



Urban Reforestation as Reclamation

Exploring opportunities for reclamation in an urban context

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Urbanization

- Water, soil, and air pollution
- Constant human use/interaction
- Threats from invasive and domesticated species

Urban Forests...



Are diverse: street and park trees, remnant forests, vacant lots



Improve air quality



Store carbon



Provide wildlife habitat



Create aesthetic and recreational spaces for humans



Reduce air temperature



Regulate stormwater

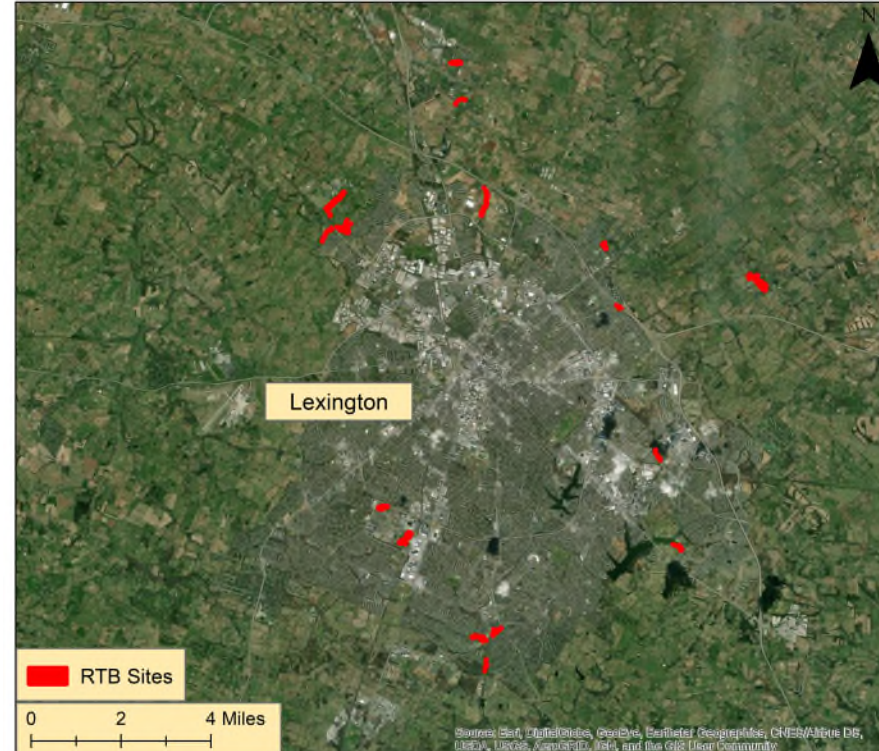
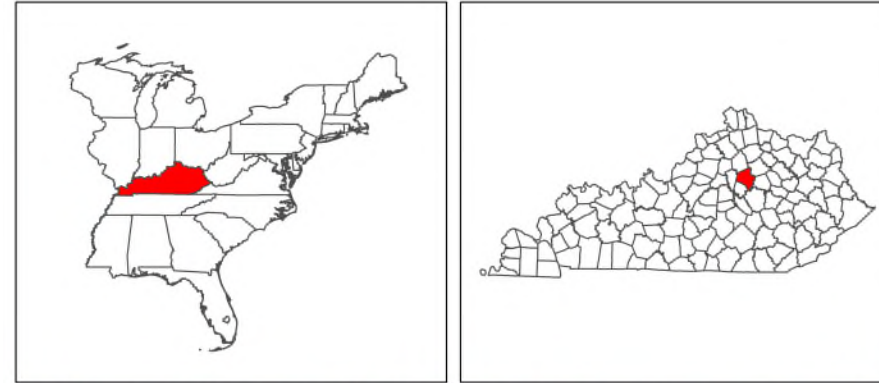
Urban Reforestation?

- Urban and community tree planting is popular and gets good press, but how effective is it ecologically?
- Do trees planted as part of urban tree planting programs survive and grow to be similar to native forests? Or something else?
- Can intentional reforestation mitigate some of the negative ecological effects of urbanization?



