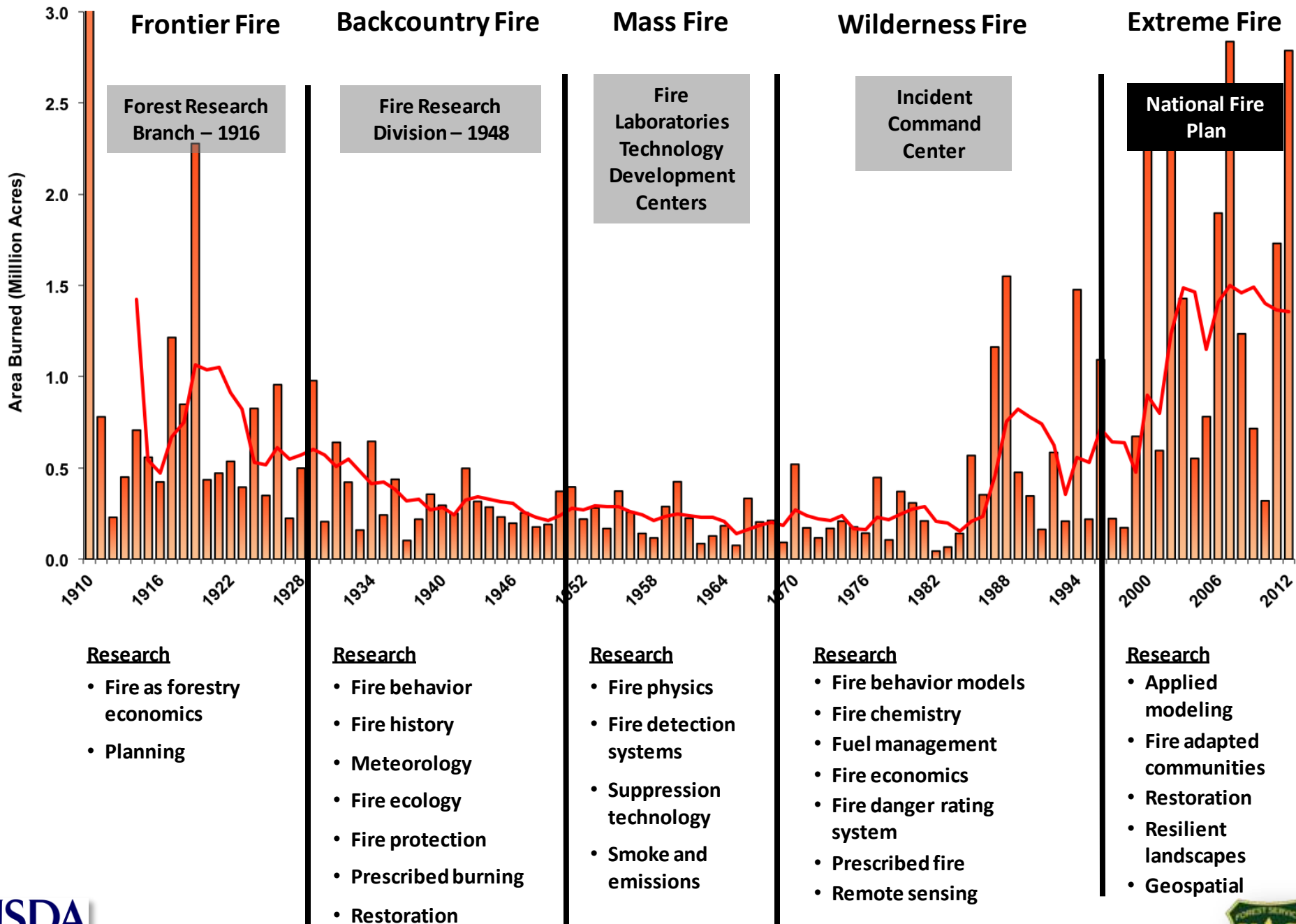




Subcommittee on Disaster Reduction Wildland Fire S&T Task Force Workshop

Carlos Rodriguez-Franco
Associate Deputy Chief
FS Research and Development

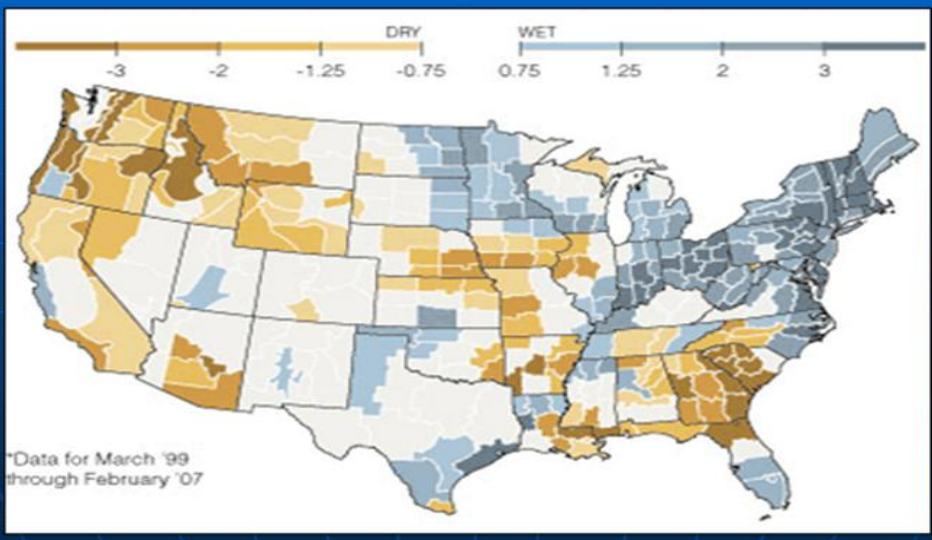
