Forest Service Report

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Washington, D.C.

Agricultural Air Quality Task Force
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Air Quality Programs within Forest Service

- State and Private Forestry / Fire & Aviation Management: Prescribed Fire Smoke Management, Wildfire Air Quality Response, Fire Ecology, Biomass Utilization, Emission Inventory

- National Forest Systems – National Air Program: NEPA, Class 1 impacts, IMPROVE, visibility, regional haze, critical loads, ozone effects, PSD, smoke management assistance, climate change

- Research & Development – Fire & Smoke, Joint Fire Sciences Program

- Climate Change Advisor to the Chief - Agency strategic planning

National Wildland Fire Cohesive Management Strategy

Vision: "*Safely and effectively extinguish fire, when needed; use fire where allowable; manage our natural resources; and as a nation, live with wildland fire.*"

National Cohesive Strategy Goals

- **Restore and Maintain Landscapes:** Landscapes across all jurisdictions are resilient to fire-related disturbances in accordance with management objectives.
- **Fire-adapted Communities:** Human populations and infrastructure can withstand a wildfire without loss of life and property.
- **Wildfire Response:** All jurisdictions participate in making and implementing safe, effective, efficient risk-based wildfire management decisions.

- Developed in three phases.
  - All Phase I, II and III reports: forestsandrangelands.gov
  - Secretaries of Agriculture and Interior signed and released the Phase III report to Congress in accordance with the FLAME Act requirements
- National Action Plan is being developed with specific actions that are nationally in scope, with an agency/organization lead for each action with timeframe.

- National Cohesive Strategy Site
- www.forestsandrangelands.gov

- Southeastern Regional Strategy Committee
- http://sites.nemac.org/southeastcohesivefire/

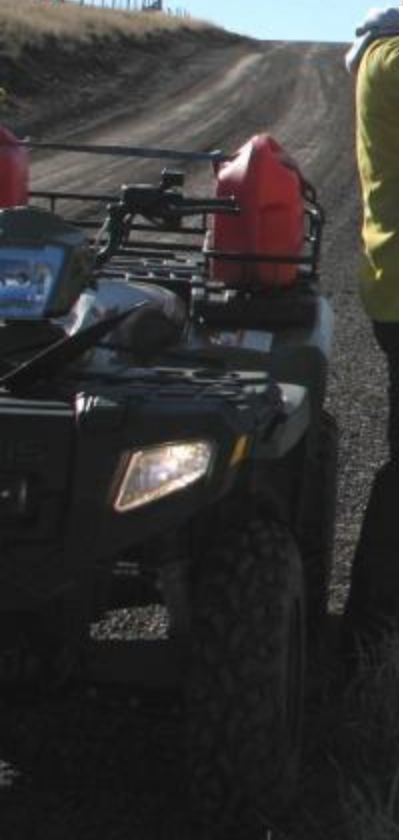
- Northeastern Regional Strategy Committee
- http://sites.nemac.org/northeastcohesivefire/

- Western Regional Strategy Committee
- http://sites.nemac.org/westcohesivefire/

Prescribed Fire Smoke Management

USDA –Natural Resources Conservation Service and Forest Service Tech Note

- **1 hour Webinar available on BSMP's at Southern Fire Exchange:**
  https://www.youtube.com/watch?v=BV13JxPwmIo&list=PLg38mXDqkgvPMSsmHwCEqfxyCIGp4boe_

