



Kawuneeche Valley Ecosystem Restoration Collaborative (KVERC)

STATE OF THE RIVER 2023

Presentation Outline

KVERC Background

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graph TD; A[KVERC Background] --> B[Conditions Assessment & Recommendations]; B --> C[Pilot Projects]; C --> D[Outreach]; D --> E[Funding];
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Conditions Assessment & Recommendations

Pilot Projects

Outreach

Funding



KVERC Background

KVERC is a collaborative of agencies and organizations focused on ecological restoration to support the environmental well-being of the Kawuneeche Valley.



Achieving long-term benefits of a healthy environment: improved native biodiversity, water quality, wildlife habitat, and aesthetic and recreational value



Strengthening the Kawuneeche Valley's resilience to the impacts of climate change



Developing comprehensive and ambitious restoration plans



Pursuing input and collaboration from a variety of stakeholders

KVERC Partners

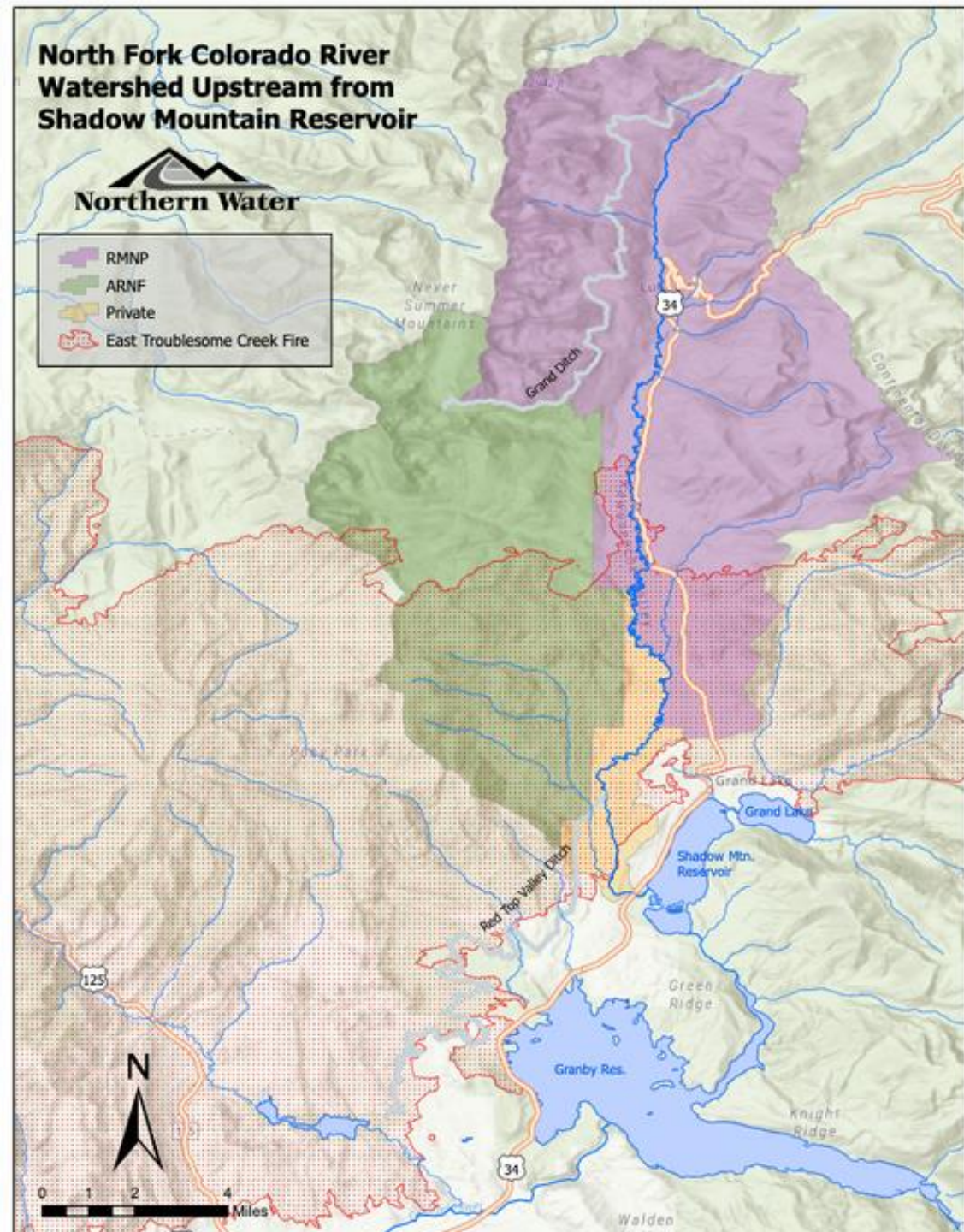
KVERC Participating Organizations & Funders



