

Planning for Growth and Open Space Conservation

This webinar series is sponsored by:
USDA Forest Service
State and Private Forestry - Cooperative Forestry

Organized by
Rick Pringle, Susan Stein, Sara Comas, Susan Guynn (Clemson University)
and the
Forest Service National Open Space Conservation Group



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- ▶ [Session #9](#): Private land conservation programs from the Farm Bill: Natural Resources Conservation Service, Farm Service Agency, and US Forest Service.
- ▶ [Session #8](#): Landscape Conservation Initiatives: US Fish and Wildlife Service, Bureau of Land Management, Department of Defense, Natural Resources Conservation Service
- ▶ [Session #7](#): Science to inform Open Space Conservation: Land use changes, forest fragmentation, and the Wildland-Urban Interface
- ▶ [Session #6](#): Facilitating Large Landscape Conservation Efforts: Working effectively across boundaries in the Northeast and Crown of the Continent
- ▶ [Session #5](#): Local and Regional Land Trusts: Essential partners and the tools they provide
- ▶ [Session #4](#): The Forest Service Toolbox: Conservation easement and land acquisition programs
- ▶ [Session #3](#): Green Infrastructure Planning: Connecting partners and greenspaces
- ▶ [Session #2](#): YES YOU CAN! Participating in Growth Planning Beyond the Green Line
- ▶ [Session #1](#): National Forest Management in the Face of Housing Growth

Learn about future topics!

Future Topics:

Please [register](#) in advance if you would like to attend these presentations.

- ▶ [Session #11](#): An All Lands Approach to Ecosystem Services for Water

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▾ [Session #9: Private land conservation programs from the Farm Bill: Natural Resources Conservation Service, Farm Service Agency, and US Forest Service.](#)

- **Bruce Wight:** *NRCS Conservation Technical Assistance, EQIP, WHIP, CSP, Statewide Forest Action Plans*
- **Katina Hanson:** *FSA: Emergency Forest Restoration Program (EFRP), Conservation Reserve Program (CRP).*
- **Karl Dalla Rosa:** *USFS Forest Stewardship*

Join us for a discussion of current and future Farm Bill programs administered by the Forest Service, Natural Resource Conservation Service, and Farm Service Agency that support private landowner efforts to protect working forests and conserve open space.

[Link to video presentation](#)

[Link to pdf presentation](#)

▸ [Session #8: Landscape Conservation Initiatives: US Fish and Wildlife Service, Bureau of Land Management, Department of Defense, Natural Resources Conservation Service](#)

▸ [Session #7: Science to inform Open Space Conservation: Land use changes, forest fragmentation, and the Wildland-Urban Interface](#)

Session #11: An All Lands Approach to Ecosystem Services: Water Focus



Emily Weidner
USFS Cooperative Forestry
Washington D.C.



Claire Harper
USFS Cooperative Forestry
Colorado



Bob Deal
Pacific Northwest Research
Station, Oregon

Logistics – Q&A

- **Continuing Education Credits**
 - Attend entire presentation
- **Questions for speakers – chat pod**
- **Technical difficulties – chat pod or email Susan Guynn: SGUYNN@clemson.edu**

Getting to Know You!



Emily Weidner
USFS Cooperative Forestry
Washington D.C.



Ecosystem Services and Investments in Watershed Services



Emily Weidner
US Forest Service

What are Ecosystem Services?

The benefits people obtain from nature

Air quality

Recreation

Non-timber forest products (mushrooms, food, fuel)

Timber

Range

Wildlife habitat

Maintaining biodiversity (Genepool protection)

Plant pollination

Flood Control

Water Quality

Water Quantity

Soil formation & fertility

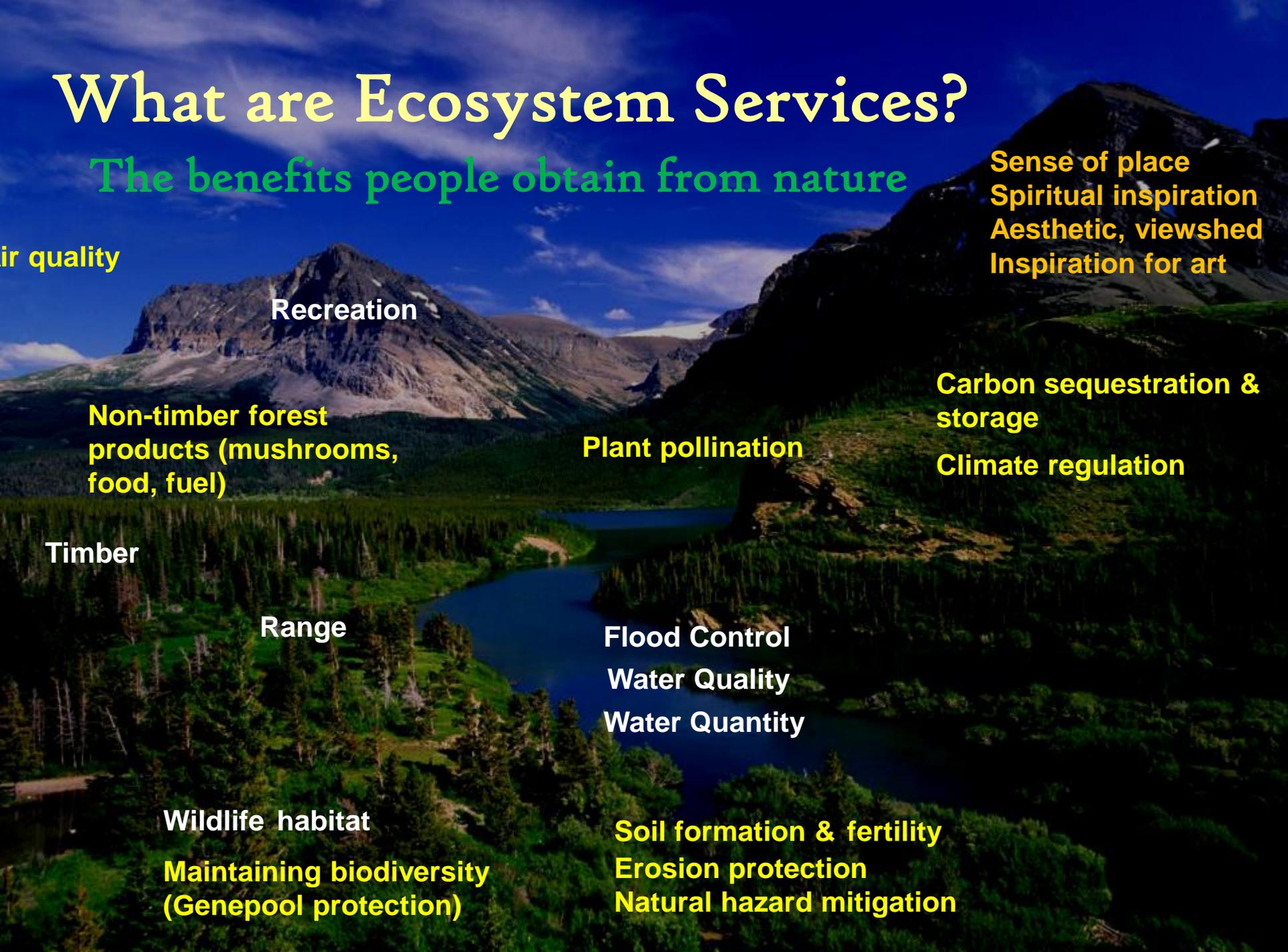
Erosion protection

Natural hazard mitigation

Sense of place
Spiritual inspiration
Aesthetic, viewshed
Inspiration for art

Carbon sequestration & storage

Climate regulation



What are Ecosystem Services?

The benefits people obtain from nature

Provisioning Services

Food
Fiber (timber, fuel, etc)
Biodiversity (genetic materials)
Natural medicines
Range
Water

Regulating Services

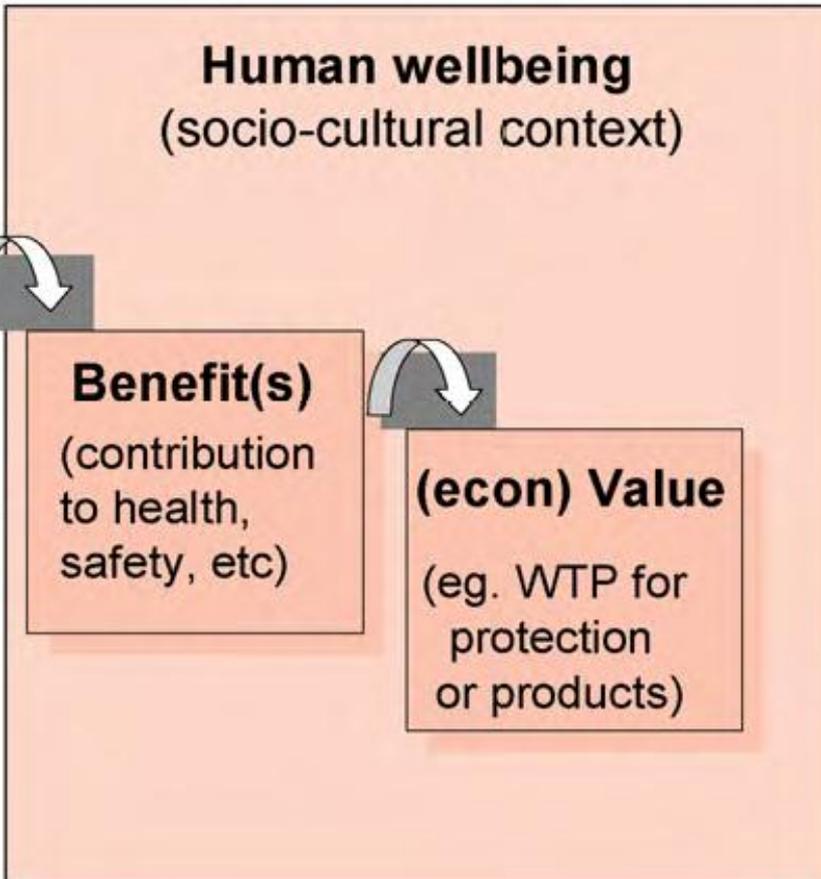
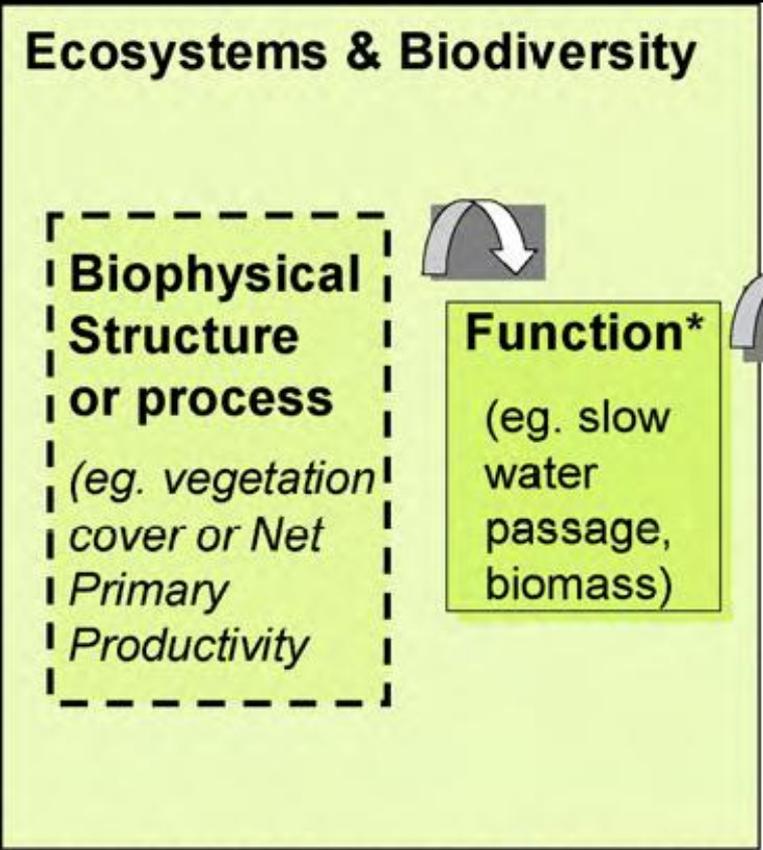
Air quality
Carbon sequestration & storage
Climate regulation
Plant pollination
Soil formation & fertility
Erosion protection
Natural hazard mitigation
Flood Control
Water Quality

