



Investments in Watershed Services: From the Western US to Colorado

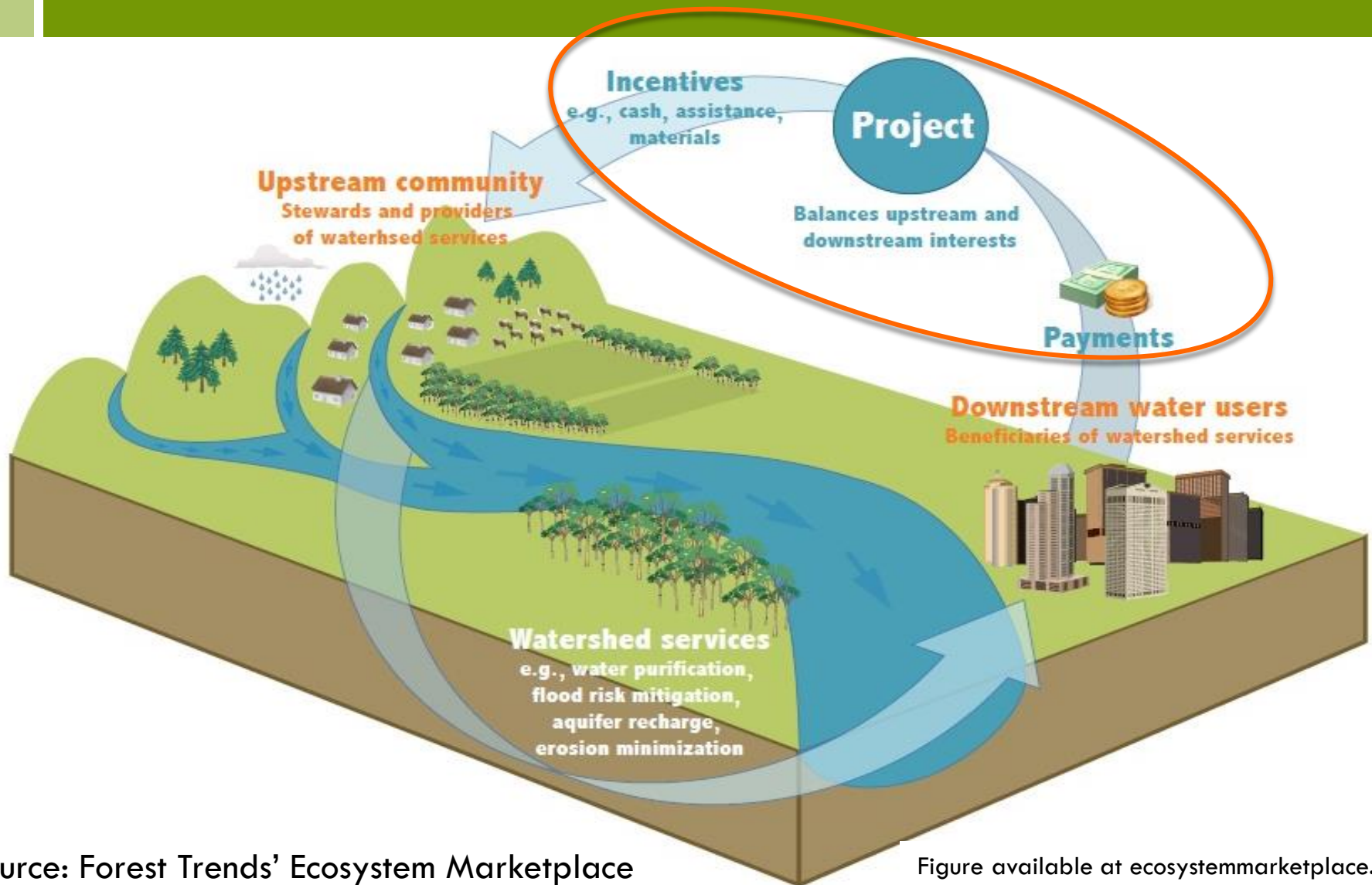
10 December 2014

A Community on Ecosystem Services (ACES) Conference
Heidi Huber-Stearns, Antony Cheng, Colorado State University

