



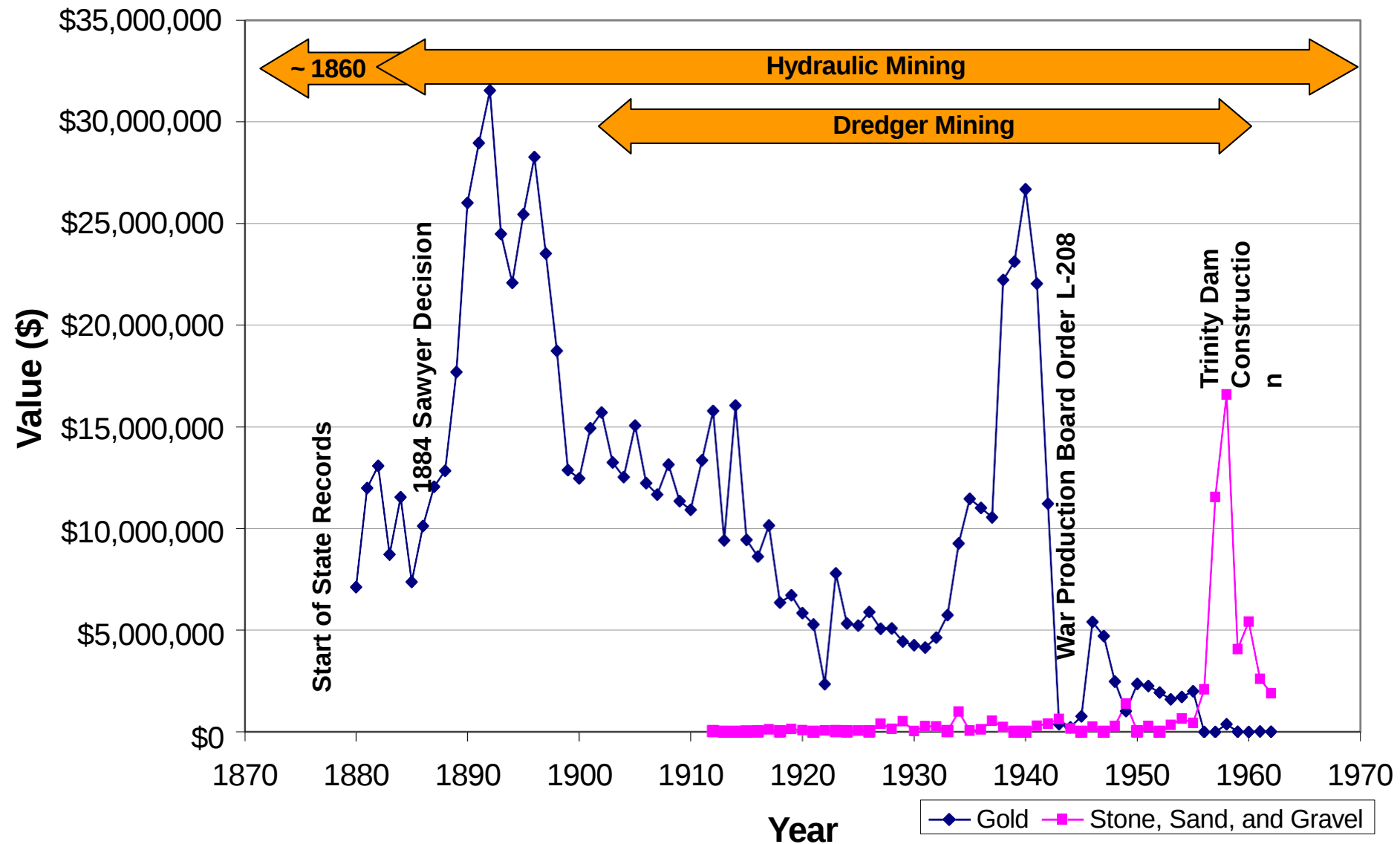
Oregon Gulch Rehabilitation Site

Freeing the river and embracing change!

Mineral Production of Trinity County, 1880-1962

Source: Mines and Mineral Resources of Trinity County, County Report 4, California Division of Mines, 1965