Cultural & spiritual services

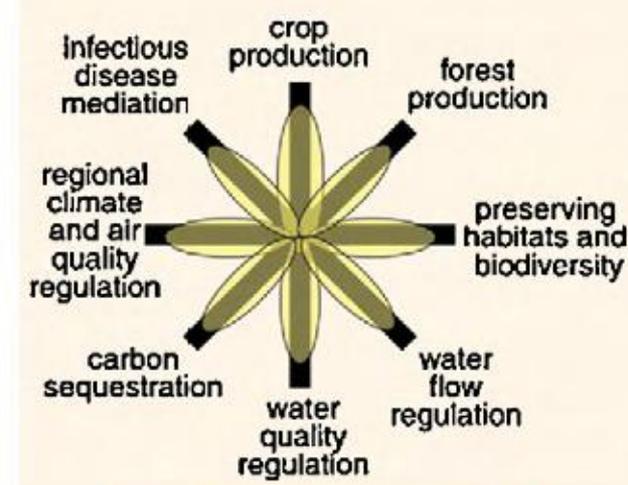
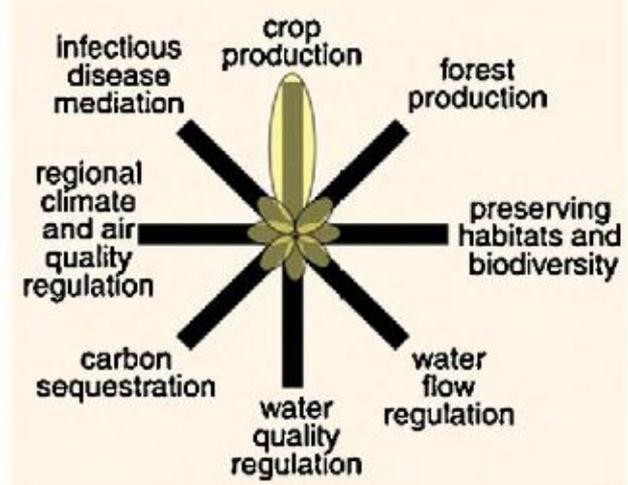
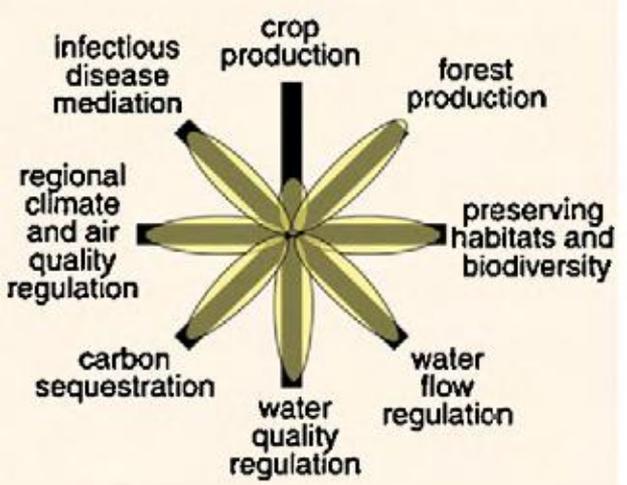
Recreation
Sense of place
Spiritual inspiration
Aesthetic, viewshed
Inspiration for art

Habitat or Supporting Services

Wildlife habitat
Nutrient cycling
Soil Formation
Primary Production



*) subset of biophysical structure or process providing the service



natural ecosystem



intensive cropland



cropland with restored ecosystem services

Tradeoff Analysis

Do protections mean more than granola for Western economies!
 Phil Taylor, E&E reporter
 Greenwire: Monday, October 24, 2011
 Idaho Gov. C.L. "Butch" Otter (R) told the House Natural Resources Committee in March that more golfers play the floating green in Coeur d'Alene in a single day than visit the Frank Church-River of No Return wilderness in an entire year.

Rationale & Connecting ES Users and Providers

NATION NOW
Battle brewing over expanding wilderness protection in the West
 November 10, 2011 | 4:14 pm

Congressional Republicans have talked about opening more federal land for energy exploration or selling land to reduce the budget deficit.

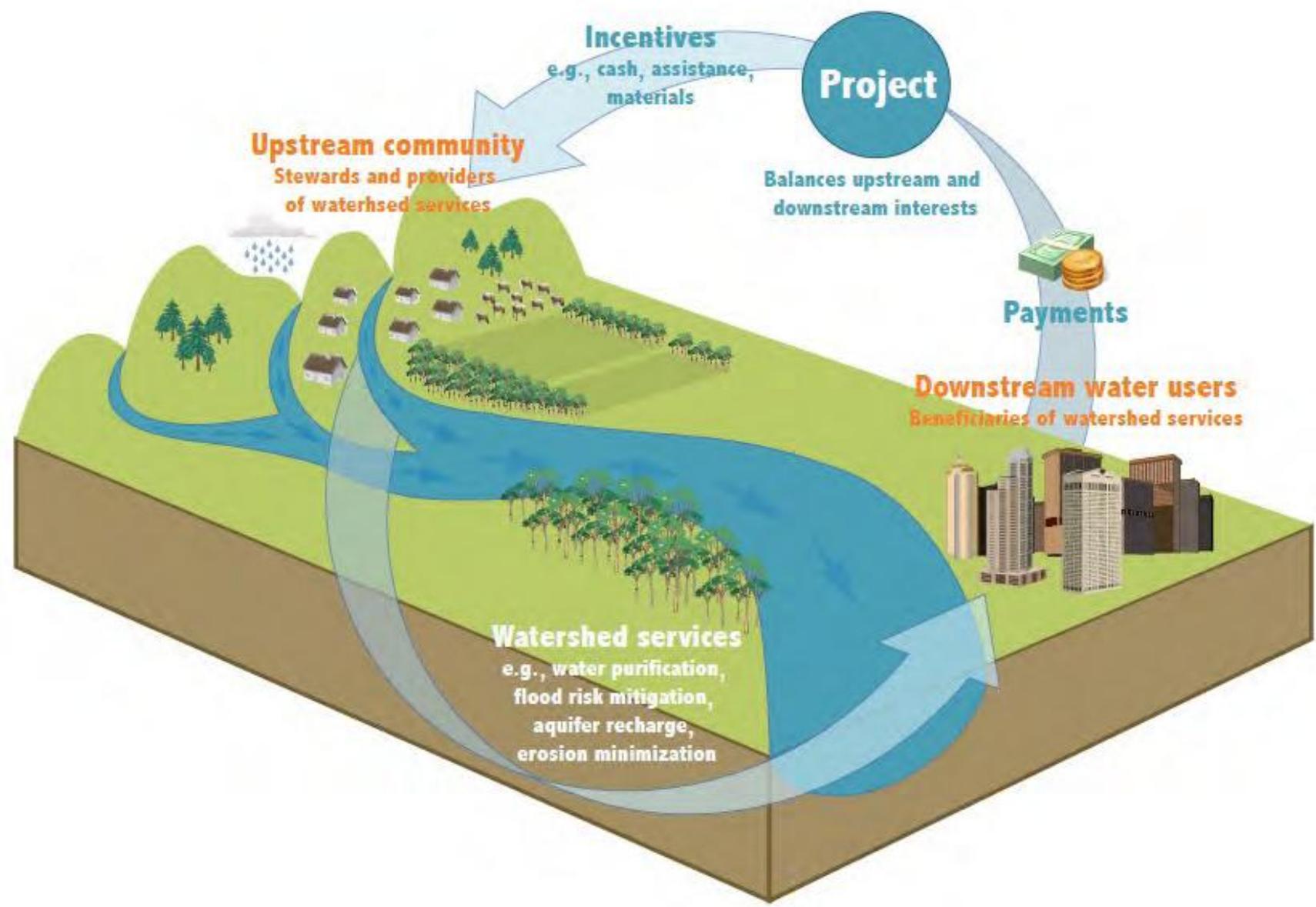
But Salazar noted in a letter to Congress that the 8.7 million acres run by the Bureau of Land Management that have been designated as wilderness since 1964 passage of the Wilderness Act "play a critical role in keeping local economies healthy and active."

"Recent reports suggest that outdoor recreation and conservation efforts generate as much as \$1 trillion in annual economic activity, support more than 6.4 million jobs, and provide tens of billions of dollars in local, state and federal tax revenue," he said. "These are significant contributions that can be further amplified through congressional protection of our most critical areas."

The reaction from Rep. Doc Hastings (R-Wash.), chairman of the House Natural Resources Committee, underscores the challenges faced by those seeking to set aside more federal land for protection.

