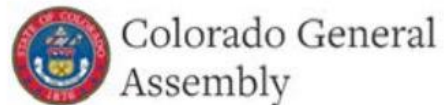




Photo: Abby Burk/Audubon Rockies, Colorado River, CO/UT

Colorado's Watersheds Support Us All Summer Colorado Water Congress 2022

8.24.2022, ABBY BURK | WESTERN RIVERS REGIONAL PROGRAM MANAGER | AUDUBON ROCKIES



An aerial photograph showing a complex network of streams and wetlands. The water bodies are dark, winding through a landscape of dense, green and yellowish vegetation. The streams form a branching pattern across the terrain, which appears to be a beaver wetland complex. The overall scene is lush and interconnected.

Watersheds Support Us All

Beaver wetland complex survived Colorado's largest wildfire.

Photo: Evan Barrientos/Audubon Rockies



Colorado River Basin driest 23-year period in recorded history – now.

We cannot build our way out of this.

A major problem we face: degraded incised streams disconnected from their floodplains – unfortunately, very common in Colorado



Most common causes:

- Riparian vegetation removal
- Unmanaged grazing
- Historic mining & timber harvest practices
- Altered flows, dams
- Moved & channelized for development
- Removal of beaver – increases speed of runoff



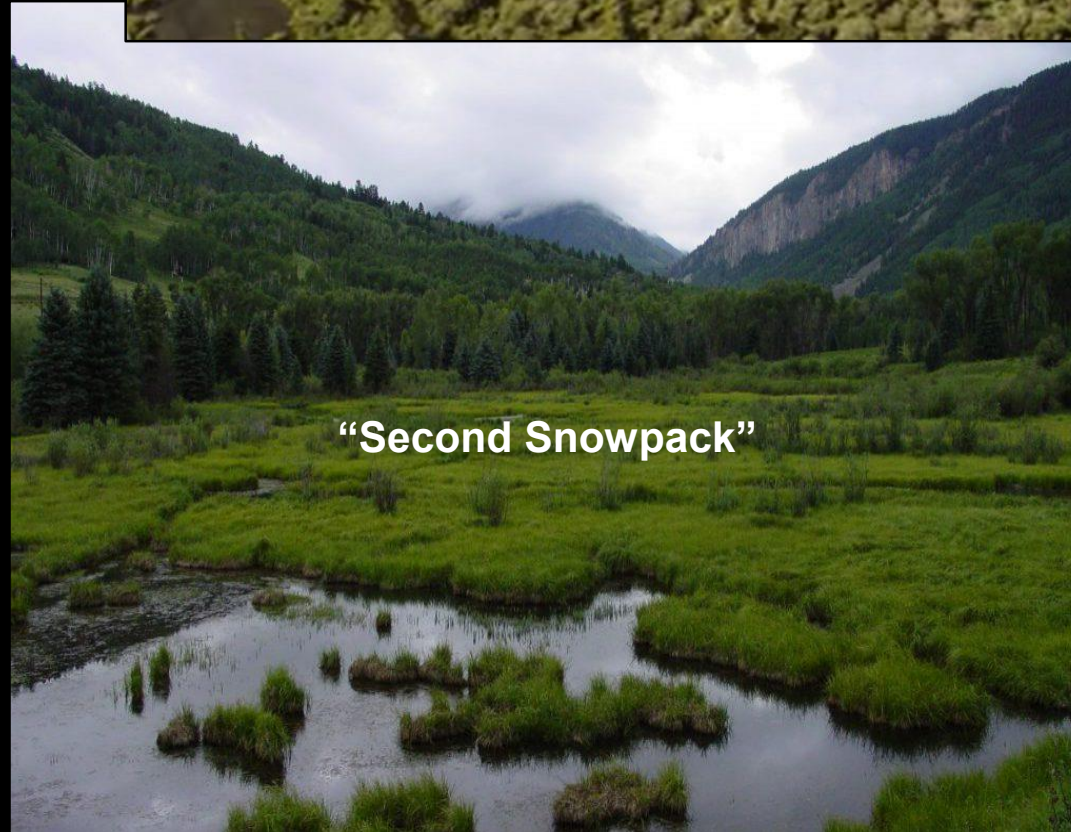
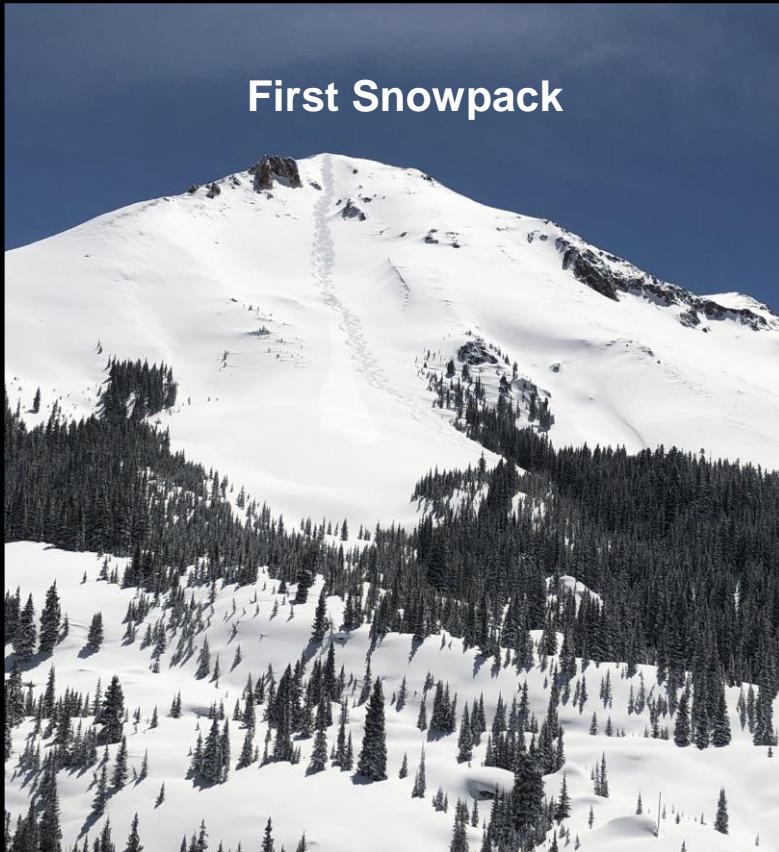
What are the **values of healthy headwater streams/wetlands** with connected functioning floodplains?

