparian area and habitat for fish and wildlife species. As that transformation takes effect, the initial scenes of construction would disappear and be replaced with the improved habitat hosting YCT, beaver, and a variety of songbirds that attract not only anglers but wildlife enthusiasts such as birders.

3.7 Lands and Realty

3.7.1 Affected Environment

Tex Creek WMA is located approximately 15 miles east of Idaho Falls, Idaho on federally-acquired lands. Prior to Reclamation's acquisition of these lands, they were historically described as dry agriculture and rangelands.

Reclamation, the Idaho Fish and Game Commission (Commission), IDFG, and other federal agencies worked together to establish the Tex Creek WMA to mitigate for wildlife habitat adversely affected as a result of the authorized Ririe and Teton Basin Projects. The IDFG has been managing this area in concert with the Tex Creek WMA under a long-term agreement with Reclamation since 1976. IDFG is the primary management entity of the Tex Creek WMA.

On December 28, 2015, Reclamation and IDFG renewed a Management Agreement, #16-07-14-L0886 (Agreement), for the Tex Creek WMA. The Agreement identifies the roles and responsibilities between the two agencies for the Tex Creek area and guides the management of wildlife and habitat by IDFG on Reclamation-owned land. The Agreement expires December 27, 2040.

In 2015, Reclamation and IDFG renewed a 25-year management agreement (#16-07-14-L0886) that outlines the roles and responsibilities of the two parties in relation to Reclamation-owned land in the Tex Creek WMA. The management agreement gives IDFG the authority and responsibility to manage habitat on Reclamation lands in the Tex Creek WMA. Reclamation's

Ririe Reservoir RMP further outlines the roles, responsibilities, and – most importantly – the long-term goals and strategies for management of the Tex Creek WMA (Reclamation 2001).

Reclamation establishes use and management decisions based on the Ririe River RMP dated November 2001. The current RMP identifies several goals to preserve wildlife and habitat resources. This guiding document impacts how both Reclamation and IDFG manage lands within the Tex Creek area.

The current and primary use of these lands is unique wildlife habitat. Historically, about 5,500 acres were cropland, with approximately 4,700 acres being converted back to herbaceous cover. About 800 acres remain in winter wheat as a method of attracting and wintering mule deer. The land elevations are varied from broad, rolling plateaus to steep valleys and canyons.

3.7.2 Environmental Consequences

Alternative A- No Action

If the Proposed Action were not to occur, IDFG would continue to manage the lands and Reclamation would continue to work cooperatively with IDFG on wildlife and habitat management. There would be no changes in ownership.

Alternative B – Tex Creek Wildlife Management Area Instream Habitat Improvement Project (Proposed Action)

If the Proposed Action occurs, IDFG would continue to manage the lands and Reclamation would continue to own the lands and work cooperatively with IDFG on wildlife and habitat management. The current Management Agreement with IDFG expires in 2040; therefore, the 10-year Proposed Action would be complete prior to the expiration of the agreement.

3.8 Threatened and Endangered Species

3.8.1 Affected Environment

A corridor along Tex Creek and Indian Fork was delineated for analysis, extending from the confluence of Tex Creek and Willow Creek upstream to the National Forest boundary on Tex Creek and the existing beaver population on Indian Fork. This area covers the entire stream length where structures may be installed and riparian plantings conducted.

A preliminary report generated through the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) site indicated one candidate species could be present in or near the action area for this proposed project: the monarch butterfly *Danaus plexippus* (https://ipac.ecosphere.fws.gov/). No proposed or designated critical habitats associated with any listed species overlap with the project's area of influence. Monarch butterflies are discussed in further detail below and the full IPaC report is included as Appendix B.

Monarch Butterfly (Danaus plexippus)

Species Life History and Distribution

The monarch butterfly is a butterfly species that is globally distributed, with the North American populations being well-known for long-distance migration. They are obligate to their larval host plant, milkweed (primarily *Asclepias* spp.; ten species of which occur in Idaho) (USDA NRCS 2022), on which they lay eggs and larvae emerge in 2 to 5 days. Multiple generations of monarchs are produced in a breeding season; most individuals live approximately 2 to 5 weeks, but overwintering adults enter reproductive diapause (suspended reproduction) and may live 6 to 9 months.

Migratory individuals in western North America generally fly shorter distances south and west to overwintering groves along the California coast into northern Baja California. In the spring in western North America, monarchs migrate north and east over multiple generations from coastal California toward the Rockies and the Pacific Northwest. Adult monarch butterflies during breeding and migration require a diversity of blooming nectar resources, which they feed on throughout their migration routes and breeding grounds (spring through fall). Monarchs also need milkweed (for both oviposition and larval feeding) embedded within this diverse nectaring habitat. The correct phenology, or timing, of both monarch presence as well as nectar plants and milkweed is important for monarch survival. In western North America, nectar and milkweed resources are often associated with riparian corridors, and milkweed may function as the principal nectar source for monarchs in more arid regions (USFWS 2020).

Occurrence in Action Area

The interagency Western Monarch Milkweed Mapper (www.monarchmilkweedmapper.org) does not show any monarch, milkweed, or breeding documented in the project area (Figure 13). Milkweed and adult and larval stages of monarchs have been documented at one site approximately 15 kilometers northwest of the project area. Milkweed is also present in many areas along the Snake River north of the project area. Currently, only positive detections are listed on the website. It is unknown if the lack of detections in the project area is due to a lack of surveys or a lack of milkweed and monarchs. Monarch breeding in southern Idaho has been documented in all months from June through September. The greatest occurrence of documented breeding is in the month of July.

The monarch butterfly, as a candidate species, has not yet been proposed for listing. There are no requirements under Section 7 of the ESA for candidate species, but agencies are encouraged to take advantage of opportunities for conservation. No critical habitat has been designated for this species.

Figure 13. Screen shot from www.monarchmilkweedmapper.org showing the project area (in red) and documented detections of milkweed, monarchs, and breeding in the area. The mapper includes detection data from 1900 to present; however, the majority of detections in the area shown occurred between 2015 and 2020.

3.8.2 Environmental Consequences

Alternative A- No Action

Under the No Action alternative, overall management of the Tex Creek WMA by IDFG would remain unchanged and the effects of the loss of riparian habitat from historic farming practices and the Henry's Creek Fire would continue. IDFG would have limited options to limit the post-fire soil erosion and riparian areas would struggle to recover. No new effects to the species or habitat would be expected to occur.

Alternative B – Tex Creek Wildlife Management Area Instream Habitat Improvement Project (Proposed Action)

Where some riparian vegetation still exists after the fire, as well as in areas that may begin to regrow throughout the duration of the project, there is the chance of disturbing milkweed and/or monarch during construction. Transporting equipment from the road to the work site has the potential to trample milkweed or other nectaring plants. Gathering of riparian material to weave into the structures may also unintentionally disturb milkweed or other nectaring plants. These effects would be short term. As the water table increases and the riparian area expands milkweed and other nectaring plants would become more prevalent in the longer term.

Mitigation

Staff conducting work on the ground would include individuals trained by IDFG to identify milkweed. Prior to transporting the equipment and supplies on the ATV, a survey for milkweed plants would be completed along the route and in the work area with plants being flagged for avoidance. If milkweed cannot be avoided, the lowest density access route would be identified and used.

3.9 Indian Trust Assets

Indian Trust Assets (ITA) are legal interests in property held in trust by the United States for Indian Tribes or individual Indian trust landowners. ITAs include trust lands, natural resources, trust funds, or other assets held by the Federal Government in trust. An ITA has three components: (1) the trustee, (2) the beneficiary, and (3) the trust asset. Treaty-reserved rights, for instance, fishing, hunting, and gathering rights on and off reservation, are usufructuary rights that do not meet the Department of the Interior definition of an ITA (a usufruct is the legal right to use and derive profit or benefit from property that belongs to another person). The United States does not own or otherwise hold these resources in trust. ITAs do not normally include usufructuary rights alone (i.e., rights to access for hunting or fishing). Rather, they require first a possessory interest; that is, the asset must be held or owned by the Federal Government as trustee.

3.9.1 Affected Environment

No Indian trust land assets were identified in the Proposed Action area or staging areas during the scoping process, such as those held in trust by the Bureau of Indian Affairs for the benefit of Tribes or individual Indian trust landowners. As part of the scoping process, Reclamation researched Tessel, a federal geographic information system (GIS) land database that includes federal lands held in trust for Tribes and individual Indian trust landowners. This research indicated there are no Indian trust land assets in the Proposed Action area or staging areas (Figure 14).

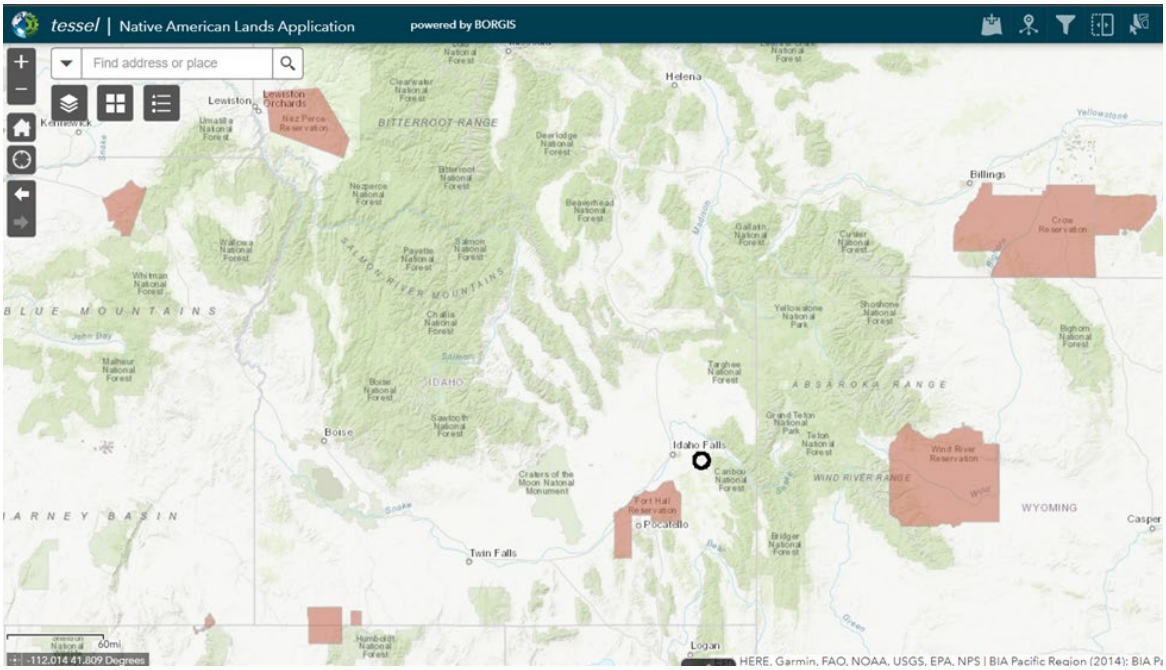

Figure 14. Project area (black circle) in relation to Indian Trust Assets

ITAs in the closest proximity to the Proposed Action area are the Fort Hall Indian Reservation occupied by the Shoshone-Bannock Tribes, which is situated approximately 21 miles southwest of the Proposed Action area. The Shoshone-Bannock Tribes have an on-reservation water right in the portion of the Snake River basin upstream from Hells Canyon Dam, the furthest downstream of the three dams authorized as Federal Energy Regulatory Commission Project No. 1971 (Fort Hall Indian Water Rights Act of 1990; 104 Stat 3059 (1990)). Additionally, the Shoshone-Bannock Tribes have water storage rights in Palisades Reservoir and American Falls Reservoir, which are reserved under the Michaud Flats Project for irrigation in the State of Idaho (68 Stat. 741 at 1027 (1954)).

ITAs in the second closest proximity to the Proposed Action area are the Wind River Indian Reservation occupied by the Eastern Shoshone and the Northern Arapaho Tribes, which is situated approximately 113 miles east of the Proposed Action area.

The Nez Perce Reservation, occupied by the Nez Perce Tribe, is situated approximately 274 miles northwest of the Proposed Action area. The Nez Perce Tribe has a water right in the Snake River basin as described in the Snake River Basin Adjudication, Case No. 39576, paragraph 3 of the Commencement Order issued by the Snake River Basin Adjudication Court on November 19, 1987 (118 Stat. 3433 (2004)). This basin-wide water right provides flow augmentation downstream on the mainstem Snake and Columbia rivers to benefit migrating salmon and steelhead.

3.9.2 Environmental Consequences

Alternative A- No Action

Under the No Action alternative, Reclamation would not allow IDFG to install habitat structures on Reclamation-owned land. Existing short-term or long-term effects, either beneficial or adverse, or effects on public health and safety in relationship to nearby ITAs would remain unchanged.

Alternative B – Tex Creek Wildlife Management Area Instream Habitat Improvement Project (Proposed Action)

Under Alternative B, the Proposed Action, Reclamation proposes to allow IDFG to improve stream habitat on Tex Creek and Indian Fork in the Tex Creek WMA by using low-tech process-based restoration. This project would include up to 40 low-tech structures per kilometer placed along 23.9 kilometers of Indian Fork and Tex Creek. If the Proposed Action occurs, there are no known beneficial or adverse effects to ITAs.

Reclamation requested information from the Shoshone-Bannock Tribes of the Fort Hall Reservation and the Eastern Shoshone Tribe who traditionally or currently use the area under their reserved treaty rights; no responses were received. The lack of specific information about the area is not indicative of a lack of importance to Tribes. With no specific responses, Reclamation assumes that there would be no adverse effects to ITAs, such as adverse impacts to water, water rights, or land held in trust for the Tribes.

3.10 Treaty Rights

3.10.1 Affected Environment

The United States has a fiduciary responsibility to protect and maintain rights reserved by Indian Tribes or Indian individuals by treaties, statues, executive orders, and allotments. These rights are sometimes further interpreted through court decisions and regulations.

The Proposed Action area is surrounded by areas historically used by many Tribes. Treaty rights at issue are access and impacts to off-reservation hunting, fishing, and gathering rights, livestock grazing rights, and cultural or ceremonial use rights. Although the Proposed Action area may have federally owned property, courts have ruled that members of federally recognized Tribes with reserved treaty rights have the right to cross private or state lands in order to gain access to treaty areas (United States v. Winans, 1905).

The Shoshone-Bannock Tribes of the Fort Hall Indian Reservation are federally recognized Tribes in southeast Idaho, situated approximately 21 miles southwest of the Proposed Action area and the Wind River Indian Reservation occupied by the Eastern Shoshone and the Northern Arapaho Tribes, is situated approximately 113 miles east of the Proposed Action area. On July 3, 1868, the Fort Bridger Treaty was signed and agreed to by the eastern and western bands of the Northern Shoshone and the Bannock (or Northern Paiute Bands). Article IV of the

treaty states that members of the Shoshone-Bannock Tribes '…shall have the right to hunt on the unoccupied lands of the United States…' courts have interpreted this to mean "unoccupied federal lands."

In the case of State of Idaho v. Tinno, an off-reservation fishing case in Idaho, the Idaho Supreme Court interpreted the Fort Bridger Treaty of the Shoshone-Bannock Tribes. The Court determined that the Shoshone word for 'hunt' also included to 'fish.' Under Tinno, the Court affirmed the Tribal Members' right to take fish off-reservation pursuant to the Fort Bridger Treaty. The Court also recognizes, "that treaty Indians have subsistence and cultural interests in hunting and fishing…" and "The Fort Bridger Treaty … contains a unified hunting and fishing right, which…is unequivocal." The treaty did not grant a hunting, fishing, or gathering right, it reserved a right the Shoshone-Bannock Tribes have always exercised.

The Shoshone-Paiute Tribes of the Duck Valley Reservation are federally recognized Tribes in southern Idaho and northern Nevada, situated approximately 224 miles southwest of the Proposed Action area. The reservation was established by executive orders dated April 16, 1877; May 4, 1886; and July 1, 1910. The Shoshone-Paiute sometimes claim the interests of the Tribes that are reflected in the Bruneau, Boise, Fort Bridger, Box Elder, Ruby Valley, and other treaties and executive orders that the Tribes' ancestors agreed to with the United States. The Tribes continue to observe these treaties and executive orders in good faith; however, the Federal Government did not ratify treaties that reserved off-reservation hunting and fishing rights. The Tribes assert they have aboriginal title and rights to those areas. All such treaties and executive orders recognize the need for the Tribes to continue to have access to off-reservation resources because most of the reservations established were and continue to be incapable of sustaining Tribal populations. This need continues and has not diminished from the time of the first treaties and executive orders that established the Duck Valley Reservation (Cherokee Nation of Oklahoma and Shoshone-Paiute Tribes of the Duck Valley Reservation v. Leavitt, 2005).

