

VAN NORMAN (V_N) PROJECT

WATER RIGHT
IMPACTS

&

STREAM
RESTORATION

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UPPER ARKANSAS
WATER CONSERVANCY
DISTRICT





About River Science

- 501(c3) Nonprofit
- Established 2016
- Mission: Affordable River Health

V_N Project: The Problem

Riparian Issues:

- Reduced Flows due to Drought
- Flash Flooding
- Juniper Encroachment
- Incised Stream
- Banks Erosion
- Loss of Vegetation & Habitat
- High Fire Risk
- Unhealthy Conditions for Future Post-Fire Flooding



V_N Project: The Opportunity

Process Based Restoration (PBR)



- Beaver Dam Analogs (BDAs)
 - To mimic beavers
 - Diversify hydraulics
 - Build ponds
 - Raise water levels and adjacent water tables
 - Promote overbank flooding
 - Promote aggradation
 - Diversify residence time of water, sediment, wood and nutrients
 - Increase riparian/wetland vegetation and habitats in valley bottoms
 - Reconnect the floodplain
- Channel Spanning Post-Assisted Log Structures (PALS)
 - To mimic wood accumulation and lead to:
 - backwater effects for sediment aggradation
 - Raising the channel elevation
 - Diversified hydraulics
 - Overbank flow in flood events



V_N Project: Project Organization

Planning Phase 1: CWCB Funding

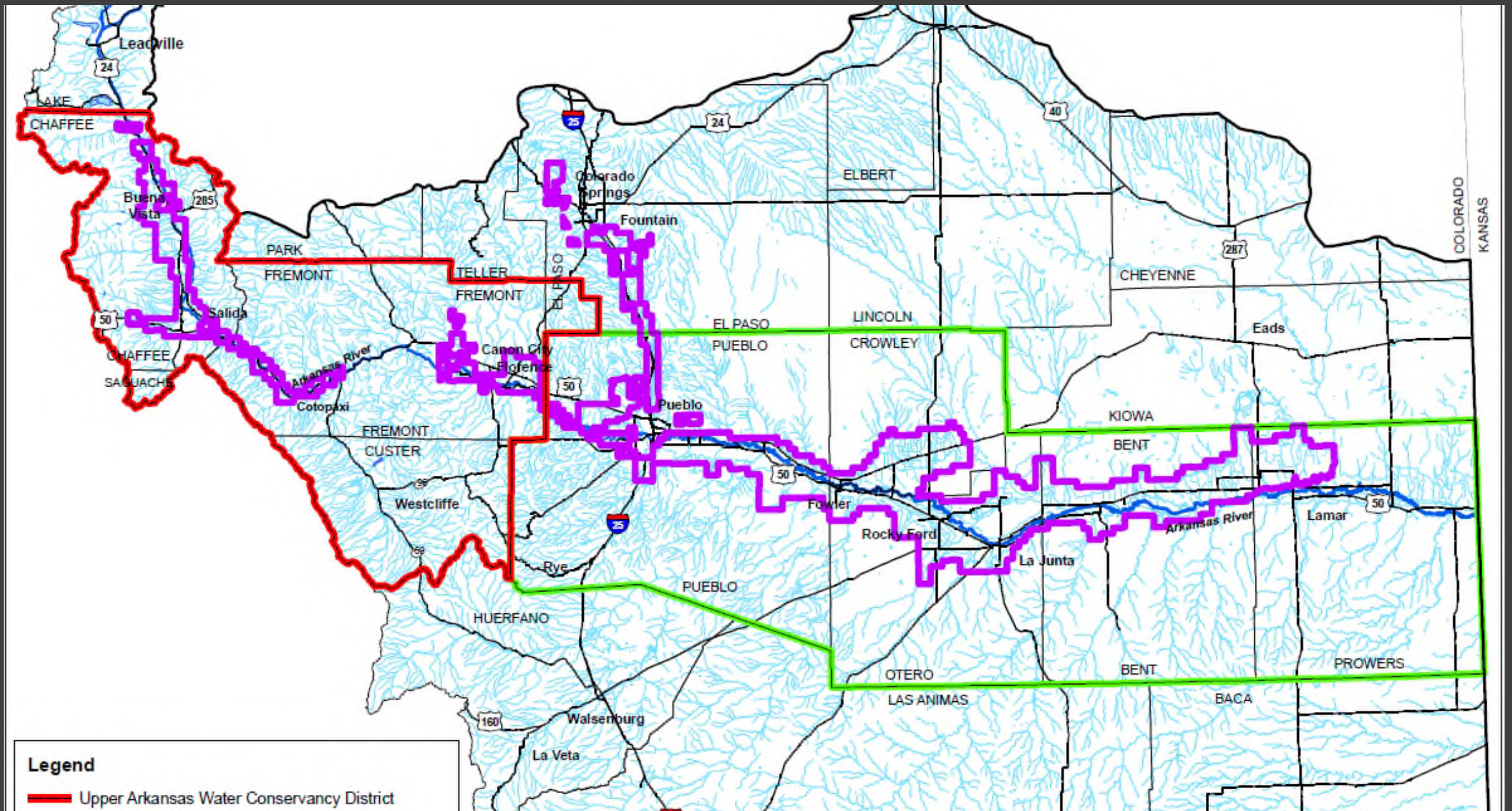
- Water Rights & Stakeholders
 - Local Water Rights Holders (including town of Rockvale)
 - Upper Arkansas Water Conservancy District
 - Division of Water Resources
 - PBR Experts (Joe Wheaton and Stephen Bennett)
- Baseline Data Collection
 - Surface Water
 - Groundwater
 - Land Use
 - Channel Elevations
 - Water Quality
 - Seasonal Aerial Imagery
- Implementation Plan



