

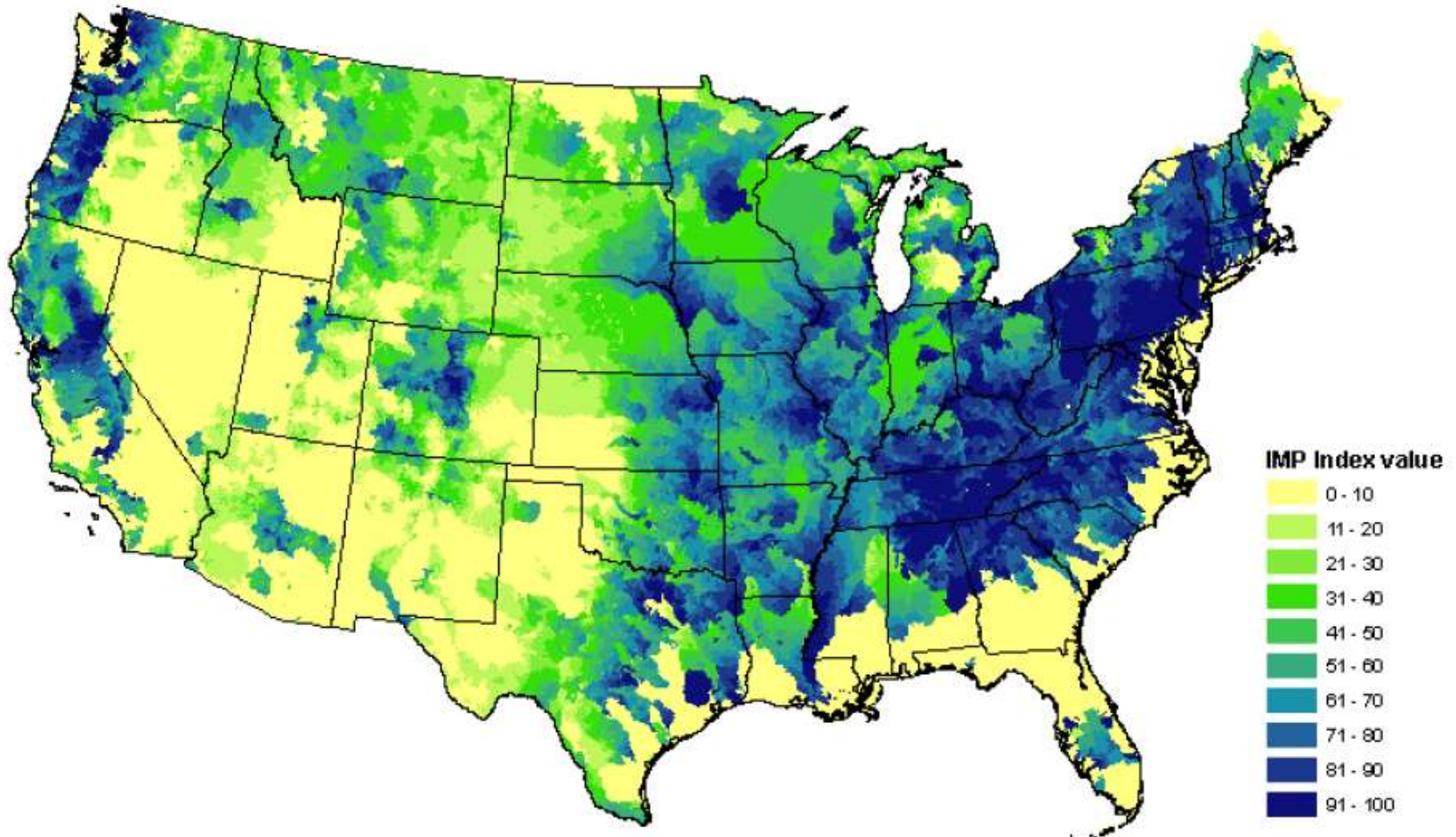


Dollars and Sense of Watershed Ecosystem Services

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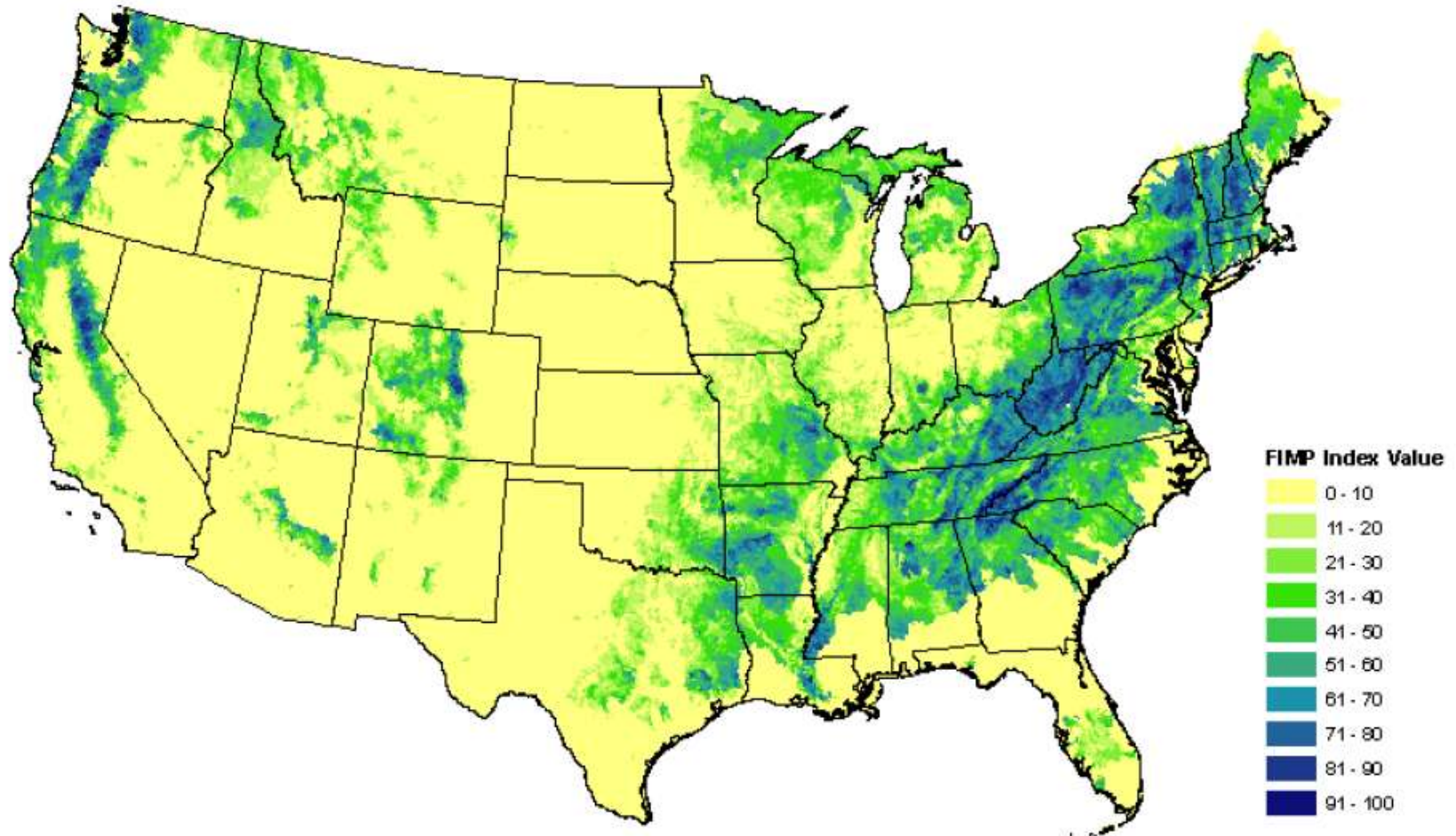


