



Green Infrastructure Webinar Series

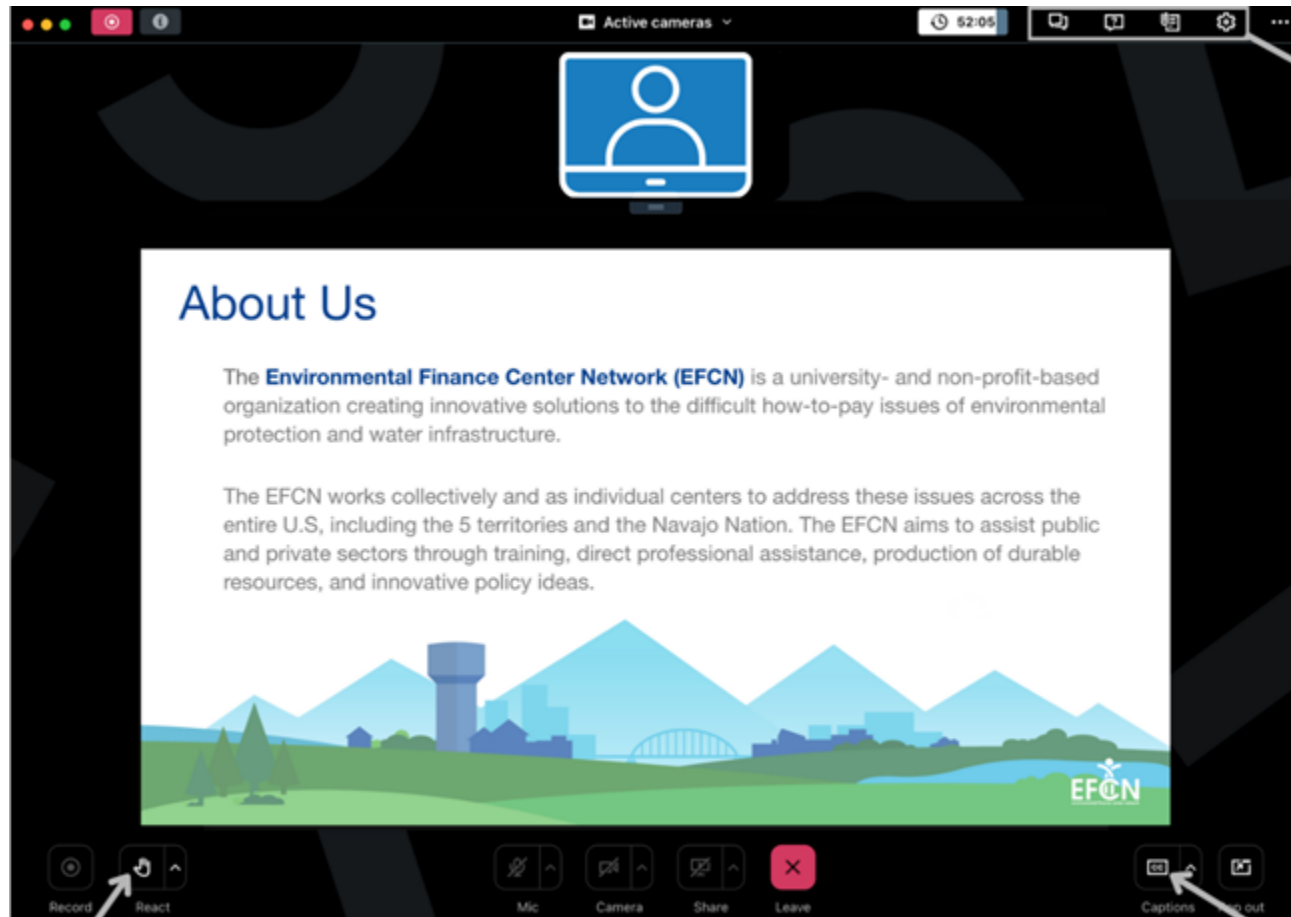
Webinar 10: Source Water Protection and Floodplain Restoration: Watershed-Scale Green Infrastructure

Thursday, 16 July 2026

10:00am Mountain Time



Logistics



Raise Your Hand or React



Closed Captions

Enable live captions during the session.

Chat

Materials



Submit Questions

in the questions box at anytime and send

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Ensure your audio is connected. Choose between computer audio or phone call.

Certificate of Completion

This session has **NOT** been submitted for pre-approval of Continuing Education Credits, but eligible attendees will receive a certificate of attendance for their personal record.

To receive a certificate:

- You must attend the entire session
- You must register and attend using your real name and unique email address - group viewing credit will not be acceptable
- You must participate in polls
- Certificates will be sent via email within 30 days

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About Us

The **Environmental Finance Center Network (EFCN)** is a university- and non-profit-based organization creating innovative solutions to the difficult how-to-pay issues of environmental protection and water infrastructure.

The EFCN works collectively and as individual centers to address these issues across the entire U.S, including the 5 territories and the Navajo Nation. The EFCN aims to assist public and private sectors through training, direct professional assistance, production of durable resources, and innovative policy ideas.



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Webinar Series Overview

Title	Date
Green Infrastructure 101	18 April 2024
Equitable Green Infrastructure in a Changing Climate	25 July 2024
Navigating the Green Infrastructure Policy Landscape	10 October 2024
Asset Management for Green Infrastructure	23 January 2025
Funding Green Infrastructure	24 April 2025
The Power of Partnerships for Green Infrastructure	17 July 2025
Community-Driven Workforce Solutions for Green Infrastructure	16 October 2025
Community Engagement for Successful Green Infrastructure	22 January 2026
Source Water Protection and Floodplain Reconnection: Watershed-Scale Green Infrastructure	16 July 2026

Overview of Today's Webinar

1. Brief recap: What is green infrastructure?
2. Green Infrastructure in a Source Water Frame/Source Water Protection
 - Martha Graham, New Mexico Rural Water
3. Green Infrastructure: Connected Floodplain of the Gila River, NM /Floodplain Restoration
 - Martha Cooper, The Nature Conservancy
3. Resources
4. Question & answer session with speakers

Today's Speakers



Dawn Nall
Project Director
*Southwest Environmental Finance
Center*



Martha Cooper
Freshwater Director
*The Nature Conservancy in
New Mexico*



Martha Graham
Source Water Protection Specialist
New Mexico Rural Water



Quick Recap: Green Infrastructure

What makes green infrastructure such a compelling water management option for communities of all sizes?

Water/Wastewater/Stormwater Infrastructure

Gray:



Green:



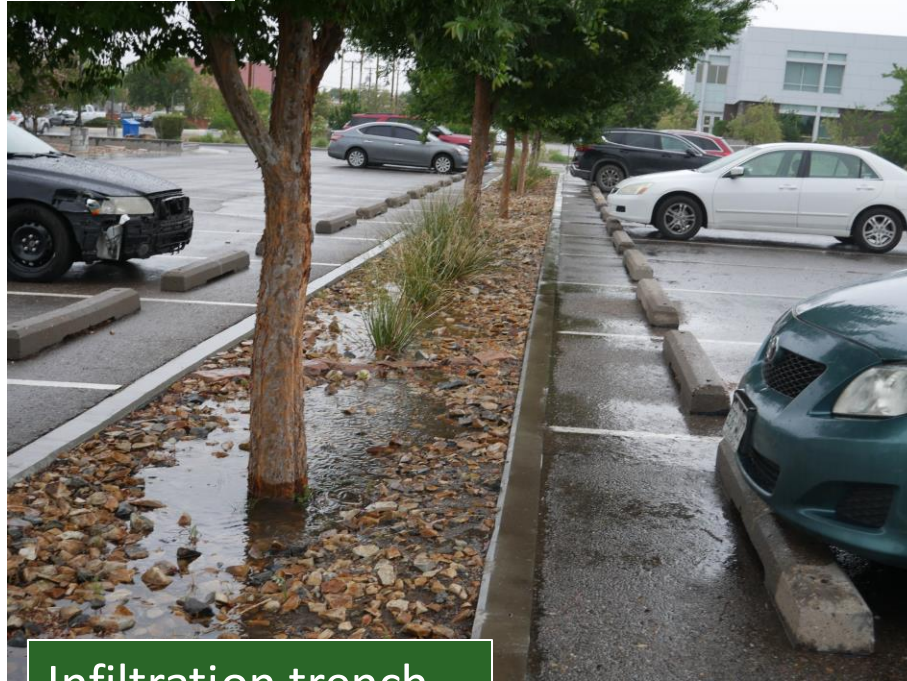
Example: Gray & Green Stormwater Infrastructure

Gray



Sewer pipe

Green



Infiltration trench

Function: Convey storm water away from roads/buildings to prevent flooding and water damage.

Some co-benefits of infiltration trench or bioswale:

- Filtration of water through soil
 - Plant & fungi uptake of pollutants
- Dispersed absorption – stormwater does not make it to treatment plant
- Space for public enjoyment, habitat

Why Green Infrastructure?



Climate Resiliency



Co-Benefits



Partnerships

Where we've been

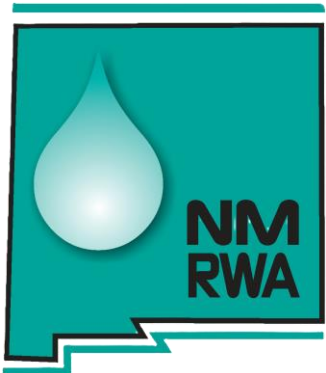
- Basics of GI
- Equitable Community Involvement
- Climate Threats
- Policy
- Benefits
- Finances

Large-scale green infrastructure

- Source Water Protection
- Floodplain Reconnection

Green Infrastructure in a Source Water Frame

Source Water Protection and Green Infrastructure on a Landscape Scale



Martha Graham
Source Water Protection Specialist
New Mexico Rural Water Association



About This Presentation

- Give an understanding of source water protection
- Expand the notion of green infrastructure (GI), particularly beyond green stormwater infrastructure (GSI), in its application in rural settings and at the landscape and watershed scales
- Provide examples and resources





Source Water Protection

- Source water is “untreated water from streams, rivers, lakes, or underground aquifers that is used to supply private wells and public drinking water.” (EPA)
- Source water protection is a voluntary process designed to help prevent pollution of the primary sources of drinking water
- Protecting source water means less money and other resources spent on treatment or even the loss of the water resource
- A “bottom-up” approach

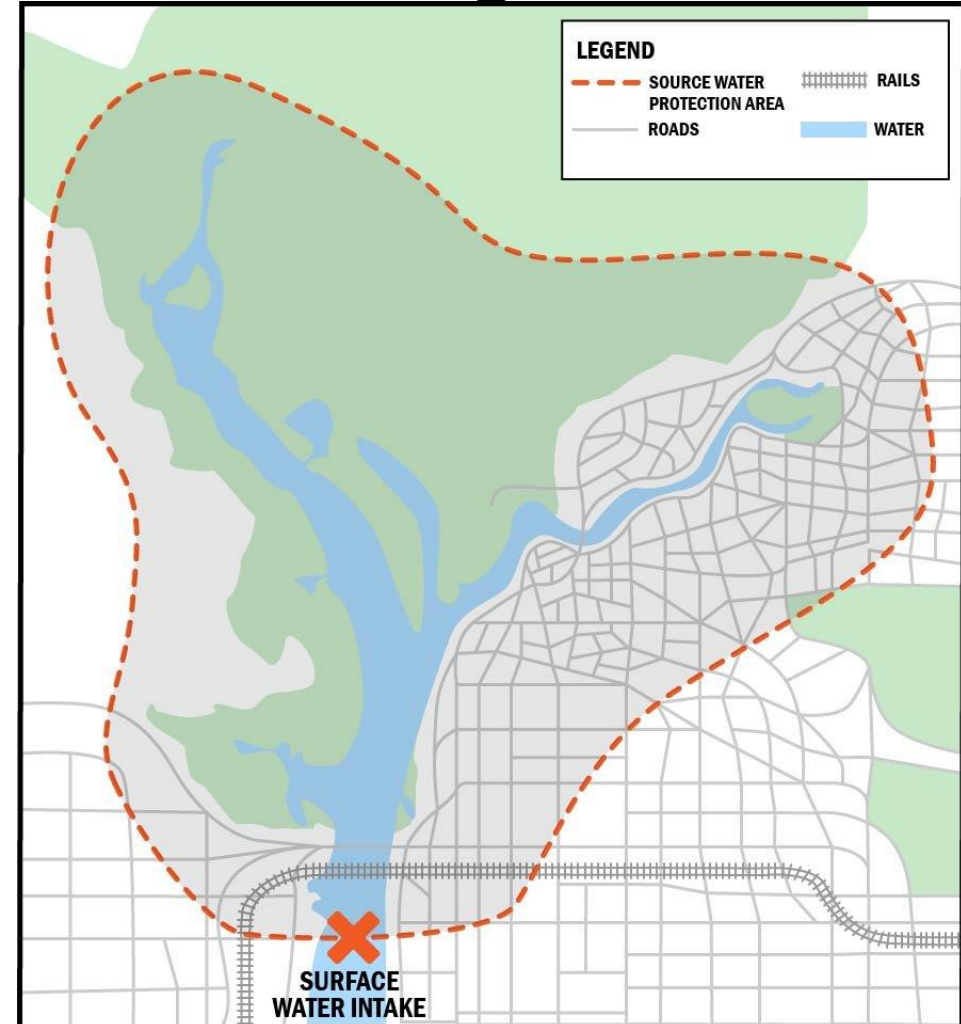
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Source Water Protection – Planning