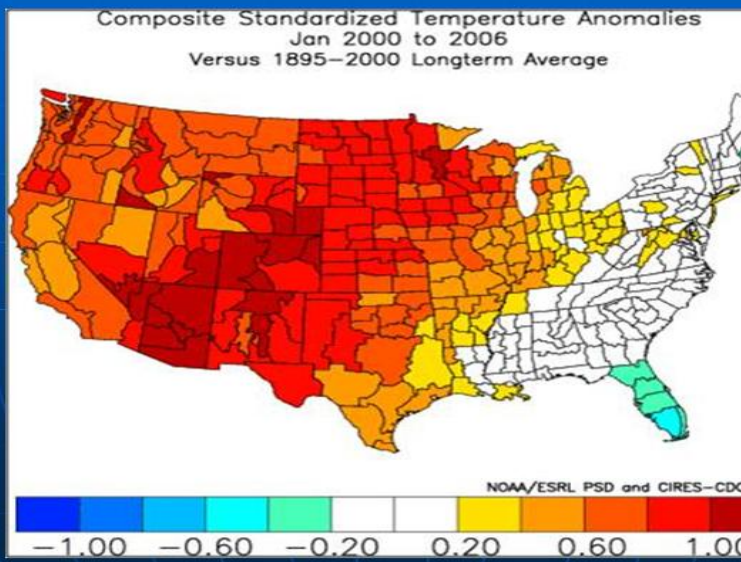
Department of Interior
Main Interior Building – North Penthouse Room
Washington, DC, June 17 -19, 2014



Science Serving Society



Temperature during the 21st Cen Precipitation During the 21st Century: 8 Years of Drought Index

