2021 Wildfire
Season Preview

A Data-Driven Conversation about the US West's Mega-drought

zesty.ai

Devastating Potential.

The Zest—

zesty.ai

Current climate conditions in the West reveal that 2021 may have a higher than normal risk for wildfire losses. While much of this report focuses on California, historically the worst victim of wildfire in the US, the entire western US is of concern in 2021. In particular, the expansion of deep drought into Colorado is of major concern.

Drought is a major factor in seasonal wildfire risk. With drought extending through every western state this spring, insurers should consider looking deeply into how they are addressing this growing peril. According to AON, last year's wildfires in the US West cost insurers over $8 billion.

2020 shattered records in the US with over 10.2 million acres burned by wildfire.

Without action, that staggering figure may become the new normal

2021—
Fire Season Preview

A Look Back at 2020

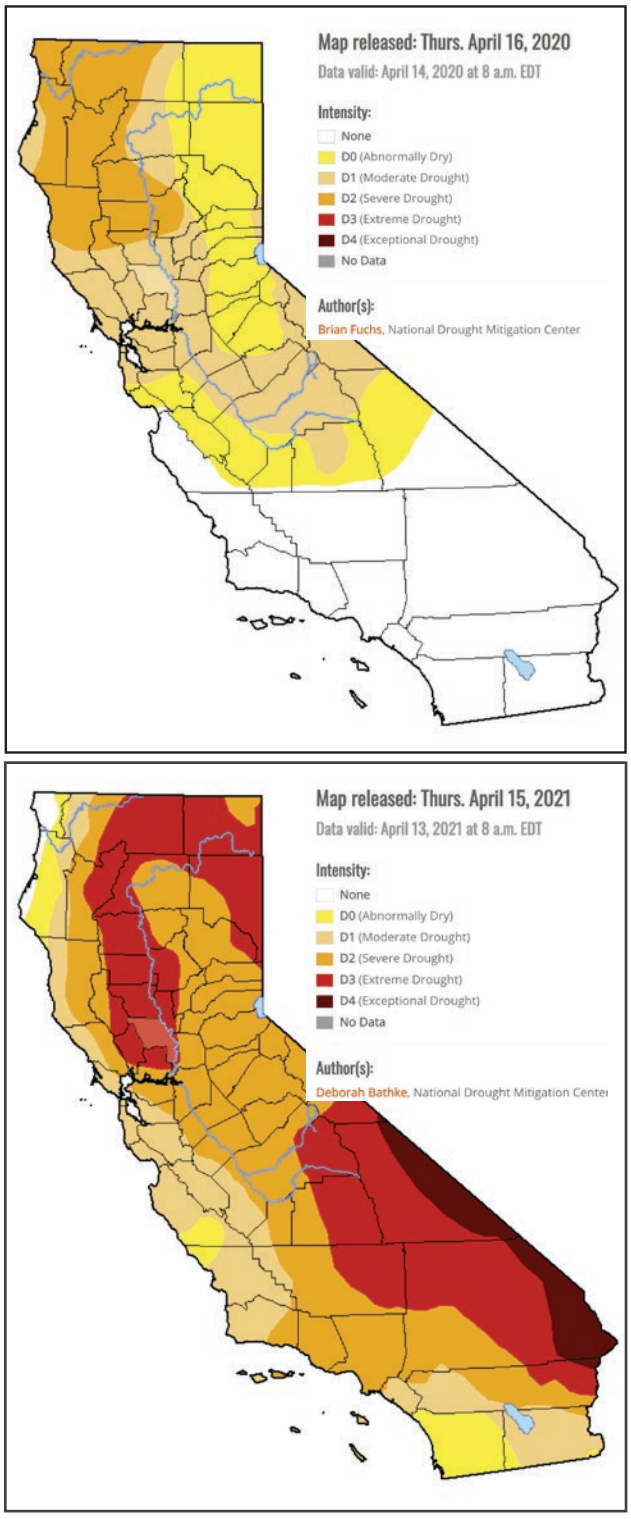
For many parts of the Western US, 2020 brought the worst fire season on record. By October, fires in California alone had burned more surface area than is contained in the state of Connecticut. In total, more than 10,200,000 acres across the Western states were scorched and 13,887 structures were destroyed.

When comparing last year's dry April conditions to this year's April drought conditions, the situation looks dire. With the exception of a small patch near coastal Oregon, all of California is either abnormally dry or in a drought according to The National Drought Mitigation Center at University of Nebraska-Lincoln.

