

Houston Pollen Count in 2021

Cheng Cheng

Background

- A pollen count is the measurement of the number of grains of pollen in a cubic meter of air
- High pollen counts can sometimes lead to increased rates of allergic reaction for those with allergic disorders
- Houston Health Department laboratory measures air samples to provide a daily report and recorded message for the pollen count within the area
- Pollen count in the daily report includes tree pollen, grass pollen, and weed pollen
- **Question: which month has high pollen count, and what contributes to the pollen count?**

<https://www.houstontx.gov/health/Pollen-Mold/pollen-archives.html>



HOUSTON HEALTH DEPARTMENT

Pollen Spore Count Archives

2022

- [January](#)
- [February](#)
- [March](#)
- [April](#)
- [May](#)
- [June](#)

2021

- [January](#)
- [February](#)
- [March](#)
- [April](#)
- [May](#)
- [June](#)
- [July](#)
- [August](#)
- [September](#)
- [October](#)
- [November](#)
- [December](#)

Data Acquisition & Processing

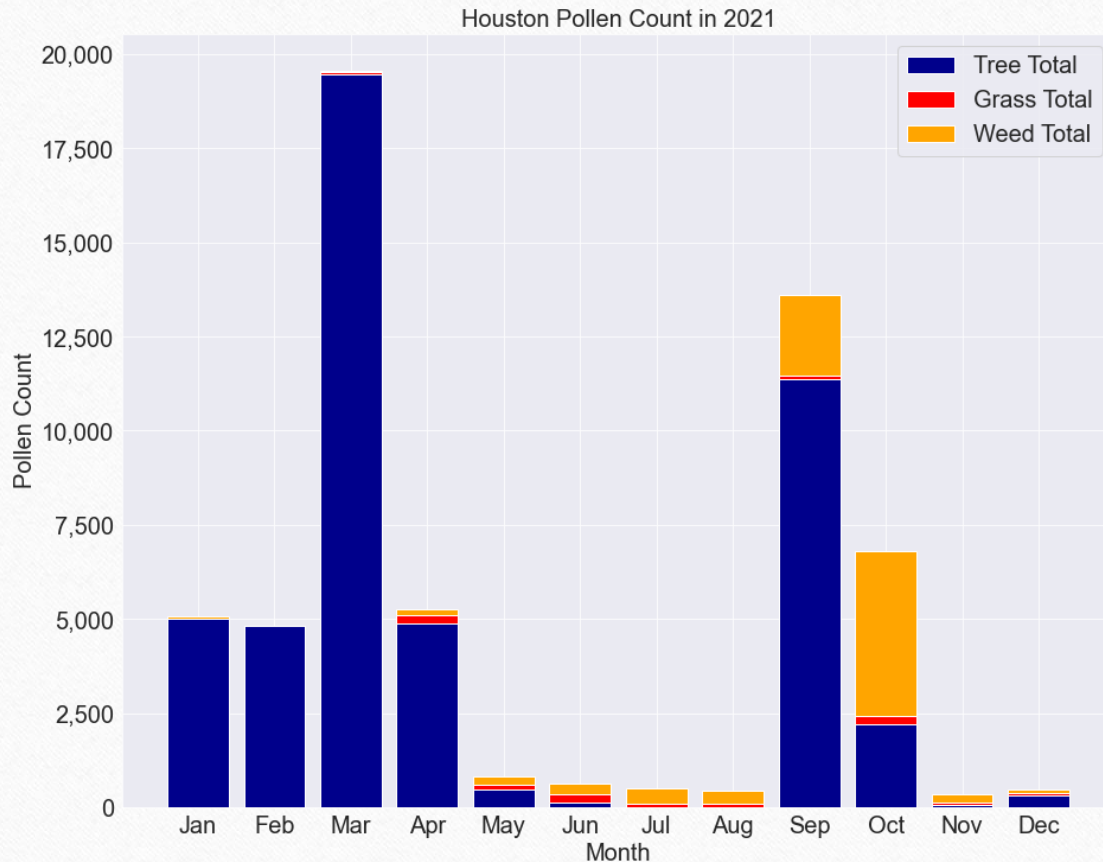
- Download the 2021 daily pollen count data from Houston Health Department website
 - Spreadsheet data for each month
- Examine the datasets to fix errors
- Analyze and plot monthly pollen count data
 - Identify which contributes the most for the total pollen count

Example Spreadsheet

[illegible]

Pollen Count

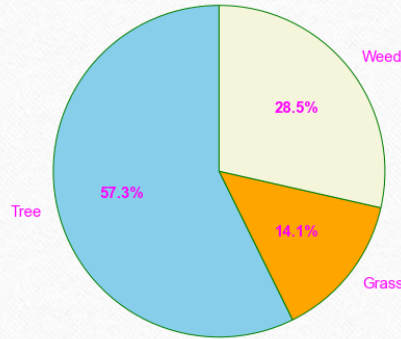
- March has the highest pollen count among all months, followed by September
- January, February, April, and October also have higher pollen count
- May, June, July, August, November, and December have lower pollen count