Reforest the Bluegrass: Overview

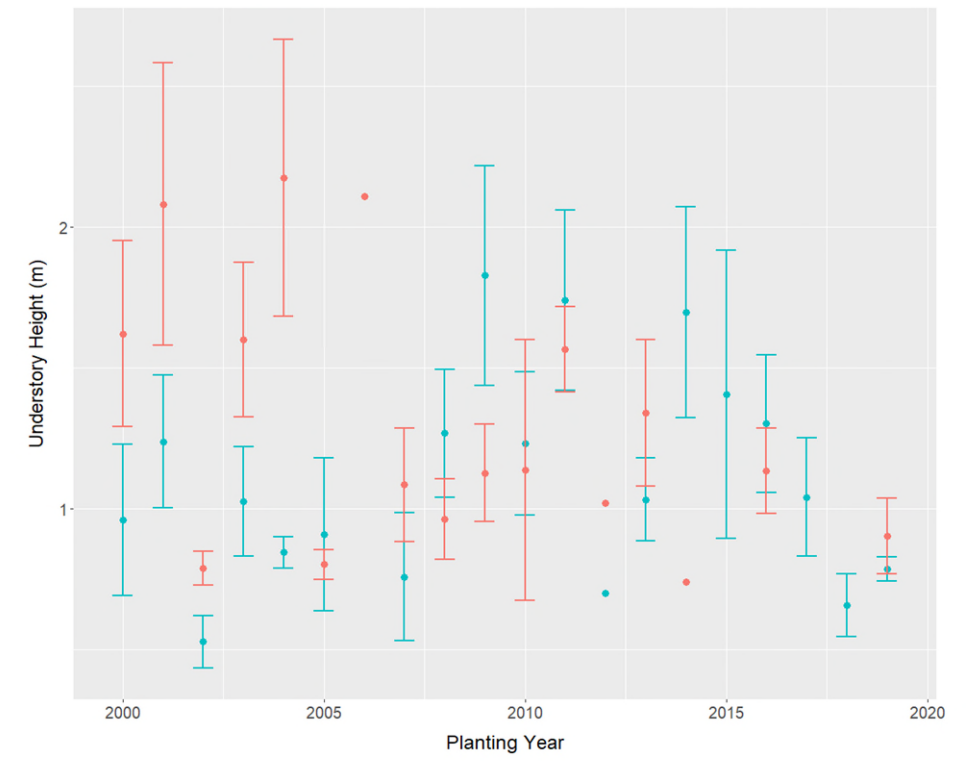
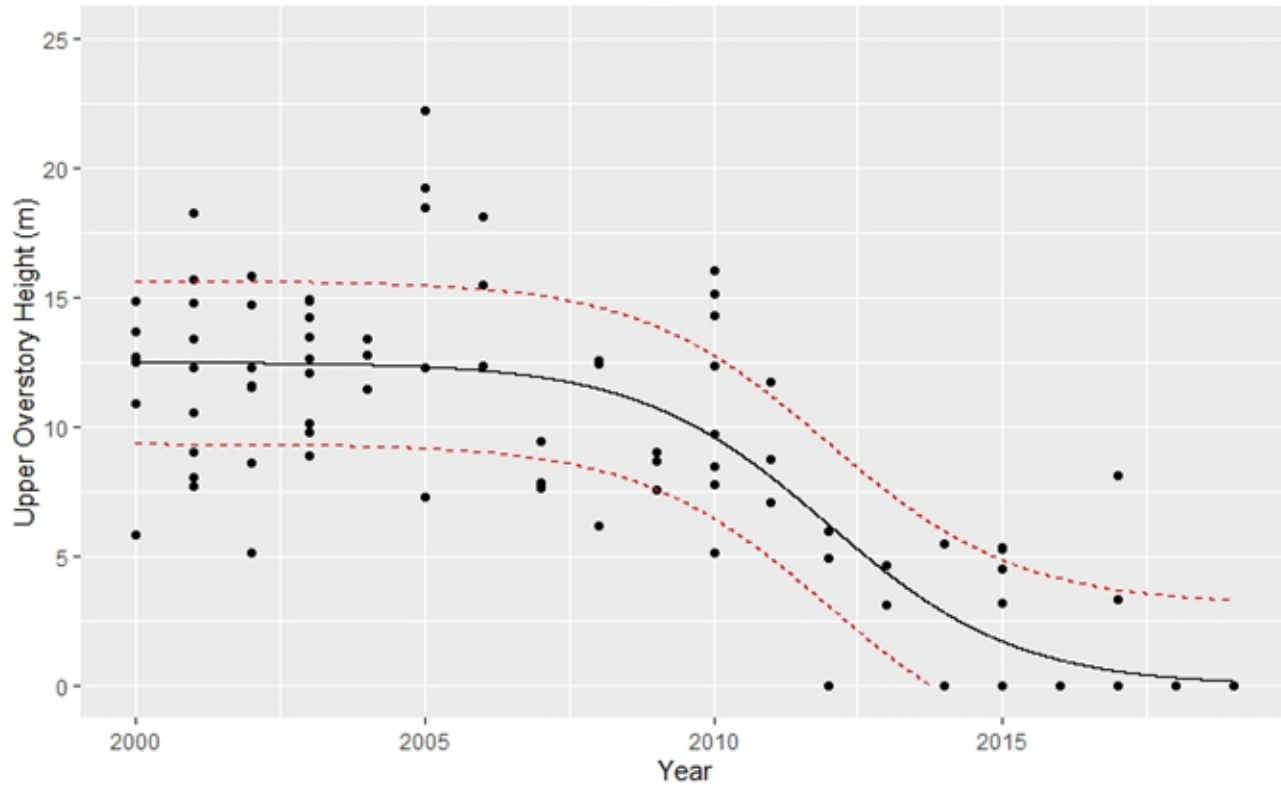
- Community reforestation program initiated by LFUCG in 1999
- New site planted annually
- Ecologically not well understood