The Northwestern Band of the Shoshone Indians, a federally recognized Tribe located near Washakie, Utah, is situated approximately 106 miles south-southwest of the Proposed Action area. The Tribe maintains reserved treaty-protected hunting, fishing, and gathering rights, also pursuant to the 1868 Treaty of Fort Bridger. As noted above, these reserved rights may be exercised on unoccupied lands within the area acquired by the United States.

The Nez Perce Tribe of the Nez Perce Reservation are a federally recognized Tribe in northern Idaho, situated approximately 274 miles northwest of the Proposed Action area. The United States and the Tribe entered into three treaties (Treaty of 1855, Treaty of 1863, and Treaty of 1868) and one agreement (Agreement of 1893). The rights of the Nez Perce Tribe include the right to hunt, gather, and graze livestock on open and unclaimed lands, and to fish in all usual and accustomed places.

The Northern Arapaho of the Wind River Reservation are a federally recognized Tribe located in central Wyoming, situated approximately 113 miles east of the Proposed Action area. The United States and the Northern Arapaho entered into the Fort Laramie Treaty of 1851 (Horse Creek Treaty), which reserved the right of the Northern Arapaho "to roam and hunt while game shall be found in sufficient quantities to justify the chase."

3.10.2 Environmental Consequences

The United States Supreme Court has ruled that treaties with Indian Tribes are to be construed liberally in favor of Tribes, as the Tribes would have understood the language of the treaty at the time the treaty was signed. It is likely that the ratified or unratified treaties listed above include the Proposed Action area.

Alternative A- No Action

Under the No Action alternative, Reclamation would not allow IDFG to install habitat structures on Reclamation owned land. There would be no short-term or long-term effects, either beneficial or adverse to existing reserved treaty rights for Tribal hunting, fishing, or gathering in traditional or customary places or for livestock grazing in the area.

Alternative B – Tex Creek Wildlife Management Area Instream Habitat Improvement Project (Proposed Action)

Under Alternative B, there are anticipated beneficial long-term effects to reserved treaty rights, such as access to or impacts to traditional or customary places for hunting, fishing, or gathering, or for livestock grazing in the area. The anticipated benefit of installing habitat structures would improve stream habitat in Tex Creek and Indian Fork and would attract beaver. The project would raise the water table, which would improve conditions for riparian plants and adjacent meadows. The beaver would provide the long-term maintenance and habitat improvement that attracts YCT among other species. The proposed project construction ingress and egress routes may cause a temporary, short-term adverse effect on access to traditional or customary hunting, fishing, or gathering sites, or for livestock grazing areas during the construction periods.

Reclamation requested information from the Shoshone-Bannock Tribes of the Fort Hall Indian Reservation and the Eastern Shoshone Tribe Wind River Indian Reservation, who traditionally and currently use the area for hunting, fishing, and gathering of plants; no responses were received. The lack of specific information about the area is not indicative of a lack of importance to Tribes. With no specific response, Reclamation assumes that there would be no adverse effects to reserved treaty rights such as access or impacts to areas for hunting, fishing, or gathering, or for livestock grazing.

3.11 Cultural Resources

3.11.1 Affected Environment

Reclamation completed a record search with the Idaho State Historic Society on October 19, 2021. Only one not eligible resource is recorded within 1 mile of the area of potential effect (APE): 10BV187. Seven previous surveys, including one which covered over 700 acres within the Tex Creek WMA, have been completed near the proposed APE (Polson 2017). In those 700 acres, only one precontact site (a hunting blind), six historic/modern trash dumps, and two undatable rockpiles were recorded. Other historic records show that much of the flat land was patented and farmed leading up to the 1970s when the WMA was set up to mitigate for

environmental effects resulting in part from the Ririe and Teton Dam projects. Some of the area is still farmed, but only a few historic structures are still standing in the Tex Creek WMA and none were ever known to exist within the APE. Although the current APE has not been previously surveyed, the general expectation is that site density is low.

Cultural Resources Investigations

Reclamation reviewed the locations where IDFG proposed to place the BDAs and PALS and found that 2.4 miles are within areas that are surrounded on both sides by slopes of 35 to 60 percent. These areas were excluded from pedestrian survey as there is little likelihood of cultural resources being present in these areas. The remaining 2.9 miles were subjected to a series of reconnaissance and intensive surveys as all ground disturbance would be in active stream beds. Intensive surveys were focused on areas most likely to contain cultural resources where the banks of streams are wider, such as on Indian Fork.

The APE was subjected to intensive and reconnaissance surveys on October 21, 2021, and May 25, 2022. No cultural resources were identified within the APE. Given the topography and location of the ground disturbing work being performed within the stream channel, there is little chance for unidentified cultural resources.

3.11.2 Environmental Consequences

Alternative A- No Action and Alternative B – Tex Creek Wildlife Management Area Instream Habitat Improvement Project (Proposed Action)

As no historic properties were identified within the project area, there would not be negative impacts to historic properties.

3.12 Indian Sacred Sites

3.12.1 Affected Environment

Evidence of human occupation in southcentral Idaho dates as early as 14,500 years before the present (BP). The three major prehistoric cultural periods that have been identified for southeastern Idaho also apply to south central Idaho:

- Early Prehistoric Period (15,000 to 7,500 BP)
- Middle Prehistoric Period (7,400 to 1,300 BP)
- Late Prehistoric Period (1,300 to 150 BP)

These periods reflect a shift over time from a highly mobile lifestyle involving hunting and gathering (such as seeds, roots, mammals, and fish) to reduced mobility and intensified use of certain highly productive resources (such as camas and salmon). The project area is within the Snake River basin, which was traditionally used by the Shoshone and Bannock Tribes for gathering plants for food and medicine, hunting, fishing, trading, and for ceremonial purposes.

The Shoshone and Bannock Tribes of the Fort Hall Reservation, Idaho represent two linguistically distinct populations of people. The length of time these Tribes have occupied southern Idaho is a subject of long-standing debate among scholars. Subsistence practices and lifestyles were similar to other Great Basin cultural groups. Because the environment could not sustain large populations, people moved from one resource to the next, relying on a wide variety of resources including roots, berries, nuts, marmots, squirrels, rabbits, insects, large game, and fish. By the time of the earliest Euroamerican contact in the early 1800s, the Shoshone and Bannock Tribes had acquired the horse, making it easier to procure bison and other resources and to trade. Earlier consultation about portions of the WMA have indicated that the area is important to the Tribes for exercising their treaty rights, but no Indian Sacred Sites have been identified within or near the project area.

3.12.2 Environmental Consequences

Alternative A- No Action and Alternative B – Tex Creek Wildlife Management Area Instream Habitat Improvement Project (Proposed Action)

As no Indian Sacred Sites have been identified in or near the project area, there would be no effect on these resources.

3.13 Environmental Justice

3.13.1 Affected Environment

Executive Order 12898 (59 FR 7629) requires each federal agency to achieve environmental justice by addressing disproportionately high and adverse human health and environmental effects on minority and low-income populations. The demographics of the action area are examined to determine whether minority populations, low-income populations, and/or Native American Tribes are present in the area impacted by a proposed action. If present, the agency must determine if implementation of the proposed action would cause disproportionately high and adverse human health or environmental effects on the populations.

There is no population within 3 miles of the project area. The area within 10 miles of the project area is sparsely populated as well, with a total population of 2,941 and a density of 38 people per square mile. Census information from the U.S. Environmental Protection Agency (EPA)'s EJScreen tool (https://ejscreen.epa.gov/mapper/) was retrieved to show demographics of the area within 10 miles of the project. The proportions of people of color and the low-income demographic are lower in this area than the rest of Idaho, the EPA region, and the U.S. as a whole (Table 6).

Table 6. Demographic statistics for the population within 10 miles of the project area compared to statistics for Idaho, the EPA region, and the U.S. (from https://ejscreen.epa.gov/mapper/)

Category	Selected Variables	Value	State Avg.	Percentile in State	EPA Region Avg.	Percentile in EPA Region	U.S. Avg.	Percentile in U.S.
Demographic	People of color	5%	18%	9	28%	4	40%	10
Demographic	Low income	15%	34%	10	28%	25	31%	25

3.13.2 Environmental Consequences

Alternative A- No Action

The No Action alternative would not alter the current regional environmental justice status based on the information presented above. Therefore, the No Action alternative would have no additional environmental justice effects than those described in the Affected Environment section.

Alternative B – Tex Creek Wildlife Management Area Instream Habitat Improvement Project (Proposed Action)

No minority or low-income groups, as identified for further analysis by Executive Order 12898, were identified that would be disproportionately affected by health or environmental effects as the result of the implementation of the Proposed Action. Because the Proposed Action is a small, localized action with a relatively unpopulated area of effect, there would be no significant effect to the greater area's low-income or minority populations.

Chapter 4 Consultation and Coordination

On January 7, 2022, Reclamation mailed a scoping document including a letter, project information, and a map, to agencies, Indian Tribes, members of Congress, organizations, and individuals, soliciting their help in identifying any issues and concerns related to the Proposed Action. Reclamation received one comment from the scoping period. The mailing list, scoping letters, and the comment received are presented in Appendix C.

A variety of mechanisms were used to inform the public about the project and to encourage local residents, Tribal members, and agencies to engage in activities during the scoping period and attend the scoping public meetings. These included an information package being mailed and a public website with current information available for access.

4.1 Agency Consultation and Coordination

4.1.1 National Historic Preservation Act

Reclamation initiated consultation with the Idaho State Historic Preservation Office (SHPO), the Shoshone-Bannock Tribes, and the Eastern Shoshone Tribe on June 21, 2022 (Appendix D). SHPO concurrence with Reclamation's finding of No Historic Properties Affected for the project area was received on July 12, 2022. No response was received from the Tribes.

4.1.2 Endangered Species Act

Reclamation generated a preliminary endangered species report through the USFWS IPaC site (Appendix B). The report indicated that one candidate species could be present in or near the action area for this proposed project: the monarch butterfly (*Danaus plexippus*) (candidate for listing). No proposed or designated critical habitats associated with any listed species overlap with the project's area of influence. Since the Proposed Action would not overlap with any threatened or endangered species, Reclamation did not consult on the project with USFWS. Due to the duration of the project and the candidate status of monarch butterfly, IDFG is mitigating potential impacts. IDFG would identify, flag, and avoid any milkweed along the access routes between the road and construction sites.

4.1.3 Permitting

IDFG has received Permit Number S25-20045 from IDWR covering requirements under Section 401 and 42-3805, Idaho Code (Appendix A). This permit covers work on all of Indian Fork within the project area and a 2-mile stretch of Tex Creek. The permit is good through December 31, 2024. New permits from IDWR would be applied for in the future by IDFG to expand the area in Tex Creek and extend the timeframe past 2024. IDFG has applied for, but has not yet received, a 404 permit from USACE. All permits would be in place before any instream work would begin.

4.2 Tribal Consultation and Coordination

Reclamation summarized the project at a staff-to-staff meeting with the Shoshone-Bannock Tribes on October 12, 2021. Reclamation also mailed scoping letters to the Shoshone-Bannock Tribes on December 29, 2021 (Appendix C). No concerns from the Tribes were brought forward.

Chapter 5 References

Parenthetical Reference	Bibliographic Citation
Bouwes et al. 2016	Bouwes, N., N. Webber, C. Jordan, C. Sunders, I. Tattam, C. Volk, J. Wheaton, and M. Pollock. 2016. "Ecosystem experiment reveals benefits of natural and simulated beaver dams to a threatened population of steelhead (*Oncorhynchus mykiss*)." *Sci. Rep*. 6, 28581. doi: 10.1038/ srep28581
Denman and Ruggerone 1994	Denman, R.A. and G.T. Ruggerone. 1994. *Effects of beaver colonization on the hydrology and spawning habitat of sockeye salmon in the Chingnik Lakes, Alaska*. Natural Resources Consultants, Inc. Seattle, Washington.
Fairfax and Small 2018	Fairfax, E. and E.E. Small. 2018. "Using remote sensing to assess the impact of beaver damming on riparian evapotranspiration in an arid landscape." *Ecohydrology* 2018;e1993.
Fan and Morris 1992	Fan, J. and G.L. Morris. 1992. "Reservoir sedimentation I: Delta and density current deposits." *Journal of Hydraulic Engineering* 118, pp. 354-369.
Gribovszki et al. 2010	Gribovszki, Z., J. Szilagyi, and P. Kalicz. 2010. "Diurnal fluctuations in shallow groundwater levels and in streamflow rates and their interpretation: a review." *Papers in Natural Resources* 978. https://digitalcommons.unl.edu/natrespapers/978
Groves et. al. 1997	Groves, C., B. Butterfield, A. Lippincott, B. Csuti, and J. Scott. 1997. *Atlas of Idaho's Wildlife, Integrating Gap Analysis and Natural Heritage Information*. Idaho Department of Fish and Game, Idaho Conservation Center. Boise, Idaho.
High 2021, pers. comm.	High, B. 2021. Personal communication. Communications with current Upper Snake River Regional Fisheries Manager Brett High, Idaho Department of Fish and Game. January 2021.
IDEQ 2004	IDEQ 2004 Idaho Department of Environmental Quality. 2004. *Willow Creek Subbasin Assessment and TMDLs*. Idaho Falls Regional Office, Department of Environmental Quality. Idaho Falls, Idaho.
IDEQ 2008	IDEQ 2008 Idaho Department of Environmental Quality. 2008. *Rules of the Department of Environmental Quality*, IDAPA 58.01.02, "Water Quality Standards." Boise, Idaho.
IDEQ 2020	IDEQ 2020 Idaho Department of Environmental Quality. 2018. *Idaho's 2018/2020 Integrated Report Final*. October 2020.
IDFG 2007	IDFG, 2007. *Management plan for conservation of Yellowstone cutthroat trout in Idaho*. Idaho Department of Fish and Game, Boise Office.

Parenthetical Reference	Bibliographic Citation
IWRRI 2007	Idaho Water Resources Research Institute. 2011. *Estimating Tributary Basin Underflow to the Eastern Snake Plain Aquifer*. IWRRI Technical Completion Report 201103.
Larsen et al. 2021	Larsen, A., J.R. Larsen, and S.N. Lane. 2021. "Dam builders and their works: Beaver influences on the structure and function of river corridor hydrology, geomorphology, biogeochemistry and ecosystems." *Earth Science Reviews*. 2018:103623.
Levine et. al. 1998	Levine, E., J. Beals, and W. Melquist. 1998. *Idaho peregrine falcon survey and nest monitoring 1998 annual summary. Annual Report, Threatened and Endangered Species Project.* 16 pp.
Lupon et al. 2018	Lupon, A., J.L. Ledesma, and S.Bernal. 2018. "Riparian evapotranspiration is essential to simulate streamflow dynamics and water budgets in a Mediterranean catchment." *Hydrology and Earth Systems* 22, pp. 4033-4045.
Mahmood 1987	Mahmood, K. 1987. *Reservoir Sedimentation: Impact, Extent, and Mitigation*. The World Bank Washington, D.C.
Majerova et al. 2020	Majerova, M., B.T. Neilson, and B.B. Roper. 2020. "Beaver dam influences on streamflow hydraulic properties and thermal regimes." *Science of the Total Environment* 718: 134853.
McCully 1996	McCully, P. 1996. *Silenced rivers: the ecology and politics of large dams*. Zed Books, London.
Nyssen et al. 2011	Nyssen, J., J. Pontzeele, and P. Billi. 2011. "Effect of beaver dams on the hydrology of small mountain streams: example from Chevral in the Ourthe Orientale basin, Ardennes, Belgium." *Hydrology* 402, pp. 92-102.
Parker 1986	Parker, M. 1986. "Beaver, water quality and riparian systems." *Proceedings of the Wyoming Water and Streamside Zone Conference*. Wyoming Water Research Center, University of Wyoming, Laramie, 1, pp. 88–94.
Pierce et. al. 1992	Pierce, K.L., and L.A. Morgan, 1992. "The track of the Yellowstone hotspot: volcanism, faulting and uplift." *Geological Society of America Memoir* 179, pp. 1-53.
Pilliod et al. 2018	Pilliod, D.S., A.T. Rohde, S. Charnley, R.R. Davee, J.B. Dunham, H. Gosnell, G.E. Grant, M.B. Hausner, J.L. Huntington, and C. Nash. 2018. "Survey of beaver-related restoration practices in rangeland streams of the western USA." *Environmental Management* 61, pp. 58-68.