Watersheds in the Western United States



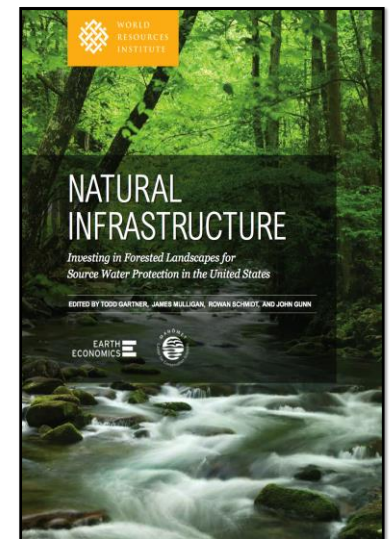
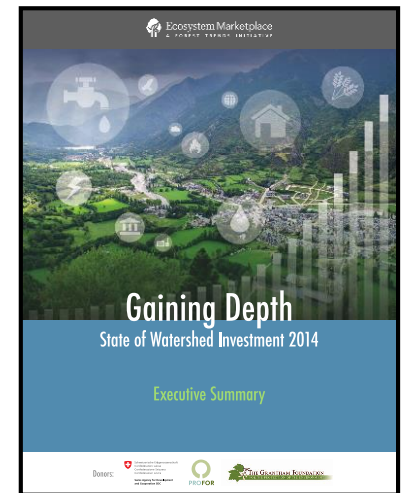
Investments in Watershed Services (IWS)



Research Collaborations

- Forest Trends' Ecosystem Marketplace
 - Global 'State of Watershed' reports
 - 2012 and 2014

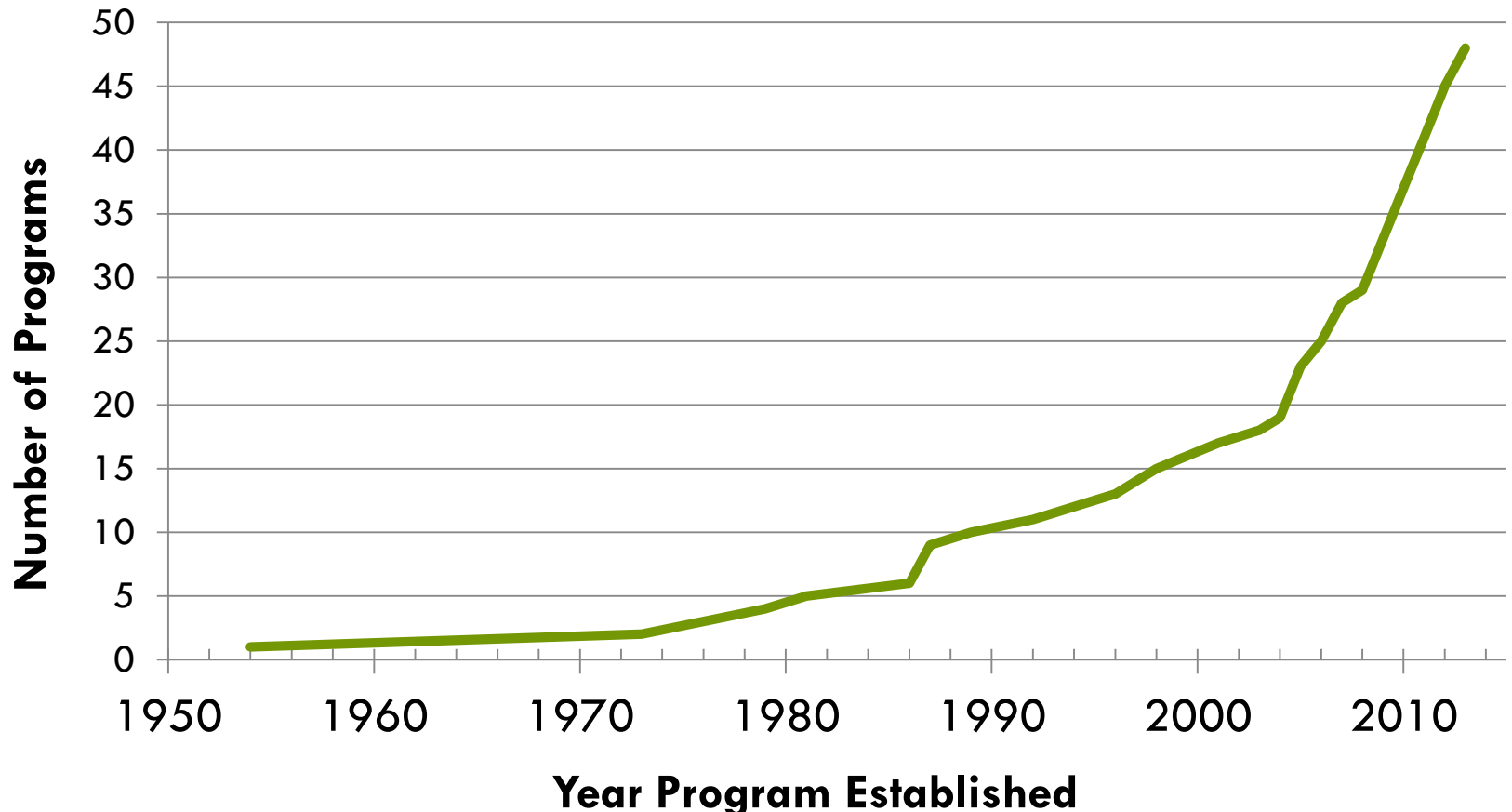
- World Resources Institute
 - Source Water Protection program research
 - Follow-up to 2013 Natural Infrastructure report