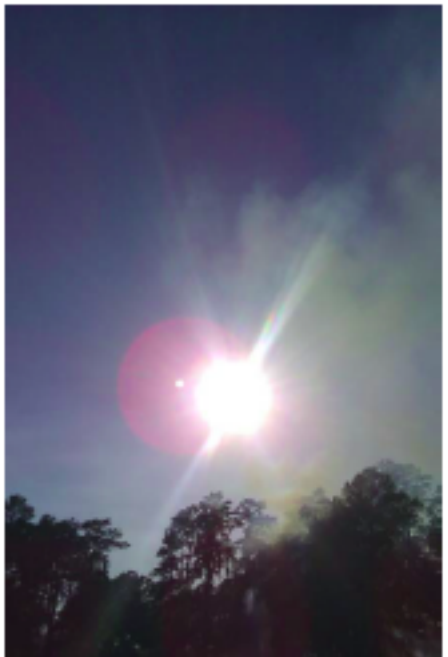


NRCS

Basic Smoke Management Practices

October 2011

Fire is an essential ecological disturbance, providing many benefits to the environment in terms of wildlife, water and soil quality, and nutrient cycling. Prescribed burning can also be a means of protecting air quality by mitigating the occurrence of large wildfires and reducing invasive species. However, fire produces smoke which contains particulate matter (PM), ozone precursors, greenhouse gases, and other trace gases. Basic Smoke Management Practices (BSMPs) applied on prescribed burns can mitigate the impacts of smoke to public health, public safety and nuisance, and visibility.



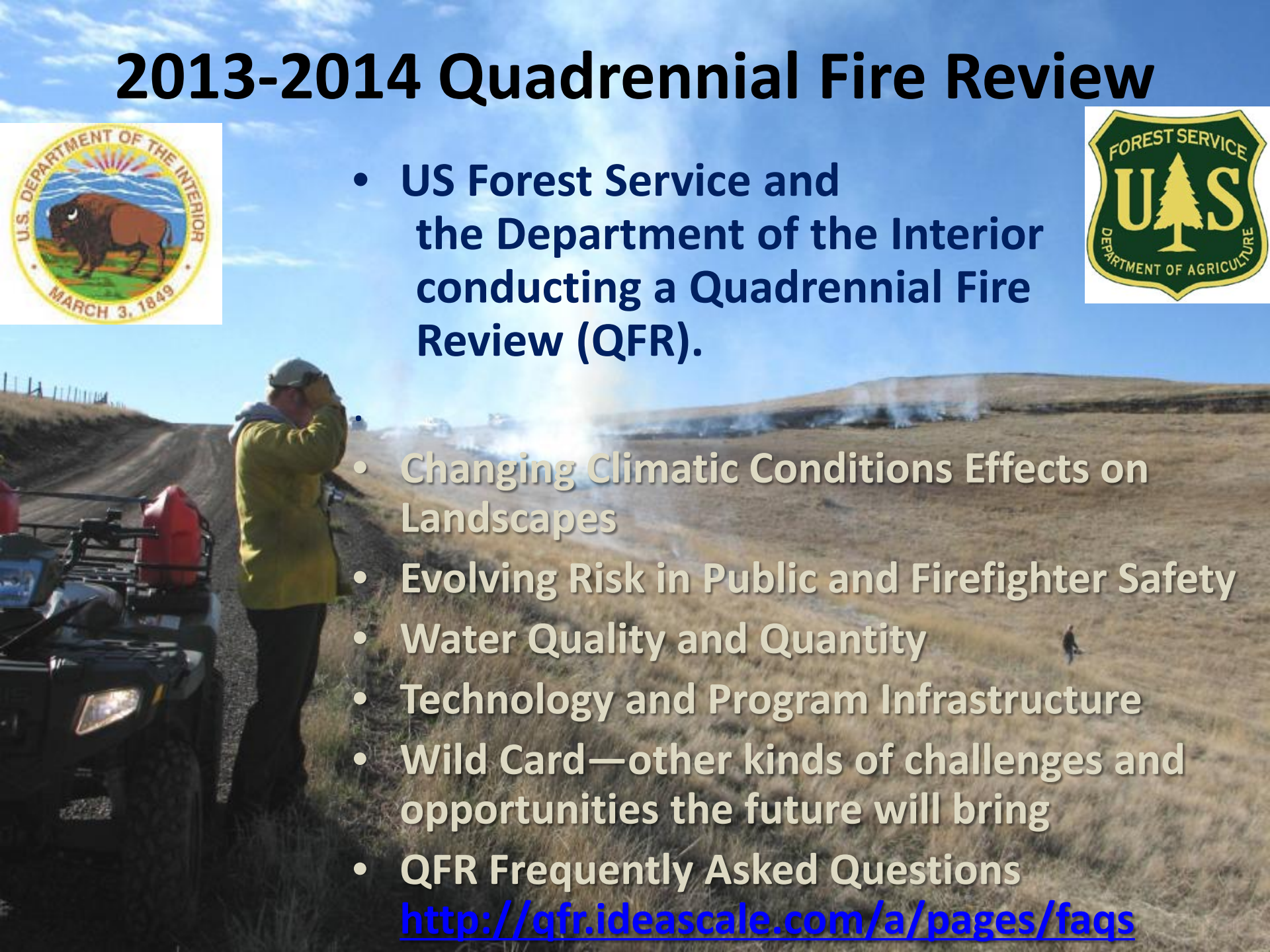
Smoke is not like other air pollution sources--a direct control cannot be put on it such as can be applied to a power plant smoke stack--rather a variety of environmental factors must be taken into account to manage both the burn and the smoke from the burn. BSMPs outlined here offer a suite of options that a fire manager can utilize to reduce the impacts of their smoke. The Smoke Management Guide for Prescribed and Wildland Fire, 2001 edition