Parenthetical Reference	Bibliographic Citation
Polson 2017	Polson, N. 2017. *Archaeological Survey of 725.6 Acres Burned during the 2016 Henry's Creek Fire at Tex Creek Wildlife Mitigation Area, Ririe Reservoir, Bonneville County, Idaho*. Bureau of Reclamation, Upper Snake Field Office Report No. 17-USFO-CR-017. Heyburn, Idaho. August 2017.
Puttock et al. 2021	Puttock, A., H.A. Graham, J. Ashe, D.J. Luscombe, and R. E. Brazier. 2021. "Beaver dams attenuate flow: A multi-site study." *Hydrological Processes* 35: e14017. https://doi.org/10.1002/hyp.14017
Reclamation 1998	Bureau of Reclamation. 1998. *Arrowrock Reservoir Sedimentation Survey*. Bureau of Reclamation, Technical Services Center, Denver Colorado.
Reclamation 2001	Bureau of Reclamation. 2001. *Ririe Reservoir Resource Management Plan*. Snake River Area Office. Boise Idaho. November 2008.
Reclamation 2003	Bureau of Reclamation. 2003. *Minidoka North Side Resource Management Plan (RMP), Final Environmental Assessment (EA) and Finding of No Significant Impact (FONSI)*. Pacific Northwest Region, Snake River Area Office, PN-FONSI-04-12.
Reclamation 2006	Bureau of Reclamation. 2006. *Erosion and Sedimentation Manual*. Bureau of Reclamation, Sedimentation and River Hydraulics Group, Denver, Colorado.
Reclamation 2020	Bureau of Reclamation. 2020. *Technical Report No. ENV-2019-007 Bighorn Reservoir 2017 Sedimentation Survey*. Pick-Sloan Missouri Basin Program, Montana, Great Plains Region.
Reclamation 2022	Bureau of Reclamation. 2022. *Technical Report No. ENV-2022-068 Tiber Reservoir (Lake Ewell), 2021 Sedimentation Survey Lower Marias Unit (Pick-Sloan Missouri Basin Program)*. Montana Missouri Basin and Arkansas-Rio Grande-Texas Gulf Region.
Rosell et al. 2005	Rosell, F., O. Bozser, P. Collen, and H. Parker. 2005. "Ecological impact of beavers and their ability to modify ecosystems." *Mammal Review* 35, pp. 248-276.
Scamardo and Wohl 2020	Scamardo, J. and E. Wohl. 2020. "Sediment Storage and shallow groundwater response to beaver dam analogues in the Colorado Front Range, USA." *River Research and Applications* 36, pp. 398-409.
USDA NRCS 2022	USDA Natural Resource Conservation Service. 2022. *Plants Database*. Available online at https://plants.usda.gov/home/basicSearchResults?resultId=a7ad48cf-5d2e-403a-96e9-434711d4999b (last accessed 8/2/2022).

Parenthetical Reference	Bibliographic Citation
USFWS 2020	U.S. Fish and Wildlife Service. 2020. *Monarch (Danaus plexippus) Species Status Assessment Report*. V2.1 96 pp + appendices. Available online at https://www.fws.gov/media/monarch-butterfly-species-status-assessment-ssa-report (last accessed October 2021).
Walker 2021, pers. comm.	Walker, R. 2021. Personal communication. Communications with current Tex Creek WMA Manager Ryan Walker, Idaho Department of Fish and Game. October 20, 2021.
Walker 2022, pers. comm.	Walker, R.. 2022. Personal communication. Communications with current Tex Creek WMA Manager Ryan Walker, Idaho Department of Fish and Game. August 12, 2022.
Weber et al. 2017	Weber N., N. Bouwes, M.M. Pollock, C. Volk, J.M. Wheaton. G. Wathen, J. Wirtz, and C.E. Jordan. 2017. *Alteration of stream temperature by natural and artificial beaver dams*. PLoS ONE 12(5): e0176313. https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0176313
Wheaton et al. 2019	Wheaton, J.M., S.N. Bennett, N. Bouwes, J.D. Maestas, and S.M. Shahverdian (Editors). 2019. *Low-Tech Process-Based Restoration of Riverscapes: Design Manual*. Version 1.0. Utah State University Restoration Consortium. Logan, Utah. Available online at: http://lowtechpbr.restoration.usu.edu/manual.
Wondzell and King 2003	Wondzell, S.M. and J.G. King. 2003. "Postfire erosional processes in the Pacific Northwest and Rocky Mountain regions." *Forest Ecology and Management* 178, pp. 75-87.
Woo and Waddington 1990	Woo, M. and J.M. Waddington. 1990. "Effects of beaver dams on subarctic wetland hydrology." *Arctic* 43-3:223-230.

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Appendix A

IDWR Permit No. S25-20045, Beaver Mimicry Structures – Indian Fork

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IDAHO DEPARTMENT OF
WATER RESOURCES

Northern Region • 7600 N Mineral Drive, Suite 100 • Coeur D'Alene, ID 83815-7763
Phone: 208-762-2800 • Fax: 208-762-2819 • Email: northerninfo@idwr.idaho.gov • Web: idwr.idaho.gov

Governor Brad Little **Director Gary Spackman**

August 23, 2022

Ryan Walker
Idaho Department of Fish and Game
4279 Commerce Circle
Idaho Falls, ID 83401

RE: **Amended** Joint Application for Permit No. S25-20045
Beaver Mimicry Structures – Indian Fork

Dear Mr. Walker:

The Idaho Department of Water Resources (IDWR) has reviewed your above referenced application for a permit to alter Indian Fork and has prepared a decision as provided for in Section 42-3805, Idaho Code. The conditions set forth in this permit are intended to prevent degradation of water quality, protect fish and wildlife habitat, and protect the long-term stability of the stream channel. If you cannot meet the conditions set forth in the permit, please contact this office for further consideration.

You may consider this letter an approval to construct your project as conditioned below and according to your attached application, dated May 17, 2022, including diagrams. Project activities include the construction of up to 500 Beaver Mimicry Structures along approximately 3.1 miles of Indian Fork. The project location is within Section 09, Township 01 North, Range 41 East, Boise Meridian, Bonneville County, Idaho.

Failure to adhere to the conditions as set forth herein can result in legal action as provided for in Section 42-3809, Idaho Code. This project is subject to the following Special and General Conditions.

SPECIAL CONDITIONS:

[1] All construction shall be completed in accordance with the descriptions and methods on the attached application and diagrams. This office must approve any changes prior to construction.

[2] All construction activities shall be conducted in such a manner as to minimize turbidity and comply with Idaho water quality standards.

[3] Woody stream bank vegetation shall be protected to the extent practical during construction.

[4] Permittee shall measure and report to IDWR the streamflow for the project location to establish baseline data and to quantify stream reach gains or losses prior to construction. Measurements shall be taken by a professional engineer, professional geologist, hydrologist, or other person having at least one year of experience taking streamflow discharge measurements. Measurements shall be taken on the reach immediately upstream and downstream of the structures. Additional measurements on the stream reach or tributary sources may be necessary to account for tributary or spring source inflows or to account for diversions or other outflows from the stream reach.

[5] Permittee shall provide IDWR post-construction streamflow measurements at the same locations where the baseline measurements were taken. Post-construction measurements shall be taken within 21 days of final construction. IDWR may require one or more sets of post-construction measurements beyond the 21-day period, but post-construction measurements and reporting should not extend beyond one year.

[6] IDWR may require the permittee to remove individual structures upon receipt of one or more written complaints from downstream water users alleging that permitted structures interfere with downstream water rights, and upon a site investigation and determination by IDWR staff that such structures divert or back water above the Mean High Water Mark.

[7] All fuel, oil and other hazardous materials shall be stored and equipment refueled away from the stream channel to ensure that a spill will not enter the waterway. Equipment must be free of fuel and lubricant leaks.

[8] Permittee is responsible for all work done by any contractor and shall ensure any contractor who performs the work is informed of and follows all the terms and conditions of this authorization.

[9] This permit shall expire December 31, 2024.

GENERAL CONDITIONS:

1. This permit does not constitute any of the following:
   a) An easement or right-of-way to trespass or work upon property belonging to others;
   b) Other approval that may be required by local, state, or Federal governments, unless specifically stated in the special conditions above;
   c) Responsibility of IDWR for damage to any properties due to work done;
   d) Compliance with the Federal Flood Insurance Program, FEMA regulations, or approval of the local Planning and Zoning authority.
2. In accordance with Sections 55-2201 - 55-2212, Idaho Code, the permittee and/or contractors must contact Digline statewide phone number 1-800-342-1585 (Boise area 208-342-1585) not less than three working days prior to the start of any excavation for this project.

3. The permittee or operator must have a copy of this permit at the alteration site, available for inspection at all times.

4. IDWR may cancel or amend this permit at any time that it determines such action is necessary to minimize adverse impact on the stream channel.

IDWR is permitting the proposal, subject to the above conditions and not the proposal as submitted. Failure to adhere to conditions as set forth herein can result in an enforcement action pursuant to Section 42-3809, Idaho Code.

If you object to the decision issuing this permit with the above conditions, you have 15 days in which to notify this office in writing that you request a formal hearing on the matter. If an objection has not been received within 15 days, the decision will be final under the provisions of IDAPA 37.03.07.70 (Rule 70).

Please contact Aaron Golart 208-287-4941 or aaron.golart@idwr.idaho.gov if you have any questions regarding this matter.

Sincerely,

Aaron Golart
State Coordinator
Stream Protection Program

cc: Alex Bell, Idaho Department of Environmental Quality, Idaho Falls
Jacob Gray, Idaho Department of Fish and Game, Idaho Falls
Pat Brown, Idaho Department of Lands, Idaho Falls
Steve Serr, Bonneville County Floodplain Administrator, Idaho Falls
Jeff Nield, US Army Corps of Engineers, Idaho Falls

RECEIVED

MAY 27 2022

DEPARTMENT OF WATER RESOURCES

JOINT APPLICATION FOR PERMITS

U.S. ARMY CORPS OF ENGINEERS - IDAHO DEPARTMENT OF WATER RESOURCES - IDAHO DEPARTMENT OF LANDS

Authorities: The Department of Army Corps of Engineers (Corps), Idaho Department of Water Resources (IDWR), and Idaho Department of Lands (IDL) established a joint process for activities impacting jurisdictional waterways that require review and/or approval of both the Corps and State of Idaho. Department of Army permits are required by Section 10 of the Rivers & Harbors Act of 1899 for any structure(s) or work in or affecting navigable waters of the United States and by Section 404 of the Clean Water Act for the discharge of dredged or fill materials into waters of the United States, including adjacent wetlands. State permits are required under the State of Idaho, Stream Protection Act (Title 42, Chapter 38, Idaho Code and Lake Protection Act (Section 58, Chapter 13 et seq., Idaho Code). In addition the information will be used to determine compliance with Section 401 of the Clean Water Act by the appropriate State, Tribal or Federal entity.

Joint Application: Information provided on this application will be used in evaluating the proposed activities. Disclosure of requested information is voluntary. Failure to supply the requested information may delay processing and issuance of the appropriate permit or authorization. **Applicant will need to send a completed application, along with one (1) set of legible, black and white (8½"x11"), reproducible drawings that illustrate the location and character of the proposed project / activities to both the Corps and the State of Idaho.**

See Instruction Guide for assistance with Application. Accurate submission of requested information can prevent delays in reviewing and permitting your application. Drawings including vicinity maps, plan-view and section-view drawings must be submitted on 8-1/2 x 11 papers.

Do not start work until you have received all required permits from both the Corps and the State of Idaho

FOR AGENCY USE ONLY

USACE NWW-	Date Received:	☐ Incomplete Application Returned	Date Returned:
Idaho Department of Water Resources No. 25-20045	Date Received: 5/27/2022	☐ Fee Received DATE:	Receipt No.:
Idaho Department of Lands No.	Date Received:	☐ Fee Received DATE:	Receipt No.:

INCOMPLETE APPLICANTS MAY NOT BE PROCESSED

1. CONTACT INFORMATION - APPLICANT Required:			2. CONTACT INFORMATION - AGENT:		
Name: Ryan Walker			Name:		
Company: Idaho Department of Fish and Game			Company:		
Mailing Address: 4279 Commerce Circle			Mailing Address:		
City: Idaho Falls	State: ID	Zip Code: 83401	City:	State:	Zip Code:
Phone Number *(include area code)*: 208-360-6360	E-mail: ryan.walker@idfg.idaho.gov		Phone Number *(include area code)*:	E-mail:	

3. PROJECT NAME or TITLE: Indian Fork		4. PROJECT STREET ADDRESS:		
5. PROJECT COUNTY: Bonneville	6. PROJECT CITY:	7. PROJECT ZIP CODE:	8. NEAREST WATERWAY/WATERBODY: Indian Fork of Tex Creek	
9. TAX PARCEL ID#:	10. LATITUDE: 43.43552 LONGITUDE: -111.64133	11a. 1/4: / 11b. 1/4: / 11c. SECTION: 9	11d. TOWNSHIP: 1N	11e. RANGE: 41E
12a. ESTIMATED START DATE: 9/15/2022	12b. ESTIMATED END DATE: 11/30/2023	13a. IS PROJECT LOCATED WITHIN ESTABLISHED TRIBAL RESERVATION BOUNDARIES? ☒ NO ☐ YES Tribe:		
13b. IS PROJECT LOCATED IN LISTED ESA AREA? ☒ NO ☐ YES		13c. IS PROJECT LOCATED ON/NEAR HISTORICAL SITE? ☒ NO ☐ YES		

14. DIRECTIONS TO PROJECT SITE: Include vicinity map with legible crossroads, street numbers, names, landmarks.

From Idaho Falls take Hwy. 26 toward Swan Valley. Approx. 1 mile east of Ririe, turn south on the Meadow Creek Rd. toward Ririe Reservoir and Juniper Campground. Continue south on the Meadow Creek Rd. approx. 12 miles and take a left toward Indian Fork and the USFS boundary. Travel approx. 2 miles to hayshed in Indian Fork drainage that lies near the middle of the project area.

15. PURPOSE and NEED: ☐ Commercial ☐ Industrial ☒ Public ☐ Private ☐ Other

Describe the reason or purpose of your project; include a brief description of the overall project. Continue to Block 16 to detail each work activity and overall project.

Indian Fork has limited beaver dam activity that improves the ecological health and resilience of low-order streams. The goal of our project is to mimic and promote the processes influenced by natural beaver dams that create more complex instream habitat, increase channel-floodplain connectivity, and improve and expand riparian areas.

16. DETAILED DESCRIPTION OF EACH ACTIVITY WITHIN OVERALL PROJECT. Specifically indicate portions that take place within waters of the United States, including wetlands: Include dimensions; equipment, construction, methods; erosion, sediment and turbidity controls; hydrological changes: general stream/surface water flows, estimated winter/summer flows; borrow sources, disposal locations etc.:

The proposed project will build up to 100 low-tech instream restoration structures per kilometer, including beaver dam analogues (BDA's) and post-assisted log structures (PALS) along approx. 5 kilometers of Indian Fork. This project will be the second phase of a larger project in Tex Creek and tributaries, and is focused on details associated with locating and building individual structures. Specific structure type and location will be identified on-site prior to implementation.

BDA's and PALS are hand-built structures that mimic natural beaver dams and wood jams. They are temporary, semi-permeable structures designed to improve stream health by increasing instream aquatic habitat complexity, increasing channel-floodplain connectivity, and accelerating recovery from channel incision by forcing both channel widening and aggradation. All structures will be built by hand using only hand tools (e.g., chainsaw, shovel, loppers) and a hydraulic or gas-powered post pounder. Along easily accessible portions of the project area we will use a post pounder to install untreated wooden posts to increase the temporary stability of structures.

Individual restoration structures may be designed to force overbank flows, capture sediment for channel aggradation, or promote channel widening to accelerate recovery from channel incision and increase channel complexity. At the scale of the entire project, restoration will likely decrease downstream sediment delivery. Restoration structures will help recharge groundwater by increasing channel-floodplain connectivity, and promote the regeneration of a healthy riparian area, which is critical to long-term stream and floodplain health.

17. DESCRIBE ALTERNATIVES CONSIDERED to AVOID or MEASURES TAKEN to MINIMIZE and/ or COMPENSATE for IMPACTS to WATERS of the UNITED STATES, INCLUDING WETLANDS: See Instruction Guide for specific details.

We anticipate no negative consequences in response to our restoration, which relies on hand-built structures, and specifically intended to mimic the natural processes of beaver dam activity and wood accumulation. Restoration actions will benefit the waters of the United States and wetlands by mimicking and promoting the hydrologic and geomorphic processes that create and maintain healthy stream and wetland ecosystems.

18. PROPOSED MITIGATION STATEMENT or PLAN: If you believe a mitigation plan is not needed, provide a statement and your reasoning why a mitigation plan is NOT required. Or, attach a copy of your proposed mitigation plan.

