NOURISHING NEIGHBORHOODS

CULTIVATING LOCAL FOOD CONNECTIONS IN THE URBAN ENVIRONMENT

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A thesis

submitted in partial fullfillment of the

requirements of the degree of

Master of Landscape Architecture

University of Washington

2020

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Program Authorized to Offer Degree:

Landscape Architecture

University of Washington

Abstract

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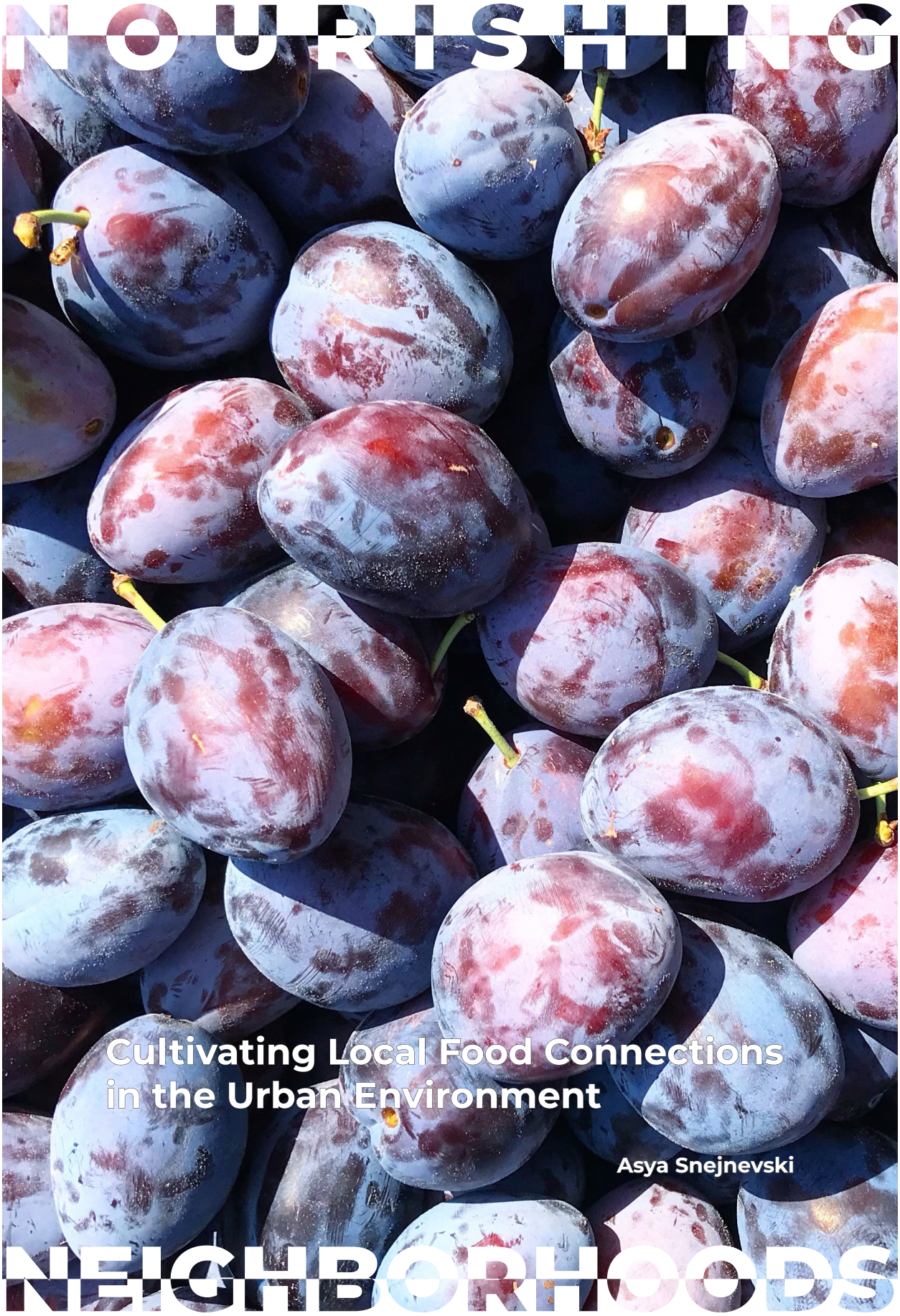
Have you ever walked by fruit trees in your neighborhood and wondered what kind of fruit they were producing and whether you could pick it? By tracing the history of food in Seattle, from the native plants that have long fed Coast Salish people to the globally sourced food imported today, this design research examines local food production systems in Seattle's neighborhoods and how they can be enhanced for the future. How can urban food that is cultivated on public land nourish neighborhoods while providing opportunities for education and engagement? This exploration demonstrates how app technology, mapping, and recipes can connect communities to urban nature and food history.

NOURISHING NEIGHBORHOODS



Cultivating Local Food Connections in the Urban Environment

Asya Snejnevski

ACKNOWLEDGMENTS

Thank you to my thesis advisors, Ken Yocom and Julie Johnson, for patiently listening to all of my crazy ideas and supporting them throughout the changes and shifts this past year.

Thank you to my friends and colleagues from Gould Hall, who have continued to stick together despite all of the challenges thrown at, especially as our last quarter at UW shifted to being fully virtual. I do not know what I would have done without my weekly check-ins with the WBW as we struggled through this thesis push together and encouraged each other to keep going over the past few months.

Thank you to my husband, Jeff Chandler, who is my rock, everyday. Thank you for inviting me on your walks, letting me make dinner even though I probably should have been working on thesis, and most of all for encouraging me and supporting me during the past three years while I've worked to complete my graduate degree.

And of course, thank you to my family, especially my parents and my grandparents before them, who have instilled in me a love of cooking, gardening, fresh food, and a deep appreciation for the world we live in.

Cover: Italian plums

Above: Homegrown carrot

All images are my own, unless otherwise noted

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My first plum harvest with
City Fruit

PREFACE

PREFACE

I'd like to preface this project by stating that I am not a chef and this is not a cookbook. So, you ask, "Why are there so many recipes?" When examining urban agriculture as a system of production and nourishment for individuals and communities, it is difficult to separate it from the food that is produced and the way it nourishes. Food is a way to connect and better understand a culture. This research examines the ways different cultures have shaped Seattle's food history, and providing the recipes helps to extend the cultural connections to others, and to highlight the possibilities of how to use our locally grown foods.

I grew up cooking with my mother. You'd think coming from Russia, we'd be making a lot of Russian recipes, but other than a few staples, I learned to cook primarily from *Gourmet Magazine* and *Bon Appetit*. These magazines include a variety of cuisines that reflect various cultures. Flavors get enhanced through spices and techniques that, for me, help explain the root of the traditions. The recipes highlight ingredients that reflect the conditions that allow for produce to grow. We can enhance the conditions of our gardens today to produce tomatoes in a cool climate, but looking at traditional recipes we can see what was able to grow in the area without modern technologies.

This research includes a compilation of recipes that highlight local produce that grows in Seattle today and can be harvested in the neighborhood. One of the major goals of this project is to engage users with the importance of food, culture, and their surroundings, while sprinkling in some ideas of how to make the most of the seasonal produce from any right-of-way garden, P-Patch, farmers market, or even the convenience store.

The majority of this work was done during the global pandemic of COVID-19, and the final design proposal spurred from the stay-at-home restrictions that Seattle, as well as most other jurisdictions around the world, were under starting in March 2020. The final writing and pieces of the project were developed during an additional amplification of the social and racial injustices enhanced by the pandemic and continued police brutality around the country through protests beginning in late May and early June 2020. This document does not directly address these issues; it addresses food accessibility, food sovereignty, and a brief history of the food traditions of many of the people who inhabit the Puget Sound area.

Opposite: Apples in Ballard


Wallingford pear

INTRODUCTION

ON MAJOR HUMAN NEEDS AND CONNECTIONS

"When you plant a garden, a new community quickly organizes around it. [...] That community grows like a garden grows, with a kind of invisible magic."

Lauri Kranz with Dean Kuipers, *A Garden can be Anywhere: Creating Bountiful and Beautiful Edible Gardens*, 2019, Chp 8

As the majority of the global population is abiding by various decrees to stay at home because of the COVID-19 pandemic, we are lacking in several of our major basic physiological and psychological needs. At this time, in June of 2020, we have been under a "Stay Home, Stay Safe" order by Washington Governor Jay Inslee for over 2 months. These quarantine measures are suppressing many of our basic needs with the restrictions that are in place. Psychologist Abraham Maslow (1908-1970), after several iterations, proposed an 8 stage model of human needs:[1]

Biological and physiological: including food, shelter, and sleep

Safety: including security, stability, and being free from fear

Love and belonging: including friendship and giving affection

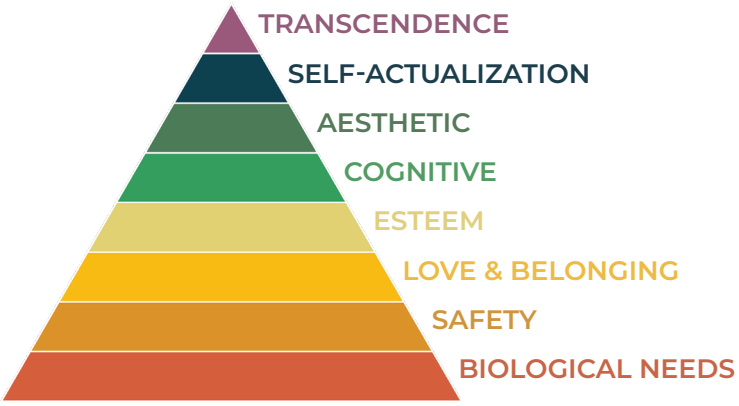
Esteem: including for oneself and for respect from others

Cognitive: including curiosity and exploration

Aesthetic: inducing an appreciation for and search for beauty

Self-actualization: including potential and recognizing personal growth

Transcendence: motivation through outside values including experiences with nature and aesthetics



Hierarchically, one must first attain base biological and physiological needs in order to address the more complex social requirements.[2] During this time many people are struggling with the most basic and fundamental aspects of these needs. This

1 Koltko-Rivera 2006
2 ibid

research aims to show how, through food and gardening, we can begin to address many of these various human needs despite the lack of social interactions.

While this research focuses on the importance of food and our ability to access healthy nutrition practices in the urban environment, it builds on a foundation of engagement, community, and learning. The project is an exploration of the ways in which food and garden education is able to encourage methods of connection and community to enhance mental well-being in service of Maslow's higher level emotional needs.

As we are quarantined to our homes and immediate neighborhoods and try desperately to tell the difference between Monday, Wednesday, and even Saturday, how can getting outside and cooking inside be a break from the monotony of staying at home? There must be a way we can get outside, learn, be productive, and entertain a different part of the brain. For me, that is through harvesting and cooking. The intention of this research is to explore the history of food in Seattle, from indigenous people to today, and make a plan for how we can utilize public land to our advantage by tapping into Seattle's large right-of-ways as well as various other public spaces to sustain ourselves, educate each other, and create neighborhood community.

FOOD AND WELLBEING

Food is a universal language. Whether or not we can understand the words that we are hearing, we can understand the food that we are eating and some of the story it is telling. Local food speaks volumes with seasonal flavors, connections to history, the earth, culture, and traditions. Sophie Egan begins her book, *The Conscious Eater*, with a three question checklist: Is it good for you? Is it good for others? Is it good for the planet?[3] These are great questions to keep in mind when thinking about the food you put in your body. On the most basic human physiological need, the most important question relates to whether it is *good for you*, however she goes on to define that good for you could be related to nutrition, but it could also be defined as something that makes you happy. The *good for others* question is related to how the food was produced and how it is affecting the system. *Good for the planet* is related to the environment, greenhouse gas emissions, and sustainability.

"You don't have to speak the same language to speak the language of food."

Rachel Yang with Jess Thomson, *My Rice Bowl: Korean Cooking Outside the Lines*, 2017, Chp 1

This research does not delve into personal health and nutrition, but it does address what is good for others and what is good for

3 Egan 2019

the planet, by looking at what does the planet, specifically the land around what is now Seattle, provide. My focus within this work also includes thinking more closely about the ways that climate change is impacting the food that we eat, and how agriculture can be used within urban environments in order to improve the health of people in our cities. Historically, food production was slowly pushed out of cities as population density increased and landscaped lawns became considered as symbols of wealth.[4] Recognizing urban agriculture as a valued and appreciated use of urban space is important to health and wellbeing, as has been encouraged during the various historical periods of increased disturbances such as wars and recessions. My research, design, and experimentation explores how we can make urban food production a desired outcome for public spaces. How can this idea, based on the concept that food is our greatest connector between one another, become something that we find valuable and beneficial to society? How can we use food to break down barriers that are currently in place that stop urban communities from harvesting and producing their own food within public spaces?

MY RELATIONSHIP TO FOOD

You could say I grew up in gardens. As a young child in Moscow, Russia where my parents and my grandparents had summer houses, they grew the majority of their fruits and vegetables. In Russia, in the 1980s and 90s, there was limited access to fresh food, so most families did the same, especially older generations.

4 Eliades 2016

Garden greenhouses

Family photo archive

These summer homes outside of the city, called a дача (dacha), were originally deeded to citizens by the Tsar in the 17th Century. The root of the word dacha comes from the verb "to give." There are various settlements that were allotted in different times. In the Soviet era, they were given to groups of people, like the writer's паселок (pa-syo-lok or community) or the scientist community, while others were allotted or acquired later as a way to cope with the lack of available food in grocery stores in the latter half of the 20th Century. Dachas were often written about in novels by Anton Chekhov and Alexander Pushkin as places that people would go in the summertime, and the gardens would often be mentioned as well. The tradition is still strong today, but dachas are used less and less as a place to grow vegetables, instead as a weekend or summer escape from the city.

As a child, I spent my summers at my grandparents' dacha or at my parent's деревня (derevnya), a more traditional rural village in the countryside that is typically lived in year round by villagers, not one that is a part of the dacha phenomenon, though we only spent summers there. Often dachas could be reached by train but more easily by car, despite the Moscow city traffic. In our derevnya and my grandparents' dacha, we would grow and forage for all of the food that we could that would then last throughout the year. In the winter, root vegetables and pumpkins were kept in a root cellar either at the dacha or one dug out under the storage unit closer to the city. Cucumbers and tomatoes were pickled and stored in 2-litre jars neatly lined up in the apartment hallway. Berries were made into compote and herbs were dried. It was a commitment,

Left: My grandfather sorting potatoes at the derevnya

Right: With my grandmother in the tomato greenhouse at the dacha

Family photo archive

Harvesting mushrooms from the forest and strawberries from the garden

Family photo archive

but you had to make do in order to ensure the family would get enough vegetables during this time.

These gardens were small but mighty. Strawberries and alpine strawberries were some of the first to ripen and, as perennials, took up their designated portion of the garden. Greenhouses were erected early to transplant tomato and cucumber seedlings that were started in early spring in Moscow window sills. I still remember the pungent smell of the tomato greenhouse and the warm humidity inside on cold gray summer days.

In Russia, the traditions of foraging are also very common. The forest around our country house is large and we would frequently go mushroom and berry picking. Upon returning from a foraging expedition, the first step would be to leave the baskets on the porch and sort the mushrooms. They had to be rechecked to make sure they were edible and questionable ones that could not be identified and the ones that were too wormy were tossed. The berries we picked were blueberries, lingonberries, and cranberries that grew wild in various areas of the forest. Just like the big mushroom sorting process that has to happen upon returning from a foraging trip, berries must be sorted as well to remove and leaves or twigs that may have fallen in.

When we moved to the United States, I was 3 years old. We went from living a life where we had plenty of homegrown fruits and vegetables to a new country in which it took some time for my parents to establish themselves; our direct connection to fresh produce was lost. Food and eating well was always important, but it wasn't the easiest to get the best and freshest ingredients to the table in the beginning. When we moved from a small apartment in Washington, DC into the house my parents still live in today,

MUSHROOM PIE

I love wild mushrooms in any preparation. This classic yeasted dough pie is a nice lunch or portion of dinner. It is best prepared with wild mushroom or mixed mushroom, but could work with grocery store white mushrooms though they are less flavorful.

DOUGH

3 cups flour

2 sticks cold butter

1 packet yeast

1 tsp salt

1/3 cup milk

~1/2 cup water

1 egg

3 tsp sugar

DOUGH

Add yeast to 1/3 cup warm water + 1 tsp sugar to activate.

Mix flour, salt, and the rest of the sugar in a large bowl. Grate the cold or frozen butte into the dough. Mix with a fork.

Add egg to yeast water and mix. Add warm milk to the 1 cup mark. Pour liquid into the flour mixture and stir until smooth. Put dough into the fridge for 1-2 hours to rise.

FILLING

1 large onion, chopped

3 cups mushrooms, sliced

1/2 tsp salt

FILLING

Heat olive oil in skillet, medium heat. Add onion. Cook 8-10 minutes or until translucent. Add mushrooms, cook for another 5 minutes, while stirring.

FOR PIE

Preheat oven to 400°. Split dough into two chunks. Roll the larger one to fit just in your baking dish. Add filling evenly, leaving 1/2” on the sides. Roll the smaller dough to fit over the filling. Pinch edges shut. Brush egg wash or milk over the top and bake for 30 minutes or until golden. Cool for 15-30 minutes.

my parents tried to grow some vegetables in our yard, but it was too shady. Instead of summer tomatoes, our tomatoes ripened in November after all of the leaves from the trees had fallen and they finally had some sun. There was a time in high school when we would frequent the local farmers market on Sundays for produce, in part because I loved to go.

It wasn't until I was already in college that my parents bought a house near the beach in Lewes, Delaware that is now their equivalent to a dacha. A consistent 2.5 hour drive from their home, they have a huge garden there that produces all their vegetables during the summer. They even have additional tomatoes, peppers, and strawberries that they preserve for the winter. It is not necessary for them to keep the garden to sustain themselves in the same way as it was back in Russia, but the vegetables taste so much better when they are coming from your own garden, and maintaining a space like that is therapy in itself. I couldn't tell you what type of vegetables are missing from their garden because they grow so many different things there. The long, hot East Coast summers allow for the Lewes garden to provide a veritable feast for the table from April to November. They picked their first radishes of the season in the first week of April and we had the last of the tomatoes (that ripened off the vine) over Thanksgiving.

Their garden is right along the route that most beach-goers take in the summer and so many people stop to admire their garden, ask for advice, or just to chat. Keeping that garden is a lot of enjoyable work: we spend most of our time outside tending to it, and people are really drawn to starting a conversation. Compared to most gardens in the area, it is huge and beautiful.

My dad in the garden in Lewes, Delaware

Courtesy of Angie Moon Photographer

The connection and ease of the garden and eating tasty, varied, home cooked meals always made me interested in food. In high school my friends and I cooked dinner together frequently on Friday nights. In college, I always loved bringing food to potlucks despite the need to use a tiny dorm kitchen. I went to the farmers market often for fresh vegetables for just myself. As an art major, I initially struggled with what to do for my senior thesis and when I finally figured out that it had to relate to food, a lot of things clicked. My project was about food waste and broken systems, in which I glued together shards of glass to reassemble broken bottles, sewed onion peels back together, and played with creating roses out of cabbage leaves. This too was a form of landscape architecture, exploring waste systems through art.

Moving to Seattle after spending several years in DC, the biggest loss for me was the endless supply of fresh vegetables from Lewes. I immediately signed us up for a CSA that replaced a bit of that, yet I still missed tending to the garden, harvesting, and snacking on freshly picked food, which has always been my favorite part. One of the first things I noticed about Seattle was the abundance of fruit producing trees and blackberries fresh for the picking. I quickly found information about the invasiveness (yet tastiness) of the Himalayan blackberry, and started learning about the Falling Fruit website and City Fruit. I wondered how it was possible to have so many fruit trees successfully growing in the city—it wasn't that different from DC but I noticed the larger right-of-ways and increased space for fruit trees to be able to grow on public land.

Picking Himalayan blackberries near Green Lake, Seattle

Courtesy of Jeff Chandler

Here in Seattle there are many street-side gardens, whether they are a tended-to raised bed or a forgotten plum growing in the right-of-way, yet most people may just walk on by because they do not know what it is, whether it is edible, or how to identify it. This project aims to help with that. Looking at the history of Seattle through a lens of food highlights the food traditions in the city, exploring not just what Seattle has cooked, but what and how Seattle communities are growing.

The climate in the Pacific Northwest does not allow quite the same seasonal growth as in Delaware, however our mild winters allow for plenty of other vegetables to grow and provide us with a decent amount of food throughout the winter. Perhaps the summer climate is more similar to the Russian summer despite the big difference in the winter weather. It doesn't get too hot so heat-loving plants need some help, while cool-loving plants thrive.

Michael Pollan states that a garden is the "middle ground between nature and culture," which is a great place to start this research.[5] On thing that matters most to me about landscape architecture is the capacity to create ecologically resilient spaces for people to make into their own through experiences, engagements, and interactions. The production of food fits into this so strongly, especially thinking about climate change and the increased importance of reevaluating our values within how and what we are eating. The chemical make-up of our food is changing because of the amount of carbon (and other factors) in the world.[6] We need to start now and start here, locally, in our cities, to attempt to mitigate climate change by planting greener cities and encouraging a closer connection to where our food is coming from.

My connections to food production are my own, and through the research and the design proposal of an app, I hope to be able to educate others on urban food production and increase their connection and understanding of where food comes from for them. I find that the more we talk about and appreciate the food we are eating, the more respect we have for where it comes from. Nourishing Neighborhoods would be a neighborhood based app that aims to educate neighbors on locally growing food and create community connections through gardens and fruit. This thesis aims to provide a basis for that understanding on the neighborhood level, here in Seattle.

5 Pollan 1991, 53
6 Anzilotti 2019

Top: Various Russian pies made by the grandmothers, Lewes

Left: Foraged bounty at the derevnya

Family photo archive

Right: Weekly produce to be taken from Lewes to DC

Concord grapes from South Seattle

LITERATURE REVIEW

FOOD IN THE CITY

WHY NOW?

What better time than the present? I'm not sure where I first heard the Chinese proverb: "The best time to plant a tree was 20 years ago. The second best time is now." The beauty of this project is that most of the registered fruit trees in Seattle were planted over 20 years ago, and yet a majority stand unmanaged and un-harvested. So let's take that proverb and modify it: the best time to start managing these trees and planting gardens was years ago, the second best time is now. Why not start learning about Seattle's fruit trees and educate the public about using what we already have thriving in the city today?

Today, in the Spring of 2020, we are in the midst of a global pandemic that has altered the way humans around the world are living their lives. During these unsettling times, as the threat of COVID-19 looms in our neighborhoods and the majority of the country is on shelter-in-place orders, life is stressful. There is so much that scientists still do not know about the novel coronavirus and the COVID-19 disease that spread from China starting in December 2019. As of June 2020, Seattle has been on a strict stay at home order since mid-March with schools, offices, and most non-essential businesses closed. Wearing masks and staying 6 feet away from one another is recommended. With all of these restrictions in place, one of the many major stressors we have is food insecurity as people are out of jobs and unable to provide in

Pears and Peaches growing in Phinney Ridge

the same ways they are used to for their families. Unemployment rates have soared and the number of people who qualify for food stamps and food banks has skyrocketed alongside. People are waiting in line for hours to get food at food banks.[1] What better time to get acquainted with growing food and where many of the common fruits and vegetables are coming from? What better time to educate children about what is growing than on their daily walks? Seattle is lucky that on almost every non-downtown block there is a tree that produces some kind of fruit. These trees are not only producing fruit, but growing in the right-of-way, an area that is public land, and legally harvestable by all.

