

Forest Service Update: -Fire, Smoke and Emerging Issues

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Forest Service and Interagency Issues

- **Cohesive Strategy Phase 2 and Phase 3**
 - Prescribed Fire Councils
- **Representing Wildland and Agricultural Burning**
 - Activity and Emission Inventories
 - Nonattainment Areas – Ozone
 - Smoke Management Approaches
 - Basic Smoke Management Practices
 - Tiered Approach



Cohesive Wildland Fire Management Strategy
National Goals; Collective Solutions

Response to Wildfire
Fire Adapted Communities
Resilient Landscapes
Supported by Science



Cohesive Strategy



Phase I – Key Messages

- CS Vision: *“Safely and effectively extinguish fire, when needed; use fire where allowable; manage our natural resources; and as a nation, live with wildland fire.”*
- The Cohesive Strategy builds on previous work and the Foundational Documents.



Phase I – Key Messages

- WFLC defined three primary factors as presenting the greatest challenges and opportunities to make a positive difference:
 - Restoring and Maintaining Resilient Landscapes
 - Creating Fire-Adapted Communities
 - Responding to Wildfires



Phase I – Key Messages

- National Goals were established to address each of the primary factors
- Guiding Principles and Core Values of the Cohesive Strategy were developed



Phase I Completion

- Developed CS foundational documents:
 - *A National Cohesive Wildfire Management Strategy*
 - *Report to Congress: The Federal Land Assistance, Management and Enhancement Act of 2009*
- Documents approved by WFLC, OMB and signed by Secretaries of Agriculture and Interior



Phase II – Basic Principles

- Collaborative
 - Engages stakeholders, managers, and analysts
 - Shared responsibility and ownership of process and results
- Rigorous
 - Adopts a formal definition of risk
 - Uses scientifically credible data and analyses
- Transparent
 - All steps are documented and shared



Phase II - Expectations

- Define regional goals and objectives
- Develop portfolio of actions and activities
- Complete qualitative analysis of goals and objectives and portfolio of actions and activities
- Develop protocol and guidance to complete quantitative analysis in Phase III (National Tradeoff Analysis)
 - Conceptual models, analytical models
 - Local and national data



Phase II Actions

- Public Outreach and Communications
 - Established a Communications Team
 - Constituent Outreach by CSSC members
 - Forests and Rangelands.gov
 - Podcasts
- Developed RSC charters, standardized Regional Assessment templates, National Report template
- Drafted the National Report from the three Regional Assessments (writer/editor team)



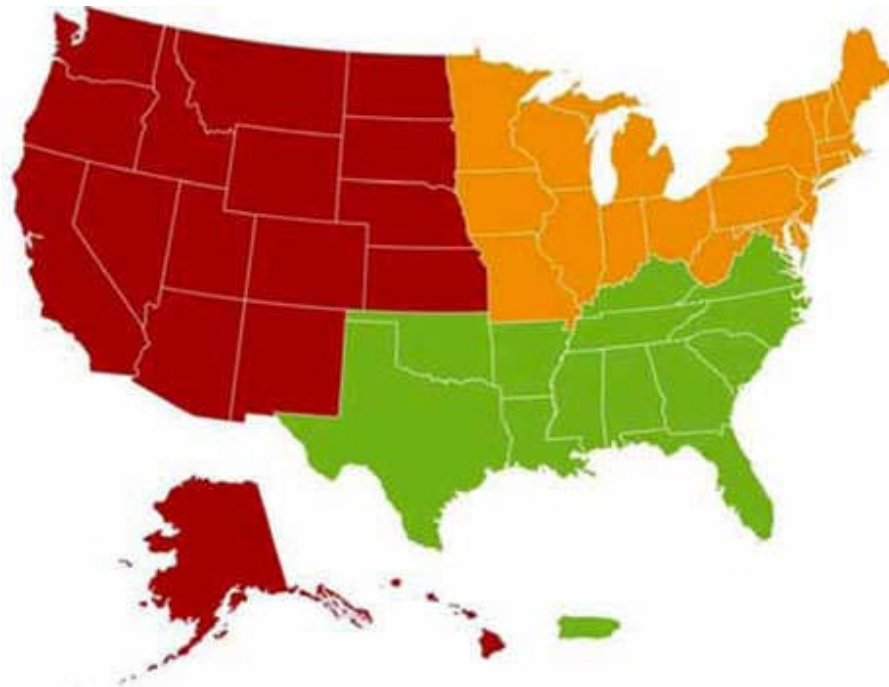
Phase II Successes

- Outreach
- Strengthening and building new relationships
- Science support and diversity
- Tools to share information across groups
- Standardizing using templates



Phase II

- Phase II National Report – developed from the three Regional Assessments





- **Phase II Common themes among the regions**
 - safety of firefighters and the public,
 - protection of private property,
 - conservation of air and water quality,
 - restoring healthy and resilient landscapes,
 - aesthetics,
 - honoring tribal heritage and land uses, and
 - the maintenance and enhancement of strong economies



- Phase II Common cross-cutting objectives:
 - Collaboration and communication are the keys to success.
 - Develop and conduct effective education and outreach.
 - Proactively use a variety of active vegetation management tools and techniques, including prescribed fire, to achieve local and large landscape objectives.
 - Support working forests, wildlands, and local economies, and collaborate to create jobs and diverse products and markets.






- Phase III Objectives (underway)
 - Increase internal and external communication
 - Scientific risk assessment and analysis for reducing risk at the local, regional, and national levels
 - Continuing to Identify Immediate Opportunities.
 - Further Regional Action Plans and develop a National Action Plan.
 - Due February 2013

Coalition of Prescribed Fire Councils

- Mission: to promote the appropriate use of prescribed fire for enhancing public safety, managing resources, and sustaining environmental quality. www.prescribedfire.net
- Governing Board Membership:
 - The Nature Conservancy –Jeremy Baily – UT
 - National Wild Turkey Federation – Gary Burger – SC
 - Intertribal Timber Council - James R. Erickson – ID
 - Sand County Foundation - Brent M. Haglund – WI
 - Larson & McGowin, Inc. - L. Keville Larson – AL
 - The Jones Center – Mark Melvin –Chair – GA
 - National Association of State Foresters – Dan Smith - NC
 - Forest Service (Liaison)– Pete Lahm - DC
 - Fish and Wildlife Service (Liaison) – Vacant
 - Natural Resources Conservation Service (Liaison-Elect)– Pat Shaver- OR
 - University of Idaho (Member Elect) – Alistair Smith- ID

