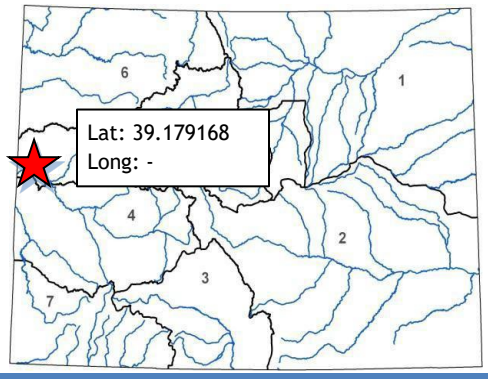
COLORADO
Colorado Water Conservation Board
Department of Natural Resources

Intermountain West Alternative Forages Project Phase I Trout Unlimited

March 2023 Board Meeting

Water Plan Grant Application



LOCATION	
Counties:	Grand, Mesa, Montezuma
Drainage Basin:	Colorado, Southwest

DETAILS	
Total Project Cost:	$450,286
Water Plan Grant Request:	$337,714
Recommended Amount:	$287,885
Other CWCB Funding:	$0
Other Funding Amount:	$109,532
Applicant Match:	$3,040
Project Type:	Research Project
Project Category:	Agricultural
Measurable Result:	4,649,600 Coloradoans Impacted by Engagement Activity

Colorado Water Plan Grant funding will support Trout Unlimited's application on behalf of the Intermountain West Alternative Forages Working Group's research project to investigate less water consumptive forages and their agronomic viability in a variety of climates in the Upper Colorado River basin. Demonstration that these crops can sustain agricultural operations while using less water than current forages, if widely adopted, will enhance the agricultural sustainability of operations in the Upper Colorado River Basin.

The project will use sainfoin, sunflower, and intermediate wheatgrass. The research will explore challenges with alternative forage establishment, weeds, and constraints of sod bound meadows. Research will take place at research farms and at several on-farm locations. The project includes utilizing tools such as Open ET and USDA Cropscape, creating opportunities for scalable impact.

The Colorado Water Plan grant request is 75% of the total project cost and the non-CWCB match is 25%. Together American Rivers and The Nature Conservancy will provide 13% of the total project cost in cash match.

Success of the project will include 1) a literature review on three crops in the intermountain west region, 2) a publicly available report describing the field trials and summarizing data collected, 3) a farmer/stakeholder meeting to share findings and recruit additional growers for future years, 4) a report outlining best practices and recommendations for a study design to address remaining research questions on water use and resilience to deficit irrigation and irrigation curtailment, and 5) data to enable Open ET to recognize alternative forage crops and estimate their consumptive use.

The Project demonstrates a commitment to collaboration through partnership between Colorado State University, Trout Unlimited, The Nature Conservancy and The Land Institute, who are also a part of the larger Intermountain West Alternative Forages Working Group with academic representatives from several Upper Basin states. The project also supports the Colorado Water Plan goal to innovate to sustain irrigated agriculture statewide by informing scalable, long-term learning for agriculture. This grant application is also supported by the Colorado Basin Roundtable.

Funding Recommendation:
Staff recommends approval of the reduced amount of $287,885 to Trout Unlimited for the Intermountain West Alternative Forages Project, which excludes the purchase of a vehicle from the tasks supported by the Water Plan grant.

COLORADO
Colorado Water Conservation Board
Department of Natural Resources

Colorado Water Conservation Board

Water Plan

Water Project Summary

Name of Applicant	Trout Unlimited
Name of Water Project	Intermountain West Alternative Forages Project – Phase I
Grant Request Amount	**$337,714.00**
Primary Category	$337,714.00
Agricultural Projects	
Total Applicant Match	**$3,040.00**
Applicant Cash Match	
Applicant In-Kind Match	$3,040.00
Total Other Sources of Funding	**$109,532.00**
American Rivers	$35,300.00
The Land Institute	$27,420.00
The Nature Conservancy	$22,602.00
The Nature Conservancy	$2,333.00
American Rivers	$1,377.00
Landowners	$20,500.00
Total Project Cost	**$450,286.00**

Applicant & Grantee Information

Name of Grantee: Trout Unlimited
Mailing Address: 1777 North Kent St., Suite 100 Arlington VA 22209
FEIN: 1,612,715

Organization Contact: Amelia Whiting
Position/Title:
Email: melywhiting@yhaoo.com
Phone: 720-470-4758

Organization Contact - Alternate: Amelia Whiting
Position/Title:
Email: melywhiting@yhaoo.com
Phone: 720-470-4758

Grant Management Contact: Amelia Whiting
Position/Title:
Email: melywhiting@yhaoo.com
Phone: 720-470-4758

Grant Management Contact - Alternate: Amelia Whiting
Position/Title:
Email: melywhiting@yhaoo.com
Phone: 720-470-4758

Description of Grantee/Applicant

No description provided

Type of Eligible Entity

- ☐ Public (Government)
- ☐ Public (District)
- ☐ Public (Municipality)
- ☐ Ditch Company
- ☐ Private Incorporated
- ☐ Private Individual, Partnership, or Sole Proprietor
- ■ Non-governmental Organization
- ☐ Covered Entity
- ☐ Other

Category of Water Project

- ■ Agricultural Projects
  Developing communications materials that specifically work with and educate the agricultural community on headwater restoration, identifying the state of the science of this type of work to assist agricultural users among others.
- ☐ Conservation & Land Use Planning
  Activities and projects that implement long-term strategies for conservation, land use, and drought planning.
- ☐ Engagement & Innovation Activities
  Activities and projects that support water education, outreach, and innovation efforts. Please fill out the Supplemental Application on the website.
- ☐ Watershed Restoration & Recreation
  Projects that promote watershed health, environmental health, and recreation.
- ☐ Water Storage & Supply
  Projects that facilitate the development of additional storage, artificial aquifer recharge, and dredging existing reservoirs to restore the reservoirs' full decreed capacity and Multi-beneficial projects and those projects identified in basin implementation plans to address the water supply and demand gap.

