



# U.S. Forest Service Wildland Fire and Fuels R&D Program

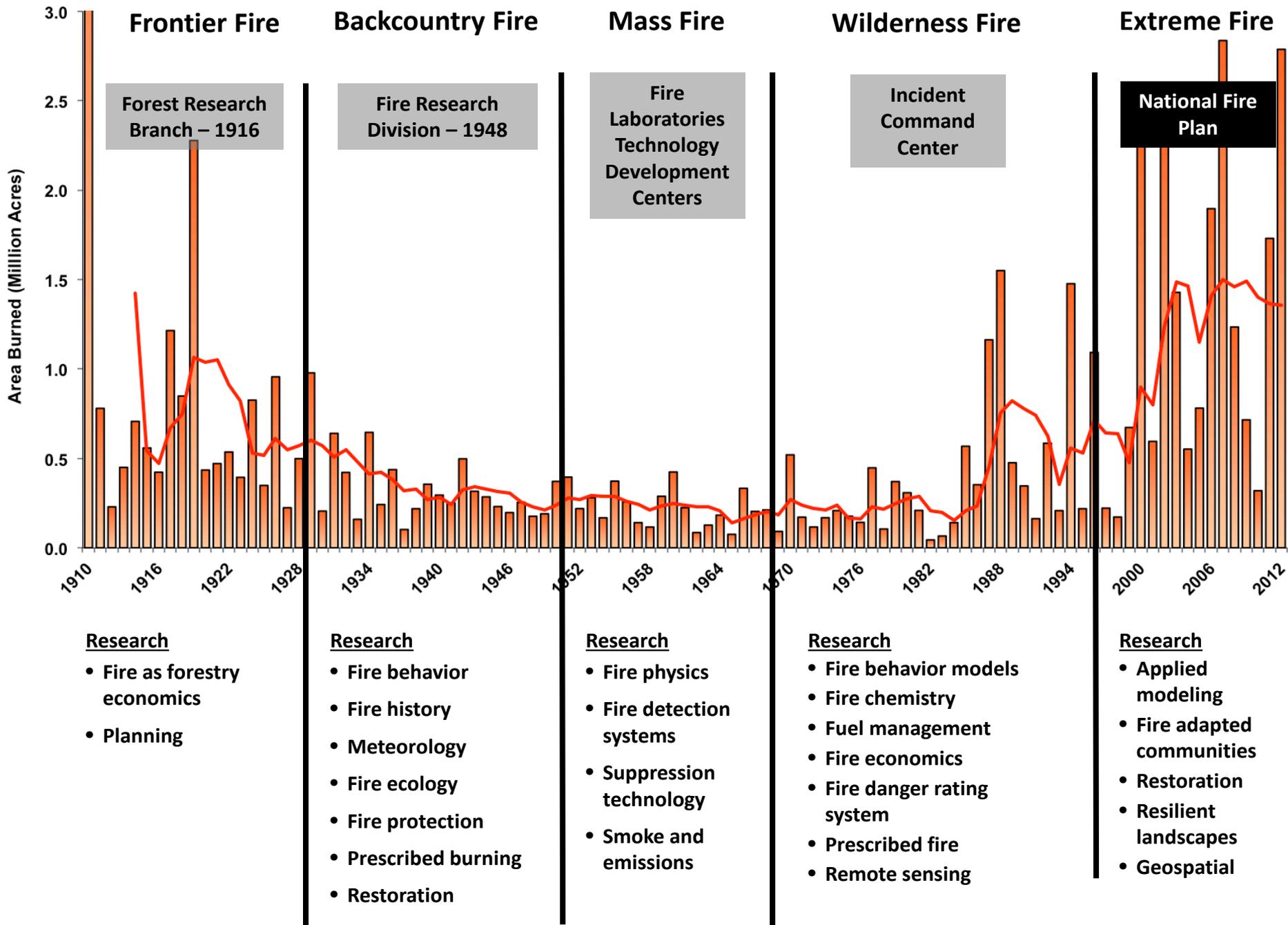
USDA Forestry Research Advisory Council  
February 19, 2015

