

# Does urbanization affect the life under our feet? Examining the factors affecting fungal communities on vacant lots in Cleveland Ohio.

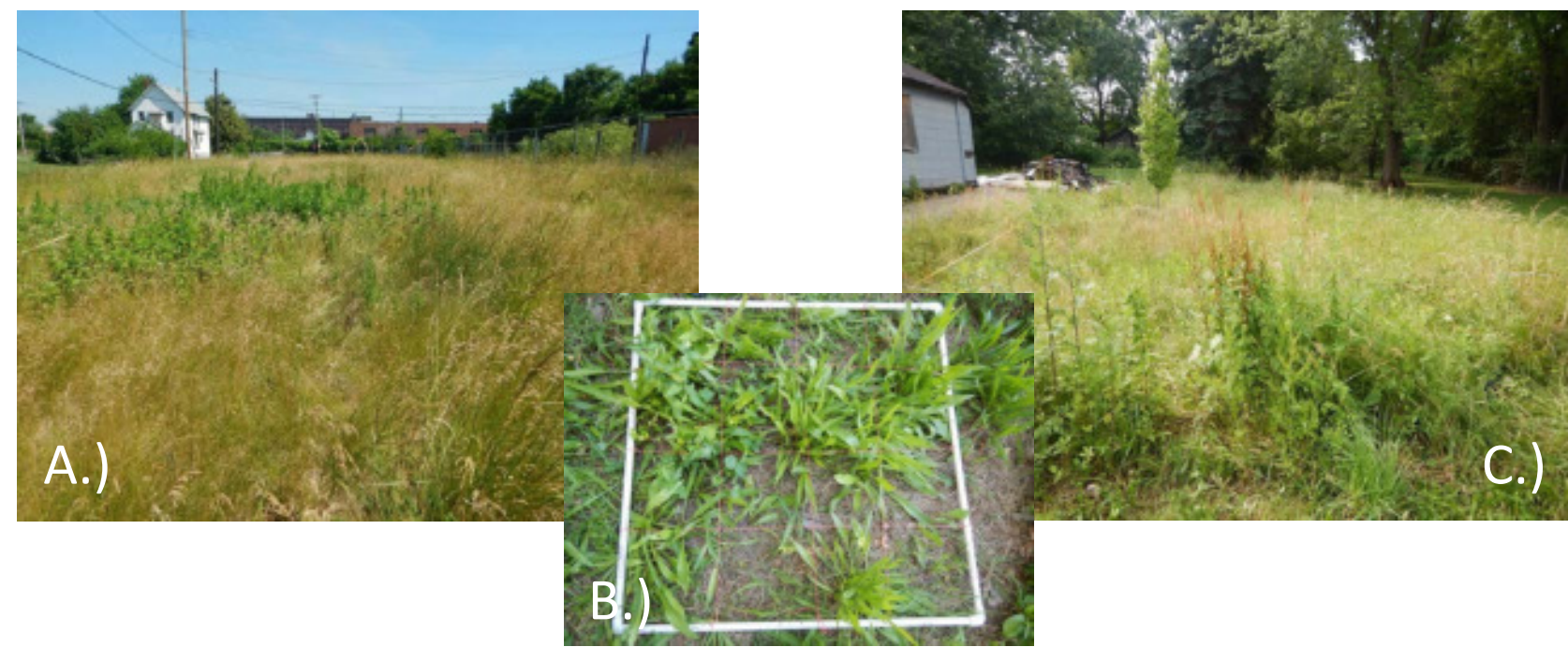
## Introduction

This study examined the threat of biotic homogenization to below ground communities in urban lots. Our goal was to better understand the effect of urbanization as a homogenizing force.

