The Geographies of the Nature-Culture Interface: A Holistic Evaluation of Kamloops Gardens

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Outline

- Botany and colonialism
 - Herbarium specimens
 - Botanical illustrations
- Objectives
- Methods
- Results
- Conclusion
- Future work



Botany and Colonialism

- Colonialism reshaped the global distribution of plants
- 'Exotic' plants were transplanted to colonial countries
- Settler colonists brought familiar plants, animals, and practices with them
 - These were allowed to thrive through the forced displacement of pre-existing plants, animals, practices, and people
- Urban gardens are a legacy of the colonial movement of plants
 - Many horticultural species are non-native to the ecosystems they inhabit

Botany and Colonialism

- Botany is rooted in colonialism
- Botanical knowledge was a source of financial support for empires
- Herbarium specimens and botanical illustrations were tools used to expand colonial botanical knowledge
- Understanding plants was equivalent to owning them

Botany and Colonialism: Herbarium Specimens

- Critical resources for plant research
- Strip the agency of plants
- Global disparity in the possession of herbarium specimens
 - Housed in European countries and the United States
 - There is still a movement of plant specimens out of their country of origin





Botany and Colonialism: Botanical Illustrations

- Present botanical information in a transportable and digestible format
- Idealized and generalized plants on white backgrounds
- Remove the individual context of plants and their surrounding ecology

Objectives

Explore the complex social, cultural, and ecological realities present in Kamloops urban gardens

- Determine if garden plant species diversity was correlated with two environmental factors known to influence the diversity of plant communities: area and elevation.
- 2. Explore whether colonial techniques like botanical illustration and herbarium specimens could be used in conjunction with gardener interviews to contextualize plants and tell their story.



12 gardens were selected from volunteers in Kamloops, BC

Methods

- The abundance (m²) of all vascular plant species within a garden's boundaries were recorded
- Diversity measures
 - Species richness
 - Shannon Entropy

$$H_{Sh} = -\sum_{i=1}^{s} pi \, \log pi$$

- Where
 - *s* = number of species
 - *pi* = relative abundance of species *i*
- Elevation and lot size found using the Kamloops property information portal

Methods

- Interviews were conducted with each gardener
 - Each gardener donated a plant from their garden
- Herbarium specimens and botanical illustrations were created using standard botanical techniques
- Text was layered onto the illustrations to add meaning and context















- 757 plant species identified across 12 gardens in Kamloops
- Lot size ranged from 464.98m² to 1686.84m², with a mean size of 750.59m²
 - This includes the house and paved areas of each property
- Garden elevation ranged from 349m to 845m, with a mean of 514.08m
- Plant species richness ranged from 47 to 210 with a mean of 117.17
- Of the 757 species identified, 512 species were present in only one garden



Garden species richness and diversity show little correlation with either garden elevation or lot size. Garden richness was calculated as total richness per lot; diversity calculated with Shannon Entropy Index.

- The shape, size, and fragility of each plant provided unique constraints when creating herbarium specimens
- Turning plants into objects of scientific knowledge removed their agency and the morethan-human relationships they had in their garden





Black-eged Susans are originally native to the midwestern United States, but they have more recently made their home throughout Canada. They are not a fussy plant, and will thrive in a wide variety of conditions and locations. Their showy flowers can be depended on to provide bright paps of yellow, orange, and red through the spring and summer. Black-eyed Susans grow and spread easily, as evidenced by their unplanned appearance in their coretakers garden. These volunteer flowers are welcome arrivals from the surrounding ranchlands and wilderness of Rose Hill,

"He just arrived from Somewhere out there, as far as 1 know"

Likes: open areas, roadsides, sparse woodlands

Dislikes: high elevations, dee

Gifts: long bloom seasons provide pollinators with nectar from Spring to Fall

Personality; dependable, tolerant, adventurous

This Black-eyed Susan enjoyed a view of the Kamloops Volley, in the company of Stachys byzantina, Coreopsis grandiflura, Geranium sanguineum, Dasiphora feutiesa, Yieca Filamentasa, Aleea rosea, and many others.



Rudbeckia hirta - Black-eyed Susan



"I like the magnolia for the simplicity of it's elegance" Likes: nutrient-rich soil that holds moisture, drains well, and hus a pH of 50-60 Dislikes: northern latitudes, unexpected changes Giffs: shelter and food for pollinating beetles

Critts: shelter and tood for pollinating Deerles Personality: showy, picky, old fashioned



Magnolia liliiflora - Lily Magnolia



Phaseolus coccineus - Gigante Bean

- Each illustration required careful observation of the plant to accurately render proportions, colours, and details
- On average, each illustration took 20 hours to complete
- No matter how accurate, colourful, and lifelike, the created illustrations are representations of reality
 - They do not speak for or claim ownership over the plants they depict



Conclusion

- Overlaying botanical illustrations with quotes from gardner interviews and individual species' history provided a vehicle to depict a more complex story about individual garden plants
 - Developing these art pieces also encouraged postcolonial thought about my own relationship with plants
- The richness-area and richness-elevation analysis shows that garden plants may not be following the same rules of community assembly as native plant communities.
- This study illustrates the complexity of urban gardens
 - Their location at the interface of nature and culture calls for utilizing multiple methodologies to more towards a more holistic understanding of these unique spaces



Future Work

- NVivo software to conduct a thematic analysis of gardener interviews
- Explore gardner's relationships to the plants in their garden

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Map showing the 12 gardens included in the study, with orange signifying high elevation, and yellow signifying low elevation.



From "Plant Hardiness Zone Map" by the City of Kamloops, n.d., https://www.kamloops.ca/sites/default/files/docs/parks-recreation/planthardiness_letter_landscape_version_5.jpg.