Matt Rollins

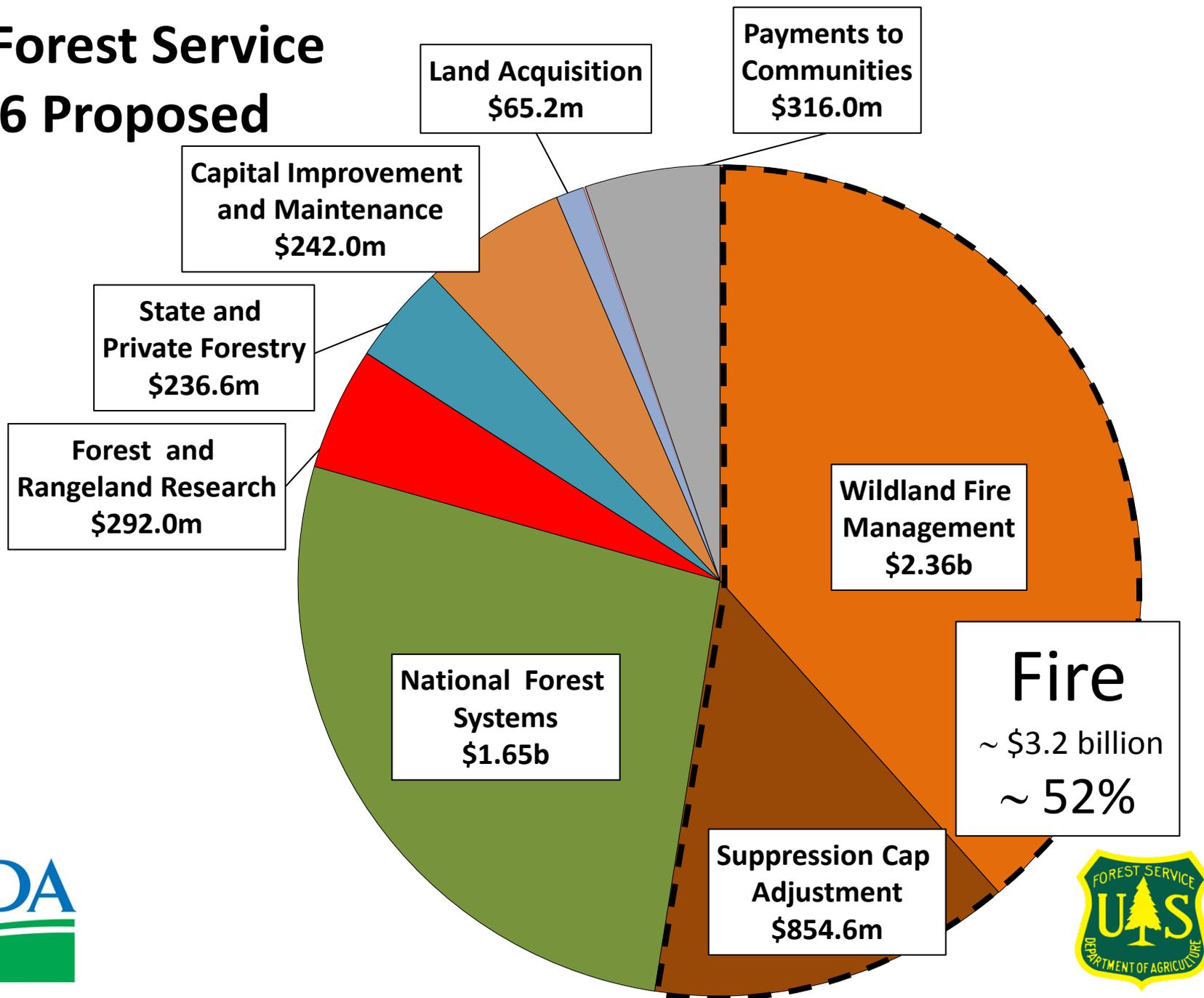