### Questions:

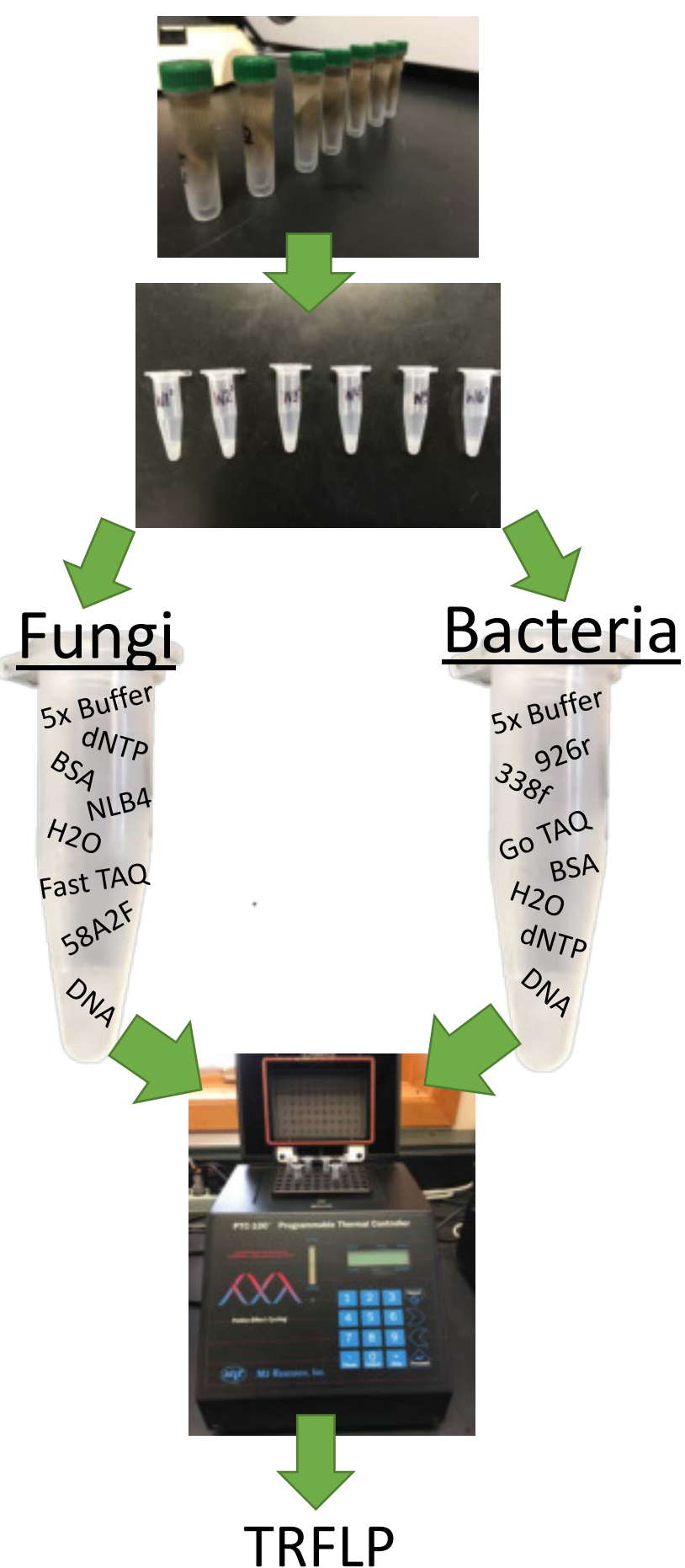
- Do trees play a role in the fungal community structure?
- Is there a relationship between plants and fungi?
- Do fungal communities differ from each other in different geographical locations?

## Experimental Design



- Soil cores were taken from six sites (Figure A&C are two examples) with ten replicates from each site. Also—as shown in figure B—a vegetation survey was also completed at each of the soil sample points.

## Finding DNA and Making More



- From the -70 degree Celsius freezer the soil samples underwent DNA extraction—the phenol/chloroform method—separating inorganic materials from organic genetic materials.

- Under Polymerase Chain Reaction (PCR) samples—containing DNA and a master mix—were amplified in a thermocycler accordingly from DNA of general fungi or bacteria within samples.