In 2020, Zesty.ai predicted the potential for an active fire year with high loss potential due to dryness, particularly in Northern California. The actual fire season exceeded our fear as a series of lightning storms combined with the dry conditions to create several complex fires. Complex fires are several smaller fires merging into one large fire, which included the record setting August Complex fire that burned over 1M acres. Over 650 fires were started over a time period of less than 3 days.

Major lightning events from summer thunderstorms are rare in California, however, 2020 underscores how even mild fire risk can be disastrous in the wrong circumstances. No one could have predicted the exceptional and devastating lightning events.

One of the most unexpected elements to the record-breaking 2020 wildfire season was the intensity of fires outside of California. Colorado saw its three largest wildfires in state history and Oregon's wildfires, some of which were human-caused, destroyed more than 3000 homes. In total, more than 13,000 buildings were destroyed in the Western US by wildfire in 2020. According to NOAA and the National Interagency Fire Center, total property damage eclipsed $16.5 billion.



California is significantly drier in 2021 than it was at the same time in 2020 according to Drought.gov.

It has become more difficult for carriers to underwrite property risk in fire-prone regions because of the increased severity of recent years' wildfire events combined with the failure of traditional catastrophe risk models. While many of us associate "wildfire season" with summer through early fall, what happens during the preceding winter and spring is equally important. In California, summer typically brings prolonged spells of hot weather, strong wind activity and notably little precipitation. Reduction in the amount of precipitation (rain and/ or snow) during preceding winter and spring months—a situation California is experiencing more and more— results in drought. These drought conditions further contribute to a heightened potential for significant wildfires.

The strain on property owners, insurers, and government from the 2020 wildfire season resulted in large-scale media publicity of the firestorms. Across the entire Western US, anger poured out over forestry management and several other wildfire issues that will spur developments throughout 2021 and beyond.

Changes on the Horizon

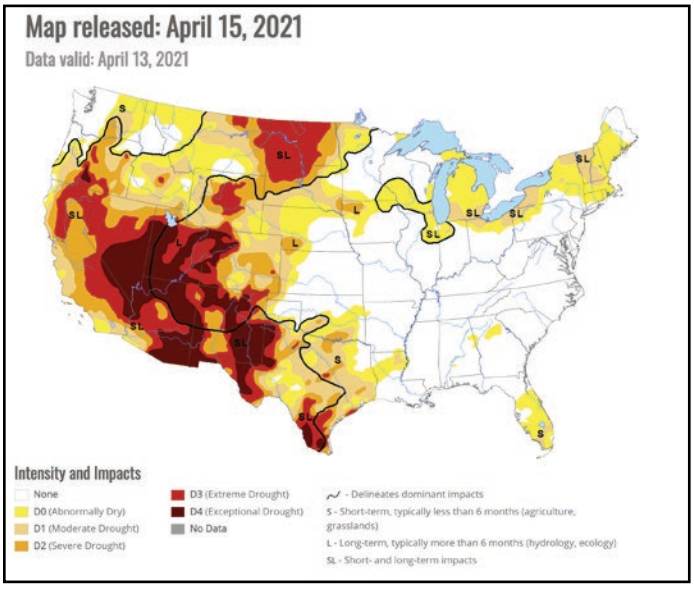
Along with large-scale media publicity of the 2020 fires, wildfire mitigation came to the attention of regulators and government officials. The California Governor's Forest Management Task Force issued its Wildfire and Forest Resilience Action Plan. With similar swiftness, the California Department of Insurance began a process for creating home hardening standards, greater transparency around wildfire risk scores, and recognition of mitigation efforts. California is often a bellwether for other US states, therefore insurers should closely watch how the regulatory environment evolves in California during 2021.

Wildfire mitigation has become a popular phrase with regulators and those looking at a holistic picture of wildfire. Research shows that property-level mitigation can decrease risk to buildings. Investment in mitigation, whether at a property or community level, is one part of a complete solution. Ultimately, the cost of climate risk is shared by everyone.

Today's Precarious Position: Drought is a Leading Indicator

To assess the likelihood and level of losses from potential wildfire events, we should consider three key variables: heat, wind, and lack of moisture. Both heat and wind activity can only be predicted into 10 to 14 day forecast windows. These narrow and not always accurate windows are of little use to the insurance industry. The third variable however, lack of moisture, is a strongly correlated indicator for a challenging year. Lack of moisture can be more easily tracked and its absence affects an entire season. From studying more than 1,200 wildfire incidents, we know that prolonged drought-like conditions tend to exacerbate the spread of wildfires.

