Rooted Resilience: Updating & Strengthening Biodiversity in UBC Community Gardens

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Prepared for: UBC SEEDS Sustainability Program, UBC University Neighbourhoods Association, UBC Botanical Garden

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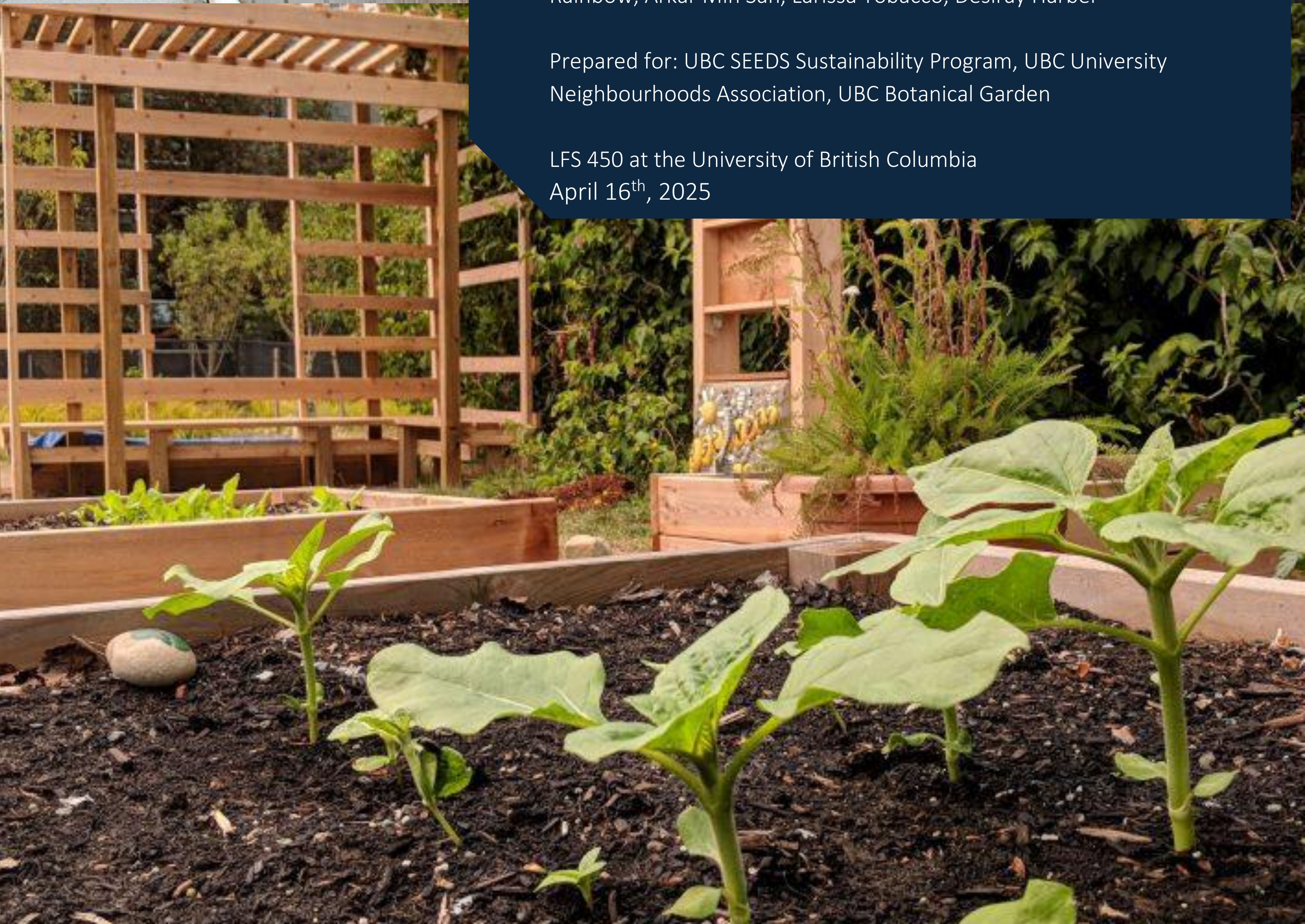

Cover Photos: Top: (UBC Anthropology and Sociology, 2024)
Bottom: (Agronomy Garden, 2025)

Land Acknowledgement

We acknowledge that we are on Musqueam unceded Territory *“to this day, (they) continue to practice (their) traditions and culture on a daily basis. (They) do this in a number of ways such as practicing sacred ceremonies and more informally, through sharing meals and our sχʷəy̓em̓amongst (their) own community and with other First Nations communities who practice the same traditions. xʷməθkʷəy̓əm people continue to honour (their) collective responsibilities to keep (their) culture vital and strong, share (their) teachings and laws, and work collaboratively to protect (their) environment while building a vibrant community for all*” (Musqueam Indian Band, 2025).

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Glossary

Annuals: Plants that complete their life cycle in one year and usually die in the fall.

Baseline Data: A baseline is a snapshot in time for a particular project, budget, or product. It's often used as a starting point or foundation.

Biodiversity: The variety and abundance of life (biota) in a location (Puppim de Oliveira et al., 2014).

Datasets: A collection of related sets of information that is composed of separate elements but can be manipulated as a unit by a computer (Dataset, 2025).

Ecological Connectivity: The ability for species on land or in water to move freely from place to place (Connect, 2025).

Food Systems Emissions: When food is discarded, all inputs used in producing, processing, transporting, preparing, and storing discarded food are also wasted. This waste releases greenhouse gases (GHG), in the form of Carbon Dioxide (CO2) . Emissions are released into the air when food ends up in landfills, it generates methane, an even more potent greenhouse gas. Collectively they are referred to as *Food Systems Emissions* (Buzby, 2022).

GHG: **G**reen**h**ouse **G**ases are gases in the Earth's atmosphere that trap heat.

GIS: A Geographic Information System (GIS) is a computer system that analyzes and displays geographically referenced information. It uses data that is attached to a unique location (GIS, 2025).

Perennials: A plant that grows, dies back over winter, and regrows again in spring.

Qualtrics Survey Tool: An online survey tool where users can build and distribute surveys, collect responses, and even analyze response data, all from within the same platform (NC, 2025).

Resilient Natural Systems: The capacity of 'bouncing' back in a natural environment a plant can endure repetitive extreme climate shocks or disturbances.

SEEDS: **S**ocial **E**cological **E**conomic **D**evelopment **S**tudies Is an internationally recognized leader in Campus as a Living Laboratory work with 20 years' experience and thousands of projects completed. They create innovative applied research and partnerships that advance UBC's ambitious sustainability commitments, while also addressing critical societal issues (SEEDS, 2025).

Shapefiles: An Esri vector data storage format for storing the location, shape, and attributes of geographic features. It is stored as a set of related files and contains one feature class (Shapefile, 2025).

Stakeholder: Any individual, group, or party that has a vested interest and/or genuinely cares about an outcome of a project's success; whether it be for the profit of money or not.

Sustainability Objectives: Development which meets the needs of current generations without compromising the ability of future generations to meet their own needs (Sustainable, 2024).

TCPS2: CORE-2022 certification: An online training certificate given when completing the "Course on Research Ethics" (CORE) tutorial based on the Tri-Council Policy Statement 2 (TCPS 2), which outlines ethical guidelines for research involving human participants in Canada.

UBC Botanical Garden: UBC Botanical Garden is in Vancouver, BC Point Grey Campus and is Canada's oldest university botanic garden, established in 1916. The mission of UBC Botanical Garden has broadened to include education, research, conservation, community outreach, and public display of temperate plants from around the world (UBCBG, 2025).

UNA: The **U**niversity **N**eighbourhoods **A**ssociation (UNA) oversees major residential neighbourhoods around UBC's campus (About, 2025).

Practitioner Summary

Rooted Resilience: Updating & Strengthening Biodiversity in UBC Community Gardens

Research Background

- Community gardens are integral parts of ecosystems and food systems, and are vulnerable to the impacts of climate change
- Shared and accessible knowledge of climate resilient plants and garden managements strategies is crucial to maintain long-term sustainability in communities

Research Purpose

To advance and update the knowledge of plant biodiversity and climate resilience of UBC community gardens.

Research Goals

- Update and increase understanding of biodiversity in UBC community gardens
- Identify opportunities to boost climate resilience
- Create a practical resource for info-sharing with gardeners

Research Objectives

- Develop an updated garden plant baseline inventory
- Create updated garden profiles
- Compare 2025 biodiversity data with previous data to analyze changes
- Provide recommendations to increase garden resiliency
- Develop an effective resource for gardeners

Methods

Review of Past Projects to establish a baseline for our data collection

Inventory + Assessment to find number of gardens and species grown

Surveying Gardeners to verify number of gardens and species grown; covers info gaps

Climate Resilience Literature Review to determine what species are climate resilient or not

Key Findings

Within individual gardens, on average:

- ~ 12 species per garden
- ~ 9 food plants per garden
- ~ 4 non-food plants per garden

24 Community Gardens

152 Different Species

90 Food Plant Species

62 Non-Food Plant Species

UBC community gardens are fairly climate resilient!

- **53.25%** of garden species are climate resilient
- **46.05%** of garden species are moderately climate resilient
- **0.7%** of garden species are not climate resilient

Deliverables

Updated Biodiversity Baseline + Map of Community Gardens

- Contains updated locations, profiles, species lists, and contact info for all 24 gardens

2025 Updated Climate-Ready Plant List

- Built on the 2023 list (McCleod et al) to include the climate resiliency of all 152 species in UBC community gardens

Recommendations for Action

Update & improve *UBC SEEDS Food Asset Map*

- Integrate our findings to have updated and more info on campus community gardens

Include project findings in *UNA Garden Toolkit*

- Add a dedicated page highlighting the 24 garden profiles and climate resilient plants

Executive Summary

Food systems encompass plant biodiversity at various scales, and this biodiversity and associated knowledge of the various plant species is crucial to both reduce food systems emissions and strengthen food system resilience in the face of climate change (Mijatović et al., 2013). UBC's food system accounts for over 29,000 tons of CO_2 – over 20% of UBC's overall emissions (UNA, 2022). To ensure that better food system practices align with UBC's target, Vockeroth (2025) suggested UBC must achieve a 50% reduction in food systems emissions by 2030. To meet this goal, it is essential to find ways to foster biodiversity, build climate-resilient practices, and enhance knowledge about growing food on campus, and campus community gardens are a perfect place to start.

The purpose of our project is to address issues the UBC community faces relating to food system resilience and sustainable action through the advancement of knowledge pertaining to plant biodiversity and climate resilience in their community gardens. This is harmonious with the UBC 'Campus Vision 2050 (UBC, 2024)' goals in creating a network of 'open spaces such as public green spaces, greenways, green edges, courtyards, parks, forested and natural areas, and community gardens to enhance Musqueam presence, support health and wellbeing and help create resilient natural systems (Plan Use, 2025)'. This vision aims to enhance accessibility, adaptability, placemaking, biodiversity, and strengthen connectivity throughout UBC. The goals of the project are the dissemination of knowledge regarding plant biodiversity and climate resilience, as well as the facilitation of networking between campus community gardens. In accordance with our goals, the project's main objectives are to update the inventory of plant biodiversity and climate resilience in UBC community gardens, and update community garden profiles for better information access.

Through incorporating Community-Based Action Research (CBAR) methodology into our research, we aim to ensure our work is completed with the community and for the community. In accordance with CBAR, our team will be approaching the project objectives through three main methods. First, to collect our secondary data, we conducted a literature review of previous student work through SEEDS, the UBC Community Data Hub, and the UNA. Through this, we gained a greater understanding of the current baseline of biodiversity and climate resilience of community gardens. For our primary research we conducted an inventory assessment, identifying gardens across campus and logging important information and plant species grown. Our second method to collect primary data was through surveying gardeners and community garden representatives to discover more information regarding the biodiversity of the gardens, gardener satisfaction and to discover climate adaptation techniques used by gardeners.

From our data collection, we developed two main deliverables. First, we created an updated 2025 UBC Community Garden Baseline that included updated locations, photos, contact information, and lists of both food and non-food species found at each garden, building off the previous food plant biodiversity baseline developed by Ng et al. Second, we developed an updated 2025 Climate-Ready Plant List that included all food plants, non-food plants, and a climate resiliency assessment of all species found in campus community gardens, building off the previous Climate Ready Food Plant List developed by Mcleod et al. Through our findings and deliverables we aim to develop practical resources to support the mobilization of knowledge for the use of all our main audience, the community gardeners, alongside other stakeholders including, UNA, UBC SEEDS, UBC Botanical Gardens, students and staff.

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Introduction

Research Topic

Our research explores the topics of biodiversity and climate resilience within the context of community gardens on the UBC Vancouver Campus and we aimed to assess biodiversity and the climate resilience of the plant species being cultivated in the gardens. Understanding these factors can provide insight into the long-term sustainability of campus community gardens and how gardens can be improved to further meet the needs of the people and face future environmental challenges.

Biodiversity refers to the variety of living organisms on Earth, encompassing diversity within species, between species, and across ecosystems and higher levels of biodiversity yield more stable and resilient ecosystems that are better equipped to withstand environmental changes (World Health Organization, 2025). In the context of our research, biodiversity plays a vital role in enhancing food production and supporting ecological and human health and community gardens can act as valuable hubs for fostering biodiversity in urban environments, bridging the gap between people and food growth. An increased biodiversity in the gardens can in turn strengthen an ecosystem's climate resilience. Climate resilience refers to a plant's ability to adapt to and maintain growth, reproduction, and health despite the stresses caused by climate change, such as extreme temperatures, drought, flooding and shifting seasons (Benitez-Alfonso et al., 2023). Community gardens play an important role in the promotion of plant climate resilience, particularly in urban areas, offering opportunities to grow adaptable crops and implement sustainable practices that can reduce vulnerability to climate-related disruptions.

Research Relevance

Societal Context

Our research is a local approach to addressing the global issue of ecosystem and food system resilience in the context of climate change. With climate change posing a significant threat and leading to increasingly extreme weather patterns, some species that are currently planted will not thrive under projected climate conditions, and garden management strategies will need to be adaptable (Planton et al., 2008). Shared community knowledge of these climate-resilient garden practices is crucial to maintain the long-term sustainability of community ecosystems and food systems; gardeners need to know what species planted now won't survive under future conditions, what species will survive, where they can plant these species in their community, and how they should manage the gardens. Our project identified community garden locations and characteristics, conducted surveys to understand gardeners' specific management strategies, and evaluated which plants in community gardens exhibit climate resilience, consolidating this information into publicly accessible resources. We aimed to provide gardeners on UBC's Vancouver campus access to valuable shared knowledge regarding garden climate resilience, ultimately easing some of the pressures they may face in the future.

University of British Columbia (UBC) Context

Our research addressed 3 main needs identified by UBC SEEDS Sustainability Program (UBC SEEDS), the University Neighborhood Association (UNA), and the UBC Botanical Garden. Firstly, UBC Botanical Garden requires a 2025 updated biodiversity baseline of the community gardens on campus, as this was last done in 2017/2018. This will provide an accurate, updated understanding of biodiversity levels within individual gardens and across campus as a whole. Secondly, UBC SEEDS has a need for an updated strategy regarding climate-resilient gardens for 2050, as the strategy developed in 2023/2024 was done only for food-plant species. Lastly, the UNA requires supportive resources for the caretakers of the community gardens on campus, as the existing online resources pertaining to UBC community gardens are outdated, not accessible, and not well known. Six of the gardens are under UNA management but are taken care of by community members.

By addressing these UBC needs, our research aligned with various UBC plans and long-term environmental and community sustainability policies, including the 2050 Campus Vision Plan, the Neighbourhood Climate Action Plan, and the Emerging Biodiversity Strategy. It contributed to UBC's objectives of fostering a learning-oriented campus, nurturing a diverse community, promoting restorative and resilient landscapes, and enhancing climate mitigation and adaptation efforts. Additionally, our research brings attention to discrepancies between these sustainability goals of UBC and their budget allocations; UBC generated billions in revenue in the 2023/2024 fiscal year, yet it allocated a mere $1,554 (in thousands of dollars) to climate action and sustainability (Laezza et al., 2024). While UBC professes a commitment to sustainability, the minimal budget designated for the climate action and sustainability sector raises questions. Our research equipped gardeners with more readily available resources than UBC has provided, and we hope that UBC will recognize the need to increase financial allocation to campus community gardens to better achieve sustainability objectives.

Community Benefits

As discussed in our initial client meeting with SEEDS, UNA, and the Botanical Garden, it was noted that many gardeners would appreciate a user-friendly website that offers suggestions and a map detailing garden coordinators' locations and contact information. This resource will enable current and prospective gardeners to connect with the appropriate individuals and/or resources (Group Contributors, 2025). Additionally, providing a list of plants that thrive in various conditions will simplify gardening for many, ultimately saving them money over time. Rather than facing costly trial and error to determine which plants will flourish in specific environments, gardeners may better rely on digital resources to identify if the seeds they purchase suit the current climate or not.

Project Context

Previous Student Work

Previous student reports for LFS 450 have explored various aspects of biodiversity and climate resilience on the UBC campus, and our project integrated and built upon their findings. In particular, we built upon the reports *Diversity of Food Plants in UBC's Community Gardens* (Ng et al., 2018) and *Supporting Climate-Ready Food Gardens: Climate Resilient Campus Community Foodscapes* (McCleod et al., 2023). Ng et al. electronically surveyed 11 community gardens on campus to establish a biodiversity baseline and map (see ***Figure D(1)***), and interviews with six community garden managers documented the diversity of food plants, examined factors influencing biodiversity, and developed individual profiles for each garden. Their recommendations included conducting fieldwork assessments of the gardens and creating a centralized platform to connect all community gardens and gardeners on campus. McCleod et. al's 2023 report conducted surveys with garden managers and a plant science literature review to develop a climate-ready food plant list (see ***Table D(2)***) and management plan for gardeners, emphasizing the need to broaden the focus from food gardens to include a wider array of campus foodscapes.

We used the recommendations from the 2019 and 2024 reports to guide our research project. In 2019, Zeng et al. conducted surveys and a literature review to develop a database recording the plants produced by each garden and provided recommendations for future garden management techniques. The most recent report, published in 2024 by Tahami et al., collected field data on the microclimate conditions of campus gardens and conducted a literature review of extreme weather events. The key recommendation from this report involved improving information distribution through a centralized platform.

Other Resources

In addition to these reports, the UBC Community Data Hub offers an accessible ArcGIS kmz session titled "UBCV Biodiversity Maps" (see ***Figure D(3)***), featuring various layers and shapefiles from student-led research, UBC GIS resources, and open-access datasets. Relevant data for our project includes campus landscapes, SEEDS student-led research projects, ecological connectivity, and campus soil analyses, all of which will aid in assessing each community garden. However, there are no specific data points related to campus community garden biodiversity or their locations, with the most recent data layers being from 2017.

The "UBC Food Asset Map: Vancouver Campus", (see ***Figure D(4)***) created by UBC SEEDS using Google MyMaps, is an accessible, user-friendly interface that contains a map layer titled "Grow Food" with the sub-layer "Community Gardens" that shows the coordinates, description, audience, and website contact for 6 community gardens. However, the map hasn't been updated since 2018, and there is information missing, as Ng et al.'s 2018 report identified 11 community gardens.

The "Community Gardens Toolkit" (see ***Figure D(5)***), developed by the UNA in 2025, provides gardening help and resources to UNA gardeners, including links to Metro Vancouver's Grow Green Guide, West Coast Seeds, and introductory videos to gardening. However, this toolkit doesn't include information specifically about climate-resilient species or planting strategies, or a map that places UNA gardens in the context of other campus community gardens, for UNA members to learn from and/or help other gardeners.