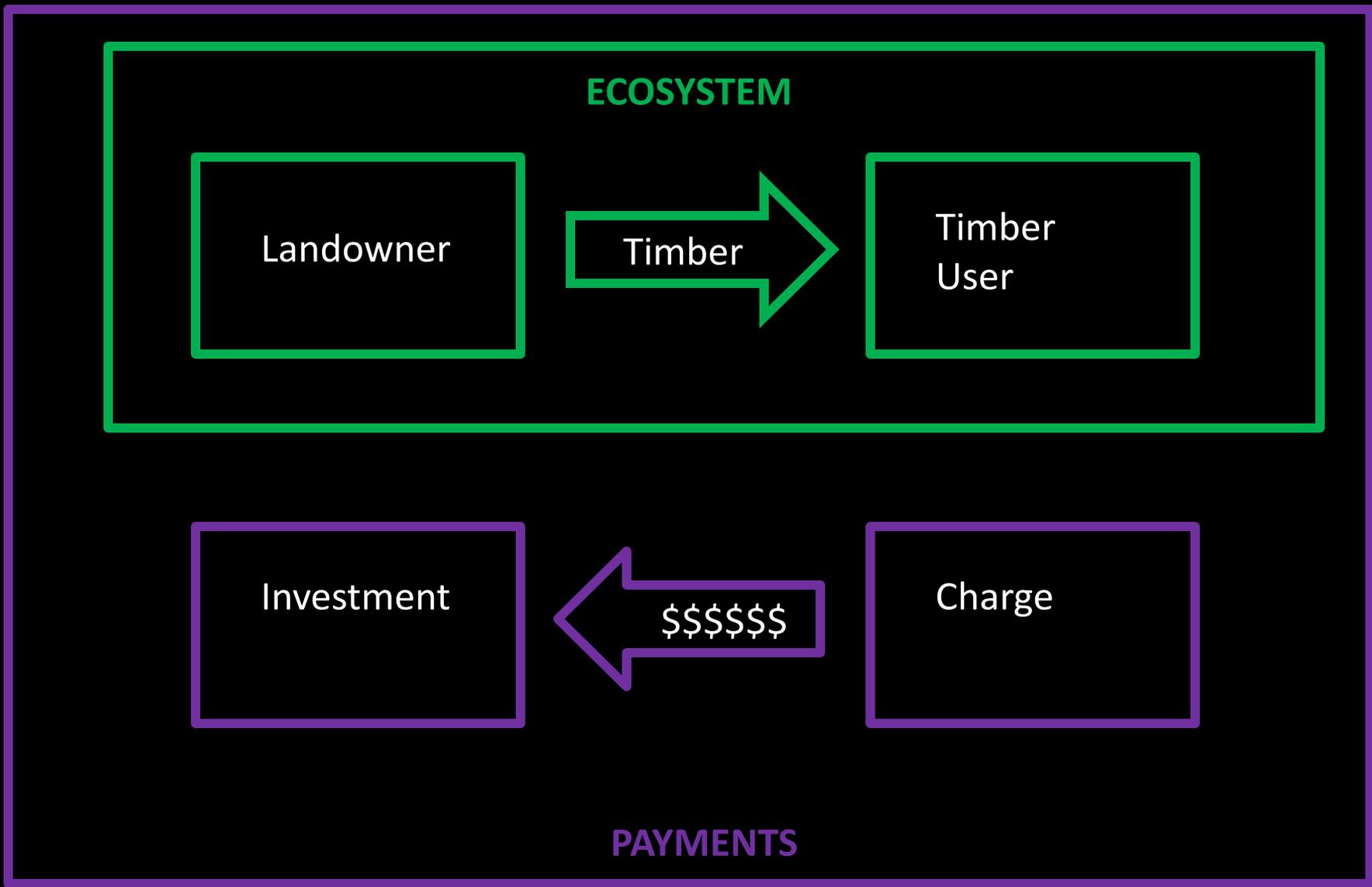
"The federal government already owns more lands than it can afford to properly manage," Hastings said in a statement.



