Restoring cultural and hydrologic connection to desert rivers – an integrated, community action-based approach

Catlow Shipek, Policy and Technical Director

Watershed Management Group

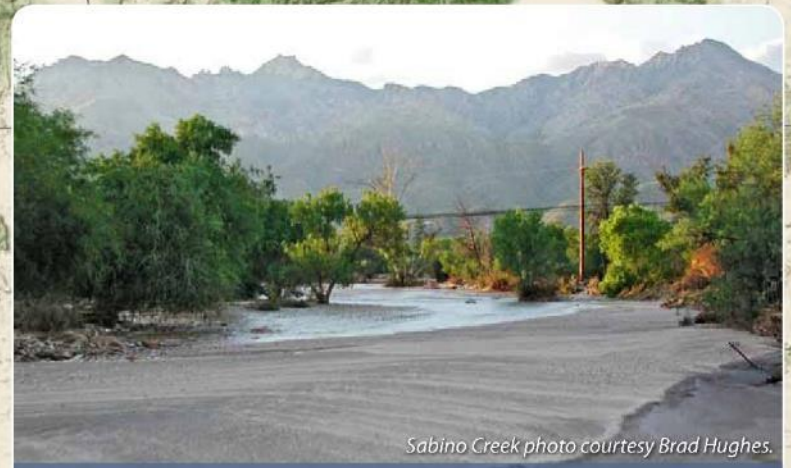
Tucson, Arizona

Watershed Management Group

From Sabino Creek to the Colorado River

Sabino Creek creates a vibrant ribbon of green in the desert foothills of the Santa Catalina Mountains, north of Tucson, before it flows into the Rillito River, which in turn feeds into the Santa Cruz River. As the Santa Cruz River flows north it feeds into the Gila River, which eventually joins with the mighty Colorado River, linking Tucson's watershed to the highest peaks in the Rockies and the coastal delta in Mexico.

We are uniting with a broader movement of community groups, agencies, businesses, policy makers, and residents to protect and enhance the Colorado River and its many tributary creeks and rivers.



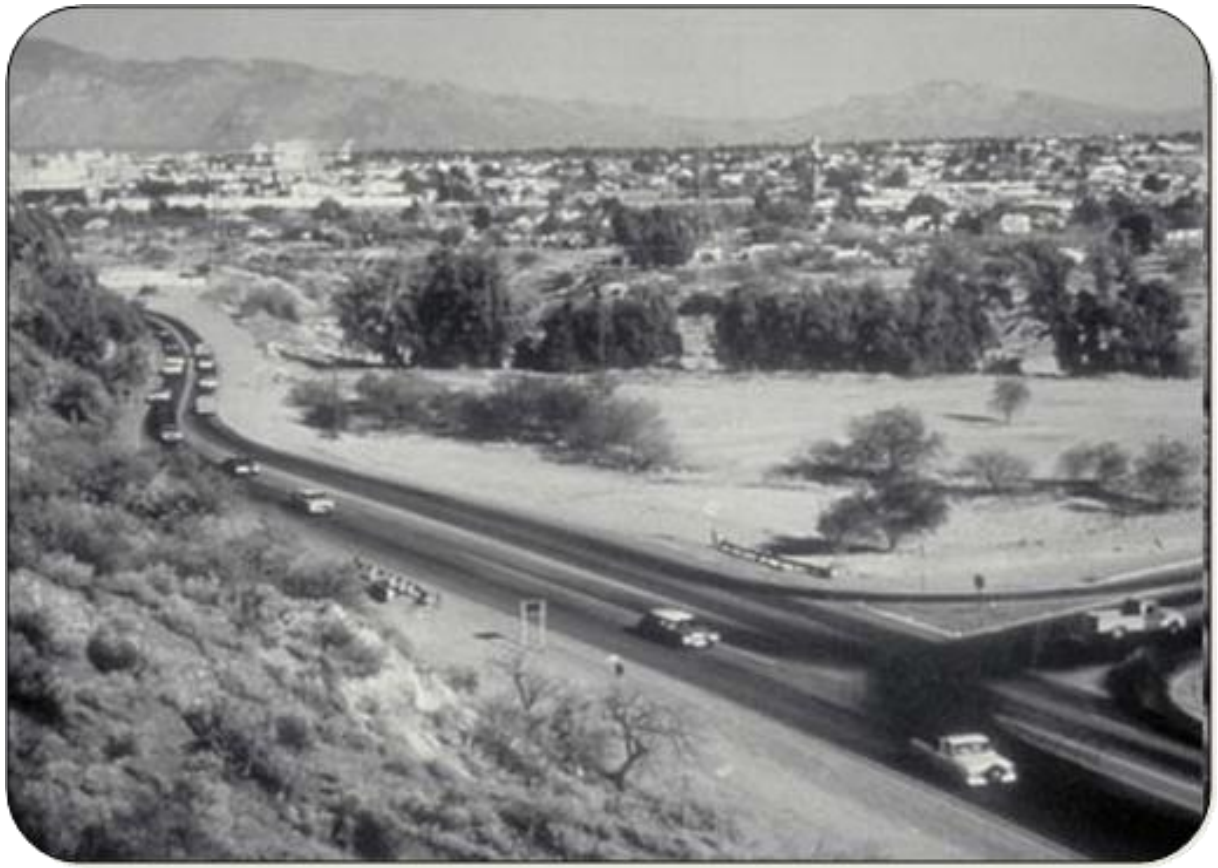
Sabino Creek photo courtesy Brad Hughes.