These existing resources pertaining to campus community gardens are extremely valuable, but there is a demand for them to be improved with updated 2025 biodiversity baselines, individual garden profiles, and climate resilient plant species information. Doing so will advance the SEEDS Sustainability Program's research objectives to maintain and enhance urban biodiversity, contribute valuable knowledge to the Botanical Garden's biodiversity database on the UBC campus, and broaden the understanding of community gardening in the UNA neighbourhoods.

Project Purpose, Goals, and Objectives

Purpose

The purpose of this project was to advance and update the knowledge of plant biodiversity and climate resilience in UBC community gardens, supporting sustainability and aligning with UBC's climate and biodiversity targets.

Goals

- Update and increase the understanding of food and non-food plant diversity in UBC community gardens.
- Identify opportunities to boost climate resilience of UBC community gardens through strategic plant selection and gardening practices.
- Develop practical resources for effective knowledge-sharing with and between campus community gardeners.

Objectives

We achieved these goals by:

1. Developing an updated garden plant baseline inventory through collecting updated quantitative and qualitative data on the coordinates, plot size, number of plots, number of food plants, number of non-food plants, and conditions of campus community gardens.
2. Creating updated profiles for each garden including contact and organizational information through surveys with gardeners.
3. Comparing our biodiversity baseline data with the 2018 baseline data to analyze biodiversity changes in campus community gardens.
4. Providing plant species recommendations to increase the climate resiliency of campus community gardens.
5. Developing a practical and easily understandable resource to support gardeners with plant diversity and resilience information and facilitate knowledge-sharing between gardeners.

Background

Building a Stronger Community Garden Network

Climate change is an ongoing threat, with outcomes that are often complex and unpredictable. These shifts in weather patterns are a major concern for the future of global food availability and nutrition, as they disrupt growing seasons and threaten natural ecological systems (Malhi et al., 2021). In response to these challenges, community gardens have emerged as important local food hubs—green spaces where individuals collectively grow vegetables and food in a common and collective way (Gregis et al., 2021). Beyond their role in food production, community gardens work to “reduce urban heat islands, provide various ecosystem services, and increase storm water retention” (Clarke et al., 2019), making them key contributors to climate adaptation in urban environments.

Scholarly research has increasingly recognized the underutilized role of community gardens in climate change adaptation and their contributions to ecosystem and food resilience (Clarke et al., 2019). Studies such as *Change the Game Not the Rules: The Role of Community Gardens in Disaster Resilience* (2019) highlight how these gardens can act as vital green spaces in the wake of climate disasters, strengthening local food security and fostering community resilience (Mcllvaine-Newsad et al., 2019). The study emphasizes that community gardens are more than just places to grow food—they are hubs for environmental and cultural learning that help communities adapt during climate crises, while also highlighting the importance of listening to people’s real-life experiences and local knowledge when creating solutions to climate change (Mcllvaine-Newsad et al., 2019).

Yet, despite growing recognition of these benefits, significant gaps remain in how best to communicate garden management knowledge in ways that support gardeners in selecting and implementing climate-resilient plant varieties. This limited understanding restricts the ability of community gardeners to fully realize the potential of their gardens as tools for climate adaptation and resilience in the face of climate change. The absence of shared, up-to-date resource platforms further limits access to current knowledge and best practices, hindering efforts to respond effectively to climate-related challenges.

In light of this, our research report is relevant as it aims to close the knowledge-sharing gap by providing UBC community gardeners with easy-to-use tools for managing climate-resilient plants. Our project highlights a clear need to create better ways of supporting gardeners through tools and shared resources that help make our campus gardens more sustainable and ready for the impacts of climate change.

Methodology and Methods

Research Methodology

Our research complied with the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans, with all group members completing their TCPS2: CORE-2022 certification and following this ethical conduct throughout our project. We applied Community-Based Action Research (CBAR) principles throughout, employing a participatory research approach driven by the perspectives of community members (Guillon & Tilton, 2020). We structured our research methods (outlined below) and deliverables according to UBC SEEDS, UBC Botanical Garden, and UNA's protocol and how they want their information presented to them, as discussed in our primary client meeting. We researched and understood the local dynamics and contexts of campus community gardens, involved all affected stakeholders (mentioned above) throughout, and conducted our project via internal and external group collaboration and consensus towards our deliverables, ensuring our project was for the community, by the community.

Research Methods

We conducted our research using a mixed methods approach, involving both primary and secondary data collection. Our methods were as follows, in chronological order:

1. Review of Past Research Projects (Secondary Data Collection)

We reviewed the 4 previous LFS 450 projects focused on biodiversity and climate resilience in UBC community gardens with the goal of identifying research gaps and establishing a baseline for our primary data collection. The sources reviewed were:

- *Supporting UBC Campus Landscapes and Food Systems during Extreme Weather Events* (Tahami et al., 2024)
- *UBC Climate-Ready Food Garden Management Plan* (McCleod et al., 2023)
- *Diversity in Food Plants in UBC's Community Gardens* (Ng et al., 2018)
- "Climate-Ready Food Plant List" (McCleod et al., 2023) (see ***Table D(2)***).

Conducting this review enabled us to compile existing data and draw insights to inform us of what findings are most relevant for UBC community gardens. The key areas of focus of this review were establishing the existing number, location, and governance of gardens, plant biodiversity and climate resilience strategies in gardens, climate-ready food plants and their effectiveness in campus gardens, existing methodologies for garden inventory and climate resilience, and any recommendations they offer. The timeline for this was January 29th, 2025, to February 5th, 2025. From this review, we determined that we wanted to explicitly build on 2 of the 4 projects; we wanted to update the existing "Food Plant Biodiversity Map" (Ng et al., 2018) and the "Climate-Ready Food Plant List" (McCleod et al., 2023) (see ***Table D(2)***) to include new gardens, food and non-food plant species, and the climate resiliency of these species found in UBC community gardens.

2. Inventory and Assessment (Primary Data Collection)

We conducted an inventory and assessment in order to discover the number of community gardens and their locations, number of food plant species, and number of non-food plant species in each garden. We narrowed the scope of our project to be all community gardens on UBC Vancouver academic and campus lands, excluding the UBC Botanical Garden, UBC Farm, and TRIUMF area (see ***Figure B(1)*****)**; given the course timeline, it would be too ambitious to include the Botanical Garden and the Farm in our inventory and assessment due to the sheer size and number of plants in those plots. We assigned each group member to a different section of campus (see ***Figure B(2)***), which allowed us to double-check and build on previous data from the 2018 "Food Crop Biodiversity Map" (Ng et al., 2018) (see ***Figure D(1)*****)** and SEEDS Food Asset Map (see ***Figure D(4)****).* Our baseline was > 11 gardens, as the 2018 report found 11 gardens, and our timeline was February 28th, 2025 to March 16th, 2025. Sample techniques included a visual assessment of plant species and garden conditions, a physical measurement of the garden plot sizes, and a virtual assessment of lat/long locations. We used a measuring tape, cell phone, Google Maps, iNaturalist, and Google Sheets to collect and record data on community garden names, coordinates, location, plot size, number of plots, species found, and garden conditions in our inventory and assessment datasheet (see ***Table B(3)***). We chose to conduct an inventory and assessment because the 2018 biodiversity baseline was based solely on surveys, and Ng et al. recommended a physical assessment for more accurate, comprehensive, and high-quality data.

3. Surveying UBC Community Gardeners (Primary Data Collection)

We created a survey to distribute to the gardeners of campus community gardens with the goal of verifying the number of gardens, number of food plant species grown, number of non-food plant species grown, management strategies applied, and garden contact information to gather qualitative information about the gardens to create garden profiles while also covering any lack of information collected through our inventory and assessment, due our project timeline falling in an off-season. Our sample goal was ≥ 27 community gardens, as the 2018 report obtained 27 survey responses, and our timeline for survey recruitment was February 24th, 2025, to March 26th, 2025. To distribute our survey, we postered in buildings on campus, contacted UBC clubs/organizations related to food, gardens, biodiversity, and the environment using a consistent email template (see ***Figure B(6)****)*, and sent it to our SEEDS representative for them to distribute to their contacts. We used the UBC Qualtrics Survey Tool to create the survey (see ***Figure B(4)***), used Canva and Adobe Acrobat to create a recruitment poster (see ***Figure A(5)***), and Excel to compile our survey results (see ***Figure B(7) - not publicly available***).

4. Climate-Resilience Literary Review (Secondary Data Collection)

We conducted a literature review of the 152 species found in UBC community gardens based on our inventory and assessment and survey data to assess the climate resiliency of each species, with the goal of expanding on the "2023 Climate-Ready Plant List" (McCleod et al., 2023) to update it for 2025. The "Climate-Ready Plant List" contained climate resilience data for 56 of the 152 species, so our sample size for our literature review was the remaining 96 species. To remain consistent with past data collection, we used McCleod et al.'s method of conducting a plant science literature review based on the following factors: temperature tolerance, drought tolerance, water tolerance, and whether the species is annual or perennial (see ***Table D(2)****)*. High tolerance in any of the categories would be considered more resilient, an average tolerance to these categories would be considered moderately resilient, and low tolerance would be least resilient (McCleod et al., 2023). We considered perennial species to be more climate-resilient than annuals, as perennials have longer lifespans, allowing them to adapt to changing conditions over time (McCleod et al., 2023). We used UBC Library, Web of Science, and Google Scholar, using the search terms "Plant X" AND "climate" AND "resilience".

Results

Primary Data

Inventory and Assessment Results

From our inventory and assessment, we found a total of 24 community gardens on UBC campus! We found 13 new gardens, and verified 11 of the gardens identified by Ng et. al in 2018. Across all 24 gardens, we identified 129 total species, 74 of which are food-plants, and 55 of which are non-food plant species. Gardens varied greatly in location, plot numbers, and plot sizes; for example, Hawthorn garden had 69 plots, each 10 feet long and 7 feet wide (see ***Figure (1)***), whereas the Education 430 Permaculture and Inquiry garden had 1 plot that was 33 feet long and 5 feet wide (see ***Figure (2)***).

Figure (1) (Right). UNA Hawthorn Garden. Photo taken by Author (Leibel, 2025). ***Figure (2)*** (Left). EDUC 430 Permaculture Garden. Photo taken by Author (Leibel, 2025).

This inventory and assessment alone show an increased 2025 biodiversity baseline from the previous 2018 baseline by Ng et al. After analyzing our inventory and assessment results, we then analyzed our survey results to ensure there were no gaps in species information and confirm the biodiversity baseline of campus community gardens for 2025.

Survey Results

We recorded 22 complete responses to our survey, consisting of participants from 11 community gardens out of the 24 found during our inventory and assessment, with 10 (45%) of the responses coming from Hawthorn Garden gardeners. (see ***Table (1)***) Of the participating gardens, Hawthorn, Nobel Park, Greenway South and Greenway North are under the management of our client the UNA. Only 5 (22%) of the responses represented gardens outside of UNA management, Roots on the Roof, Acadia Park, Campus and Community Planning (CCP), Agronomy Garden and Sociology Garden.

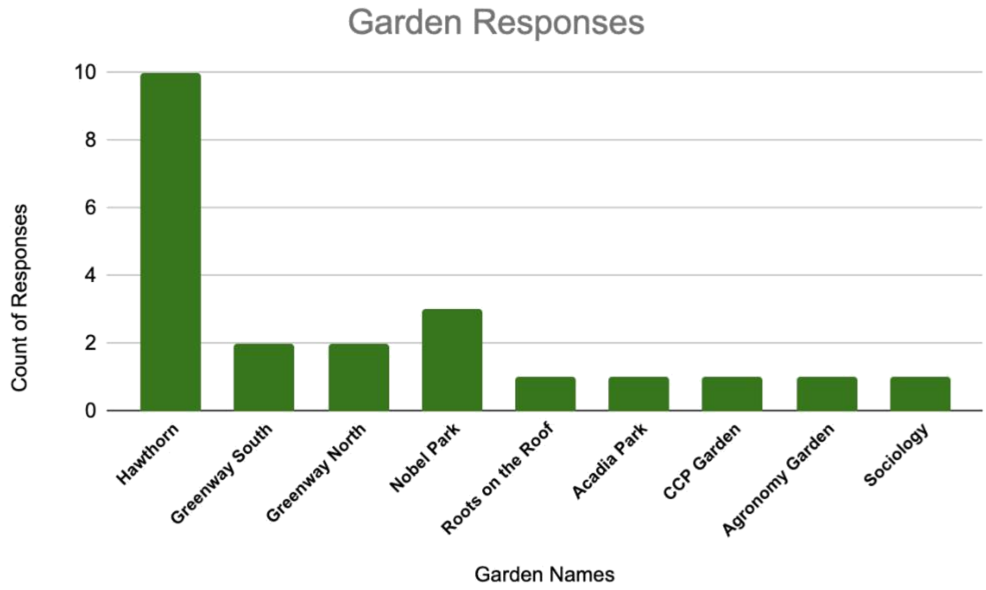


Table (1). Depicts the number of responses from each participating garden. Made by Author. (Licardo, 2025).

The goal of the survey was the find the number of gardens, number of food and non-food plant species in each garden, and the management strategies applied in gardens. Survey responses were analyzed in 3 different categories: gardener experience, climate adaptation techniques, and plant species grown.

a. Gardener Experience

From our survey, there are two main questions which we will be highlighting to determine the overall gardener experience with community gardens at UBC. The first question was "How satisfied are you with your overall community-based garden experience at UBC?" Among the 22 responses as seen below in ***Table 2***, 41% indicated that they were "somewhat satisfied", 36% were "extremely satisfied", 14% were "somewhat dissatisfied", while 9% were "neither satisfied nor dissatisfied." Two responses indicated dissatisfaction with their experiences.

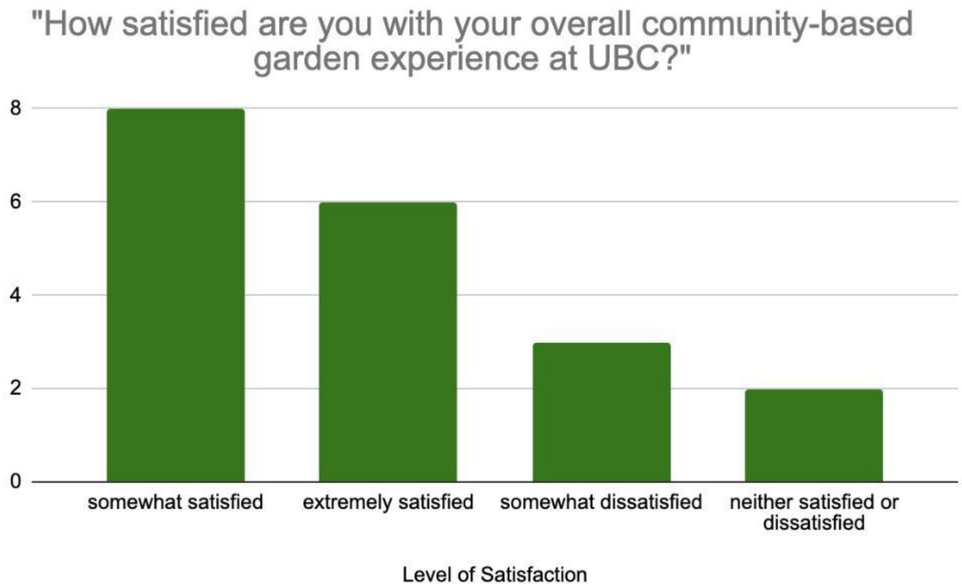


Table (2). Depicts the overall satisfactory garden experience with UBC. Made by Author. (Licardo, 2025).

The second question was “How responsive do you find community-based garden management is to addressing your issues?” As seen in ***Table (3)***, among the 22 responses, 55% indicated that management was “responsive”, 23% claimed they were “very responsive” while 2 respondents indicated that management was “unresponsive” and “very unresponsive.”

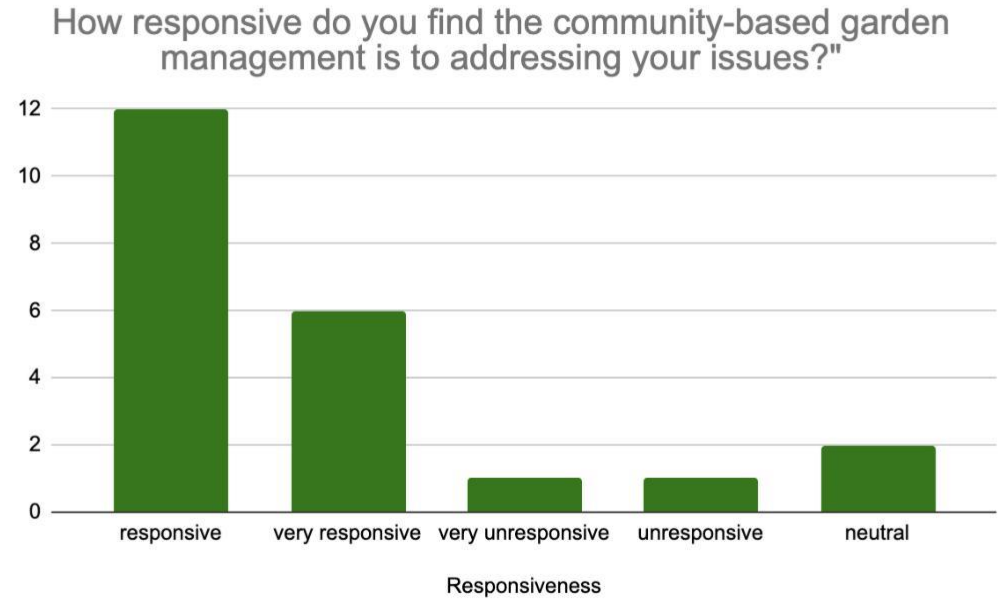


***Table (3)*.** Depicts the responsiveness of community garden management. Made by Author. (Licardo, 2025)

When asked about ways management can improve the gardener experience there were some common themes. The first was an increased guidance with gardening practices through tutorials and seminars. One gardener indicated that they hoped the UNA Garden administration could give “new gardeners some guidance on pest control” due to the persistent presence of “powdery mildew.” This gardener indicated the lack of action from one plot owner, resulting in the spread of the disease to other parts of the garden. Another common theme was a need for greater resources, through increased water access and increased funding. Gardeners also indicated their interest is more plots or possible plot re-allocation to ensure equal opportunity for plots that get light availability. Another respondent suggestion was to increase social opportunities and possibilities of organizing a seedling swap. The last most common change gardeners wanted was an increase in support from management, which respondents identified as enforcing removal of tall or invasive plants which impede on neighbouring plots, regularly scheduling cleaning of non-organic materials scattered around the garden, responding to maintenance requests in a timely fashion and having more signage both to inform users of how to report issues and to have rules of usage of the gardens clearly spelt out.

b. Climate Adaptation Techniques

Respondents to the survey also offered insights on different techniques they use to adapt to the changing climate when caring for their garden plots. We found that there were 4 main themes: irrigation, plant species adjustments, fertilizer choices and crop and soil coverings.

i. Irrigation

Respondents indicated adjusting the time of day in which they would water their plants, one respondent mentioned they would water early in the morning and again, later in the evening to reduce water loss. The same respondent also described how they would use a watering can instead of a hose to better target the roots of the plants.

ii. **Plant Species Adjustments**

One gardener mentioned they would carefully choose varieties that they know have done well within the microclimate of their particular plot. Another described their avoidance of plant species that need more sun, such as peppers, or those that need a lot of water, such as cucumbers. A third gardener indicated how they would adjust their plantings with seasonal temperatures and choose heat adapted plants. The representative of the Campus and Community Planning Garden wrote of their use of native plants and climate resilient varieties.

iii. **Fertilizer Choices**

One respondent discussed how they would only use organic fertilizer, using fermented fruits and vegetable peels, other respondents also indicated the importance of feeding the soil.

iv. **Crop and Soil Coverings**

The main forms of plant coverings were through the use of burlap or a plastic tarp and companion plants. One gardener mentioned their use of beans on trellis to shade other plants. One of the most common methods however was the practice of mulching.

c. **Plant Species**

There were 62 food plants and 20 non-food plants identified through the survey. However, it is important to note that some responses did not specify the species of flowers they were planting and therefore the 20 identified species may not be all encompassing. Of the 62 food plants, kale and tomatoes were most commonly plants across the 22 plots.

