

“Nature always wears the colors of the spirit” —EMERSON



Statewide Water Advisory Group

June 16, 2006



Our Mission

To preserve plants, animals,
and natural communities that
that represent the **diversity**
diversity of life on Earth
by protecting the lands and
waters they
need to survive.



Our History

- 40 years in Arizona
- Patagonia preserve: 1st- protect Sonoita Creek
- First in-stream flow water right application
- First voluntary land protection agreement
- Four decades of involvement in Arizona water issues



Water Is Critical To All



Tomato
95% water



Cow
74% water



Person
65% water



Freshwater Sources

Only 3% of
world's
water is
freshwater



Freshwater Sources

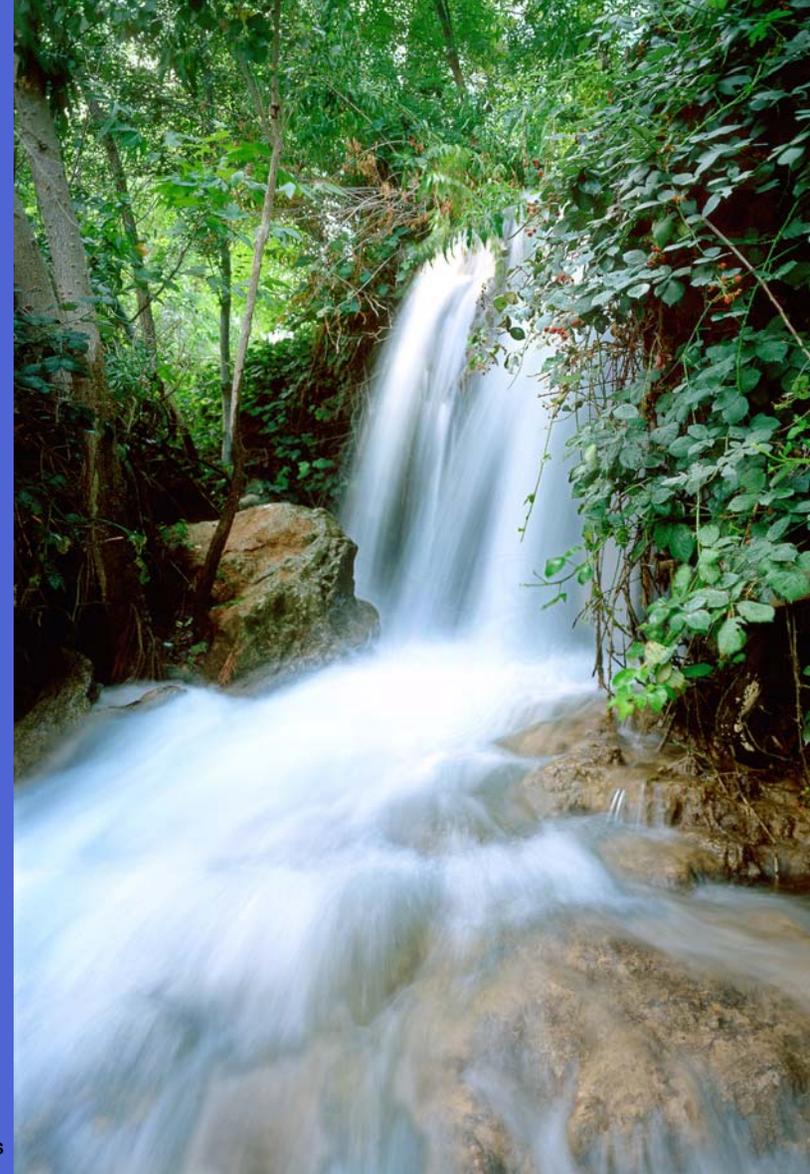


Most
resides
in ice
sheets



Freshwater Sources

Only 0.036%
resides in rivers,
lakes, reservoirs





Nature's Highways

River corridors serve as nature's highways, hotels, drinking fountains, restaurants, and homes.

Millions of migratory birds depend on them as they journey through our arid lands.





Arizona's Great Rivers

85% of the animals in Arizona depend on riparian systems at some point in their life cycles.





