

Regulating the Wildland Urban Interface

How Municipalities can Help Curb
the Megafire Epidemic

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RMLUI Land Use Conference
March 1, 2012 Denver, CO

Colorado Wildfire Background

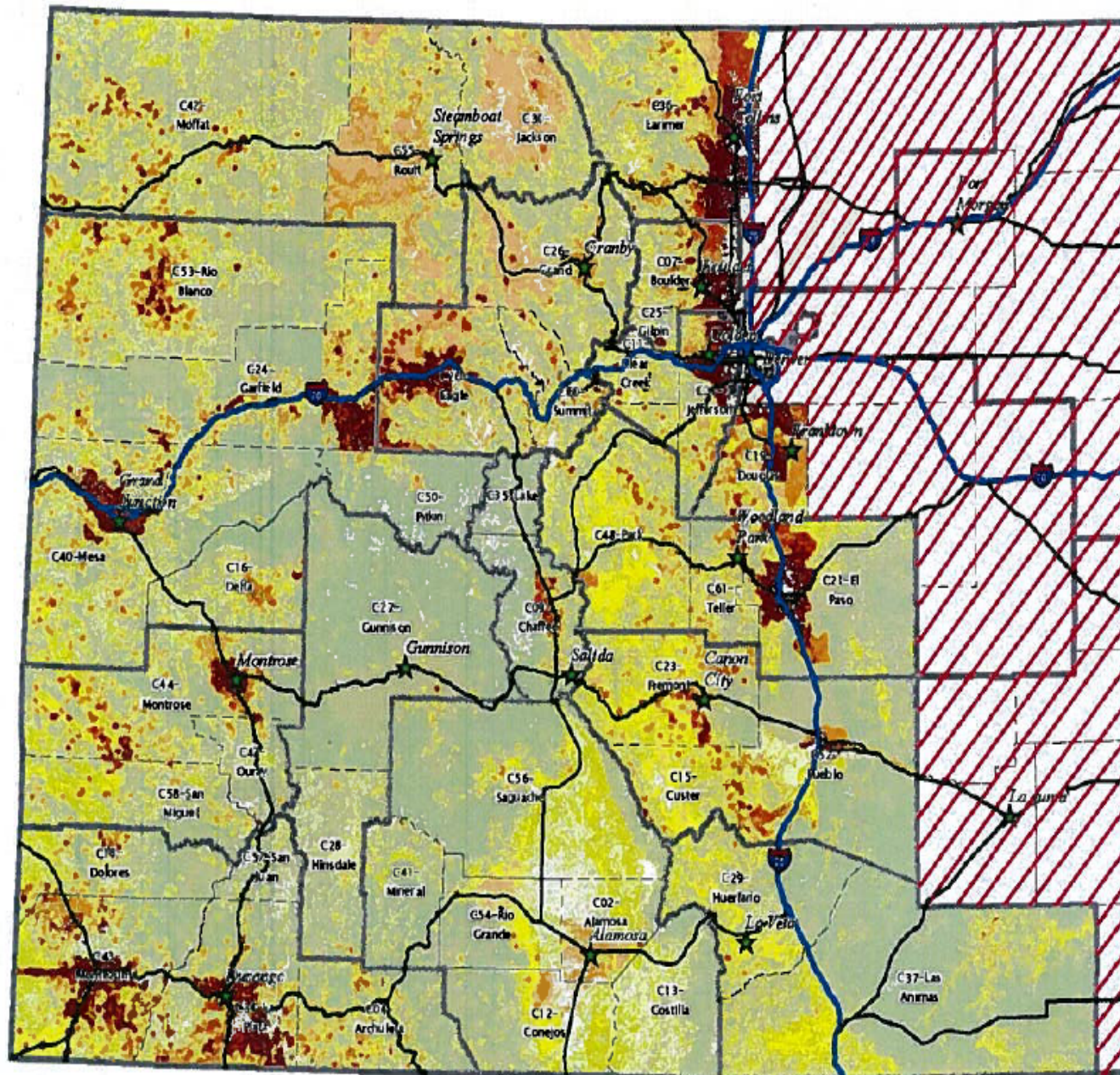
- Last two major fires in Colorado
 - Fourmile Canyon Fire 2010
 - Burned 6,181 acres near Boulder
 - Destroyed more homes than any other wildfire in CO
 - Hayman Fire 2002
 - Burned 137,759 acres south of Denver
- Over one hundred years of suppression of natural fire burning cycles
- Decade or more of droughts, pine bark beetle kill, and abundant fuel = megafires