Location of Water Project

Latitude	39.179168
Longitude	-108.700803
Lat Long Flag	
Water Source	Colorado River and tributaries
Basins	Southwest; Colorado
Counties	Grand; Montezuma; Mesa
Districts	50-Muddy/Troublesome Creeks; 51-Upper Colorado/Fraser Rivers; 42-Lower Gunnison River; 32-McElmo Creek Basin; 34-Mancos River Basin

Water Project Overview

Major Water Use Type	Agricultural
Type of Water Project	Planning
Scheduled Start Date - Design	1/2/2003
Scheduled Start Date - Construction	

Description

Irrigation of forage crops, primarily alfalfa and grass hay and pasture, consumes most of the water used in Western Colorado and much of the rest of the Upper Colorado River Basin. This application seeks support for

Phase I of a large-scale research project to investigate whether alternative, less water consumptive forages are agronomically viable and can be effectively grown in a variety of climates in the Upper Colorado Basin.
The project targets three crops which early research indicates could be less thirsty, economically viable alternatives to alfalfa and grass hay. Phase I will evaluate how to best establish these crops on lands formerly used for hay production and grazing in the Upper Colorado Basin. In addition, we will lay the groundwork for a larger scale assessment of water use by these crops across the intermountain West by “teaching” the USDA’s Cropscape model to recognize the spectral signatures for IWG and sainfoin.
Future phases will involve scaling up field trials; more extensive data collection on water consumption and irrigation requirements; quantification of soil health improvement; and potential for these crops to generate additional revenue through harvesting of grain and oil seeds. Results will be disseminated through various forums.

Measurable Results

New Storage Created (acre-feet)
New Annual Water Supplies Developed or Conserved (acre-feet), Consumptive or Nonconsumptive
Existing Storage Preserved or Enhanced (acre-feet)
New Storage Created (acre-feet)
Length of Stream Restored or Protected (linear feet)
Efficiency Savings (dollars/year)
Efficiency Savings (acre-feet/year)
Area of Restored or Preserved Habitat (acres)
Quantity of Water Shared through Alternative Transfer Mechanisms or water sharing agreement (acre-feet)
Number of Coloradans Impacted by Incorporating Water-Saving Actions into Land Use Planning
4,649,600 Number of Coloradans Impacted by Engagement Activity
Other

This project will assist efforts to use less water consumptive forage crop. If successful, the effort will benefit both the 80% of Colorado's population that relies on Colorado River water and the 2.3 million acres of Colorado's irrigated land.

If we can demonstrate that these crops can sustain agricultural operations while using less water than current forages, and they are widely adopted, it will enhance the ability of Upper Colorado Basin rural, agricultural communities to thrive in a drier future while simultaneously reducing pressure on the Colorado River System as a whole. The project could also benefit other water-short western river basins with similar growing conditions, including the Great Basin and Rio Grande.

Water Project Justification

This project responds directly to the “Robust Agriculture” action area in the 2023 draft update to the Colorado Water Plan, which states that, “Innovations are needed to sustain irrigated agriculture and increase its profitability, stretch available water supplies, increase resiliency, and enhance local food production.”
Under “partner actions” for “wise water use,” the draft plan states that “New technologies and crops can enhance profitability while stretching available water supplies” and mentions the need for collaborative partnerships to generate multi-benefit solutions. By bringing together partners in ranching, research institutions and conservation non-governmental organizations to test the ability of alternative forage crops to sustain agricultural operations with less water, this project is a perfect fit for this action item.

This project also responds directly to all of the goals under the “Sustain Agriculture” theme of the Colorado Basin Implementation Plan, particularly the goal to “support profitable and productive agriculture and the integrated

benefits and services associated with agriculture.” By seeking to identify ways alternative forage crops can sustain agriculture with less water, this project seeks to help sustain agriculture in a drier future, which will also support the goals to reduce agriculture water shortages, reduce the potential for permanent transfers of water away from agriculture, and protect and preserve agricultural lands. Additionally, this project involves direct collaboration with farmers and ranchers, which responds to the goal to “engage, educate, learn from and collaborate with the agricultural community on Colorado River Basin water issues.”

The project partners are also committed to sharing the results of this project with the broader agricultural community and the general public, which will support the Colorado Basin Education Action Plan and the statewide Water Education Action Plan.

Related Studies

Evaluating Conserved Consumptive Use in the Upper Colorado River
This project will also build on and complement existing research conducted by The Land Institute and other research organizations, which is being reviewed and synthesized in Task 1 of this project.

Taxpayer Bill of Rights

N/A