2013-2014 Quadrennial Fire Review

- US Forest Service and the Department of the Interior conducting a Quadrennial Fire Review (QFR).

- To help wildland fire managers look 10-20 years into the future and identify emerging issues to incorporate into strategic plans by senior fire leaders
- Crowdsourcing being used to gather input http://qfr.ideascale.com/
- Input period extended to May 16

2013-2014 Quadrennial Fire Review

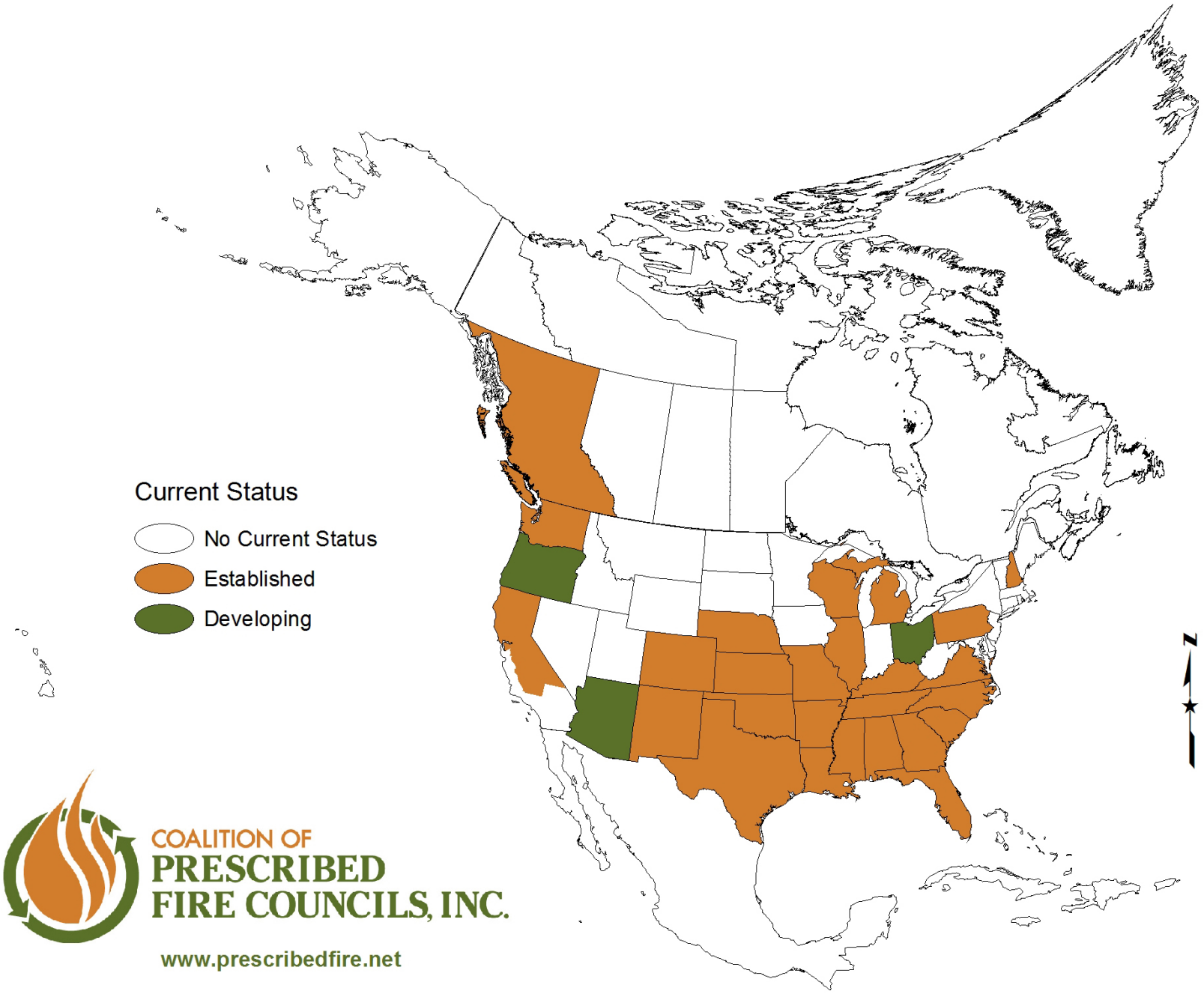


- US Forest Service and the Department of the Interior conducting a Quadrennial Fire Review (QFR).

- Changing Climatic Conditions Effects on Landscapes
- Evolving Risk in Public and Firefighter Safety
- Water Quality and Quantity
- Technology and Program Infrastructure
- Wild Card—other kinds of challenges and opportunities the future will bring
- QFR Frequently Asked Questions http://qfr.ideascale.com/a/pages/faqs

Prescribed Fire Councils

COALITION OF
PRESCRIBED
FIRE COUNCILS, INC.



COALITION OF
PRESCRIBED
FIRE COUNCILS, INC.

www.prescribedfire.net

October 2013

Wildfire Air Quality Response Program 2014

- Cohesive interagency effort to respond to smoke impacts from wildfire (Wildfire decisions now risk-based)
  - Public Health Impacts
