

Wildfire Risk Management in the Idaho WUI

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Overview



Wildfire geography

- Rangeland
- Timberland
- Wildland-Urban Interface



Wildfire geography: Rangeland

- Rangeland (sagebrush-steppe ecosystem)
 - Non-natives increase risk (cheatgrass, medusahead rye)
 - Cheatgrass has positive feedback with wildfire
 - Wind-driven can burn 1,000 acres in an hour.
 - Future -
 - larger, more intense fires in the Great Basin (Dept. of Interior)



Wildfire geography: Timberland

- Fire is natural part of system:
 - Replenishes soils
 - Part of lifecycles of many plants (lodge pole pine)
- Fire suppression system stores fuels in a system
- 70% greater wildfire area in 2000-2005 from 1990s
- More area treated (9 m acres in 1995-2000 to 19 m acres 2001-2006)



Wildfire geography: Wildland-urban interface (WUI)

- Only 14% of WUI is developed based on most-used definition of WUI

- Focused on Structure Ignition
 - Defensible Space
 - Building Specifications
 - Best Practices



WUI wildfires are focus of this project? Why?

- Nationally -
 - 6 of 10 most expensive fires of 100 years are WUI fires
 - \$1.3 bn - Suppression and Wildland Fuel Treatments
 - Isolated home can add \$225,000 to overall firefighting costs, while a home within a dense cluster can contribute as little as \$100.
 - Healthy Forests Restoration Act: does it incentivize building in WUI?
- Idaho -
 - Lawyer Creek Fire
 - Many communities lacking resources
 - No baseline
- Building in the WUI contributes significantly to fire spread



Regulatory and Non-Regulatory Management in the WUI



Regulatory Management of the WUI: Common Tools

- Comprehensive plans
- Codes where fire provisions typically are found
 - Land use and zoning codes
 - Subdivision codes
 - Building codes
 - Fire codes



Comprehensive Plans

- Duty under Local Land Use Planning Act: Idaho Code section 67-6508
- Requirement for zoning: Idaho Code section 67-6511
- Basic Maps
- Must consider hazardous areas and public services, facilities and utilities:
 - Wildfire is not expressly included in hazardous area definition
 - Idaho Code section 67-6508(g): Hazardous Areas -- An analysis of known hazards as may result from susceptibility to surface ruptures from faulting, ground shaking, ground failure, landslides or mudslides; avalanche hazards resulting from development in the known or probable path of snowslides and avalanches, and floodplain hazards.
 - Idaho Code section 67-6508(f): Natural Resources -- An analysis of the uses of rivers and other waters, forests, range, soils, harbors, fisheries, wildlife, minerals, thermal waters, beaches, watersheds, and shorelines.
 - Public services require fire fighting consideration
 - Idaho Code section 67-6508(h) Public Services, Facilities, and Utilities -- An analysis showing general plans for sewage, drainage, power plant sites, utility transmission corridors, water supply, **fire stations and fire fighting equipment**, health and welfare facilities, libraries, solid waste disposal sites, schools, public safety facilities and related services. The plan may also show locations of civic centers and public buildings.



Land Use and Zoning Ordinances

- Detailed maps
- GIS
- Overlay zones: Fire, Mountain, Slope, WUI
 - Fire Resistant Materials
 - Defensible Spaces
 - Additional Access and Utility Requirements
- Likelihood of Fire and Fire Severity (Vegetation, Slopes, Air Flow, etc.)
- Fire Risk (Structures, Materials, Access, Utilities, Logistics, etc.)



Subdivision Ordinances

- Siting limitations
- Multiple access (fire response and evacuation plans)
- Private mitigation requirements (HOAs, CC&Rs, private contractors)



Building Code

- Fire resistant materials
- Roofing, siding, soffits, windows, fixtures
- Chimneys require spark arresters
- Sprinklers in large structures



Fire Code

- Mitigation
- Addressing and signage
- Access road widths and grades
- Emergency water supplies



Non-Regulatory Management of the WUI

- Firewise (NFPA)
- Hazard mitigation planning (FEMA)
- Community Wildfire Protection Plans (CWPP) (resulting from HFRA)
- Rangeland Fire Protection Associations (RFPs) (agencies: BLM and IDL)



Firewise

- Homeowner Responsibility and Education Program
- Component of Fire Adapted Communities
- National Fire Protection Association (firewise.org)
- 5-step process:
 - Obtain a wildfire risk assessment as a written document from your state forestry agency or fire department.
 - Form a board or committee, and create an action plan based on the assessment.
 - Conduct a “Firewise Day” event.
 - Invest a minimum of \$2 per capita in local Firewise actions for the year.
 - Submit an application to your state Firewise liaison.



