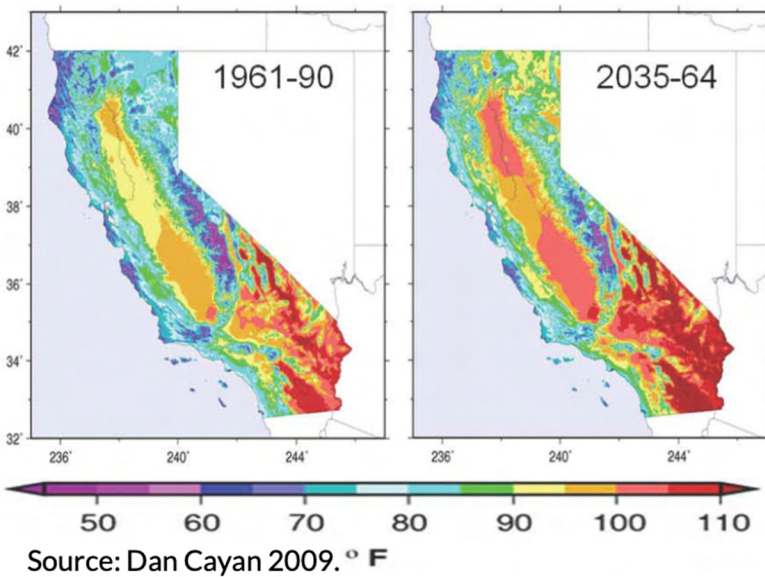


California wildfire and climate change

Presented by Parastoo Salamat
Professor Meezan
December 2019

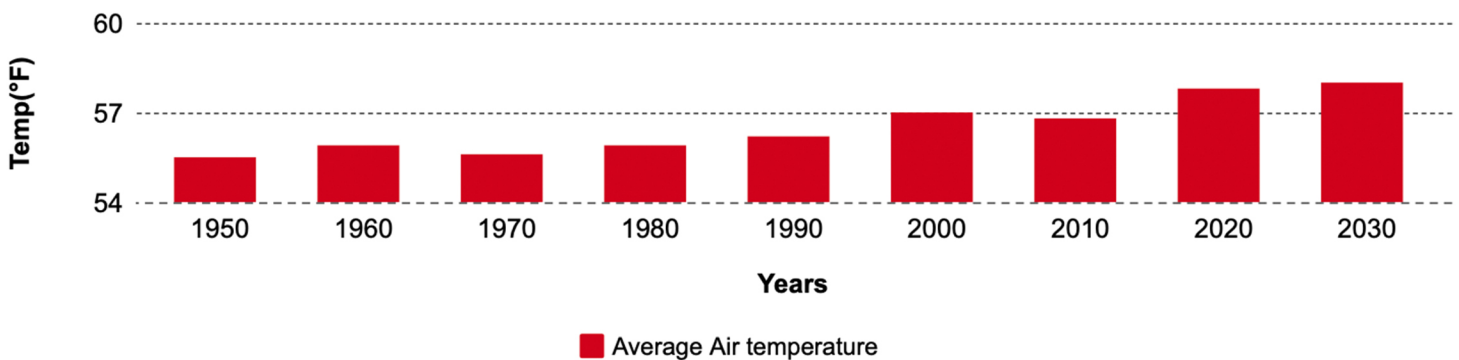
California July Temperature Increase 1961-2064