  - Transportation Safety Impacts
  - Firefighters/Incident Management and Base Camp Personnel Health and Safety Impacts
- 2nd Training May 5-9 to increase capacity of Air Resource Advisors (ARAs)
  - FS, NPS, BLM, FWS, Casual Hire (contract), EPA, NRCS, ID DEQ, State Forestry (NC, GA, FL)
- Monitoring Cache (20 E-Samplers w/GOES)
  - EPA transferring EBAMS to Cache
  - Data to be displayed on AirNow
- EPA, CDC, FS working on update to Guide for Public Health Officials

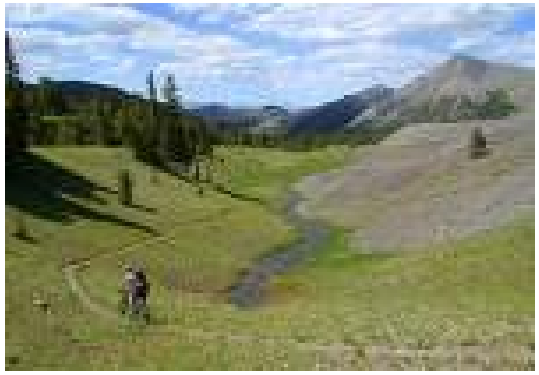
Atmospheric Research & Critical Loads

1. National Research Council (NRC) Report “Air Quality Management in the United States” (2004)
2. CLs = Tool that simplifies complex scientific information
3. Groundswell of interest in USA
    - Regulatory agencies such as the US EPA and state agencies (CAA working? Secondary standards?)
    - Land management agencies (FS, NPS, FWS)
4. International cooperation with long-range transport of pollutants (focus on effects)

Critical Loads/Levels

Integrated environmental monitoring & research

- An effect-based approach, which defines emission reductions and deposition loads that protect specified ecological systems (e.g., Class I Wilderness Areas).