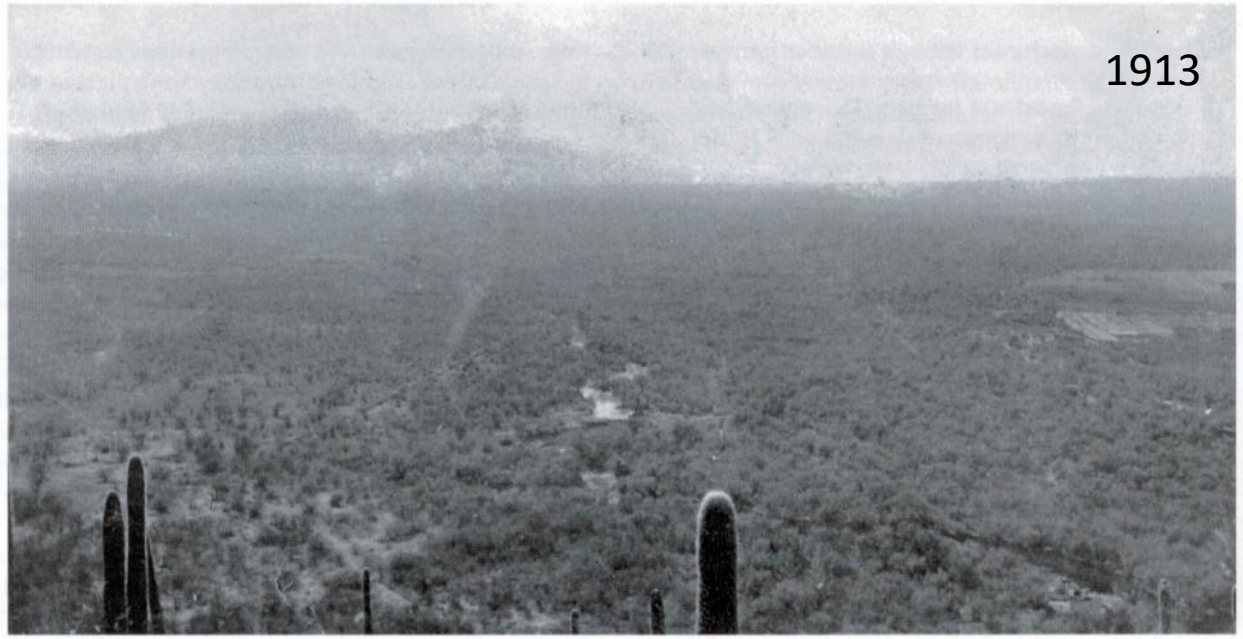
The Restore Sabino Creek Campaign will rejuvenate this small, but important, corner of the Colorado River watershed.

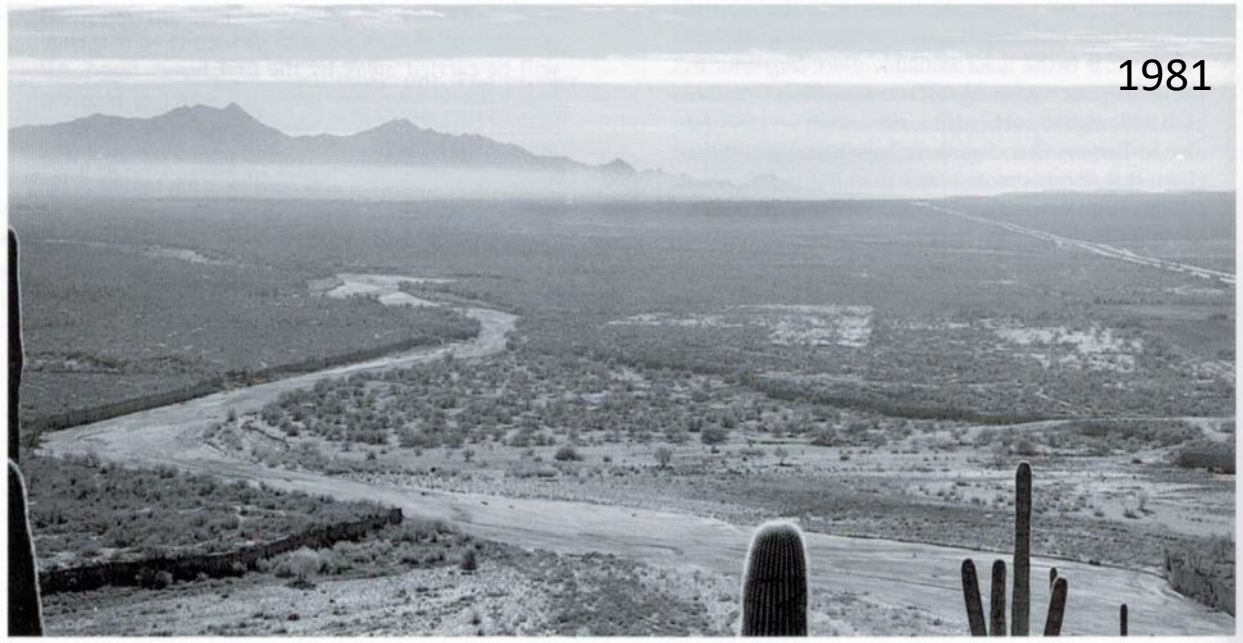
Denver
Rocky Mountains
Colorado River
Sierra Nevada Mountains
Las Vegas
Grand Canyon
Grand Canyon
Colorado River
San Gabriel Mountains
Los Angeles
Mazatzal Mountains
Salt River
Phoenix
Gila River
San Diego
Mexicali
Yuma
Gila River
Sierra Cucapa
Rillito River
Santa Cruz River
Santa Catalina Mountains
Tucson
Sabino Creek
Colorado River Delta
San Pedro River
Sierra Vista