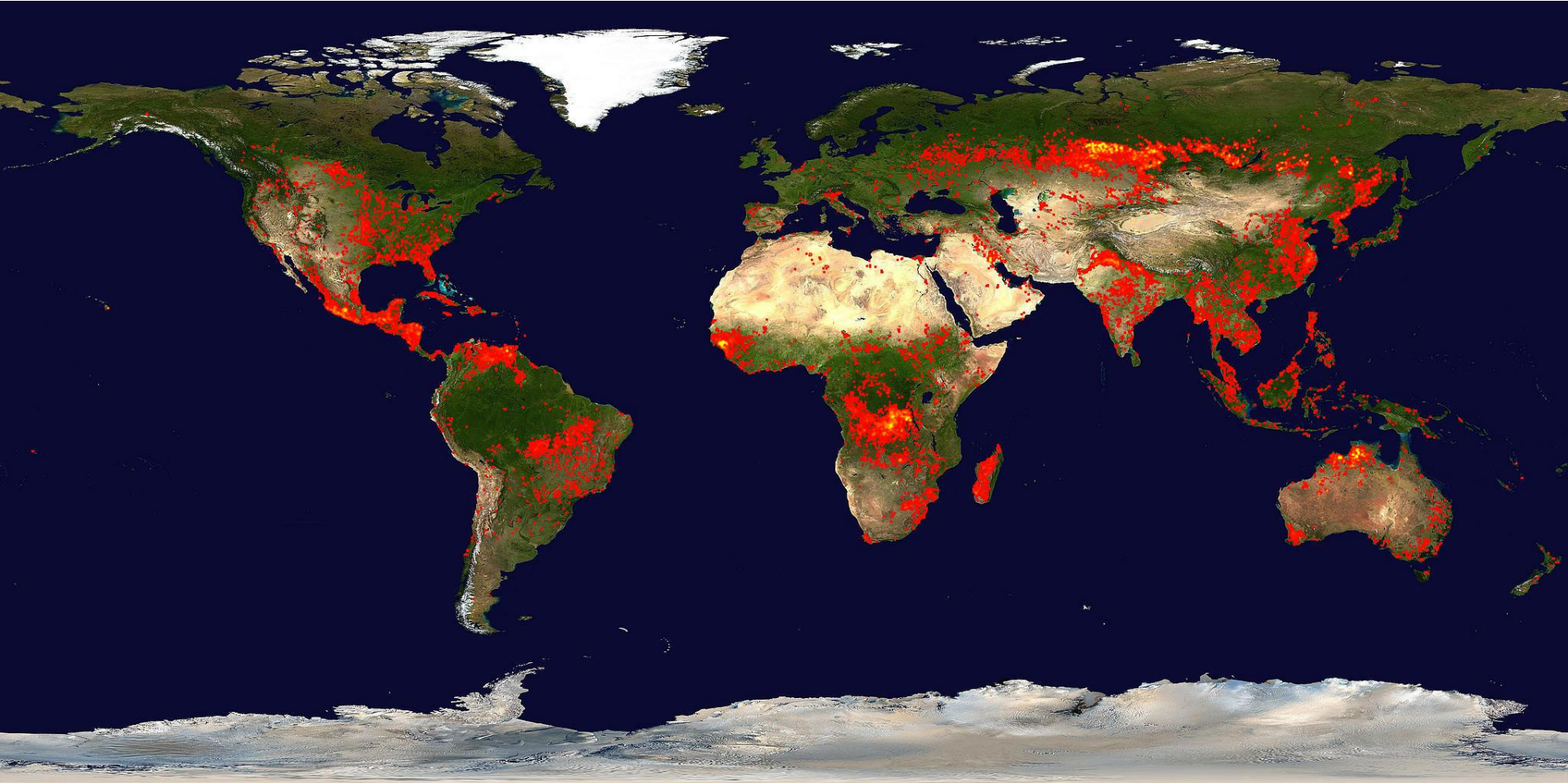


Many Forests in the Western N.A. are Dying Back from Drought and Pests



Many Forests in Western N.A. are Undergoing Catastrophic Fires





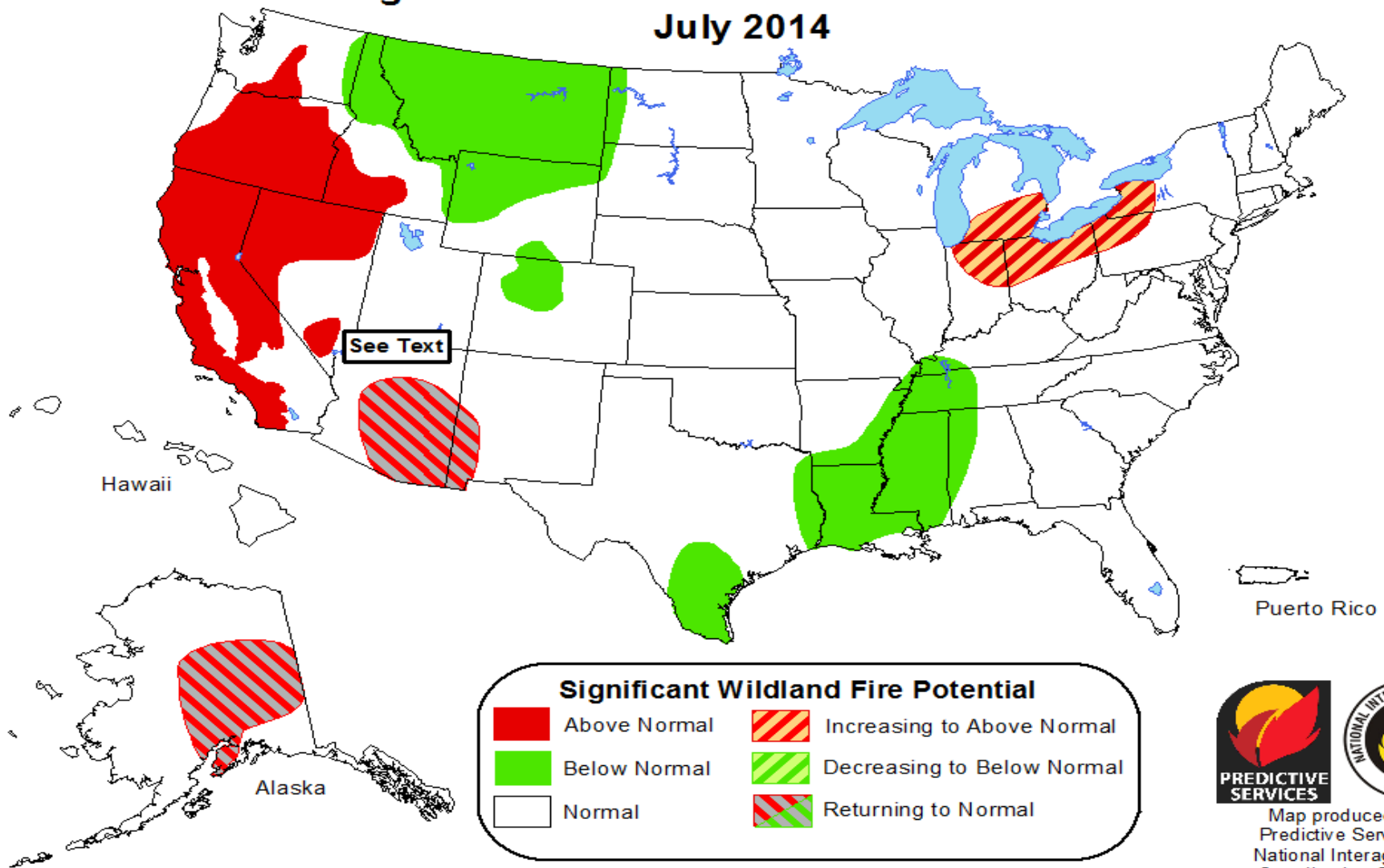
Source: NASA, 2014



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Significant Wildland Fire Potential Outlook July 2014



Above normal significant wildland fire potential indicates a higher than usual likelihood that wildland fires will occur and/or become significant events. Wildland fires are still expected to occur during forecasted normal conditions as would usually be expected during the outlook period. Significant wildland fires are still possible but less likely than usual during forecasted below normal periods.



Map produced by
Predictive Services,
National Interagency
Coordination Center
Boise, Idaho

Issued June 1, 2014
Next issuance July 1, 2014



Wildland Urban Interface 2000





WUI

 intermix and interface

Non-WUI Vegetated

 very low density housing
 no housing

Non-vegetated or agriculture

 medium and high density housing
 low and very low density housing

 water

EXTREME WILDLAND FIRES IN THE US

- ❖ In much of the West, a legacy of fire exclusion has left forests overstocked and full of hazardous fuels. In terms of fire and fuels, we are in a whole new era. Since 1999, we've had 242 wildfires exceeding 50,000 acres, more than twice as many as in the previous two decades.
- ❖ At least nine states have had record-breaking fires, megafires on a scale rarely seen before. In 2000, for the first time since the 1950s, more than 7 million acres burned in a single year.
- ❖ Two years later, more than 7 million acres burned again.
- ❖ In 2004 and 2005, more than 8 million acres burned;
- ❖ in 2006 and 2007, it was more than 9 million.
- ❖ Through November, 2012, we have had 53, 744 fires affecting 9.1 million acres. Some experts anticipate future fire seasons on the order of 12 to 15 million acres each year.
- ❖ Extreme wildfire risks lives and natural resources people need and value.

Joint Fire Science Program

- National, interagency, application focus.
- Managed by 10-person governing board
- Competitively funds 2-3 year projects through external peer-review.
- Focus on fuel treatment effectiveness, landscape restoration, wildlife, emissions, and demonstration projects.
- Budget \$13M - \$16M, FS and DOI.

