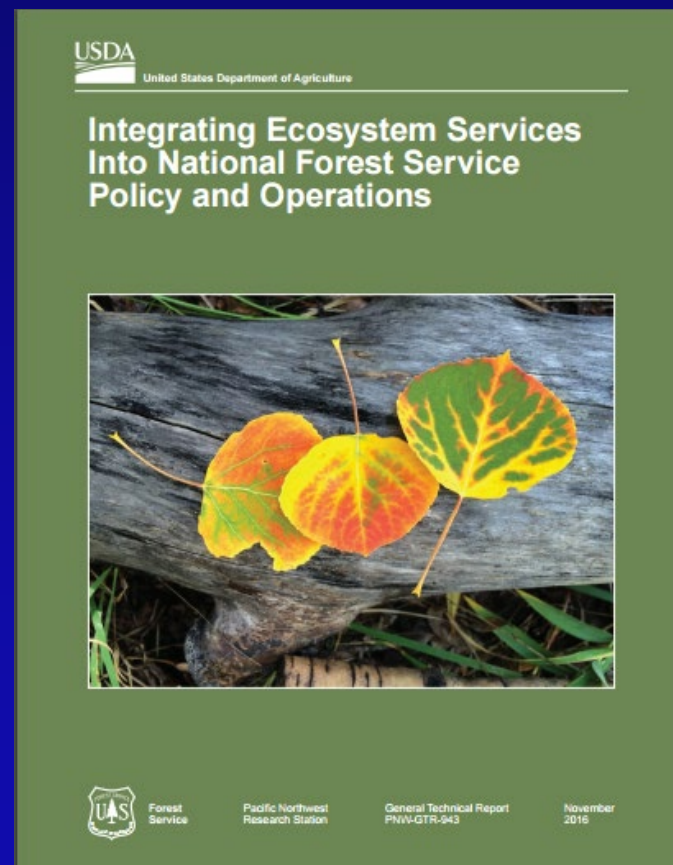


On the frontlines: Integrating ecosystem services into USFS policies and programs from national to local scales

Robert Deal, USDA Forest Service, Pacific Northwest Research Station, Portland, OR

Nikola Smith, USFS Pacific Northwest Regional Office, Portland, OR

Jonas Epstein, Wayne National Forest, southeast Ohio



Ecosystem Services and the USFS

- Ecosystem Services for USFS evolved from the multiple-use concept (MUSYA, 1960)
- USFS Planning Rule & Presidential Memorandum
- Forest scale example of an E.S. framework
- NESST-National Ecosystem Services Strategy
Team- Planning, Performance & Partnerships
- Future direction of ecosystem services and USFS

Natural resource legislation and federal agency responses and applications of ecosystem services.

Legislation	Intent of Legislation	Federal Agencies
Multiple Use Sustained Yield Act (1960)	Sustainable management of natural resources	USFS and BLM
National Environmental Policy Act (1969),	Impacts of people and the environment and understanding of the connection between ecological systems and management actions	Any federal project that used federal funding
National Forest Management Act (1976)	Establishes policy of inventory and planning in accordance with MUSYA	USFS and BLM
National Forest System Land Management Planning Rule (2012)	USFS regulation to implement planning from NFMA	Rule explicitly requires managers to address ecosystem services in planning
Presidential Memorandum: Ecosystem Services into Federal Decision Making (2015)	Directs federal agencies to incorporate ES into decision frameworks	NOAA, NRCS, USFWS, USFS, EPA, BLM, USGS

