



CoreLogic®



Wildfire Case Studies

- 2013 Yarnell Hill Fire ■ Arizona
- 2013 Black Forest Fire ■ Colorado
- 2013 Rim Fire ■ California

Recent wildfire trends have shown us that wildfire risk is a real and immediate threat to many homes in the western U.S. The number of homes exposed to the risk and the amount of damage realized each year will continue to increase. Preparing for and mitigating the hazard begins with understanding all of the essential, relevant conditions that contribute to residential wildfire risk exposure.

WILDFIRE CASE STUDIES METHODOLOGY

The following three case studies provide a high-level wildfire analysis by CoreLogic scientists of the Yarnell Hill Fire that devastated Arizona, the Black Forest Fire that damaged Colorado forest land, and the Rim Fire that blazed through California in 2013.

UNDERSTANDING WILDFIRE

A wildfire can be characterized as an uncontrolled fire that is fueled by naturally occurring vegetation. Not to be confused with a structure fire, a wildfire does not typically originate inside a home or building and tends to cover a much larger area than a standard residential fire. Burn patterns can be very unpredictable, and changes in direction and intensity can occur frequently and unexpectedly. Some wildfires can move very rapidly, such as the Las Conchas Fire in 2011 in New Mexico, which at one point was estimated to be burning an area the size of a football field every two seconds¹.

Wildfires occur throughout much of the U.S., but are considered a more common threat in the western states, as large expanses of wildland areas in the West contribute to the potential for large wildfires to propagate. Wildlands, as used in this context, are considered sparsely populated regions with little to no residential development. In many areas, wildlands contain a variety of natural vegetation with some areas represented by very dense forest or brush.

In contrast to other natural hazards, such as tornados, earthquakes and hurricanes, wildfires are unique in two distinct ways. First, they are not limited to natural environmental causes. Though wildfires can be ignited naturally, for example, if lightning strikes and ignites ground-level vegetation, fires can just as easily ignite as a result of human activities, either intentionally (arson) or unintentionally (accidental). Accidental sources of ignition are many and varied, and often include carelessly discarded cigarettes, sparks from power transmission lines or campfires.

CORELOGIC® WILDFIRE METHODOLOGY

CoreLogic identifies and defines wildfire risk in two forms. First, an analysis of fuel and terrain characteristics results in a relative rank that defines wildfire risk categorically. Properties are identified by one of the following risk categories: “Low,” “Moderate,” “High” or “Very High.” Two additional labels, “Urban” and “Agriculture,” are also used as separate categorical descriptions for the purpose of accurately delineating these two important land use areas. The second type of wildfire risk analysis, the Wildfire Risk Score, is presented as a comprehensive numeric score that ranges from 1-100. The Wildfire Risk Score combines the risk category with a distance measurement from each property to the nearest high-risk area located outside that property boundary.

¹ National Interagency Fire Center, 2013.

