Emily Fife, State Conservationist
Natural Resources Conservation Service
125 South State Street Room 4010
Salt Lake City, UT 84138

TU Projects Summary

10/2/2024

Scofield Tributaries Drought Resiliency and Restoration Project

- Stream Restoration continued up Mud Creek, Eccles Creek, and Clear Creek
- Stream Restoration and possible removal of abandoned rail line along Clear Creek above the confluence of Clear Creek and Eccles Creek. Dependent upon continued work with the Union Pacific Railroad
- Stream Restoration and habitat construction on Upper Gooseberry Creek
- Minimal Stream Restoration on Upper Fish Creek
- Grazing Management Research in Riparian Areas of Upper Fish Creek and Pondtown Creek, possible chances in grazing density with cooperation of grazers based on this research.
- Public Applicant: Utah Division of Wildlife Resources
- Estimated Cost: $2.5 – 3 million

Price River Drought Resiliency and Restoration Project

- Bank stabilization and habitat construction on the Price River below Colton Bridge and above Emma Park Road.
- Habitat construction in Lower Fish Creek
- Stream Restoration and wetlands improvements on Beaver Creek
- Stream Restoration on Willow Creek
- Wet Meadow Restoration and protection along Emma Park Road and Whitemore Park Road
- Stream Restoration and wet meadow restoration in the White River Drainage
- Spring development in Beaver Creek and Willow Creek drainages
- Public Applicant: Price River Watershed Conservation District
- Estimated Cost: $4.5 – 5 million

Project Description

The Scofield Tributaries Restoration Project spans every major tributary of Scofield Reservoir. The project will increase drought resiliency in the drainage and reduce erosion causing increased phosphorus loading and harmful algal bloom in Scofield Reservoir. Based primarily on the 2022 Scofield Reservoir Watershed Assessment completed by Jacobs Engineering and commissioned by Trout Unlimited, the project tackles every aspect of drought and erosion impacts inhibiting the ecosystem. The project description below outlines these restoration efforts in each of the major drainages, specifically detailing plans and actions to be implemented and how they will provide ecosystem resiliency and benefits.

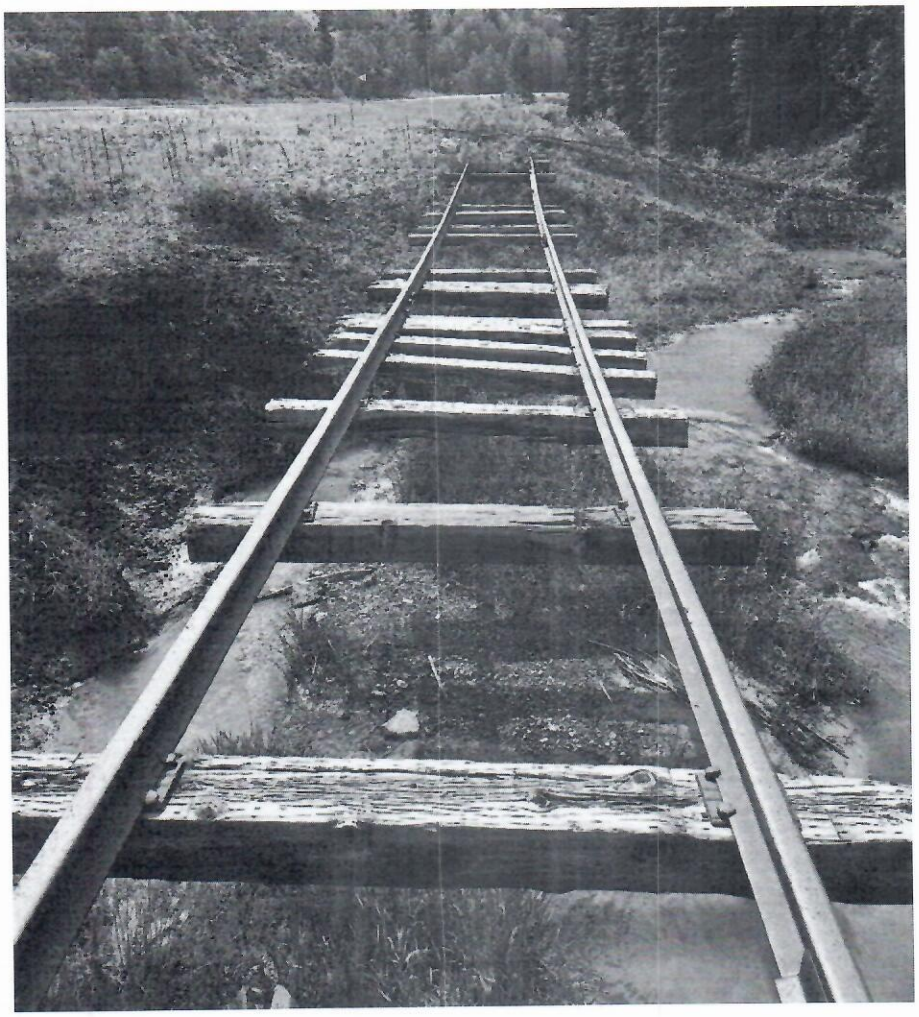
Mud Creek Drainage Restoration and Drought Resiliency