Current Status

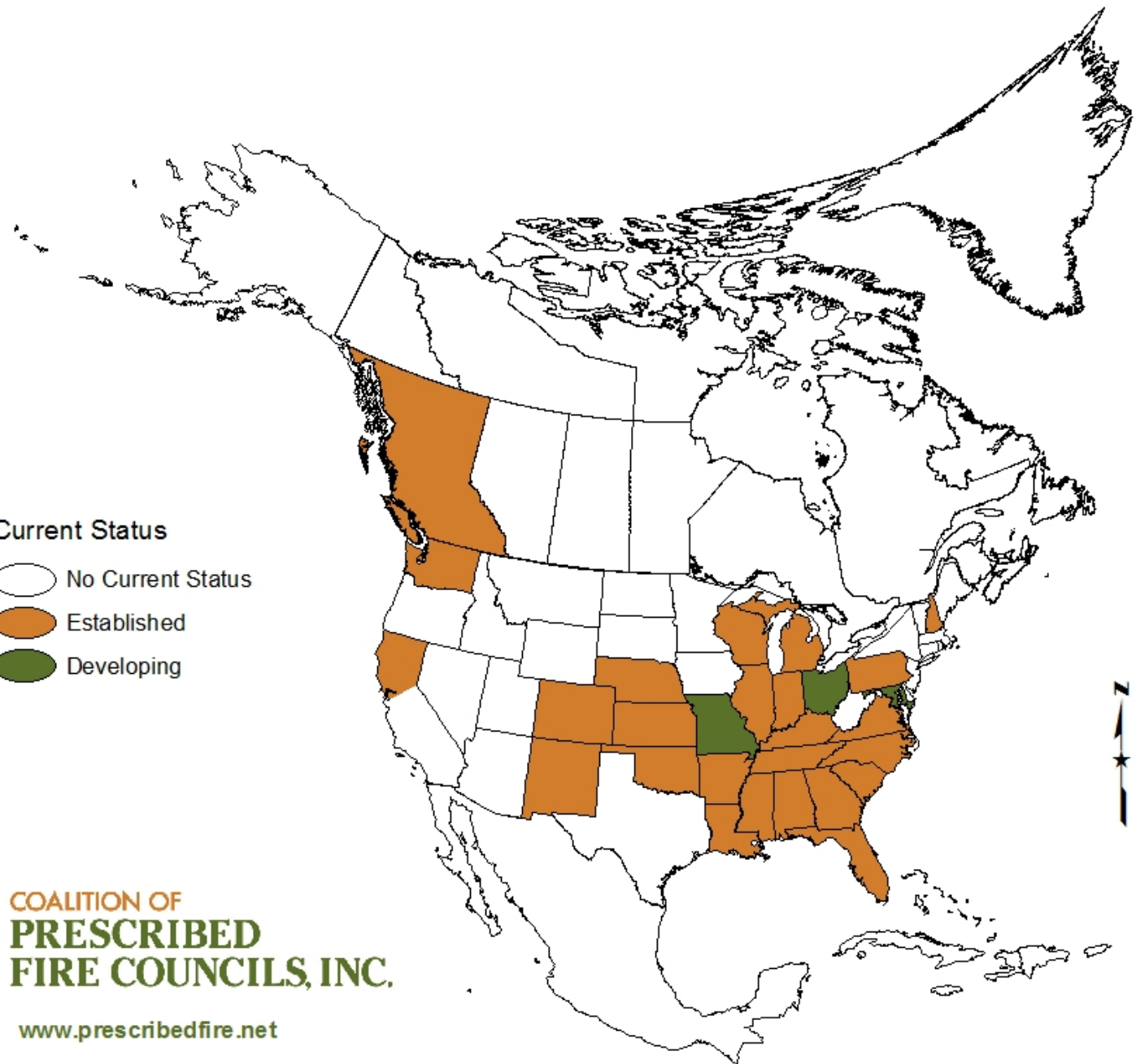
-  No Current Status
-  Established
-  Developing

David



COALITION OF
**PRESCRIBED
FIRE COUNCILS, INC.**

www.prescribedfire.net





Representing Wildland and Agricultural Burning

- **Wildland Fire Activity and Emission Inventories:**
 - **EPA National Emissions Inventory (NEI) (05, 08, 11)**
 - **EPA National Air Toxics Assessment (05)**
 - **EPA Greenhouse Gas Emission Inventory (11)**
 - **EPA Black Carbon Report to Congress**
 - **Executive Order GHG Reporting by Federal Govt.**
 - **USGS Energy Exec. Order EI**
 - **RPO Efforts**
 - **Daily Activity Efforts for Bluesky and other AQ forecast tools**





Representing Wildland and Agricultural Burning

- **Activity and Emission Inventories:**
 - **EPA 2008 NEI Version 1:**
 - **63% of wildland fires unclassified / 31% Wildfire**
 - **10 states provided comments/partial refinements**
 - **Large issues with duff consumption and fuels**
 - **Agricultural sector included rangelands**
 - **FS funded Ver. 2 to meet EPA short revision time**



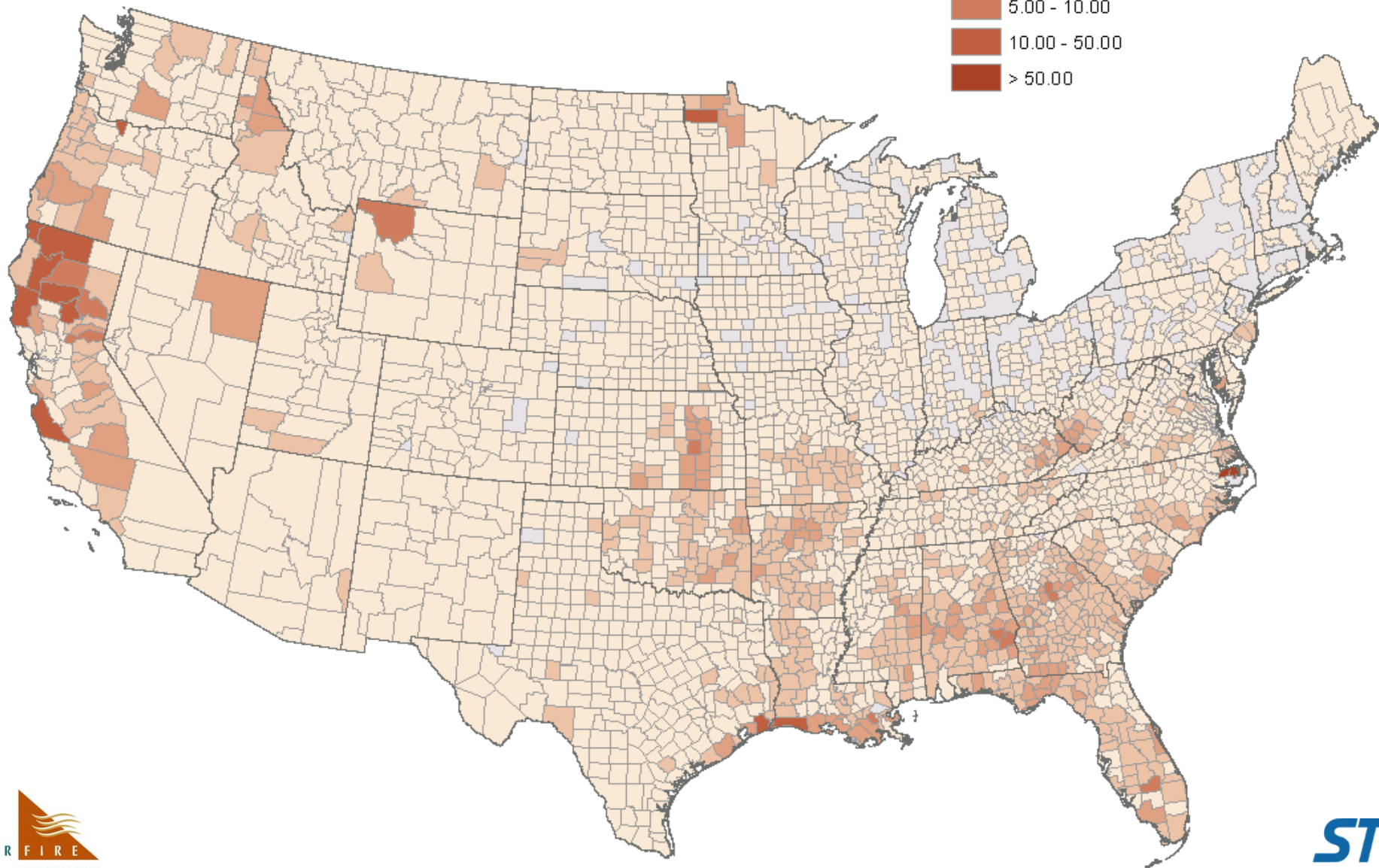
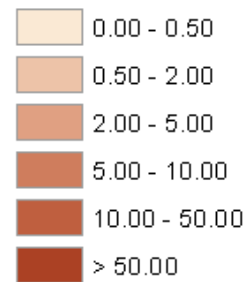
2008 NEI- A Quick View – Version 2