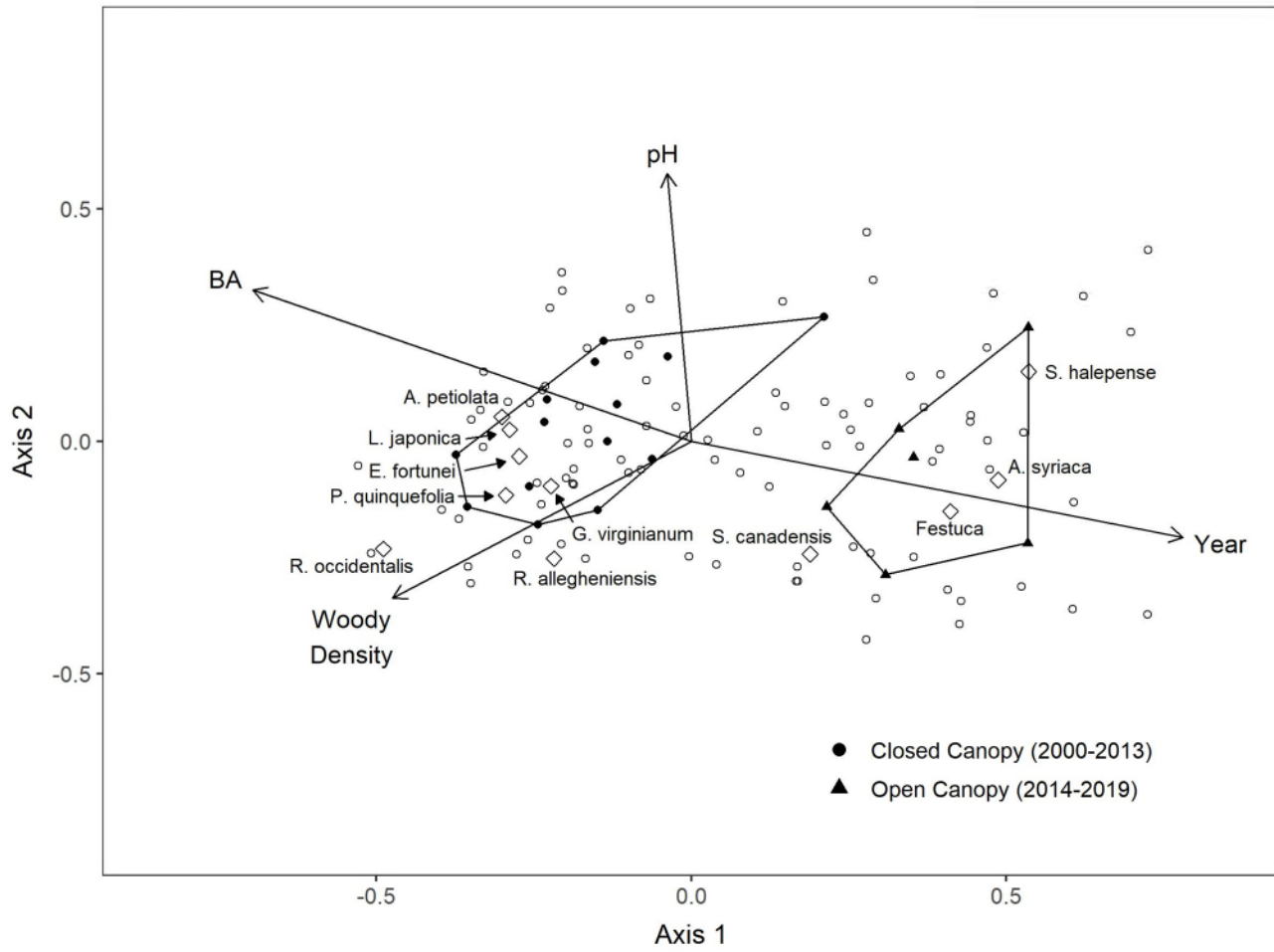
