



The Fireshed Registry: Prioritizing forest and fuel management investments to reduce wildfire risk to developed areas

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Overview

Recent extreme wildfire seasons in the US have rekindled policy debates about the underlying drivers and potential role of forest management can play in reducing fuels and future wildfire impacts to developed areas. However, detailed assessments that map and schedule the type and amount of treatments needed and the associated cost are not available for US national forests (i.e. a plan), thereby making policy discussions about investments difficult. To fill this gap, we developed two interlinked decision support systems, the Fireshed Registry and the Scenario Investment Planning Platform. This briefing paper describes the former, while a companion paper describes the latter.

The Fireshed Registry is a geospatial dashboard and decision tool built in ArcGIS online. It provides an interactive system to view a wide array of information about firesheds (see below) and monitor progress towards risk reduction from management investments. The Fireshed Registry is the geospatial data warehouse for the Forest Service Scenario Planning Platform. The system integrates available data into a series of panels that address specific question related to risk to developed areas. While the Fireshed Registry was organized around fire risk to developed areas, the framework does not preclude integrated assessment of other resource management priorities such as protecting water, wildlife habitat, and recreation opportunity. The all lands geography of the fireshed registry makes it a useful platform for shared stewardship as well.

The vision for the Fireshed Registry is to create a living atlas of the recent past, present, and potential future forest conditions - weaving together many different spatial data to provide a time slice of land conditions, recent wildfire activity, predicted wildfires, exposure to communities, and treatment scenarios derived from 5-year action plans and the Scenario Investment Planning Platform.



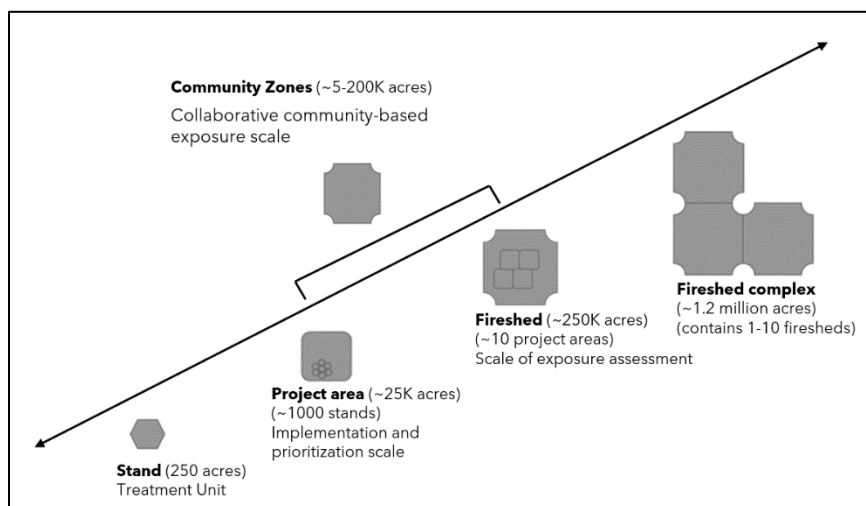
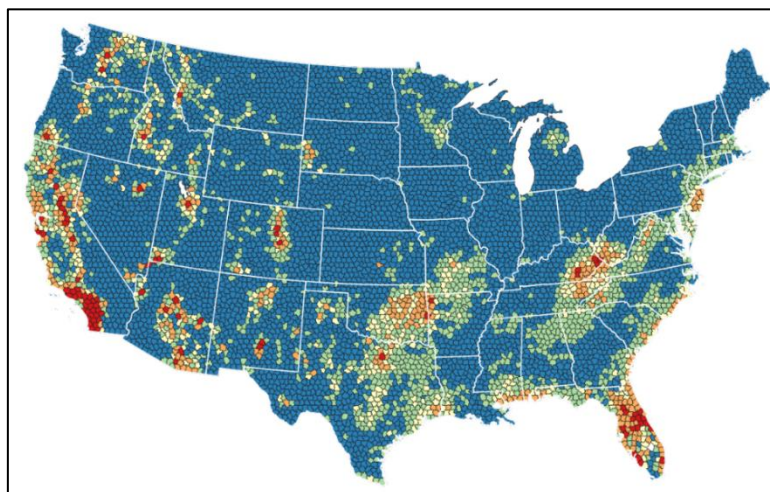
The Fireshed Registry is a unique approach to bring together a time window of information - past, present, and predicted future - to describe risk trajectories on lands where destructive wildfires are likely to originate:



What are Firesheds?

