

An aerial photograph of a forested area with a road and several buildings. The road is a light-colored dirt or gravel path that winds through the dense green forest. Several buildings, including houses and what appears to be a larger structure, are scattered throughout the landscape. The overall scene is a mix of natural forest and human development.

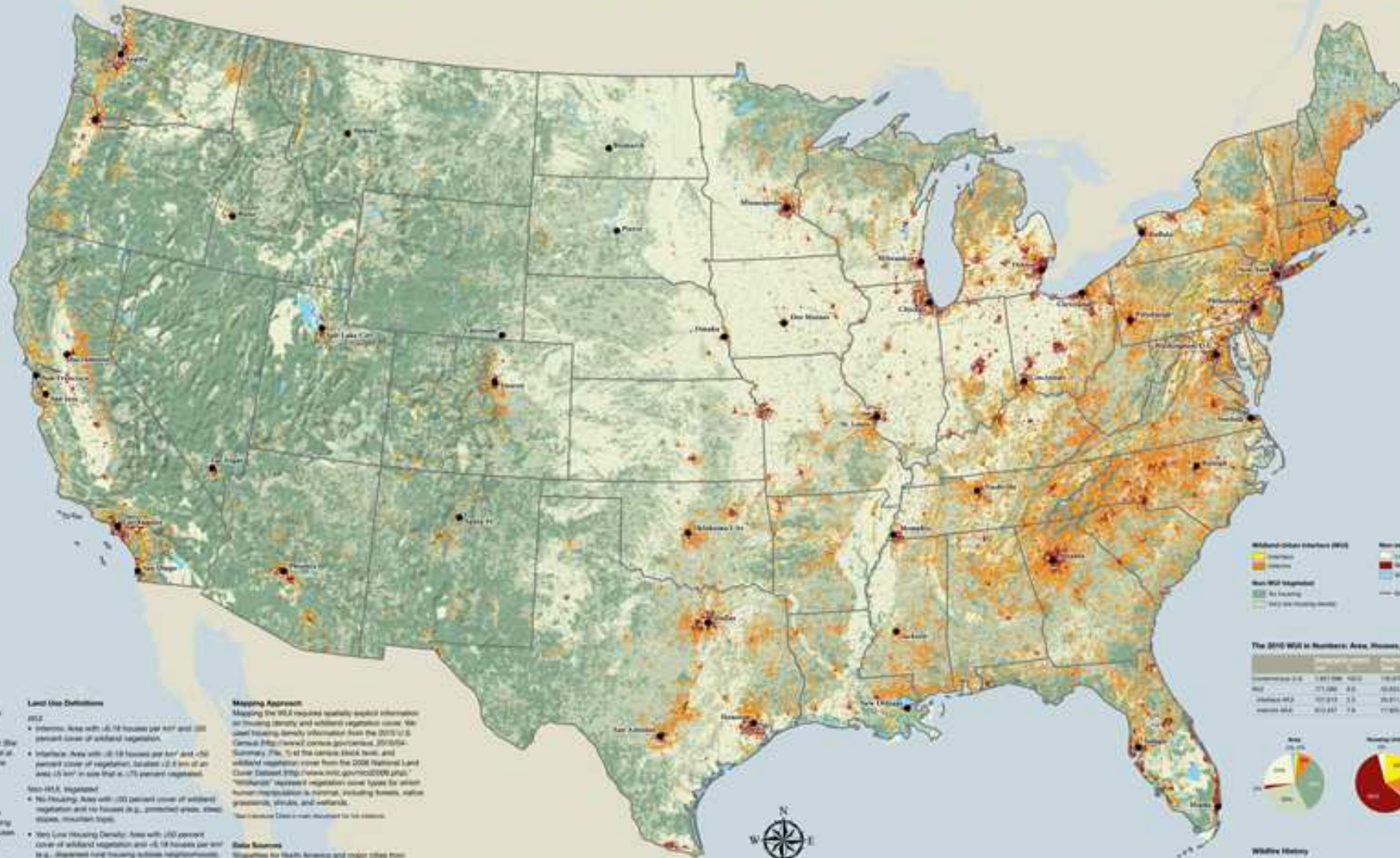
Community Planning for Wildfire

Wildland Fire Canada Conference – October 26, 2016 – Kelowna, BC

Molly Mowery – Steve King – Andrew Hunsberger

Image Source: Summit County

The 2010 Wildland-Urban Interface of the Conterminous United States



Map Description

The wildland-urban interface (WUI) is the area where structures and other human development meet or interpenetrate with undeveloped wildland, and it is a significant zone for wildland management and impact (See Mutsaers et al. 2014, Radeloff et al. 2005, Radeloff et al. 2002). This map displays the extent of the WUI in the conterminous United States for the year 2010.

