Optimizing Our Watersheds for Sustainability

University of Arizona Cooperative Extension

Water Resources Research Center

2023 Annual Conference

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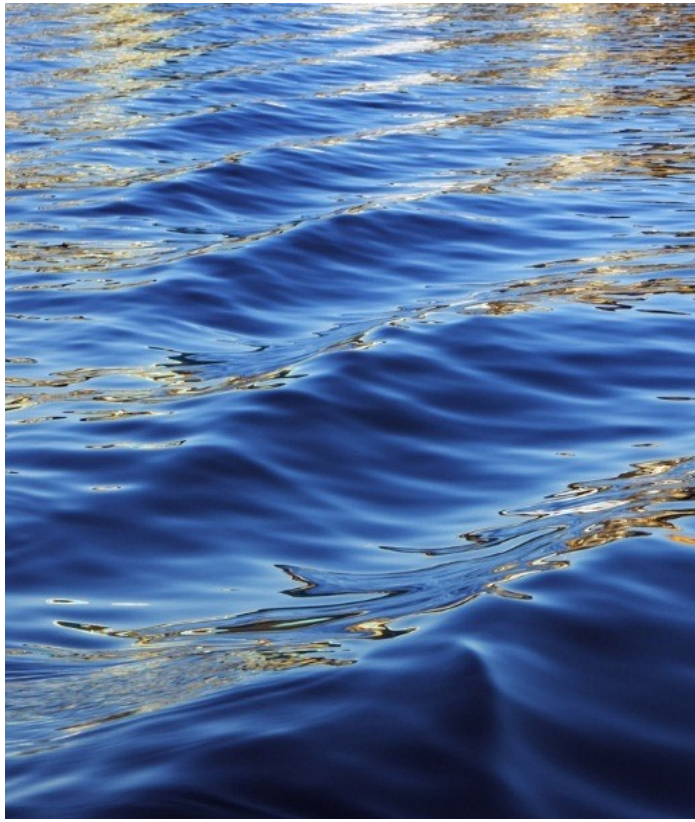
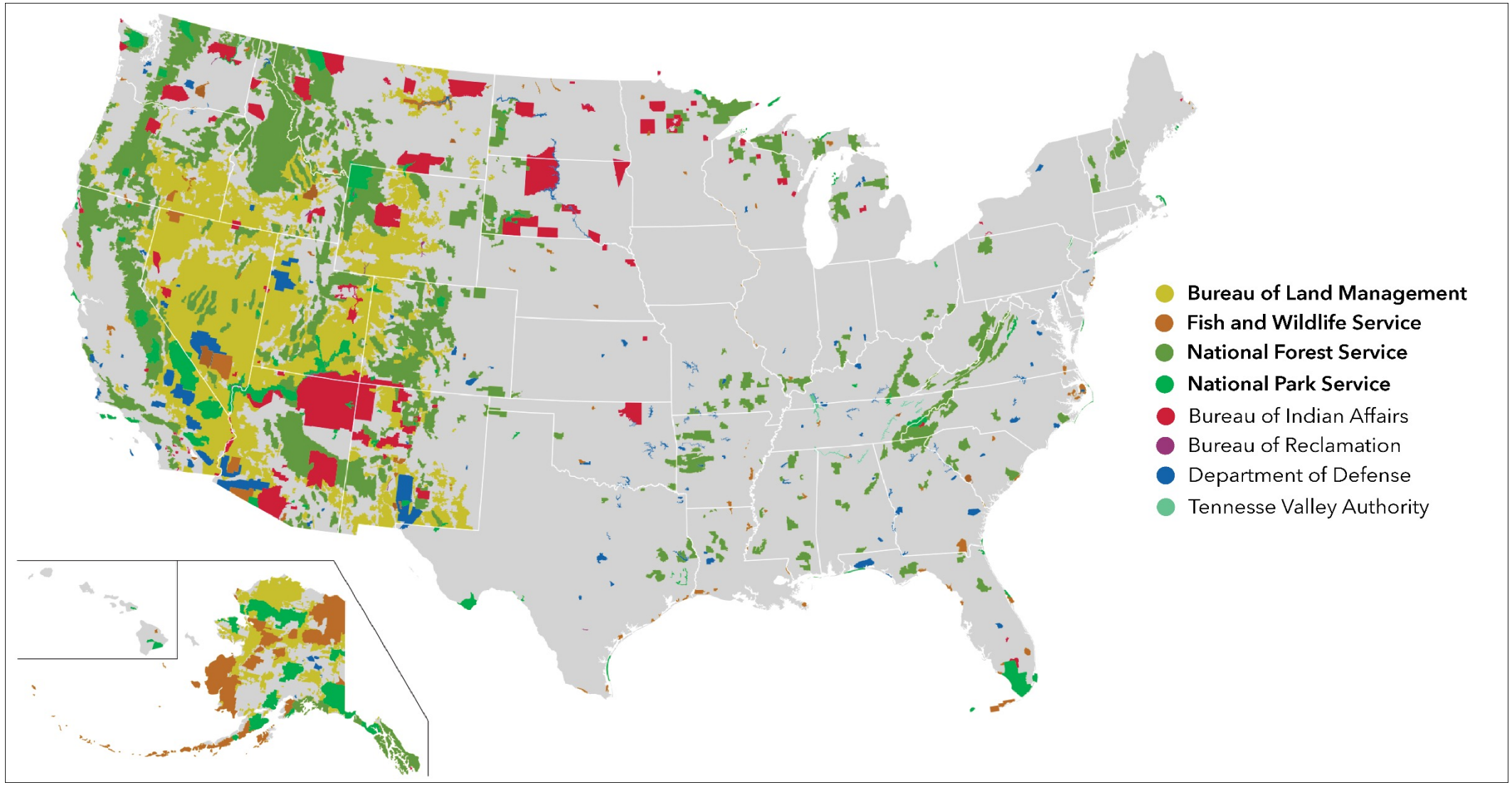
California Water Institute - CSU Fresno