Tucson, 1904. Santa Cruz River from “A” Mountain

Tucson, 1981. Santa Cruz River from “A” Mountain

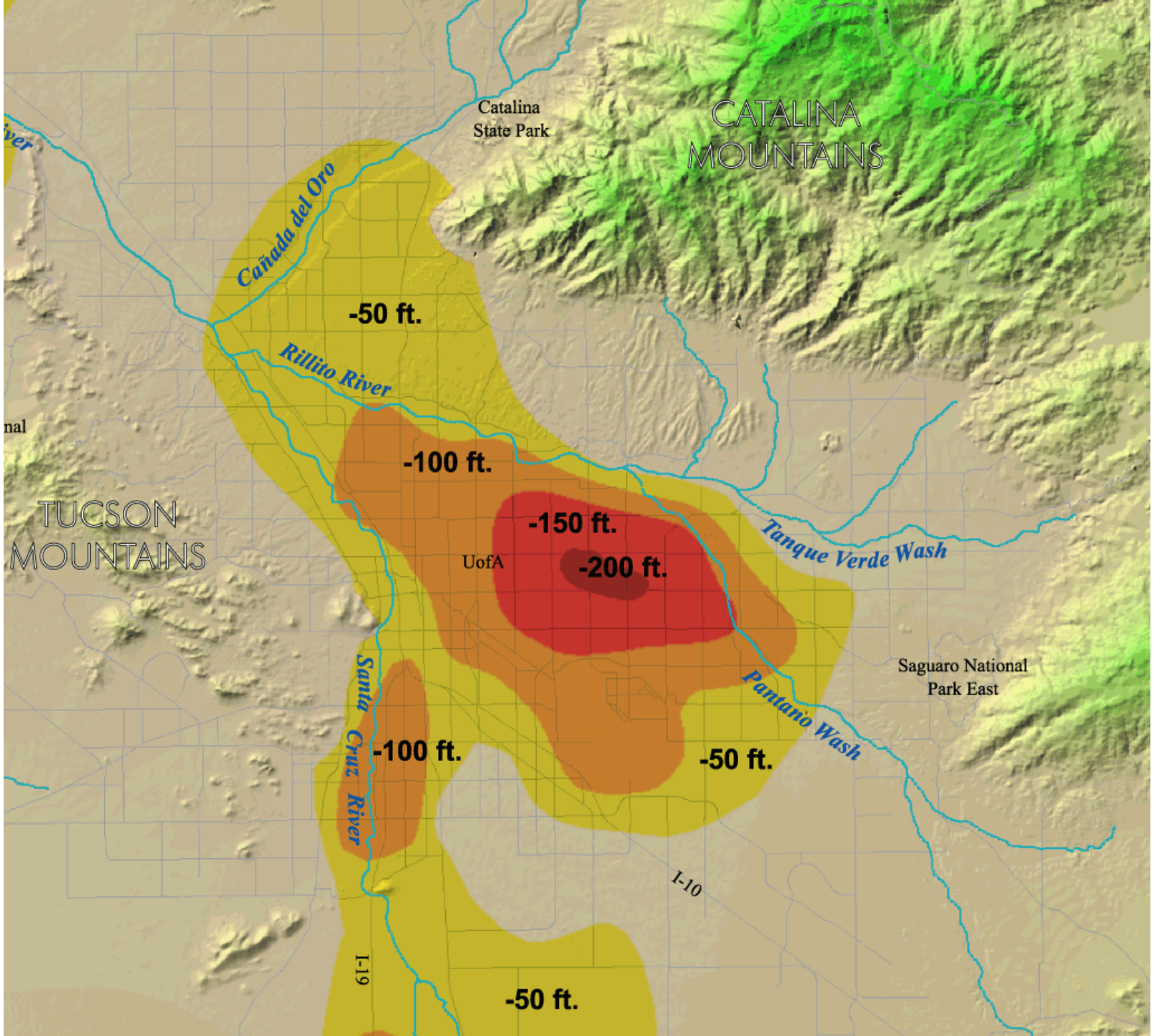






Source: Requiem for the Santa Cruz, 2014

Approximate decline in ground water levels 1940-1995



Watershed Management Group's 50 Year Program Goal:

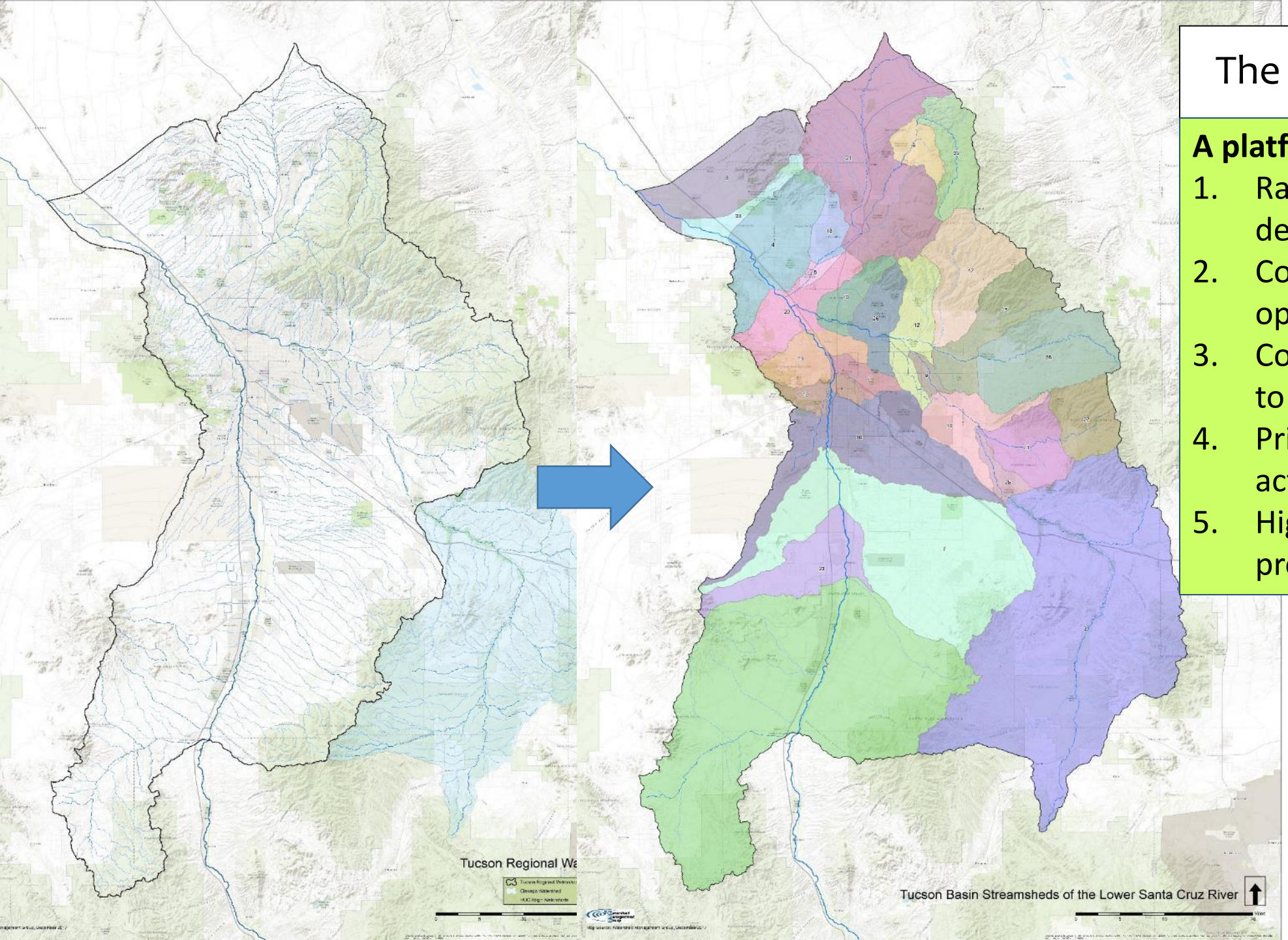
to restore the heritage of year-round, free flowing rivers in southern Arizona