The Utah Department of Wildlife Resources (DWR) has been working on habitat restoration and drought resiliency projects in the Mud Creek Drainage for the past decade, including significant stream restoration, grazing management, and erosion control projects like those proposed in this project. The Scofield Tributaries Drought Resiliency and Restoration Project will continue these efforts throughout the drainage, providing restoration and habitat improvements not only on Mud Creek, but on its two tributaries, Clear Creek and Eccles Creek.

On Mud Creek and its tributaries, Eccles and Clear Creek, continued periods of drought have dried out soils causing increased erosion rates leading to channelized streams and disconnected floodplains. These impacts have been additionally exacerbated by industrial, mining, grazing, and highway encroachment which have confined streams increasing stream flow energy, erosion, and reducing groundwater recharge and base flows in times of low flow and drought.

Stream restoration efforts will include low-tech process-based restoration and form-based restoration throughout areas of the Mud Creek drainage that have been severely impacted by the above degradation. Beaver Dam Analogs (BDA's) will be used to rebuild the floodplain in areas of channelization. BDA's will slow water down to reduce erosion and increase groundwater recharge while capturing sediment and decreasing sediment and phosphorus transport to Scofield Reservoir. Post Assisted Log Structures (PALS) will provide complexity to the streams in areas of channelization and planar flow. This complexity provides holding, spawning, and rearing habitat for trout and other aquatic species. Form-based restoration including boulder step down pools, boulder veins, and log weirs will provide erosion control and bank stabilization in areas of confinement while increasing habitat for trout and other aquatic species.

In areas of the upper Mud Creek Drainage, along Clear Creek, abandoned railroad infrastructure has caused heavy habitat degradation and major erosion concerns. Some stream reaches have completely eroded the railroad grade (see the below Figure), becoming channelized and trenched in areas of heavy fill, coal, and highway grade. Restoration efforts in these areas will include removal of abandoned rail, railroad grade, and construction of habitat and bank stabilization features to reduce erosion and provide for a healthy floodplain and aquatic and terrestrial ecosystem.



Detailed stream reaches of Mud Creek and particular hot spots of erosion and sediment loading in the drainage are further outlined in the Scofield Watershed Assessment attached in the appendix of this document.

Restoration efforts will provide for drought resiliency, habitat improvement, and stream restoration on an estimated 10 miles of stream. Restoration will provide additional benefits

for an estimated 30 acres of wetlands. Figure 1 outlines the Mud Creek watershed in additional detail.

Upper Fish Creek Drainage Restoration and Drought Resiliency

Upper Fish Creek flows through the Manti La Sal National Forest, providing forage for grazing allotments as well as recreational fishing, hiking, and hunting capacities. Below the forest service boundary Fish Creek flows through low gradient pastureland before it's confluence with Scofield Reservoir. Figure X attached in the appendix of this document exhibits landownership considerations within the project boundary.

Heavy grazing density through forest service allotments and private pasturelands has exacerbated the effects of dried out soils and increased erosion caused by drought. And this degradation and overuse is the crux of restoration efforts in Upper Fish Creek, as prescribed by the Scofield Reservoir Watershed Assessment.

The Scofield Tributaries Restoration Project intends to implement modern grazing management practices in cooperation with grazers on both National Forest and Private Property throughout the drainage. Using a combination of fencing, GPS tracking, and virtual boundary exclusion zones to reduce hoof shear and erosion in the Upper Fish Creek drainage. Reduction of erosion due to grazing will provide for proper stream function, an increase in wetlands habitat, and reconnection of the floodplain in areas of particularly dense exploitation.

In areas exhibiting particular erosion density and a lack of floodplain connectivity, low-tech process-based restoration will be implemented using BDA's and PALS to reduce stream energy and erosion, while providing complexity, habitat, and sediment capture to the stream. However, access due to on-foot travel restrictions through the Upper Fish Creek drainage will limit these restoration practices and grazing management and natural stream function encouragement will provide the greatest benefit to Upper Fish Creek.

Grazing management and a reduction of grazing density within the riparian area on Upper Fish Creek will benefit an estimated 6 miles of stream. Roughly 18 acres of wetlands and terrestrial habitat will have improved drought resiliency and carrying capacity as well. The Upper Fish Creek drainage is further detailed in Figure 1 provided in the appendix of this document.

Minimum instream flow?????

