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Current US Public Forest Conservation Priorities in The Nature Conservancy

3.27.19

DOE Biomass R&D Technical Advisory Committee

Chris Topik

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Restoring America's Forests

Discuss Today:

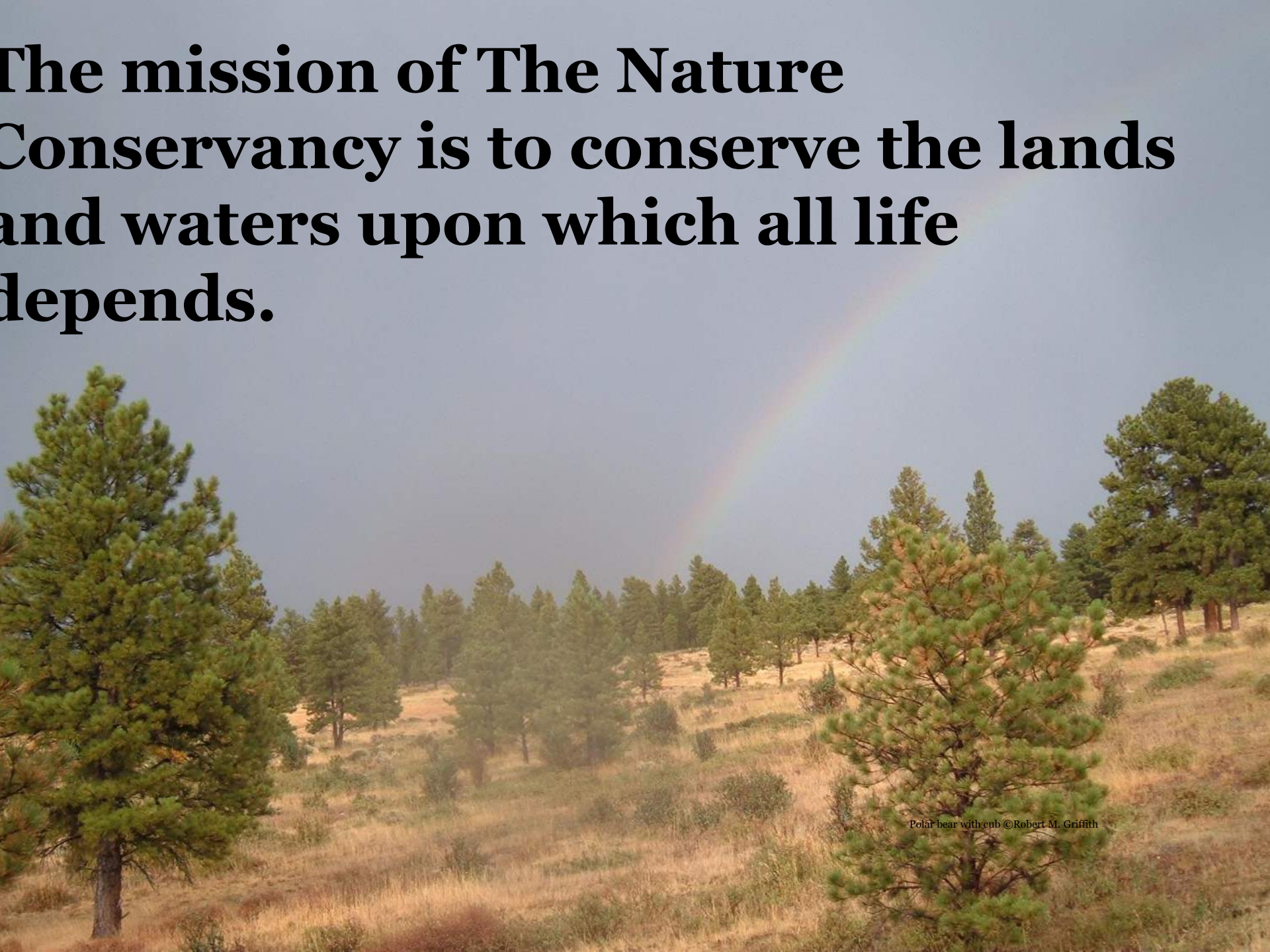
TNC Forest Conservation
Stressing US Public forests

1. Protecting Lands and Waters, including stewardship to reduce forest fire impact

2. Climate Change Mitigation and Adaptation - Natural Climate Solutions

3. Living with Fire

The mission of The Nature Conservancy is to conserve the lands and waters upon which all life depends.



Polar bear with cub ©Robert M. Griffith

Our Team

The Nature Conservancy is a leading global conservation organization with a mission to protect the lands and waters on which all life depends.

Our strength starts with our team:

400 scientists

4,000 conservationists

A FAR REACHING ALUMNI NETWORK of leaders in the conservation community

72 countries

50 U.S. states

1 MILLION dedicated members

1,300 prominent volunteer leaders

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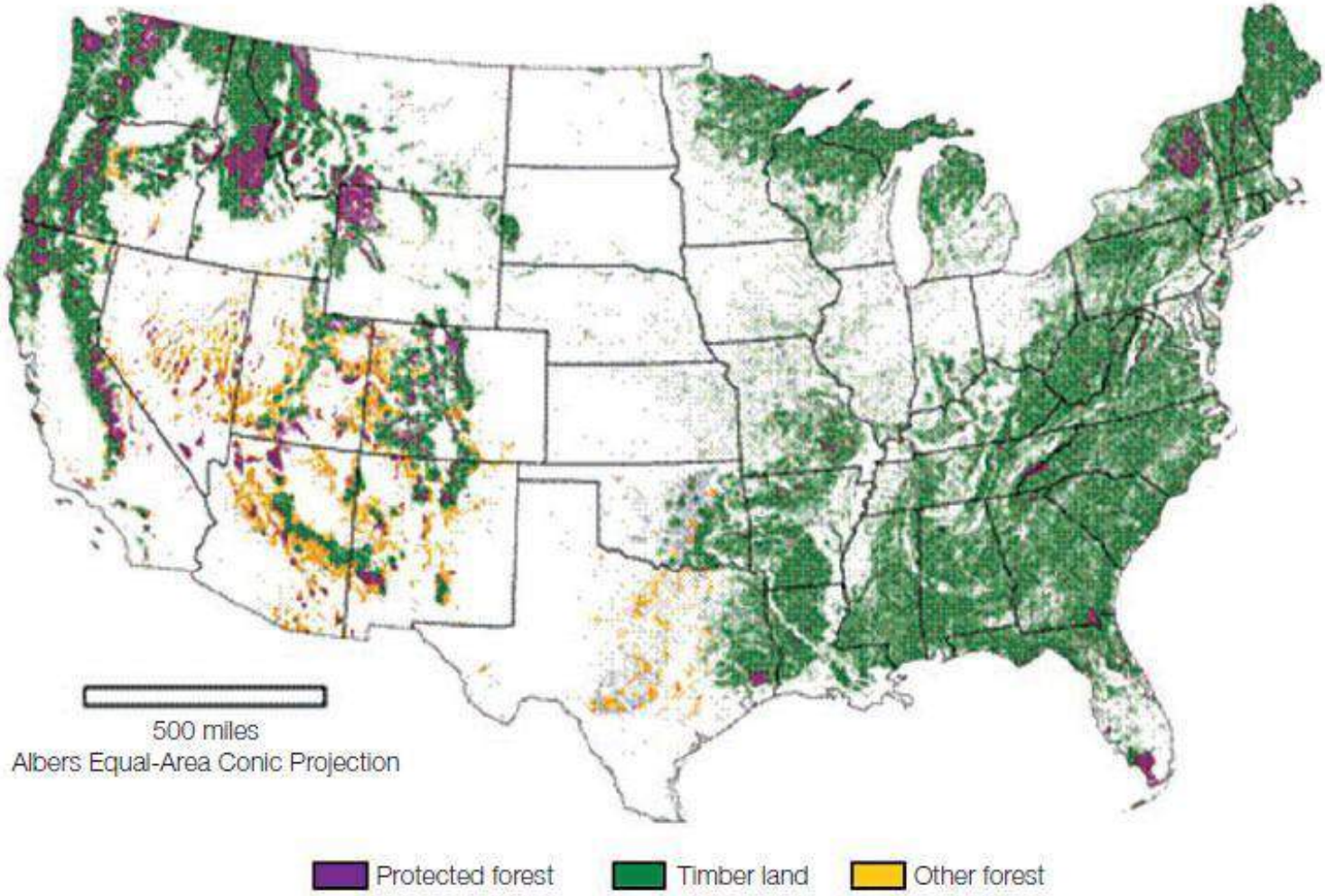
Restoring America's Forests

Figure 2-1. Forest land by major forest land class in the United States (excluding Alaska and Hawaii), 2007.



Why care about our Forests

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Restoring America's Forests

Forests Help Climate

Keeping Forests as Forests is best way to reduce green house gases

U.S. Forests currently capture 15% of the nation's fossil fuel carbon emissions

Woodall, CW, et al. 2015. The U.S. Forest Carbon Accounting Framework: Stocks and Stock change, 1990-2016. Gen. Tech. Rep. NRS-154. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station see abstract


“In the West, whiskey’s for drinkin’,
and water’s for fightin’ over!”
- Mark Twain

The role of FORESTS in securing CLEAN WATER

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Restoring America's Forests

Securing Clean Water

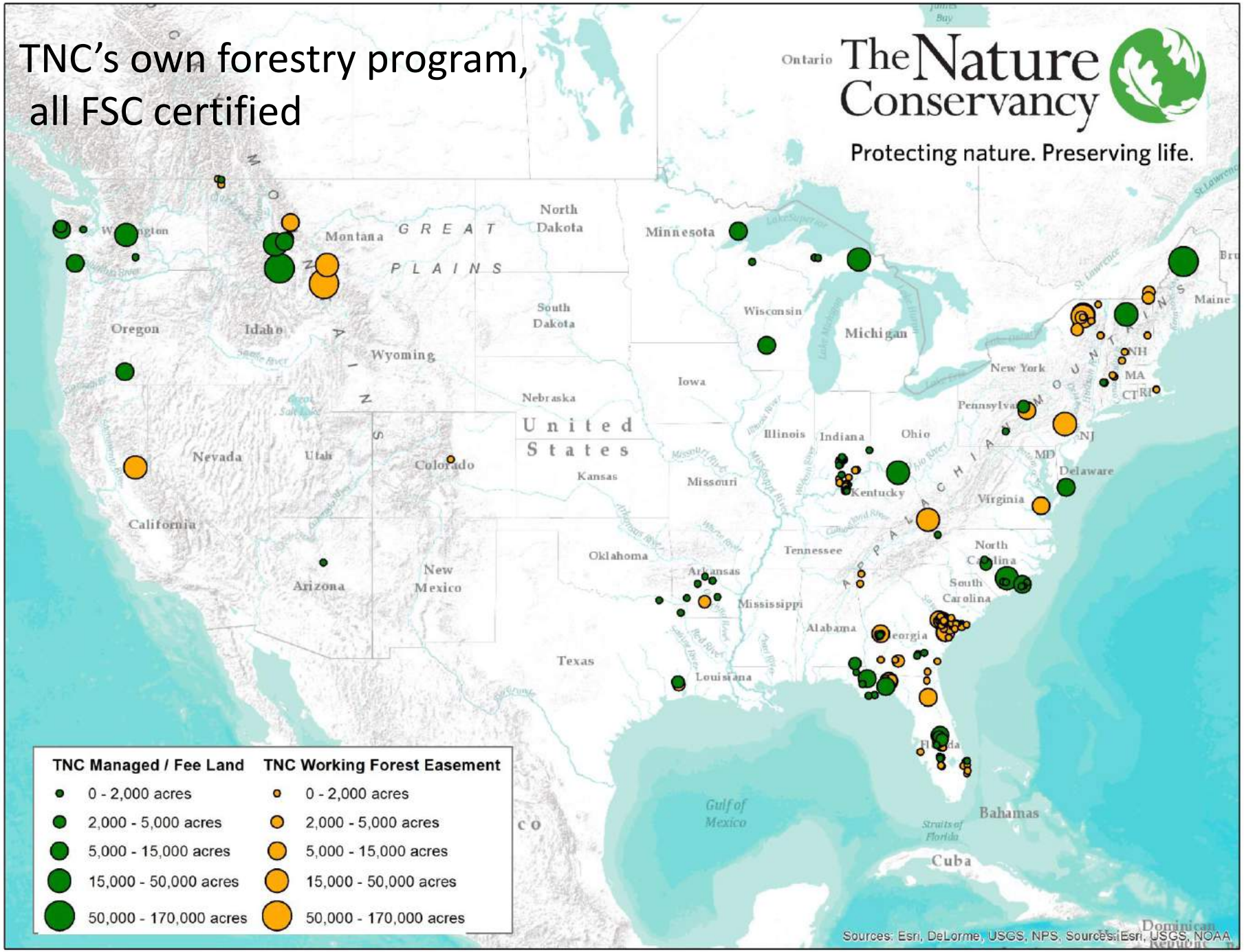
Transforming public funding for forests and water

$2 Billion in new revenue streams for forest restoration over the next five years.