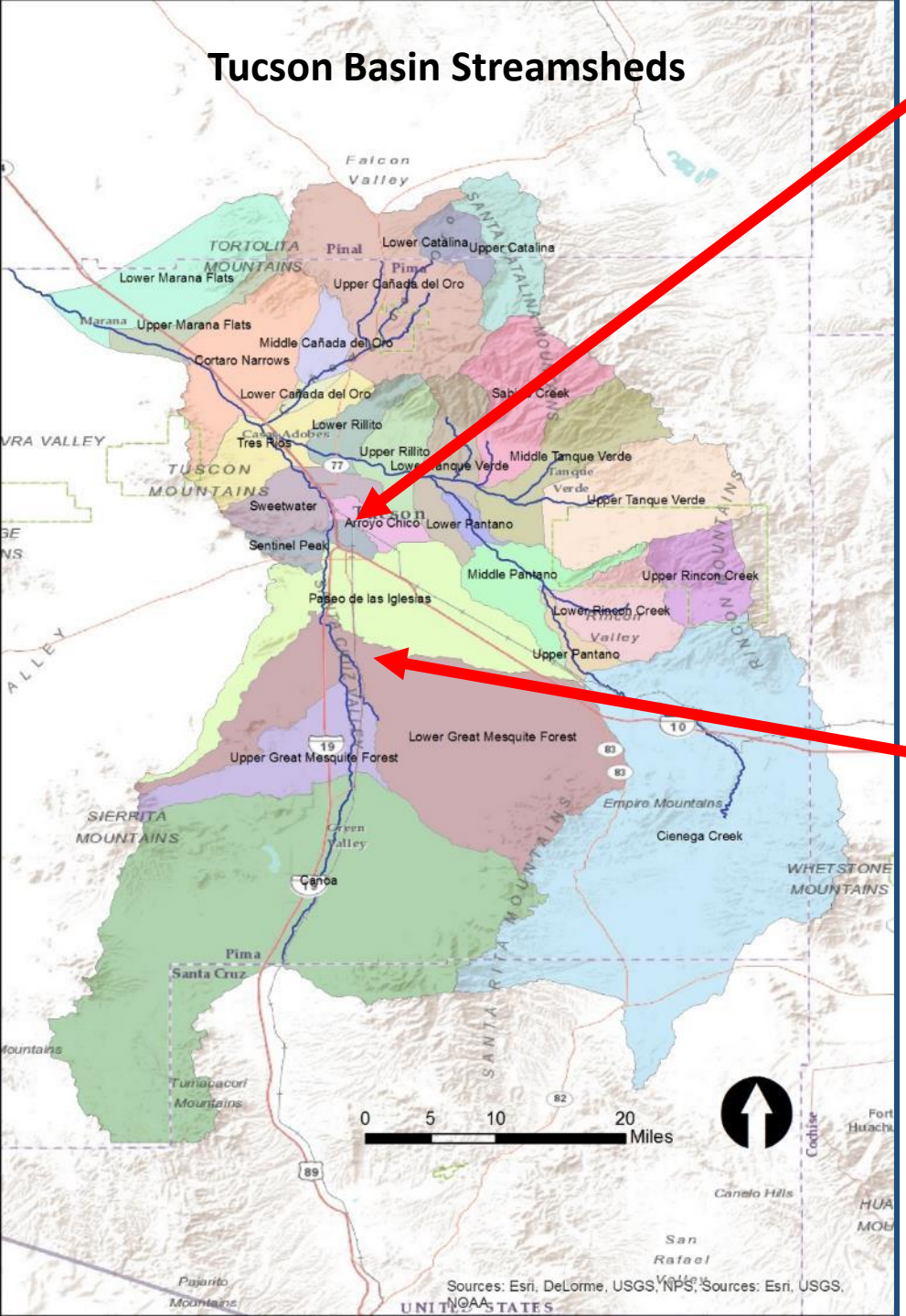
The River Run Network

A platform to:

1. Raise awareness and develop connections
2. Communicate restoration opportunities and goals
3. Connect individual actions to watershed health goals
4. Prioritize restoration actions
5. Highlight restoration progress

watershedmg.org/RRN





Sentinel Peak Streamshed

Restoration Priority: high

Historic Flow Condition: perennial

Threats: contamination (historic landfills), development, pumping

Opportunities: effluent (Tucson Water's reclaimed water proposed project), historic shallow groundwater area