Today grocery stores are having shortages, yet farmers are struggling as well because now that restaurants are closed, they do not have the same customer base. They cannot package for, and ship to, grocery stores as that requires different machinery and packaging equipment. Meat plants are closing because they have seen have been hot spots for COVID-19 infection with close working conditions and it is likely that a meat shortage will occur. Though the meat industry's impacts will be first seen in stores, it may not have as strong of an effect on our climate change impacts within the food industry since so much of the products have had to be wasted. Milk isn't being purchased for daily school lunch consumption so around 3.7 million gallons of milk are dumped every day;[2] as Sophie Egan put it in her Town Hall talk in the very beginning of the outbreak of the coronavirus crisis in our region, the best way to eat with climate change in mind is to not waste the high carbon products.[3] Unfortunately these shortages are not because there is not enough of the product, they are because the products have to be wasted.

In Maryland and Delaware, thousands of chickens have been euthanized because half of the workforce is out sick, eggs are being destroyed daily, yet people still need food. Because of the ways that the food gets handled and where it gets shipped, it cannot just go to grocery stores or be donated to food banks. Food banks are not able to handle the volume of goods in their storage facilities and need single family sized packaging despite the long lines of newly unemployed people who are flocking to get food assistance. I've donated empty egg cartons to food banks for this reason last month. Switching from one type of distribution—like a restaurant-sized container to a single family container—is shockingly difficult for most products as changing that process takes time and money

1 Charles 2020
2 Yaffe-Bellany and Corkery 2020
3 Egan and Egan 2020

and completely different equipment. It is a real dilemma for these farmers. This research does not address the scope of distribution, but recognizes the impacts that the coronavirus outbreak has on our national food system. The only way we can work towards that is by improving our local system. The stark truth of the matter is that "the quarantines have shown just how many more vegetables Americans eat when meals are prepared for them in restaurants than when they have to cook for themselves," which is in part the real tragedy.[4] But perhaps with a little inspiration and some locally sourced ingredients, that can change.

Seattle has struggled with officially defining its food traditions, but it has a long history of cultural and ethnic diversity that has shaped the food cultures in the Pacific Northwest.[5] In *Public Produce*, Darrin Nordahl states, "cultural and ethnic diversity in part comes from food identity and food literacy,"[6] this is something that is strong in Seattle and is part of the reasons my research focuses on the relationships between people and food. Planting diverse food is a statement on food fluency, increasing the diversity in the most visible places, what is visible and accessible from the street is crucial.[7]

CONNECTION TO NATURE

"Nature is almost everywhere. But wherever it is, there is one thing that nature is not: pristine."

Emma Marris, *Rambunctious Garden: Saving Nature in a Post-Wild World,* Chp 1

According to the editors of the journal *Nature*, "If nature is defined as a landscape uninfluenced by humankind, then there is no nature on the planet at all" as such, humans and our interactions with the world are also a part of nature.[8] In this context, I'm considering nature as the living, natural elements in the world. In the urban context, it is most obvious that any living plant has been touched or affected in some way by humans. Historically, nature has been touched by humans for generations. In the Pacific Northwest, the native people who lived on this land for thousands of years prior to the arrival of Euro-American settlers managed the forests and the land using fire to create prairies to enhance edible roots and bulbs like camas, for hunting purposes to send wild animals out into the field, as well as to maintain the health of the forest.[9] As indigenous traditions have been continuously suppressed, Pacific Northwest forests have become less managed and more prone to wildfires, and connections to nature have drastically shifted. As

4 Yaffe-Bellany and Corkery 2020
5 Dern 2018
6 Nordahl 2009, 126
7 Nordahl 2009
8 Nature 263
9 Kruckenberg 1991

Emma Marris states, "we have lost a lot of nature in the past three hundred years—in both senses of the word lost."[10] In America, this is most apparent in the physical sense: looking at the history of colonization and the arrival of settlers on this land.

It is evident as we observe the history of Euro-American settlers arriving in the Puget Sound almost two centuries ago to today, many of our forests and native landscapes have been changed. Marris goes on to say that "we have hidden nature from ourselves."[11] This is a concept that I have been thinking a lot about since beginning this thesis process: we have lost a sense of connection to nature. "Somehow we came to view ourselves as separate from nature. We have fallen into the trap that we are independent of the world—this is the human story we created. But the Earth is a living system; everything, including our children, is dependent on it for their survival."[12] I believe that we have forgotten that, as humans, we are also a part of nature, in part because of the concrete cities we live in, but nature is us, too.

The idea of this exploration began in part from the lack of understanding that many people have for the earth. As I read through the sections of *Nurturing Nature and the Environment with Young Children*, the concept of interconnectedness spoke to me. Drawn from indigenous perspectives, it means that there is a respect and appreciation of nature and all living things. Today there is a disconnect between nature, cities, and ourselves. The earth is nature, humans are a part of nature, our food comes from nature.[13] As this respect has been lost, wastefulness has increased, especially when it comes to food. Since most urban dwellers are not working the land for food, it is much more easily thrown away and forgotten about.[14] Since everyone has to eat, perhaps one of the ways to more easily connect humans back to nature is by attempting to look around and understand how food comes into our systems. Through pursuing this research during a time when we've had to mostly stay inside, I've come

10 Marris 2013, Chp 1
11 ibid
12 Malone 2019, 22
13 Malone 2019
14 Albing 2019

Right-of-way apple tree weighted down by dozens of apples

"There are many important things about our relationship to nature that cannot be learned in the wild. For one thing, we need, and now more than ever, to learn how to use nature without damaging it. That probably can't be done as long as we continue to think of nature and culture simply as antagonists."

Michael Pollan, *Second Nature*, 1991, 4

"When we lose our connection to the land, when we stop nurturing the soil, planting the seeds and watching the miracle of life unfolding each day, each season, each year, we lose our actual knowledge of place."

Nicole Kistler, *agriCULTURE*, 2013, 10

to understand just how critical spending time outdoors really is to our wellbeing. As Marris states, "rambunctious gardening is proactive and optimistic; it creates more and more nature as it goes, rather than just building walls around the nature we have left."[15] As we continue to open our eyes to the trees and greenery in cities, we can see that both the wild and the tame neighborhood gardens are alluring and thought provoking. These beneficial bits of the city fabric are treasure chests of information and exploration if we stop and look at it and understand that we can positively influence our city in these areas.

According to several contemporary psychologists, most urban dwellers "feel disconnected with nature, which is attributed to a lack of connection and respect toward the more than human."[16] This study examines modern society's connection to nature today as working against natural processes, especially in cities, compared to the way indigenous communities lived within nature. In a psychological study published in May 2020, a behavioral intervention was conducted regarding ecological attachment. Researchers found that using indigenous principles and acknowledging living things, like trees, increases ecological empathy and mindfulness.[17] Something as simple as not taking nature for granted can help create the connections that are missing. Like Marris suggests, we need to switch what is in the foreground and the background of our vision. Instead of first noticing how the trees fit into the city's infrastructure, we should instead consider that nature is always in the background. No matter where we are, the background is nature.[18] Just the initial acknowledgment of the fact that nature is all around can help increase our connection to nature and recognize that we, as humans, are a part of it even in the city.

We can take advantage of neighborhood nature or small forgotten spaces between the road and a building for the benefit of wildlife like birds and pollinators in addition to humans. One option is to "have the area landscaped with a self-sustaining mix of plants that never needs watering or weeding," and by planting a fruit tree we are basically doing just that.[19] We shouldn't forget that "street trees are nature" and appreciate the beauty and our personal connections to them when we go out into the neighborhood.[20]

15 Marris 2013, Chp 1
16 Kurth et al. 2020
17 ibid
18 Marris 2013
19 ibid, Chp 9
20 ibid, Chp 9

LANDSCAPE ARCHITECTURE AND URBAN AGRICULTURE

Exploring literature, there are few instances in which urban design focuses solely on food. Many urban agricultural landscapes develop without any professional design input as grassroots movements, which has not helped the designer's point of view.[21] It is infrequent that in city planning, food has been considered a primary goal or city enhancement, instead it "may be seen as something to 'add in' to the urban design of place; giving 'vibrancy' and 'colour' to public (and privately owned and managed) space once aspects of design deemed more important have been completed."[22] Unlike the City of Seattle's urban agriculture plans, in many cities "food may be a taken-for-granted category for designers or one with specialist characteristics" geared towards immigrant or refugee communities or as a niche market, not as a part of everyday urban design.[23] It is shocking that urban gardens are not considered to be something that anyone could benefit from as we all need food.

In the 1970s, community gardens were not considered a part of New York City's urban space system, in part because they were not presumed to be permanent or continually maintained.[24] This thought was prevalent around the country as community gardens were viewed as temporary. It wasn't until after the year 2000 that an argument was brought to the table that gardens are

21 Nettle and Crouch 2018
22 Parham and Abelman 2018, 412
23 ibid
24 Hou and Grohmann 2002

Bradner Gardens Park and P-Patch

better as open space programming since they are protected from development, can save parks money, and draw users for longer visits than a park.[25] Not just that, but community gardens are "an innovative approach to providing ecosystem services, including individual health services, community services, and environmental education."[26] As community gardens are becoming more common, many cities, including Seattle, have recognized them and written policy to support them, validating and planning for future spaces.[27] Though considering these spaces as a part of the landscape is critical, landscape architects who have tried to do so have often designed solutions that are not successful in urban gardens.[28] Understandably, the spaces "lacked a grasp of the liveliness and rich texture" that often come from each individual plot and garden, which is a part of the beauty of a tended-to garden.[29] There can be a place for landscape architects to push for policy in urban gardening, but their efforts to design individual plots miss the mark. Working in collaboration with a landscape architect, there can be a lot of benefits to a community garden but there must still be space left for each plot owner to make their own decisions and feel like it is owned by the community.[30]

St. John Union Lutheran Church Community Garden

As a result of interest and encouragement, Seattle's P-Patches and community gardens have become more inviting to the public by providing spaces that are accessible and inviting to visitors who do not garden in the plots.[31] Many P-Patches and community gardens exist along the public streets, with signs and labels that give the spaces a neighborhood welcoming vibe.

To allow these P-Patches to thrive and get the required permits, landscape architects have been hired to address various issues and challenges that the process may hold. In Seattle, many of the community garden users do not actually garden there. Because

25 ibid
26 ibid, 46-55
27 Nettle and Crouch 2018
28 ibid
29 ibid
30 Hou & Grohmann, 2018; Nettle & Crouch, 2018
31 Hou and Grohmann 2018

of their popularity, P-Patches are considered a large part of park planning in Seattle, despite any conflict between the private nature of the plots on public land.[32] This push for policy and to be instigators of creating community gardening spaces on the part of landscape architects is a critical element of the profession, the more we can navigate the process for gardeners, the more thriving our community can be[33].

Landscape architects must advocate for edible infrastructure in our cities in order to spread the understanding of supporting local food systems on a neighborhood scale. Increasing visibility, such as incorporating P-Patches into urban parks, "can strengthen the visibility of community gardening, which can lead to more frequent use of gardens by non-gardeners, and elevate the level of interest in community gardening among the public."[34] By doing so, and allowing conversation and discord surrounding the food that grows in the city, landscape architects can highlight the importance of planting fruit trees and vegetables and advocate for designing edible infrastructure into the city fabric.

GROWING FOOD IN SEATTLE

The City of Seattle is in full support of growing food within the city. As of June 2020, the city manages 89 P-Patches on public land and has expanded other opportunities for urban food production in the future. Seattle's Urban Agriculture has been adapted to:

- "Allow "urban farms" and "community gardens" in all zones, with some limitations in industrial zones
- Allow residents to sell food grown on their property
- Formally recognize farmer's markets and allow them in more Seattle areas
- Allow dedicated food production on rooftop greenhouses with a 15-foot exemption to height limits in a variety of higher density zones
- Increase the number of chickens allowed per lot from three to eight, with additional chickens allowed for large lots associated with community gardens and urban farms, while prohibiting new roosters and setting boundaries for new chicken coops"[35]

32 Hou and Grohmann 2018
33 Nettle & Crouch 2018
34 Hou and Grohmann 2018, 54
35 "Urban Agriculture"

Seattle created a 5 year Food Action Plan established in 2013 that had 4 main goals: healthy food for all, grow local, strengthen the local economy, and prevent waste.[36] Since the expiration of the plan in 2018, the city has been working on an updated plan that is scheduled to be released in the summer of 2020.[37] The original Food Action Plan states that "healthy food is integral to the health and well-being of our communities."[38] Within the plan, healthy food is defined as "food that is fresh and nutritious and grown without harming its producers or our air, water, or soil." The Plan has been successful so far, and Seattle has continued to be a clear supporter of urban agriculture, which is great as more people are building new gardens—at least from my observations in Seattle's Phinney Ridge—and planting vegetables for the first time.

"Motivations for urban food gardening are rooted in public health and food safety, food justice, the 2008 recession, rising food prices, the local food movement, and the do-it-yourself (DIY) movement."

Nicole Kistler, *agriCULTURE*, 2013, 10

Most of Seattle's neighborhoods include large right-of-ways. The planting strips between the sidewalk and the street are supposed to be maintained by the owners of the adjacent houses, who can design any type of planting. These areas span from as little as 1-foot to as wide as 12-feet in Phinney Ridge. Creating a raised bed in an area like this is a very simple process. The city supports the initiative to plant and maintain the right-of-way but asks for residents to fill out a form for a permit for many of the garden implementations. Obtaining a permit is free and considerably simple. The city also has extensive suggestions for how and what to plant.[39] Fruit trees are allowed in planting strips even though the city does not frequently plant them as they do not provide as much of a canopy cover potential as larger trees do.[40]

Seattle is a "leader in urban agriculture with some of the most progressive policy, codes, and funding in the country" ever since the beginnings of the P-Patch movement in the 1970s.[41] The city's support of P-Patches, allowances for planting in the right-of-way, and various initiatives to support urban agriculture is critical for future gardening. Historically national and global disturbances, such as wars and recessions, have caused an uprising of urban agriculture in order for city dwellers to feed themselves. Urban agriculture in 2020 is motivated by the disturbance of the coronavirus. The food system is insecure, the recession is more widespread than the Great Recession, access to food is questionable, and people have a different way of structuring their time as childcare has been shut down and those who are working

36 "Food Action Plan" 2013
37 WysockS 2019
38 "Food Action Plan" 2013
39 "Gardening in the Planting Strip."; Seattle Public Utilities et al 2016
40 "Trees for Neighborhoods."
41 Nicole Kistler Studio 2013

are primarily working from home.[42] This, of course, does not account for the essential workers who are still expected to show up for work but they, too, are experiencing food insecurity. "People want true food security—fresh, wholesome food that feeds their bodies, replenishes community and local economies, and sustains a healthy environment,"[43] and I think the best place to start is close to home, with planting a seed.

Historically, there have been several initiatives to cultivate and expand food systems in urban agriculture in Seattle. The P-Patch network is a great place to enrich the community and inspire art to bring people together. In 2013, landscape architect, Nicole Kistler, proposed *agriCULTURE,* a plan of recommendations for the city for public art in gardens. This project, in collaboration with the City of Seattle, worked to enhance the connections between community, art, and gardening, and many suggestions are applicable to the research here.[44] Her considerations fit into six concepts: growing food; building healthy soil; harvesting, cooking, celebrating, and sharing food; fostering habitat for beneficial species; innovating in urban agriculture; mentoring: creating a living agricultural language. Within each category, she suggests various strategies, precedents, as well as project examples that could lead to implementing these ideas into the city fabric. "Urban farming and community gardens are a way to reassert our cultural heritage, our connection to the land that sustains us, and our food."[45] Seattle encourages community and engagement through our public gardens.

"When we lose our connection to the land, when we stop nurturing the soil, planting the seeds and watching the miracle of life unfolding each day, each season, each year, we lose our actual knowledge of place."

Nicole Kistler, *agriCULTURE,* 2013, 10

GROWING FOOD IN CITIES

Darrin Nordahl's 2009 book, *Public Produce,* begins with a wish for the future:

> "It is my sincerest hope that in twenty years, a book espousing municipal-organized agriculture will also be pointless. By that time, public officials across the nation will have implemented a variety of strategies to produce food throughout the city so that everyone in the community has the ability to eat healthy, whenever and wherever. They will have figured out how to grow, maintain, harvest, and process an abundance of fresh fruits and vegetables, while creating beautiful and inspiring edible landscapes. Programs will have been created to educate citizens about food and food choices,

42 Kiersz and Reinicke 2020
43 Nicole Kistler Studio 2013, 10
44 ibid
45 ibid, 10

> and why municipal agriculture, like recycling, is good for them and their community. In twenty years, Public Produce will be out of print, and there will be no reason for its resurrection."[46]

Obviously this hasn't happened yet, but it has only been 11 years since the book came out. This pandemic is the spark of a time of change within our food systems. Restaurants may not ever exist in the same way again, so what will happen to where our food is coming from? Will it become more localized as we begin to depend on getting our food from closer to home?

An important concern to initially address is the fear that food grown in cities is contaminated with pollutants. Though contamination is a big issue in the urban setting, it is mostly a problem of contaminated soil. However, most plants do not take chemicals into the fruit. No matter, assessing soil is important to do for any new garden. The best way to do that is to send a soil sample to a testing site, which will be able to tell you the type of soil in your garden in addition to any contaminants that are in the soil and potential soil amendments you'd want to make before planning a garden. Within right-of-ways, however, the safest bet is to build planter beds and bring in new soil that is healthy and clean. The larger issue that prevails is the chemical pollution that comes from vehicles in the air, though the pollutants in the air around urban gardens are not necessarily any more harmful that the pesticides that are used in conventional produce that you can buy at the grocery store.[47] Pesticides used on conventional farms could be worse than the exhaust of a passing car. A critical element to keep in mind is that no matter the produce, it must be washed

46 Nordahl 2009, xiv
47 Nordahl 2009, 32

A variety of planters in Phinney Ridge, Seattle

before consuming, which would rinse any residual chemicals off of the food.

As has been highlighted in March and April of 2020, the commercial agriculture system is vulnerable, and supporting a local food system is critical to maintain a consistent way of subsistence. Cities are ideal places to grow vegetables for reasons that include the climate. City temperatures are typically slightly higher than the suburbs because of heat island effect, which is beneficial to growing foods like tomatoes and peppers that need a hotter season.[48] Seattle-grown food within the right-of-way is also more protected from wind between the street and near buildings.

Growing food in cities improves the life of a city dweller in so many ways.[49] As has already been mentioned, connecting with the soil and appreciating nature is beneficial to human wellbeing. By doing so we are able to be more mindful and that releases stress. Urban produced food travels fewer food miles and therefore has a much smaller, if not non-existent, carbon footprint.

Research shows that local gardening and local fruit production can actually feed a city. In *Urban Food Forestry*, Clark and Nicholas "found that 108% of the daily recommended minimum intake of fruit for the entire city's population could be met under the most ambitious planting scenario, with substantial potential to contribute to food security even under more modest scenarios."[50] Their research highlights just how much food is already being grown in cities. If we were to better care for our city's fruit trees, we would be able to feed so much of Seattle's population. This would provide fruit for not only those who do not have enough food, but also those who need more healthy food, and it would also help the environment by reduce the amount of emissions produced by the transportation of food from afar. In Seattle, City Fruit is trying to do that on the city-scale by locating and mapping the city's fruit trees as well as harvesting the healthy fruit, distributing it around to communities in need, and also caring for trees during the winter season so that more healthy fruit can be produced and harvested the next year.

An argument that exists against having fruit as street trees is that they have messy debris. Though that may be the case, if harvested, fruit trees will not have any more street debris than any other tree. No matter what, there are many other trees that produce debris including acorns from oak trees and even flower petals from cherry

48 ibid
49 ibid
50 Clark and Nicholas 2013, 1

blossoms. The great thing about fruit trees is that they really only need to be actively watered for the first year, and as long as their roots have enough space to grow, they will be able to get their own water from the ground in future years.[51]

Because the right-of-way is on public land, anything grown there is technically not owned by a single person. Legally, anyone is able to harvest there and not be penalized. Nordahl suggests that this gardening is a charitable contribution to the community, though I think that goes a little too far. A well-maintained raised bed in the right-of-way should be treated in the same way as a P-Patch, an area that should be appreciated and explored, but not harvested other than by the owner. A fruit tree, however, is a bit different. They typically do not require as much care and maintenance, and also they are too frequently left unpicked. Harvesting the fruit is only helping in the long run to reduce food waste as well as keep the streets clean.

FORAGING

Foraging has been a way of subsistence for generations beginning with hunters and gatherers. As humans were able to domesticate edible plants, foraging efforts declined. We did not need to maintain that lifestyle since we were able to subsist on the plants we could cultivate in our own gardens.[52] The human diet is now comprised of more starchy foods than ones with fiber and plenty of vitamins, which many wild plants are full of.

Today the most common form of foraging is gleaning, a practice that some farmers have, which allow the public to come and harvest any seconds of what they grow. This method is able to reduce the food waste of produce that was not harvested and also feed an additional facet of the population. Many are much more willing to glean, or forage, in order to provide for their families as opposed to accepting donations. This task of searching and collecting allows the feeling that you worked for it and you are able to provide the food on your own.[53] In essence this is the same thing as harvesting street trees. There are thousands of fruit trees in Seattle that produce beautiful fruit. Some of the fruit is pesty, but it is still very edible.

For those who are embarking on foraging expeditions, it is critical to remember these tips of ethical foraging: “Do not trespass. Leave

51 Nordahl 2009
52 Jacobson 2001
53 Nordahl 2009

some for others. Don't destroy rare natives, etc. In brief, behave properly."[54]

FOOD AND COMMUNITY

There are many opportunities to make a difference through the act of sharing meals together. In *Eating for Ecoliteracy: The social praxis of sustainability at a residential environmental education center*, Albing argues that practicing and learning about where food is coming from "positively impacts children's relationship to their bodies, to each other, and to the earth itself."[55] Through this experience where students learn about food and weigh the amount they are wasting each day, they begin to understand how they, as individuals, can make a difference.

As food traditions have shifted and we have less of a need to cook our own food, the cultural relationship with food that people have had has begun to disappear. In the US, our society has an unhealthy relationship with cleanses and diets that is not beneficial to our relationship with food. The experience of eating should be a celebration and appreciation, yet some people find eating a chore.

According to William Whyte, the presence of food in a public space attracts people, and people attract more people.[56] Whyte implies this is through the selling of food and existing restaurants, but the time for meetings and socializing typically surrounds a meal or a drink. If we think of "public space as community dinner table"[57] what better way to create a dinner menu than from what is outside the front door? What sort of opportunities can arise in neighborhoods to share and celebrate food? Using the public right-of-ways in the neighborhood provides that same connection to food as a restaurant could with a different event. With this available and cultivated produce, neighborhood block parties could not only be celebrating a federal holiday, but perhaps harvest parties and fruit festivals.[58] County fairs and tomato festivals are doing that on a larger scale inviting everyone to come celebrate, but we can take that model to a local neighborhood and appreciate what grows there as well. These experiences are great for adults to learn about how and what is growing, but they are even better for children who pick up cues and cravings based on what they see. If children have more visual cues about harvest

A "shared meal is no small thing. It is a foundation of family life, the place where our children learn the art of conversation and acquire the habits of civilization: sharing, listening, taking turns, navigating differences, arguing without offending."

Michael Pollan, *Cooked*, Chp 1

54 Jacobson 2001, 32
55 Albing 2019, 103
56 Whyte 2009
57 Nordahl 2009, 43
58 Nordahl 2009

"Cooking implicates us in a whole web of social and ecological relationships: with plants and animals, with the soil, with farmers, with the microbes both inside and outside our bodies, and, of course, with the people our cooking nourishes and delights. Above all else, what I found in the kitchen is that cooking connects."