Fire Type	2008 Area (acres)		2008 PM _{2.5} (tons)	
WF*	5,026,000		994,000	
Rx	13,422,000		721,000	
Ag	6,653,000		-	

- 2008 version 2 EI has refinements compared to Ver 1
 - Duff consumption cap on 2008 Rx emissions
 - More refined agricultural land cover assignment
 - Updated map of FCCS fuelbeds
- Smokey wildfires in 2008 (Evans Road and Northern California) contributed substantial emissions.
- Ag emissions are produced by EPA and not immediately available.

The 2008 wildland fire NEI v2

2008 (SF2) PM_{2.5} (tons/SqMi)

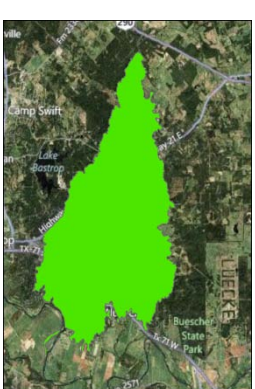
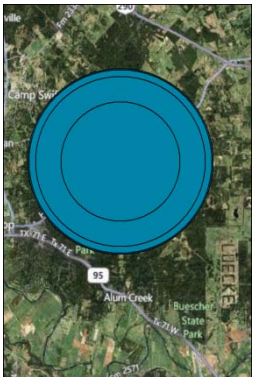
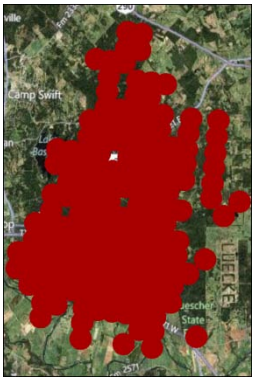


The 2008 NEI v2 – Fire Activity Data Sources

- **NOAA Hazard Mapping System (HMS)**
 - Automated detection from 7 satellites
 - Human analyst QC
- **Incident Command Summary Reports (ICS-209)**
 - Daily reports prepared by incident teams on wildfires
- **Monitoring Trends in Burn Severity (MTBS)**
 - Burn scars derived from high resolution satellite imagery
 - All fires > 500 acres in the east (> 1000 acres in west)

Three views of the same fire (Bastrop, TX 2011)

- **HMS**: Approximate shape; inferred size; daily activity information.
 - Available for many fires (when not cloudy)
- **ICS-209**: No shape information; reported size; additional information (type, name, start/end date).
 - Available mostly for wildfires
- **MTBS**: Accurate size and shape; no daily information.
 - Available for fires > 500 acres



Fire info → Fuels → Consumption → Time profile → Emissions → Plume rise

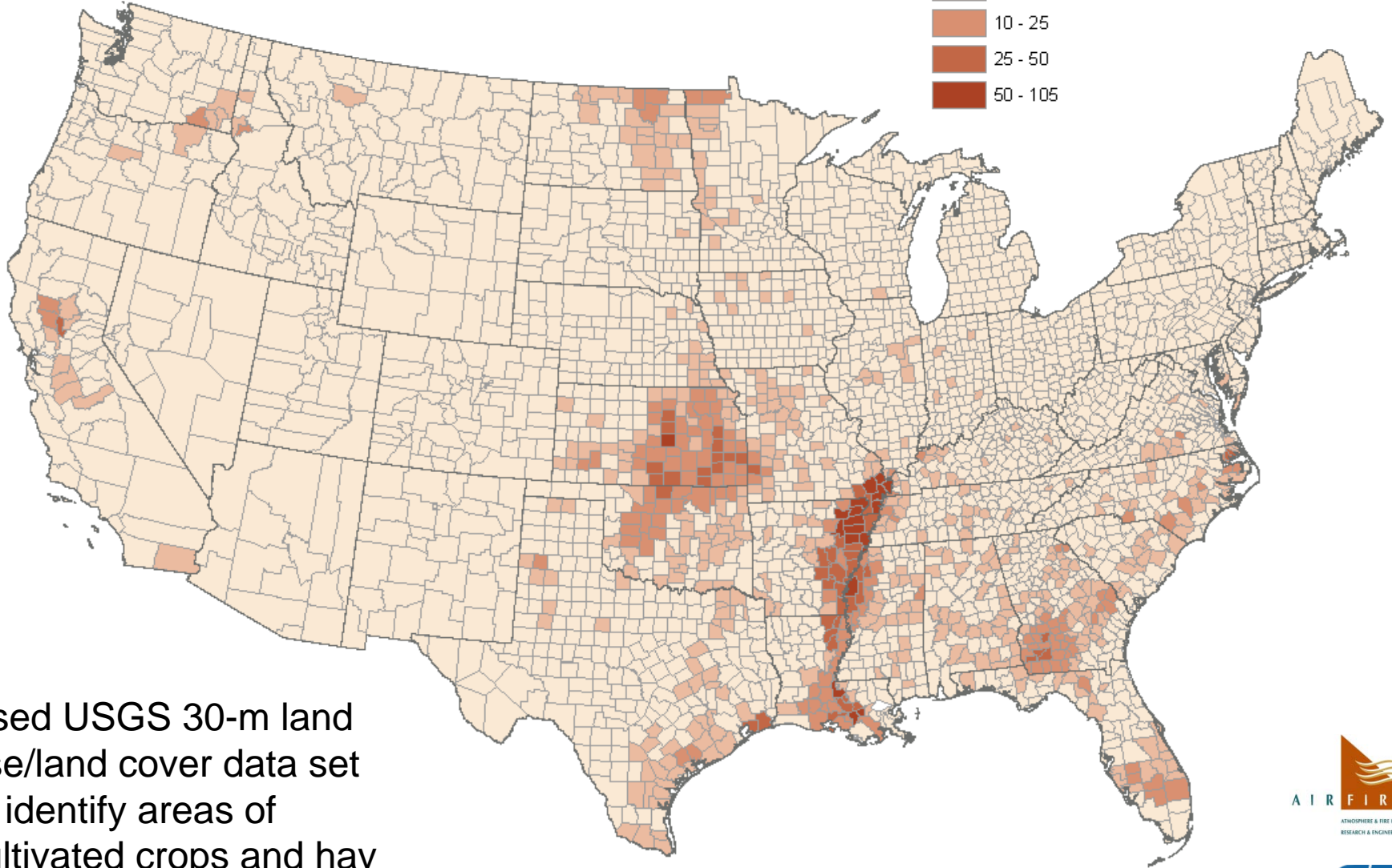
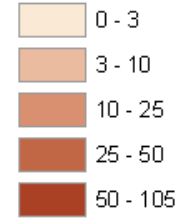
2008 NEI v2 – Data source setup