North Fork Colorado River Watershed Upstream from Shadow Mountain Reservoir



- RMNP
- ARNF
- Private
- East Troublesome Creek Fire



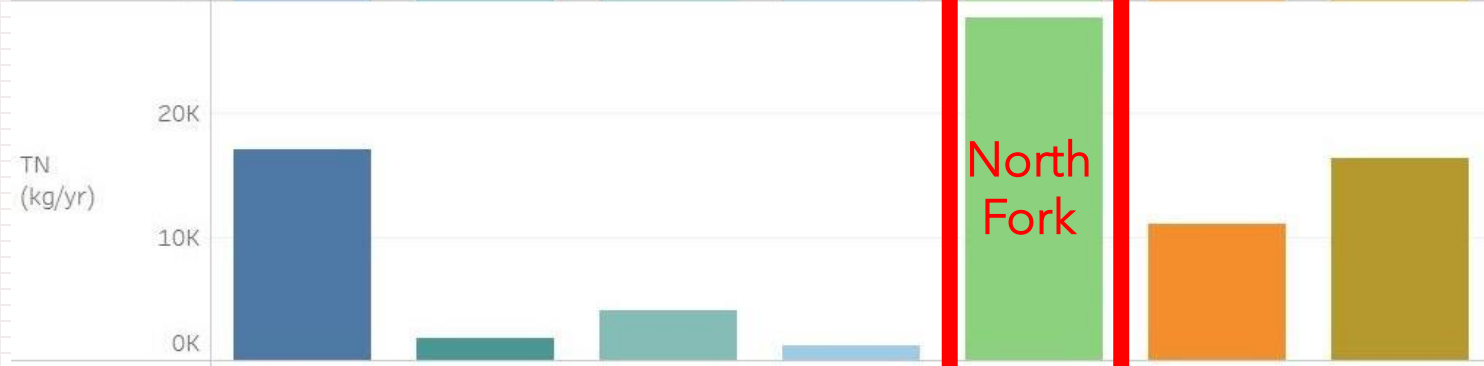
Downstream Water Quality Impacts

2007-2017 Average Annual Tributary Loading to the Three Lakes

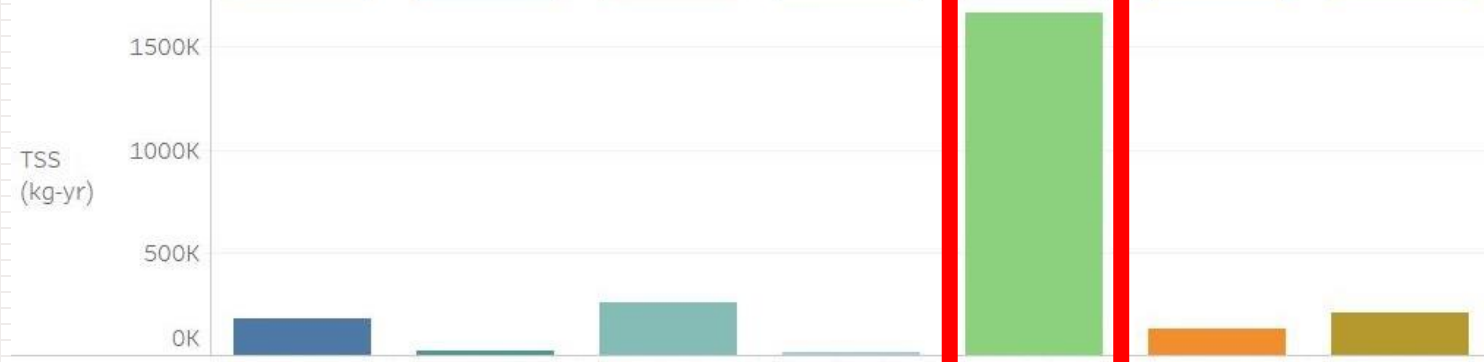
Total Phosphorus



Total Nitrogen



Total Suspended Solids



TP (kg/yr), TN (kg/yr) and TSS (kg-yr) for each Tributary. Color shows details about Tributary. The view is filtered on Tributary, which keeps 7 of 15 members.



Conditions Assessment & Recommendations

From this...

Kawuneeche Valley, 1920s



ET 347 Kawuneeche Valley from Fall River road 2806

To this...

Kawuneeche Valley, 2020



Google Earth

Image Landsat / Copernicus
© 2020 Google
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400 ft

