Current US Public Forest Conservation Priorities in The Nature Conservancy
3.27.19

DOE Biomass R&D Technical Advisory Committee

Chris Topik
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.
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:

<table>
<thead>
<tr>
<th><strong>400</strong> scientists</th>
<th><strong>4,000</strong> conservationists</th>
<th>A FAR REACHING ALUMNI NETWORK of leaders in the conservation community</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>72</strong> countries</td>
<td><strong>50</strong> U.S. states</td>
<td><strong>1 MILLION</strong> dedicated members</td>
</tr>
<tr>
<td></td>
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<td><strong>1,300</strong> prominent volunteer leaders</td>
</tr>
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Figure 2-1. Forest land by major forest land class in the United States (excluding Alaska and Hawaii), 2007.

- **Protected forest**
- **Timber land**
- **Other forest**

Albers Equal-Area Conic Projection

Scale: 500 miles
Why care about our Forests
Forests Help Climate

Keeping Forests as Forests is best way to reduce greenhouse gases

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

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

- Mark Twain
The role of FORESTS in securing CLEAN WATER

Our forests store and filter half our nation’s water supply.

Over 124 million people rely upon our forests for their drinking water.
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
Wildfires are increasing and wildfire season is getting longer in the Western U.S.

Average number of large wildfires per year

- 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

Camp Fire 2018 California

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.
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

Our Forests are At-Risk

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
Wildfires are projected to burn more land as temperatures continue to rise.

Projected increase in annual burn area with an additional 1.8°F rise in temperature

By mid-century, temperatures in the Western U.S. are expected to increase even more (2.5°-6.5°F) due to heat-trapping emissions from human activity.

The choices we make today will determine how much temperatures increase this century, how long and damaging wildfire seasons become, and how prepared communities are for the growing risks of wildfires.

© Union of Concerned Scientists 2013; www.ucsusa.org/westernwildfires
Corelogic Wildfire Hazard Risk report 2016
Western US has 1,812,725 residential properties at EXTREME or High risk

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

Cost estimates of Wildfires—
Many impacts beyond suppression costs
from Playing With Fires, Union of Concerned Scientists, 2014


- Home, Business and Property Loss
- Estimate of Lost Business Economic Activity
- San Diego Gas and Electric
- Watershed Protection
- Fire and Emergency Response
- Medical Costs
- Foundation/Grant Programs

Unemployment Insurance
FEMA
Other Costs 98%
Suppression 2%
Wildfire Suppression Costs Are Increasing

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

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.

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.
Restoring America’s Forests

More forests need restoration treatments
Contribution of natural climate solutions (NCS) to stabilizing warming to below 2 °C.

Global Assessment

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 CO₂e yr⁻¹
Fargione et al SCIENCE ADVANCES  Nov 2018

Climate mitigation potential in 2025 (Tg CO₂e yr⁻¹)

- Reforestation
- Natural Forest Mgmt.
- Fire Mgmt.
- Avoided Forest Conv.
- Urban Reforestation
- Improved Plantations
- Avoided Grassland Conv.
- Cover Crops
- Biochar
- Alley Cropping
- Cropland Nutrient Mgmt.
- Improved Manure Mgmt.
- Windbreaks
- Grazing Optimization
- Grassland Restoration
- Legumes in Pastures
- Improved Rice
- Tidal Wetland Restoration
- Peatland Restoration
- Avoided Seagrass Loss
- Seagrass Restoration

climate mitigation
- maximum
- 100 USD Mg CO₂e⁻¹
- 50 USD Mg CO₂e⁻¹
- 10 USD Mg CO₂e⁻¹

other benefits
- air
- biodiversity
- soil
- water
Restoring America’s Forests
DEMONSTRATION LANDSCAPES
with Fire Learning Network Landscapes and Collaborative Forest Landscape Restoration Program sites

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
1. National Environmental Policy Act- NEPA
Where tested: Ten demo sites
Example-- 4 Forest Restoration Initiative, Arizona
Forest Diagnostics: Key Solutions and Barriers Tested

2. Stewardship Contracting
Where tested: Alaska; Northern Arizona; Great Lakes Forests, Oregon

Southern Oregon, Ashland
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
It Takes a Watershed

WESTERN ARKANSAS WOODLAND RESTORATION PROJECT

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 Ozarks, 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 while driving toward long-term health in the context of providing freshwater resources today and in the future.

