



Only You Can Prevent Wildfires... But How?



Bryce Tim

Forest fires are clearly a pressing issue to the future of our environment. Focusing on California, every year seems to be a record breaking wildfire season. These fires both threaten human lives and release carbon dioxide and other pollutants into the air. A warming climate has influence over the severity of these fires, but there are steps to reduce the annual natural disaster. We can prevent unintended fires before they start, and we can take steps that will impair the fires once they start.

As many living in California would know, Smokey Bear is the face of wildfire prevention. This campaign to increase awareness began August 9th, 1944, appealing to children as a friendly bear teaching about fire safety. The campaign has had success over the years with the Ad Council reporting that 80% of outdoor recreationists correctly identified Smokey Bear's image. Yet, over 90% of wildfires in California are caused by humans. With such a harsh wildfire season, here are tips to prevent any unintended fires.



Campfires:

- Only start a campfire in an appropriate fire pit, cleared of all vegetation and ringed by stones
- Never leave a fire unattended or douse the fire with water or dirt when leaving
- Don't start a fire on a windy day

Smoking:

- Never throw out cigarettes or matches with being fully extinguished
- Never throw any smoking materials out of a car or onto the ground, especially in dry conditions

Fireworks:

- Have a bucket of water, garden hose or fire extinguisher handy. Consider wetting down the surrounding grass and other vegetation before lighting your fireworks.
- Never let children use fireworks or sparklers unsupervised.
- Don't light fireworks on a windy day

With all these considerations, one should also check the fire advisory before having any fire related activities. You can check which areas have high risk to wildfires with this website:
<https://www.wrh.noaa.gov/fire2/cafw/>

All previously mentioned tips are to prevent a wildfire from getting started, but there are large scale actions that limit the spread of a wildfire once it becomes out of control. It may seem counterintuitive, but to combat large wildfires, a very effective method is to start smaller controlled fires. Years of practicing strict fire suppression has left our forests full of fire fuel. Controlled burns actually take away the fuel that the bigger wildfires rely on, limiting their spread and making it harder for fires to start in the first place. Another method is to prune the lower branch of large trees to the height of four meters, or about 13 ft. When a ground fire jumps to the upper leaves it becomes a crown fire, the most intense and difficult fire to contain, but pruning prevents this.

Not all efforts are focused on mature forests with established trees; young forests need protection as well. These forests that have been planted within the last six years are vulnerable to fires, which will disrupt their natural renewal. To protect young forests, firebreaks, a gap in vegetation, will act as a barrier against fires. Other flammable substances in these forests, such as dead grasses, are cleared.

Protecting our forests from wildfires requires both prevention from humans and prevention within the forests. It cannot be expected that wildfire conditions will eventually disappear, so the actions we take are key to a safer state. We must remain vigilant and keep moving forward to prepare for the next big fire.



Gas vs. Electric Cars



We see commercials everywhere touting the environmental benefits of electric and hybrid vehicles over traditional gasoline ones and encouraging us to buy one, but what difference, if any, does owning and electric vehicle make?

At first glance, it seems obvious that electric vehicles are much better than gas and diesel powered cars because electric cars don't output dirty exhaust. However, the electricity that powers such electric vehicles usually comes from powerplants, that also burn fossil fuels and emit greenhouse gasses. Electric cars may not help reduce greenhouse gas emissions if the electricity is generated by fossil fuels. This is dependent of whether the electricity is generated from Renewable sources, like solar power or wind power, or if the electricity is generated from fossil fuels.

However, even if the electricity is generated by fossil fuels, an electric car may still have less emissions overall compared to a traditional gas vehicle. According to "Well-to-Wheels Greenhouse Gas Emissions and Petroleum Use for Mid-Size Light-Duty Vehicles,[1]" a electric mid-sized car is expected to produce 230g of CO₂ per mile, compared to 340g from a gasoline car. This shows that even though it may not be optimal to drive an electric vehicle if electricity is derived from fossil fuels, it may still be preferable to a gas vehicle.



Additionally, another environmental impact of electric vehicles is the rare elements required in the batteries. Unlike gasoline vehicles, electric vehicles require large specialized batteries that often contain many rare earth metals like neodymium and dysprosium. Mining for these rare earth metals is extremely harmful to the environment. As seen in many mining centers like Baotou, entire lakes can become filled up with toxic waste from mining operations. Aside from rare earth metals, the batteries in electric vehicles also require metals like lithium, copper, and nickel. Mining for any of these metals is often very destructive towards the environment and contributes greenhouse gasses as well.