Herbivory and Loss of Tall Willows

Tall willow area declined by 77% across the entire valley

Tall willow area declined by 96% within ROMO



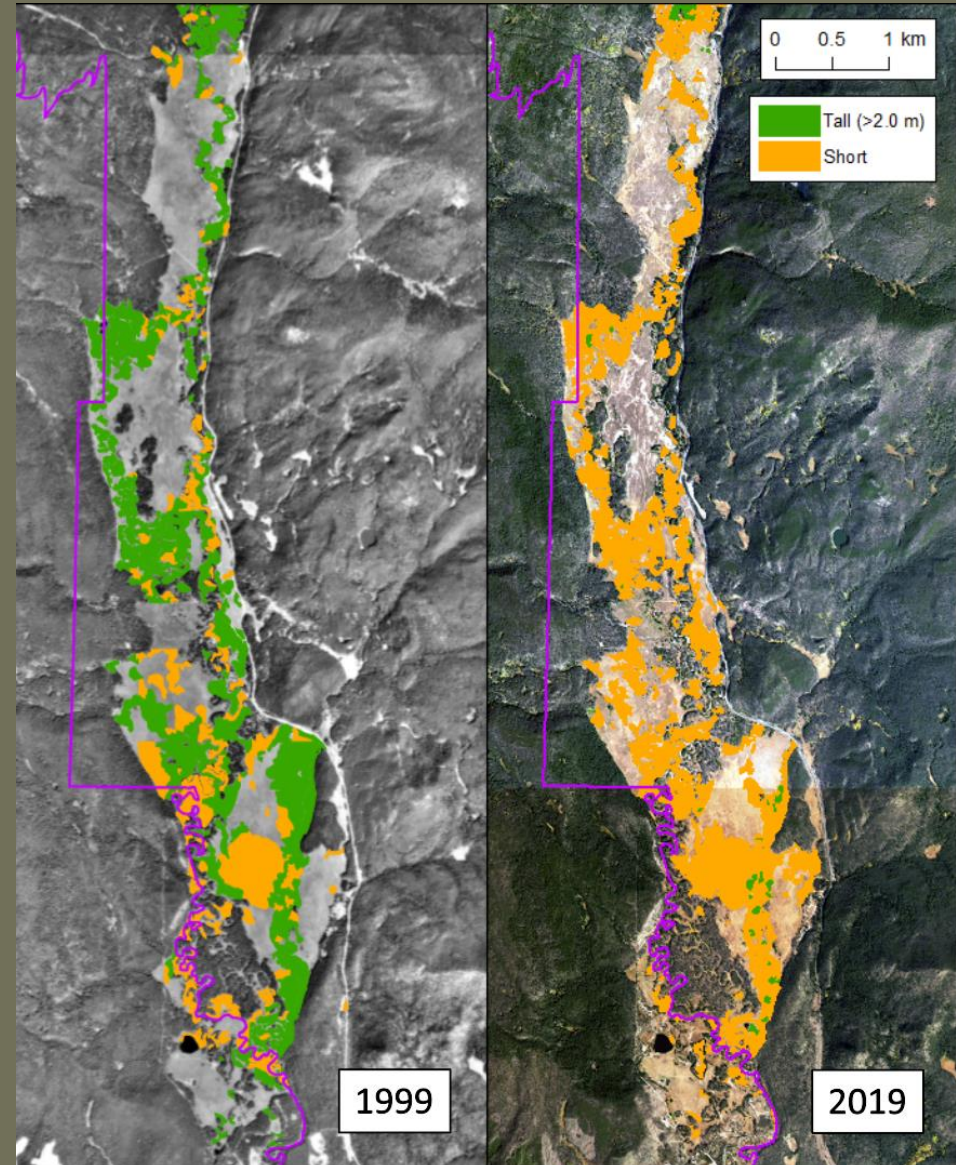
All photos by: David J Cooper

Herbivory and Loss of Tall Willows

Tall willow area declined by 77% across the entire valley

