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Weed Communities in Urban Agriculture

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Abstract

Urban agriculture has been increasing all over the United States, especially in shrinking cities such as Cleveland, where increases in vacant land have brought opportunities for farming. There has also been a more interest in sustainable farming, as more people prefer locally sourced and organic food. However, like rural agriculture, urban agriculture also faces the problem of weed management, especially when growing organically eliminates some control options such as chemical means. As there is little to no research available on urban agricultural weeds, this research aims to identify and examine urban weed communities to obtain a better understanding of them, and to be able to compare urban weed management with rural weed management.

Purpose

- This research aims to compare weed communities in urban community and market gardens (urban farms), along with their weed management, as very little is known about urban agriculture especially when chemical control methods may be unusable.
- We hope to identify weeds that may pose a persistent problem to urban farms, and gain insight on the methods farmers use to control them.



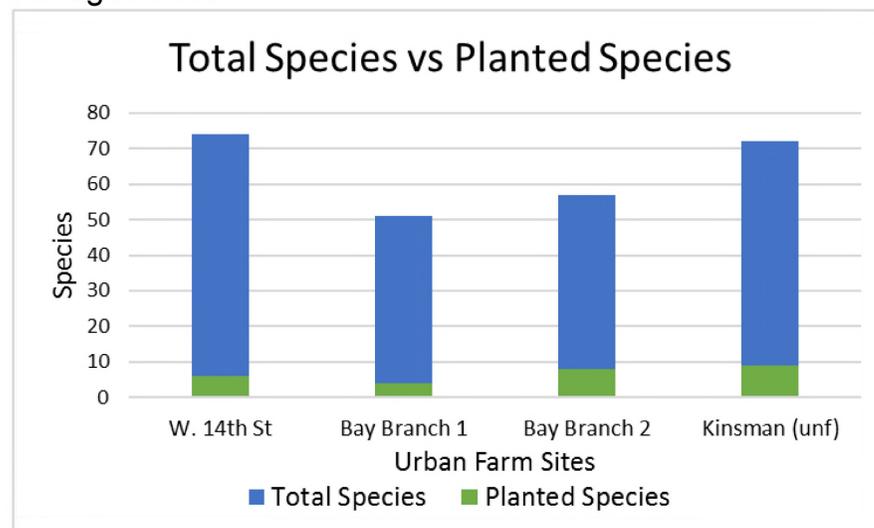
Methods

- We measure gardens to quantify their total area, as well as to find their perimeter, unplanted interior (empty) space, and garden space.
- 1x1 meter plots are then chosen randomly to obtain sample 15% of the garden's area and perimeter
 - There is a limit of 60 plots per site.
- A quadrat is put down on the chosen plots, and is divided into 16 squares.
- All plant species and their frequency and cover are recorded, with the squares, used a modified Daubenmire classification system.

Results

A total of 166 plots have been surveyed so far across the locations. Over 151 different plant species were identified.

Some of the most problematic weeds surveyed seemed to be *Cichorium intybus* (chicory), *Cirsium arvense* (Canada thistle), and *Artemisia vulgaris* (common mugwort), for unweeded sites, and *Portulaca oleracea* (common purslane) and *Digitaria sanguinalis* (hairy crabgrass) for more intensely managed sites.



The most diverse site was a community garden (W. 14th). At all sites, a relatively small proportion of species present were deliberately planted species.

Species Abundance



- The charts on the left show the species richness in each type of area within a garden.
- As shown by the charts, the perimeter has the highest species richness in urban gardens, for both community and market gardens.
- This is most likely due to the perimeter not being controlled, as weeding focus generally remains on the garden, while perimeter or empty space may only be mowed.
- This can be problematic, as the perimeter can act as a source of plant species invading the garden.

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