Watersheds Working 24-7

Watersheds perform critical functions

- capture water
- infiltration system
- water purification
- climate control
- erosion control





Arizona's Great Rivers

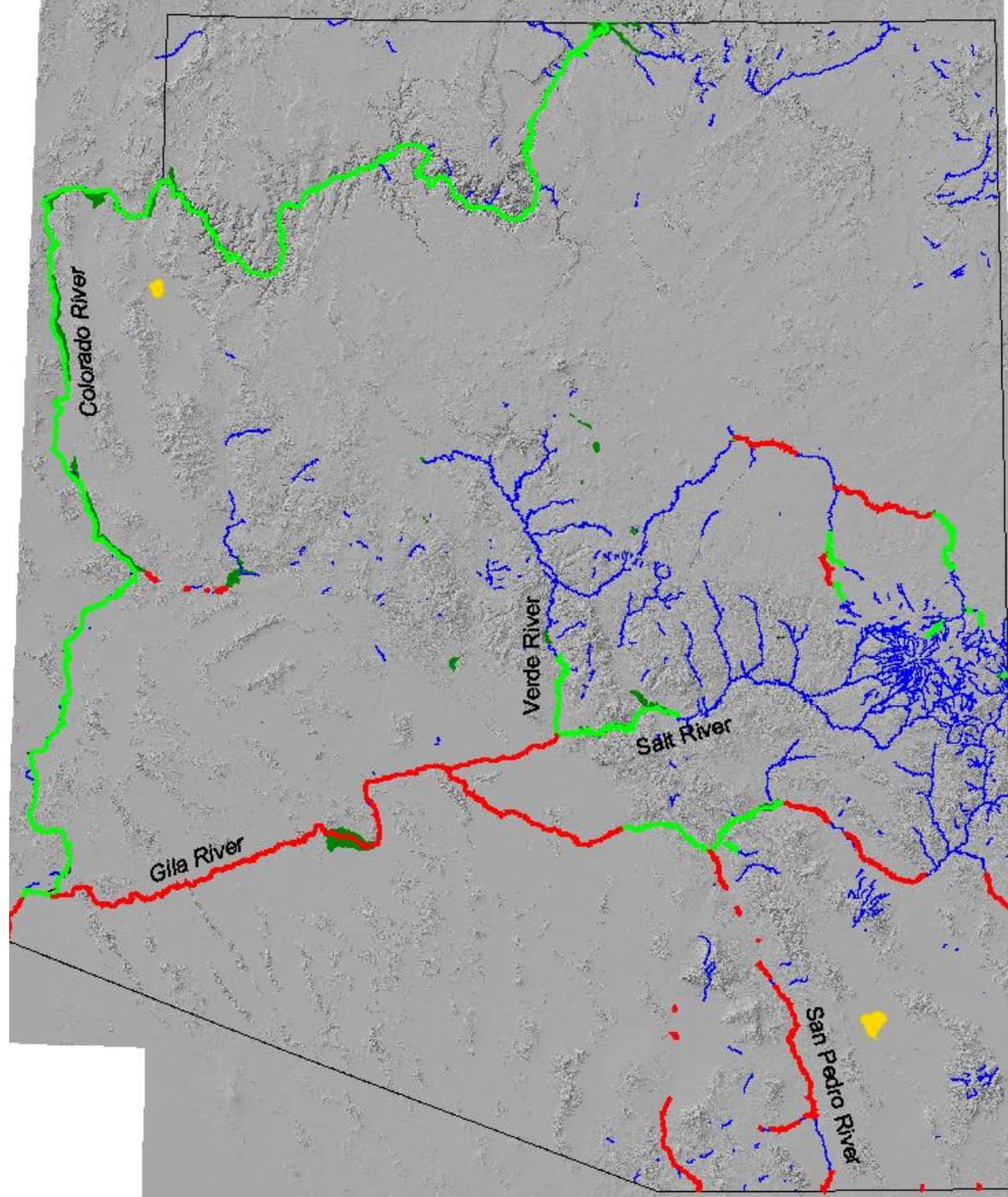
- Colorado
- Gila
- Hassayampa
- Little Colorado
- Salt
- San Pedro
- Santa Cruz
- Verde