Tall willow area declined by 96% within ROMO

Aerial example,
middle Kawuneeche Valley



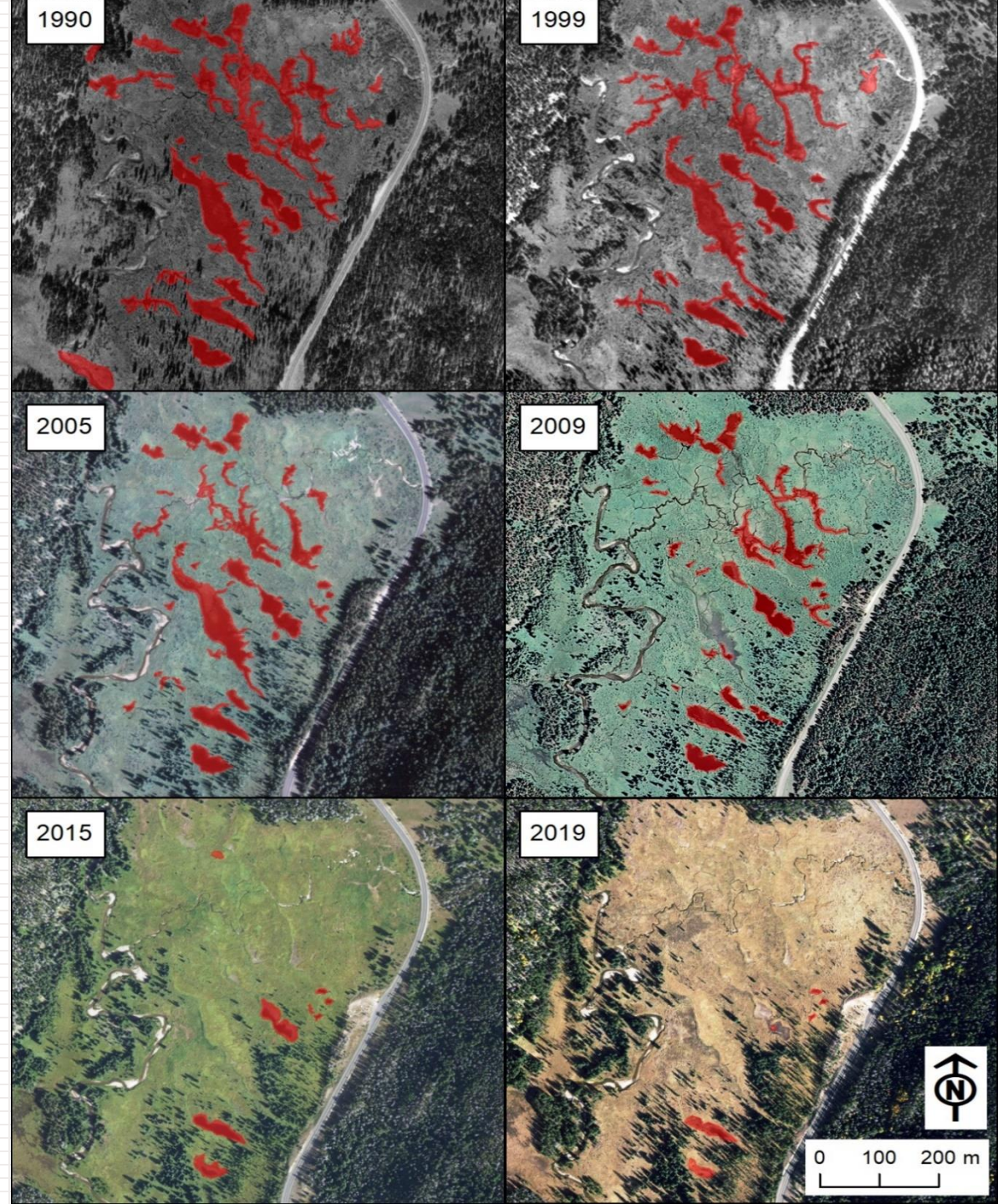
Decline of Beaver Ponds

Pond area declined by 94%

Number of ponds declined by 87%

On-channel ponds were the first to go

Remaining off-channel ponds supported by groundwater



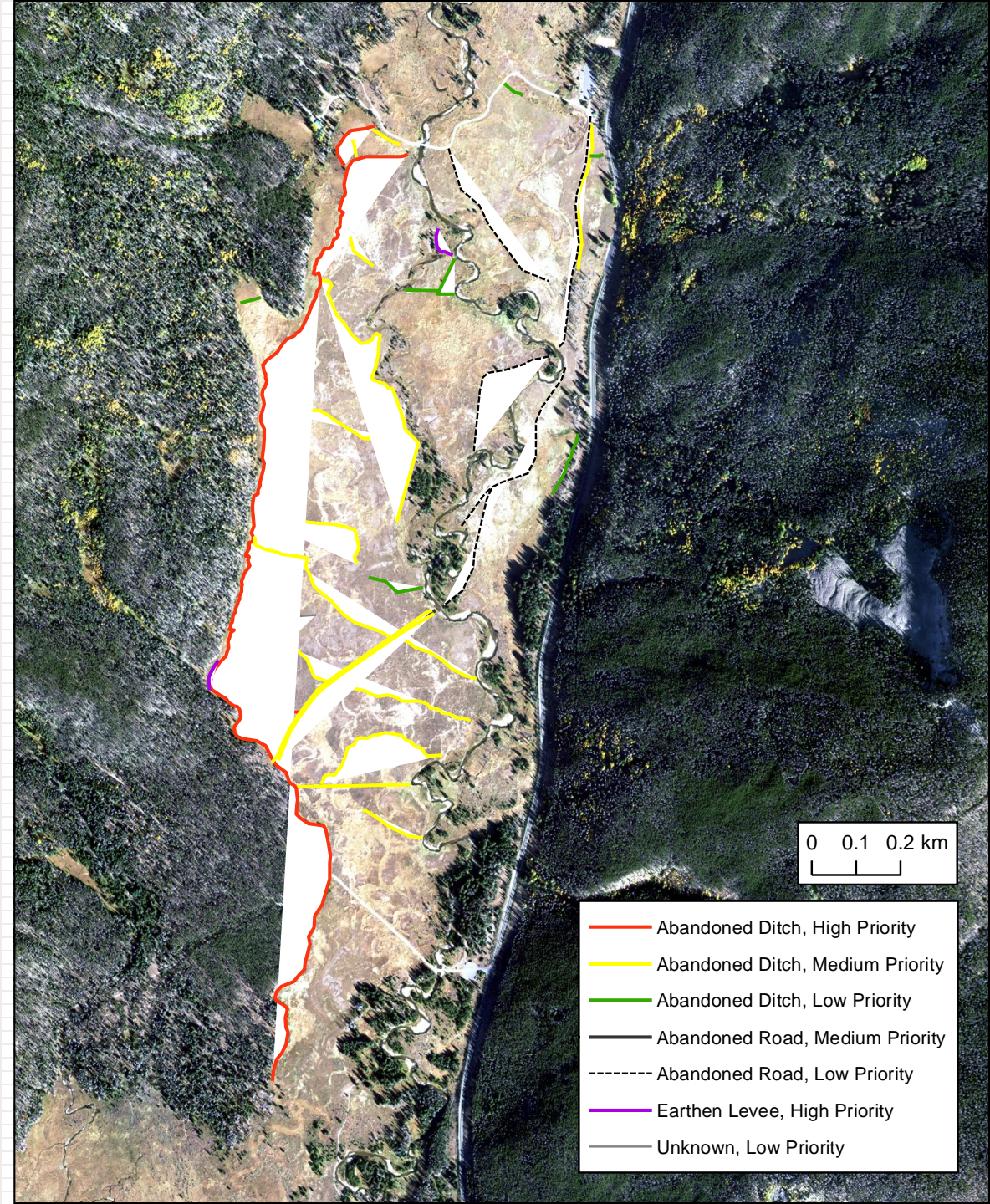