Pondtown Creek Drainage Restoration and Drought Resiliency

Similar to Upper Fish Creek, Pondtown Creek flows primarily through Manti La Sal National Forest Property, providing grazing allotments to local grazers for sheep and cattle.

Restoration and drought resiliency implementation in this drainage will primarily focus on grazing management throughout the drainage using fencing, virtual fencing, and active management to reduce the density and effects of livestock on the stream.

Grazing management and a reduction of grazing density within the riparian area on Pondtown creek will benefit an estimated 5 miles of stream. Roughly 15 acres of wetlands and terrestrial habitat will have improved drought resiliency and carrying capacity as well. The Pondtown Creek drainage is further detailed in Figure 1 attached in the appendix of this document.

Upper Gooseberry Creek Restoration and Drought Resiliency

Upper Gooseberry Creek above Gooseberry Reservoir is a high elevation stream, providing water to both gooseberry reservoir, Sanpete County, Scofield Reservoir, and downstream water users in Carbon County. Upper Gooseberry Creek further provides for wetland habitat for sandhill cranes, beavers, ducks, elk, deer, and trout. The stream reaches above Gooseberry Reservoir holds important spawning habitat and habitat potential for wild cutthroat trout.

However, due to the effects of drought drying out soils, increasing erosion, and decreasing base flows, Upper Gooseberry Creek has seen sever habitat degradation. Areas of the stream are channelized. The floodplain is disconnected. Wetlands have been inhibited by this disconnection. Trout habitat has been degraded as grazing, erosion, low flows, and stream function decrease in periods of extreme drought. As a result of these issues, the long-term carrying capacity of Upper Gooseberry Creek has been limited. And the ecosystem in its entirety lacks drought resiliency.

Restoration and drought resiliency measures in the Upper Gooseberry drainage will include the implementation of low-tech process-based restoration measures to decrease erosion, reconnect the floodplain, and increase aquatic and terrestrial habitat. These measures will primarily be the installation of Beaver Dam Analogs and Post Assisted Log Structures, used to slow water down, provide stream complexity, catch sediment, reduce erosion, and increase habitat for fish and other wildlife.

Additional restoration measures will include grazing management research. Research into grazing density, timing of grazing, type of grazing, and the effects of grazing on the Upper Gooseberry Reservoir will drive further restoration and resiliency efforts.

Stream restoration and implementation on Upper Gooseberry Creek will benefit an estimated 4.5 miles of stream. Additional wetlands and floodplain connectivity will further benefit roughly 12 acres of wetland and terrestrial habitat. Upper Gooseberry Creek is exhibited in Figure 1 attached in the appendix of this document.

Additional Restoration Practices

- Modifications to fish passage barriers to allow for fish passage, increasing the carrying capacity and biodiversity of the drainage. Biodiversity and an increase in carrying capacity provides for drought and ecosystem resiliency throughout the drainage in times of stressful environmental conditions including drought, wildfires, or extreme flooding.
- Forest and vegetation inventories and strategic seedings and plantings where necessary.
- Invasive and noxious plant removal and abatement

Access and Staging Considerations

The Scofield Tributaries Project boundary has outstanding access to project areas for both light vehicles and heavy equipment as needed. Highway 96 provides access to the majority of the Mud Creek drainage. Gravel roads provide access to Upper Fish Creek, Pondtown Creek, and Gooseberry Creek above Gooseberry Reservoir. Staging areas are available throughout the drainage as well, both on county, private, and federal property. Access and possible staging areas are represented in Figure 2 attached in the appendix of this document.

There are access limitations for heavy equipment on Pondtown and Upper Fish Creek, but the majority of restoration work in these drainages is limited to grazing management changes and access for heavy equipment will not be required.

Property access is an important consideration for the Scofield Tributaries Project as well. A notable amount of restoration work will take place on a variety of properties, including private, federal, and county lands. Figure 3 in the appendix of this document details property ownership within the project boundary. The Utah DWR and its partners have experience in the drainage working with property owners, grazers, and interested parties. Projects in the drainage have been implemented on private property for the past decade as restoration efforts have furthered the health of the watershed. These projects have been received well by local property owners and continued cooperation with these parties is expected to continue. Partnership with the Price River Watershed Conservation District will further help facilitate cooperations with landowners and grazers. A letter of support for the Conservation District is attached in the appendix of this document.

Materials Sourcing Considerations

Due to the property ownership considerations of the project area, the majority of materials will be sourced outside of the project boundary. Natural resource considerations and

material geology for boulders, wood, fencing, and other materials further necessitates off-site materials sourcing.

Project Monitoring Plan

The primary objective of the Scofield Tributaries Restoration Project is to increase drought resiliency within the drainage and reduce erosion that is contributing Phosphorus and Dissolved Solids to Scofield Reservoir. Additional benefits of this project will include aquatic and terrestrial habitat improvement. The Pre and Post Monitoring plan is intended to reflect these objectives and benefits, measuring meaningful improvements from restoration activities compared to pre-project conditions.

