336 Tree Selection for Urban Development and Study of Impact on Pollen Count with Warmer Temperatures in King County, Washington

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RATIONALE: Extended periods of warmer weather around the globe have consequently elongated pollen seasons. Regrettably, there exists a dearth of comprehensive research concerning pollen emissions in relation to the selection of trees and plants in King County, Washington particularly in urban settings encompassing cityscapes, parks, institutions, schools, and hospitals. This research gap is mirrored in the absence of dedicated policies and tracking mechanisms within the planning departments of both cities urban cities in King County and unincorporated King County. Drawing from research findings, an intensified inquiry at the county or even state level was done. This inquiry encompassed an assessment of pollen levels and their ramifications for community members afflicted by asthma and allergies, with a particular focus on the most vulnerable demographics: children and adults aged 45 and above. Remarkably, these two demographic segments collectively constitute nearly 40% of King County's overall population.

METHODS: 1. Collection of Pollen Data in King County
2. Analysis of Past Pollen Data Counts for King County
3. Anaylsis of Increase in Temperature
4. Qualitative research on past studies on this topic
5. Urban Development Plan for King County
6. Analysis of plants in King County

RESULTS: Direct impact of warmer weather on pollen counts. Tree selection needs to be understood and recommended based on pollen counts for urban areas that impact vulnerable populations.

CONCLUSIONS: Direct impact of warmer weather on pollen counts. Tree selection needs to be understood and recommended based on pollen counts for urban areas that impact vulnerable populations.

337 Comparison of the Airborne Fungal Spore Concentrations in Las Vegas and the Mojave Desert From 2020 - 2022

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RATIONALE: Airborne fungal spores are ubiquitous globally and are common allergens. Data comparing concentrations of spores between urban and natural desert environments are lacking. We continue to study fungal spore variability between Las Vegas and the Mojave Desert from 2020 - 2022.

METHODS: A Burkard spore trap was used to collect samples between January 1, 2020 and December 31, 2022 at the National Allergy Bureau site in Las Vegas and a site in the Mojave Desert. Samples were processed and analyzed using microscopy at 1000X magnification. Concentrations were Log_{10} transformed and compared using one-way ANOVA and an independent samples t-test.

RESULTS: Annual maximum fungal spore concentrations (spores/m^3) varied between years and sites. Average airborne fungal spore concentrations were significantly higher in Las Vegas compared to the Mojave Desert in 2021 and 2022 ($p < 0.001$), while there was no significant difference in 2020 ($p = 0.076$).

CONCLUSIONS: The fungal concentrations in Las Vegas and the Mojave Desert were highest in 2021 and 2020, respectively. Meteorological events were possibly responsible for an atypically high spike in concentration at the Mojave Desert site in 2020 and unusually low concentrations at both sites throughout 2022. The dominant spore types for both locations were smuts and *Cladosporium*. Annual mean concentrations of fungal spores increased at both sites in comparison to a previous study from 2016. Data from 2016 to 2020 show an increasing trend at both sites. Higher concentrations in Las Vegas reflect trends from previous studies suggesting urban environments are more favorable for fungal growth.

338 Pollen and fungal spores in Ecuador's air, preliminary findings from the country's first aerobiology station

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RATIONALE: Quantifying the amount of pollen grains and fungal spores in the atmosphere has grown in popularity across the world. There is no information about aerobiology in Ecuador. The main goal is to measure the daily concentration of pollen grains and fungal spores in the air in Samborondon, Ecuador over the course of a semester.

METHODS: The concentration of pollen and fungal spores was determined using the Hirst-type volumetric technique and a Burkard Seven-Day Volumetric Spore Trap® equipment, in accordance with AAAAI's NAB guidelines. Descriptive statistics were used in this study, and the quantification period ranges from November 2022 to April 2023.

RESULTS: The most significant daily concentration of pollen grains was 10 tree pollens/m3 on November 19, 2022; 37 grass pollens/m3 on April 21, 2023 and 66 weed grains/m3 on December 18, 2022; while the most significant daily concentration of fungal spores was 100 spores of Cladosporium spp./m3 on March 25, 2023; 108 spores of Nigrospora spp./m3 on April 21, 2023; 460 spores of Fuzariella spp./ Leptosphaeria spp./m3 on April 16, 2023; 42 Dreschlera/Helmintosporum spp./m3 on April 17, 2023; 45 Alternaria spp./m3 on March 23, 2023; 14 Pithomyces spp./m3 on April 13, 2023; 6 Curvularia spp./m3 on March 30, 2023 and 10 Stemphylium spp./m3 on March 29, 2023.

CONCLUSIONS: This is the first research in Ecuador to provide detailed data on the amount of pollen grains and fungal spores in the atmosphere, with a focus on weed and grass species of particular relevance.

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