Current Flow Status: ephemeral

<u>Flow Target Goal: perennial</u>

Groundwater Target: recover and maintain within 10 ft of channel surface

Natural Channel Recharge Rate: 600 to 850 ac-ft/mi

Groundwater Conservation Target: +2 to 3 ft

Lower Great Mesquite Forest Streamshed

Restoration Priority: high

Historic Flow Condition: perennial

Threats: development, pumping

Opportunities: groundwater levels, incidental recharge, restoration project

Current Flow Status: Ephemeral

<u>Flow Target Goal: intermittent wet</u>

Groundwater Target: recover to within 20 ft of channel surface

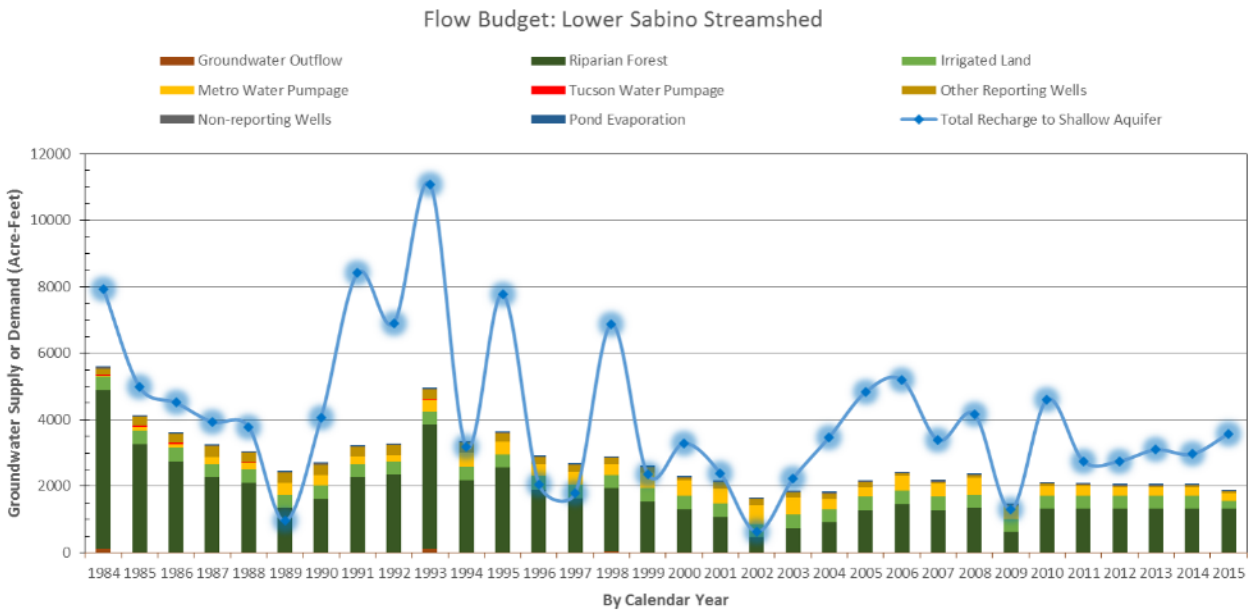
Natural Channel Recharge Rate: 200 to 400 ac-ft per mile

Groundwater Conservation Target: +1 to 2 ft/yr

Establishing Targets Based on Flow Budgets

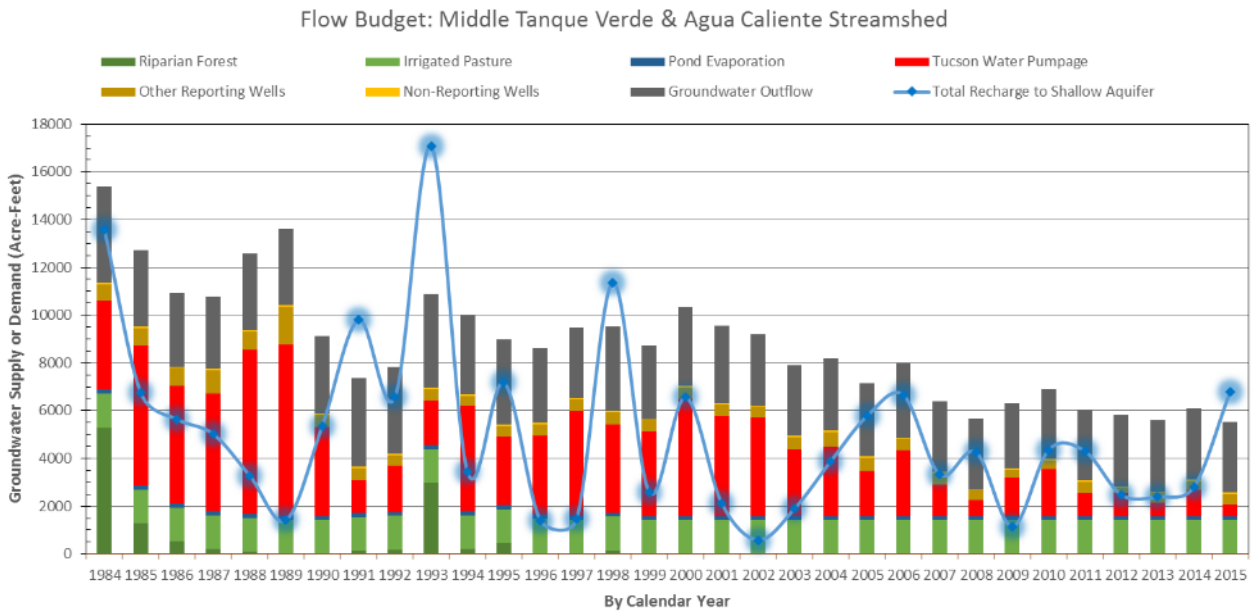
Lower Sabino Creek Streamshed

- Reduce demand by 10% (56 AF)
- Enhance recharge by 10% (300 AF)