Joint Fire Science Program

❖ Lines of work

- ❖ Fuel treatment
- ❖ Smoke management
- ❖ Decision support

❖ Emergent management needs

- ❖ Weather forecasts
- ❖ T&E Species
- ❖ Effects on water

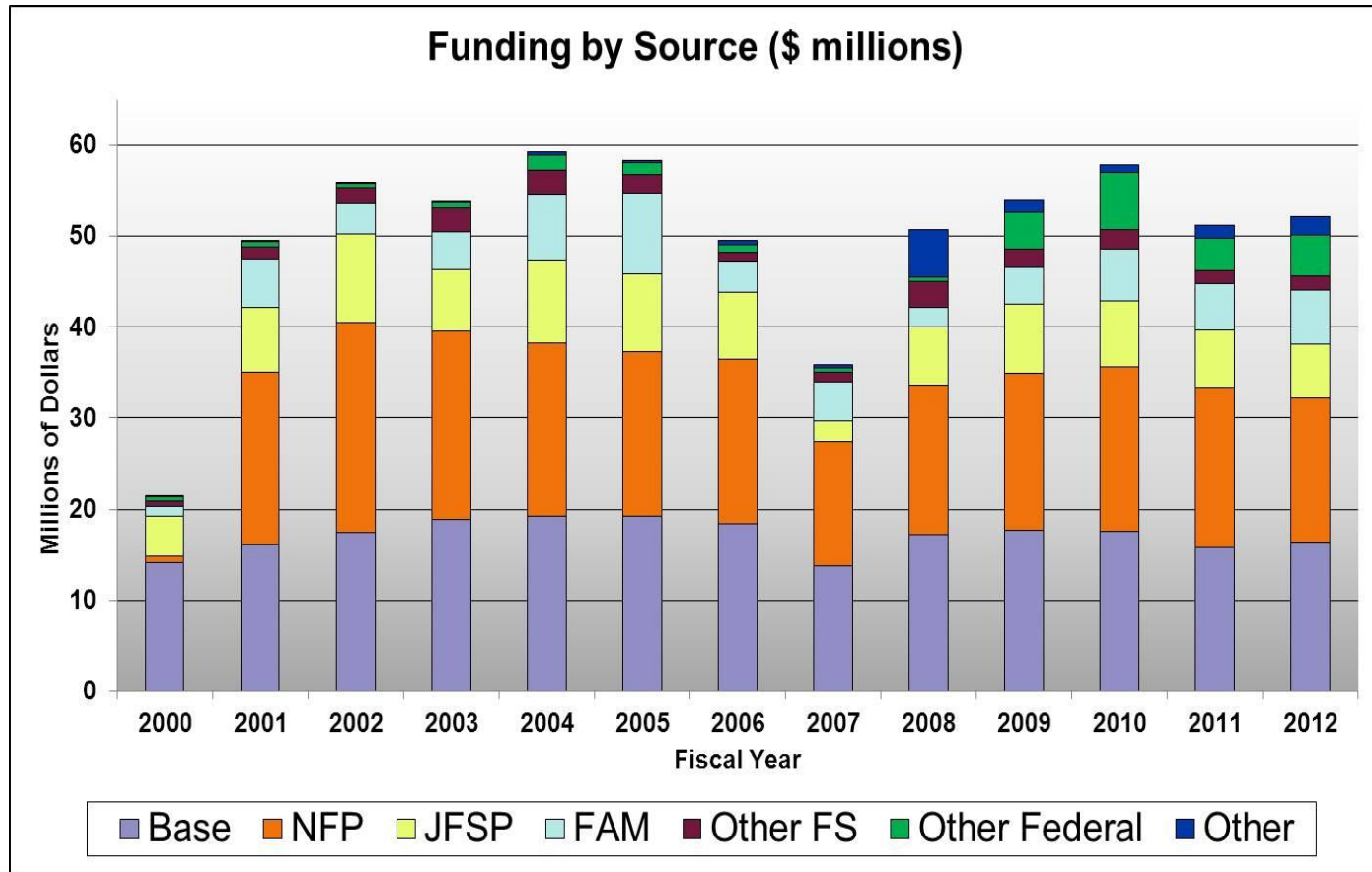