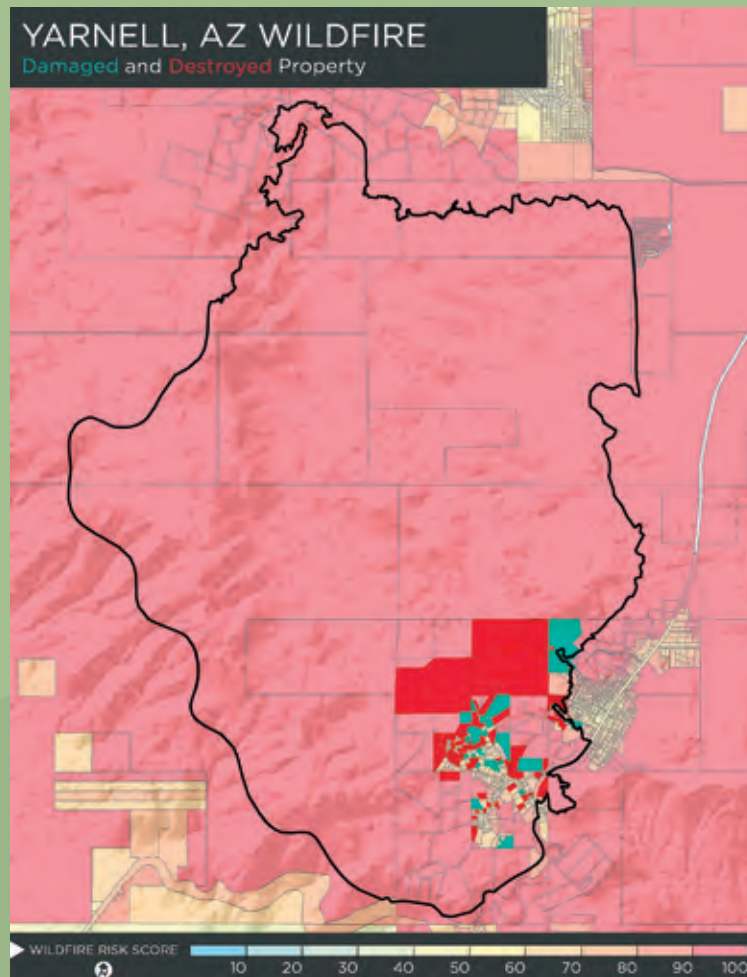
CASE STUDY

YARNELL HILL FIRE - ARIZONA, 2013

The Yarnell Hill Fire in Arizona will forever be remembered for its tragic loss of human life. Nineteen firefighters who were part of the Prescott Fire Department's interagency Granite Mountain Hotshots were killed while fighting the blaze². While wildfire discussion typically revolves around property and acreage loss, it is crucial to not overlook the risk thousands of people take on each year as they put themselves in harm's way to fight the fires, minimize damage and protect communities across the U.S. Fortunately, relatively few deaths occur, but as this single event indicates, all of those people who bravely work to prevent property loss from wildfires are putting their lives at risk.

Ignited by a lightning strike on June 28, the Yarnell Hill Fire was not fully contained until July 10th, burning approximately 8,400 acres and damaging or destroying 129 homes². Dense brush and scattered woodlots fueled the fire, and strong winds combined with high temperatures and continuing drought created optimal conditions for the blaze. As Image 1 indicates, 98 percent of the properties that were damaged or destroyed received a CoreLogic Wildfire Risk Score of 60 or higher. In addition, 71 percent of the properties that were destroyed or experienced damage from the fire had a score of 70 or above.

Image 1 - Yarnell Hill Fire: Properties Destroyed or Damaged



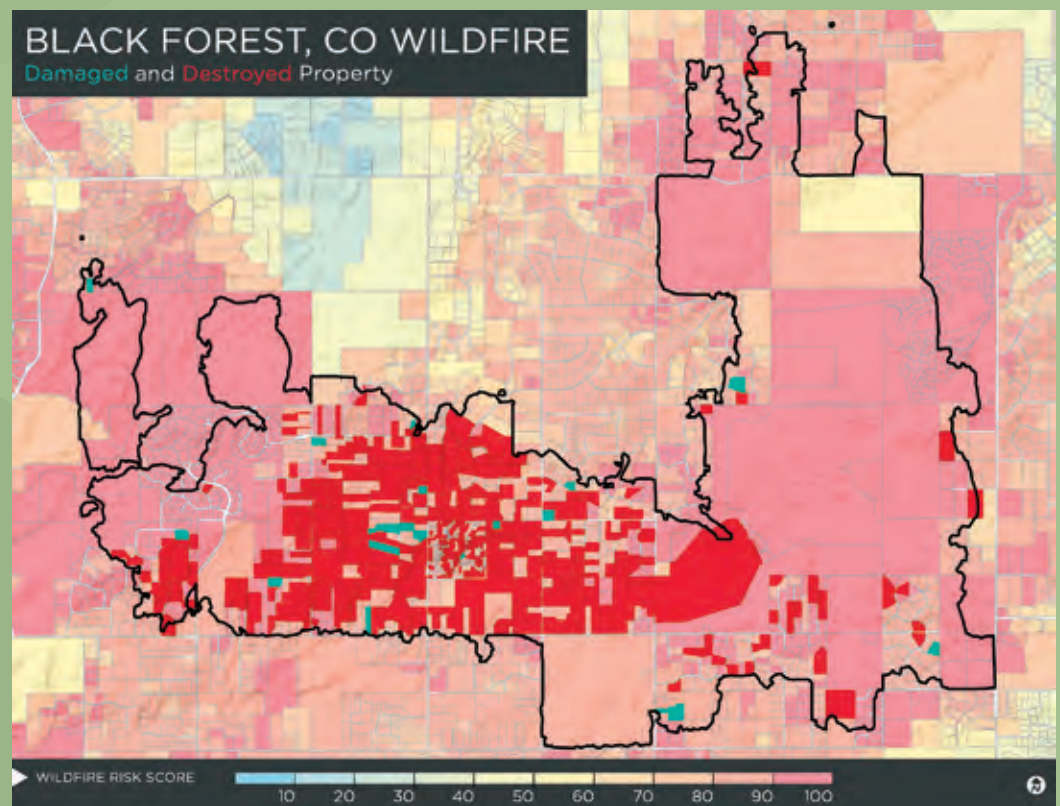
² Rocky Mountain Insurance Information Association, 2013.

