

The 1993 Southern California Fires

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Southern California suffered another disastrous series of fires in October and November, 1993. The fires started on 26 October under severe Santa Ana Wind conditions, some by arson and other accidentally. Preliminary data indicate that a total of 21 fires covered 197,225 acres (almost 84,000 ha) injuring 162 people and killing three. The fires destroyed 1241 structures, and damage was preliminarily estimated to be \$500 million, although that figure could rise as damage is further assessed and the aftermath of heavy rains, mudslides, and floods after the fires takes its toll.

The fires were in six southern California counties - Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura. Total acreage and structure loss by county is:

County	Number of Fires	Area Burned (ha)	Structures Destroyed
Los Angeles	3	9,996	562
Orange	2	7,034	368
Riverside	6	24,955	188
San Bernardino	2	1,914	5
San Diego	5	9,084	43
Ventura	3	26,832	75

Data from California Office of Emergency Services

Although the immediate causes of the losses were arson and accidental fire starts, we must look at the long-term need for fuels management to reduce California's fire losses. Our data clearly indicate the need to modify both structures and vegetation. Between 1920 and 1989, California lost about 3,500 structures to wildfires. In the first 4 years of

the 1990s we have now lost almost 4,500 structures. Also, in the last 25 years we have seen the wildfire acreage just about double from ca.1 ha burned per 400 ha (ca.1,000 acres) protected to almost 2 ha. Loss of human lives has also increased dramatically.

A specific example of the need for structural and vegetation modification is the 1990 Santa Barbara "Paint" Fire. About 488 structures were lost and over 800 threatened. Analysis of 75 factors showed 21 to be statistically significant in whether or not a structure was lost. However, three factors were most significant. First, if any roofing other than wood shakes or shingles were on the structure, survival rose from 19% to 70%. Adding to this, if flammable vegetation were cleared beyond 30 feet (9 meters), structural survival rose from 15% to 90%, finally, both the other factors tend to make a structure more defensible, so that if anyone were present to defend the structure, the three factors then increased structure survival from 4% to 99%. This analysis is the subject of Ethan Foote's MS thesis, which should be completed in the near future.

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