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Colorado Wildfire Risk Assessment 2008

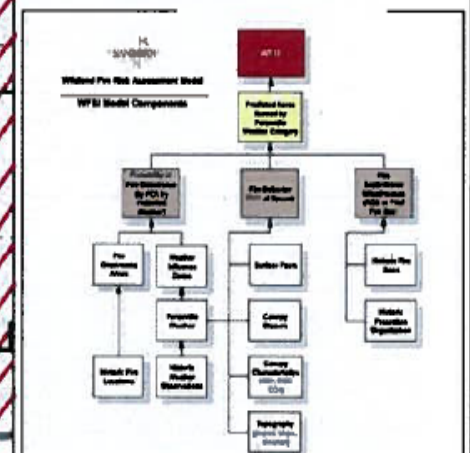


WFSI

- 0 (non-burnable)
- 0 - 0.0002 (very low)
- 0.0003 - 0.0008 (very low)
- 0.0009 - 0.001 (low)
- 0.0011 - 0.0016 (low)
- 0.0017 - 0.0023 (moderate)
- 0.0024 - 0.0041 (moderate)
- 0.0042 - 0.0089 (high)
- 0.0090 - 0.0185 (high)
- 0.0186 - 1 (very high)

- Counties
- CSFS District Office
- Interstates
- US Highway
- District Boundary

Area not Assessed



WFSI data created by Sanborn Map Company for the Colorado State Forest Service June, 2008