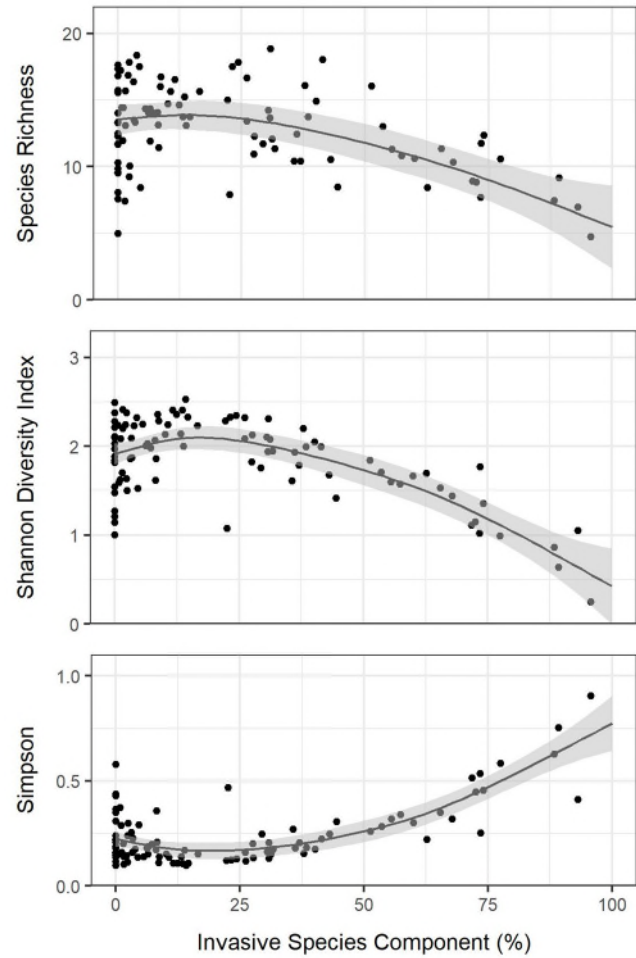
Research Program Overview:

- Established monitoring plots at Reforest sites (Summer 2020)
- Tree height, diameter, and species; shrub height and species
- Nonwoody plant species composition
- Soil chemistry
- Bird surveys
- Water quality



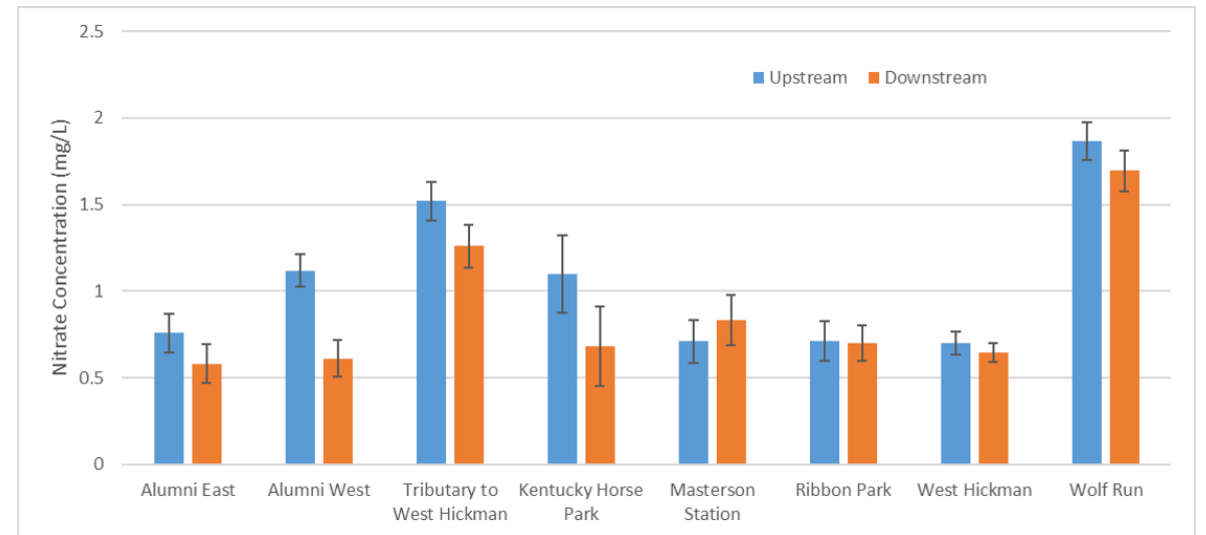
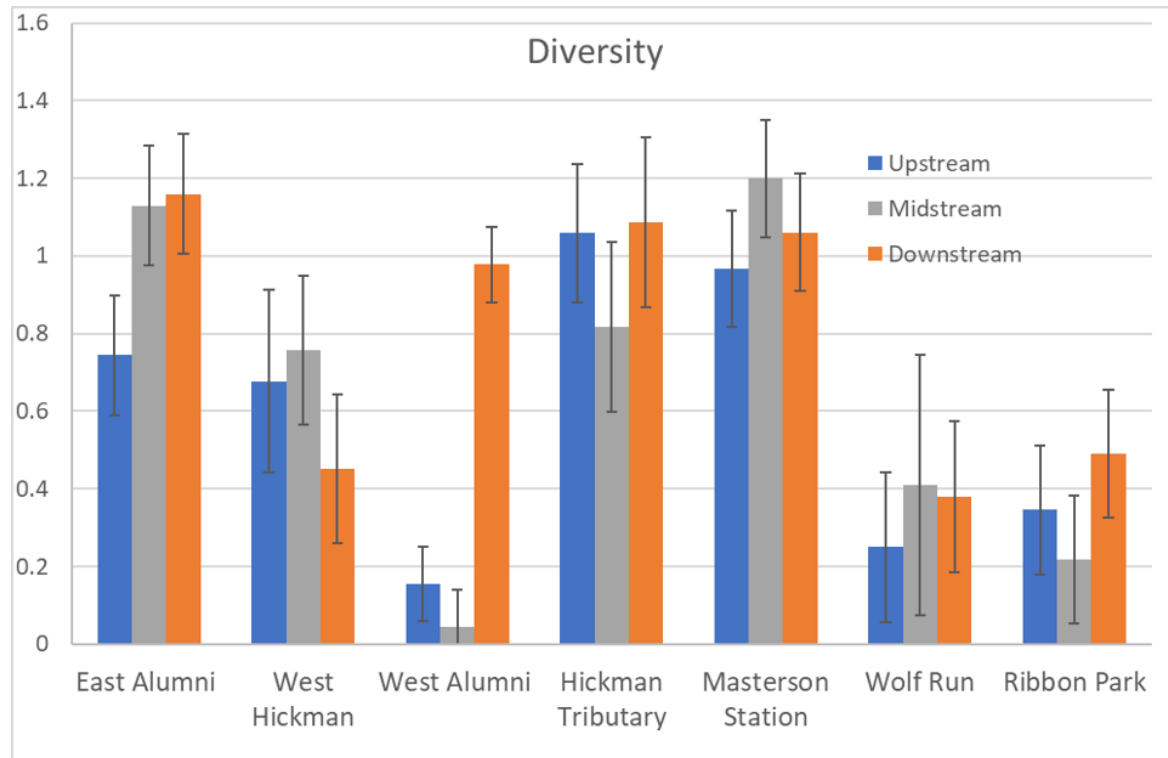