Wildfire Causes

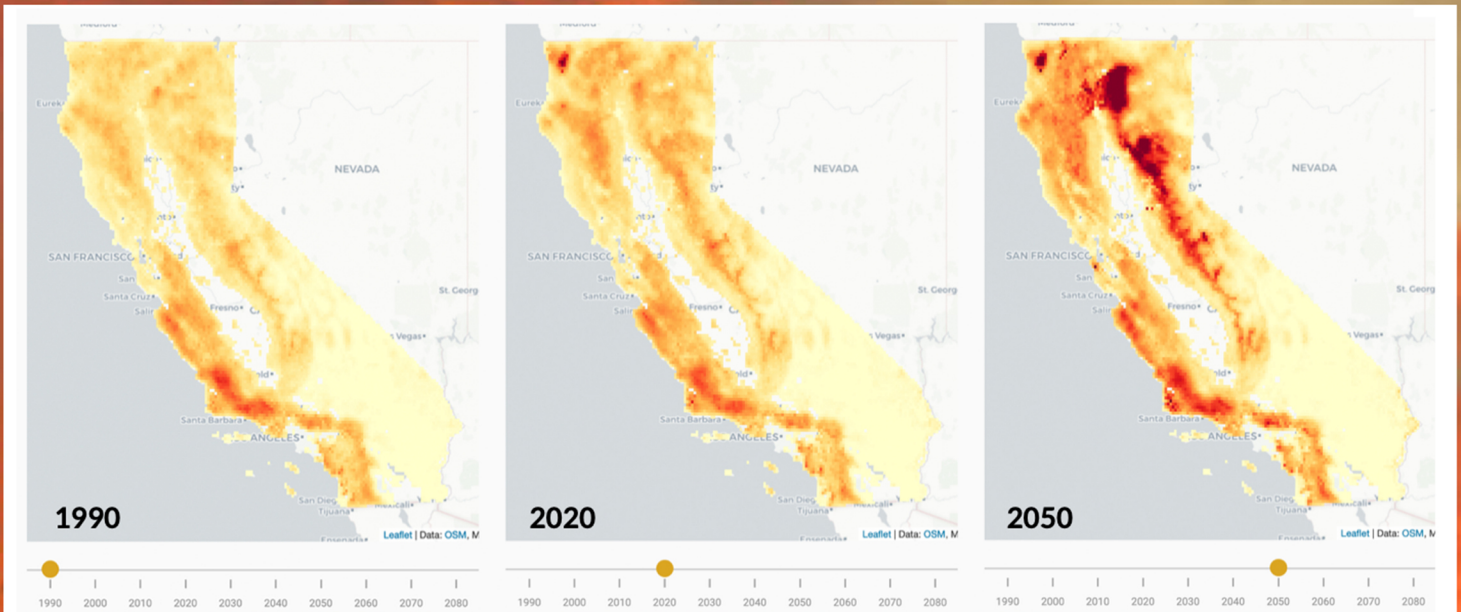
Some of the circumstances that shape the number of wildfire in California are drought, record high temperatures, and strong winds, are beyond our control, and in many cases, increased by a changing climate. Wildfires can be caused by both man-made and natural factors.

California Average Annual Air Temperature

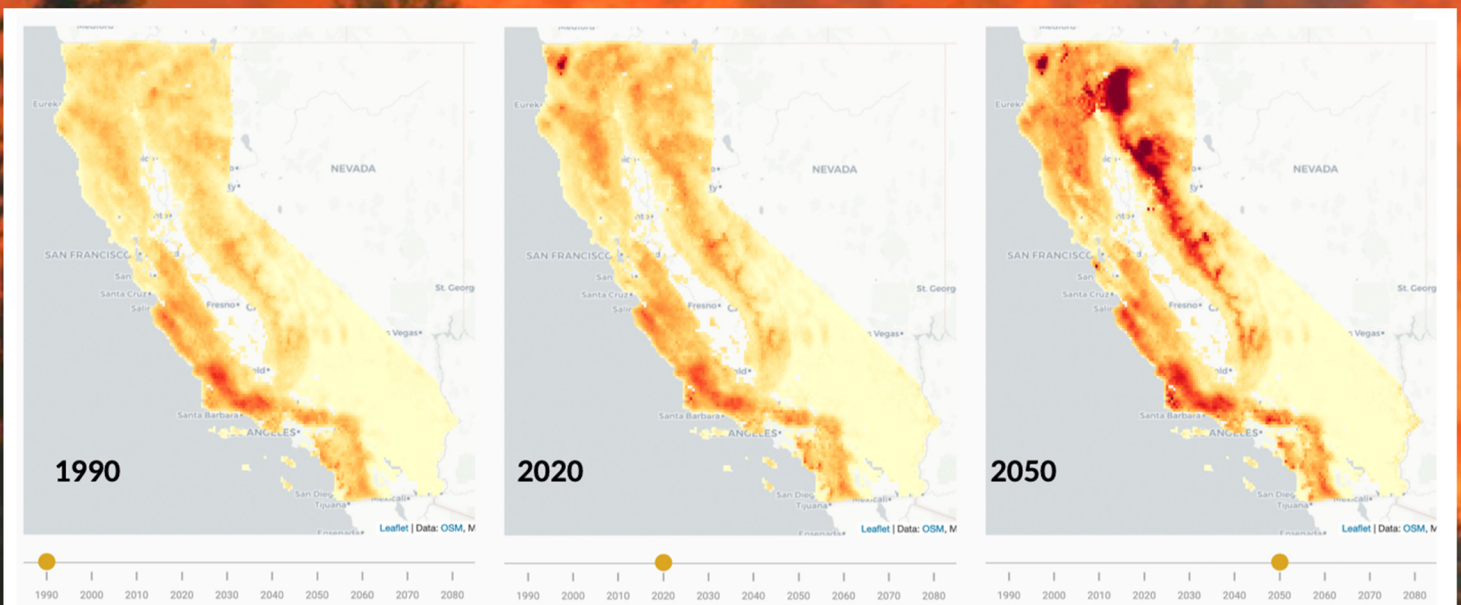


Source: California Environmental Protection Agency's *Indicators of Climate Change in California*