Species	Number of Gardeners
Kale	13 (59%)
Tomatoes	12 (55%)
Garlic	8 (36%)
Beans	8 (36%)

Table (4). Depicts the most commonly mentioned food plants and their frequency. Made by Author (Licardo, 2025).

Updated Biodiversity Baseline of UBC Community Gardens

Cross-referencing the data from our inventory and assessment and survey results, we found a total of 152 different plant species. Our inventory and assessment identified 129 different species, 74 being food species and 55 being non-food species, and community gardeners who filled out our survey identified an additional 23 species, 16 being food species and 7 being non-food species (see ***Table (5)***).

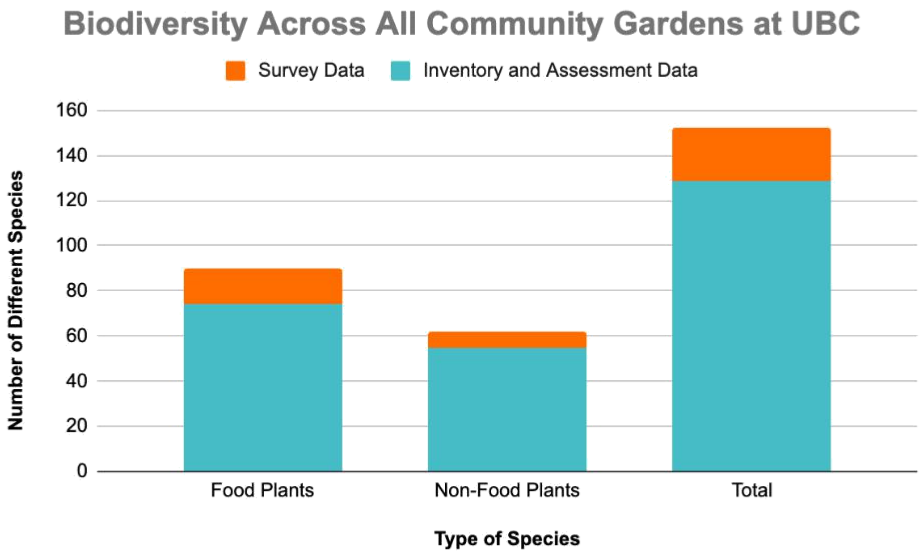


Table (5). Biodiversity Across All Community Gardens on UBC Vancouver Campus. Made by Author (Leibel, 2025).

Looking at each of the 24 community gardens found, biodiversity varies greatly; every garden has a different number of food and non-food plant species.

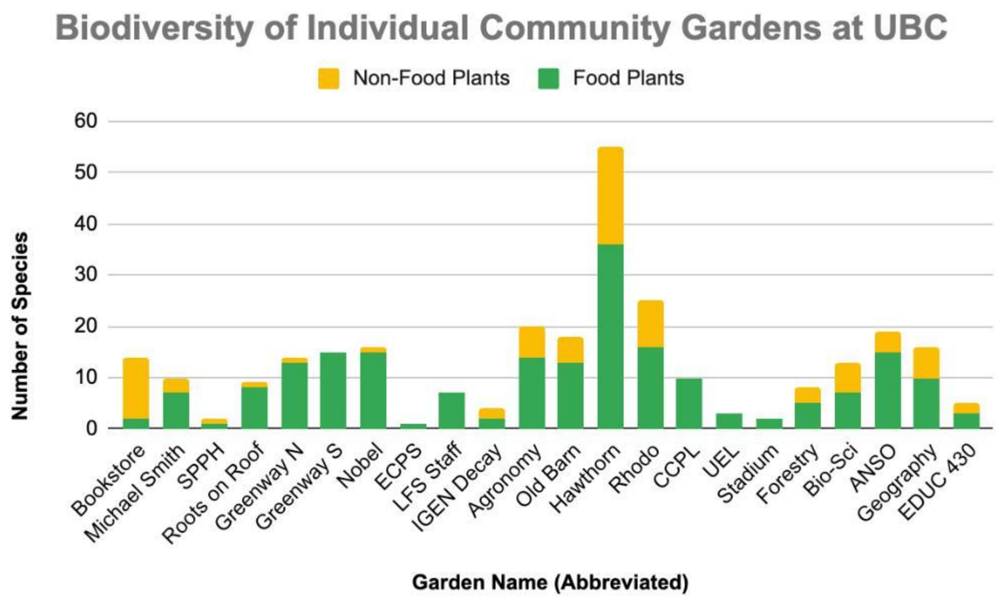


Table (6). Biodiversity of 24 Individual Community Gardens on UBC Vancouver Campus. Made by Author (Leibel, 2025).

On average, there are 12.4 total species per garden, 8.9 food plants per garden, and 3.5 non-food plants per garden. ***Table (6)*** shows that there are extremes in the data regarding both high biodiversity and low biodiversity; the Hawthorn garden has 55 different species, 36 of which are food plants and 19 of which are non-food, whereas the School of Education and Counselling Psychology (ECPS) garden only grows kale. A noticeable trend in the biodiversity of individual community gardens is that the 6 gardens managed by UNA (Greenway North, Greenway South, Nobel, Old Barn Children's, Hawthorn, and Rhodo) typically have greater biodiversity than others. Based on this field data combined with gardener survey responses, we attribute this to the fact that the UNA, a designated administration, oversees these gardens, and facilitates more knowledge-sharing surrounding species to plant to gardeners through this network, such as their "UNA Community Gardens Toolkit" (UNA, 2025) included in monthly newsletters. This further shows the need for an updated and accessible resource for UBC community gardeners to know what already planted species are/aren't climate resilient, and what species are climate resilient to plant in the future, which we developed below from our secondary data collection.

Secondary Data Results

We assessed the climate resiliency of 96 plant species via a literature review of the species based on species temperature tolerance, drought tolerance, water tolerance, and whether the species is annual or perennial. We used the same designations and categories as McCleod et. al (2023) report to remain consistent with our data, and created a decision matrix to determine the overall climate resiliency of a species.

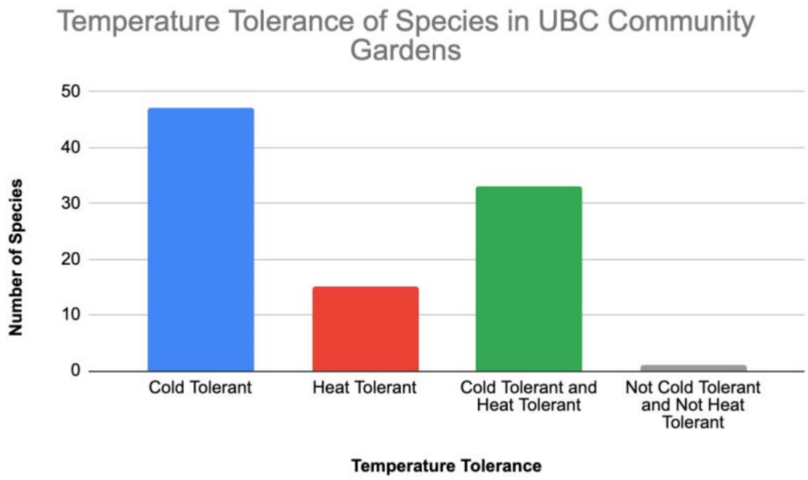


Table (7). Temperature Tolerance of 96 Species in UBC Community Gardens. Made by Author (Leibel, 2025).

Table (7) shows that of the 96 assessed species, 47 are cold tolerant, meaning the species can survive temperatures below 0ºC (University of California Agriculture and Natural Resources (UC ANR), 2025), 15 are tolerant to temperatures above 20ºC and therefore heat tolerant (University of California Agriculture and Natural Resources, 2025), 33 species are both cold and heat tolerant, and 1 species, shitake mushroom, is neither cold nor heat tolerant.

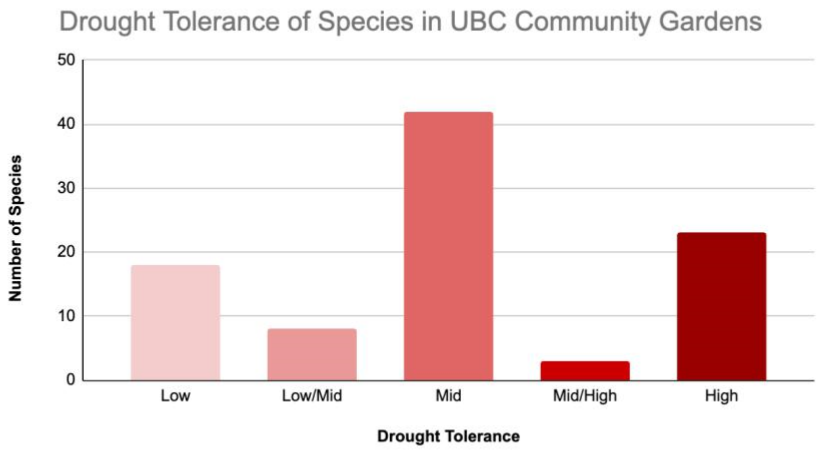


Table (8). Drought Tolerance of 96 Species in UBC Community Gardens. Made by Author (Leibel, 2025).

Table (8) shows that of the 96 assessed species, 18 have low drought tolerance, meaning the species has significant difficulty surviving in periods of water scarcity (UC ANR, 2025). 8 species have low-to-medium drought tolerance, meaning the species doesn't thrive in water-scarce environments 42 of the species have a medium drought tolerance, indicating that the species can withstand drought periods, but may experience reduced growth). Merely 3 species have a medium-high drought tolerance, signifying they can survive and thrive in water-scarce conditions, but still require more water than highly tolerant species, and 23 species have a high tolerance for high-heat, water-scarce conditions.

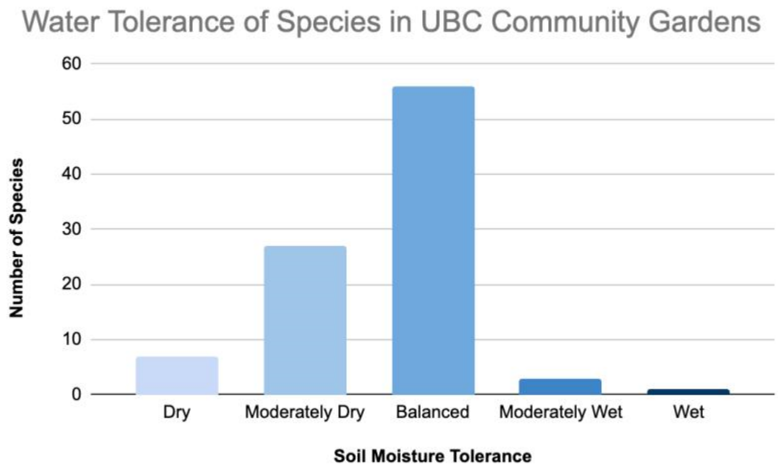


Table (9). Water Tolerance of 96 Species in UBC Community Gardens. Made by Author (Leibel, 2025).

Table (9) shows that of the 96 assessed species, 7 species thrive in dry conditions, 27 species thrive under moderately-dry water conditions, 56 species thrive under balanced environmental conditions, 3 thrive under moderately-wet water conditions, and 1 species thrives in solely wet conditions.

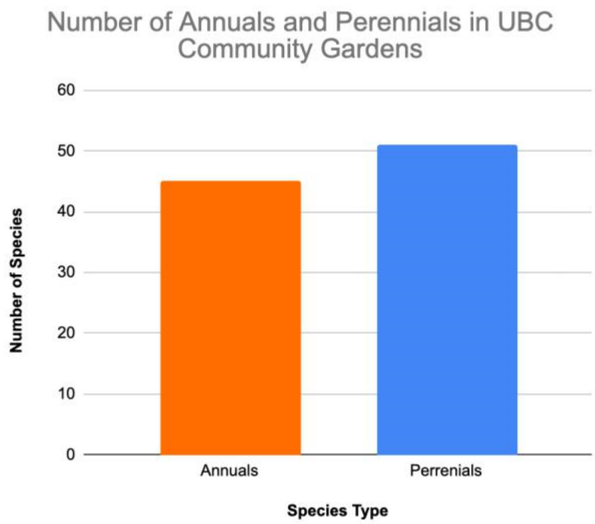


Table (10). Number of Annuals and Perennials of 98 species in UBC Community Gardens. Made by Author (Leibel, 2025).

Table (10) shows that of the 98 assessed species, 45 are annuals, and 51 are perennials. In the context of climate resiliency of plant species, we classified perennials as being more climate resilient than annuals, primarily because they have longer life cycles which allow them to adapt to changing climatic conditions over long periods of time (McCleod et al., 2023).

From this data, we created a decision matrix to determine if a species was climate resilient (marked green), moderately climate resilient (marked amber), or not climate resilient (marked red), as shown in ***Table (11)*** below. A climate-resilient species can maintain function despite the stresses associated with climate change (UC ANR, 2025), a moderately climate-resilient species functions under mild to moderate climate variability but is vulnerable to extreme or prolonged climate stresses (UC ANR, 2025), and a non-climate resilient species is highly sensitive to climatic changes and struggles to survive under shifting climate conditions (UC ANR, 2025). Each factor was assigned a rank from 1 to 3, with 3 being a climate-resilient factor, 2 being a moderately climate-resilient factor, and 1 being a non-climate-resilient factor.

Category	Factor	Rank of Factor
Temperature Tolerance	Both cold and heat tolerant	3
	Cold tolerant	2
	Heat tolerant	2
	Not cold or heat tolerant	1
Drought Tolerance	High	3
	High-Mid	3
	Mid	2
	Low-Mid	1
	Low	1
Soil Moisture Tolerance	Dry	3
	Moderately Dry	3
	Balanced	2
	Moderately Wet	1
	Wet	1
Annual/Perennial	Perennial	3
	Annual	2
Totals	**Species is Climate Resilient**	≥ 9
	Species is Moderately Climate Resilient	8 - 5
	Species is Not Climate Resilient	≤ 4

Table (11). Decision Matrix to Determine the Climate Resiliency of a Species. Made by Author (Leibel, 2025).

From this matrix, we determined that of the 96 assessed species, 52 are climate resilient, 44 are moderately climate resilient, and 1 species, shitake mushroom, is not climate resilient. Now that we had the climate climate resiliency data with the 56 species that were included in the list, to determine the overall climate resiliency of all 152 species that we found in UBC community gardens (see ***Table C(2)***).

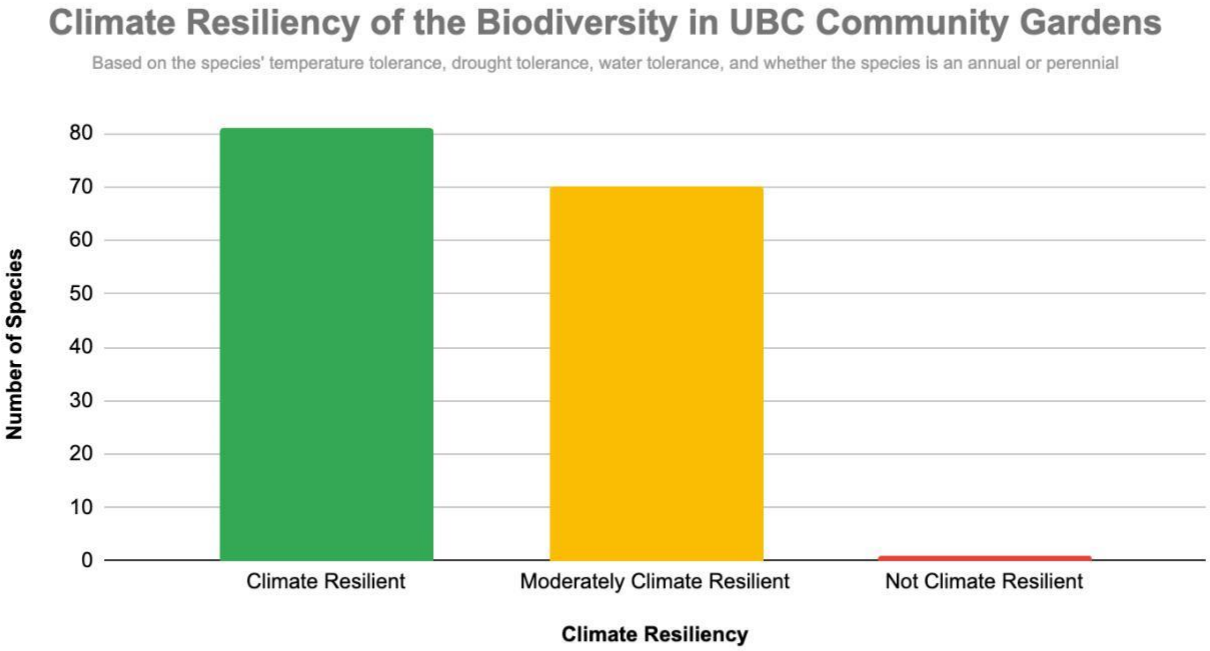


Table (12). Climate Resiliency of the Biodiversity in UBC Community Gardens. Made by Author (Leibel, 2025).

Therefore, as shown in ***Table (12)***, of all 152 species identified in community gardens on UBC campus, 81 species (53.25%) are climate resilient, 70 species (46.05%) are moderately climate resilient, and only 1 species (0.7%; shitake mushroom) is not climate resilient. This is extremely promising; it shows that UBC community gardens are fairly resilient to any extreme climatic events and gradual shifts in climatic conditions, all of which are currently happening and will continue to happen with climate change (Planton et al., 2008).

By using the climate resilience decision matrix (Table (11)) we analyzed the resiliency of the most common food and non-food plants found across the gardens. Plants were included in ***Table A(1)*** and ***Table A(2)*** if they were identified in more than two gardens. Some interesting and valuable findings to note are that of the 24 food plants in ***Table A(1)***., 10 of the species (41.7%) were identified as moderately climate resilient. (Leibel, 2025) 'Kale', the most commonly planted food plant was rated 'green' however, 'strawberries' the second most commonly planted food plant was rated 'amber.' (Leibel, 2025) ***Table A(2)*** demonstrates the most common non-food plants, with all species identified as climate resilient. (Leibel, 2025)

Resources Developed

Now that we identified the number, locations, and individual profiles of community gardens on campus, we created an updated biodiversity baseline of all species in these community gardens, and determined the climate resiliency of each species, we created 2 easily accessible and user-friendly resources that expand on existing resources to support campus gardeners with plant diversity and resilience information and facilitate knowledge-sharing between gardeners (see ***Figure C(1)*** and ***Table C(2)***).

Updated Map of UBC Community Gardens

Using Google MyMaps software, we created an updated, user-friendly, interactive map to show the locations, characteristics, and contact information for each of the 24 gardens we found (see ***Figure C(1)***). ***Figure (3)*** shows a snapshot of the map overview and layers, and ***Figure (4)*** shows an example of an individual garden profile.

