



Kawuneeche



Group

Kawuneeche Group:
Tapping Citizen Science to Restore
Beaver Communities in the Kawuneeche
Valley in Rocky Mountain National Park

Prepared for the Rotary District 5450 WASH
Symposium NextGen WASH

October 5, 2019

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Beaver were Common in RMNP



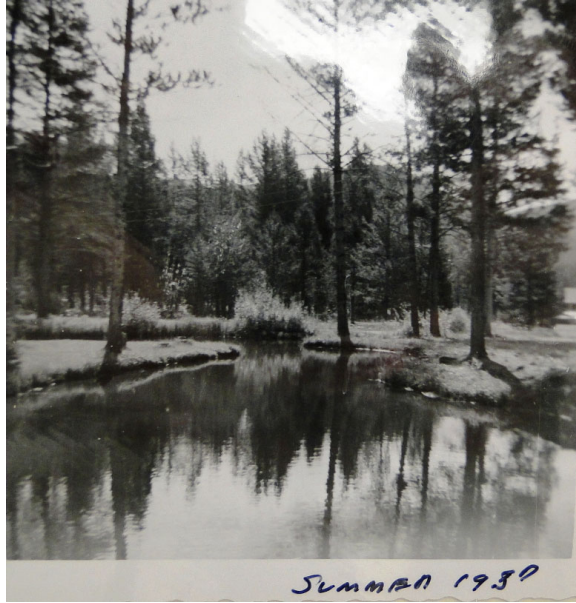
Photos from Grand Lake Area Historical Society

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Beaver
Ponds
Dominated
Hydrology



Photos from Grand Lake Area Historical Society

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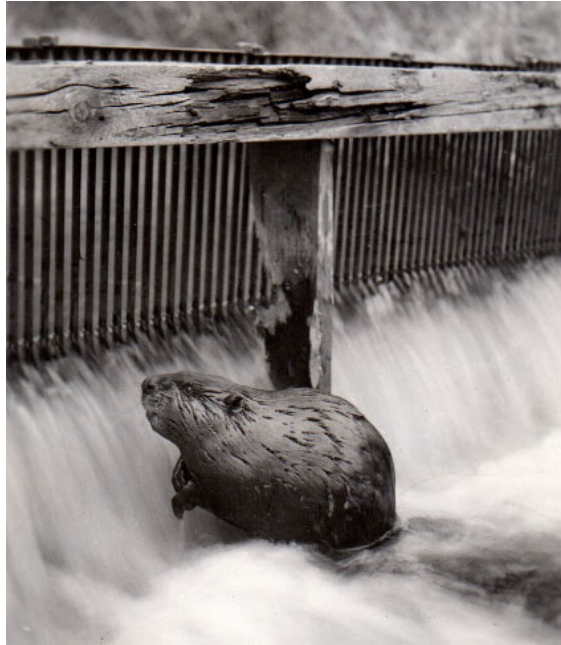
Ed Lee circa 1950 at Potomac Ranch Photo from Grand Lake Area Historical Society

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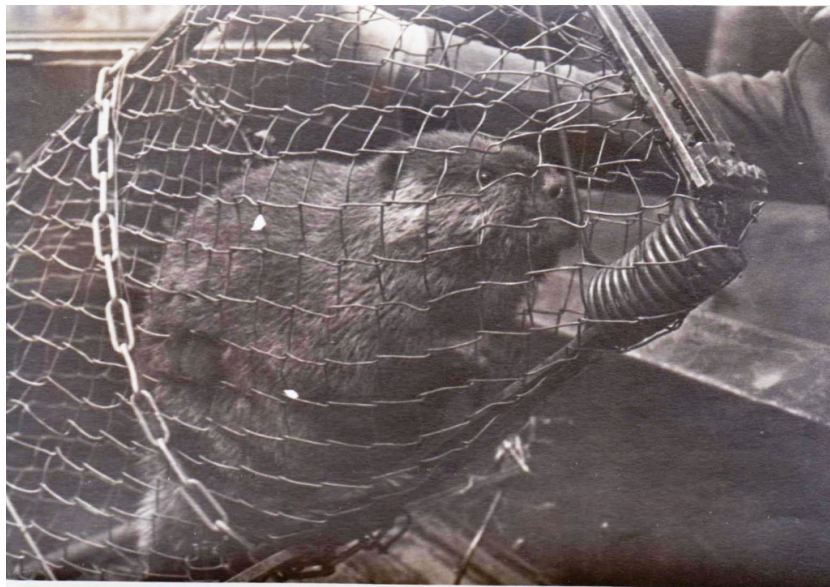
Photos from
Grand Lake Area
Historical
Society



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Photos from Grand Lake Area Historical Society

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Grand Ditch Blowout May-June 2003



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Grand
Ditch
Blowout
May-June
2003