Data Element	First Choice	Second Choice	Third Choice
Location/shape	MTBS	HMS	ICS-209
Final size	MTBS	ICS-209	HMS
Daily growth	HMS	ICS-209	MTBS
Fire type (WF/Rx)	ICS-209	MTBS	HMS
Name	ICS-209	MTBS	HMS
Start date	First reported		
End date	Last reported		

2008 NEI v2 – Agricultural fires were segregated

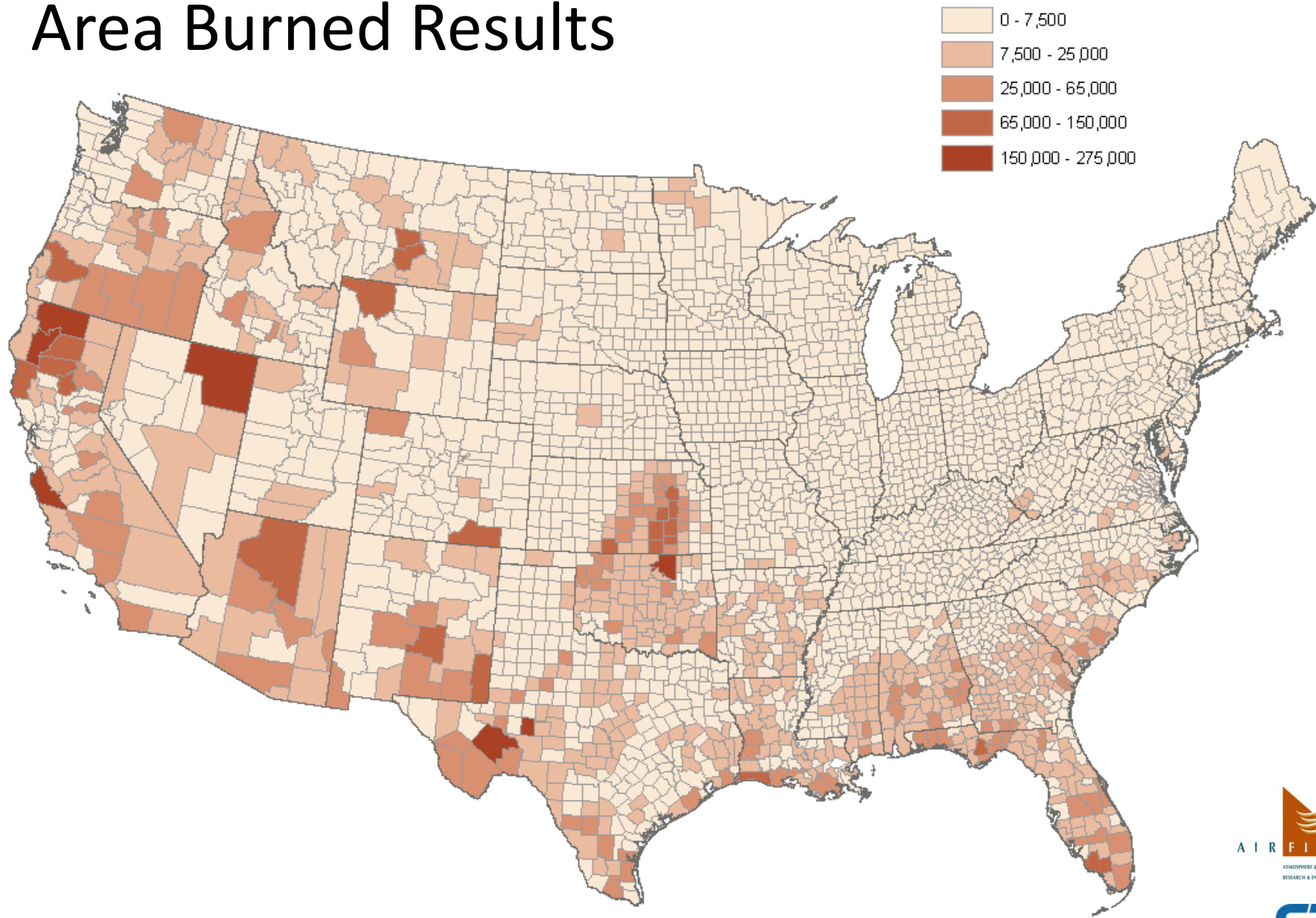
2008 (SF2) Agricultural Area Burned

acres burned per square mile



Used USGS 30-m land use/land cover data set to identify areas of cultivated crops and hay pasture **Fire info** → Fuels → Consumption → Time profile → Emissions → Plume rise