Firesheds are containers built around hotspots of wildfire transmission to communities. The average around 250,000 acres in size and contain ~25,000-acre planning areas within them. There build to organize landscapes around risk to developed areas.

National map of 7,688 firesheds created from wildfire transmission data. The fireshed boundaries were created with a process that delineates hotspots of fire transmission.



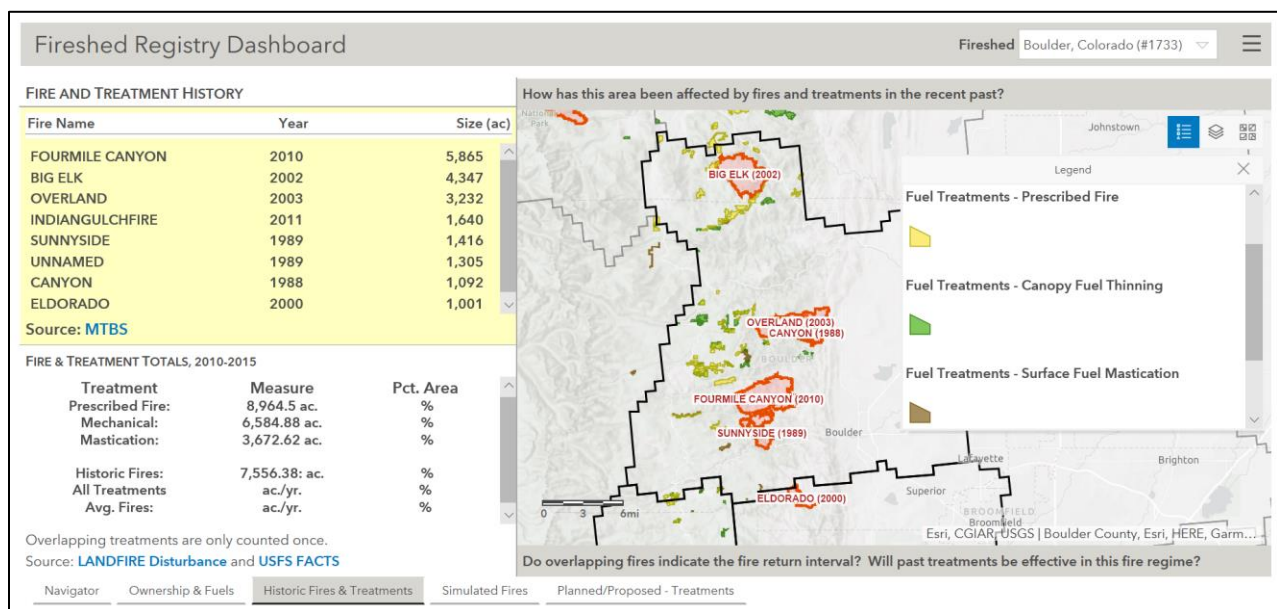
The Fireshed Registry uses a multiscale planning framework organized around wildfire risk to communities. Finer-scale polygons are nested within a coarser scale and range from stands, project areas, firesheds, and fireshed complexes.

Data in the Fireshed Registry

The ArcGIS online Fireshed Registry provides an interactive system to view information on:

- Context (Ownership, Fuels, and Buildings)
- History (Fires and Treatments)
- Projected wildfire risk (Simulated extreme fire events)
- Planned future treatments (5-year action plans)
- Outputs from scenario planning models
- Predicted community exposure to wildfire

The images below are screenshots of the Fireshed Registry showing ownership, fuels, and buildings (top) and historic fires and past fuel treatments (bottom).





Current Applications

The Fireshed Registry is being used in several ongoing efforts as a tool to help prioritize investments in lands that are predicted to be problem areas in terms of spreading wildfires to developed areas. The concepts and framework have the potential for wider application and integration with other assessments and models.

During FY20, data in the Fireshed Registry contributed to various prioritization efforts and related assessments including:

1. USDA Forest Service National Investment Strategy for Reducing Fire Risk
2. Response to Executive Order 13855 *Promoting Active Management of America's Forests, Rangelands, and Other Federal Lands to Improve Conditions and Reduce Wildfire Risk*
3. FY21 Hazardous fuels allocation
4. Development of Shared Stewardship performance metrics
5. Draft charter for an integrated Scenario Investment Planning Platform for Shared Stewardship investments
6. Prioritization of USDA Forest Service and NRCS Joint Chiefs' Restoration Partnership Projects
7. Collaborative Forest Landscape Restoration Projects (CFLRP)

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