Introduction

Every year, wildfires burn millions of acres and affect thousands of properties across the country. As the U.S. population increases and residential development extends farther from metro areas, more homes and businesses will face the threat of wildfires.

Over the past two years, approximately 96.4% of the total acres burned in the United States were in 13 western states, plus Alaska and Florida (NIFC, 2020). These 15 states, shown in Figure 1, are often the most active wildfire states in the country.

2020 has already been devastating for wildfires across the western U.S., on pace to be among the most destructive years in terms of acres burned in recent history. Smoky skies and poor air quality burdened cities up and down the West Coast. The devastation in Oregon, Washington and California have caused the loss of both thousands of structures and dozens of lives.

As major metro areas continue to expand, their borders tend to encroach on the higher-risk wildland fuels, which exist within or just beyond the edge of development, leaving even large population centers susceptible to wildfire destruction (as shown in Figure 2). History has shown how close proximity to these fuels can cause wildfires to easily push into densely developed urban areas and destroy thousands of homes within a matter of hours.

Figure 1: States Experiencing Wildfire 2018-2019

Wildfire Perimeters

*Oklahoma did not submit wildfire perimeters to Geomac for the year 2019

SOURCE: GEOMAC 2020

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In recent years, California in particular has been hard-hit, with more than 1 million acres burned in 2017 and 2018 (NIFC, 2020). The record-setting fires in those years include the Tubbs, Thomas, Carr, Camp, Woolsey, Nuns, Atlas, Redwood Valley and Mendocino Complex fires. All have been written into the California record books for either their size, amount of destruction, loss of life -- or all three (CALFIRE, 2020). It is also worth noting that wildfire response has never been more effective than it is now, which is a testament to the selfless contributions of firefighting professionals. Without their services, there would have been even more property damage and loss of life.

“2017 and 2018 were incredibly destructive, record setting years for wildfire, followed by a comparatively quieter 2019. When we talk about wildfire trends, it’s important to treat any decrease in fire activity as only temporary,” says Dr. Tom Jeffery, principal hazard scientist at CoreLogic. “Like most natural hazards, there is no reason to believe that the amount of wildfire acreage, or the number of homes in the path of future wildfires will be any less -- and certainly the ongoing 2020 season is proof of that, well on its way to being among the most devastating in recent memory.”

This year has presented additional challenges. The novel coronavirus (COVID-19) pandemic continues to sweep the globe, causing new roadblocks and challenges in all facets of life — wildfire preparation and response included.

This year’s annual CoreLogic Wildfire Report identifies single-family and multifamily residences at risk of wildfire in 2020, discusses the operational ramifications the pandemic may engender in catastrophe response and explores risk mitigation for communities.*

*The risk data in this report is current to April 2020.
Wildfires are not synonymous with house fires. In an urban area, a homeowner may have a tree, decorative shrubs or a lawn, but if that vegetation were to burn when a house fire occurs, it doesn’t mean the fire will be defined as a wildfire. While both can damage and destroy homes, wildfires occur via the natural vegetation that grows across the landscape.

Wildfires are fueled by forests, brush and grasses found naturally in the environment which exist in much greater quantity and density than most decorative plantings around a home. The Western region of the United States is particularly vulnerable to wildfire damage due to the fuels, climate and terrain, which in combination create a disproportionate number of devastating wildfire events every year.

The source of destructive wildfire events in California are fueled by chaparral that covers the southern hillsides and ridges, dense growth of conifer forests in the north and the vast range of brush and tree species throughout the west. In some cases, wildfires ignite miles from any residential properties. However, they often grow in size and intensity as they spread towards developed areas, covering thousands of acres with fire fronts that extend for several miles.

Comparatively, a traditional house fire ignites from inside the structure and is initially fueled by the contents and frame of the home. In this scenario, the fire is typically contained by the home itself. During a traditional house fire, an individual home will certainly be damaged, but seldom will it threaten surrounding homes. In many cases, all that’s needed to contain and control a fire from consuming a home - or neighboring homes - is a quick and efficient response from a nearby fire station.