Stream Classification and Cross Sections

In stream reaches where bank stabilization and stream channel restoration will be implemented the streams will be classified by the Rosgen Stream Classification System. Longitudinal and cross sections will be taken of the stream channel before and after restoration to define changes in channel and floodplain character.

Water Temperature, Total Dissolved Solids, and Flow Monitoring

Stream temperature, total dissolved solids (TDS), and flow will be monitored at the confluence of each tributary with Scofield Reservoir or, in the case of Clear Creek, Eccles Creek, and Gooseberry Creek, where they enter Mud and Fish Creek Respectively. Additional TDS and flow measurements may be taken above and below significant stream restoration areas to better delineate specific performance. Measurements will be performed throughout the year, though weather may inhibit measurements in the winter due to access or ice. Note that TDS monitoring on Eccles creek is an important point of this project, as Eccles Creek receives the majority of Sky Line Mine's discharge water.

Photo Points and Drone Monitoring

Areas of stream restoration and culvert replacement will have before and after pictures taken of them, after pictures will be taken for a minimum of six months after work is completed. For large areas of restoration Drone Photography and Videography will be used to document changes in habitat and vegetation from before and after restoration. Photo points of grazed lands within riparian areas will be taken before and after grazing management and riparian restoration is implemented.

Project monitoring points are further detailed in Figure 4 attached in the appendix of this document. Further monitoring points will be determined during project area assessments, pre-project monitoring, and project planning as required.

Project Management and Collaborative Partners

This project will be primarily managed by Trout Unlimited's Southeast Utah Project Manager (the PM's Resume is attached in the appendix of this document). The Project Manager will work in concert with pertinent partners, most notably the Southeast Regional office of the Utah Division of Wildlife Resources (DWR), the public applicant for this funding opportunity. Additional cooperation from the Manti La Sal National Forest has been included in the pre-project planning as well. Considerations for NEPA requirements on forest service land has been discussed by the Utah DWR and the Forest service, with plans for compliance being included in the Fores Service's strategic plan moving forward.

Previous restoration undertaken by the DWR has included significant input from the Price River Conservation District in accordance with the Price River Watershed Coordinated Resources Management Plan or CRMP (attached in the appendix of this document). The CRMP and the Conservation District has provided important information and input respectively in the past for projects within the Price River Watershed. And this partnership will continue to be an important partnership for the success of this project.

Additional partners and interested parties are outlined below:

- Letters of support list

Project Timeline

A detailed project timeline for each drainage in the Scofield Tributaries Restoration Project is provided in Figures 6, 7 and 8 attached in the appendix of this document. Major project milestones and estimated required staff time are listed below in Table X.

Table X

Milestone / Task	Month / Year of Completion	Anticipated Staff Time	Staff Expertise Required
Mud Creek Drainage Partner Outreach and Project Area Assessments	December 2026	340	Management
Mud Creek Drainage Project Engineering and Planning	December 2026	1,000 hours	Management, Surveying, Engineering Contractor
Mud Creek Federal Compliance Considerations	April 2027	1,200 hours	Management, Archeological, Engineering, Consulting

Mud Creek Drainage Project Permitting	April 2027	200 hours	Management, Surveying, Engineering
Mud Creek Drainage Pre Project-Monitoring	April 2027	500 hours	Management, Labor,
Mud Creek Drainage Contractor Selection and Contracting	May 2027	20 hours	Management, Engineering
Mud Creek Drainage Project Construction	October 2030	1,600 hours	Management, Labor, Heavy Equipment Crews, Volunteer Efforts
Upper Gooseberry Drainage Partner Outreach and Project Area Assessments	December 2026	200 hours	Management
Upper Gooseberry Drainage Project Engineering and Planning	December 2026	600 hours	Management, Surveying
Upper Gooseberry Drainage Federal Compliance Considerations	December 2027	800 hours	Management, Surveying, Archeological, Consultation
Upper Gooseberry Drainage Project Permitting	February 2028	300 hours	Management, Surveying, Engineering
Upper Gooseberry Drainage Pre-Project Monitoring	February 2028	400 hours	Management, Labor
Upper Gooseberry Drainage Contractor Selection and Contracting	May 2028	28 hours	Management,
Upper Gooseberry Drainage Construction	October 2030	1,200 hours	Management, Labor, Heavy Equipment Crews, Volunteer Efforts
Fish Creek and Pondtown Creek Grazing Management Partner Outreach	December 2026	500 hours	Management
Fish Creek and Pondtown Creek Grazing Management Grazing Research	May 2028	600 hours	Management, Labor, Surveying, Consultation
Fish Creek and Pondtown Creek Grazing Management Federal Compliance Considerations	May 2028	400 hours	Management, Consultation
Fish Creek and Pondtown Creek Grazing Management Project Planning	December 2028	300 hours	Management, Consultation