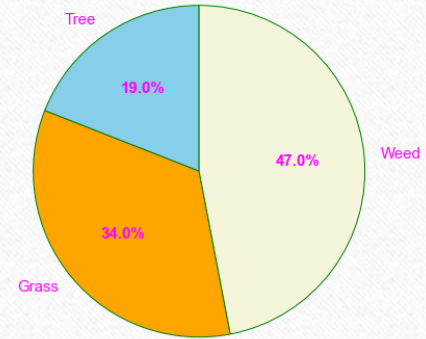
Contribution to Pollen Count

- From January to May, tree pollen is the primary contributor to the total pollen count
- From June to August, weed pollen is the primary contributor to the total pollen count, followed by grass pollen

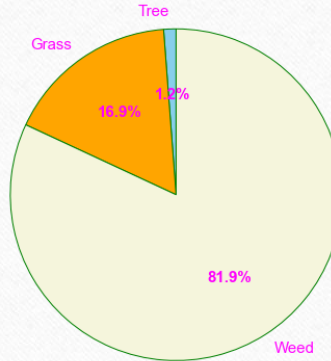
Contribution of Pollen Count in May



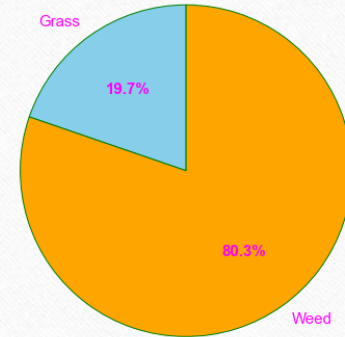
Contribution of Pollen Count in June



Contribution of Pollen Count in July



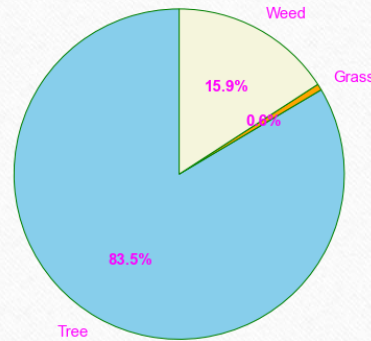
Contribution of Pollen Count in August



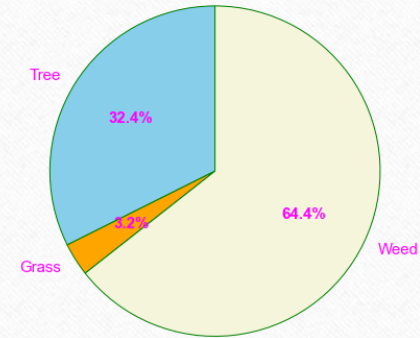
Contribution to Pollen Count

- Tree pollen is the primary contributor to the total pollen count in September and December, followed by weed
- Weed pollen is the primary contributor to the total pollen count in October and November

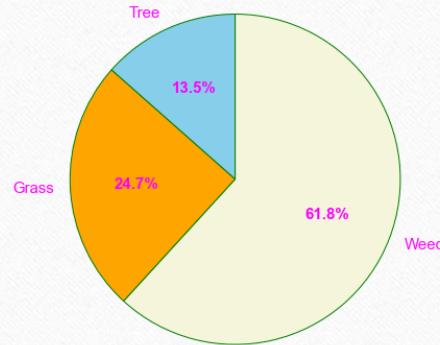
Contribution of Pollen Count in September



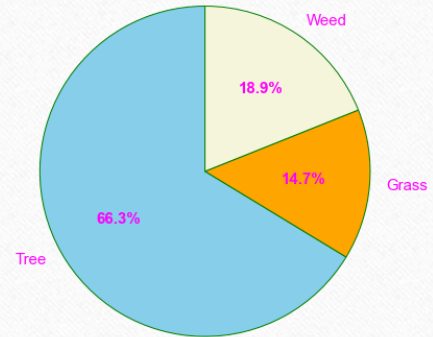
Contribution of Pollen Count in October



Contribution of Pollen Count in November



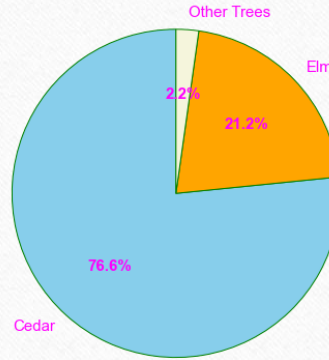
Contribution of Pollen Count in December



