

AAQTF Update

Pete Lahm

Forest Service

Fire and Aviation Management

Washington, D.C.

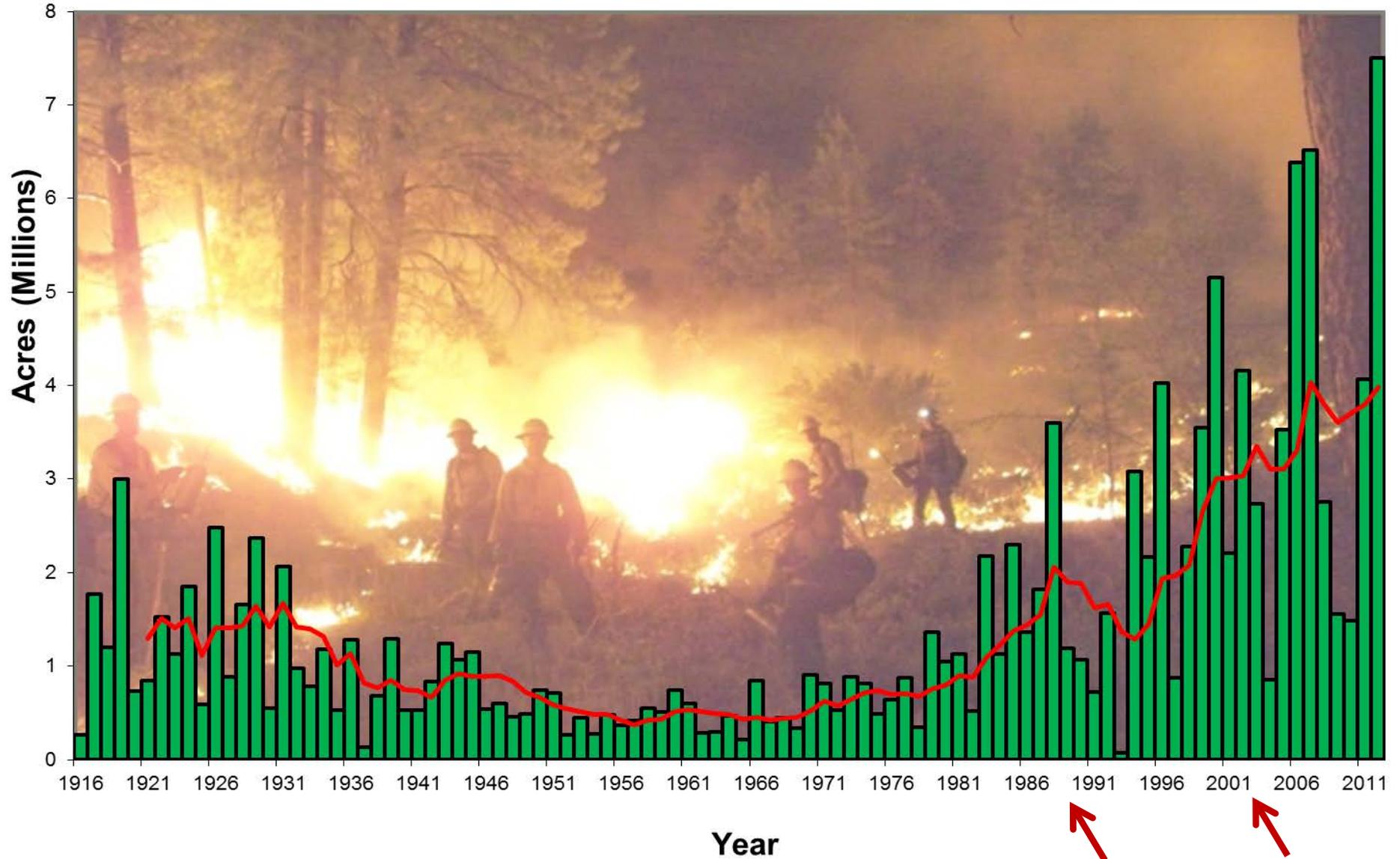
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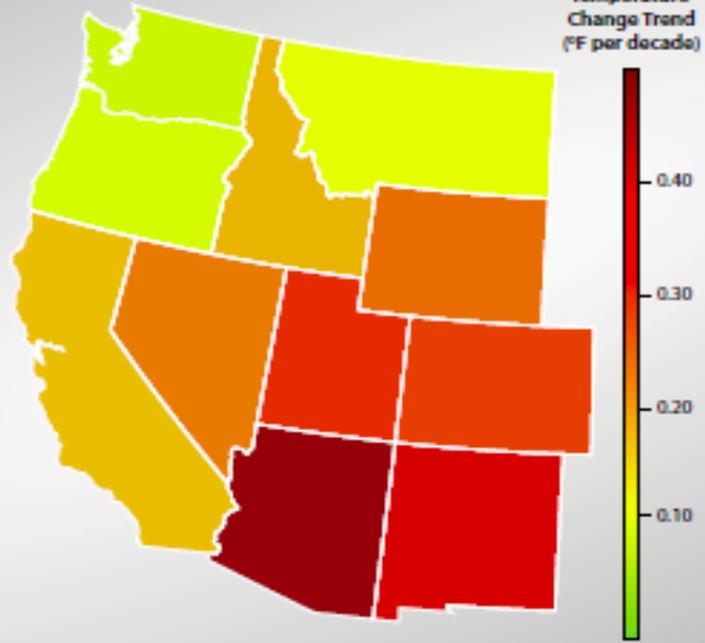
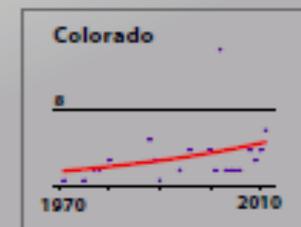
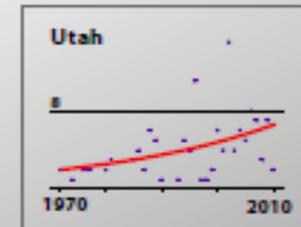
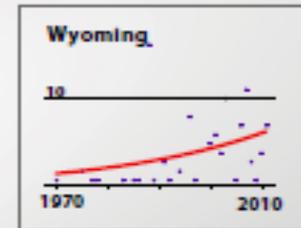