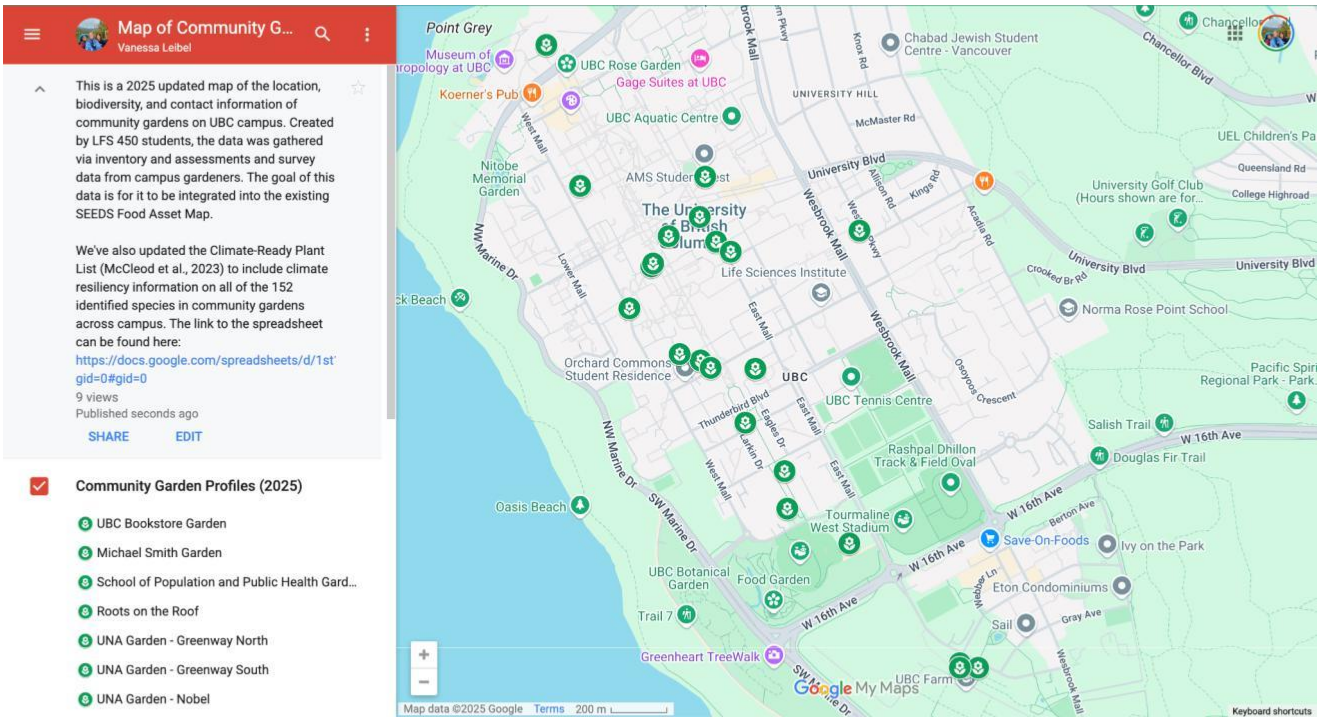


Figure (3). Snapshot of Updated Map Overview. Taken by Author (Leibel, 2025).

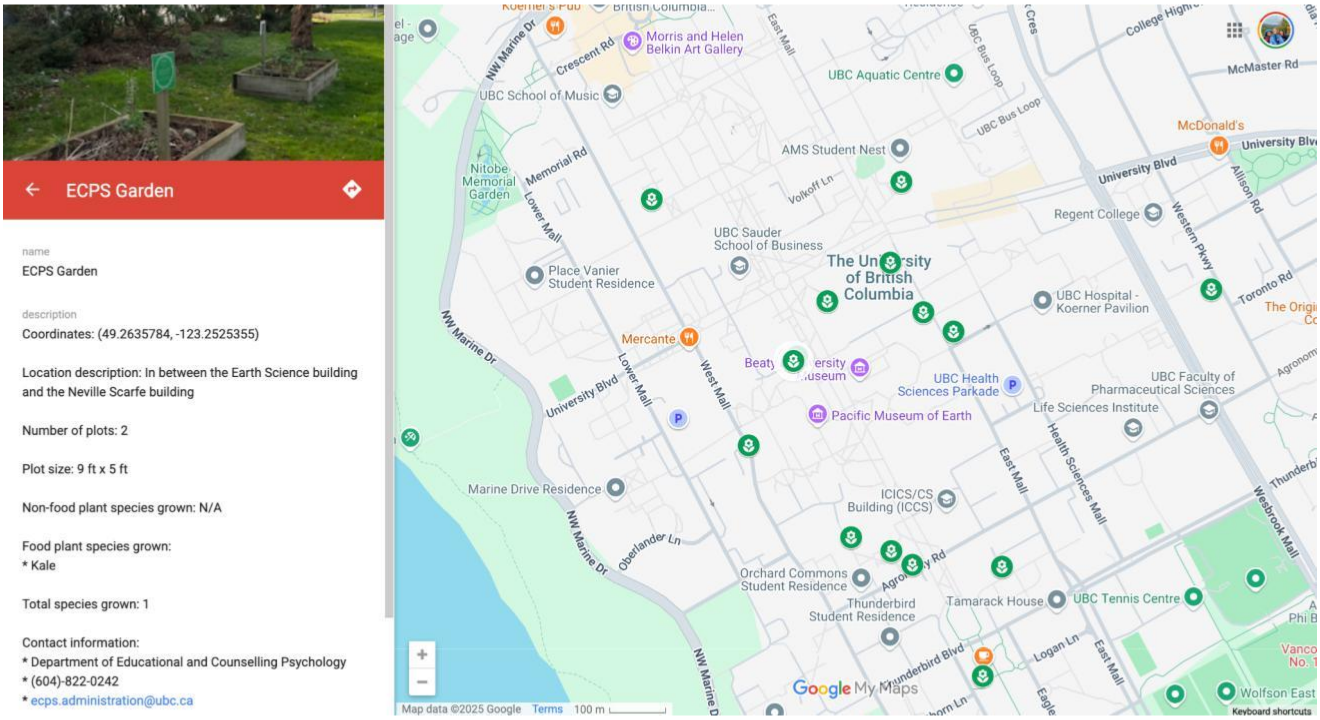
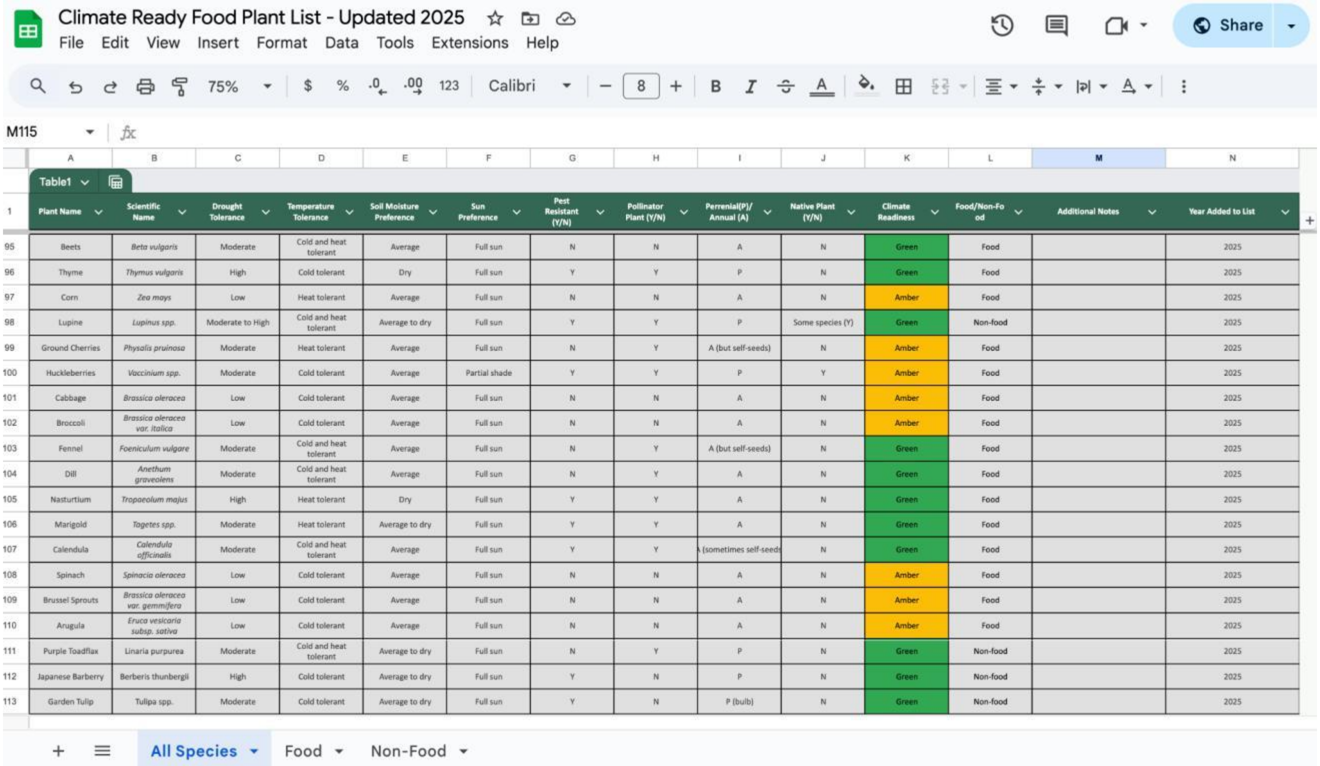


Figure (4). Snapshot Example of Individual Garden Profile. Taken by Author (Leibel, 2025).

We used Google MyMaps and designed each map layer, data point, and garden profile information to be the same layout and design as the "UBC SEEDS Food Asset Map" (see ***Figure D(4)***). Our aim is for this map to be directly integrated into the SEEDS Food Asset Map in order for it to contain updated information for gardeners. Also, within this map we included a link to our Updated Climate-Ready Plant List (see ***Figure C(2)***), for gardeners to easily access climate resiliency information for the species planted in campus community gardens.

Updated Climate-Ready Plant List

Based on our secondary data collection, we updated McCleod et. al's 2023 Climate-Ready Plant List to include the species we identified in campus community gardens through our primary research, so that campus gardeners have easily-accessible information about the climate resiliency of species they have planted. The spreadsheet can be downloaded from the SEEDS Library. We also added separate spreadsheet tabs for food and non-food species, to make the sheet more user-friendly for gardeners (see ***Table C(2)***).



	Plant Name	Scientific Name	Drought Tolerance	Temperature Tolerance	Soil Moisture Preference	Sun Preference	Pest Resistant (Y/N)	Pollinator Plant (Y/N)	Perrenial(P)/ Annual (A)	Native Plant (Y/N)	Climate Readiness	Food/Non-Food	Additional Notes	Year Added to List
95	Beets	*Beta vulgaris*	Moderate	Cold and heat tolerant	Average	Full sun	N	N	A	N	Green	Food		2025
96	Thyme	*Thymus vulgaris*	High	Cold tolerant	Dry	Full sun	Y	Y	P	N	Green	Food		2025
97	Corn	*Zea mays*	Low	Heat tolerant	Average	Full sun	N	N	A	N	Amber	Food		2025
98	Lupine	*Lupinus spp.*	Moderate to High	Cold and heat tolerant	Average to dry	Full sun	Y	Y	P	Some species (Y)	Green	Non-food		2025
99	Ground Cherries	*Physalis pruinosa*	Moderate	Heat tolerant	Average	Full sun	N	Y	A (but self-seeds)	N	Amber	Food		2025
100	Huckleberries	*Vaccinium spp.*	Moderate	Cold tolerant	Average	Partial shade	Y	Y	P	Y	Amber	Food		2025
101	Cabbage	*Brassica oleracea*	Low	Cold tolerant	Average	Full sun	N	N	A	N	Amber	Food		2025
102	Broccoli	*Brassica oleracea var. italica*	Low	Cold tolerant	Average	Full sun	N	N	A	N	Amber	Food		2025
103	Fennel	*Foeniculum vulgare*	Moderate	Cold and heat tolerant	Average	Full sun	N	Y	A (but self-seeds)	N	Green	Food		2025
104	Dill	*Anethum graveolens*	Moderate	Cold and heat tolerant	Average	Full sun	N	Y	A	N	Green	Food		2025
105	Nasturtium	*Tropaeolum majus*	High	Heat tolerant	Dry	Full sun	Y	Y	A	N	Green	Food		2025
106	Marigold	*Tagetes spp.*	Moderate	Heat tolerant	Average to dry	Full sun	Y	Y	A	N	Green	Food		2025
107	Calendula	*Calendula officinalis*	Moderate	Cold and heat tolerant	Average	Full sun	Y	Y	A (sometimes self-seeds	N	Green	Food		2025
108	Spinach	*Spinacia oleracea*	Low	Cold tolerant	Average	Full sun	N	N	A	N	Amber	Food		2025
109	Brussel Sprouts	*Brassica oleracea var. gemmifera*	Low	Cold tolerant	Average	Full sun	N	N	A	N	Amber	Food		2025
110	Arugula	*Eruca vesicaria subsp. sativa*	Low	Cold tolerant	Average	Full sun	N	N	A	N	Amber	Food		2025
111	Purple Toadflax	Linaria purpurea	Moderate	Cold and heat tolerant	Average to dry	Full sun	N	Y	P	N	Green	Non-food		2025
112	Japanese Barberry	Berberis thunbergii	High	Cold tolerant	Average to dry	Full sun	Y	N	P	N	Green	Non-food		2025
113	Garden Tulip	Tulipa spp.	Moderate	Cold tolerant	Average to dry	Full sun	Y	N	P (bulb)	N	Green	Non-food		2025

Table (13). Excerpt of Updated 2025 Climate-Ready Food Plant List for UBC Community Garden Species. Taken by Author (Leibel, 2025).

Discussion

This research aimed to support UBC's sustainability and climate goals by advancing the current understanding of biodiversity and climate resilience in campus community gardens. With food systems accounting for over 29,000 tons of CO_2 emissions annually at UBC (UNA, 2022), strengthening local, low-emission food production systems is essential. Our findings indicate that community gardens not only have the potential to support UBC's 2030 climate targets, but that they are already demonstrating resilience through diverse planting practices and community stewardship.

Our inventory and assessment of campus community gardens coupled with our survey results confirmed that the biodiversity baseline in UBC gardens has increased since the last major assessment in 2017-18 (Ng et al., 2018). We identified a total of 152 new species, both food and non-food species, across 24 gardens, an increase from the 11 gardens previously documented in 2017-18 (2018), and the 56 species documented in 2023 (Mcleod et al., 2023). This highlights a notable expansion in the biodiversity of both food and non-food plant species on UBC's campus community gardens.

However, biodiversity is not evenly distributed across campus. Our data show significant variation between gardens: for example, while Hawthorn Garden contains 55 different species, the ECPS garden grows only one. This uneven distribution can be attributed to varying levels of support, gardener engagement, and ecological design. Gardens under UNA management tend to show higher levels of biodiversity. This is likely due to the UNA's role in both establishing and maintaining gardens, and the fact that their gardens are maintained by a wider community, not just university students or staff. UNA gardens are often maintained by long-term residents, which could explain a higher investment in their garden plots, fostering stronger ties and more care, ultimately leading to increased biodiversity.

Through our climate resilience assessment, we classified species into three categories: green (climate resilient), amber (moderately resilient), and red (not resilient). We found that most plantings on campus are well adapted to changing climate conditions and that gardeners, intentionally or not, are largely selecting resilient varieties. By adding the newly identified species to the existing Climate-Ready Plant List (Mcleod et al., 2023), we have expanded the list into a more useful and comprehensive tool for gardeners looking to make climate-smart planting decisions (see ***Table C(2)***). For gardeners growing amber or red-rated species, the list can help identify green alternatives. Encouraging the transition toward more climate-resilient species is a practical, evidence-based step toward increasing the adaptive capacity of these gardens across UBCV campus. It is also important to note that our data shows that the most frequently planted species, kale and tomatoes, are rated green, suggesting that climate resilience is already embedded in the planting choices of the community.

Survey responses revealed meaningful insights into how gardeners experience and interact with their community spaces. While most (77%) gardeners reported to be "somewhat satisfied" or "extremely satisfied" with their community-based garden experience at UBC, there was a noticeable difference between UNA gardens and those not under UNA management. Gardeners from UNA gardens (e.g., Hawthorn, Nobel Park, Greenway North and South) were more likely to report satisfaction with garden management. This points to the importance of ongoing institutional support, which may currently be lacking in non-UNA gardens on campus.

Across the board, gardeners expressed a desire for better garden management and more equitable access to resources, such as water, pest control guidance, clearer signage, and allocation of sunlight and space. There was also enthusiasm for community-building efforts, such as workshops, social events, or seedling swaps. These qualitative findings reinforce the idea that community gardening is not just about growing food but building inclusive, supported spaces for social interaction, learning, and ecological care.

The variation in responses between UNA gardeners and those from other campus gardens suggests that increasing satisfaction across all campus gardens may require a more consistent, centralized model of support. Our results suggest that improving management amongst campus community gardens would not only enhance gardener experience but positively impact biodiversity and climate resilient gardening.

Our findings build directly on previous UBC research (Ng et al., 2018; Mcleod et al., 2023) and align with broader literature on the role of urban gardens in climate adaptation and biodiversity enhancement. Our research also aligns with UBC's Campus Vision 2050, which emphasizes the importance of open, green spaces for health, equity, and ecological resilience. The 2025 updated map of UBC community gardens we created (see ***Figure C(1)***) and the 2025 updated Climate Ready Plant List (see ***Table C(2)***) created through this project provide valuable tools for stakeholders seeking to assess garden health and prioritize support based on real-world data.

One of the most surprising results was the already high percentage of climate-resilient species being grown. This could speak to the experiential knowledge that gardeners bring to their plots, and suggests that formalized resources, such as the updated Climate-Ready Plant List, can serve to support or validate gardeners' existing choices, rather than dictate them. Another unexpected finding was the underrepresentation of several gardens in our survey. This limited our ability to generalize across all 24 gardens, and suggests a need for deeper outreach and engagement in future research.

This research demonstrates that UBC's community gardens are more than just green spaces. They are adaptive, biodiverse, and socially rich systems with huge potential to contribute to broader food system resilience and carbon reduction at the UBCV campus. With improved coordination and management, these campus community gardens could grow in their social and environmental impact. Future directions should include longer-term biodiversity monitoring, deeper engagement with underrepresented and under-managed gardens, formal integration of the Climate Ready Plant List into existing resources, and an increase in workshops and social events based on gardener feedback.

This study is not without limitations. Although we conducted a comprehensive inventory of UBC's community gardens and collected 22 survey responses, our sample does not fully represent the diversity of gardener experiences across all 24 gardens. Additionally, because our inventory and assessment took place during the winter months, many plant species were not visible at the time of observation. While we aimed to supplement this limitation through survey data, we did not receive responses from every plot holder. As a result, it is likely that our findings underrepresent the full extent of plant biodiversity, which would be more accurately captured during the peak growing season. While our climate resilience assessment is grounded in research, it simplifies the complex interactions between plants and their environments. As a result, it may not fully account for the range of climatic variables or future stressors that could impact plant performance over time. Finally, as aspects of our primary research relied on human observation, there is potential for human error in the data collection process, particularly in the inventory and assessment of campus gardens. To ensure a more accurate and up-to-date representation of biodiversity, this baseline should be reviewed and updated on a more regular basis.

