



COLLEGE OF AGRICULTURE & LIFE SCIENCES
COOPERATIVE EXTENSION



Water RAPIDS
Water Research and Planning
Innovations for Dryland Systems

Considering Water for the Environment in Arizona: Understanding Science, Policy and Water-user Perspectives



Roadmap for Considering Water for Arizona's Natural Areas

- Further understand water needs of riparian and aquatic ecosystems
- Identify voluntary, stakeholder-driven options for addressing water needs of natural areas



Colorado River.
Photo Credit: Kelly Mott
Lacroix

Words...

- Environmental flows and levels
- Environmental water needs
- Environmental water demands
- Water dependent natural resources
- Instream flows
- Ecological flow requirements

Words...

Although they are not perfect, we use the terms **water for natural areas** and **water needs of riparian and aquatic ecosystems** to refer to water for animals and plants that live near and in rivers and streams and how much water is required to keep the animals and plants that live in and near streams healthy over time.

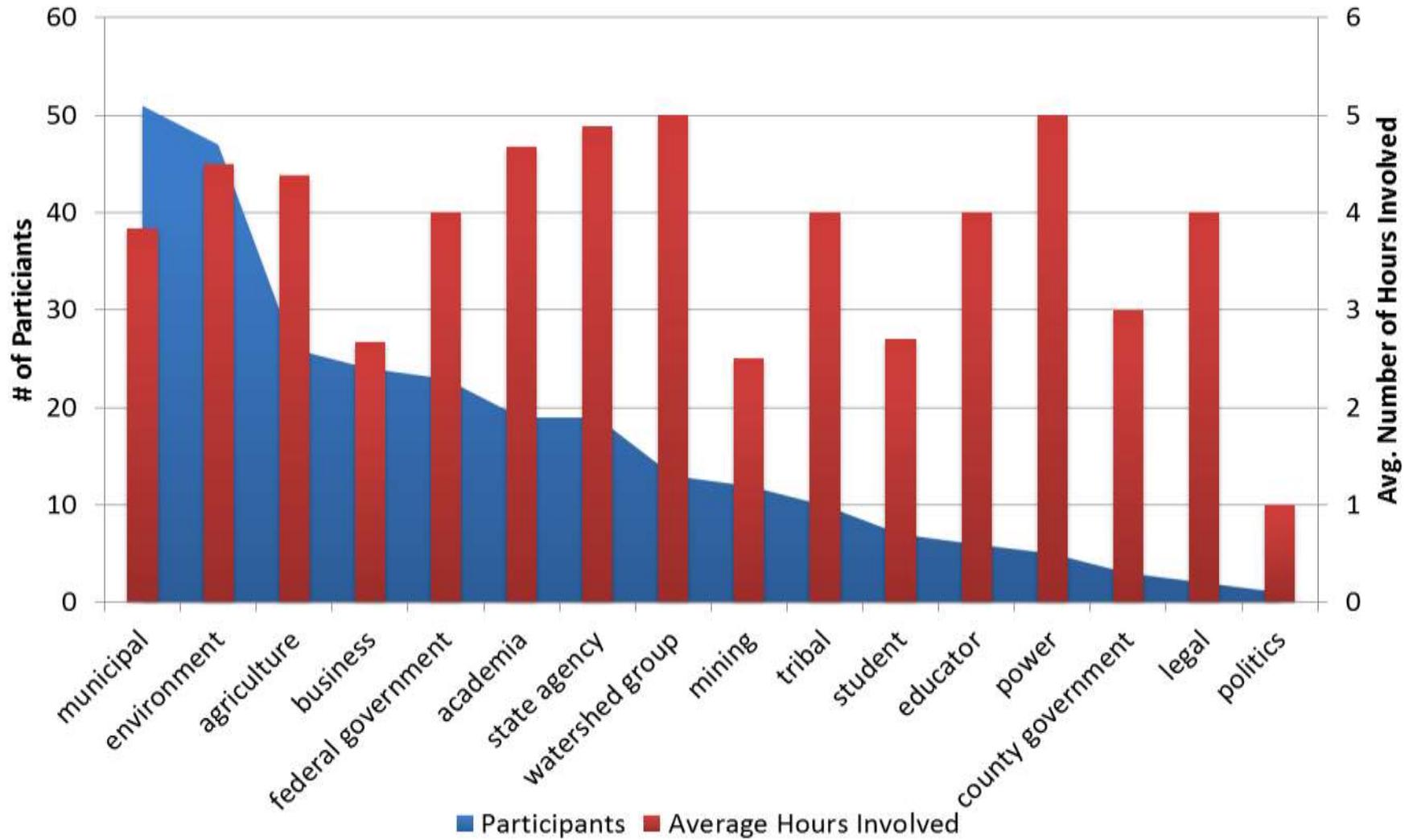
It should be understood that the 'water needs' and 'health' of an ecosystem are defined within the context of human priorities.

