

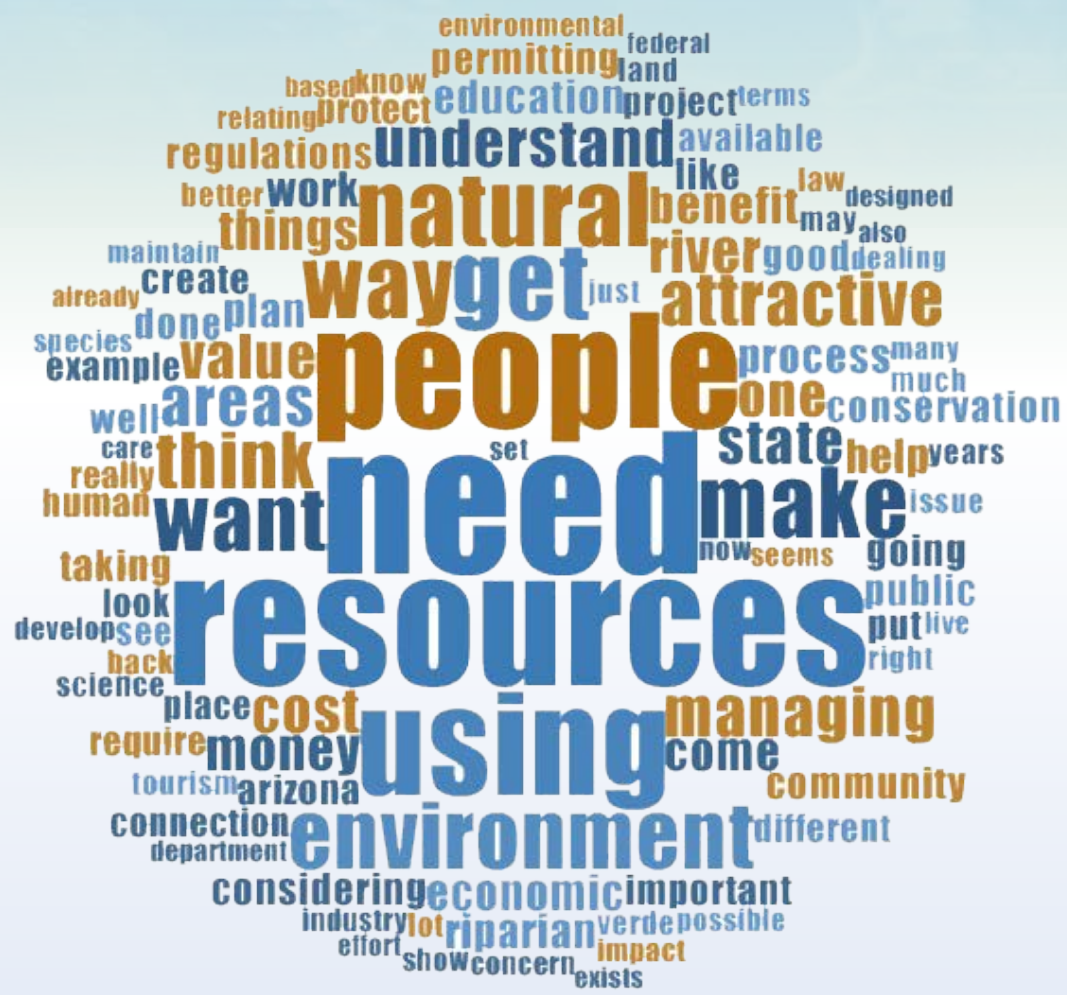


COLLEGE OF AGRICULTURE & LIFE SCIENCES  
COOPERATIVE EXTENSION



*Water RAPIDS*  
Water Research and Planning  
Innovations for Dryland Systems

# The Forgotten Sector: Water for Natural Areas



# **What do we even mean by Water for Natural Areas?**

# Many words...similar ideas

- Water for water dependent natural resources
- Ecological flow requirements
- Environmental flow or level needs
- Instream flows
- Riparian and aquatic ecosystem needs
- Environmental water demand



Bill Williams River

Photo Credit: Kelly Mott Lacroix

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# Fundamentally what we are talking about is....

The amount of water needed in a watercourse to sustain a healthy ecosystem

- Magnitude (how much)
  - Frequency (how often)
  - Duration (how long)
  - Timing (how predictable)
  - Rate of Change (how variable)
- Includes priority setting by the community as well!