Fish Creek Grazing Plan Implementation	December 2030	200 hours	Management
Project Wide Post Project Monitoring	December 2030	750 hours	Management, Surveying, Labor

October 14, 2024
U.S. Bureau of Reclamation
B2E Upper Basin Environmental Drought Mitigation Grant Program

To the Bureau of Reclamation,

The Carbon Water Conservancy District is pleased to offer this letter of support in accompaniment to the proposal submitted by the Utah Division of Wildlife Resources for the B2E Upper Basin Environmental Drought Mitigation Grant Program and the improvement of the Price River drainage.

The Carbon Water Conservancy District is responsible for the operation, maintenance, and safety of Scofield Reservoir, the primary water storage facility in the Price River drainage, providing water for water users downstream in Carbon County. As a considerable stakeholder in the health of the Scofield Tributaries, the Reservoir itself, and its water quality, we believe the Scofield Tributaries Restoration Project provides significant benefits to the Conservancy District, and its water users.

We appreciate your consideration of the Utah Division of Wildlife Resources application for the B2E Upper Basin Environmental Drought Mitigation Grant Program and their further efforts toward the improvement of Scofield Reservoir.

If you have any questions, or need further information, please do not hesitate to call me at XXXXXXXXXXX or e-mail at XXXXXXXXXXXXXX.

Sincerely,

Individual
Carbon Water Conservancy District

Project Description

The Price River Drought Resiliency and Restoration Project intends to combat and protect against the ecological degradation caused by extreme drought. The Project will restore and provide protection to the Price River drainage from the top down, working in three major areas of the drainage over five years to increase water quality, aquatic and terrestrial habitat, and drought resiliency with a target completion date of November 2030. These areas, further detailed below, are represented in Figure 2 attached in the appendix of this document.

Area One – Wet Meadows and Willow Creek in the Western Watershed

Willow Creek, a tributary of the Price River, drains a significant area of the western drainage characterized primarily by rolling sagebrush steppe, separated by large wet meadows, springs, ephemeral streams, and perennial tributaries. Contributing heavy spring flows to the Price River and important summer and fall groundwater, wet meadows and ephemeral wetlands such as these are an integral part of a fully functioning watershed, providing for greater water quality and higher base flows in times of drought. Within the monoculture environment of sagebrush hills, the wet meadows and springs of Emma Park and Whitemore Park provide important habitat and forage diversity to resident populations of sage grouse, deer, elk, amphibians, insects, and other terrestrial animals.

Historically used by grazers as summer pastureland and industrial drilling for oil and natural gas, these wet meadows and high elevation drainages have been degraded by years of drought induced erosion, heavy foraging, and overuse. In recent years the importance of such habitat both for native wildlife and grazers has become apparent, and restoration and protection projects have been undertaken by the U.S. Fish and Wildlife Service and the Utah Department of Wildlife Resource (DWR). The Price River Drought Resiliency and Restoration Project will further these efforts, building upon a base of landowner partnership and successful project implementation that has already shown beneficial results for wildlife and local stakeholders.

Restoration activities will primarily center upon wet meadow restoration and protection against erosion (areas of restoration are defined in Figure 9 attached in the appendix of this document). As years of drought have dried out these wet meadows, their soils have become susceptible to erosion during heavy rain and heavy grazing. Low-tech Process-based restoration such as one rock dams and Zeedyk structures will be implemented to slow water down, spread water out over the meadow, and stabilize head-cuts and areas of heavy erosion that continue to eat into these wet meadows. Similar structures have been utilized in the area on previous projects with excellent results, showing durability and the

ability to not only stabilize but increase habitat. In addition to wet meadow restoration, spring development will be a key priority of the project as well. Fencing springs off and providing off channel water for livestock will decrease the hoof shear and degradation of such springs caused by heavy use. This overuse can often cause springs to dry up or go underground, destroying wetland habitat for native plants and animals. Protecting these springs will further provide clean water for the wet meadows below and the ephemeral streams and perennial tributaries that feed the Price River.

Area One is also defined by Willow Creek itself, its tributaries, (detailed in Figure 10 attached in the appendix of this document) and other smaller tributaries of the Price River. Willow Creek and these tributaries have seen the acute effects of drought. Drying banks and heavy confinement by roads and land use have seen them become disconnected channels, with limited access to the floodplain. As soils have dried out, and little water is spread over the floodplain, erosion has increased, and the trenching of these streams has reduced habitat and wetlands for aquatic and terrestrial wildlife respectively. Low-tech Process based Restoration efforts using Beaver Dam Analogs (BDA's)a will be implemented in Willow Creek and its tributaries and other eastern tributaries of the Price River. These structures slow water down and spread water out across the floodplain, reducing the energy of the stream and erosion, while increasing the creek's access to the floodplain which will create additional wetlands and recharge groundwater.