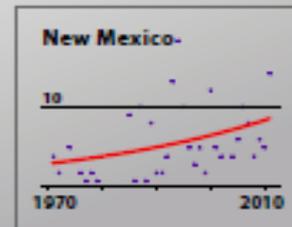
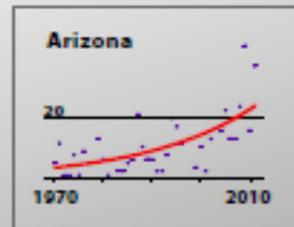
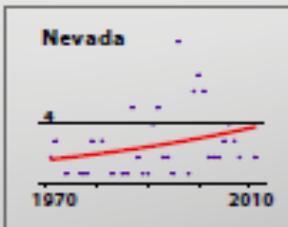
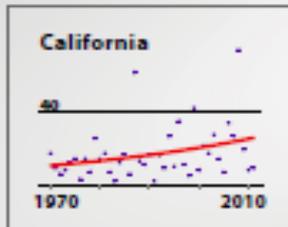
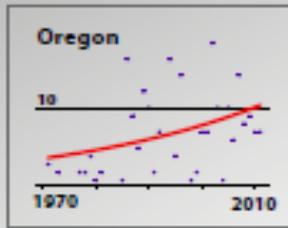
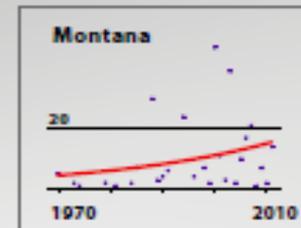
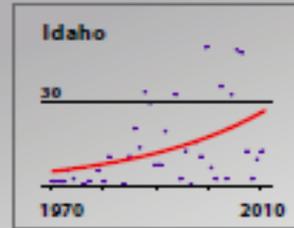
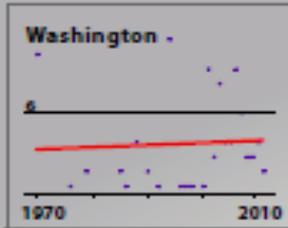