Defining the WUI

The WUI is comprised of both interface and interface communities (Radeloff et al. 2007). In the WUI, housing must meet or exceed a minimum density of 0.18 houses per acre (one structure per 5.6 acres). The distinction between interface and interface is based on the distribution of houses and wildland vegetation across the landscape. Interface WUI is where housing and vegetation intermingle, while interface WUI housing is in the vicinity of a large area of wildland vegetation. Areas that do not meet the WUI requirements represent other land-use classes.

Land Use Definitions

- WUI**
 - Interface:** Area with ≥ 0.18 houses per acre and ≥ 50 percent cover of wildland vegetation.
 - Interface:** Area with ≥ 0.18 houses per acre and ≥ 50 percent cover of vegetation, scaled ≥ 2.0 km of an area ≥ 50 km² in size that is ≥ 15 percent vegetated.
- Non-WUI, vegetated**
 - No Housing:** Area with ≥ 50 percent cover of wildland vegetation and no houses (e.g., protected areas, steep slopes, mountain tops).
 - Very Low Housing Density:** Area with ≥ 50 percent cover of wildland vegetation and < 0.18 houses per acre (e.g., dispersed rural housing outside neighborhoods).
- Non-vegetated or Agriculture**
 - Low and Very Low Housing Density:** Area with < 50 percent cover of wildland vegetation and < 0.02 houses per acre (e.g., agricultural lands and parks/lands).
 - Medium and High Housing Density:** Area with < 50 percent cover of wildland vegetation and ≥ 0.02 houses per acre (e.g., urban and suburban areas, which may have vegetation but not dense vegetation).

Mapping Approach

Mapping the WUI required spatially explicit information on housing density and wildland vegetation cover. We used housing density information from the 2010 U.S. Census (PPLI: <http://www.census.gov/pplis/>, Summary File 1) at the census block level, and wildland vegetation cover from the 2006 National Land Cover Dataset (NLCD) (<http://www.mrl.gov/mcd00000.php>). "Wildland" represents vegetation cover types for which human population is minimal, including forests, native grasslands, shrubs, and wetlands.

Data Sources

Mapfiles for North America and major cities from National Earth Data version 2.2.0. The Data Layer and data documentation from National Earth Data version 2.2.0. All National Earth Data from www.naturalearthdata.com accessed 6/17/2014. Fire data from National Interagency Fire Center (<http://www.nifc.gov/>). Levels of WUI and non-WUI classes were developed by this study.

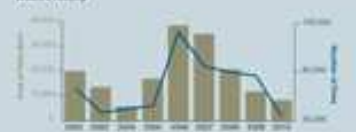
- Wildland-Urban Interface (WUI)**
 - Interface
 - Non-WUI Vegetated
 - No Housing
 - Very Low Housing Density
- Non-vegetated or Agriculture**
 - Low and Very Low Housing Density
 - Medium and High Housing Density
 - Urban
 - State Boundaries

The 2010 WUI in Numbers: Area, Houses, and Population in the WUI

Category	Area (km ²)	Houses	Population
Interface WUI	1,947,098	100,000,000	50,000,000
Non-Interface WUI	171,000	0	0
Non-WUI Vegetated	101,913	2,000,000	10,000,000
Non-WUI Non-vegetated	810,417	1,000,000	5,000,000



