

Group 2 :  
 Salma Akter  
 Amy Feng Zhang  
 Aayush Gogia  
 Neha Machamada  
 Mary Maung

# Does the Urban City Environment Affect the Number of Bee Species?

## Conclusion

Despite the worldwide decline of bees, urban areas host diverse and abundant bee communities. Our research shows that Urban Environments don't negatively affect the bee diversity in the number of species compared to suburban areas. In conclusion, the data analytics conducted revealed a statistically significant result with a p-value of 0.036. Therefore, we can reject the null hypothesis and accept the alternative hypothesis, concluding that there is indeed a meaningful association. Using the analysis of the Shannon H Diversity Index, with a value of 2.67 for urban regions and 1.63 for suburban areas, it's evident that urban environments showcase a notably higher diversity in comparison to their suburban counterparts. The higher Shannon H Diversity Index in urban areas suggests a more varied and balanced ecosystem, potentially influenced by factors such as habitat diversity, land use patterns, and environmental conditions.

## Future research

Conservation efforts to help bees and other pollinators in urban cities focus on creating special green spaces that give them food and shelter. To better understand the relationship between bees in urban areas, further research needs to be done first. Research needs to be done on different kinds of bees, not just a few types, to understand how they act in different city environments. It is also important to research what kinds of plants and places bees like best in cities, so we can help them by creating these spaces and protecting them. However, public opinions and socioeconomic factors may affect these plans. Laws made by governments and special city projects are helping, but we still need to learn more about how cities affect bees in different parts of the world, not just in a few places.

## References

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## Introduction

Urbanization is changing the biodiversity and environmental makeup of the world. One significant aspect of this change is the impact on bee populations and its diversity. **Bees are vital** for pollination, food supply, and the health of the ecosystems. Our research aims to explore and analyze the change in bee diversity in response to urban environments such as NYC. By analyzing this relationship, we can gain insights into the effects of urbanization on bee populations and the potential repercussions for our environment. This understanding can help guide conservation efforts that can support the diversity of bees.

## Methods

In our study, we gathered data from the 2014, 2015, and 2017 BioBlitz to assess bee species diversity and its relationship to urban environments. Looking at the numerous sites studied we analyzed the effect of terrain on bee species abundance. We also looked at data from studies examining bee diversity in three different suburban area locations in Colorado in order to compare and analyze species richness among these environments. Our methodology represents an approach that combines field data from BioBlitz, and data from an online source that includes data from a suburban area.. The utilization of the T-test results and the Shannon Diversity Index adds a quantitative dimension to enhance the depth and relevance of our findings.

## Results

The diversity of bee species observed in the urban area (M = 1.9, SD = 0.46) has a significantly higher abundance than the diversity of bee species in the suburbs (M = 2.03, SD = 0.09), t(9) = 2.5, p = .036. We got a value of 2.67 for Urban Areas and 1.63 Suburban Areas for the Shannon H Diversity Index.

## Results