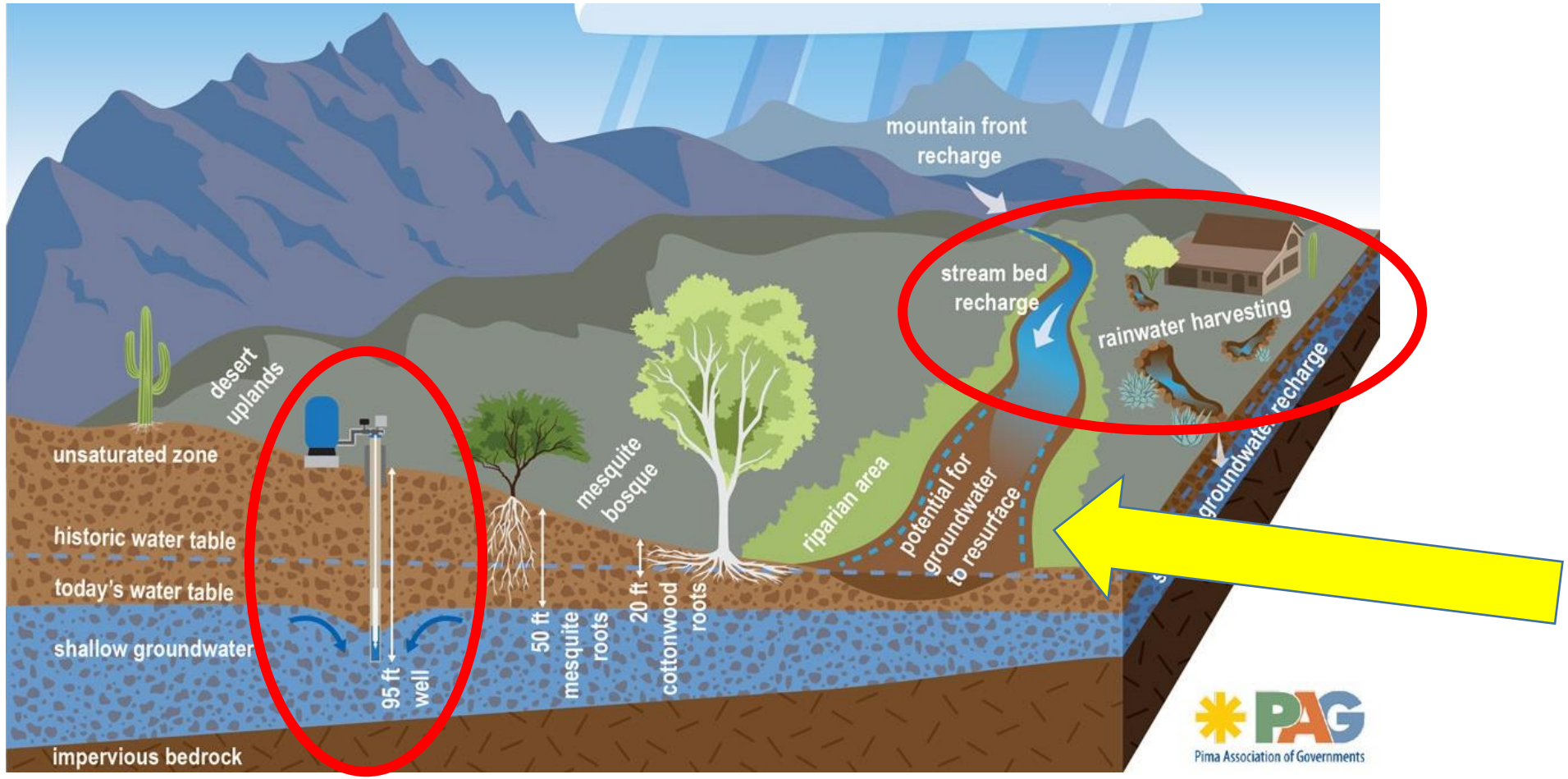


Middle Tanque Verde Creek Streamshed

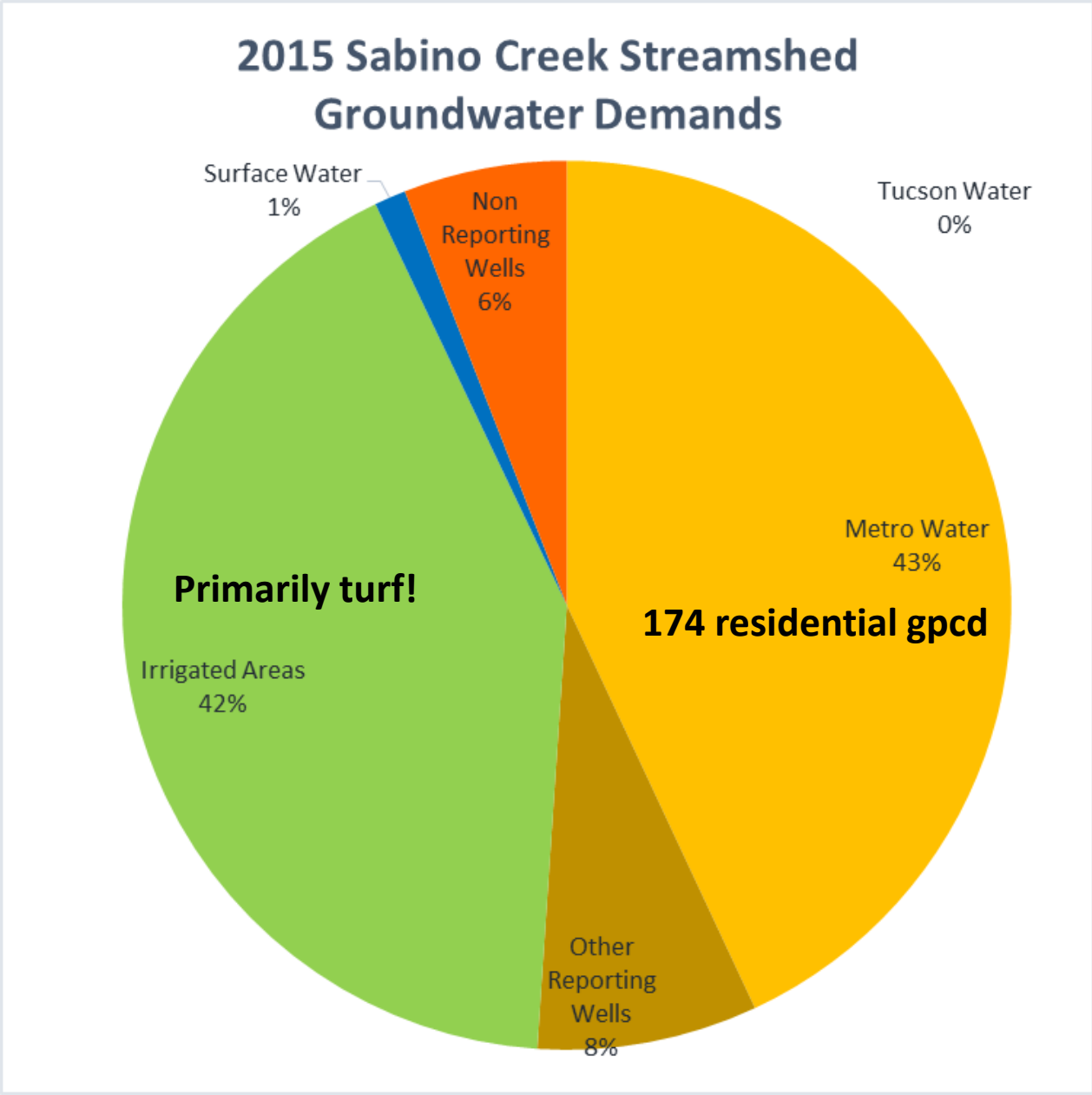
- Reduce demand by 20% (500 AF)
- Enhance recharge by 20% (1000 AF)