Jord Gertson (left) of UAWCD and Joe Wheaton of Utah State University and Anabran solutions (Right), discuss river processes and water rights at the Van Norman Project 6/29/21

UPPER ARKANSAS WATER CONSERVANCY DISTRICT

- STATUTORY ORGANIZATION FORMED TO DO WATER WORKS PURSUANT TO CRS 37-45-101 SEQ.
- 3000 + SQUARE MILES IN UPPER ARKANSAS BASIN (CHAFFEE, FREMONT, CUSTER, & PARTS OF EL PASO & SAGUACHE COUNTIES)
- PROVIDES WATER AUGMENTATION FOR WELLS, & DIRECT STREAM DIVERSIONS FOR DOMESTIC, INDUSTRIAL, MUNICIPAL, IRRIGATION AND OTHER USES
- AUGMENTATION PROVIDES PROTECTION OF WATER RIGHTS FROM OUT-OF-PRIORITY DIVERSIONS



ARKANSAS RIVER BASIN ATTRIBUTES

- LARGEST BASIN
- SMALLEST AMOUNT OF WATER
- SENIOR WATER RIGHTS PRE-DATE 1885
- CONTINUOUS CALL ADMINISTRATION
- SUBJECT TO COMPACT ADMINISTRATION W/
KANSAS

WATER RIGHT IMPACTS

Beaver Dam Analog Concerns

DIVERSION OR COLLECTION OF WATER INTO A RIPARIAN AREA

- REDUCES HISTORIC AVAILABILITY AND TIMING OF FLOWS
- NO DECREE – OUT OF PRIORITY USE

STREAM DEPLETIONS

- USE OF DIVERTED WATER FOR RIPARIAN PLANT GROWTH

STORAGE OF STORMWATER OR STREAMFLOW THAT INCREASES EVAPORATION

- IMPOUNDMENT OF WATER W/O A DECREE
- EXPANSION OF SURFACE AREA
- IMPEDING OR REDUCING FLOW OF WATER

EXPOSURE OF GROUND WATER

- EXCAVATIONS IN RIPARIAN AREAS & EXPOSURE OF GROUND WATER

STREAM RESTORATION & WATER RIGHTS NEXUS

- STREAM RESTORATION NEED
 - STREAMBANK & CHANNEL DAMAGE FROM FLOODING
 - WATER QUALITY PROTECTION FROM WILDFIRE DEBRIS & SEDIMENTATION
 - MITIGATION FOR HEALTHY LANDSCAPES BEFORE FIRE & FLOOD
- RESTORATION CAN INJURY WATER RIGHTS
 - 404 PERMITTING FOR WATER QUALITY CONCERNS
 - AFTER-THE-FACT STREAM DEPLETIONS MAY RESULT IN SEO ORDERS OR LAWSUITS BY VESTED WATER RIGHT OWNERS
- PRESENTLY THERE IS NO SEO STATUTORY PERMITTING AUTHORITY

STREAM RESTORATION PROJECT PROCESS

- VALUE OF A STREAMLINED PROCESS
 - A PLAN OR ROADMAP
 - PROVIDE SURETY & LEGAL PROTECTIONS TO THE PROJECT PROPONENT
 - ELIMINATES THE RISK OF INJURY TO WATER RIGHTS
- THE VAN NORMAN PILOT PROJECT
 - IDENTIFY WATER RIGHT INJURY ISSUES
 - EVALUATE RESTORATION PROCESSES/PRACTICES/METHODOLOGIES
 - DEVELOP METHODS THAT ADVANCE RESTORATION WHILE PROTECTING WR
 - EVALUATE STREAM DEPLETION MITIGATION TECHNIQUES

Next Steps & Needs

- Next Steps
 - Implementation of phase 2 (PALS)
 - Focus on raising the channel to combat incision and bank erosion.
- Needs
 - Funding to implement & study pilot projects
 - V_N & Big Cottonwood
 - Exploring other restoration techniques, impacts & solutions
 - Collect data to better understand impacts & opportunities
 - Develop process, procedures, and innovative approaches to PBR and protection of water rights.