Michael Pollan, *Cooked*, 2014, Chp 1

and foraging, learning where food is coming from, they will be interested in eating better in the future. Using public spaces and engaging neighbors can build community, increase food security, and decrease food miles.[59]

But why is eating together important? Can sharing a meal build community? The short answer is yes. In *agriCULTURE,* Nicole Kistler states that "if you grew up with industrial food in the city, you may not realize a loss. Instead, you may feel a sort of disconnect, a yearning for community."[60] Here she is referring to the fact that the community was built on neighbors coming together surrounding harvest and farm activities that needed more hands in order to complete a task. Working together as a community surrounding the food that nourishes that same community is a part of our nature and a part of our human connection. "Food—the growing of food, the preparation of food, and the sharing of food—is, after all, at the root of all culture."[61]

A study from the University of Oxford reveals that there is a connection between social eating and happiness.[62] Humans build social connection through eating together and feel more trusting of one another, but the study also showed that their general feelings about themselves increased in a positive way. The author suggests that "communal eating may have even evolved as a mechanism for humans" to engage in social bonding.[63] It is especially important to share a community meal during stressful times, and while we cannot physically sit at the same dinner table right now because of the coronavirus as we must stay 6 feet apart, perhaps there are creative ways that communities and neighbors could share a meal from their front porches. Social bonding like this increases connections to local communities and strengthens connections that neighbors can depend on in times of need.[64]

WHY FOOD

As you can see, food is ingrained in the conversation of urban gardening and food production. Food histories cannot be separated from this conversation.

Cooking is also relevant to the ways that we can cope with this pandemic. For many people living within the middle class, leaving

59 Nordahl 2009
60 Nicole Kistler Studio 2013, 11
61 ibid 10
62 Dunbar 2017
63 University of Oxford 2017
64 Dunbar 2017

the house everyday is part of a normal routine. Wake up, get ready for the day, go to work/school/errands, come home, relax, sleep, and start over again. This very simplified timeline is, of course, missing the big thing that we do daily, eat. Food and eating can really help create a routine despite the lack of going out of the house. Not only can our daily scheduled meals become ritualistic, they can also be a form of stress relief when everything feels a bit unsettled. Every day I see constant updates from my friends from all over the country, mostly via Instagram stories, of what people are cooking. My husband and I have had many texts asking about how to start a sourdough starter (we've had a starter for over 6 years now), and seen tons of posts coincidentally featuring the same dish being cooked on the same night on opposite sides of the country. Cooking for millennials has become more fun, especially for those people who have not had the time or interest to do it in the past.

According to Michael Pollan, households in America are spending twenty-seven minutes a day preparing meals, half of the amount of time that was spent cooking just 50 years ago, yet we spend more time watching cooking shows, reading about food, and eating at restaurants than ever before.[65] He ponders that perhaps the reason that we are spending more time thinking about cooking and food lately is that there is something about it that we miss. Cooking food gave humans a reason to come together for a shared meal, as it took more time and required more appreciation than just eating while gathering. A meal, he says, "is a foundation of family life, the place where our children learn the art of conversation and acquire the habits of civilization: sharing, listening, taking turns, navigating differences, arguing without offending."[66] When food comes from elsewhere and is not prepared in the home, it becomes a commodity. I think that a good cook needs to not only understand what flavors go together, but also understand where food is coming from, which is part of the reason I embarked on the research of food in Seattle. Not only will that help inspire taste combinations, but also encourage greater thinking about the world.

But why are we drawn to cooking? Stress cooking can be a form of stress relief, according to an article on epicurious.com.[67] During a time when we're struggling through various emotions, cooking can act as a "stabilizing force," which "can carry people

65 Pollan 2014
66 Pollan 2014, Chp 1
67 Tamarkin 2020

through highs and lows."[68] You can be emotionally stabilized through precise chopping, and following instructions as that gives a task that needs to be completed with enough concentration that thinking about something else is near impossible. Right now we are thrown into a world where so frequently in the past few weeks I've heard people say "what is time?" since we have no real schedule and only time to figure out how and what to do. There are no scheduled hiking excursions, shopping trips for anything other than groceries, dinner dates (unless you count the ones we're holding on Zoom), so how can we fill the time productively and without a constant peek at the phone checking for additional news updates? We need to go to a place that will tell us what to do. One of those places is a recipe.

Many people have been looking to chefs to figure out how to feed themselves during this time as they are used to eating food out. Just like everyone else, chefs too are struggling with not being able to spend time with others and cook daily. Samin Nosrat, author of *Salt Fat Acid Heat*, has done various things to enrich the life of others lately. She has not only started a podcast, but has also invited us into her home for dinner by sharing a lasagna recipe and inviting others to cook with her and then eat with her live on Instagram.[69] Despite restaurants being closed, chefs are still finding ways to bring people together and help cook a meal. Nosrat is answering cooking questions on her podcast, but other organizations and individuals are helping answer immediate questions about what to cook with the ingredients they have via Instagram, bringing us back, through technology, and grounding us into the kitchen.

In a 2016 psychological study, it has been suggested that "everyday things like cooking and baking make the group feel more enthusiastic about their pursuits the next day."[70] While the study itself looks into creativity in general, it does consider cooking a creative endeavor.[71] In order to deal with anxiety and depression, some therapists have been encouraging patients to spend more time in the kitchen as these studies have shown that cooking and baking could be used as a therapeutic tool. While baking, the person is in control, perhaps more than at any other part of the day, of what is being added into the recipe. "In order to put together a good meal, cooks have to be constantly in the moment, adding ingredients, adjusting the heat of the stove and tasting their food to make sure everything will come out alright—all of which can be

68 Tamarkin 2016
69 Nosrat 2020
70 Lewis 2016
71 Conner, DeYoung, and Silvia 2018

helpful techniques in treating some forms of mental illness."[72] The article that discusses this research ends with this uplifting thought: "anyone in need of lifted spirits should consider pulling out the flour and warming up the oven."[73] Perhaps subconsciously we realize this, and this is why all the flour is sold out at the grocery store! Many people in quarantine are cooking because they have to as restaurants are closed, but in reality it is also helping with our mental health. As food is a necessity in life, helping provide it for ourselves is mentally impactful to our wellbeing.

72 Lewis 2016
73 ibid

Early plums in Seattle, harvested in July 2018

CLIMATE CHANGE

TRACING FOOD

Where does the food on your plate come from? In the produce section of a grocery store it sometimes will say local or highlight a state or a country. Mostly when buying food, where it comes from does not cross our minds. Would it be different if your food was coming from a farm nearby or a farm in New Zealand? It should actually make a difference to you. Your food's traceability is a way to find out where your food comes from. More recently traceability became common in order to figure out where contaminated food was coming from for recall purposes. In the past decade or so of food contaminated with salmonella or E. coli, tracing allows stores and individuals to see where it is coming from and how to prevent future outbreaks, but traceability is also critical when thinking about carbon emissions. Food products can be traced on markers or stamps that are found on a carton or a sticker that could help with tracing a product back to a specific farm.[1]

Many different tracking software systems exist that work more closely with specific grocery stores or products that are able to see how the product got to the store by allowing customer comments and then figuring out the conditions of the truck that was driven and the store that they are being sold at. Because of this, they're actually able to make sure more produce is sold as they observe the supply chain.[2] Food traceability creates more transparency in the food supply chain. Just sharing the information about how food traveled to get to the grocery store could, and perhaps should, be a factor in food selection. A great way to think about it comes from Valerie Seagrest, a nutritionist and Muckleshoot Tribe member, who compares the journey that blueberries take from New Zealand to how we feel after a long flight.[3] The berries, too, are shriveled, dehydrated, and tired. Why should this be the food that we are eating? When getting New Zealand blueberries, the berries are packaged and shipped on a plane that travels 12 hours and then they get on a truck to get to the store, are those berries still as good as the ones that were driven only a couple of hours to us from, say, Eastern Washington? Wouldn't it be better to wait until they are in season here or eat the ones that were frozen at peak harvest in the winter? These are some of the critical

1 Lödige 2019
2 Brown 2016
3 Segrest 2019

questions that we should be thinking about when selecting our food. Urban food production completely eliminates the need to ask and consider these questions as you know exactly where that food is coming from and how it was grown.

PROJECT DRAWDOWN

A nonprofit that aims to spread information about climate solutions, Project Drawdown is a great resource that lists the ways in which greenhouse gas emissions could decline. They provide research and assessment to help reduce global warming. Though they do not actually implement these suggestions, they hope to share the information and allow for the available infrastructure to step up to these ideas.[4]

They currently have two scenarios on their list of solutions, depending on the amount of change predicted to occur. Within both of these lists, two of the top four solutions are food related: reducing food waste and eating a plant rich diet. Seattle is already ahead of the game in terms of reducing food waste, and though this research isn't a push for eliminating non-plant based food from our diet, it focuses primarily on fruits and vegetables as they are the most effective in an urban environment. The goals of this research are to increase the connection between people and nature, recognizing the fact that we are all a part of nature, and recognizing where food is coming from. The more we can appreciate the trees and plants that grow in the city as something

4 "Project Drawdown"

Snapshots from Project Drawdown's projections

SOLUTION	SECTOR(S)	SCENARIO 1 *	SCENARIO 2 *
Reduced Food Waste	Food, Agriculture, and Land Use / Land Sinks	87.45	94.56
Health and Education	Health and Education	85.42	85.42
Plant-Rich Diets	Food, Agriculture, and Land Use / Land Sinks	65.01	91.72
Refrigerant Management	Industry / Buildings	57.75	57.75
Tropical Forest Restoration	Land Sinks	54.45	85.14
Onshore Wind Turbines	Electricity	47.21	147.72

SOLUTION	SECTOR(S)	SCENARIO 1 *	SCENARIO 2 *
Onshore Wind Turbines	Electricity	47.21	147.72
Utility-Scale Solar Photovoltaics	Electricity	42.32	119.13
Reduced Food Waste	Food, Agriculture, and Land Use / Land Sinks	87.45	94.56
Plant-Rich Diets	Food, Agriculture, and Land Use / Land Sinks	65.01	91.72
Health and Education	Health and Education	85.42	85.42
Tropical Forest Restoration	Land Sinks	54.45	85.14

to be nurtured and cultivated, perhaps the more invested in eating healthy, local food that we can be, which ultimately may increase an interest in a plant rich diet.

CLIMATE CHANGE + PLANTING NATIVE

"Apart from ripping out lawns, the most straightforward way to turn a garden into a force for conservation is to encourage the planting of native species"

Emma Marris, *Rambunctious Garden: Saving Nature in a Post-Wild World*, Chp 9

As you'll see in the lists at the end of this document, there are so many native edible plants that grow in the area. These plants can provide food for humans, not require much maintenance, and be a great native habitat that can support hundreds of different species. An example of such a garden in Marris's book includes 375 species in a single Seattle yard, including at least two endangered species.

"As microclimate changes, so will the plants that can live there with little or no water or fertilizer. So if gardeners get turned on to native plants because it is more environmentally friendly to grow them, they may have to think again, or maybe just start looking at native gardens a bit to the south or downhill of them for inspiration and do a little assisted migration of their own."[5] For vegetables it is a little different anyways as most of the ones we grow have been modified or bred to be something different than what was exactly considered native. So a balance must be found. There is less of a worry about invasive species with edible plants, which makes planning a vegetable garden easier. Fruit trees are also great solutions for climate change as they only need watering for the first couple of years and a full grown tree sequesters up to 260 pounds of carbon annually.[6]

CARBON EMISSIONS OF FOOD

ORGANIC

Approximately 9% of greenhouse gas emissions in the US comes from farming, most of which comes from the chemicals in fertilizers that are used in conventional farming practices.[7] Organic farming practices can reduce the levels of nitrous oxide emissions using methods like crop rotation and cover crop usage as these practices support healthy soil. Soil is critical to the ecological system, and healthy soil is beneficial for reducing emissions since it releases less nitrous oxide. Unlike large organic farms which still cater to a larger population and tend to use various methods that allow them to be certified as organic but emit more greenhouse gases,

5 Marris 2013, Chp 9
6 Nabhan 2013
7 Garcia and Friedman 2019

smaller farms, even those that are not certified organic, generally have a much smaller carbon footprint. They are much closer in their relationship to their land and their produce, with most small farmers living on the land that they tend. Many farmers that sell at farmers market and have CSAs are technically organic, but do not go through the process of getting the certification because it is expensive and they do not think it is necessary for their consumers. This is something seen over and over again, and I have noticed it especially in the transparency of Local Roots Farm in Duvall, WA, where I am a member of their CSA.

PLANTING A GARDEN

Growing your own fruit and vegetables reduces your carbon footprint since they only need to travel with you to get to your kitchen. Gardens themselves can, however, have carbon reduction effects depending on the plants growing in them. Legumes are great for this as they absorb nitrogen from the air and release it in the soil. Not only is that beneficial during the time they are planted, they also "lower the greenhouse gas emissions of crops planted there after they are gone,"[8] in essence paying it forward to the next growing cycle. Beans are also the lowest carbon emitting protein. Soil health is critical for healthy food and healthy ecosystems.[9] By growing a garden and planting regenerative crops, you're supporting your neighborhood's soil.

CLIMATE CHANGE IMPACTS

By increasing plant cover in cities, urban gardening can make a difference in minimizing carbon dioxide emissions. Urban gardens can increase food security, bolster pollinator habitat, and reduce food waste as making food visible can help bring people closer to their food. Just having that visual connection can help with showing the importance of the food, therefore making people reconsider before wasting. Just by decreasing the distance food travels and planning community gardens in cities greenhouse gas emissions could be reduced by 4.3 million metric tons per year, according to the Ellen MacArthur Foundation.[10]

It is estimated that 40% of wasted food is thrown out by consumers in the US. Why? On the whole, Americans purchase more food than they need and they waste more food that they do not finish on their plate. This shows that we do not have a great appreciation for

8 Egan 2019, Chp 7
9 ibid, Chp 20
10 Garcia 2019

our food, mostly because we do not think much about where it is coming from. As incomes go up, people tend to spend more money on food and as they are unable to eat it all, they accrue more food waste. More than $160 billion is wasted annually on food in the US. That carbon footprint from food waste is 3.3 billion tons, an important factor to be considering when planning for cities. If that waste could be repurposed and instead just one third of the food that goes uneaten could be distributed to those in need, it would statistically be able to feed all of the Americans who say they are food insecure.[11]

The City of Seattle is progressively continuing to reduce emissions through a citywide composting program. Of course, it isn't easy to fully enforce the law that all food waste must be composted, but about half of all food waste in Seattle does make it out of the landfill and into the municipal compost. Much of the food waste in cities comes from restaurants and grocery stores, so citywide composting programs are able to drastically reduce the amount that goes into landfills. Ideally regulations such as these and laws that aim to ensure there is less food that ends up in a dumpster encourage additional reasons to consider wasting less food and using it more.[12] Seattle Public Utilities (SPU) created a "Love Food, Stop Waste" program in 2015, which aimed to provide strategies to save food instead of tossing it. This included ideas to roast pumpkin seeds and utilize stems that are often considered waste. As highlighted by SPU, a frequent problem is not knowing how to properly store produce so it goes to waste because it goes bad.[13] A great tip is that in order to reduce waste, you can freeze almost anything before it spoils to use later.[14]

From the start of this pandemic, most people were able to quickly change their habits based off of state restrictions. Climate change is also a manner of changing our habits, by changing little things within our habits, how can we make a change for the climate. The pandemic has shown that what one person does affects others pretty clearly. By coming together as a community to fight against this issue we can take small steps towards being better about the environment. Eating seasonally allows for peak flavor and also more enjoyment, which in essence encourages less food waste.[15] Regionally sourced food allows for seasonal produce and helps the local economy.

11 Sengupta 2017; Egan 2019
12 Nierenberg 2019
13 Seattle Public Utilities 2016
14 Egan 2019
15 Egan 2019

FOOD STORAGE CONSIDERATIONS[1]

COUNTER

Banana, persimmons, pomegranate, tomatoes, apricots, peaches, plums, nectarines, avocados, lemon, limes, oranges, basil

PANTRY

Onions, shallots, garlic, winter squash, pumpkins, watermelon, sweet potato, potato, yams

FRIDGE

KEEP DRY: berries, allow for air circulation

CUP WITH WATER: asparagus

CUP WITH WATER, SEALED: leafy herbs

PAPER BAG: mushrooms

PLASTIC BAG: beets, broccoli, cauliflower, carrots, corn, lettuce, leafy greens, wood herbs, cherries, Brussels sprout, celery, green beans, peas, artichoke

LOOSE IN CRISPER DRAWER: eggplant, turnips, radishes, cabbage, carrots, apples, pears, kiwi, melons, summer squash, peppers, zucchini, cucumbers

1 Imperfect Produce Storage Guide; Love Food Stop Waste

DEFINITIONS

COMMUNITY GARDEN

“A piece of land gardened collectively by a group of people” in Seattle, the City’s community gardens are called P-Patches

CSA (community-supported agriculture)

“a model of farming and food distribution in which community members support a farm by paying an annual or quarterly fee in exchange for a weekly share of the farm’s products”

FOOD CULTURE

“shared values, traditions, and practices surrounding food; food culture expresses itself within society, community, organization, school, and family”

FOOD DESERT

“An area of low food security where residents have limited or no access to healthy foods and fresh produce, and are served mainly by fast food restaurants”

FOOD JUSTICE

“An approach that advocates for fair distribution of food and that views food security as a basic human right”

FOOD LITERACY

“Understanding the story of one’s food, from farm to table and back to the soil; the ability to make informed choices about food that supports one’s health, community, and the environment”

FOOD MILES

“The distance food travels to get from farm to fork; considering in assassin the carbon emissions and environmental impact of transporting food”

FOOD SECURITY

“Availability and access to safe, nutritious food for sustaining an active and healthy life, without risk of hunger or starvation”

FOOD SOVEREIGNTY

“The right of people to define their own food system”

FOOD SYSTEM

“The interdependent ecologies, people, and processes that bring food to a community; this includes a cycle of producing, storing, processing, transporting, marketing,retailing, preparing, and eating food”

FOODSHED

“A defined area in which food is grown, processed, purchased, and eaten; a local foodshed is typically defined as food grown within a 150-mile radius”

INDUSTRIAL AGRICULTURE

“Modern farming that is heavily reliant on machines and emphasizes high production”

LOCAL FOOD

“Food grown, processed, and distributed within a certain radius of one’s home”

LOCAL FOOD SYSTEM

“a system of small-scale food production focused on growing and selling food locally, sustaining local economies and ecosystems”

SUSTAINABLE AGRICULTURE

“Farming that is socially just, humane, economically viable, and works with the natural environment rather than trying to control it”

TRACEABILITY

“the ability to track the history of a food product through the production and distribution process”

URBAN AGRICULTURE

“The practice of growing, processing, and distributing food within a city”

According to nourish.org

Apple in Crown Hill

HISTORY

SITE SELECTION

The original site for this exploration was supposed to be West Seattle, but throughout this process the site has expanded further into Seattle as a whole. West Seattle is an area important to the Coast Salish people, the area at which the Denny Party first arrived in Seattle, and also an area that is now considered a food desert. By exploring what people ate in this area throughout history, beginning with the Coast Salish peoples through to modern day Seattle, research can increase our understanding of the connections we have to food and help guide the development of an app that connects people to food growing in our urban public landscapes, and to each other.

ECOLOGICAL CONDITIONS

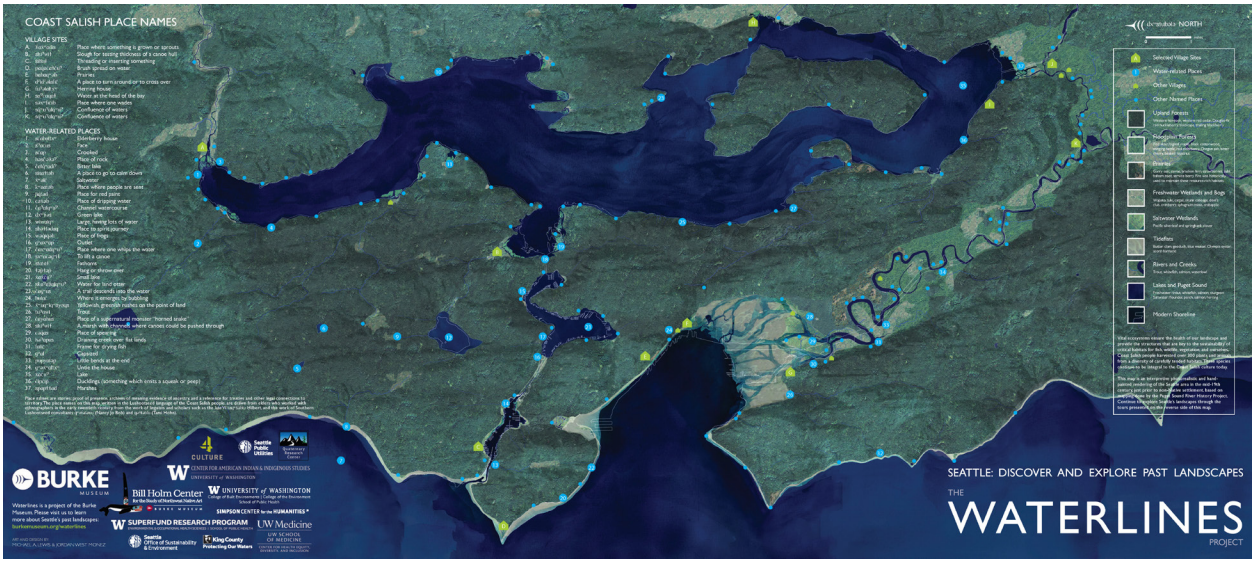
Geologically, Seattle is in the Puget Sound Lowland. This area has been shaped by retreating glaciers, landslides, streams, as well as people. Seattle's highest point is in West Seattle at 520 feet above sea level.[1] This area is rich in its diversity of topography, ecology, and food. The area was abundant with game, berries, salmon, and so many additional edible plants, roots, and bulbs. The Burke Museum's Waterlines project and map (below) shows the various types of vegetation and activity that existed in this area prior to colonization. Seattle was a mix of upland forests, prairies, wetland, and tideflats before Euro-American settlers arrived and pushed the Indigenous tribes out, destroying the forests and the prairies in order to build the city of Seattle.[2]

1 Troost and Booth 2008
2 "The Waterlines Project" 2017

Left: view towards Seattle and Mount Rainier from Mount Pilchuck

Below: Waterlines map

Courtesy of the Burke Museum 2017



FOOD TIMELINE

1878
SEATTLE MALTING AND BREWING, THE PREDECESSOR OF RAINIER BREWERY, ESTABLISHED

1893
MAISON RICHE, SEATTLE'S FIRST UPSCALE RESTAURANT OPENS IN PIONEER SQUARE

1855
HENRY YESLER OPENS A COOK AND MESS HOUSE SERVING FOOD

FOR 16,000+ YEARS
COAST SALISH PEOPLES THRIVE IN THE PUGET SOUND, PRIMARY FOOD SOURCES INCLUDE SALMON AND SHELLFISH, NATIVE PLANTS AND BERRIES

PANIC

1800 | 1820 | 1840 | 1860 | 1880

1792
FIRST SURVEY OF THE PUGET SOUND BY GEORGE VANCOUVER, A BRITISH CAPTAIN

1833
HUDSON BAY COMPANY BUILDS A TRADING SITE AT FORT NISQUALLY

1851
THE DENNY PARTY ARRIVES AT ALKI POINT, ESTABLISHING THE FIRST WHITE SETTLEMENT

1896
CHINESE INGREDIENTS ARRIVE ON THE NIPPON YUSEN KAISHA STEAMSHIP. PRODUCTS INCLUDE DRIED DUCK, ROOTS, HERBS, TEA, SMOKED MEAT

1907
PIKE PLACE PUBLIC MARKET IS OPEN FOR BUSINESS

1914
FISHERMEN'S TERMINAL OPENS

1942
JAPANESE-AMERICANS SENT TO CONCENTRATION CAMPS, CLOSING MANY LOCAL FARMS AND RESTAURANTS

1953
PUGET CONSUMERS CO-OP (PCC) OPENS AS A FOOD CLUB

1964
PUGET SOUND MYCOLOGICAL SOCIETY FOUNDED

1974
BOLDT DECISION; 50% OF HARVESTABLE SALMON GOES TO TRIBES

1970
PICARDO FARM ENCOURAGES COMMUNITY PLOTS ON THEIR LAND

1979
P-PATCH ADVISORY COUNCIL IS FORMED

2010
DECLARED "YEAR OF URBAN AGRICULTURE" BY THE CITY OF SEATTLE

2016
NO DEFINITIVE ANSWER TO THE SEATTLE PUBLIC LIBRARY FOUNDATION'S REQUEST TO DEFINE SEATTLE CUISINE

OF 1983

WWI LIBERTY GARDENS

GREAT DEPRESSION

WWII VICTORY GARDENS

COMMUNITY GARDEN MOVEMENT

1900 1920 1940 1960 1980 2000 2020

1899
CARNATION BEGINS CANNING EVAPORATED MILK IN KENT

1904
FIRST JAPANESE RESTAURANT IN SEATTLE OPENS, MANEKI

1928
UWAJIMAYA GROCERY STORE OPENS

1982
COSTCO OPENS

1997
ALLRECIPES.COM'S PREDECESSOR, COOKIERECIPE.COM, FOUNDED

Vancouver's Puget Sound Chart, courtesy of: https://www.eopugetsound.org/articles/puget-sound-uniquely-diverse-and-productive-estuary
Fort Nisqually, courtesy of University of Washington Libraries, Special Collections, WAS0363
Rainier Bottle; courtesy of MOHAI, 1981.7248.9
Pike Place Stall; courtesy of University of Washington Libraries, Special Collections, SEA0465
Camp Harmony Internment camp; courtesy of Seattle Post-Intelligencer Collection, Museum of History & Industry, Seattle; All Rights Reserved. 1986.5.6681.1
Marlon Brando and Bob Satiacum; courtesy of MOHAI, Seattle Post-Intelligencer Photograph Collection, 1986.5.4414.1
Peter Wollan; courtesy of University of Washington Libraries, Special Collections, MPH1610

INDIGENOUS HISTORY + FOODS

"What we do to the earth we do to ourselves."