Acres Burned in the Western U.S.

(Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming)

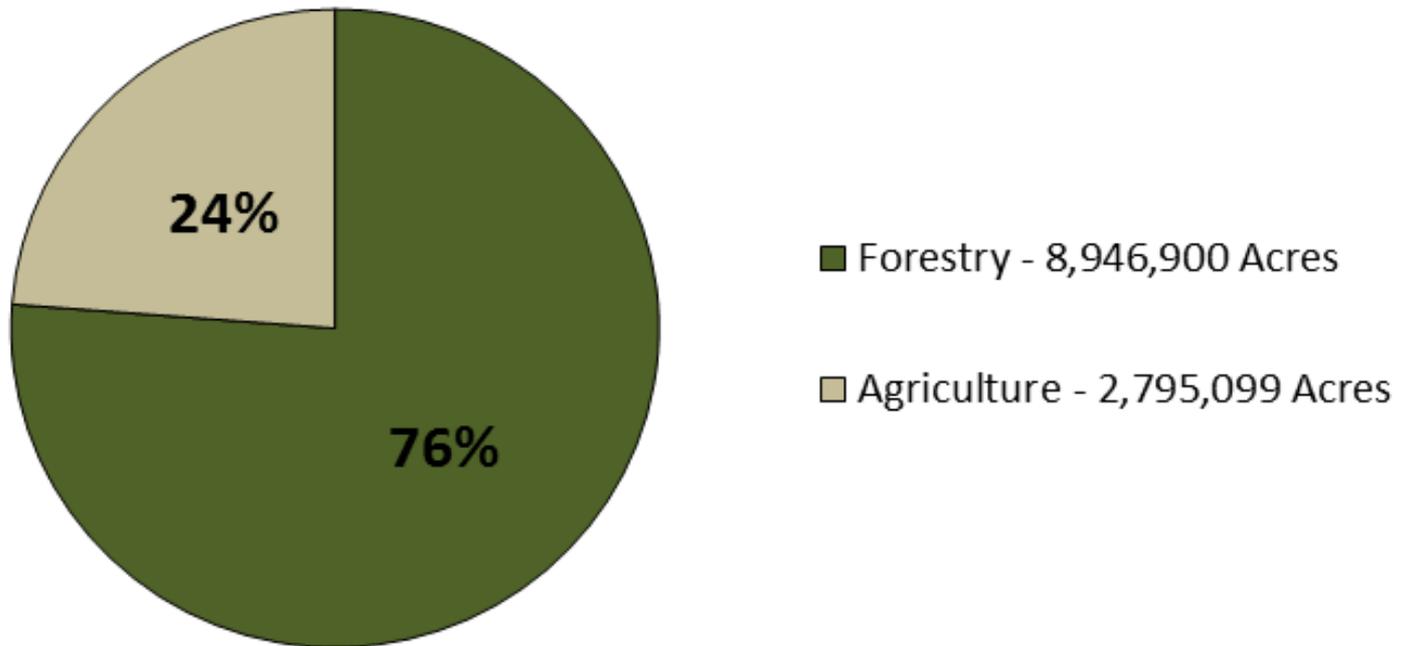


Temperatures and Wildfire Numbers Have Increased Across the West



2015 National Prescribed Fire Use Survey: Coalition of Prescribed Fire Councils & National Association of State Foresters

2014 National Prescribed Burning Activity by Resource Objective



Slightly up from 2011 Survey...

Trends in USFS Prescribed Fire Program – 1996 to 2014

Year Range	1996 to 2001	2003 to 2007	2008 to 2014
Prescribed Fires	24,133	19,468	33,677
Annual Average	4,022	3,980	4,811
Acres Treated	6,406,217	7,079,427	9,812,690
Annual Average	1,067,703	1,415,885	1,401,813
Escapes	235	50	45
Annual Average	39	10	6
Reliability Rate	99.03%	99.75%	99.87%

Note: data for 2002 was omitted as unreliable

The Context...