We do not believe a mitigation plan is required because our proposed restoration mimics natural processes and forms found in healthy streams and rivers. Furthermore, there is minimal disturbance associated with our proposed actions because our project restoration relies exclusively on hand-built structures.

19. TYPE and QUANTITY of MATERIAL(S) to be discharged below the ordinary high water mark and/or wetlands:

Dirt or Topsoil:	250	cubic yards
Dredged Material:		cubic yards
Clean Sand:		cubic yards
Clay:		cubic yards
Gravel, Rock, or Stone:		cubic yards
Concrete:		cubic yards
Other (describe): woody material	1,750	cubic yards
Other (describe):		cubic yards
TOTAL:	2,000	cubic yards

20. TYPE and QUANTITY of impacts to waters of the United States, including wetlands:

Filling:	acres	sq ft.	1,875	cubic yards
Backfill & Bedding:	acres	sq ft.		cubic yards
Land Clearing:	acres	sq ft.		cubic yards
Dredging:	acres	sq ft.		cubic yards
Flooding: 5	acres	sq ft.		cubic yards
Excavation:	acres	sq ft.		cubic yards
Draining:	acres	sq ft.		cubic yards
Other:	acres	sq ft.		cubic yards
TOTALS: 5	acres	sq ft.	1,875	cubic yards

21. HAVE ANY WORK ACTIVITIES STARTED ON THIS PROJECT? ☒ NO ☐ YES If yes, describe ALL work that has occurred including dates.

No active stream restoration has taken place.

22. LIST ALL PREVIOUSLY ISSUED PERMIT AUTHORIZATIONS:

None.

23. ☐ YES, Alteration(s) are located on Public Trust Lands, Administered by Idaho Department of Lands

24. SIZE AND FLOW CAPACITY OF BRIDGE/CULVERT and DRAINAGE AREA SERVED: _____ Square Miles

25. IS PROJECT LOCATED IN A MAPPED FLOODWAY? ☒ NO ☐ YES If yes, contact the floodplain administrator in the local government jsrisdiction in which the project is located. A Floodplain Development permit and a No-rise Certification may be required.

26a WATER QUALITY CERTIFICATION: Pursuant to the Clean Water Act, anyone who wishes to discharge dredge or fill material into the waters of the United States, either on private or public property, must obtain a Section 401 Water Quality Certification (WQC) from the appropriate water quality certifying government entity.
See Instruction Guide for further clarification and all contact information.

The following information is requested by IDEQ and/or EPA concerning the proposed impacts to water quality and anti-degradation:

☒ NO ☐ YES Is applicant willing to assume that the affected waterbody is high quality?
☒ NO ☐ YES Does applicant have water quality data relevant to determining whether the affected waterbody is high quality or not?
☐ NO ☒ YES Is the applicant willing to collect the data needed to determine whether the affected waterbody is high quality or not?

26b. BEST MANAGEMENT PRACTICTES (BMP's): List the Best Management Practices and describe these practices that you will use to minimize impacts on water quality and anti-degradation of water quality. All feasible alternatives should be considered - treatment or otherwise. Select an alternative which will minimize degrading water quality

We anticipate no negative consequences that require mitigation. Our restoration structures will capture sediment, increase channel-floodplain connectivity, and improve instream complexity and habitat for instream species. There may be temporary (1-2 hr.) increases in turbidity, but such effects will be local and temporary.

Through the 401 Certification process, water quality certification will stipulate minimum management practices needed to prevent degradation.

27. LIST EACH IMPACT to stream, river, lake, reservoir, including shoreline: Attach site map with each impact location.

Activity	Name of Water Body	Intermittent Perennial	Description of Impact and Dimensions	Impact Length Linear Feet
Beaver dam analogue	Tex Creek	Perennial	approx. dimensions: 3' tall, 15' wide; 3' wide (parallel to flow)	1,500
			TOTAL STREAM IMPACTS (Linear Feet):	1,500

28. LIST EACH WETLAND IMPACT include mechanized clearing, fill, excavation, flood, drainage, etc. Attach site map with each impact location.

Activity	Wetland Type: Emergent, Forested, Scrub/Shrub	Distance to Water Body (linear ft)	Description of Impact Purpose: road crossing, compound, culvert, etc.	Impact Length (acres, square ft linear ft
			TOTAL WETLAND IMPACTS (Square Feet):	

29. ADJACENT PROPERTY OWNERS NOTIFICATION REQUIREM: Provide contact information of ALL adjacent property owners below.

Name: Bureau of Land Managment Mailing Address: City: Idaho Falls State: ID Zip Code: Phone Number (include area code): E-mail:	Name: Bureau of Reclamation Mailing Address: City: Burley State: ID Zip Code: Phone Number (include area code): E-mail:
Name: Mailing Address: City: State: Zip Code: Phone Number (include area code): E-mail:	Name: Mailing Address: City: State: Zip Code: Phone Number (include area code): E-mail:
Name: Mailing Address: City: State: Zip Code: Phone Number (include area code): E-mail:	Name: Mailing Address: City: State: Zip Code: Phone Number (include area code): E-mail:
Name: Mailing Address: City: State: Zip Code: Phone Number (include area code): E-mail:	Name: Mailing Address: City: State: Zip Code: Phone Number (include area code): E-mail:

30. SIGNATURES: STATEMENT OF AUTHORIAZATION / CERTIFICATION OF AGENT / ACCESS

Application is hereby made for permit, or permits, to authorize the work described in this application and all supporting documentation. I certify that the information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein; or am acting as the duly authorized agent of the applicant (Block 2). I hereby grant the agencies to which this application is made, the right to access/come upon the above-described location(s) to inspect the proposed and completed work/activities.

Signature of Applicant: _____ *Date:* 17 May 2022

Signature of Agent: _____ *Date:* _____

This application must be signed by the person who desires to undertake the proposed activity AND signed by a duly authorized agent (see Block 1, 2, 30). Further, 18 USC Section 1001 provides that: "*Whoever, in any manner within the jurisdiction of any department of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious, or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than $10,000 or imprisoned not more than five years or both*".

Indian Fork
Supplemental Information for Joint Application for Stream Channel Alteration Permit
Tex Creek Wildlife Management Area
Bonneville County, Idaho

Introduction

Idaho Department of Fish and Game Upper Snake Regional Office staff have been working with Anabranch Solutions to develop an ecological enhancement project along Indian Fork on Tex Creek Wildlife Management Area in Bonneville County, Idaho. The project is an effort to improve fluvial conditions and ecological function of the watercourse and the associated riparian corridor.

Project Area

The project area consists of the lower 5 km of Indian Fork on Tex Creek Wildlife Management Area (WMA) in Bonneville County, Idaho within the Willow watershed (Fig. 1, HUC 8 no. 17040205). The project area begins above the confluence with Trail Creek (43.42449, -111.65955) and continues downstream to the confluence with Tex Creek (43.42954, -111.61013; Fig. 2).

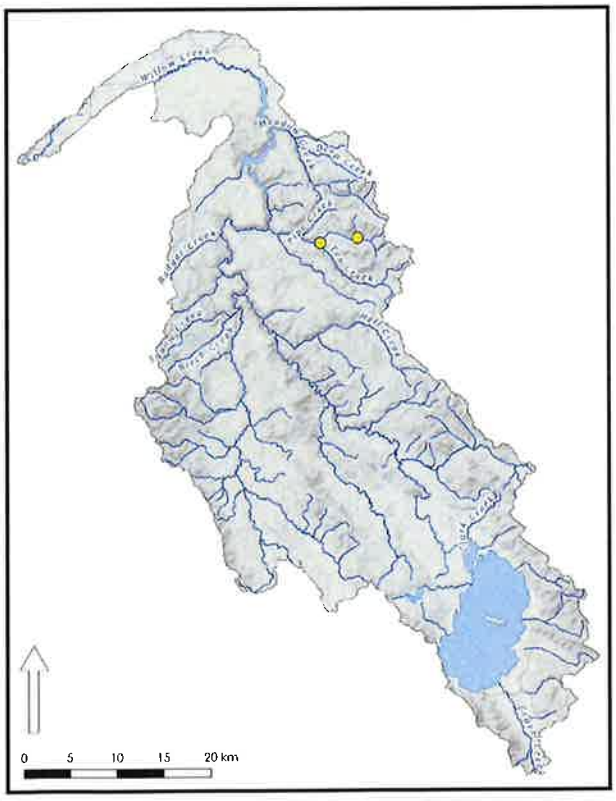

Figure 1. Project location within the Willow watershed. Western point is the downstream end of the project area.

Project Background

Indian Fork is a perennial stream that originates on the Caribou-Targhee National Forest east of the WMA and travels west through Bureau of Reclamation lands (managed by Idaho Department of Fish and Game) until its confluence with Tex Creek on the WMA. Snowmelt and groundwater discharge are the predominant hydrologic sources of Indian Fork. There are no irrigation activities along the entirety of Indian Fork. Idaho Department of Environmental Quality has identified total maximum daily loads for sediment and temperature for Tex Creek, and calls for a reduction in temperature (both maximum and average daily temperature) and sediment (IDEQ 2004).

Figure 2. Project reach delineation along Indian Fork on Tex Creek Wildlife Management Area. Yellow dots mark the approx. end points of the project area.

Historic Use

The project area was used as grazing lands for domestic livestock, but no regulated grazing activity has taken place on the project area since the formation of the WMA in the 1980's. Current use is winter range and transition range for mule deer (*Odocoileus hemionus*) and elk (*Cervus elaphus*), with additional use by moose (*Alces alces*). The channel has not been altered, but current channel conditions are generally narrow and deep incisions with a low width/depth ratio with some evidence of past beaver (*Castor canadensis*) activity. These conditions have been impacted by past grazing practices and past agricultural practices in the associated uplands. Past grazing pressure removed protective herbaceous vegetation, which promoted incision. Past agricultural practices in the nearby uplands removed permanent vegetation, reduced precipitation infiltration, increased runoff velocities, and promoted incision. Following the cessation of grazing and replacement of permanent cover on agricultural lands, incision continued and the channel often became reinforced by riparian vegetation, which has eliminated lateral movement and floodplain access by the creek.

The entire project reach can be broadly broken up into 2 sections, but the entire reach is a single meandering channel. The upper section contains significant willow coverage and evidence of past beaver activity. Beaver activity likely ceased around the time of the 2016 Henry's Creek Fire. The lower reach has almost no willow coverage and no evidence of past beaver activity.

Item 16–Detailed Description

The project will include the planning, design, and construction of up to 100 low-tech instream structures per kilometer including beaver-dam analogues (BDA's) and post-assisted log structures (PALS; Wheaton et al. 2019).

For this permit application we assume all structures to be BDAs. While we anticipate the final implementation to include both BDAs and PALS, we are basing all subsequent fill and flow calculations on the assumption that all structures are BDAs in order to provide the most comprehensive, and conservative estimates possible (i.e., the values estimated in this application represent the maximum extent of required materials and flow impacts). Actual fill volumes and flow impacts are expected to be less than the estimates provided in this application.

All structures will be built by hand using locally available woody material and sediment. Some structures may use untreated wooden posts (3" diameter) in order provide increased temporary stability. When used, posts will be driven into the streambed using a hydraulic or gas-powered post-pounder. We address the question of the precise location of each structure at the end of this document where we address the new guidance issued by IDWR in December 2019.

Figure 4. Representative photos of the diversity of possible BDA shapes, sizes, locations, and building material. (A) post-assisted and willow weave, (B) postless, sage and juniper (C) postless willow using existing willow for stability (D) postless, juniper (E) post-assisted and juniper (F) postless willow and juniper (G) postless juniper (H) postless sage. BDA's can be both postless and post-assisted. (Figure 5, Chapter 4 from Wheaton et al. 2019)

Figure 5. PALS can be built in a range of shapes, sizes and in different channel locations. (A) bank-attached, (B) mid-channel, (C) channel-spanning, (D) channel-spanning, (E) mid-channel, (F) channel-spanning, (G) bank-attached, and (H) channel-spanning. (Figure 5, Chapter 4 from Wheaton et al. 2019)

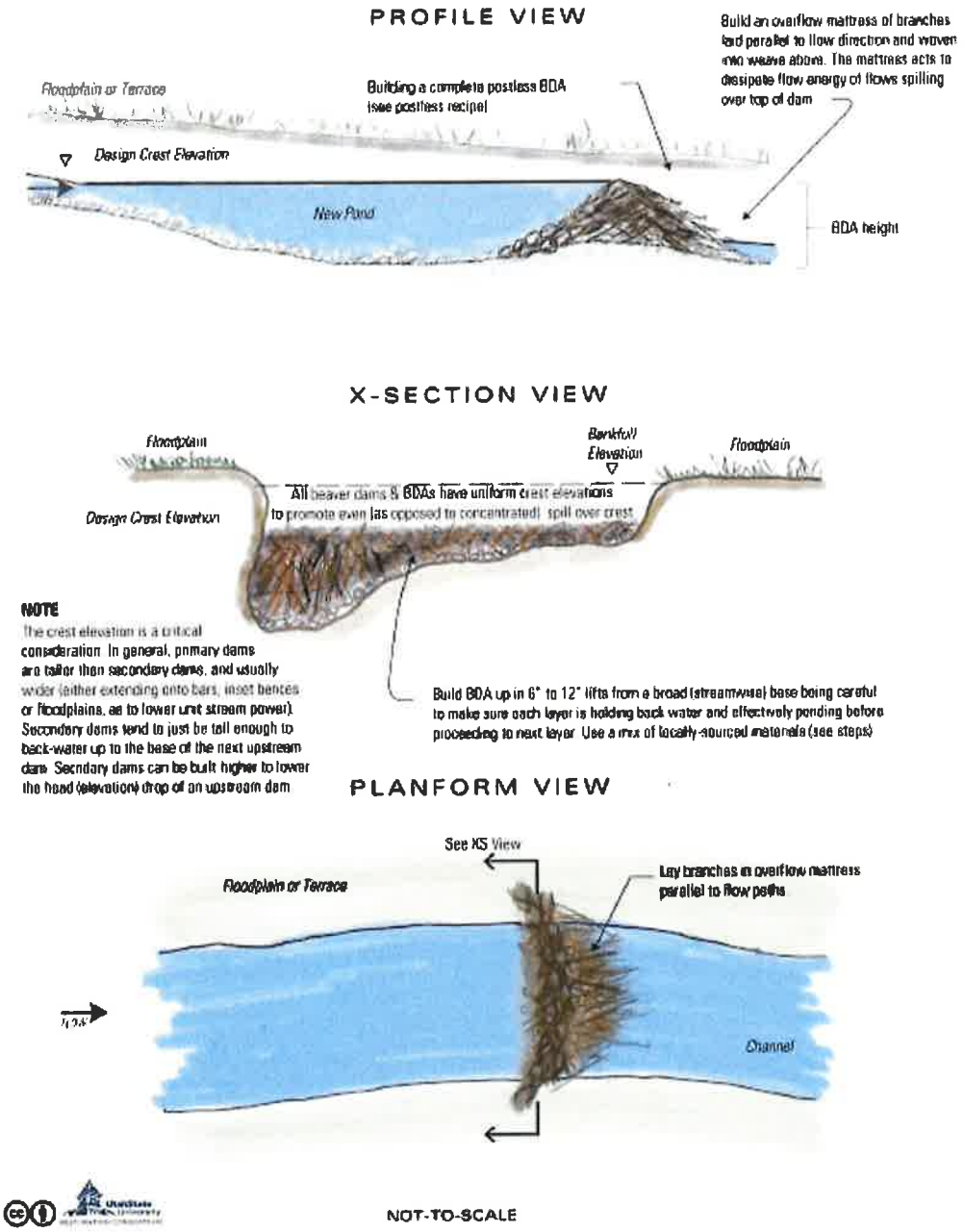

Figure 6. Illustration of typical post-less BDA. When using posts in a BDA, the posts may be driven in before or after construction of the structure.