Value Adjusted for Inflation using Consumer Price Index to show 2009 dollars



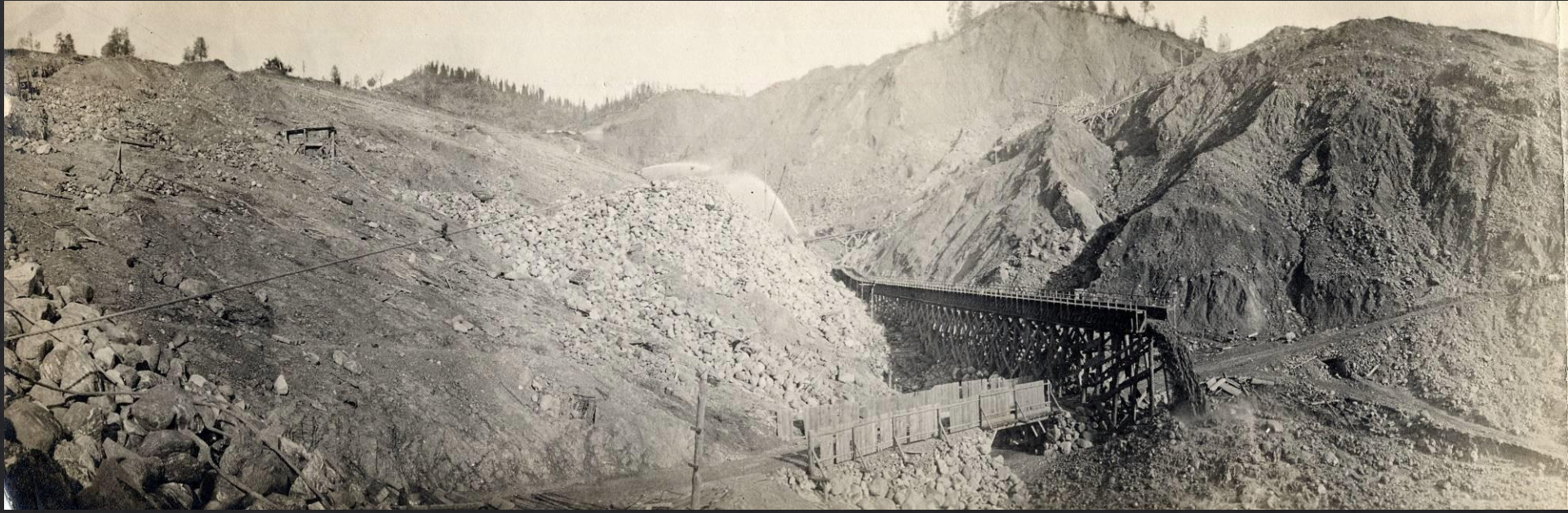
La Grange Mine

Photo Courtesy of Trinity Historical Society

~ 250 foot cut



La Grange Mine / Oregon Gulch



Dredger Mining

Photo Courtesy of Trinity Historical Society



DREDGER, NEAR WEAVERVILLE, CALIF.

J. H. EASTMAN "B-1278"

Oregon Gulch dredger mining

Photo courtesy of Trinity Historical Society



"DREDGING SCENE," NEAR WEAVERVILLE, CALIF.

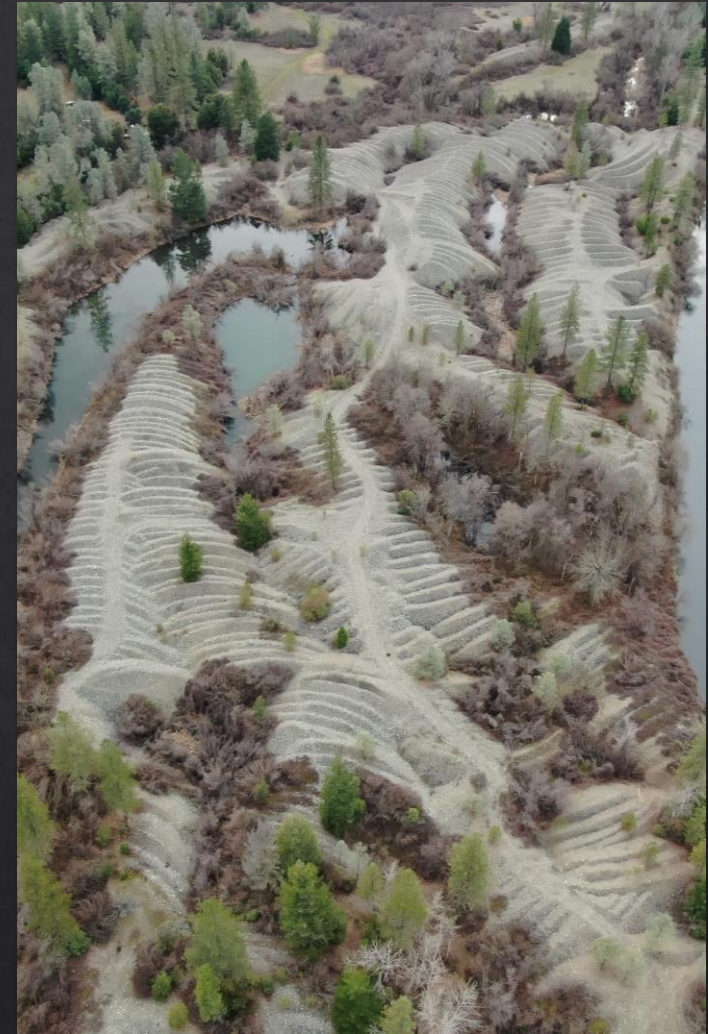
J. H. EASTMAN B-1279





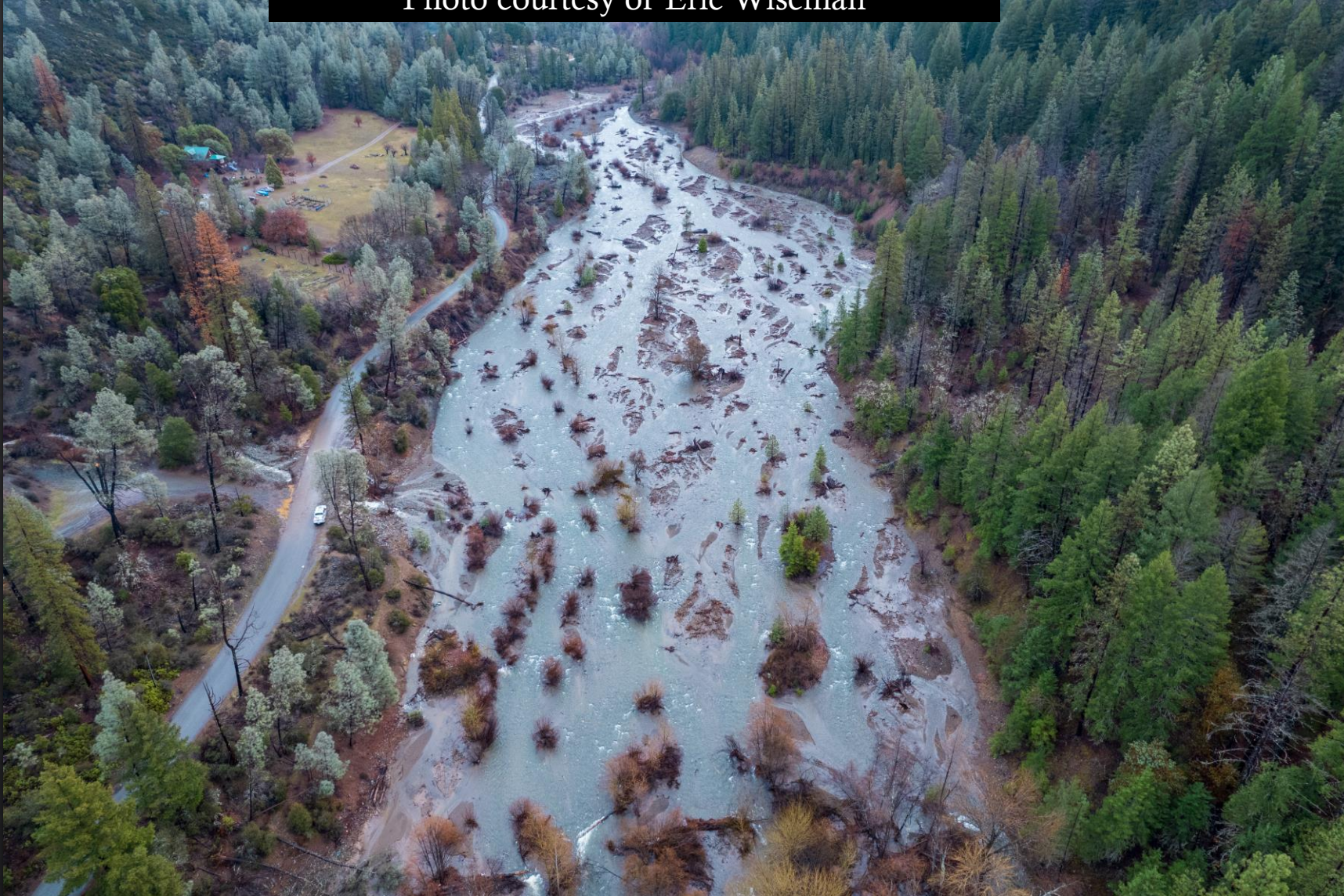
A new rehabilitation approach, for a big problem