Abandoned Infrastructure

~7800 meters of
high priority
ditches &
earthen levees

Divert runoff
during spring

Divert shallow
groundwater
during late
summer

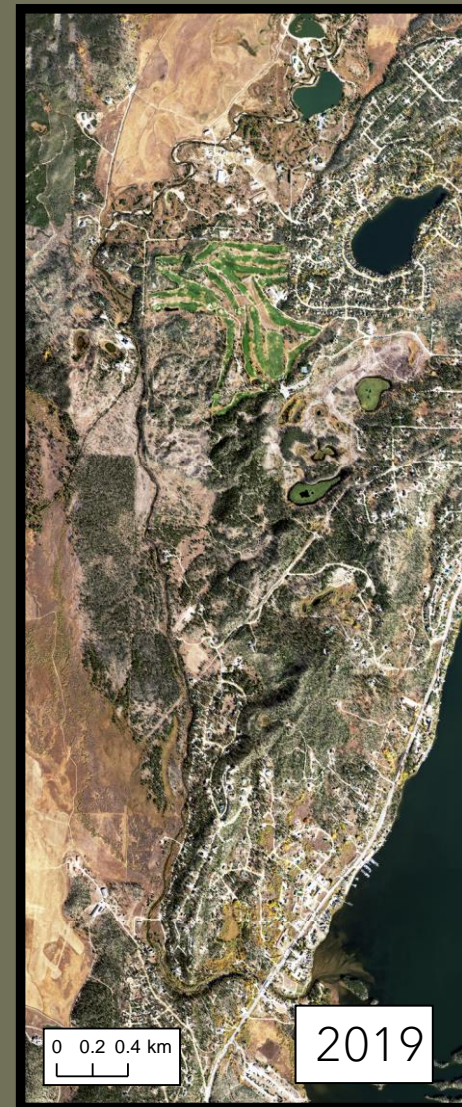
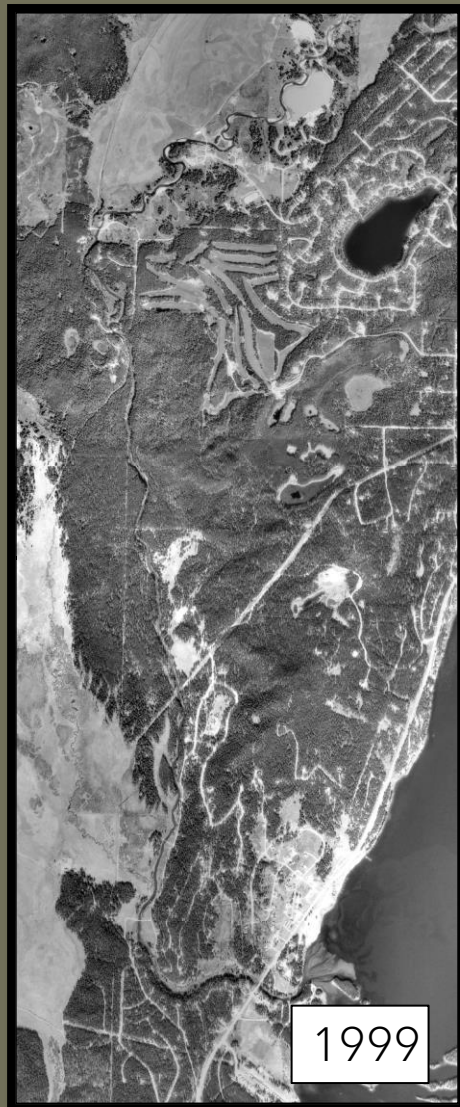
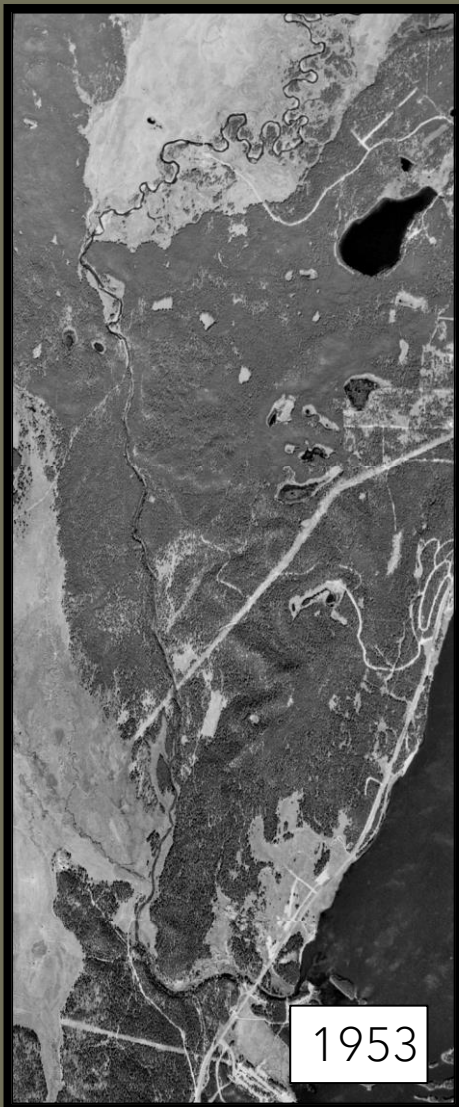
Blocking/removal
of will help
rehydrate
floodplain



