Urban parks of the future: soil analysis of the Chicago Park District natural areas

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Introduction

- Restoration of native ecosystems in urban areas has many challenges, including modified soils, which may influence vegetation.
- Management does not always consider land use histories or soil conditions.

Research Questions

1. How does perceived prairie quality relate to vegetation biodiversity?
2. How do soil characteristics relate to prairie quality?
3. How do of mud-to-parks soil characteristics relate to established sites?
4. How are management decisions influenced by soil quality and vegetation?

Field and Lab Methods

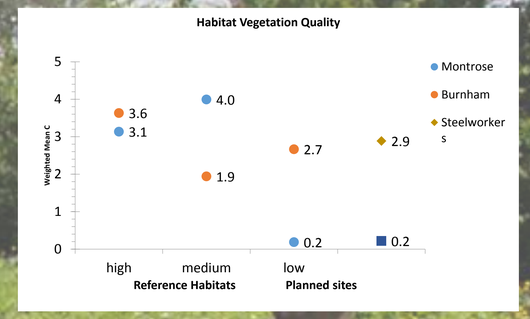
Study Sites

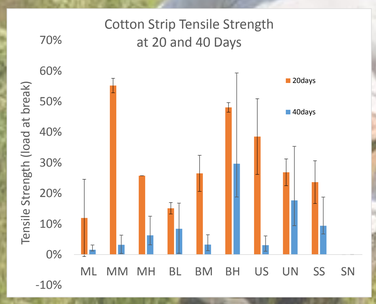
- Montrose (ML, MM, MH)
  - High, Medium, Low
- Burnham (BL, BM, BH)
  - High, Medium, Low
- Steelworkers (SN, SS)
  - North, South
- USX (UN, US, UW)
  - North, South, West

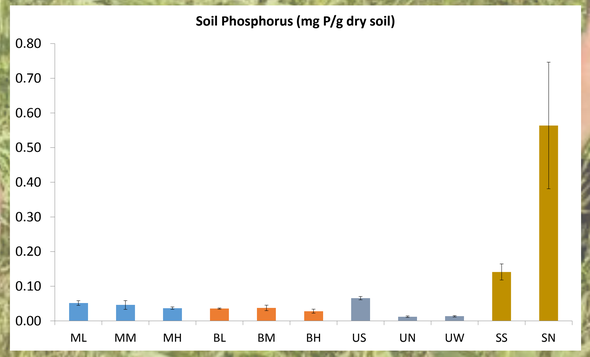
Soil Variables

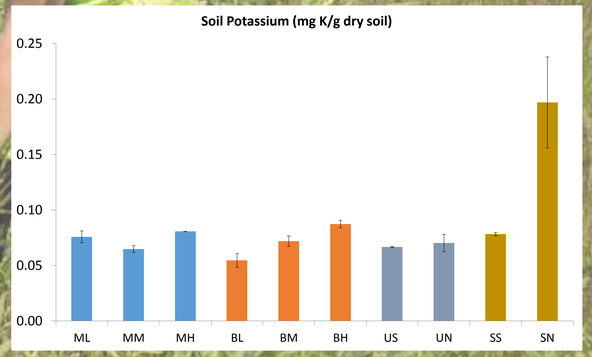
- Nitrate (NO_3)
- Ammonium (NH_4)
- Potassium (K)
- Phosphate (PO4)
- pH
- Moisture
- Texture
- Decomposition
- Microbial activity

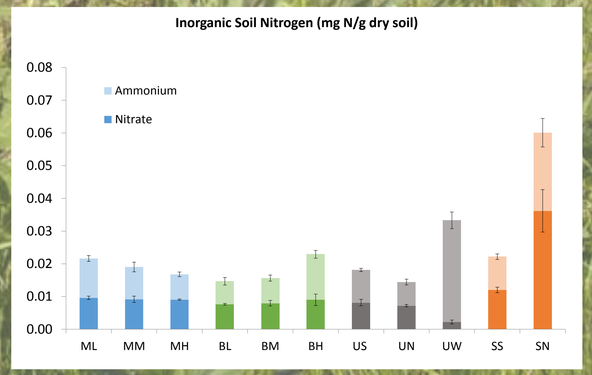
Results











Conclusions

- Nutrients availability and decomposition rates were significantly higher at Steelworkers than all other sites.
- pH was highest in USX, likely reflecting the post-industrial history of the site.
- The altered soil quality and biodiversity suggests the need for modified management strategies that anticipates high invasive species growth and accounts for elevated nutrients and altered soil biodiversity.

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