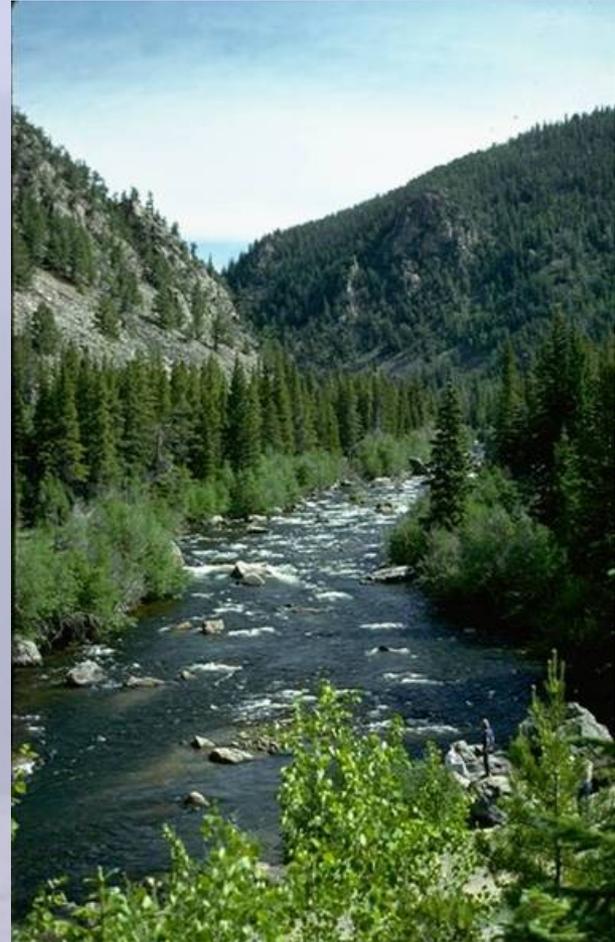


Role of Western National Forests in Sustainable Water Management



Polly Hays, Water Program Manger
Rocky Mountain Region, USFS
SWRR – July 19, 2016

Foundation

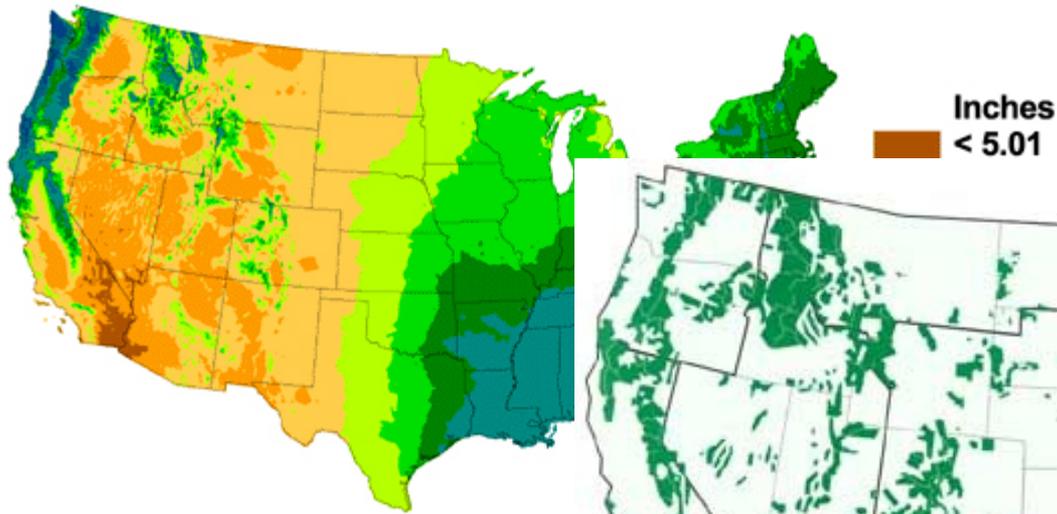
“No national forest shall be established, except to improve and protect the forest... or ***for the purpose of securing favorable conditions of water flows...***” – Organic Administration Act 1897

“...purchase such forested, cutover, or denuded lands within watersheds of navigable streams as in [the Secretary of Agriculture’s] judgment may be necessary to the ***regulation of the flow of navigable steams...***”– Weeks Act 1911



“The connections between forests and rivers is like that between father and son. ***No forest, no rivers.***”
Gifford Pinchot