Number of IWS Programs

- Increase in programs from 1954 (1) to 2014 (48)

Active IWS Programs in Western US



Investments in Watershed Services in the Western US



Active: 48
Pilot or Design: 12

	Active Program		Program Count
	Demonstration/Pilot Program		1 - 3
	Program In Design		4 - 6
	WRC Project		7 - 11
	NFF Project		12 - 14
	Statewide Program		

0 50 100 200 Miles

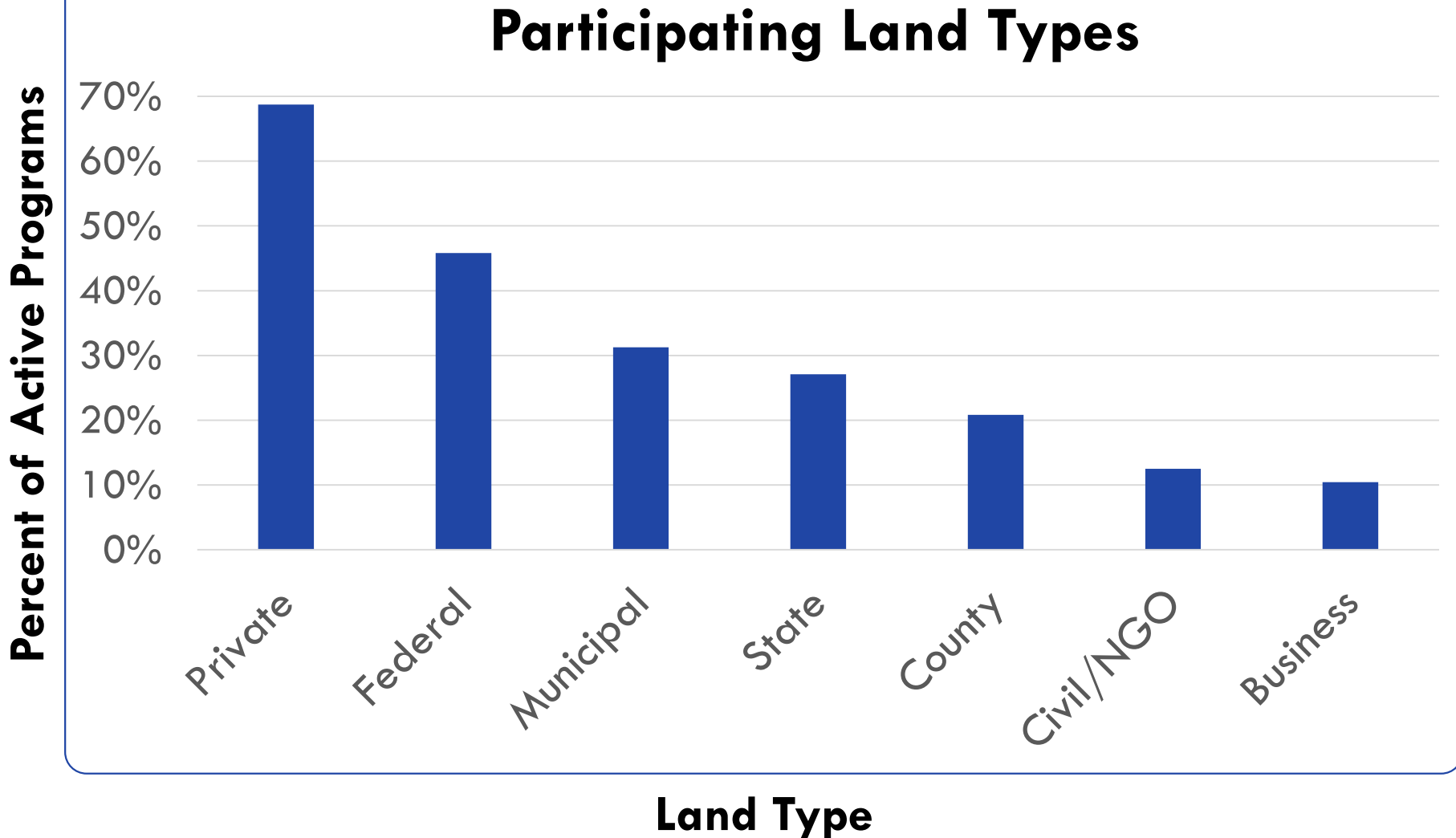


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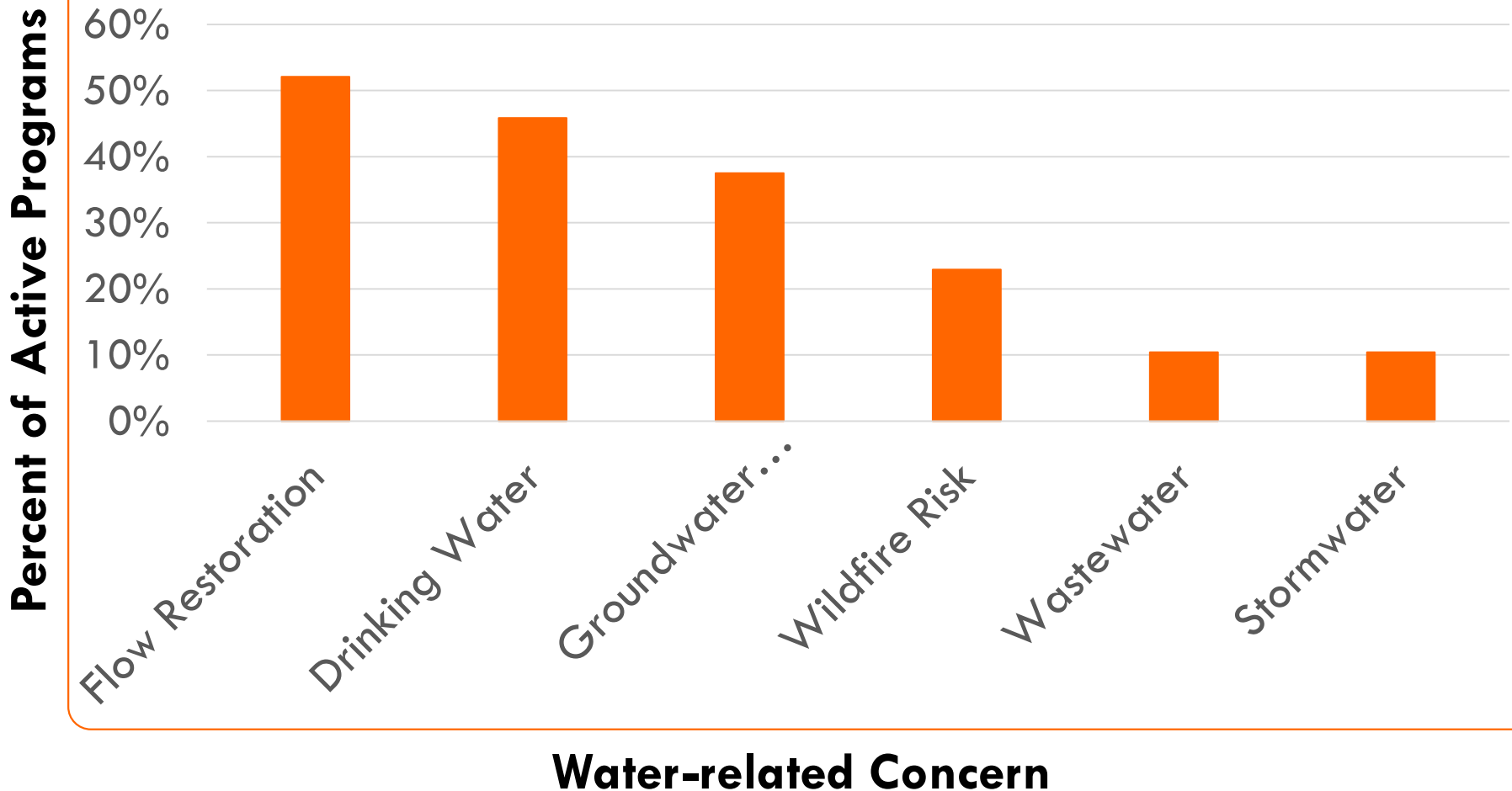
Author: Katherine Sever
 Colorado State University
 Projection: North America
 Albers Equal Area Conic
 Date: 12/6/2014