**So how will riparian and  
aquatic ecosystems deal with  
the “gap”?**

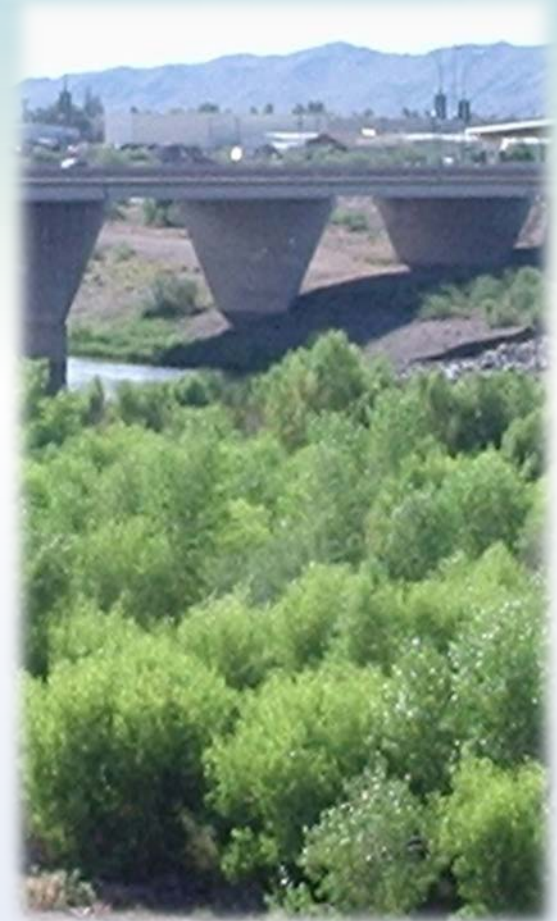
# They will change....



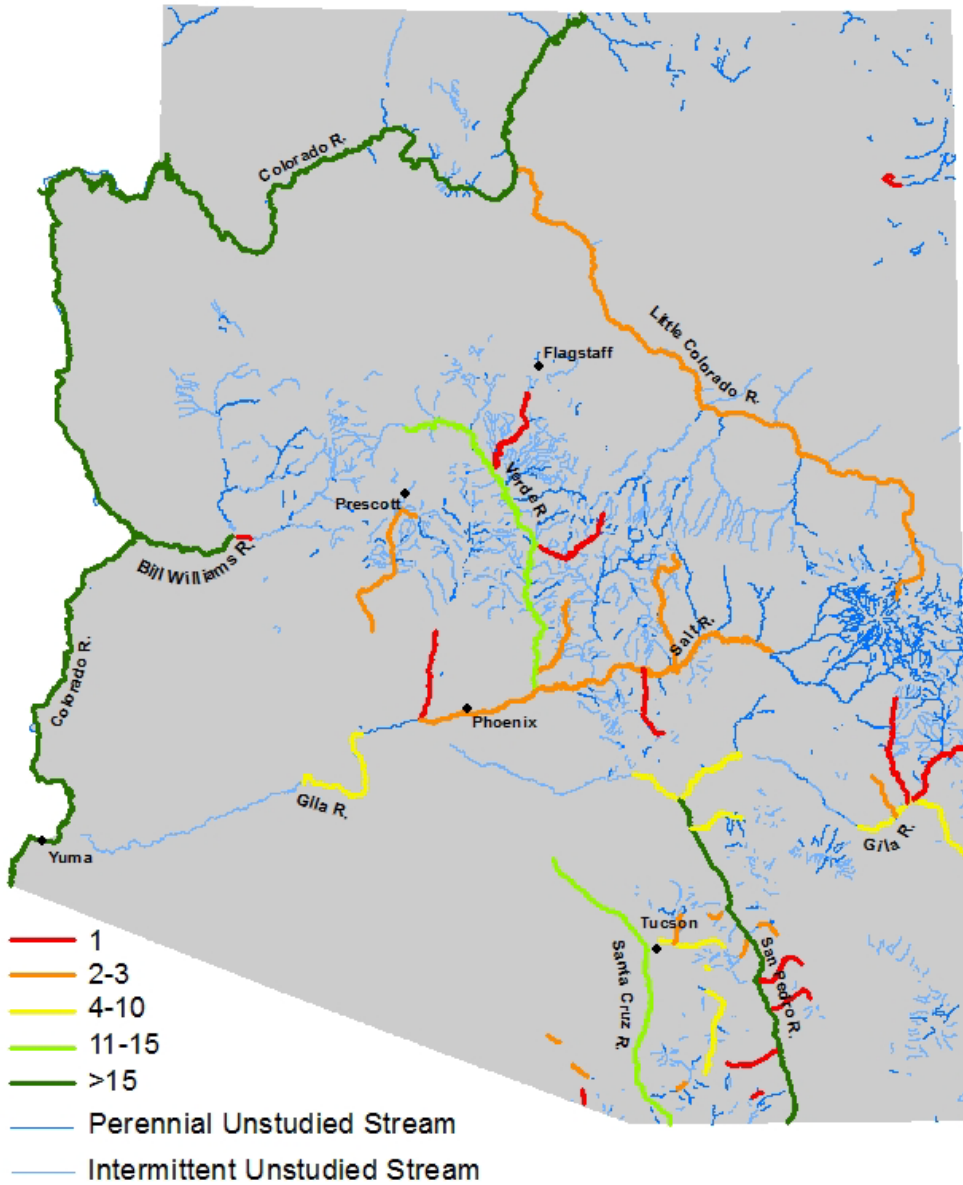


# The real question is....

- What sort of ecosystem do **we** want or are we managing for  
*and*
- What data exist to help us provide the “right” amount of water to the resource?