USFS Planning Rule

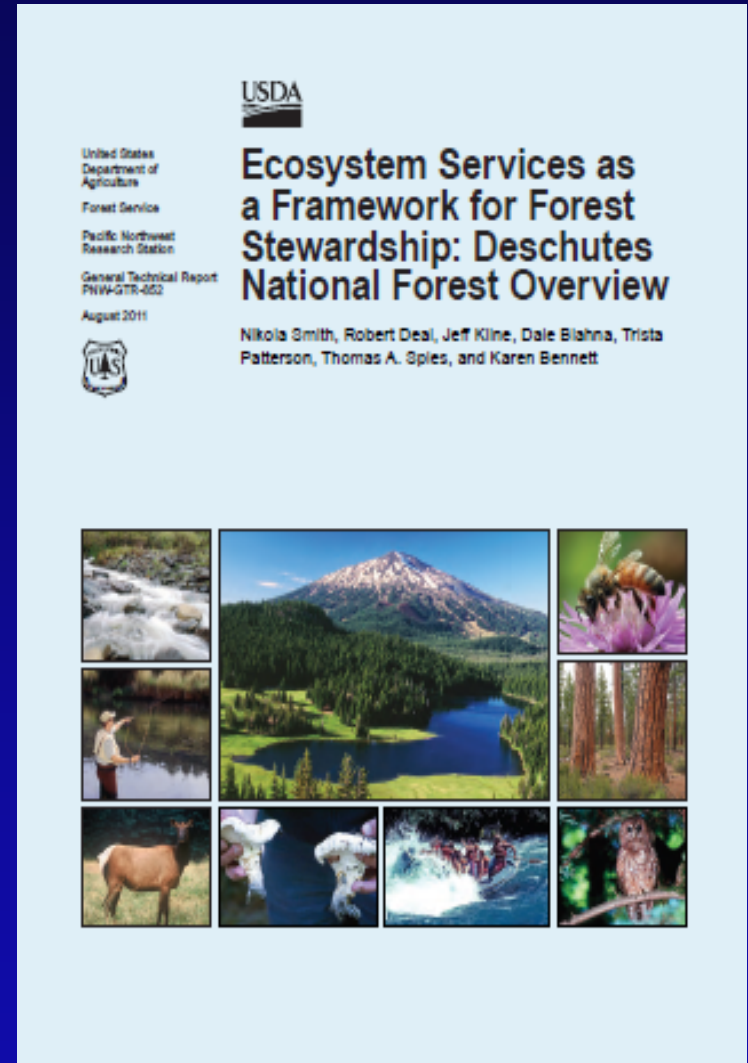
- **Ecosystem services and multiple uses** “considering a full range of resources, uses and benefits”
- MUSYA- timber, water, recreation, range, wildlife & fish.
- Early adopter forests are using Planning Rule for forest plan revisions and assessments.
- 2015 Directives state the N.F. should include “key ecosystem services” in forest plan revisions.
- E.S. also includes **cultural heritage values**, and other services not directly included in multiple uses.

Incorporating Ecosystem Services into Federal Decision Making

- **October, 2015 –CEQ, OMB Directive.**
- **Directs agencies to develop and institutionalize policies for ecosystem services in planning, investment and regulatory context.**
- **Each agency developing work plan due March, 2016.**
- **Implementation guidance, CEQ convening subject matter experts for “community of practice” concept.**

- **NESST- National Ecosystem Services Strategy Team**

Forest Scale Example: Ecosystem Services as a Framework for Forest Stewardship



Building a New Language for Management: An Ecosystem Services Framework

Project Goals

- Articulate the values that the forest provides to the public.
- Evaluate effects between management actions and the sustainable delivery of ecosystem services.
- Build ecosystem services-based partnerships to design and fund needed work on the ground.
- Create analytical tools that allow managers to assess project outcomes and tradeoffs in ecosystem services terms, i.e., across resource areas and over longer time scales.

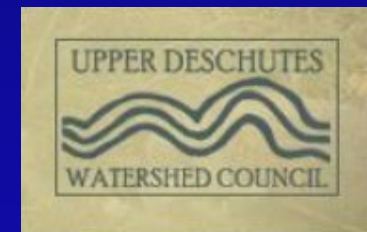


Some services can be quantified and monetized, while others are described qualitatively



Who benefits from Forest Service management actions?

Who shares common interests in ecosystem service provision?