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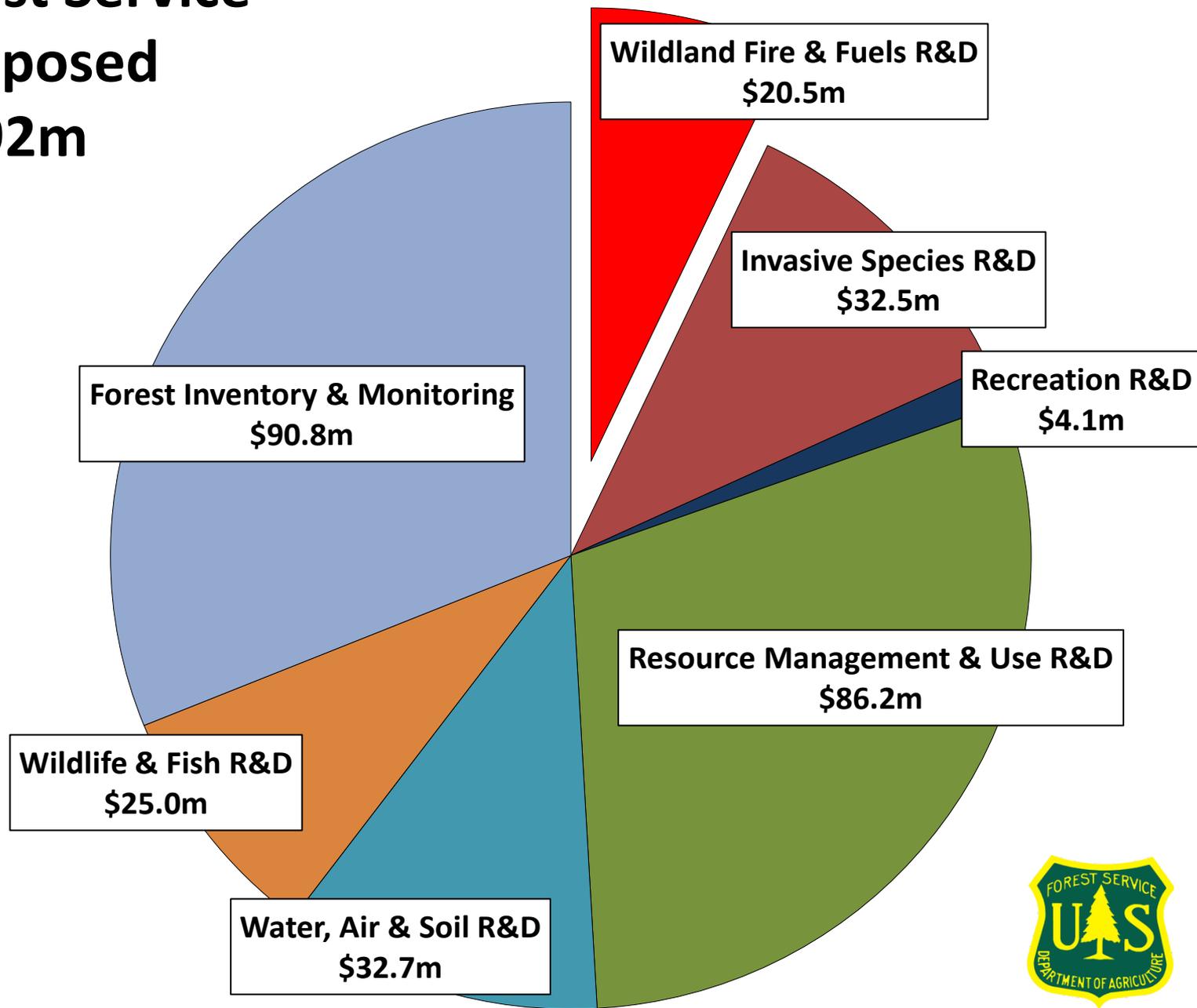