Forests to Faucets: Surface drinking water importance



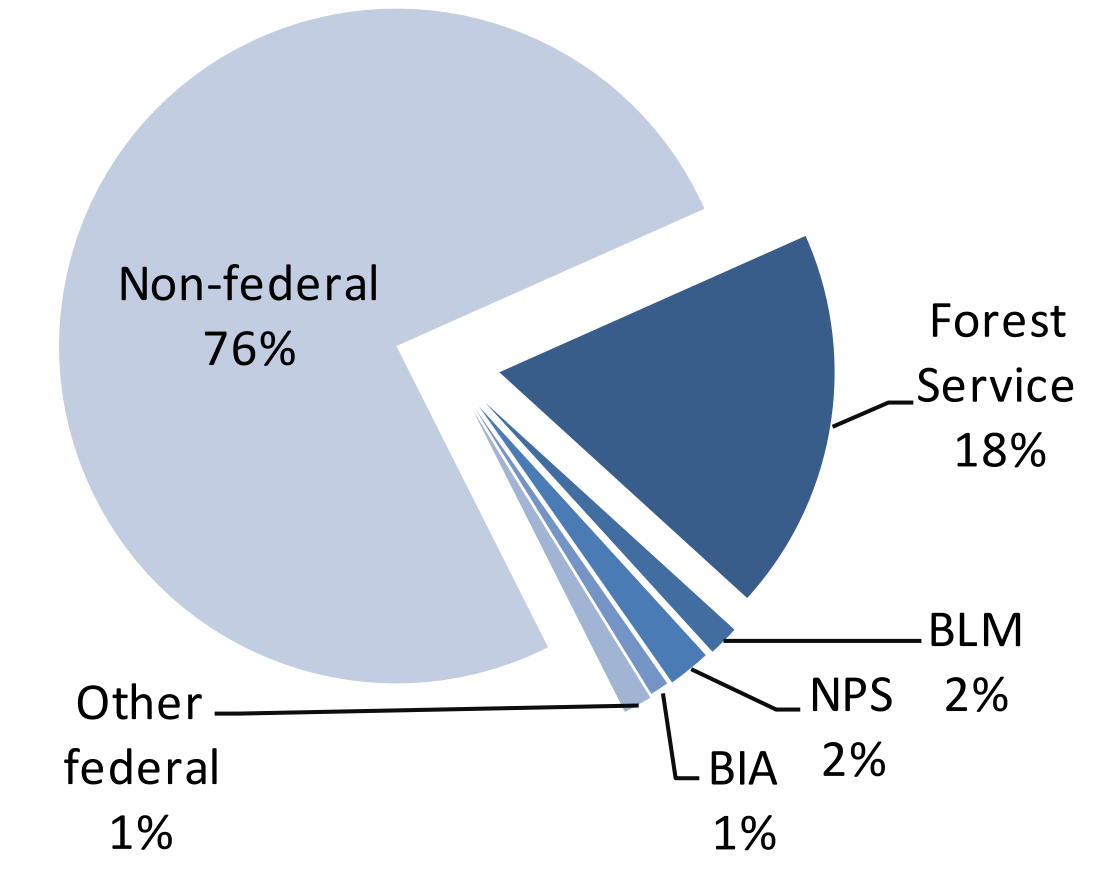
SURFACE DRINKING WATER IMPORTANCE INDEX, IMP. AREAS WITH HIGHER (BLUE) VALUES REPRESENT AREAS MOST IMPORTANT FOR SURFACE DRINKING WATER.

Forests to Faucets: Forest importance



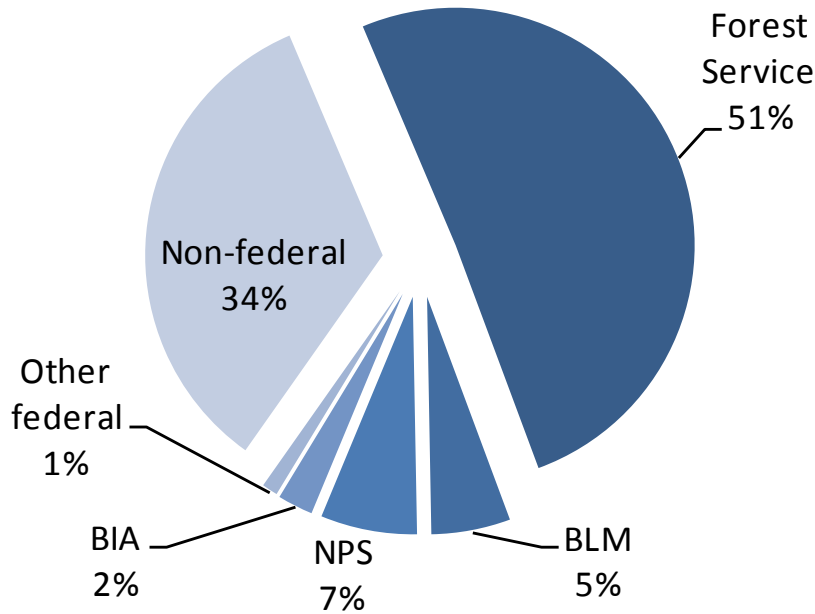
THE INDEX OF FOREST IMPORTANCE TO SURFACE DRINKING WATER, *FIMP*, IDENTIFIES THOSE SUB-WATERSHEDS WHERE FOREST LANDS ARE MOST IMPORTANT IN PROTECTING SURFACE DRINKING WATER.

Water yield by land ownership (Total U.S.)