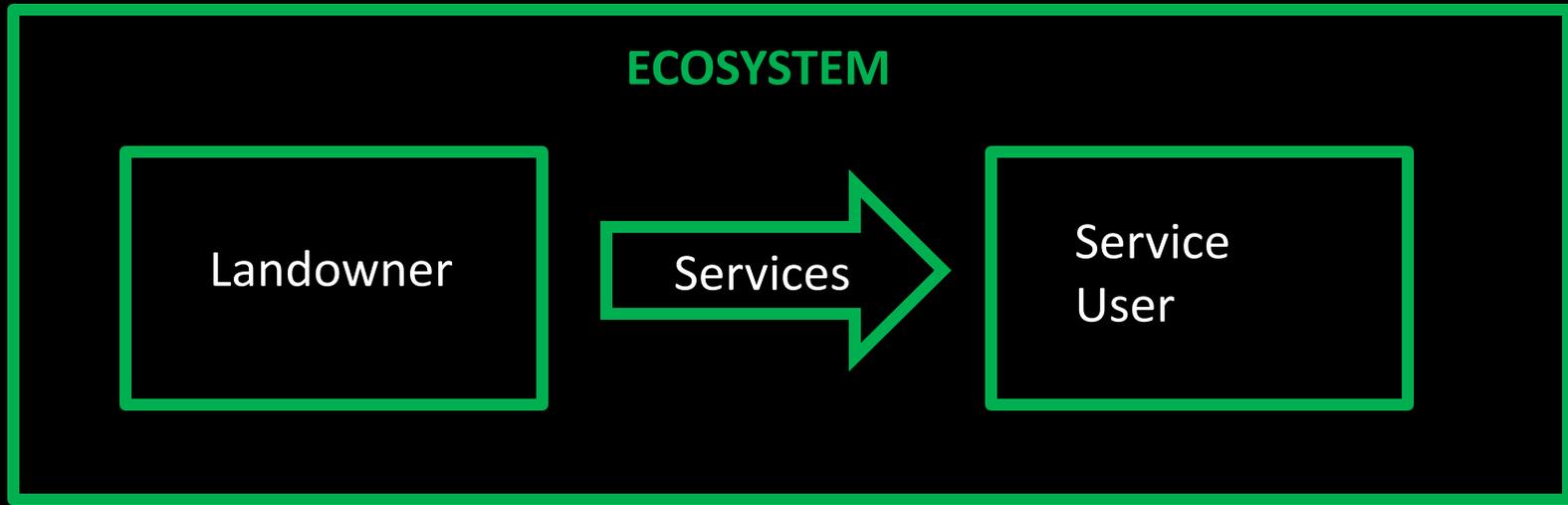




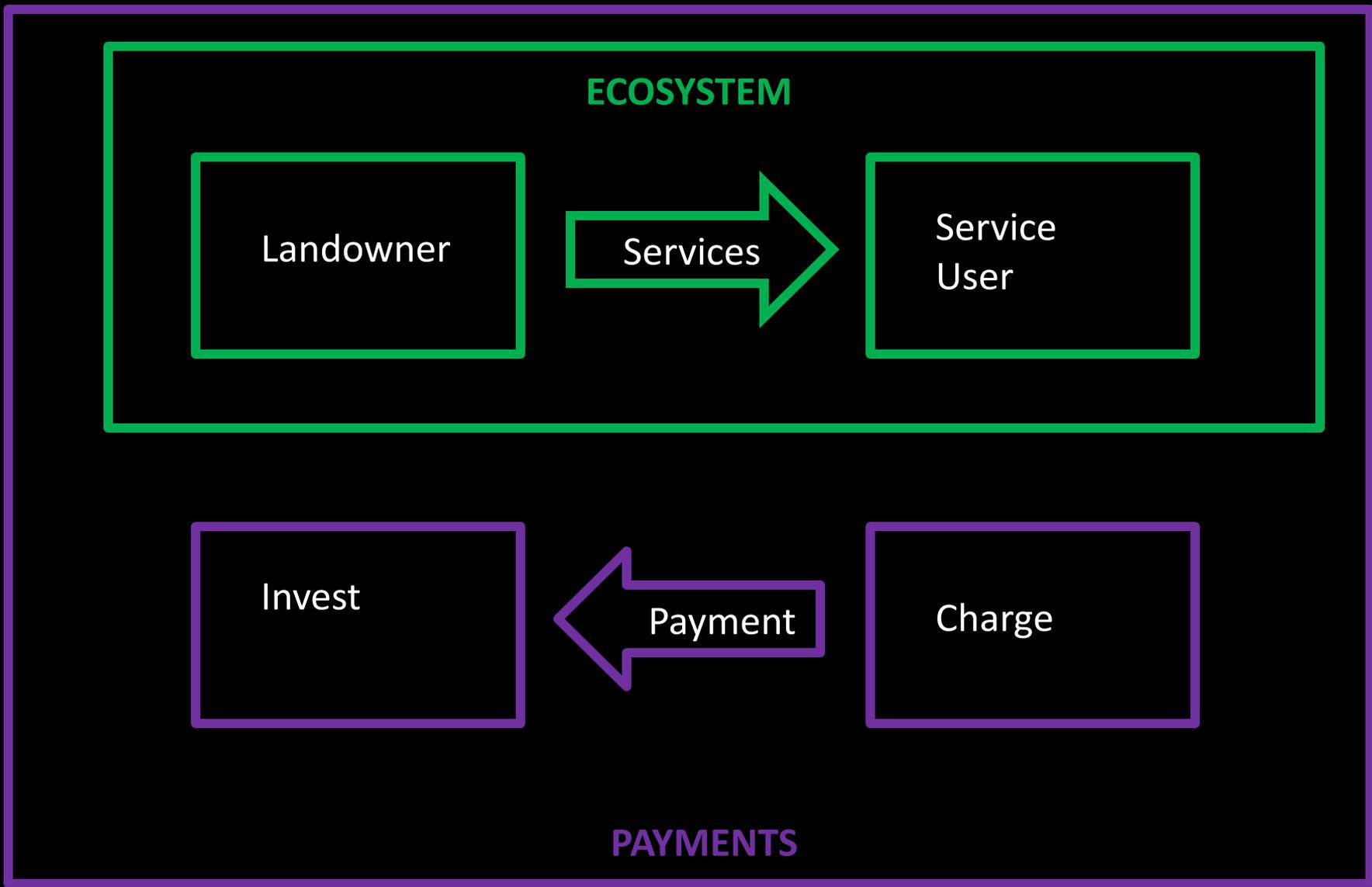
Ecosystem Service Markets



ECOSYSTEM

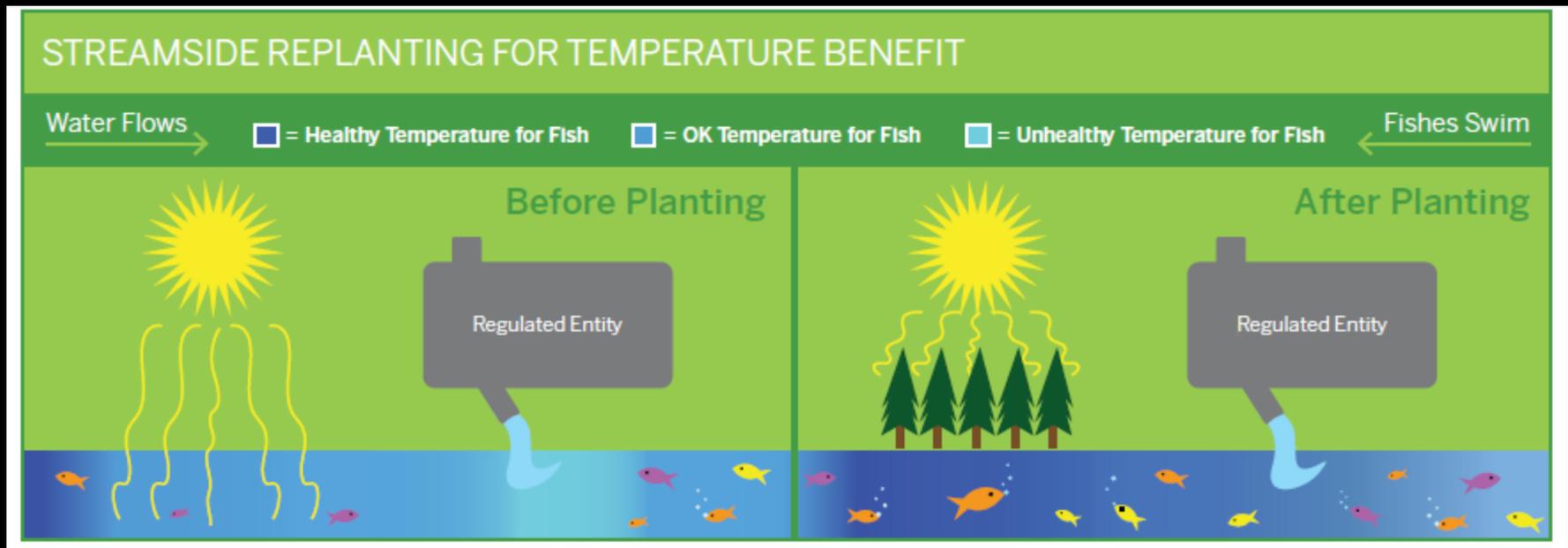


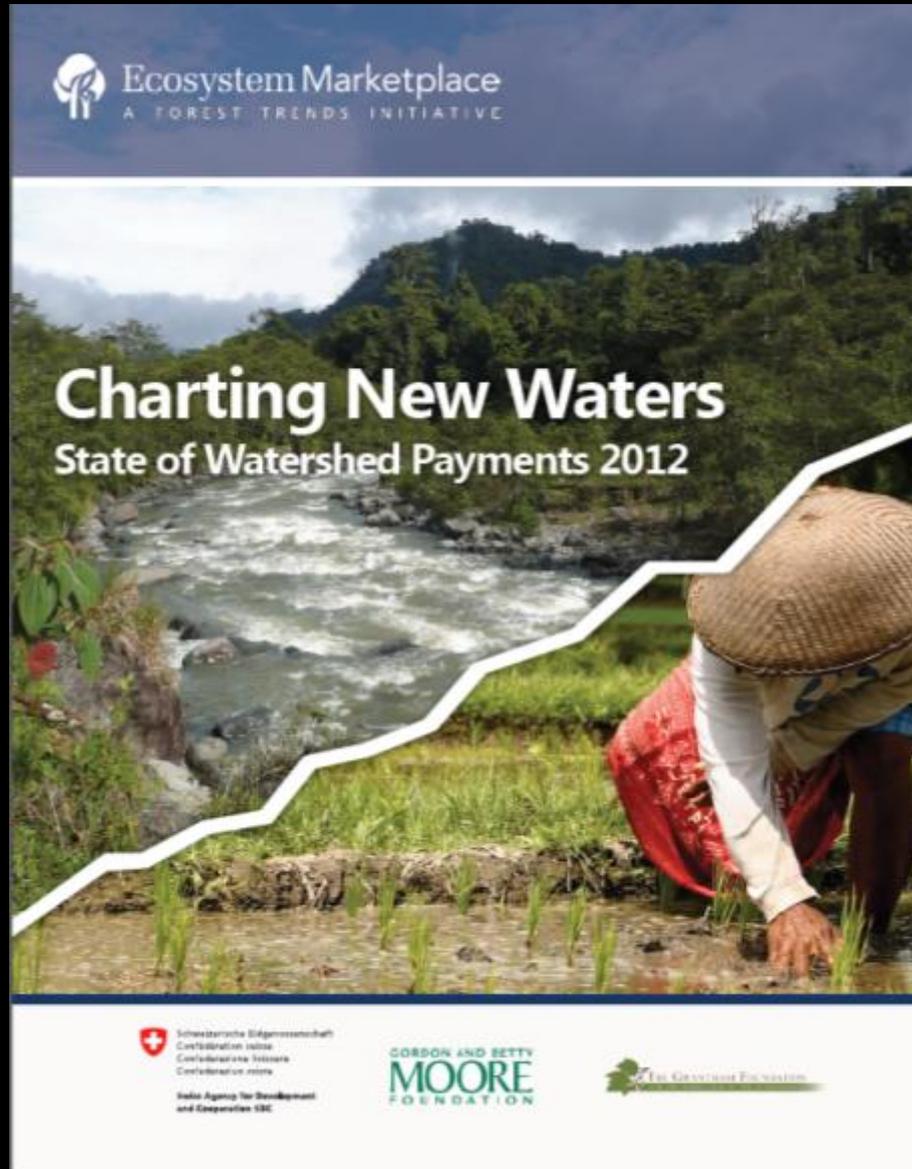
PAYMENTS





WQ Trading





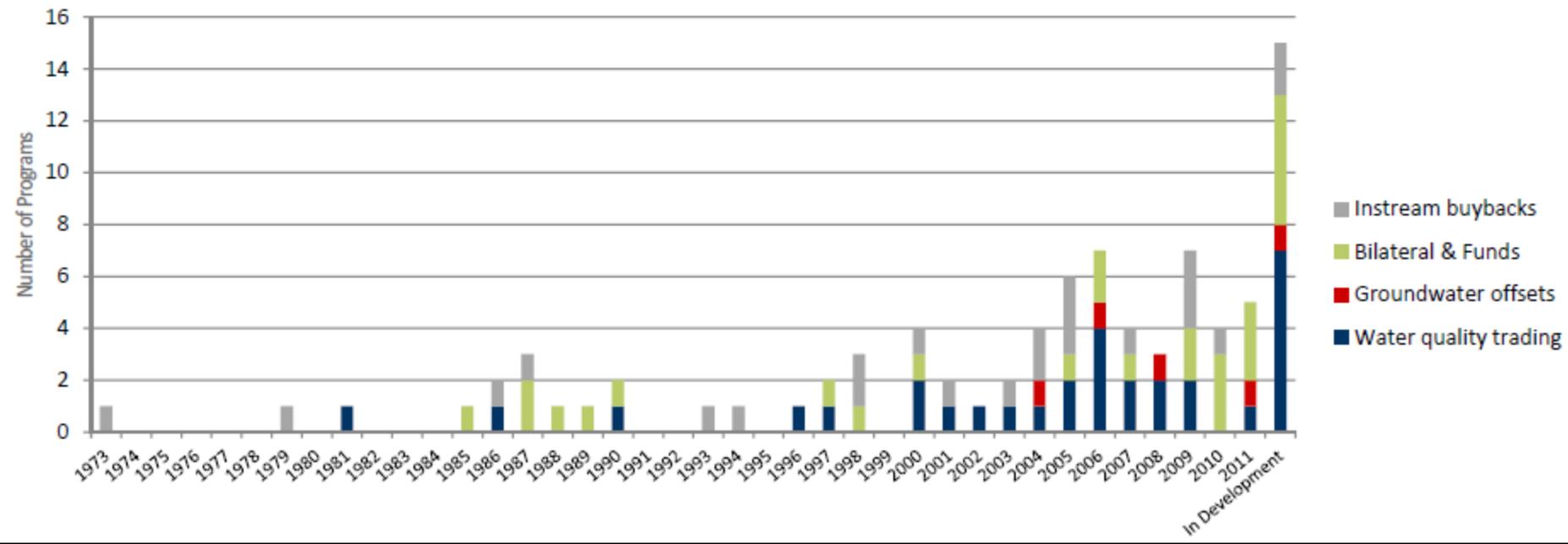
IWS Types

- Bilateral agreements and Funds
- WQ Trading
- In-stream Buy backs
- Groundwater Offsets