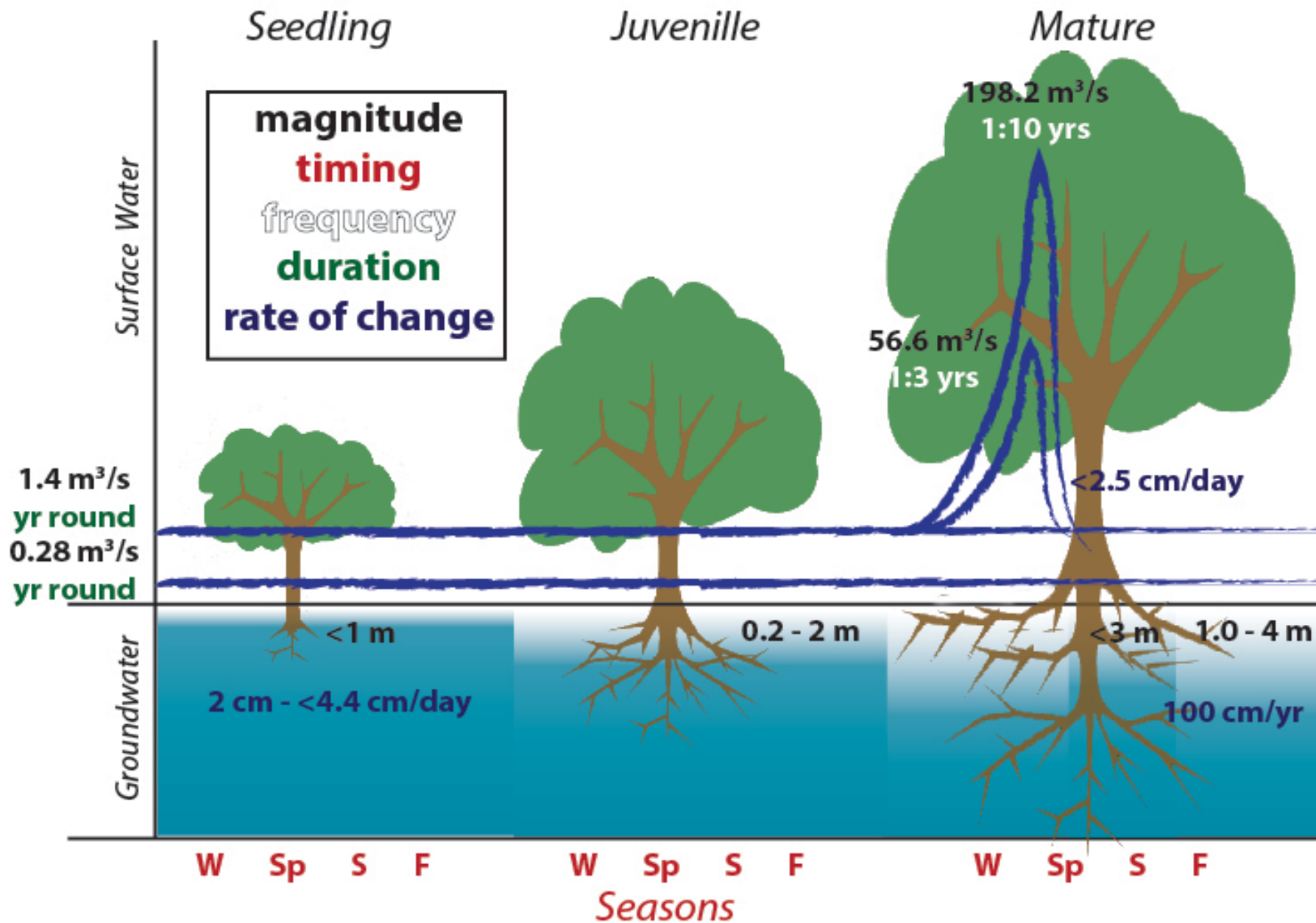
# 22% of river miles studied



| Study Subject            | Taxa | Number of Studies |
|--------------------------|------|-------------------|
| Freemont Cottonwood      | Veg  | 27                |
| Goodings Willow          | Veg  | 15                |
| Salt Cedar               | Veg  | 14                |
| Velvet Mesquite          | Veg  | 13                |
| Cottonwood/Willow Forest | Veg  | 7                 |
| Native flora/fauna       | NA   | 5                 |
| Chinese Tamarisk         | Veg  | 5                 |
| Speckled Dace            | Fish | 5                 |
| Seepwillow               | Veg  | 5                 |
| Roundtail Chub           | Fish | 5                 |
| Big Sacaton              | Veg  | 5                 |