Wildfire History



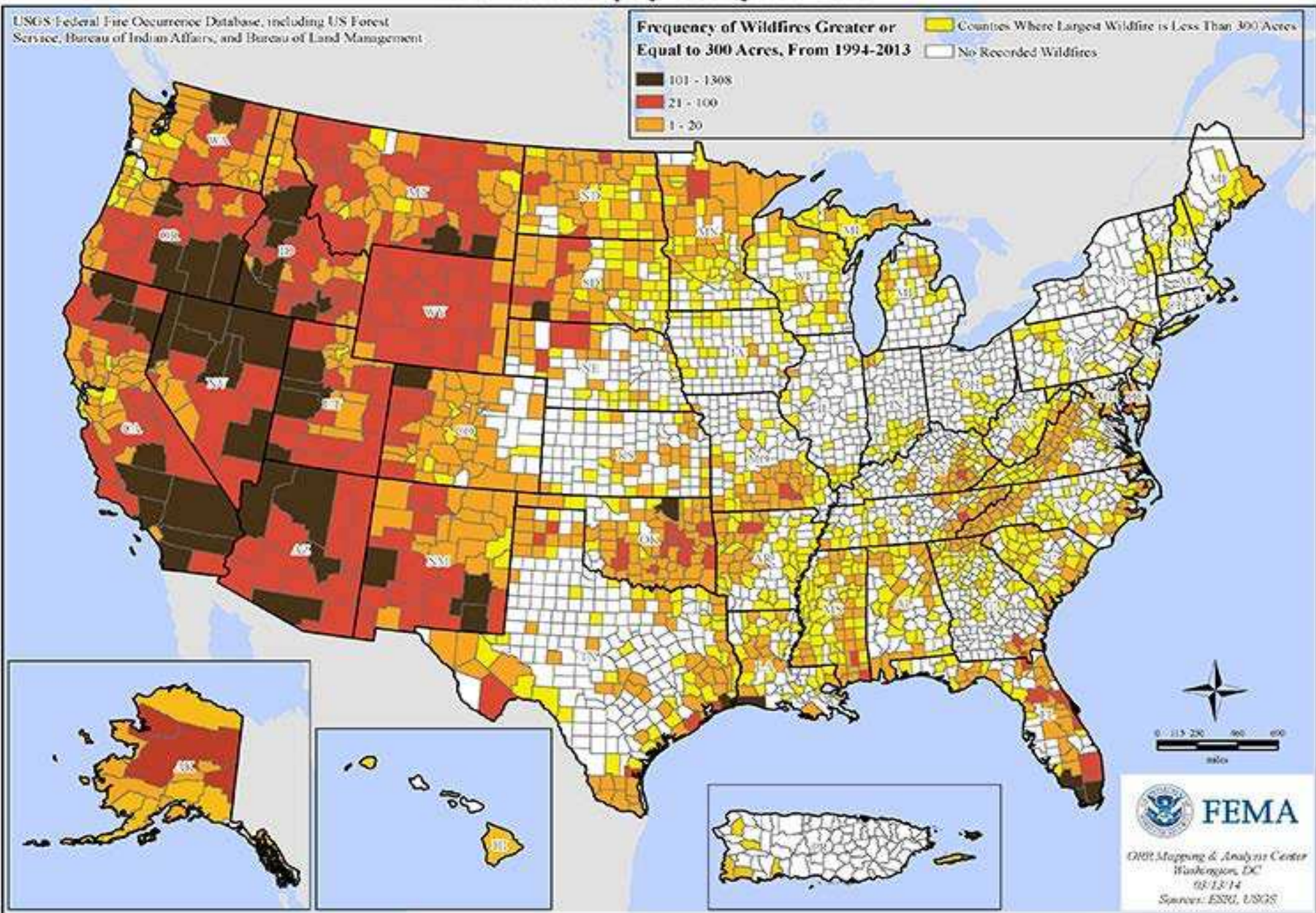
Wildfire Activity by County 1994-2013

USGS Federal Fire Occurrence Database, including US Forest Service, Bureau of Indian Affairs, and Bureau of Land Management