Activity	Date <i>(Location)</i>	Number of Participants
Project Kick-off Meeting	12/11 <i>(Tucson and Phoenix)</i>	52
Presentations on Water for Natural Areas	12/11 – 10/13 <i>(32 presentations, 11 Arizona Counties)</i>	800+
Survey	1/13-2/13 <i>(Online)</i>	171
Roundtable	3/4/2013 <i>(Tucson)</i>	50
Focus Groups	09/13– 03/14 <i>(47 focus groups, 10 counties)</i>	247
Workshops	04/14 – 05/14 <i>(Tucson, Phoenix, Flagstaff and Yuma)</i>	124
Case Studies	06/14 – 08/14 <i>(varies)</i>	14

Over 1,000 people

Over 1,900 hours of volunteered time

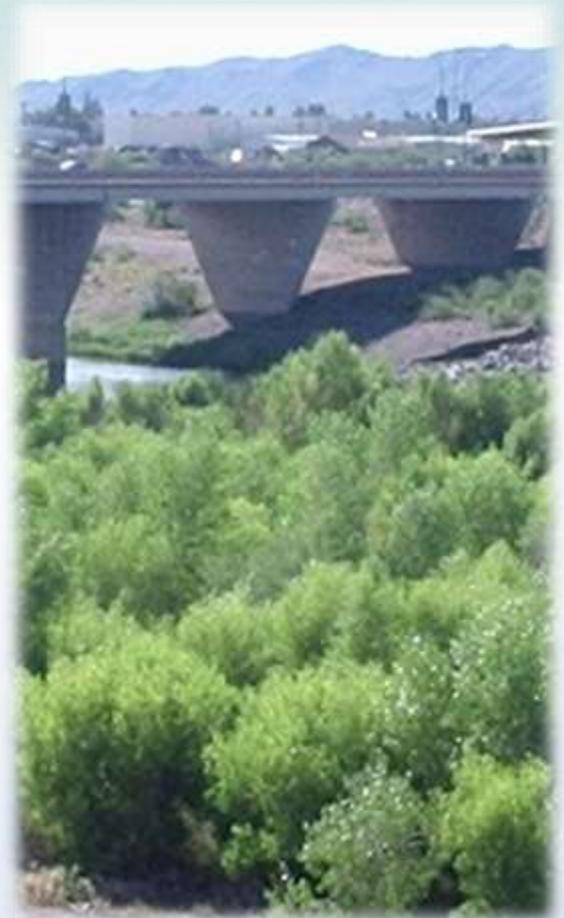
Diversity of Participants and Involvement