2014 Watershed Investment Survey Results



2014 Watershed Investment Survey Results

Main Water-related Concerns







2014 Watershed Investment Survey Results

Main Management Actions







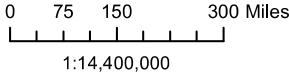
Investments in Watershed Services in the Western US



-  NFF Program
-  WRC Program
-  Statewide Program
-  Program Boundary

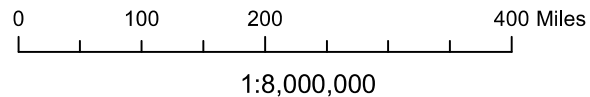
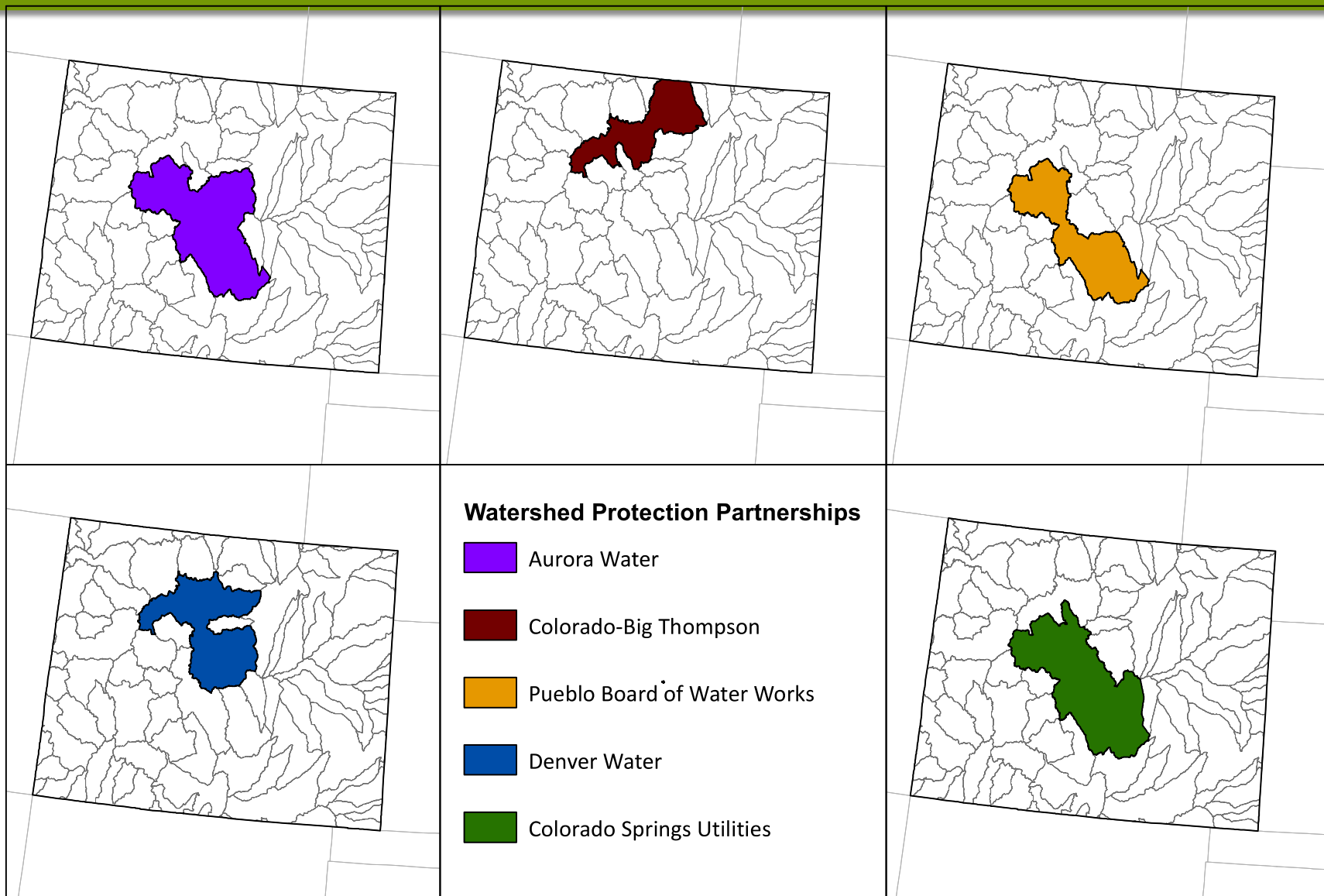
Number of Programs

-  1
-  2 - 3
-  4 - 6
-  7 - 11



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Colorado Watershed Protection Partnerships



