



# Communities at Risk from Wildfire: How Much Is on Federal Land?

## Key points:

- The Community Protection Zone (CPZ) can be mapped using computer technology.
- The CPZ is vast, but very little is federal land.
- Many communities at risk are in the East.
- Policies aimed at national forests will not protect communities.

In the summer of 2002, the nation was captivated by severe forest fires across the West that burned over 600 structures. As residential development continues to expand into fire-prone forests, the cost of suppressing fire in and around these growing communities is increasing.

To address the public's concern about fire and the spiraling cost of fire management, the Western Governors' Association (WGA) oversaw the production of a 10-year Comprehensive Strategy that placed priority on community protection. The Strategy emphasizes fuel reduction and other treatments in the wildland-urban interface (also called Community Protection Zone [CPZ]) where the risk to homes from wildfires is greatest. While the CPZ is commonly recognized as the first priority for fuel treatment, the CPZ has not been quantified and mapped across the landscape. We conducted an analysis to determine the extent of the CPZ and who owns what where.

The Community Protection Zone can be mapped using computer technology.

On August 17, 2001 Secretary of Interior Norton and Secretary of Agriculture Veneman posted a list of "Communities at Risk" in the *Federal Register*. This list represents communities in the vicinity of federal lands that each state identified as being at risk from wildfire.<sup>1</sup> From this list, the USGS Rocky Mountain Mapping Center created a digital map of points across the country representing the communities at risk.

Using the map of individual points across the landscape, we needed to convert the points to the geographic extent of the communities on the ground. To accomplish this, we employed a satellite classification of land cover to identify low density residential, high density residential, and commercial/industrial land cover classes from the USGS National Land Cover Dataset.<sup>2</sup> The resulting map depicts the physical "urban footprint" that identifies built-up areas as small as 30-meter squares.

For each designated community at risk that appeared in the land cover data as an urban footprint, we expanded the urban footprint by a 1/2-mile "buffer" to identify the CPZ. For communities at risk for which no urban footprint could be identified, a point was buffered by 1/2 mile, creating a circle of CPZ one mile

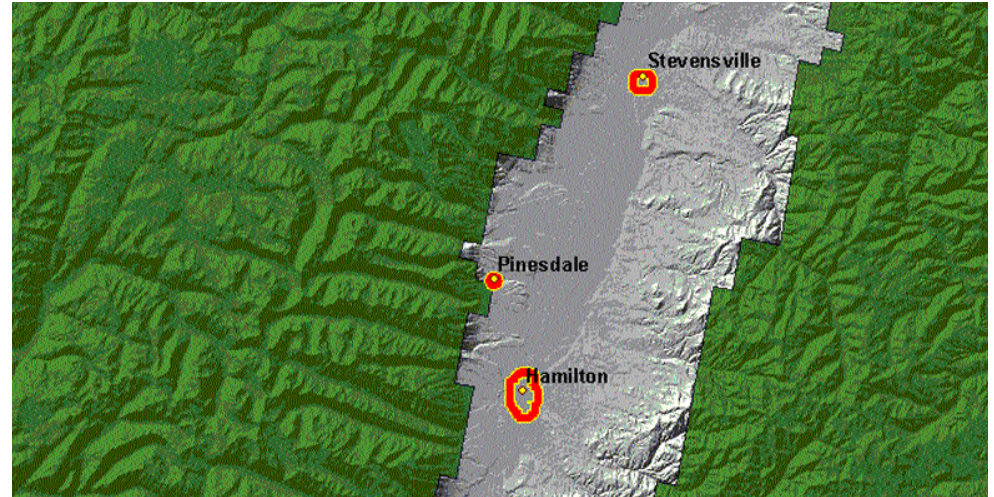
<sup>1</sup> For more information regarding this list of communities at risk, see [http://www.fireplan.gov/community\\_papers.cfm](http://www.fireplan.gov/community_papers.cfm). It should be noted that the official list of "Communities at Risk" reflects only those communities that are "in proximity" to federal lands and identified by the Secretaries. When all communities at risk are considered across the country, the task of protecting communities from fire grows much larger.

<sup>2</sup> See <http://edc.usgs.gov/products/landcover/nlcd.html>

FIGURE 1.

**Community Protection Zone Overlap**

This map of the Bitterroot Valley in Montana illustrates the extent of the CPZ for three rural towns and their overlap with the Bitterroot National Forest (dark green).



in diameter centered on that point. We selected a 1/2-mile buffer to map the CPZ because this distance represents a commonly recognized defensible zone for aggressive fuel treatment. Though only a rough approximation, this method allowed us to map the CPZ across the conterminous United States, based on the best available data and the list of communities at risk in the *Federal Register*.

To calculate the amount of overlap between federal lands with the CPZ, we overlaid the map of the CPZ and a map of federal lands from USGS' National Atlas<sup>3</sup> (see Fig. 1).

**The Community Protection Zone is vast, but very little is federal land.**

We determined that there are over 11 million acres of CPZ associated with the list of communities at risk (Table 1).

The results of the overlay analysis indicate that the vast majority of this area is situated on private, state, or tribal land (85.12%). Only 9.32% of the CPZ is situated on Forest Service land (Table 1).