Area Burned Results



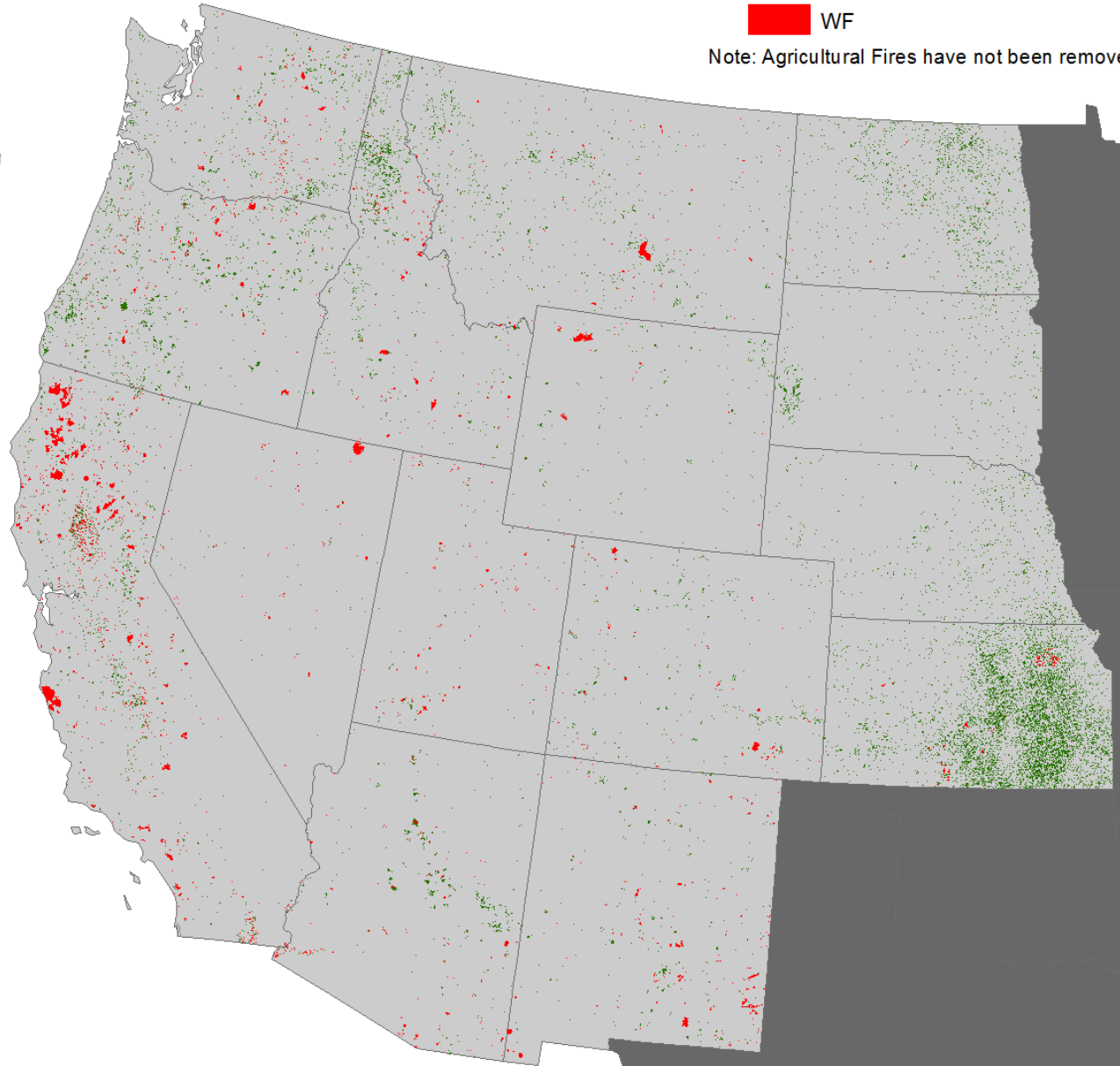
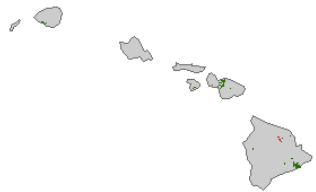
Fire info → Fuels → Consumption → Time profile → Emissions → Plume rise