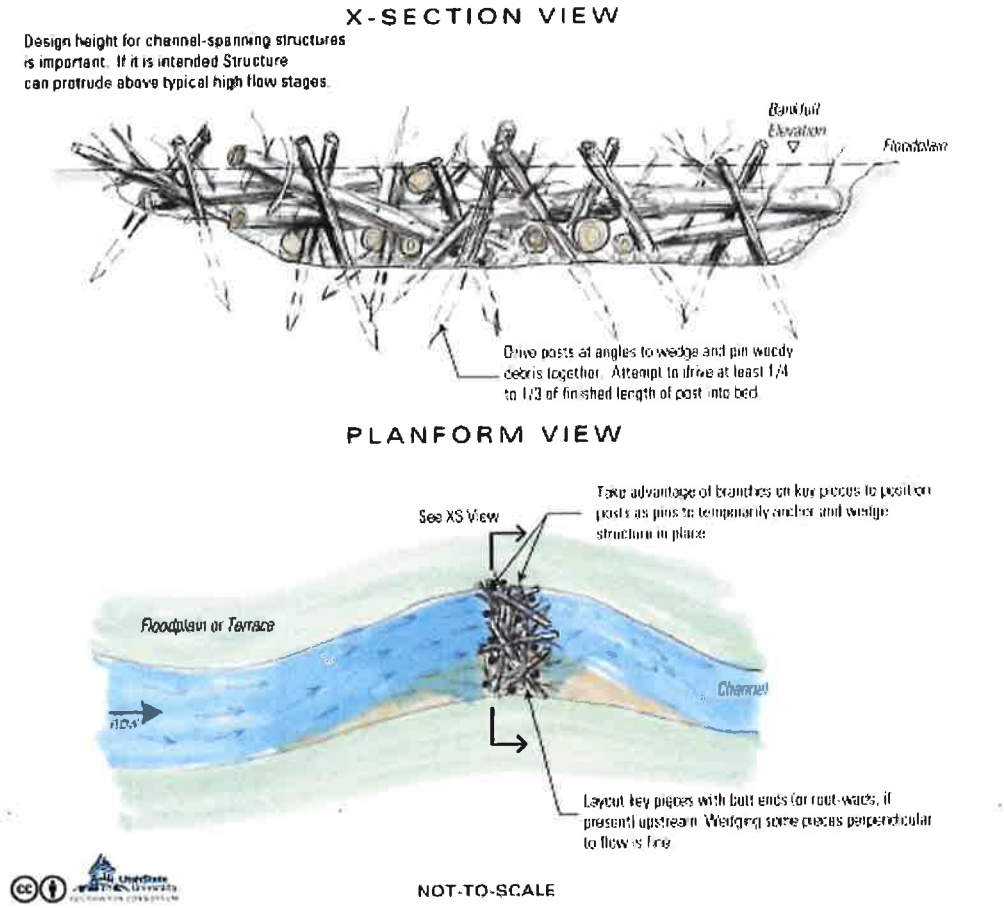

Figure 7. Illustration of channel-spanning post-assisted log structure (PALS). Not all PALS are channel spanning, they may be mid-channel or bank-attached, in order to force specific geomorphic processes.

Item 19–Type and quantity of materials discharged below the ordinary high-water mark

Sediment: Approx. 0.5 cu. yds/BDA * 500 BDA's = 250 cu. yds.

Woody Material: In Indian Fork we estimate the average structure to be approx. 15 ft wide (laterally), 3 ft tall, and 3 ft wide (parallel to flow). We estimate the porosity of structures to be 30% (i.e., of the total dimensions listed above, 30% is pore space rather than fill material) and there the total volume of fill per structure is 95 cu. ft., or 3.5 cu. yd. * 500 structures = 1,750 cu. yd.

Total: 2,000 cu. yd.

Addressing Concerns Outlined in the 2019 Memo *Processing Joint Applications for Permit Proposing Beaver Dam Analogs and Post-assisted Log Structures*

This section addresses the new guidance from the Idaho Department of Water Resources for processing streambed alteration permits proposing to use Beaver Dam Analogues (BDA's) and post-assisted log structures (PALS). We address each of the new points of guidance in the following section. Numbers refer to the points outlined in the memo entitled *Processing Joint Applications for Permit Proposing Beaver Dam Analogs and Post Assisted Log Structures.*

1. Our permit application identifies approx. 5 kilometers of Indian Fork for stream restoration using BDA's and PALS. We propose a total of up to 500 structures. Specific structure locations will be identified in the field based on local channel characteristics and restoration opportunities. We did not identify specific structure locations in our application. Along the proposed stream reach we suggest that the specific location (i.e., precise location) is less important than the total number of structures and structure types, since highly precise structure location *does not exert a strong influence on how structures are likely to influence downstream water delivery*. All structures will be built according to the specifications outlined in the permit application. We contextualize and estimate the influence of restoration structures on flow under points 2 and 3. *We propose to submit an as-built report to IDWR immediately following implementation that identifies the precise location and types of all structures, in order to allow any future breaching or removal of structures if they are demonstrated to be negatively impacting downstream water users.*

2. Indian Fork has an estimated mean annual flow of 4.84 cfs and an estimated 7D10 baseflow of 0.114 cfs (StreamStats, based on Hortness and Berenbrock[2001]). It is a tributary of Tex Creek, which has a estimated mean annual flow of 11.9 cfs and a 7D10 baseflow of 0.381 cfs (StreamStats for Tex Creek). We will assess streamflow at the top and bottom of the project area prior to project implementation and report the results to IDWR, with the understanding that going forward with restoration may be contingent upon streamflow measurement results.

3. We do not propose building structures that back water up beyond the annual mean high-water mark during baseflow conditions. During construction, we anticipate BDA's will temporarily decrease downstream flows as ponds are filled. A typical situation is shown in Table 1. We use a permeability value of 0.5 to indicate that during construction, it is typical for 50% of the flow to continue to flow downstream. The lower reaches of Indian Fork often go dry later in the year, therefore we do not expect any ponding of water to have an impact on flows into Tex Creek in the short term.

Table 1 – Time to fill typical BDA on Indian Fork. A pond volume of 900 cubic feet is the product of a structure that forces a pond with the average dimensions: width = 15 ft., length = 30 ft., depth = 2 ft. In practice a BDA of the dimensions outlined here would likely take 2–3 hours to build, in other words, any decrease in flow is likely to be less pronounced than the values shown here, which assumes a structure could be built in 40 minutes.

Pond volume (cu ft)	Q (cfs)	Time to fill if 0% permeability (min)	Time to fill 50% permeable (min)	No. BDAs	Cumulative hours of reduced flow	Notes/Interpretation
900	0.114	131	262	500	2,183	Flow is reduced from 0.114 cfs to 0.057 cfs for 262 minutes per structure.

4. Water rights along Indian Fork in the project area are owned by the United States Bureau of Reclamation and are used for stockwater. There are no irrigation or diversion rights within the project area that would be impacted by this project. No private lands exist on Indian Fork, Tex Creek, or Willow Creek (above Ririe dam) below the project area. Data were obtained from the IDWR GIS Water Right Locator (https://maps.idwr.idaho.gov/agol/WaterRightLocator/).

5. Due to the long distance to privately-owned water rights no downstream water rights holders were contacted.

6. Work windows
    a. Given the limited concerns associated with water rights associated with project, we propose that there should not be a work-window restriction on implementation, and *we ask that IDWR allow this project to proceed outside of the time window proposed in the 2019 guidance*. We propose to implement this restoration beginning in September. As part of this request we propose a flow monitoring program that exceeds IDWR's current recommendations that will ensure and document flow conditions to ensure downstream users are not negatively impacted (next section).
    c. We will measure streamflow upstream and downstream of the project area immediately prior to, during, and after implementation using the velocity-area method (Dingman 2015). The velocity-area method, uses a flow meter to measure velocity across a cross section to calculate discharge. Where this method is not appropriate due to very low flows, we will monitor flows using portable flumes or staff-gages, and photo documentation. We will also install staff gages on sites where we do have the ability to measure discharge. Monitoring stage provides a logistically simple and easy-to-interpret way to assess if restoration structures are resulting in decreased downstream flows. We will provide this documentation to IDWR immediately following implementation.

Literature Cited

Dingman, S. L. 2015. Physical hydrology. Waveland Press, Long Grove, Illinois, USA.

Idaho Department of Environmental Quality. 2004. Willow Creek subbasin assessment and TMDLs. Idaho Falls, USA

Wheaton, J. M., S. N. Bennett, N. Bouwes, J. D. Maestas, and S. M. Shahverdian, editors. 2019. Low-tech process-based restoration of riverscapes: design manual. Utah State University Restoration Consortium, Logan, USA.

Appendix B

Endangered Species Act Documentation

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IPaC U.S. Fish & Wildlife Service

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area.

However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Project information

NAME

Tex Creek Wildlife Management Area Instream Habitat Improvement

LOCATION

Bonneville County, Idaho

DESCRIPTION

None

Local office

Idaho Fish And Wildlife Office

- (208) 378-5243
- (208) 378-5262

1387 South Vinnell Way, Suite 368
Boise, ID 83709-1657

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Log in to IPaC.
2. Go to your My Projects list.
3. Click PROJECT HOME for this project.
4. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).
Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
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.

The following species are potentially affected by activities in this location:

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus* Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

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.

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

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 (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Bald Eagle *Haliaeetus leucocephalus* 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 Jan 1 to Aug 31
Sage Thrasher *Oreoscoptes montanus* 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/9433	Breeds Apr 15 to Aug 10

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.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

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.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

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.

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.

Coastal Barrier Resources System

Projects within the John H. Chafee Coastal Barrier Resources System (CBRS) may be subject to the restrictions on federal expenditures and financial assistance and the consultation requirements of the Coastal Barrier Resources Act (CBRA) (16 U.S.C. 3501 et seq.). For more information, please contact the local Ecological Services Field Offce or visit the CBRA Consultations website. The CBRA website provides tools such as a flow chart to help determine whether consultation is required and a template to facilitate the consultation process.

THERE ARE NO KNOWN COASTAL BARRIERS AT THIS LOCATION.

Data limitations

The CBRS boundaries used in IPaC are representations of the controlling boundaries, which are depicted on the official CBRS maps. The boundaries depicted in this layer are not to be considered authoritative for in/out determinations close to a CBRS boundary (i.e., within the "CBRS Buffer Zone" that appears as a hatched area on either side of the boundary). For projects that are very close to a CBRS boundary but do not clearly intersect a unit, you may contact the Service for an official determination by following the instructions here: https://www.fws.gov/service/coastal-barrier-resources-system-property-documentation

Data exclusions

CBRS units extend seaward out to either the 20- or 30-foot bathymetric contour (depending on the location of the unit). The true seaward extent of the units is not shown in the CBRS data, therefore projects in the offshore areas of units (e.g., dredging, breakwaters, offshore wind energy or oil and gas projects) may be subject to CBRA even if they do not intersect the CBRS data. For additional information, please contact CBRA@fws.gov.

Facilities

National Wildlife Refuge lands

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 AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

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.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND
Palustrine

RIVERINE
Riverine

A full description for each wetland code can be found at the National Wetlands Inventory website

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Appendix C

Scoping List, Materials, and Response Comments Received

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United States Department of the Interior
BUREAU OF RECLAMATION
Snake River Area Office
230 Collins Road
Boise, ID 83702-4520

IN REPLY REFER TO:
SRA-1212
2.1.4.17

VIA FEDERAL EXPRESS

Honorable Devon Boyer
Chairman, Fort Hall Business Council
Shoshone-Bannock Tribes
85 W. Agency Rd., Building #82
Fort Hall, ID 83203

Subject: Request for Comments Regarding a Proposed Tex Creek Wildlife Management Area Instream Habitat Improvement Project in Bonneville County, Idaho

Dear Chairman Boyer:

The Bureau of Reclamation has received a proposal from the Idaho Department of Fish and Game (IDFG) for an instream habitat restoration project in the Tex Creek Wildlife Management Area (WMA). The IDFG manages Reclamation-owned lands in the Tex Creek WMA. These Reclamation lands are managed to offset the loss of fish and wildlife habitat caused by the construction and operation of Ririe and Teton Reservoirs. This project would improve habitat for Yellowstone cutthroat trout and beaver near Ririe, Idaho. Reclamation would be approving the installation of up to 40 instream habitat structures per kilometer along 8.6 kilometers in Tex Creek and Indian Fork within IDFG's larger 23.9 kilometer project. The project goal is to improve stream habitat conditions so as to increase use by Yellowstone cutthroat trout and beaver. Enclosed is a Scoping Information Package describing the project proposal in more detail.

Please help us identify important issues and concerns regarding the proposed action by providing your written comments. Although your comments are always welcome, they can be best used if received by **February 7, 2022**. Written comments may be submitted electronically to sra-nepa-comments@usbr.gov, or mailed or hand-delivered to:

Mr. Anthony Prisciandaro
Fisheries Biologist
Bureau of Reclamation
Snake River Area Office
230 Collins Road
Boise, ID 83702

The primary contact for questions or comments for this analysis, accessibility needs, or other proposed project information is Mr. Prisciandaro at (208) 383-2233. Please direct any other issues to Ms. Jessica Asbill-Case, Native American Affairs Advisor, by phone at (623) 238-8293 or by email at jasbillcase@usbr.gov.

Sincerely,

MELANIE PAQUIN

Digitally signed by MELANIE PAQUIN
Date: 2021.12.27 16:23:18 -07'00'

Melanie Paquin
Area Manager

Enclosure

cc: Mr. Wes Jones
Emergency Manager
Shoshone-Bannock Tribes
85 W. Agency Rd., Building #82
Fort Hall, ID 83203-0306

Mr. Cleve Davis
Environmental Program Manager
Shoshone-Bannock Tribes
85 W. Agency Rd., Building #82
Fort Hall, ID 83203-0306

Mr. Chad Colter
Fish and Wildlife Director
Shoshone-Bannock Tribes
85 W. Agency Rd., Building #82
Fort Hall, ID 83203-0306

Mr. Spence Ward
Tribal Water Engineer
Water Resources Department
Shoshone-Bannock Tribes
85 W. Agency Rd., Building #82
Fort Hall, ID 83203-0306

Continued on next page.

Continued from previous page.

Ms. Christina Cutler
Environmental Specialist
Shoshone-Bannock Tribes
85 W. Agency Rd, Building #82
Fort Hall, ID 83203-0306
(w/encl to each)

Scoping Information Package

Proposed Tex Creek Wildlife Management Area Instream Habitat Improvement Project in Bonneville County, Idaho

This information package summarizes a project proposal from the Idaho Department of Fish and Game (IDFG) to install instream habitat structures on sections of Tex Creek and Indian Fork in the Tex Creek Wildlife Management Area (WMA) upstream from Ririe Reservoir in Bonneville County, Idaho. The IDFG manages Reclamation-owned lands in the Tex Creek WMA. These Reclamation lands are managed to offset the loss of fish and wildlife habitat caused by the construction and operation of the Teton Project. Up to 40 low-tech structures per kilometer [i.e., beaver dam analogs (BDAs) and post-assisted log structures (PALS)] would be placed along up to 23.9 kilometers of the Indian Fork and Tex Creek in the Tex Creek WMA. Within this larger project, IDFG is seeking approval for work on 8.6 kilometers on Reclamation land. The project goal is to improve stream habitat conditions to increase use by Yellowstone cutthroat trout and beaver.

Federal actions are analyzed in accordance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations to determine potential environmental consequences. Reclamation is asking for comments to better identify issues and concerns associated with this proposal.

Purpose and Need of Action

Reclamation's purpose and need is to respond to IDFG's request to install habitat structures to improve stream habitat in Tex Creek and Indian Fork. Currently, the creeks are severely incised and have little connection to the flood plain. The proposed instream structures would improve habitat that would attract beavers. The beavers would provide the long-term maintenance and habitat improvement that attracts Yellowstone cutthroat trout among other species.

Proposed Action

Over the next 10 years, IDFG proposes to improve stream habitat on Tex Creek and Indian Fork in the Tex Creek WMA by using low-tech process-based restoration. Up to 40 low-tech structures per kilometer would be placed along 23.9 kilometers of Indian Fork and Tex Creek, 8.6 kilometers of which falls on Reclamation lands in the Tex Creek WMA. The habitat structures are intended to create a habitat that would support the expansion of beaver. The dam building of beavers would provide long-term maintenance for the project and support many other species including Yellowstone cutthroat trout.

BDAs and PALS are constructed from natural materials to mimic natural processes during process-based restoration. BDAs are channel spanning structures built to mimic beaver dams up to 1 meter in height (Figure 1). Untreated wooden posts are driven into the stream bottom, branches from nearby trees/shrubs are woven among the posts, and rocks and dirt from upstream of the structure are used to seal the vegetation and allow for the collection of water. The intention of a BDA is not to impound water permanently but rather help create deep-water refugia that naturally-occurring beavers can use, as well as function as a sediment trap.

PALS are instream structures built to increase channel roughness and change current flow patterns (Figure 2). They can be channel-spanning, bank-attached, or mid-channel depending upon project needs. Untreated wooden posts are driven into the stream bottom to anchor pieces of woody debris as necessary for their function based on their location.