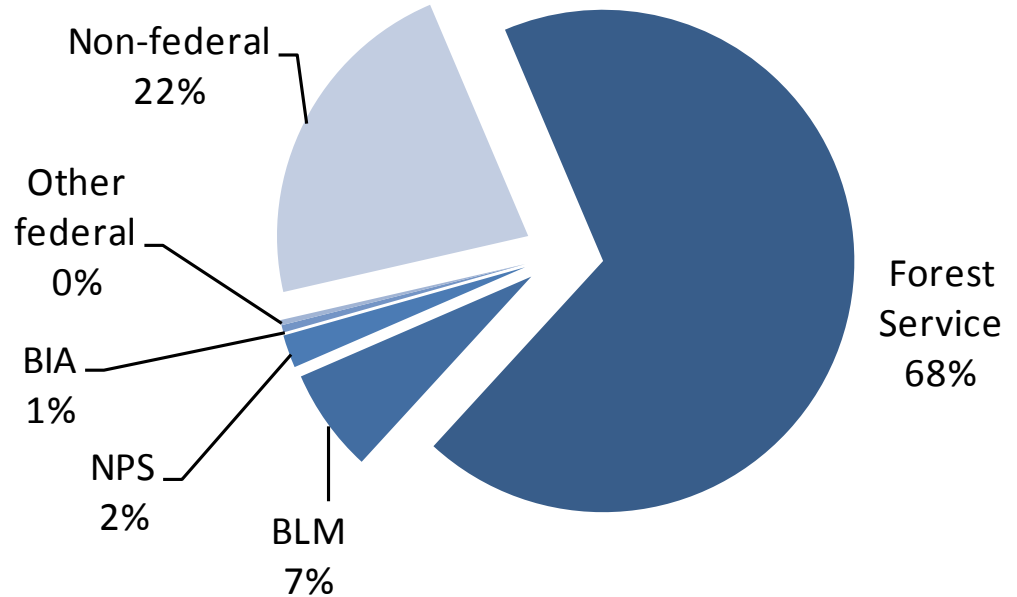


Source: 2010 RPA Water Assessment,
Brown 2012

Water yield by land ownership



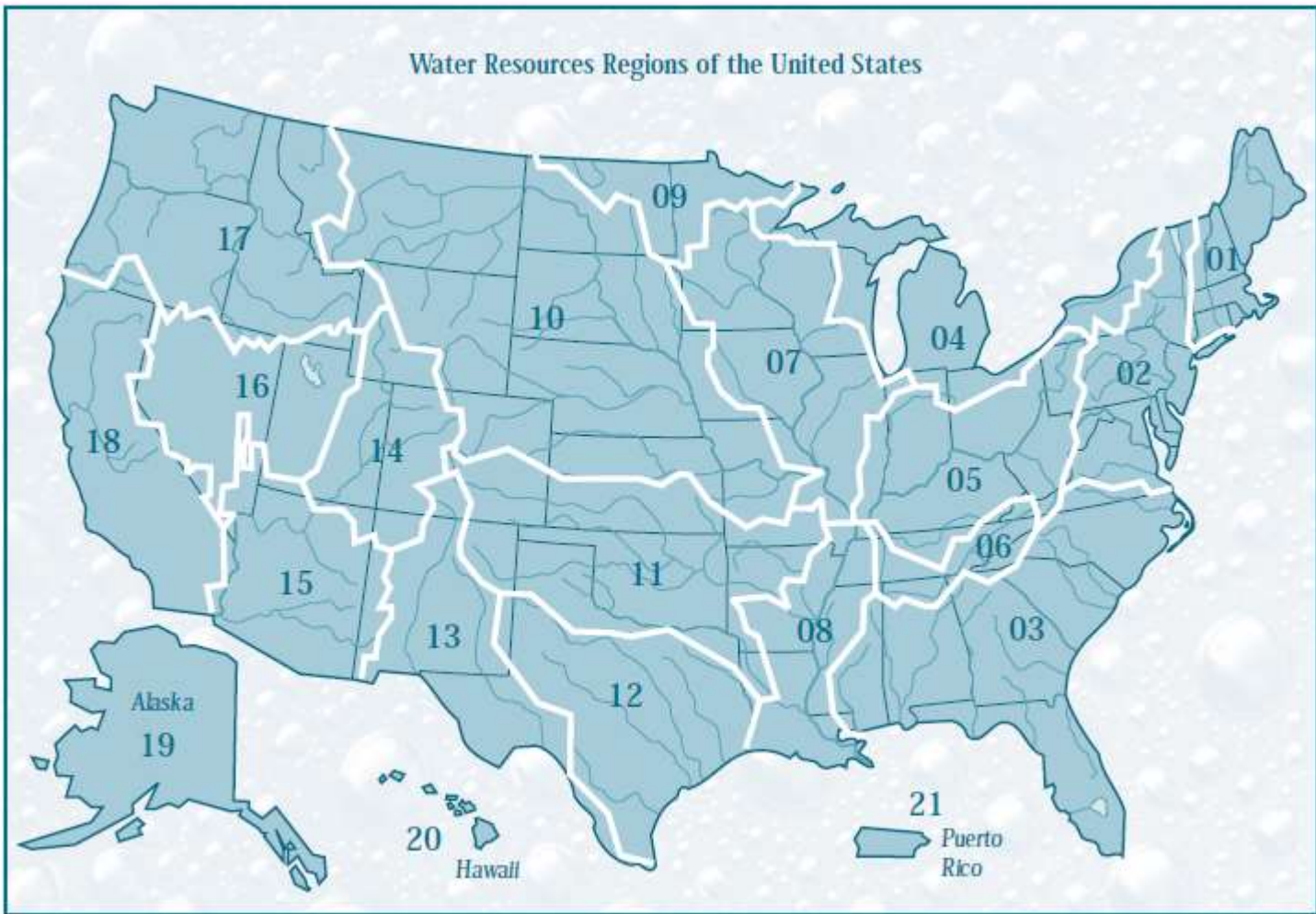
17 Western States



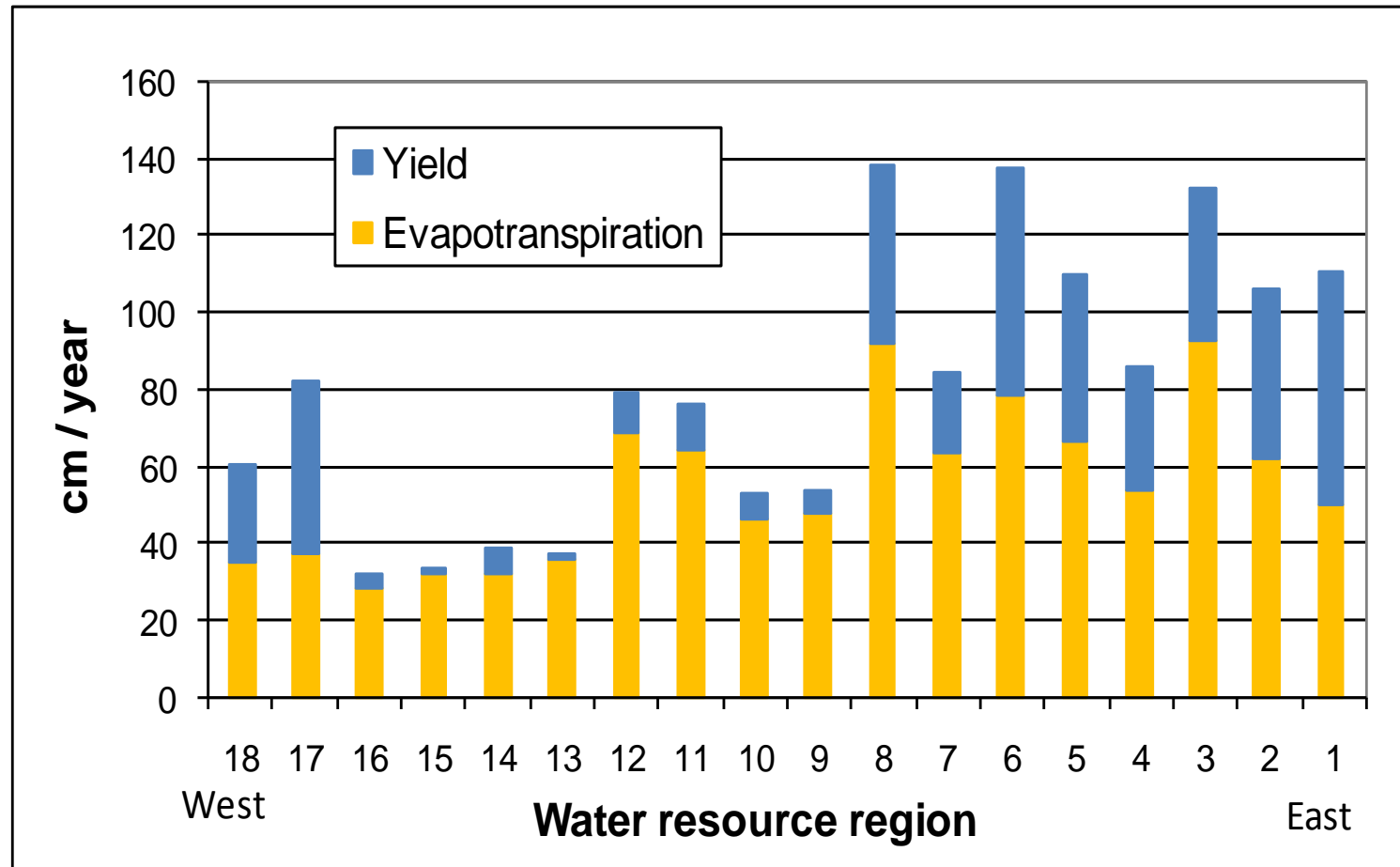
Colorado

Source: 2010 RPA Water Assessment, Brown 2012

Water Resources Regions of the United States