❖ New Science

- ❖ Socioeconomics
- ❖ Risk
- ❖ Remote sensing

❖ Re-measurement

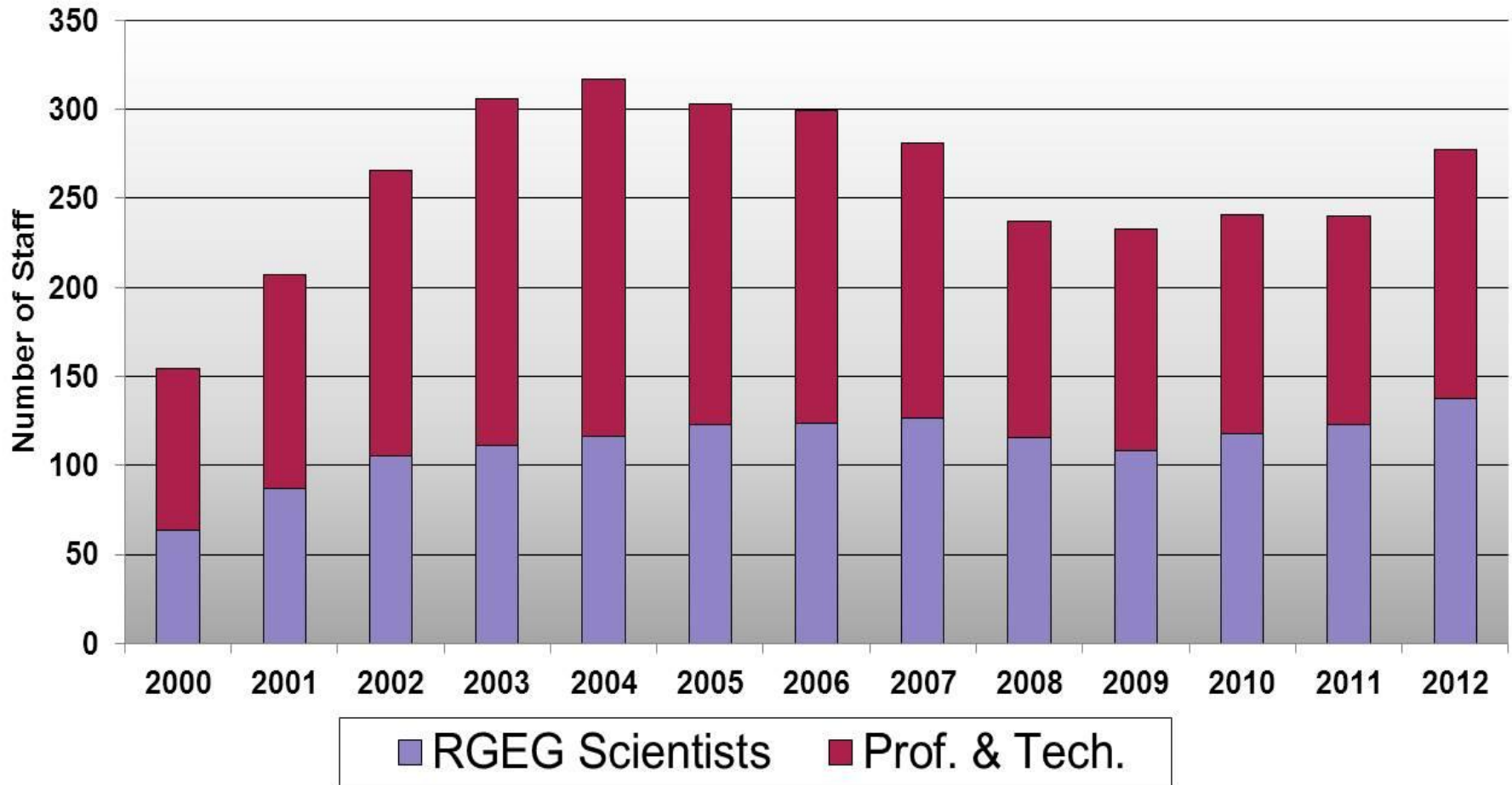
- ❖ Long-term monitoring
- ❖ Prescribed fire effects
- ❖ Effects of vegetation management