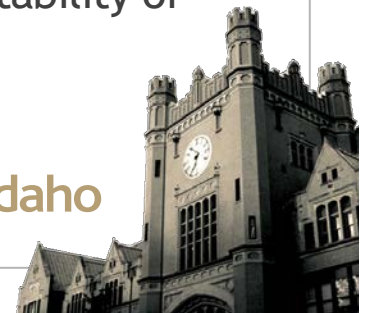
Hazard Mitigation Planning

- FEMA government risk assessment and planning
- Required for funding non-emergency programs
- [Local All-Hazard Mitigation Plan](#)
- [State Hazard Mitigation Plan](#) (SHMP)



Community Wildfire Protection Plan

- Healthy Forests Restoration Act Program
- Required for priority funding of Hazardous Fuels Reduction Projects
- Minimum requirements of a [CWPP](#):
 - The minimum requirements for a CWPP as described in the HFRA are:
 - (1) Collaboration: A CWPP must be collaboratively developed by local and state government representatives, in consultation with federal agencies and other interested parties.
 - (2) Prioritized Fuel Reduction: A CWPP must identify and prioritize areas for hazardous fuel reduction treatments and recommend the types and methods of treatment that will protect one or more at-risk communities and essential infrastructure.
 - (3) Treatment of Structural Ignitability: A CWPP must recommend measures that homeowners and communities can take to reduce the ignitability of structures throughout the area addressed by the plan.

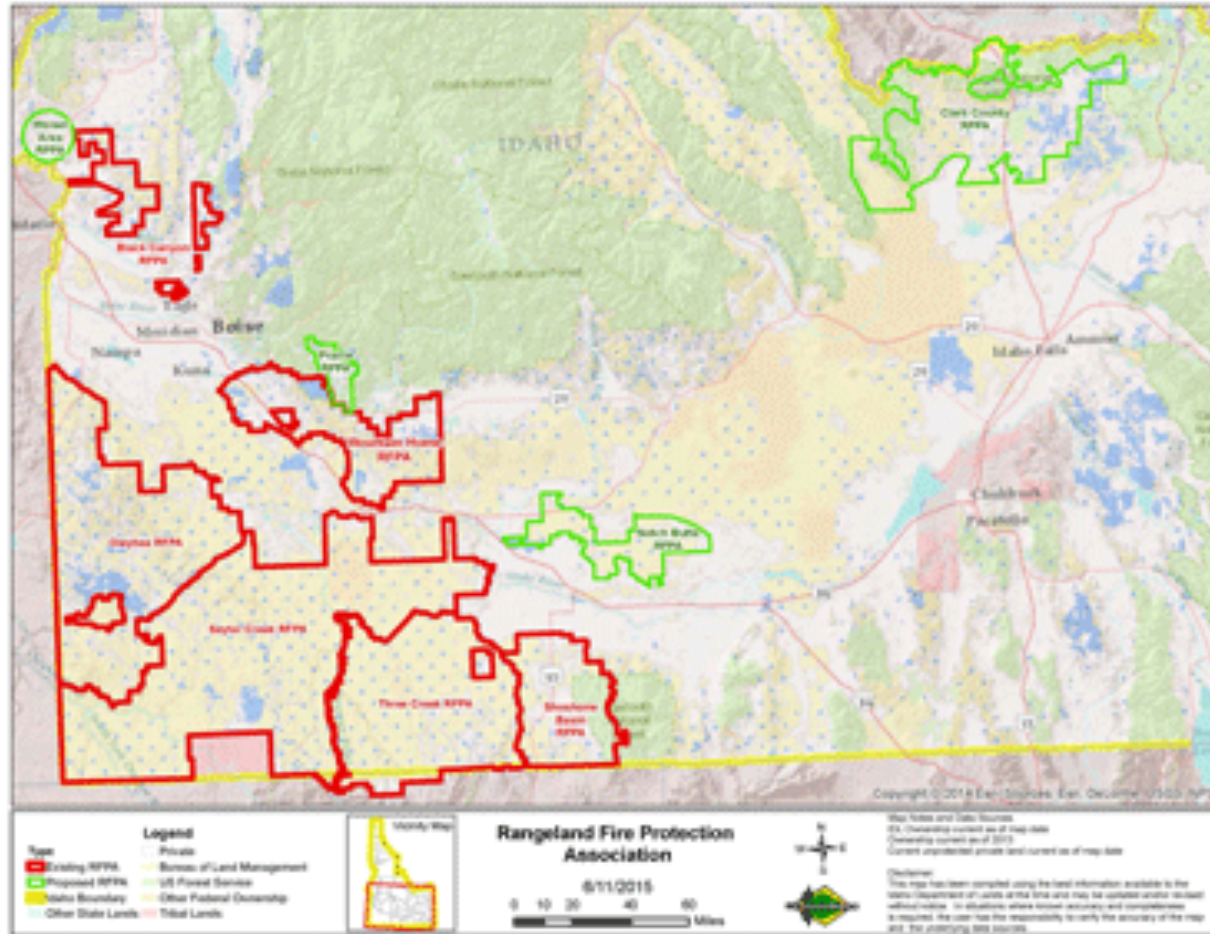


Rangeland Fire Protection Association

- Authorizes rancher firefighters
- Professional training
- Legal status for interagency fire suppression cooperation
- <http://www.idl.idaho.gov/fire/rfpa/>
- http://www.blm.gov/id/st/en/prog/rangeland_resources.html



RFPFA map: application to WUIs?