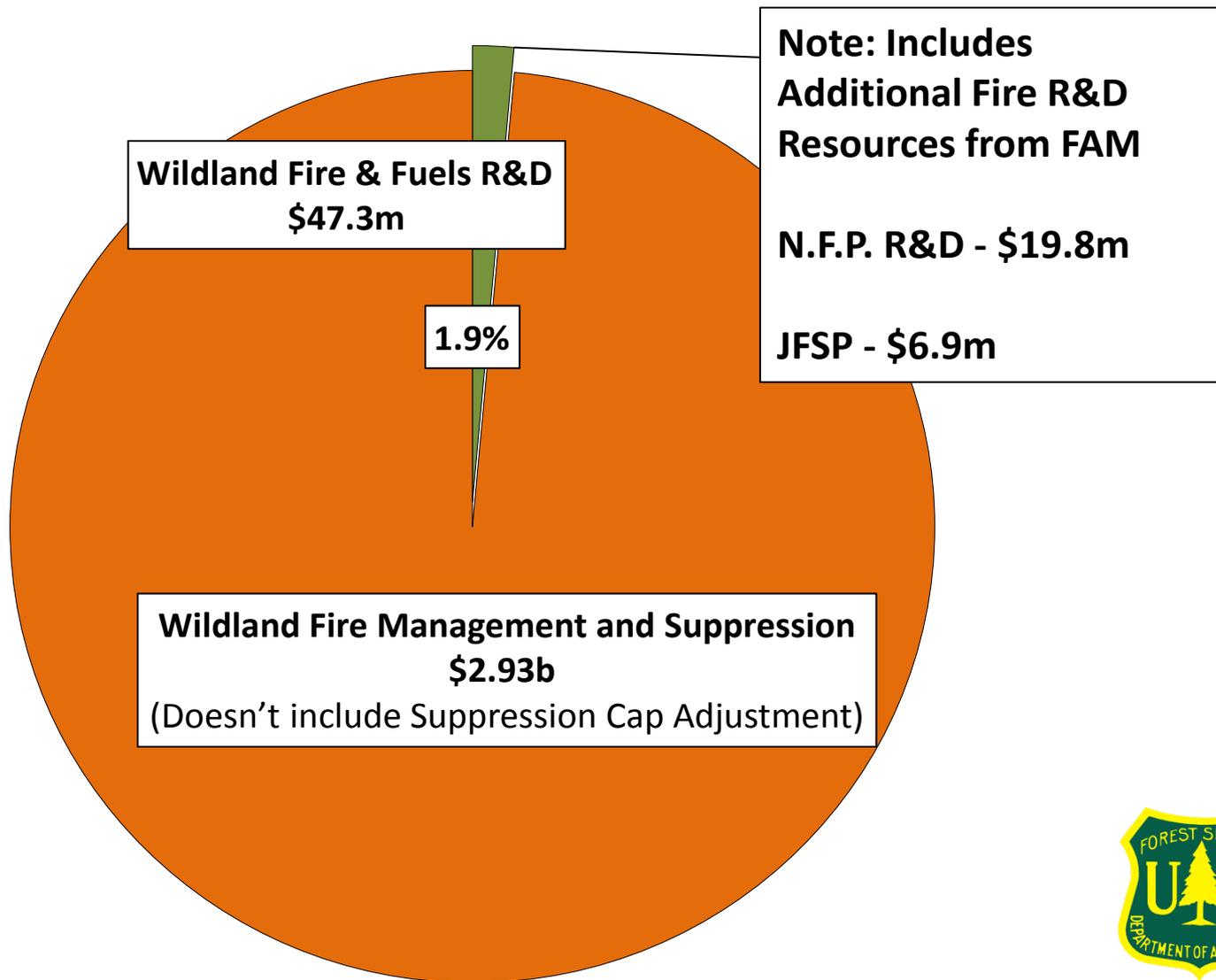
# US Forest Service 2016 Proposed



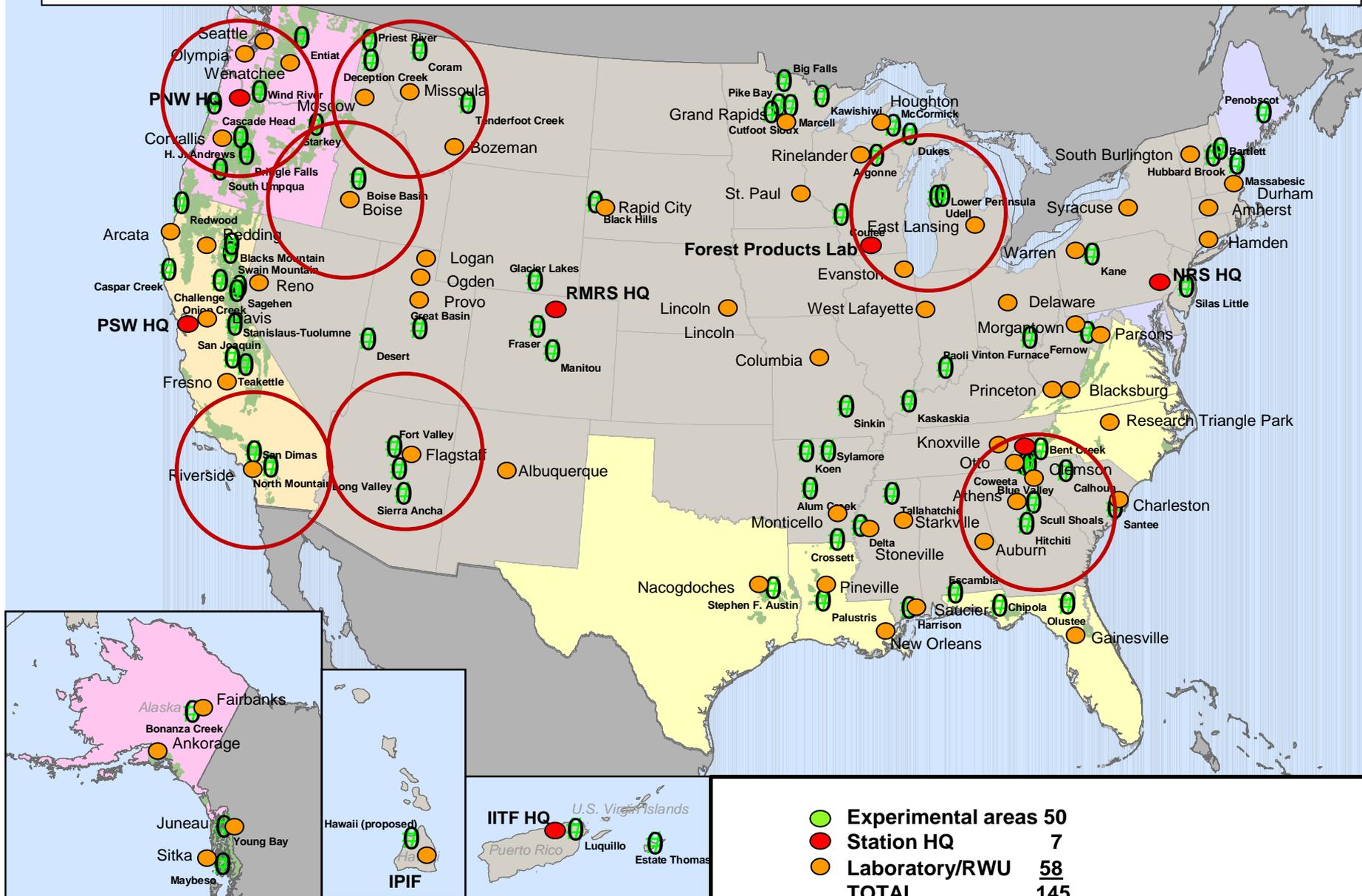
# U.S. Forest Service 2016 Proposed R&D-\$292m



# U.S. Forest Service 2016 Proposed Fire R&D Budget is 1.5% of Wildland Fire Management and Suppression

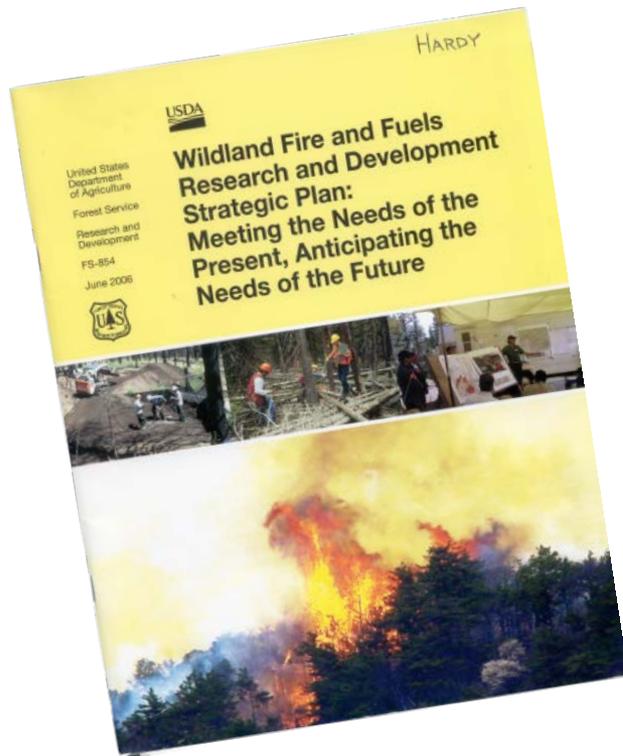


# Research and Development Facilities Locations



<span style="color: green;">●</span>	Experimental areas	50
<span style="color: red;">●</span>	Station HQ	7
<span style="color: orange;">●</span>	Laboratory/RWU	58
	<b>TOTAL</b>	<b>145</b>

# Wildland Fire and Fuels R&D Strategic Program Area (2006)



## Three Goals:

1. Advance basic and applied wildland fire science.
2. Promote application of knowledge and tools.
3. Enhance national and international leadership.