- A critical load/level: a quantitative estimate of an exposure to one or more pollutants below which significant harmful effects do not occur.

- Requires integration of environmental and ecosystem response variables in space and time.

Forest Service?

1. Works across Deputy Areas

- R&D (models to estimate critical load/level, FIA)
- NFS (effect of new emission sources)
- S&PF (forest health)
- Also, International Forestry Program

2. Interagency collaboration (EPA, NPS, USGS)

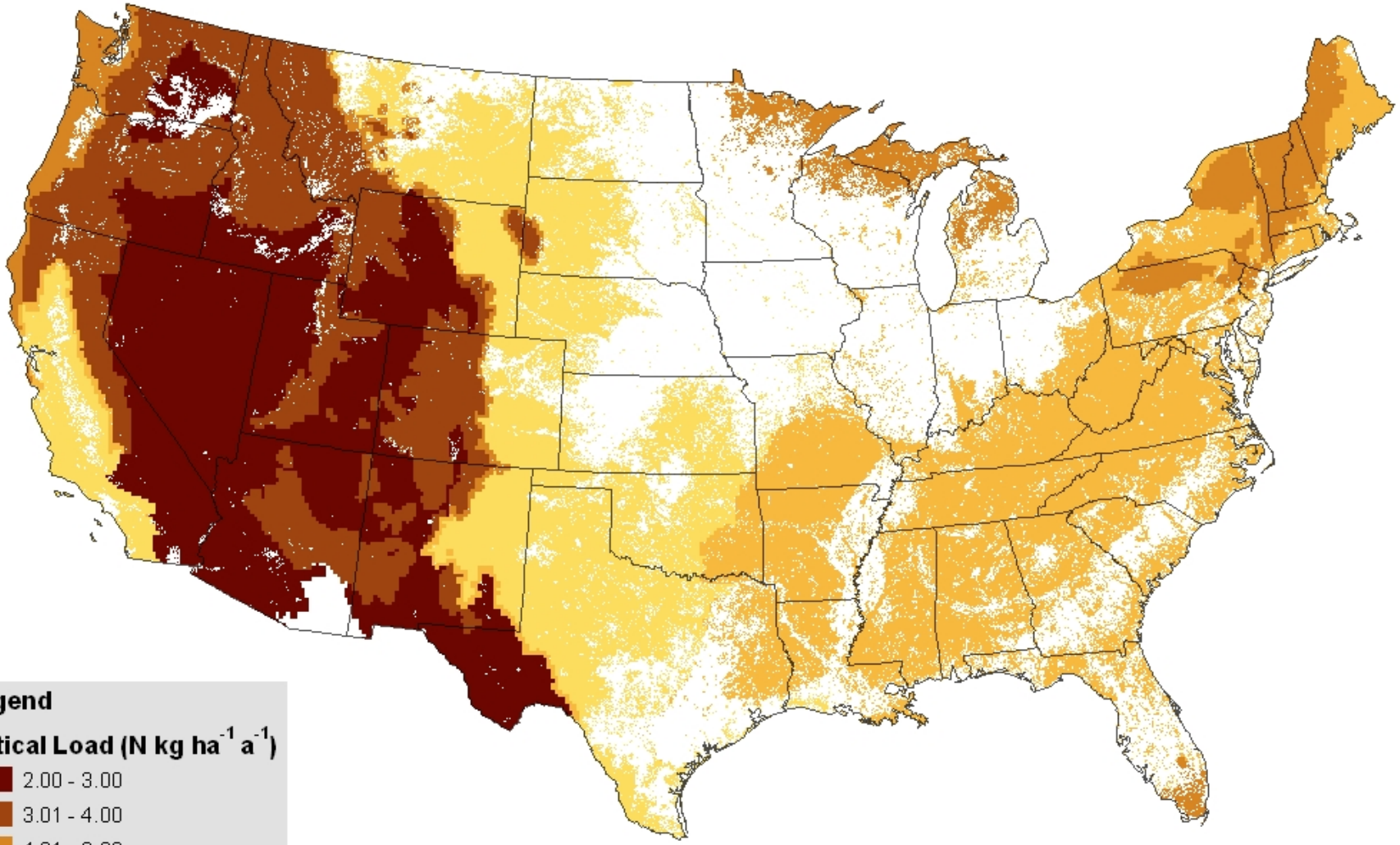
- Environmental monitoring data (e.g., NADP)
- Sharing of fiscal resources (e.g., NADP CLs project)
- Reduce overlap, redundancy
- International involvement (NAFC)