In USA, TNC owns 3 million acres and holds conservation easements on another 3 million acres

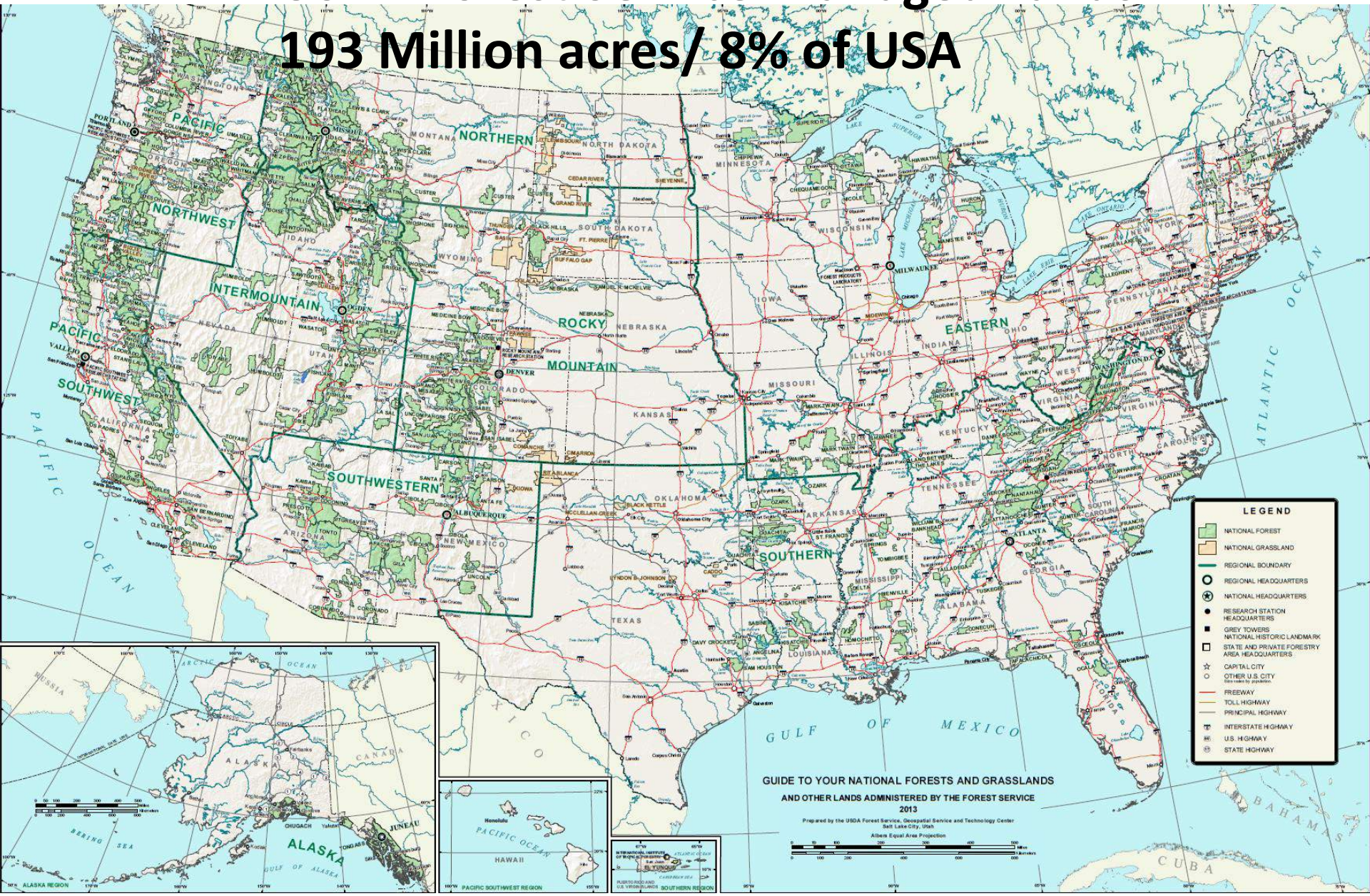
PS, The land area of the lower 48 states is about 1.9 billion acres

TNC's own forestry program, all FSC certified

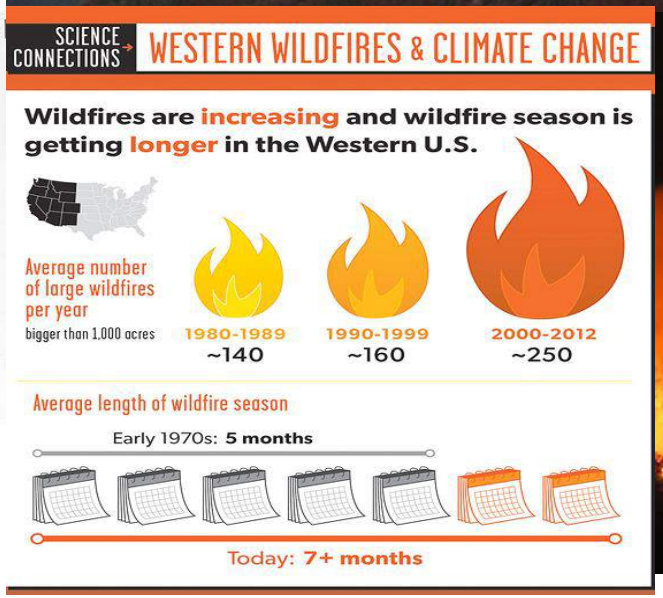


USDA Forest Service Managed Lands

193 Million acres/ 8% of USA



problems


SCIENCE CONNECTIONS
WESTERN WILDFIRES & CLIMATE CHANGE
Wildfires are increasing and wildfire season is getting longer in the Western U.S.
Average number of large wildfires per year
bigger than 1,000 acres
1980-1989
~140
1990-1999
~160
2000-2012
~250
Average length of wildfire season
Early 1970s: 5 months
Today: 7+ months

Destructive Mega-fires

California's Camp Fire Was The Most Expensive Natural Disaster Worldwide In 2018

The state's deadliest fire ever was also the world's costliest catastrophe in 2018.

Worst-ever wildfire season in California – for the second year running

Notably, there are clear indications of the influence that man-made climate change has had on devastating wildfires in California, which, like last year, again caused billions in losses in 2018

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A Montana-sized forested area is unhealthy

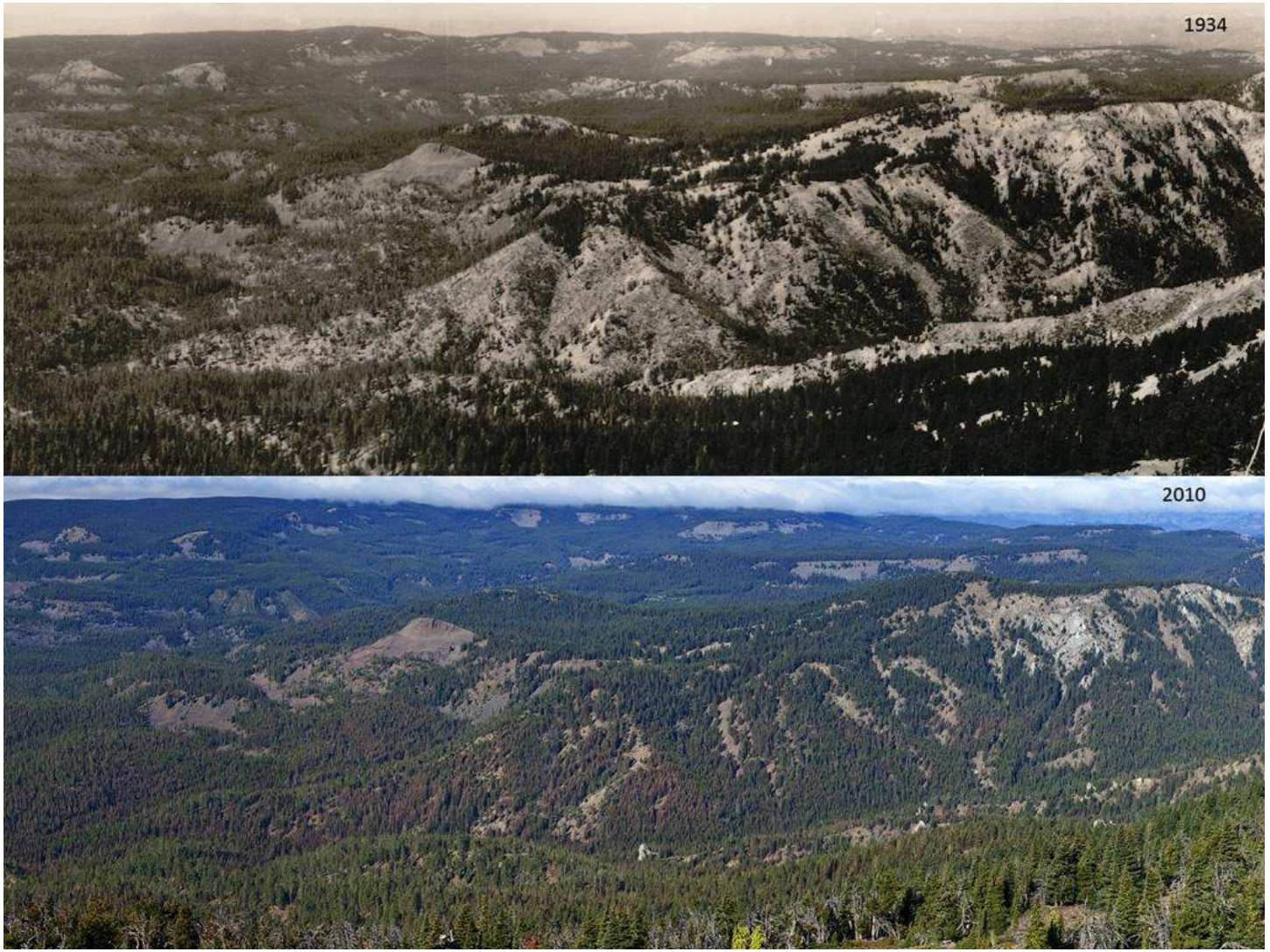
- **Megafire-- 57% more acres burned this past decade**
- **Invasive species are harming forests and people**
- **Forests are going untreated due to lack of agreement**

Our favorite bear has impacted western forests

Smokey bear remember only you can prevent forest fires video.