- Willing landowners!
- The goal is to 'give' the river back this section of river valley
- Provide huge increases in floodplain habitat
- Nothing like this on the Trinity to date...



Indian Creek Stage Zero

Photo courtesy of Eric Wiseman



Stage “0” Restoration

A STREAM EVOLUTION MODEL INTEGRATING HABITAT AND ECOSYSTEM BENEFITS

B. Cluer

C. Thorne

First published: 10 January 2013

<https://doi.org/10.1002/rra.2631>

Cited by: 29

A process-based approach to restoring depositional river valleys to Stage 0, an anastomosing channel network

Paul D. Powers

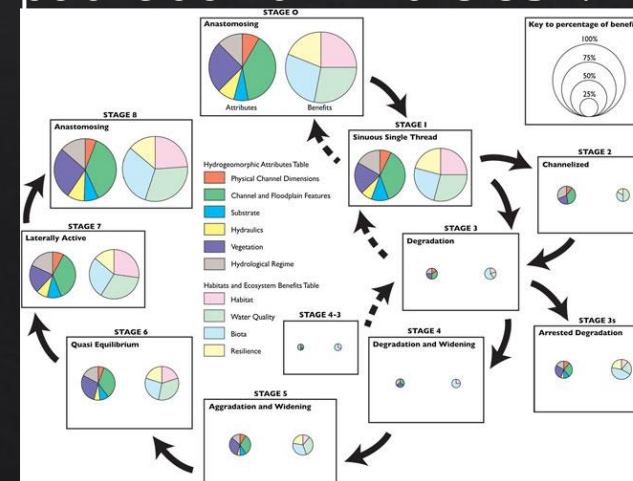
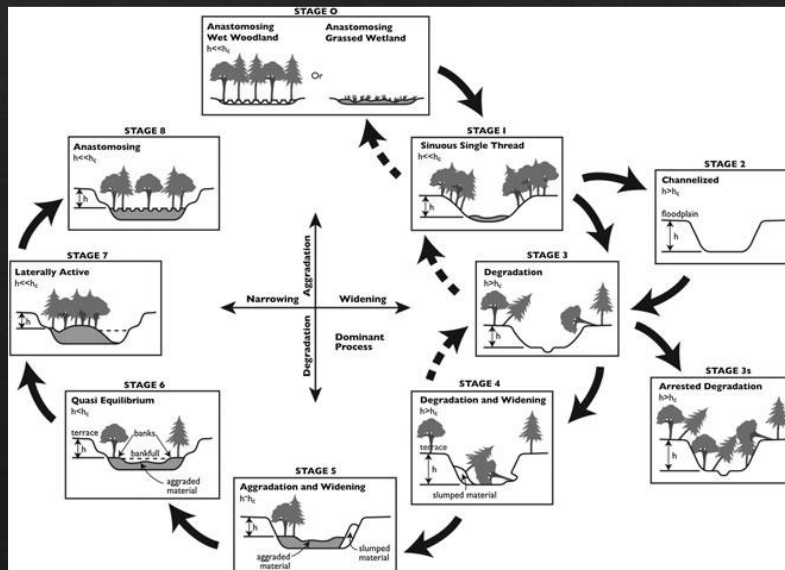
Matt Helstab