Drawing connections between Forest Service management and delivery of ecosystem services

- Restoration of aspen, meadows, marshes, wetlands and stream channels.
- Culvert replacement to facilitate fish passage.
- Tillage treatments to restore soil porosity.
- Road restoration and decommissioning.
- Removal of invasive species.



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



The benefits of an ecosystem services approach to management

- An ***integrated approach*** - allows managers to assess the costs and benefits of projects across resource areas and beyond forest boundaries.
- Creates ***awareness*** about the services provided by public lands and brings attention to under-valued projects.
- Leverages ***partnerships*** and funds to implement work needed on the ground.



Using ecosystem services to frame forest management is like going from

black and white



to color



~ John Allen, Forest Supervisor, Deschutes National Forest

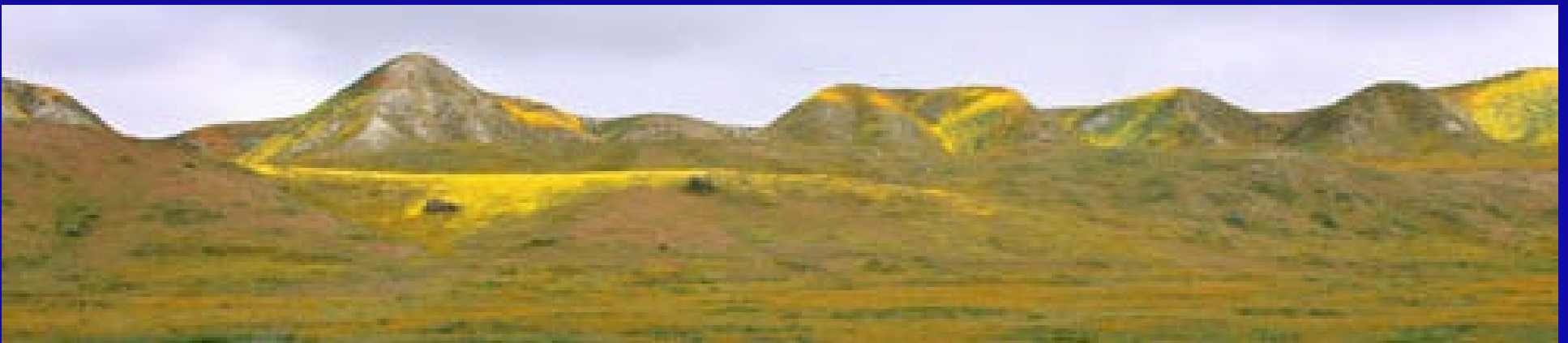
NESST- National Ecosystem Services Strategy Team

Robert Deal, Nikola Smith, Jonas Epstein, Emily Weidner, Mary Snieckus, Lisa Fong, Tommie Herbert, Tania Ellersick, Greg Arthaud, Claire Harper, many others