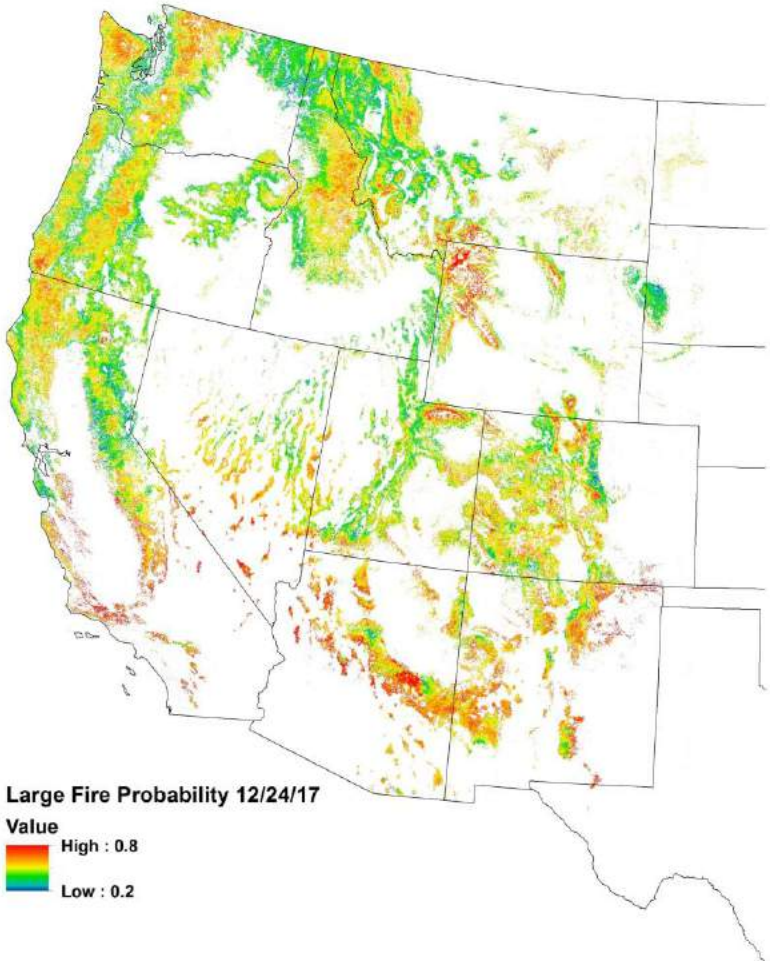
Mission Peak, WA

1934



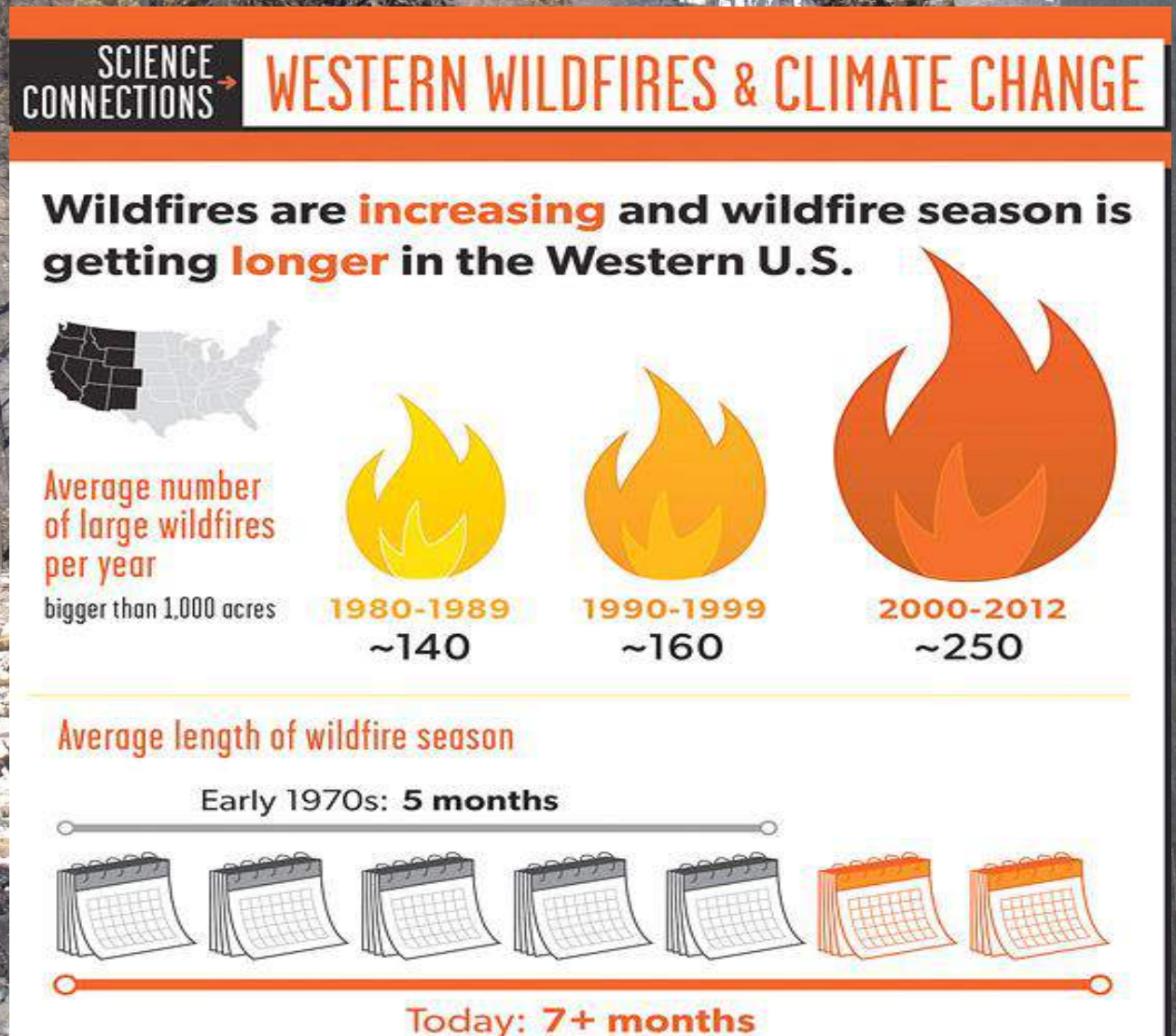
2010

Probability of Large Wildfire



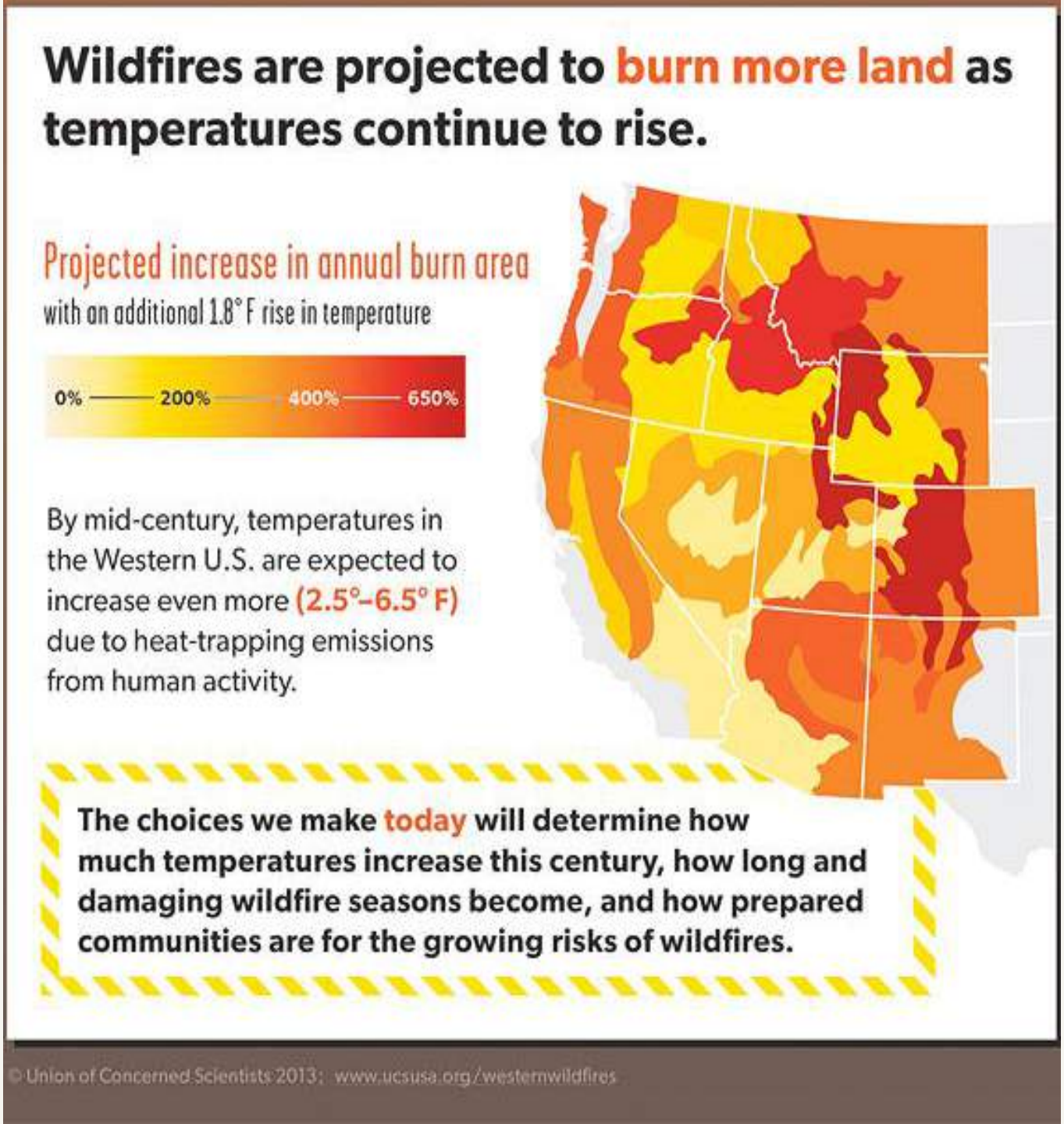
Gray, M. E., L. J. Zachmann, and B. G. Dickson. 2018. A weekly, continually updated dataset of the probability of large wildfires across western US forests and woodlands. Earth System Science Data 10:1715–1727.

Our Forests are At-Risk



Our FORESTS

are at risk



Corelogic Wildfire Hazard Risk report 2016

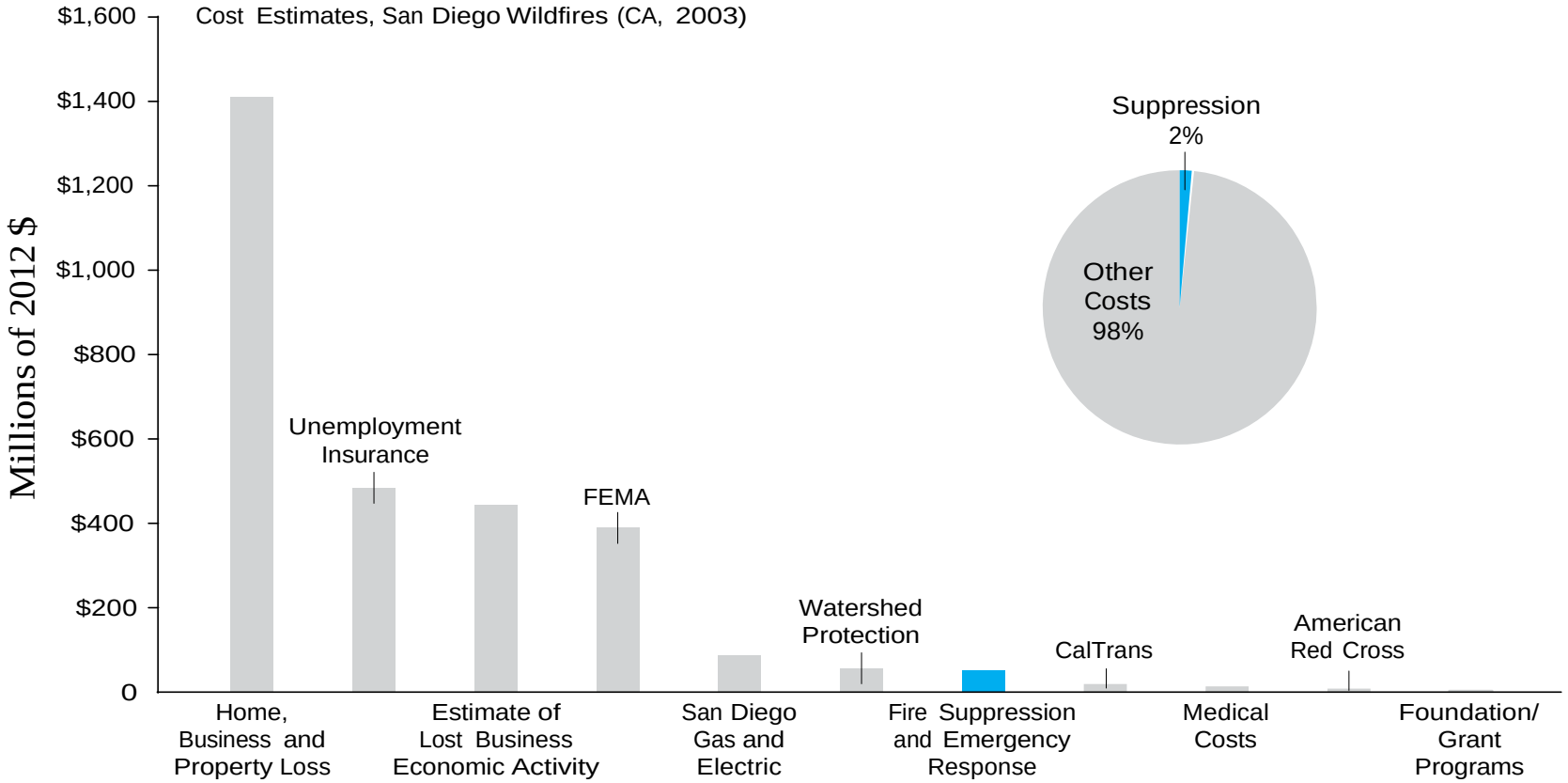
Western US has 1,812,725 residential properties at EXTREME or High risk