—Chief Seattle

Kate Albing, *Eating for Ecoliteracy, The social praxis of sustainability at a residential environmental education center*, 2019, 102

Long before Euro-American settlers arrived, Native Coast Salish people lived around the Puget Sound. The indigenous people that lived in the area of what is now West Seattle were mostly the Duwamish Tribe. There were several permanent villages that were built along what is now called the Duwamish River, and additional camps were set up in other locations for living during the summer. Unlike many other indigenous cultures, most Coast Salish tribes did not live as transient of lives. Because of the abundance of available food, most had just two main camps, one for the winter and another for the summer to bring them closer to the river for fishing.[3] Elliot Bay, the Duwamish River, and the tideflats around them provided for a variety of fish and seafood that was caught and preserved for winter use. In addition to the fish and seafood harvested from the river and bay, many plants and berries were collected inland, the lists chapter shows many of the native plants that were collected for eating. Most edible plants and bulbs were foraged though many of them grew in areas that were highly maintained for better production and health. The native people of the Pacific Northwest "burned prairies to keep the encroaching forests at bay" and these measures encouraged the growth of things like camas that only grow under certain conditions.[4] Foraged berries, nuts, and roots were preserved and dried for the winter.

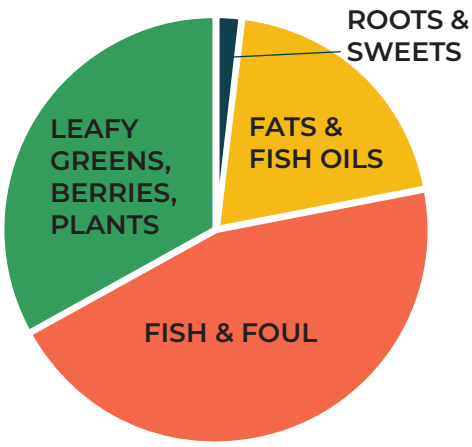
After the Denny Party arrived in 1851 to Alki or Prairie Point, life drastically change for the Coast Salish people.[5] The Coast Salish

3 Dern 2018, 24
4 Jacobson 2001, 11
5 Thrush 2007

Salishan man named William We-ah-lup smoking salmon, Tulalip Indian Reservation, Washington, 1906

Image courtesy of: University of Washington Libraries, Special Collections, NA709

people were already familiar with white ships and traders from the Nisqually Fort, but these were the first people that came to inhabit and colonize their lands. Initial friendly trading quickly shifted to new settlers pushing the Native people out and into reservations, taking over the bulk of the fishing, which led quickly to overfishing and not upholding treaties. It wasn't until over a hundred years later, in 1974, that the Boldt Decision ruling upheld the rights of the Coast Salish tribes to allow them 50% of the annual harvestable salmon.[6] As life changed, many indigenous people changed their ways and food habits because they were forced into reservations and to change their ways of fishing and gathering their food. Not all customs and traditions have been passed down as the lifestyle is now not the same. Today Coast Salish people are trying to reestablish the lost traditions and recipes of their ancestors. Restaurants with Native chefs like at *Off the Rez* at the new Burke Museum are opening and cultural foods are being celebrated and shared with the community again.[7]



Traditional Salish food mound, interpreted from 2019 Valerie Segrest lecture

Life for Native Americans has been completely changed in the past 3 centuries, so much so that it barely has any resemblance to what it was like before. Native Americans today live all over the state, both in and out of reservations. The Native Americans who

6 Dern 2018
7 ibid

Fishing camp at Wing Point on Bainbridge Island, ca. 1905

Image courtesy of University of Washington Libraries, MOHAI, 83.10.6,950

live on reservations mostly rely on grocery stores for their food and do not practice the growing and foraging that their ancestors did throughout history. However, a lot of that is changing as the coronavirus has also changed their food access. Now many are shifting their food practices back to what they had in the past "seed saving, canning, dehydrating—that their forebears developed to survive harsh conditions, with limited supplies."[8] An interview in a recent New York Times article equates the stay-at-home order in North Dakota and the request to listen to what the government is saying to the "1700s Native nation" when Native Americans began to be sent to reservations, specifically from the East Coast.[9] This paradigm that arrived much later to the Pacific Northwest is repeated today. The customs and ways that were necessary to survive hundreds of years ago are equally valid today to grow and preserve food for future use as food in grocery stores may become scarce with lack of workers in all aspects of the food supply industry. Local food will become the only way to truly trust that the community will have enough food, especially on reservations as they often do not have as many grocery options as we do in cities. This includes not just growing, but also foraging. Traditions that have become less relevant to the times are becoming important again. Recognizing plants and weeds that still thrive today in forests and prairies is critical, some believe that "practicing our foodways is a sign of resiliency" and coming together as community is becoming even more important now.[10]

Though there were plenty of plants and berries that were consumed by the Native people of the area, so much of the stories and diet was about salmon. The first people who resided in the

8 Krishna 2020
9 ibid
10 ibid

Left: Makah man and woman with canoe and fish, ca. 1900

Image Courtesy of Anders Beer Wilse Photographs, Museum of History & Industry, Seattle; All Rights Reserved; 1988.33.53

Right: Women and food during a salmon bake at Makah Indian Reservation

Image courtesy of Museum of History & Industry, Seattle; All Rights Reserved; 2004.43.534

SALMON

The most traditional way of cooking salmon, according to native traditions, is over an open fire either on planks or wrapped between sticks to stop the salmon from curling, as illustrated in the image on the left. This is not only a process that was used for generations but one that is still used today. I was able to attend the United Indians' Seafair Indian Days Powwow in 2019 and witnessed and tasted salmon being cooking over an open fire.

There are five local Pacific Northwest salmon species: Chinook/King, Chum/Dogfish, Coho/Silver, Pink/Humpie, and Sockeye/Red. This recipe combines Pacific Northwest Indigenous traditions[1] and modern techniques[2], adapting the recipe to at-home cooking. This recipe could also be adapted to the grill or be baked on an alder plank.

1 unknown 2005
2 Ray's Boathouse and Cafe; Atkinson 1999

King or Coho Salmon Fillet

2 tbsp coarse salt

4 tbsp brown sugar

Ground pepper

Olive oil

Rinse and dry salmon fillet.

Combine dry ingredients in a bowl. Sprinkle half of mixture on bottom of a flat dish that fits salmon. Lay salmon skin side down into the mixture. Press the rest of the mixture on top of the salmon. Cover pan and chill for 2-4 hours.

Preheat oven to 350°. Quickly rinse salmon and pat dry. Oil a baking sheet and place in salmon fillet. Bake for 10-12 minutes until just done. Serve promptly.

Puget Sound came from various traditions and stories, but for all, their diet had a focus on salmon. It is said that up to 90% of the diet of these Coast Salish tribes could have been made up of salmon, though that contradicts with Valerie Segrest's food mound (Dern 2018). Salmon was the way of life, and the people who lived in this area were so knowledgeable and taste oriented that they "could tell, from one bite of food, exactly what stream a fish had come from and which group of Indians had prepared it."[11] There are a multitude of recipes for salmon that include curing, smoking, and drying, but the most common among all of the tribes was barbecuing. As Vine Deloria Jr. writes, "by barbecuing, the spirit of the salmon was allowed to rise with the smoke of the fire and observe the thankfulness of the people," highlighting not only the significance for the flavor, but also the ceremonial aspect of the meal process.[12] Upon the initial arrival of Euro-American settlers in the Pacific Northwest region, Native Americans were hesitant to trade or sell them salmon because they were concerned that they would not respect the fish or appreciate the annual ceremonial aspect of the first salmon run.[13] Looking back on their hesitation, they were justified in feeling that way. The salmon today are fighting for their survival because of overfishing and pollution in the salmon runs.

Salmon is still a key species in the Pacific Northwest that we rely on not only for food, but also as a marker of the health of our waters: the lakes, rivers, and streams around Seattle. In West Seattle, historically salmon would go up the Duwamish River to find their spawning grounds or enter Longfellow Creek to build their redds, lay eggs, and ultimately die, fertilizing the trees and providing food for birds that eat them.[14] Today, the Duwamish is no longer viable for safe passage. The river has become a hazardous place for salmon not just because of the pollution from decades of industrial waste but the channelization that occurred in the early 1900s that destroyed the protected habitat and shorelines and the rising temperature of the water. By 1940, what was once a 9-mile meandering river became a straight 5.5-mile stretch, which many are trying to amend and restore to a healthier habitat. The EPA designated the Lower Duwamish River as a Superfund site in 2001, with findings that show at least 40 different substances that pollute the waterways and are hazardous to human health, which means they are also detrimental to the health of the river and the

11 Deloria 1977, 8
12 Deloria 1977, 18
13 ibid
14 McGowan 2017

salmon.[15] Since then, the EPA, along with other organizations including the Duwamish River Cleanup Coalition have been working to fund projects to clean the water and help the salmon, though the problems for the salmon and the habitat are numerous.

There are various additional organizations that aim to help the health of salmon, including Salmon Safe, that works with restaurants, agriculture, buildings, and more to create a certification that shows that these places are doing their best to keep waterways clean and safe for the token species of Seattle (Salmon Safe 2020). The plan to clean the Duwamish is a "hybrid future [...]—part habitat, part active industrial waterway," as it cannot be restored to what it was, there's no clear baseline to return it to and the industry cannot just be shut down.[16] The cleanup process is difficult and perhaps not the ideal model for future river cleanups, but it is a great step for the neighborhood surrounding the river.

EURO-AMERICAN SETTLERS

In 1851 the Denny Party arrived on Alki point. Traders had long been active in the Puget Sound and the indigenous people were already greatly diminished from the spread of disease from their interactions, but these were the first white people to come and live in the area. Early Euro-American settlers arrived to the Pacific Northwest in two main ways, the first, like the Denny Party, was by ship, while the second was on wagons that came drawn by horse over prairies and mountains from the east. Arrival meant that it was time to build a shelter, but it was long before kitchens began to be built as a part of the home. Stoves and the like were not items that made the initial trek. Most cooking happened over a fire using a Dutch oven or similar heavy, cast iron pot that made the journey.[17] A kitchen was initially not a designated room, but a separate area in a log cabin or perhaps an attached lean to. Often the fireplace would be used for both heating as well as cooking. Food was brought along for the journey and then along with the building of a shelter, land had to be cleared and seed sown in order to start a garden. Many of the initial foods that were brought included flour, butter, tea, and coffee.[18] Settlers did learn from Native Americans to harvest local berries and foods as well, which allowed for some comfort as berries and game was abundant.[19]

"The settlers purchased or traded for fish, elk, and berries from Native Americans, but they had little desire to use unfamiliar native plants such as camas or fern roots. There is also little evidence that immigrants wanted to learn Indian cooking methods, preferring familiar food and recipes"

Jacqueline Williams, *The Way we Ate: Pacific Northwest Cooking, 1843-1900*, 1996, 65

15 Department of Ecology State of Washington; Duwamish River Cleanup Coalition 2016
16 Marris 2013, Chp 9
17 Williams 1996
18 Dern 2018
19 ibid

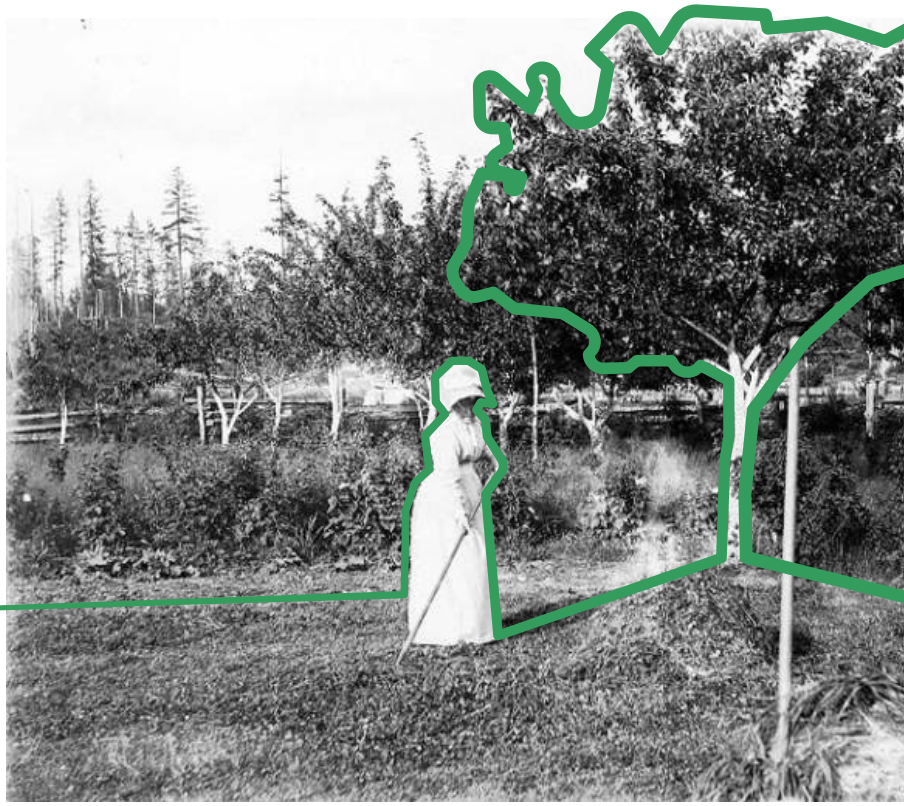
"First pioneers [...] either baked bread or went without."

Jacqueline Williams, *The Way we Ate: Pacific Northwest Cooking, 1843-1900*, 1996, 75

The Duwamish River quickly changed from a healthy river for fish into an industrial shoreline. The area above the banks was logged to allow for both settlements and industrial buildings. Initially the settlement at Alki had a grocery store, meat market, and a post office. Once Arthur Denny moved on to Seattle, he built another grocery store to rival the one at Alki.[20] These newly developed cities began selling stoves and groceries and bread, but families who did not live near cities had to manage on their own for flour and cooking surfaces.[21] Through the mid 1850s, most food that was prepared or processed had to be imported. Fort Vancouver imported "grains, fruits, and vegetables, vast amounts of staples such as coffee, cocoa, tea, dried fruit, oil, pepper, sugar, and vinegar."[22] During slower times in the origin ports, ships would only stop at harbors where they were guaranteed a lot of sales. As there were only 170 settlers living in King County in 1853, there were not many ships that would stop so staples such as butter, flour, and sugar were scarce.[23]

The Denny family is said to have made biscuits from solely potatoes when there was no flour available.[24] Wheat farming

20 Dern 2018
21 Williams 1996
22 ibid, 78
23 ibid
24 ibid



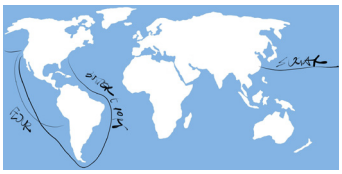
Woman gardening in William D. Wood's orchard, 1898

Image courtesy of University of Washington Libraries, Special Collections, SEA0057

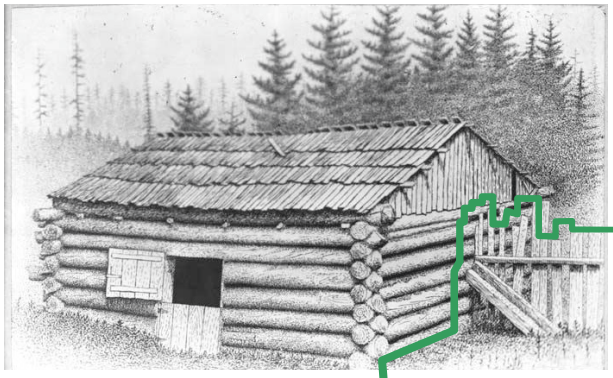
became a critical industry venture, and fields popped up near Seattle but soon grain mostly came from Eastern Washington.[25] Flour was quite a hot commodity and life without bread was hard since bread was a major staple for most Euro-Americans with any meal. There was little bread locally for many reasons, the first being that it takes several years for a good wheat harvest to establish, and the second was that weather made it difficult to plant as well as harvest, since it needs to dry after harvesting. With the wet conditions during harvest time, a fungus can attack the wheat, making it unusable.[26] Another issue was that wet grain would sprout and any baked bread ended up sticky and strange as a result of the sprouted grain. Any imported flour could also have problems because of issues and critters in transportation by ship. Demand for flour is perhaps almost as high now, not because there is not any bread to be had in the grocery stores, but because people are turning to baking more bread and sweets than they had in the past. People have the time and the opportunity to bake during the stay at home order, living life a little differently.

Until gardens were established and food was preserved locally, there was a long period of time where Euro-American settlers relied on imported food for familiar flavors. Local food was hard

25 Dern 2018
26 Williams 1996, 19



Imports: flour from Chile; sugar from China; port and butter from the East Coast around Cape Horn



Top: Arthur Denny's cabin at Alki Point, ca. 1902

Courtesy of PEMCO Webster & Stevens Collection, Museum of History & Industry, Seattle; All Rights Reserved

Bottom: Two women with bucket next to group with gardening tools for Campus Day clean-up activities, University of Washington, 1908

Courtesy of: University of Washington Libraries, Special Collections, UWC4991

BLACKBERRY PIE

When I first arrived in Seattle, I quickly noticed the invasive Himalayan blackberry growing everywhere. Upon closer observation and taste test, despite the relentless thorns, the berries are juicy and tangy-sweet. I had nothing else to do but put on protective gear and forage for blackberries to freeze and to use in recipes like this blackberry pie.

CRUST

2 1/2 cups flour

1 tsp salt

2 sticks butter

1 tsp apple cider vinegar

ice cold water

Add flour and salt into the food processor with the butter. Pulse until it resembles a coarse meal. Add apple cider vinegar followed by cold water, 1 teaspoon at a time until dough just comes together.

Divide in half. Make a ball out of each half and flatten it onto two plates. It can still be thick. Chill the dough for at least half an hour.

FILLING

4 cups blackberries

1/2 cup sugar

1/2 cup flour

2 tbsp cornstarch

2 tbsp butter

Preheat oven to 400° F. Once dough is chilled, roll it into a circle that is just slightly larger than the pie tin you'll be using. Press it into the tin. Using a fork, make light holes in the bottom of the dish. Add pie weights (I reuse a pack of dry black beans) on tinfoil and blind bake the crust for about 20 minutes. The crust should be just cooked and a slightly golden color.

Mix together the blackberries, sugar, flour, and cornstarch. Remove weights and add berry mixture with dollops of butter. Roll out the second dough to seal the pie; cutting slits for air to escape. Bake for 45 - 50 minutes until crust is brown and filling is bubbly. Cool.

to predict initially as gardeners had to adjust to the new-to-them climate through trial and error. However, "in a land teeming with wild game, rivers overflowing with fish, and forests covered with wild berries, few starved" though many had to develop new recipes and techniques.[27] With the abundance of spring growth in the Pacific Northwest, "just about every family picked wild greens, such as young nettles and lamb's quarters. Before kale, chard, and lettuce poked their leafy skirts up though the garden soil, that's all that cooks had on hand."[28] Though there were plenty of food options here, it took time for settlers to acclimate.

Today foraging is becoming more popular again. People are excited about the local bounty and want to learn about edible plants in the forests and in cities. The Museum of Modern History and Industry has led foraging walks in the city and Foraging Facebook groups are constantly active.[29] See the precedent section for various tools and ways that these groups and others exist today.

It was common enough to have a family garden and even an orchard in urban areas, the McElroy family was said to have "15 apple trees, 12 pears, 10 cherries, 16 plums" in addition to various berries and vegetable gardens.[30] Two garden plots were also not uncommon for new settlers to have in order to separate early harvest from later larger harvests of staple products like potatoes and squash.[31] Drying and preserving the harvest was a must so that produce would last throughout the winter. Blackberry and strawberry parties were big events for early settlers. Families would harvest berries together and then celebrate the harvest with the community. In the fall, neighbors would come together to get apples ready for drying. This activity involved peeling apples together, playing games and telling fortunes based on how the peel came off. It was a good opportunity to sit down together as a community for the same goal, bringing neighbors together. The fruit then was strung up outside in the sun, or inside in cabins to dry out.[32] Events like these enhance overall feelings of community and create a greater understanding of the food.

Many of the fruit trees that can be found around Seattle are very old trees that were planted by early Seattleites. These trees were either planted from seeds that came into Fort Vancouver as saplings or were descendants of trees that were brought along in a

27 Williams 1996, 82
28 ibid, 91
29 MOHAI ; "PNW Women's Wild Foraging and Bushcraft Connection."
30 Williams 1996, 97
31 ibid
32 ibid

wagon from Iowa. These grafted trees came to Oregon brought by a single family, but it wouldn't be surprising if some of them ended up in Washington as well.[33] The horticulturist who brought them to the Pacific Northwest started a nursery that carried a variety of fruit trees that were distributed around the area.