The response for a wildfire is vastly different. Wildfires can move at 10 mph, burn at 1,500-2,000 degrees Fahrenheit and have flames that extend 50 to 100 feet above the fuels. Typical wildfire response, even for some small wildfires, involves helicopters and fixed wing aircrafts, ground crews that number in the hundreds and earth-moving equipment in an effort to divert and suppress the fire.

Analyzing fuel type and concentration, along with slope and aspect -- which can affect where and how intensely a fire will burn -- is necessary when defining the scope of wildfire risk and identifying the properties that would be threatened.

### Nationwide Risk

#### The 15 States* at Highest Risk

Natural fuels in the right conditions can and do burn just about everywhere in the United States. And, since it is possible for all vegetation to burn, there is little reason to believe fire risk is limited to one state or one region.

However, wildfire statistics reveal that the majority of wildfire activity and related property destruction is concentrated in certain locations within the country. The Western U.S. covers a large region and has a disproportionate amount of wildfire activity. Alaska, due to its size and concentration of forested area, also accounts for a large segment of total wildfire acreage each year. And finally, even with higher levels of humidity and rainfall, Florida
tends to experience a relatively large share of wildfire activity.

Figure 3 displays the average land area burned per year over the last 20 years, highlighting the elevated activity these 15 states face.

CoreLogic tabulated the risk for both single-family residences (SFR) and multifamily residences (MFR) in the 15 wildfire-prone states.* More than 1.9 million SFRs are at an elevated level of risk with a combined reconstruction cost value (RCV) of more than $638 billion. This comprises approximately 6.5% of the total number of SFRs in these states. MFRs at elevated risk account for nearly 2.4% of all multifamily residences in these states.

Figure 3: Average Yearly Acres Burned by Wildfire (2002-2019)

<table>
<thead>
<tr>
<th>Wildfire Risk Level</th>
<th>Number of SFRs</th>
<th>SFR RCV (in billions)</th>
<th>Number of MFRs</th>
<th>MFR RCV (in billions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>28,516,304</td>
<td>$7,776.14</td>
<td>593,888</td>
<td>$308.61</td>
</tr>
<tr>
<td>Moderate</td>
<td>313,092</td>
<td>$105.58</td>
<td>3,339</td>
<td>$1.35</td>
</tr>
<tr>
<td>High</td>
<td>895,714</td>
<td>$311.97</td>
<td>7,826</td>
<td>$3.29</td>
</tr>
<tr>
<td>Extreme</td>
<td>766,310</td>
<td>$220.58</td>
<td>3,334</td>
<td>$1.53</td>
</tr>
<tr>
<td>Total Moderate - Extreme</td>
<td>1,975,116</td>
<td>$638.14</td>
<td>14,499</td>
<td>$6.17</td>
</tr>
</tbody>
</table>

*Alaska, Arizona, California, Colorado, Florida, Idaho, Montana, New Mexico, New Mexico, Nevada, Oklahoma, Oregon, Texas, Utah, Washington and Wyoming
Top 10 Metro Areas with Greatest Loss Potential

**METRO ANALYSIS: SFR**

Since wildfire risk is not evenly spread throughout a state, it is important to understand where the impact of one may be more severe. The metro areas listed in the table are large and populous areas with a disproportionately high number of homes at risk. The metros are ordered by their RCV, which reveals where the higher-valued properties may be at risk.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Metro Area</th>
<th>State</th>
<th>Number of SFRs at Elevated Risk</th>
<th>RCV of SFRs at Elevated Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Los Angeles</td>
<td>CA</td>
<td>154,462</td>
<td>$90.31</td>
</tr>
<tr>
<td>2</td>
<td>Riverside</td>
<td>CA</td>
<td>126,628</td>
<td>$50.62</td>
</tr>
<tr>
<td>3</td>
<td>San Diego</td>
<td>CA</td>
<td>98,970</td>
<td>$47.45</td>
</tr>
<tr>
<td>4</td>
<td>Sacramento</td>
<td>CA</td>
<td>73,863</td>
<td>$30.55</td>
</tr>
<tr>
<td>5</td>
<td>Austin</td>
<td>TX</td>
<td>73,756</td>
<td>$22.67</td>
</tr>
<tr>
<td>6</td>
<td>San Francisco</td>
<td>CA</td>
<td>37,600</td>
<td>$18.76</td>
</tr>
<tr>
<td>7</td>
<td>Denver</td>
<td>CO</td>
<td>55,762</td>
<td>$17.73</td>
</tr>
<tr>
<td>8</td>
<td>Thousand Oaks</td>
<td>CA</td>
<td>27,331</td>
<td>$13.80</td>
</tr>
<tr>
<td>9</td>
<td>Truckee</td>
<td>CA</td>
<td>35,523</td>
<td>$12.27</td>
</tr>
<tr>
<td>10</td>
<td>San Antonio</td>
<td>TX</td>
<td>41,299</td>
<td>$11.66</td>
</tr>
</tbody>
</table>