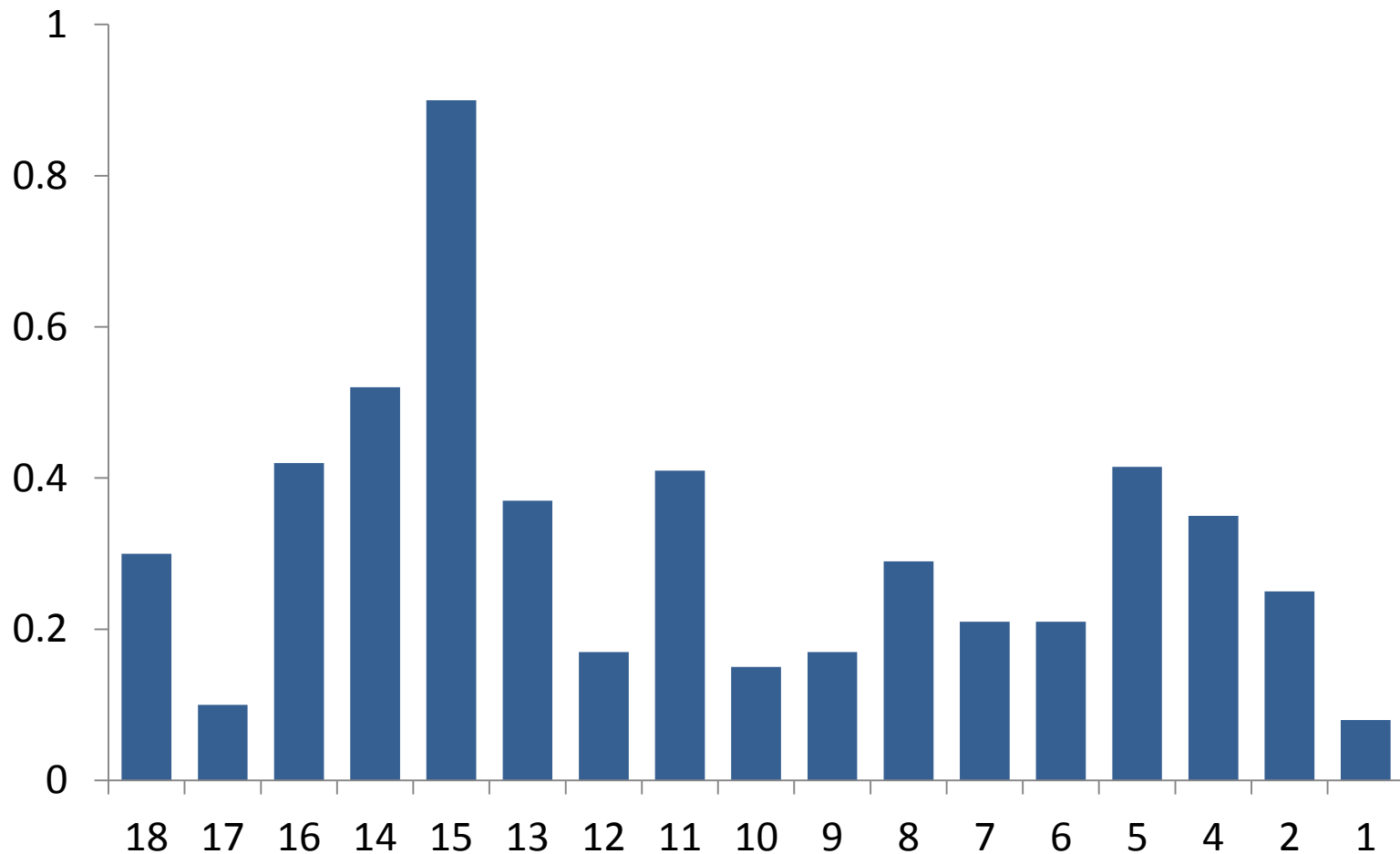


Precipitation apportioned to evapotranspiration and yield



Source: 2010 RPA Water Assessment,
Brown 2012

Proportion of water yield withdrawn for off-stream uses



Source: 2010 RPA Water Assessment,
Brown 2012

The Forest Service is concerned because..