Annual Mean Total Precipitation

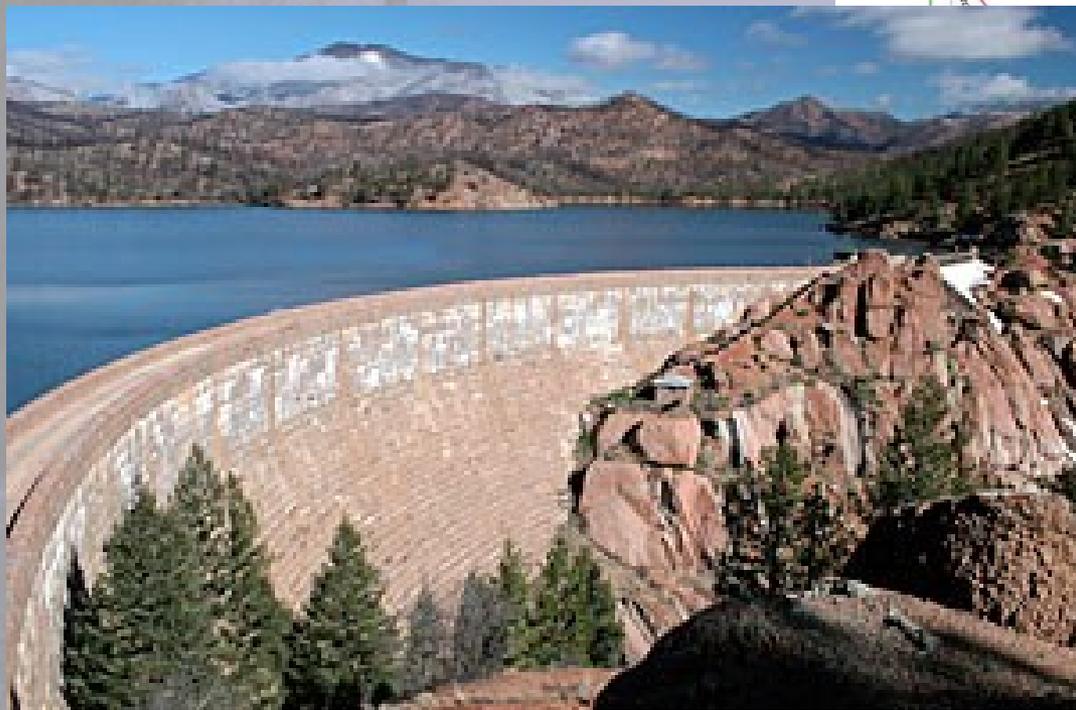


National Forest System Lands

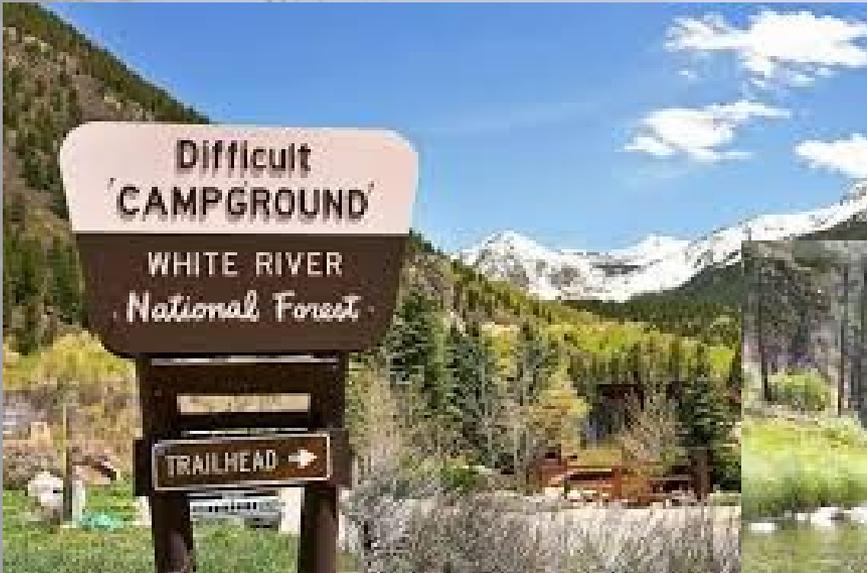
Natural Infrastructure



Built infrastructure



National Forests



Research



State and Private Forestry



AWAE is at the forefront of the study of natural resources and works to maintain healthy watershed conditions in our national forests.

PUBLICATIONS

AWAE provides impartial information on the health of our ecosystems and environments, the natural resources we rely on, the impacts of climate and land-use change, and the core science systems that help us provide timely, relevant, and useable information. To learn more, access [publications](#) written by our scientists in a variety of formats.



SCIENCE BRIEFINGS



JOURNAL ARTICLES



TECHNICAL

PROJECTS, TOOLS, & DATA



The National Stream Internet

The NSI is a network of people, data, and analytical techniques that interact synergistically to create information about streams.