- Initially used the contaminants identified for the Source Water Assessments
- Inventory organized by types of land use and types of contaminants
- Best management practices developed to mitigate the impacts of the contaminants



Source Water Protection Core Purposes

Prevention

Resilience

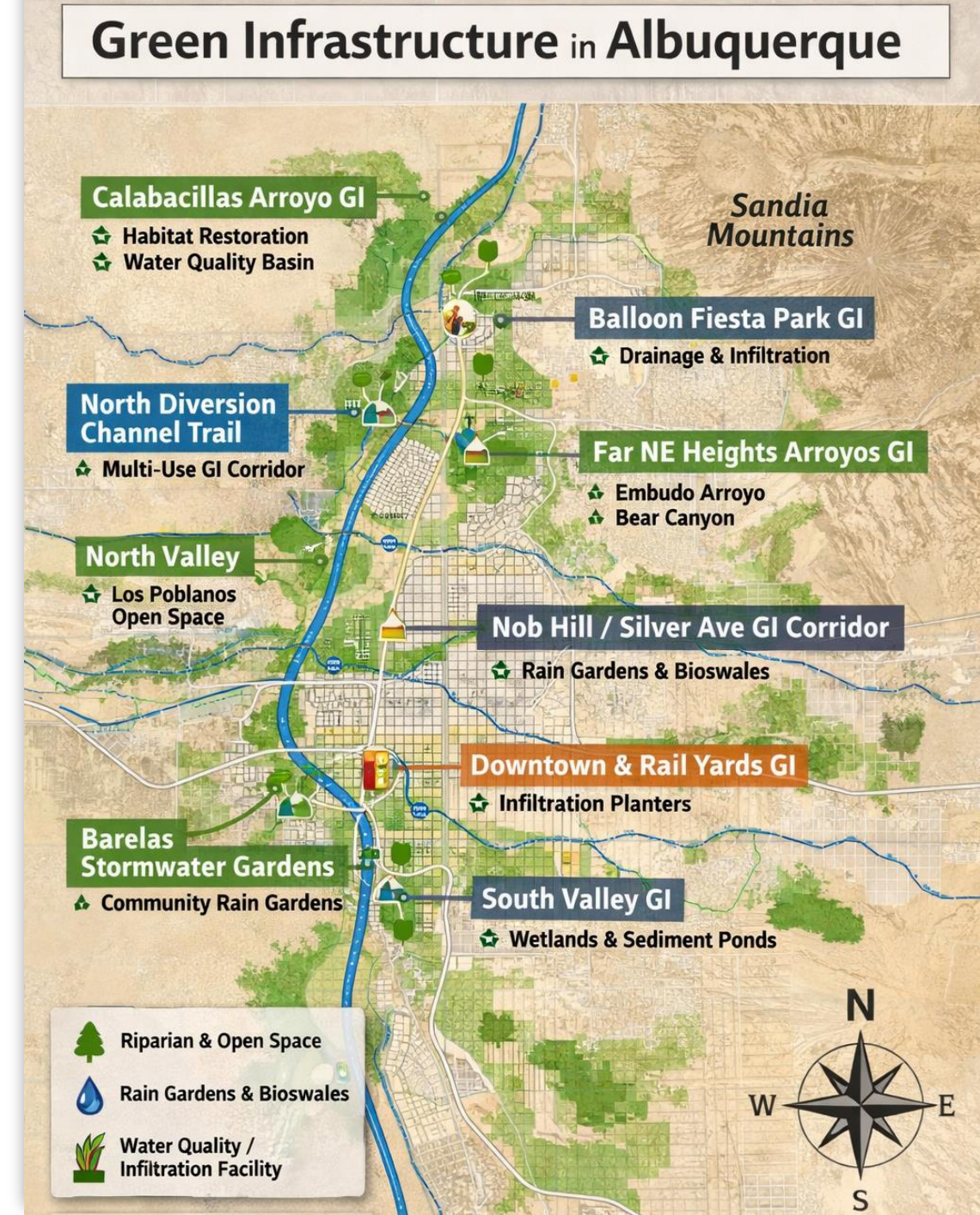
Mitigation

Recovery



Green Infrastructure

- **Green infrastructure (GI)**
- *At the neighborhood scale:* refers to systems that replicate natural processes by storing, infiltrating, or evapotranspiring water, like rain gardens and green roofs.
- *At city or county scale:* refers to natural areas that can address nonpoint source pollution, provide habitat, flood protection, water filtration, and clean air, like wetlands and forests.
- **Green Stormwater Infrastructure (GSI)**
- A synonym or subset of green infrastructure with a stronger focus on stormwater management.

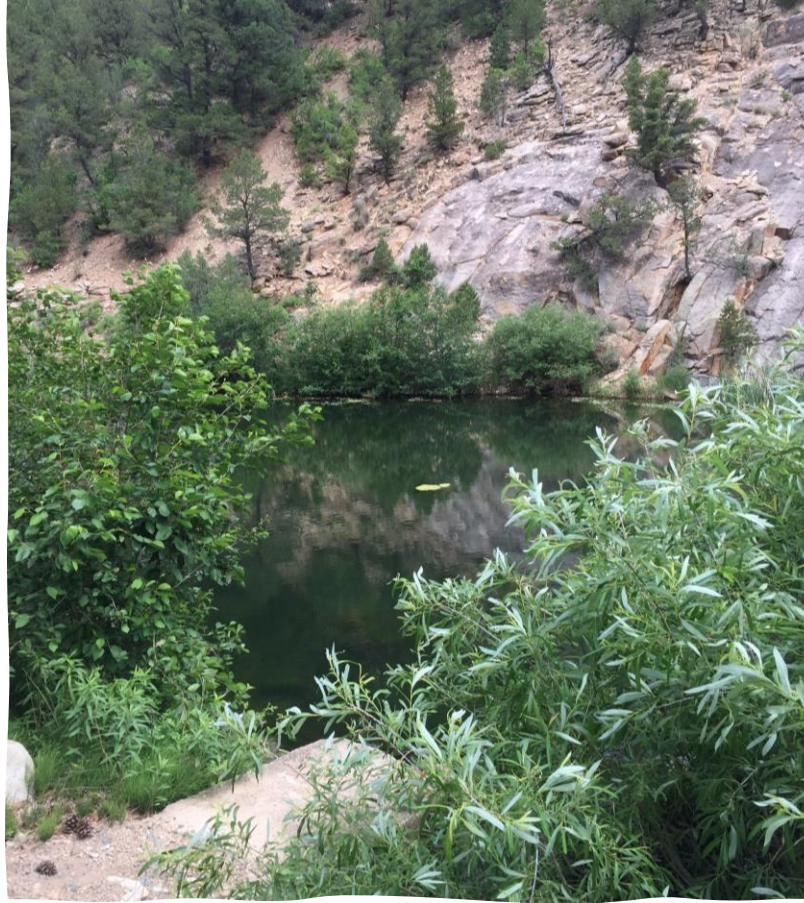


Watershed-Based Green Infrastructure in Albuquerque, New Mexico



Expand the Concept of Green Infrastructure

- **Nature-based solutions (NbS or NBS)**
- “Actions to protect, sustainably manage, and restore natural and modified ecosystems that address societal challenges effectively and adaptively, simultaneously benefiting people and nature.” ([UN Environment Programme Finance Initiative](#))
- **Engineering with nature®**
- “The intentional alignment of natural and engineering processes to efficiently and effectively deliver economic, ecological, and social benefits through collaboration.” ([EWN, USACE](#))

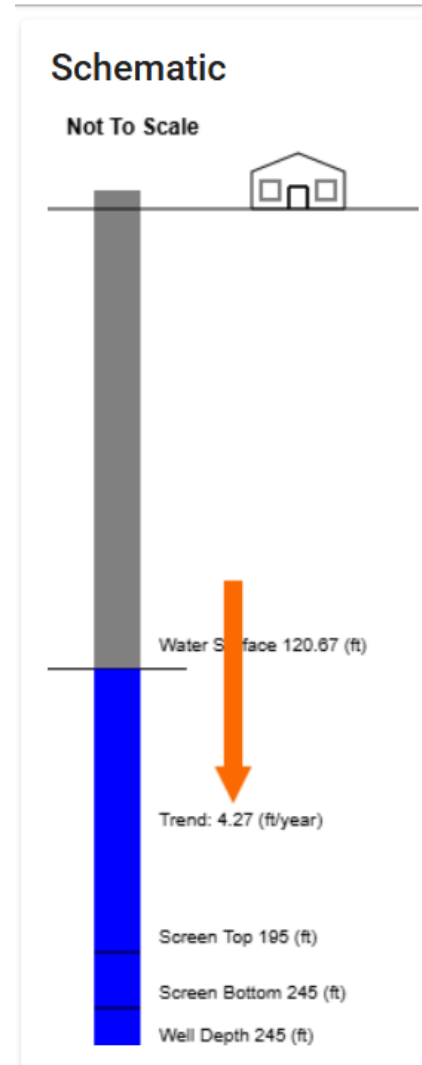


Green Infrastructure Through a Rural Lens

- Fewer hardscapes
- Agriculture and rangelands
- Forests and grasslands
- Different stormwater realities

Over time have come to recognize that threats to source water extends beyond this list of contaminants

Natural disasters (drought, earthquake, flood, hurricane, tornado, wildfire), cyber attacks, aging infrastructure



Natural Infrastructure

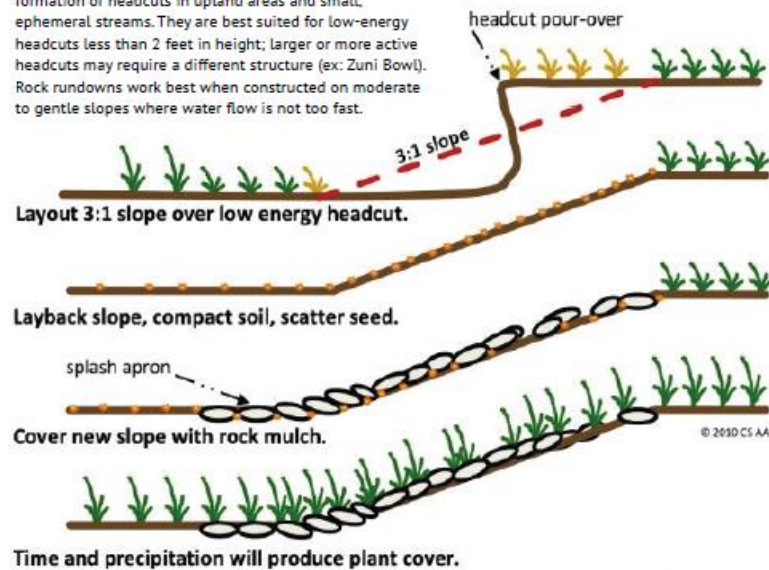
“Strategic use of networks of natural lands, working landscapes, and other open spaces to conserve ecosystem values and functions and provide associated benefits to human populations’ (Allen 2012). Forests, wetlands, riparian buffers, and other natural elements on the landscape can comprise natural infrastructure when strategically used and managed to provide services for communities ...”