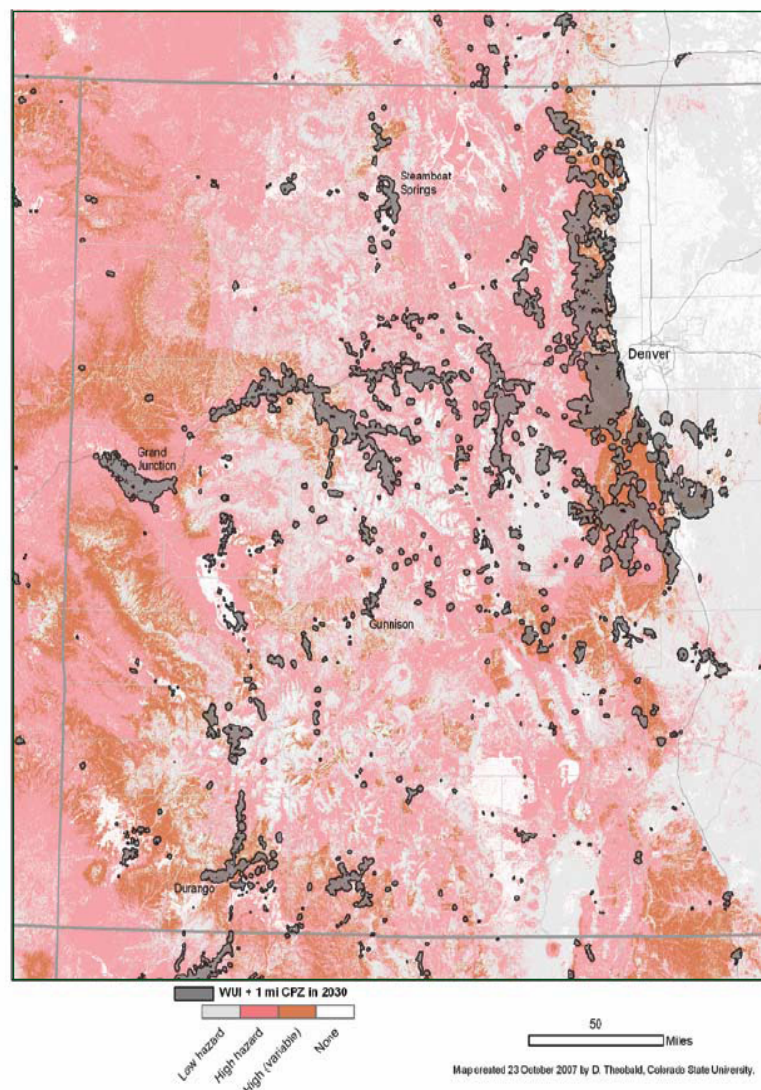
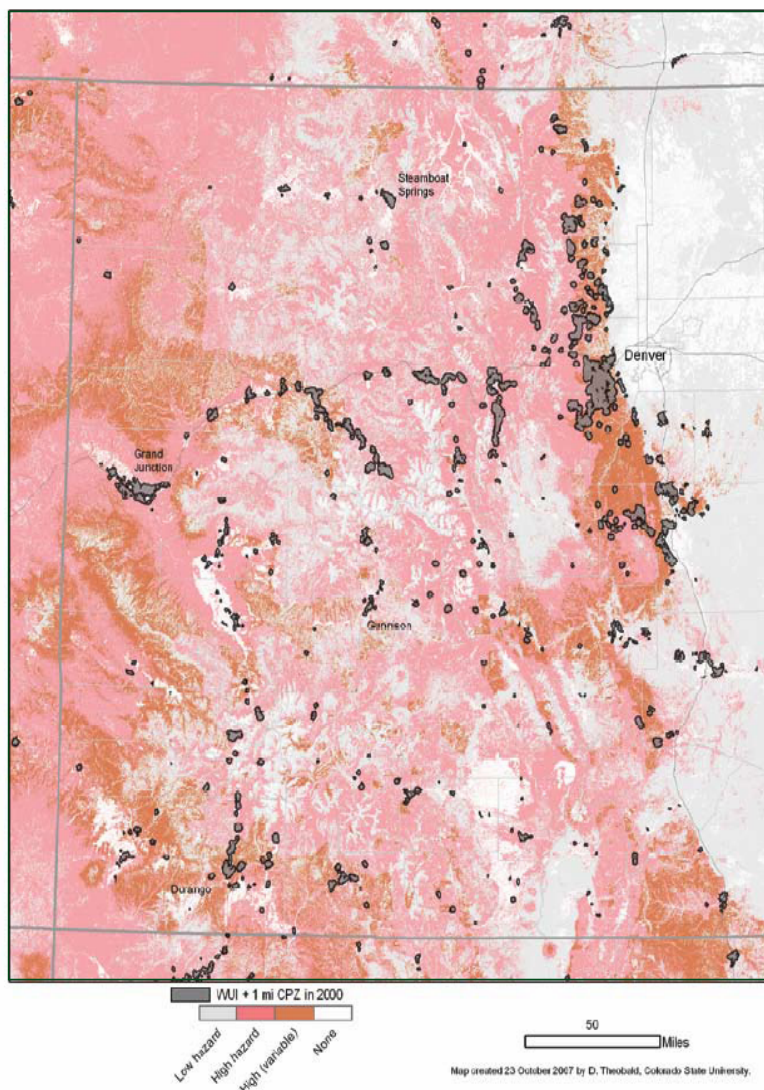


0 25 50 100 150 Miles

Colorado's Wildland-Urban Interface, Current and Projected

Development of natural areas, as is occurring in Colorado, increases demand for and costs of wildfire protection. A Colorado State University analysis (D. Theobald and W. Romme, 2007) projects that the state's wildland-urban interface (WUI) areas will increase from 715,500 acres

in 2000 to 2,161,400 acres in 2030, a 300-percent increase. These maps depict Colorado's WUI in 2000 (left) and the likely expansion of WUI in 2030 based on housing development forecasts (right).



Definitions

WUI is the wildland-urban interface. It is the area where homes and urban sprawl press against the wildland, and includes both interface and intermix communities.