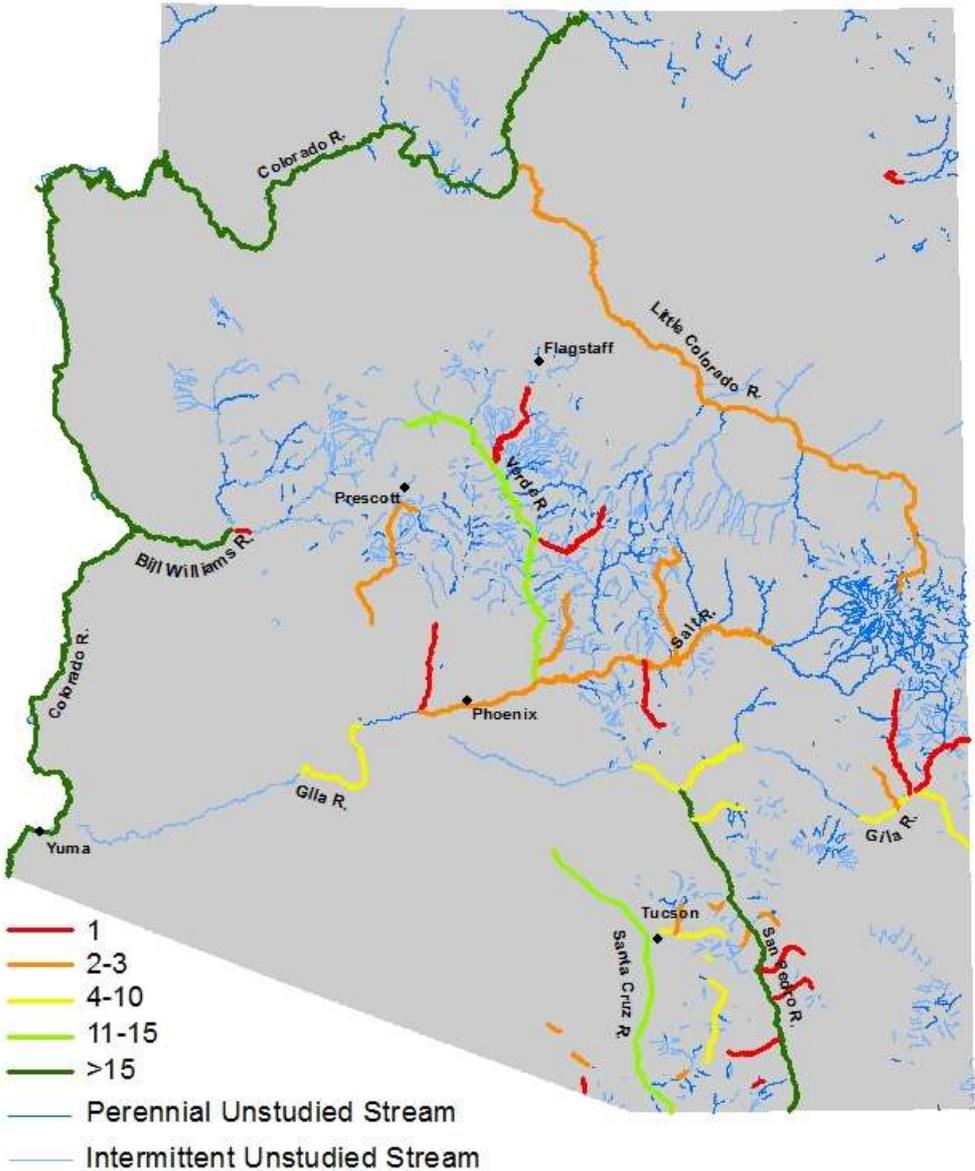
Name	Affiliation
Karletta Chief	Soil Water and Env. Sciences Watershed Hydrology Assistant Professor
Rebecca Davidson	Salt River Project
Chad Fretz	Freeport McMoRan
Leslie Meyers	U.S. Bureau of Reclamation
Wade Noble	Yuma County Agriculture Water Coalition
Joe Sigg	Arizona Farm Bureau
Linda Stitzer	Western Resource Advocates
Robert Stone	Gila River Indian Community, Council Member
Warren Tenney	Southern Arizona Water Users Assoc., Metro Water
Chris Udall	Arizona Agribusiness Council
Summer Waters	UA Cooperative Extension
Dave Weedman	Arizona Game & Fish

Science of Water for Ecosystems

- 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?