- **One in three households has someone with respiratory issues: child with asthma, COPD, emphysema, etc. 26 million have asthma in US.**
- **Conditions: asthma (7.3% prevalence), COPD (6.3% prevalence), chronic rhinitis (20% prevalence), pneumonia, lung cancer & other (CDC).**
- **Sensitive groups at risk: people with asthma, older adults and those of low income. Science: pregnant women, diabetics.**
- **Public air quality warnings effective and at-risk public responds in kind**
- **NO particulate matter is healthy – EPA PM Integrated Science Assessment**
- **Ozone EPA Science Analysis – Health Effects down to 60ppb**
- **Medical costs: \$8-\$80/day/person exposure to wildfire smoke (\$76 NM)**
- **Due to Biomass Burning - estimated premature mortality globally 180,000/yr, US 2,500/yr**
- **Under the Clean Air Act, States obligated to respond and protect the public from high levels of air pollution**
- **Land managers know: ignition, fire size, growth rate, intensity, fuels, consumption, emissions, weather, duration,...**

EPA National Ambient Air Quality Standards

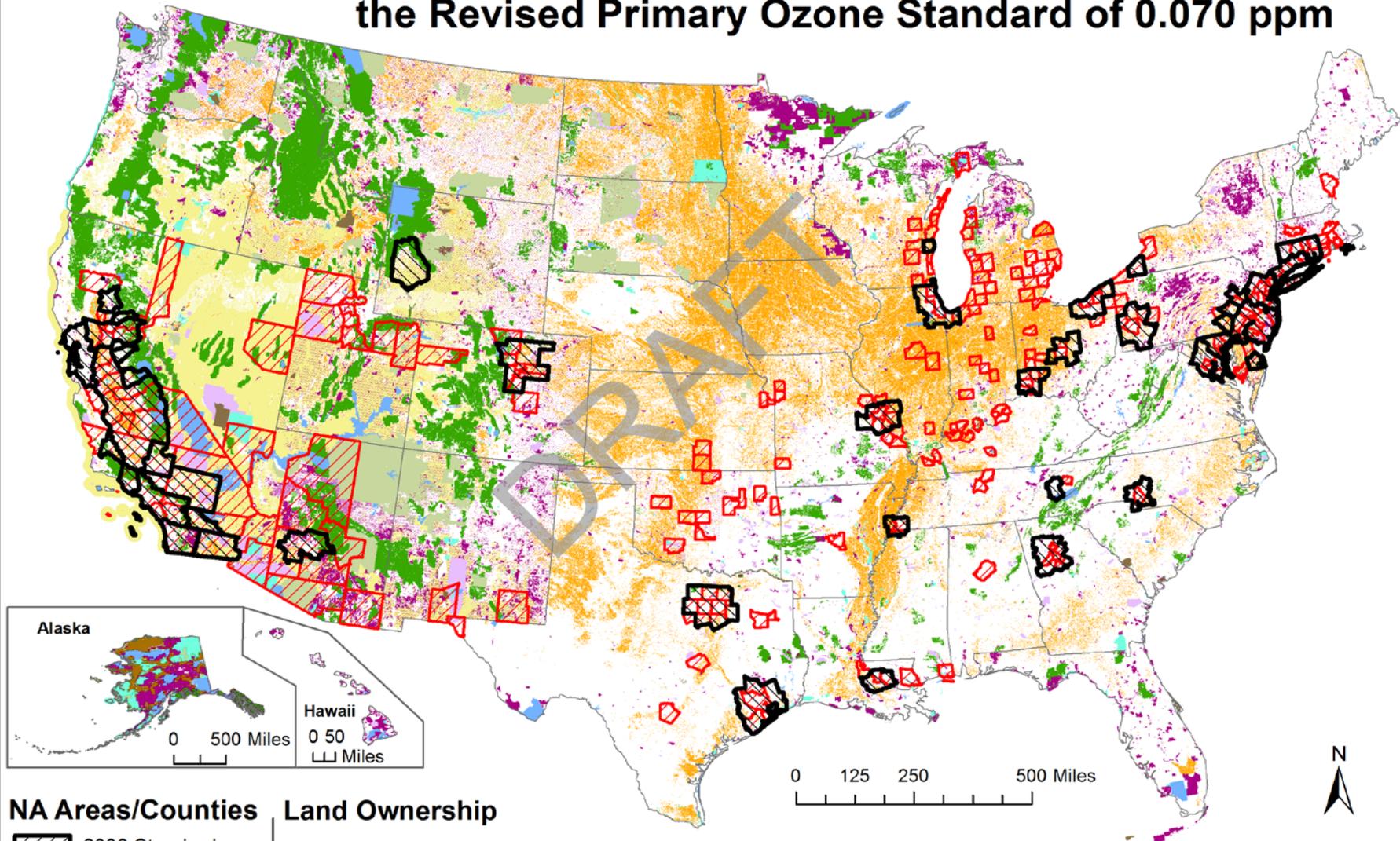
Criteria pollutants evaluated by EPA every five years