**Of 135 species only 11% studied more than 2x**



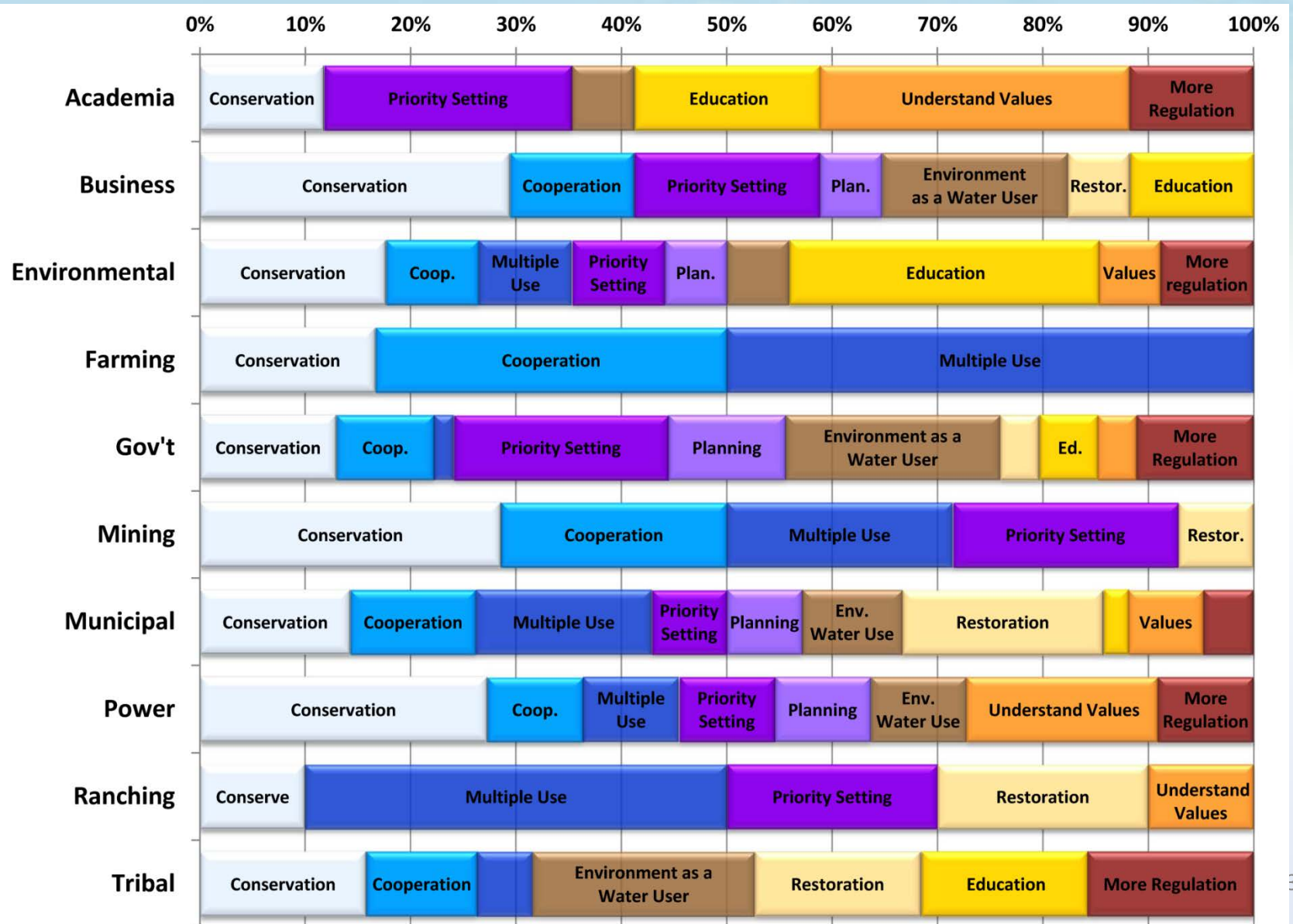






**What do we know about how  
we might want to provide  
water for natural areas?**

# Themes: How should we consider water for natural resources?



# Problems?

- Little protection under current law
- Unintended consequences
- Variability of water needs for humans and natural areas
- Lack of funding and political will



# Prospects?

- Voluntary tools – water release agreements
- Near-stream groundwater recharge
- Create flexibility in regulations and permitting requirements when environmental benefit
- Look to traditional tribal practices for living in our arid environment
- Cooperation, education and engagement



East Verde River. Photo Credit: Brittany Xiu

# Questions?