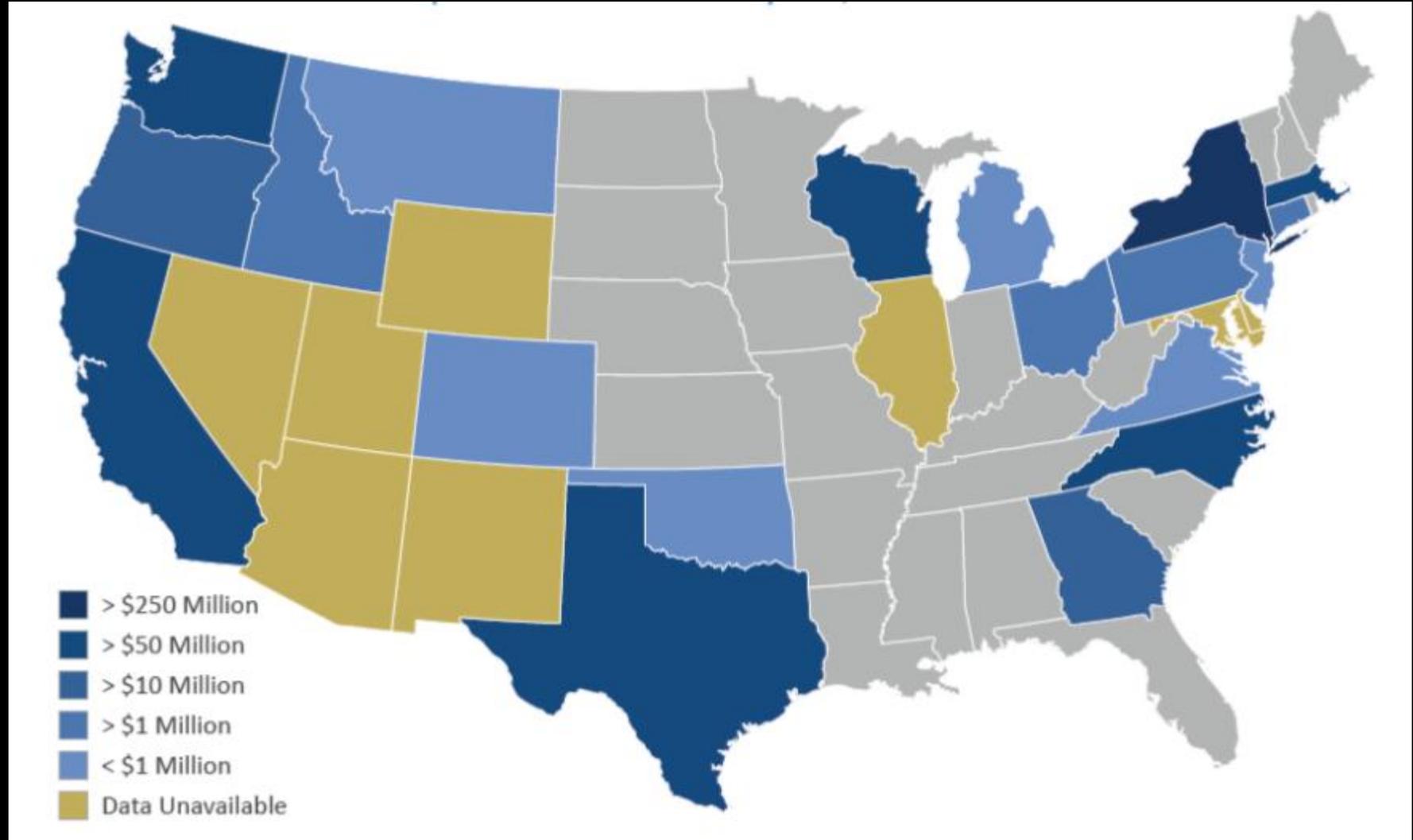
Active Programs by State



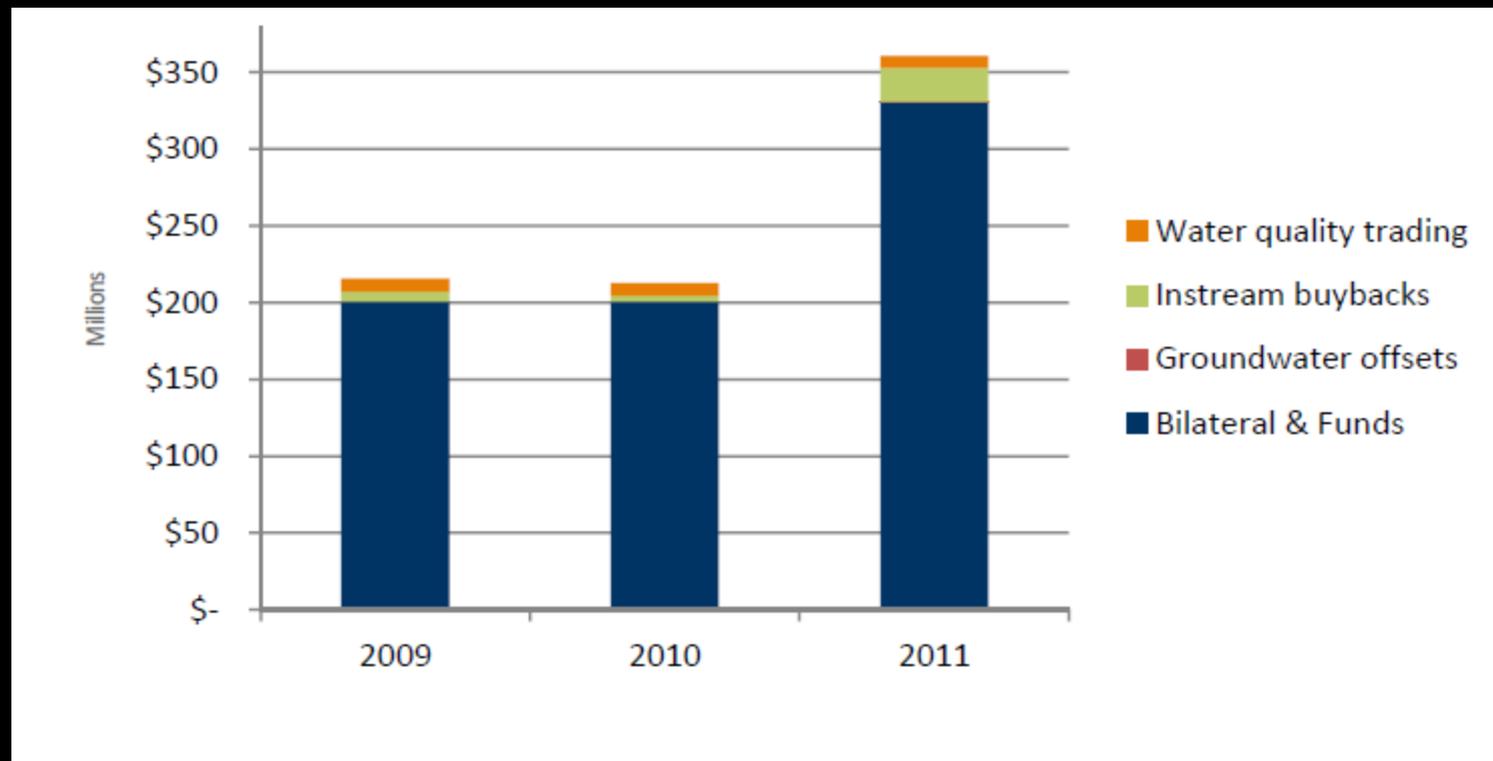
IWS projects by year

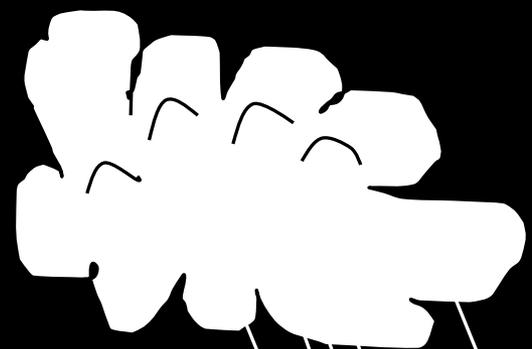


Historical Transactions by State

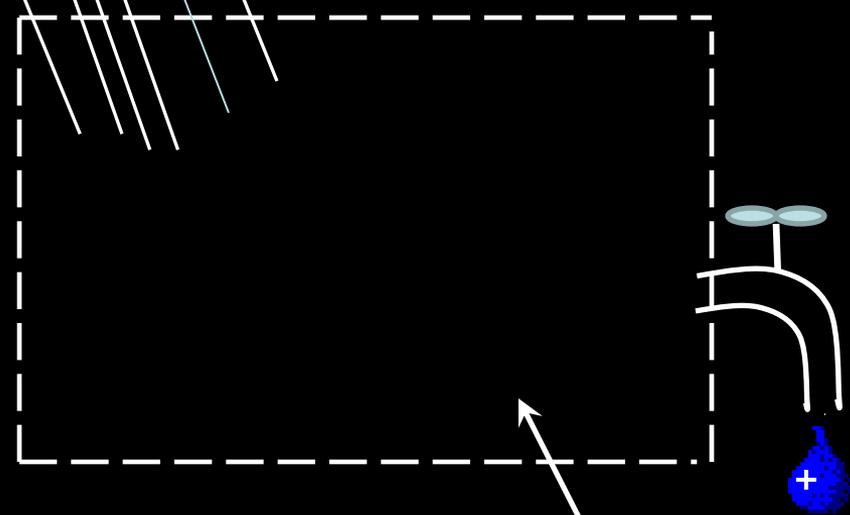


IWS Transactions by type





Questions?



I don't have any
Information on this bit



Claire Harper
USFS Cooperative Forestry
Colorado

Rocky Mountain Watershed Investment Partnerships



Your Forests, Your Water

Life Depends on Water



Claire Harper
Water Partnerships Coordinator
USFS Rocky Mountain Region



Rocky Mountain National Forests Supply Water to Many Western Counties



State	# Counties	Population
Arizona	7	4,546,700
California	7	19,329,800
Colorado	54	3,727,700
Kansas	16	756,800
Montana	11	196,400
Nebraska	27	1,017,600
Nevada	1	1,375,800
New Mexico	11	1,251,400
North Dakota	1	5,700
Oklahoma	6	751,200
South Dakota	9	175,800
Utah	8	92,700
Wyoming	19	403,600
TOTAL	177	33,630,800

2000 Census Data
Rounded to Nearest 100

Conducted 2003 by digital methods
at the Rocky Mountain Regional Office,
US Forest Service, Golden, Colorado.
Universal Transverse Mercator Projection,
Zone 13, 1983 North American Datum.
©7 County of Map of Land

Yellowstone
River Basin

Cheyenne
River Basin

Platte
River Basin

Colorado
River Basin

Arkansas
River Basin

Rio Grande
River Basin

Counties Using Water From Rocky Mountain National Forests

Population of 100,000 or less

100,001 - 500,000

500,001 - 1,000,000

1,000,001 - 1,500,000

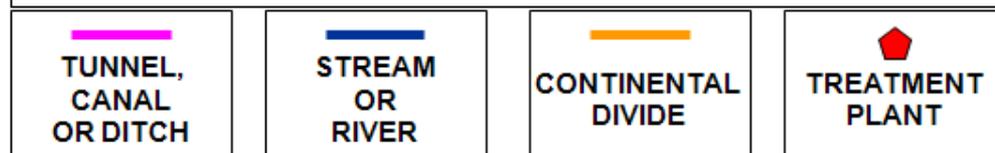
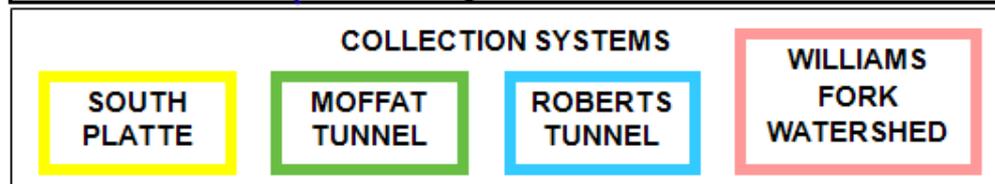
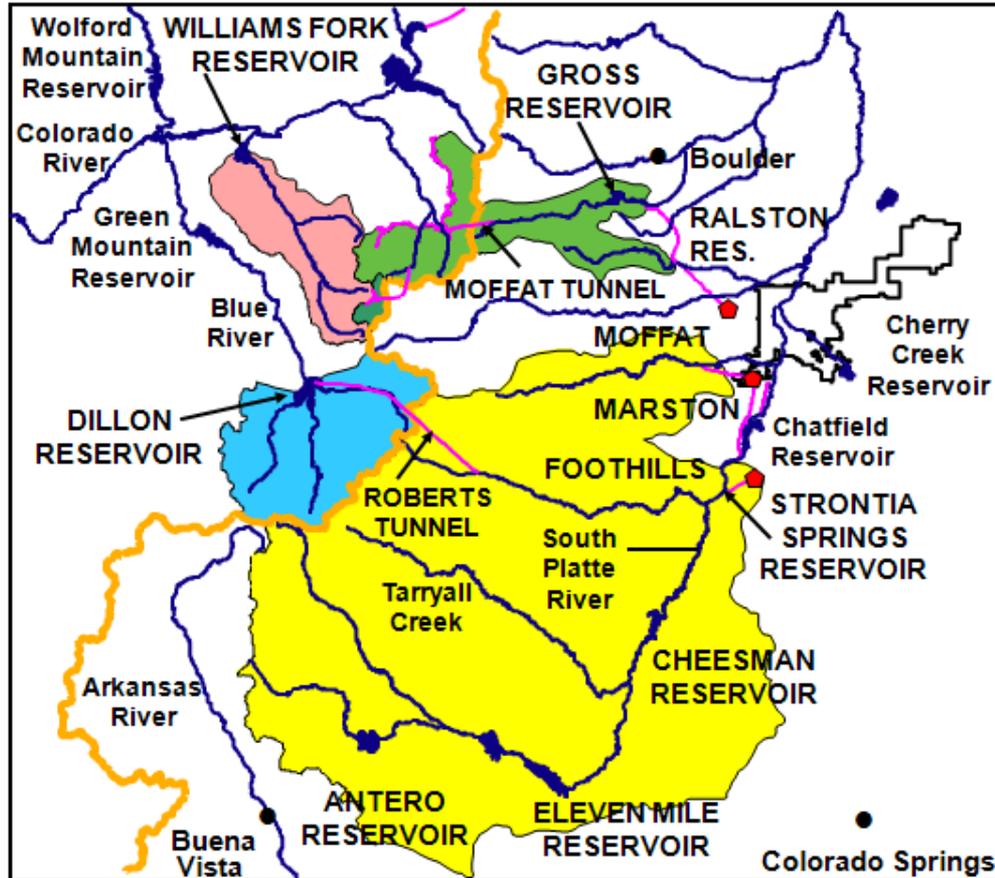
1,500,001 or Greater

