Motivation:

In recent years, there has been an increase in forest fires with high severities Severity of a fire is defined as the damage which is done to the land and habitat by the fire. Low severity is defined as less than 25% of the overstory trees has been killed and it has limited effects on the soil. Moderate severity is defined as 25-75% of the overstory trees has been killed and it has moderate effects on the soil. High severity is defined as greater than 75% of the trees have been killed and the soil has suffered from high mineral exposure.

Forest fires induce a great loss to the natural habitat of animals. With the reduced habitat, it’s now even more difficult to save the endangered species. Fires have largely affected the non-migratory birds to a great extent. The Great Grey Owl is one of the endangered species in California and is estimated to have less than 200 pairs alive.

Curbing the forest fire is the biggest motivation for pursuing this project. In the media reports, we generally see the damages done by the fire in the area. We are less likely to see anything which is being done by the government to curb the forest fires. We are aiming to find the statistically significant relationships between the cause, location, month of the year and how we can apply these findings to introduce the policy and law changes which can contribute towards the reduction of the forest fires.

In recent times, California Power Company has filed for the status of Bankruptcy because of continuous damages made to its infrastructure and power lines by the forest fires. The huge monetary loss, deaths, loss of natural habitats associated with these fire break-outs makes this a pressing issue. We have seen Trump blaming US Forest services for the recent California wildfire. This is becoming a political issue as well. We believe that with all these issues surmounting at the same time, this is the apt time to discover the causes and suggest the government about new policies and law enforcement which can help to bring down this issue.

Apart from the mentioned reasons, Daniel has a sister living in San Diego and his girlfriend is from the Oakland Area. Sagnik’s friend has suffered in California 2018 forest fire. These personal reasons motivate us to dig down the issue and find sustainable solutions to the fire breakout issue.

Related Work:

We discovered this issue in the NYTimes 2018 article where they reported 88 people confirmed dead and 200 people remained missing. This news, along with California Power Company filing for bankruptcy due to forest fires has triggered our interest in finding solutions to the fires.

University of California’s Agriculture and Natural Resources department has published numerous research papers to prevent and overcome the wildfires. The research paper such as [Home Landscaping for Fire](http://ucanr.edu/sites/cfro/files/167774.pdf), [Home Survival in Wildfire-Prone Areas: Building Materials and Design Considerations](http://anrcatalog.ucanr.edu/pdf/8386.pdf) and [Combustibility of Landscape Mulches](http://www.unce.unr.edu/publications/files/nr/2011/sp1104.pdf), will guide us throughout our project and will help us understand how to hold back the repeated occurrences of forest fires.

Federal employees working for the United States Forest Service have released a research paper as ‘’Climate change and Wildfire”. In this paper, high importance has been given to fire-climate interactions. For example, how smoke particles mostly suppress cloud formation and precipitation, how fire events could lead to more droughts etc. We will utilize this paper as a resource in our exploratory data analysis.

In Kaggle, there are kernels where people have performed EDA and reported the number of wildfires, reasons and average burn times.