Gartner et al. (eds), 2013, [World Resources Institute](#)

ROCK RUNDOWN

APPROPRIATE LOCATIONS

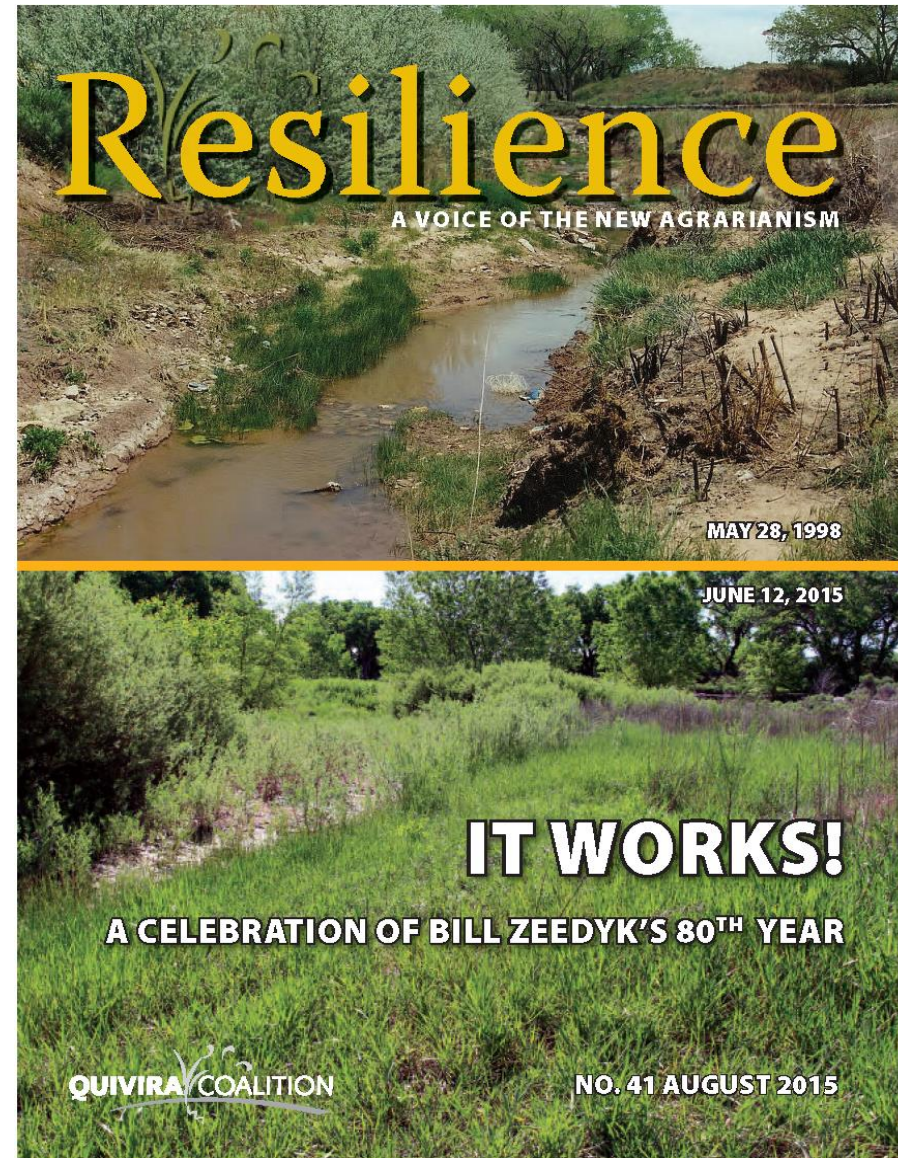
Rock rundowns are typically used to prevent the formation of headcuts in upland areas and small, ephemeral streams. They are best suited for low-energy headcuts less than 2 feet in height; larger or more active headcuts may require a different structure (ex: Zuni Bowl). Rock rundowns work best when constructed on moderate to gentle slopes where water flow is not too fast.



Schematic of Rock Rundown from Erosion Control Field Guide, Quivira Coalition & Watershed Artisans © 2012 CS AA



Nature-based
solutions in practice



Valle Seco Wetland Delineation 2013-2017

- Blue shows the surface area of the stock pond
- Yellow denotes wetland in 2013
- Green denotes wetland in 2017

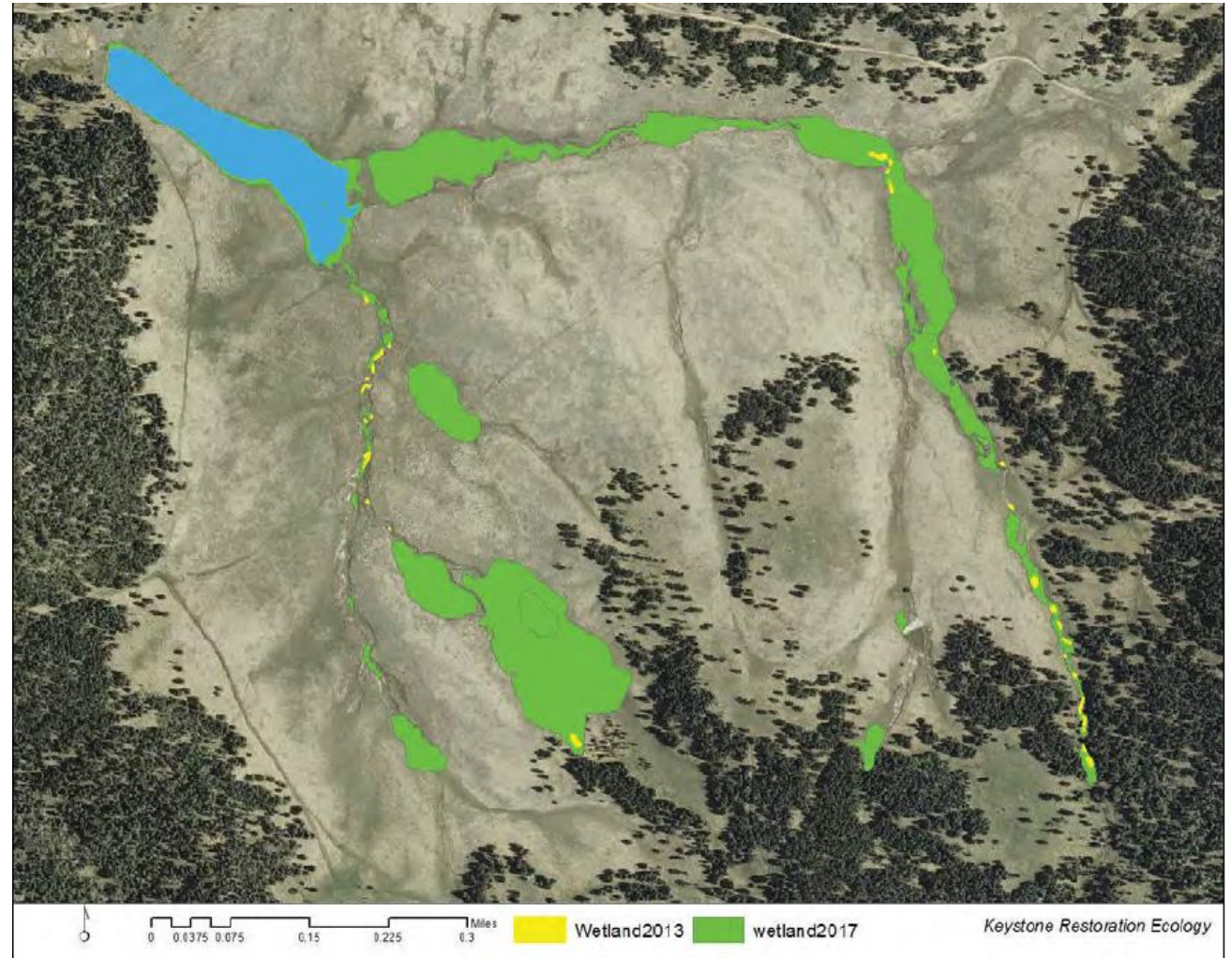


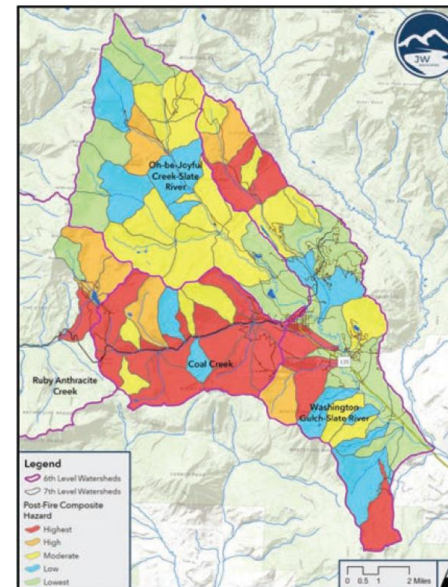
Figure 7. Zeedyk, W.D. and S. Vrooman (2017). *The Plug and Pond Treatment: Restoring Sheetflow to High Elevation Slope Wetlands in New Mexico*. New Mexico Environment Department, Surface Water Quality Bureau Wetlands Program (NMED-SWQB). Used with permission from [Quivira Coalition](#)

Watershed Health and Source Water Protection – Prefire Preparedness for Postfire Resiliency

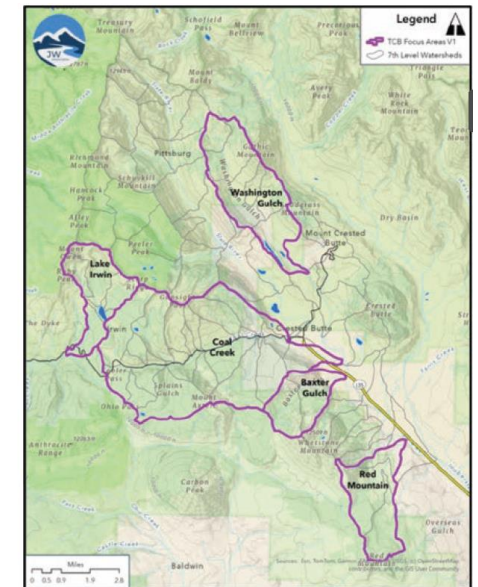
Framework for High Mountain Town SWP & WRAP