Recommendations

Recommendations For Action

Short Term (Implemented within 6 months)

Update and Improve UBC Community Garden Mapping Tools

We recommend updating and enhancing both the SEEDS Food Asset Map and the UBCV Biodiversity Map to improve access to accurate, up-to-date information about UBC's gardens and food-related resources. While both platforms are valuable tools, they currently lack consistency and completeness. We have developed a 2025 updated map of all community gardens on UBC Vancouver campus with their locations, latitudinal and longitudinal coordinates, photos, list of species grown to highlight biodiversity, plot sizes, contact information for garden managers, and a link to our developed 2025 Updated Climate-Ready Plant List (available for download from the SEEDS Library). Our map is in Google MyMaps format, matching the SEEDS Food Asset Map software for easy integration, and our map can also be exported to kmz and/or kml format for easy integration in the UBCV Biodiversity Map. We recommend that SEEDS and the UBC Community Datahub incorporate our map layers and data into their existing resources to make both maps up-to-date and more user-friendly, informative, and supportive of climate-adaptive urban gardening at UBC.

Include Project Findings in UNA Garden Toolkit

To help share our project findings in a practical and accessible way, we recommend incorporating them into the UNA Garden Toolkit. Specifically, we suggest dedicating a page to highlight key resources such as the updated SEEDS Food Asset Map and the UBC Biodiversity Map, making them easier for community members to discover and use. This page could also feature information on cover crop seeds, which support soil health, and climate-resilient native plants, which are better adapted to shifting weather patterns. To enhance usability, we propose including visuals and QR codes that link directly to digital maps and plant lists, making it simple for gardeners to explore these tools further.

Long Term (Implemented within 5 years)

Update and improve the factors determining the climate readiness of the plants

To ensure the long-term sustainability and resilience of plant species in the face of climate change, we recommend researching more factors to determine the climate resiliency of the plants. Some factors may include phenological flexibility, air quality impact, reproduction and regenerative capacity. The complex and evolving factors, especially in the context of localized ecosystems and urban environments such as the UBC community gardens, could be more informative to the gardeners when choosing the right species to plant with more factors considered. Moreover, the new data and research on additional factors can offer new insights into resilient planting practices for gardeners.

Recommendations For Future Research

Ongoing Microclimate Data Collection

We recommend that future research efforts focus on gathering more long-term microclimate data in UBC community gardens. This will aid in climate resilience and adaptive planting. Year-round monitoring systems could be installed, with checks twice a year for accurate, seasonal data. Collaborating with projects like SEEDS and UBC researchers would enhance these efforts and provide continuous support. Building upon existing data, future student groups could discover which plant species thrive best in UBC's specific microclimate, especially as weather becomes more extreme. Research could include studying plant performance, identifying climate-resilient species, and exploring plant breeding to create new, tougher varieties. A better grasp of microclimates and plant adaptation science is crucial. Future research could significantly help community gardens endure changing environmental conditions. This would ensure they continue offering food, habitat, and educational benefits in a resilient and sustainable manner.

Conclusion

This research aimed to advance the understanding of plant biodiversity and climate resilience within UBC's community gardens, with the goal of supporting a more resilient, accessible, and interconnected campus food system. Drawing on past student-led research, an updated inventory and assessment, a gardener survey, and a climate literature review, our findings show significant progress in both species' diversity and climate resilience since the last comprehensive baselines in 2017/18 and 2023.

We identified 24 active community gardens across UBC Vancouver's campus, which included 13 not previously recorded, and documented 152 unique plant species—106 of which (over 70%) were classified as climate resilient. Biodiversity levels varied widely across gardens, with those managed by the UNA showing greater species diversity and higher gardener satisfaction. These findings highlight the value of structured support systems, like those provided by the UNA, which appear to enhance both ecological and social outcomes. Gardeners across all sites expressed a desire for improved communication, equitable access to resources, and more educational opportunities, further highlighting the need for more centralized garden management across campus. The resources we developed, the 2025 Updated Map of UBC Community Gardens (see ***Figure C(1)****)* and the 2025 Updated Climate Ready Plant List (see ***Table C(2)****)*, address this need; they are publicly accessible, user-friendly, informational resources for UBC community gardeners to learn about their gardens' and other campus gardens' biodiversity and climate resiliency.

Overall, this research reinforces the significance of community gardens as living laboratories for climate resilience and community well-being, and highlights the relevance of these spaces in addressing larger climate goals. By updating the existing baseline of biodiversity on campus community gardens, assessing the climate resilience of the species observed, and ultimately improving existing tools like the SEEDS Food Asset Map and Climate-Ready Plant List, this project supports UBC's broader goals of creating resilient, inclusive, and biodiverse open spaces.

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Appendices

Appendix A: Additional Figures

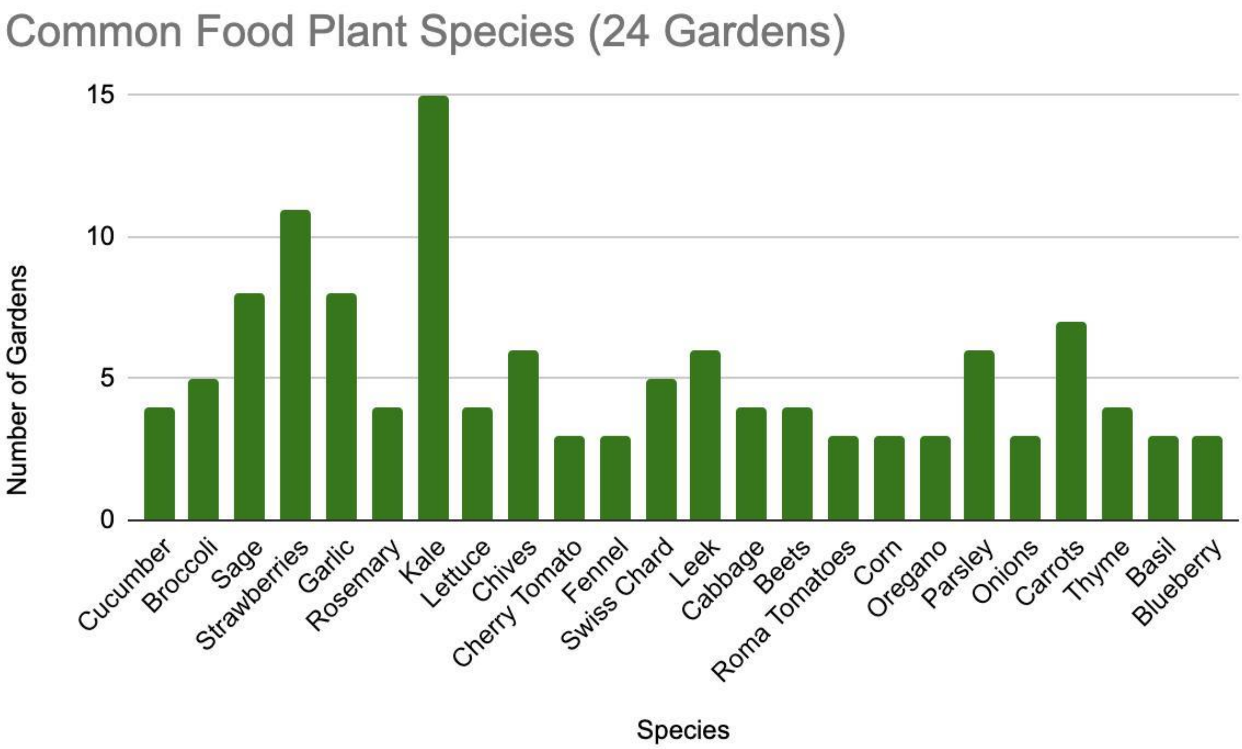


Table A(1). Most Common Food Plants in UBC Community Gardens.

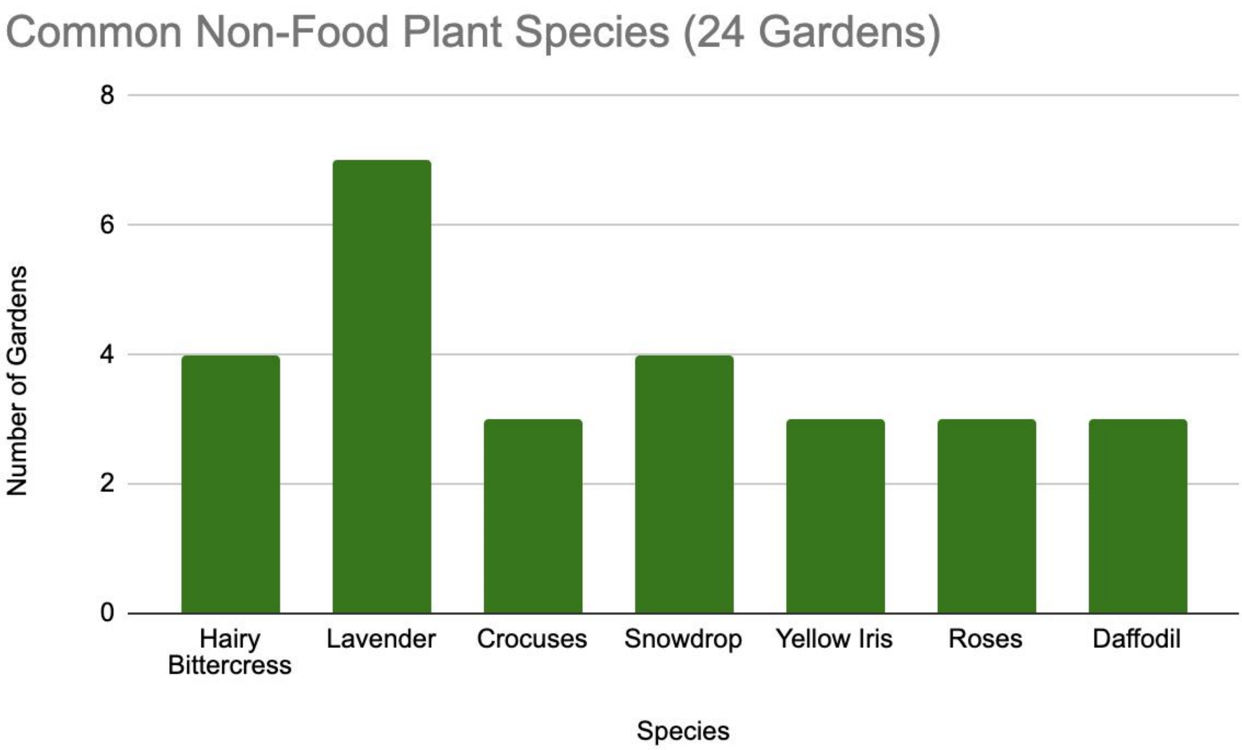


__Table A(2).__ Most Common Non-Food Plants in UBC Community Gardens.

APPENDIX B: DATA COLLECTION TOOLS

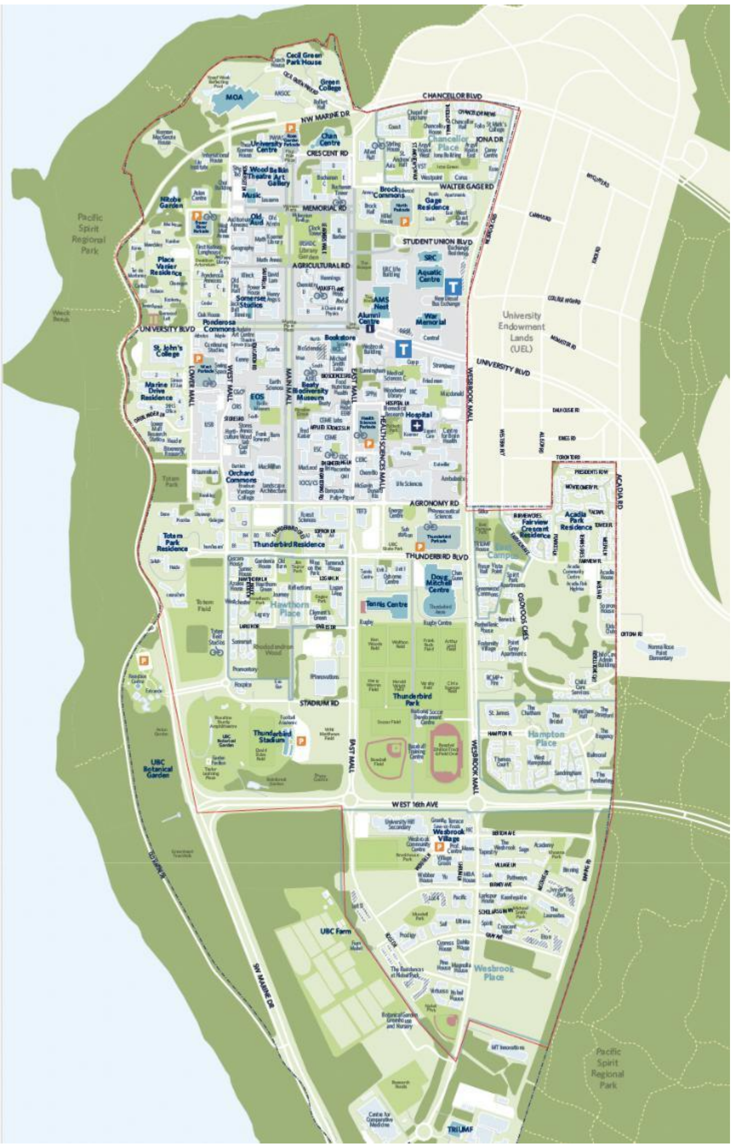


__Figure B(1).__ Scope of Inventory and Assessment (outlined in red). Adapted from UBC Campus and Community Planning, 2024.

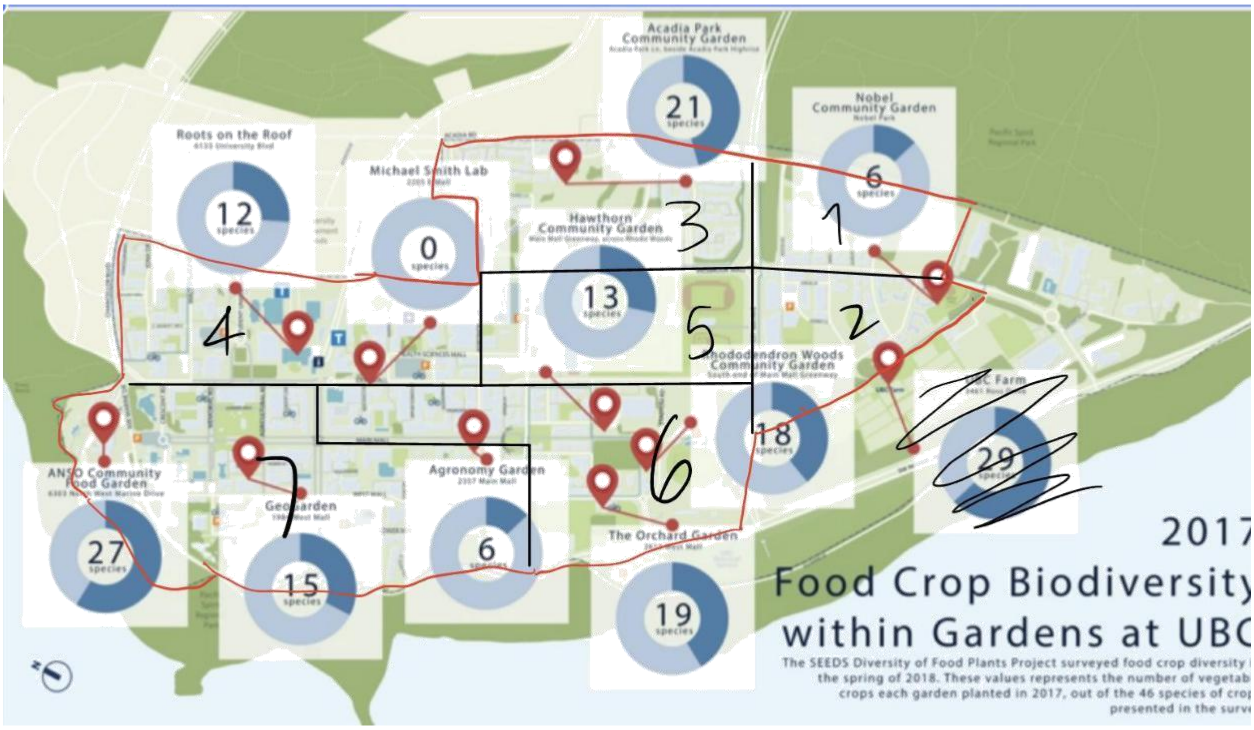


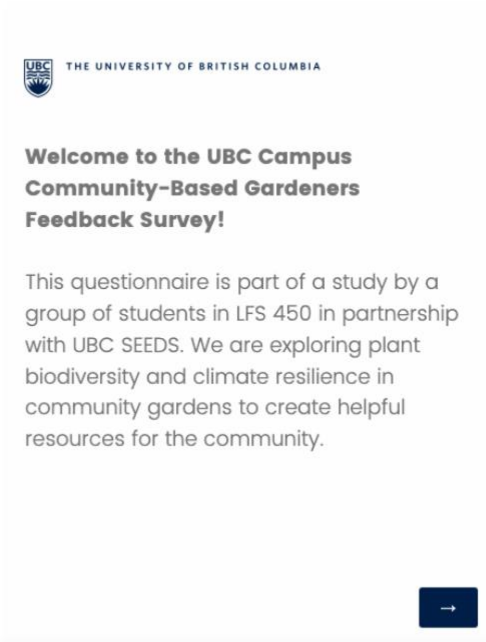
Figure B(2). Assigned Sections for Inventory and Assessment. Adapted from Ng et al., 2018.