Loss of Natural Flow in Arizona's Streams

Flow Status

-  Perennial
-  Formerly Perennial
-  Regulated



Modified from Brown, Carmony,
and Turner, 1981

Arizona Native Fish & Groundwater Basins

Number of Native Fish Species Present

— 0 or no data

— 1 - 2

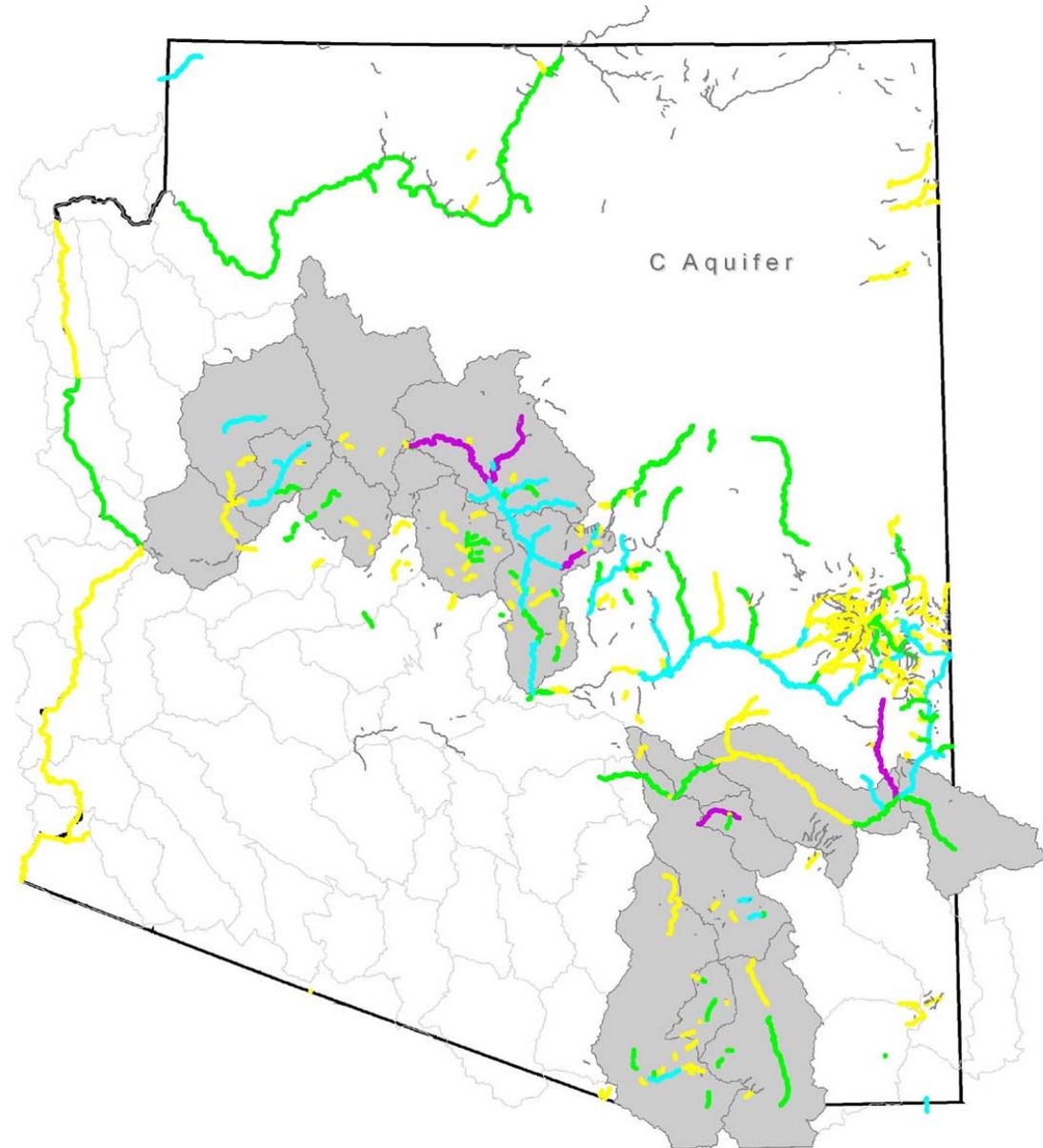
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— 7 - 9