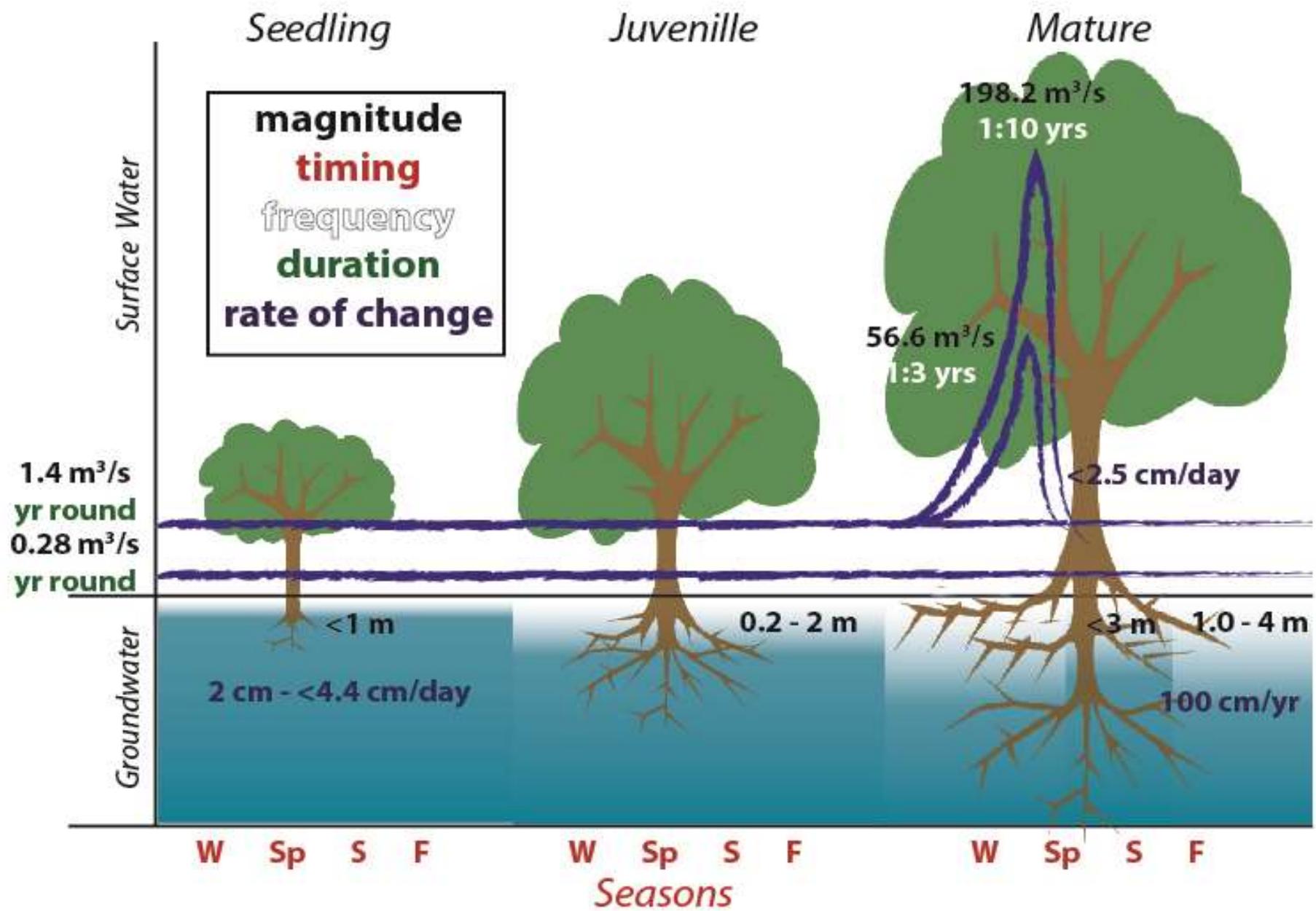


22% of river miles studied

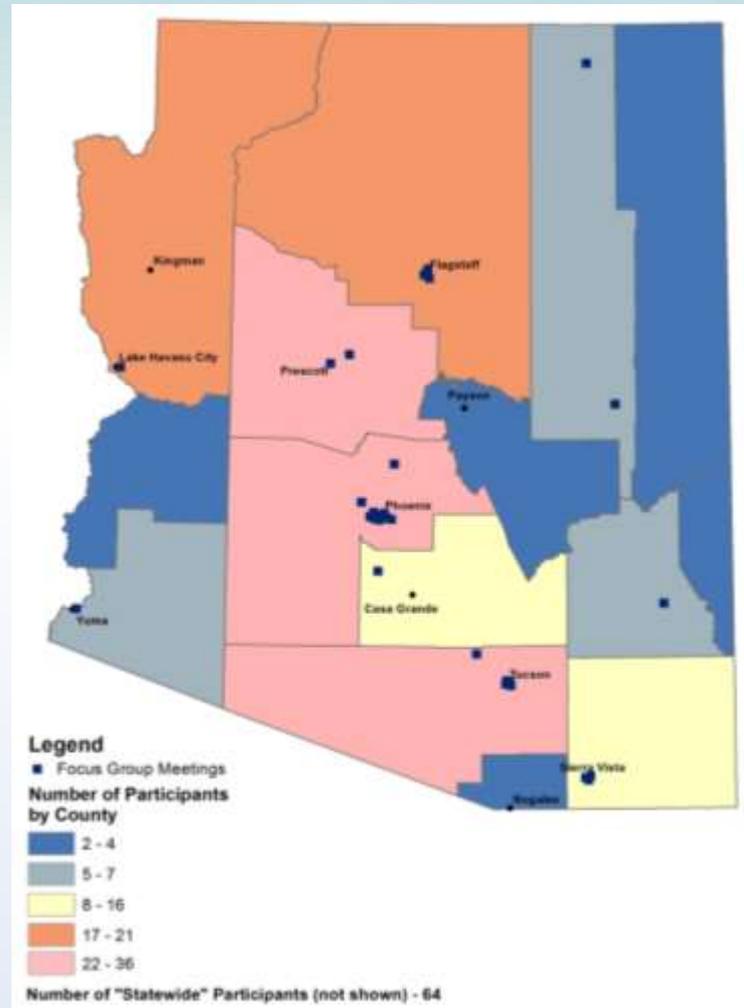


Study Subject	Taxa	Number of Studies
Freemont Cottonwood	Veg	27
Goodings Willow	Veg	15
Salt Cedar	Veg	14
Velvet Mesquite	Veg	13
Cottonwood/Willow Forest	Veg	7
Native flora/fauna	NA	5
Chinese Tamarisk	Veg	5
Speckled Dace	Fish	5
Seepwillow	Veg	5
Roundtail Chub	Fish	5
Big Sacaton	Veg	5