The Challenges to Optimizing our Watersheds

- Federal lands cover substantial portions of our watersheds including areas of highest precipitation
- Management plans are available for every type of landscape but they are not necessarily optimized for water sources and uses
- The glaring need is to develop the optimum organizational and institutional strategies to achieve water optimization

A Shared Challenge – Where our Water Sources Start



National map of federal lands – Arizona, California and New Mexico headwaters with significant precipitation are covered by the US Forest Service

Water Source Challenges on Federal and Sovereign Tribal Lands

- US Forest Service
  - Lawsuits continue to impede implementation of forest management plans whether they are good or bad - https://forestpolicypub.com/
  - Forest plans are not often specifically reviewed by water users for source impacts
  - Forest water source technical issues – sublimation from snow on top of dense tree spacing, sublimation from bare ground after catastrophic fire, gasification of trees causes a waxy impenetrable soil barrier preventing percolation into deeper soil and geologic fractures that feed streams, correcting issues could result in up to 8% increase in source water in AZ*
- US BLM
  - Resource management plans have similar problems to forest plans
  - More rangeland than high precipitation lands
  - Technical issues are plans need to protect special areas and riparian corridors and manage grazing land through fencing, crossing fencing and residual dry matter retention
- Tribal Lands
  - Tribes cover similar landscapes to both the Forest Service and BLM and need support implementing the same best practices