Stream reaches and meadows for prospective restoration activities will be inventoried and assessed during the Design and Engineering Phase of this project. Materials will be sourced on site if available or provided from local borrow sources, including local gravel and rock quarries, or local natural material sources deemed sufficient to sustain borrowing. Possible borrow sources are shown in Figure 8 attached in the appendix of this document. There are significant access routes and staging areas for personnel and equipment throughout Area One as delineated in Figures 6 and 7.

From the top down, Area One provides restoration and resiliency opportunities to increase the diversity of the Price River ecosystem, as well as the drought resiliency of the river through groundwater retention and water quality improvements. Wet meadow and spring restoration and resiliency projects will protect and provide benefits to nearly 300 acres of high elevation wetlands, as well as over a half dozen springs. Stream restoration and stabilization projects will provide restoration, and habitat benefits to over 15 miles of perennial streams and ephemeral creeks. Provide Structure Quantities

Area Two – The White River and its Headwaters

Area Two encompasses the White River and its headwaters. The White River is one of the two major tributaries that form the Price River. Flowing from the southern Wasatch Plateau, undammed, it provides important spring flows for the Price River, and stable fall and winter flows. It is home to important native species such as Colorado River Cutthroat Trout, beavers, moose, elk, and other wildlife.

The White River (detailed in Figure 4 attached in the appendix of this document), similar to Willow Creek, drains both high elevation mountains and wet meadows within the sage steppe. Both the wet meadows and perennial streams of this drainage have seen the effects of drought. As soils have dried out and overuse has persisted, heavy erosion has caused stream channelization, loss of wetlands, desertification of meadows, a reduction in fish habitat, and a decrease in base flows.

Restoration implementation in Area Two will focus on additional wet meadow restoration using one rock dams and Zeedyk structures that slow water down, stabilize eroding wetlands, and spread water over the meadow. In the perennial streams and channels of the White River and its tributaries low-tech process-based restoration including BDA's and Post Assisted Log Structures (PALS) will be used to slow water down, spread water over the floodplain, and stabilize banks against erosion. Form-based restoration structures may also be built to provide specific habitat for spawning, rearing, and holding of Colorado River Cutthroat Trout.

Stream reaches and meadows for prospective restoration activities will be inventoried and assessed during the Design and Engineering Phase of this project. Materials will be sourced on site if available or provided from local borrow sources, including local gravel and rock quarries, or local natural material sources deemed sufficient to sustain borrowing. Possible borrow sources are shown in Figure 8 attached in the appendix of this document. There are significant access routes and staging areas for personnel and equipment throughout the White River Area as delineated in Figures 6 and 7.

As one of the major tributaries of the Price River. The White River and its surrounding ecosystem provide an excellent opportunity to increase water quality, drought resiliency, and wildlife habitat in the Price River drainage. STRUCTURES # will be built, stabilizing and increasing habitat and drought resiliency on over 6 miles of stream.

Area Three – The Mainstem of the Price River and its Eastern Tributaries

The third area that this proposal will focus on is the Price River and its eastern drainage, including the mainstem of the Price River, Fish Creek below Scofield Reservoir, Beaver Creek, Ford Creek, and the ephemeral canyon drainages of the lower Price Canyon. The Price River provides water to over 8,000 people living along its banks in Helper, Price, and Wellington Utah as well as the industrial and agricultural industries within these communities. Completely contained within the state of Utah, it provides the lifeblood of life, water, to over 130 miles of habitat through high elevation meadows to the San Rafael Desert. Its waters are home to species of notable concern including native Colorado River Cutthroat Trout, Bluehead Sucker, Roundtail Chub, Razorback Chub, and it is considered historic range for Colorado River Pikeminnow. Big game including black bears, cougars, deer, elk, and moose all rely on the Rice River and its tributaries for forage, water, and habitat. Many small game and terrestrial animals including beavers, sage grouse, foxes, otters, and other animals further live within its watershed.

However, few drainages have felt the effects of drought like the Price River. Exacerbated by industrial use, mining encroachment, and agricultural exploitation, the Price River has experienced heavy habitat degradation, erosion, muted flows, and a decrease in water quality. Currently listed on the EPA's 303d list of Impaired Waters, the price river fails to meet Total Maximum Daily Load (TMDL) requirements for dissolved oxygen in its upper reaches, and dissolved solids, selenium, boron, and ammonia in its lower reaches. As drought has reduced flows and decreased soil moisture, the Price River and its tributaries have become channelized and disconnected from their original floodplains. Dried out soils and confined streams result in highly energetic flows of water in times of rain and runoff, causing continued erosion, trenching, and sediment input. Habitat for aquatic life is choked by sediment, low flows, and increased temperatures. Terrestrial habitat, including wetlands, is lost as creeks become more incised, and groundwater levels lower. Consequently, the overall carrying capacity of the Price River for native wildlife, grazing, and water users is diminished.