Multiple benefits of ecosystem services for people and improved ecology for nature:

- Increased **resilience to wildfire and drought** by rewetting the soils and providing fire breaks
- Improved **water quality by reducing sedimentation** and filtering out other pollutants
- **Reduced flood risks** as restored headwaters and wetlands absorb storm runoff
- Improved **river habitat** and **ecologic functioning**
- **Economic benefits** – River recreation fuels an impressive portion of the state's \$28 billion outdoor recreation economy.



Photo Abby Burk/Audubon Rockies. Audubon sponsored restoration project Rocky Mountain National Park



Slide by the
Watershed
Biodiversity Initiative



Restored riverscapes = Drought Resiliency By re-wetting the “sponge”



This Slide from Jeremy Maestas, NRCS
Slides available at: DOI:
[10.13140/RG.2.2.20982.55366](https://www.doi.gov/10.13140/RG.2.2.20982.55366)

Beaver Ponds Provide Resilience to Fire

Riparian areas burnt
to the ground

Except where there were beaver

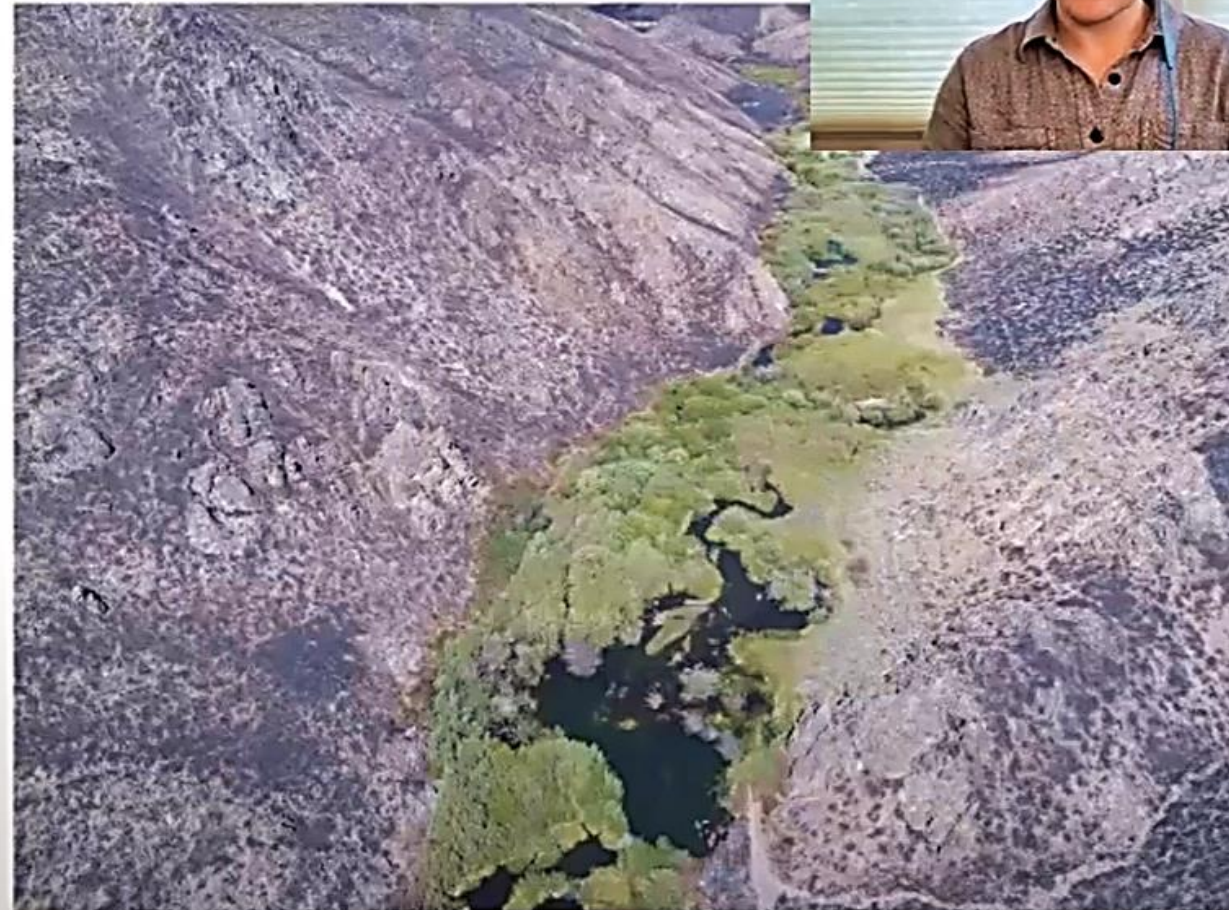
Dr. Emily Fairfax – 2 slides from her Colorado Beaver Summit October 24, 2021 presentation on her beaver research



Water doesn't burn. Beaver complexes are

Without Beavers

With Beavers



Photos by Dr. Lee Wheaton, USU of the 2019 Sharno Fire in Idaho

Oregon, Summer 2021 413,000 acres



© Charlie Erdman, 2021; Trout Unlimited



<https://rockies.audubon.org/rivers/articles/beavers-offer-help-western-waters>

How can we work at scale to improve the health of our streams and wetlands, our natural water infrastructure?

- Colorado Natural Heritage Program is mapping where the best opportunities are in our headwaters to partner with beavers to let them do the work of restoring streams/wetlands.
- In areas that historically had beaver but no longer can support them due to lack of riparian vegetation, we can restore with low-tech methods that are effective and affordable (about 10X less than traditional river restoration methods).