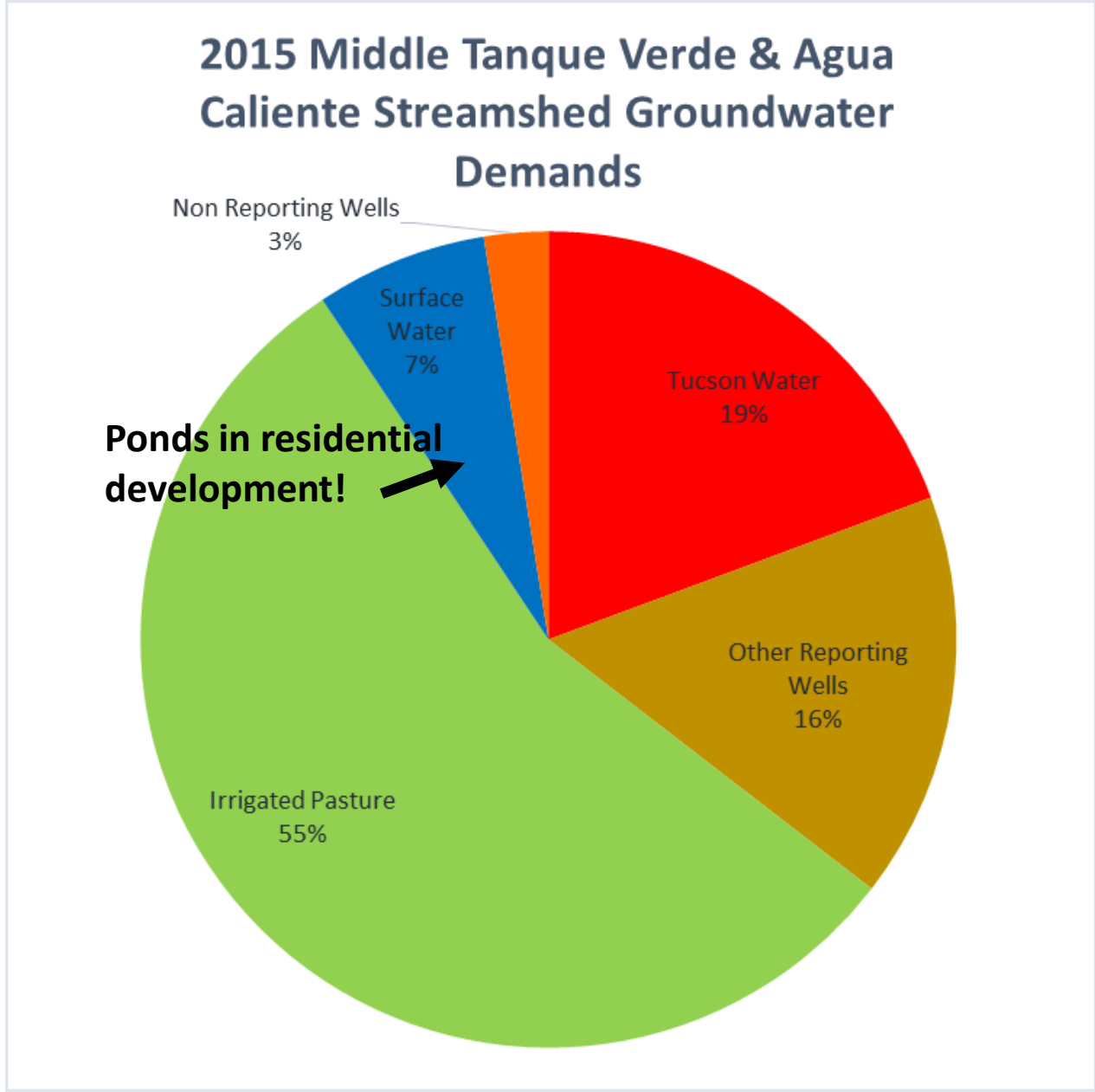


Opportunities:
1) Enhance Groundwater Supplies
2) Reducing Groundwater Demands

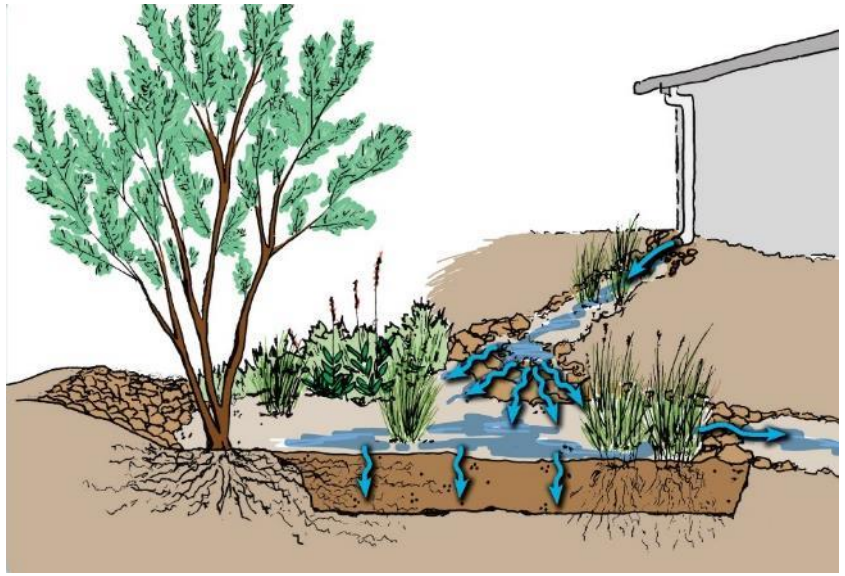


Groundwater Demands = Conservation Opportunity





@ Residences



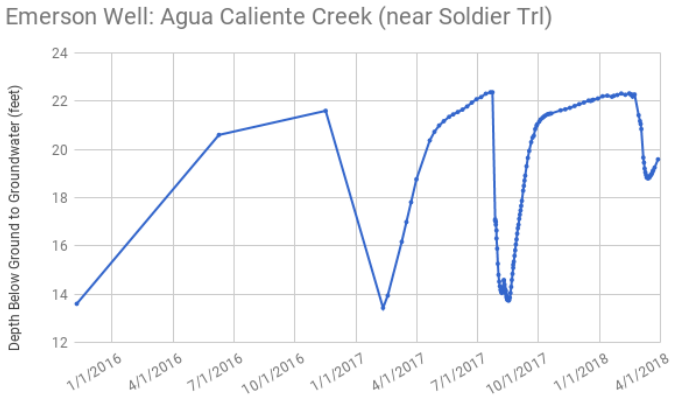
Supply Opportunities:
Enhance infiltration & recharge