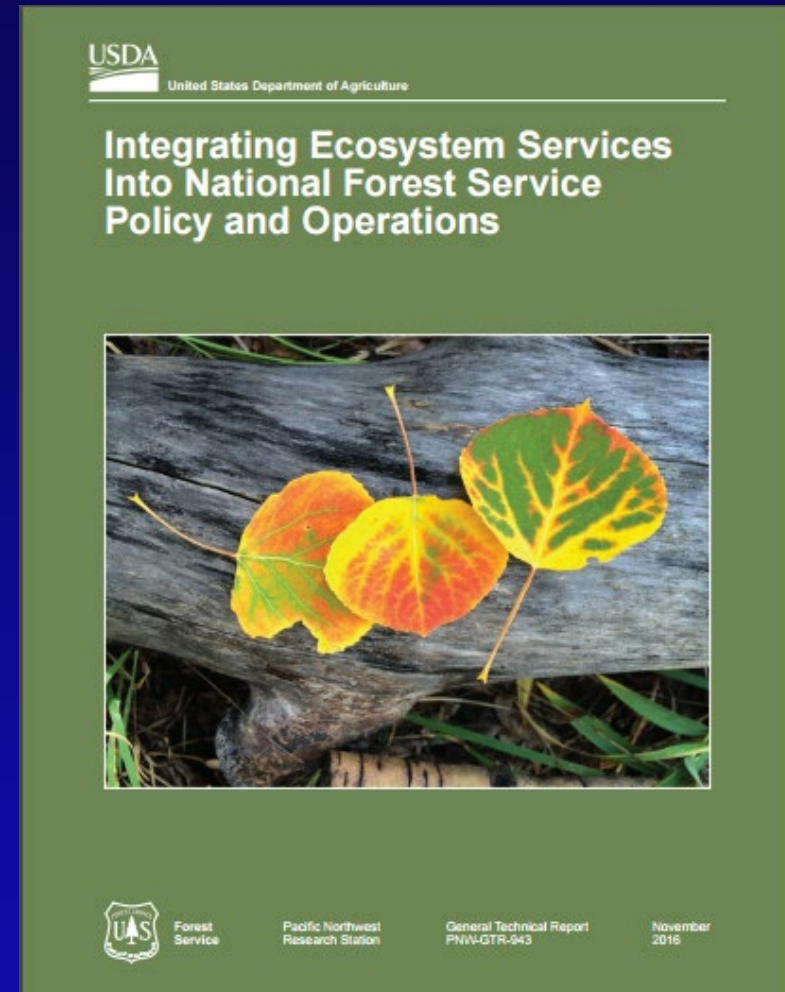
NESST Purpose

“The National Ecosystem Services Strategy Team was established to collaboratively develop national strategy and policy around ecosystem services and integrate it into Forest Service programs and operations.”



NESST Report

- Introduction
- Ecosystem Services and USFS
- Elements of an Ecosystem Services Approach
 - Decision-Making and Analysis
 - Measuring, Reporting, Communicating
 - Partnerships and shared investments in ES
- Synthesis
 - Common Needs
- Next Steps



https://www.fs.fed.us/pnw/pubs/pnw_gtr943.pdf

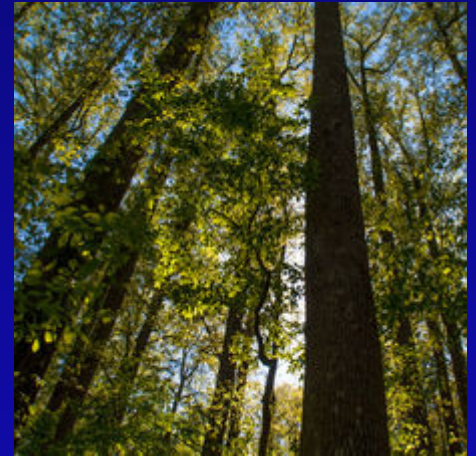
The Opportunities

- **Planning:** Consider a broad suite of ecosystem services in decision-making and priority-setting
- **Performance:** Quantify and communicate in terms of benefits to people through measurement and reporting
- **Partnerships:** Connect providers and beneficiaries of ecosystem services through partnerships and investments