CASE STUDY

BLACK FOREST FIRE – COLORADO, 2013

The Black Forest wildfire started on June 11 and was the subject of an investigation to determine if arson or accidental human-caused ignition was the source. Over the course of 10 days, the fire burned across 14,280 acres and caused the death of two people who were unable to evacuate in time. More than 350 firefighters were deployed to bring the fire under control and the total cost of fighting the blaze climbed to more than \$9 million at last estimate. The area consumed by the fire was predominantly conifer forest and is located in a part of Colorado that was and is still experiencing warm and dry conditions. Initial reports of damage indicate that at least 486 structures were destroyed³, and more than 3,600 insurance claims have been filed for a total damage amount of \$292 million. Based on CoreLogic wildfire risk evaluation, Image 2 illustrates the homes that were damaged or destroyed, along with the risk scores attributed to the surrounding properties. According to this analysis, all of the homes that were affected by the fire have a risk score of 78 or above, with 97 percent assigned a score of 81 or higher.

Image 2 – Black Forest Fire: Properties Damaged or Destroyed



Source: El Paso County damage data and CoreLogic, 2013.

³ Rocky Mountain Insurance Information Association, Catastrophe Facts & Statistics, 2012.

CASE STUDY

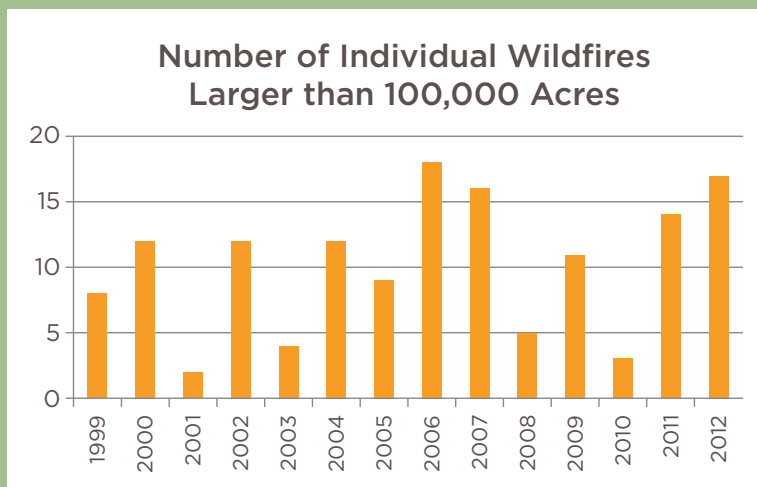
RIM FIRE – CALIFORNIA, 2013

The Rim Fire began on August 17 approximately 100 miles east of San Francisco in the Sierra Nevada Mountains near Tuolumne City, Calif. Although the ignition has been reported as something as innocuous as a campfire, the fire quickly grew, and as this report went to press, had become the third largest wildfire to ever occur in the state of California. Due to the location of this blaze, distant from a large metropolitan area and in a location with scattered residential development, the property damage incurred has been very limited. Although structure loss in the Rim Fire has been low, it has become the “poster child” for the future of western wildfires. According to the Director of National Parks, “wildfires the size of the Rim Fire can be expected throughout the West as climate change, drought and decades of fire suppression leave forests more vulnerable to catastrophic wildfires⁴.”