Sue L. Niezgoda

First published: 20 November 2018

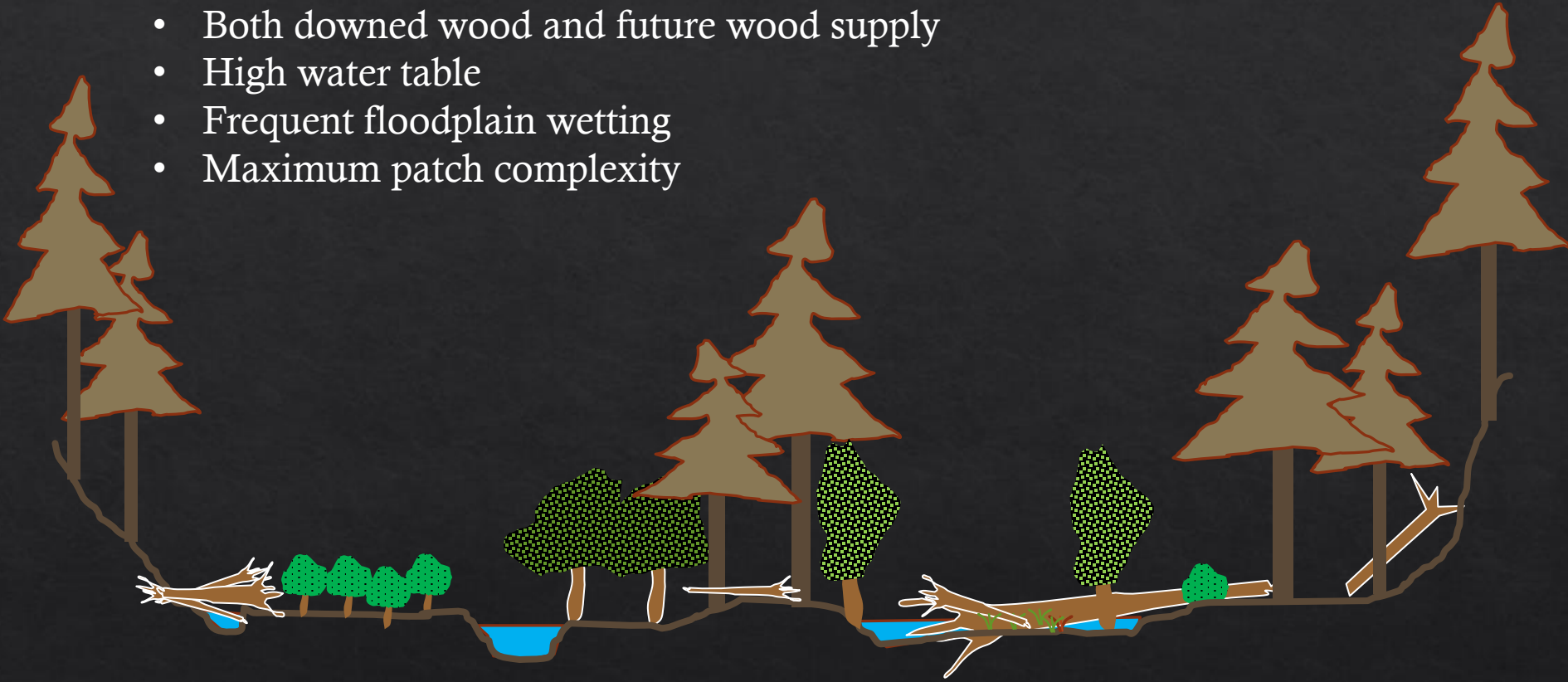
<https://doi.org/10.1002/rra.3378>

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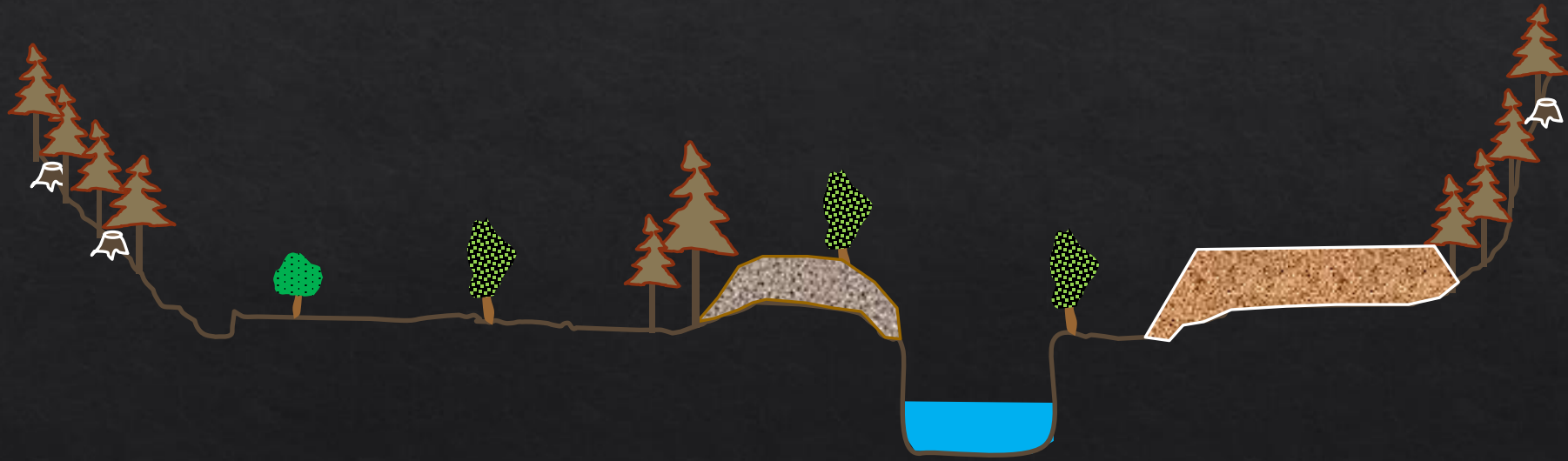


Historic Floodplain Condition in Depositional Environments

- Vegetation diversity
- Elevational diversity
- Multiple flow paths
- Both downed wood and future wood supply
- High water table
- Frequent floodplain wetting
- Maximum patch complexity