Western States - 2008 NEI Area Burned

Fire Areas by type



Note: Agricultural Fires have not been removed

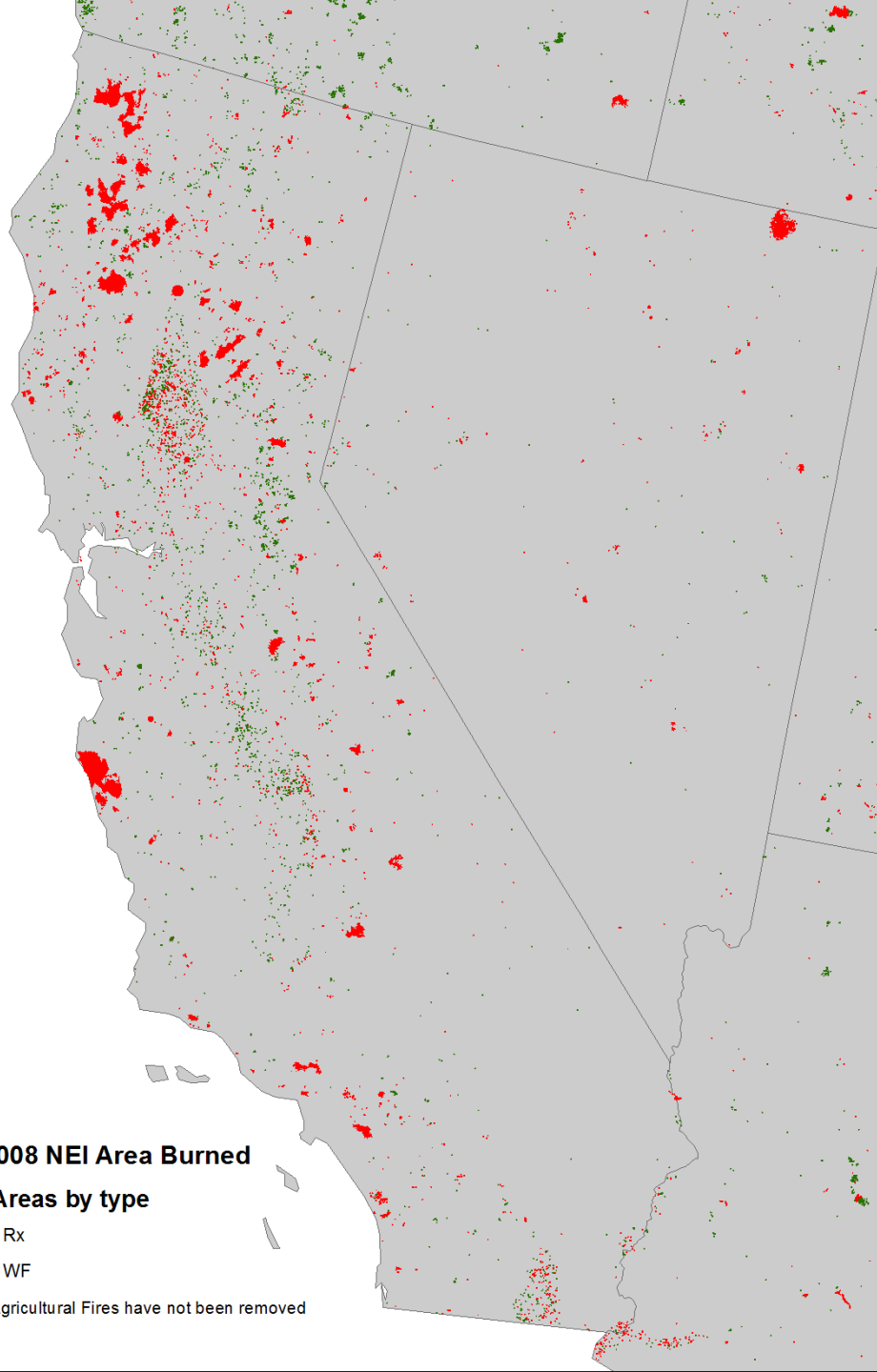


California - 2008 NEI Area Burned

Fire Areas by type

-  Rx
-  WF

Note: Agricultural Fires have not been removed

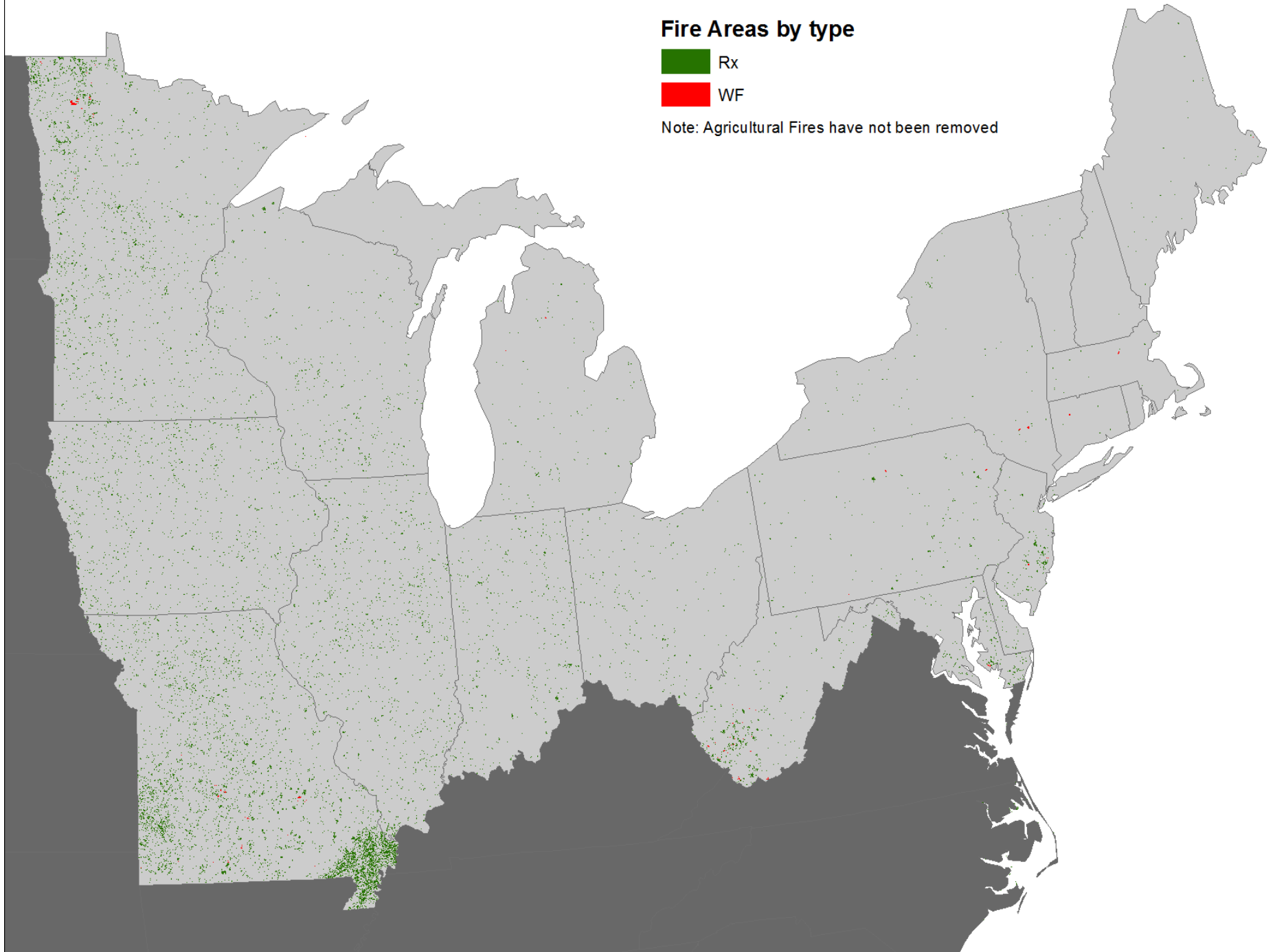


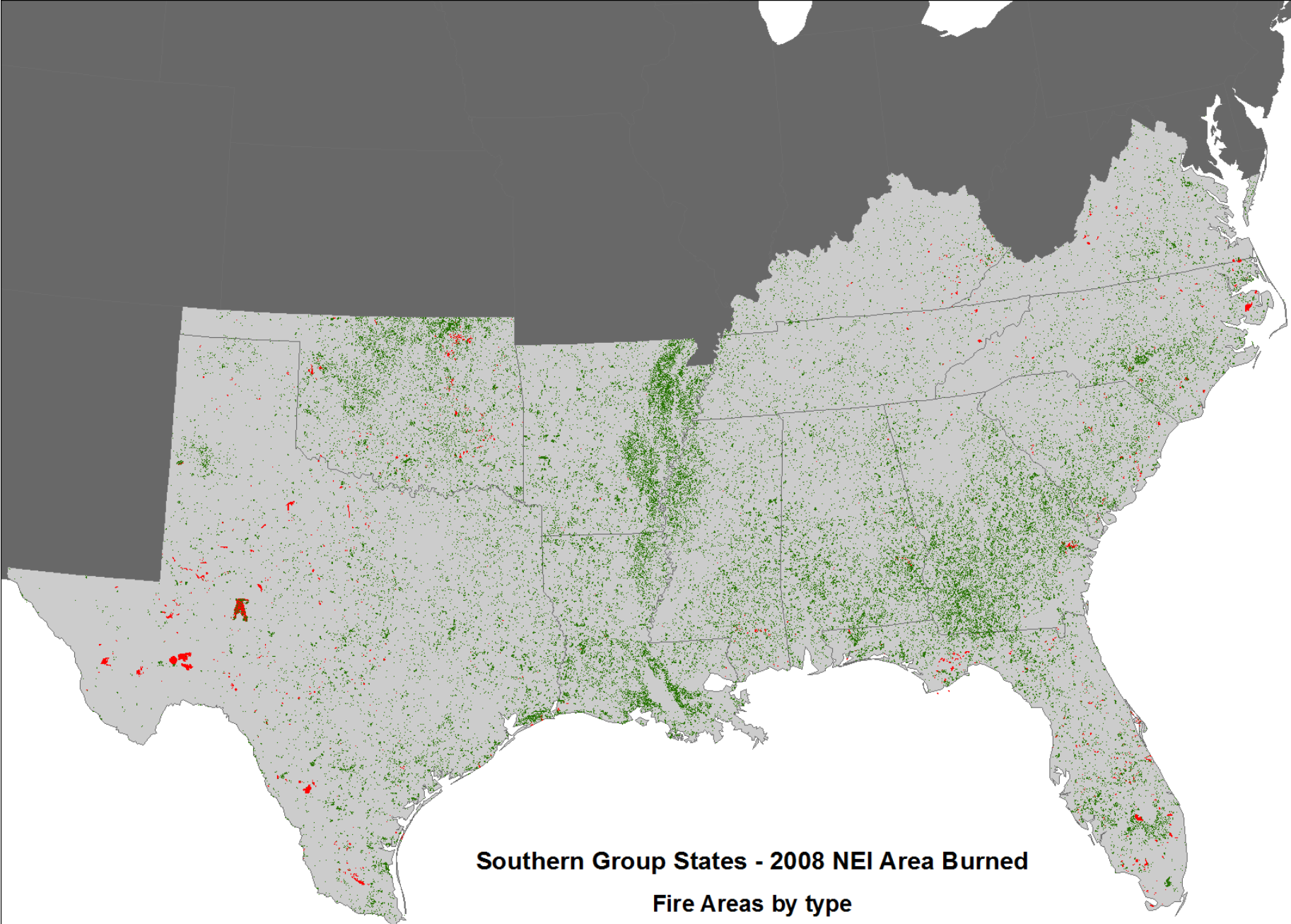
Northeastern States - 2008 NEI Area Burned