■ Basins with Groundwater-Surface Water Connection

□ Other Basins Studied



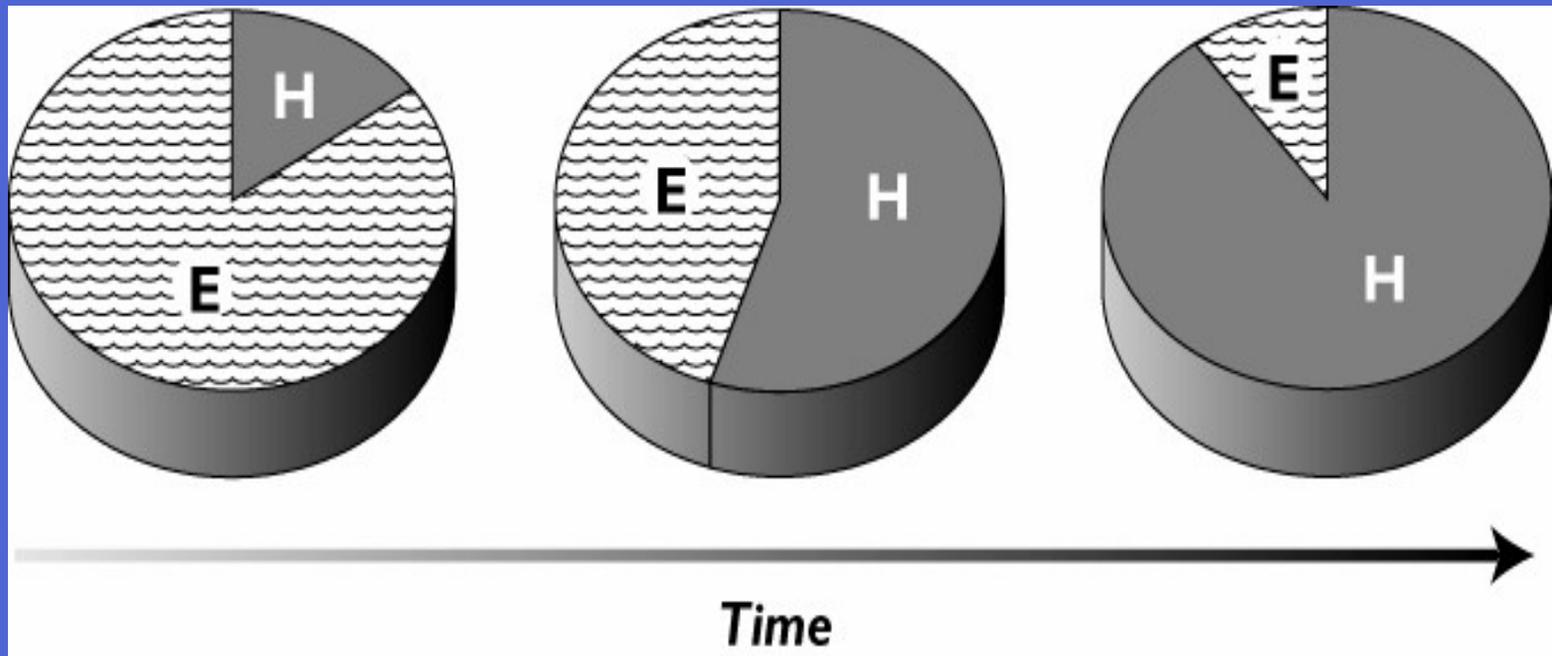
Water Resource Goal

Ensure freshwater sources are secure and sustainable to support our growing population and rich diversity of life that depends on our rivers and wetlands.



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Traditional Approach to Water Management



