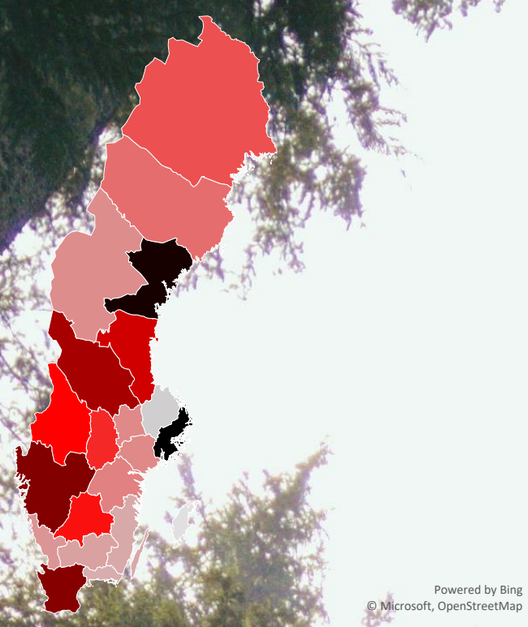
How the number of matches in various counties was distributed between 2010 and 2020. Where a darker tone indicates a higher value



Why was this assignment created:
Climate change is an important issue in modern society, with increasing temperatures, changing patterns of rainfall, and more days of drought to come. This will, of course, have an impact in many ways, but this study has looked more thoroughly at how fires currently affect train traffic. This understanding of how traffic is influenced by current weather conditions might benefit future research when the weather changes.

How the assignment was completed:
Three databases were examined to gather information, two of which (Luppdata and Ofelia) had information regarding fires near the railway. The third database (MSB) that was used contained information about the number of fire-related rescue missions performed in Sweden. The comparison of these three databases revealed the number of times a fire at the railway was severe enough that emergency services were called in, implying that the fire on these occasions was greater. The number of delay minutes was also evaluated to determine the impact that the fire had on the train. Only two databases were compared to gather this information, as one of them (Ofelia) did not contain information about delays. Simultaneously it was investigated where these fires happened in Sweden to identify additional factors that have influenced the number of fires and delays.

What did this assignment reveal:
These comparisons of the three datasets revealed 1,337 occurrences where a fire broke out around the railway, and a rescue mission was being carried out at the same time. According to calculations, rainfall and temperature at the moment of the match explained 10.6% of the fires, or little more than one-tenth of the fires. Similar calculations were carried out for the number of delays, with the two databases giving 621 matches. These findings revealed that temperature and rainfall did not affect the number of delay minutes.

The distribution of matches (shown in the top left corner) and delay minutes (shown in the bottom left corner) were mapped to see where the majority of fires and delays occurred and if other factors may have affected the fire risk. This showed that the three counties with populations larger than one million were in the top four for the most matches and the top eight for the most delays, indicating that population could have an impact.

Which new theories emerged:
Temperature and rainfall proved to have a small impact on the number of matches, while population appeared to have an effect on both the number of matches and the number of delays, but this is unconfirmed. According to previous studies, air humidity varies throughout the year. Humidity was lowest in late spring and early summer, slightly higher in summer, and highest during the cooler seasons. This followed the same pattern as the number of delays and matches in this study, peaking in late spring and early summer.
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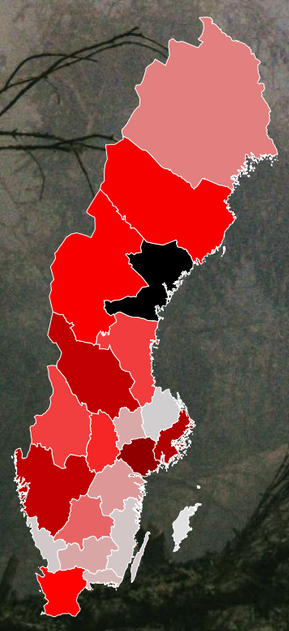
What the assignment was about:
According to this study, temperature and rainfall have been shown to impact the number of matches. While it remains to be proven that temperature has an effect, it appears to have an impact on both the number of matches and the delay. Several ideas developed during the course of this work concerning other factors that could have influenced the number of matches and delays. Additional research may be conducted to more exactly determine what influences the number of matches and delays. With the purpose of making future travel more convenient for both passengers and operators.

The distribution of delay minutes in different counties between 2010 and 2020. Where a darker tone indicates a higher value



How much of an impact do forest fires have on the railway

A bachelor thesis made by Jonatan Gustafsson.