Increased development outside of RMNP

Suspended Sediment: Forest clearing, roads, residential development, golf course... all near the watershed outlet

Cooper et al. 2023 *In prep.*





Restoration Techniques

Proposed Short-Term Restoration Approaches

GOAL: Increase willow height and biomass for beavers and other biota

Ungulate exclusion fencing



Riparian willow community

Dying willows

Proposed Short-Term Restoration Approaches

GOAL: Hydrologic enhancement to retain water and sediment

Simulated beaver structures

Fill ditches that create significant hydrologic effects



Proposed Short-Term Restoration Approaches

GOAL: Replace willows that have died due to age and herbivory

Plant tall willow species where density is low



Beaver Dam Inside Exclosure



Healthy willows



High water table

Proposed Monitoring of Restoration Approaches

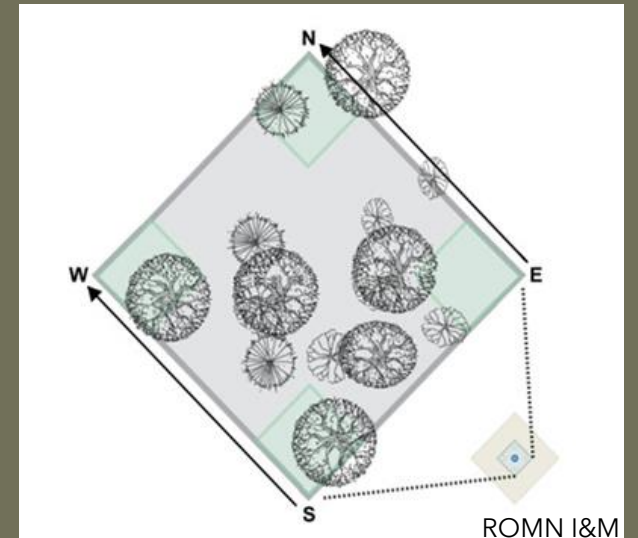
Water table,
water
chemistry/quality

Channel
aggradation