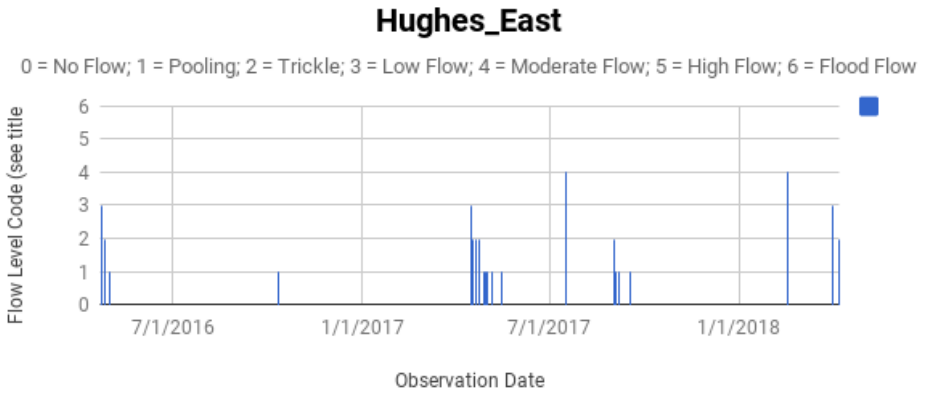
Along Upland Arroyos

And Across Floodplains

FLOW 365 – Citizen Science Monitoring Team

watershedmg.org/Flow365



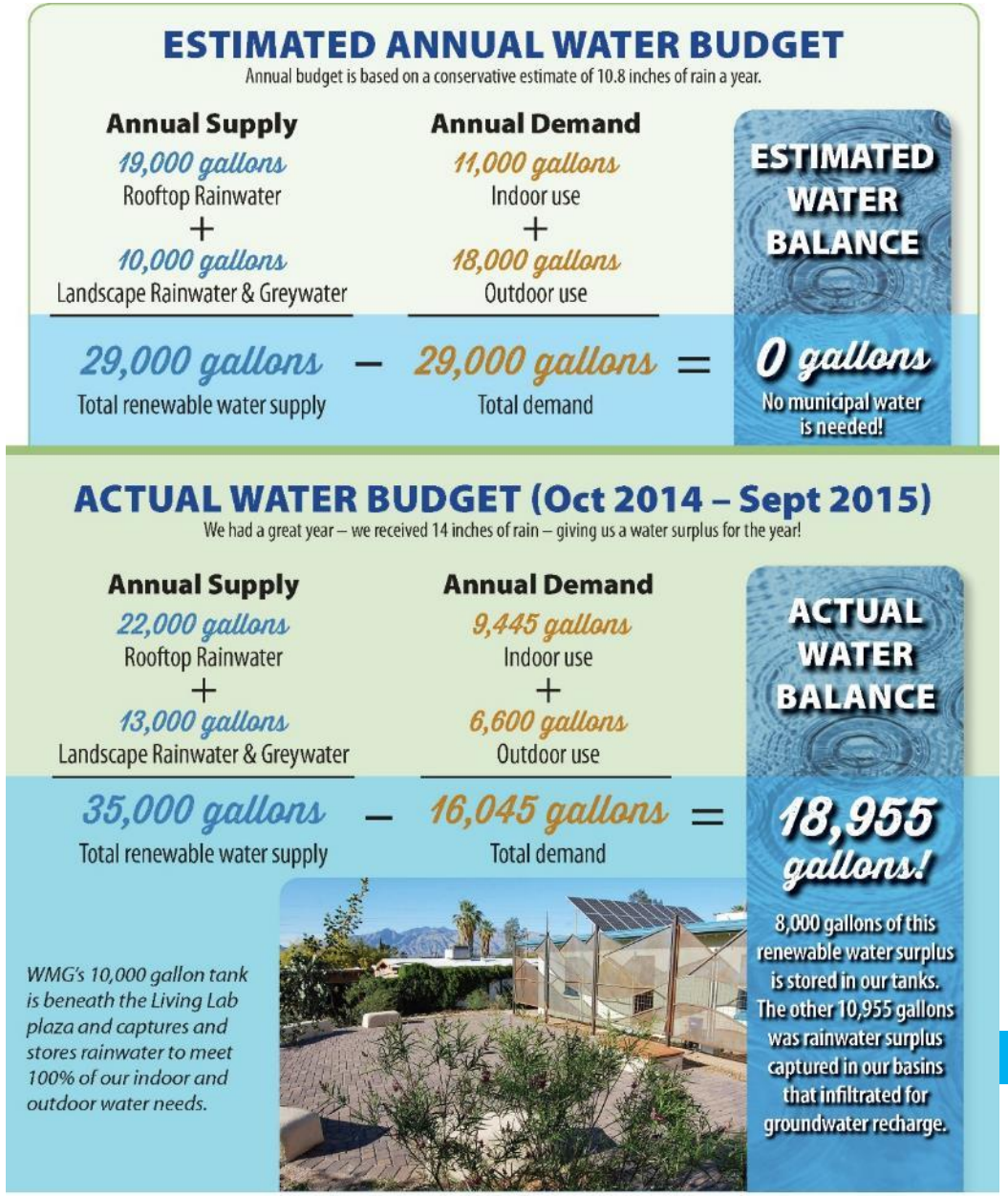


Developing a **Watershed Collaborative** with local, state, and federal government agencies, NGOs, Native Nations, agriculture, mining, and more…

Building community connections from the lot to the creek

City Council Ward Office Green Infrastructure Demonstration Projects

WMG's Living Lab and Learning Center!



WMG's Living Lab: **0 gallons** of Tucson Water used

With: veggie garden, fruit trees, native trees + landscape, 18 full time staff, weekly classes and tours, and special events

Demonstrating Net Water Positive!

Home-based water harvesting projects & home-scape tours tied into river restoration

Creek Walks – developing connections and highlighting local gems

Engaging schools – breaking out of the classroom

Fast Pitch: The power of developing your personal story

Drunk History of the Santa Cruz River

Annual ‘Flow & Feast’ Creek Pop Up Party

Through community-based stewardship we are working to achieve:

- **Collaborative watershed governance for the Tucson Basin**
- **Integrated One Water management**
  - **Dedicate funding for green infrastructure solutions and maintenance**
  - **Ensure water equity for underserved communities**
  - **Keep treated effluent benefiting rivers by shifting recharge credits**
  - **Shift towards local, sustainable, and renewable water supplies (*to be hydro-regional*)**
- **Dedicate adequate resources for environmental flows**

It takes a community to restore watersheds.
Many thanks to our donors, funders, advisory members, and volunteers!

Watershed Management Group