Wildfire Risk Level	# Total Properties	Total Estimated Reconstruction Value
EXTREME	893,333	$218,758,051,071
High	919,392	$281,041,584,567
Moderate	367,629	$106,630,098,370
Low	26,745,212	$6,627,236,644,663

http://www.corelogic.com/about-us/researchtrends/wildfire-risk-report.aspx#

Cost estimates of Wildfires-
Many impacts beyond suppression costs

from Playing With Fires, Union of Concerned Scientists, 2014

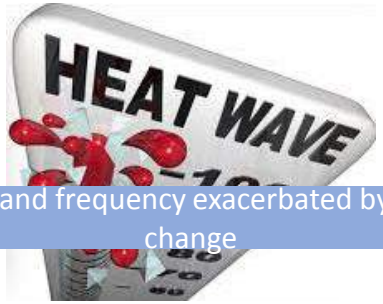


Wildfire Suppression Costs Are Increasing

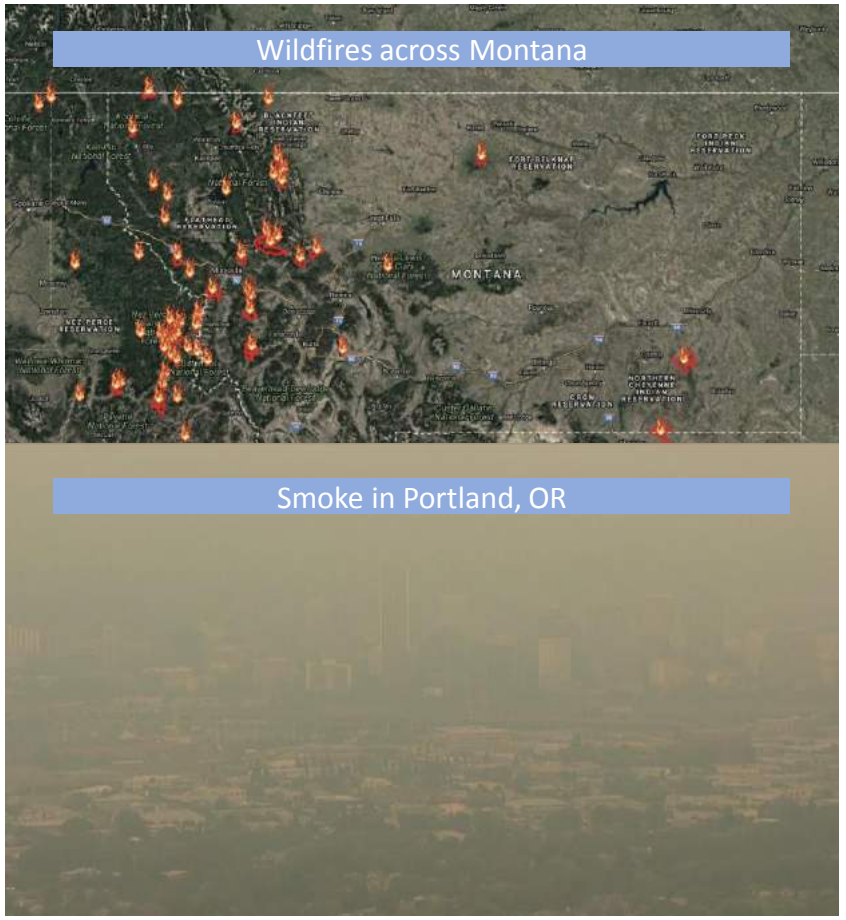
#FireFi
x
#WDFA

More people living in and near fire-prone forests

Build up of fuels in forests



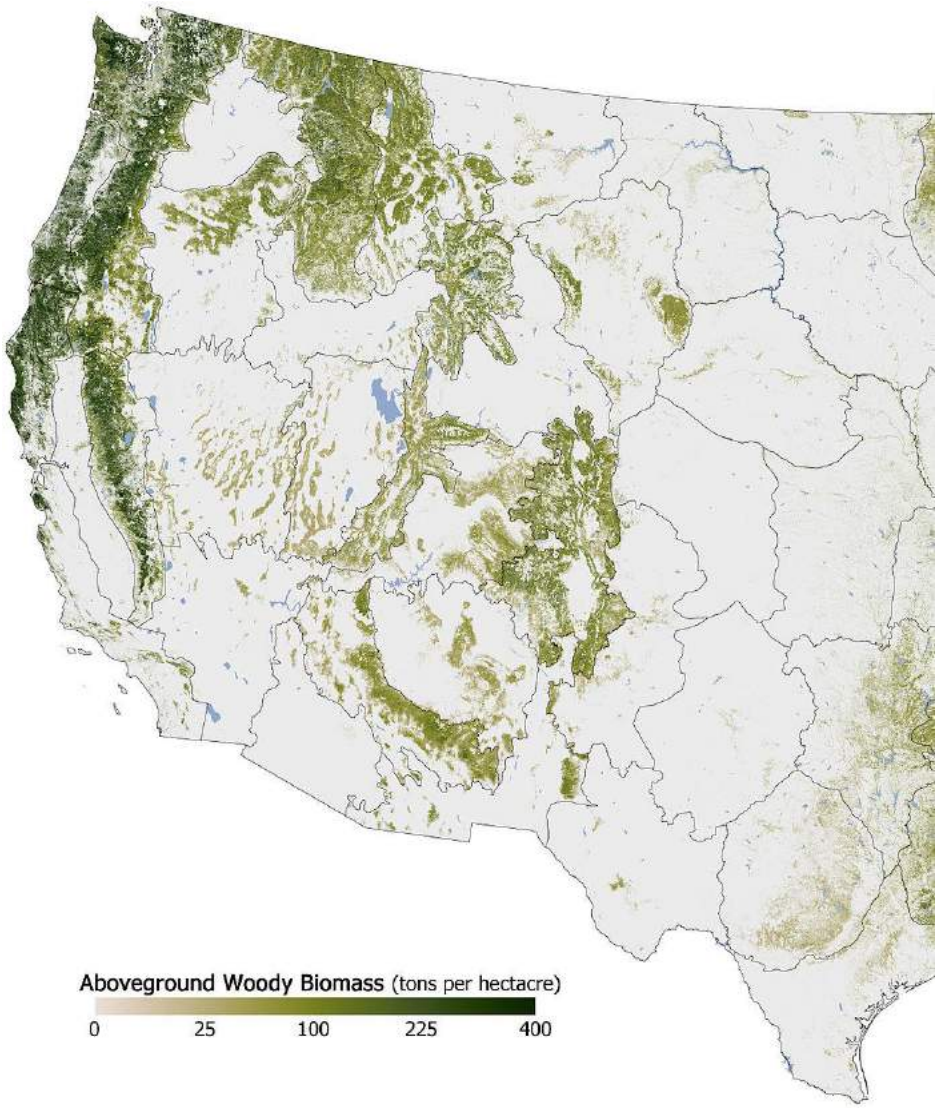
Severity and frequency exacerbated by climate change



Wildfires across Montana

Smoke in Portland, OR

Biomass in Western U.S. Forests



Kellndorfer, J., W. Walker, K. Kirsch, G. Fiske, J. Bishop, L. Lapoint, M. Hoppus, and J. Westfall. 2013.

Keep Forests As Forests

US Science synthesis for forest sector:

Trends in forest cover loss due to fire, urbanization and other impacts will make forests a net emitter of carbon by the end of the century.

Vose, James M.; Peterson, David L.; Patel-Weynand, Toral, eds. 2012. Effects of climatic variability and change on forest ecosystems: a comprehensive science synthesis for the U.S. forest sector. Gen. Tech. Rep. PNW-GTR-870. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. See p 61.

Restoring America's Forest

Solution:

Focus on policies and practices that increase the pace, scale and quality of restoration of U.S. federal forests, with emphasis on the U.S. Forest Service.

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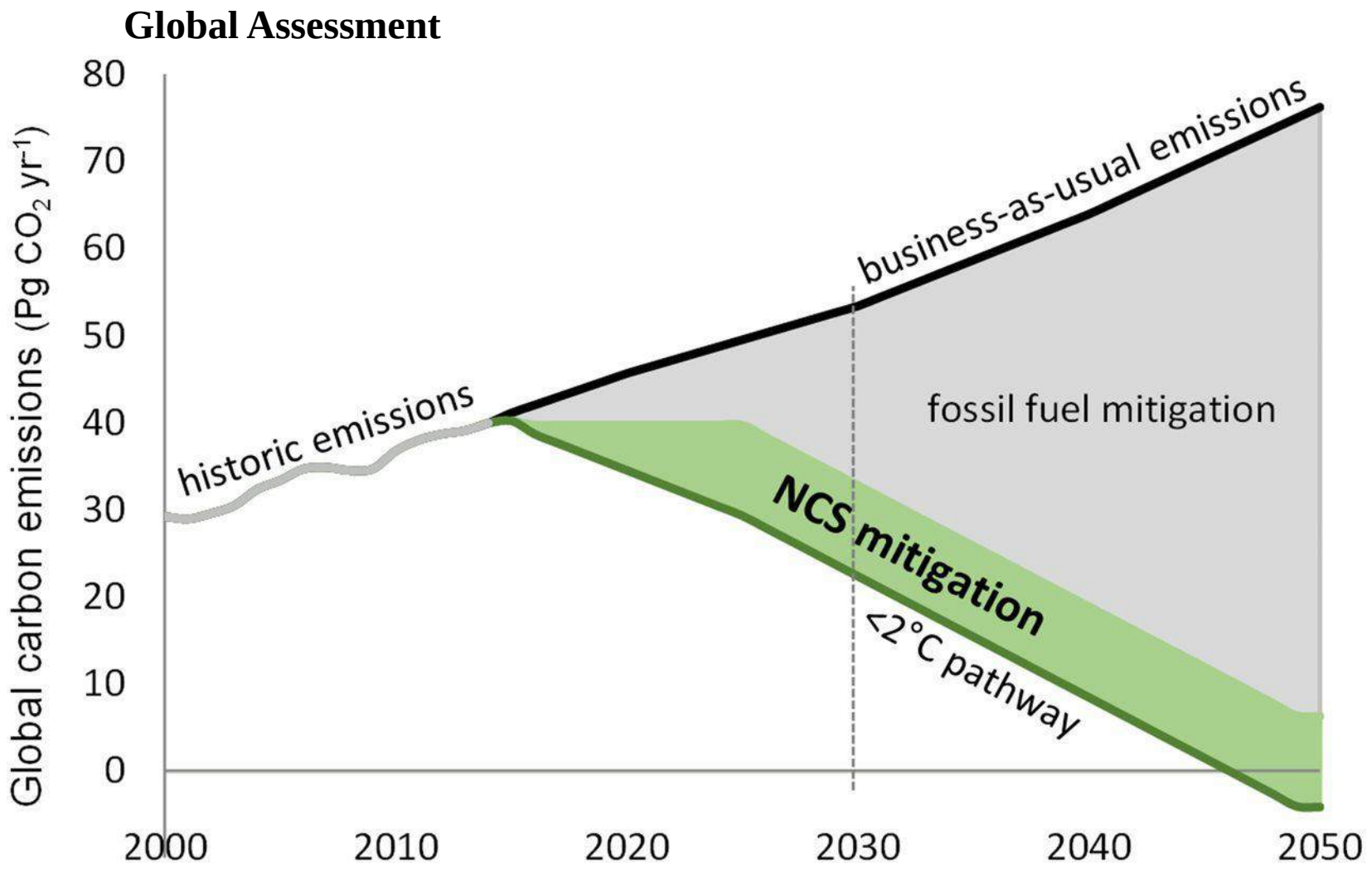
RESTORING AMERICA'S FORESTS