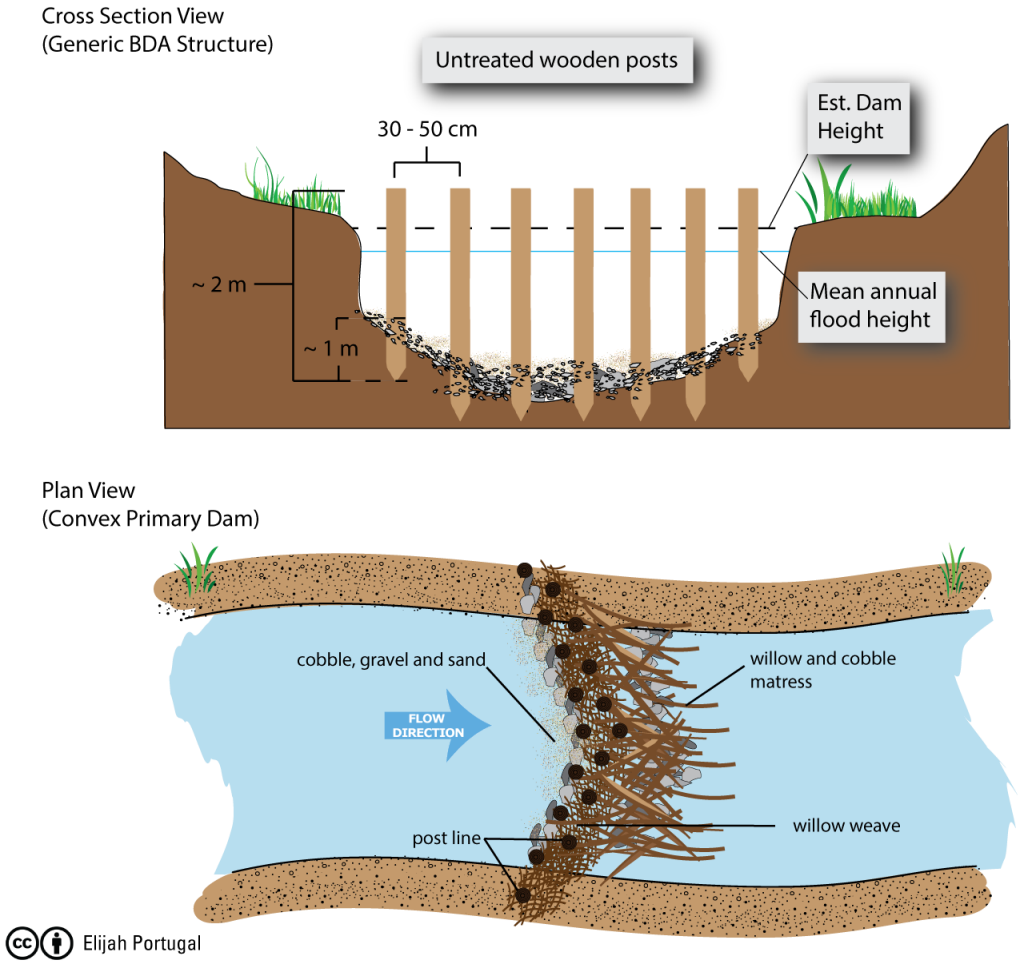

Figure 1. Example cross section and overhead view of typical beaver dam analog.

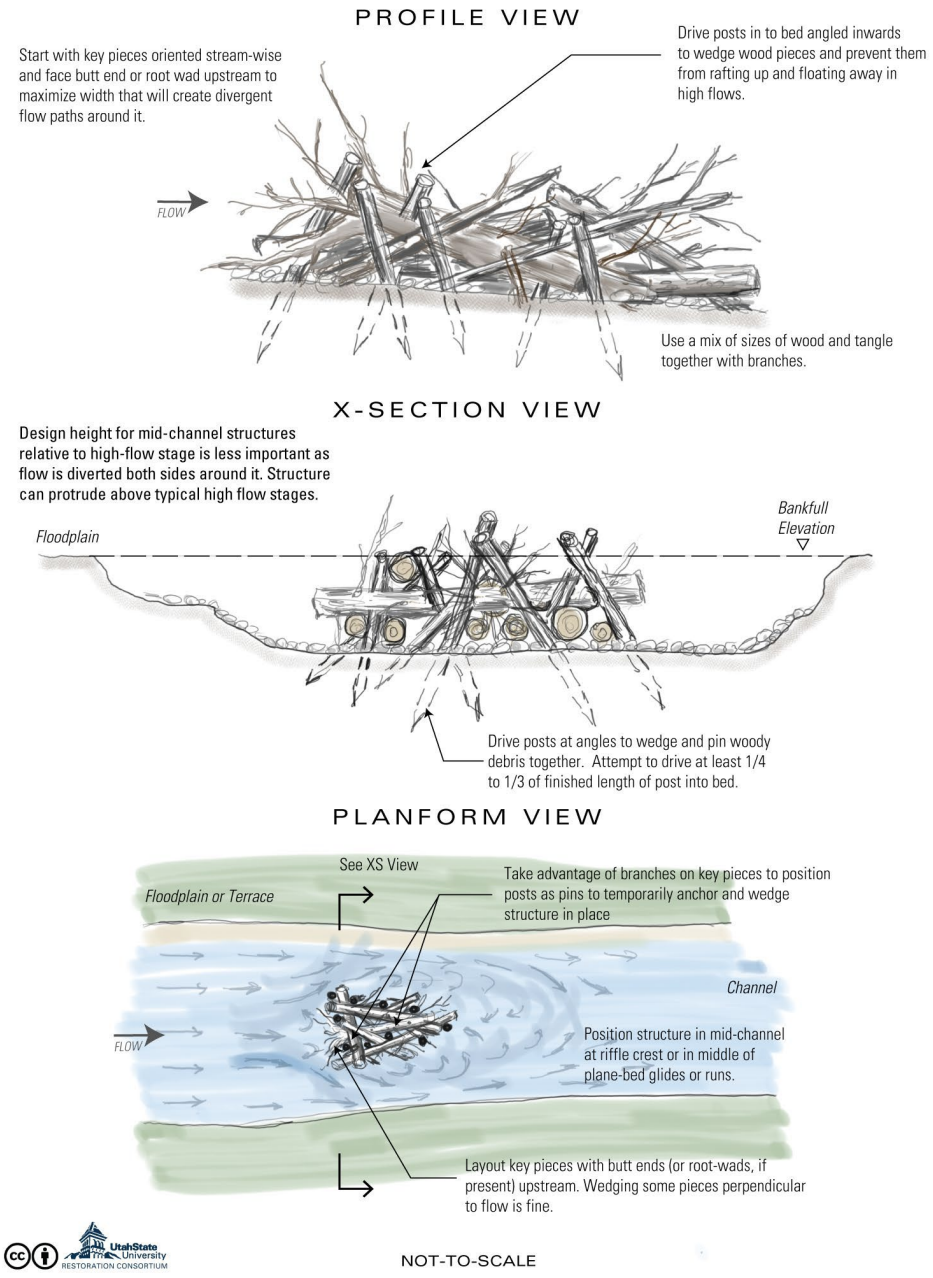

Figure 2. Example cross section and overhead view of typical post-assisted log structure.

Structures would be located throughout the project area following an assessment and design by Anabranch Solutions and IDFG staff. Up to 40 structures per kilometer would be placed along the 8.6 kilometers of the project area. This design mimics the maximum number of structures used by beavers in natural systems. Willow or red-osier dogwood cuttings would be used to stabilize banks and promote riparian revegetation as needed in areas that are devoid of riparian shrubs.

Location and Background

The Tex Creek WMA is a 34,269-acre reserve on the southern part of Ririe Reservoir. It was established to mitigate for the wildlife habitat lost when Ririe and Teton Reservoirs were constructed. Tex Creek WMA includes lands owned by Reclamation, IDFG, Bureau of Land Management, Idaho Department of Lands, and the Rocky Mountain Elk Foundation. Tex Creek is managed by IDFG and provides important winter range habitat for elk and mule deer, as well as habitat for upland game birds.

In 2015, Reclamation and IDFG renewed a management agreement (#16-07-14-L0886) that outlines the roles and responsibilities of the two parties in relation to Reclamation-owned land in the Tex Creek WMA. The management agreement gives IDFG the authority and responsibility to manage habitat on Reclamation lands in the Tex Creek WMA.

The existing stream channels are mostly incised and disconnected from the flood plain (Figure 3). Beaver are currently present upstream of the project area. The structures being installed are intended to create a short-term benefit and encourage beavers to expand. The beaver activity would then increase the benefits and maintain the improved habitat long term.

Figure 3. A common view of a down-cut section of Tex Creek where the stream is disconnected from the flood plain.

Preliminary Alternative Development

The environmental assessment would include consideration of the Proposed Action Alternative and the No Action Alternative. Additionally, alternatives could be developed with the identified issues throughout the NEPA scoping process.

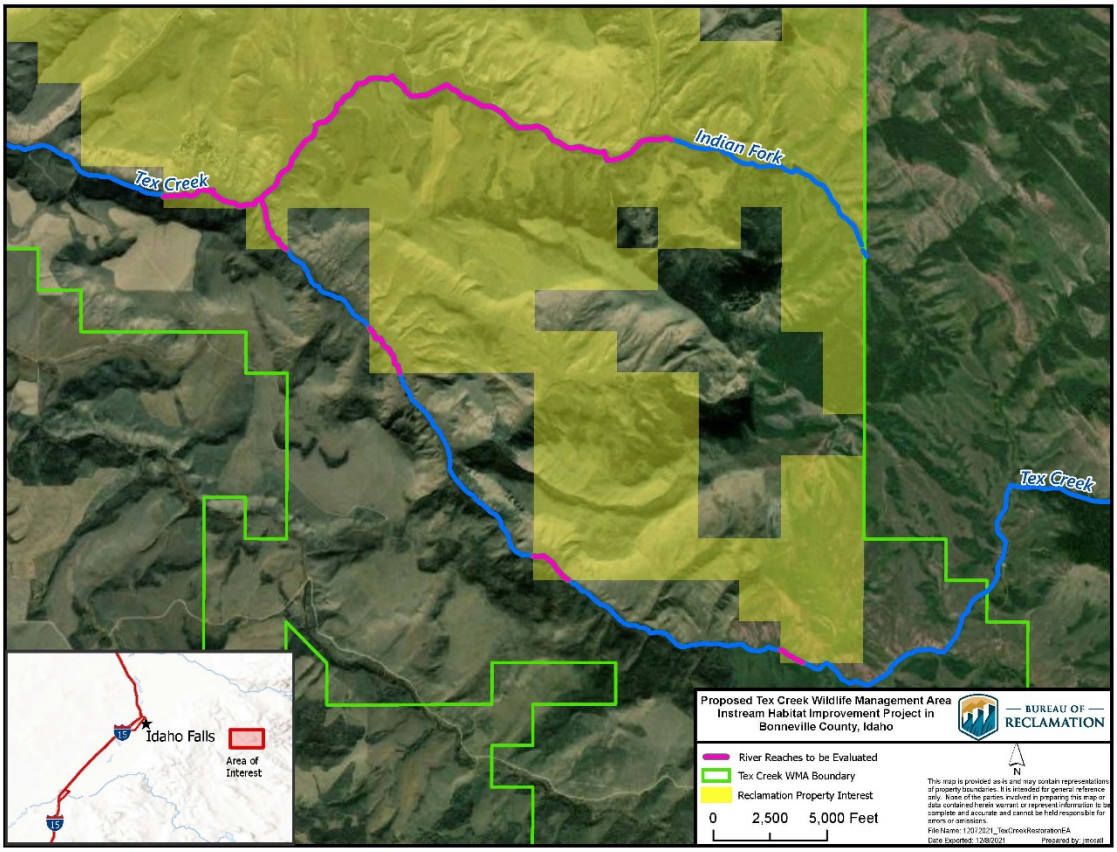

Figure 4. Project Location—Stream reaches where the project overlaps Reclamation land are highlighted in pink. Habitat structures would also be installed along other sections of Tex Creek within the Tex Creek Wildlife Management Area. Beaver already occur on the upper sections of Indian Fork.

United States Department of the Interior
BUREAU OF RECLAMATION
Snake River Area Office
230 Collins Road
Boise, ID 83702-4520

IN REPLY REFER TO:
SRA-1212
2.1.4.17

Subject: Request for Public Comments Regarding a Proposed Tex Creek Wildlife Management Area Instream Habitat Improvement Project in Bonneville County, Idaho

Dear Interested Party:

The Bureau of Reclamation has received a proposal from the Idaho Department of Fish and Game (IDFG) for an instream habitat restoration project in the Tex Creek Wildlife Management Area (WMA). The IDFG manages Reclamation-owned lands in the Tex Creek WMA. These Reclamation lands are managed to offset the loss of fish and wildlife habitat caused by the construction and operation of Ririe and Teton Reservoirs. This project would improve habitat for cutthroat trout and beaver near Ririe, Idaho. Reclamation would be approving the installation of up to 40 instream habitat structures per kilometer along 8.6 kilometers in Tex Creek and Indian Fork within IDFG's larger 23.9 kilometer project. The project goal is to improve stream habitat conditions so as to increase use by Yellowstone cutthroat trout and beaver. Enclosed is a Scoping Information Package describing the project proposal in more detail.

Scoping is a public involvement process used to determine the scope of issues to be addressed and identify issues related to a proposed action. Comments received in response to this solicitation will be used to identify potential environmental issues related to the proposed action and to identify alternatives to the proposed action that meet the purpose of and need for the project.

Please send your written comments electronically to sra-nepa-comments@usbr.gov by **February 7, 2022**, or mail or hand-deliver to:

Mr. Anthony Prisciandaro
Fisheries Biologist
Bureau of Reclamation
Snake River Area Office
230 Collins Road
Boise, ID 83702

Before including your address, phone number, email address, or other personal identifying information in your comment, please be advised that your entire comment, including your personal identifying information, may be made publicly available at any time. While you may request that we withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

The primary contact for questions or comments for this analysis, accessibility needs, or other information is Mr. Prisciandaro, and he can be reached at (208) 383-2233.

Sincerely,

MELANIE PAQUIN

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Date: 2021.12.27 16:22:58 -07'00'

Melanie Paquin
Area Manager

Enclosure

Scoping Information Package

Proposed Tex Creek Wildlife Management Area Instream Habitat Improvement Project in Bonneville County, Idaho

This information package summarizes a project proposal from the Idaho Department of Fish and Game (IDFG) to install instream habitat structures on sections of Tex Creek and Indian Fork in the Tex Creek Wildlife Management Area (WMA) upstream from Ririe Reservoir in Bonneville County, Idaho. The IDFG manages Reclamation-owned lands in the Tex Creek WMA. These Reclamation lands are managed to offset the loss of fish and wildlife habitat caused by the construction and operation of the Teton Project. Up to 40 low-tech structures per kilometer [i.e., beaver dam analogs (BDAs) and post-assisted log structures (PALS)] would be placed along up to 23.9 kilometers of the Indian Fork and Tex Creek in the Tex Creek WMA. Within this larger project, IDFG is seeking approval for work on 8.6 kilometers on Reclamation land. The project goal is to improve stream habitat conditions to increase use by Yellowstone cutthroat trout and beaver.

Federal actions are analyzed in accordance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations to determine potential environmental consequences. Reclamation is asking for comments to better identify issues and concerns associated with this proposal.

Purpose and Need of Action

Reclamation's purpose and need is to respond to IDFG's request to install habitat structures to improve stream habitat in Tex Creek and Indian Fork. Currently, the creeks are severely incised and have little connection to the flood plain. The proposed instream structures would improve habitat that would attract beavers. The beavers would provide the long-term maintenance and habitat improvement that attracts Yellowstone cutthroat trout among other species.

Proposed Action

Over the next 10 years, IDFG proposes to improve stream habitat on Tex Creek and Indian Fork in the Tex Creek WMA by using low-tech process-based restoration. Up to 40 low-tech structures per kilometer would be placed along 23.9 kilometers of Indian Fork and Tex Creek, 8.6 kilometers of which falls on Reclamation lands in the Tex Creek WMA. The habitat structures are intended to create a habitat that would support the expansion of beaver. The dam building of beavers would provide long-term maintenance for the project and support many other species including Yellowstone cutthroat trout.

BDAs and PALS are constructed from natural materials to mimic natural processes during process-based restoration. BDAs are channel spanning structures built to mimic beaver dams up to 1 meter in height (Figure 1). Untreated wooden posts are driven into the stream bottom, branches from nearby trees/shrubs are woven among the posts, and rocks and dirt from upstream of the structure are used to seal the vegetation and allow for the collection of water. The intention of a BDA is not to impound water permanently but rather help create deep-water refugia that naturally-occurring beavers can use, as well as function as a sediment trap.

PALS are instream structures built to increase channel roughness and change current flow patterns (Figure 2). They can be channel-spanning, bank-attached, or mid-channel depending upon project needs. Untreated wooden posts are driven into the stream bottom to anchor pieces of woody debris as necessary for their function based on their location.