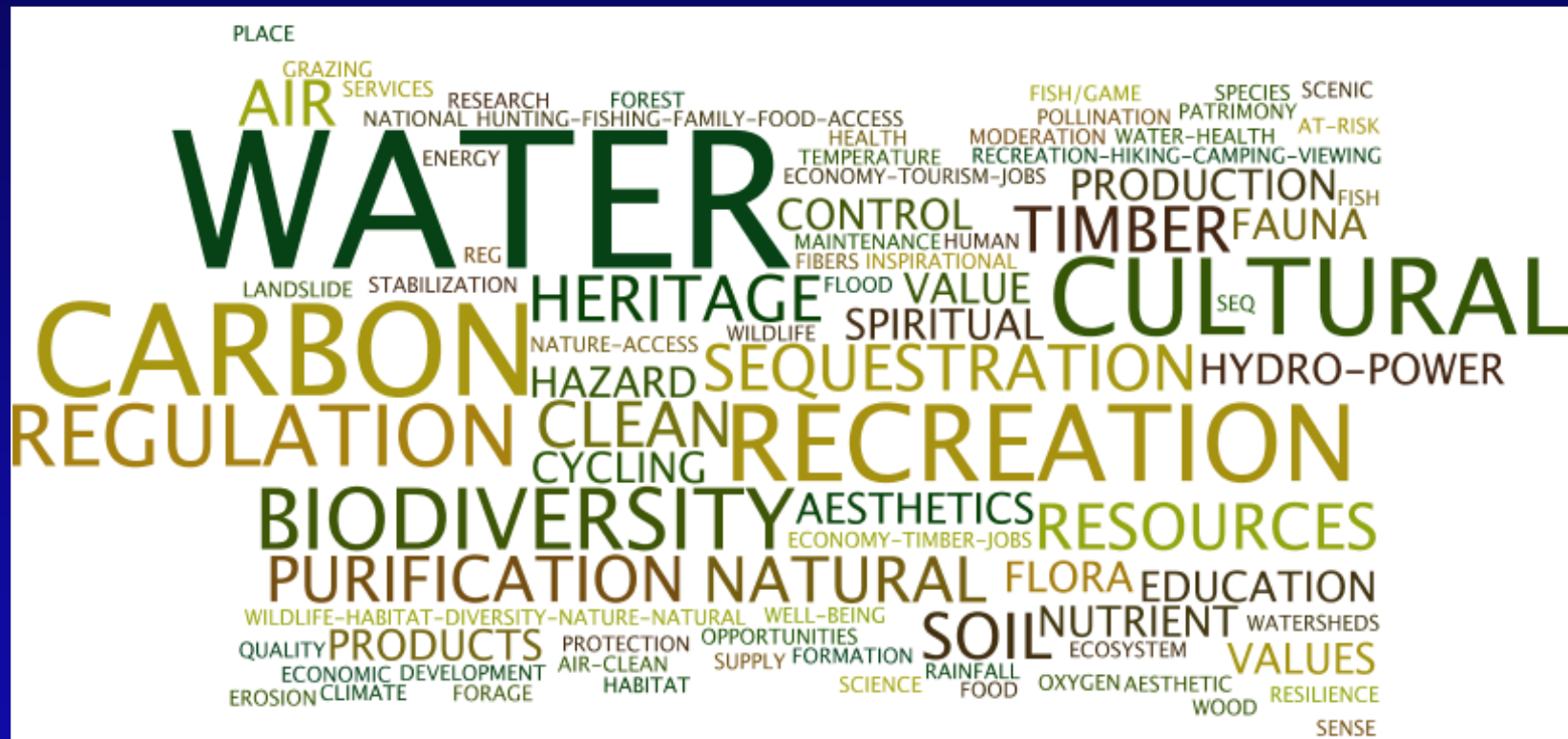
Planning

Considering the full suite of objectives in analysis, decision-making and priority-setting

- Forest Planning
- Project Level Planning
- Prioritizing Restoration Activities
- State Forest Action Plans