- Ozone, Particulate Matter,
- Carbon Monoxide, Nitrogen Oxides, Sulfur Dioxide, Lead
 - adequacy to protect public health (Primary)
 - adequacy to protect public welfare (Secondary)

Ozone

- 1) New Standard of 70 ppb/8hr out October 1, 2015
- 2) Designations in two years (2017) based on 2014-2016 data
- 3) State Implementation Plans 1-2 years later (severity)
- 4) Exceptional Events Demonstrations possible but costly and challenging under proposed guidance

Areas at Risk of Becoming Non-attainment Under the Revised Primary Ozone Standard of 0.070 ppm

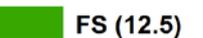
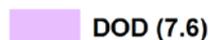
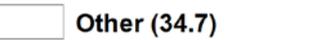


NA Areas/Counties

-  2008 Standard (0.075 ppm)
-  New Standard (0.070 ppm)

Land Ownership

(Millions of new acres at risk of being in NAA; change from 2008 to new standard)

- | | | | |
|--|---|--|---|
|  BIA (10.7) |  FS (12.5) |  Other Federal (0.2) |  Agriculture (8.3) |
|  BLM (29.6) |  FWS (2.9) |  State Lands (8.9) | |
|  DOD (7.6) |  NPS (6.8) |  Other (34.7) | |

Map compiled by the USDA Forest Service, Fire Modeling Institute, October 13, 2015.

New potential non-attainment areas were identified as counties that exceeded the 0.070 ppm threshold using the three-year (2012-2014) average of the 4th highest 8-hour average for each monitoring site. Ozone data were retrieved from EPA's AQS and CASTNET. Non-attainment areas under the 2008 standard are from EPA (www3.epa.gov/airquality/greenbook/). Ownership data are from the USGS Protected Areas Database v1.3 and the USDA Forest Service Enterprise Data Warehouse. Land cover data (agriculture) from LANDFIRE 2012.

EPA National Ambient Air Quality Standards

Current Ozone Nonattainment = 111 million acres

Possible nonattainment based 2012-2014 data

225 million acres

High/Very High Wildfire Hazard Potential lands within possible nonattainment areas: 33 million acres

- 1) Forest 51 million acres**
- 2) Shrub 72.6 million acres**
- 3) Herbaceous 31 million acres**
- 4) Agriculture 20 million acres**

See NWCG Smoke Committee Page on Ozone:

<https://www.frames.gov/partner-sites/emissions-and-smoke/smoke-mgt-resources/ozone/>

**Non-Attainment Area (millions of acres) under the
2008 Primary Ozone Standard of 0.075 ppm, Compared to Area at Risk of Being Non-Attainment under the New Standard of 0.070 ppm**

		Threshold Level (Daily Average of O ₃ , ppm)		
		0.075	0.070	Change
<i>Land</i>	Bureau of Indian Affairs	0.4	11.1	10.7
<i>Owner</i>	Bureau of Land Management	7.7	37.3	29.6
	Department of Defense	2.2	9.8	7.6
	Fish and Wildlife Service	0.4	3.3	2.9
	Forest Service	8.9	21.4	12.5
	National Park Service	2.3	9.1	6.8
	Other Federal	0.4	0.5	0.2
	States	4.2	13.1	8.9
	Other Non-Federal	84.9	119.6	34.7
<i>Land</i>	Forest	32.6	51.2	18.6
<i>Cover</i>	Shrub	16.9	72.6	55.7
	Herbaceous	19.4	31.0	11.5
	Sparse	6.7	20.2	13.5
	Agriculture	11.5	19.8	8.3
	Developed	22.1	26.0	3.9
	Water	2.3	4.5	2.2
	Snow&Ice	0.0	0.1	0.0
<i>Wildfire</i>	Very High	7.9	11.3	3.5
<i>Hazard</i>	High	10.8	22.2	11.4
<i>Potential</i>	Moderate	12.9	28.8	15.8
	Low	14.8	34.5	19.7
	Very Low	29.6	67.7	38.1
	Non-burnable	35.5	60.9	25.4

EPA National Ambient Air Quality Standards

Ozone Continued...