Changed Condition in Depositional Environments



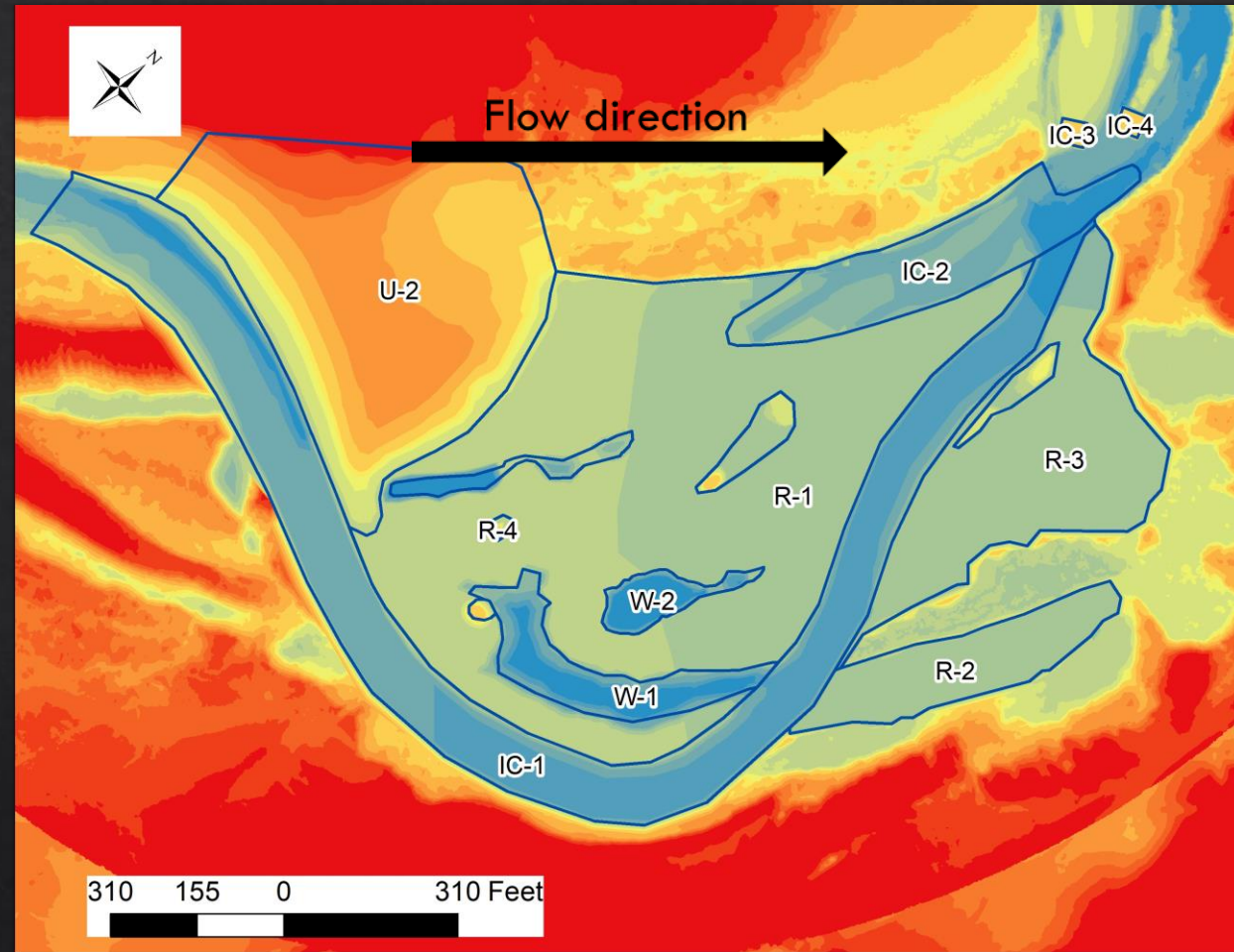
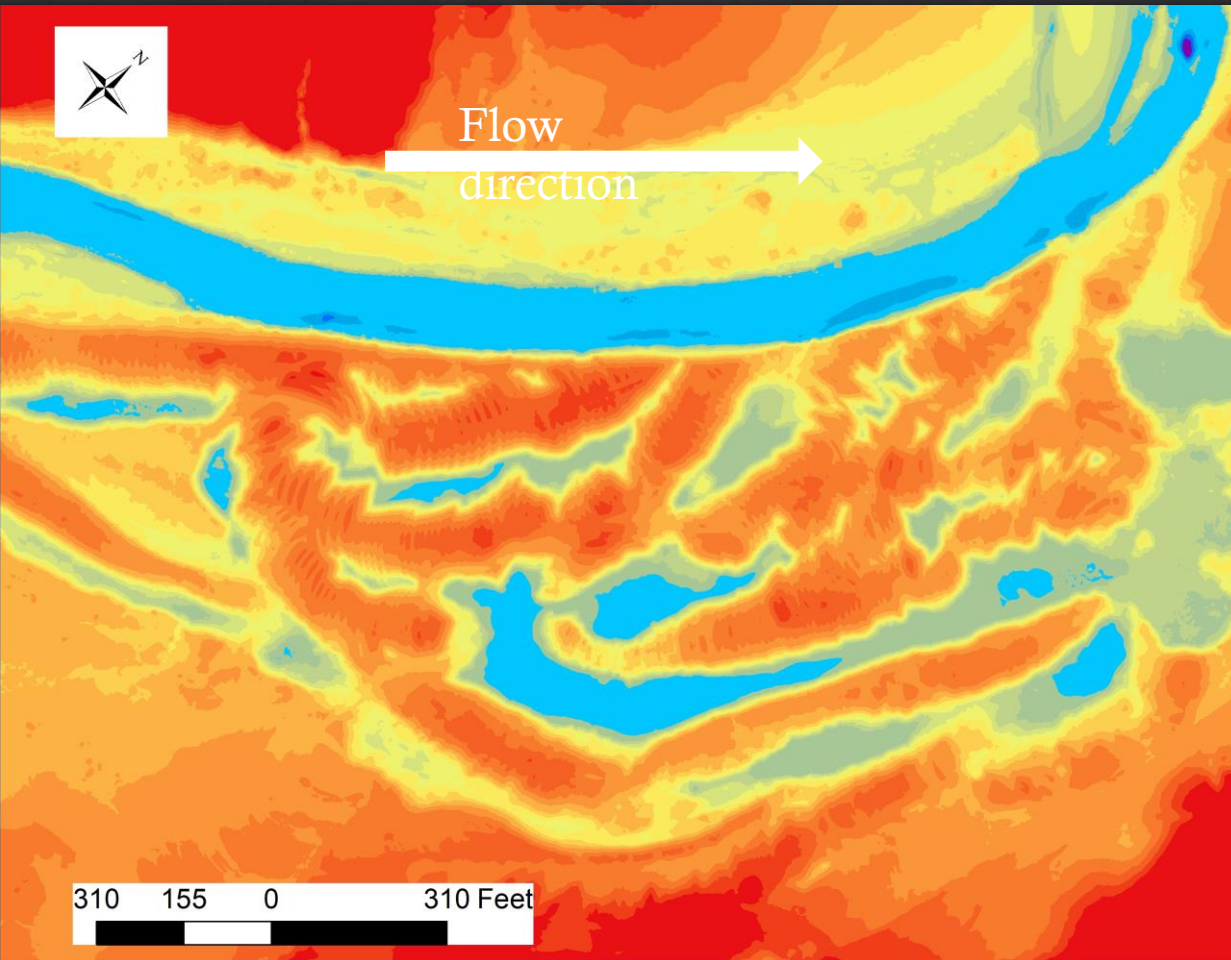
Valley bottom, process-based restoration