Rocky Mountain National Forests

River Basin Boundaries

0 50 100 200 Miles

Denver Board of Water Commissioners Water Collection System



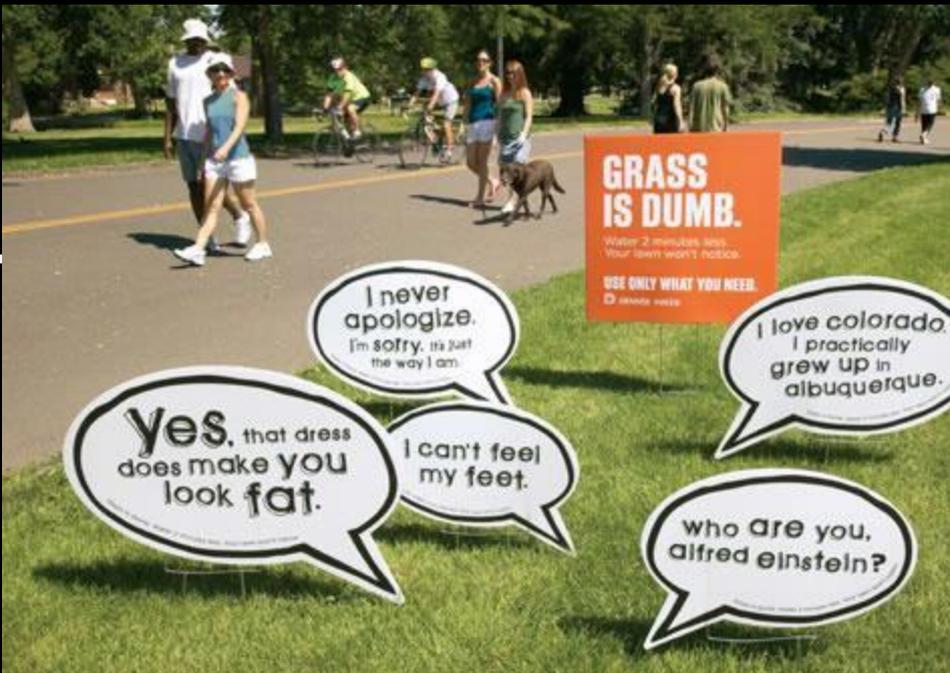
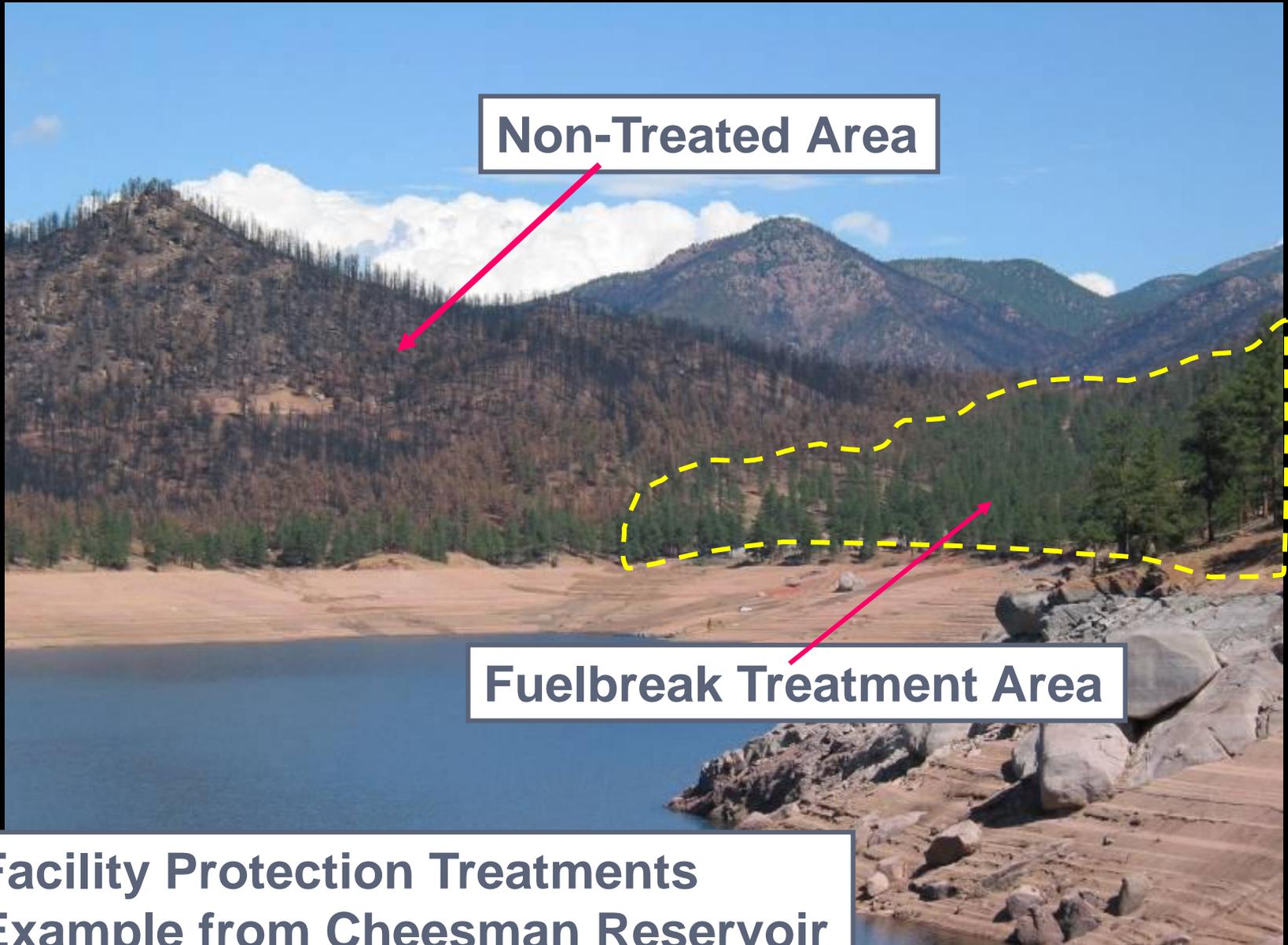


Photo credit: Denver Water



Photo credit: Denver Water

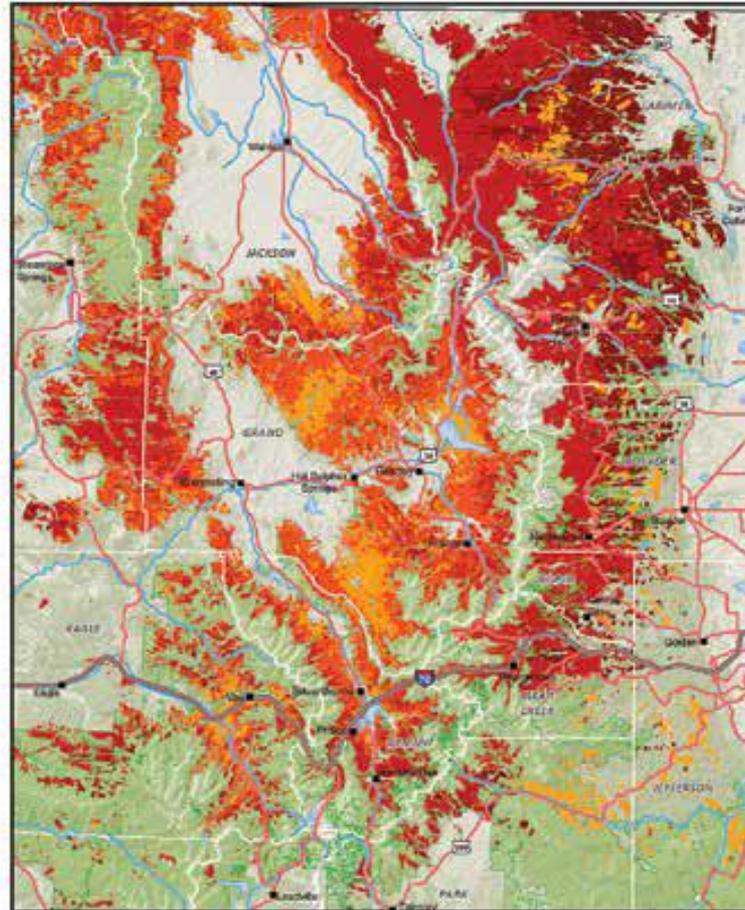


Non-Treated Area

Fuelbreak Treatment Area

**Facility Protection Treatments
Example from Cheesman Reservoir**

Mountain Pine Beetle Progression, 1998-2012



1998 - 2000
2001 - 2003
2004 - 2006
2007 - 2009
2010 - 2012

USDA Forest Service

0 2.5 5 10 15
Miles



Partnership

Goal is to treat 38,000 acres over 5 years

- to proactively improve the health and resiliency of forests and watersheds

- in areas critical for providing and delivering water to 1.3 million people in the city of Denver and surrounding suburbs



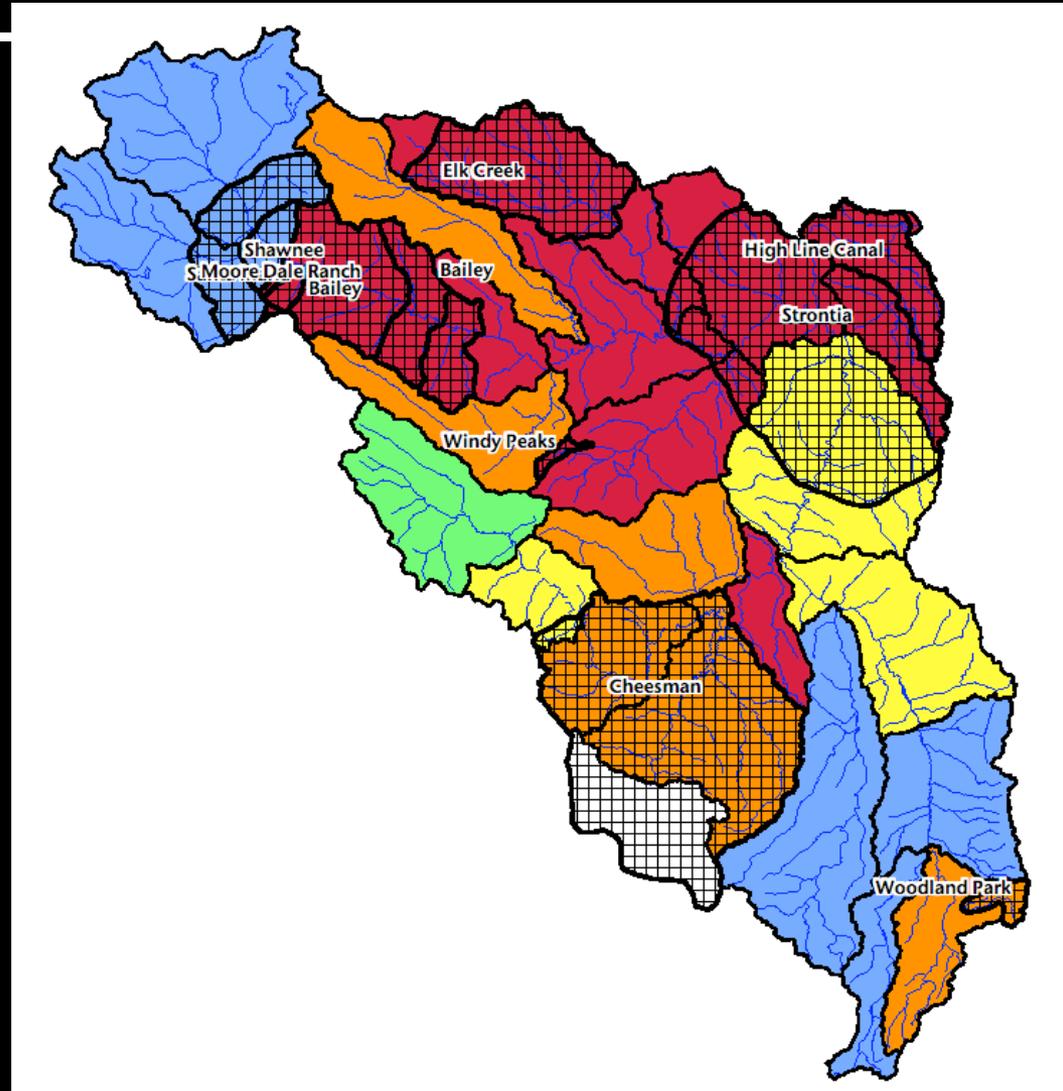
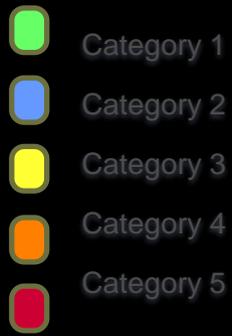
Upper South Platte Zones of Concern