Wildlife habitat
use

Willow height
and cover

Vegetation
composition





Pilot Projects

Four Proposed Pilot Projects

Beaver Creek

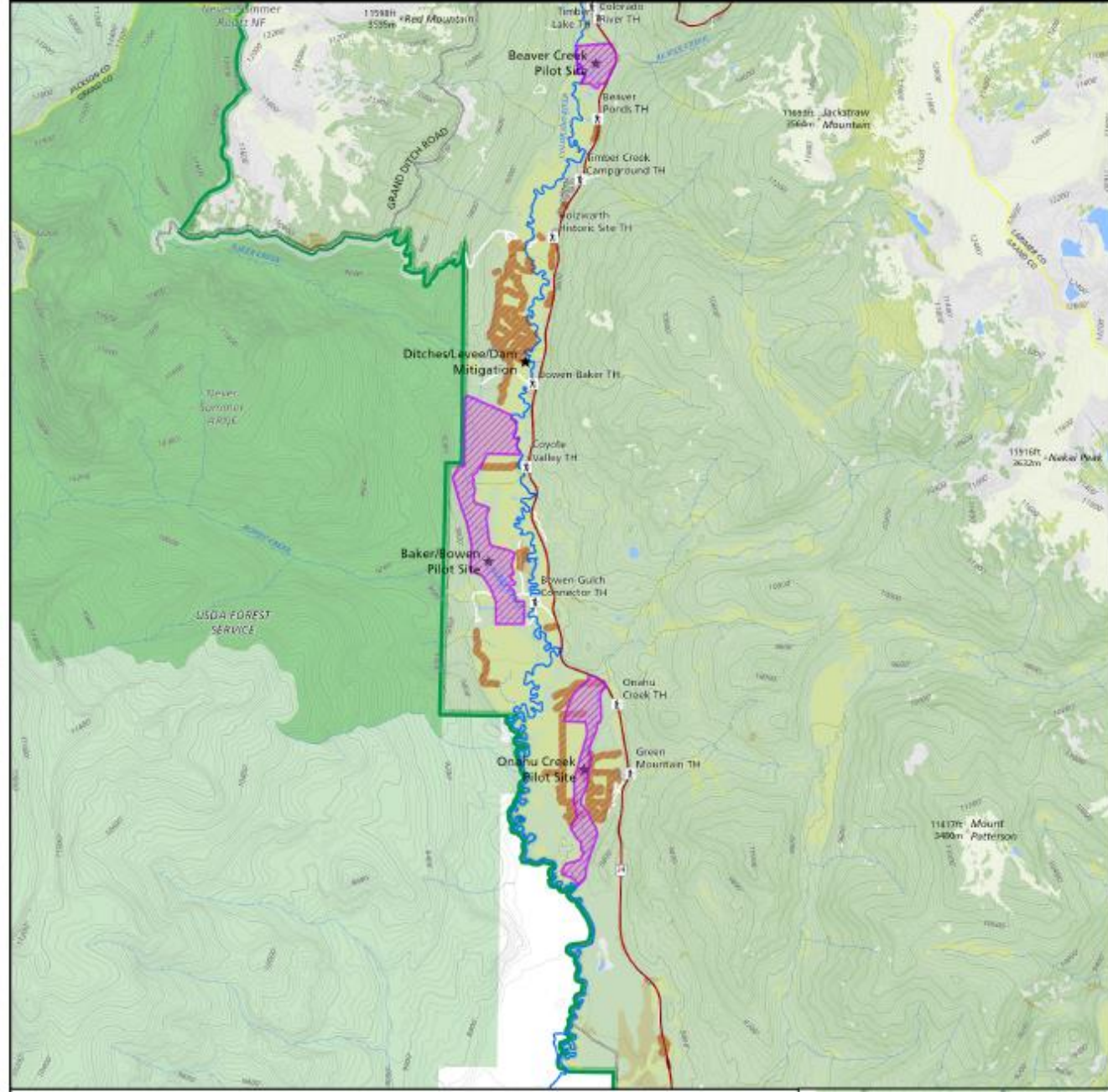
Baker/Bowen Creek

Onahu Creek

Abandoned Infrastructure Mitigation

All within RMNP

Kawuneeche Valley Ecosystem Restoration Collaborative CPW 2023 Grant Proposal

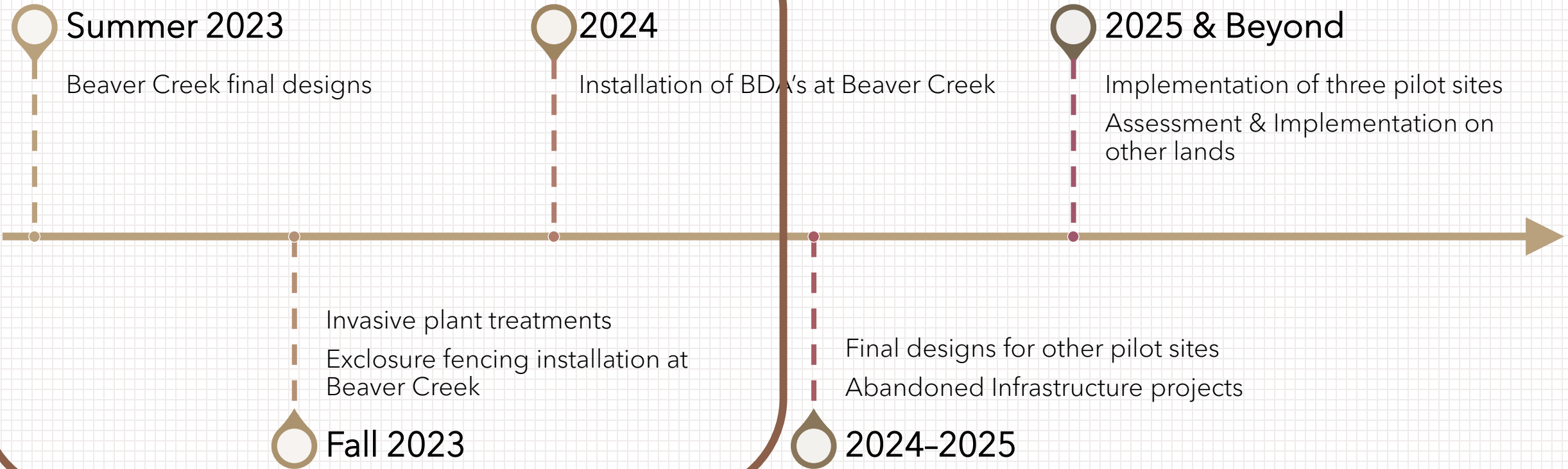




Beaver Creek proposed restoration site

KVERC Timeline - Draft

Short Term Focus: Beaver Creek Pilot Project



Plans for moving beyond the Park

Potential to expand Baker Creek project onto USFS lands

Plan to identify additional restoration sites on other lands

Extensive outreach to local landowners will be crucial



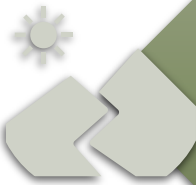


Outreach

KVERC Outreach Goals



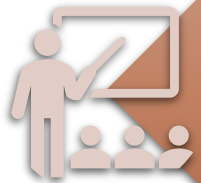
Raise awareness about KVERC's purpose and activities among stakeholders, Grand County residents, and the broader community.