Frequency of Wildfires Greater or Equal to 300 Acres, From 1994-2013

- 101 - 1308
- 21 - 100
- 1 - 20

Countries Where Largest Wildfire is Less Than 300 Acres
No Recorded Wildfires



Wildfires & the wildland-urban interface

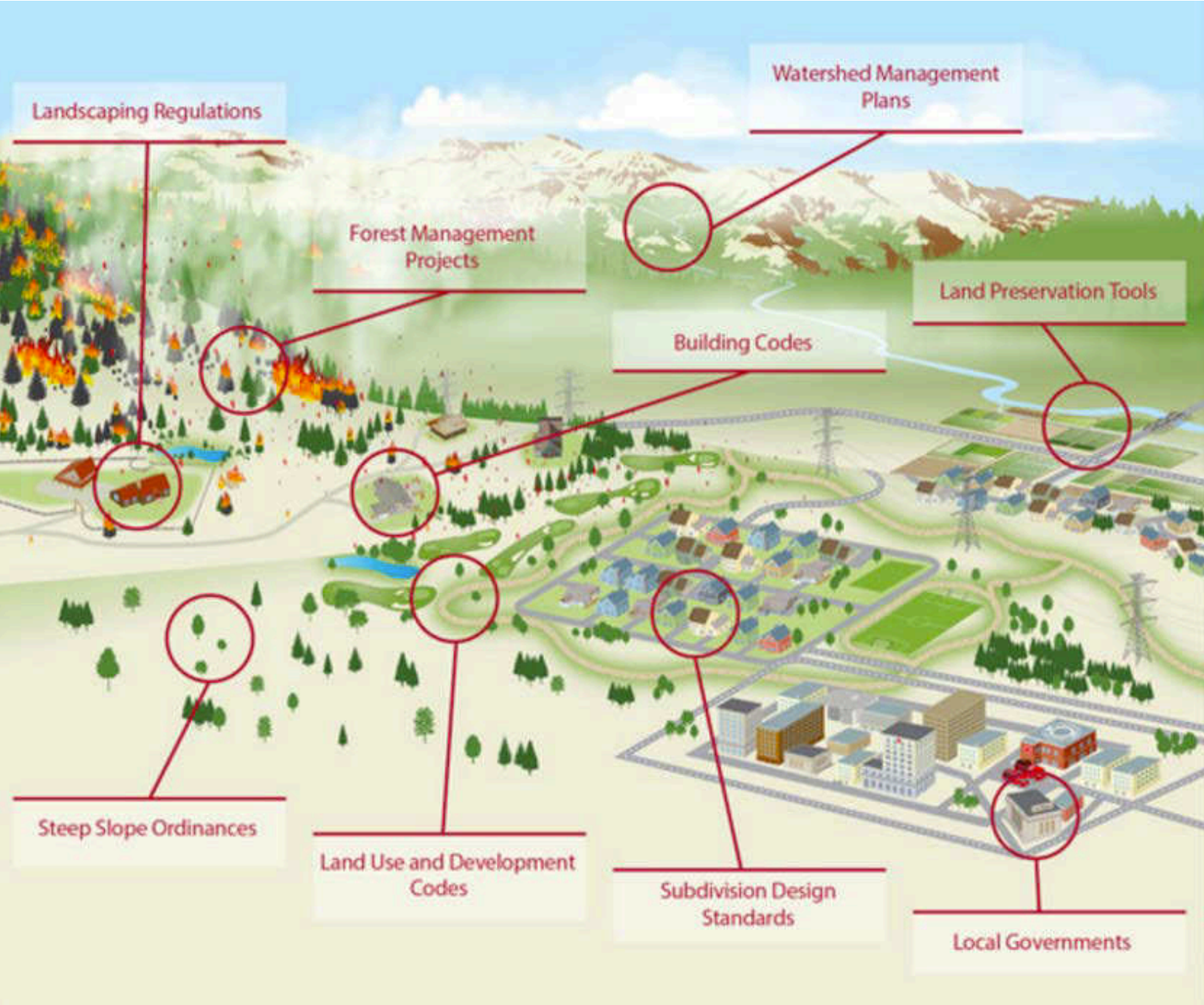
- **\$3 billion/ year** = average cost of fighting wildfire
- **100 million** = people in the WUI
- **44 million** = homes in the WUI
- **68,151** = wildfires in 2015
- **10.1 million** = acres burned in 2015
- **2.5** = degrees F increase since 1970

Do we have a problem?