FS Wildland and Fuels Research Program Funding

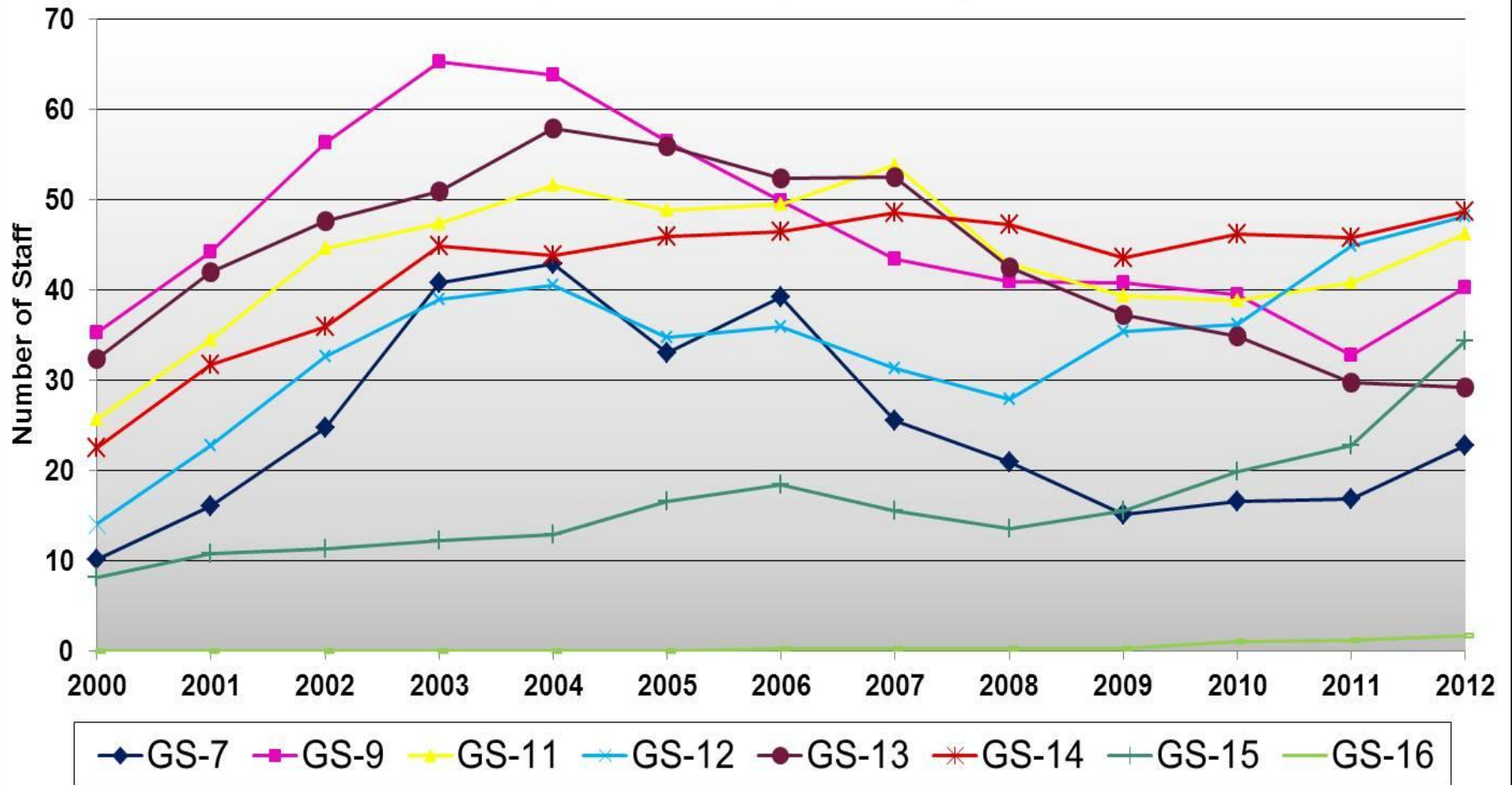


FS Wildland and Fuels Research Program Personnel

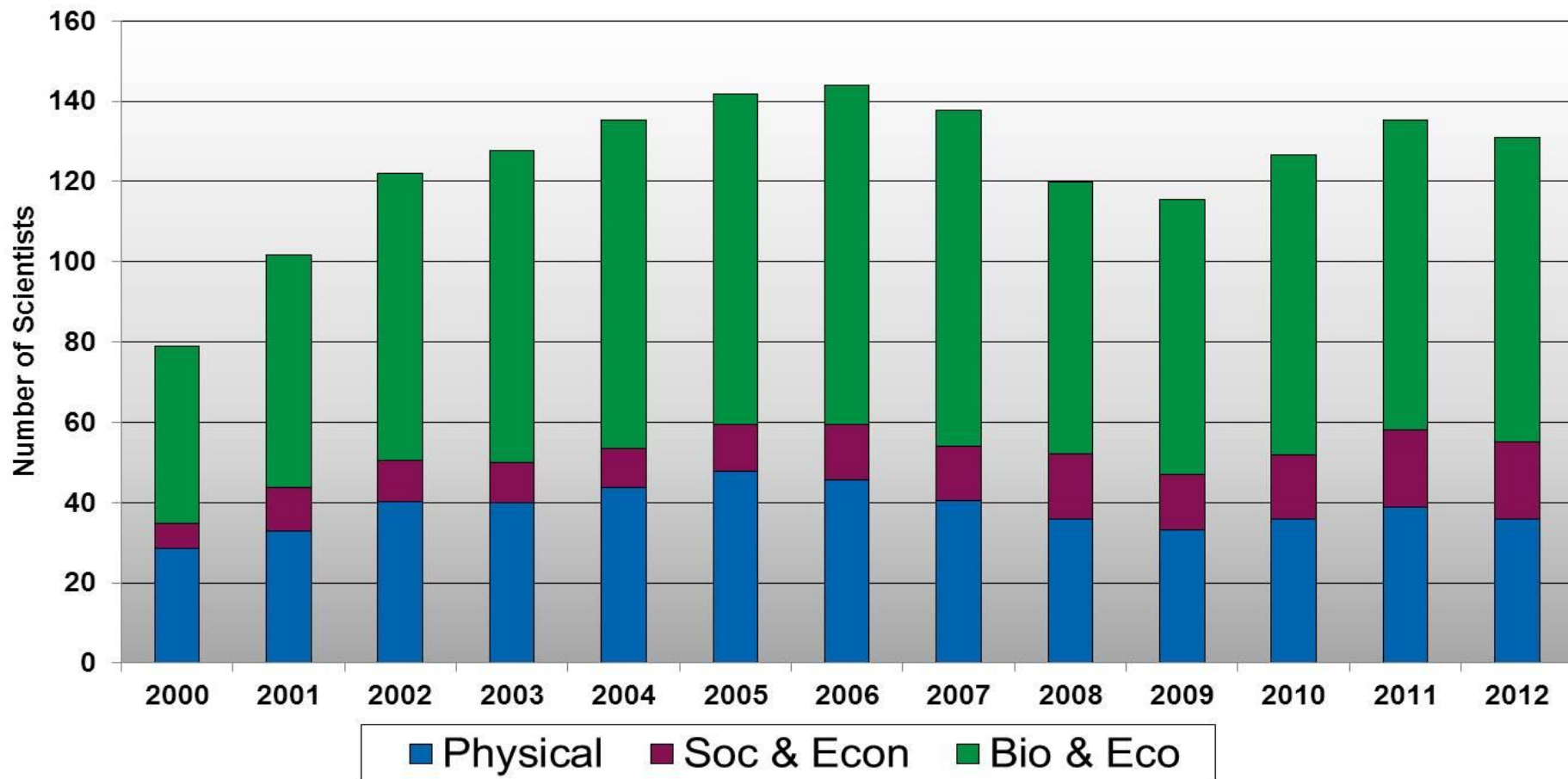
Fire R&D Scientific Staff



Wildland Fire R&D Staffing by Grade Level (Full Time Equivalents)



Fire R&D Scientists by Discipline Area



Recent accomplishments

- Last 10 years scientists have published 5,346 publications. The number of peer reviewed publications was 3,725.
- In 2012 the number of all publications was 461, and the number of peer reviewed was 395.
- The number of scientists per year in average working in this program is 128 of a total workforce of + 500 scientists.

What we do in the Forest Service

These tools include:

- ❖ **Climate change vulnerability assessments that seek to characterize, diagnose, and project risks or impacts of environmental change on people, communities, economic activities, infrastructure, ecosystems. Specific information can be found at <http://www.fs.fed.us/ccrc>**
- ❖ **National Early Warning System (EWS) a web-based forest monitoring tool that provides an 8-day coast-to-coast snapshot of the U.S. landscape. Forest and natural resource managers can use the system to rapidly detect, identify, and respond to unexpected changes in the nation's forests by insects, diseases, wildfires, extreme weather, or other natural or human-caused events.**
- ❖ **models and tools to design and implement fuel treatments (such as prescribed fire, thinning, and mechanical fuel treatments) that reduce wildfire intensity and severity.**