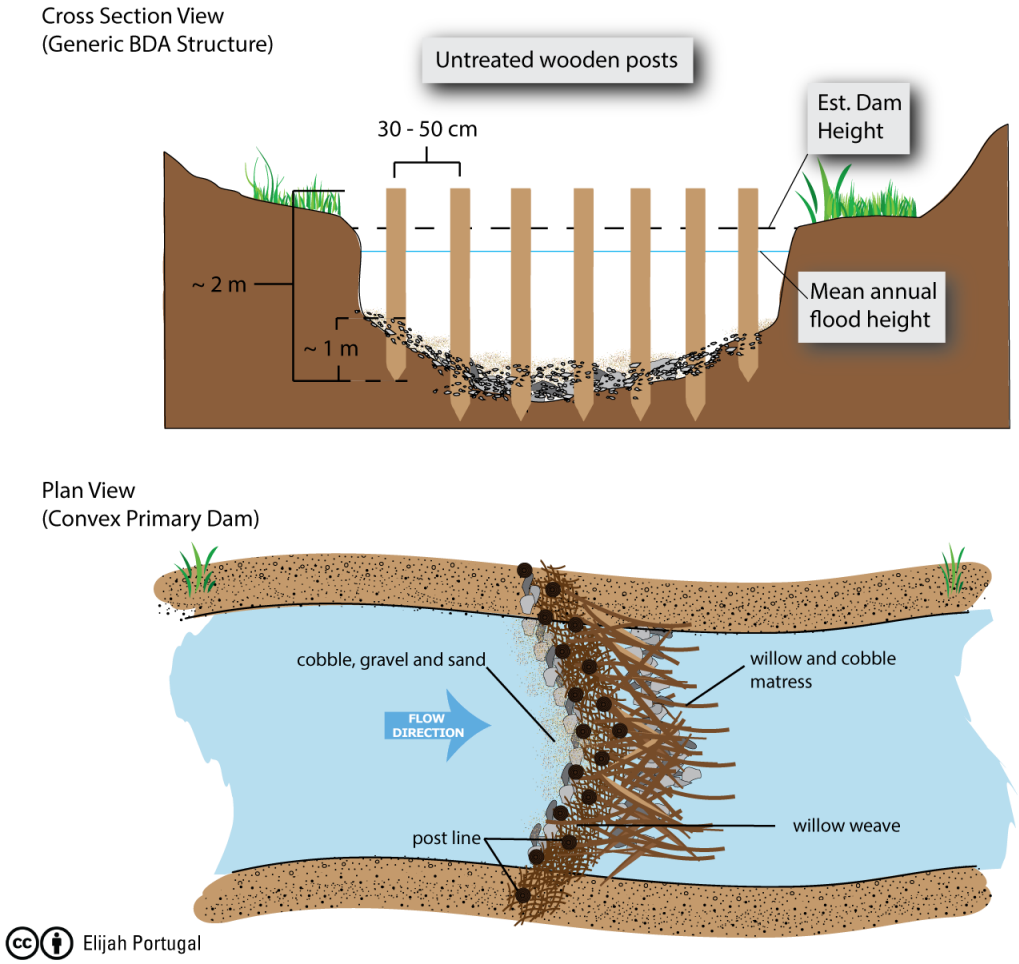

Figure 1. Example cross section and overhead view of typical beaver dam analog.

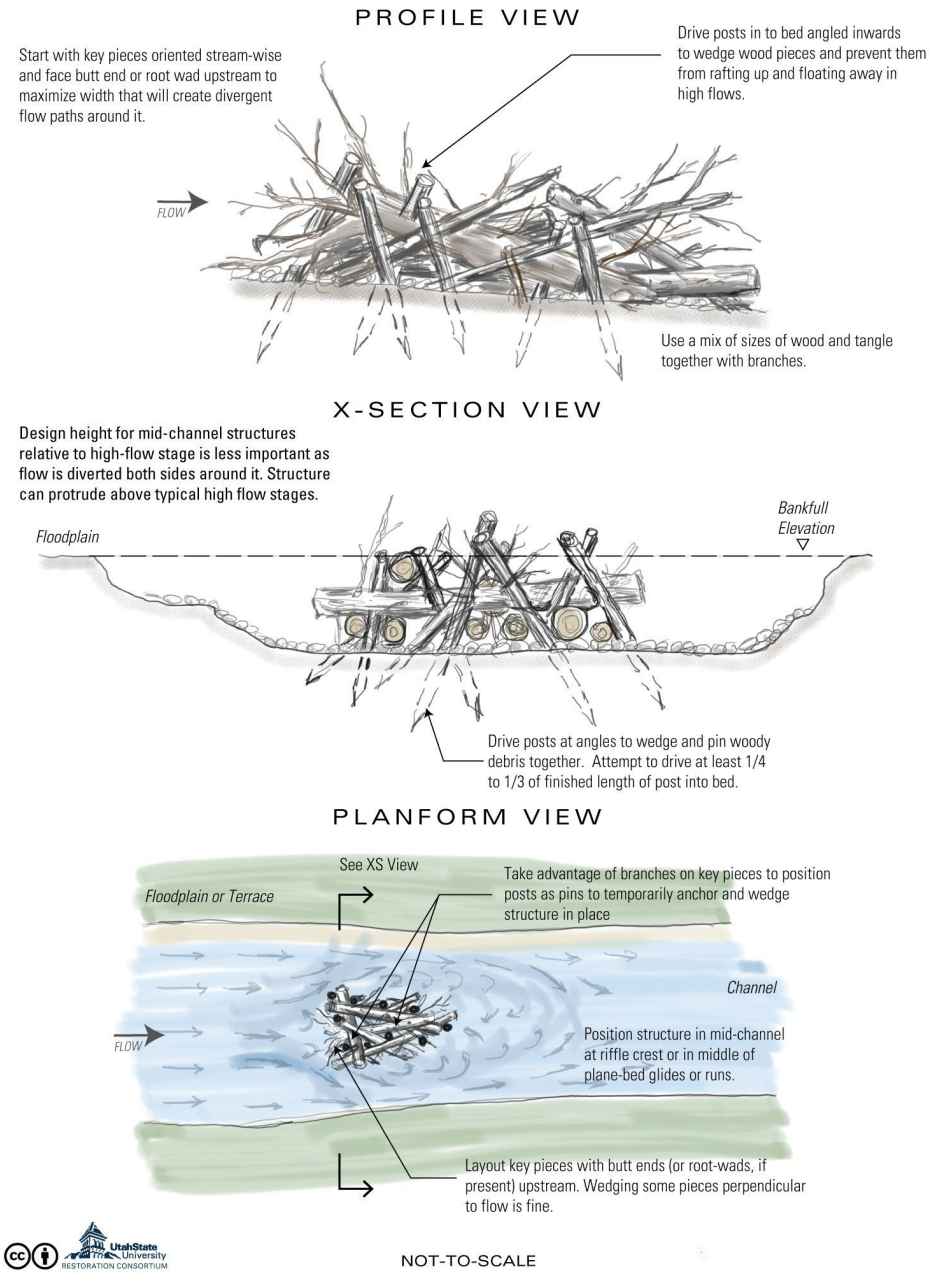

Figure 2. Example cross section and overhead view of typical post-assisted log structure.

Structures would be located throughout the project area following an assessment and design by Anabranch Solutions and IDFG staff. Up to 40 structures per kilometer would be placed along the 8.6 kilometers of the project area. This design mimics the maximum number of structures used by beavers in natural systems. Willow or red-osier dogwood cuttings would be used to stabilize banks and promote riparian revegetation as needed in areas that are devoid of riparian shrubs.

Location and Background

The Tex Creek WMA is a 34,269-acre reserve on the southern part of Ririe Reservoir. It was established to mitigate for the wildlife habitat lost when Ririe and Teton Reservoirs were constructed. Tex Creek WMA includes lands owned by Reclamation, IDFG, Bureau of Land Management, Idaho Department of Lands, and the Rocky Mountain Elk Foundation. Tex Creek is managed by IDFG and provides important winter range habitat for elk and mule deer, as well as habitat for upland game birds.

In 2015, Reclamation and IDFG renewed a management agreement (#16-07-14-L0886) that outlines the roles and responsibilities of the two parties in relation to Reclamation-owned land in the Tex Creek WMA. The management agreement gives IDFG the authority and responsibility to manage habitat on Reclamation lands in the Tex Creek WMA.

The existing stream channels are mostly incised and disconnected from the flood plain (Figure 3). Beaver are currently present upstream of the project area. The structures being installed are intended to create a short-term benefit and encourage beavers to expand. The beaver activity would then increase the benefits and maintain the improved habitat long term.

Figure 3. A common view of a down-cut section of Tex Creek where the stream is disconnected from the flood plain.

Preliminary Alternative Development

The environmental assessment would include consideration of the Proposed Action Alternative and the No Action Alternative. Additionally, alternatives could be developed with the identified issues throughout the NEPA scoping process.

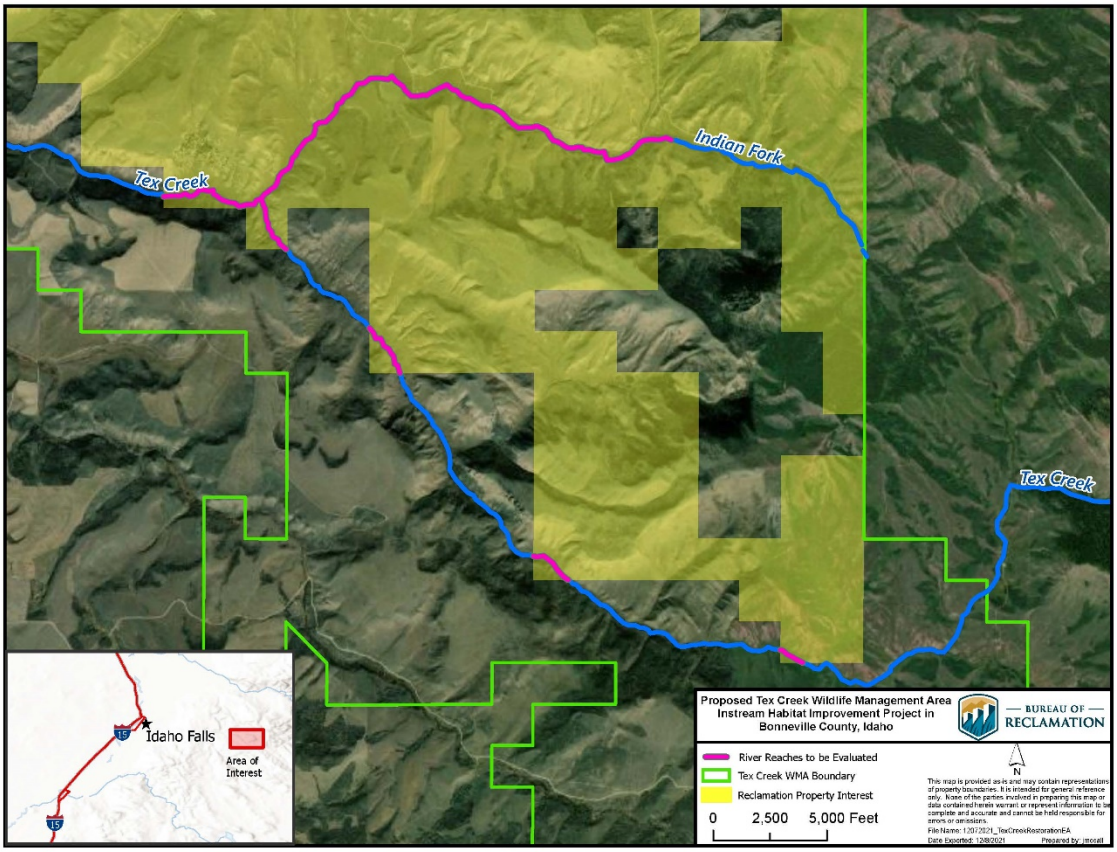

Figure 4. Project Location—Stream reaches where the project overlaps Reclamation land are highlighted in pink. Habitat structures would also be installed along other sections of Tex Creek within the Tex Creek Wildlife Management Area. Beaver already occur on the upper sections of Indian Fork.

	HONORABLE MIKE	SIMPSON	MS. COLLEEN ERICKSON	UNITED STATES HOUSE OF REPRESENTATIVES	410 MEMORIAL DR, SUITE 203	IDAHO FALLS	ID	83402	CONGRESSIONAL
	HONORABLE JIM	RISCH	MS. AMY TAYLOR	UNITED STATES SENATE	901 PIER VIEW DR, SUITE 202A	IDAHO FALLS	ID	83402	CONGRESSIONAL
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	HONORABLE Devon	Boyer	CHAIRMAN	SHOSHONE-BANNOCK TRIBAL COUNCIL	PO BOX 306	FORT HALL	ID	83203-0306	TRIBE
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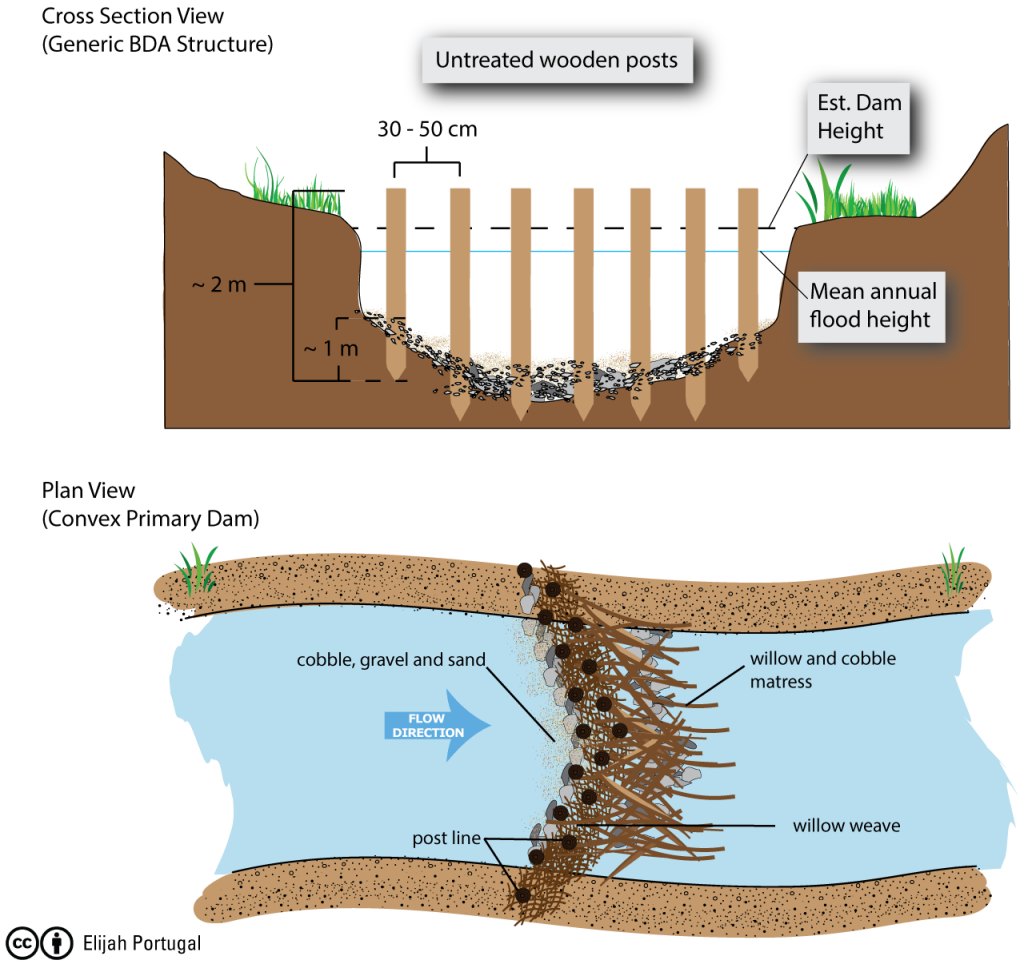