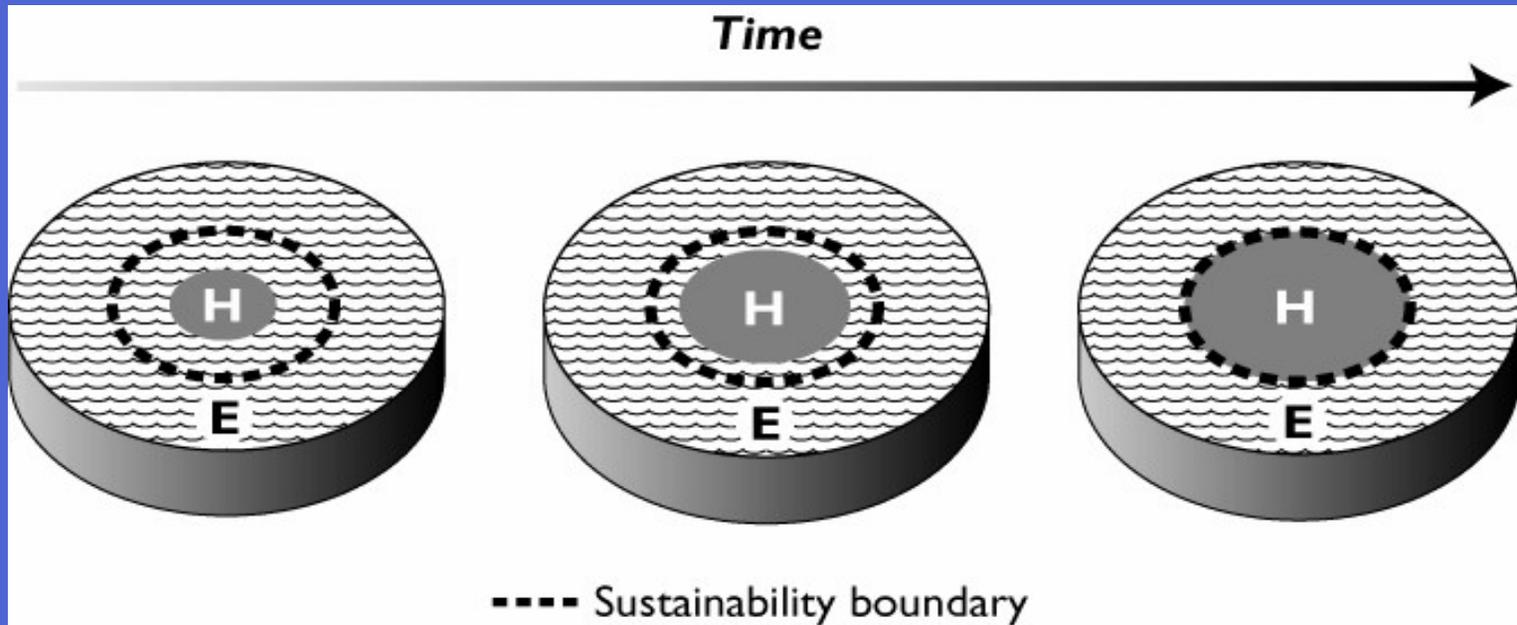
E = ecosystem support

H = human use



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A Sustainable Approach to Water Management



E = ecosystem support

H = human use



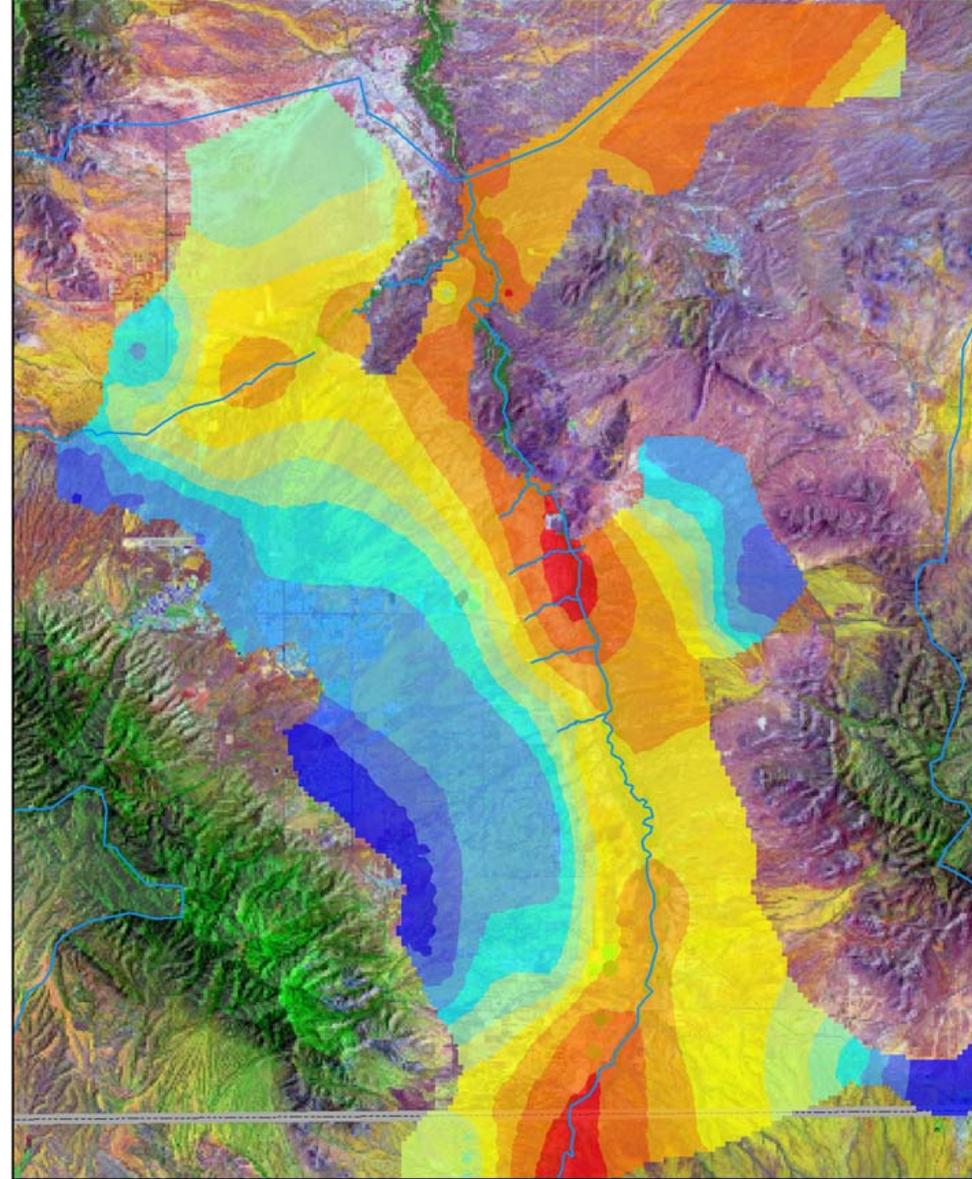
What actions have been taken?