Fires on the Front Range

- Buffalo Creek (1996) and Hayman (2002) Fires burned almost 150,000 acres
 - 1 million cubic yards of sediment deposition
 - \$26 million on water quality, reclamation, restoration treatments, and dredging sediment

“Prevent another Strontia Springs”



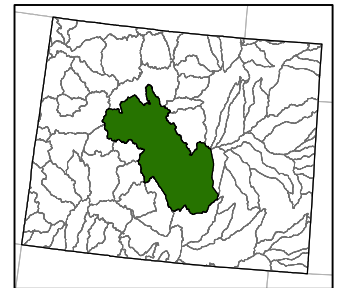
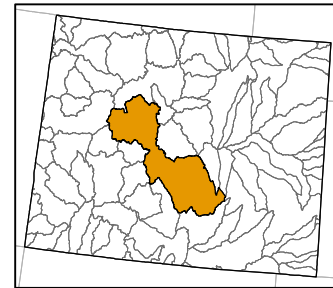
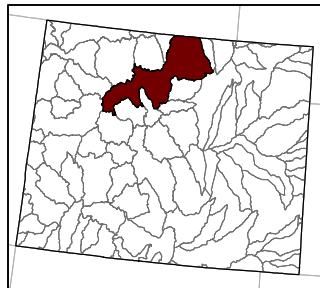
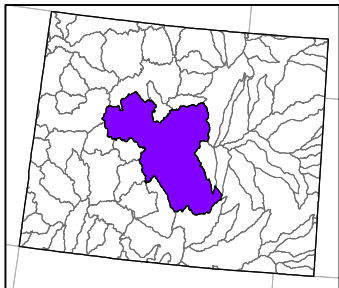
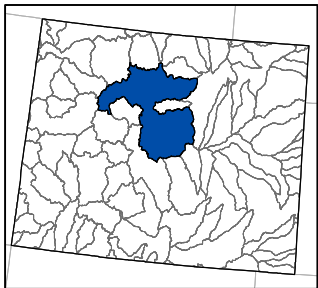
Watershed Protection Partnerships