PROJECT IMPACT

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.

$1.00 : $2.13

Total awarded through the JCIRP from 2014-2016: $9 million
Forest Diagnostics:
Key Solutions and Barriers Tested

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

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

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

High-Intensity Crown Fire

Fuel Treatment Area

Residential Area
II. Building Coalitions & Collaboration

Broad
Effective
Influential
III. Reform public policy
"No, really, I mean it! Only you can prevent wildfires!"

http://editorialcartoonists.com/cartoon/display.cfm/144662/
Burning through wildfire budgets

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

by Darryl Pearson

In the worst wildfire season on record, the U.S. Department of Agriculture Forest Service ran out of money to pay for firefighters, trucks and aircraft that dampen out minutes on mountain flanks.

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 halting their budgets meant putting off the removal of dried brush and dead wood over vast stretches of land — the things that fuel economic blazes, threatening property and lives.

Recently, Congress stepped in to reinforce the Forest Service and the Interior Department, which since 2001 has spent more than $400 million fighting fires. The 2003 continuing resolution, allowing the agencies to continue using funds appropriated in 2003, set aside $335 million to fight fires in the current fiscal year. It also contains a provision that would limit the amount of money that can be used to pay for firefighting operations, with a provision that the money be used only for those activities that are specifically authorized by Congress.

The provision, known as the “fire budget,” was included in the continuing resolution to address concerns that the Forest Service has been using too much money to fight fires, and that the agency is not doing enough to prevent them in the first place. The provision is intended to ensure that the money is spent wisely, and that the agency is not using too much money to fight fires.

Congressional leaders have been working to find a solution to the fire budget problem, but they have not yet been successful. The fire budget provision has been a major source of controversy between the Forest Service and Congress, with the agencies arguing over how much money should be spent on fire prevention and suppression.

A plane drops retardant to create a firebreak as wildfires advance 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.

For example, in 2012, Congress allocated $408 million for wildfire suppression, but the funds were not enough to pay for all of the fires that occurred. As a result, the Forest Service was forced to delay fighting some fires, and some areas were severely damaged.

As a result, Congress has been working to increase the funding for wildfire suppression, and to find ways to better manage the long-term costs of fighting fires. The fire budget provision is an important part of this effort, as it helps to ensure that the money is spent wisely, and that the agency is not using too much money to fight fires.

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On the other hand, climate change is causing longer periods of dryness and drought, giving fires more fuel to burn. A lightning strike this summer in Arizona's Half Dome fire complex, for example, forced 2,000 firefighters to leave the area.

The forecast for the fire season in the West is not promising, with drought and high temperatures expected to fuel more fires. As a result, Congress has been working to increase the funding for wildfire suppression, and to find ways to better manage the long-term costs of fighting fires. The fire budget provision is an important part of this effort, as it helps to ensure that the money is spent wisely, and that the agency is not using too much money to fight fires.

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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.

Global annual mean surface air temperature anomaly
COMPARED TO BASE PERIOD 1951-1980, IN DEGREES CELSIUS

Acres burned per fire
AVERAGE

All wildfires (Federal, state and local lands)
IN THOUSANDS

Source: National Interagency Fire Center, NASA GISS
The Wildfire Disaster Funding Act would fund wildfire disasters like other natural disasters, ensuring that agencies do not deplete vital conservation programs to fund firefighting. This would bring up-front funding certainty for firefighters and stability for forest health activities.
IV. Communications & Education

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

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
Who joins?
- Individuals and organizations
- Fire departments
- Non-profits
- Conservation districts
- 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
EO on Promoting Active Management of America’s Forests, Rangelands, and other Federal Lands to Improve Conditions and Reduce Wildfire Risk

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; ...
“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