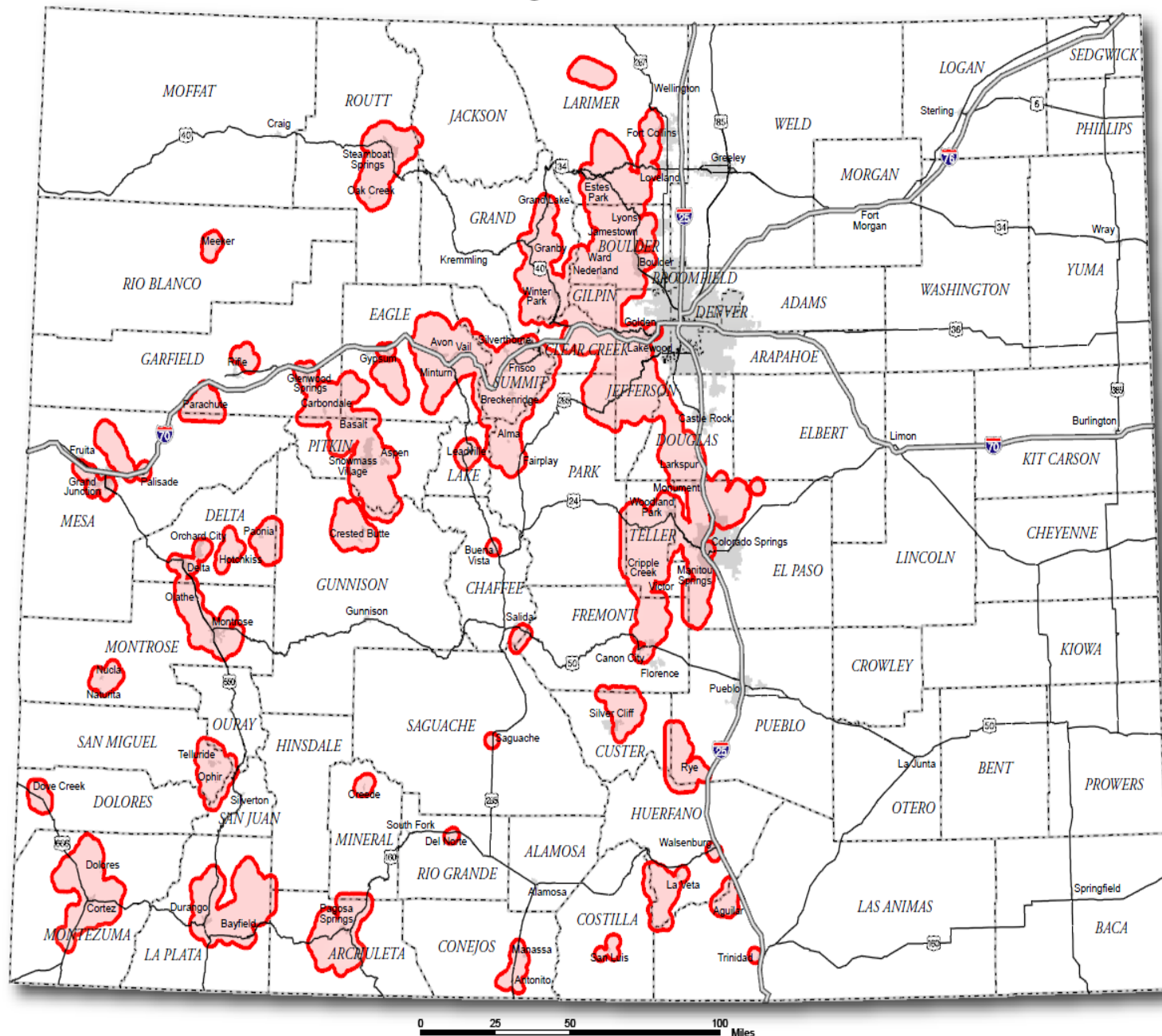
CPZ is the community protection zone surrounding the WUI. The analysis shows that there were more than 300,000 homes in the CPZ in 2000, and more than 720,000 homes are projected for 2030.

Low hazard means that most fires burn at relatively low intensity through surface fuels, with little potential for spread into tree or shrub crowns, and would be relatively easy to contain or suppress.

High hazard means that many or most fires burn at high intensity, often through crowns, and would be difficult to contain or suppress.

High (variable) applies to vegetation types in which fires historically were of low or variable intensity, but recently have often burned at high intensity due to a century of fire exclusion, e.g., southwestern ponderosa pine forests.