3. Intersects with climate change & vulnerability analysis

- Multiple stress effects (e.g., pathogens)
- Change in thresholds
- Used in watershed condition assessments/forest planning

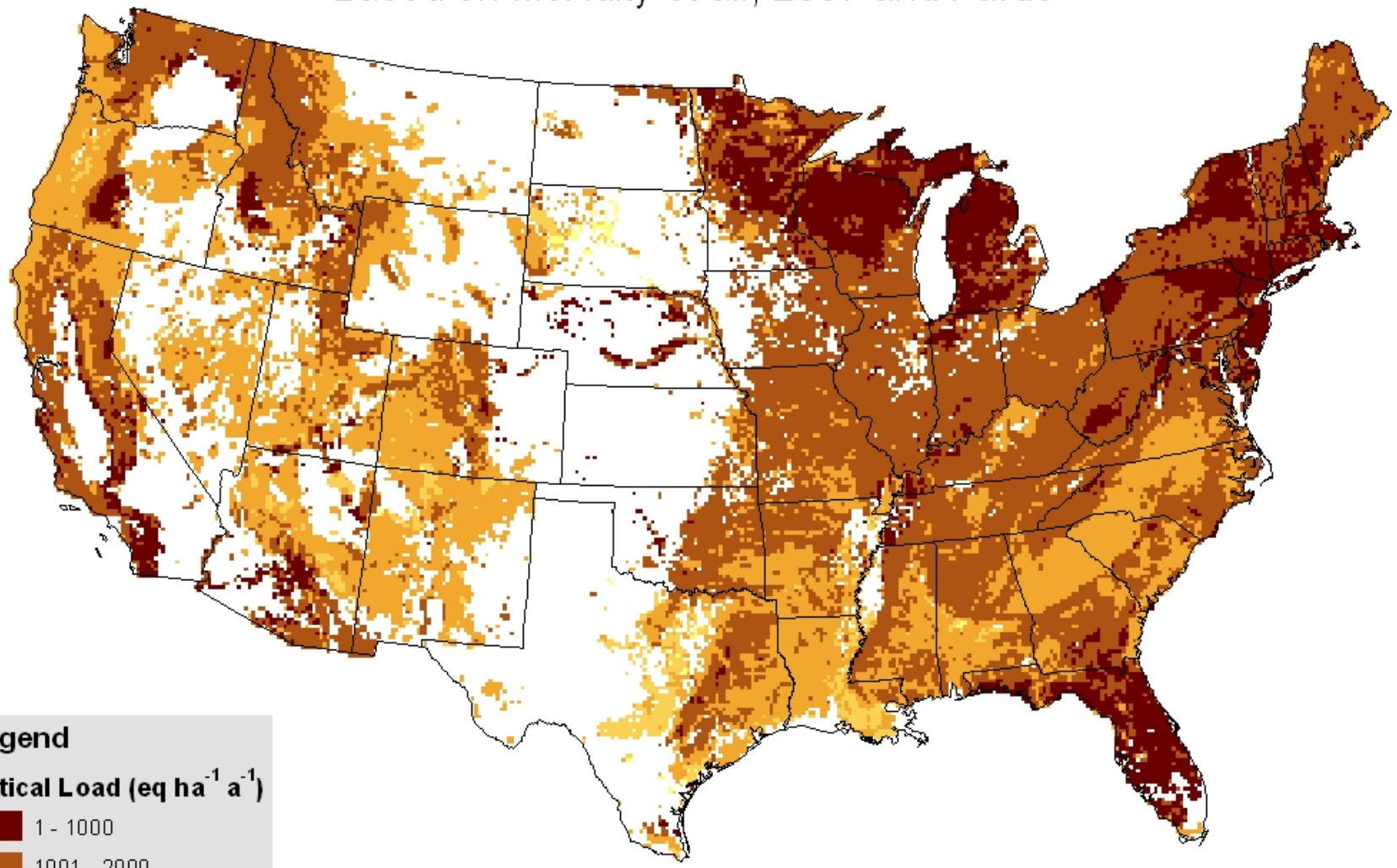
Empirical N Critical Load Average (12kmx12km)