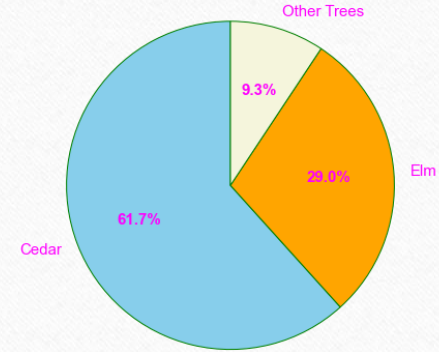
Contribution to Tree Pollen Count

- Cedar and Elm are the primary contributors to the tree pollen count in January and February
- Oak and pine are the primary contributors to the tree pollen count in March and April

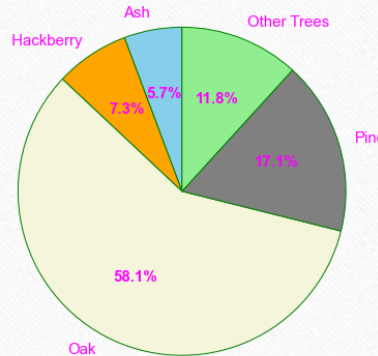
Contribution of Trees in January



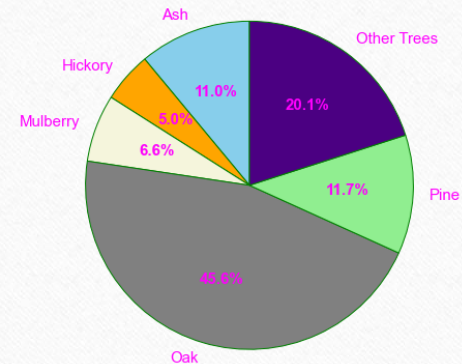
Contribution of Trees in February



Contribution of Trees in March



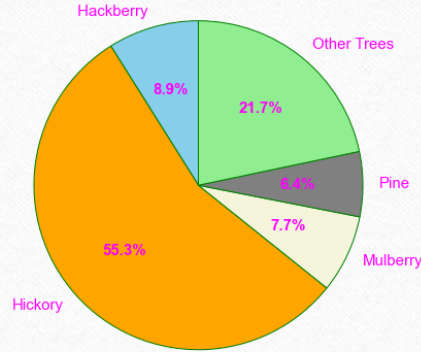
Contribution of Trees in April



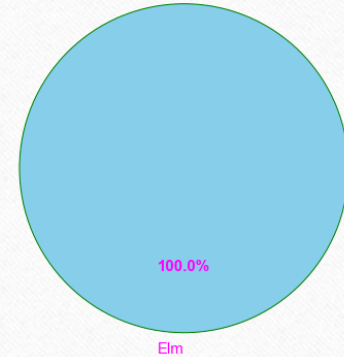
Contribution to Tree Pollen Count

- Hickory is the primary contributor to the tree pollen count in May
- Tree pollen is negligible in June, July, and November
- Elm is the primary contributor to the tree pollen count in September
- Cedar is the primary contributor to the tree pollen count in November and December

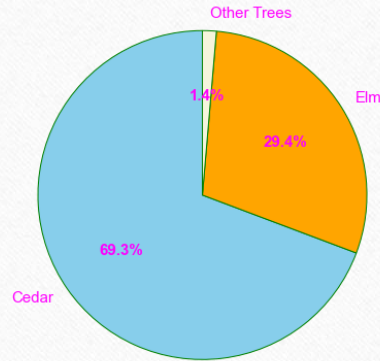
Contribution of Trees in May



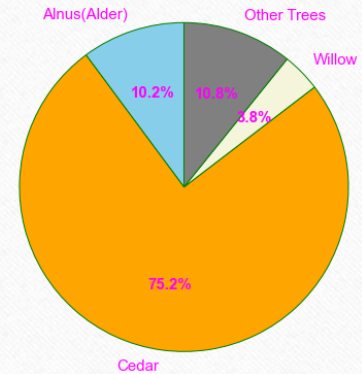
Contribution of Trees in September



Contribution of Trees in October



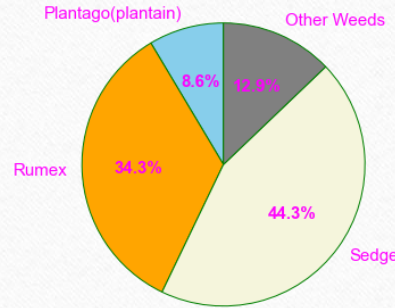
Contribution of Trees in December



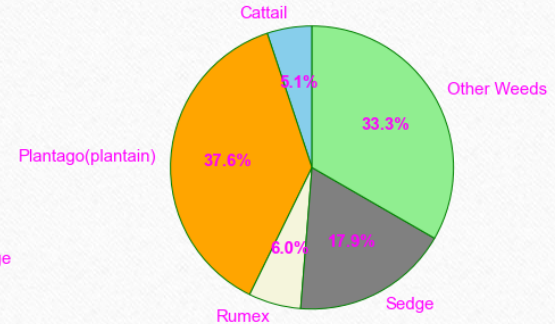
Contribution to Weed Pollen Count

- Weed pollen is negligible in January, February, March, and December
- Sedge and Rumex are the primary contributors to the weed pollen count in April
- Sedge, Cattail, and Plantago are the primary contributors to the weed pollen count in May, June, and July