**SOURCE:** CORELOGIC, 2020

**METRO ANALYSIS: MFR**

Although there are fewer MFRs in the United States compared to SFRs, the impact on residents is still devastating. MFRs can house dozens of individual families. If a fire occurs, the number of displaced and affected residents would be higher than the number of structures damaged.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Metro Area</th>
<th>State</th>
<th>Number of MFRs at Elevated Risk</th>
<th>RCV of MFRs at Elevated Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Breckenridge</td>
<td>CO</td>
<td>4135</td>
<td>$1.06</td>
</tr>
<tr>
<td>2</td>
<td>Los Angeles</td>
<td>CA</td>
<td>1028</td>
<td>$0.77</td>
</tr>
<tr>
<td>3</td>
<td>Riverside</td>
<td>CA</td>
<td>946</td>
<td>$0.54</td>
</tr>
<tr>
<td>4</td>
<td>Sacramento</td>
<td>CA</td>
<td>847</td>
<td>$0.43</td>
</tr>
<tr>
<td>5</td>
<td>San Diego</td>
<td>CA</td>
<td>760</td>
<td>$0.43</td>
</tr>
<tr>
<td>6</td>
<td>San Francisco</td>
<td>CA</td>
<td>619</td>
<td>$0.41</td>
</tr>
<tr>
<td>7</td>
<td>Sonora</td>
<td>CA</td>
<td>759</td>
<td>$0.26</td>
</tr>
<tr>
<td>8</td>
<td>Redding</td>
<td>CA</td>
<td>495</td>
<td>$0.22</td>
</tr>
<tr>
<td>9</td>
<td>Salinas</td>
<td>CA</td>
<td>223</td>
<td>$0.17</td>
</tr>
<tr>
<td>10</td>
<td>Colorado Springs</td>
<td>CO</td>
<td>342</td>
<td>$0.12</td>
</tr>
</tbody>
</table>

**SOURCE:** CORELOGIC, 2020
The COVID-19 pandemic has created additional complications to an already dangerous and deadly peril. While the virus does not directly affect wildfire risk, it does add another level of difficulty for both the property owners impacted by a fire and the responders who risk their lives to combat these catastrophes.

The following are considerations homeowners, government entities, insurance companies and disaster response groups must consider given the complexities COVID-19 creates.

**PREPARATION**

COVID-19 has created a shortage of contractors who conduct necessary structure and landscape mitigation, leaving high risk areas more vulnerable to wildfire damage. Additionally, the pandemic has meant many essential grocery store items, like toilet paper, paper towels and cleaning supplies, are in short supply or unavailable. In the aftermath of a wildfire, these and other items would unfortunately remain in high demand and even shorter supply.

Homeowners should contract with appropriate service providers to develop and implement mitigation strategies as soon as possible. Materials and labor may be difficult to obtain when wildfires begin to occur with more frequency during late summer and fall.

In the wake of 2017’s devastating Tubbs Fire, many residents discovered their homes were underinsured by hundreds of thousands of dollars. This can happen when insurers base their coverage on replacement cost rather than reconstruction cost. With that in mind, it is critical for both homeowners and insurers to confirm that the value of the home has been accurately assessed. It is recommended to regularly reevaluate the RCV of a home to prevent underinsurance, as material and labor costs for reconstruction are always changing.