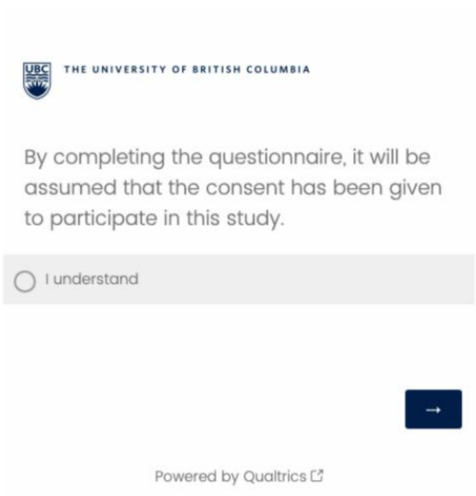
Name of Garden	Location (Latitude) ºN	Location (Longitude) ºW	Location (General Description)	Plot Size (metric)	Number of Plots	Species Found	Condition (Poor, Fair, Good, Excellent + explaination)	Assigned to:
Bookstore Staff Garden (non-food)	49.26508	-123.25026	Beside UBC Bookstore	7.62m x 7.32m	1	spring crocus, siberian squill, rose campion, dusty miller, primrose, black poplar, eastern teaberry, common snowdrop, yellow iris, woodland crocus, siberian bugloss, lenten-rose, pacific madrone, rhododendron, sword fern, asian bleeding-hart	Excellent	Ela
Michael Smith Garden	49.26432	-123.24947	In front of FNH	2.28m x 1.37m	6	lettuce, woodland strawberries, wood dock, rose, lavender, marjoram, echinacea, sage, chive, spring heath	Poor (zero growth)	Ela
SPPH Garden?	49.26402	-123.24878	In Front of SPPH	2.28m x 1.52m	1	soft rush, thyme are only species still alive	Poor (zero growth)	Ela
Roots on the Roof	49.26630 81	-123.249990 8	AMS Nest				excellent	Ela
Greenway North (UNA)	49.25142	-123.23803	in front of UBC Farm (kind of hidden in the woods)	Large beds (21): 6.5 x 6.5 ft; small beds (8): 3.2 x 6.5 ft	29	Kale, daffodil, swiss chard, brussel sprouts, chickweed, strawberry, parsley, mint, garlic, leek	Excellent	Franny
Greenway South (UNA)	49.25128 07	-123	directly in front of UBC Farm entrance (very visible)	9.5 x 10.5 ft	29	Celery, romaine, swiss chard, choy, strawberry, kale, garlic, leek, sage, collards	Excellent	Franny
Nobel (UNA)	49.25127	-123.23803	southern side of Wesbrook Village	Very varied in size of bed (i.e., Large beds (17): 9.75 x 9.75 ft)	84	swiss chard, garlic, leek, kale, sage, celery, chickweed, daffodil	Excellent	Franny
ECPS Community Garden	49.26357 84	-123.252535 5	in between the ESB and Scarfe	9 ft x 5 ft	2	Kale		Vanessa

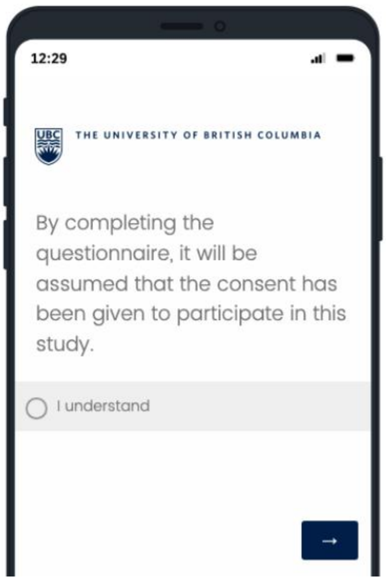
			buildings					
LFS Faculty and Staff Garden	49.2608932	-123.2511755	On the 3rd floor balcony of MacMillan	in pots, about 3 ft x 1 ft	25 pots	Cucamelon, parsley, basil, thyme, green onion, oregano, Monrovia, mint, other plants unable to see	Good on average - some plants thriving, others dying	Vanessa
The Decay Garden (IGEN garden??)	49.2606824	-123.2502216	Behind the UBC Landscape Architecture annex	22 ft x 10 ft	1	sword fern, yellow iris, himalayan blackberry, shitake mushroom	fair - sword fern and yellow iris are only ones not dead	Vanessa
Agronomy Garden	49.2604639	-123.2497462	On Agronomy and Main Mall	5 ft x 10 ft raised beds, 1 ft wide pots	13 plots, 20 pots	broad-leaved dock, common columbine, garden sage, common privet, strawberries, garlic, parsley, carrot, daisies, kale, common lavender, mint, greater snowdrop, radish,	excellent - well tended to	Vanessa, Arkar
The Orchard Garden	49.2570101	-123.24982	Totem Field by Cesnam Residence - not sure how to access	looks like big research plots	tbd	tbd	good	Vanessa
Old Barn Children's Garden (UNA)	49.2587746	-123.2480839	At Old Barn Community Center	sunken plots = 22 ft x 10 ft (x3); 8 ft x 8ft (x3)	6 sunken, 12 raised	greater snowdrop, plum tree, green onion, spinach, red currents, agapanthus, kale mix, onion, blueberry, kale, yellow iris, strawberries, northern highbush blueberry, american yellow rocket, rosemary, coriander, woody hedge nettle, garden sage, carrot,	excellent - well tended to	Vanessa
Hawthorn Community Garden (UNA)	49.2573144	-123.2462493	Main Mall Greenway	3 hexagonal plots (pollinator gardens), 66 rectangular plots (10 ft x 7 ft)	3 pollinator raised, 66 raised	HYDRANGEAS, common snowdrop, onions, mint, kale, garlic, fringed willowherb, rose campion, northern highbush blueberry, garden tulip, sage, lavender, beets, iris, broccoli, lettuce, broccoli, red pepper, green beans, cucumber, leeks, beet, parsley, radish, evergreen huckleberry, carrots, cornflower, rosemary, rocket salad, oregon boxwood, salvia, nasturtium, hairy bittercress, ragwort, hyacinth, cabbage, thyme	excellent - well tended to	Vanessa
Rhodo Garden (UNA)	49.2561409	-123.2461293	Main Mall Greenway	3 hexagonal plots (5 ft); 28 rectangular plots (10 x 7)	19	deptford pink, lavender, purple foxglove, multiflora rose, perennial candytuft, spurge laurel, sage, crocuses, kale, oregano, snap peas, dill, parsley, red deadnettle, onion, mint, beets, mediterranean spurge, annual honesty, gaidner's yampah, chives, parsley, carrots, strawberries, banana pepper, tomato, wild pansy	excellent - well tended to	Vanessa
Campus Community Planning Garden (unnamed)	49.2622887	-123.2535734	West Mall outside CCP building	5ft x 5ft	4	kale, cabbage, broccoli, beet, garlic, chives	excellent - well tended to	Vanessa, Arkar
UEL community gardens	49.2646696	-123.2427192	Acadia park / Toronto road	7ft x 5ft	55	kale, swiss chard, leek	excellent - well tended to	Tash
Stadium Garden (? - unnamed)	49.2550892	-123.243201	By the construction site in front of Thunderbird stadium	10 ft x 10 ft (2), 3x3 (1)	3	fennel, fava bean	fair - supplies to tend to them. some plots covered i debris	Vanessa
Forestry/CAWP Garden (unnamed)	49.2604444	-123.2476259	2nd floor in between Forestry building and CAWP building	3 ft x 7 ft	2	japanese barberry, garden tulip, snowberries, chives, lavender, cherry tomato, slicer tomato, hairy bittercress, lettuce	excellent - well tended to	Vanessa
Bio-Sci Garden (unnamed)	49.2644915	-123.2517284	In Biological Sciences Building Courtyard	3 ft x 7 ft	6	purple toadfax, broccoli, field mustard, mint, purslane speedwell, wild oat, fringed willowherb, hairy bittercress, strawberry, lavender, garlic, rosemary, kale	fair - some beds well tended, others no growth, mostly weeds	Vanessa
ANSO Garden	49.2703416	-123.2574633	in the anthropology building courtyard	2.5 ft x 5 ft (plots); 2ft wide pots	18 plots; 36 pots	marigolds, sunflowers, kale, garden sage, chives, beets, tulip, strawberries, lemon boy tomato, san marzano tomato, hot pepper, carrots, broccoli, bell pepper,	fair - some beds well, tended, others no growth, mostly weeds	Vanessa

						cucumber, green kale, houseleek, lavender, parsley mouse-ear cress		
GeoGarden	49.266034	-123.2558549	Out front of the Geography Building, coming from Main Mall	5 ft x 15 ft	6	chives, onions, kale, tulip, lily of the valley, hyacinth, daffodil, hairy bittercress, wild garlic, nutalls toothwart, strawberries, large leaved lupine, lavender, rose, arugula, beet, carrot	excellent - well tended to	Vanessa
EDUC 430 Inquiry Permaculture School Garden	49.2636524	-123.2524435	Left side of Scarfe building, coming from Main Mall	5 ft x 33 ft	1	spotted lady's thumb, horseweed, fennel, kale, cabbage	good - no debris, but lots of weeds	Vanessa

Table B(3). Inventory and Assessment Raw Datasheet.







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Name

Email

Phone Number

The name of the UBC Community Garden are you involved with:

Location of the Garden (Address)

Contact Information of Community Garden Owner/Management

→

What types of species and varieties (food plants) do you grow in your garden plot? (eg. yellow carrots, garlic)

What types of species and varieties (non-food plants) do you grow in your garden plot? (eg. flowers)

What gardening practices do you use to adapt to the changing climate when taking care of your garden plot?

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What aspects of community-based gardening do you enjoy the most?

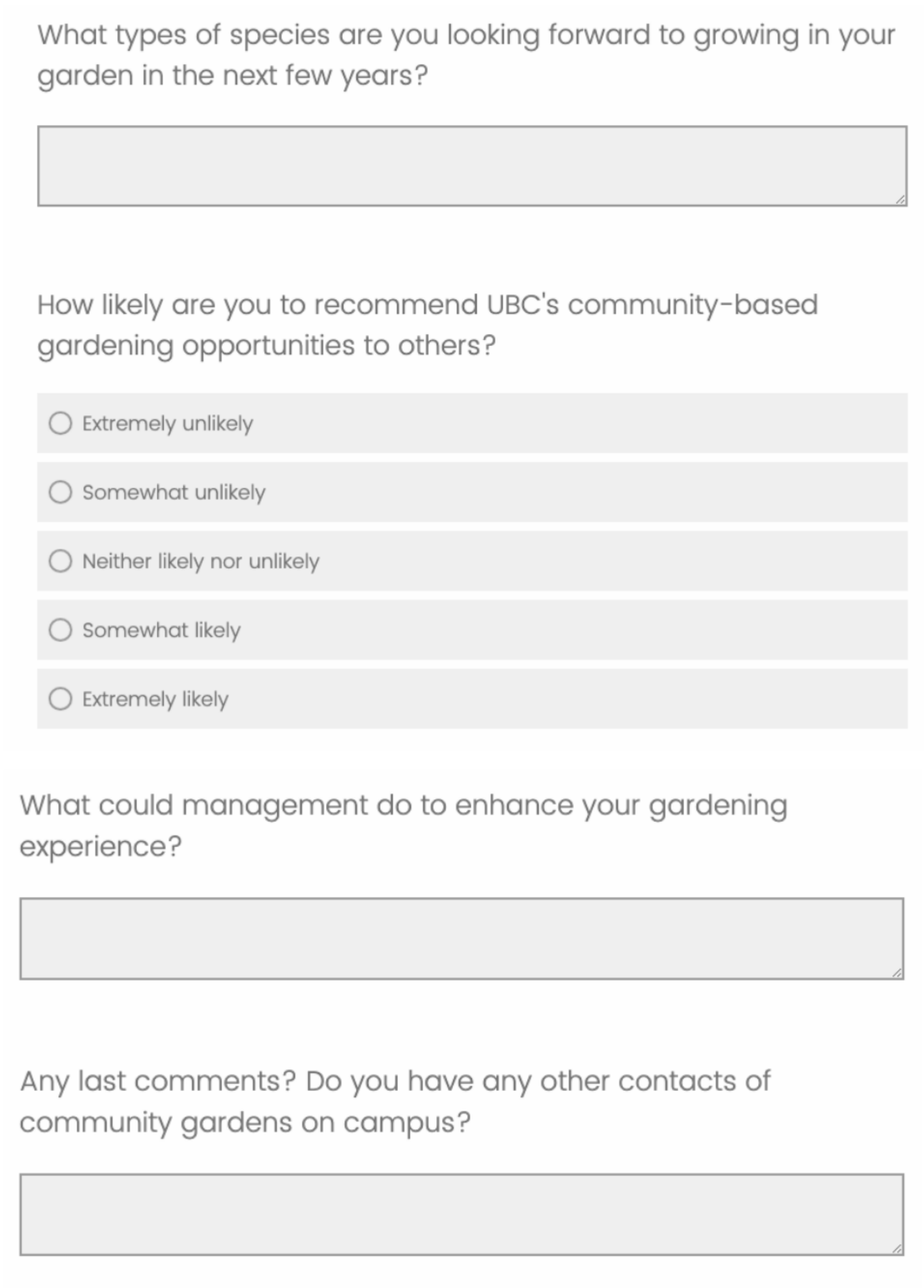
- ☐ Social Interaction
- ☐ Learning Opportunites
- ☐ Access to Fresh Produce
- ☐ Physical Activity
- ☐ Environmental Impact
- ☐ Other

How satisfied are you with your overall community-based garden experience at UBC?

- ◯ Extremely dissatisfied
- ◯ Somewhat dissatisfied
- ◯ Neither satisfied nor dissatisfied
- ◯ Somewhat satisfied
- ◯ Extremely satisfied

How responsive do you find the community-based garden management is to addressing your issues?

- ◯ Very unresponsive
- ◯ Responsive
- ◯ Neutral
- ◯ Unresponsive
- ◯ Very Responsive



What types of species are you looking forward to growing in your garden in the next few years?

How likely are you to recommend UBC's community-based gardening opportunities to others?

- ○ Extremely unlikely
- ○ Somewhat unlikely
- ○ Neither likely nor unlikely
- ○ Somewhat likely
- ○ Extremely likely

What could management do to enhance your gardening experience?

Any last comments? Do you have any other contacts of community gardens on campus?

Figure B(4). Survey Questions

Figure B(5). Survey Recruitment Poster.

Subject: Request to Distribute UBC Community Garden Survey to Your Network

Attn: [Recipient's Name/Organization Name],

Hello…

I hope this email finds you well. I am [Your Name], an LFS 450 student reaching out to **request your assistance in distributing a survey to your network for individuals operating community gardens at UBC Vancouver** (academic and campus lands). In partnership with the UBC SEEDS Sustainability Program, UBC Botanical Garden, and the University Neighborhoods Association, we are **conducting a survey of the biodiversity and management practices of UBC Vancouver campus community gardens**. We will use your valuable input to come away with an updated baseline of biodiversity in campus community gardens, and recommend strategies to increase garden climate resilience.

Your assistance in completing this survey and/or sharing with other campus community garden operators would be incredibly valuable to help us gather comprehensive and meaningful data.

Survey details:

- **Estimated completion time: 5 minutes**
- **Timeframe: March 10th → March 24th**
- **Incentive: a chance to win a $50 gift card of your choice for:**
  - **AMS Food Services**
  - **UBC Food Services**
  - **UBC Bookstore**
- **Survey link:** https://ubc.ca1.qualtrics.com/jfe/form/SV_bvf9iv0pTTLf3Ya

We would be incredibly grateful if any gardeners who maintain plots on campus could complete this survey, as the insights will help increase climate resilience of campus community gardens and support knowledge mobilization among campus gardeners.

If you're not comfortable distributing the survey, I've also attached a poster with the survey link that you can put up instead at your discretion.

Thank you in advance for your support! If you have any questions, please don't hesitate to reach out.

All the best,
[Your name]
LFS 450
[Your email]

Figure B(6). Survey Recruitment Email Template.

Table B(7). Survey Results Raw Datasheet. (Not published)

Appendix C: Deliverables

Figure C(1). 2025 Updated Map of UBC Community Gardens. (Interactive map, must be viewed here in Google Drive. Now available in the UBC Food Asset Map).

Plant Name	Scientific Name	Drought Tolerance	Temperature Tolerance	Soil Moisture Preference	Sun Preference	Pest Resistant (Y/N)	Pollinator Plant (Y/N)	Perrenial(P)/Annual (A)	Native Plant (Y/N)	Climate Readiness	Food/Non-Food	Additional Notes	Year Added to List
Vegetables													
Beans													
Scarlet Runners	*Phaseolus coccineus*	Mid to High	Cold and Heat Tolerant	Average to Dry	Full Sun	N	Y	A	N	Green	Food	This plant can grow to be over 2m tall and is a pole bean that will need trellising	2023
Anasazi Tepary	*Phaseolus vulgaris*	High	Heat Tolerant	Dry	Full Sun	N	Y	A	N	Green	Food	This is a bush bean that grows up to 30cm tall.	2023
Carrot													
Ingot	*Daucus carota*	Low	Cold and Heat Tolerant	Average	Full Sun/Part Sun	N	Y	A	N	Amber	Food	Tolerates a wide variety of soils	2023
Ya Ya	*Daucus carota*	Low	Cold and Heat Tolerant	Average	Full Sun/Part Sun	N	Y	A	N	Amber	Food	Relatively frost tolerant, identified for growth in a Pacific Northwest coastal climate	2023
Eggplant													
Long Purple	*Solanum melogena*	Mid	Cold and Heat Tolerant	Average	Full Sun	N	Y	A	N	Green	Food	Suited for a cooler climate than many eggplant varieties	2023
Diamond	*Solanum melogena*	Mid	Cold and Heat Tolerant	Average	Full Sun	N	Y	A	N	Green	Food	Suited for a cooler climate than many eggplant varieties	2023
Garlic													
Hardneck Varieties	*Allium sativum*	Mid	Cold and Heat Tolerant	Average to Dry	Full Sun	N	Y	P	N	Green	Food	Hardneck varieties are more cold tolerant than softneck and better suited to areas with cold winters	2023
Softneck Varieties	*Allium sativum*	Mid	Heat Tolerant	Average to Dry	Full Sun	N	Y	P	N	Green	Food	Softneck varieties prefer mild climates and can be easier to grow than hardneck varieties under these conditions	2023
Kale													
Nash's Green	*Brassica oleraceae*	Mid	Cold Tolerant	Average	Full Sun	N	N	A	N	Green	Food	Kale can tolerate heat and drought stress better than many leafy greens but it prefers cool growing temperatures	2023
Onion (Bulbing)													
Egyptian Walking	*Allium × proliferum*	High	Cold and Heat Tolerant	Dry	Full Sun/Part Sun	N	Y	A	N	Green	Food	Exceptionally hardy variety that will grow in nearly all conditions. Is known to spread easily throughout a garden.	2023
Walla Walla	*Allium cepa*	Low to Mid	Cold Tolerant	Average to Dry	Full Sun	N	Y	A	N	Amber	Food	Overwintering variety that is extremely cold hardy	2023
White Wing	*Allium cepa*	Low to Mid	Cold and Heat Tolerant	Average to Dry	Full Sun	N	Y	A	N	Amber	Food	Thrives in a wide range of climates and temperatures	2023
Cabernet	*Allium cepa*	Low to Mid	Cold and Heat Tolerant	Average	Full Sun	Y	Y	A	N	Amber	Food	Select this variety for good disease resistance	2023
Onions (Bunching)													
Evergreen White	*Allium fistulosum*	Low	Heat Tolerant	Average to Dry	Full Sun	N	N	A	N	Amber	Food	This variety can withstand summer heat better than most bunching onions	2023
Onion (Nodding)													
All	*Allium cernuum*	High	Cold Tolerant	Dry	Full Sun/Part Sun	N	Y	P	Y	Green	Food	Flowering native plant with edible stalks and bulbs	2023
Pepper (Bell)													
Milena	*Capsicum annuum*	Mid to High	Heat Tolerant	Average to Dry	Full Sun	Y	Y	A	N	Green	Food	While many varieties of sweet pepper are suitable for growth in our area, choose Milena for disease resistance	2023
Pepper (Jalapeno)													
Early Jalapeno	*Capsicum annuum*	Mid to High	Heat Tolerant	Average to Dry	Full Sun	N	Y	A	N	Green	Food	Jalapenos love hot conditions but the Early jalapeno can tolerate the cooler springs in our area	2023
Radish													
Cheriette	*Raphanus sativus*	Low	Cold and Heat Tolerant	Average	Full Sun/Part Sun/Shade	N	Y	A	N	Green	Food	Radishes thrive in cooler temperatures but the selected variety can tolerate warmer summer temperatures	2023
Rhubarb													
All	*Rheum rhabarbarum*	Mid to High	Cold Tolerant	Average	Full Sun/Part Sun	N	N	P	N	Green	Food	Can be grown nearly anywhere in your garden due to flexible light and soil requirements. The leaves of this plant are poisonous while the stem is edible	2023
Soya Beans													
All	*Glycine max*	Mid	Tolerant of Temperature Fluctuations	Average to Dry	Full Sun	Y	Y	A	N	Green	Food	This plant can remain productive under stress from pests and adverse weather conditions	2023
Squash													
Summer Varieties	*Cucurbita sp.*	High	Heat Tolerant	Average	Full Sun	N	Y	A	N	Green	Food	Popular types include zucchini, pattypan, luffa and cousa.	2023
Winter Varieties	*Cucurbita sp.*	High	Heat Tolerant	Average	Full Sun	N	Y	A	N	Green	Food	Popular types include butternut, spaghetti, acorn, hubbard and kabocha. Winter types tend to be vining and will have larger space requirements	2023
Swiss Chard													
Fordhook Giant	*Beta vulgaris*	Low to Mid	Cold and Heat Tolerant	Average	Full Sun/Part Sun	N	N	A	N	Amber	Food	This plant can get very large if not pruned properly. Does well in summer heat	2023