SEATTLE'S SECOND WAVE

The second wave of Euro-American settlers who arrived after the 1860s were able to recreate more of their home dishes as by then there were more food options available in grocery stores. Locally grown produce also became more abundant as farms were established outside of Seattle, primarily by Italian immigrants, who sold food right from their trucks throughout the city. Despite having their farms outside the city, Italian immigrants made a huge impact on Seattle's neighborhoods today: "every May, when many Seattle backyards are fragrant with white clouds of blooming Italian prune plum trees, a prelude to the sweet purple-black oval fruit falling off trees and being cooked into compotes and jam later in the summer. Anyone with an Italian plum tree in their yard knows the legacy of their good fortune and happily shares the bounty."[34] From harvesting with City Fruit in 2018, I can corroborate that there are so many beautiful Italian plum trees

33 Williams 1996
34 Dern 2018

Berry picking, Puyallup Valley, Washington, approximately 1920

Image courtesy of: University of Washington Libraries, Special Collections, WAS0858

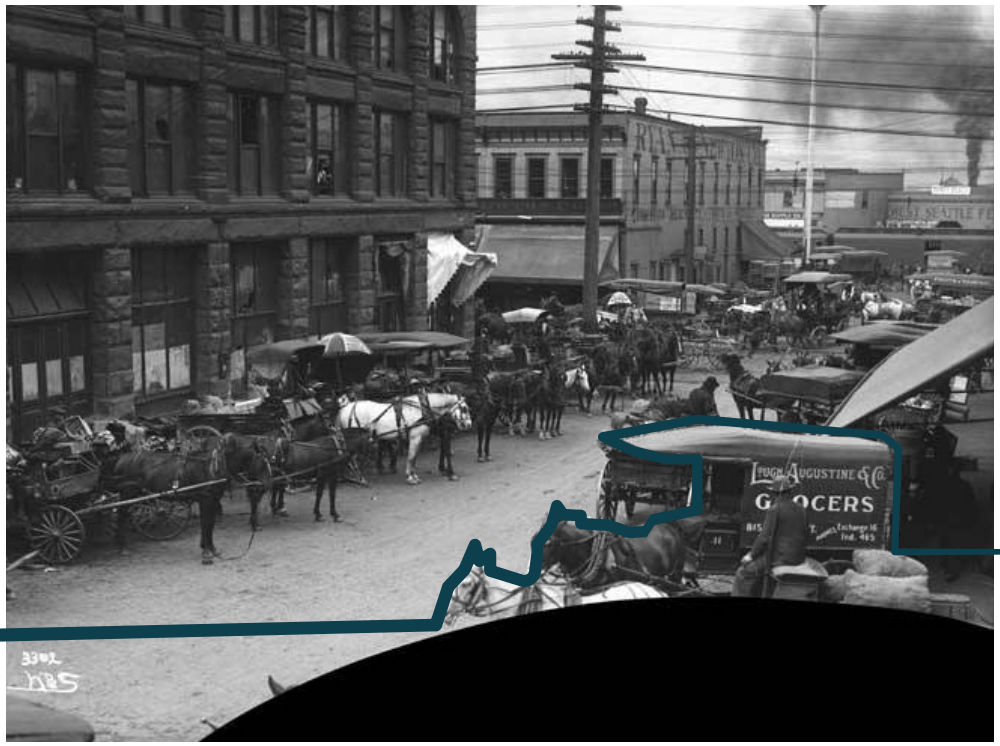
in the city in backyards and right-of-ways that do very well here. Unlike apple trees, plums do not get as many pests in this climate.

I was excited to be able to work as a harvester at City Fruit to explore the registered fruit trees, harvest the fruit, and learn about history of the fruit around Seattle's neighborhoods. City Fruit's mission is to be able to share the locally grown fruit with the city, which includes food banks, restaurants, and fruit CSA.[35] I was also excited to have an abundance of fruit at my disposal to experiment with. As someone who loves to host, I would share these goodies with my friends at any moment I could. The plum clafoutis recipe is one that I've made countless times.

By the 1890s, Scandinavian immigrants made up over 25% of the foreign-born residents of Seattle.[36] Traditional Nordic cuisine and culture was easily adaptable to the Pacific Northwest climate and landscape. The wild foods of both places are similar, as fish and seafood are staples within Scandinavia as are berries, so the traditions did not waver much. Traditional Nordic pancakes, slightly similar to Russian blini, were easy to make when there was flour and eat with the local berries collected here.

Latino families immigrated to Washington during the Mexican Revolution (1910-1920) and worked as laborers in agriculture,

35 City Fruit
36 Hegstand



Grocery wagons on Marion Street, ca. 1905

Image courtesy of: PEMCO Webster & Stevens Collection, Museum of History & Industry, Seattle; All Rights Reserved. 1983.10.7360

PLUM RECIPE

This was my favorite plum dessert recipe that I developed while working at City Fruit. It can work with any type of plum, I assure you, I've tried. It has saved me from many fruit fly fiascos as my plums would start to slowly ferment. It is a great recipe that can be made ahead of time because it is the best at room temperature. It is adapted from Steven Satterfield's recipe from Root to Leaf.

1 tbsp butter

Plums to cover the base of the baking dish, varies depending on the variety and size of plum

½ cup sugar

4 eggs

½ cup flour

¼ tsp salt

1 ½ cups whole milk*

1 tbsp vanilla extract

Preheat oven to 350.

Butter a cast iron or a heavy ceramic dish. A glass baking dish is also fine.

Halve or quarter the plums. A loose rule I'd use is to say if the plum halves are thicker than an inch, quarter them. Arrange them in the dish skin side down. Sprinkle with about half of the sugar.

In a medium bowl, whisk the eggs, rest of the sugar, flour and salt. Add in the milk and vanilla. Pour the batter on top of the plums. Some may rise up, that's ok. Place in the center of the oven. Bake for about an hour or until just set. It should be just a little wiggly in the middle.

Serve plain with a dusting of powdered sugar or a nice scoop of vanilla ice cream for some added sweetness. This is a great dish to bring to a potluck.

*This is also a great way to use up slightly funky milk.

though most went to Eastern Washington.[37] It was not until the late 1950s that Mexican cooking and restaurants really emerged in Seattle as more people from Mexico came to the Pacific Northwest.

ASIAN IMMIGRATION

Asian immigrants had very strong influences on Seattle's food culture. Though the traditions and flavors were different from their home countries which included China, Japan, Korea, the Philippines, Vietnam, and Pacific Islands, they were all distinctly different from the European traditions that were already here. Today, Asian restaurants are more common in Seattle than they are on average across the entire US.[38]

Chinese immigrants were the first Asians to arrive, bringing "fish, mushrooms, preserved eggs, spices, herbs" along with them on the journey.[39] The first known Asian-owned store opened in Seattle in around 1868 and sold various Chinese goods. Large farms that were cultivated by Asian immigrants, one of which was along the Duwamish River, produced vegetables for the area that were trucked in to the city. Asian goods began arriving from China in 1896 on regular ships that brought Asian goods to the market and into restaurants. Notably, Asian restaurants used locally available foods, especially proteins, in their recipes as they were more affordable than imported ingredients, quickly learning to adapt to the Pacific Northwest. According to a local chef, "this does not imply the dishes lacked authenticity, only that they were nontraditional."[40] This attitude and adaptation really embodies the way newcomer Seattleites learned to include local culture and weave it into the traditions they brought with them.

In the 1890s Japanese immigrants began to arrive on a regular steamship that also brought with it goods like tea and ginger. These Japanese-Americans established farms and sold produce in Seattle, many at Pike Place Market, which opened in 1907. Japanese internment in 1942 displaced thousands of Japanese-Americans sending them to concentration camps around the area. This horrendous event disrupted the local food system and destroyed many lives. During this time there was a wave of Victory gardens that were started in part because food sources diminished as farms closed. When Japanese-Americans finally returned in 1945, their land, farms, and homes had been taken away.[41]

37 Dern 2018
38 Dern 2018
39 ibid
40 ibid, 58
41 Dern 2018

FALL SALAD WITH NASHI

I first learned the word "nashi" as I was harvesting fruit for City Fruit from a garden in Fremont. A neighbor's kid ran up to me asking what I was doing, and what I was picking. I told him I was picking Asian pears and offered him and his dad some fruit, in return he taught me the name for them in Japanese.

Asian pears are native to China and came to the West Coast most likely via Japanese immigrants. From my observations they grow pretty well in Seattle, but according to the Washington State University Extension, they would have better fruit in hotter summer climates. In 1985 the University held a trial to find the best suited varieties to western Washington's climate[1].

Asian pears are crisp and delicious eaten raw or can be baked in a dessert. My favorite way to use them is in a fall salad.

1 Washington State University Extension

1 head of radicchio

1 Asian pear, sliced

1/8 red onion, finely sliced

1/2 cup toasted pecans

1/4 cup parsley, coarsely chopped

2 tbsp olive oil

1 tbsp apple cider vinegar

1 tsp honey

1/2 tsp salt

Add red onion into a small bowl followed by salt, vinegar, honey, and olive oil. Lightly whisk with a fork. Let dressing sit for at least 10 minutes or until ready to serve.

Tear radicchio into bite sized pieces and add to a large salad bowl. Add pear slices, pecans, and parsley.

Right before serving, add dressing and mix.

APPLE SAUCE

Apples were some of the first trees brought to the Pacific Northwest by Euro-American settlers. Since apples can last throughout the winter with little preserving, orchards were a great addition to a homestead. Today, apples are considered the fruit of Washington state, despite the fact that they originated in Kazakhstan.[1] There are crabapples native to the Puget Sound but they are not actively grown for their fruit. Apple trees that are not managed are often infested with pests but they can easily be netted in order to save the fruit.

Apples that have pests in them are often not as pleasant to eat raw but are great to bake with. Pies and crumbles are great, but another good way to preserve your apple harvest, especially in Seattle when you harvest apples and then realize they are pesty is to make apple sauce.

1 Weaver 2019

Peeled and cleaned apples, quartered

Water (1 cup liquid for every 3 cups apples)

Lemon juice (2 tbsp for every cup of water)

Sugar (1/4 cup for every 3 cups apples)

Cinnamon, ginger to taste

When I've harvested apples, I often feel overwhelmed by the apples that are left in the crisper drawer and haven't been touched for weeks. Making applesauce helps me use those apples in soups, added to oatmeal or yogurt, or just eaten on its own.

Add water, lemon juice, and sugar to a large pot on the stove. Clean the apples and drop them into the pot as they are cut to minimize any browning.

Cook for 30 minutes. Use an immersion blender to blend. Allow to cook until soft. Pour into jars and cool on counter before putting into the refrigerator or freezing. Apple sauce will keep for quite a while.

Korean people arrived in the area beginning in the early 1900s, but their cultural foods had not been as popular in modern cuisine until more recently. Filipino immigrants have not imparted as much of a food culture largely because their traditions include more home-cooking and fewer occasions going out to eat.[42] The most recent wave of Asian immigrants, in 1975, brought Vietnamese refugees into Washington. According to Dern, the transition for them was perhaps easier because by that point many Asian markets already existed in the area. Soon Vietnamese restaurants opened and added Pho to the Asian restaurant options as well.

AFRICAN INFLUENCE

African Americans arrived in the Pacific Northwest early, beginning with Manuel Lopes in 1852, the first Black resident of Seattle. He is said to have opened Seattle's first official restaurant, despite a lack of records that state what was served.[43] Seattle and the Pacific Northwest had fewer restrictions for African Americans compared to most of the United States in the late 1800s, so it is thought that it was slightly easier to get established, despite any racist policies that did exist. Dern mentions that many African Americans arrived in multiple waves throughout history based off of various needs for industrial workers.[44] Many of these arrivals came from the South, bringing traditional southern soul food dishes and cuisine with them. There still seems to be a gap in the representation of soul food in the Seattle area.

Immigrants and refugees came from Ethiopia and Somalia much more recently. Early Ethiopian immigrants arrived as students in the 1960s. Following the signing of the Refugee Act in 1980, many refugees arrived from Ethiopia through 2000.[45] The cultural traditions these refugees brought introduced a new influx of spices as well as gluten free flours to the market like teff and chickpea.[46]

AND MANY OTHERS

Many other people make up Seattle's population and food culture. Their cultural identities and food traditions have also made an impact on Seattle and will continue to do so in the future.

42 ibid
43 ibid
44 ibid
45 Hinchliff 2010
46 Dern 2018

COMMUNITY GARDENING

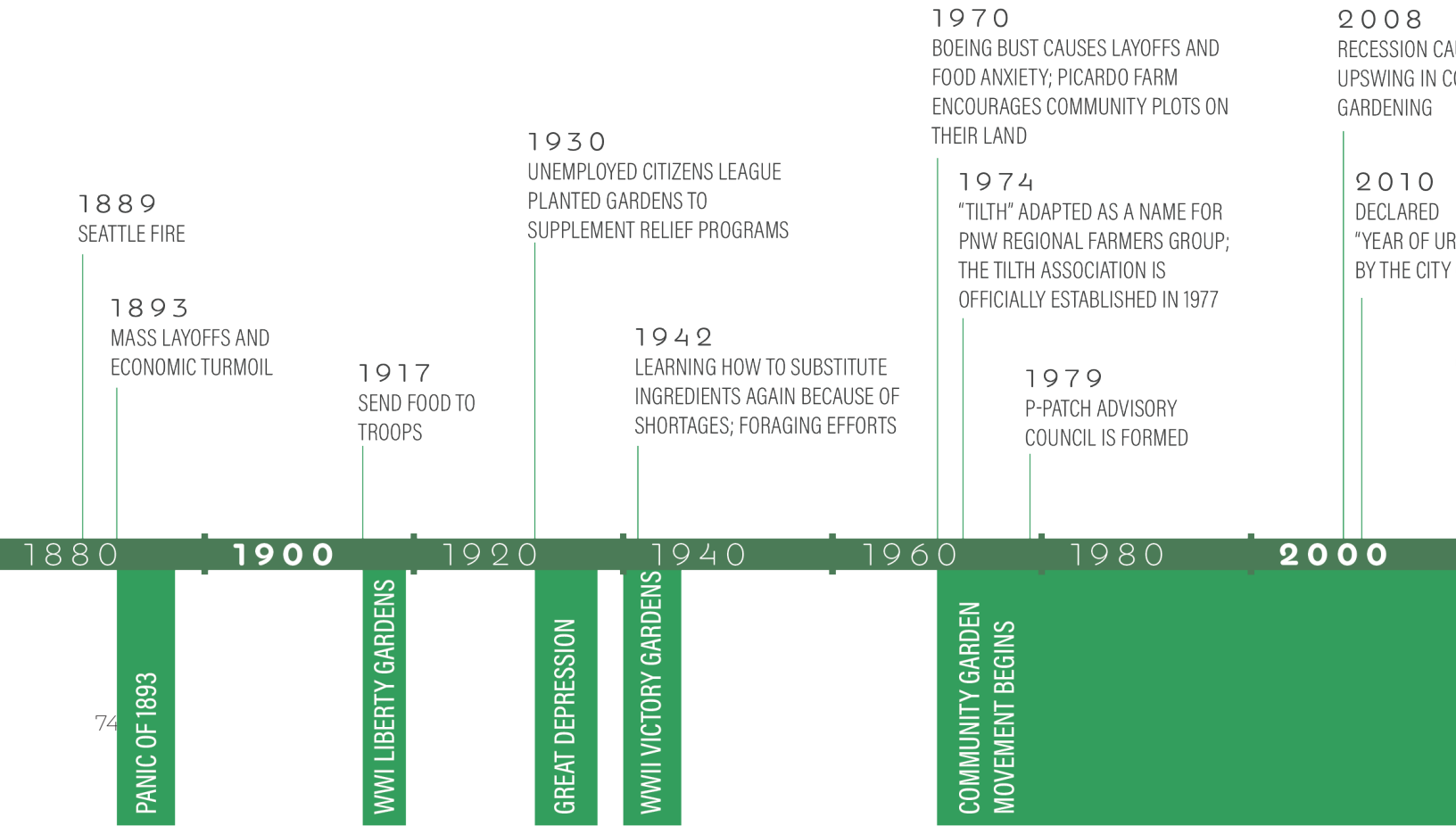
POST WWI

During WWI, school curriculum included learning about various technical and practical skills, including gardening. Gardens were common at home as well with many families relying on their own produce to not only feed themselves but also to sell and provide an income for the family. Delridge History mentions raspberries and fruit trees as being some of the produce that was then sold at grocery stores to allow families to purchase other goods as times were financially tough.[47]

GREAT DEPRESSION

Since the late 1800s, there were many times when West Seattleites relied heavily on their own food production. During the Great Depression in the 1930s, gardens were even more critical to sustaining the residents of the area in addition to the farm animals that people kept. Residents "would get through the winters by canning fruit from trees in the neighborhood."[48] As noted in the history section, fruit trees had long been a staple in the

47 South Seattle Community College Library
48 ibid



neighborhood. School programs were critical during this time as they provided meals for children as well as gave out kitchen staples to bring home. Food was scarce during the Great Depression and hearty meals were not easy for all families to provide.[49]

From the Delridge History project, recollections are such that school children's families were considerably diverse. Families had immigrated from many different European countries so there were many languages spoken but there was not much racial diversity. In the 1930's, several Japanese-American children attended the school and one African American family. Though perhaps not during the Great Depression, this resulted in a variety of cuisines to be featured in lunch boxes that children brought to school, allowing for lunchtime trades and explorations of various cultures.[50]

WWII + GARDENING

Food during WWII was scarce and much of the available food was rationed. During this time, people had to stand in long lines to get their portion of the food that came in. Vegetables were even less accessible in the stores, so urban gardens were planted again as part of schools and community spaces to feed families. It was considered patriotic to have a Liberty Garden.[51]

P-PATCH HISTORY

USED AN
OMMUNITY

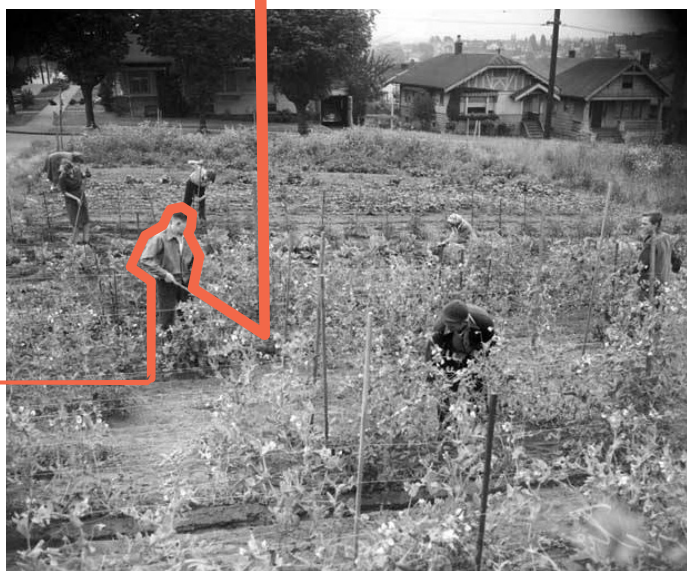
BAN AGRICULTURE"
OF SEATTLE

2020
CORONAVIRUS
RESURGENCE OF
URBAN GARDENS

Seattle's community gardens today are called P-Patches because of the Picardo family. In 1970, a University of Washington student was inspired to start a community garden and asked the family, who owned a farm in Wedgewood, if they would allow her to start a garden on a small part of their property. The Picardos agreed. This was the beginning of the back-to-the-land movement in Seattle, just after the Boeing Bust where many lost their jobs.[52]

In 1973, the Picardo Farm community garden became the city's first P-Patch. By 1974, there were 10 community gardens in Seattle as a part of the City's new P-Patch Program, and by 1979 an advisory council was formed to advocate for community gardens for the city. Since then, the popularity of P-Patch has grown and the system is renowned around the country. Each P-Patch is different and inviting to all visitors to wander and gather but not to harvest

49 South Seattle Community College Library
50 ibid
51 ibid
52 Hucka



Top: Ballard High School victory garden, Seattle, February 16, 1943; Courtesy of Seattle Post-Intelligencer Collection, Museum of History & Industry, Seattle; All Rights Reserved; PI28244

Bottom left: Victory garden in Wallingford, August 1944; Courtesy of Seattle Post-Intelligencer Collection, Museum of History & Industry, Seattle; All Rights Reserved; PI28250

Bottom right: Woman canning vegetables, 1937; Courtesy of PEMCO Webster & Stevens Collection, Museum of History & Industry, Seattle; All Rights Reserved; 1983.10.13797.1

unless it is your own plot.[53] These spaces are meant as educational spaces within neighborhoods, many have a community or school maintained portion as well.

YEAR OF URBAN AGRICULTURE

In 2010, Seattle City Council in collaboration with the mayor announced "The Year of Urban Agriculture." During this year, various urban agricultural initiatives took place as the city was striving for food justice initiatives for residents. This included a revision to the land use code that allowed more opportunities for growing food, farming, as well as animal husbandry in the city.[54]

CORONAVIRUS AND THE SURGE FOR PLANTING

The coronavirus pandemic has spurred an additional push for urban gardening. Websites are sharing more gardening resources and writing how to start a Victory Virus Garden. Can this initiative be advertised further? During WWII, Victory gardens were promoted through supermarket ads.[55] Since supermarkets are not places that we can spend much time in these days, similar ads can perhaps be shared through social media and apps, like the one I am proposing.

53 Cipalla 2018
54 McLain et al 2012
55 Nordahl 2009

Top: People working in P-Patch garden, Seattle, August 1974; Courtesy of MOHAI, Seattle Post-Intelligencer Photograph Collection, 2000.107.072.25.04

Bottom left: University District resident Peter Wollan carrying water to his garden plot during harvest time at the Montlake P-Patch, Seattle, Washington, August 23, 1974; Courtesy of University of Washington Libraries, Special Collections, MPH1610

Bottom right: Woman with child in backpack picking blackberries, probably in Seattle, August 8, 1985; Michael Meglemre Collection, Museum of History & Industry, Seattle; All Rights Reserved; 1991.1.138.1

Top left: St John United Lutheran Church Community Garden

Top right: Strawberries in Phinney Ridge

Bottom left: Newly installed right-of-way raised beds with plastic tomato insulation

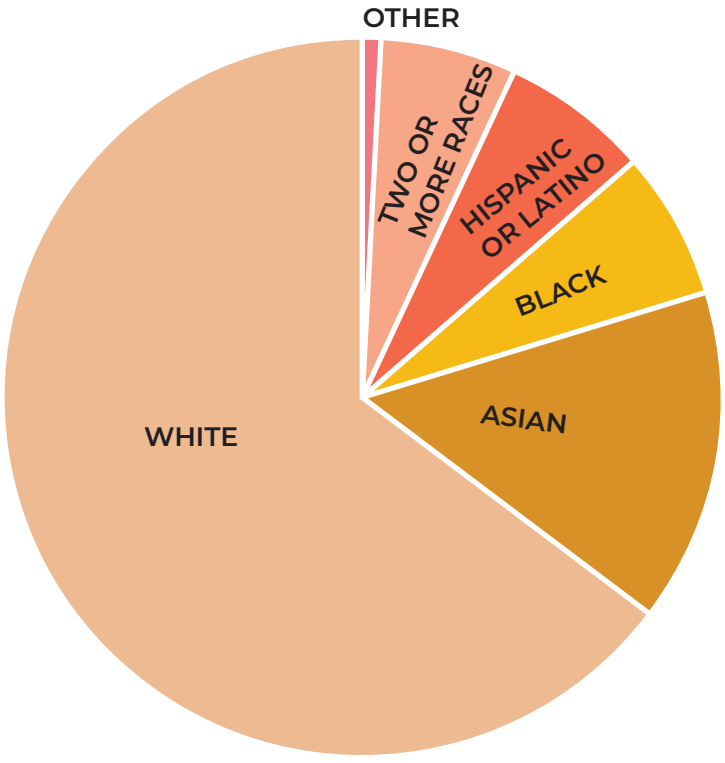
Bottom right: Newly installed right-of-way raised beds

SEATTLE TODAY

In 2018, 11.1% of households in the United States were food insecure during some part of the year. This means that they could not meet the food needs of all of the members in their household because of insufficient money or other resources.[56] In Washington State, 10.3 % of households were food insecure between 2016 and 2018.