Underinsured homes can leave many homeowners without enough coverage to rebuild in the wake of a fire. In these cases, homeowners will often walk away from their mortgages, creating spikes in delinquency. For instance, after the Tubbs Fire, the delinquency rate in Sonoma County, where much of the damage occurred, reached 50%.
To prevent the spread of COVID-19 during evacuation, evacuation centers may need to limit their building capacity to ensure social distancing is maintained. Increasing unemployment rates and an economic downturn could result in a greater number of potential evacuees who are unable to afford their own shelter, placing additional strain on public resources. Limited capacity could hinder efficient evacuation, and fear of the pandemic could create conditions where people are more hesitant to evacuate at all. FEMA continues to work with partners to determine shelter-in-place scenarios that support social distancing guidelines.

“COVID-19 has not changed our mission, and our volunteers are consistently answering the call, both virtually and in disaster-affected communities,” says Becky Firey, Executive Director of the American Red Cross of Orange County. “We’ve created new protocols to help keep everyone safe in this environment. During this pandemic, while the nation is practicing social distancing, we’re now providing some disaster relief virtually, including mental health support and financial assistance. And depending on the circumstances of the disaster, we’ll either prioritize hotel rooms or open more shelters that can support fewer people than normal.”

Without fully operating hotels and restaurants, claims and recovery activities could be especially challenging. Displaced people may struggle to get back on their feet without a full breadth of resources, and with hospitals and first responders stretched thin, swift and efficient wildfire relief and response could be delayed.

“Immediate response to a natural catastrophe is a key element in the resiliency of a community. The recovery will need to address the real and visible problem of damaged property, while simultaneously battling the invisible but equally daunting risk of COVID-19 infections. Leveraging technology to deploy recovery resources only when and where they are needed can help responders manage this multifaceted challenge,” says Tom Larsen, principal, content strategy, insurance solutions at CoreLogic.
Aftermath

The full impact of COVID-19 is still unknown, but there may be disruptions to the supply chain for raw materials, manufacturing and transportation, causing repair and rebuild efforts post-disaster to be especially challenging. Additionally, insurers may be challenged with an influx of claims and fewer adjusters to review damages.

“The business landscape has changed tremendously in the past year, and as a result, the insurance industry is having to ask the tough questions – how do I resolve a claim if I cannot assess their home in-person? How can I assess risk without a home survey?” says Mick Noland, Executive, General Manager of Insurance at CoreLogic. “Finding the answers will take a great deal of technological transformation, new tools and big ideas. CoreLogic has been ready for this wave of digitalization, powering the intelligence that can get us through any challenge that lies ahead.”

The rebuilding process from a wildfire can take years, which is why understanding supply chain and adjuster review delays are critical to long term community recovery. In the years since the 2017 Tubbs Fire and 2018 Camp Fire, CoreLogic has tracked recovery efforts in Santa Rosa and Paradise, California, where both fires occurred, respectively.

In the years following the fires, both communities have been making progress towards recovery. In Santa Rosa, the Tubbs Fire destroyed 3,043 housing units. By June 2020, 78% of those units were in some stage of the rebuild process, and another 1,282 had finished construction. Paradise has also made progress. There has been a gradual increase in the number of applications for SFR permits, and 41 homes were rebuilt in June 2020.

Mitigating Risk: A Community Effort

It’s critical to plan, prepare and consider ways to reduce the impact of natural hazards prior to an actual event. For hurricanes, this means structural changes that reduce the likelihood of wind damage to roofs or walls. For earthquakes, this might entail reinforcing buildings to withstand ground movement, a concept known as seismic retrofitting.

Preparing for a wildfire is no different.

Wildfire mitigation focuses on reducing the opportunity for fire to ignite a structure and preventing embers from landing on or entering a structure, which could cause an interior or exterior ignition.

Mitigation techniques vary from relatively cheap to expensive, and from relatively simple to complex. Anyone who lives in, or is planning to move to, an area where wildfire risk is elevated should consider adopting as much mitigation as they can feasibly afford. Consultation with the local fire chief or community wildfire experts is a crucial first step towards understanding what can and should be done to reduce risk.

Local municipalities, counties or state agencies will likely have area-specific mitigation recommendations. For a comprehensive view of mitigation and the impact it can have on reducing wildfire risk, the Insurance Institute for Business and Home Safety provides resources that explain various mitigation steps and the value of mitigation as a whole.