Post-Fire Composite Hazard Analysis and Focused Areas



LEFT:
Post-Fire
Composite
Hazard
Analysis
= Roads+
Debris+
Erosion+
Wildfire

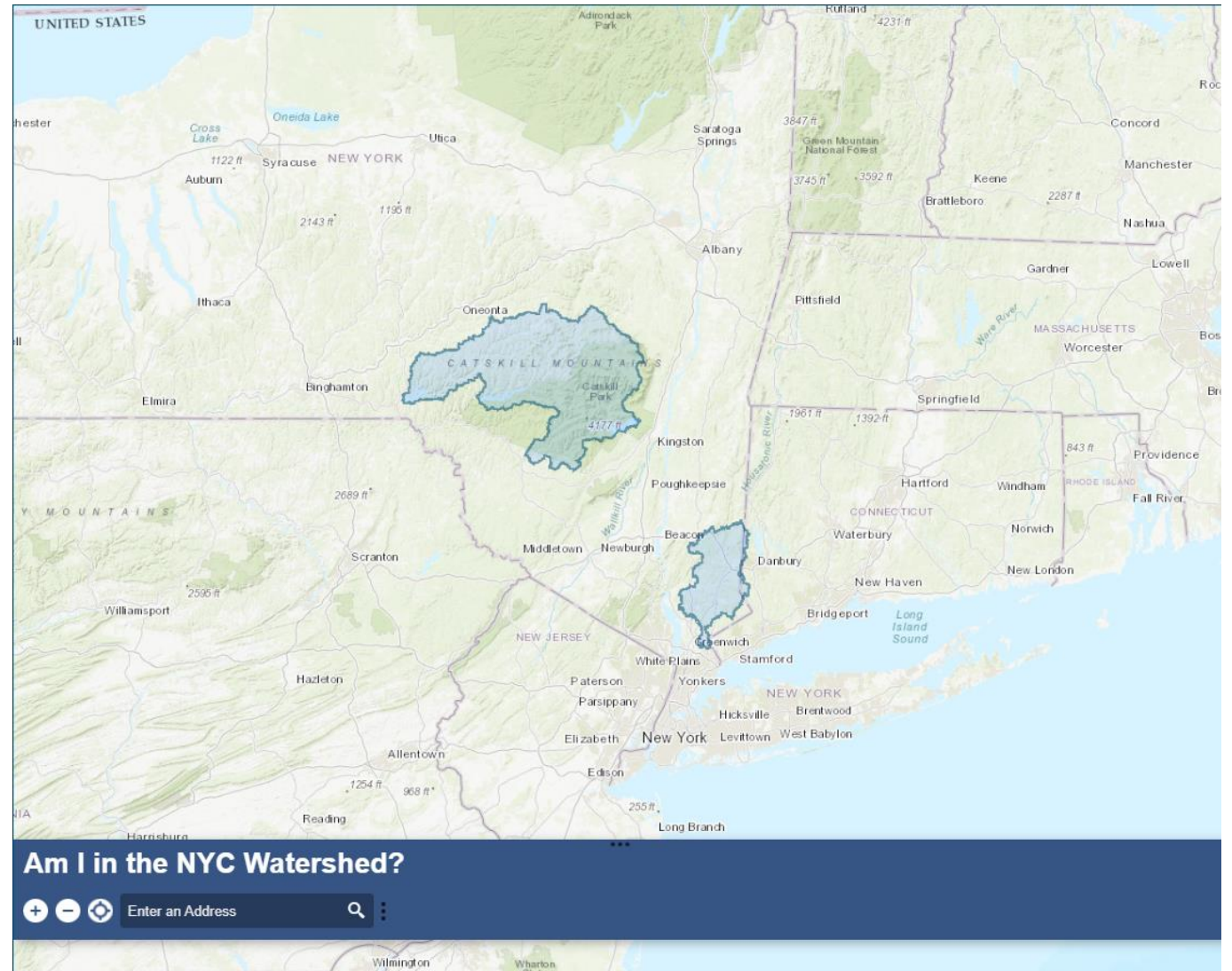


RIGHT:
Focused
areas

Urban Source Water Depends on Healthy Watersheds

The water supply for the City of New York is composed of three watershed systems. Together, these systems provide water for 8 million residents in New York City, as well as 1 million residents north of the City. The Catskill and Delaware systems lie west of the Hudson River, covering an area of approximately 2000 square miles. The Croton System, which includes the New Croton and Middle Branch Reservoirs, is east of the Hudson River.

[USACE New York City Watershed website](#)

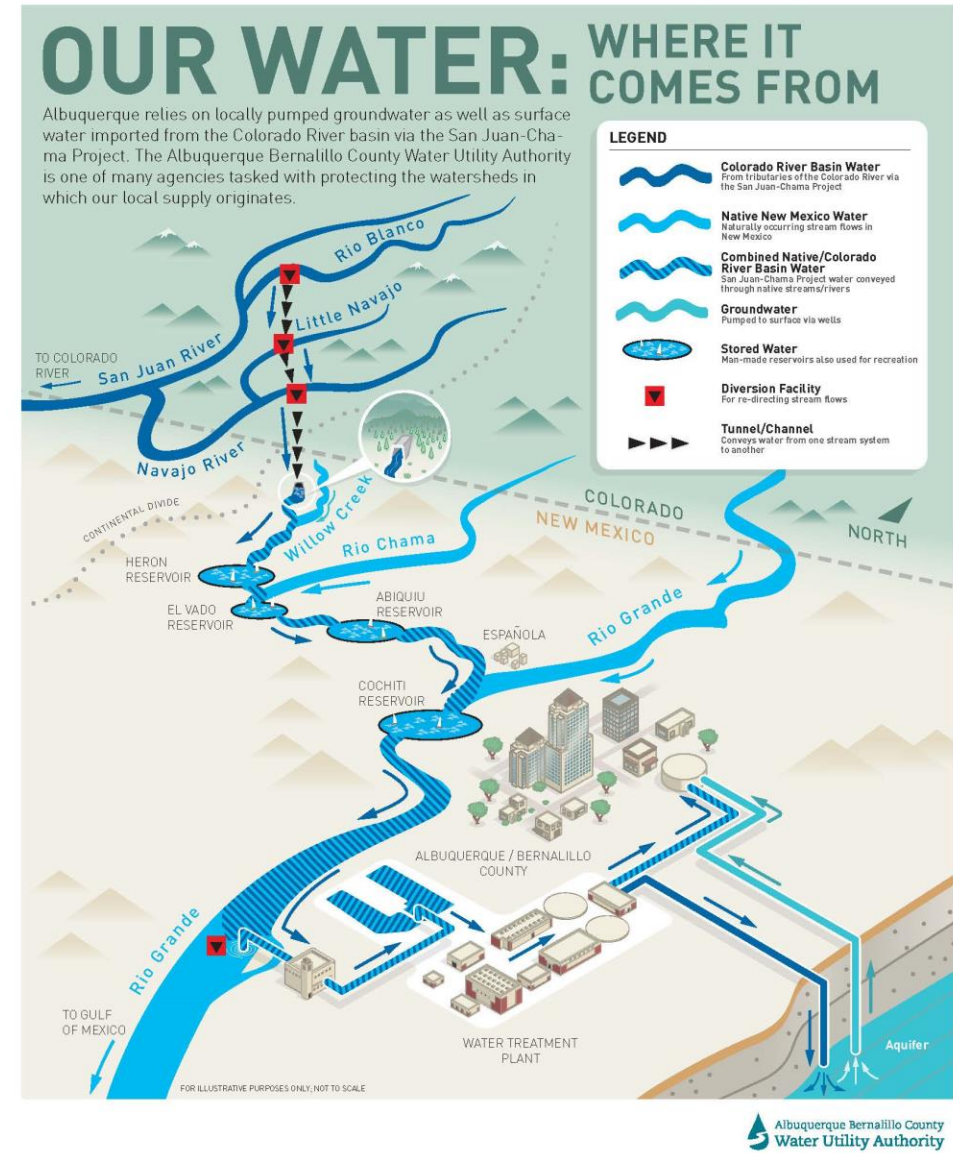


[NYC Watershed Boundary Map](#)

Urban Sources Depend on Rural Landscapes

Albuquerque's water comes from locally pumped groundwater and surface water imported via the San Juan-Chama Project.

The San Juan-Chama Project consists of a system of diversion structures and tunnels for transmountain movement of water from the San Juan River Basin to the Rio Grande Basin.

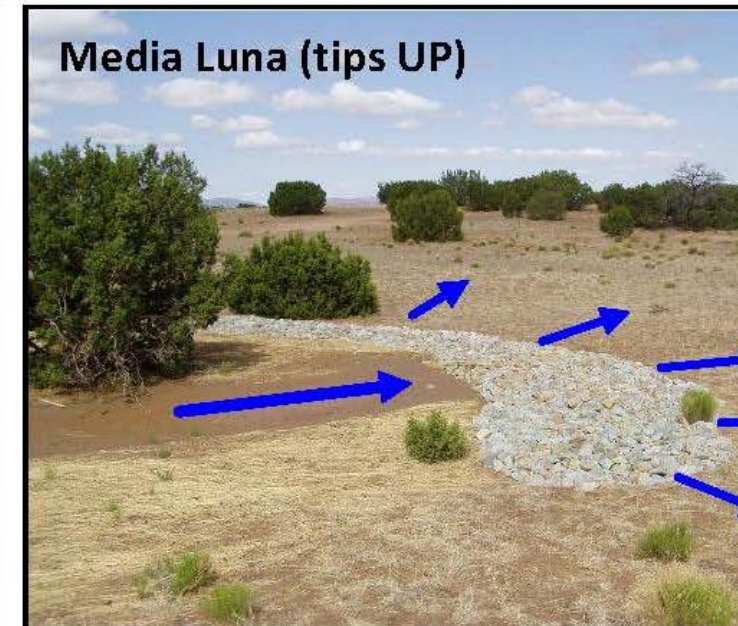


Courtesy of Albuquerque Bernalillo Co. Water Authority”

Conclusions

Nature-based approaches to restoring and preserving healthy water ways & watersheds

Sponholtz, Craig & Avery C. Anderson. Erosion Control Field Guide. Quivira Coalition. Used with permission from [Quivira Coalition](#)



Some Resources

- EPA – [Navigating Federal Funding for Green Infrastructure and Nature-Based Solutions](#)
- EPA – [About Green Infrastructure](#)
- EPA – [Green Infrastructure Federal Collaborative](#)
- EPA – [Source Water Protection](#)
- IUCN – [Nature-based Solutions to address global challenges](#)
- [Quivira Coalition](#)
- [Source Water Collaborative](#)
- Rocky Mountain Water January-February 2026 – [High Mountain Source Water Protection & WRAP](#)
- USACE – [Engineering with Nature](#)
- World Resources Institute – [As Water Shortages Plague Bogotá and Other Cities, Nature-Based Solutions Can Help](#)
- World Resources Institute – [Natural Infrastructure](#)

Thank you

Martha Graham

martha@nmrwa.org

505.977.5733



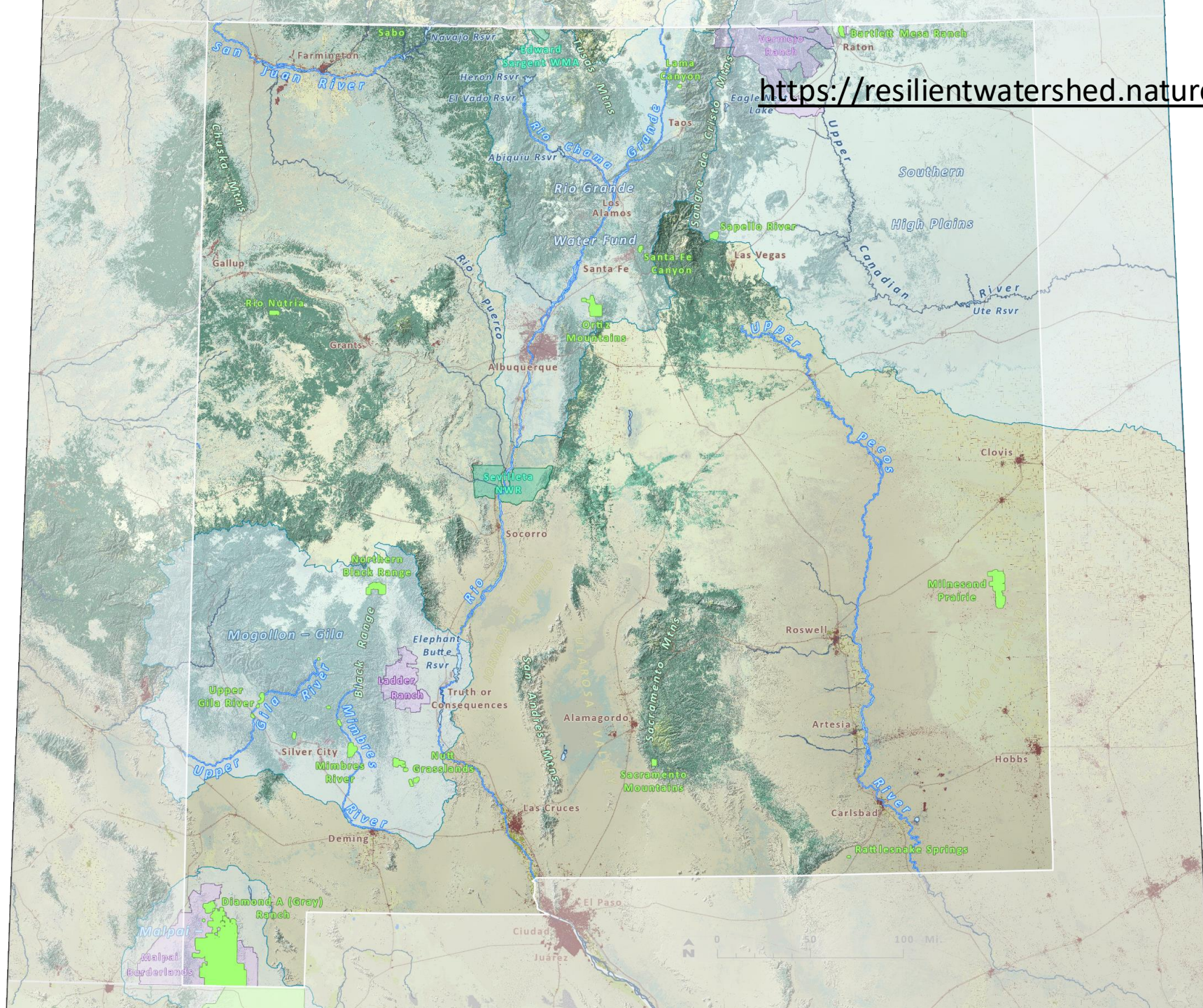
Green Infrastructure: Connected Floodplain of the Gila River, NM