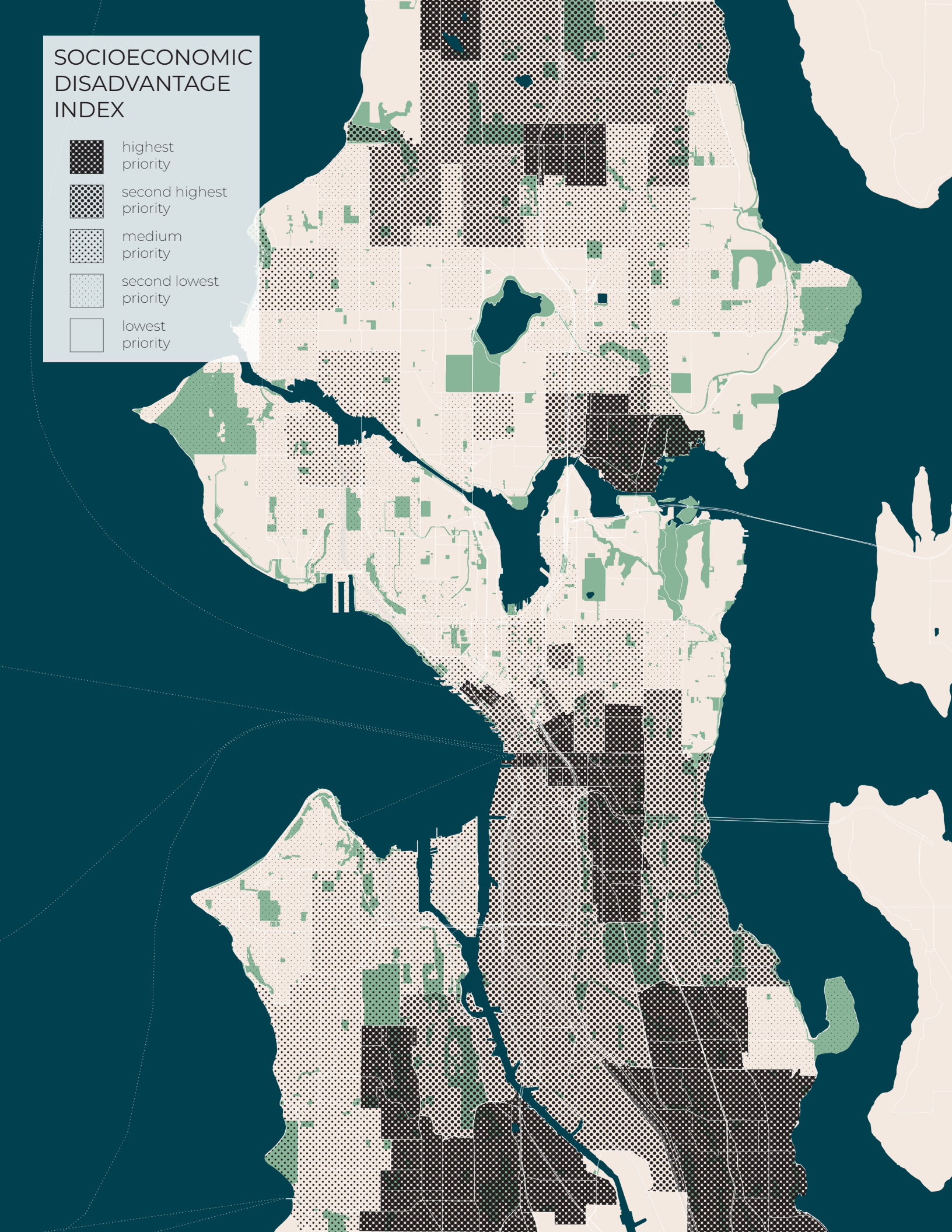
Even today, Seattle is a city of immigrants bringing their cultures and traditions to this place. According to Seattle.gov, 18% of Seattle residents were not born in the US. The immigrant population has grown 20% between 2000 and 2014, with the 2014 census showing that approximately 1 out of every 3 food related workers are foreign born.[57]

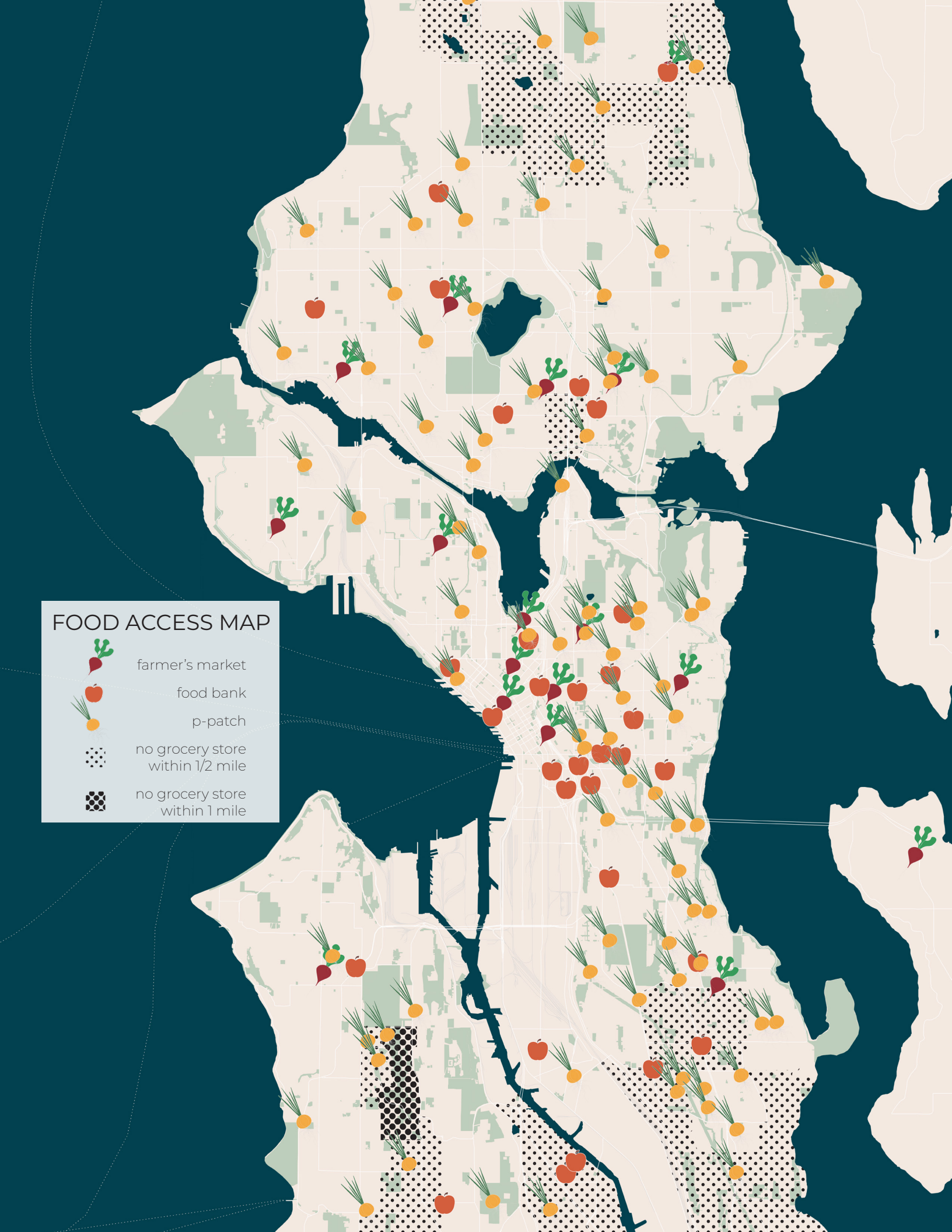
POPULATION



Seattle Race and Ethnicity based off of the 2014-2018 Census Data

56 Coleman-Jensen and Smith 2019
57 City of Seattle Office of Immigrant and Refugee Affairs


SOCIOECONOMIC DISADVANTAGE INDEX
highest priority
second highest priority
medium priority
second lowest priority
lowest priority


FOOD ACCESS MAP
farmer's market
food bank
p-patch
no grocery store within 1/2 mile
no grocery store within 1 mile

FOOD ACCESSIBILITY

Grocery stores were the primary method of getting food in early Seattle other than by growing it. It wasn't until 1907 that Pike Place Market opened, selling produce directly from the farmer at a lower cost than it would have been from a grocery store. The market quickly became a popular staple of grocery shopping for urban dwellers who did not have their own garden.[58] As most of the farmers were immigrants, the produce available was diverse.

Today we have several areas that are considered food deserts within the city. A food desert is an area in which it is difficult to get food. Looking at the food accessibility map, some residents must travel over ½ a mile to get to a grocery store while others have to travel over a mile to get to a grocery store. For those people who do not have a vehicle or mode of transportation, that is far. According to Sophie Egan in her Town Hall discussion, there are several methods to increase food access in food deserts. She suggests converting corner store checkout into produce sections, stating that bananas are the most high selling food item in convenience stores. She also suggests veggie prescription programs as well as utilizing SNAP benefit matching programs to increase food access to those in need.[59]

58 Dern 2018
59 Egan and Egan 2020

Green Lake plums

PRECEDENT EXAMPLES

PRECEDENT ORGANIZATIONS

There are so many precedents for an app that can connect people with food growing in the public landscapes of their surrounding community. The following examples are only a small selection starting with websites and then looking at some actual apps. Each section is organized in the same four categories that the app is organized in order to highlight the various gaps that exist within. They are: mapping, food/recipes, learning, and community engagement.

MAPPING

FALLEN FRUIT

Fallen Fruit was created initially as an art collaboration that maps public fruit trees in Los Angeles. This project includes various additional murals and installations. The aim is to observe and narrate the public's relationship to fruit. Since 2004 they have expanded to other cities and installed permanent projects. The maps that they create are static pieces of art, unlike the virtual Google maps-like experience of Falling Fruit.[1]

Though the static maps are beautiful, they do not allow for any

1 Fallen Fruit

updates. In a city things are constantly changing, so having a digital presence that is editable would be very beneficial for city foragers. The largest issue for Seattleites is that there are no available maps for this area. A great collaboration or project for the app could be to produce physical maps as well. These maps could highlight the community network and experiences on both a wall art platform as well as t-shirts and totes. Their community events and art projects are great inspiration for future activities.

FALLING FRUIT

Created in 2013 by two urban foragers, Ethan Welty and Caleb Phillips, who wanted to share their love of foraging with others, Falling Fruit is a virtual map that lists fruiting trees in public spaces around the world.[2] It is mostly a compilation of pre-existing databases that include fruit trees but also allow users to upload their own findings. The website is intended to "form a community for novice and pro foragers alike," yet really only reads as a mapped database.[3]

Falling Fruit is a global map. In Seattle, it has only been populated by City of Seattle GIS data and does not get any additional updates from the public. It is missing a true neighborhood connection and a platform to communicate with other foragers about the trees. It also does not include any photos or identifiers of the trees, which is critical when first starting out. It does have a list of possible fruit trees that one could find, but it does not have anywhere to think about what a harvester could actually do with the fruit.

The app component is a paid app that does not have good user reviews. It seems like it has not been updated recently and does not work well outside of Denver, Colorado, where the founders are from. Nourishing Neighborhoods would not have a paywall. I don't think people should have to pay to be connected to their community. Additionally, including recipes to bring the fruit to the kitchen would be very helpful.

2 Husted
3 "About" Falling Fruit

COMMUNITY

BEACON FOOD FOREST

The Beacon Food Forest aims to create community, share food, and educate visitors through their permaculture food production project in Beacon Hill. Located on public land, they host various events and opportunities for the schools and community members to come out and help with the project, whether it is directly with the fruit trees and other plants or by creating art and other projects.[4]

The public events and opportunities for visitors is something that can perhaps be replicated and enhanced on the neighborhood scale to organize harvest parties and the like. Though Beacon Food Forest is aimed towards the public with access points from the street and encouraging neighbors to come and harvest, it is on a single site. Typically people need to have it in mind as a destination and not something that could be discovered on any walk. It also does not have a mapping component in the same way that the app would have, or ways to connect with the community on discussion boards and the like when not at an event.

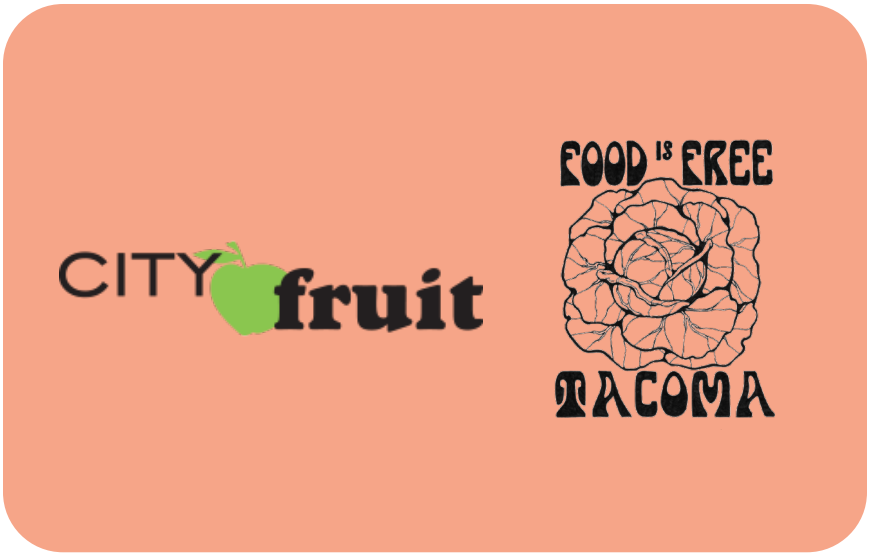
TILTH ALLIANCE

The Tilth Alliance was officially formed in 1977. Tilth was initially the informal network of Pacific Northwest regional farmers starting in 1974, a community of organic farmers working to enhance the future of food in Washington. Today,

4 Beacon Food Forest 2020

they work with a variety of people including farmers, gardeners, as well as consumers to promote sustainability and health. Their work includes education through trainings for farmers and home gardeners about soil and sustainable farming, classes and camps for youth and adults, farm stands and subsidized food access for low-income families, as well as cooking and nutrition education. They also have various resources for Pacific Northwest gardening, markets, and recipes.[5]

Tilth is a great community space as they teach classes and have tons of resources about community gardening. Their platform is mostly based on the organizers interacting with the public and does not have any ways for users to share and connect virtually.



FOOD

CITY FRUIT

Founded in 2008, City Fruit is an organization created off of a common belief of stewarding and appreciating the urban orchard that we have in Seattle.[6] The goal is to not only steward but educate and harvest the fruit and distribute it to the community. This involves a lot of help from homeowners, volunteers, and public orchards to assist in tree maintenance during the winter and harvesting during the summer. City Fruit partners with the City of Seattle to harvest fruit and spread the word, and has created

5 "Tilth Alliance"
6 City Fruit 2020

graphics and information for homeowners about fruit selection.[7]

In the summer of 2018, I worked as a harvester at City Fruit, collecting fruit around the city, which fueled my interest and excitement about public fruit and this project in general. As a resource, people do not recognize that trees in the right-of-way are public trees and can be harvested and collected by all.

Though City Fruit is an amazing organization that works with the public by hosting harvest parties and educational sessions, they do not engage much with consumers about what to do with the harvested fruit. By providing information about preserving, there could be fewer trees that need to be harvested by outside harvesters since tree owners could be able to use their own fruit for the rest of the season, or share on a more local scale with neighbors.

FOOD IS FREE TACOMA

This organization encourages home gardening and sharing the food with others. The mission "is to grow community and food while helping gain independence from a broken agricultural system." The intent is to provide food for the neighborhood and to launch a non profit in February 2020 for all of Washington to sponsor this initiative throughout the state.[8]

This organization is still starting out but does seem to encourage public food access in the same way a neighborhood foraging app would. It does not engage with the mapping and community aspect other than by encouraging the community to eat the fresh produce. It has slowly been catching on, and I recently saw an online post with photos of their right-of-way garden that had signs installed saying that this was a public garden, sharing what was ripe. Perhaps these ideas could be integrated into the Nourishing Neighborhoods app design process in ways to broadcast that trees are ripe to the community.

7 City Fruit 2018
8 Thompson

LEARN

P-PATCHES COMMUNITY GARDENS

As of today, in June 2020, there are 89 P-Patches all around Seattle that grow on 14.9 acres of land for community gardeners to manage.[9] An amazing project that not only allows neighborhood community members to grow their own food, but connect with their culture, create community, and grow food that gets donated back to those in need. This land stewardship program allows for many things to happen.

The largest problem for P-Patches is that they are not accessible to everyone. The plot stewards are both responsible for and benefit from the fruits of their labor. Some P-Patches have public plots, but most do not actually provide enough food for those in need. A plot requires a lot of time and effort to manage. An app that incorporates all of the existing edible infrastructure and broadcasts it to anyone who wants fruit would allow a student, for example, to harvest an apple as a snack on the way home from school.

TREES FOR SEATTLE

The City of Seattle launched a website and basic tree walk app this Earth Week with several mapped out tree walks in neighborhoods around Seattle. This application is very basic. It allows for users to find a walk on a map, and then directs them to a static document, like a PDF that talks about various trees on the walk.

9 Seattle Department of Neighborhoods 2019

The idea behind it is a great precedent for the final design for my proposed app as it works to engage people while on their walks. Seattle's Walk App, however, primarily features old specimen trees and does not venture into the realm of fruit trees.[10]

EXISTING GARDENS

RIGHT-OF-WAY GARDENS + TREES

The City of Seattle encourages gardening and greening of the right-of-way as a way to beautify the street and activate it in the neighborhood. In order to do so, the user does technically need to apply for a free permit online by submitting some personal information and a plan of the project to the city.[11]

Right-of-way land is public land, so any plantings are actually not owned by anyone and are legally harvestable by the community. Typically people will recognize that a managed vegetable bed is perhaps private food, but fruit trees appear less private. A part of this project is to recognize and celebrate that fact with the community.

The city will also plant trees for free if a homeowner applies for trees, however those must be selected from a list of available trees, which changes annually.[12] They occasionally have fruiting trees on that list, however are not planning that many more at this time as the goal is to increase overall canopy cover and typically fruit trees do not grow to be big enough to make much of a difference.[13] Seattle, however, has no rules against planting fruit trees in the right-of-way and individuals may plant their own with the appropriate permit.[14]

The permitting process may not be something that residents are aware of and Nourishing Neighborhood would have a section to help guide users through the process. It would not only include the steps to take, but also include sample plans that could be adapted in order to submit to the city to help simplify the process.

10 "Tree Walks."
11 Seattle Department of Transportation 2020
12 "Trees for Neighborhoods." Trees for Seattle 2020
13 "Frequently Asked Questions" Trees for Seattle 2020a
14 Seattle Department of Transportation 2014

Phinney Ridge right-of-way plantings

PHONE APPS

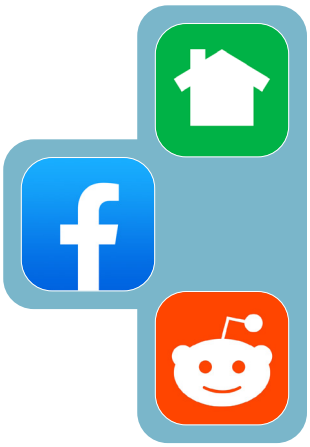
There are so many apps that exist that one would think that someone has already thought of an app that connects neighbors to locally growing fruit trees. The closes one would be Falling Fruit, however that app has not been updated recently and is under a paywall.

MAPPING

Apps like Under Armour Walk and City Walkers can help track a walk or even suggest destinations, but none of them are related to looking at the natural environment. Looking at and identifying fruit trees or gardens would be the main point of Nourishing Neighborhoods, though it would also calculate the mileage you've walked for health purposes.

LEARN

VeggieGarden Planner and Homegrown are just a couple of the apps that are out there that help people plant a garden. Few, however, relate back to recipes and what to do with the fruit of their labor. These apps are great resources for basic gardening, but there is a lot that is lacking. Being able to connect digitally, virtually, with local gardeners could help identify garden issues quickly and appropriately to the local gardening conditions.



FOOD

FreshFoodConnect and Glean are some of the apps that are aimed to share food with others. None of these apps work in Seattle, but they are aimed at sharing excess food, be it lemons from a backyard tree or extra pizza from a birthday party. These apps are missing the community connections and the focus on what to do with the produce.

COMMUNITY

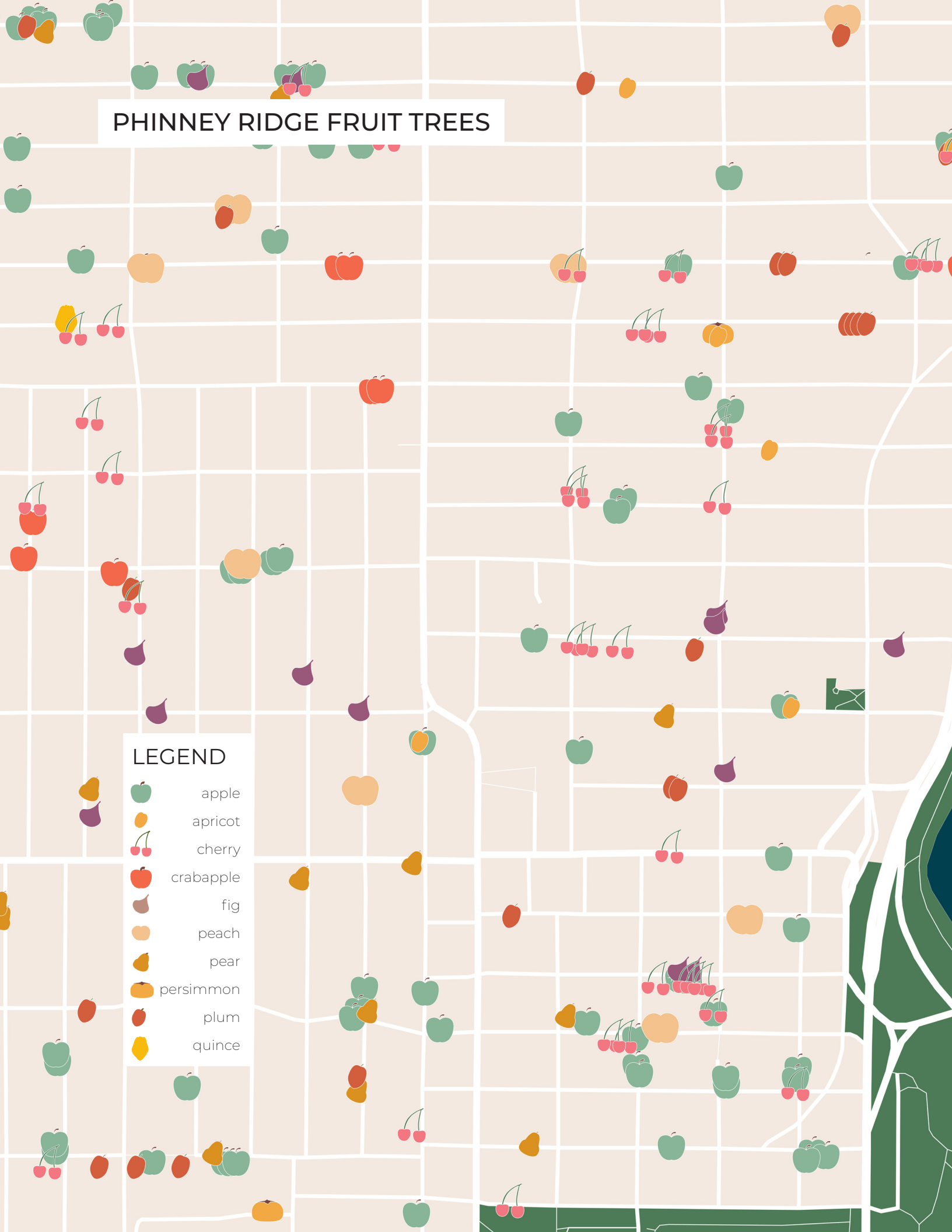
Shockingly there are no garden or foraging specific community engagement apps that I have found. From my search for something along those lines, the closest I've found are groups on Facebook including: Seattle Backyard Gardening, PNW Women's Wild Foraging and Bushcraft Connection, as well as Buy Nothing groups. These allow for community conversations about food and harvesting, plant identification, and chatter about edible plants. Wouldn't it be great if they had their own place instead of having to be a part of Facebook?