Interface Areas of High Wildfire Risk in Colorado



Red Zone Population:
748,350 (1990 Census)
979,851 (2000 Census)

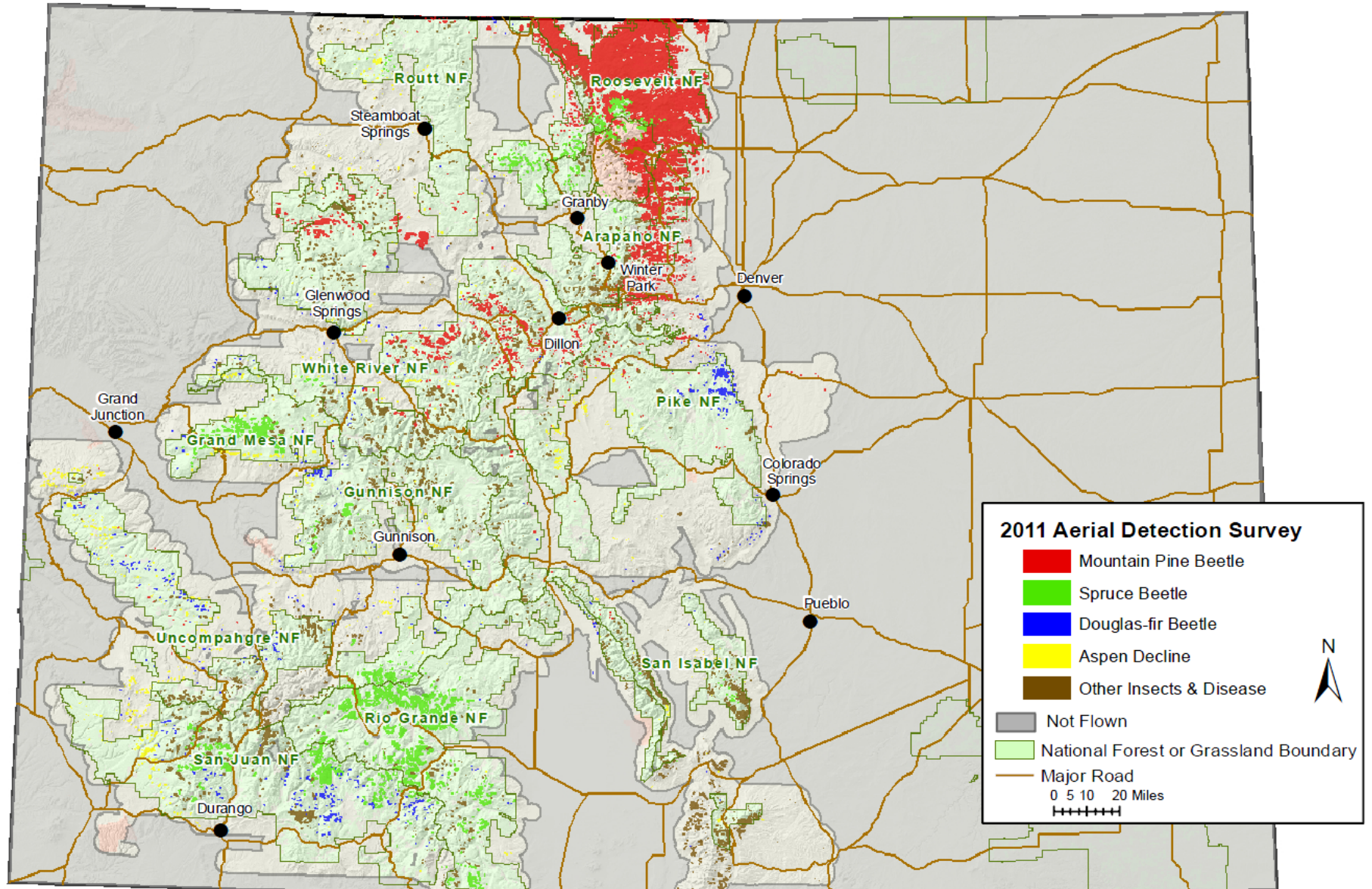
Homes in Red Zone:
370,000 (1990 Census)
474,000 (2000 Census)

Red Zone Acres:
6,300,000 (2000)



Map Created September 2004
Colorado State Forest Service

2011 Aerial Detection Survey



Due to the nature of aerial surveys, the data on this map will only provide rough estimates of location, intensity and the resulting trend information for agents detectable from the air. Many of the most destructive diseases are not represented on this map because these agents are not detectable from aerial surveys. The data presented on this map should only be used as a partial indicator of insect and disease activity, and should be validated on the ground for actual location and causal agent. Shaded areas show locations where tree mortality or defoliation were apparent from the air. Intensity of damage is variable and not all trees in shaded areas are dead or defoliated.