Winter drought conditions, which started mild in most of the west, have continued to worsen. As of April, extreme and exceptional drought conditions are present in California, Nevada, Oregon, Utah, Arizona, Colorado, New Mexico, and the Western portion of Texas. The arid conditions have led to very low moisture levels in vegetation much earlier in the season than normal.

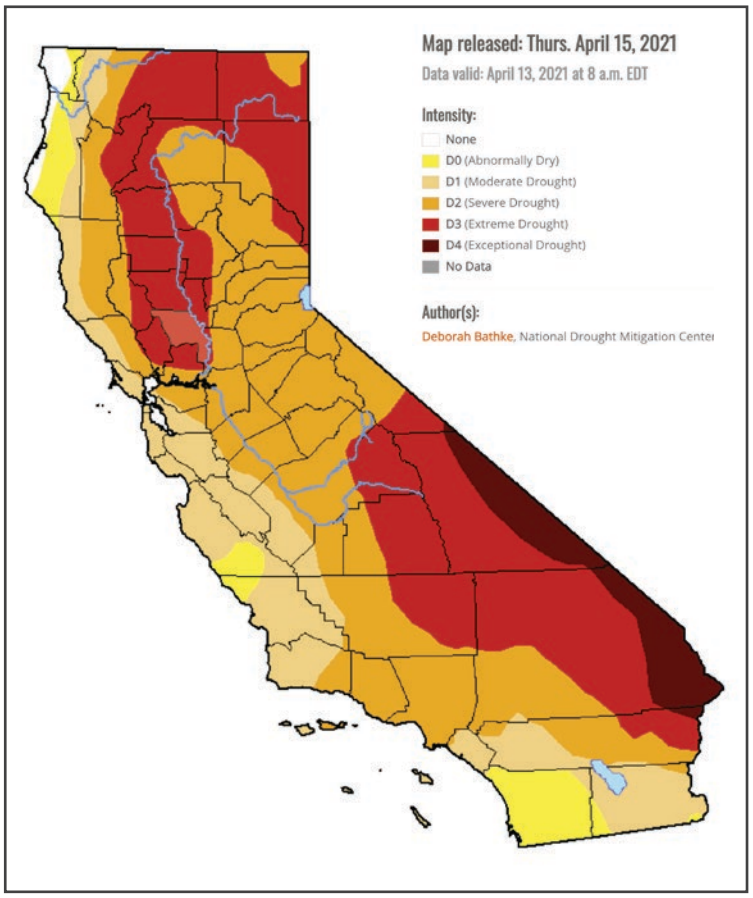


US drought map, Drought.gov.

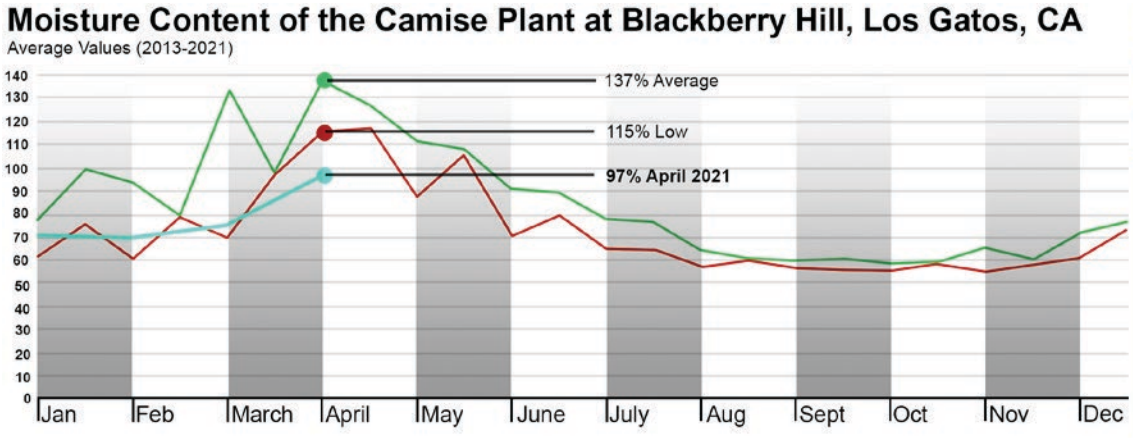
Wildfire Potential Highlight: California

In California, moisture content reached a historic low at Blackberry Hill, a common measuring location used in the Santa Cruz Mountains. The Fire Weather Research Laboratory, part of the Dept. of Meteorology and Climate Science at San Jose State University, took the reading along with visual inspections. They noted that the local plants had no new vegetation growth due to lack of water, which is an unprecedented sight in April. According to Zesty.ai Z-FIRE™, the Blackberry Hill location is a high wildfire hazard area and like many places in the Santa Cruz mountains, is near previous wildfires.

