

# Executive Summary

## **Yampa River Stewardship Program: Landowner Guide and Practitioner Handbook**

The Yampa River is one of the last largely free-flowing rivers in the Colorado River Basin, supporting a rich mosaic of ecosystems, agricultural operations, and rural communities. Its health depends on active, informed stewardship by landowners, land managers, and restoration practitioners working along the river and its tributaries. This Handbook provides practical, science-based guidance for addressing common land management challenges while maintaining and enhancing river function, wildlife habitat, and long-term landscape resilience.

### **The guide equips landowners with tools to:**

- Diagnose issues such as erosion, flooding, invasive species, degraded fisheries, livestock impacts, and infrastructure challenges
- Understand the natural processes driving river behavior
- Understand the suite of restoration and management actions that support the ecological integrity of the Yampa River and its tributaries, improve agricultural productivity, and protect infrastructure, and select suitable actions
- Identify funding pathways and connect with the Yampa River Stewardship Program and partner organizations for technical support

## Core Principles of River Stewardship

### 1. Rivers Are Dynamic, Not Static

Natural processes like erosion, deposition, flooding, meandering, and sediment movement are essential to a healthy river system. Efforts to overly constrain the river often create unintended consequences, including accelerated erosion, channel incision, habitat loss, water quality decline, and maintenance burdens.

### 2. Healthy Riparian Forests Are Foundational

Riparian vegetation stabilizes banks, shades and cools water, filters runoff, provides wildlife habitat, and increases groundwater retention.

### 3. Beaver Activity Provides Major Ecological Benefits

Beavers slow and spread water, raise water tables, create wetlands, improve water quality, and expand habitat. Coexistence strategies allow landowners to manage risks while retaining these benefits.

### 4. Complex Physical Habitat Supports Fish and Wildlife

Healthy ecosystems require diverse physical habitat—riffles, pools, undercut banks, large wood, side channels, backwaters, wetlands, and floodplain access.

### 5. Floodplains Are Part of the Riverscape

The river channel and its floodplain together make up the riverscape. Flooding builds soil, distributes nutrients, supports riparian forest regeneration, recharges groundwater, and reduces downstream flood risk. Restoring floodplain connection strengthens watershed resilience.

### 6. Land Management Impacts Water Quality and Quantity

Runoff, livestock access, septic systems, accelerated erosion, and vegetation removal can degrade water quality and quantity. Conversely, riparian buffers, infiltration practices, wetland restoration, beaver activity, and efficient irrigation improve it.



Photo Credit Peter Williams, Yampa River Leafy Spurge Project

## Summary of Recommended Actions by Common Concern

<b>Bank Erosion</b>	Promote natural stabilization of streambanks through riparian buffers, willow plantings, natural/bioengineered structures, and process-based approaches.
<b>Beaver Coexistence</b>	Use tree wrapping, pond levelers, culvert protection, and starter analog structures to manage conflicts while benefiting from beaver-driven hydrology.
<b>Fisheries</b>	Enhance habitat complexity, improve flow conditions, retrofit barriers, install fish screens, and protect and improve riparian shading.
<b>Flooding and Floodplains</b>	Reconnect side channels, modify berms, create floodplain benches, add floodplain roughness, restore gravel pits, and use setback infrastructure to balance asset protection and river function.
<b>Invasive Plants</b>	Use integrated weed management (manual, mechanical, cultural, chemical, biological) and coordinate with local resources to manage invasive plant species.
<b>Irrigation Infrastructure</b>	Modernize diversions, replace push-up dams, incorporate fish and sediment passage, consider boater safety, install debris racks, automate headgates, and evaluate relocation options.
<b>Riparian Forest &amp; Buffer</b>	Use site-specific plant communities, learn proper planting methods, manage grazing during establishment, and consider a conservation easement.
<b>Stream Crossings</b>	Design crossings so that floods, sediment, and wood may pass, and reduce the overall number of crossings.
<b>Streamside Landscaping</b>	Encourage natural vegetation, retain large wood, and design selective view corridors without removing buffers.
<b>Streamside Livestock Grazing</b>	Implement rotational grazing, protect riparian areas with fencing, develop off-channel watering, and install hardened access points.
<b>Water Quality</b>	Restore riparian buffers, manage runoff and septic systems, enhance infiltration, restore wetlands, and support beaver activity.
<b>Water Quantity</b>	Increase water availability via floodplain reconnection, wetland expansion, beaver structures, and temporary water leasing.
<b>Wildlife Habitat</b>	Enhance riparian forests, support movement corridors, maintain habitat complexity, reconnect secondary channels, and design wildlife-friendly fencing.

## Funding and Support

The Handbook outlines numerous funding opportunities including the Yampa River Fund, CWCB grants, NRCS EQIP, USFWS Partners for Fish and Wildlife, RESTORE Colorado, and others. The Stewardship Program assists landowners in designing multi-benefit projects and navigating grant processes.

## Overall Vision

The Yampa River Stewardship Program envisions a future where the Yampa River:

- Maintains intact ecological function
- Supports a vibrant agricultural economy
- Meets municipal and industrial needs
- Sustains thriving communities and wildlife

This Handbook serves as a roadmap for landowners to protect their land, increase resilience, and contribute to watershed-wide river health. To get started, a site visit from the Yampa River Stewardship Program can help identify opportunities to address concerns and simultaneously improve river health. There may be opportunities to take on larger projects by designing a multi-benefit project and getting funding from the programs described in this Handbook. Building a strong team with the help of conservation districts and partner organizations can make projects more effective and extend the benefits to the whole watershed.