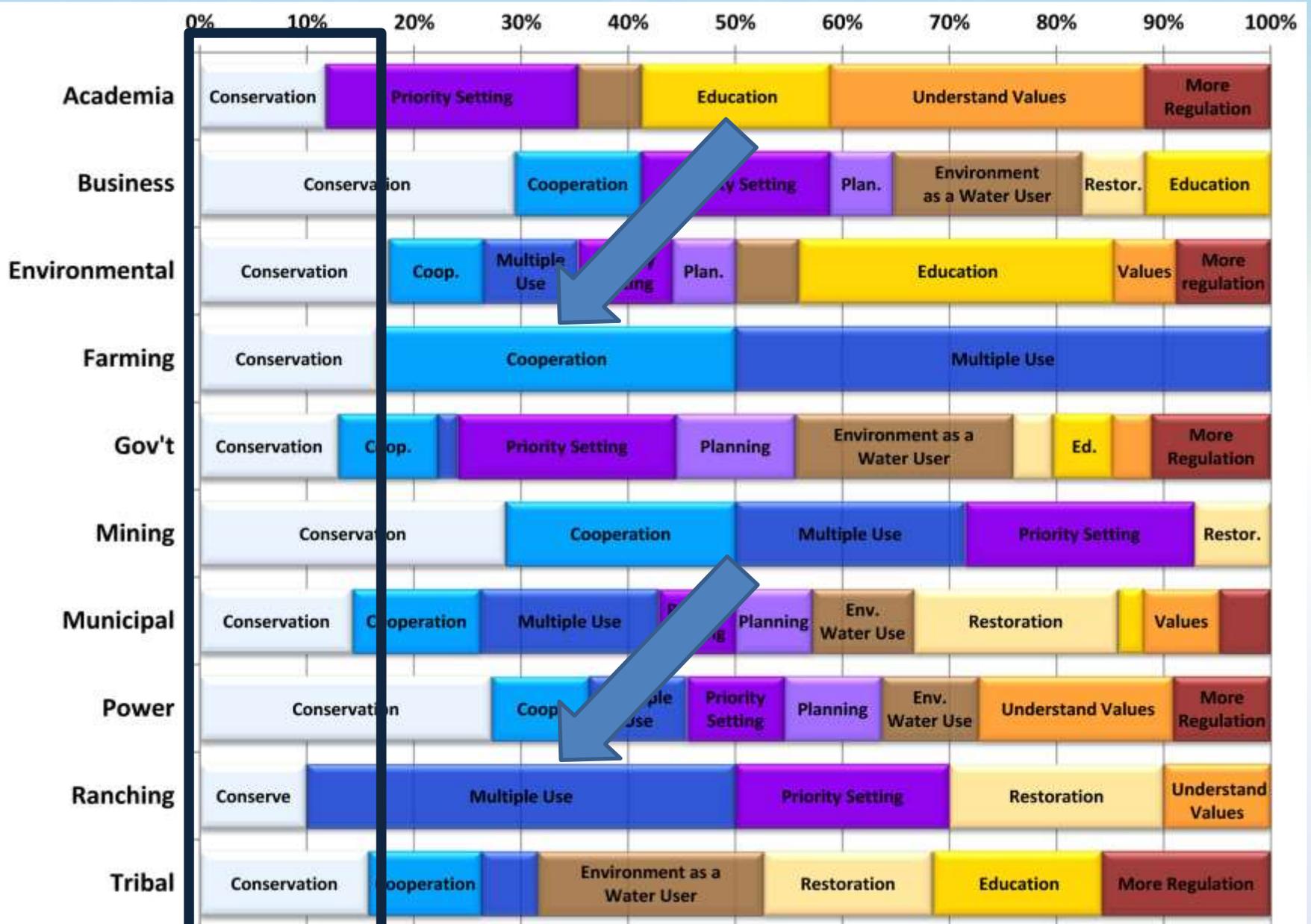
Of 135 species only 11% studied more than 2x