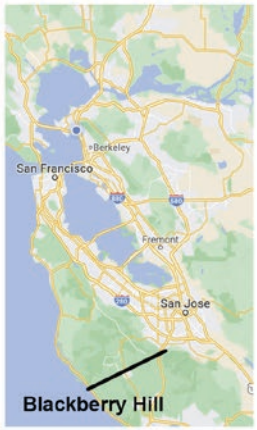
Historically, the Sierra Nevada snowpack provides roughly 30% of California's water. The California Department of Water Resources sounded an alarm in April. "While there is some snow on the ground today at Phillips Station, there is no doubt California is in a critically dry year. State agencies, water suppliers and Californians are more prepared than ever to adapt to dry conditions and meet the challenges that may be ahead," said DWR Director Karla Nemeth through a press release. The release also stated that "For Water Year 2021, the snowpack in the Northern and Central Sierra peaked at 70 percent of average, however rain is below 50 percent of average, which ties this year for the third driest year on record."



California drought map, Drought.gov.



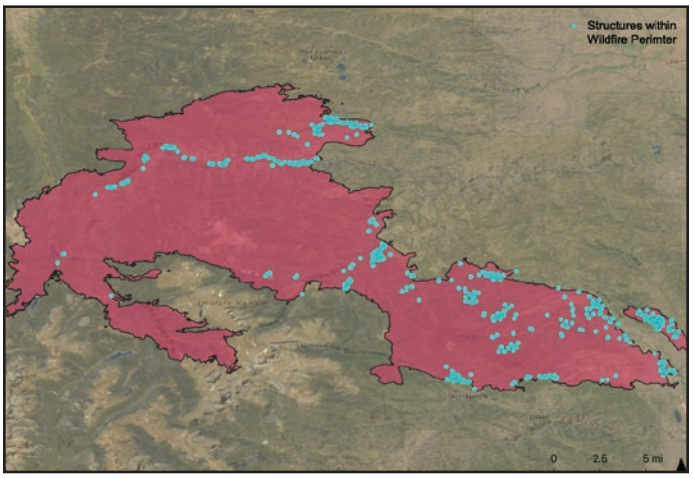
Source: Calfire / San Jose State University



Map: Google

Wildfire Potential Highlight: Colorado

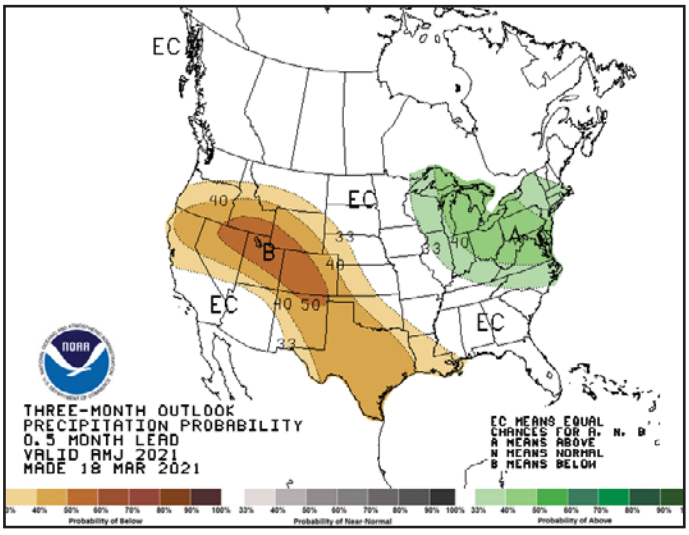
While Colorado is not usually considered a state with a large amount of acres charred by wildfire each year, the three largest wildfires in Colorado history occurred there in 2020. Zesty.ai Z-FIRE™ gives properties two scores: L1 is the potential of being involved in a fire and L2 provides the likelihood of being destroyed in a wildfire. The Cameron Peak fire in Colorado burned over 208 thousand acres. Of the structures within the wildfire perimeter, 80.0% had an L1 risk score of High or Very High, and only 4.4% of the structures had an L1 risk score of Low.