- Process and function fully addressed for entire floodplain
- Large storms welcome (stream energy addressed)
- Water table restored
- Template created for native vegetation recovery
- Patch complexity maximized with dynamic change anticipated over time



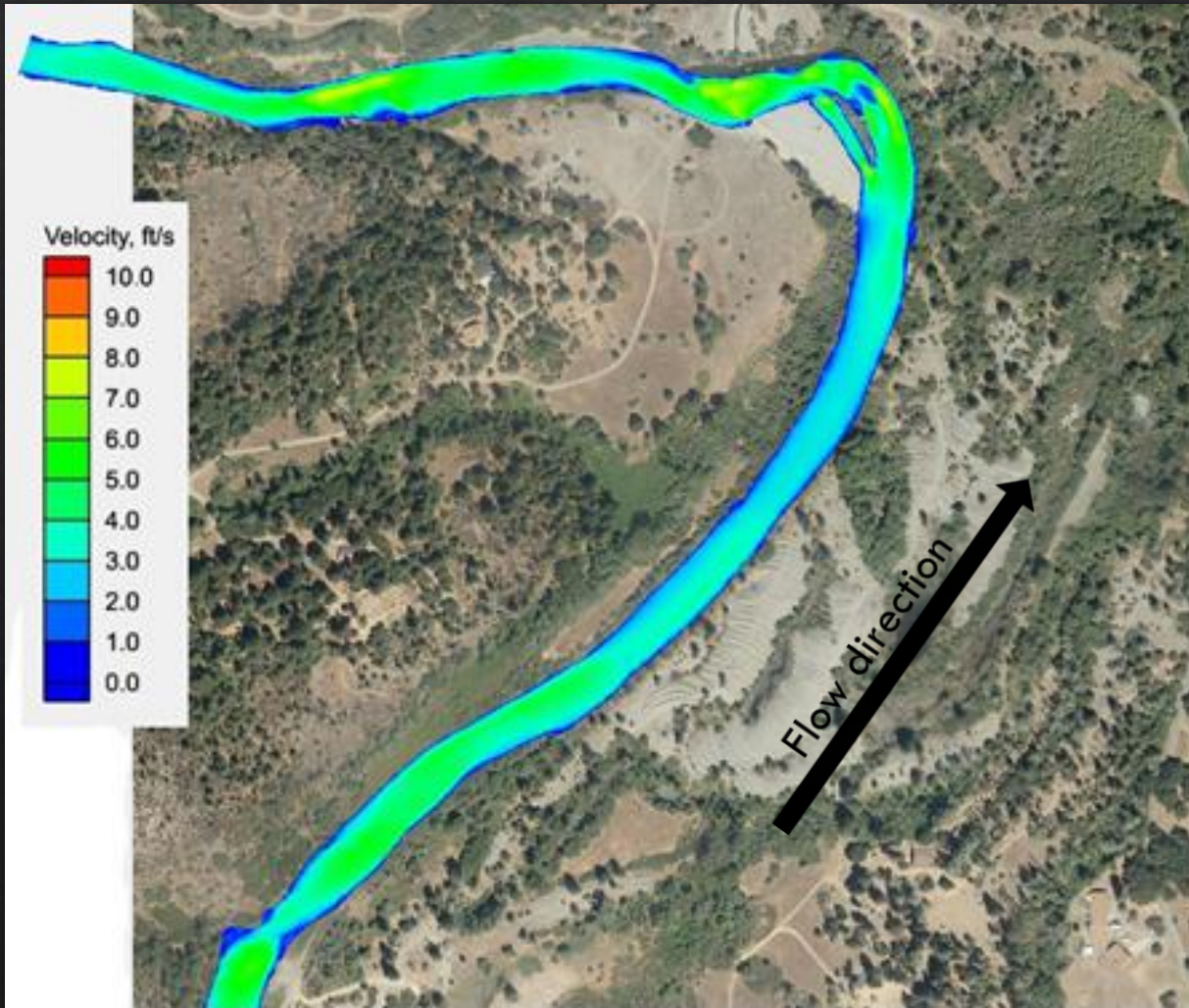
Pre-construction condition

Design condition

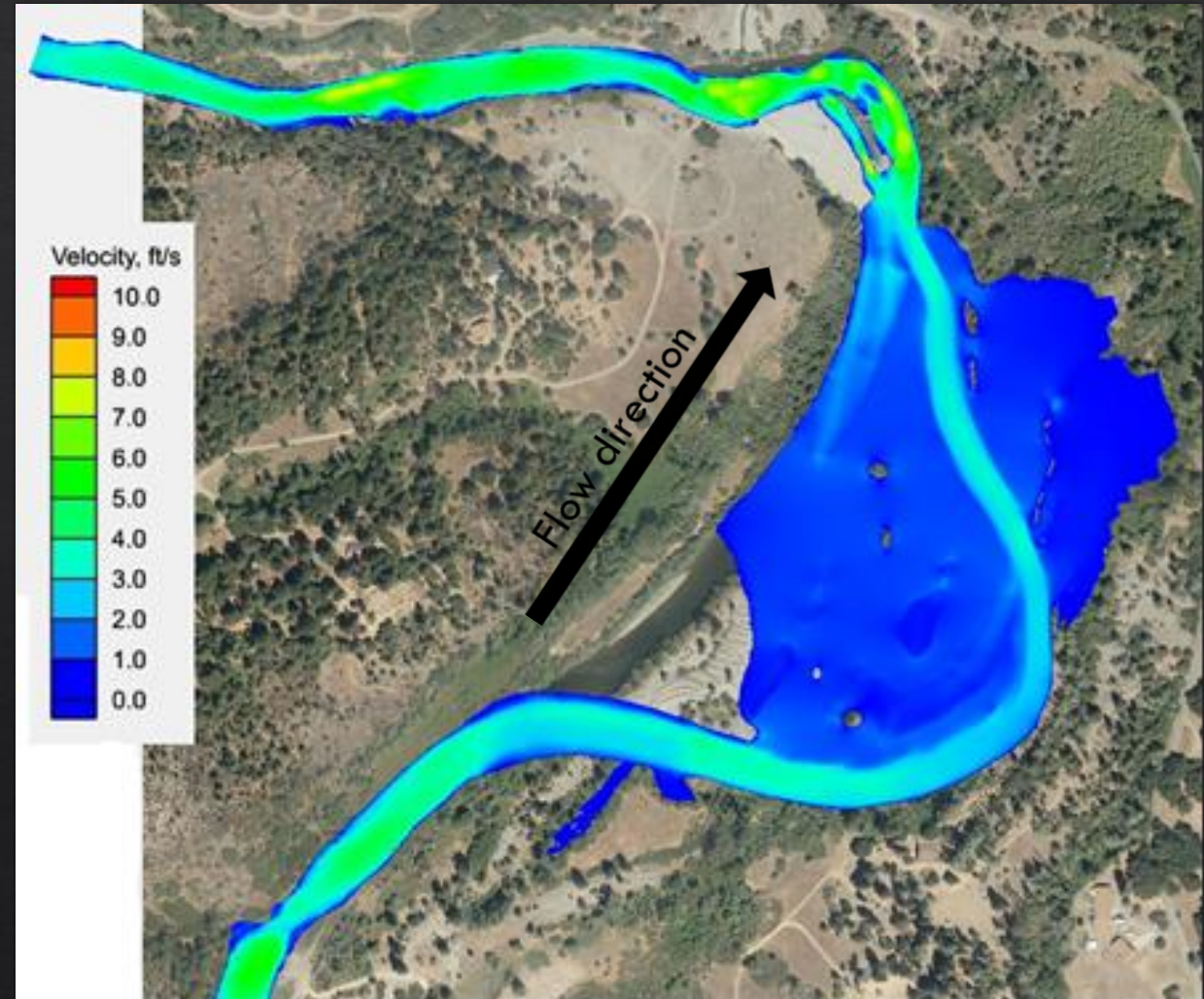


Oregon Gulch design lead by Yurok Tribe Design Group

Existing condition – 1200cfs



Design condition – 1200 cfs





A catalyst for change

- ◆ Creating a condition for the river to change and figure out its own path
- ◆ This will be dynamic! It will change
- ◆ Will create great growing conditions for vegetation
- ◆ River will have great connection to floodplain

A living example...

South Fork Makenzie River stage zero -
Oregon