## Results

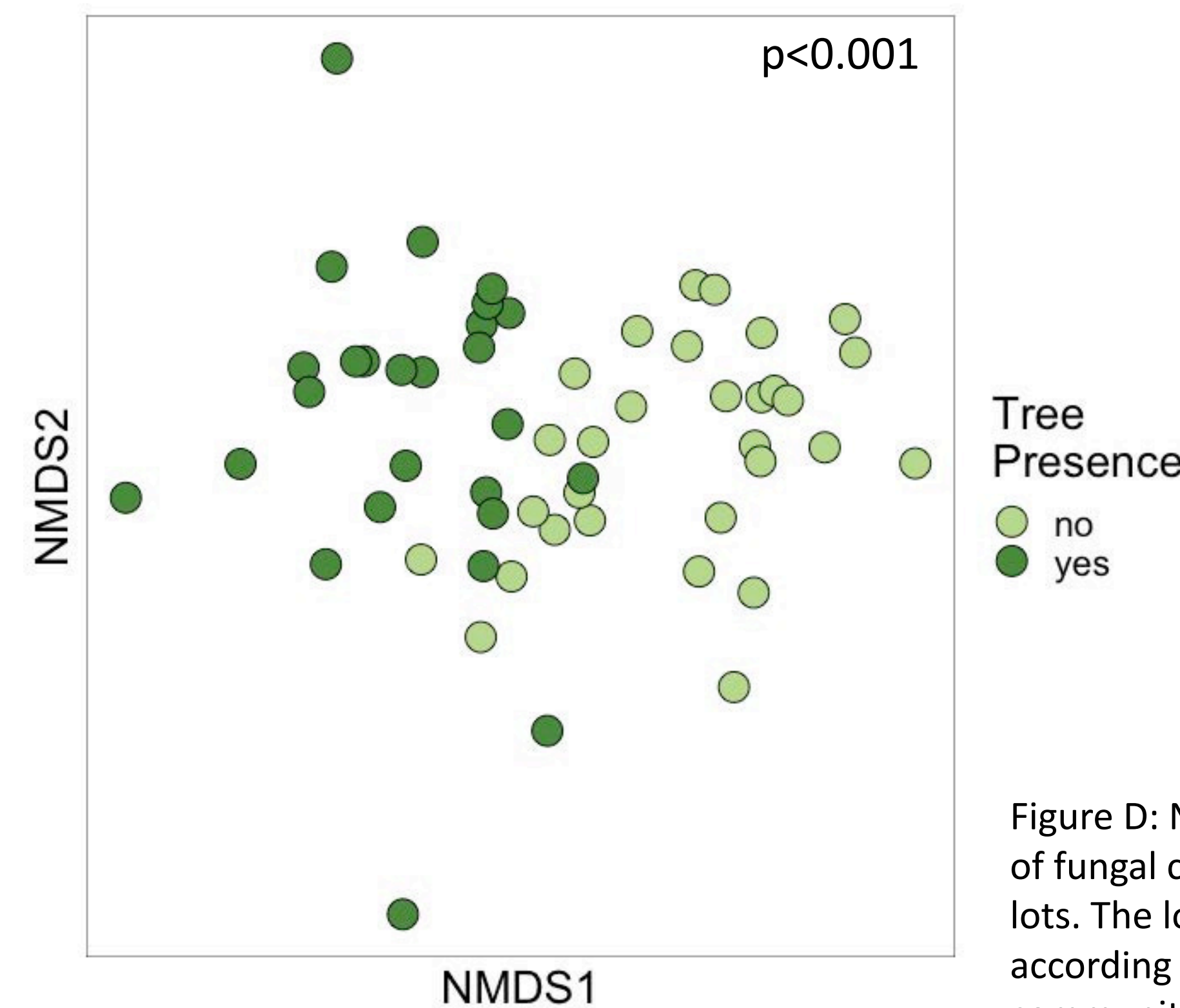


Figure D: NMDS ordination graph of fungal communities in vacant lots. The lots are color coded according to tree presence. Fungal communities differed between lots that had trees and those that did not.