Restoring America's Forests

More forests need restoration treatments

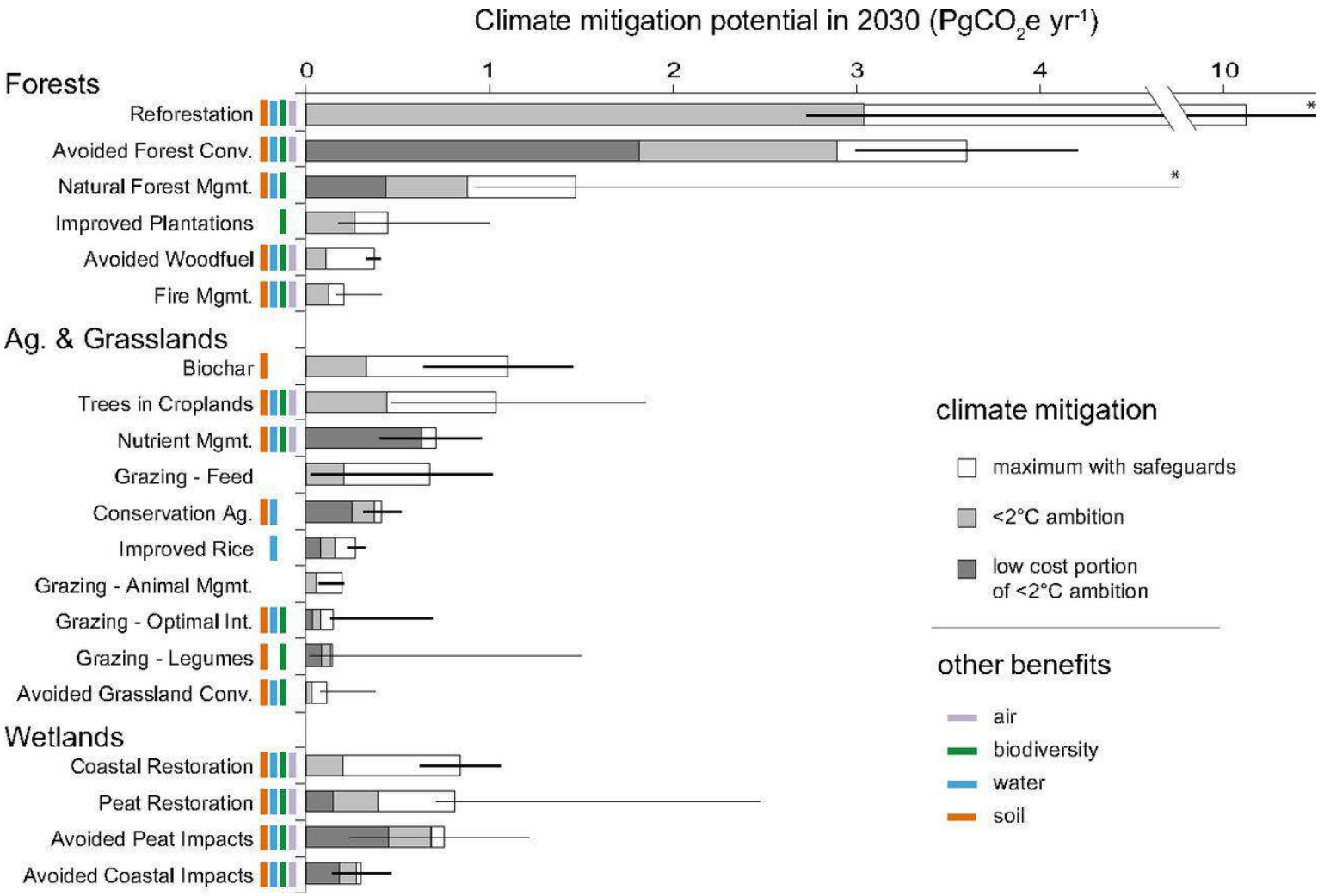
Contribution of natural climate solutions (NCS) to stabilizing warming to below 2 °C.



Bronson W. Griscom et al. PNAS 2017;114:11645-11650

Climate mitigation potential of 20 natural pathways.

Global Assessment

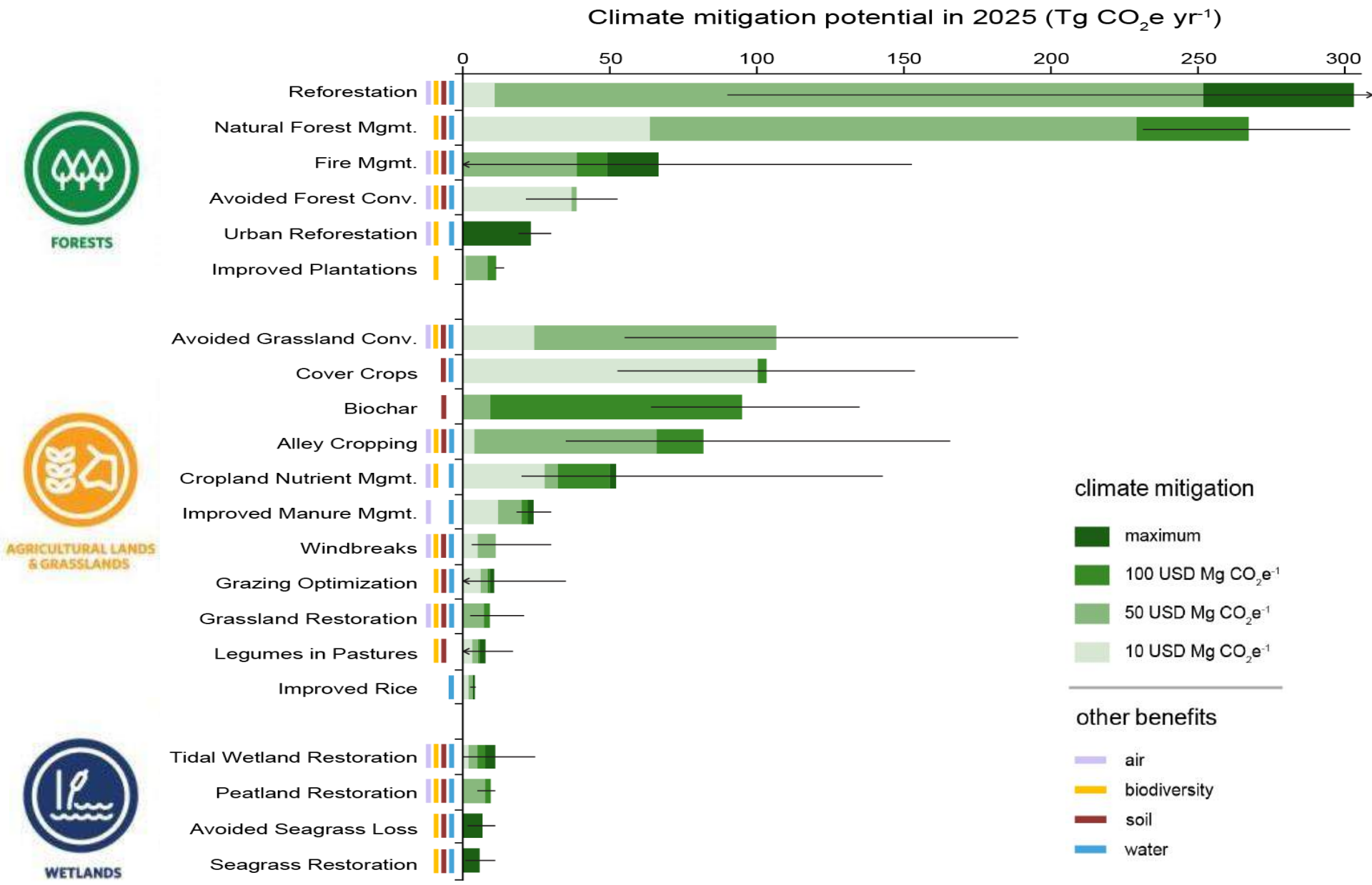


Bronson W. Griscom et al. PNAS 2017;114:11645-11650

Natural Climate Solutions Pathways, US max NCS potential = 1.3 Pg CO_2e yr^{-1}

Fargione et al SCIENCE ADVANCES Nov 2018

USA Assessment



Restoring America's Forests

DEMONSTRATION LANDSCAPES

with Fire Learning Network Landscapes and
Collaborative Forest Landscape Restoration Program sites

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LEGEND

Restoring America's Forests Demonstration Sites
(shaded green)

1. Tongass National Forest
2. Central Cascades Forest
3. Oregon Forest Project
4. Northern Sierra Nevada
5. Clearwater Basin Collaborative
6. Four Forest Restoration Initiative
7. Rio Grande Water Fund
8. Colorado Forest Restoration and Fire Program
9. Shortleaf Pine-Oak Ecosystem Restoration Project
10. Great Lakes Project
11. Central Appalachians
12. Southern Blue Ridge Cooperative Landscape
13. Longleaf Pine Whole System

Forest Service Collaborative Forest Landscape Restoration Program projects where the Conservancy is a partner (16 of 23 CFLRP projects)

31 Fire Learning Network (FLN) landscapes

RAF data v. 3 March 2016
FLN data v. 9 August 2016
CFLRP data v. 9 February 2012
map v. 11 August 2016

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Restoring America's Forests team
2016 Flagstaff, Arizona

Forest Diagnostics: Key Solutions and Barriers Tested

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1. National Environmental Policy Act- NEPA

Where tested: Ten demo sites

Example-- 4 Forest Restoration Initiative, Arizona

Forest Diagnostics: Key Solutions and Barriers Tested

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2. Stewardship Contracting

Where tested: Alaska; Northern Arizona; Great Lakes Forests, Oregon

Southern Oregon,
Ashland

Forest Diagnostics: Key Solutions and Barriers Tested

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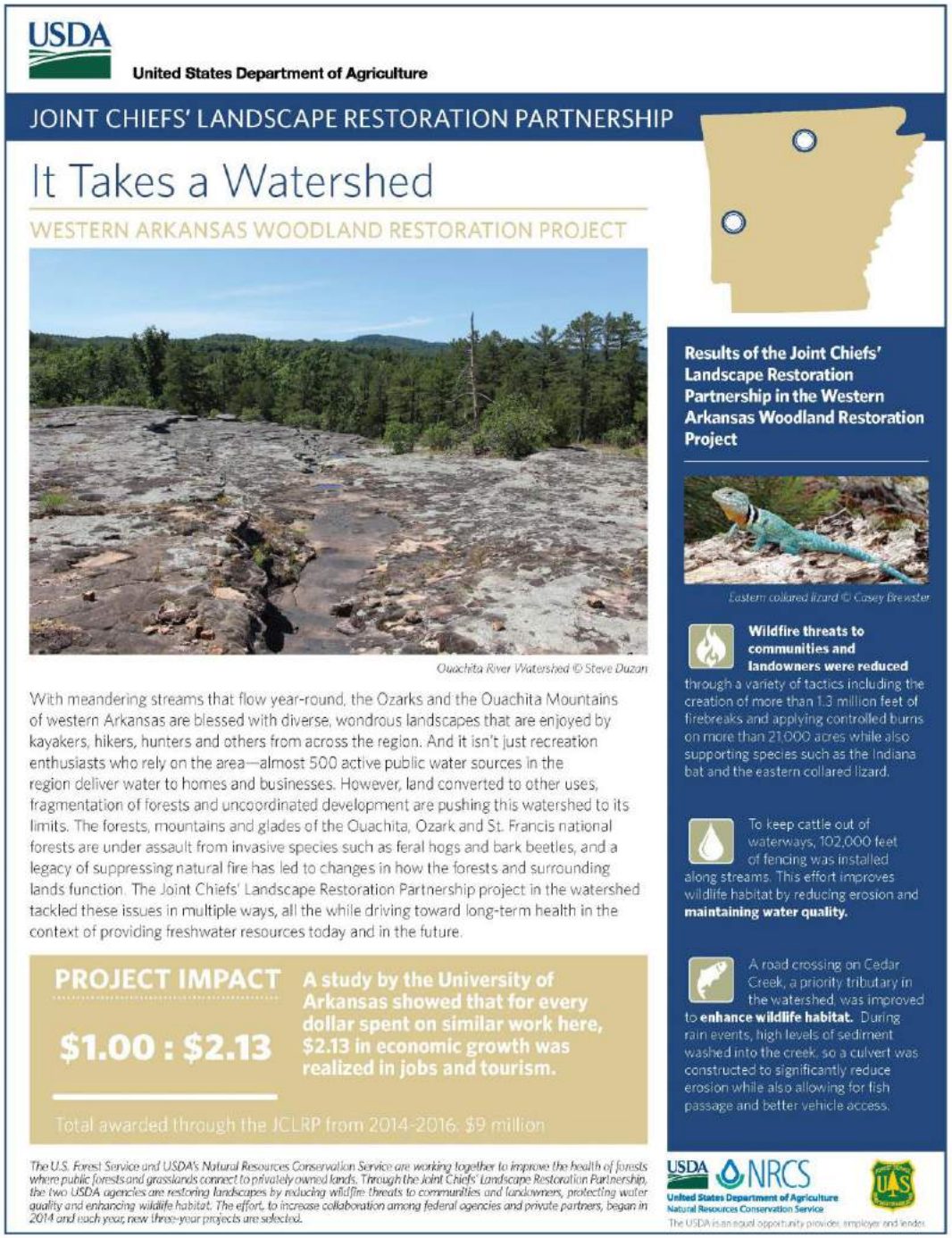
3. Collaborative Forest Landscape Restoration – CLFR