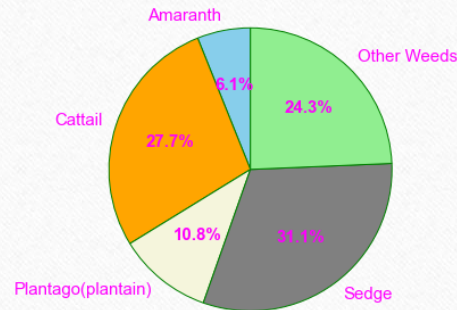
Contribution of Weeds in April



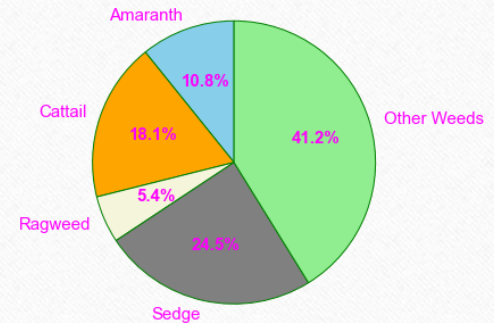
Contribution of Weeds in May



Contribution of Weeds in June



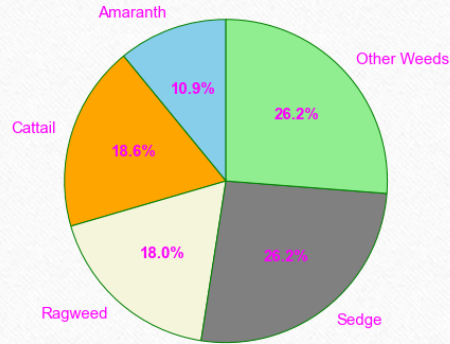
Contribution of Weeds in July



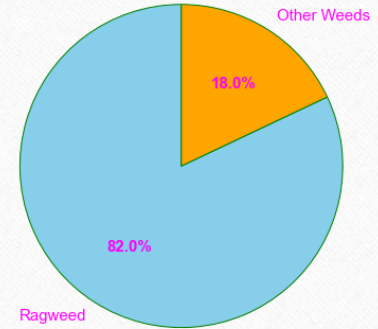
Contribution to Weed Pollen Count

- Sedge, Cattail, and Plantago are the primary contributors to the weed pollen count in May, June, and July
- Ragweed is the primary contributor to the weed pollen count in September, October, and November

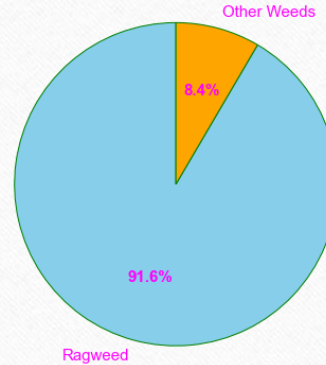
Contribution of Weeds in August



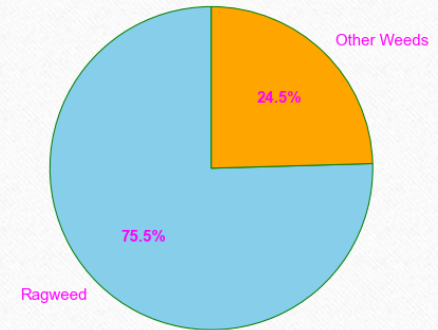
Contribution of Weeds in September



Contribution of Weeds in October



Contribution of Weeds in November



Summary

- Pollen count is higher in late winter, spring and fall and lower in summer
 - March and September have the highest pollen count
 - January, February, April, and October also have relatively higher pollen count
- Tree pollen is the primary contributor to the total pollen count in late winter & spring, weed pollen is the primary contributor in summer & late fall, and grass pollen provides a small contribution in summer
- Cedar and elm are the primary contributors to the tree pollen in fall & winter, while oak is the primary contributor to the tree pollen in spring
- Ragweed is the primary contributor to the weed pollen count in fall, while Sedge, Cattail, and Plantago are the primary contributors to the weed pollen count in late spring & summer