- This manual is an **excellent source of information on the topic** and available for free here: [Riverscapes Restoration Design Manual \(usu.edu\)](https://usu.edu/RiverscapesRestorationDesignManual)



Some examples of various LTPBR methods from Colorado projects



Numerous stories about how LTPBR and beaver can help us increase resilience to drought and fire – a few...



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Scientists: Beavers latest tool to emerge in rebuilding drought-stricken streams

by Jerd Smith | May 12, 2021 | [Environment](#), [Infrastructure](#), [Land and Water Conservation](#)

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[Water Education Colorado, May 2021](#)



ECOSYSTEMS

Simple hand-built structures can help streams survive wildfires and drought

Low-tech restoration gains popularity as an effective fix for ailing waterways in the American West

[ScienceNews, March 2021](#)

Got an environmental problem? Beavers could be the solution

'Eager' reminds readers of all the ecological good that the dam builders do



[ScienceNews, July 2018](#)

Takeaways -

- **Urgency** – dramatic impacts of climate change already happening – wildfires, drought, hottest years on record, less precipitation
- **Scale** - scale and pace of restoration work is not matching the scale of the problem in part due to watershed restoration being viewed as an environmental benefit vs a tool for water security for all
- **Tool for water security** – there is an opportunity to integrate nature based solutions into the toolbox for managing water resources for the benefit of all uses, not just environmental uses.
- **Low Cost** – **low-tech restoration methods** can be scaled up to benefit all uses (about 10X less per mile than traditional river restoration methods).



Photo from [NPR Story on forests & wildfire](#)

Water connects us all.
Thank you



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