Ecosystem Services Identified in Assessments

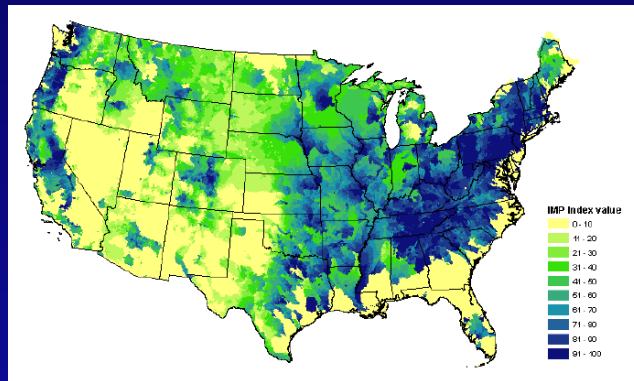


between 7-22 services per assessment

Forest Contributions to Water Supplies

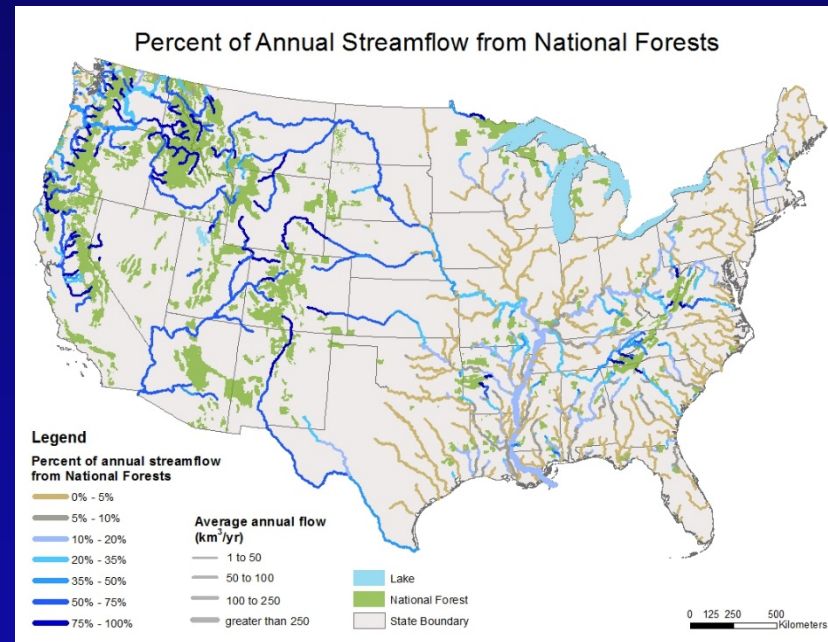
Forests to Faucets Project

Assessing Drinking Water Importance and Threats



Increasing focus on **geospatial tools** to quantify benefits delivered to the public

Characterization of threats and **justification** for targeted restoration

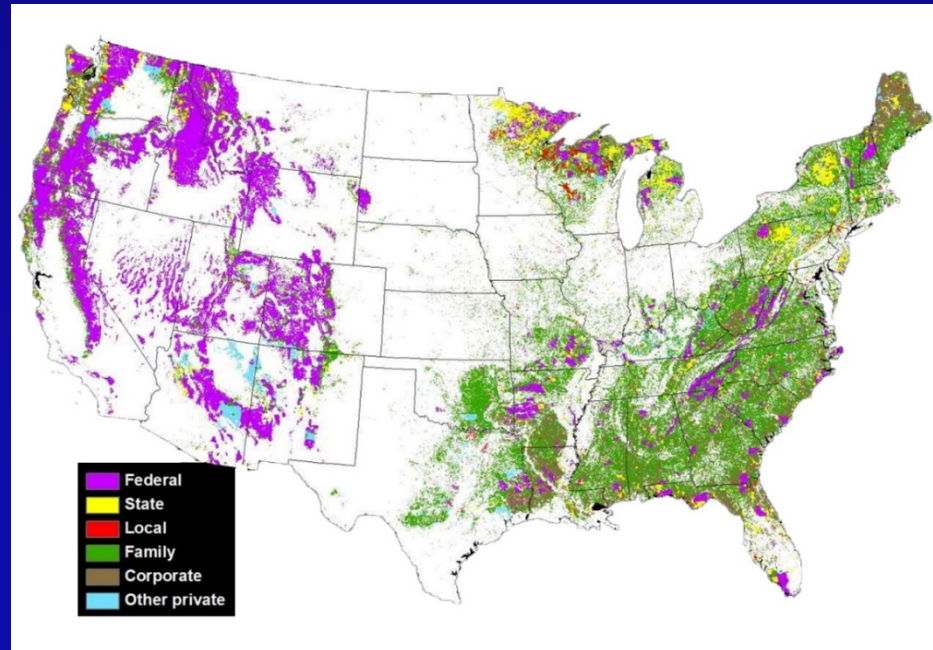


National Forest Contributions to Stream Flow
Rocky Mountain Research Station, Luce et al. 2016