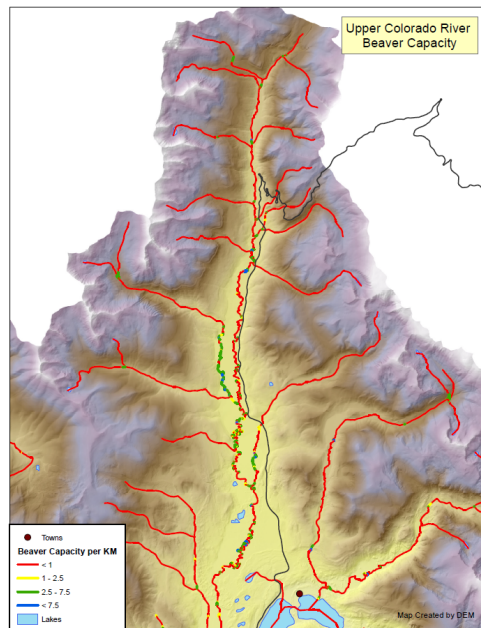
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Beaver Restoration
Assessment Tool
(BRAT) Model

Research Question:
*Can volunteer
citizen scientists of
all ages help
validate the BRAT
model for the
Kawuneeche Valley
and support RMNP
management
decisions?*



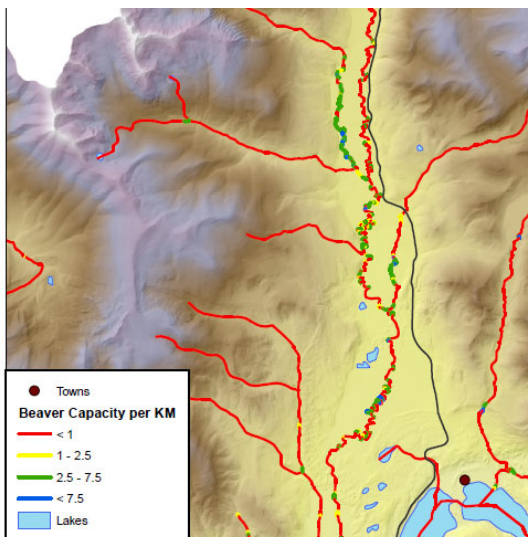
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Beaver Restoration Assessment Tool (BRAT) Model

Research Question:
Can volunteer citizen scientists of all ages help validate the BRAT model for the Kawuneeche Valley and support RMNP management decisions?

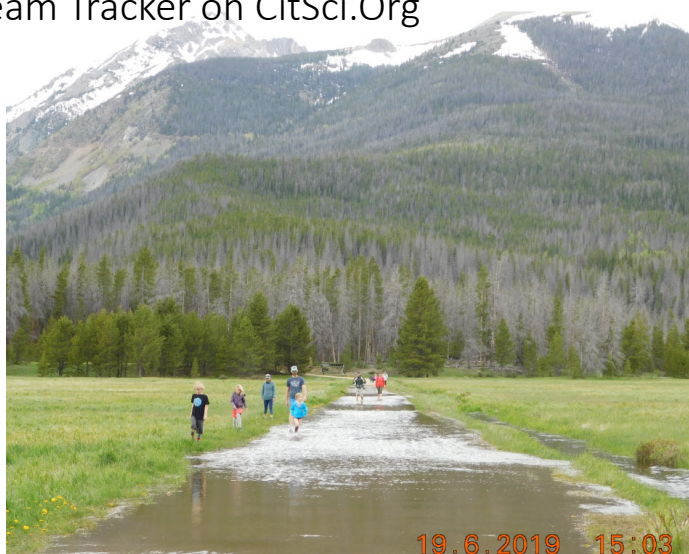


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Early Season Hydrology Stream Tracker on CitSci.Org



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Later Season, Now Dry



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www.CitSci.org – rePhoto Kawuneeche*

Re-photographing historic images for watershed baseline



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www.CitSci.org – rePhoto Kawuneeche
Original circa 1952 – note beaver dams across entire valley



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www.CitSci.org – rePhoto Kawuneeche
August 2019 only relic ponds remain



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www.CitSci.org – rePhoto Kawuneeche*



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May 2004, from Bob Means



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KGroup Willow Blitz August 2019 Transect 1 at Gaskill Exclosure



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Kgroup Willow Blitz August 2019



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Transect 4: Colorado River Trail



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Transect 3: Beaver Ponds Picnic Area



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Kgroup Willow Blitz August 2019 Transect 2: Bowen-Baker Trail



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Bug Blitz September-October



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Water Quality Rapid Bioassessment

Home
Instructions
Use the Key
Phylogeny
Families
Morphology

EPT Index

Some macroinvertebrate orders, such as Diptera (true flies), are generally tolerant to higher levels of pollutants in streams. Other orders, such as Ephemeroptera (mayflies), Plecoptera (stoneflies), and Tricoptera (caddisflies), are very sensitive to many pollutants in the stream environment.

Ephemeroptera

Plecoptera

Tricoptera

The EPT Richness Index estimates water quality by the relative abundance of three major orders of stream insects that have low tolerance to water pollution.

EPT can be expressed as a percentage of the sensitive orders (E= Ephemeroptera, P= Plecoptera, T= Tricoptera) to the total taxa found.

$$\frac{\text{Total EPT Taxa}}{\text{Total Taxa Found}} \times 100\% = \% \text{ Abundance}$$

A large percentage of EPT taxa indicates high water quality.

Water Quality
Purpose
History of Key
References
Video

www.cfb.unh.edu/StreamKey/html/biotic_indicators/indices/EPT.html

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Project WET Bugs for All Ages



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Project WET: Macroinvertebrate Mayhem



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Watershed KidZone for Local Events



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RotaryH2O on www.citsci.org soon!
WASH Into Watersheds – Show us your Water!



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