## Portfolios:

- A. Core Fire Science
- B. Ecological and Environmental Fire Science
- C. Social Fire Science
- D. Integrated Fire and Fuels Management
- E. Science delivery
  - Synthesis and tool development
  - Science delivery and application



# National Fire Plan R&D

- Established by congress in 2001
- 78 research teams across the United States
  - initially funded for 5 years, currently in various stages of re-competition across stations
- Internal peer review process for new projects
- Conducted by FS scientists and university collaborators
- Focus on applied research, deliverables and useful products



# National Fire Plan R&D

## Four Major Areas of Emphasis

### 1. Improve Prevention and Suppression

- Fire weather/behavior prediction
- Effective/strategic response
- Fire and smoke monitoring

### 2. Reduce Hazardous Fuel

- Fuel treatment effectiveness
- Biomass and small tree utilization

### 3. Restore Fire-adapted Ecosystems

- Rehabilitation effectiveness
- Invasive management and protection

### 4. Promote Fire-adapted Communities

- Structure vulnerability
- Community policies and attitudes



# 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.



# National Cohesive Wildland Fire Management Strategy

An effort to collaboratively among all stakeholders and across all landscapes, using best science, to make meaningful progress towards the three goals:

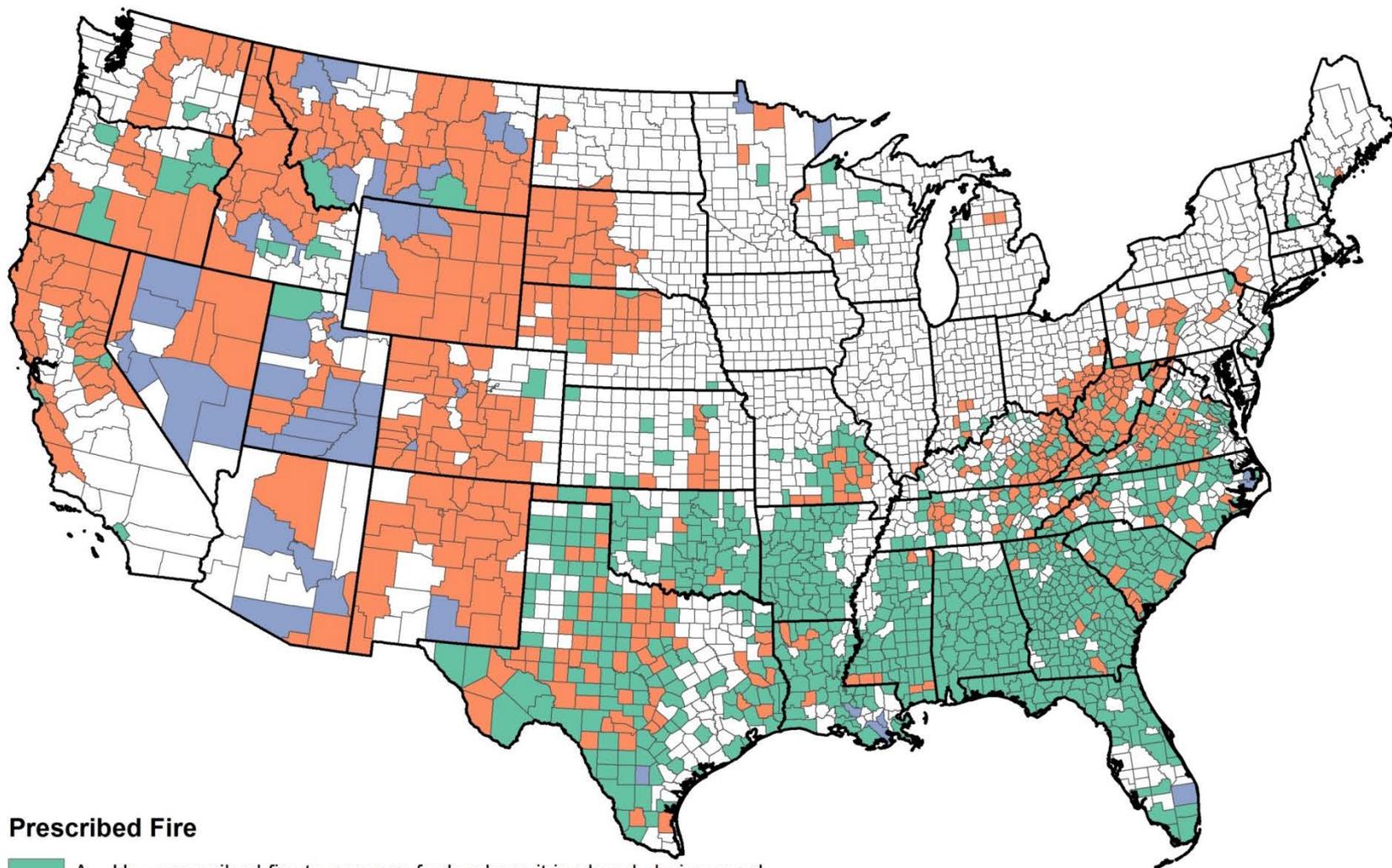
1. Restore and maintain resilient landscapes
2. Create fire-adapted human communities
3. Respond safely and effectively to wildfires