State Forest Action Plans

Required under the U.S. Farm Bill

- ✓ Preserve working forest lands
- ✓ Protect forests from harm
- ✓ Enhance **public benefits** from trees and forests



Performance

Quantifying and communicating the value of resources and impacts of management actions in terms of benefits to people

- National Assessments
- Performance Management
- Inventory Monitoring & Assessment



Performance Reporting

Creating standardized metrics & indicators that enhance national reporting, program management, and encourage third-party investment

USDA
United States Department of Agriculture

USDA Forest Service
Strategic Plan: FY 2015–2020

FY 2015–2020 GOALS AND OBJECTIVES SUMMARY

STRATEGIC GOAL
Sustain Our Nation's Forests and Grasslands
Strategic Objective A. Foster resilient, adaptive ecosystems to mitigate climate change
Strategic Objective B. Mitigate wildfire risk
Strategic Objective C. Conserve open space

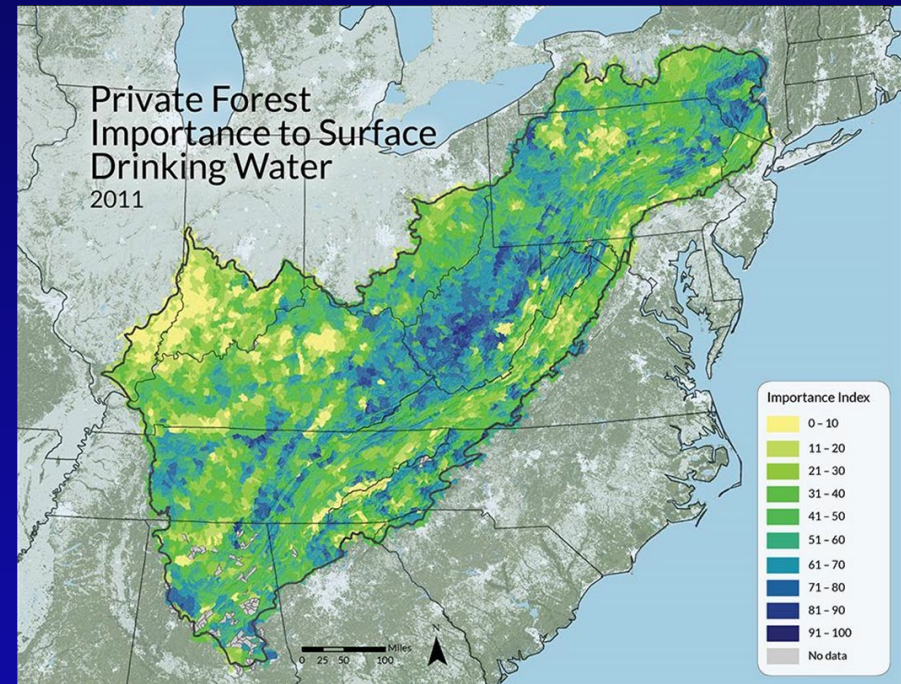
STRATEGIC GOAL
Deliver Benefits to the Public
Strategic Objective D. Provide abundant clean water
Strategic Objective E. Strengthen communities
Strategic Objective F. Connect people to the outdoors

STRATEGIC GOAL
Apply Knowledge Globally
Strategic Objective G. Advance knowledge
Strategic Objective H. Transfer technology and applications
Strategic Objective I. Exchange natural resource expertise

MANAGEMENT GOAL
Excel as a High-Performing Agency
Management Objective A. Recruit a diverse workforce
Management Objective B. Promote an inclusive culture
Management Objective C. Attract and retain top employees

Forest Service FS-1045 June 2015

Forest Service Strategic Plan: FY 2015–2020



Partnerships

Connecting providers and beneficiaries of ecosystem services through partnerships and shared investments.