2002

- Formation of the Front Range Fuels Treatment Partnership

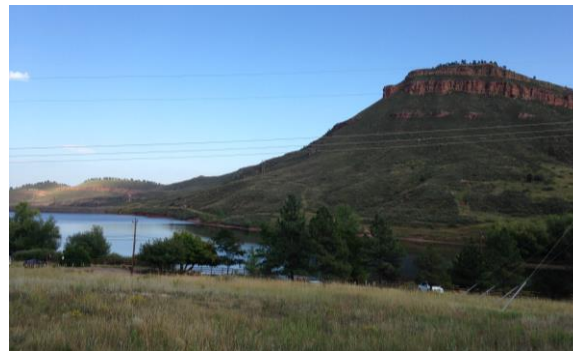
Reported Accomplishments

- \$13,065,000 spent by water providers
- 21,191 acres of hazardous fuels treatment
- 15,000 acres of NEPA analysis
- 190 acres treated on private lands
- 200 acres NF in treatment preparation
- Currently: 67,000 acres of environmental analyses



Key Design Elements

- Unpredictable, catastrophic events
- Avoided costs
- Political and institutional champions
- Reports and collaborations
- Bringing players to the table, building capacity



Key Implementation Elements

- Planning and implementing projects on different land ownerships
- Identifying sustainable financing
- Maintaining partnerships and capacity
- Monitoring and reporting success



Key Elements for Maintaining Partnerships

- Planning for when all the low hanging fruit is gone
- Leveraging multiple efforts to scale up work
- Improving quantification of benefits
- Maintaining communication and sharing within and between programs



Conclusion

- No blueprint
- Learning and adaptation
- Unlikely partnerships to address shared risks





- ◆ Research funding provided by the Agricultural Experiment Station at Colorado State University
- ◆ heidi.huber-stearns@colostate.edu

Ecosystem Service

Management Action



Quantity

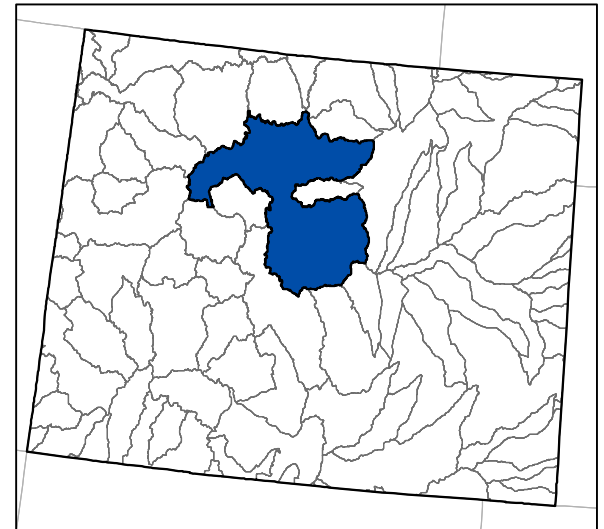
Denver Water

2010

- Denver Water-US Forest Service
- \$32 million cost share
 - “Restoring forest and watershed health to protect the city and county of Denver’s municipal water supplies and infrastructure”
 - Reducing wildfire, minimizing current erosion, reservoir sedimentation

Results so far:

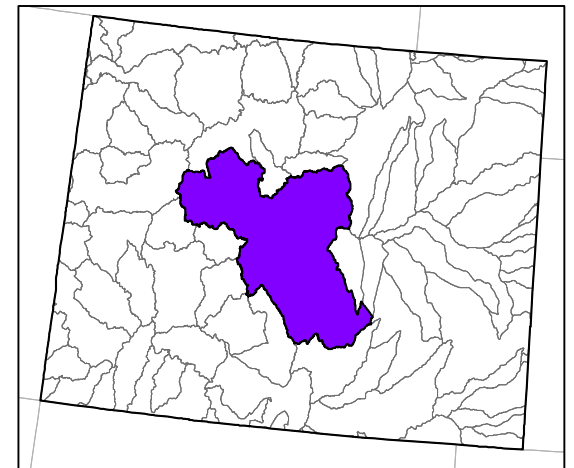
- 20,755 acres hazardous fuel and restoration treatments
- \$11.5 million (of Denver’s total \$16 m)



Aurora Water

2011

- Aurora Water-US Forest Service Memorandum of Understanding
 - Followed Denver Water model, except pays for NEPA
 - **Results so far:**
 - Contribution to the Hayman Restoration Partnership
 - \$750,000
 - NEPA analysis on 15,000 acres
 - 55 acres of treatments

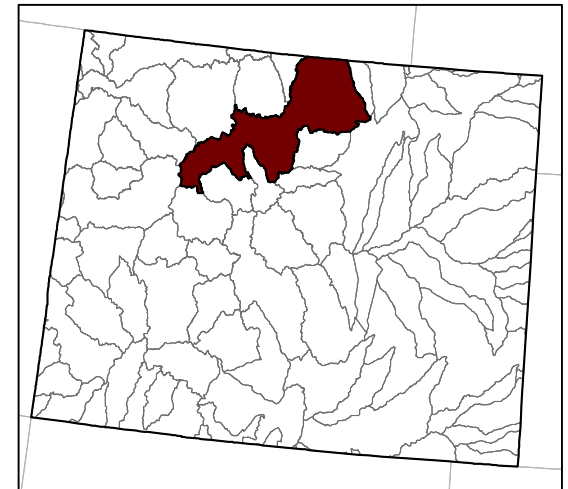


Colorado-Big Thompson Headwaters Partnership

2012

- Northern Water Conservancy District, US Forest Service, Bureau of Reclamation, and Colorado State Forest MOU
 - Also Western Area Power Administration and consultants
 - Motivated by 2012 High Park Fire
 - Major transmountain water diversion
 - Part of the Western Watershed Enhancement Initiative
 - Focused on same goals, also fire preparedness preplanning

- **Results so far:**
 - 190 acres treated on private lands
 - 200 National Forest acres in treatment preparation

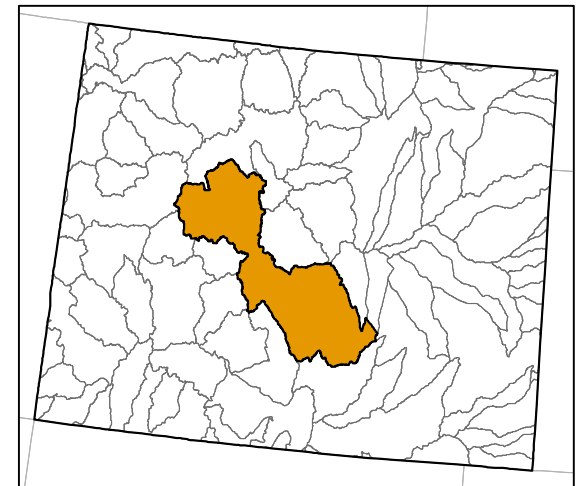


Pueblo Board of Water Works

2013

- Pueblo Board of Water Works-US Forest Service Memorandum of Understanding
 - Follows Aurora model
 - Considering fire preparedness preplanning

- **Results so far:**
 - \$50,000
 - 81 acres of hazardous fuel treatments



Colorado Springs Utilities

2013

- Colorado Springs Utilities-US Forest Service Memorandum of Understanding
 - Followed Aurora model
 - Estimated 5-10 year contribution of \$6 million
 - Motivated by the 2012 Waldo Canyon and 2013 Black Forest Fires

- **Results so far:**
 - \$765,000 (including past support)
 - 300 acres of hazardous fuel treatments
 - Currently: 67,000 acre environmental analyses and wildlife surveys in key watersheds