Tackling the wildland-urban interface

- Community Wildfire Protection Plans
- Local property assessment programs
- Voluntary education and outreach efforts
 - Firewise Communities/USA
 - Ready, Set, Go!
- Fuel treatment and mitigation activities
- **Planning and development codes?**







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Wildfire Planning International

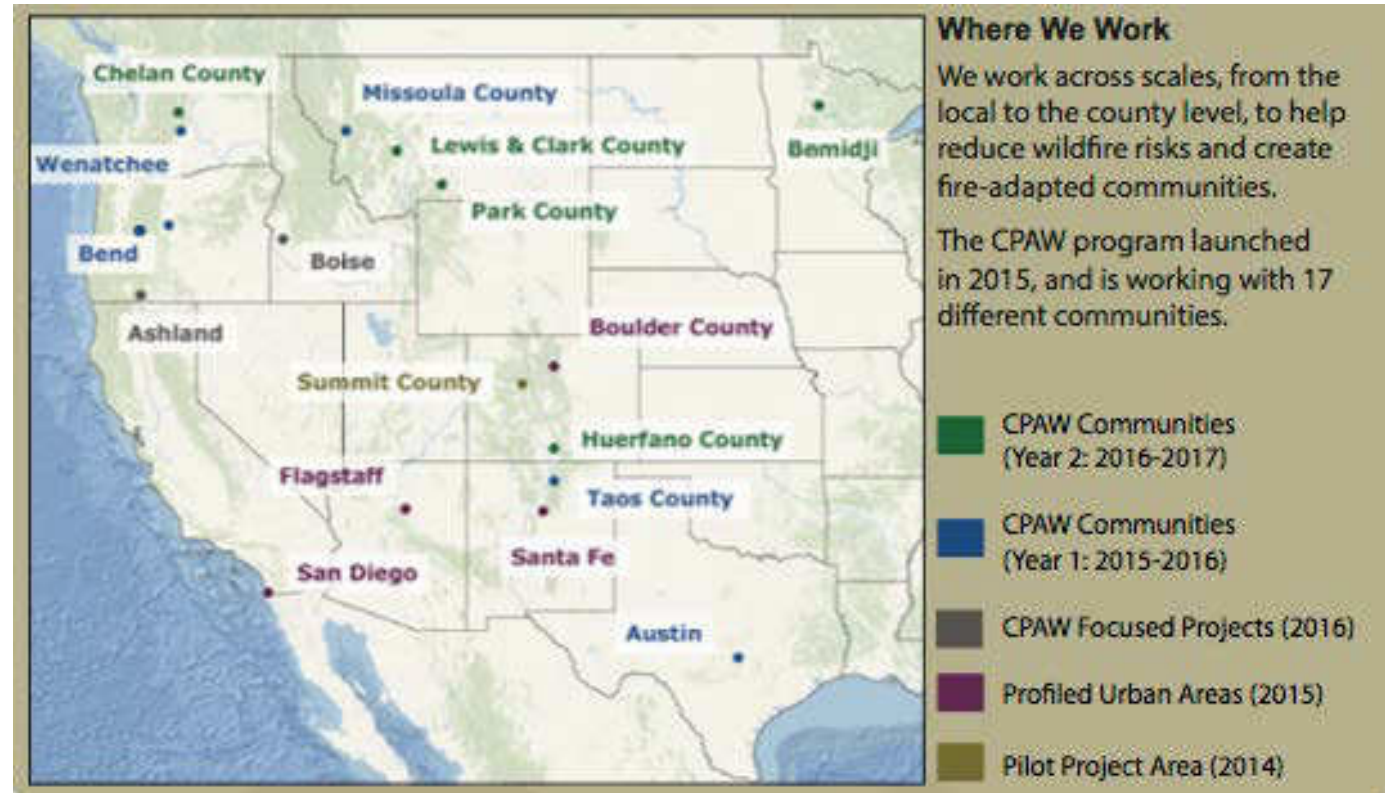
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Community Planning Assistance for Wildfire

- Land use planning
- Capacity building
- Fire risk mapping
- Knowledge sharing





Community Planning Assistance for Wildfire

Recommendations:

- Plans (Comprehensive plan – goals and policies)
- Regulations (Wildland-urban interface code, development standards)
- Risk identification and risk mapping
- Community Wildfire Protection Plan (implementation guidance, linkages)
- Incorporation of wildland fire management objectives

www.planningforwildfire.org