Wildfire Risk

Flooding/Debris Flow Potential

Soil Erodibility

Water Supply Infrastructure

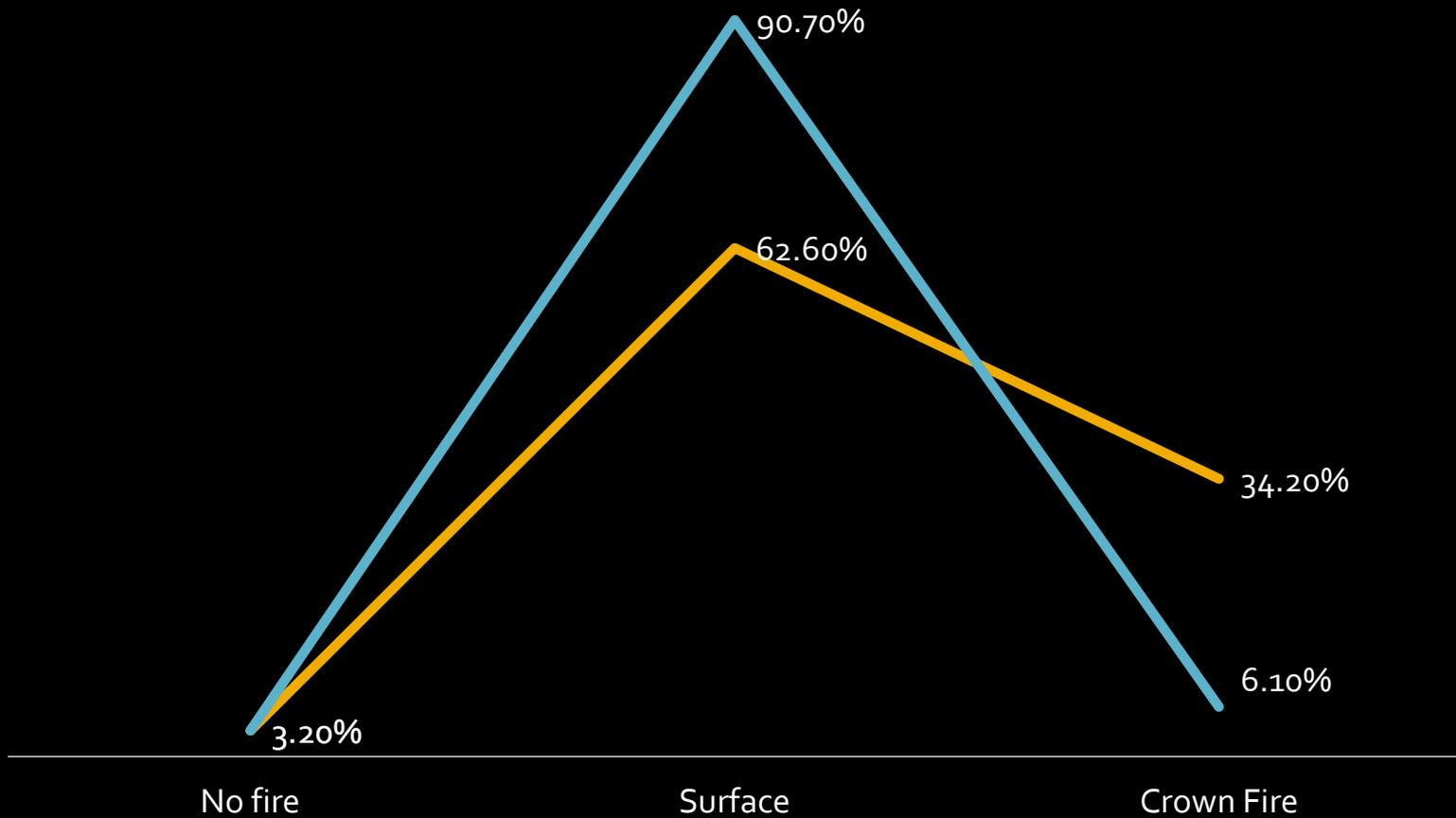






Fire Behavior Probabilities

Existing Condition Proposed Treatment





Five Year Plan (2011-2015)



Priority Watershed	Original Goals	Current Projections	Zones of Concern
Upper South Platte River	23,272	25,767	15,914
South Platte River Headwaters	3,130	3,235	276
St Vrain River	4,034	4,619	1,800
Colorado River Headwaters	1,348	1,348	999
Blue River	6,500	6,567	6,289
TOTAL (Acres)	38,284	41,536	25,278

Current Projects & Projected Outcomes

Currently Implementing with Denver Water almost 24,750 acres in the Priority Watersheds:

- 12,898 acres (52%) are within DW's Zones of Concern
- 11,319 acres fully completed (6,878 in Zones)

Projected Outcomes for Current Projects:

- 21,029 acres with reduced hazardous fuels
- 548,248 tons of biomass removed or dispersed
- 3,720 acres to be reforested within burn areas
- 498,480 tree seedlings planted



Other Watershed Investors

- **Municipal Water Providers:**
 - **Colorado Springs Utilities**
 - **Aurora Water**
 - **Pueblo Board of Water Works**
 - **Northern Water/ Bureau of Reclamation**
- **Corporate Partners:**
 - **Vail Resorts**
 - **MillerCoors**
 - **CocaCola**

Questions? Comments?



Your Forests, Your Water

Life Depends on Water

Claire Harper
303-275-5178
claireharper@fs.fed.us





Bob Deal
Pacific Northwest Research Station
Oregon

Water Quality Trading and Markets for Ecosystem Services

Robert Deal

Research Forester and Ecosystem Services Team Leader
USDA Forest Service - PNW Research Station



Overview

- Ecosystem services and markets
- Tualatin River project in NW Oregon
- Counting on the Environment (COTE) protocols
 - Rogue River – Medford water project
 - Scaling up to regional shared market infrastructure
- USFS Ecosystem Services Framework: partnerships, public/private collaborative efforts.

Ecosystem services are “the benefits people obtain from ecosystems”

ECOSYSTEM SERVICES	
Supporting Services Nutrient cycling Soil formation Primary production	Provisioning Services Food (crops, livestock, wild foods, etc...) Fiber (timber, cotton/hemp/silk, wood fuel) Genetic resources Biochemicals, natural medicines, pharmaceuticals Fresh water
	Regulating Services Air quality regulation Climate regulation (global, regional, and local) Water regulation Erosion regulation Water purification and waste treatment Disease regulation Pest regulation Pollination Natural hazard regulation
	Cultural Services Aesthetic values Spiritual and religious values Recreation and ecotourism

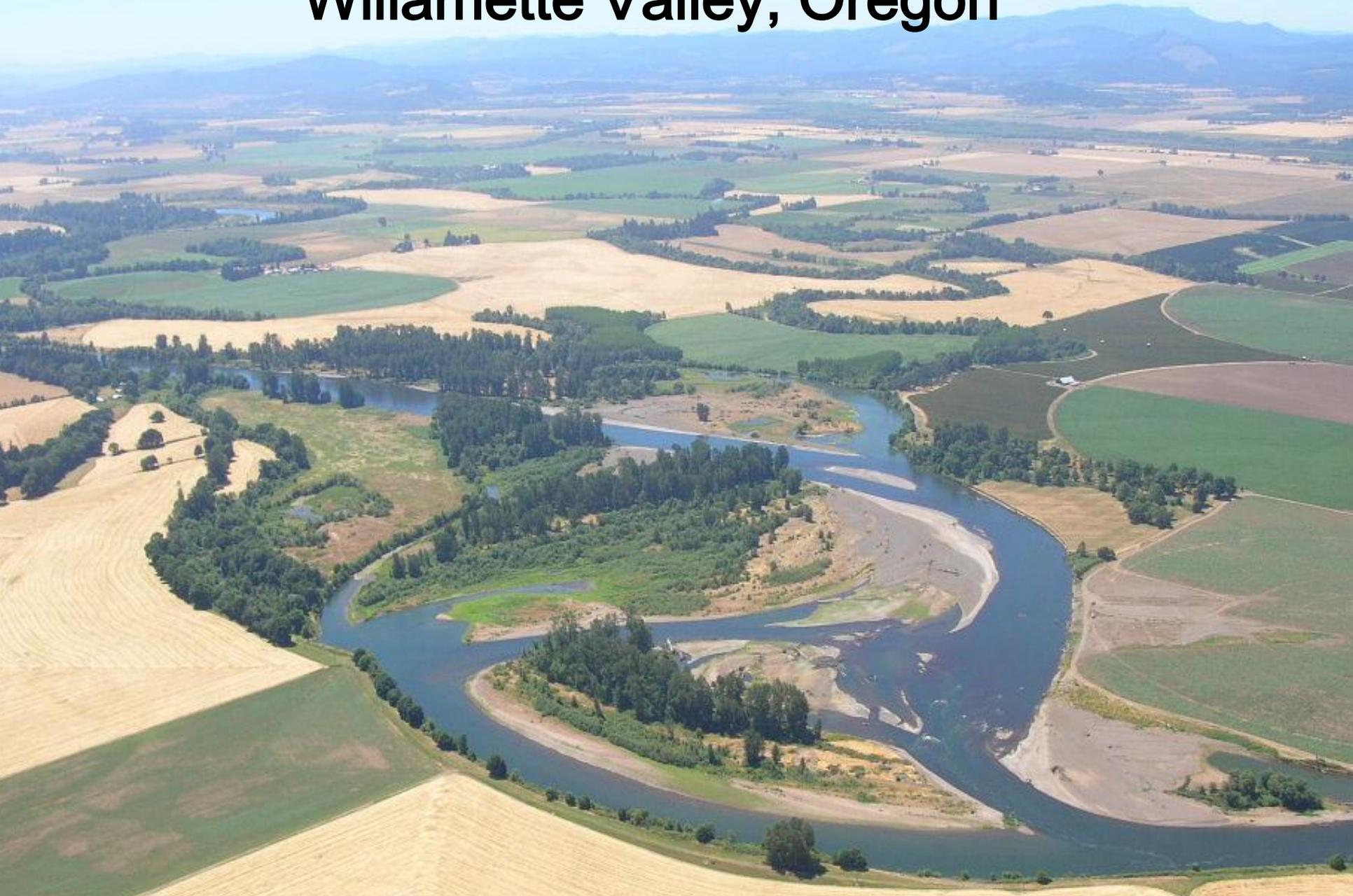
Source:

Millenium
Ecosystem
Assessment,
(www.mea.org)

Emerging markets for Ecosystem Services

- Water quality trading
- Wetland mitigation
- Species conservation banking
- Carbon credits
- Biodiversity and voluntary markets