Research on Wildfire in the WUI



Description of two recent studies

- Regional Trends and Practices
 - [Clarion Associates, *Addressing Community Wildfire Risk: A Review and Assessment of Regulatory and Planning Tools*, Fire Protection Research Foundation \(2011\)](#)
- Case Studies
 - [Headwaters Economics, *Land Use Planning to Reduce Wildfire Risk: Lessons from Five Western Cities* \(2016\)](#)
 - Cities reviewed:
 - Austin
 - Boulder County
 - Flagstaff
 - San Diego
 - Santa Fe



Regional Trends and Practices

- 43 communities at risk
 - CO, FL, CA, OR, AZ, NM, TX, WA, ID, MT, UT
- Reviewed regulations
- 12 communities interviewed
- Perception, motivation, enforcement, effectiveness



Regional Trends and Practices - Codes

- Community
 - Hazard Mapping
 - Site Review Procedure
 - Land Use
- Subdivision
 - Layout and Density
 - Water Supply
 - Access
- Lot
 - Defensible Space
- Building
 - Fire Resistant Materials
 - Roofing, Siding, Soffits, Windows, Fixtures
 - Signage



Regional Trends and Practices - Interview Responses

- Regulations adopted in response to a major wildfire
- Communities either tailor model codes or adapt existing codes
- Strong support for policies based on proven science and techniques
- More effective with public education and non-regulatory approaches
- Pairing wildfire provisions with other codes and implementing over time
- Enforcement: Fire or Building Departments
- Problems
 - Maintaining defensible spaces
 - Existing developments
 - Engaging Planners



Case Studies - Practices

- Voluntary Property Assessment
- Partnerships and Coalitions
- Overlay Zoning
- Site Plan Review Procedures
- Development Standards
- Subdivision Regulations
- WUI Code
- Comprehensive Plan
- CWPP
- Hazard Mitigation Plan
- Planning for Climate Change
- Watershed Management
- Preservation of Open Space



Austin

- Building Improvement
- Vegetation Management
- Encourages infill over “greenfield” development
- Austin Fire Department coordinates with Travis County
 - No County Level Planning in Texas
 - Cities have Extraterritorial Jurisdiction to regulate surrounding development
 - Monitors and engages new developments that bridge the WUI and Urban environments



Boulder County

- Open Space and Recreation Department
 - 60,000 acres publicly managed
 - 40,000 acres conservation easements
- Comprehensive Plan: wildfire specific section
- Hazard Mitigation Plan
- CWPP
- Land Use
 - Identifies fire hazard areas
 - Requires appropriate water system and other precautionary measures
 - Site plans and flexible approval process
- Wildfire Partners Certification
 - Homeowner fire assessment
 - Insurance requirement
 - Multiple Listing Service



Flagstaff

- Bond funded fuel mitigation program
- Greater Flagstaff Forest Partnership
 - Public education
 - Forest management
 - Research
- CWPP
- WUI Code
- Resource Protection Overlay Zone



San Diego

- CAL FIRE compliance in Comprehensive Plan
- Landscape Regulation



Santa Fe

- Comprehensive Plan
- Escarpment Overlay Zone
- Hazard Mitigation Plan
- CWPP
- Forest Service Partnership
 - Watershed Protection
 - Fuel Mitigation
 - Funding?



Economic Development Clinic Project

- Part of 3-year, \$240,000 project with UI planning program and BSU social sciences programs
- First project goal: establish the legal baseline of existing wildfire regulations
 - Contacting all local governments to get their existing regulations
 - Some have extensive regulations
 - E.g. - Ada County
 - Some have little
 - - Smaller communities
- Second project goal: Collecting additional best practices from across the West
- Third project goal: establishing a wildfire planning guide for Idaho local governments due in late summer
- Other parts of project
 - Working with national experts from across the west
 - Risk perception survey
 - Invite participation
- Years 2 and 3: 12 workshops around the State



Other References

- Scofield, A. M., B. Rashford, D. M. McLeod, R.H. Coupal, *Wyoming Open Spaces: Residential Development Effects of Firefighting Costs in the Wildland-Urban Interface*, Ruckelshaus Institute - University of Wyoming Dec 2015.
- Mell, W.E., S.L. Manzello, A. Maranghides, D. Butry, and R. G. Rehm. *The Wildland-Urban Interface Problem - Current Approaches and Research Needs*. International Journal of Wildland Fire 19, 238-251 (2010).
- Cohen, J.D. *Structure Ignition Assessment Model (SIAM)*. In “The Biswell Symposium: Fire Issues and Solutions in Urban Interface and Wildland Ecosystems”, 15-17 Feb 1994 USDA Forest Service General Technical Report PSW-GTR-158, pp. 85-92.
- Jewell, S. *An Integrated Rangeland Fire Management Strategy*. The Rangeland Fire Task Force Report to U.S. Dept. of Interior (May 19, 2015). Available at:https://www.forestsandrangelands.gov/rangeland/documents/IntegratedRangelandFireManagementStrategy_FinalReportMay2015.pdf. Last checked Feb 22, 2016.
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