San Pedro River- Case Study

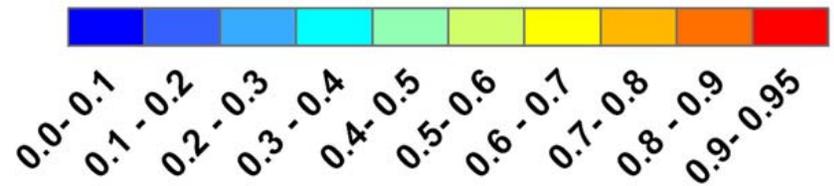
- Science- assist decision-makers
 - Hydrologically sensitive areas mapping/modeling
- Watershed restoration
- Water protection
 - In-stream flow water rights
 - Retirement of consumptive water uses in subflow zone
 - Riparian restoration
- Land acquisition/protection
 - State Trust Land reform
 - Voluntary land protection agreements

Upper San Pedro River

Capture of Ground Water Discharge at 50 Years



Fraction of Withdrawal Rate





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Watershed Restoration

Muleshoe Ranch



© The Nature Conservancy

➤ Restoring grassland

➤ Improving stream flow



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In-stream Water Rights



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Aravaipa Canyon Preserve



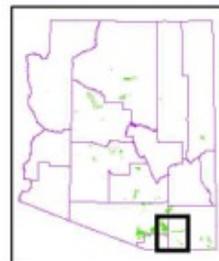
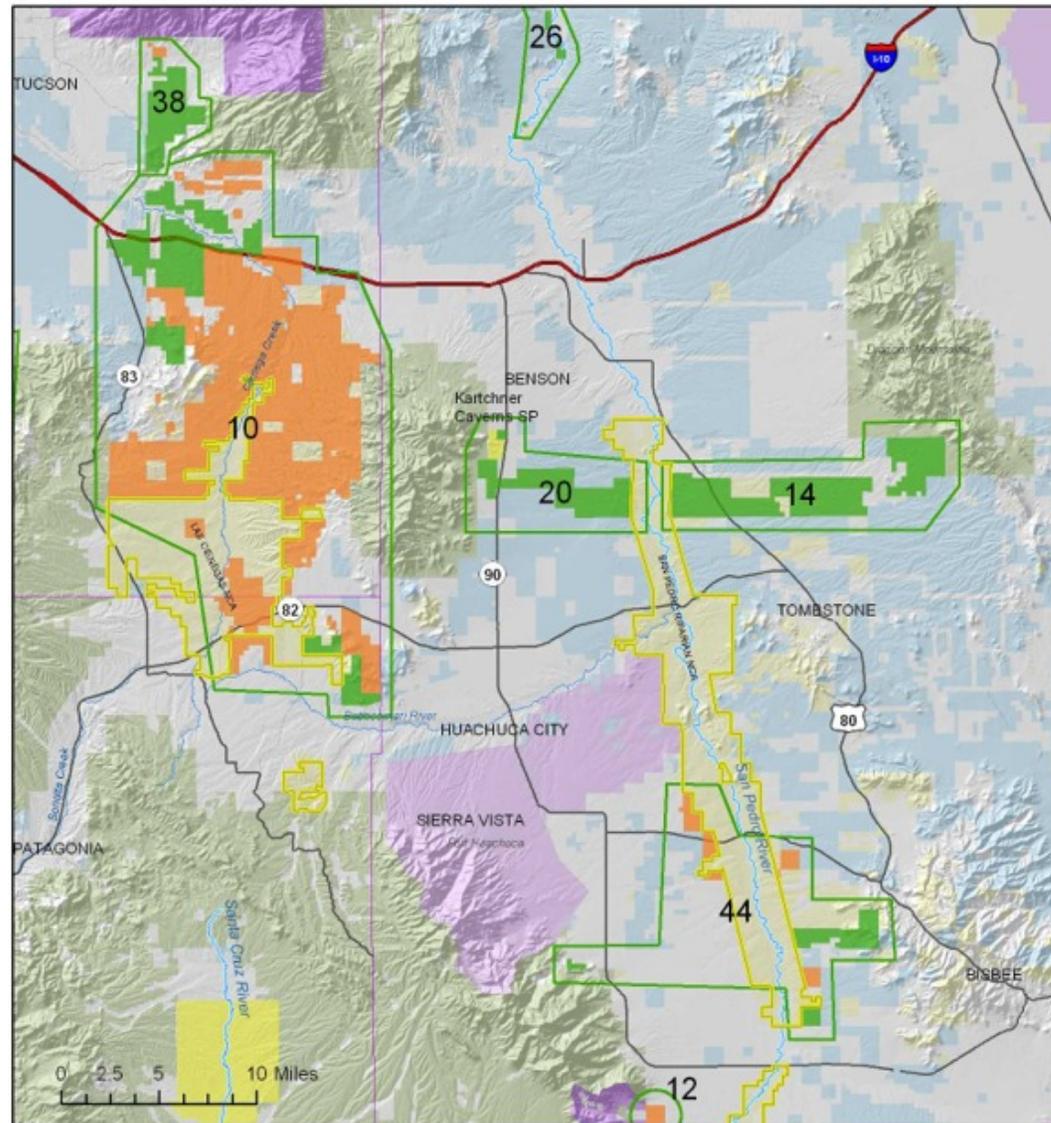
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Retire Consumptive Use in Recharge Zone