The fire burned through parts of the Stanislaus Forest and Yosemite National Park, consuming large tracts of conifer forest. More than 4,000 firefighters were brought in to fight the fire and worked diligently to divert the blaze from moving into several small communities, including Tuolumne City, Groveland, and Ponderosa Hills. The Rim Fire may do little damage to homes, but has had a larger impact in two other areas—the national water supply and tourism. The Rim Fire threatened the water supply collected in the Hetch Hetchy Reservoir which supplies the drinking water to the Bay area. It is unknown how much ash accumulation or contamination occurred or what the long-term problems may be from ash fallout. In addition to the potential water contamination issues, the fire burned several camping areas, affecting tourism. The area’s large tourism industry relies on visitors to Yosemite National Park and National Forest, and saw a reduction in visitors over the normally busy Labor Day weekend due to the fire.

In evaluating this fire, two things must be considered. First, this very large fire caused little property damage. The loss of natural and scenic areas was extensive, but the loss of dwellings and structures was minimal. However, if a fire of this size were to occur near a larger community, the loss of property could quickly run in to the hundreds of millions of dollars.

Figure 1: Number of wildfires larger than 100,000 acres in the U.S. since 1999 (NIFC, 2013).



Second, large wildfires are not infrequent (see Figure 1). Since 1999, there have been eight years in which 11 or more fires occurred that consumed at least 100,000 acres each. While 14 years is not enough data to validate a trend in large fire occurrence, it is important to note that four of the last seven years have seen the largest fires, with over 100,000 acres affected (NIFC, 2013). The confluence of large fires and potential changes to the climate are being discussed within the scientific community. In a recent *Los Angeles Times* interview, U.S. National Park Service Director Jon Jarvis, said about the Rim Fire, “It is a fire that’s demonstrating the challenges that we in the land-management business are facing with climate change. A legacy of fire suppression in these forests and,

recently, a reduction in our fire funding is all resulting in these huge fires that are incredibly difficult to control and very expensive⁴.” The Rim Fire burned 257,314 total acres of land, and is the biggest fire on record in the Sierra Nevada.

⁴ LA Times, “Yosemite fire: Battle continues through Labor Day weekend,” 9/1/2013.