Where tested: Northern Arizona; Colorado Front Range; Longleaf pine, FL & AL; Southwest Jemez, New Mexico; Central Oregon; Central Washington; Clearwater Basin Collaborative

Colorado Front Range

USDA Joint Chiefs Landscape Restoration Partnership



USDA
United States Department of Agriculture

JOINT CHIEFS' LANDSCAPE RESTORATION PARTNERSHIP

It Takes a Watershed

WESTERN ARKANSAS WOODLAND RESTORATION PROJECT

Ouachita River Watershed © Steve Duzan

With meandering streams that flow year-round, the Ozarks and the Ouachita Mountains of western Arkansas are blessed with diverse, wondrous landscapes that are enjoyed by kayakers, hikers, hunters and others from across the region. And it isn't just recreation enthusiasts who rely on the area—almost 500 active public water sources in the region deliver water to homes and businesses. However, land converted to other uses, fragmentation of forests and uncoordinated development are pushing this watershed to its limits. The forests, mountains and glades of the Ouachita, Ozark and St. Francis national forests are under assault from invasive species such as feral hogs and bark beetles, and a legacy of suppressing natural fire has led to changes in how the forests and surrounding lands function. The Joint Chiefs' Landscape Restoration Partnership project in the watershed tackled these issues in multiple ways, all the while driving toward long-term health in the context of providing freshwater resources today and in the future.

PROJECT IMPACT

$1.00 : $2.13

A study by the University of Arkansas showed that for every dollar spent on similar work here, $2.13 in economic growth was realized in jobs and tourism.

Total awarded through the JCLRP from 2014-2016: $9 million

The U.S. Forest Service and USDA's Natural Resources Conservation Service are working together to improve the health of forests where public forests and grasslands connect to privately owned lands. Through the Joint Chiefs' Landscape Restoration Partnership, the two USDA agencies are restoring landscapes by reducing wildfire threats to communities and landowners, protecting water quality and enhancing wildlife habitat. The effort, to increase collaboration among federal agencies and private partners, began in 2014 and each year, new three-year projects are selected.

Results of the Joint Chiefs' Landscape Restoration Partnership in the Western Arkansas Woodland Restoration Project

Eastern collared lizard © Casey Brewster

Wildfire threats to communities and landowners were reduced through a variety of tactics including the creation of more than 1.3 million feet of firebreaks and applying controlled burns on more than 21,000 acres while also supporting species such as the Indiana bat and the eastern collared lizard.

To keep cattle out of waterways, 102,000 feet of fencing was installed along streams. This effort improves wildlife habitat by reducing erosion and **maintaining water quality.**

A road crossing on Cedar Creek, a priority tributary in the watershed, was improved to **enhance wildlife habitat.** During rain events, high levels of sediment washed into the creek, so a culvert was constructed to significantly reduce erosion while also allowing for fish passage and better vehicle access.

USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

The USDA is an equal opportunity provider, employer and lender.

Forest Diagnostics: Key Solutions and Barriers Tested

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4. Forest Planning Innovations

Where tested: Alaska; Northern Arizona; Northern Sierra in CA, Southwest Jemez, New Mexico; Tennessee Cherokee NF; Central Appalachians, WV & VA

Cherokee National Forest, Tennessee

Forest Diagnostics: Key Solutions and Barriers Tested

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5. Targeted Land Acquisition

Where tested: Longleaf pine, FL & AL, Great Lakes Forests; Central Appalachians, WV & VA; Clearwater Basin Collaborative

Tapash Collaborative

Wenatchee National Forest, Washington

Forest Diagnostics: Key Solutions and Barriers Tested

6. Innovative funding mechanisms **water funds, mitigation**:
Where tested: Alaska; Northern Arizona; Northern Sierra in CA; New Mexico; Central Washington

Santa Fe National Forest, New Mexico

Forest Diagnostics: Key Solutions and Barriers Tested

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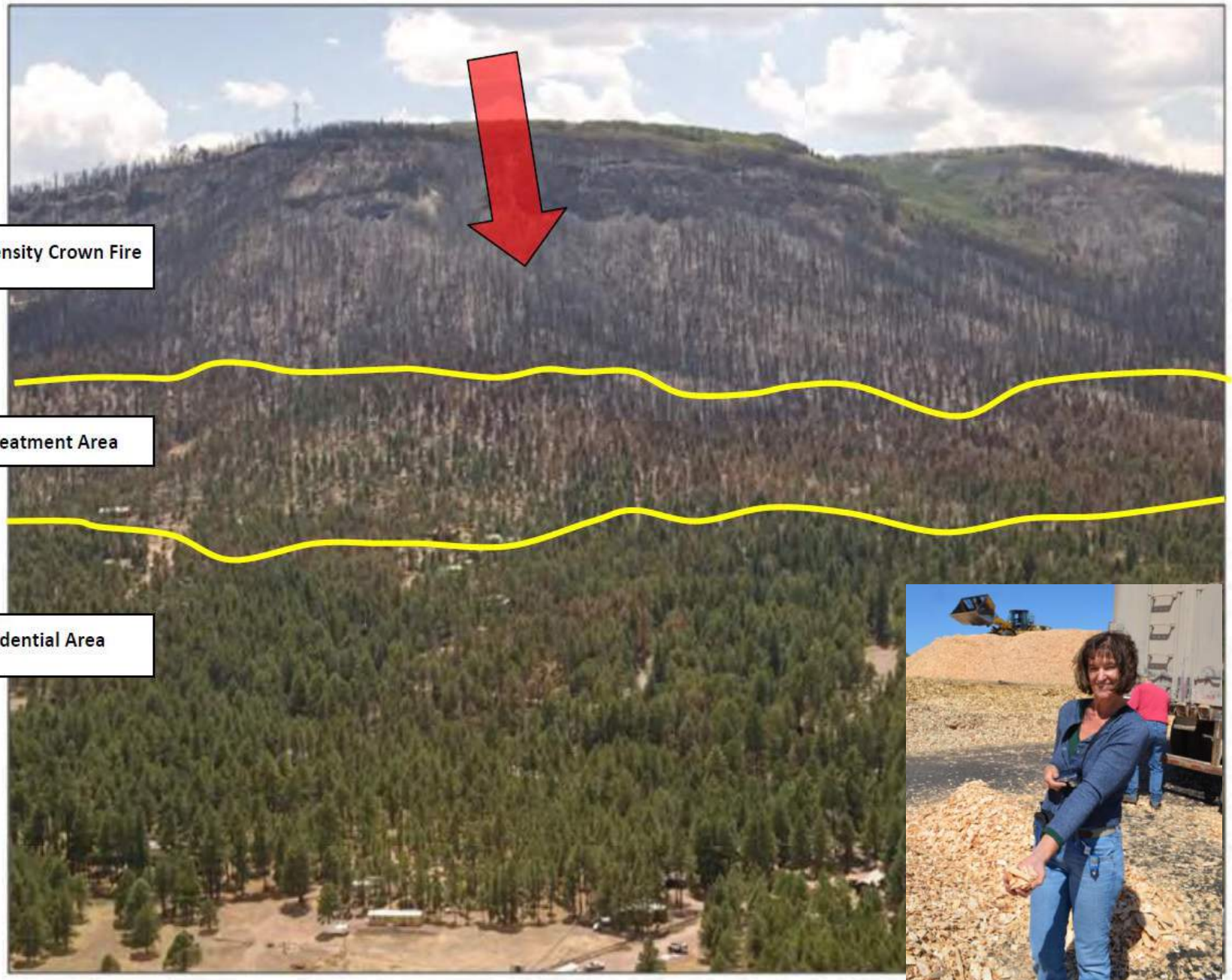
7. Innovative funding mechanisms; **timber & biomass revenue**
Where tested: Alaska; Northern Arizona; Oregon Forests

Apache-Sitgreaves National Forest, Arizona

How Fuel Treatments Saved Homes from the Wallow Fire

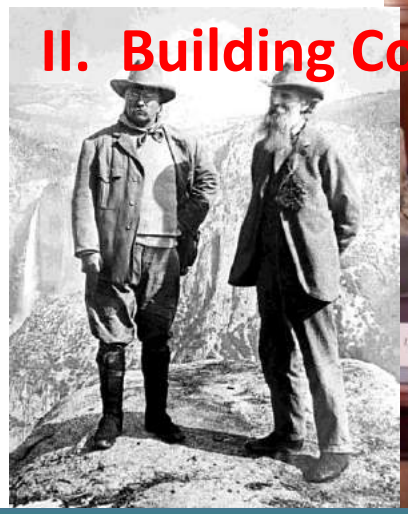


II. Building Coalitions & Collaboration

Broad

Effective

Influential



III. Reform public policy

A8 The Washington Post

THE ENVIRONMENT

Burning through wildfire budgets

As seasons grow longer and more intense, U.S. runs out of funds

BY DARRYL FEARS

In the worst wildfire season on record, the U.S. Department of Agriculture Forest Service ran out of money to pay for firefighters, firetrucks and aircraft that dump retardant on mountaintop flames.

So officials did about the only thing they could: take money from other forest-management programs. But many of the programs were aimed at preventing giant fires in the first place, and raiding their budgets meant putting off the removal of dried brush and dead wood over vast stretches of land — the things that fuel eye-popping blazes, threatening property and lives.

Recently, Congress stepped in [illegible] burn, agriculture officials said. But some recent seasons have recorded millions more than that.

This year's wildfire burn was nearly 8 million acres at the end of August, about the time that the budget allocated to fight them ran dry.

"They knew they were running out of money early on, in May," said Chris Topik, director of North American Forest Restoration for the Nature Conservancy. "They were telling people in May, 'Be careful, don't spend too much [on prevention].'"

Over seven years starting in 2002, $2.2 billion was transferred from other accounts for fire suppression when the budget came up short, according to records provided by the Forest Service. Congress at times refashioned a fraction of those funds.