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State Trust Land



Surface Mgmt.

- BLM
- Bureau of Reclamation
- National Forest
- Game and Fish
- Indian Res.
- Local or State Parks
- Military
- National Park/Monument
- Private
- State Trust
- Fish and Wildlife

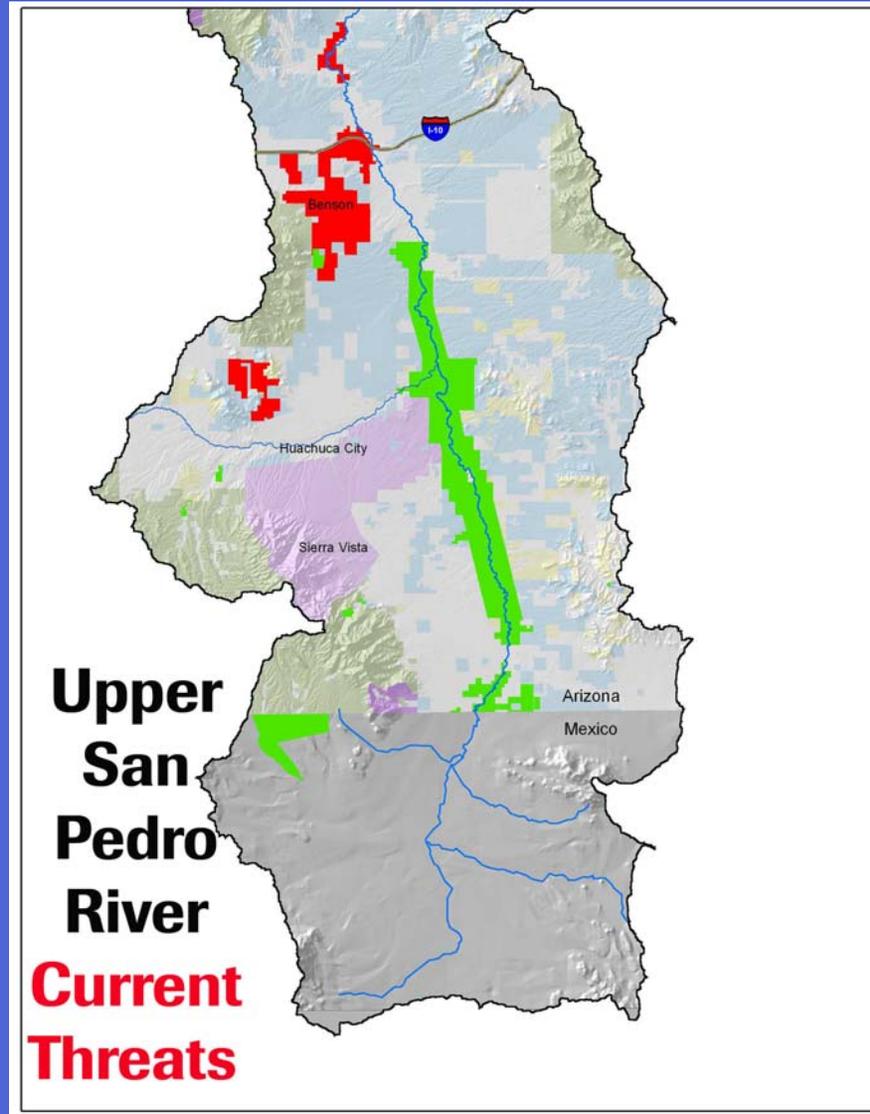
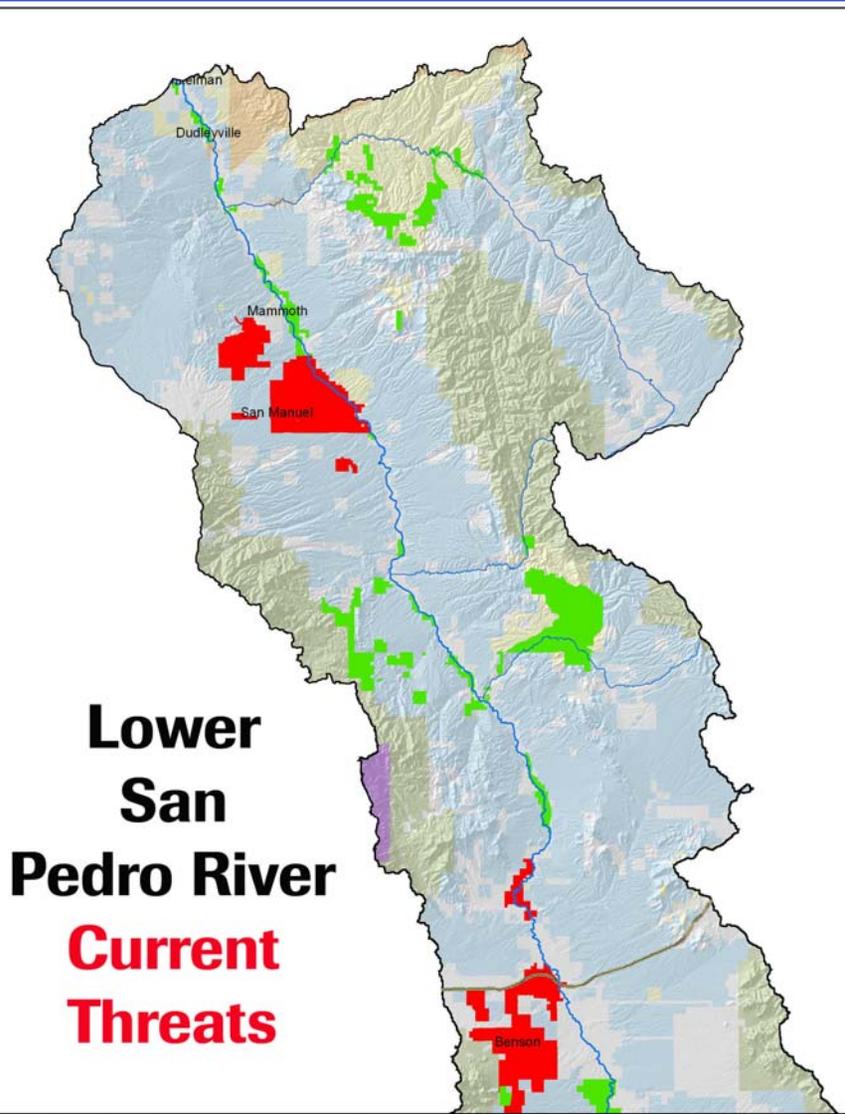
Conserving Arizona's Future Upper San Pedro River and Cienega Creek Pima, Cochise and Santa Cruz Counties

Proposed Conservation Status

- Educational Reserve
- Permanent Reserve
- Provisional Reserve
- Conservation Sites [Click on Site for description](#)



Restoring Entire Rivers





Water Resource Challenges



- Legal divide between groundwater and surface water threatens rivers
- Lack of information on water supplies and use
- Inability to manage growth with respect to available water supplies
- Lack of protection of surface water and rural aquifers
- Lack of incentives to view whole rivers/watersheds



What can local water providers do?

- Participate in regional water management forum
- Create local ordinances to manage and monitor water use for sustainable groundwater use
- Support the creation of incentives paired with regulations to manage water use
- Protect natural recharge areas



Beyond the local providers...

- Address legal impediments
 - Create regional water management districts
 - Connection between groundwater & surface water
 - Management of exempt wells
 - Control wildcat subdivisions & lot splits
- Tie water infrastructure funding to sustainable water use
- Manage whole river systems
- Complete water rights adjudication



Conclusions

- Need for good science
- Protect our natural sources of water
- Incentives and regulations to ensure long term viability of rivers and the communities that live along them
- Equity for all groundwater users





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