Based on Pardo et al., 2011 & Geiser et al., 2010

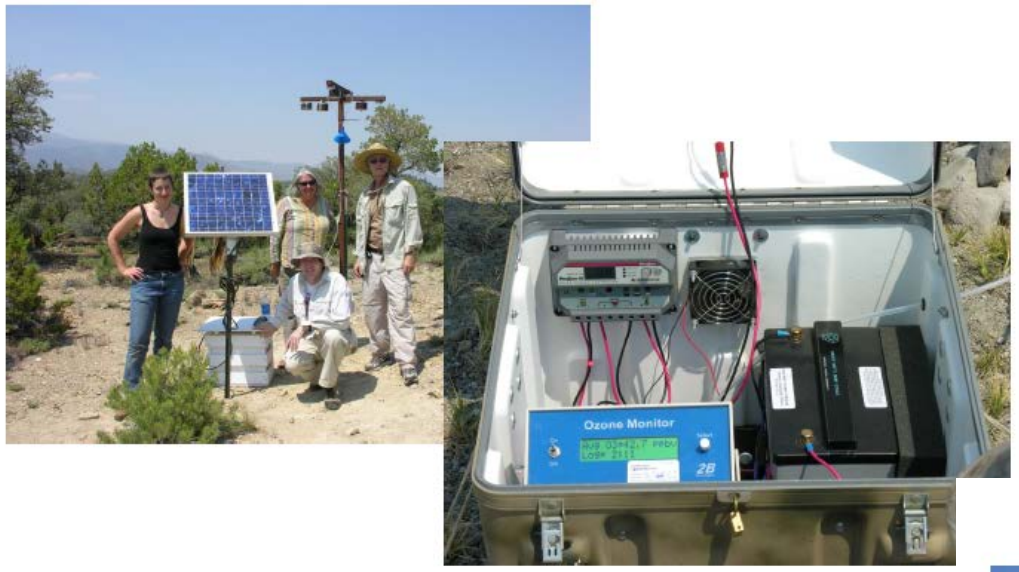


Critical Load Average for Soils (CL N+S) (12kmx12km)

Based on McNulty et al., 2007 and Pardo



Passive samplers & portable active monitors have been successfully used in remote areas for monitoring various pollutants



Passive sampler assembly

From Bytnerowicz, Andrzej -FS

Methods being used by FS to calculate critical loads

1. **Empirical calculations are based on observed effects of deposition on a specific ecosystem. This method has the least data requirements. Critical loads can be determined along pollution gradients.**

2. **Simple mass balance calculations estimate the long-term effects of deposition through comparison of net gains and losses. This method has moderate to intensive data requirements**

3. **Dynamic models use a mass balance approach expanded by incorporating internal feedbacks, and allow the prediction of time to damage and time to recovery. Dynamic models are generally used at sites where extensive data are available.**

Questions



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