Although electric vehicles have clear environmental benefits compared to gas powered vehicles, electric vehicles are not the perfect solution to car pollution. Ultimately, the optimal solution is to reduce cars in total. Instead of driving, we should consider alternatives like walking, biking, or public transportation. Not only does reducing cars reduce pollution, it will mitigate problems like urban sprawl, traffic jams, and automotive accidents. We shouldn't revere fancy new technology when there is a much simpler solution.

TOP 5 WAYS HUMANS CAUSE WILDFIRES

FLORA YUAN

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DISCARDED CIGARETTES

Although a study conducted in 2014 has proved that cigarette-caused wildfires have declined by 90 percent since 1980, discarded cigarette butts still pose a threat to our ecosystems. If cigarettes are not properly extinguished, fire residue can accumulate to a point of starting a wildfire. This improvement is primarily due to new self-extinguishing cigarettes, which are now required in all 50 states.

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BURNING OF DEBRIS

On average, 1 out of every 5 human-caused fires are a result of someone burning debris. Wildfires can be caused by an accumulation of dead matter (namely leaves, twigs, and trees). Burning debris is dangerous because of the embers, small pieces of burning coal or wood) that escape from it. These embers can carry for miles without extinguishing, creating enough heat to spontaneously combust and ignite the surrounding area. The Mendocino Complex Fire from July 2018, which was caused by a rancher who sparked dry grass, destroyed 459,123 acres of land.

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EQUIPMENT ISSUES

The invention and mass production of technology has certainly advanced our society in numerous ways.

However, they also pose a new threat to the world's wildernesses. The Thomas Fire of December 2017 was as a result of power lines crashing together during high winds. 281,893 acres were lost, 1,063 structures were destroyed, and 2 people were killed. The high winds created an electrical arc, an electrical breakdown of a gas that produces a prolonged electrical discharge, which then deposited molten material onto the ground.

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UNSUPERVISED ACTIVITIES

A key way of preventing wildfires is being mindful of your actions and how they affect your surroundings. Careless use of fireworks and unsupervised children can easily set up the next wildfire. Unsupervised activities could also include anything from vehicle crashes, engine sparks, and arson.

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UNATTENDED CAMPFIRES

While campfires hold warm memories of cooking s'mores and spooky stories, they are one of the leading causes of wildfires in the United States. Campfires are the number one cause of human-started fires according to the U.S. Forest Service. One notable case of campfires causing wildfires was the campfire in Butte County, Northern California on November 8, 2018. It has since gone down as one of the deadliest and most destructive fires in California, killing 85 people and burning 153,000 acres of land.

FROM JANUARY 1 TO OCTOBER 5, 2020, ALONE, THERE HAVE BEEN 44,714 WILDFIRES, 3,311 MORE THAN THE SAME PERIOD IN 2019. 7.4 MILLION ACRES HAVE BEEN BURNED DURING THIS PERIOD. WHILE THE REMAINING 15% OF WILDFIRES ARE NATURALLY CAUSED, USUALLY BY LIGHTNING, DRY WEATHER, OR DROUGHT, WE SHOULD CONTINUE TO REMAIN MINDFUL OF OUR ACTIONS. AS SMOKEY THE BEAR SAID ALL THE WAY BACK IN 1947: ONLY YOU CAN PREVENT FOREST FIRES!

LAYOUT BY GRACE HE

BENEFITS OF WILDFIRES

BY JASON HU

Typically when one thinks of a wildfire, they tend to only recognize the negative consequences. Millions of people lose their homes, and billions of dollars are burned up trying to repair these buildings. However, despite all of the negatives that one would expect from a wildfire, there actually are many benefits that go under the radar.

Clearing and Fertilizing Soil

Fires have been a part of the Californian terrain forever, and it has not changed as humans have begun to settle. Wildfires are a great way to clear out some of the weeds and other debris, and in doing so, returns precious nutrients back to the soil. This makes the region very fertile, and plants are then able to better colonize the areas.



Supporting Animals

In addition, many of the organisms that live in areas where fires are prominent have adapted to its conditions. They expect these fires to occur every year, and when they are extinguished by humans, these organisms aren't adapted for the continuation of growth. Thus, wildfires maintain a sense of routine that organisms have become accustomed to.



Preventing Bad Wildfire Seasons

However, wildfires are also embellished in a controversy: whether local authorities should let natural wildfires burn. Although these fires may pose a slight threat to society, letting them burn may actually give many advantages to society in the long term. This is because they reduce the risk of a potentially devastating fire season. If the fires are able to burn away flammable material every year, they won't get a chance to collect on the forest floor. If wildfires are constantly being put out, this material accumulates and one spark could set the whole forest on fire. Not only would this have great consequences for humans, but it could also ruin the natural habitat for animals and plants. This has already been seen in California, where it seems like every year the fires get worse and worse. This is due to the fact that the forests are never given a chance to reset, so the buildup of dry plants provide plenty of fuel for these fires to burn.