The Nature
Conservancy



Martha Schumann Cooper
The Nature Conservancy in NM
mschumann@tnc.org

<https://resilientwatershed.nature.org>



Fall-Winter Base Flow



Snowmelt Runoff



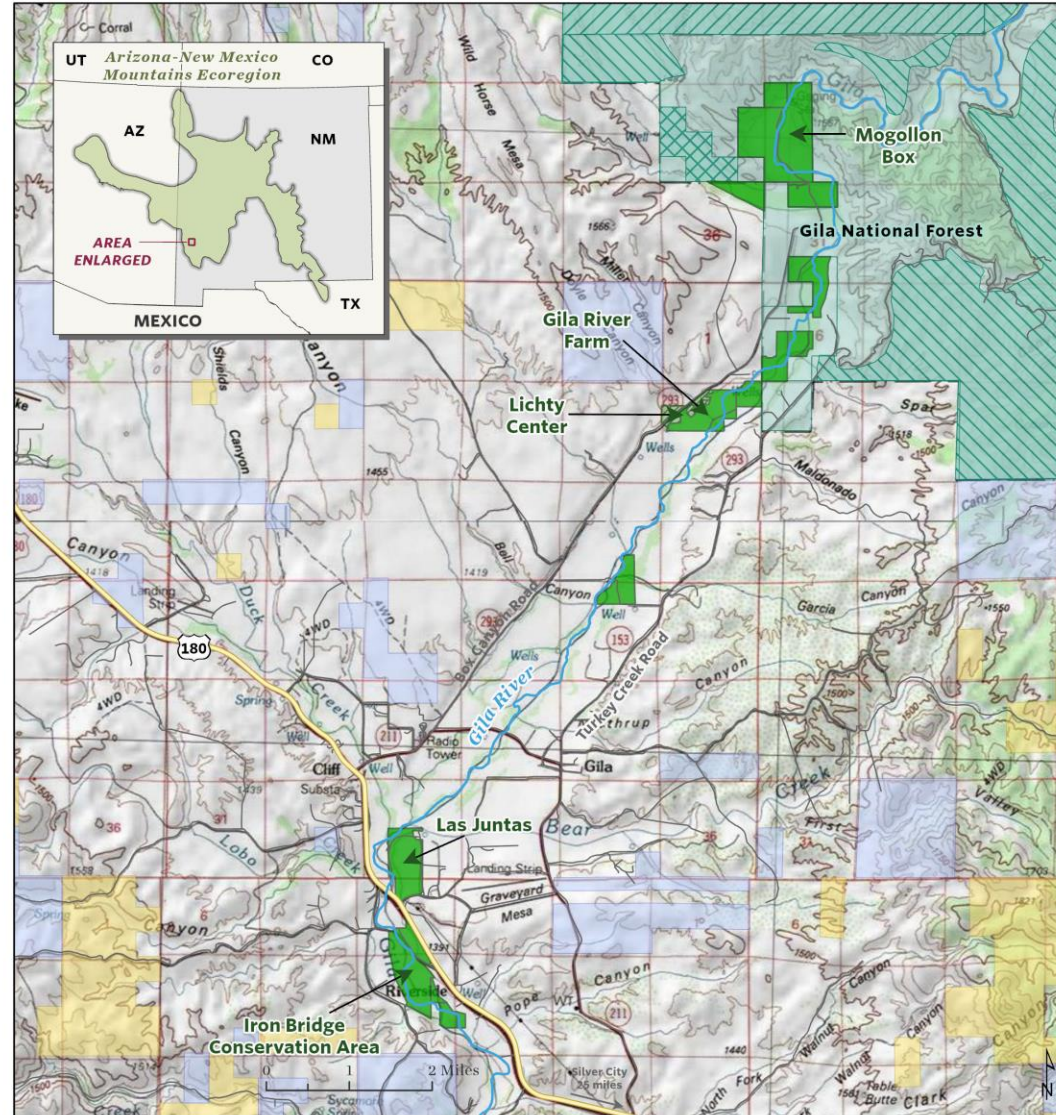
Summer Low Flow



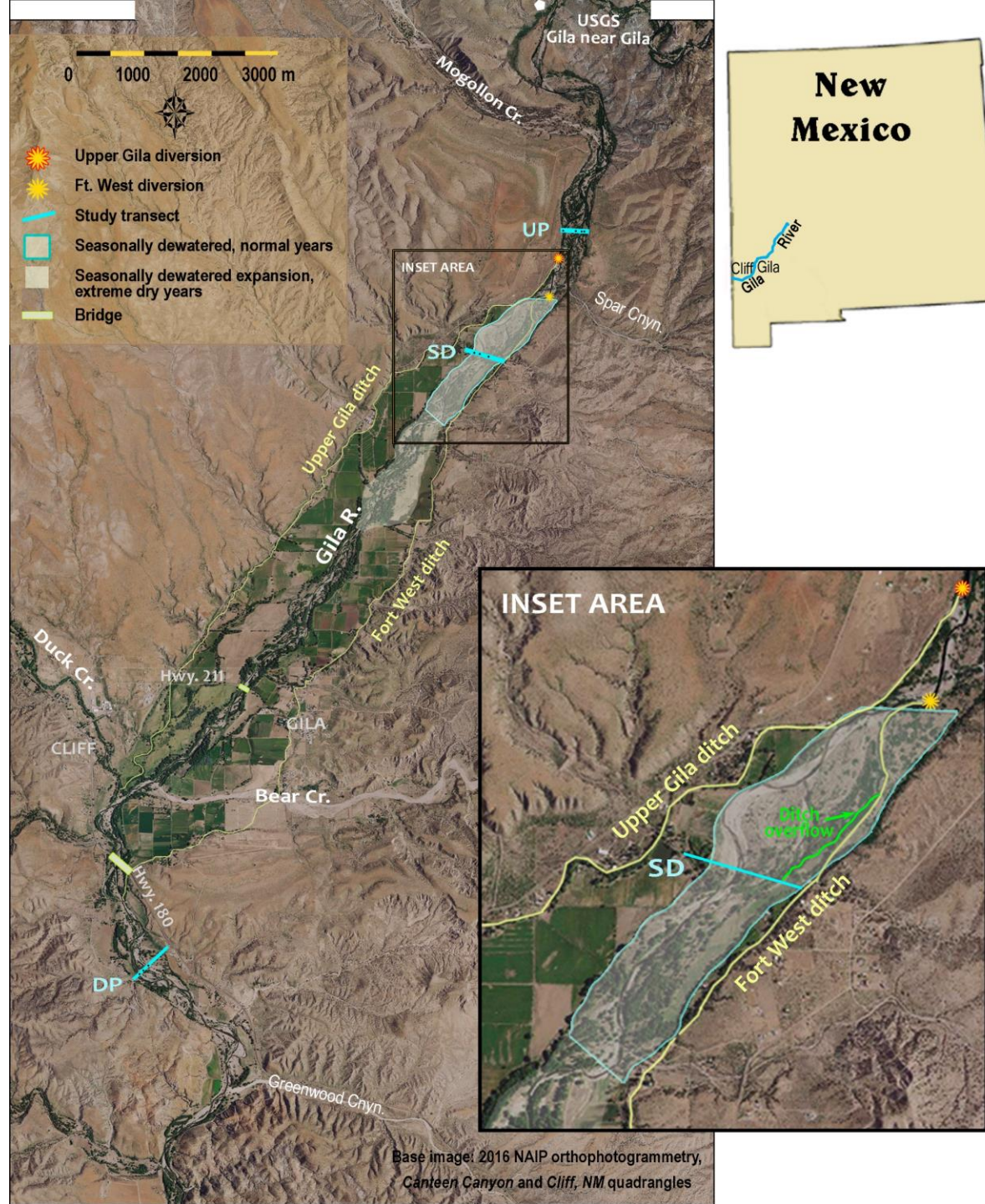
Monsoon Flow



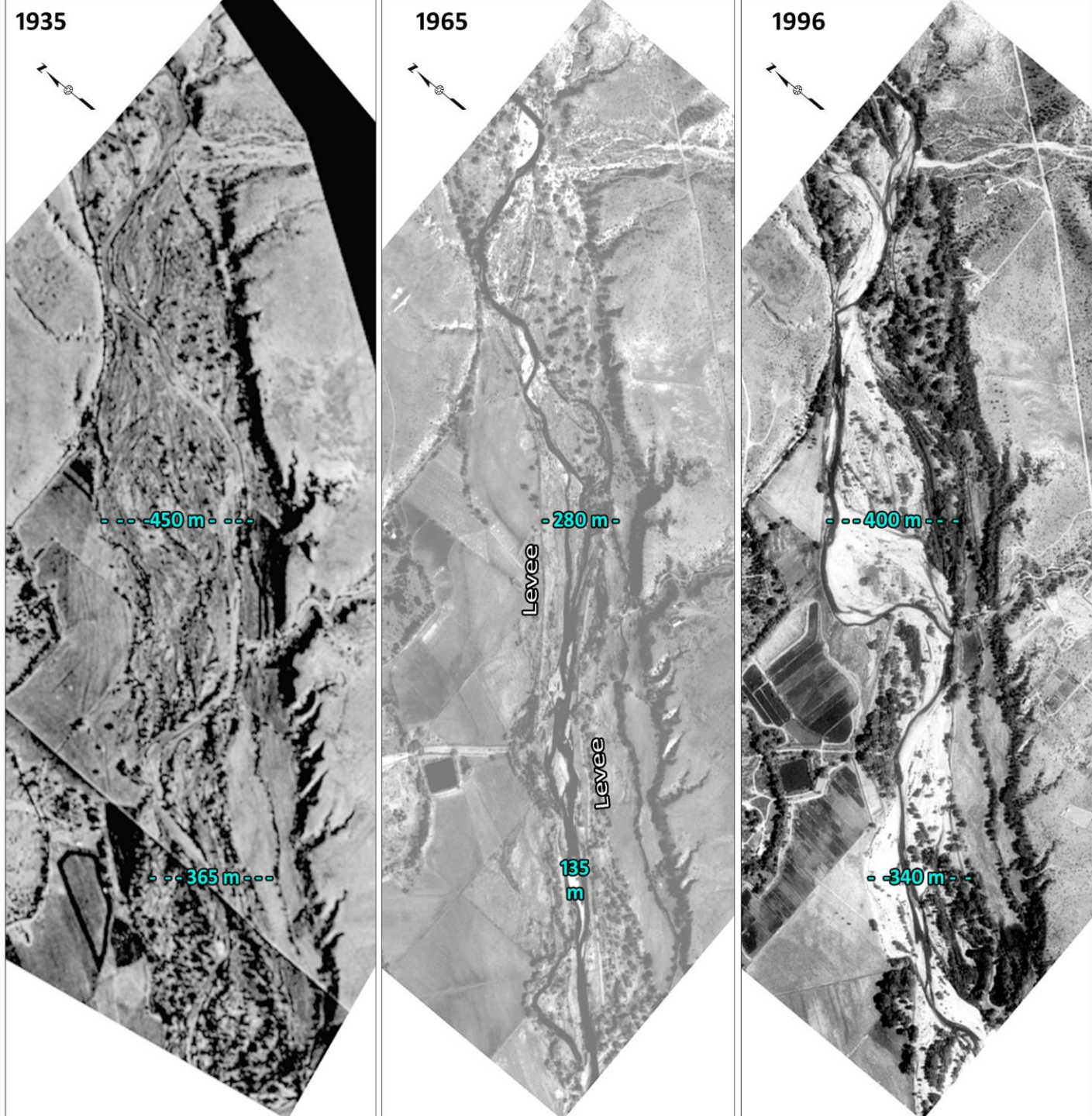
Peak flow on Sept. 15, 2013: 30,000 cfs



Produced by New Mexico
Field Office (A. Jones)
11/21/2023
Data Sources:
TNC, Esri,
USGS, GAP, PAD-US 2.1 (2020),
USGS, NHDPlus HR (2022),
OpenStreetMap / Geofabrik (2019)