S Fk Makenzie prior to restoration ~4,000 cfs



~4,000 cfs April 2019



S FK Mackenzie River ~5,000 cfs April 2019



Rapid Insect Recovery



Native Vegetation Recovery in Phase I



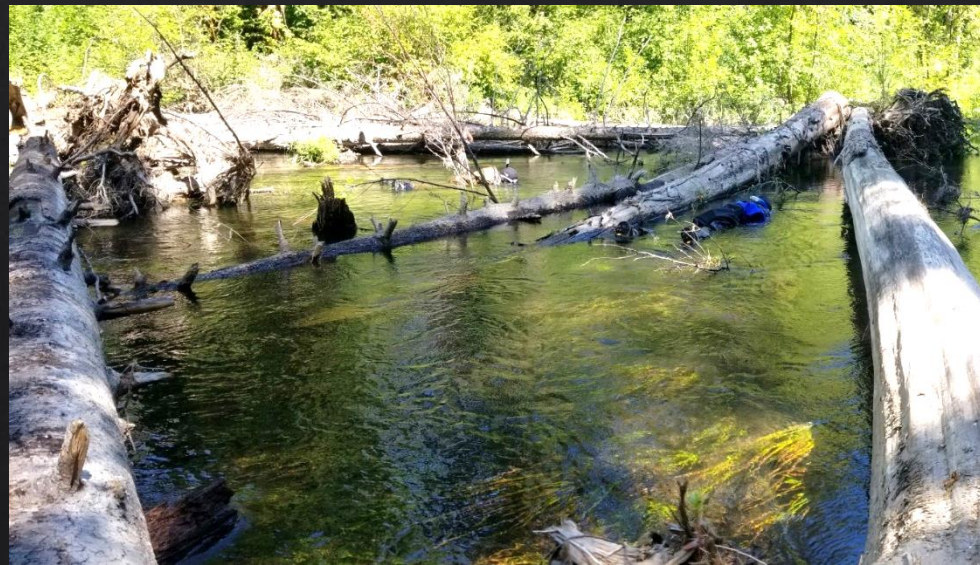
Snorkel Surveys

- 550% increase in fish density
- BUT, if you extrapolate that fish density to the entire wetted area/available habitat, you get...
 - 935 fish pre-project vs. 27,519 fish post-project
 - **2843% increase or 29.4 times more fish**

PRE-PROJECT Fish Density
= 0.021 fish/m²



1 YR POST-PROJECT Fish Density
= 0.136 fish/m²



Take Home Points – S FK Mackenzie

- ◇ The biological community is recolonizing rapidly in greater densities
- ◇ Intact, re-wetted relic floodplain channels provide immediate complex habitat and refuge
- ◇ Providing a natural FIRE BREAK! (proven itself twice already)



Open for business!