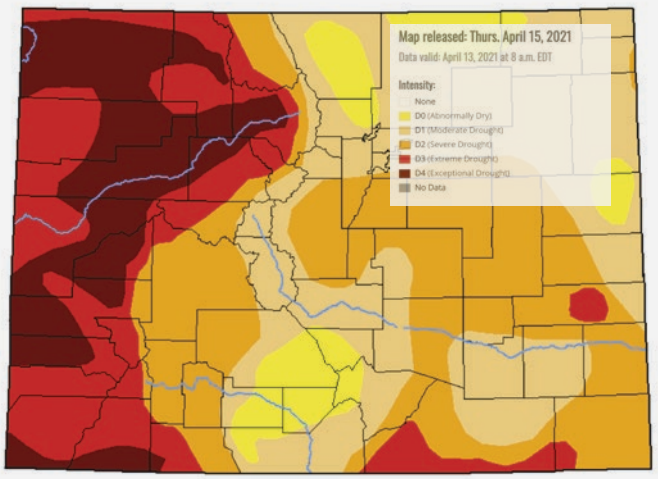
The Cameron Peak Fire contained more than 600 structures. Source: Zesty.ai.

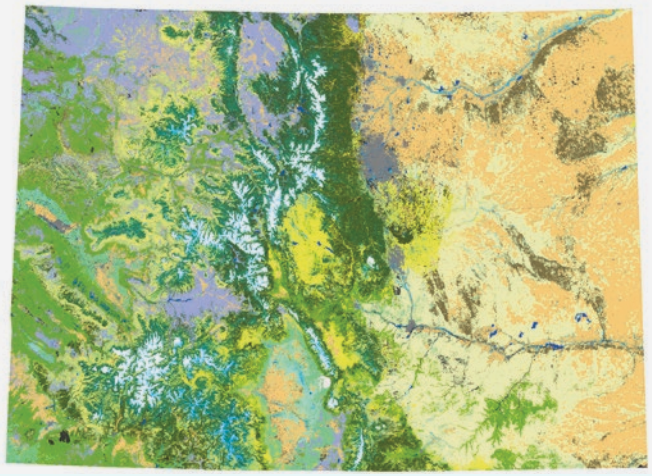
The potential exists for major wildfires again in 2021. Every county in Colorado is currently experiencing a drought with the Western portion of the state experiencing extreme and exceptional drought conditions. A significant amount of vegetation exists for fuel in Colorado.

As we continue to see more climate-driven events, it may become more important to make wildfire hazard an important area of emphasis in states like Colorado. The National Weather Service outlook suggests that drought conditions will continue to persist in Colorado through April, May and June.



The three-month outlook shows little relief for Colorado and many other areas suffering from drought. Source: NOAA





Colorado's extreme, exceptional, and severe drought overlaps with several diverse ecosystems. Source: Drought.gov and Colorado State University.

What Insurance Providers can do Today to Prepare for Tomorrow

In California, drought conditions can often be determined up to six months in advance. As seen above, in locations like Colorado, the National Weather Service can provide up to a 3 month window on broad conditions. With the knowledge that drought-like conditions greatly influence the possibility of wildfire, what can insurance providers do today to prepare for this summer and fall?

1. Understand the Data:

- According to Zesty.ai research, wildfires destroy almost twice as much land in drought years, as compared to normal years (87% more acres, to be precise).
- The number of drought years has been on the rise

2. Continue to Bring Transparency and Education to Homeowners:

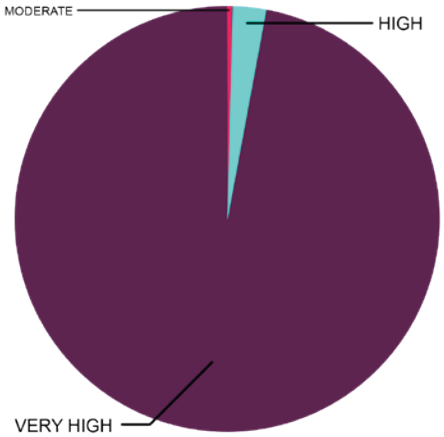
Technology really is a better answer. Using satellite imagery combined with artificial intelligence, it is possible to not only see what mitigation actions a policyholder has taken around the property, but also gain a detailed understanding of how the property may fare in a wildfire. These insights may be passed on to homeowners and agents enabling a much better understanding of wildfire risk. By pinpointing what additional steps (e.g., clearing out brush and creating more defensible space around the property, upgrading with fire-resistant building materials etc.) may be taken to better safeguard property, outcomes for both carriers and their customers could be greatly improved in the event of disaster.