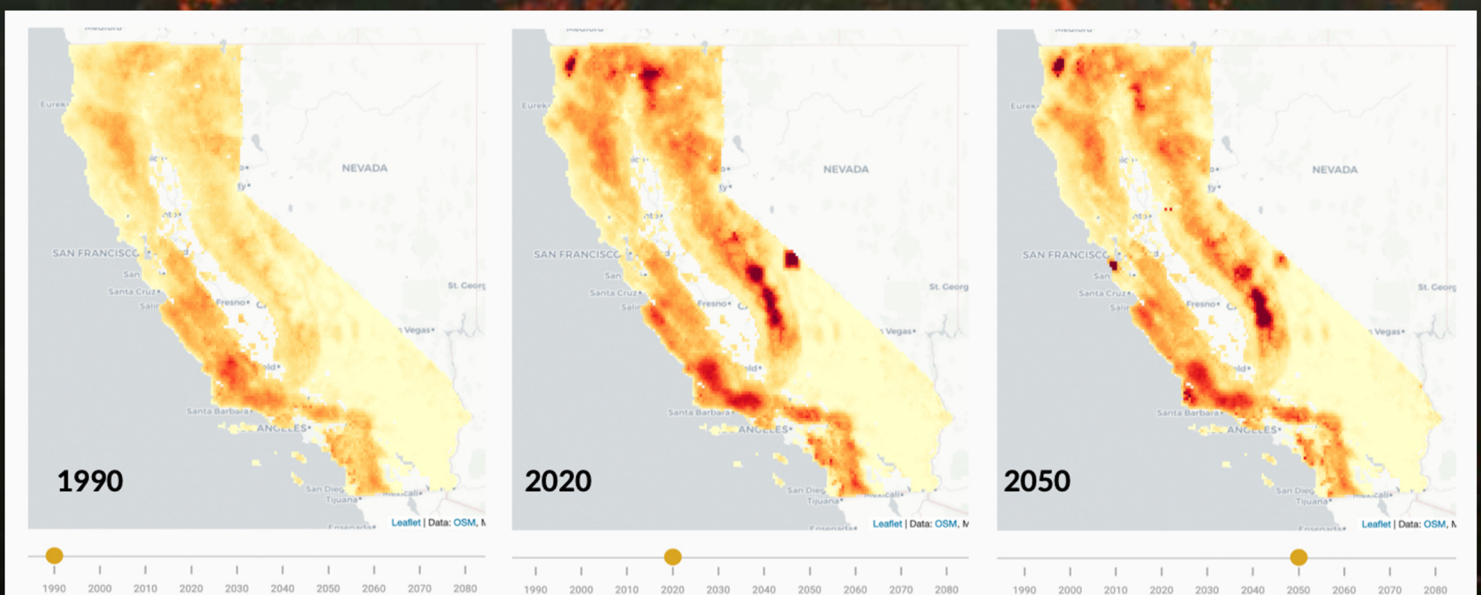
California Burned Hectares in Cooler/Wetter Weather with Low Population



California Burned Hectares in Average Weather with Average Population



California Burned Hectares in Hotter/Drier Weather with High Population



Modeled Data (1990-2060)





Wildfires take away homes, wildlife, as well as vegetation. All of the inhabitants of the wildlife environment now are found homeless.



Animals lose their lives. Trees and plants are gone as well.



Wildfires are a natural part of many environments.

solutions to wildfire

Through the practice of ecological thinning, we can promote healthier forests and create conditions under which controlled and managed fire can be safe and effective. Ecological thinning does not mean clearcutting, old-growth forest logging or extensive salvage logging after fires. It is explicitly focused on protecting the oldest trees and creating a diverse mosaic of natural features that are essential for forest diversity and regeneration

**ECOLOGICALLY
MANAGED FORESTS:**
By thinning the
forest understory,
we can safely
reintroduce fire as a
restorative process.