Restoration implementation in Area Three will tackle these significant effects of drought in the tributaries, mainstem, and ephemeral drainages of the Price River.

First, in the Price River's eastern tributaries including Beaver and Ford creek (detailed in Figure 4 attached in the appendix of this document) low-tech process-based restoration using BDA's and PALS will be used to slow water down, reconnect the floodplain, and recharge groundwater. BDA's decrease the energy of water, reducing erosion, and catching sediment. They also spread water out, increasing a stream's wetland habitat and vegetation diversity. And was water holds in BDA's groundwater recharges, increasing a

streams base flow in times of drought. In the higher elevations of these streams, spring development will further increase water quality and stream flow. Fencing springs and providing off channel watering for livestock will increase the viability of springs for wetlands habitat and the water quality of the spring flow itself.

Second, bank stabilization and habitat construction in Fish Creek and the mainstem of the Price River will work to increase the carrying capacity of the river for native fish in two ways. First, habitat construction will provide spawning, holding, and rearing habitat for Colorado River Cutthroat Trout and Bluehead Sucker. Second, bank stabilization will result in a reduced rates of erosion and sediment transport, improving water quality and preserving the aquatic habitat that will be constructed, and that which is already there.

The third and final point of restoration will be the stabilization and regeneration of the lower canyons and ephemeral streams of the Price River. This area was burned in 2021 (detailed in Figure 3 attached in the appendix of this document). Dried out fuels from drought and invasive beetle infestations cause the fire to burn with maximum intensity. Since the fire extreme drought has limited natural requirement of vegetation and stabilization. As a result of these limitations, heavy monsoonal rains have continuously flooded the canyon, providing massive debris flows into the Price River and downstream communities, degrading habitat further, and risking the safety of Carbon County residents. Restoration efforts proposed by the Price River Drought Resiliency and Restoration Project will include the construction of catch basins and low-tech and form-based stabilization measures to help speed up the recovery of these canyons.

Stream reaches, river sections and destabilized side canyons for prospective restoration activities will be inventoried and assessed during the Design and Engineering Phase of this project. Materials will be sourced on site if available or provided from local borrow sources, including local gravel and rock quarries, or local natural material sources deemed sufficient to sustain borrowing. Possible borrow sources are shown in Figure 8 attached in the appendix of this document. There are significant access routes and staging areas for personnel and equipment throughout the Price River drainage as delineated in Figures 6 and 7.

As an important water resource and habitat corridor, the Price River drainage and its ecosystem provides an excellent opportunity to increase water quality, drought resiliency, and wildlife habitat in Southeastern Utah. STRUCTURES# will be built, stabilizing and increasing habitat and drought resiliency on over 30 miles of streams, rivers, and ephemeral canyons.

Additional Restoration Activities

- Construction of Fish Passage Barries to limit nonnative fish migration into areas of native fish strongholds such as on the White River
- Forest and vegetation inventories and strategic seedings and plantings where necessary.
- Invasive plant removal and abatement

Project Monitoring Plan

There are four primary objectives of the Price River Drought Resiliency and Restoration Project. They are outlined below:

1. A reduction of sediment and total dissolved solid loading in the Price River and its tributaries through a reduction in erosion of banks and channels.
2. An increase in base flows of the Price River's tributaries.
3. An increase in vegetation diversity throughout the Price River's Watershed.
4. A decrease in wet meadows lost to erosion and desertification.
5. An increase in terrestrial and aquatic habitat

The Project Monitoring Plan is intended to reflect these objectives, measuring meaningful improvements from restoration activities compared to pre-project conditions.

Stream Classification and Cross Sections

In stream reaches where bank stabilization and stream channel restoration will be implemented the streams will be classified by the Rosgen Stream Classification System. Longitudinal and cross sections will be taken of the stream channel before and after restoration to define changes in channel and floodplain character.

Water Temperature, Total Dissolved Solids, and Flow Monitoring

Stream temperature, total dissolved solids (TDS), and flow will be monitored at points of interest on the Price River and its tributaries including Fish Creek, the White River, Willow Creek and other tributaries on which restoration practices are implemented. Additional TDS and flow measurements may be taken above and below significant stream restoration areas to better delineate specific performance. Measurements will be performed throughout the year, though weather may inhibit measurements in the winter due to access or ice. Specific monitoring points and requirements for scheduling will be delineated during the Design and Engineering portions of this project.