Silverado	*Beta vulgaris*	Low to Mid	Cold and Heat Tolerant	Average	Full Sun/Part Sun	N	N	A	N	Amber	Food	A good variety for warmer conditions as it is resistant to bolting	2023
Tomatoes													
Sakura	*Solanum lycopersicum*	Mid	Tolerant of Temperature Fluctuations	Average	Full Sun	Y	Y	A	N	Green	Food	Cherry type	2023
Sweetie	*Solanum lycopersicum*	Mid	Tolerant of Temperature Fluctuations	Average	Full Sun	N	Y	A	N	Green	Food	Cherry type, can tolerate a very wide range of conditions, particularly cool, wet weather that may be encountered in the spring. Resistant to Alternaria Stem Canker (AS	2023
Manitoba	*Solanum lycopersicum*	Low	Cold Tolerant	Average	Full Sun	Y	Y	A	N	Amber	Food	Will do well in a majority of coastal conditions but is best suited to cool growing seasons	2023
Potatoes													
Russian Blue	*Solanum tuberosum*	Mid	Tolerant of Temperature Fluctuations	Average to Dry	Full Sun		Y	A	N	Amber	Food	Generally more tolerant of dry conditions than many other potato varieties	2023
Russet Norkotah	*Solanum tuberosum*	Low to Mid	Tolerant of Temperature Fluctuations	Average	Full Sun	Y	Y	A	N	Amber	Food	Wide range of disease resistance.	2023
Peas	*Pisum sativum*	Low	Cold tolerant	Average	Full sun	N	N	A	N	Amber	Food		2025
Cucumber	*Cucumis sativus*	Low	Heat tolerant	Average	Full sun	N	N	A	N	Amber	Food		2025
Fruit Trees													
Apple													
Pacific Crab apple	*Malus fusca*	High	Cold and Heat Tolerant	Wet to Dry	Full Sun/Part Sun	N	Y	P	Y	Green	Food	This tree can grow up to 12m tall in the right conditions. Consider size requirements and long-life span when planting	2023
Plum													
Pipestone	*Prunus domestica*	Mid	Cold and Heat Tolerant	Average	Full Sun	Y	Y	P	N	Green	Food	This tree can grow up to 15 feet tall. It requires cross pollination with other varieties, such as the wild plum tree P. nigra	2023
Berries													
Blueberries													
Bluecrop	*Vaccinium uliginosum*	Low	Cold Tolerant	Average to Wet	Full Sun/Part Sun/Shade	N	Y	P	N	Amber	Food	All varieties will have similar growing requirements, choose bluecrop for higher frost tolerance	2023
Goji Berry													
All	*Lycium barbarum*	Mid to High	Heat Tolerant	Average to Dry	Full Sun	N	Y	P	N	Green	Food	Can grow up to 3m tall	2023
Gooseberry													
Captivator	*Ribes hirtellum*	Low to Mid	Heat Tolerant	Average	Full Sun/Part Sun	Y	Y	P	N	Amber	Food	Medium size bush that will grow to be 3x5ft. This variety is resistant to powdery mildew.	2023
Oregon Grape													
Dull Oregon Grape	*Berberis nervosa*	High	Cold Tolerant	Dry	Part Sun/Shade	N	Y	P	Y	Green	Food	Native berry producing shrub that can grow up to 7x5ft	2023
Saskatoon Berry													
All	*Amelanchier alnifolia*	High	Tolerant of Temperature Fluctuations	Average to Dry	Full Sun/Part Sun	N	Y	P	Y	Green	Food	Native berry that will thrive in a wide range of conditions. Large shrub that will need plenty of space (15x15x20ft)	2023
Herbs and Medicinal													
Basil													
Holy Basil	*Ocimum basilicum*	Low to Mid	Cold and Heat Tolerant	Average	Full Sun	N	Y	A	N	Green	Food	More hardy than many varieties	2023
Dolly Basil	*Ocimum basilicum*	Low to Mid	Tolerant of Temperature Fluctuations	Average	Full Sun	N	Y	A	N	Green	Food	Can tolerate cold night temperatures	2023
Chamomile													
All	*Matricaria recutita*	Mid	Cold and Heat Tolerant	Average to Dry	Full Sun/Part Sun	N	Y	P	N	Green	Food	Grows well in controlled garden environment. Naturalizes. Traditionally used in medicines and teas.	2023
Chives													
All	*Allium schoenoprasum*	Mid	Cold Tolerant	Average to Dry	Full Sun/Part Sun	N	Y	P	N	Green	Food	Winter hardy perennial	2023
Cilantro													
Santo	*Coriandrum sativum*	Mid	Cold and Heat Tolerant	Average to Dry	Full Sun/Part Sun/Shade	N	Y	P	N	Green	Food	Can tolerate cold better than most varieties. Resistant to bolting.	2023
Lavender													
French	*Lavandula stoechas*	High	Cold Tolerant	Dry	Full Sun	N	Y	P	N	Green	Food	Winter hardy perennial	2023
Lemon Balm													

All	*Melissa officinalis*	High	Cold Tolerant	Dry	Full Sun/Part Sun	N	Y	P	N	Green	Food		2023
Tarragon													
Mexican Tarragon	*Tagetes lucida*	Mid	Heat Tolerant	Average to Dry	Full Sun/Part Sun/Shade	N	Y	P	N	Green	Food	Acts as a perennial down to hardiness zone 8. May suffer in exceptionally cold winters on the coast	2023
Mint													
All	*Mentha sp.*	Low to Mid	Cold Tolerant	Average to wet	Full Sun/Part Sun/Shade	N	Y	P	N	Amber	Food	Best grown in containers or raised beds to avoid uncontrollable spread of this plant	2023
Oregano													
Greek Oregano	*Origanum vulgare*	Mid	Cold and Heat Tolerant	Average to Dry	Full Sun	N	Y	P	N	Green	Food	May not survive cold winters. Greek oregano is hardier than most varieties	2023
Parsley													
All	*Petroselinum crispum*	Low to Mid	Cold and Heat Tolerant	Average	Full Sun/Part Sun	N	Y	A	N	Green	Food		2023
Rosemary													
All	*Salvia rosmarinus*	High	Heat Tolerant	Average to Dry	Full Sun	N	Y	P	N	Green	Food	Evergreen herb. Needs to be watered occasionally as they can be damaged from overwatering.	2023
Sage													
Culinary	*Salvia officinalis*	High	Cold Tolerant	Dry	Full Sun	N	Y	P	N	Green	Food	Culinary sage is the most popular and widely available variety	2023
Yarrow													
All	*Achillea millefolia*	High	Heat Tolerant	Dry	Full Sun/Part Sun	N	Y	P	Y	Green	Non-food	Grows well in controlled garden environment. Naturalizes. Traditionally used in medicines and teas.	2023
Beets	*Beta vulgaris*	Moderate	Cold and heat tolerant	Average	Full sun	N	N	A	N	Green	Food		2025
Thyme	*Thymus vulgaris*	High	Cold tolerant	Dry	Full sun	Y	Y	P	N	Green	Food		2025
Corn	*Zea mays*	Low	Heat tolerant	Average	Full sun	N	N	A	N	Amber	Food		2025
Lupine	*Lupinus spp.*	Moderate to High	Cold and heat tolerant	Average to dry	Full sun	Y	Y	P	Some species (Y)	Green	Non-food		2025
Ground Cherries	*Physalis pruinosa*	Moderate	Heat tolerant	Average	Full sun	N	Y	A (but self-seeds)	N	Amber	Food		2025
Huckleberries	*Vaccinium spp.*	Moderate	Cold tolerant	Average	Partial shade	Y	Y	P	Y	Amber	Food		2025
Cabbage	*Brassica oleracea*	Low	Cold tolerant	Average	Full sun	N	N	A	N	Amber	Food		2025
Broccoli	*Brassica oleracea var. italica*	Low	Cold tolerant	Average	Full sun	N	N	A	N	Amber	Food		2025
Fennel	*Foeniculum vulgare*	Moderate	Cold and heat tolerant	Average	Full sun	N	Y	A (but self-seeds)	N	Green	Food		2025
Dill	*Anethum graveolens*	Moderate	Cold and heat tolerant	Average	Full sun	N	Y	A	N	Green	Food		2025
Nasturtium	*Tropaeolum majus*	High	Heat tolerant	Dry	Full sun	Y	Y	A	N	Green	Food		2025
Marigold	*Tagetes spp.*	Moderate	Heat tolerant	Average to dry	Full sun	Y	Y	A	N	Green	Food		2025
Calendula	*Calendula officinalis*	Moderate	Cold and heat tolerant	Average	Full sun	Y	Y	A (sometimes self-seeds)	N	Green	Food		2025
Spinach	*Spinacia oleracea*	Low	Cold tolerant	Average	Full sun	N	N	A	N	Amber	Food		2025
Brussel Sprouts	*Brassica oleracea var. gemmifera*	Low	Cold tolerant	Average	Full sun	N	N	A	N	Amber	Food		2025
Arugula	*Eruca vesicaria subsp. sativa*	Low	Cold tolerant	Average	Full sun	N	N	A	N	Amber	Food		2025
Purple Toadflax	Linaria purpurea	Moderate	Cold and heat tolerant	Average to dry	Full sun	N	Y	P	N	Green	Non-food		2025
Japanese Barberry	Berberis thunbergii	High	Cold tolerant	Average to dry	Full sun	Y	N	P	N	Green	Non-food		2025
Garden Tulip	Tulipa spp.	Moderate	Cold tolerant	Average to dry	Full sun	Y	N	P (bulb)	N	Green	Non-food		2025
Snowberries	Symphoricarpos albus	Moderate	Cold tolerant	Average	Partial shade	Y	N	P	Y	Green	Non-food		2025
Slicer Tomato	Solanum lycopersicum	Low	Heat tolerant	Average	Full sun	N	N	A	N	Amber	Food		2025
Hairy Bittercress	Cardamine hirsuta	Moderate	Cold and heat tolerant	Average	Partial shade	N	Y	A	N	Green	Non-food		2025

Romaine Lettuce	Lactuca sativa	Low	Cold tolerant	Average	Full sun	N	N	A	N	Amber	Food		2025
Fava Bean	Vicia faba	Low	Cold tolerant	Average	Full sun	N	Y	A	N	Amber	Food		2025
Leek	Allium ampeloprasum	Low	Cold tolerant	Average	Full sun	N	N	A	N	Amber	Food		2025
Deptford Pink	Dianthus armeria	Moderate	Cold and heat tolerant	Average to dry	Full sun	N	Y	A	N	Green	Non-food		2025
Purple Foxglove	Digitalis purpurea	Moderate	Cold tolerant	Average	Partial shade	N	Y	P	N	Green	Non-food		2025
Multiflora Rose	Rosa multiflora	High	Cold tolerant	Average to dry	Full sun	Y	Y	P	N	Green	Non-food		2025
Perennial Candytuft	Iberis sempervirens	Moderate	Cold tolerant	Average to dry	Full sun	Y	Y	P	N	Green	Non-food		2025
Spurge Laurel	Daphne laureola	High	Cold tolerant	Average to dry	Partial shade	Y	N	P	N	Green	Non-food		2025
Crocuses	Crocus spp.	Moderate	Cold tolerant	Average	Full sun	Y	N	P (bulb)	N	Green	Non-food		2025
Snap Peas	Pisum sativum var. macrocarpon	Low	Cold tolerant	Average	Full sun	N	N	A	N	Amber	Food		2025
Red Deadnettle	Lamium purpureum	Moderate	Cold and heat tolerant	Average	Partial shade	N	Y	A	N	Green	Non-food		2025
Mediterranean Spurge	Euphorbia characias	High	Heat tolerant	Dry	Full sun	Y	Y	P	N	Amber	Non-food		2025
Annual Honesty	Lunaria annua	Moderate	Cold tolerant	Average	Partial shade	N	Y	A	N	Green	Non-food		2025
Gaidner's Yampah	Perideridia gairdneri	Moderate	Cold tolerant	Average	Partial shade	N	Y	P	Y	Green	Food		2025
Cayenne Pepper	Capsicum annuum	Low	Heat tolerant	Average	Full sun	N	N	A	N	Amber	Food		2025
Wild Pansy	Viola tricolor	Moderate	Cold and heat tolerant	Average	Partial shade	N	Y	A	N	Green	Food		2025
Hydrangeas	Hydrangea spp.	Moderate	Cold tolerant	Average	Partial shade	N	N	P	N	Green	Non-food		2025
Common Snowdrop	Galanthus nivalis	Moderate	Cold tolerant	Average	Partial shade	Y	N	P (bulb)	N	Green	Non-food		2025
Winter Crocus	Crocus vernus	Moderate	Cold tolerant	Average	Full sun	Y	N	P (bulb)	N	Green	Non-food		2025
Spring Heath	Erica carnea	High	Cold tolerant	Average to dry	Full sun	Y	Y	P	N	Green	Non-food		2025
Wood Dock	Rumex sanguineus	Moderate	Cold tolerant	Average	Partial shade	N	N	P	N	Green	Non-food		2025
Siberian Squill	Scilla siberica	Moderate	Cold tolerant	Average	Full sun	Y	N	P (bulb)	N	Green	Non-food		2025
Silver Ragwort	Jacobaea maritima	High	Cold and heat tolerant	Average to dry	Full sun	Y	N	P	N	Green	Non-food		2025
Primrose	Primula spp.	Moderate	Cold tolerant	Average	Partial shade	N	Y	P	N	Green	Non-food		2025
Collards	Brassica oleracea var. viridis	Low	Cold tolerant	Average	Full sun	N	N	A	N	Amber	Non-food		2025
Black Poplar	Populus nigra	Low	Cold tolerant	Average to dry	Full sun	N	N	P	N	Amber	Non-food		2025
Marjoram	Origanum majorana	High	Cold and heat tolerant	Average to dry	Full sun	Y	Y	P	N	Green	Non-food		2025
Eastern Teaberry	Gaultheria procumbens	Moderate	Cold tolerant	Average	Partial shade	N	N	P	N	Green	Non-food		2025
Yellow Iris	Iris pseudacorus	Moderate	Cold tolerant	Average	Full sun	N	N	P	Y	Green	Non-food		2025
Woodland Crocus	Crocus tommasinianus	Moderate	Cold tolerant	Average	Full sun	Y	N	P (bulb)	N	Green	Non-food		2025
Siberian Bugloss	Brunnera macrophylla	Moderate	Cold tolerant	Average	Partial shade	N	N	P	N	Green	Non-food		2025
Lenten-Rose	Helleborus spp.	Moderate	Cold tolerant	Average	Partial shade	N	N	P	N	Green	Non-food		2025
Pacific Madrone	Arbutus menziesii	High	Cold and heat tolerant	Dry	Full sun	Y	N	P	Y	Green	Non-food		2025
Rhododendron	Rhododendron spp.	Moderate	Cold tolerant	Average	Partial shade	N	Y	P	Some species (Y)	Green	Non-food		2025
Sword Fern	Polystichum munitum	High	Cold tolerant	Average	Partial shade	Y	N	P	Y	Green	Non-food		2025
Asian Bleeding-Heart	Lamprocapnos spectabilis	Moderate	Cold tolerant	Average	Partial shade	N	Y	P	N	Green	Non-food		2025

Rose Campion	Lychnis coronaria	High	Cold and heat tolerant	Average to dry	Full sun	Y	Y	P	N	Green	Non-food		2025
Green Beans	Phaseolus vulgaris	Low	Heat tolerant	Average	Full sun	N	N	A	N	Amber	Food		2025
Evergreen Huckleberry	Vaccinium ovatum	Moderate	Cold tolerant	Average	Partial shade	Y	Y	P	Y	Green	Food		2025
Cornflower	Centaurea cyanus	Moderate	Cold and heat tolerant	Average to dry	Full sun	N	Y	A	N	Green	Non-food		2025
Choy	Brassica rapa var. chinensis	Low	Cold tolerant	Average	Full sun	N	N	A	N	Amber	Food		2025
Rocket Salad	Eruca vesicaria	Low	Cold tolerant	Average	Full sun	N	N	A	N	Amber	Food		2025
Oregon Boxwood	Paxistima myrsinites	Moderate	Cold tolerant	Average to dry	Partial shade	Y	N	P	Y	Green	Food		2025
Ragwort	Jacobaea vulgaris	High	Cold and heat tolerant	Average to dry	Full sun	Y	Y	A	N	Green	Non-food		2025
Hyacinth	Hyacinthus orientalis	Moderate	Cold tolerant	Average	Full sun	Y	N	P (bulb)	N	Green	Non-food		2025
Cucamelon	Melothria scabra	Moderate	Heat tolerant	Average	Full sun	N	N	A	N	Green	Food		2025
Greater Snowdrop	Galanthus elwesii	Moderate	Cold tolerant	Average	Partial shade	Y	N	P (bulb)	N	Green	Non-food		2025
Green Onion	Allium fistulosum	Low	Cold and heat tolerant	Average	Full sun	N	N	P	N	Amber	Food		2025
Red Currants	Ribes rubrum	Moderate	Cold tolerant	Average	Full sun	N	N	P	N	Green	Food		2025
Agapanthus	Agapanthus spp.	High	Heat tolerant	Average to dry	Full sun	N	N	P	N	Green	Non-food		2025
American Yellow Rocket	Barbarea orthoceras	Moderate	Cold tolerant	Average	Partial shade	N	Y	P	Y	Green	Food		2025
Coriander	Coriandrum sativum	Moderate	Cold and heat tolerant	Average	Full sun	N	N	A	N	Green	Food		2025
Woody Hedgenettle	Stachys sylvatica	Moderate	Cold tolerant	Average	Partial shade	N	Y	P	N	Green	Non-food		2025
Broad-Leaved Dock	Rumex obtusifolius	Moderate	Cold and heat tolerant	Average	Partial shade	N	N	P	N	Green	Non-food		2025
Common Columbine	Aquilegia vulgaris	Moderate	Cold tolerant	Average	Partial shade	N	Y	P	N	Green	Non-food		2025
Common Privet	Ligustrum vulgare	High	Cold tolerant	Average to dry	Full sun	Y	N	P	N	Green	Non-food		2025
Daisy	Bellis perennis	Moderate	Cold and heat tolerant	Average	Full sun	N	Y	P	N	Green	Non-food		2025
Himalayan Blackberry	Rubus armeniacus	High	Cold and heat tolerant	Average to dry	Full sun	Y	Y	P	N	Green	Non-food		2025
Shiitake Mushroom	Lentinula edodes	N/A	Cold tolerant	wet	Shade	N/A	N/A	P	N	Red	Food		2025
Celery	Apium graveolens	Low	Cold tolerant	Average	Full sun	N	N	A	N	Amber	Food		2025
Chickweed	Stellaria media	Moderate	Cold and heat tolerant	Average	Partial shade	N	Y	A	N	Green	Food		2025
Daffodil	Narcissus spp.	Moderate	Cold tolerant	Average	Full sun	Y	N	P (bulb)	N	Green	Non-food		2025
Lavender	Lavandula angustifolia	High	Cold and heat tolerant	Average to dry	Full sun	Y	Y	P	N	Green	Food		2025
Echinacea	Echinacea purpurea	High	Cold and heat tolerant	Average to dry	Full sun	Y	Y	P	N	Green	Food		2025
Spring Heath	Erica carnea	High	Cold tolerant	Average to dry	Full sun	Y	Y	P	N	Green	Non-food		2025
Soft Rush	Juncus effusus	Low	Cold tolerant	wet	Partial shade	Y	N	P	Y	Amber	Non-food		2025
Red Russian Garlic	Allium sativum	Moderate	Cold tolerant	Average	Full sun	Y	N	P	N	Green	Food		2025
Lacinato Kale	Brassica oleracea var. palmifolia	Moderate	Cold tolerant	Average	Full sun	Y	N	P	N	Green	Food		2025
Zebra Tomatoes	Solanum lycopersicum	Low	Heat tolerant	Average	Full sun	N	N	A	N	Amber	Food		2025
Mustard Greens	Brassica juncea	Moderate	Cold and heat tolerant	Average	Full sun	N	Y	A	N	Green	Food		2025
Strawberry	Fragaria × ananassa	Low to Mid	Cold and heat tolerant	Average to wet	Full Sun to Partial Shade	N	Y	P	N	Amber	Food		2025
Clover	Trifolium spp.	High	Cold and heat tolerant	Average to wet	Full sun	Y	Y	P	N	Green	Non-food		2025

Rye	Secale cereale	High	Cold and heat tolerant	Average	Full sun	Y	N	A	N	Green	Non-food		2025
Lentil	Lens culinaris	Moderate	Cold and heat tolerant	Average	Full sun	N	N	A	N	Green	Food		2025

Table C(2). 2025 Updated Climate-Ready Plant List. Adapted from McCleod et al., 2023. (Available for download from the SEEDS Library)

Appendix D: Existing Community Garden Resources

Figure D(1). 2017 Food Plant Biodiversity Map Within UBC Gardens. (Ng et al., 2018).