Fire Areas by type



Note: Agricultural Fires have not been removed





Southern Group States - 2008 NEI Area Burned

Fire Areas by type

- Rx
- WF

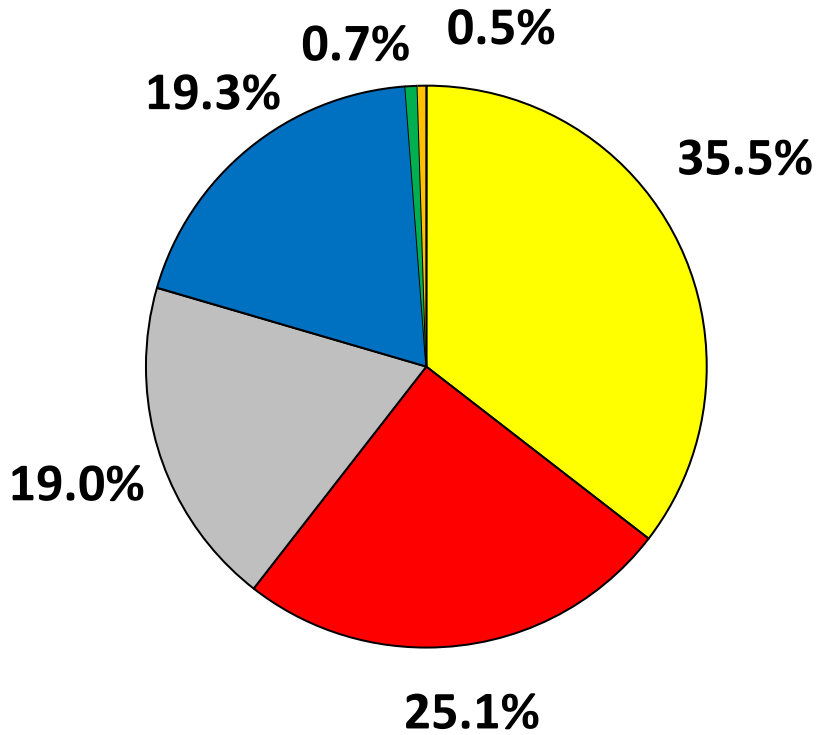
Note: Agricultural Fires have not been removed

EPA Black Carbon Report to Congress

- Congress requested report due 3/2011
- Arctic warming driven climate change
- Adverse health effects of BC & PM
- Covers fire extensively- US & Global
- Prescribed fire control strategies
- “Biomass burning” is a major contributor and focus for control worldwide
- http://yosemite.epa.gov/sab/sabproduct.nsf/fedrgstr_activites/BC%20Report%20to%20Congress?OpenDocument

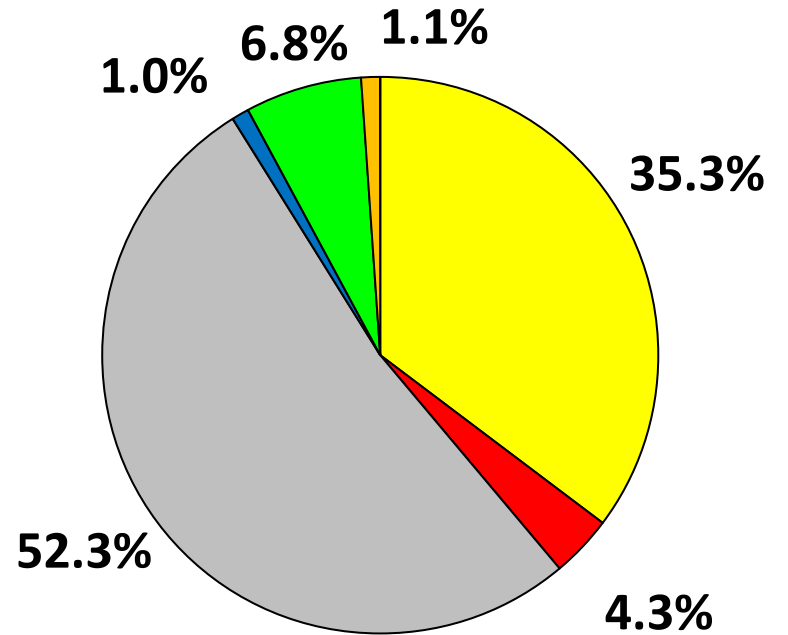
Global Emissions, 2000

7,600 Gg



U.S. Emissions, 2005

580 Gg



 Biomass burning

 Domestic/Residential

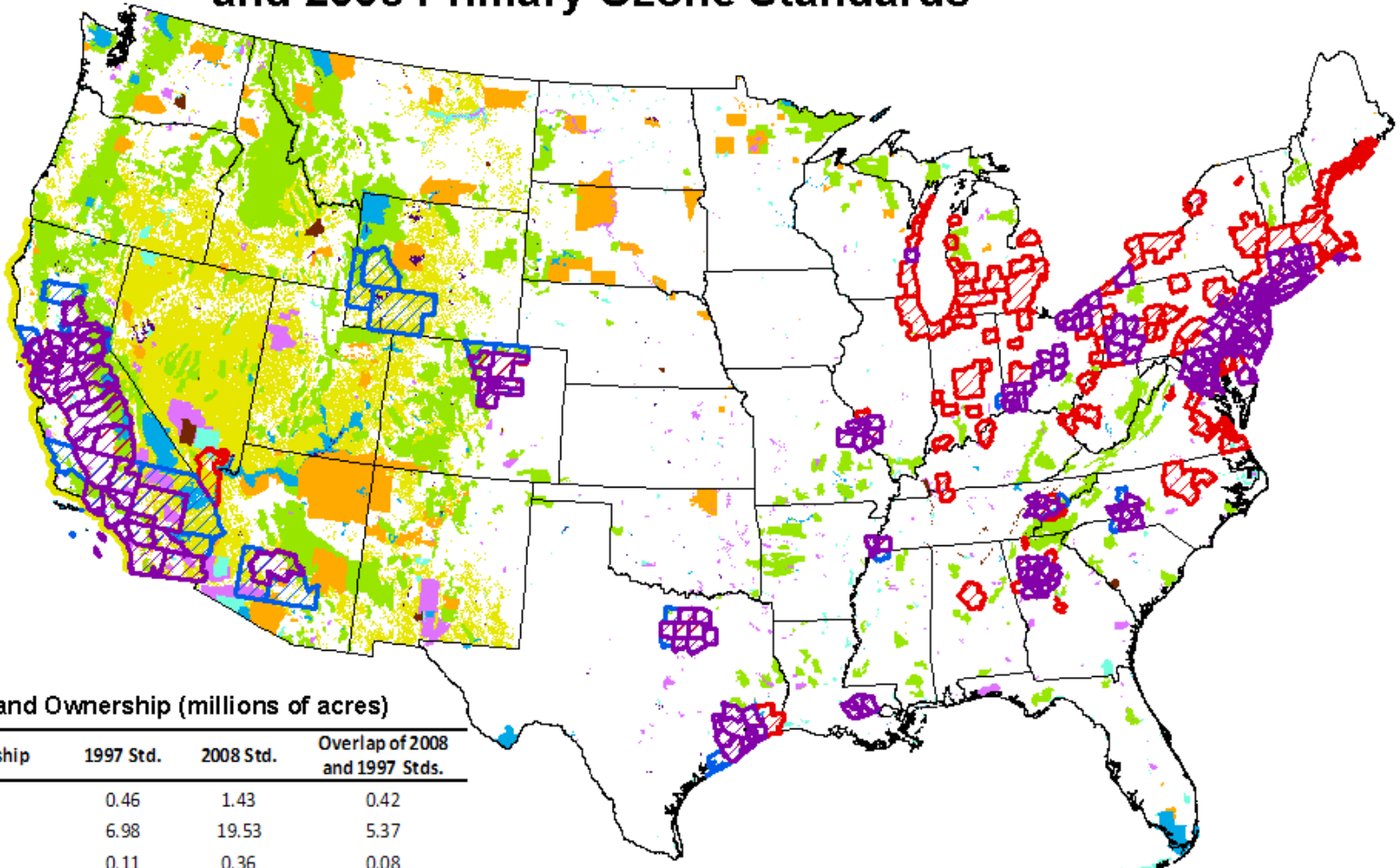
 Transport

 Industry

 Energy/Power

 Other

Nonattainment Areas (NAAs) based on 1997 (Current) and 2008 Primary Ozone Standards