Photo Points and Drone Monitoring

Areas of stream restoration and stabilization will have before and after pictures taken of them, "after" pictures will be taken monthly for a minimum of six months after work is completed (as long as access allows). For large areas of restoration Drone Photography and Videography will be used to document changes in habitat and vegetation from before and after restoration. Photo points will be timed appropriately with before and after photos to accurately describe before and after changes.

Photo point monitoring will be particularly important to confirm the protection of wet meadows from erosion and desertification. Photos will show losses in area and vegetation diversity from year to year and before and after restoration.

Vegetation Surveys

Vegetation surveys will be performed before and after restoration efforts to describe the increase in vegetation diversity within the project area. Specific points for vegetation surveys within each project area will be delineated during the design and engineering phase of the project.

Project Management and Collaborative Partners

This project will be primarily managed by Trout Unlimited's Southeast Utah Project Manager (the PM's resume is attached in the appendix of this document). The Project Manager will work in concert with the applicant, The Price River Watershed Conservation District, and other pertinent partners. The project manager will facilitate communication between partners, contract management, project reporting, financial reporting when possible, and technical expertise.

A group of project partners have begun preliminary planning with intentions to pursue the Price River Drought Resiliency and Restoration Project. Initial meetings and collaborations have included the Utah Department of Wildlife Resources, U.S. Fish and Wildlife Service, the Utah Division of Water Quality, the Price Division of Natural Resources Conservation, the Price River Watershed Conservation District, and the Utah Department of Agriculture and Food.

Site visits with landowners and federal, state, and NGO partners have begun, including to areas in Beaver Creek, the wet meadows of Emma Park Road, the Mainstem of the Price River, and Lower Fish Creek. Initial planning has seen exceptional progress made towards land access, funding, management, design, and education. Such a diverse group of partners has provided for landowner outreach, permitting and federal compliance

expertise, and wildlife expertise. Further meetings and site visits are planned as funding is sought, and restoration activities move forward.

Additional partners and interested parties are outlined below:

- Carbon County Conservancy District - A Letter of Support is attached in the appendix of this document
- Bureau of Land Management - A Letter of Support is attached in the appendix of this document
- The U.S. Forest Service - A Letter of Support is attached in the appendix of this document
- Price River Water Improvement District – A Letter of Support is attached in the appendix of this document
- Union Pacific Railroad
- Utah Department of Transportation
- Local Canal Companies
- Utah DWR

Project Tasks and Timeline

A list of tasks, outlined below, has been developed for each of the Sub-Areas listed above. The project timeline, provided in Figure X attached in the appendix of this document, is based upon these tasks. These tasks and required staff time for each are listed below in Table X.

Task List for Each Area of Restoration:

- Project Area Assessment
- Site Visits and Pre-Project Partnership Planning
- Pre-Project Monitoring
- Design / Engineering
- Permitting and Federal Compliance Requirements
- Construction / Implementation
- Post-Project Monitoring

Table X

Milestone	Month / Year of Completion	Anticipated Staff Time	Staff Expertise Required
Project Area Assessments	August 2029	770 hours	Management, Surveying, Partnership Input
Site Visits and Pre Project-Partnership Planning	August 2029	775 hours	Management, Labor, Partnership Input

Pre-Project Monitoring	April 2030	775 hours	Management, Surveying, Labor
Design / Engineering	April 2030	1,100 hours	Management, Labor, Surveying, Engineering
Permitting / Federal Compliance Requirements	April 2030	1,100 hours	Management, Surveying, Engineering, Consultation
Construction / Implementation	September 2030	5,100 hours	Management, Construction Crews, volunteer efforts
Post-Project Monitoring	December 2030	650 hours	Management, Surveying, Labor

October 14, 2024
U.S. Bureau of Reclamation
B2E Upper Basin Environmental Drought Mitigation Grant Program

To the Bureau of Reclamation,

The Carbon Water Conservancy District is pleased to offer this letter of support in accompaniment to the proposal submitted by the Price River Watershed Conservation District for the B2E Upper Basin Environmental Drought Mitigation Grant Program and the improvement of the Price River drainage.

The Carbon Water Conservancy District is responsible for the operation, maintenance, and safety of Scofield Reservoir, the primary water storage facility in the Price River drainage, providing water for water users downstream in Carbon County. As a considerable stakeholder in the health of the Price River, the drought resiliency of the river, and its water quality, we believe the Price River Drought Resiliency and Restoration Project will provide significant benefits to the Conservancy District, and its water users.

We appreciate your consideration of the Price River Watershed Conservation District's application for the B2E Upper Basin Environmental Drought Mitigation Grant Program and their further efforts toward the improvement of the Price River drainage.

If you have any questions, or need further information, please do not hesitate to call me at XXXXXXXXXXX or e-mail at XXXXXXXXXXXXXX.

Sincerely,

Individual
Carbon Water Conservancy District