"We did have to transfer the money," said Jim Hubbard, deputy chief of state and private forestry for the Forest Service. "It disrupts [illegible]

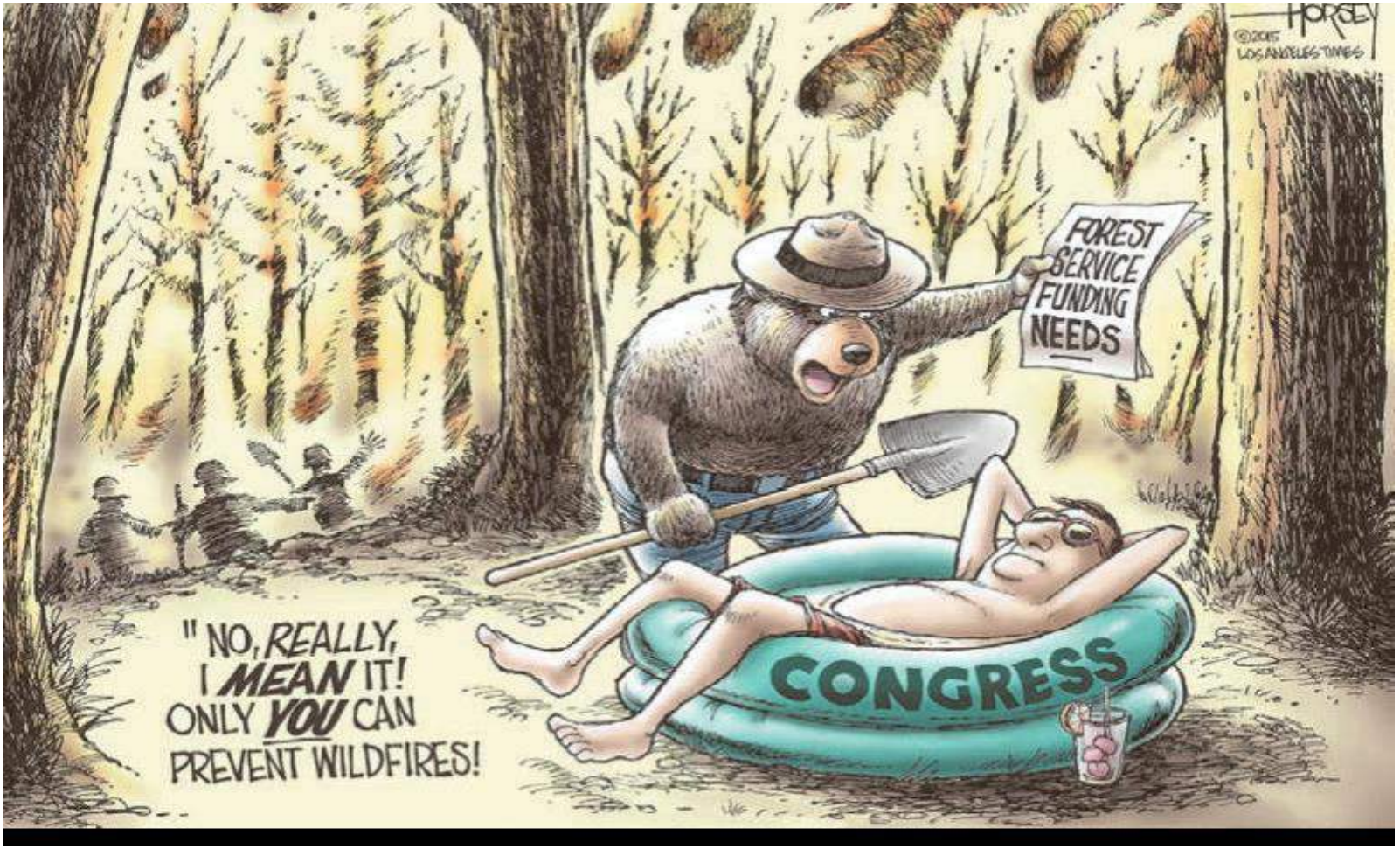
A plane drops retardant to create a fire break as wildfires advanced this summer in Washington and other Western below. Climate change is causing longer periods of dryness and drought, giving fires more fuel to burn.

But in 2011, Congress went right

Biodiversity and Forest Plans

USDA FACA Committee on Forest Planning, 2013

Senate Hearing 2013



Monday, September 7, 2015
AAEC Ref Num: 144662

http://editorialcartoonists.com/cartoon/display.cfm/144662/

Washington Post page A8 10-8-2012

THE ENVIRONMENT

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So officials did about the only thing they could: take money from other forest-management programs. But many of the programs were aimed at preventing giant fires in the first place, and raiding their budgets meant putting off the removal of dried brush and dead wood over vast stretches of land — the things that fuel eye-popping blazes, threatening property and lives.

Recently, Congress stepped in and reimbursed the Forest Service and the Interior Department, which plays a far lesser role in fighting fires, with $400 million from the 2013 continuing resolution, allowing fire-prevention work to continue. Forestry experts at state agencies and environmental groups greeted it as good news.

But they also faulted Congress for providing at the start of the fiscal year only about half of the $1 billion it actually cost to fight this year's fires. They argued that the traditional method that members of an appropriations conference committee use to fund wildfire suppression — averaging the cost of fighting wildfires over the previous 10 years — is inadequate at a time when climate change is causing longer periods of dryness and drought, giving fires more fuel to burn and resulting in longer wildfire seasons.

Once running from June to September, the season has expanded over the past 10 years to include May and October. It was once rare to see 5 million cumulative acres burn, agriculture officials said. But some recent seasons have recorded millions more than that.

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"We did have to transfer the money," said Jim Hubbard, deputy chief of state and private forestry for the Forest Service. "It disrupts work during the field season. It was not a major impact this season, but would have been if Congress didn't restore it."

A spokeswoman for the House Appropriations Committee said its chairman, Rep. Harold Rogers (R-Ky.), and members "believe that providing adequate funding for wildfire suppression is of the utmost importance. This is why they fought for hundreds of millions in funding in recent . . . legislation," as well as in appropriations bills.

Staff members on the committee acknowledged that using the 10-year average cost of wildfire suppression to determine the budget is not ideal. The spokeswoman, Jennifer Hing, said the committee will continue to operate as it has.

Each year that money was removed from brush-disposal and timber-salvage programs, the Forest Service's efforts to prevent fire fell "further and further behind," said Jake Donnay, senior director of forestry for National Association of State Foresters. "Even with the appropriations they get, they're not able to catch up. We're thankful that Congress did act to repay them this time, but that hasn't always been the case."

JOSHUA TRUJILLO/SEATTLEPI.COM VIA ASSOCIATED PRESS

A plane drops retardant to create a fire break as wildfires advanced this summer in Washington and other Western states such as Wyoming, below. Climate change is causing longer periods of dryness and drought, giving fires more fuel to burn.

ALAN ROGERS/CASPER STAR-TRIBUNE VIA ASSOCIATED PRESS

Three years ago, Congress appeared to find a solution that satisfied all parties. It created the Federal Land Assistance, Management and Enhancement fund, or FLAME.

The premise was simple. In the few good fire years, when the Forest Service and Interior isn't compelled to spend every penny appropriated to fight fires, the balance would go into the FLAME account to pay for suppression in seasons when things really heat up.

Congress allocated $415 million for FLAME's first fiscal year, 2010 — a mild fire season, it turned out. As luck would have it, the following season also presented fewer fires, and a small budget surplus went into FLAME.

But in 2011, Congress went right in after it, taking at least $200 million from the fund and placing into the general treasury to use for other expenditures.

"It defeats the purpose of FLAME," Topik, a former staff member for the House Appropriations Committee, said of the Forest Service. "It's a peculiar history that this emergency activity is funded this way."

Hubbard said Congress is doing its best in lean financial times, but the problem isn't going away. "With all that's facing us, how do we accommodate [record fires] with strained budgets?" he asked.

The nation's ability to remove forest kindling and prevent fires from growing bigger and hotter is at stake, Topik said. A third of the nation is federally owned — vast stretches of grassland, vegetation and woodland.

National forests bustle with life, and a fair share of death — trees eaten by insects, scrub brush fried lifeless by the sun, old and diseased timber keeled over, awaiting lumberjacks and a date with a sawmill. Or a lightning strike.

Fires started roaring early in Colorado and New Mexico after this year's warm winter and dry spring, forcing the Forest Service to spend heavily from the $540 million Congress set aside to fight them.

At the height of the season, the agency was paying for 20,000 firefighters, dozens of fire engines, and a contracted aviation fleet.

Ninety-eight percent of wildfires are caught before they grow too far out of control, Hubbard said. But the other 2 percent are monsters that feed on uncleared brush and firefighting budgets — burns like the ones in Colorado and New Mexico, the biggest in their histories.

"We're not going to stop these fires but we can make them less intense," said Topik, who could see, as he flew over Arizona's half-million-acre Wallow burn this summer, that the flames stopped in areas where forest debris had been removed.

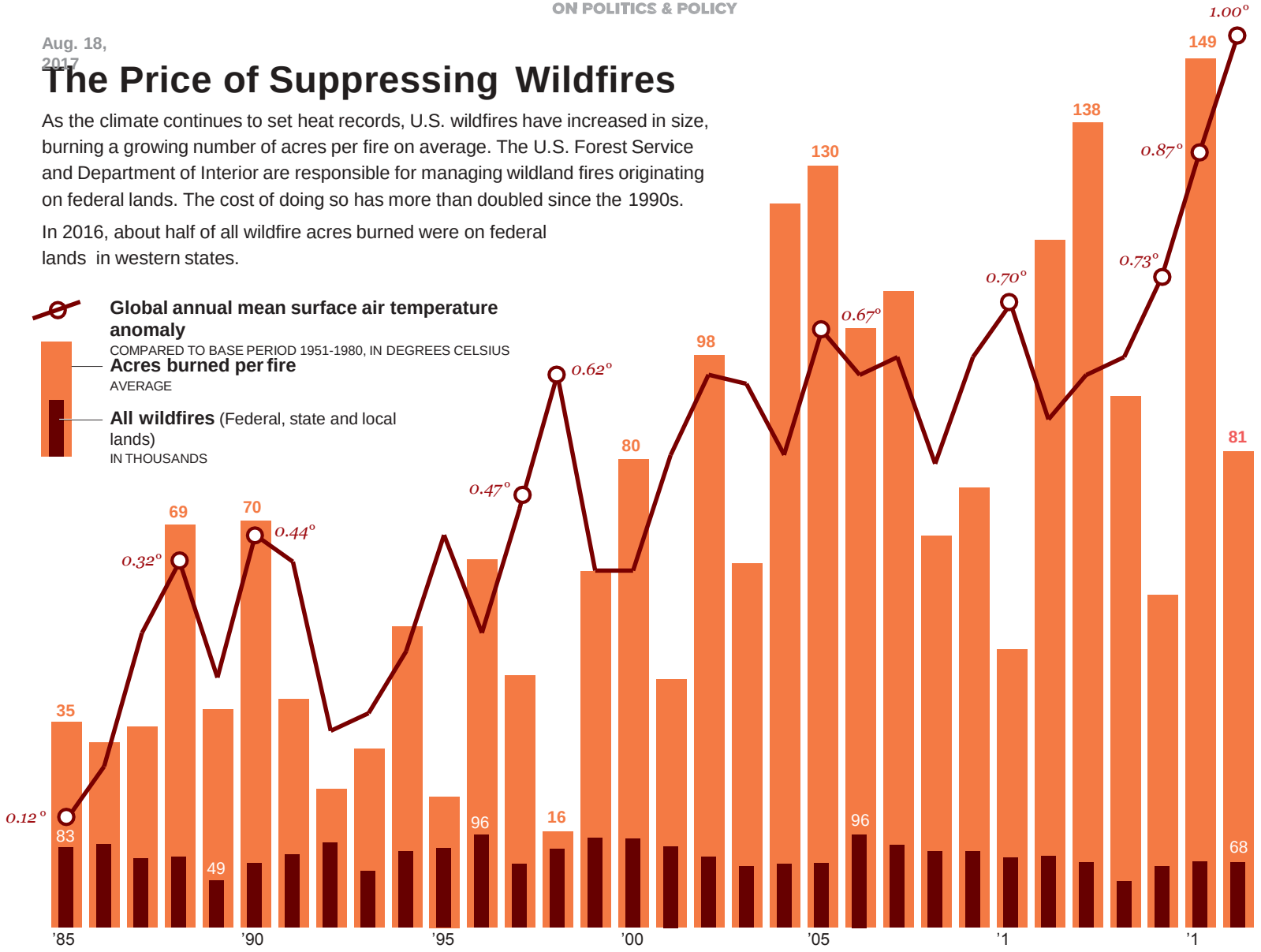
fearsd@washpost.com
Twitter: bydarrylfears

Aug. 18, 2017

The Price of Suppressing Wildfires

As the climate continues to set heat records, U.S. wildfires have increased in size, burning a growing number of acres per fire on average. The U.S. Forest Service and Department of Interior are responsible for managing wildland fires originating on federal lands. The cost of doing so has more than doubled since the 1990s.

In 2016, about half of all wildfire acres burned were on federal lands in western states.



Source: National Interagency Fire Center, NASA GISS

Patterson Clark, POLITICO Pro DataPoint

FIX THE WILDFIRE FUNDING PROBLEM NOW

DON'T LET OUR FORESTS GO UP IN SMOKE

Recent fire disasters are a devastating reminder of how wildfires are burning hotter and bigger. They're getting more difficult, dangerous and expensive to fight. And we can't keep up.

When the budget for fighting wildfires maxes out, agencies must make drastic cuts to programs that help make forests healthier for people, water and wildlife—programs that could help prevent catastrophic fires in the first place. It doesn't make sense. Congress should fix this problem before the end of the year.

A comprehensive fire fix would change how the federal government budgets for wildfire suppression, bringing the process in line with the way other disasters are funded.