Historic Levee Building



Gila River Preserve – Iron Bridge Conservation Tract (purchased in 2006)



2007



2012



2019

Study Transect –
Downstream
Perennial

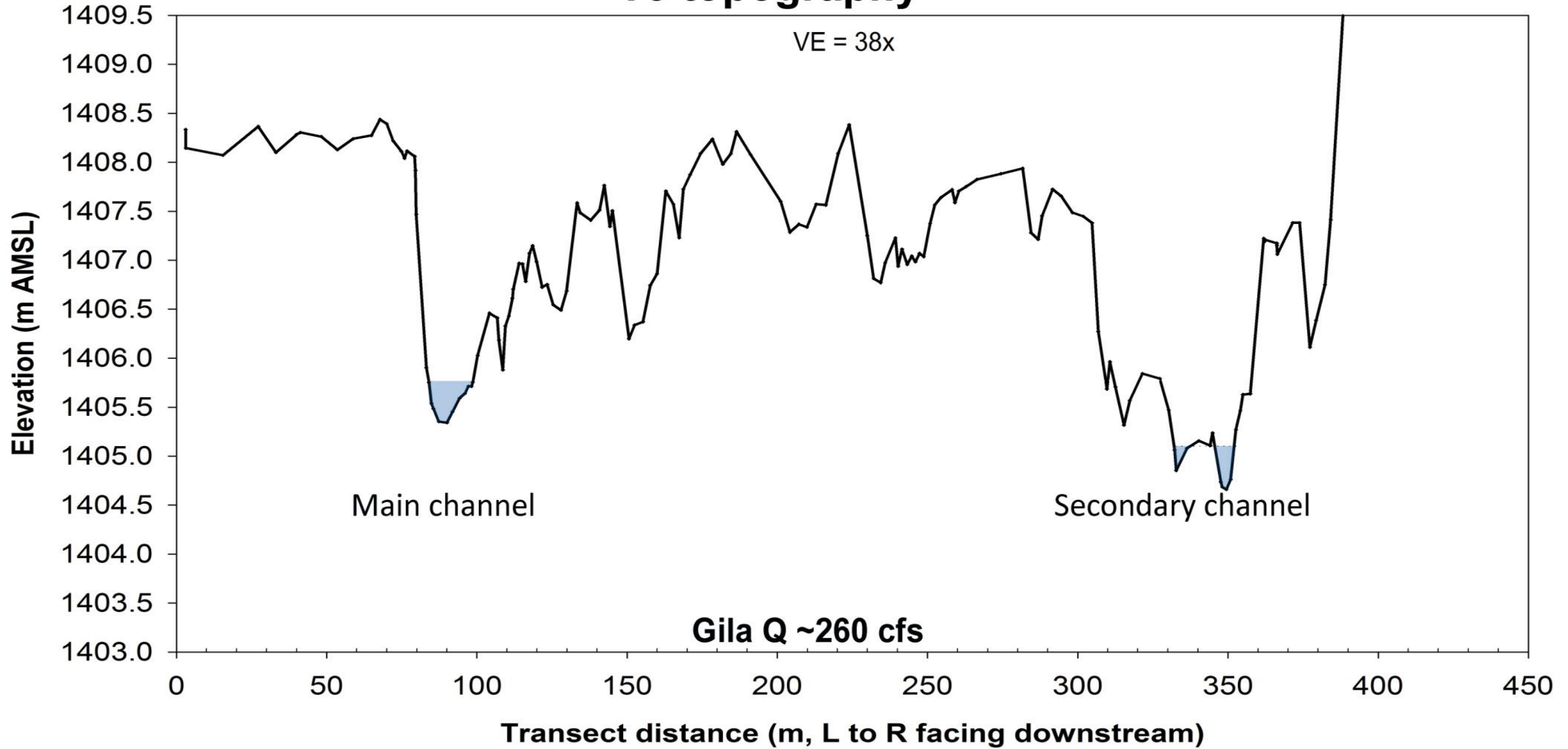


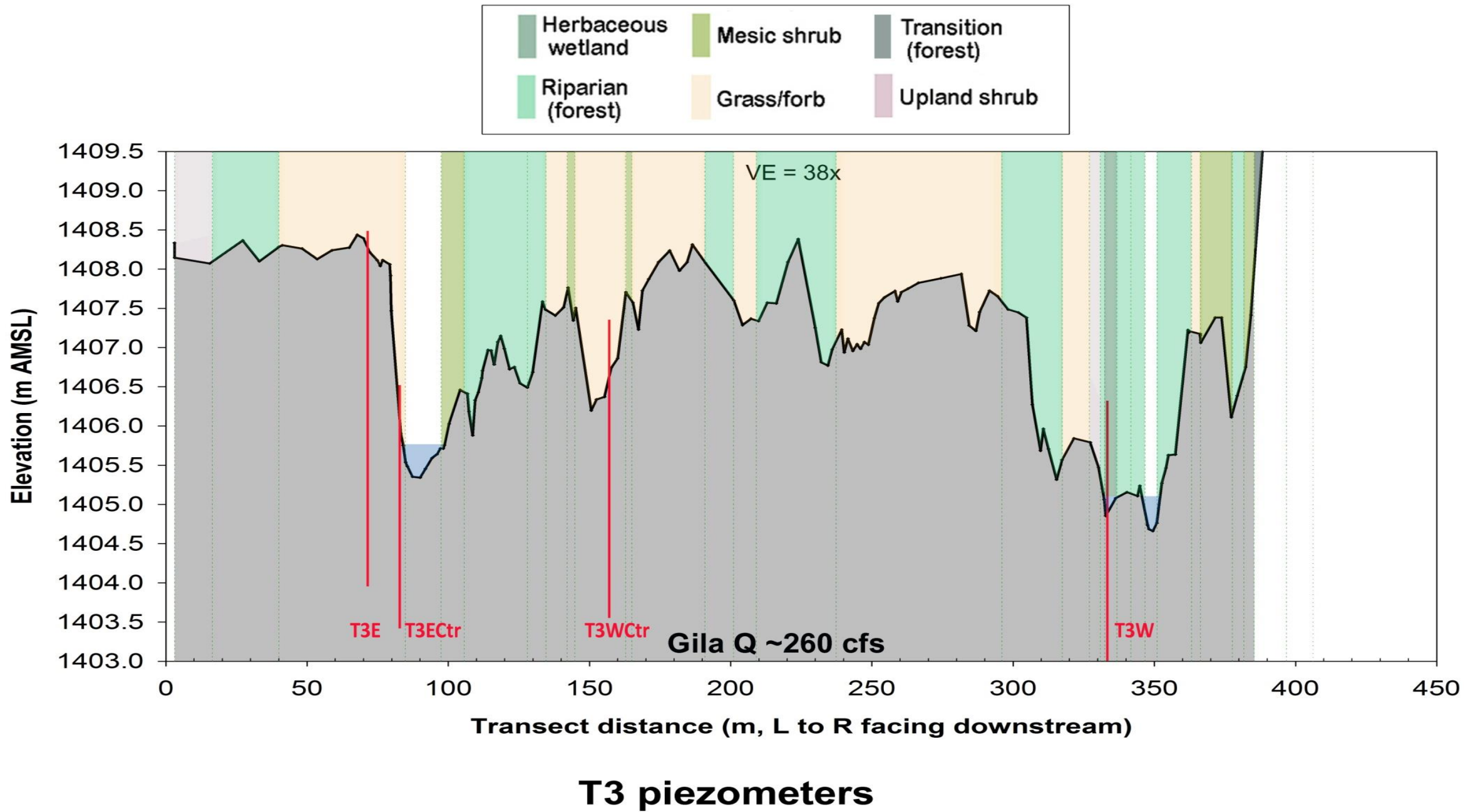
Gila River Preserve – Iron Bridge Conservation Tract

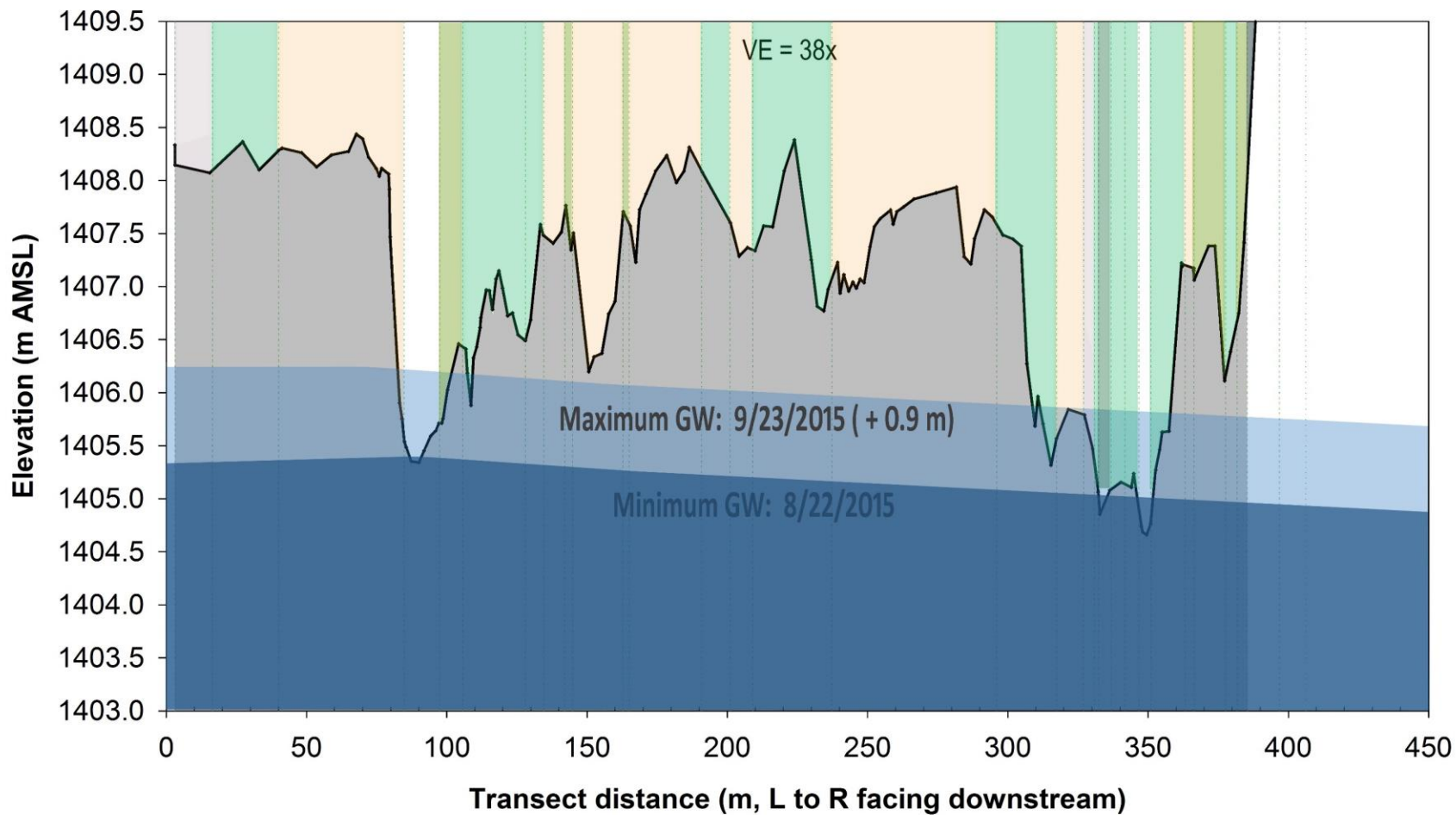
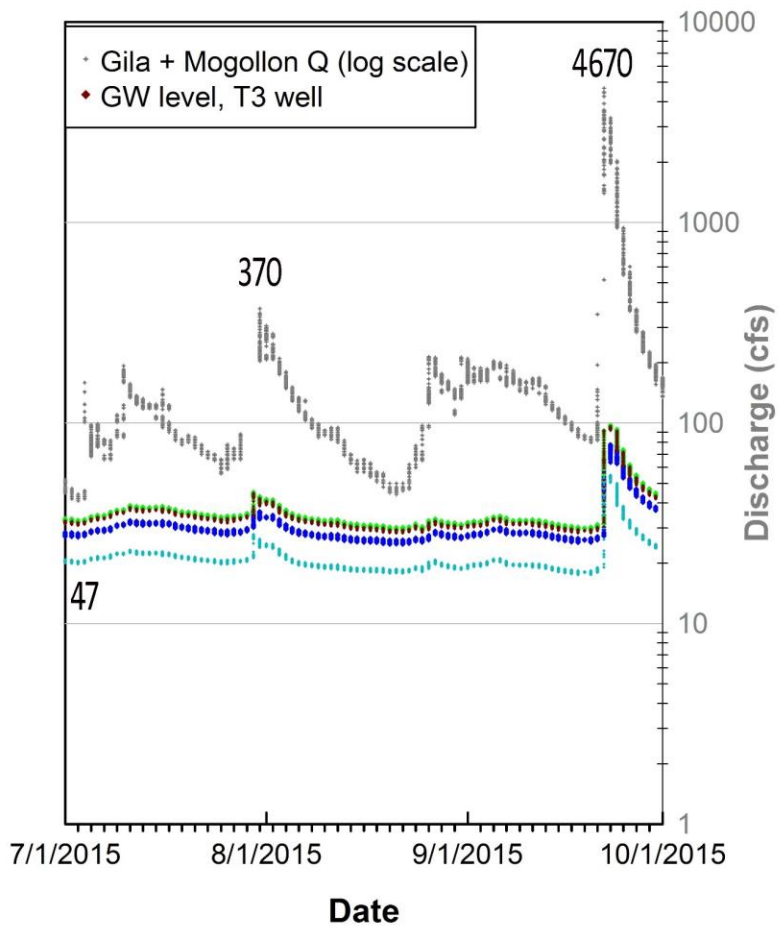