There is no single mitigation technique that will eliminate wildfire risk. However, by incorporating multiple methods and encouraging community participation, it is more likely that a structure will be less susceptible to wildfire damage or destruction.
Conclusion

Wildfire will continue to threaten homeownership and endanger people’s physical and financial livelihoods. Understanding this risk is critical to reducing it. As neighborhoods push further into wildland areas, the ways in which humans build towards beautiful but deadly undeveloped, wildfire-prone land only amplifies the climatological and terrain-related risk factors that already exist.

For insurers, understanding risk at a granular level is paramount to adequately protecting homeowners—and supporting them at the first notice of loss. For homeowners, it is critical to work hand-in-hand with insurers to understand the financial implications of a given degree of risk and exposure. When communities work together to take steps in mitigating risk, these do have a significant impact on keeping homes, businesses and families safe.

No one can predict what the future may bring, but with the knowledge of risk, tools to combat challenges ahead and grit to work together, communities can pave a path towards a safer tomorrow.

Methodology

This report evaluates the potential exposure of single-family (SFR) and multifamily residential (MFR) properties to wildfire within a predefined geographic region of the United States. The analysis encompasses multiple categories of SFR structures including cabins, mobile homes and manufactured homes, among other nontraditional home types. MFR properties include apartments, condominiums and multi-unit dwellings. The figures used as “values” in the tables and graphs throughout this report reflect the current reconstruction cost value (RCV), which is based on the cost of materials and labor and also factors in the pricing variations due to different geographic locations in wildfire states. The estimated values are based on 100%, or total, destruction of the residential structure. Depending on the size of the wildfire, there may be less than 100% damage to the residence, which would result in a lower realized reconstruction cost.

The risk analysis presented in the 2020 CoreLogic Wildfire Risk Report was developed using the
extensive CoreLogic ParcelPoint® database to pinpoint properties located in areas exposed to potential damage or destruction from a wildfire event. A parcel is an individual property associated with an address and is the most granular way to identify properties exposed to natural hazards. To date, CoreLogic has collected or converted (from a boundary on a paper map to a digital outline) data on more than 146 million properties in the United States, representing more than 98% of the total properties in the country.

To determine residential exposure value, the company’s parcel-level data is paired with the proprietary CoreLogic Wildfire Risk Score to identify every property contained within each wildfire risk category. After matching every residential property to a structure valuation, the values are totaled by risk category within individual geographic areas. The final results illustrate the total number of residential properties at risk, as well as the total current RCV of those properties.

Year-over-year changes between the number of at-risk homes and the RCV can be the result of several variables, including new home construction, improved public records, enhanced modeling techniques, fluctuation in labor and equipment and material costs. To estimate the value of SFR property exposure, CoreLogic uses its RCV methodology, which estimates the cost to rebuild the home in the event of a total loss, and is not to be confused with property market values or new construction cost estimation. Reconstruction cost estimates more accurately reflect the actual cost of damage or destruction of residential buildings that would occur from a wildfire since they include the cost of materials, equipment and labor needed to rebuild. These estimates also factor in geographical pricing differences (although actual land values are not included in the estimates). The values in this report are based on 100%, or “total”, destruction of the residential structure. Depending on the path of the fire and mitigation employed by the resident or owner, there may be less than 100% damage to the residence, which would result in a lower realized RCV.

To evaluate wildfire risk at the local level, CoreLogic uses the designation of CBSAs, which are often referred to as metropolitan areas (>50,000 people), or micropolitan areas (<50,000 people). The CBSA represents an urban center and the adjacent regions that are socioeconomically tied to that center. The specific areas identified in this report are named by their primary urban center, though each may contain additional urban areas.

The high-resolution, granular modeling for underwriting individual risk allows enhanced understanding of the risk landscape and damage potentials. CoreLogic offers high-resolution solutions with a view of hazard vulnerability consistent with the latest science for more realistic risk differentiation. The high-resolution wildfire modeling using 30m digital elevation model and satellite imagery, along with parcel-based geocoding precision from PxPoint™, facilitates a realistic and accurate view of the risk.