Image 3 - Rim Fire progression

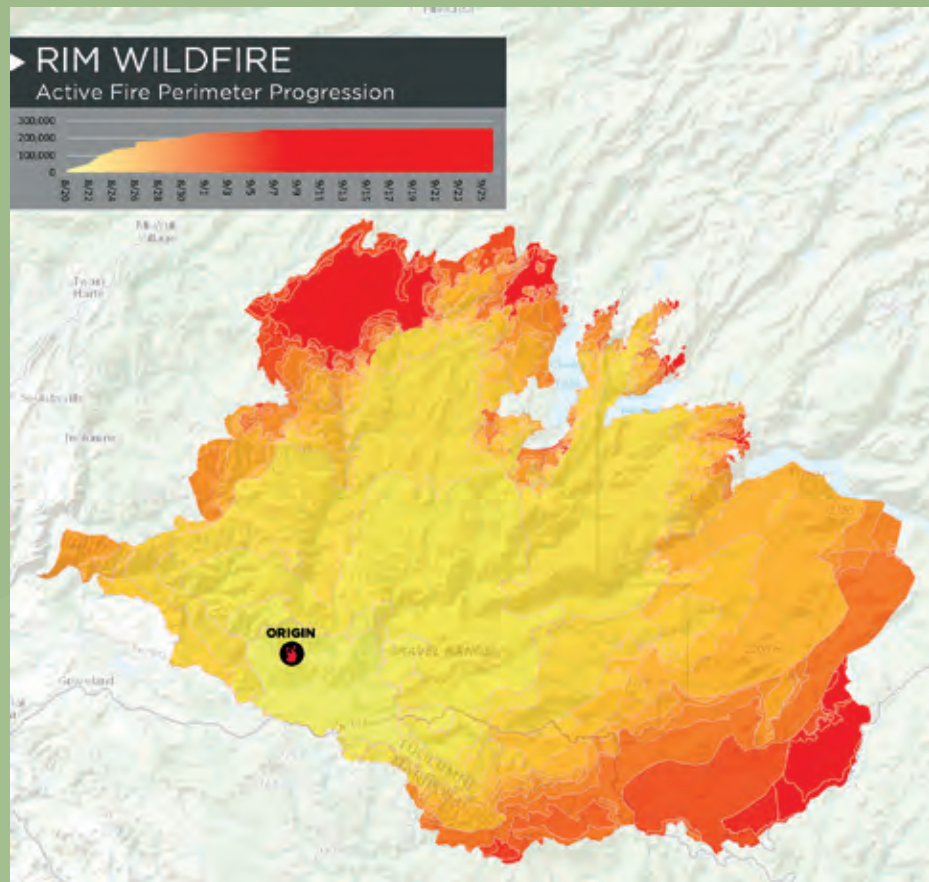
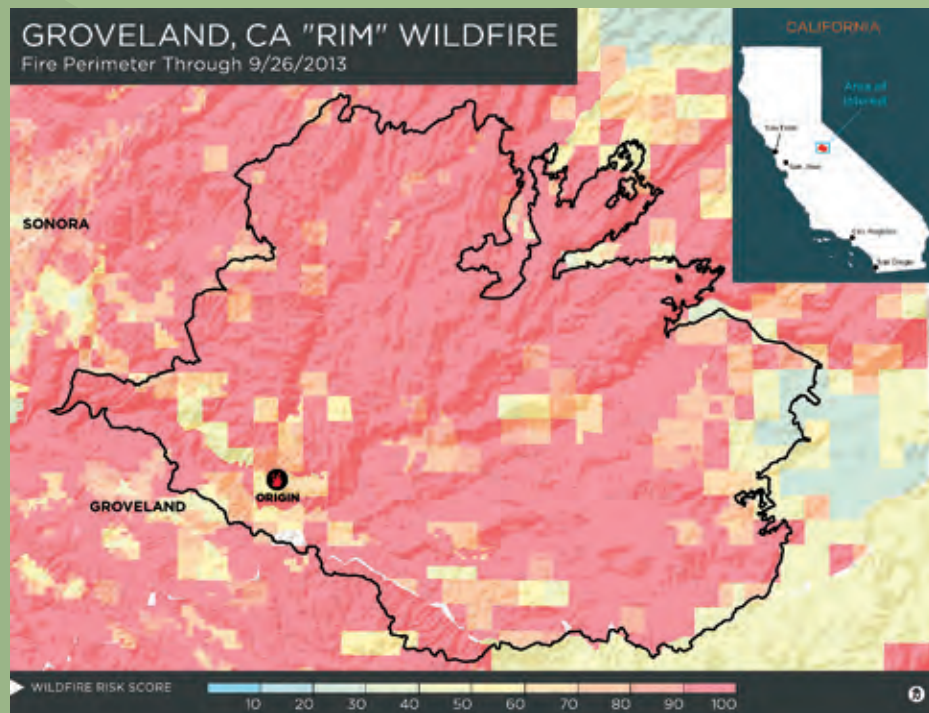


Image 4 - Rim Fire perimeter with wildfire risk score data



ABOUT CORELOGIC

CoreLogic (NYSE: CLGX) is a leading global property information, analytics and data-enabled services provider. The company's combined data from public, contributory and proprietary sources includes over 3.3 billion records spanning more than 40 years, providing detailed coverage of property, mortgages and other encumbrances, consumer credit, tenancy, location, hazard risk and related performance information. The markets CoreLogic serves include real estate and mortgage finance, insurance, capital markets, and the public sector. CoreLogic delivers value to clients through unique data, analytics, workflow technology, advisory and managed services. Clients rely on CoreLogic to help identify and manage growth opportunities, improve performance and mitigate risk. Headquartered in Irvine, Calif., CoreLogic operates in North America, Western Europe and Asia Pacific.