**Many communities at risk are in the East.**

While wildfire risk to communities is often thought of as a problem in western forests, our analysis shows that the issue affects eastern states as well. Figure 2

**TABLE 1.**  
**CPZ on various ownerships across the conterminous United States**

Ownership	Acreage	Percent of CPZ
<b>Private/state/tribal</b>	<b>10,029,299</b>	<b>85.12</b>
Bureau of Land Management	182,763	1.55
Department of Defense	236,090	2.00
U.S. Fish and Wildlife Service	63,622	0.54
<b>USDA Forest Service</b>	<b>1,097,785</b>	<b>9.32</b>
National Park Service	134,618	1.14
Other federal land	37,917	0.32
<b>Total</b>	<b>11,782,095</b>	<b>100</b>

<sup>3</sup> See [www.nationalatlas.gov](http://www.nationalatlas.gov)

and Table 2 show that several eastern states rank among the top in terms of CPZ associated with communities identified in the *Federal Register*.

**Conclusion: Policies aimed at national forests will not protect communities.**

The results of this analysis suggest that most of the Community Protection Zone is on private, state, or tribal land, not on federal land. With resources limited and over 11 million acres of CPZ across the lower 48 states, efforts to protect communities through fuel reduction must be targeted at the private landscape where the prob-

FIGURE 2.

**Acreege of the CPZ within each state**

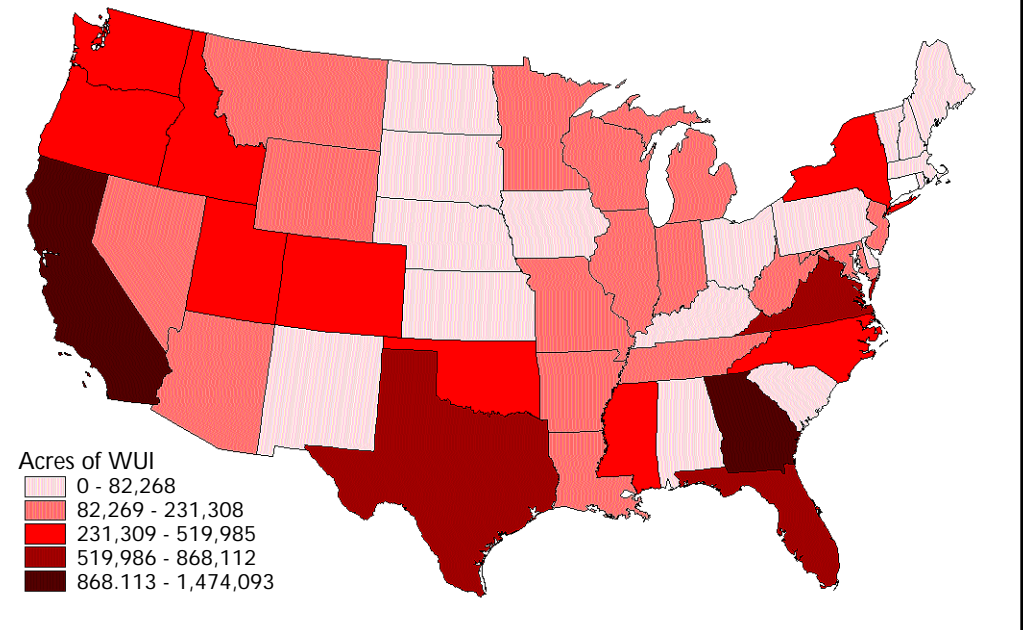


TABLE 2.

**States ranked by acreage of CPZ.**

STATE	CPZ ACRES	% OF TOTAL CPZ	STATE	CPZ ACRES	% OF TOTAL CPZ
California	1,474,092	12.95	Wyoming	114,856	1.01
Georgia	1,364,119	11.98	Missouri	98,874	0.87
Texas	868,126	7.63	Michigan	98,802	0.87
Virginia	758,115	6.66	Arizona	98,771	0.87
Florida	698,229	6.13	Maryland	87,800	0.77
North Carolina	519,983	4.57	South Dakota	82,267	0.72
Oklahoma	488,390	4.29	Kansas	75,702	0.66
Idaho	382,411	3.36	South Carolina	62,431	0.55
Washington	356,848	3.13	Maine	60,788	0.53
Colorado	328,756	2.89	New Mexico	51,249	0.45
Oregon	319,834	2.81	Nebraska	50,121	0.44
Mississippi	316,853	2.78	Vermont	38,808	0.34
New York	286,523	2.52	New Hampshire	38,179	0.34
Utah	282,016	2.48	Ohio	37,274	0.33
Nevada	231,309	2.03	Iowa	36,630	0.32
Minnesota	202,674	1.78	Massachusetts	34,286	0.30
Tennessee	194,106	1.70	Alabama	32,514	0.29
Indiana	185,755	1.63	District of Columbia	10,174	0.09
Montana	172,422	1.51	North Dakota	9,817	0.09
Illinois	161,155	1.42	Rhode Island	6,283	0.06
Arkansas	155,576	1.37	Kentucky	5,683	0.05
Louisiana	143,780	1.26	Pennsylvania	4,160	0.04
New Jersey	122,611	1.08	Delaware	1,391	0.01
Wisconsin	118,658	1.04	<b>Total</b>	<b>11,384,696</b>	<b>100.00</b>
West Virginia	115,493	1.01			

lem is most acute. Because only 9.32% of the CPZ is on Forest Service land, increasing logging on national forests will achieve little in terms of community protection. Instead, policies are needed

that get federal money to local communities, where the money can be spent on planning and implementing locally based, collaborative community protection strategies.