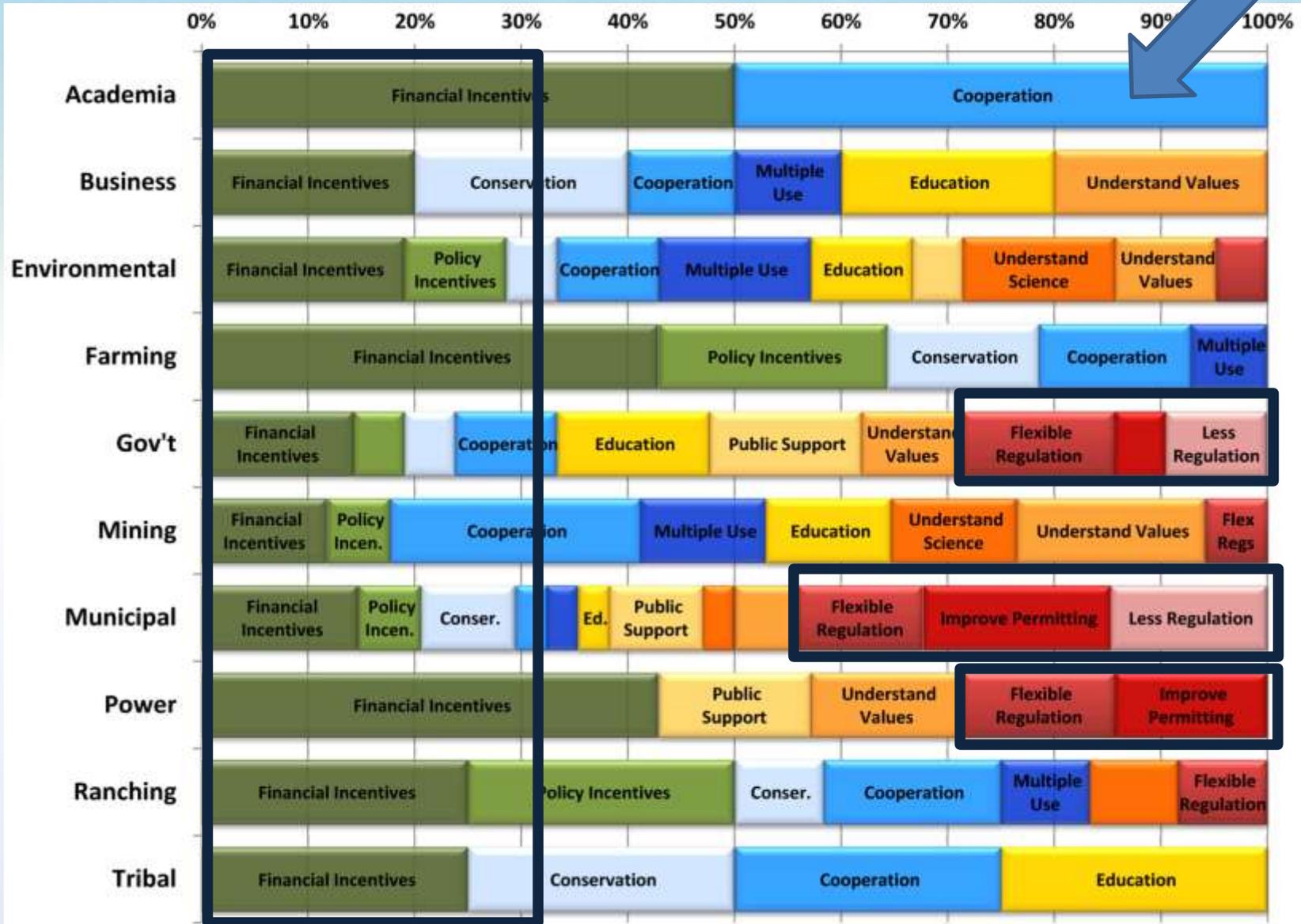
Perspectives on Water for Ecosystems



Themes for How Should we Consider



What would make it more attractive?



Path Forward - Recommendations

1. Improve Education
2. Provide Funding to Maintain Water in Natural Areas
3. Set Priorities and Assess Values
4. Manage Water Supply for Multiple Benefits, Including Natural Areas
5. Address Data Gaps
6. Establish Voluntary Partnerships
7. Develop Conservation Programs
8. Improve Energy Efficiency
9. Modify Permitting Process
10. Provide Legal Standing to Natural Areas

If you remember nothing else...

- Our understanding of how much water riparian and aquatic ecosystems need is incomplete
- There is significant interest in water for natural areas
- Barriers
 - Regulations (both existing and lack of), Lack of data, and Communication
- Path forward
 - Cooperation and education are key
 - Solutions should come from the local level
 - Overwhelming agreement that we *should* consider ecosystems in our water management
 - *Divergent ideas on how!*



Thank you!

Kelly Mott Lacroix
klacroix@email.arizona.edu
University of Arizona
Water Resources Research Center
wrrc.arizona.edu/waterrapids

Learn More!
Roadmap for Considering Water for
Arizona's Natural Areas Webinar
September 24th 12:00 – 1:00 pm