T3 topography

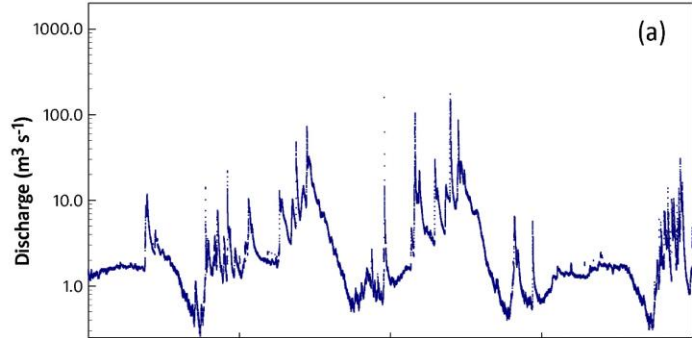
VE = 38x



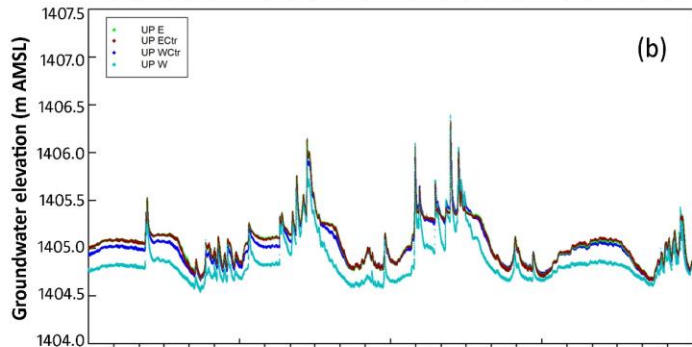




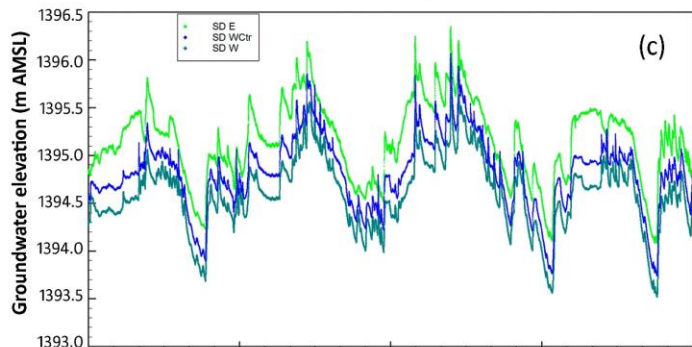
Discharge



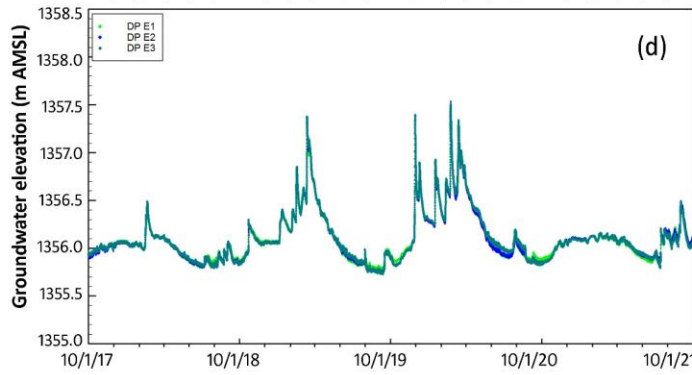
Groundwater (Upstream Perennial)



Groundwater (Seasonally Dewatered)



Groundwater (Downstream Perennial)



**Surface flows are mirrored
in groundwater levels –
highly connected**

Dynamic River Channel

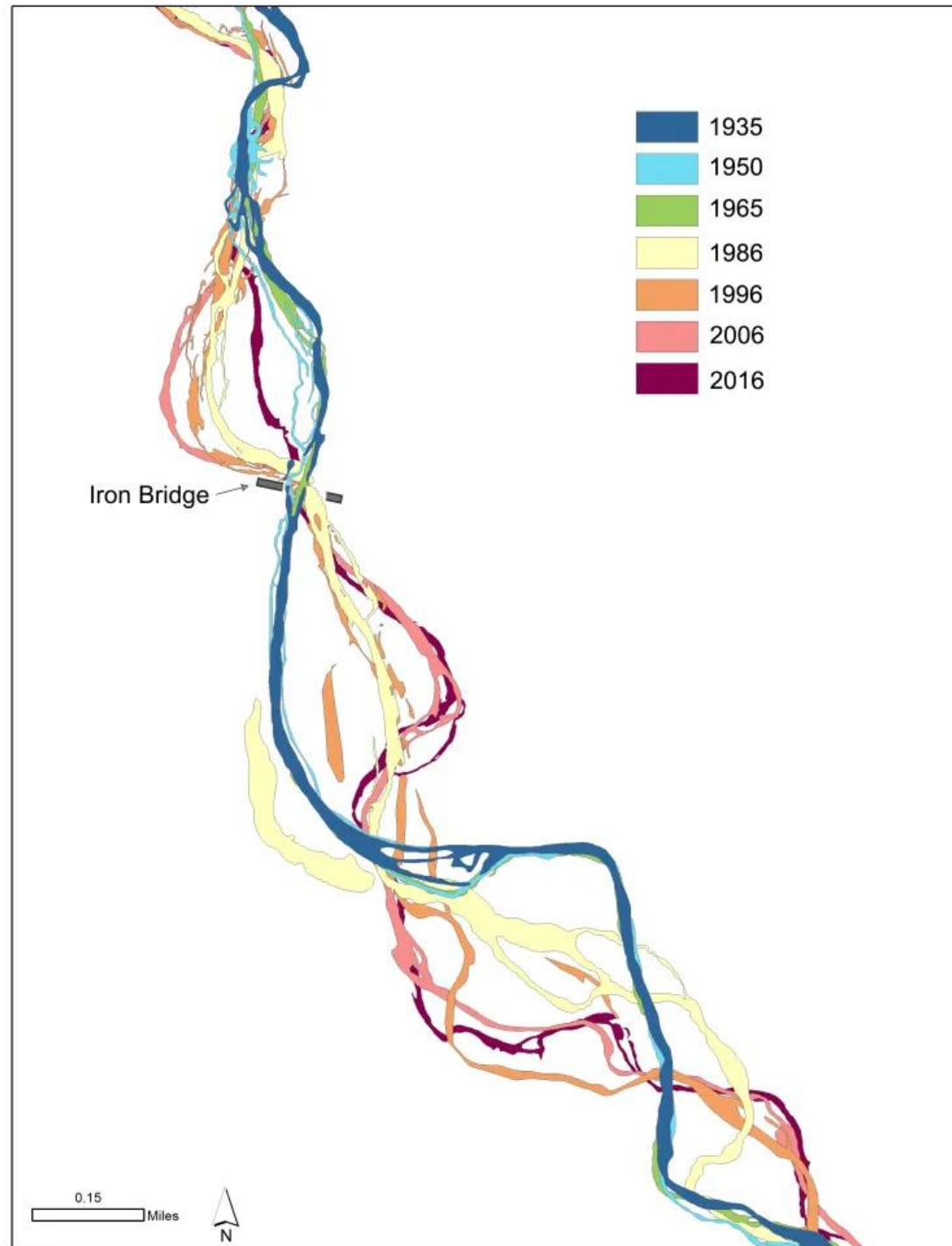


Image courtesy of Emma Brinley Buckley and Mary Harner.
University of Nebraska at Kearney.
<https://witnessingwatersheds.com/gila-river-dynamics/>
Map of the Gila River in the Cliff-Gila Valley.