GOOD Ground Cover
60-75% of ground covered
with plants and litter



Surface
Runoff
2% of rainfall

Soil Loss
0.05 Tons
per acre



FAIR Ground Cover
37% of ground covered
with plants and litter



Surface
Runoff
14% of rainfall

Soil Loss
0.5 Tons
per acre



POOR Ground Cover
10% of ground covered
with plants and litter

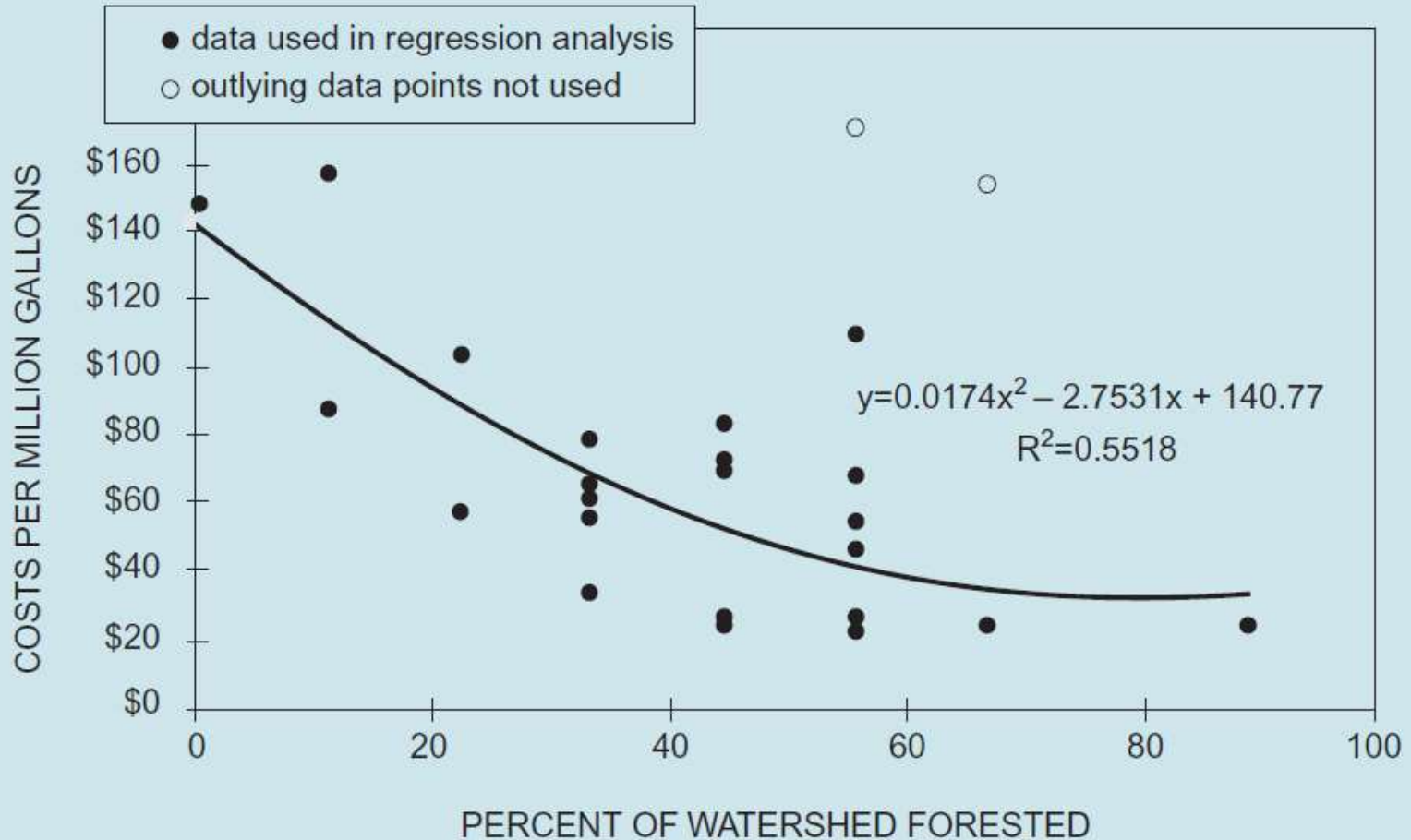


Surface
Runoff
73% of rainfall

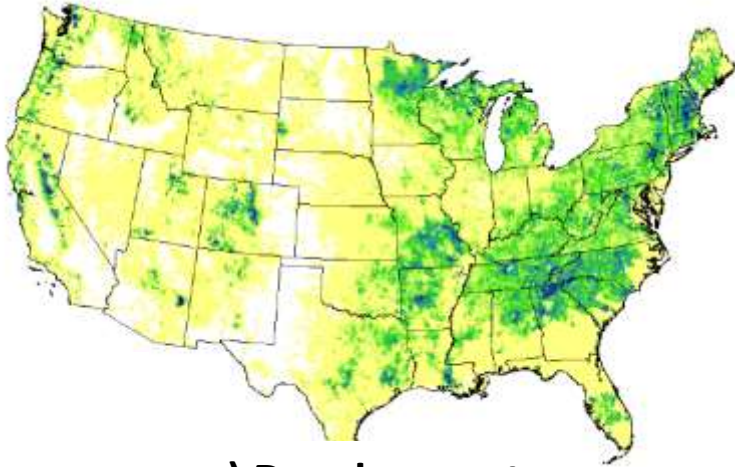
Soil Loss
5.55 Tons
per acre



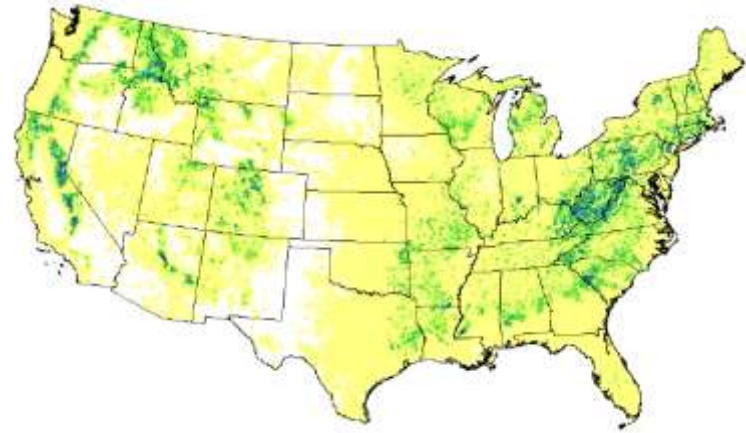
And the Trust for Public Land found..



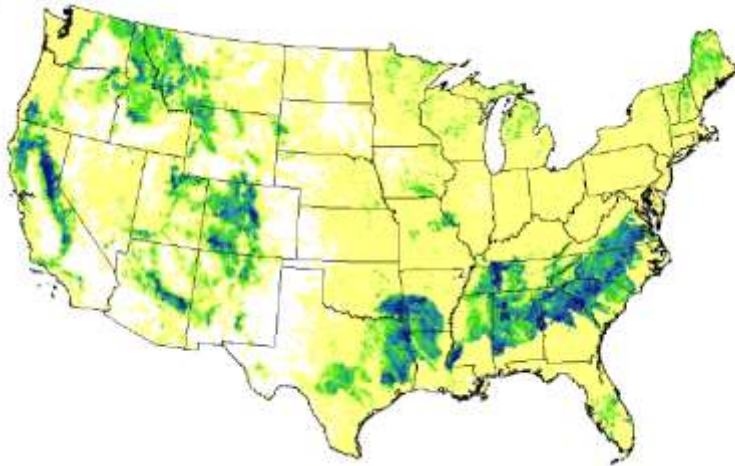
Forests to Faucets: Important and threatened



a) Development



b) Insects and disease



c) Fire

What is the Forest Service doing about it?

- 2012 Planning Rule and proposed Directives
- Several national groups working on incorporating the ES concept into land management
 - Ecosystem Services Evaluation Framework Group
 - National Ecosystem Services Strategy Team
 - National Ecosystem Services Partnership
 - IM&A Framework

2012 National Forest Management Act (36 CFR 219, also known as the “Planning Rule”)

*“(C)..... Plans will guide management of NFS lands so that they...have the capacity to provide people and communities with **ecosystem services and multiple uses** that provide a range of social, economic, and ecological benefits for the present and into the future.”*

§ 219.1 Purpose and Applicability

**2012 National Forest Management Act
(36 CFR 219, also known as the “Planning Rule”)**

(b) Content of the assessment for plan development or revision. the responsible official shall identify and evaluate existing information relevant to the plan area for the following:

- (7) *Benefits people obtain from the NFS planning area (ecosystem services);***

§ 219. 6 Assessment

2012 National Forest Management Act (36 CFR 219, also known as the “Planning Rule”)

.. the plan must provide for ***ecosystem services and multiple uses***, including outdoor recreation, range, timber, watershed, wildlife, and fish, within Forest Service authority and the inherent capability of the plan area as follows:

(a) *Integrated resource management for multiple use*. The plan must include plan components, including standards or guidelines, for ***integrated resource management*** to provide for ecosystem services and multiple uses in the plan area.

§ 219.10 Multiple use.

Proposed directives

		Important to people in the broader landscape?	
		Yes	No
Likely to be affected by the plan?	Yes	Key Ecosystem service	X
	No	X	X