App logos: Under Armour Walk, City Walks Seattle, World Walking, From Seed to Spoon, Gardenia, Homegrown, Veggie Garden Planner, Ripelist, Glean, Picd Local, FreshFoodConnect, Next Door, Facebook, Reddit

Wallingford apples with snail

DESIGN

PHINNEY RIDGE FRUIT TREES



DESIGN PROPOSAL

From this research it is clear that Seattle has a long standing history of food production and sustainability, however food accessibility is still limited. There are a lot of resources available for how to grow food, how to cook food, and how to identify plants, but few easily accessible places to learn and have conversations in regards to local neighborhood food. Through this app design, my goal is to make it easier.

Using existing GIS data for Seattle's fruit trees compiled with crowdsourced data of local right-of-way gardens, this proposal for an app aims to show what the benefits would be of utilizing the public right-of-way for educational and fun purposes. This iteration stemmed from combining the research I have been doing of Seattle's food history and the current stay-at-home order in the state of the coronavirus.

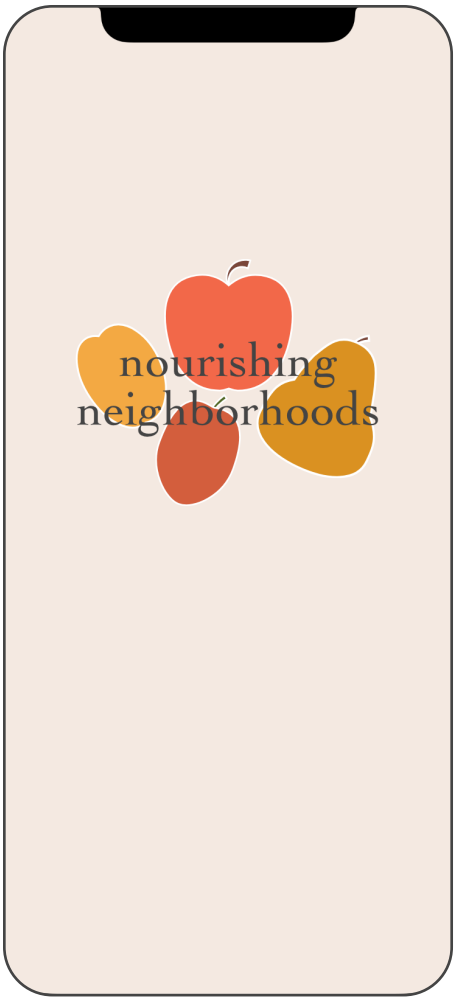
SITE SELECTION

Initially this project design was intended to be applied to West Seattle. An area that struggles with food accessibility and grocery store access, and is home to many low-income households. With the start of the stay at home order in addition to the West Seattle bridge being closed for the foreseeable future, the site changed to looking more closely at a the neighborhood where I live. Phinney Ridge was settled much later than West Seattle as it is on a steep ridge which had limited access through the early 1900s. However, much of the right-of-way is planted with fruit trees and there are many raised beds so the neighborhood is ideal for investigating this app. Throughout the pandemic, I have observed at least a dozen new raised bed planters constructed and planted, showing that clearly people are responding to the current climate.

CONCEPT + QUESTIONS

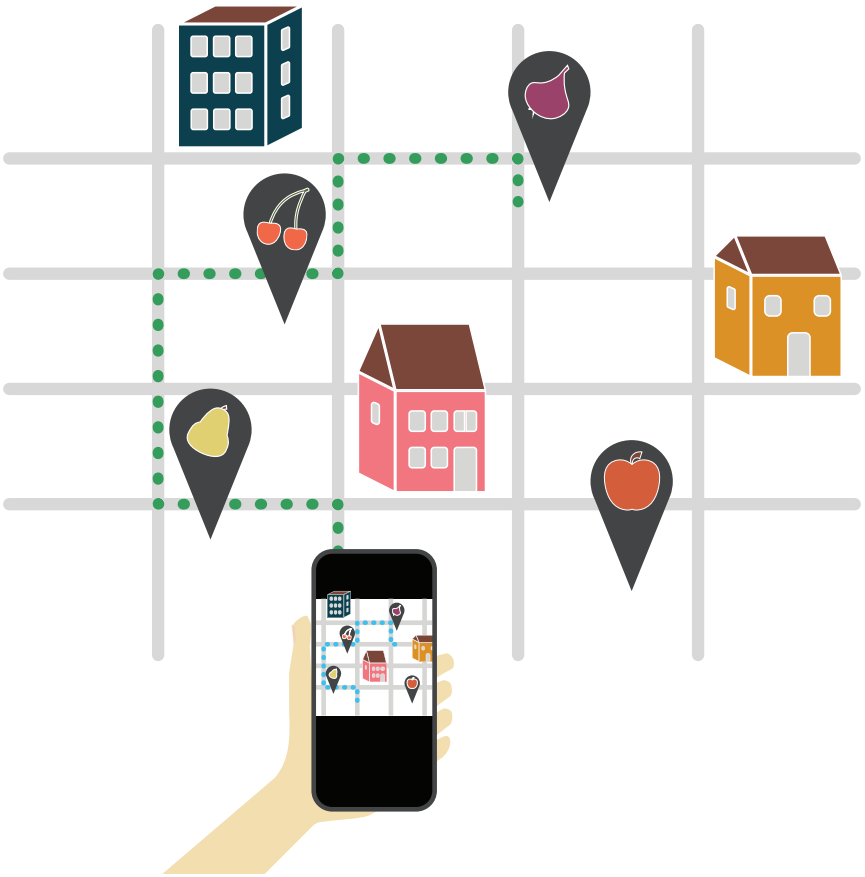
Conceptually, this app aims to answer the following questions: How can urban food that is cultivated on public land nourish neighborhoods while providing opportunities for education and engagement? Can we create stronger communities by using an app to identify, educate, and engage neighbors?

Through this exploration I've come to the following proposals for a community source app that could be used as a tool for education and neighborhood connections.



Left: Fruit Trees in Phinney Ridge

Above: Nourishing Neighborhoods loading screen



Conceptual diagram

COMMUNITY SOURCED APP

The four categories within this app were created as activities that were missing in the conversation within existing apps and resources in regard to neighborhood foods. The map category looks at existing edible infrastructure in the city, allowing people to walk around their neighborhoods and explore the various fruit trees that grow. Recipes allows users to search local and historic food recipes, also allowing for the community to upload their own as a part of the crowdsourced nature of the application. The learn section has resources that any urban dweller, gardener, or visitor could need. And the final section, community, allows for the community to share, converse, and connect about the outdoor world around them. Together these four categories fill the gaps that are missing within the existing apps and organizations in order to share and enhance the opportunities for edible infrastructure within our city. This application proposes a way to help make a difference within many neighborhoods and utilize the already existing fruit trees to benefit the community.

The four app categories

MAPPING

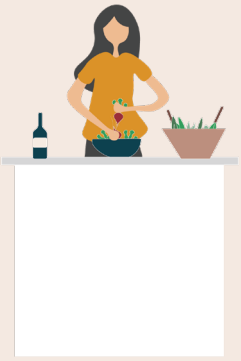
SEARCH OPTIONS

RIPENESS

FRUIT TYPE

LOCATION

WALK MAP



RECIPES

SEARCH OPTIONS

SEASON

FRUIT

VEGETABLE

RECIPE LIST

RECIPE

Simplified app wireframe

LEARN

- RIGHT-OF-WAY GARDENING
  - PERMITTING
  - OWNERSHIP
  - NEARBY EXAMPLES
  - GETTING STARTED
    - ORGANIZATIONS
      - VEGETABLE GUIDES
      - CITY OF SEATTLE URBAN AG
      - TREE CARE
- RESOURCES
  - WHAT TO DO WITH YOUR BOUNTY
    - FOOD + HEALTH
    - CLIMATE CHANGE
  - NEIGHBORHOOD
    - URBAN AGRICULTURE HISTORY
- WALKS
  - TREE ID

COMMUNITY

- TREE POSTS
- STORIES
- RECIPES
- GARDEN ADVICE


ENGAGING
CONNECTING
nourishing neighborhoods

MAP

One of the major facets of this app is the mapping functionality. Using existing City of Seattle Street Tree GIS data, the map would show only fruit producing trees within the city. These trees would be able to have their own page that could be updated using crowdsourced information. Individuals would be able to claim a tree an owner, update a tree with photos as a passerby, and also ask questions about the tree. This page would be a living archive about the tree and how much fruit it produces annually. As this app's goals are to encourage education and neighborhood exploration, an individual would be able to use the mapping functionality to select various types of walks by exploring what's ripe, what's nearby, by fruit, recently updated, and within a walking distance.

Several items that are missing from the current app views are vegetable gardens within the right-of-way, p-patches, and school gardens. These are all destinations worth learning from as well and would be critical to have within the mapping software.

WHAT'S RIPE

This walk type would gather data from users who have posted on trees that their fruit is ripe, creating a search function that would allow users to find trees that were ready to be harvested. Ideally this would also be able to generate notifications to users nearby, alerting them on the tree's status.

WHAT'S NEARBY

By geolocating where the user is, the map would highlight only the trees nearby that the user could explore. This function could be used to help identify what a nearby tree is and whether it is edible.

Above: process sketch

Left: using the app to find fruit trees

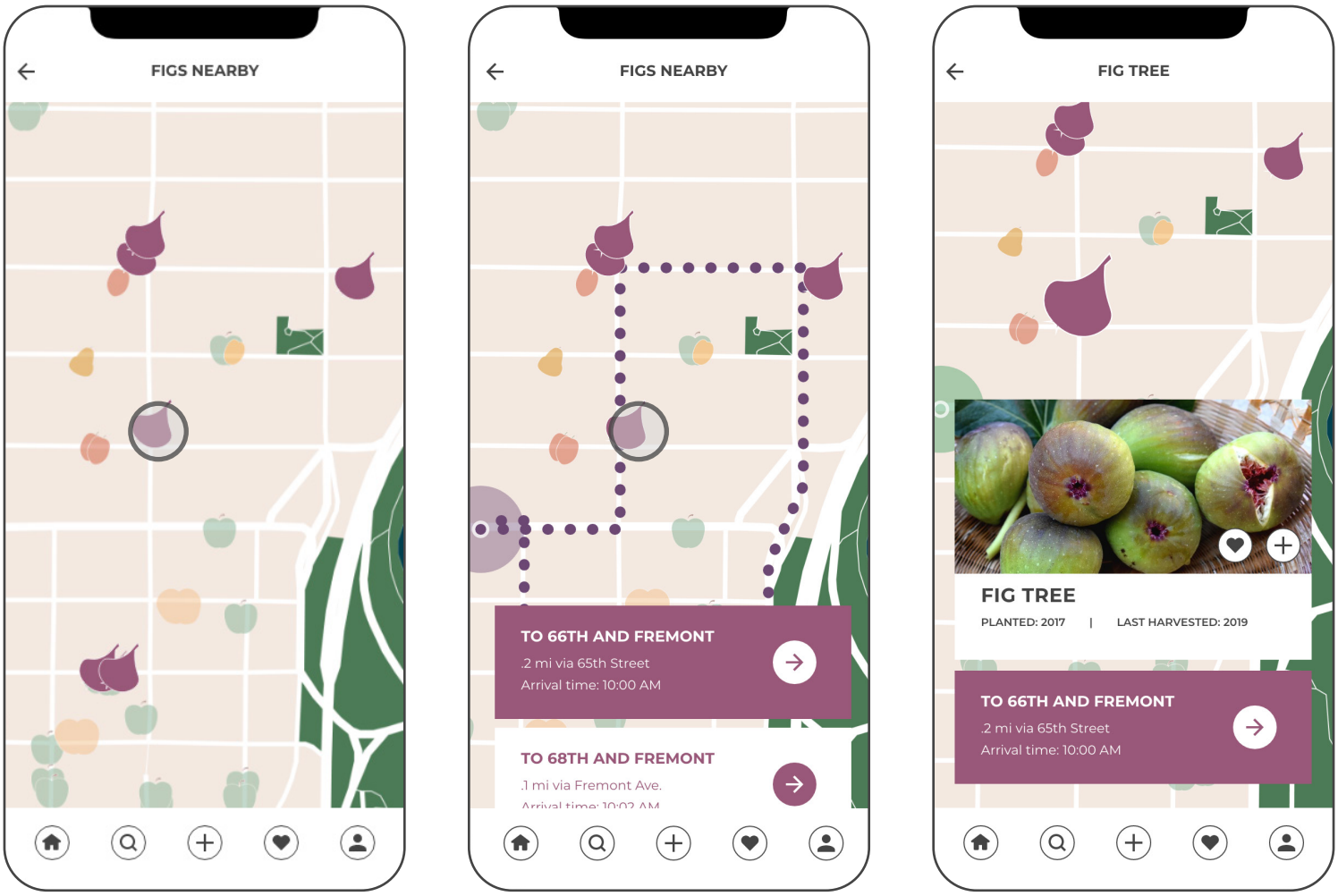
Walking through the mapping section

CHOOSE A FRUIT

Using the Choose a Fruit section, users would be able to highlight a walk route that only relates to a specific fruit nearby. This could be utilized to see the various progress a type of fruit is making throughout the season, comparing different varieties of fruit and collecting an assortment, or collecting enough for a recipe.

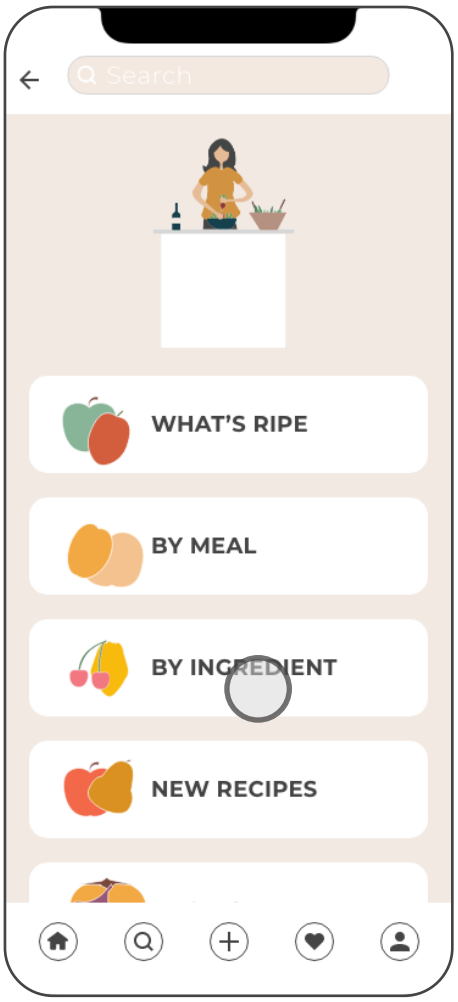
RECENTLY UPDATED

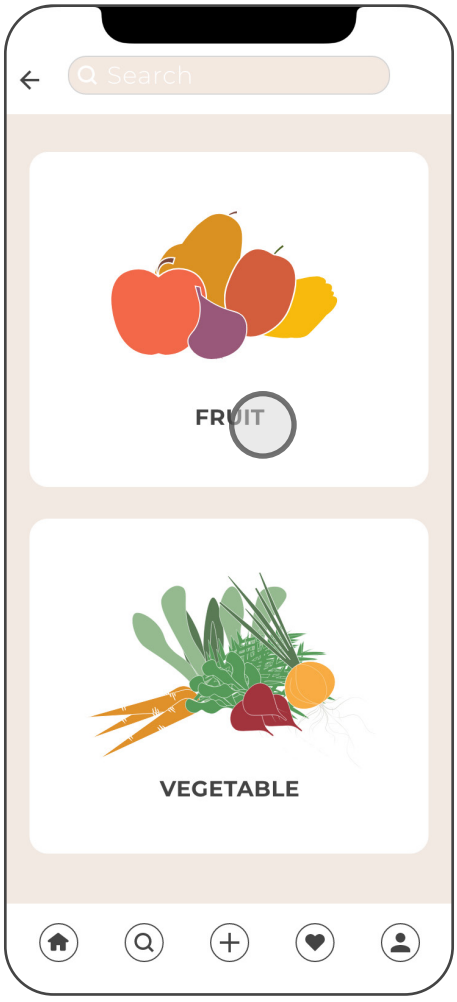
Using tree page data, this function would also allow users to explore trees that had been recently updated with various information like whether it is blooming or the ripeness of the fruit. As users update tree data, some information could be pushed in a notification to app users. This would be particularly beneficial when fruit is ripe so that it can be harvested in a timely fashion before all of the fruit drops to the ground.

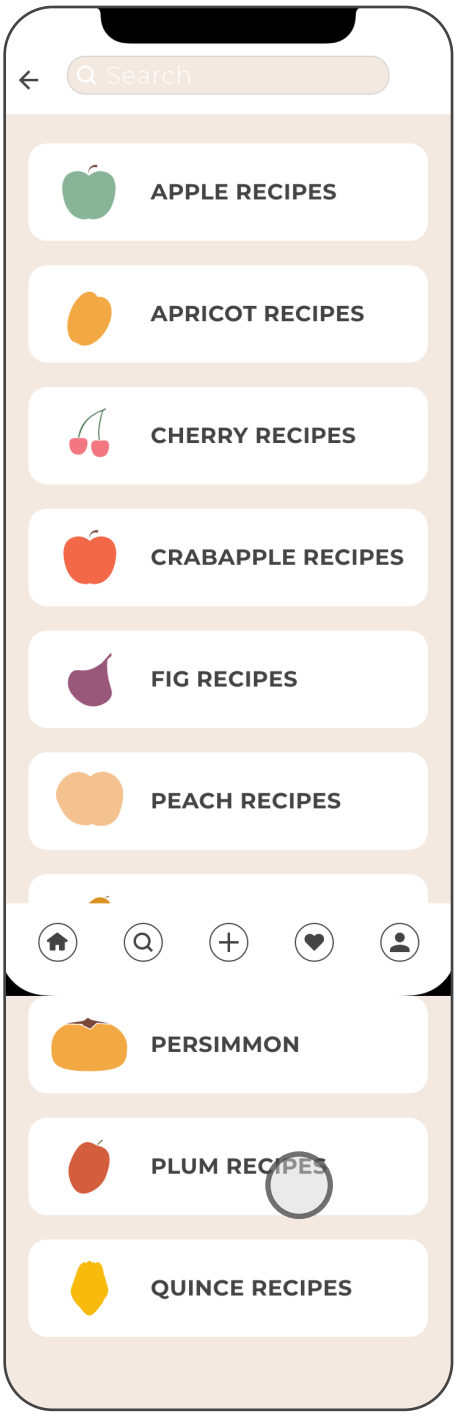


WALKING DISTANCE

As users are looking for walks during the day, this function could be used to map a distance around the neighborhood. Many people are interested in health and daily activity. This function could be integrated with a step tracker app to help users get to their daily walking or exercising goals.



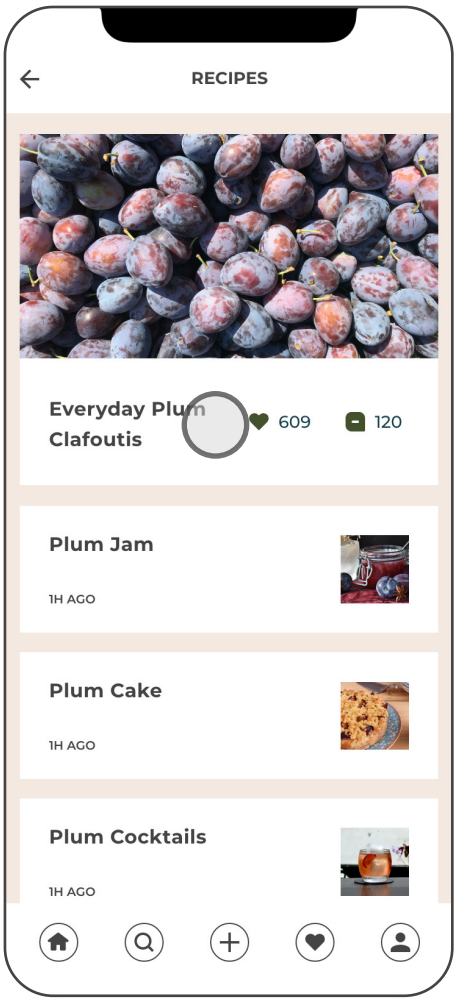


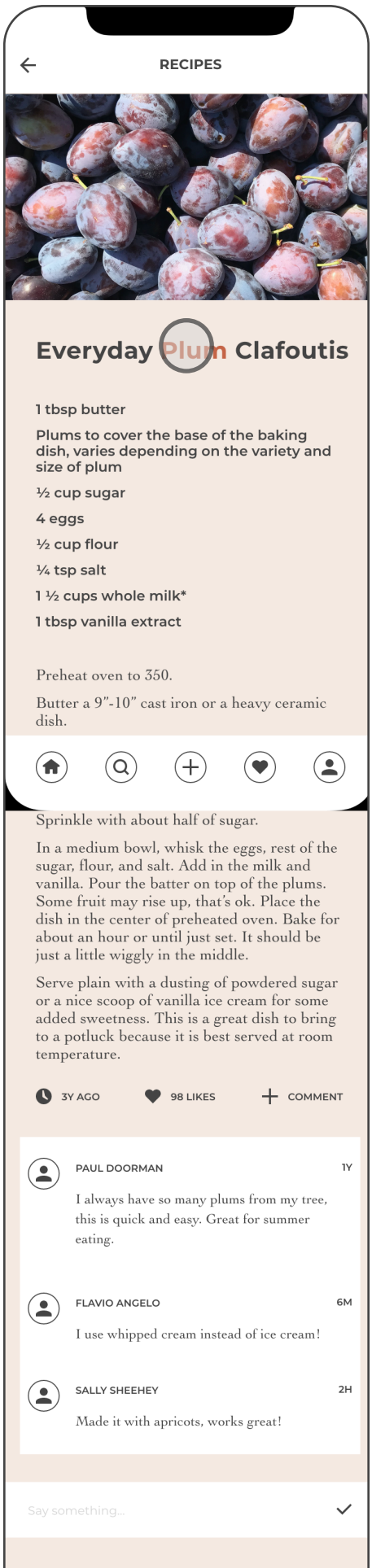


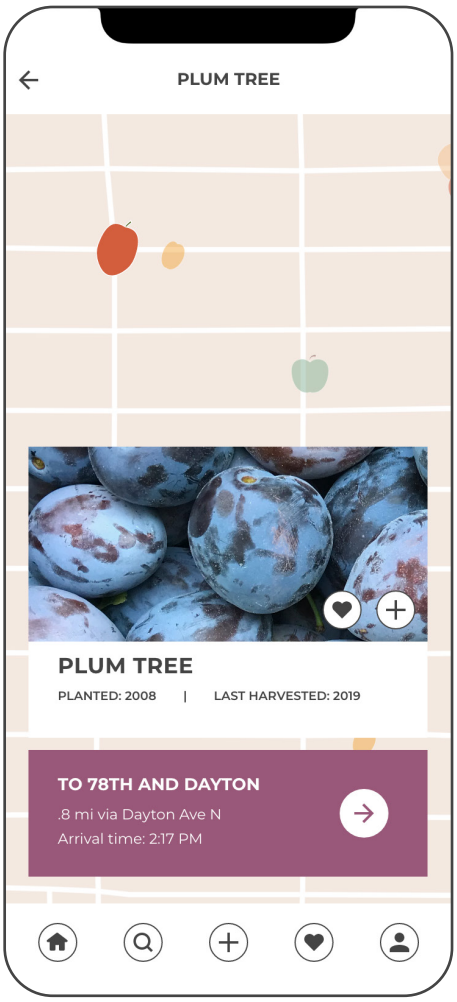
RECIPES

The Recipes section aims to help connect users to neighborhood fruit and how to use it. As so much of the fruit in Seattle falls to the ground and is not harvested, this section could encourage users to actually collect the fruit before it falls. Within this section the recipes available would be historic recipes to educate about how food and recipes have shifted as well as include the opportunities for neighbors to share their recipes with one another. As early cookbooks aimed to share family recipes and raise money for various causes, this section would aim to raise recognition and importance of eating local fruit and supporting a local food system.