NAAs by Land Ownership (millions of acres)

Land Ownership	1997 Std.	2008 Std.	Overlap of 2008 and 1997 Stds.
BIA	0.46	1.43	0.42
BLM	6.98	19.53	5.37
BOR	0.11	0.36	0.08
DOD	2.94	4.46	2.31
FS	10.46	14.56	9.84
FWS	1.14	0.76	0.63
NPS	3.64	5.01	2.89
OTHER FED	0.13	0.09	0.08
NONFED	149.61	98.54	84.53
Total	175.46	144.74	106.15

NA Areas/Counties

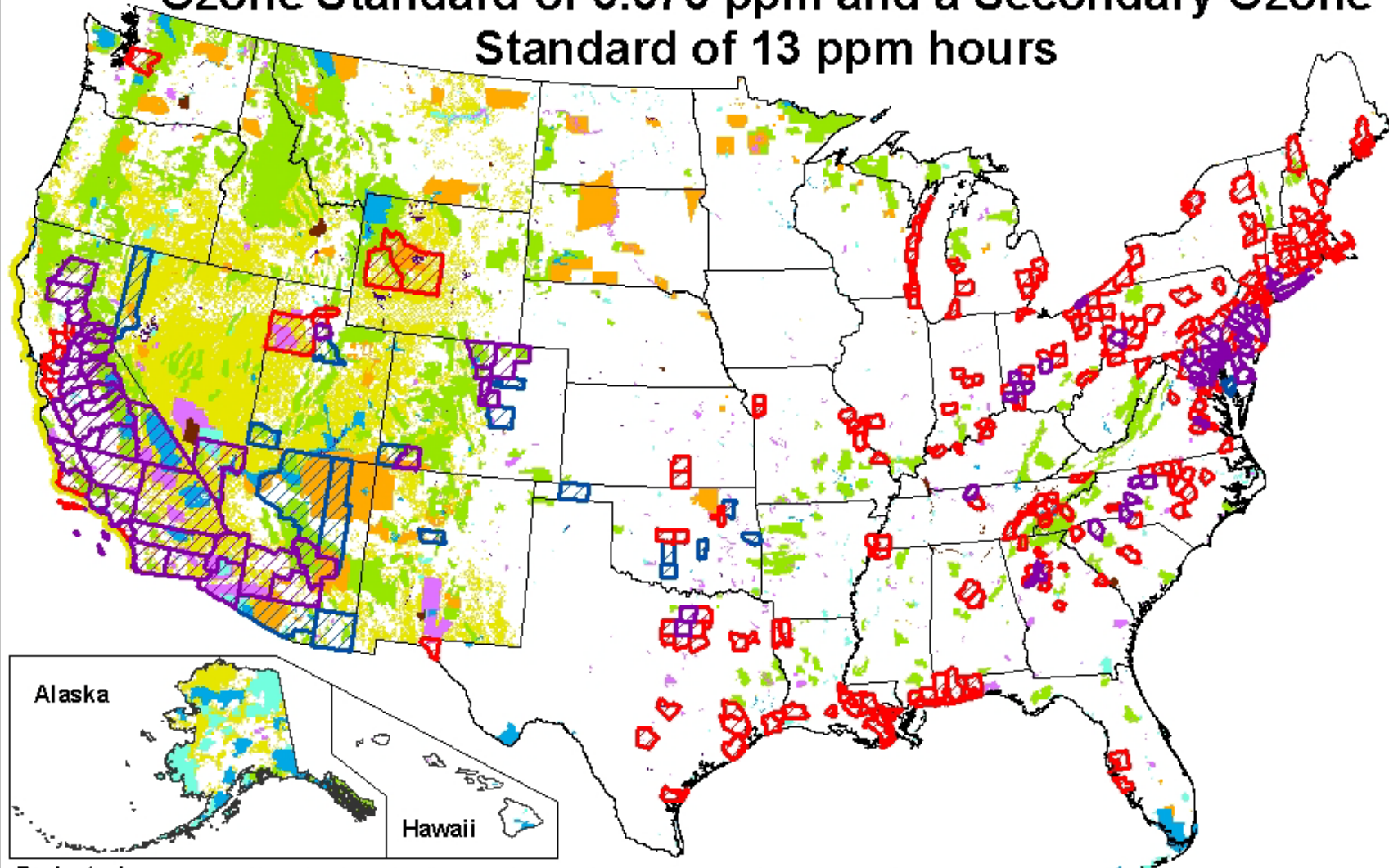
1997 Standard

2008 Standard

Both Standards

Counties depicted have data which exceeds the proposed standard based on 2008-2010 monitoring data from EPA (<http://www.epa.gov/airtrends/values.html>). Includes data from CASTNET monitors. Includes data that could be excluded as exceptional events in the future. Analysis conducted by NWCG Smoke Committee.










Projected Nonattainment (NA) Counties based on a Primary Ozone Standard of 0.070 ppm and a Secondary Ozone Standard of 13 ppm hours



Projected NAA Counties

-  Primary
-  Secondary
-  Both

Ownership (Million Acres in Projected NA Counties Both Standards)

- | | | |
|---|--|---|
|  BIA (18) |  DOD (10) |  NPS (10) |
|  BLM (31) |  FS (28) |  Other Fed (0.2) |
|  BOR (0.5) |  FWS (4) |  Non-Fed (157) |

Counties depicted have data which exceeds the proposed standard based on 2008-2010 monitoring data from EPA (<http://www.epa.gov/airtrends/values.html>). Includes CASTNET data. Includes data that could be excluded as exceptional events in the future. Analysis conducted by NWCG Smoke Committee.

Basic Smoke Management Practices

NRCS and FS Tech Note

- Six Basic Smoke Management Practices (BSMPs)
- Cited in Exceptional Event Rule (2007) and General Conformity Revision (2009)
- Basic level of effort managing smoke
- First level of a tiered Smoke Management Approach:
BSMP → SMP → ESMP

<http://www.airquality.nrcs.usda.gov>

Select from “Highlights”

Other Emerging Topics

- 2013 International Smoke Symposium
Sponsored by IAWF, JFSP and NWCG-SmoC
- Improper use of Visual Range to
Characterize AQI/PM loading in SE
- NWCG Smoke Management Guide -
revisions underway
- Further wildfire smoke training and tools
development