3. Find the Right Technology Partner:

As mentioned above, Zesty.ai ingested loss data from more than 1,400 wildfires—leveraging the latest technology to extract insights on every single property involved. Aerial and satellite imagery, machine learning, and infinitely scalable computing resources in the cloud were combined to build the most granular wildfire risk assessment model (Z-FIRE™). Using Z-FIRE™, Zesty.ai can accurately estimate an individual property's wildfire risk, plus highlight the key property-level factors that contribute to that risk.

In 2020, Zesty.ai's Z-FIRE™ model performed incredibly well. 99.6% of all areas affected by wildfire in California had been modeled at high or very high risk.

Z-FIRE L1 Score of Area Affected by Wildfires (California, 2020)



Knowing, not Guessing, About Wildfire Risk:

Using Z-FIRE™, insurance carriers, MGAs and reinsurers can get access to actionable insights developed from detailed property-level risk factors . While wildfire losses may be inevitable, understanding in detail how individual properties contribute to average and tail risks is a large step forward.

The specific time and location of a wildfire is nearly impossible to predict. However, Z-FIRE™ can give carriers a head start. Knowing, not guessing, which properties fall into a high risk category is more important now than ever. We look forward to helping our customers through this fire season and many to come.

Resources —

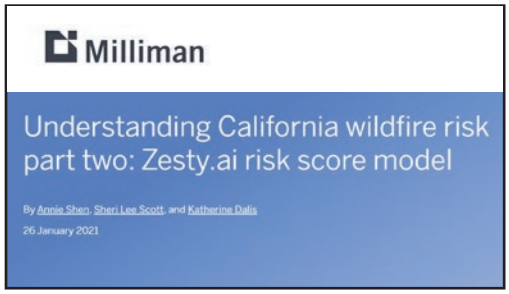
Learn More About Wildfire

Video: Finding the Sweet Spot in Wildfire Mitigation

Insurers aren't crazy, so it stands to reason they don't want to insure homes that are likely to burn down in an epic wildfire. California's politicians and insurance regulators aren't crazy, either, as they frantically seek a solution to enable homeowners to find coverage rather than abandoning their homes. But how, then, do you bridge the gap?

Whitepaper: Wildfire Fuel Management and Risk Mitigation

Property owners who clear vegetation from the perimeter of their home or building can nearly double their structure's likelihood of surviving a wildfire. Zesty.ai, in conjunction with, IBHS studied more than 71,000 properties involved in wildfires between 2016 and 2019 to assess the relationship between vegetation, buildings, and property vulnerability.



Whitepaper: Understanding California wildfire risk

This article is the second in a series of articles examining California wildfire risk and tools that could be used to identify, quantify, and mitigate this risk. To better understand its exposure to wildfire, the California Fair Access to Insurance Requirements Plan asked Zesty.ai, Inc., a company that provides a wildfire risk score model, to score the FAIR plan properties relative to wildfire risk.

Addtional Links:

Insurance Institute for Business & Home Safety

DISASTERSAFETY.ORG
A PRODUCT OF IBHS

The IBHS mission is to conduct objective, scientific research to identify and promote effective actions that strengthen homes, businesses and communities against natural disasters and other causes of loss. Learn more about IBHS at DisasterSafety.org.

zesty.ai

For more information about Z-FIRE:

Contact hello@zesty.ai
Reach us online at http://zesty.ai

Sources:

“US Drought Monitor: Current Map.” U.S. Drought Monitor, droughtmonitor.unl.edu/. Retrieved 20 April 2021.

“Ecological Systems of Colorado.” Colorado Natural Heritage Program, 23 Dec. 2020, cnhp.colostate.edu/projects/ecological-systems-of-colorado/. Retrieved 20 April 2021.

Global Catastrophe Recap , 31 Oct. 2020, thoughtleadership.aon.com/documents/20201111_analytics-if-october-global-recap.pdf. Retrieved 20 April 2021.

Berardelli, Jeff. “Western U.S. May Be Entering Its Most Severe Drought in Modern History.” CBS News, CBS Interactive, 12 Apr. 2021, www.cbsnews.com/news/drought-western-united-states-modern-history/.

Morris, J.D. “California Braces for Extreme 2021 Wildfire Season - It's Very Dry out There.” San Francisco Chronicle, San Francisco Chronicle, 12 Apr. 2021, www.sfchronicle.com/local/climate/article/California-braces-for-extreme-2021-wildfire-16091995.php.

Copyright 2021 - Zesty.ai