Costs of Wildfires in Colorado

- Direct costs
 - Suppression
 - Damage to utility lines
 - Emergency aid to impacted residents
 - Insurance
- Insurance Claims From Recent Colorado Fire
 - The Fourmile Canyon Fire in 2010 resulted in \$217 million in insurance claims
 - The Hayman Fire in 2002 resulted in \$46.1 million (in 2010 dollars)

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Additional Wildfire Costs

- Rehabilitation costs
 - Restoration of burned areas
- Indirect costs
 - Watershed and ecosystem damage
 - Lost sales and use tax revenues
 - Business and property losses
- Special Costs
 - Loss of life
 - Health care costs such as respiratory issues, mental health

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Hazard Mitigation

- Active management of the wildland urban interface to reduce overall costs and risks
- Identifying high risk areas
- Working with private landowners
 - Fuel reduction
 - Prescribed burns
 - Defensible space
 - Emergency access
- “Carrots” versus “sticks”
 - Land use regulations
 - Funding

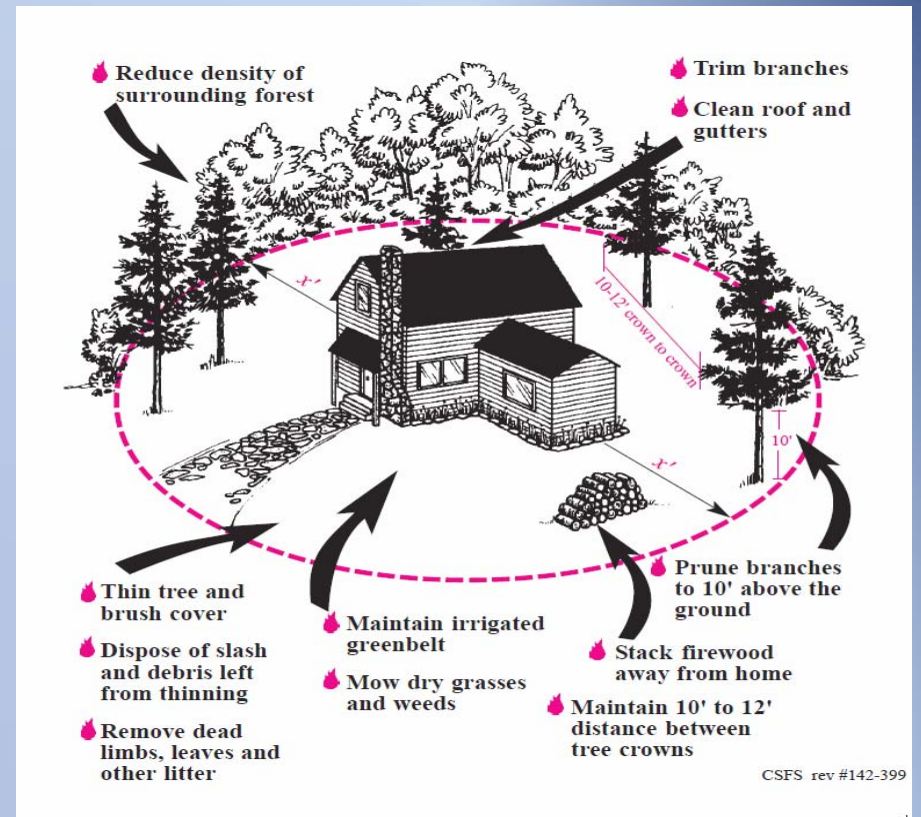


Diagram from Colorado State Forest Service

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Innovative Local Municipal Responses

- Overlay zones
- Fire Safety Ratings
- Building regulations
- Defensible space requirements
- Wildfire Mitigation Plans

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Boulder County Wildfire Regulations

- Development Standards
 - Proposals shall be reviewed by fire protection experts as a part of the development review process
 - Mitigation of wildfire hazards is required in fire hazard areas
- Zoning
 - All applications for new construction in fire hazard areas are required to submit a Wildfire Mitigation Plan
 - Site Plans must contain wildfire mitigation for both the subject property and neighboring properties