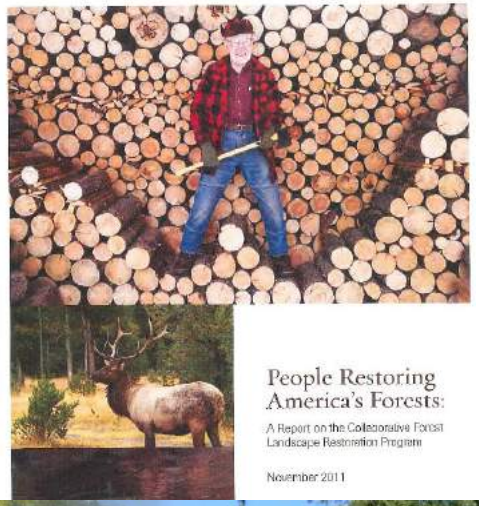
A wildfire funding fix is supported by broad, bipartisan organizations, including conservation, timber, tribal, recreation and sportsmen groups as well as firefighters.

Paid for by The Nature Conservancy.

The Nature Conservancy
Protecting nature. Preserving life.


Good Fire !

IV. Communications & Education



CNN filming prescribed burn on Apalachicola Bluffs Longleaf Pine site, Florida

The Nature Conservancy

OKTOBERFOREST

Living With Fire

The Nature Conservancy
Protecting nature. Preserving life.™

FLN
FIRE LEARNING NETWORK

PRESCRIBED FIRE TRAINING EXCHANGE
TREX
Learning Together, Burning Together

FIRE ADAPTED COMMUNITIES LEARNING NETWORK

IPBN

WATERSHED CENTER
HAYFORK, CALIFORNIA

TO INCREASE THE CAPACITY AND SOCIAL CAPITAL NEEDED TO MAKE ECOSYSTEMS AND COMMUNITIES MORE RESILIENT TO WILDFIRE. OUR PARTNERSHIP SUPPORTS EFFECTIVE LEARNING NETWORKS, TRAINING, CAPACITY-BUILDING AND TARGETED COLLABORATIVE PROJECTS ON THE GROUND

WORKING TOGETHER FOR OVER 16 YEARS

Living With Fire

FIRE ADAPTED COMMUNITIES LEARNING NETWORK

LOCAL AND REGIONAL COORDINATION

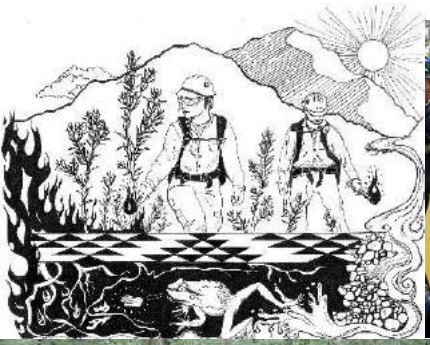
IMPLEMENTATION PROJECTS WITH PARTNERS

LEARNING EXCHANGES & WORKSHOPS

ENGAGEMENT WITH STATE OFFICIALS

FIRE ADAPTED COMMUNITIES-NET Affiliate Membership

- Who joins?
  - Individuals **and** organizations
  - Fire departments
  - Conservation districts
  - Non-profits
  - Firewise/FAC councils and coordinating groups
- Perks of joining:
  - Connect with others
  - Access



THIS IS WHAT CO-MANAGEMENT LOOKS LIKE!

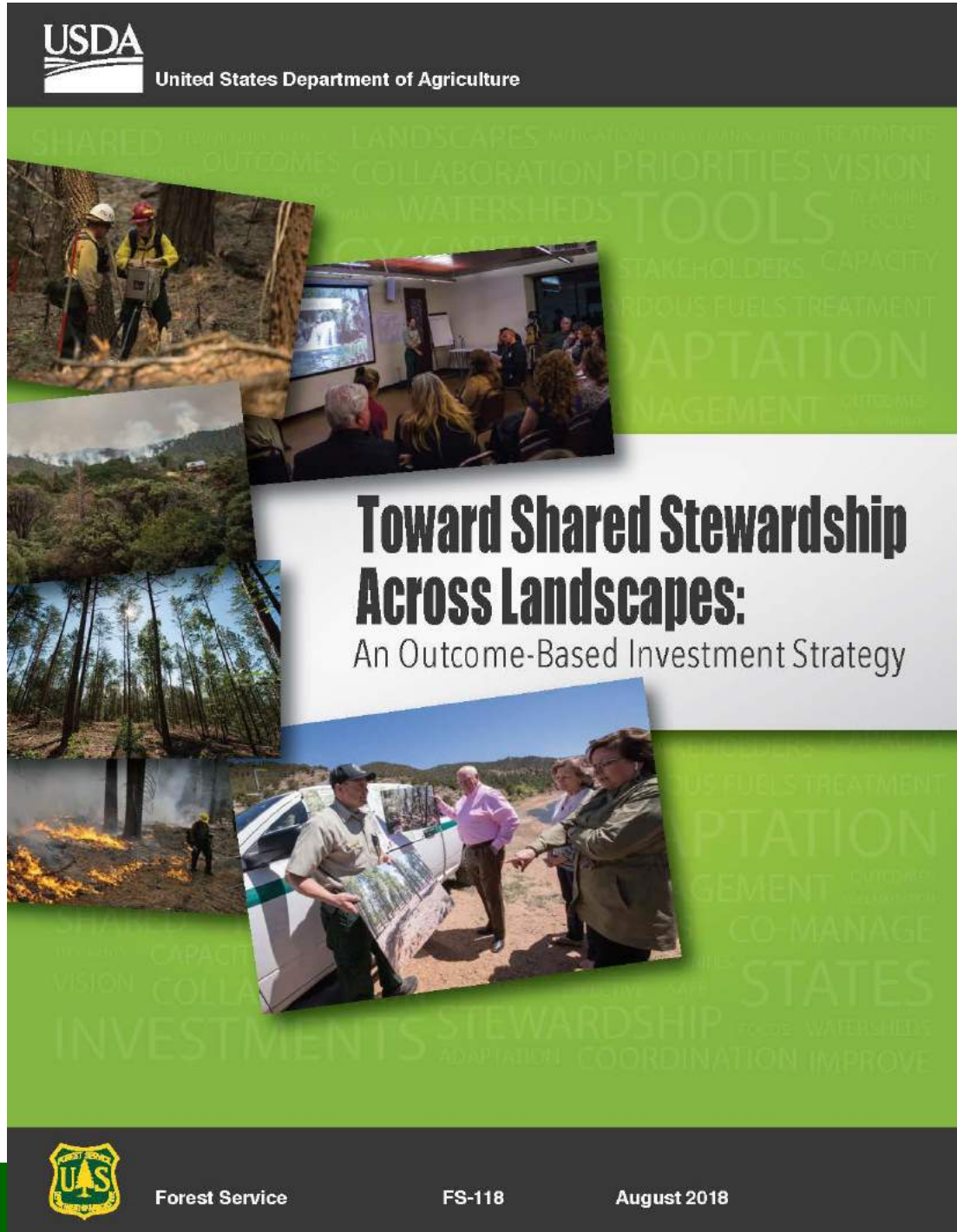
WKRP (FLN)

KLAMATH & YUROK TREX

CULTURAL FIRE MGMT COUNCIL & IPBN

FAC NET MEMBERS

New Opportunity For Forest Conservation



E.O. EXECUTIVE ORDERS

EO on Promoting Active Management of America's Forests, Rangelands, and other Federal Lands to Improve Conditions and Reduce Wildfire Risk

ENERGY & ENVIRONMENT

Issued on: December 21, 2018

...For decades, dense trees and undergrowth have amassed in these lands, fueling catastrophic wildfires....

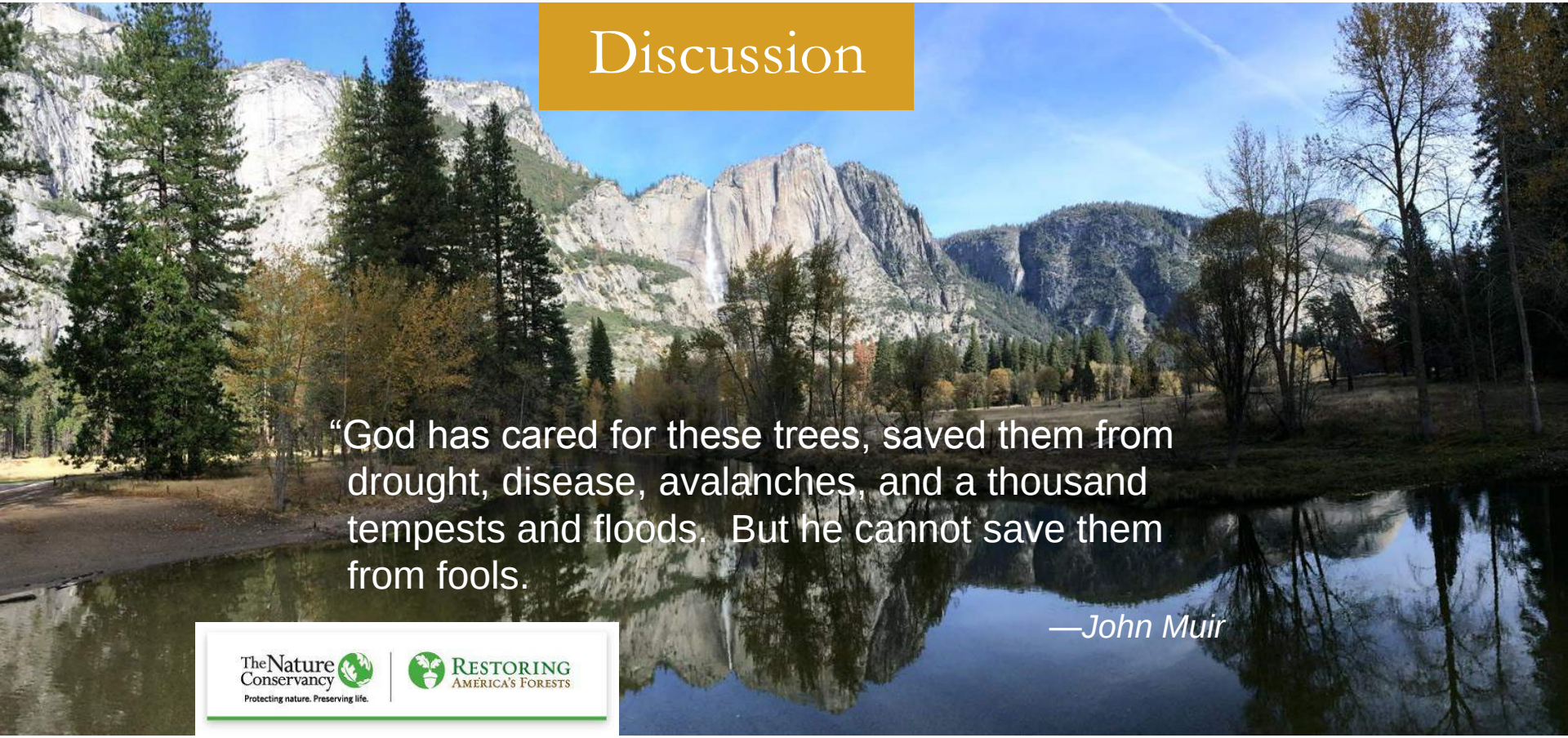
...Actions must be taken across landscapes to prioritize treatments in order to enhance fuel reduction and forest-restoration projects that protect life and property, and to benefit rural economies through encouraging utilization of the by-products of forest restoration....

...(D) Reducing vegetation giving rise to wildfire conditions through forest health treatments by increasing health treatments as part of DOI's offering for sale 600 million board feet of timber from DOI-administered lands;...

...(D) Reducing vegetation giving rise to wildfire conditions through forest health treatments by increasing health treatments as part of USDA's offering for sale at least 3.8 billion board feet of timber from USDA FS lands; ...


Mitigate
Education
Adapt
Health
Effective
communicate
Healthy
Acceptance
Action
Respect
Culture
Rx
Change
Community
Ceremony
Empowerment
Smokey
Future
Responsibility
Humbleness
hugs
Controlled
Partnerships
Work
Stewardship
Prescribed
Forest
Resilience
Prepare
Sustainability
Teamwork
Learn
Inclusion
fire
Ecological
literacy
Proactive
Vida
Natural
together
Equity
Management
Embrace
Smoke
Urgency
All
Collaborate
Wokeness
burning
Understand
Restoration
Relationship
Ownership
Awareness
Embodiment
communication
Communities

Discussion



"God has cared for these trees, saved them from drought, disease, avalanches, and a thousand tempests and floods. But he cannot save them from fools.

—John Muir

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Protecting nature. Preserving life.

Restoring America's Forests