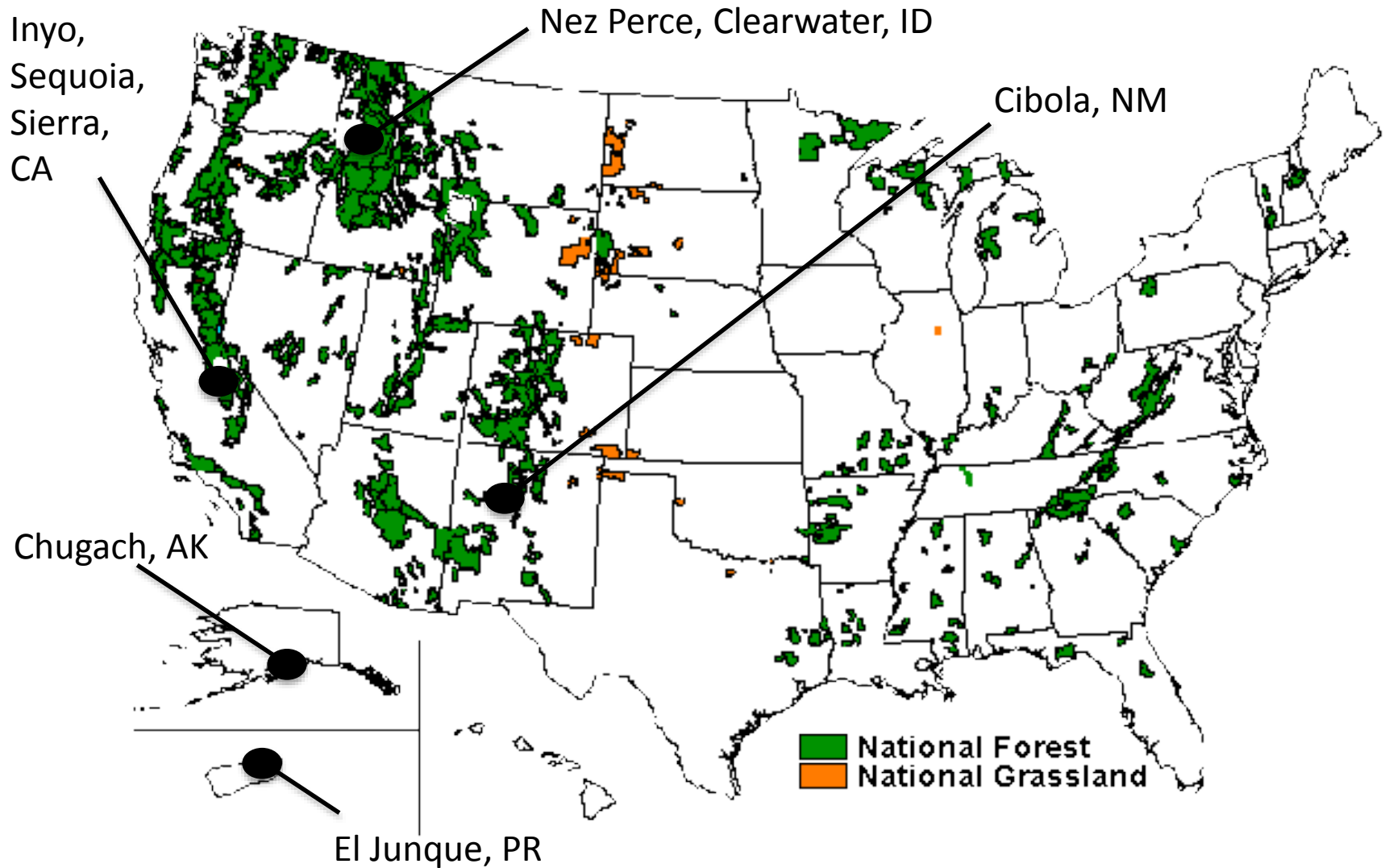
Planning Rule does not require

- Providing plan components for each and every ecosystem service.
- Specific levels of ecosystem services be achieved
- Valuation (including non-market values) of ecosystem services in land management plans.

But it does..

Under **NEPA**, effects analysis will be carried out for significant issues and environmental documents will discuss comparative benefits and tradeoffs associated with ecosystem services

8 “Early Adopters” for the 2012 Planning Rule



Multiple Use is not a new idea

1897 Organic Act: Timber production and watershed protection as objectives

1974 Forest and Rangeland Renewable Resource Act: Multiple use planning at the forest and ranger district levels. Set multiple use goals.

1960 Multiple-Use and Sustained Yield: Joint outputs. Wildlife and fish habitat were valid purposes for designating and managing NF

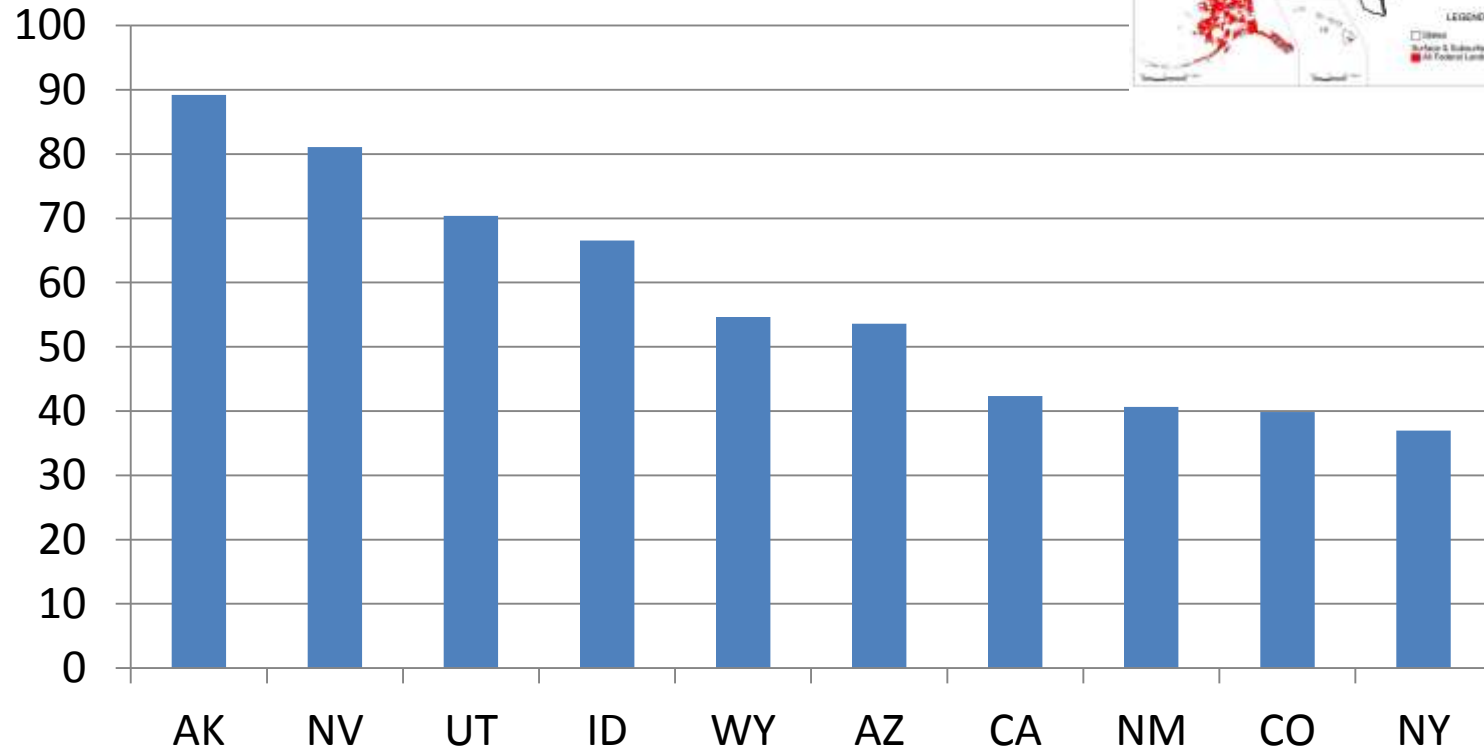
1976 National Forest Management Act: Balanced consideration of all goods and services, reaffirming objectives of MUSY. Stands reach maximum mean annual increment before harvest, exceptions for rec, wildlife, range values

Forests still grappling with requirement

Why the renewed interest?