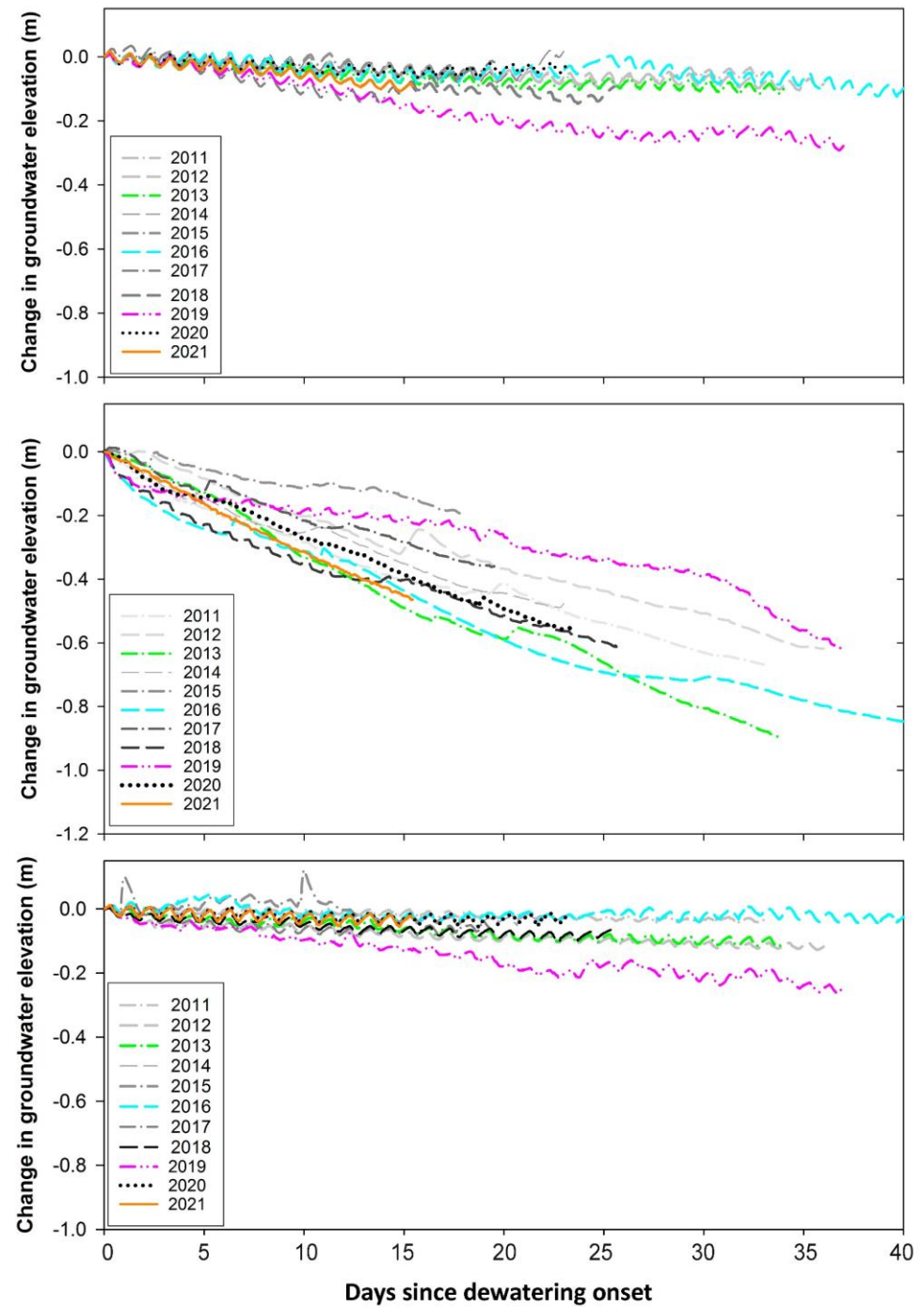
Seasonally Dewatered Reach

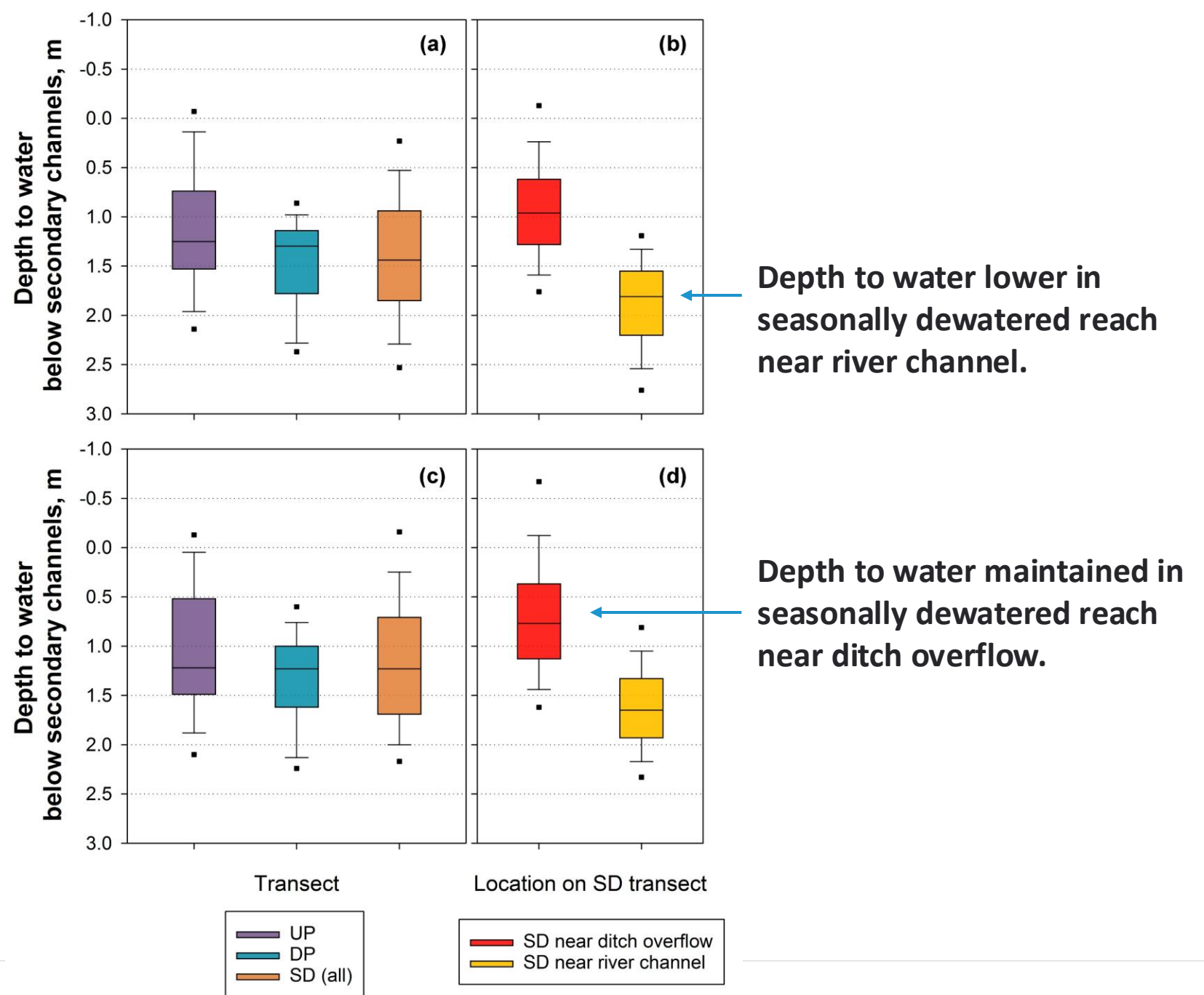


Above: Irrigated pasture in the Cliff-Gila Valley. © Martha Cooper
Right: Gila River at TNC's Gila River Farm downstream of irrigation diversions © Jean Marie Haney



**Groundwater declines greatest in
seasonally dewatered reach**





Conclusions

- 1) Secondary channels contribute to riparian vegetation distribution & lateral connectivity across the floodplain.
- 2) Surface water and groundwater is highly connected. Diversions and seasonal dewatering affect groundwater levels.
- 3) Supplementing small amounts of water can support the riparian ecosystem





The connected floodplain of the Gila River provides habitat, attenuates floods, recharges the alluvial aquifer and stores carbon.



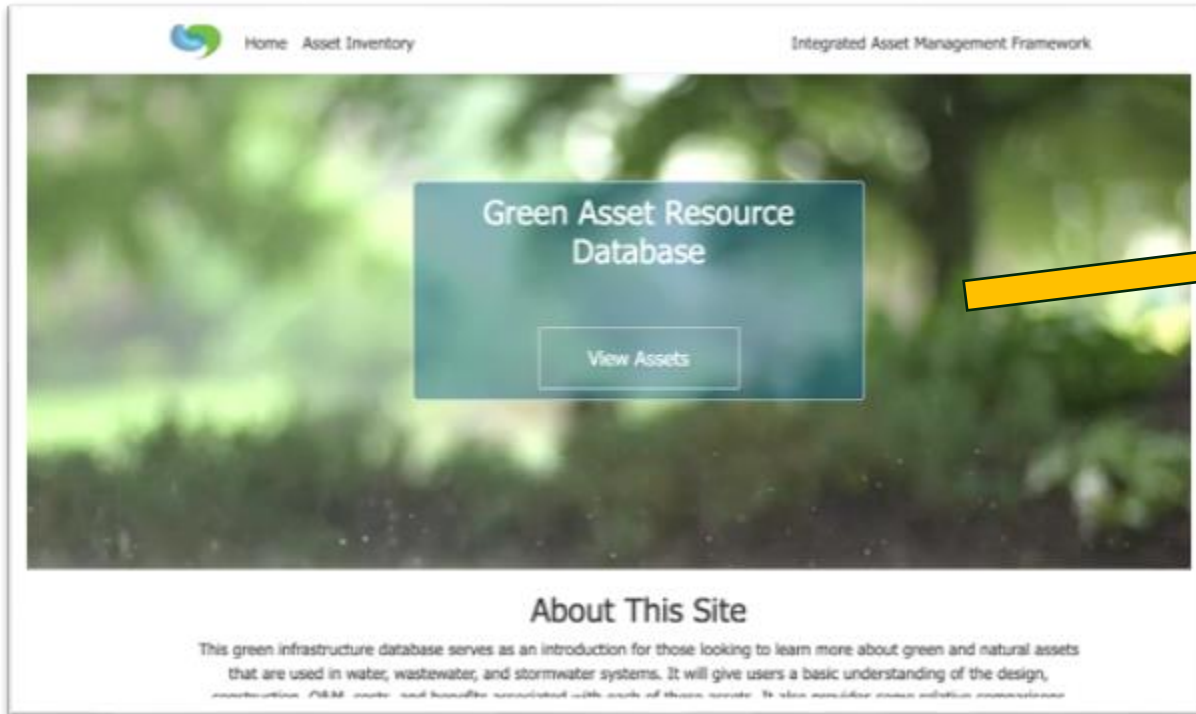
Thank you to Ellen Soles, lead author of the open-access paper in Hydrological Processes:
<https://onlinelibrary.wiley.com/doi/10.1002/hyp.70406>



Additional Resources



Integrated Asset Management Framework & Green Asset Resource Database



The screenshot shows the 'Green Asset Resource Database' interface. It includes a search bar, a table with columns for Name, Asset Type, Construction Rank, O&M Difficulty, and Action, and a list of assets with their respective images and details.

Name	Asset Type	Construction Rank	O&M Difficulty	Action
Bioswale Area	Enhanced	2	2	View
Blue Roof	Engineered	3	3	View
Constructed Wetlands	Natural	5	2	View
Curb and Gutter Elimination	Engineered	2	1	View
Downspout Disconnection	Engineered	1	N/A	View
Drainage Ditch or Channel	Enhanced	2	2	View

<https://swefcapps.unm.edu/gardb>

Other Webinars in the Green Infrastructure Series

EFCN'S QUARTERLY GREEN INFRASTRUCTURE WEBINAR SERIES
SESSION 1: GREEN INFRASTRUCTURE 101

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by Environmental Finance Center Network

Playlist • 7 videos • 103 views

This 10-part webinar series is focused on the financial, managerial, and technical aspects of green infrastr...[more](#)

Play all

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SESSION 1: GREEN INFRASTRUCTURE 101

1

Webinar | EFCN's Quarterly Green Infrastructure Webinar Series: Green Infrastructure 101

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1:02:47
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SESSION 2: EQUITABLE GREEN INFRASTRUCTURE IN A CHANGING CLIMATE

2

Webinar | Green Infrastructure Webinar Series: Equitable Green Infrastructure in a Changing Climate

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1:18:50
- EFCN'S QUARTERLY GREEN INFRASTRUCTURE WEBINAR SERIES**
SESSION 3: NAVIGATING THE GREEN INFRASTRUCTURE POLICY LANDSCAPE

3

Webinar | Green Infrastructure Webinar Series: Navigating the Green Infrastructure Policy Landscape

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1:16:26
- EFCN'S QUARTERLY GREEN INFRASTRUCTURE WEBINAR SERIES**
SESSION 4: ASSET MANAGEMENT FOR GREEN INFRASTRUCTURE

4

Webinar | Green Infrastructure Webinar Series: Asset Management for Green Infrastructure

Environmental Finance Center Network • 246 views • 1 year ago

1:17:53
- EFCN'S QUARTERLY GREEN INFRASTRUCTURE WEBINAR SERIES**
SESSION 5: FUNDING GREEN INFRASTRUCTURE

5

Green Infrastructure Webinar Series | Funding Green Infrastructure

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1:16:33

Link in chat, or search for the series on the Environmental Finance Center Youtube channel

Question & Answer Session



Please fill out the survey for this webinar!



Thanks for attending!

Final webinar in this series – Thank you for your continued support!

Dawn Nall

dnall@unm.edu



SOUTHWEST
ENVIRONMENTAL
FINANCE CENTER