Increase knowledge among Grand County residents and other local and distant stakeholders about the value of natural processes in healthy and resilient ecosystems and how to restore those natural processes.



Enhance public support and neutralize potential opposition to KVERC restoration plans and activities that center on beaver habitat.



Educate and partner with local, state, and federal agencies and decision-makers about the importance of nature-based solutions such as low-tech, process-based restoration.

- Draft Outreach Plan
- Marketing Plan & Brand Development

July 23 – KVERC Public Outreach Day

**Tours
inside/outside
Holzwarth
Exclosure**



**Info booths at KVC &
Town Park in Grand
Lake**



Funding

Pilot Project Funding

Funding Sources

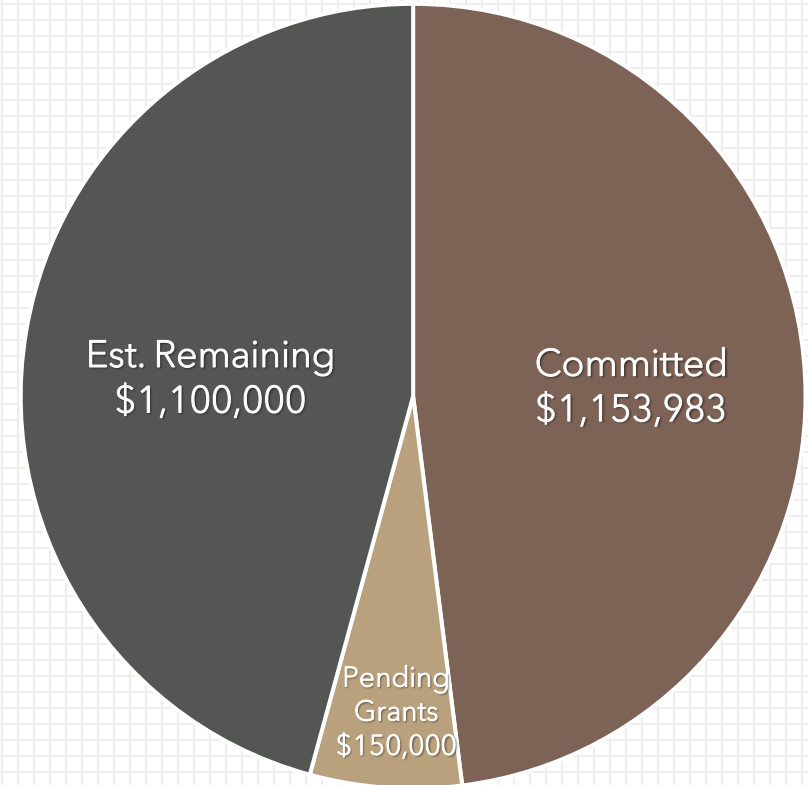
- Rocky Mountain Conservancy
- Northern Water
- The Nature Conservancy
- CPW Wetlands for Wildlife
- CWCB Watershed Restoration Grant
- Colorado River District Accelerator Grant
- NFWF RESTORE Colorado
- Windy Gap Environmental Fund
- North American Wetland Conservation Act/Ducks Unlimited - **PENDING**
- USBR WaterSMART AERP - **In Progress**

Fiscal Agents

- Rocky Mountain Conservancy
- Northern Water
- Grand County
- The Nature Conservancy

Plus, IN-KIND from all partners!

Estimated Budget*
~\$2.4 million



*Does not include estimated implementation costs of three projects

USBR WaterSMART Aquatic Ecosystem Restoration Program

Purpose:

Planning & Design of
three remaining pilot
projects (60% design)

Due Date:

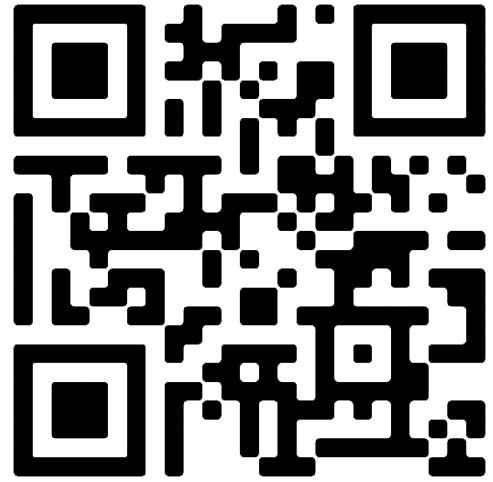
June 1, 2023

Total Cost:

\$1.2 Million

\$805,000 WaterSMART

\$436,000 Cash Match (35%)



www.co.grand.co.us/KVERC

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