*\*Note: This Handbook should be only used to inform landowners about design and construction techniques, and is not a substitute for design consultation with a Professionally Licensed Engineer.*

# Welcome

The Yampa River is one of the last wild rivers in the Colorado River system, flowing free for most of its 250-mile run from the Flat Top Mountains to its confluence with the Green River in Dinosaur National Monument. Many species of animals and plants co-evolved with the river over millennia and continue to thrive in the Yampa's natural, snowmelt-driven flow regime. Today, the Yampa and its tributaries remain a model of a healthy and functional river system.

Stewardship is not a new concept in the Yampa Valley. Indigenous peoples have been caretakers of the land since time immemorial, and local producers and landowners continue to care deeply about the land and river, spearheading efforts to innovate, conserve, and protect the landscape. New challenges are constantly emerging, and the people of the Yampa River Basin rise to meet them, balancing agricultural productivity and rural/urban development with protection of ecosystem services and river health.

The Yampa River Stewardship Program Landowner Guide and Practitioner Handbook is intended to assist landowners, land managers, and restoration practitioners working along the Yampa River and its tributaries in identifying strategies to solve common concerns while simultaneously supporting river health. It provides guidance for how to work with the land and water in ways that support natural processes and create lasting solutions. Techniques are available to design multi-benefit projects to upgrade infrastructure, support sustainable agriculture and outdoor recreation, and improve the integrity and health of the Yampa River watershed. Many of those methods are outlined in this Handbook.

The Handbook is divided into sections that address common concerns of Yampa Valley landowners and land managers. For each concern, the Handbook provides important questions to consider to further understand what activities or conditions might be causing a particular problem. It also introduces a few pertinent principles of river health, which is important for considering the ecological system as a whole. And finally, it provides several recommended practices or actions that may be taken to address concerns while still supporting river health and ecological function. Note that some actions are repeated in different sections because they address multiple concerns. Following these sections, there is information on potential sources of funding for implementing such actions.

## The Yampa River Stewardship Program is here to help!

The Yampa River Stewardship Program is a collaborative effort of Yampa Valley agricultural and environmental community organizations, convened under the umbrella of the Yampa River Collaborative and led by Friends of the Yampa. In addition to Friends of the Yampa, members of the Yampa River Collaborative include the Western Resilience Center, Community Agriculture Alliance, The Nature Conservancy, Trout Unlimited, and River Network. The Yampa River Stewardship Program is working to achieve a Yampa River that maintains intact ecological function, an agricultural economy, municipal and industrial needs, and thriving communities that rely on the river for recreation and quality of life. Its goal is to identify opportunities for multi-benefit projects, provide initial assessments, and connect project advocates with partners to successfully fund, design, and implement projects.

To schedule an initial meeting and site assessment, email Emily Burke, Friends of the Yampa environmental program director, at [emily@friendsoftheyampa.com](mailto:emily@friendsoftheyampa.com), or call (970) 896-5947

**Dedication to river health is a testament to community spirit. Stewardship of each segment of the river improves conditions up and down the watershed. Living on a wild river is special, but it demands collaboration, partnership, and hard work.**

# Closing Summary—A Shared Vision

The Yampa River is one of the last wild rivers in the Colorado River Basin, and its long-term health depends on the stewardship of the landowners, land managers, and practitioners who live and work along its banks. This Handbook has outlined practical, science-based actions that support both land management goals and the ecological integrity of the Yampa River system. Across all topics—erosion, flooding, fisheries, beaver coexistence, irrigation infrastructure, invasive plants, water quality and quantity, riparian planting, grazing, and habitat restoration—a central theme emerges: working with natural processes leads to durable, multi-benefit outcomes.

Healthy rivers rely on dynamic movement, functioning floodplains, diverse riparian vegetation, habitat complexity, and clean, cool water. Many of the most effective strategies highlighted in this guide are nature-based and low-cost: restoring riparian buffers, modifying grazing patterns, improving stream crossings, adopting fish-friendly diversion designs, enhancing stormwater infiltration, or installing beaver coexistence structures. When implemented collectively, these actions strengthen watershed resilience, reduce long-term maintenance costs, support agricultural productivity, and improve the quality of land and water for future generations.

## Next Steps for Landowners

Landowners are encouraged to begin with a site visit from the Yampa River Stewardship Program to identify property-specific needs and opportunities. From there, developing a phased stewardship plan can help prioritize actions over time—balancing river health, agricultural operations, and infrastructure protection. Many beneficial improvements can be implemented quickly, while larger restoration efforts may be supported through numerous funding programs described in this Handbook. Collaboration with neighbors, conservation districts, and partner organizations amplifies impact and improves outcomes across property boundaries.

## Looking Ahead

Future work in the Yampa Basin will be strengthened by expanding riparian reforestation, restoring secondary channels, modernizing irrigation and crossing infrastructure, supporting beaver activity where appropriate, improving aquatic connectivity, and increasing the use of low-tech, process-based restoration techniques. As climate and water availability shift, cooperative water management and wetland expansion will become increasingly important. Continued participation in the Yampa River Scorecard Project will help track progress and guide adaptive management.

## A Shared Commitment

Every landowner's efforts—large or small—contribute to a healthier Yampa River. Protecting and restoring this river is both a responsibility and an opportunity: to sustain agricultural lands, enhance wildlife habitat, and ensure that the Yampa remains vibrant and resilient for generations to come. The Yampa River Stewardship Program is committed to supporting landowners and land managers to advance this collective vision for a thriving watershed.