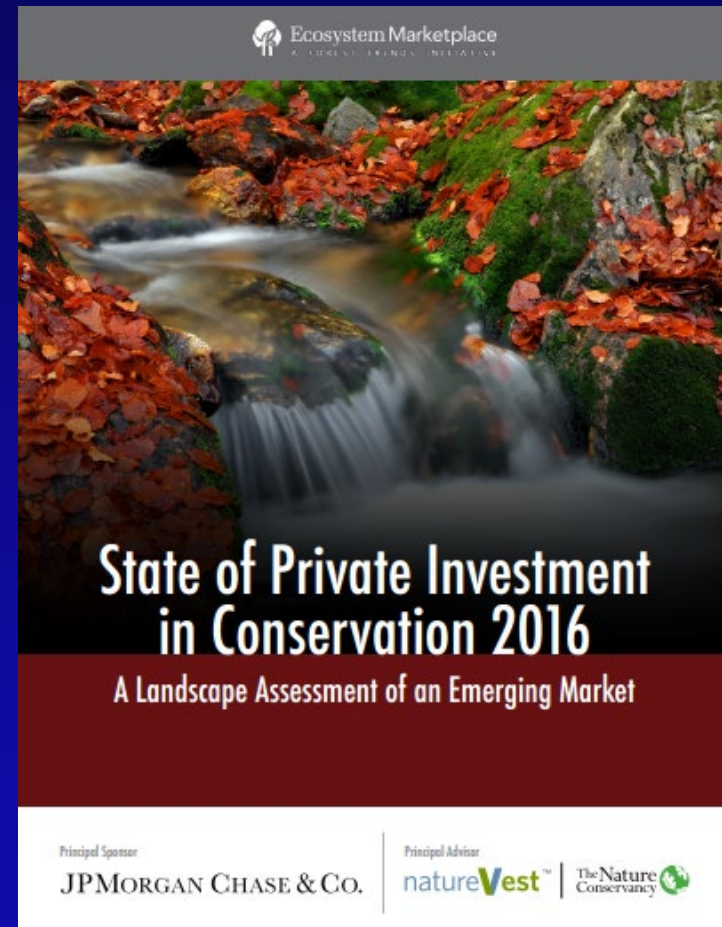
- Incentives for Private Landowners
- Partnerships for Shared Investments
- Damage Assessments
- Environmental Markets



Leveraging Conservation Finance Opportunities

From 2004 to 2015, the private sector channeled **\$8.2 billion** of private capital into investments seeking measurable **environmental benefits in addition to financial**

- ✓ Watershed investments
- ✓ Compensatory mitigation
- ✓ Corporate social responsibility
- ✓ Voluntary and regulatory carbon
- ✓ Voter initiatives



Private Sector Partnerships: Brewshed Investments Deschutes National Forest, Oregon



SUSTAINABLE SESSION SERIES ❄️

BREWSHED

SESSION ALE

We owe a ton to our wild, forested watersheds. They're the backdrop to endless GoodLife adventure. They're also our natural born purifiers, transforming snow and rain into fresh, crystalline water. Water that makes seriously tasty and distinctly Bend beer. The Pacific Northwest is home to some of Earth's finest water, and to salute the source, we're donating a portion of this ale's sales to the Oregon Brewshed® Alliance and Washington Brewshed® Alliance, two crews committed to defending and protecting the wilds and its mighty watersheds. Because great beer in the great outdoors means going with the flow.



GREAT BEER *begins with*
CLEAN WATER



Synthesis and Future Direction for NESST

- Moving from policy issues at national scales to Forest scale application of ecosystem services concepts.
- Additional examples of how Forests will be applying ecosystem services (e.g. USFS Planning Rule).
- Applications of ecosystem services at project scales.
- NESST team involved in trainings, workshops and webinars to get expertise out to the field.

Take-Home Messages



- Ecosystem services science can help analyze tradeoffs between management decisions, and assess public benefits at landscape scale.
- Ecosystem services tools and methodologies can help quantify and communicate the impacts of Forest Service management.
- Ecosystem services and concepts can help build partnerships that connect providers and beneficiaries, and invite diverse stakeholders to share in the agency mission.



QUESTIONS?