# National Cohesive Wildland Fire Management Strategy

- Four-year process (FLAME Act)
- Regional-to-national approach
- Enormous amount of stakeholder participation and input
- National Risk Assessment and National Action Plan
  1. Managing vegetation
  2. Protecting homes and communities
  3. Managing Human ignitions
  4. Safely, efficiently, and effectively responding to wildfire





### Prescribed Fire

- A – Use prescribed fire to manage fuels where it is already being used
- B – Consider expanding use of prescribed fire
- C – Consider prescribed fire, but on a limited basis

# NSTC Fire Science and Technology Task Force (2014)

- Fire science and technology across the federal government
- Roles and responsibilities
- Progress on 2008 Grand Challenges for Disaster Reduction
- Resource baseline
- Gaps and opportunities





# Fire Science Applications

- Armillaria Response Tool (ART)
- BehavePlus
- BlueSky Smoke Forecast System (BlueSky)
- Comparative Risk Assessment in Fire and Fuels Planning (CRAFT)
- Consume 3.0
- Fire Area Spread Simulator (FARSITE 4.0.4)
- Fire Behavior Assessment Tool (FBAT)
- Fire Ecology Assessment Tool (FEAT)
- Fire Effects Information System (FEIS)
- Fire Effects Planning Framework (FEFP)
- Fire Effects Tradeoff Model (FETM)
- Fire Emission Production Simulator (FEPS)
- FireFamily Plus
- Fire and Fuels Extension–Forest Vegetation Simulator (FFE-FVS)
- Fire Regime Condition Class (FRCC)
- Fireshed Assessment: An Integrated Approach to Landscape Planning
- First Order Fire Effects Model 5.2 (FOFEM)
- FlamMap 3.0 Beta 6
- Forest Inventory and Analysis Biomass Summ. System (FIABioSum)
- Fuel Characteristic Classification System (FCCS)
- Fuel Characteristic Classification System (FCCS) Fuelbed Mapping
- Fuels Management Analyst Plus (FMA Plus)
- Gradient Nearest Neighbor (GNN)
- Gradient Nearest Neighbor (GNN) Vegetation and Fuel Maps, Including
- Guide to Fuel Treatment in Dry Forests of the Western United States
- Harvest Cost and Revenue Estimator (HCR Estimator)
- Integrated Forest Resource Management System (INFORMS)
- LANDFIRE
- LANDIS and LANDIS-II
- Landscape Simulator
- My Fuel Treatment Planner (MyFTP)
- NEXUS
- Optimizing Fuel Solutions and Ecological Values in Landscapes (FUEL)
- Simulating Patterns and Processes at Landscape Scales (SIMPPLLE)
- Smoke Impact Spreadsheet (SIS)
- Stereo Photo Series for Quantifying Natural Fuels
- Tool for Exploratory Landscape Scenario Analysis (TELSA)
- Understory Response Model (URM)
- Valuation of Ecosystem Restoration Strategies (VERSTRA)
- Vegetation Dynamics Development Tool (VDDT)
- Water Erosion Prediction Project (WEPP) Fuel Mgt (FuMe) Tool
- Wildlife Habitat Response Model (WHRM)