Fire-suppressed Forest



Ecologically managed Forest



Fire suppressed forest on left. Ecologically thinned forest on right.

- 
- California's deadly wildfires have a straightforward solution, experts say: stop building homes in places that are likely to burn—and make homes that already exist in those areas a whole lot tougher.

- the government must stop climate change to reduce wildfires. Nations must cap the amount of greenhouse gas emitted into the Earth's atmosphere. Once that is done, carbon emissions trading can encourage businesses to adhere to the cap.

- Electrical lines and related equipment can break in high winds and spark, igniting flames in tinder-dry vegetation that can spread quickly in high winds. it is time to start thinking of a new technology like solar system for everyone.

Panel One & Panel Two: Wildfire Causes and Climate Change

According to [balance.com](https://www.balance.com)

- There are five reasons for the growing severity of wildfires. They are rising temperatures, shorter winters, more insects, drought, and fire suppression. The first four are caused by climate change.
- Rising temperatures increase evaporation. The atmosphere draws more moisture from soils, making the land drier. It even if the soil is moist, heat waves can dry out vegetation to create flammable tinder. Scientists thought that wildfires were surely a function of drought.
- Shorter winters mean there is less snow. That frees a smaller amount of melting snow in the spring. That also dries the soil and vegetation.
- A shorter winter also means that many insects, such as the pine bark beetle, don't die off in the winter. As a result, they are killing and reducing millions of trees. The U.S. Forest Service estimates that 100,000 beetle-infested trees fall daily. This level of damage has never before been seen in U.S. recorded history. It produces dry fuel for forest fires.

Panel Three: Who is affected? People? Animals? Ecosystems?

- People often lose their houses as well if the fires are close enough to human housing. Vegetation is now obsolete if this area is near a farm or near the food of other inhabitants. Millions of dollars are spent repairing these damages and re-building homes and areas of vegetation.
- It is sad but true fact that birds, squirrels, rabbits, and other wildlife animals are no longer a part of this great earth. Trees and plants help to produce oxygen in the world. The less trees and plants there are the less clean air we have to breathe. With no plants or trees, the animals that did survive no longer have anything to eat.
- wildfire nature's way of clearing out the dead litter on forest floors. This allows important nutrients to return to the soil, enabling a new healthy beginning for plants and animals. Fires also play an important role in the reproduction of some plants. For example, seeds in some pinecones are sealed with a resin that melts in fires, releasing them and allowing new growth.

Panel Four: What We're Doing and How You Can Help!

According to nature.org,

- Promote forest restoration (the use of forest thinning in combination with controlled burns, where it is safe and appropriate, to reduce high fuel loads that contribute to mega-fires), and fuels reduction in fire-adapted forests like the Sierra Nevada, through controlled burning and ecological thinning
- Take a landscape-scale method to forest restoration by planning and arranging for restoration over various watersheds and prioritize restoration in the places and at the scale where it will have the most critical impact.
- Advance in policies and plans that promote fire resilient communities by focusing increase away from high fire risk zones and organizing options - including both fire-hardening and relocation - for people already in harm's way.

On the forest restoration front, California is off to a good start. The governor and the state council have committed to forest health and fuels reduction in 2019, but there is still a great deal of work to be done to protect California forests and our communities.

Methodology

The Western Wildfires and Climate Change infographic is based on careful evaluations of published scientific research and publicly accessible federal wildfire data.

work cited:

AMADEO, KIMBERLY. *Wildfire Facts, Their Damage, and Effect on the Economy*. July 2019,

<https://www.thebalance.com/wildfires-economic-impact-4160764>.

California: Let's Stop Making History. Mar. 2016,

<https://www.nature.org/en-us/about-us/where-we-work/united-states/california/stories-in-california/californias-wildfire-future/>.

Infographic: Western Wildfires and Climate Change. July 2013,

<https://www.ucsusa.org/resources/western-wildfires-and-climate-change#.WpeJlMrwaIt>.

Lieberman, Bruce. *California and Climate Change: Here's What to Expect*. Oct. 2018,

<https://www.yaleclimateconnections.org/2018/10/climate-change-impacts-in-california-by-2100>

MCKENNA, PHIL. *In California, Climate Change Is an 'Immediate and Escalating' Threat*. 2018,

<https://insideclimatenews.org/news/09052018/california-climate-change-evidence-auto-emissions-standards-wildfires-heat-waves-water-drought-solar>.