RESEARCH TOPICS

RMRS AWAE scientists cover a wealth of different subject areas, with much collaboration between specialties. Scientists have extensive experience and expertise within the [Rocky Mountain Research Station's Strategic Research Priorities](#) and associated Sub-Elements, including:

DISTURBANCE
ECOLOGY

FIRE SCIENCES

HUMAN-
LANDSCAPE
INTERACTIONS

INVENTORY &
MONITORING

RESILIENT
LANDSCAPES

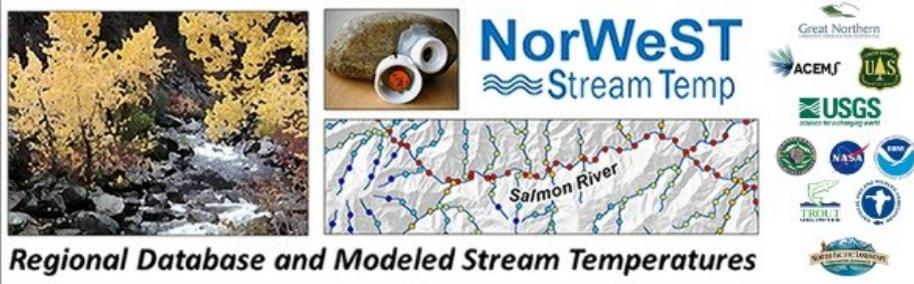
SPECIES
ENDANGERMENT

WATER &
WATERSHEDS

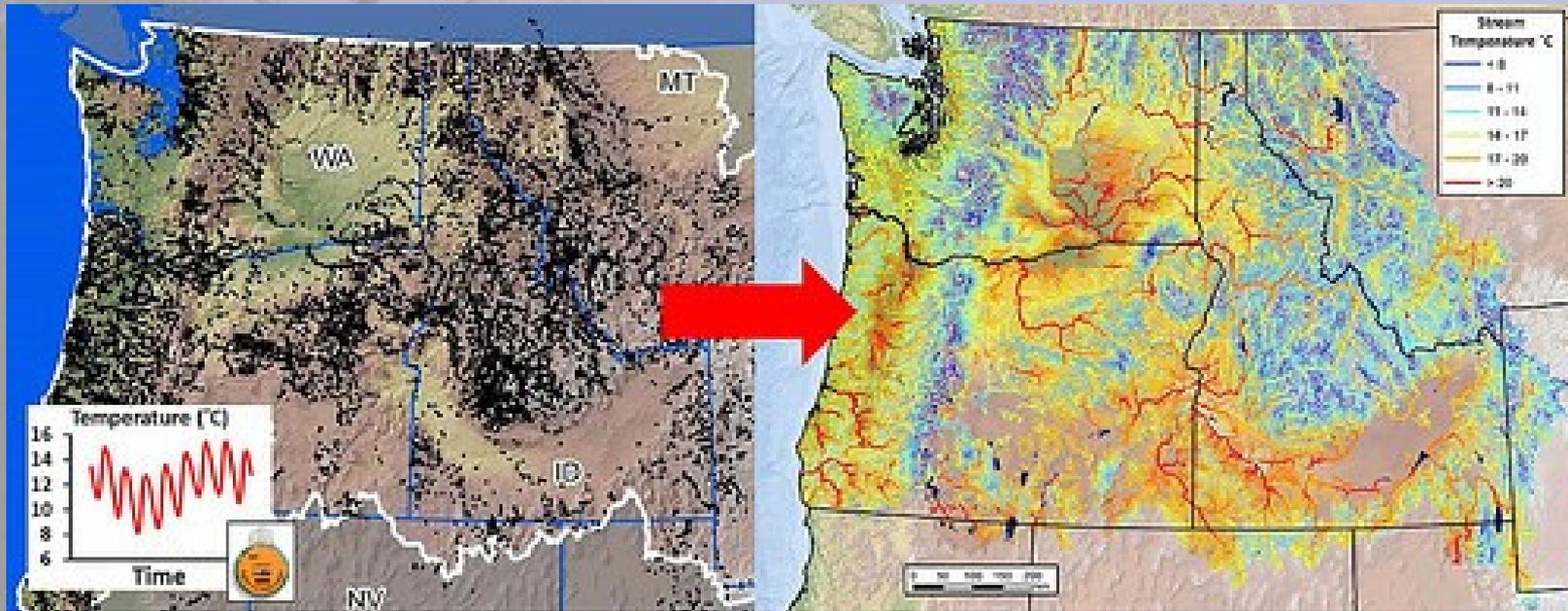
Fire & Watershed Processes



Fire & Aquatic Population Response



Cold Water Can be Used as a Climate Shield to Protect Native Aquatic Species



Maps showing the study area and locations of stream temperature data that were contributed by hundreds of people working for more than 80 natural resource agencies to develop high-resolution stream temperature scenarios that encompass 450,000 kilometers of stream. (Courtesy of U.S. Forest Service Rocky Mountain Research Station)

Geomorphic Road Analysis and Inventory Package (GRAIP)



Stream Simulation: An Ecological Approach to Providing Passage for Aquatic Organisms at Road-Stream Crossings

U.S. Department
of Agriculture
7700—Transportation
Management
0877 1801—SDTDC
May 2008

FOREST SERVICE
DEPARTMENT OF AGRICULTURE



Science

F I N D I N G S

I N S I D E

*Unearthing the Relationship Between
Geology and Streamflow.....*
Preparing for the Future.....

issue one hundred eighty seven / july 2016

“Science affects the way we think together.”

