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Geog 360

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How have wildfires in Washington changed over the decades compared to Washington's Fire Shutdown Zones? The apparent increase in Wildfires in Washington is important to me and many other residents of Washington. Washington has faced a trend of inclement weather related to smokey skies during summer months. It seems that Washington is currently on the trajectory of many more smokey summers to come. I have lived in Washington my whole life and most summer months the wildfires and smoke has not affected my life. Only recently it has gotten a lot worse and made some smokey days unbearable. For this project I wanted to see if Washington's wildfires have actually become as bad as it has seemed lately.

First off I needed the data. I found wildfire data in Washington on the Washington State Department of Natural Resources GIS Open Data website. The first set of data I gathered only showed the exact areas of wildfires throughout Washington and because of that I needed to find another data set that covered the rest of Washington. I found a data set of Fire Shutdown Zones on the Washington Geospatial Open Data portal. I used the Fire Shutdown Zones data as an overlay map of Washington and I also used it to analyze the change of wildfires throughout Washington over the years. Now that I collected the data I continued on by making arguments by visualizing the data.

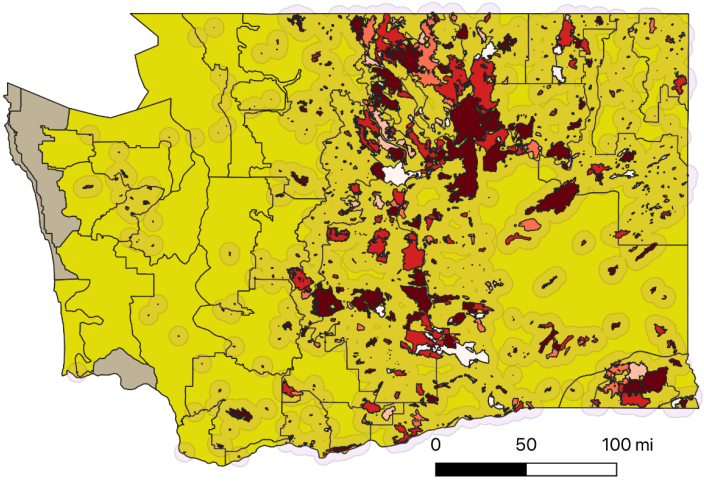
From analyzing the wildfire data I decided that it made sense to make a choropleth map of the wildfire data based on the year of the wildfire. This was because

you could easily see the frequency, area, and increase of color as the years increased. I wanted to incorporate the fire shutdown data with the wildfire data and the best way I found to do that was by making a spatial query of wildfires that intersected the fire shutdown zones. This gave me a map with many highlighted fire shutdown zones and that was because it was using all of the fire data up until 2022. I decided to do another spatial query of wildfires that intersected fire shutdown zones but this time I filtered wildfires only in the years from <= 2005. This showed me exactly what I wanted to see from the wildfire data and the difference in the fire shutdown zones that wildfires were intersected with. Lastly for my analysis I decided to add a buffer on each of the wildfires in both of the maps I created. The reason I added this was because I wanted people to be able to grasp the impact of these wildfires. Wildfires impact much more than just the area mapped onto the map and because of that I added a 5 mile buffer on each wildfire. This buffer also helps with the argument that wildfires have increased drastically by showcasing the visual impact of the wildfires.

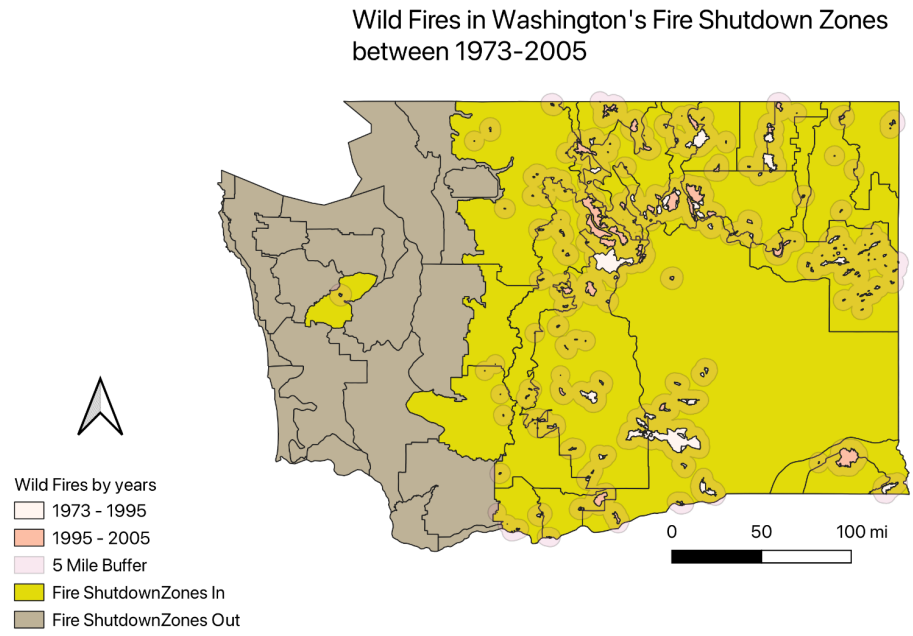
In conclusion I have found that the frequency of wildfires, the impacted area, and fire shutdown zones have all increased significantly. The first map displays all of the wildfire data between 1973-2022 and based on the choropleth map you can see much darker reds and bigger areas of fires in the later years. The second main point you can see is that the amount of fire shutdown zones highlighted is much greater given the wildfires data in the years greater than 2005. In the second map you can see that the wildfire data that includes all fires in the year less than 2005 has significantly less wildfires, the areas are less, and the amount of fire shutdown zones included is a lot less. From the analysis of these maps I believe it is clear that wildfires in Washington

have greatly increased throughout the years and the amount of fire shutdown zones has also greatly increased.

Wild Fires in Washington's Fire Shutdown Zones between 1973-2022



Wild Fires by year
- 1973 - 1995
- 1995 - 2005
- 2005 - 2011
- 2011 - 2017
- 2017 - 2022
- Buffer
- Fire ShutdownZones In
- Fire ShutdownZones Out



Sources:

https://geo.wa.gov/datasets/wadnr::fire-shutdown-zones-1/explore
https://data-wadnr.opendata.arcgis.com/datasets/wadnr::washington-large-fires-1973-2020/explore?location=47.341033%2C-120.225150%2C7.95