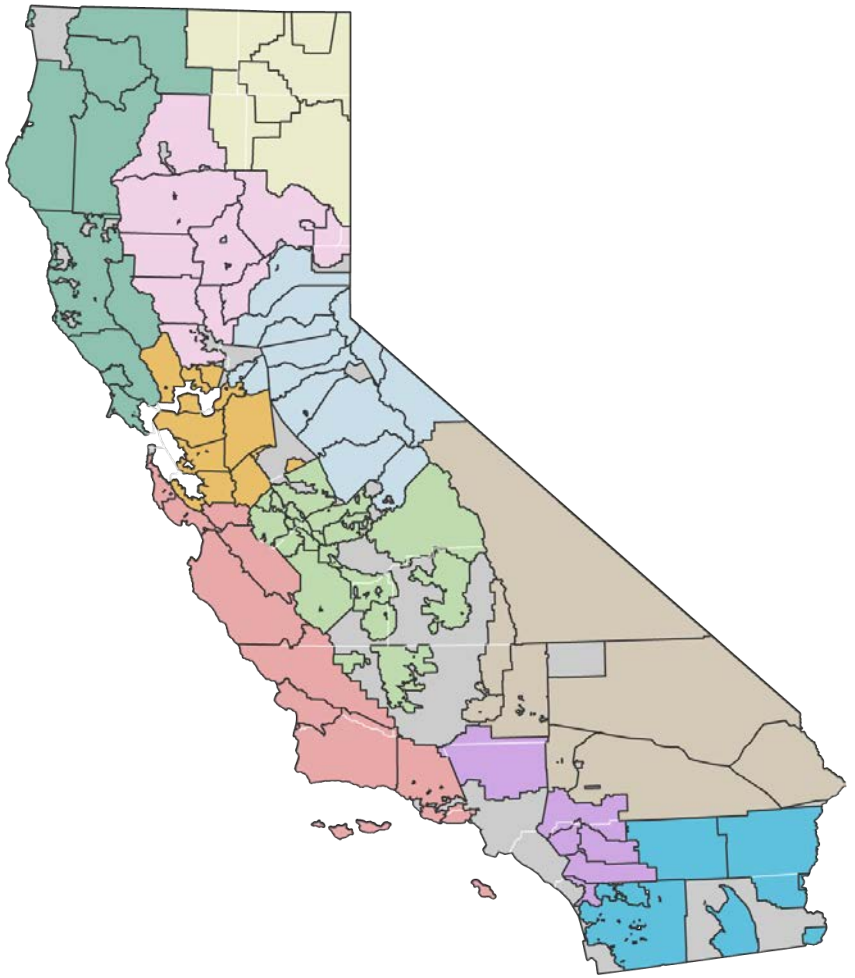
*See references for more on issues

Water Organizational Challenges on Private Lands

- Source and demand management are not integrated, institutions are fragmented and often work on one or the other but do not coordinate with each other
- Institutions exist to help with landscape plans that include source protection and demand management and hence, integration, no new institutions are needed
- A question is whether the all the existing institutions are willing to invest in collaboration both technically and financially
- Nascent efforts in groundwater management integrating recharge and demand management are examples of the source/use integration needed *
- A specific alternative is the "joint exercise of powers" option which can link federal, state, county, cities and in some States, local agencies

*Representative examples follow in this conference panel.

Soil and Water Conservation Districts



Arizona has full coverage of such districts, California does not (gray areas lack coverage, note significant portions of the San Joaquin Valley are gray)

Literature Survey

- Twenty Years of Forest Service Land Management Litigation; Amanda M.A. Miner, Robert W. Malmsheimer, and Denise M. Keele

  http://dx.doi.org/10.5849/jof.12-094

- Forest Management Recommendations to Long-Term Water Augmentation Committee. Bruce Hallin (SRP) and Marcos Robles (TNC), August 3, 2020

- Public Lands Foundation Comments, Conservation and Landscape Health Proposed Rule, Attention: 1004-AE-92

  https://publicland.org/

  https://publicland.org/wp-content/uploads/2023/06/PLF-Comments-06-15-2023-Proposed-Conservation-Rule-1004-AE-92.pdf

If links are broken contact Sarge Green at: sgreen@mail.fresnostate.edu