Lewis Thomas

Flows of the Future—How Will Climate Change Affect Streamflows in the Pacific Northwest?



Chris Carlson

I N S U M M A R Y

Much of the water supply in the Pacific Northwest originates in national forests. It sustains the region's aquatic ecosystems, agriculture, hydroelectric power, and community water supplies.

Understanding how climate change will affect water supply is one of the most pressing issues of our time. Substantial research is being conducted to

Identifying and Managing Vulnerability

- Snowpack and Natural Infrastructure
 - Watershed Restoration
 - Best Management Practices
 - Managing Uses





National Core BMPs



BMPs for all resource activities

75 practices in 11 resource areas:

- General Planning
- Aquatic Ecosystem Management
- Chemical Use
- Facilities & Non-recreation Special Uses
- Wildland Fire Management
- Minerals
- Grazing
- Recreation
- Roads
- Mechanical Vegetation Management
- Water Uses

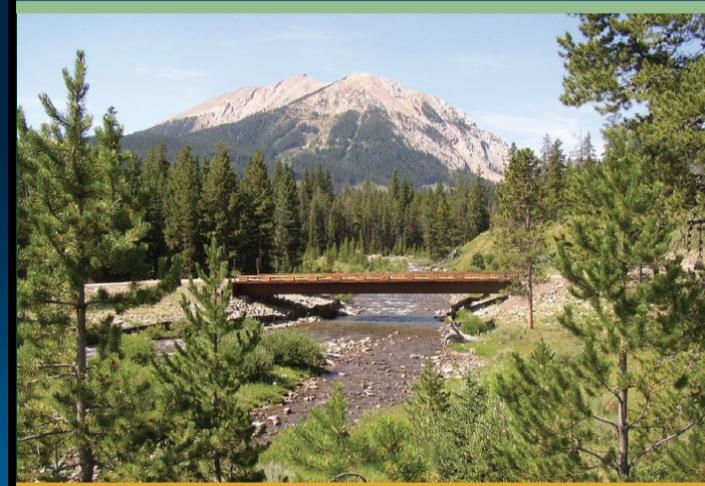
USDA

United States
Department of
Agriculture
Forest Service
FS-990a
April 2012

National Best Management Practices for Water Quality Management on National Forest System Lands



Volume 1:
National Core BMP Technical Guide



Identifying and Managing Vulnerability

- Storage and Built Infrastructure
 - Operations/Maintenance
 - Disturbance/Risk





180

million people
in over

68,000
communities

rely on forested
lands to capture
and filter
drinking water

#cleanwater



fs.fed.us

More than half of America's freshwater flows from public and private forest land, and the **drinking water for about 60 million Americans originates on national forests and grasslands**. Healthy forests provide not only clean water for drinking, but also **habitat for fish and wildlife**. We work with communities and partners to conserve, maintain and improve watersheds to meet the needs of the population and maintain healthy ecosystems on our National Forest System lands.

Municipal Watershed Agreements

02	GMLUG	GRAND JUNCTION	CO	SEC OF AGRIC	06/16/16
02	GMLUG	GUNNISON	CO		
02	GMLUG	HOTCHKISS	CO	SEC OF AGRIC	06/16/16
02	GMLUG	NATURITA	CO		
02	GMLUG	NONTROSE	CO		
02	GMLUG	NUNCIATA	CO		

02	ROOSEVELT	BERTHOOD	CO		
02	ROOSEVELT	BOULDER	CO	SEC OF AGRIC	03/21/16
02	ROOSEVELT	ERIE	CO		
02	ROOSEVELT	FORT COLLINS	CO	SEC OF AGRIC	09/11/23
02	ROOSEVELT	FREDERICK	CO		
02	ROOSEVELT	GREELEY	CO	SEC OF AGRIC	09/11/23
02	ROOSEVELT	JAMESTOWN	CO		



FOREST PARTNERS | WATERSHED INVESTORS



....since 1897.....

- New Science
- New Values and uses
- New Tools and Programs
- Renewed interest in Partnerships
- All Lands Approach



Kelly Redmond Photo

Thank you



Polly Hays
pehays@fs.fed.us