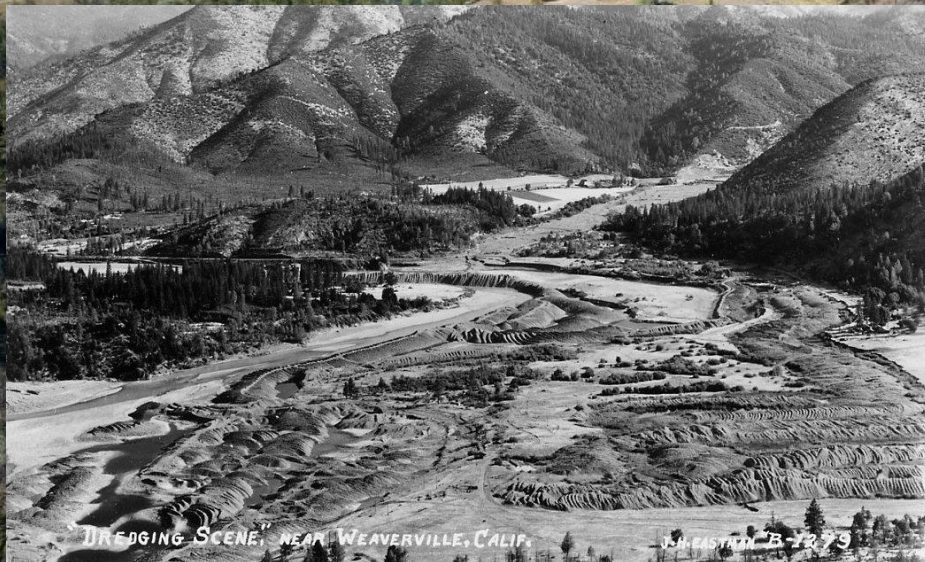


Photo courtesy of Eric Wiseman

Final take...

- ◆ ITS GONNA CHANGE!!
- ◆ DYNAMIC CHANNELS ARE HEALTHY CHANNELS
- ◆ WHERE DO OPPORTUNITIES EXIST FOR MORE OF THIS TYPE OF RESTORATION ON THE MAINSTEM TRINITY?

Special thanks to...

Andreas Krause, Dave Gaeuman, DJ Bandrowski,
Aaron Martin, Leslie Hubbard, Mike Dixon, Greg
Aikens, Wes Scribner, and Max Ramos (and all of
you!!!)

For helping make it happen!!

Questions

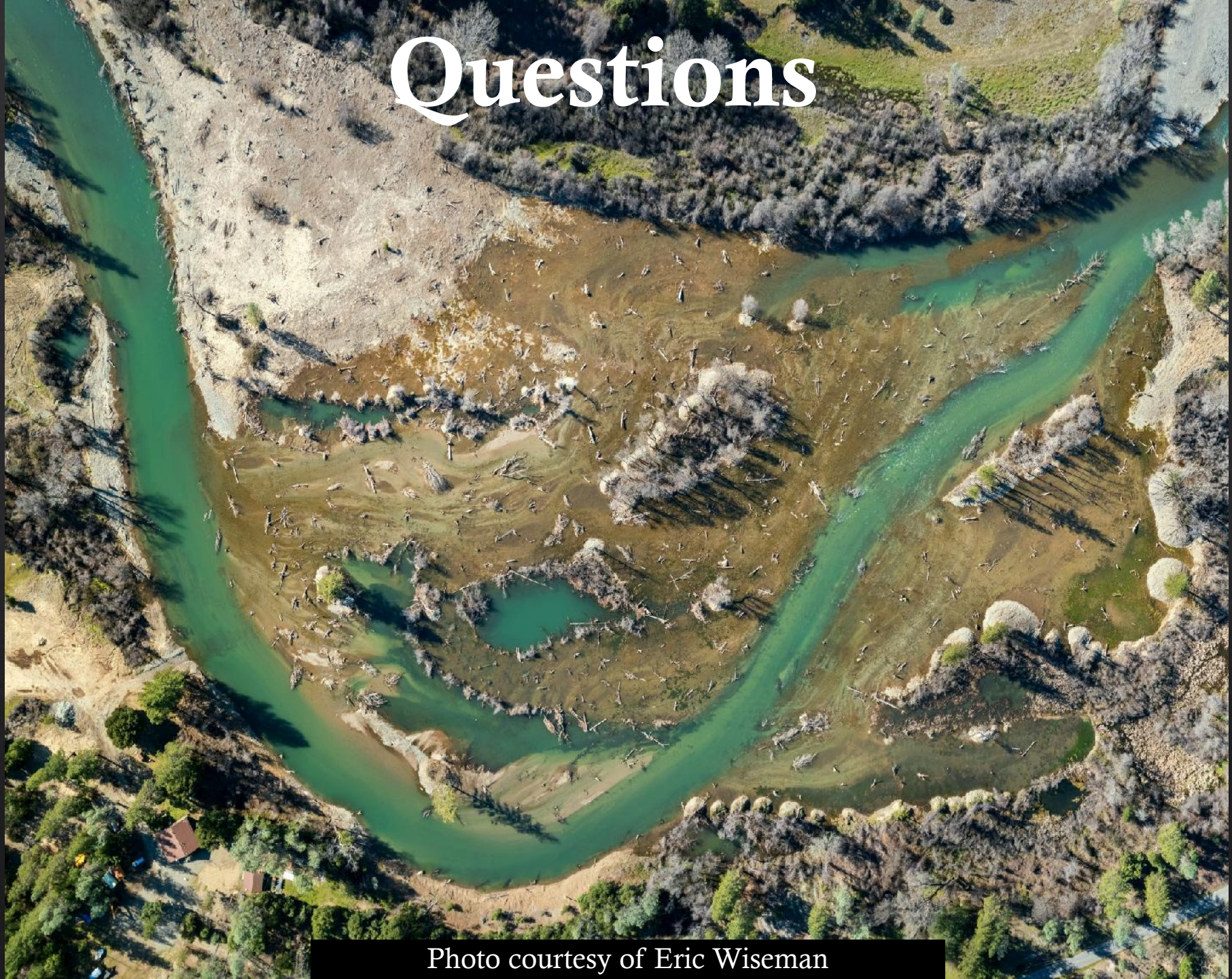


Photo courtesy of Eric Wiseman