% Land Area Owned by Federal Government

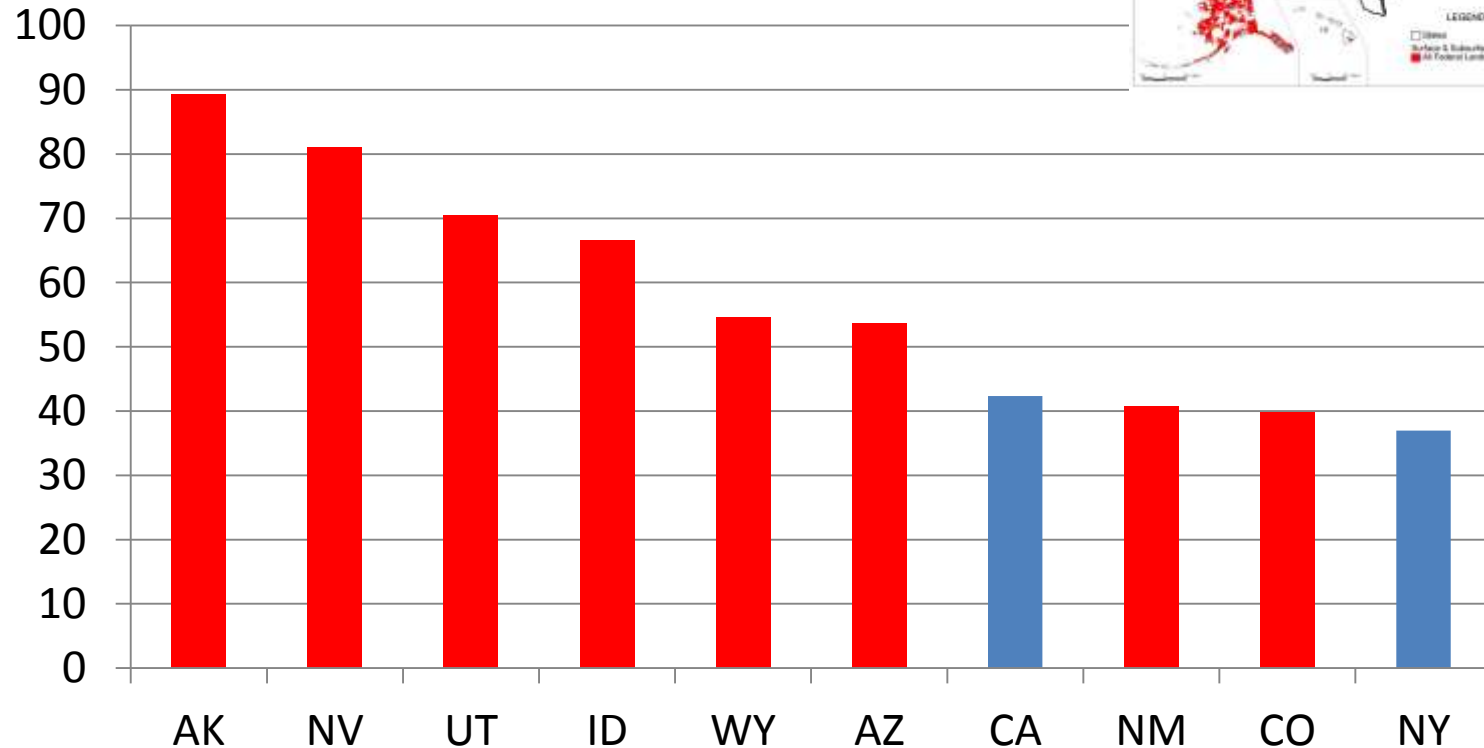


Source: www.nrcm.org

Why the renewed interest?



% Land Area Owned by Federal Government



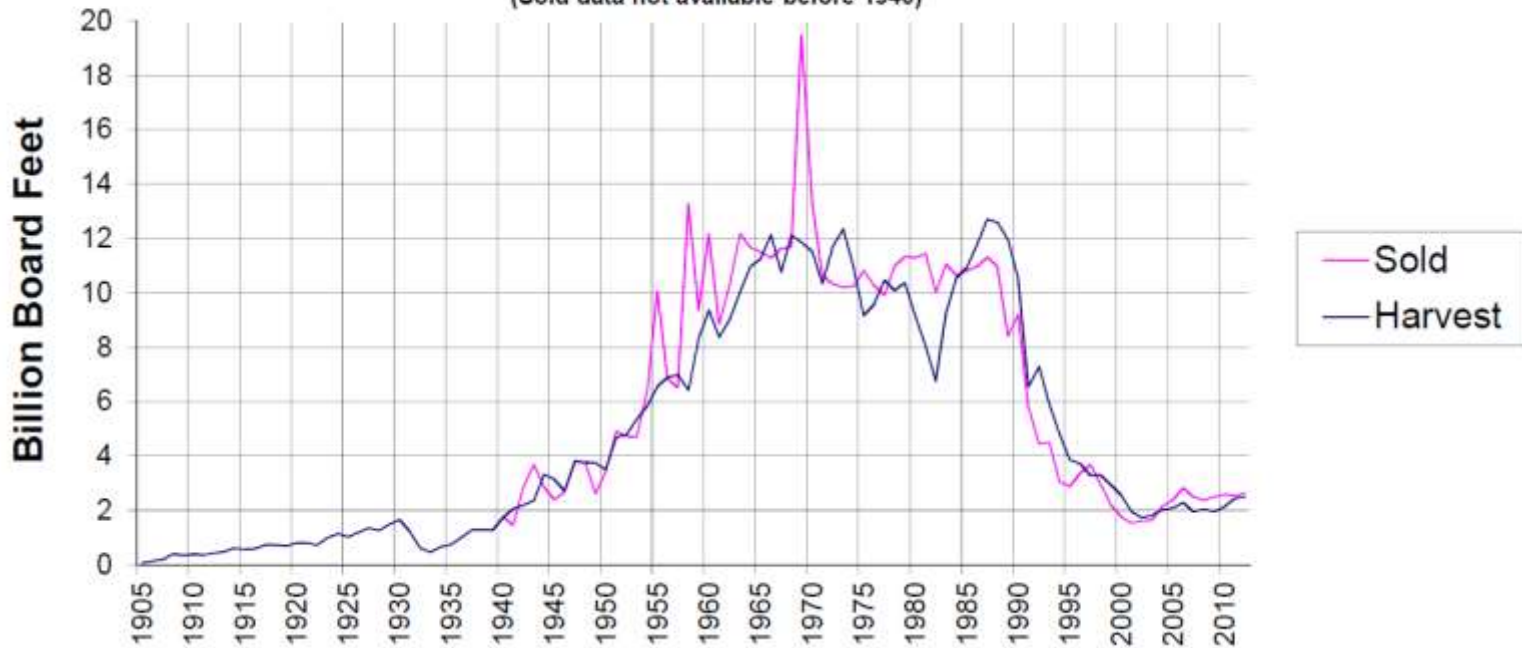
“Sagebrush rebellion” initiatives

Source: www.nrcm.org

Why the renewed interest?