“We understand that fire is an unavoidable occurrence on many types of wildland, and that changing climate conditions will increase the occurrence of damaging wildfires unless fuel loads are managed by other means including science-based use of prescribed fire.”

“...we encourage air agencies to work with state, federal and private land managers on promoting prescribed fire and other strategies that may reduce wildfire emissions...”

Recognizes Basic Smoke Management Practices

More Information, Tech Note and Webinar:

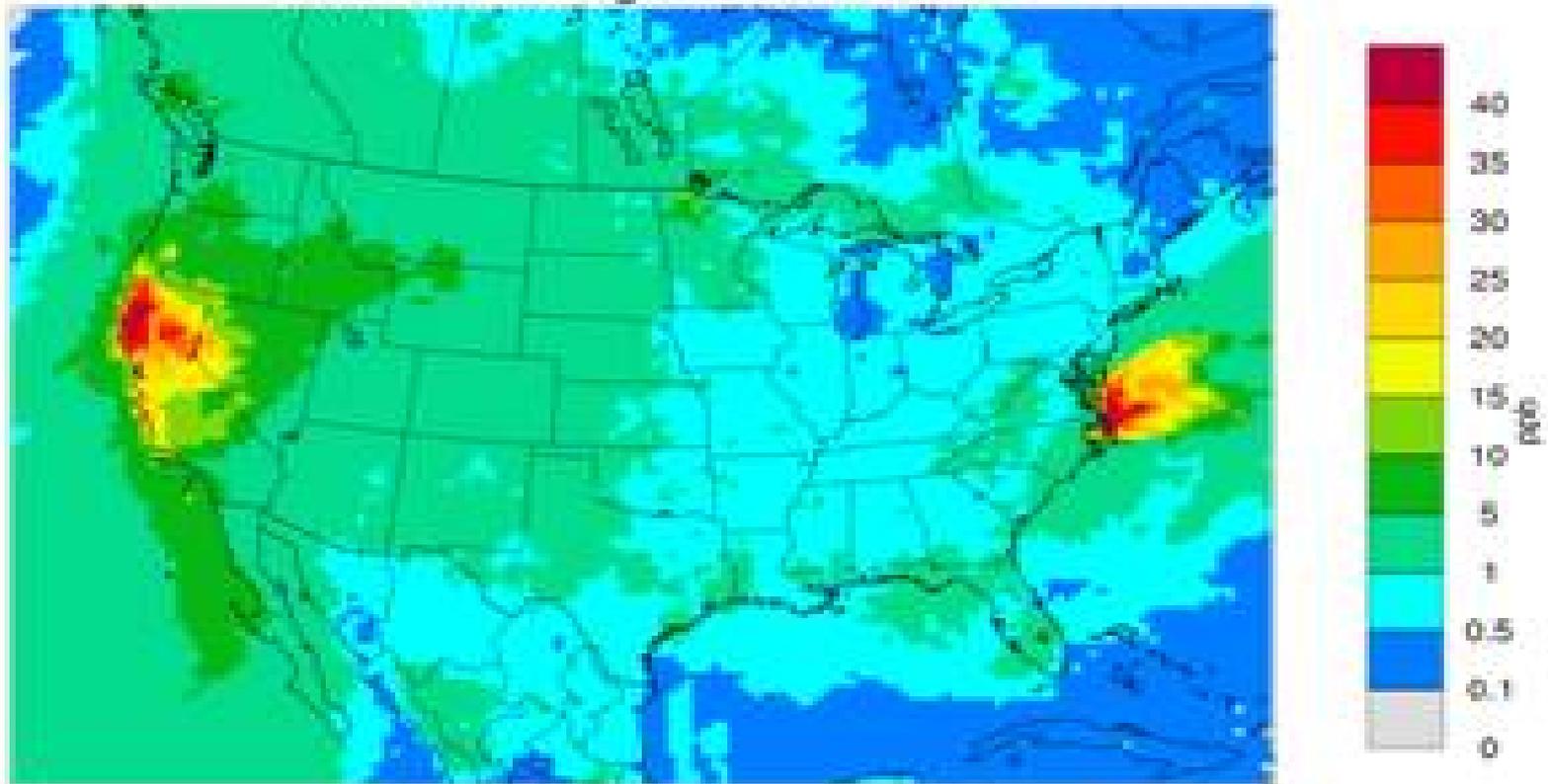
https://www.frames.gov/partner-sites/emissions-and-smoke/smoc_air_and_fire/d/

Emerging Issues...