Results: Trees and Shrubs



Results: Nonwoody plants

Results: Water Quality



Ongoing: Birds

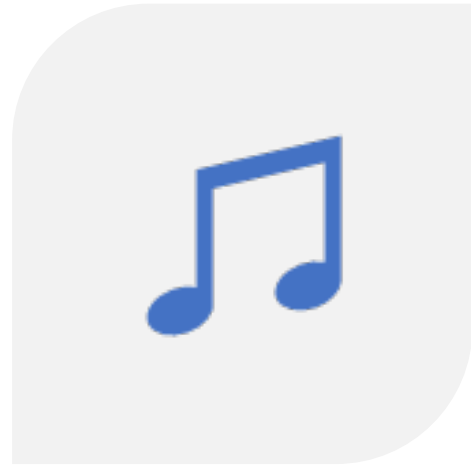


Acoustic recording devices
deployed at Reforest the
Bluegrass sites

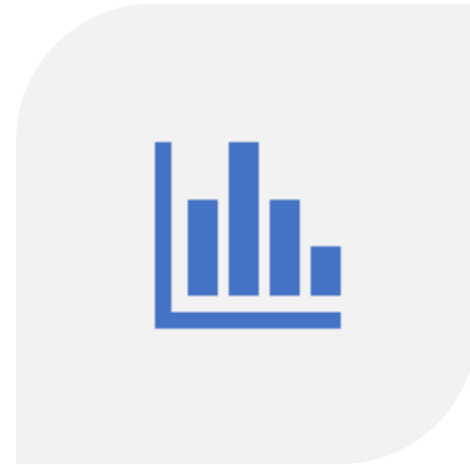


Data collection and analysis is
ongoing

Ongoing: Bats



BAT ACOUSTIC RECORDING DEVICES ARE
BEING DEPLOYED IN SELECTED REFOREST THE
BLUEGRASS SITES



DATA COLLECTION AND ANALYSIS ONGOING

Ongoing: Stream-water eDNA

- Funding acquired to collect stream-water environmental DNA for macroinvertebrate community analysis (2023 – 2024)



Preliminary Conclusions:



Planted urban forests work!

Wildlife habitat

Water quality improvement

Carbon in biomass and soil

Plant community establishment and diversification



Urban forest management and maintenance is critical



Opportunities for further research

Acknowledgments

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Questions?