Plant Name	Scientific Name	Drought Tolerance	Temperature Tolerance	Soil Moisture Preference	Sun Preference	Pest Resistant (Y/N)	Pollinator Plant (Y/N)	Perrenial(P)/Annual (A)	Native Plant (Y/N)	Additional Notes
Vegetables										
Beans										
Scarlet Runners	*Phaseolus coccineus*	Mid to High	Cold and Heat Tolerant	Average to Dry	Full Sun	N	Y	A	N	This plant can grow to be over 2m tall and is a pole bean that will need trellising
Anasazi Tepary	*Phaseolus vulgaris*	High	Heat Tolerant	Dry	Full Sun	N	Y	A	N	This is a bush bean that grows up to 30cm tall.
Carrot										
Ingot	*Daucus carota*	Low	Cold and Heat Tolerant	Average	Full Sun/Part Sun	N	Y	A	N	Tolerates a wide variety of soils
Ya Ya	*Daucus carota*	Low	Cold and Heat Tolerant	Average	Full Sun/Part Sun	N	Y	A	N	Relatively frost tolereant, identified for growth in a Pacific Northwest coastal climate
Eggplant										
Long Purple	*Solanum melogena*	Mid	Cold and Heat Tolerant	Average	Full Sun	N	Y	A	N	Suited for a cooler climate than many eggplant varieties
Diamond	*Solanum melogena*	Mid	Cold and Heat Tolerant	Average	Full Sun	N	Y	A	N	Suited for a cooler climate than many eggplant varieties
Garlic										
Hardneck Varieties	*Allium sativum*	Mid	Cold and Heat Tolerant	Average to Dry	Full Sun	N	Y	P	N	Hardneck varieties are more cold tolerant than softneck and better suited to areas with cold winters
Softneck Varieties	*Allium sativum*	Mid	Heat Tolerant	Average to Dry	Full Sun	N	Y	P	N	Softneck varieties perfer mild climates and can be easier to grow than hardneck varieities under these conditions
Kale										
Nash's Green	*Brassica oleraceae*	Mid	Cold Tolerant	Average	Full Sun	N	N	A	N	Kale can tolerate heat and drought stress better than many leafy greens but it prefers cool growing temperatures
Onion (Bulbing)										
Egyptian Walking	*Allium × proliferum*	High	Cold and Heat Tolerant	Dry	Full Sun/Part Sun	N	Y	A	N	Exceptionally hardy variety that will grow in nearly all conditions. Is known to spread easily thoughout a garden.
Walla Walla	*Allium cepa*	Low to Mid	Cold Tolerant	Average to Dry	Full Sun	N	Y	A	N	Overwintering variety that is extremely cold hardy
White Wing	*Allium cepa*	Low to Mid	Cold and Heat Tolerant	Average to Dry	Full Sun	N	Y	A	N	Thrives in a wide range of climates and temperatures
Cabernet	*Allium cepa*	Low to Mid	Cold and Heat Tolerant	Average	Full Sun	Y	Y	A	N	Select this variety for good disease resistance
Onions (Bunching)										
Evergreen White	*Allium fistulosum*	Low	Heat Tolerant	Average to Dry	Full Sun	N	N	A	N	This variety can withstand summer heat better than most bunching onions
Onion (Nodding)										
All	*Allium cernuum*	High	Cold Tolerant	Dry	Full Sun/Part Sun	N	Y	P	Y	Flowering native plant with edible stalks and bulbs
Pepper (Bell)										
Milena	*Capsicum annuum*	Mid to High	Heat Tolerant	Average to Dry	Full Sun	Y	Y	A	N	While many varieties of sweet pepper are suitable for growth in our area, choose Milena for disease resistance
Pepper (Jalapeno)										
Early Jalapeno	*Capsicum annuum*	Mid to High	Heat Tolerant	Average to Dry	Full Sun	N	Y	A	N	Jalapenos love hot conditions but the Early jalapeno can tolerate the cooler springs in our area
Radish										
Cheriette	*Raphanus sativus*	Low	Cold and Heat Tolerant	Average	Full Sun/Part Sun/Shade	N	Y	A	N	Radishes thrive in cooler temperatures but the selected variety can tolerate warmer summer temperatures
Rhubarb										
All	*Rheum rhabarbarum*	Mid to High	Cold Tolerant	Average	Full Sun/Part Sun	N	N	P	N	Can be grown nearly anywhere in your garden due to flexible light and soil requirements. The leaves of this plant are poisonous while the stem is edible
Soya Beans										
All	*Glycine max*	Mid	Tolerant of Temperature Fluctuations	Average to Dry	Full Sun	Y	Y	A	N	This plant can remain productive under stress from pests and adverse weather conditions
Squash										
Summer Varieites	*Cucurbita sp.*	High	Heat Tolerant	Average	Full Sun	N	Y	A	N	Popular types include zucchini, pattypan, luffa and cousa.
Winter Varieties	*Cucurbita sp.*	High	Heat Tolerant	Average	Full Sun	N	Y	A	N	Popular types include butternut, spaghetti, acorn, hubbard and kabocha. Winter types tend to be vining and will have larger space requirements
Swiss Chard										
Fordhook Giant	*Beta vulgaris*	Low to Mid	Cold and Heat Tolerant	Average	Full Sun/Part Sun	N	N	A	N	This plant can get very large if not pruned properly. Does well in summer heat
Silverado	*Beta vulgaris*	Low to Mid	Cold and Heat Tolerant	Average	Full Sun/Part Sun	N	N	A	N	A good variety for warmer conditions as it is resistant to bolting
Tomatoes										
Sakura	*Solanum lycopersicum*	Mid	Tolerant of Temperature Fluctuations	Average	Full Sun	Y	Y	A	N	Cherry type
Sweetie	*Solanum lycopersicum*	Mid	Tolerant of Temperature Fluctuations	Average	Full Sun	N	Y	A	N	Cherry type, can tolerate a very wide range of conditions, particularly cool, wet weather that may be encountered in the spring. Resistant to Alternaria Stem Canker (AS
Manitoba	*Solanum lycopersicum*	Low	Cold Tolerant	Average	Full Sun	Y	Y	A	N	Will do well in a majority of coastal conditions but is best suited to cool growing seasons
Potatoes										
Russian Blue	*Solanum tuberosum*	Mid	Tolerant of Temperature Fluctuations	Average to Dry	Full Sun		Y	A	N	Generally more tolerant of dry conditions than many other potato varieties
Russet Norkotah	*Solanum tuberosum*	Low to Mid	Tolerant of Temperature Fluctuations	Average	Full Sun	Y	Y	A	N	Wide range of disease resistance.
Fruit Trees										
Apple										
Pacific Crabapple	*Malus fusca*	High	Cold and Heat Tolerant	Wet to Dry	Full Sun/Part Sun	N	Y	P	Y	This tree can grow up to 12m tall in the right conditons. Consider size requirements and long life span when planting
Plum										
Pipestone	*Prunus domestica*	Mid	Cold and Heat Tolerant	Average	Full Sun	Y	Y	P	N	This tree can grow up to 15 feet tall. It requires cross pollination with other varieties, such as the wild plum tree P. nigra
Berries										
Blueberries										
Bluecrop	*Vaccinium uliginosum*	Low	Cold Tolerant	Average to Wet	Full Sun/Part Sun/Shade	N	Y	P	N	All varieties will have similar growing requirements, choose bluecrop for higher frost tolerance
Goji Berry										
All	*Lycium barbarum*	Mid to High	Heat Tolerant	Average to Dry	Full Sun	N	Y	P	N	Can grow up to 3m tall
Gooseberry										
Captivator	*Ribes hirtellum*	Low to Mid	Heat Tolerant	Average	Full Sun/Part Sun	Y	Y	P	N	Medium size bush that will grow to be 3x5ft. This variety is resistant to powdery mildew.
Oregon Grape										
Dull Oregon Grape	*Berberis nervosa*	High	Cold Tolerant	Dry	Part Sun/Shade	N	Y	P	Y	Native berry producing shrub that can grow up to 7x5ft
Saskatoon Berry										
All	*Amelanchier alnifolia*	High	Tolerant of Temperature Fluctuations	Average to Dry	Full Sun/Part Sun	N	Y	P	Y	Native berry that will thrive in a wide range of conditions. Large shrub that will need plenty of space (15x15x20ft)
Herbs and Medicinals										
Basil										
Holy Basil	*Ocimum basilicum*	Low to Mid	Cold and Heat Tolerant	Average	Full Sun	N	Y	A	N	More hardy than many varieties
Dolly Basil	*Ocimum basilicum*	Low to Mid	Tolerant of Temperature Fluctuations	Average	Full Sun	N	Y	A	N	Can tolerate cold night temperatures
Chamomile										
All	*Matricaria recutita*	Mid	Cold and Heat Tolerant	Average to Dry	Full Sun/Part Sun	N	Y	P	N	Grows well in controlled garden environment. Naturalizes. Traditionally used in medicines and teas.
Chives										
All	*Allium schoenoprasum*	Mid	Cold Tolerant	Average to Dry	Full Sun/Part Sun	N	Y	P	N	Winter hardy perennial
Cilantro										
Santo	*Coriandrum sativum*	Mid	Cold and Heat Tolerant	Average to Dry	Full Sun/Part Sun/Shade	N	Y	P	N	Can tolerate cold better than most varieities. Resistant to bolting.
Lavender										
French	*Lavandula stoechas*	High	Cold Tolerant	Dry	Full Sun	N	Y	P	N	Winter hardy perennial
Lemon Balm										
All	*Melissa officinalis*	High	Cold Tolerant	Dry	Full Sun/Part Sun	N	Y	P	N	
Tarragon										
Mexican Tarragon	*Tagetes lucida*	Mid	Heat Tolerant	Average to Dry	Full Sun/Part Sun/Shade	N	Y	P	N	Acts as a perennial down to hardiness zone 8. May suffer in exceptionally cold winters on the coast
Mint										
All	*Mentha sp.*	Low to Mid	Cold Tolerant	Wet to Average	Full Sun/Part Sun/Shade	N	Y	P	N	Best grown in containers or raised beds to avoid uncontrollable spread of this plant
Oregano										
Greek Oregano	*Origanum vulgare*	Mid	Cold and Heat Tolerant	Average to Dry	Full Sun	N	Y	P	N	May not survive cold winters. Greek oregano is hardier than most varieties
Parsley										
All	*Petroselinum crispum*	Low to Mid	Cold and Heat Tolerant	Average	Full Sun/Part Sun	N	Y	A	N	
Rosemary										
All	*Salvia rosmarinus*	High	Heat Tolerant	Average to Dry	Full Sun	N	Y	P	N	Evergreen herb. Needs to be watered occassionally as they can be damaged from overwatering.
Sage										
Culinary	*Salvia officinalis*	High	Cold Tolerant	Dry	Full Sun	N	Y	P	N	Culinary sage is the most popular and widely available variety
Yarrow										
All	*Achillea millefolia*	High	Heat Tolerant	Dry	Full Sun/Part Sun	N	Y	P	Y	Grows well in controlled garden environment. Naturalizes. Traditionally used in medicines and teas.

Table D(2). Climate-Ready Food Plant List. (McCleod et al., 2023). (Google drive version linked here for higher resolution)

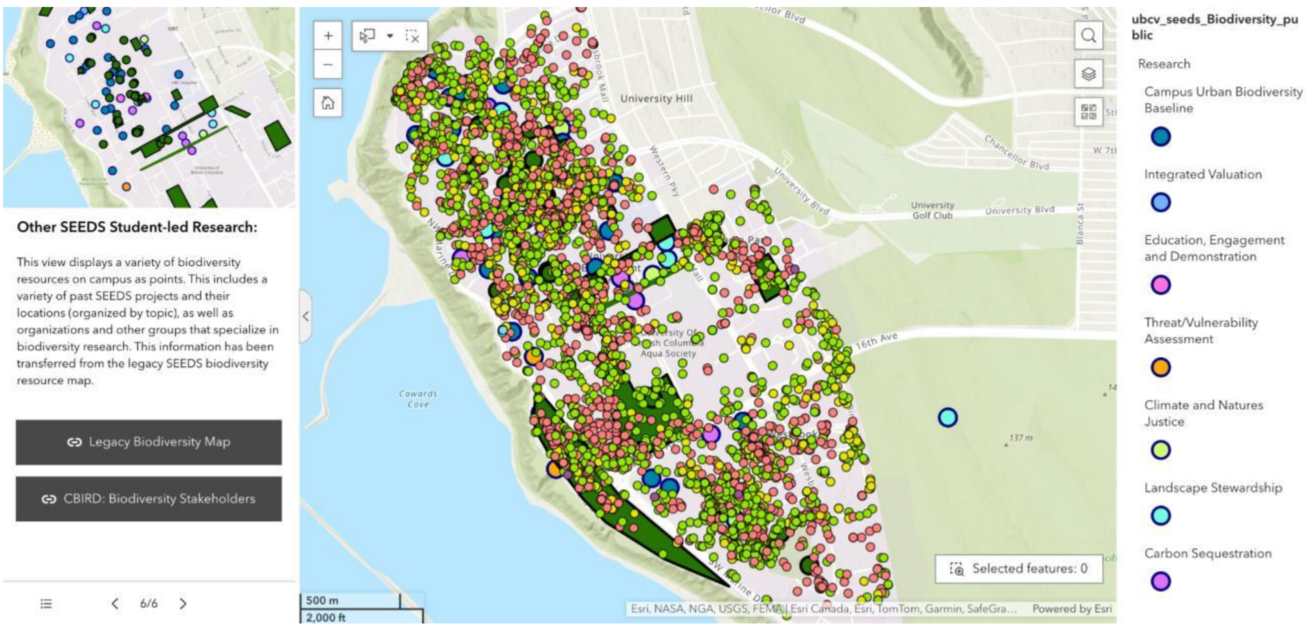


Figure D(3). Map of Biodiversity and SEEDS Student-Led Research. (UBCV Community Datahub, 2018).

Figure D(4). UBC SEEDS Food Asset Map: Vancouver Campus. (Interactive map, must be viewed here in Google Drive).

Community gardens toolkit

Resources and information for UNA community gardeners

UNA UNIVERSITY NEIGHBOURHOODS ASSOCIATION

UNA

1. Welcome to the UNA community gardens!

Gardens overview

The UNA is happy to offer residents community garden plots! Community gardening is a great way to not only grow your own food, but to also meet your fellow gardeners and to learn about food growing together. With five garden sites containing over 200 assigned plots, UNA residents can grow their own food and flowers while connecting to their community and environment.

The first garden, Hawthorn Garden, was opened in 2008, followed shortly by Rhodo Garden. Nobel Garden was opened in 2012. The Greenway Gardens opened in 2021, for a total of 240 plots between the five gardens.

Community gardeners are responsible for cultivating, weeding, fertilizing, watering, and otherwise caring for their plot to maintain an orderly condition and keeping with the general aesthetic standard of the garden.

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UNA UNIVERSITY NEIGHBOURHOODS ASSOCIATION

Contents

UNA UNIVERSITY NEIGHBOURHOODS ASSOCIATION

Getting started

1.1. Garden sheds

All 5 community gardens have communal sheds. In the sheds, you can find tools—which are shared by all gardeners. It is the responsibility of all gardeners to keep the tools clean and in good condition. Please note that Rhodo Garden does not have a lock on the shed.

Garden shed lock combinations

Nobel Shed	*Greenway Sheds*	*Hawthorn Garden*
7714	*8816*	*6612*

Community care tips!

- After using shared garden equipment, please **clean it** before returning it to the garden shed.
- **Keep the shed tidy** – it helps everyone access and use tools!
- Return tools and equipment to the shed and **lock the shed after use.**

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2. Communal care & gardener responsibilities

What are your responsibilities as a gardener?

For a full list of responsibilities and requirements, please see the **Community Garden Agreement**.

- Gardeners are responsible for **weeding the pathways** around their plots.
- Gardeners must **remove all garbage** (plant I.D. tags, soil bags, garden supplies) from the garden. There are no garbage cans or pick-ups from the garden.

Community care tips!

- Join the **Community Garden Committee!** This is a volunteer committee that helps organize care for the gardens.
- **Attend work parties!** They are a great way to meet your fellow gardeners and help maintain common areas.

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3. Create community connections, get involved!

How do I get involved?

There are plenty of ways to get involved with the community gardens and sustainability at the UNA.

Join the Community Garden Committee (CGC) for your garden!

Folks on the community garden committees help **organize work parties**, communicate with other gardeners about garden care, and **contact the UNA** Sustainability Specialist with any garden needs or recommendations.

There is one community garden committee per garden ex. Nobel CGC, Hawthorn CGC, etc.. **You can join your garden's community garden committee by emailing communitygardens@myuna.ca.**

Participate in Work Parties!

Work Parties are events put on by the CGCs in which **gardeners come together to contribute to communal tasks** such as weeding and tidying.

Work Parties are also a great way to meet your fellow gardeners over **coffee, tea, and snacks!**

Visit the UNA Seed Library at the Green Depot!

There is also a **free store** and **community share library** there.

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5. Community Garden Agreement reminders

Please note that this does not encompass all the terms and conditions of the agreement.
For the full list of policies, please see the Community Garden Agreement.

Physical structures and plants must be UNDER 5ft tall

Gardeners must follow organic gardening practices

The use of pesticides, chemical fertilizers, or pet and human waste is prohibited. Manure, peat, seaweed, compost, bone meal and limestone are permitted.

What NOT to Plant!

Trees, Shrubs, & Large Bushes
Gardeners are urged not to plant trees and shrubs due to their size and root growth. Large shrubs are also not permitted as they have root systems that can damage the plots.

Invasive Species
Gardeners must not plant invasive species as they are a threat to local biodiversity and habitat loss.

What are invasive species?
They are species such as English ivy, Himalayan blackberry, and English holly. A full list of invasive species can be found at http://www.bcinvasives.ca/.

Weedy Plants & Berries with Rhizomes
Weedy species are those which can spread quickly such as mint.

Berries with rhizomes are those which also spread quickly such as raspberries or blackberries.

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6. Timeline & important dates

6.1. Communications

Garden matters and inquiries can be directed towards the Community Garden Committee members or the UNA Sustainability Specialist (please see contact information below).

Please ensure your email is up-to-date in the UNA system – as email will be the main form of communication for notices, renewals, and organizing!

Isabel Todorova MSc. (she/her)
Sustainability Specialist
University Neighbourhoods Association
Musqueam Traditional Territory
(604) 632-3269 | communitygardens@myuna.ca

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Figure D(5). Toolkit for UNA Community Gardeners. (UNA, 2025).