Willamette Valley, Oregon





Typical project example to meet regulatory compliance



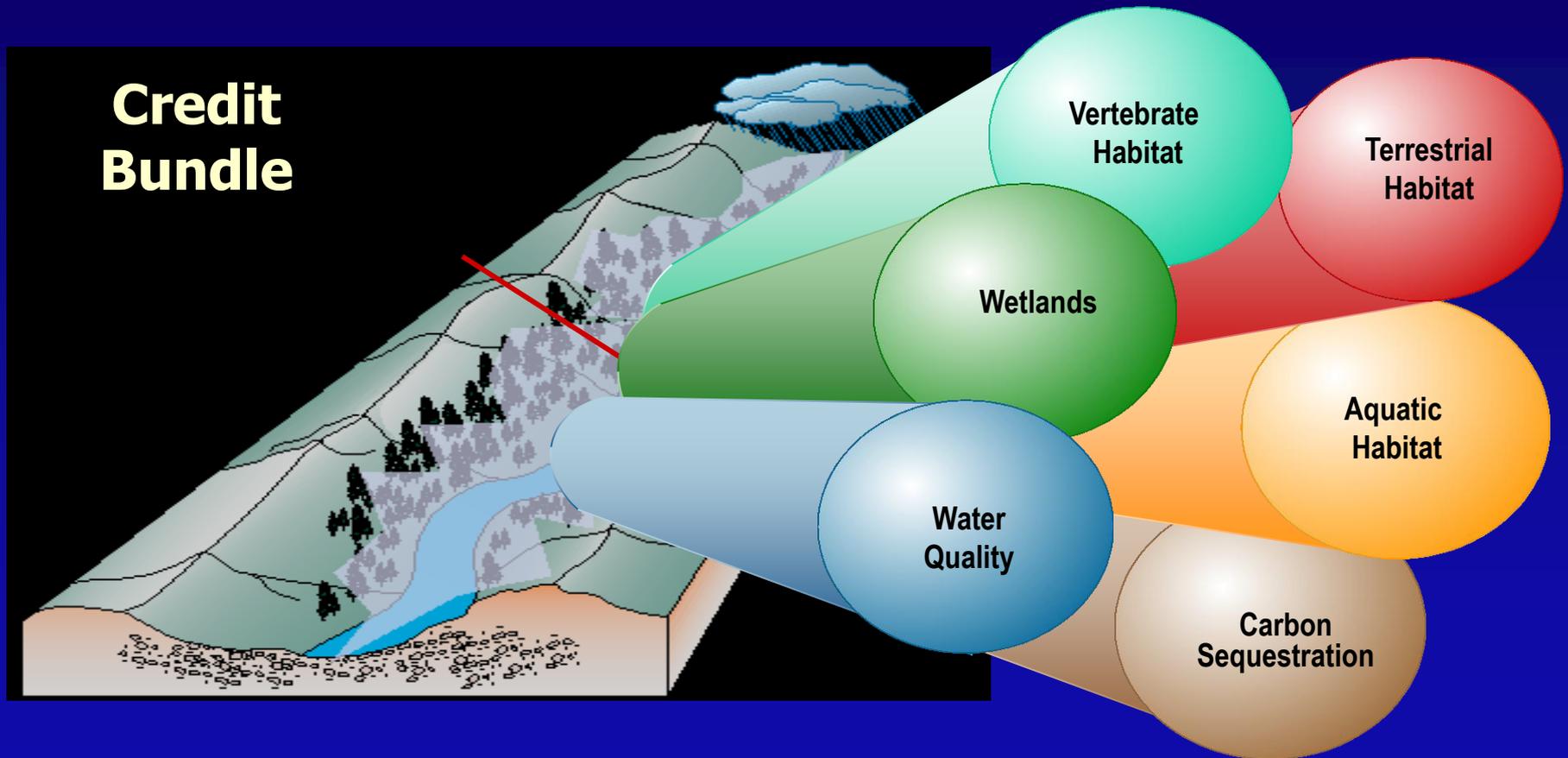
Tualatin River- Cleanwater Services project



Tualatin River project

- Innovative partnership between Cleanwater Services and federal EPA.
- Example using regulated market (TMDL) with creative solution for greater ecosystem uplift.
- Saved utility millions of \$, EPA and OR DEQ regulatory standards, set the stage.
- Only one example with a large water utility.

Bundling ecosystem services to increase forest value





Willamette Partnership- Counting On The Environment

- COTE standards developed joint statement of agreement with numerous federal and state regulators, land managers, cooperators for an ecosystem credit accounting system.
- Regulatory certainty that could be applied in other watersheds and utilities.

Crediting Protocol

Standards, Metrics, and Process

Joint Statement of Agreement
for an
Ecosystem Credit Accounting System
Issued and signed by organizational leadership
September 2009



Crediting protocol approved for use

Freshwater
Trust™

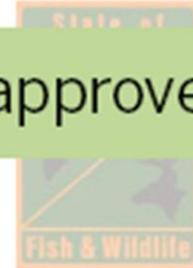
ecotrust

US Army Corps
of Engineers.



CleanWater Services
Our commitment is clear.

The Nature



NRCS

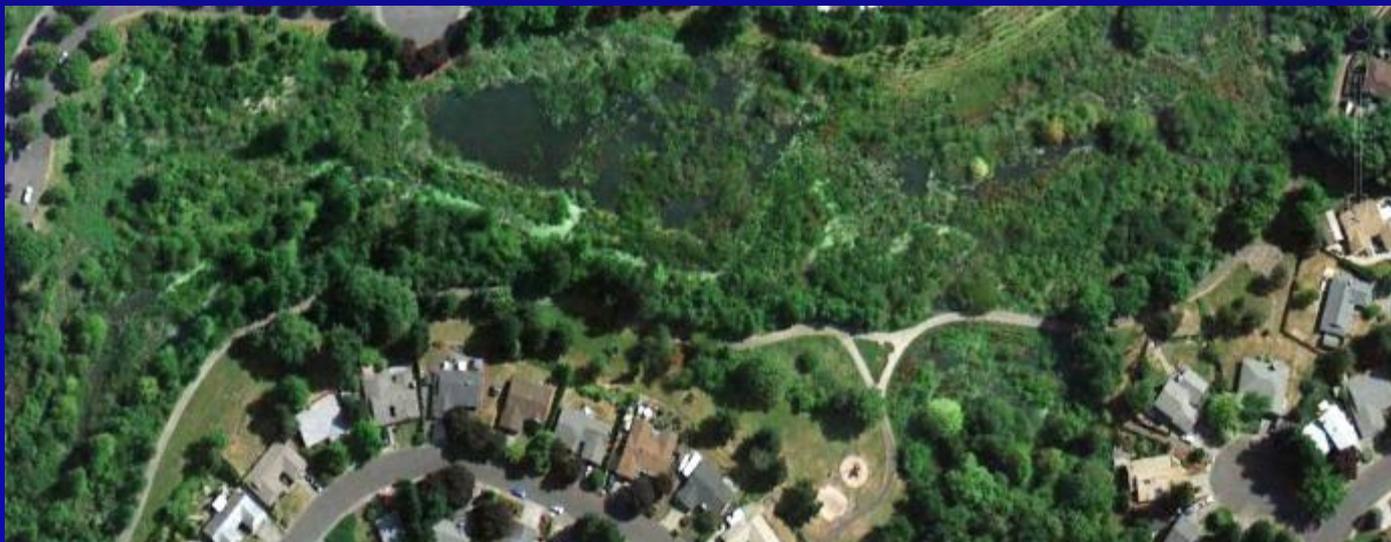


Department

Willamette Partnership- Counting on the Environment

- COTE developed of an integrated ecosystem credit accounting protocol for four ecosystem service markets:
 - Water quality trading
 - Wetland mitigation
 - Salmonid habitat
 - Prairie habitat

Building Regional Capacity to Implement Multi-Credit Ecosystem Services Markets



Using COTE protocols to develop regional scale market infrastructure

- Applying COTE protocols in another region.
- Regulatory certainty and assurance of protocols.
- Medford - limited capacity to implement projects.
- NRCS-CIG with Freshwater Trust – contract riparian restoration activities.
- USFS- Willamette Partnership for verification, registering & tracking of credits at Denman site.
- \$8 million – 20+ miles of riparian restoration.

City of Medford, SW Oregon Rogue River-Denman project



Rogue River- Denman project



Regional markets

- Clear demand, standards and metrics, people to manage risk.
- Moving work from local projects to watersheds and regional scales.
- Building a regional network (OR, WA, ID, CA) of local markets linked to shared market infrastructure.

Ecosystem Services: More than just markets





Using Ecosystem Services as a Framework for Forest Stewardship

A collaboration between the Deschutes National Forest & USFS Pacific Northwest Research Station

http://www.fs.fed.us/pnw/pubs/pnw_gtr852.pdf

Dale Blahna, Robert Deal, Jeff Kline, Trista Patterson, Tom Spies
PNW Research Station

John Allen, Cindy Glick, Tom Mafera
Deschutes National Forest

Nikola Smith, Karen Bennett
USFS Region 6

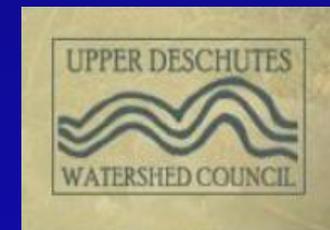
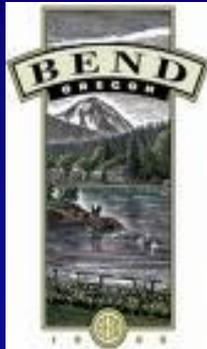
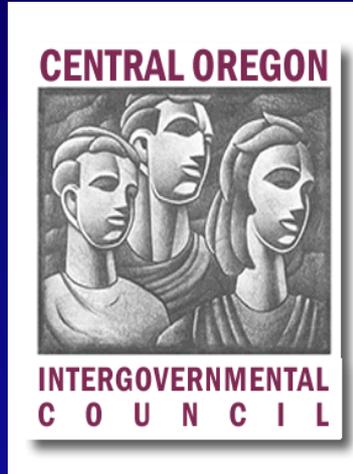
Ecosystem Services in the USFS Planning Rule

“.....to guide the development, amendment, and revision of land management plans to maintain and restore National Forest System land and water ecosystems while providing for ecosystem services and multiple uses.....”

Federal Register - April 9, 2012

Who benefits from Forest Service management actions?

Who shares common interests in ecosystem service provision?



A lush forest with a waterfall cascading down a rocky ledge. The scene is misty and green, with moss-covered rocks and dense foliage. The waterfall is the central focus, surrounded by tall trees and ferns.

Articulating the Value of an Ecosystem Services Approach for Forest Management

Working with partners to increase capacity to define water quality and habitat benefits that result from upland forest management

Stimulates market development and public / private partnerships

Encourages collaborative approaches to landscape scale restoration

Implementing an All-Lands Ecosystem Services Framework

- An Ecosystem Services Framework can support a more integrated, landscape scale approach that sustains the multiple benefits forests provide.
- Increasing capacity to articulate connections between forests, ecosystem services and public benefits can stimulate market activity for restoration and encourage partnerships across ownerships.

Questions?

Thank you!
Robert Deal rdeal@fs.fed.us

Questions and Answers

Ask questions through the chat pod



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***Session #12 - Greening Grey Infrastructure:
Federal Highway's Eco-Logical Program
and
Transportation Partnerships on National Forests
I-90 Snoqualmie Pass East Project – Washington
US Route 33 Bypass - Ohio***

Wednesday, March 27 at 2:00 pm Eastern

Marlys Osterhues

Federal Highway Administration – Washington D.C.

Dan Kincaid

Wayne National Forest, Ohio

Patty Garvey-Darda

Okanogan-Wenatchee National Forest, Washington State .



Future Webinar Topics

- **April** - City and County Open Space Programs
- **May** - Forest Legacy and Protecting Private Lands: Monitoring and Enforcement of Conservation Easements
- **June** - Open Space and All Lands in National Forest Revision Planning
- **July** - Strategic Conservation Planning

Give us your feedback!

www.fs.fed.us/openspace/webinars

Or Contact

Susan Stein – sstein@fs.fed.us

Sara Comas - scomas@fs.fed.us

Rick Pringle – rpringle@fs.fed.us