What types of information are needed?

- ❖ Spatial characterization of fuels
- ❖ Historic, current, future weather
- ❖ Terrain
- ❖ Locations of WUI and other infrastructure
- ❖ Historical fire patterns
- ❖ Active fire location over time
- ❖ Vegetation dynamics and interactions
- ❖ Environmental effects of fire
- ❖ Effects and effectiveness of treatments
- ❖ Economic data on fire suppression and alternatives

The National Cohesive Wildland Fire Management Strategy*

- ❖ Effects of fire on watershed function, including erosion and fish habitat
- ❖ Use of fire to restore ecosystems
- ❖ Effects of invasive species on fire regimes
- ❖ Studies of wildland fire history and fire regimes—the historic and present patterns of fire frequency, severity, and scale
- ❖ The interrelated ecology of mountain pine beetle, lodgepole pine, and fire
- ❖ Fire's effects on carbon stored in landscapes and emitted by fire
- ❖ Changing vegetation in fire-adapted ecosystems
- ❖ Fire effects on air quality, including smoke transport, regional haze, and atmospheric chemistry

* Small example of what R&D can offer

Conclusion


- ❖ **High quality, relevant research is needed to meet resource management goals**
- ❖ **Needs and applications range from local to global.**
- ❖ **We must maintain a balance between fundamental and applied fire science.**
- ❖ **Coordination among researchers and between research and managers is the key to success.**

Questions?




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