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Eagle County Wildfire Regulations

- Applications for PUDs, Special Use Permits and Subdivisions must:
 - Submit Vegetation Management Plans with sketch plans and preliminary plans
 - Plans are referred for comment to CSFS
 - CSFS recommendations are included as conditions to approval of applications
- Minimum design and construction standards for all new construction in unincorporated territories
 - Level of hazard mitigation depends on rating of wildfire hazard

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Ouray County Wildfire Regulations

- Apply to PUDs, new residential construction, and additions adding 50% or more square footage
- Each receives a Fire Safety Rating and must meet minimum safety points in each rating
- Each PUD must provide: an assessment of the location, emergency access, water supply, and covenants to allow building to minimum points in fire safety rating
- Residences must have emergency access, water supply and meet minimum points for fire safety rating

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Wildfire Overlay Zones

- Douglas County
 - Overlay zone applies to areas on Douglas County Wildfire Hazard-Overlay Map and areas field-verified as wildfire hazard
 - Applies to all building permits, subdivisions, site improvement plans, developments 35 acres or larger, special review uses, rezoning
 - Construction must meet wildfire mitigation standards
- Jefferson County
 - No building permits issued for new construction, replacement of existing home, or additions 400 square feet or more without written evidence demonstrating creation of defensible space and fuel thinning or wildfire mitigation plan and emergency access

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Building Regulations

- Larimer County has minimum design standards for construction in wildfire hazard area
- Applies to:
 - New Construction
 - Additions equal or greater than 50% of the total square footage of the original structure
- Must be fire resistive construction
 - One hour fire resistive shell
 - Exterior siding must have flame spread classification of Class II or better
- Defensible space
- All requirements must be met in order to receive a certificate of occupancy

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Other Municipal Examples

- Town of Breckenridge
 - Requirements for defensible space around new construction or major remodels
 - Voluntary creation of defensible space around existing homes
- Town of Vail
 - Use of noncombustible building materials and designs to reduce wildfire spread is encouraged (Note: not required)
 - Class A roof assemblies required; no wood, shake, wood shingles, or rolled roofing
 - Inspections for beetle infested trees or wildfire fuels on private property

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Community Wildfire Protection Plans

- Part of the federal Healthy Forests Restoration Act of 2003 and state Healthy Forests Vibrant Communities Act of 2009
- Collaboration of a variety of stakeholders in the community
 - Local government, communities, law enforcement, Colorado State Forest Service collaboration
- Communities as small as HOAs as large as counties
- Analysis of the wildfire risk and hazard, basis for mitigation efforts
- State funds available for those communities that prepare plans

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Grants

- Summit County awards grants to eligible homeowner groups under a Hazardous Fuels Reduction Grant Program
 - In 2011 \$247,000 was awarded, over 800 acres was treated

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Tax Incentives for Homeowners

- C.R.S. §39-22-104(4)(n) allows landowners to subtract 50% of the costs incurred in performing wildfire mitigation measures from federal taxable income
 - Work must be performed in the years 2009-2013
 - Creating and maintaining defensible space
 - Reducing fuel
 - Maximum credit is \$2,500

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Summary Remarks

- Wildfire risk is high due to interruption of natural fire cycles, drought, and the pine bark beetle infestation
- Municipalities have a variety of land use options to address wildfires
 - Building regulations
 - Overlay zones
 - Defensible space requirements
 - Grant programs
 - Community wildfire protection plans

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Resources and More Information

- Colorado State Forest Service - <http://csfs.colostate.edu/>
- Firewise - <http://www.firewise.org/>
- National Database of State and Local Wildfire Hazard Mitigation Programs - <http://www.wildfireprograms.usda.gov/>
- Boulder County - <http://www.bouldercounty.org/live/environment/land/pages/wildfiremitigation.aspx>
- Eagle County - <http://www.eaglecounty.us/Building/Wildfire/Overview/>
- Douglas County - <http://www.douglas.co.us/building/wildfire/index.html>
- Larimer County - <http://www.co.larimer.co.us/wildfire/>
- Ouray County - <http://ouraycountyco.gov/>

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