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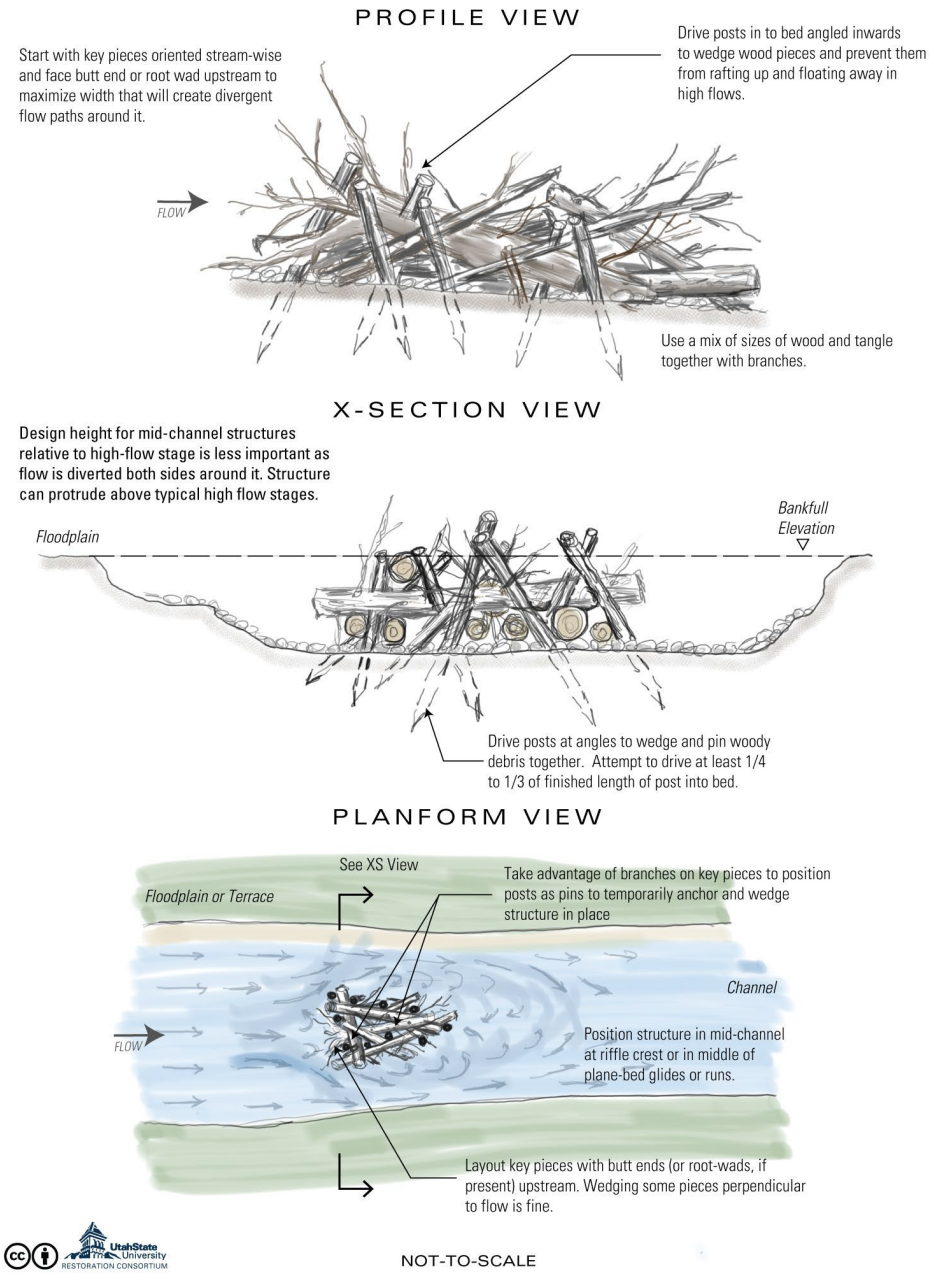

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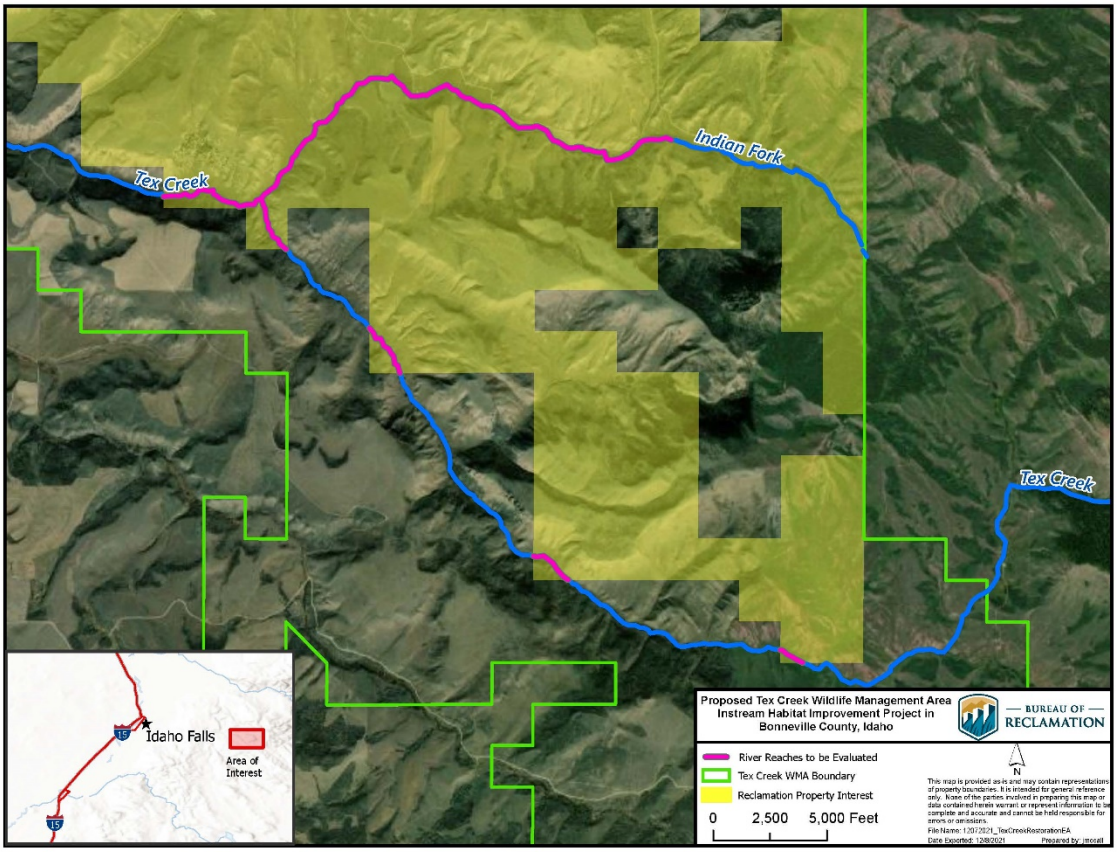

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United States Department of the Interior
BUREAU OF LAND MANAGEMENT
Upper Snake Field Office
1405 Hollipark Drive
Idaho Falls, Idaho 83401
(208) 524-7500

In Reply Refer To:
IDI01000

Anthony Prisciandaro
Fisheries Biologist
Bureau of Reclamation
Snake River Area Office
230 Collins Road
Boise, ID 83702

February 7, 2022

Dear Anthony,

With this letter, the Bureau of Land Management (BLM) Upper Snake Field Office (USFO) offers support for the Proposed Tex Creek Wildlife Management Area Instream Habitat Improvement Project. We understand that the proposed 8.6 kilometer project stream reaches on Bureau of Reclamation administered lands occur within a larger anticipated project area containing 23.9 kilometers of stream reaches on public lands.

The proposed use of process-based restoration techniques with instream structures and vegetation planting are similar to actions BLM proposes to consider for inclusion in our Programmatic Riparian and Aquatic Habitat Restoration Project Environmental Analysis (in draft). Stream channel incision, disconnected floodplains, damaged surface to subsurface water exchange and reduced riparian zone width have affected stream habitat quality in the project area. The proposed project would begin to address these issues, increase overall aquatic habitat, and aid retention of water resources on the landscape. The project would benefit a myriad of aquatic and terrestrial species through a cost-effective process-based approach, and has potential for long-term beneficial affects to the watershed, including stream reaches on BLM administered lands. This type of project conforms to aquatic habitat management priorities for the BLM, including maintaining or improving habitat for Yellowstone cutthroat trout. As the overall IDFG project progresses, BLM anticipates the opportunity to partner or consider authorization of similar actions on BLM lands.

Potential geomorphic benefits from process-based restoration, that have been identified on BLM lands in the Tex Creek Drainage, indicate that riparian areas should expand and the balance between slope, sediment delivery and deposition in the floodplain should improve to a more stable hillslope profile. Localized head cuts in sub drainages because of the incised nature of the channels should stabilize with time to historic base levels. Cut banks that are currently contributing sediment to the channel should stabilize or be inundated with the adjustment in base level from ponded waters. As surface and subsurface water surface elevations rise head pressure to ground water and hyporheic flow will increase. Channel roughening and beaver mimicry should buffer high flow events. The sponge like effect from natural/healthy channels reduces peak flows, extends the runoff event, and

can increase base flows. With climate forecasts showing warming temperatures, less snowpack, and more rain events in the future, snowmelt runoff will likely be reduced but stormwater runoff will increase.

If you have any questions, please contact BLM USFO Fisheries Biologist, Ryan J. Beatty, at 208-524-7509.

Sincerely,

Jeremy Casterson
Upper Snake Field Manager

Cc: Idaho Department of Fish and Game - Regional Manager Jim White, Wildlife Biologist Ryan Walker, and Habitat Biologist Rob Cavallaro

Appendix D

Cultural Resources and Sacred Sites Consultation with State Historic Preservation Office, Shoshone-Bannock and Eastern Shoshone Tribes

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United States Department of the Interior
BUREAU OF RECLAMATION
Snake River Area Office
230 Collins Road
Boise, ID 83702-4520

IN REPLY REFER TO:

USF-1219
2.1.1.04

VIA ELECTRONIC MAIL ONLY

Ms. Ashley Molloy
Historical Review Officer
State Historic Preservation Office
210 Main Street
Boise, ID 83702

Subject: Invitation to Consult on the Proposed Ecosystem Restoration Project at Tex Creek Wildlife Mitigation Area, Bonneville County, Idaho

Dear Ms. Molloy:

The Bureau of Reclamation received a request from the Idaho Department of Fish and Game to install multiple in-stream features along Indian Fork and Tex Creek on lands under Reclamation jurisdiction within the Tex Creek Wildlife Mitigation Area (WMA) in Bonneville County, Idaho. The structures would mimic beaver activities within streams and provide for an expansion of beaver habitat within the area, as well as reduce erosion and down cutting of the stream channel. At this time, Reclamation is consulting on the area of potential effects (APE) and finding of no historic properties affected.

Up to 64 structures per mile may be installed along 5.3 miles of Indian Fork and Tex Creek on Reclamation lands. To reach the installation areas, an ATV would be used to transport equipment and materials. Existing roads would be used where possible, and no new roads would be created. Off-road use would be largely within previously disturbed areas. The new structures would use natural materials and would be contained within the stream channels. Based on this information, Reclamation has proposed that the APE be restricted to the stream channel itself. Reclamation has performed a cultural resources inventory at the APE and found no new or previously recorded cultural resources. Since many of the locations exceed 35% slope, these were not surveyed as part of the inventory effort. In addition, a combination of intensive and reconnaissance level survey was used along Indian Fork. Intensive survey was used in locations most likely to contain cultural resources and to provide a sample within areas choked with vegetation. In the absence of cultural resources, Reclamation finds that the project will result in no historic properties affected. Additional details are available in the enclosed report.

In accordance with procedures specified in 36 CFR § 800, Reclamation requests your concurrence with our APE and the finding that this project will result in no historic properties affected. Please direct any questions to Ms. Nikki Polson, Upper Snake Field Office Archaeologist, at (208) 678-0461, extension 13, or by email at npolson@usbr.gov.

Sincerely,

MELANIE PAQUIN

Digitally signed by MELANIE PAQUIN
Date: 2022.06.15 20:19:13 -06'00'

Melanie Paquin
Area Manager

Enclosures

United States Department of the Interior
BUREAU OF RECLAMATION
Snake River Area Office
230 Collins Road
Boise, ID 83702-4520

IN REPLY REFER TO:
USF-1219
2.1.1.04

VIA FEDERAL EXPRESS

Honorable Nathan Small
Chairman
Fort Hall Business Council
Shoshone-Bannock Tribes
85 W. Agency Rd., Building #82
Fort Hall, ID 83203-0306

Subject: Invitation to Consult on the Proposed Ecosystem Restoration Project at Tex Creek Wildlife Mitigation Area, Bonneville County, Idaho

Dear Chairman Small:

The Bureau of Reclamation received a request from the Idaho Department of Fish and Game to install multiple in-stream features along Indian Fork and Tex Creek on lands under Reclamation jurisdiction within the Tex Creek Wildlife Mitigation Area (WMA) in Bonneville County, Idaho. The structures would mimic beaver activities within streams and provide for an expansion of beaver habitat within the area, as well as reduce erosion and down cutting of the stream channel. At this time, Reclamation is consulting on the area of potential effects (APE) and requesting any information concerning cultural resources known to the Shoshone-Bannock Tribes that may be affected by this project.

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Please advise this office as to whether the Shoshone-Bannock Tribes wish to join in this consultation by contacting me directly at (208) 383-2246 or via email at mpaquin@usbr.gov. You may also contact my staff archaeologist, Ms. Nikki Polson, by phone at (208) 678-0461, extension 13, or by email at npolson@usbr.gov with any project-related questions regarding this letter or report. Please

direct any other concerns to Ms. Jessica Asbill-Case, Native American Affairs Advisor, by phone at (623) 238-8293 or by email at jasbillcase@usbr.gov.

Sincerely,

MELANIE PAQUIN

Digitally signed by MELANIE PAQUIN
Date: 2022.06.17 12:49:06 -06'00'

Melanie Paquin
Area Manager

Enclosure

cc: Ms. Carolyn Smith
Cultural Resources Coordinator
Cultural Resources/Heritage Tribal Office (HeTO)
Shoshone-Bannock Tribes
85 W. Agency Rd, Building #82
Fort Hall, ID 83203

Ms. Christina Cutler
Environmental Coordinator
Shoshone-Bannock Tribes
85 W. Agency Rd, Building #82
Fort Hall, ID 83203

Ms. Yvette Tuell
Tribal Policy Analyst
Shoshone-Bannock Tribes
85 W. Agency Rd, Building #82
Fort Hall, ID 83203
(w/encl to each above)

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USF-1219
2.1.1.04

VIA FEDERAL EXPRESS

Honorable John St. Clair
Chairman
Eastern Shoshone Tribe
#14 N. Fork Road
Fort Washakie, Wyoming 82514

Subject: Invitation to Consult on the Proposed Ecosystem Restoration Project at Tex Creek Wildlife Mitigation Area, Bonneville County, Idaho

Dear Chairman St. Clair:

The Bureau of Reclamation received a request from the Idaho Department of Fish and Game to install multiple in-stream features along Indian Fork and Tex Creek on lands under Reclamation jurisdiction within the Tex Creek Wildlife Mitigation Area (WMA) in Bonneville County, Idaho. The structures would mimic beaver activities within streams and provide for an expansion of beaver habitat within the area, as well as reduce erosion and down cutting of the stream channel. At this time, Reclamation is requesting any information concerning cultural resources known to your Tribe that may be affected by this project.

Up to 64 structures per mile may be installed along 5.3 miles of Indian Fork and Tex Creek on Reclamation lands. To reach the installation areas, an ATV would be used to transport equipment and materials. Existing roads would be used where possible, and no new roads would be created. Off-road use would be largely within previously disturbed areas. The new structures would use natural materials and would be contained within the stream channels. Based on this information, Reclamation has proposed that the APE be restricted to the stream channel itself. Reclamation has performed a cultural resources inventory at the APE and found no new or previously recorded cultural resources. Since many of the locations exceed 35% slope, these were not surveyed as part of the inventory effort. In addition, a combination of intensive and reconnaissance level survey was used along Indian Fork. Intensive survey was used in locations most likely to contain cultural resources and to provide a sample within areas choked with vegetation. In the absence of cultural resources, Reclamation finds that the project will result in no historic properties affected. Additional details are available in the enclosed report.

Please advise this office as to whether the Eastern Shoshone Tribe wishes to join in this consultation by contacting me directly at (208) 383-2246 or via email at mpaquin@usbr.gov. You may also contact my staff archaeologist, Ms. Nikki Polson, by phone at (208) 678-0461,

extension 13, or by email at npolson@usbr.gov with any project-related questions regarding this letter or report. Please direct any other concerns to Ms. Jessica Asbill-Case, Native American Affairs Advisor, by phone at (623) 238-8293 or by email at jasbillcase@usbr.gov.

Sincerely,

MELANIE PAQUIN

Digitally signed by MELANIE PAQUIN
Date: 2022.06.15 20:18:07 -06'00'

Melanie Paquin
Area Manager

Enclosure

cc: Mr. Joshua Mann
Historic Preservation
Eastern Shoshone Tribe
15 N. Fork Road
Fort Washakie, WY 82514
(w/encl)