- Emission Factors Issues...
 - Wildfire PM2.5 = 2 x current factor
 - Rx = 1.6 x current factor
 - What it means...2011 PM2.5 national emission inventory fire category goes from 35% of primary PM2.5 to 48% for the nation
 - **VOC's will double** and could be even more
 - New updated tools and training will be needed
 - Emission Reduction Techniques
 - Black Carbon, GHG,
 - Panel of scientists/managers next week at IAWF Fuels Conference...more work needed asap

Wildfire contribution to the 4th highest ozone days across the United States for 2008.

Contrib. to CAMx Daily Max 8-Hour Ozone \geq 0 ppb
Wildfires 4th Highest Contribution



Max(129,53) = 60.13

News...

- International Association of Wildland Fire and National Wildfire Coordinating Group's Smoke Committee hosting the

International Smoke Symposium 2

- November 14-19, 2016
 - Virtual capable as in 2013
 - Long Beach, CA
 - Funding, Partners, Steering Committee, Program Committee
 - Call for presentations and workshops open
- 

Proposed Exceptional Events Rule Revisions

- New fire-related rule language and preamble text
 - Clarify that all wildfires on wildland are natural events
 - Clarify that prescribed fire is a human-caused event eligible for treatment as an exceptional event and propose a streamlined path to show how air agencies can satisfy rule criteria
 - Rely on land/resource management plans (for frequency of recurrence and for “not reasonably preventable”)
 - Identify recommended components of Smoke Management Programs and expectations...
 - Role of Basic Smoke Management Practices
 - Define fire-related terms in regulatory language
 - Federal agency EER Demonstration capability-
 - Cause part of the problem/be part of the solution...