TIMBER SOLD AND HARVESTED 1905-2012

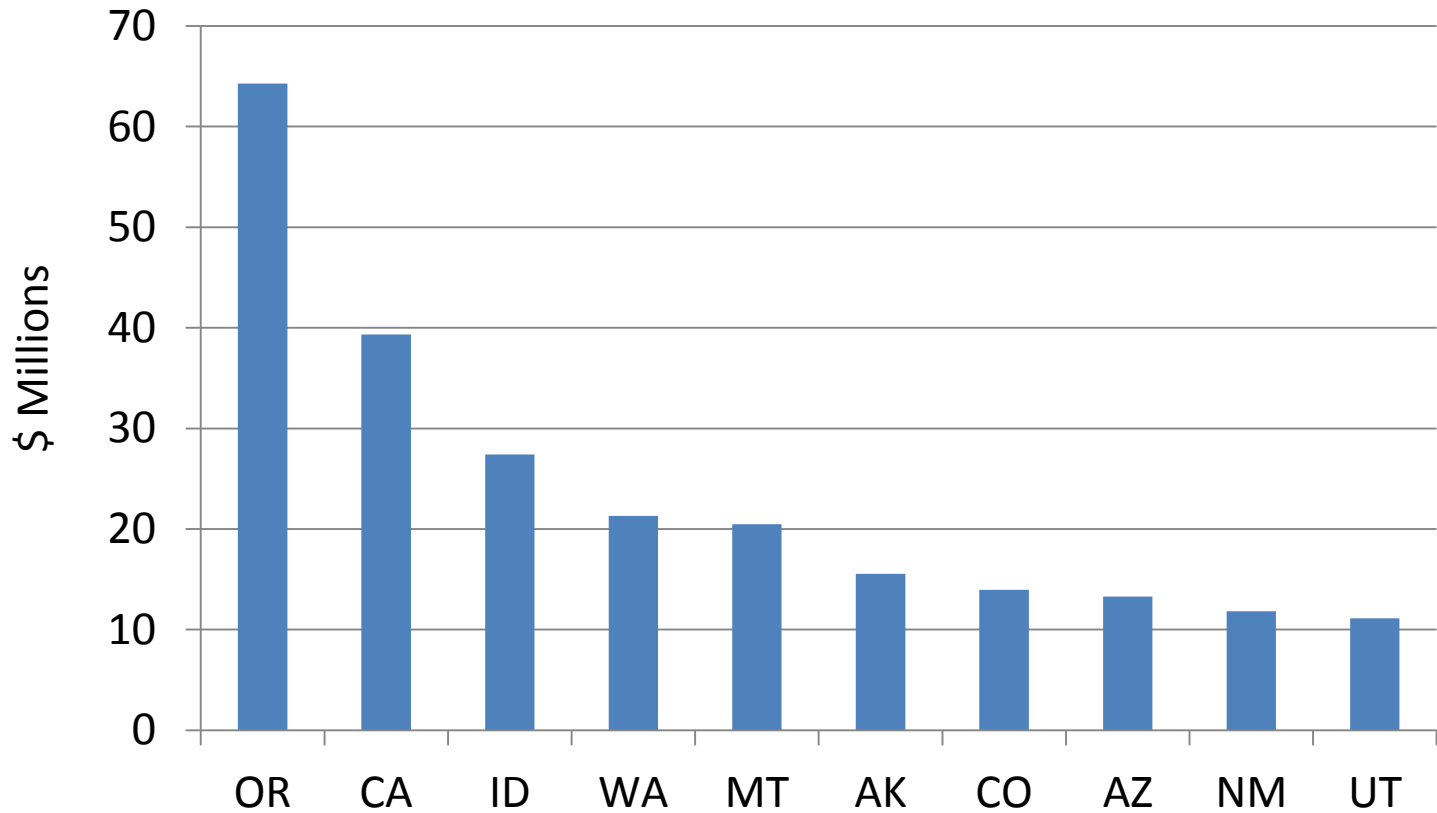
National Forest System
(Sold data not available before 1940)



Pre-WWII: Timber cut limited to prevent flooding the market

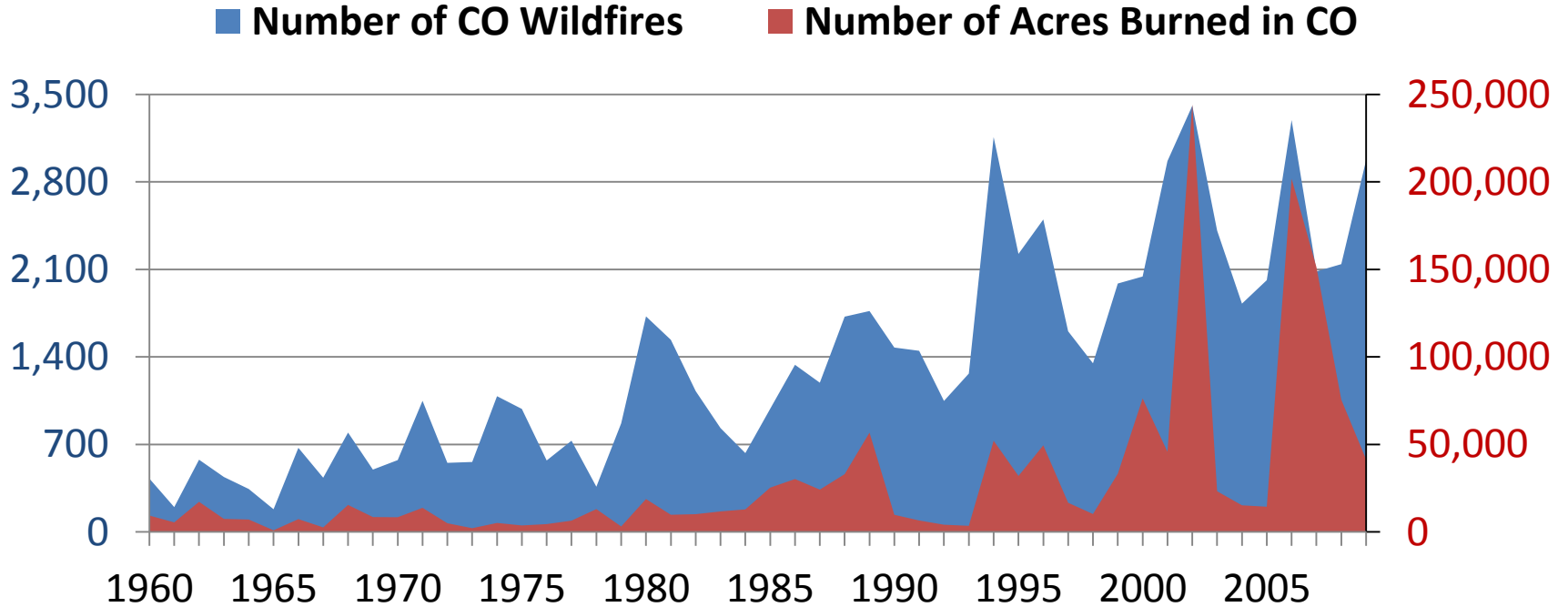
1945-1970: Housing demand led to 5% increase in cut per year.

Why the renewed interest?

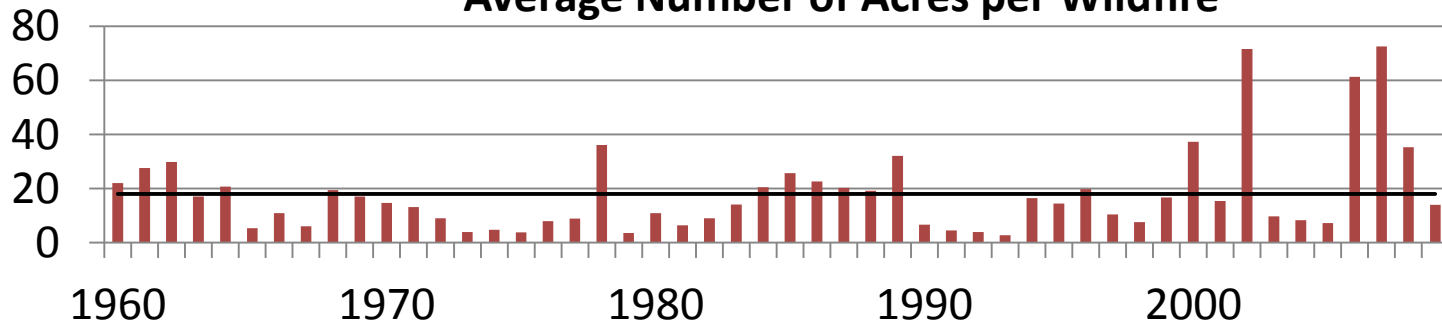


Secure Rural Schools Act 2011 payments
(States with >\$10 million)

And the alternative is expensive



Average Number of Acres per Wildfire



Based on CSFS statistics, as reported by fire departments and county sheriffs
http://csfs.colostate.edu/pages/documents/COLORADOWILDFIRES_reprt_table_cb_000.pdf