# How are we organized and resourced to deliver science?

## FS R&D Nationally

## JFSP

## Knowledge Exchange Consortia: Connect to Local Experts



**R&D Fire SPA:  
E. Science Delivery**



**EFETAC** EASTERN FOREST ENVIRONMENTAL THREAT ASSESSMENT CENTER



**WWETAC** Western Wildland Environmental Threat Assessment Center



**Wildland Fire Management  
Research, Development & Application**  
*Integrating Science, Technology and Fire Management*



Rocky Mountain Research Station  
**Human Factors &  
Risk Management**

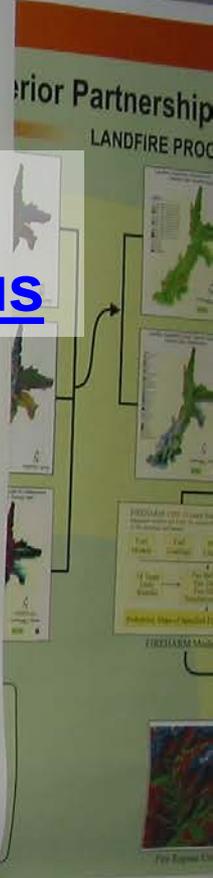
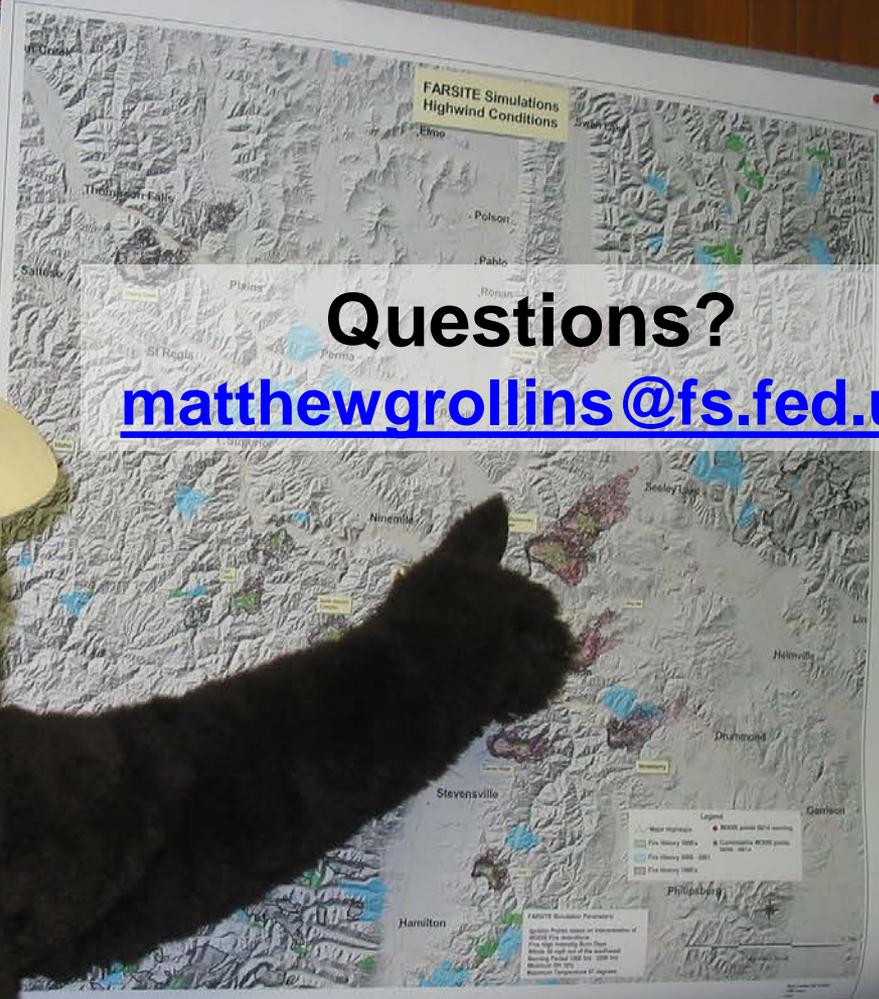
## FS R&D Station(s)



Rocky Mountain Research Station  
**Science Application  
& Integration**



Questions?  
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Zone 16 Potential Vegetation Type

Actual