San Joaquin APCD

Approaches

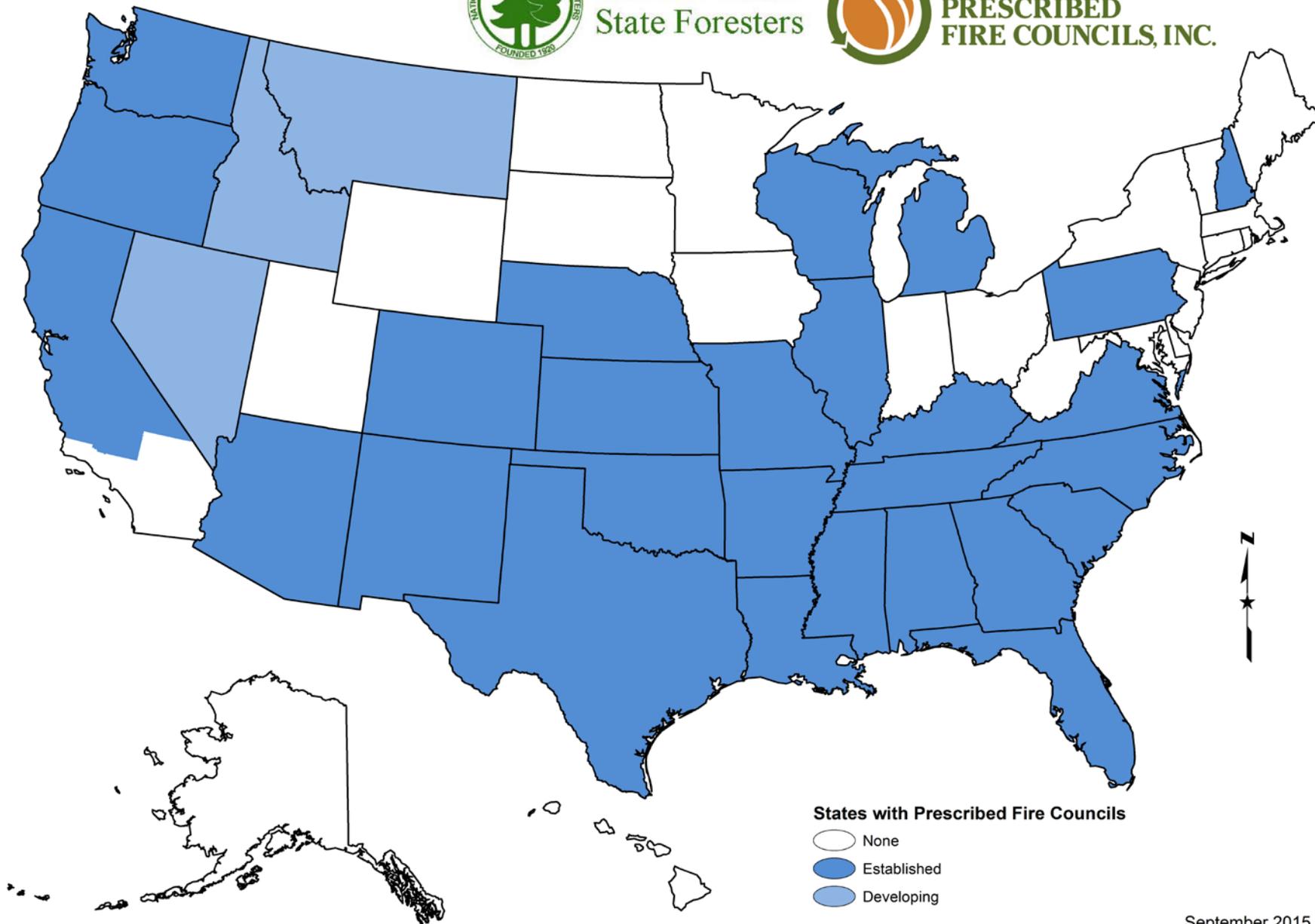
- More prescribed burns can reduce fuel buildup
- Minimize or eliminate practice of requiring land managers to segment burn projects into smaller portions over multiple days
- Allow small to medium prescribed burn projects to be completed in a condensed period if air quality impacts are limited to a small geographic area
- Allow prescribed burning at remote locations up to 3,000 ft elevation during residential wood-burning restrictions
- Investigate whether the fees charged to land managers for prescribed burning is a barrier to completing projects
- Dialogue with FLMs on strategy if an EER from prescribed fire was needed



NATIONAL ASSOCIATION OF
State Foresters



COALITION OF
PRESCRIBED
FIRE COUNCILS, INC.



States with Prescribed Fire Councils

○ None

● Established

● Developing



August 22nd 2015

Wildland Fire Air Quality Response Program

Focus for wildland fires through use of Air Resource Advisors:

- 1) Smoke impacts to public health and **safety**
 - 2) Transportation safety (roads & aviation for public & personnel)
 - 3) Fire personnel smoke exposure (on-fireline, ICP, Base Camp)
-
- A) Improving how Air Quality considered on incidents and decisions (risks, exposure, strategy, tactics)
 - B) Providing information to public and fire personnel
 - C) Supporting partners (air quality, health departments, county, tribal govt.) addressing public health and safety concerns

Methods-Monitoring, Modeling, Messaging, Coordination

Wildland Fire Air Quality Response Program

- Cadre of Air Resource Advisors (THSP-ARA) Developed
- Three Training Sessions Held - May 9-13, 2016 is #4
- Trainee Program (OJT too)-Trainees converting to full ARA
- 1st Program After Action Review held 4/2015
- Field Assessment 2015: CA, WA, OR
- Continuing Education and refresher webinars planned
- Range of Skills in 23 ARA, 11 trainees '14, plus 15 in '15
- FS, BLM, FWS, NPS, Quinault Tribe via BIA, NRCS, EPA, AD-Contractor, FL, GA, NC, Orange County-CA
- Dispatches: 2011- 5, 2012-13, 2013-25, 2014-39, 2015-40
- Incident, multi-incident, Forest & Area Command Assignments
- Assignments: 6 in AK, 1 in ID, 11 in WA, 7 in OR
- Canada - 2 at 2015 Training
- Canada 2016: Big Wildfire Season
- Impacts to US and reverse (commercial aviation disruption)