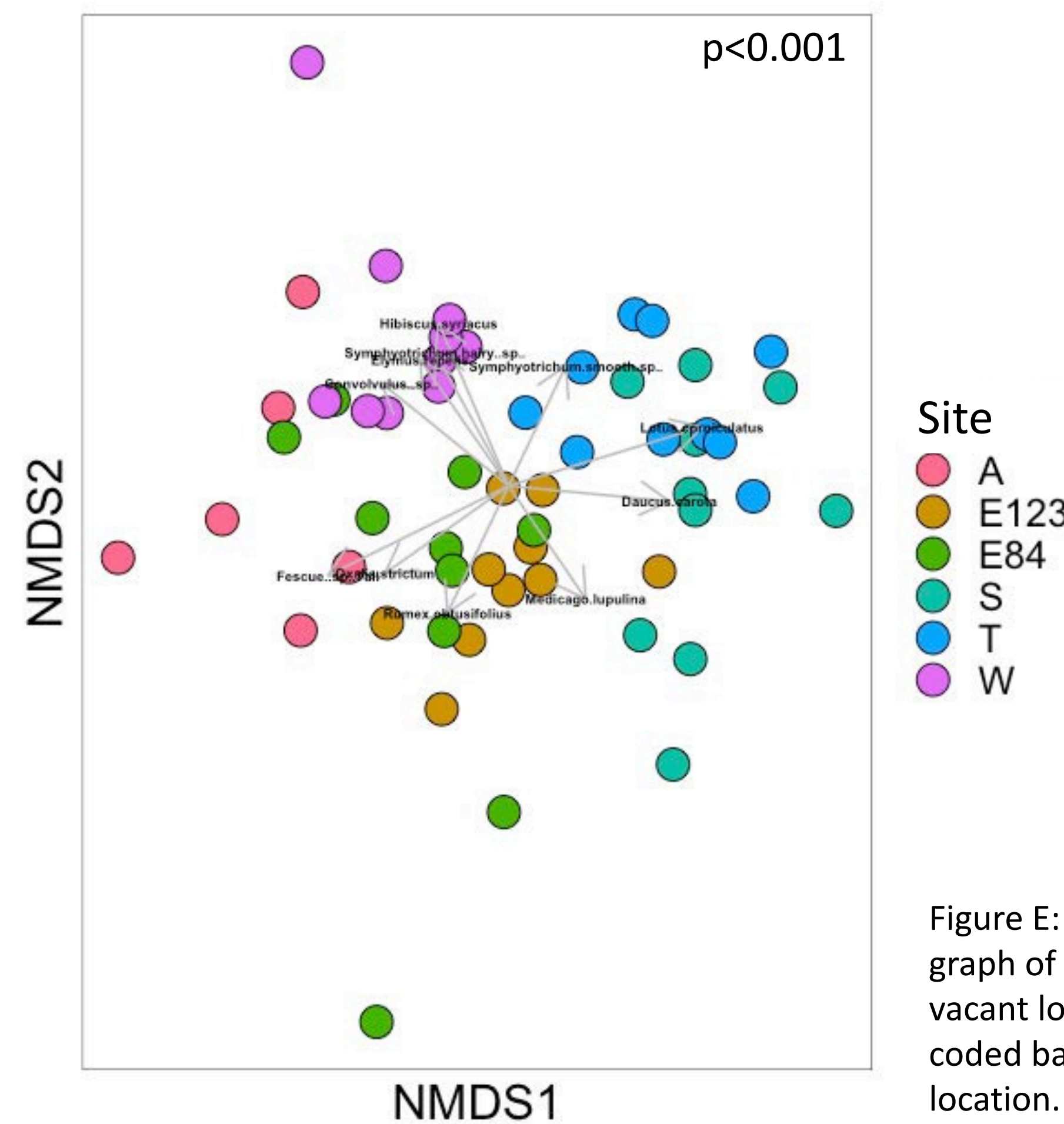


Figure E: NMDS ordination graph of fungal communities in vacant lots. The lots are color coded based on geographic location. Fungal communities differed between the locations. Fungal community differences were correlated with plant species cover.

## Conclusion

### The results show:

- The presence of trees on vacant lots affected fungal communities, and fungal communities differed substantially between lots with and without trees. (Figure D).
- Fungal communities differed between the vacant lots and there was a correlation between the plants and fungi within the plots. (Figure E).

### Looking to the Future

Our results suggest that plants species may cultivate distinct communities of soil fungi that are necessary for their survival and success. We did not observe any differences in fungal diversity among the urban lots however. For future inquiries, deeper investigation of fungal communities across suburban and rural landscapes would better gauge how urbanization affects soil communities.



Figures F,G,&H: Collecting plant measurements .



## Acknowledgements

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