Perhaps by having conversations about what can be made with local fruit, more neighbors would be inspired to join a harvest party or participate in a neighborhood pie making contest.







Recipe framework

Learning opportunities

LEARN

So many resources exist to assist urban gardeners in Seattle. This section aims to combine these resources and share them in an easily accessible way.

GARDENING

Gardening includes not only gardening tips such as when to plant and harvest various foods, but also organizations and their resources that could help someone kick start a project. This section would also be beneficial for long time gardeners as a place to learn more about maintaining their garden.

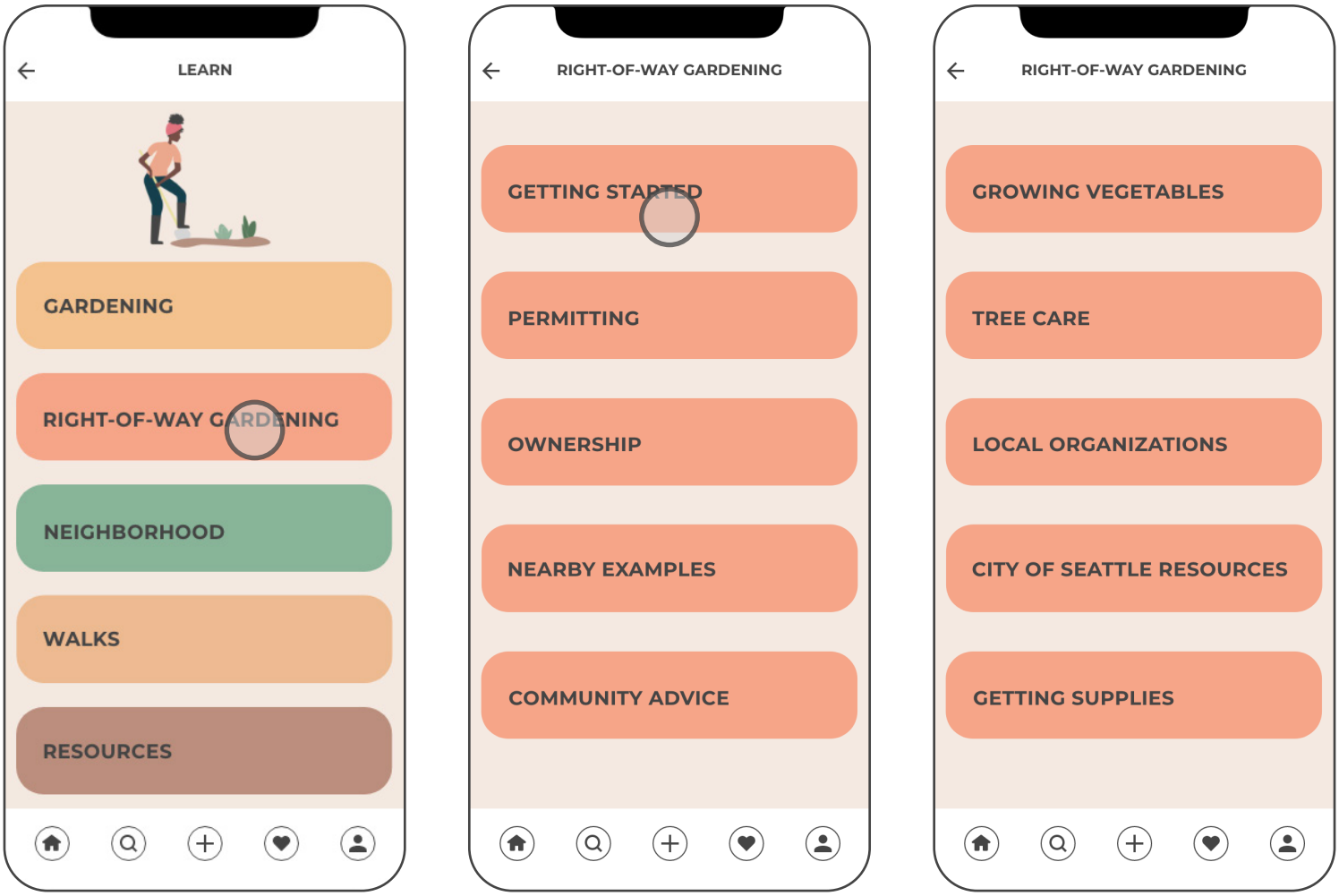
RIGHT-OF-WAY GARDENING

This section includes a general overview of gardening, tree care, organizations to reach out to, as well as resources from the city and where to get supplies to build a raised bed or get seedlings. It would include information about gardening in the right-of-way, most importantly highlighting the rules and regulations of doing so. Starting a garden or planting a tree in the right-of-way is legal with a permit. In permitting, users would be able to explore the permitting paperwork, sample plans that they could adapt for the application process, and ask questions.

There would also be information about responsibilities of maintaining the right-of-way in addition to sharing fruit since that space is public property and anyone could harvest their plots and trees. Several of the buttons would lead back to other sections like nearby examples goes to the map, and community advice leads to message boards.

NEIGHBORHOOD

Neighborhood learning opportunities would allow for individuals to participate in activities. Community members could list guided walking tours or harvest parties that would be open for educational purposes and volunteering purposes to harvest fruit that is growing. Though anyone can harvest right-of-way fruit trees, often ladders and pickers are helpful. By throwing a volunteer party it would be much faster and more fun to harvest a tree.



WALKS

This section would ultimately link to the map, however it would also list some pre-mapped out walks that could share additional information in a walking tour looking at categories such as history, botany, tree shape, and more.

RESOURCES

This last section would link to various planting guides, organizations, and experts outside of the app that users could further explore.

Another major aspect of the app would be to engage kids in garden education through scavenger hunts and activity guides. These could be found in other sections but the resources could also be related to environmental education programming for parents and students themselves, creating a fun way to explore.

Community connections

COMMUNITY

The community section is woven throughout all of the others but also allows for additional conversation and discussion with like-minded people. This would be a space for the community to talk about local food systems and supporting edible infrastructure in the city. In order to not jumble all conversation from around the city, this app would ideally be able to work with users by neighborhood so that it would be easier to have a hyperlocal discussion and a hyperlocal harvest party.

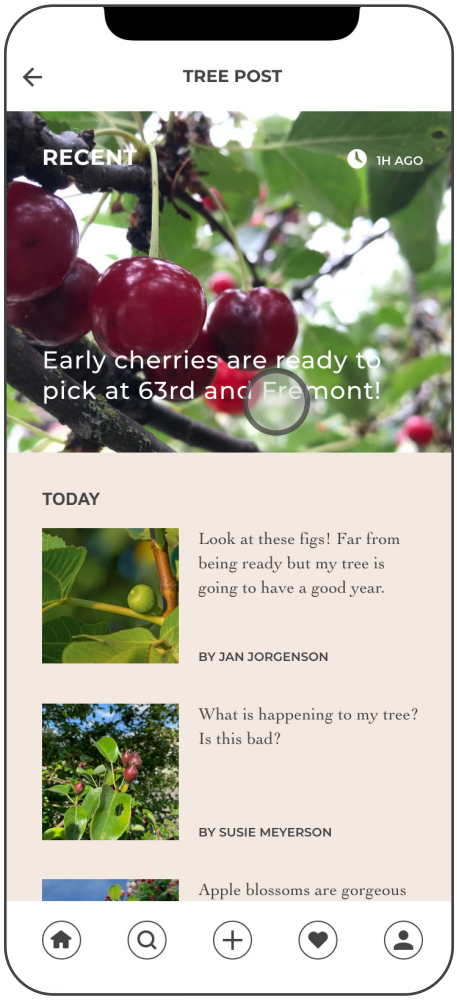
By allowing messages and information to be spread through the dedicated tree pages, the app encourages community spaces online that could then be also enhanced through personal connections. Users could post stories about old fruit trees or share what they are growing to help neighbors understand the process and where to go to look. For example, many fruit trees are in peak bloom around April in Seattle, but the exact timing varies year to year. Throughout the year people could post photos of their tree that could help users time when to come by to see peak bloom or harvest ripe fruit. Users could also actively invite neighbors to join for the harvest, encouraging face to face neighborhood gatherings.

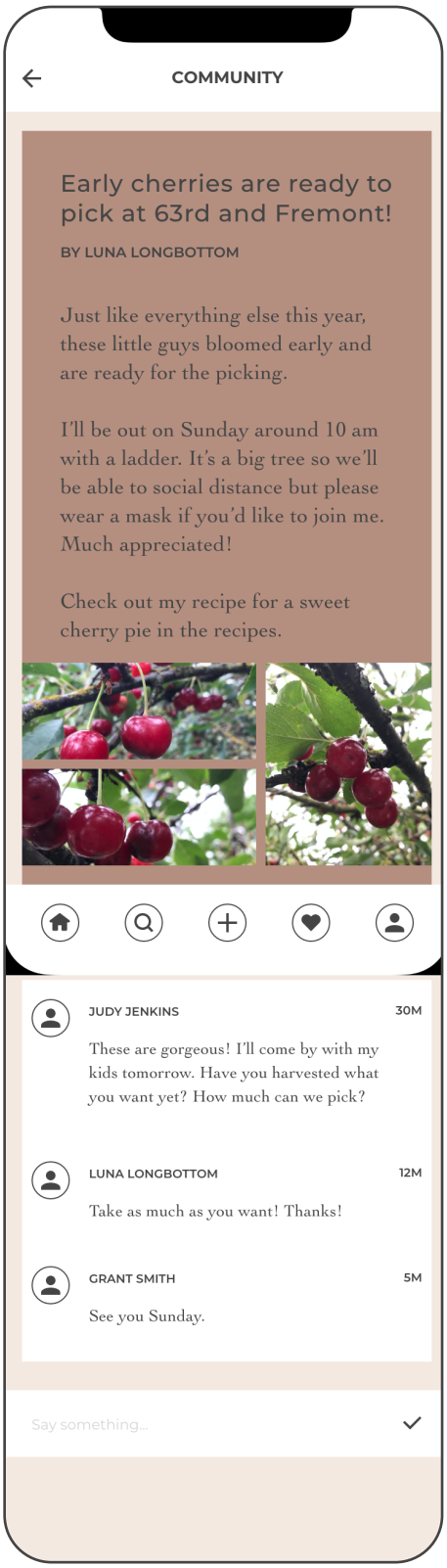
EVENTS

Not only would this encourage users to come by on their own, but it would also encourage harvest parties that could allow neighbors to come together and pick fruit. These work parties could also allow for preserving together and an evening block party with various dishes made from the harvested fruit, reminiscent of the annual harvest parties that were held in early West Seattle. In order to do this, another area that would need to be created would be an events section for users to be able to post information about walking tours, kids activities, volunteering, harvest parties, or any other neighborhood gatherings celebrating the local food system. Sharing information and appreciation in person is critical to being more connected to the community.

GARDEN PARTICIPATION SIGN

Advertisements for the app would include a voluntary tree/garden participation sign that owners could place by their tree. These signs would include the type of fruit the tree produces and the location or a direct QR code link to the tree page to learn more. These signs could list the fruit names in many different languages





including the most prominently spoken languages within Seattle as well as Lushootseed to be able to share various cultures just by learning the different names for types of trees.

Coming across a sign in the neighborhood would hopefully prompt new users to download the app and to learn even more about the tree. Ideally this would also include tours of veggie plots and raised beds without encouraging others to pick them. The app will hopefully discourage others from picking veggie plots by placing app-designated signs sharing information and also asking users not to harvest. On the other hand, if someone is growing a public garden, similar to Free Food Tacoma, the sign could advertise that and encourage passersby to harvest those plots.

NEIGHBORHOOD CONNECTIONS

By hosting a platform to engage neighbors, the app would ideally create stronger connections between neighbors. Food and novelty

are still critical to our wellbeing and connecting to one another, even virtually, has been the main aspect that has brought us together during the pandemic. With limited face-to-face interactions in the past few months, this platform could still engage neighbors virtually allowing those community conversations and learning to begin on an individual level until users are able to spend in-person time together.

ADDITIONAL CONSIDERATIONS

As a resource that could be used by both a casual user or an avid gardener, this app would need to be available in many different languages as Seattle is diverse in languages that are spoken at home. Ideally history and placemaking could be also woven throughout the app, including Lushootseed names for plants on their pages to inform users of the history of this land. With this information, it would be important to also have areas that talk about traditional ecological knowledge and land management strategies that were used on this land. How can we continue the conversation of Seattle's history through food?

A large problem that exists in Seattle today is that so much of the fruit that grows in the city is wasted by letting the fruit drop and decay on the roadside. Using the notification system along with the community information gathering tools, the app would ideally be able to send notifications to local residents that it is harvest time for a specific fruit, prompting urban foragers to harvest local trees. Ideally this not only spurs harvest, but also larger gatherings and processing parties to be able to save that fruit and provide it to those in need. From my experience at City Fruit, food banks were overwhelmed by the amount of fruit they were receiving at times, and as some of that fruit was imperfect, it did not last as long as conventional fruit. An ultimate goal for this project would be to have community members be able to store the fruit for themselves and their community, but also take it one step further and figure out ways to process and provide fruit and meals to those in need.

LIMITATIONS AND MOVING FORWARD

A limitation of this app is that it is currently only looking at conventional fruits and vegetables, not native plants or other fruits that are not as common to eat. In order to not overwhelm app users as well as the app itself with too many types of food to harvest, I think that a secondary app is needed to highlight foraging more wild fruits and plants. Wild plant identification is

also important and is perhaps a little more complicated as there are more characteristics that a new user would have to learn, including the questionable nature of learning about potential toxic plants. This current app iteration is intended to solely focus on what is clearly visible to a passerby in a vegetable garden or common fruit tree.

Another major limitation in the current design of this app is the fact that it is only a visual prototype and wireframe structure. It would need additional development in order to program the app to actually make it fully function. With additional help, it would be necessary to Beta-test the app and see whether neighbors would actually be interested in maintaining and using the various app features.


HARVESTING


PROVIDING
EDUCATING


Persimmon in North Seattle

CONCLUSION

CONCLUSION

Seattle is home to so many fruit trees speckled around our neighborhoods and most residents do not realize that the fruit is edible and available to harvest. By looking at the food history of the city I was inspired to figure out a way to be able to share that knowledge and connect the community to the city's edible landscape. It would be amazing if the app could be adapted to other cities, especially if the city is already documenting tree data in GIS. Ideally an app like this will not only be able to spark the curiosity of neighbors to learn about local foods but also make an impact to those struggling with food insecurity. By encouraging growing food in public spaces and normalizing foraging in the city, less fruit can be wasted and more people can be fed.

By designing an app framework, I hope this idea could be further developed to share information about trees and right-of-way gardens; perhaps through this Seattleites will be able to also find a deeper connection to the city's green spaces. As environmental writer Emma Marris observes, we need to change our perspective on city nature, recognizing it at the forefront while putting the concrete into the background.[1] By taking in the bounty of our cities and appreciating the beauty around us, neighbors can connect more about food. Perhaps it can help create a more sharing community. As neighbors begin to understand how fruit and vegetables grow, an app like this could encourage them to create their own garden, have a deeper appreciation for where their food is coming from, support the local community, and appreciate how much tastier fresh local food can be.

1 Marris 2013

REFLECTION

Researching urban agriculture, food history, and technology has been a fascinating experience as I culminate my three-year landscape architecture degree. For me this thesis began as a research and site analysis experience, and unexpectedly it turned into something that I think could truly be beneficial to anyone. The existing edible infrastructure in Seattle is extensive and underutilized for no real known reason to me. From conversations and support from my classmates, reviewers, committee, and friends, I've gotten more inspired to keep pushing this research and exploring how the app framework could be actualized. It seems that having a simple way to learn about what exists and how to use it would have a major effect on the community in nourishing neighborhoods through their connections to food, their local landscape, and each other.

Plums and goats in North Seattle

LISTS

NATIVE EDIBLE PLANTS

acorn

mountain ash

bearberry

bedstraw

biscuit root

wild blackberry

bladderwrack

blueberry

bulrush

camas

candy flower

wild carrot

cattail

bitter cherry

chokecherry

wild cherry

chickweed

clover

pacific crabapple

cranberry

currant

golden currant

dandelion

dogwood

elderberry

bracken fern

lady fern

licorice fern

ostrich fern

spiny wood fern

douglas fir

gooseberry

goosefoot

grape

hackberry

hazelnut

western hemlock

horsetail

huckleberry

bull whip kelp

kinnikinnick

knotweed

lamb's quarters

legume

miner's lettuce

lily root

mustard

nettle

nightshade

hooker's onion

nodding onion

wild onion

nori

nutmeat

indian plum

purslane

blackcap raspberry

raspberry

wild rose

salal

salmonberry

seablite

seaweed

serviceberry

soapberry

spruce

coastal strawberry

wild strawberry

woodland strawberry

thimbleberry

vetch

violet wapato

watercress

Data compiled from the Burke Museum's Traditional Coast Salish Foods List

TYPICAL GARDEN PLANTS

apple
apricot
artichoke
arugula
asparagus
basil
beans, Pole
beans, Bush
beet
blackberry
blueberry
bok choy
broccoli
Brussels sprouts
cabbage
cauliflower
caraway
carrots
celery
chard
cherry
chives
cilantro
collard greens
comfey
corn
crabapple
cucumbers
currant
dill
eggplant
endive
fennel
fava Bean
fig
grapes
garlic
green onion
kale
leeks
lettuce
lima beans
melon
mustard greens
onions
oregano
parsley
peach
peas
peppermint
peppers
plum
potatoes
pumpkins
radicchio
radishes
rhubarb
rosemary
rutabaga
sage
scallion
sorrel
spinach
squash, summer
squash, winter
sweet potatoes
strawberries
tarragon
thyme
tomatoes
turnips
watermelon

Data compiled from: Oregon State Extension, Seattle.gov, Solid Ground Garden Guide, Mary's Heirloom Seeds, and personal observations

seasonal harvest availability


Kiwi Berries in East Seattle

BIBLIOGRAPHY

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"About." Falling Fruit. Accessed April 20, 2020. http://fallingfruit.org/.

Albers, John J. *The Northwest Garden Manifesto: Create, Restore, and Maintain a Sustainable Yard.* Seattle, WA: Mountaineers Books, 2017. E-book.

Albing, Kate. "Eating for Ecoliteracy: The Social Praxis of Sustainability at a Residential Environmental Education Center." In *Nurturing Nature and the Environment with Young Children*, edited by Janice Kroeger, Casey Y. Myers and Katy Morgan. New York: Routledge, 2019.

Anzilotti, Eillie. "High CO2 Levels Will Wreck Plants' Nutritional Value, so Don't Plan on Surviving on Vegetables." Fast Company, April 19, 2019. https://www.fastcompany.com/90337161/high-co2-levels-will-wreck-plants-nutritional-value-so-dont-plan-on-surviving-on-vegetables.

Atkinson, Jennifer Wren. *Gardenland.* Athens University of Georgia Press, 2018.

Atkinson, Greg. *The Northwest Essentials Cookbook.* Seattle: Sasquatch Books, 1999.

Beacon Food Forest. "Frequently Asked Questions." Beacon Food Forest. Accessed May 20, 2020. https://beaconfoodforest.org/faq/.

Beecher, C. Esther. *Miss Beecher's domestic receipt book.* New York: Harper & Brothers, 1846. https://hdl.handle.net/2027/umn.319510009131542

Bento Software. "Veggie Garden Planner." Apple App Store, Version 1.18. (Accessed on 20 May 2020).

Bir, Sara. *The Fruit Forager's Companion: Ferments, Desserts, Main Dishes, and More from your Neighborhood and Beyond*. White River Junction, Vermont: Chelsea Green Publishing, 2018.

Burke Museum. "Seattle's Ghost Shorelines." Burke Museum. 2017. https://www.burkemuseum.org/news/seattles-ghost-shorelines.

Burke Museum. "The Waterlines Project." Burke Museum. 2017. https://www.burkemuseum.org/static/waterlines/images/maps-and-images/waterlines_map_medium.pdf.

Burke Museum and Elise Krohn. "Traditional Coast Salish Foods." The Burke Museum. 2012. https://www.burkemuseum.org/sites/default/files/2019-07/reviving_traditional_food_knowledge.pdf

Charles, Dan. "Food Shortages? Nope, Too Much Food in the Wrong Places." *NPR*, April 3, 2020. https://www.npr.org/sections/thesalt/2020/04/03/826006362/food-shortages-nope-too-much-food-in-the-wrong-places

Cipalla, Rita. "P-Patch Program." History Link. Last modified November 8, 2018. https://historylink.org/File/20662#:~:text=The%20P%2DPatch%20Program%20is,to%2Dthe%2Dearth%20movement.&text=The%20Picardo%20farm%20in%20Wedgwood,nation's%20largest%20community%2Dgardening%20program.

City of Seattle Office of Immigrant and Refugee Affairs. 2016. Seattle's Immigrants and Refugees [Infographic]. https://www.immigrationresearch.org/system/files/OIRA_DataSnapshot.pdf

City Fruit. "Best Fruits for Western Washington Yards." 2018. https://www.cityfruit.org/sites/default/files/file-uploads/bestfruitvarieties.pdf

City Fruit. "City Fruit." Accessed April 29, 2020. City Fruit. cityfruit.org.

Clark, Kyle H. and Kimberly A. Nicholas. "Introducing urban food forestry: a multifunctional approach to increase food security and provide ecosystem services." Landscape Ecology. V. 28, no. 9: 1649 - 1669. 2019. Online: https://link.springer.com/content/pdf/10.1007%2Fs10980-013-9903-z.pdf

Coleman-Jensen, Alisha and Smith, Michael D. "Food Security in the US." United States Department of Agriculture: Economic Research Service., last modified September 9, 2019. https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/interactive-charts-and-highlights/.

Deloria, Vine. *Indians of the Pacific Northwest.* 1. ed. ed. Garden City, NY: Doubleday, 1977.

Department of Ecology State of Washington. "Site History." Lower Duwamish Waterway. Accessed May 20, 2020. https://ecology.wa.gov/Spills-Cleanup/Contamination-cleanup/Cleanup-sites/Toxic-cleanup-sites/Lower-Duwamish-Waterway/Site-history.

Dern, Judith. *The Food and Drink of Seattle: From Wild Salmon to Craft Beer.* Big City Food Biographies. US: Rowman & Littlefield Publishers, 2018. http://portal.igpublish.com/iglibrary/search/ROWMANB0018627.html.

Dubois, Nina. "Local Food, Urban Gardening, and Art." *Sustainability* 6 (3): 131-133. 2013. https://doi-org.offcampus.lib.washington.edu/10.1089/SUS.2013.9872.

Dunbar, R.I.M. "Breaking Bread: the Functions of Social Eating." *Adaptive Human Behavior and Physiology* 3, 198–211, 2017. https://doi.org/10.1007/s40750-017-0061-4.

Duwamish River Cleanup Coalition. "Duwamish River a SuperFund Site." Duwamish River Cleanup Coalition. Accessed May 15, 2020. https://www.duwamishcleanup.org/superfund.

Egan, Sophie. *How to be a Conscious Eater: Making Food Choices that are God for You, Others, and the Planet.* New York: Workman Publishing, 2020. E-book.

Egan, Sophie and Tim Egan. "Conscious Food Choices for Ourselves and the Planet." March 19, 2020. Townhall, Seattle, Washington. YouTube. https://townhallseattle.org/event/sophie-egan-with-tim-egan-2020/.

Eirman, Colby. *Fruit Trees in Small Spaces: Abundant Harvests From Your Own Backyard.* Portland, Oregon: Timber Press, 2012. E-book.

Eliades, Angelo. "The Problem with Urban Agriculture? – A Fact Based Rebuttal to a Landscape Architecture's Misconceptions." The Permaculture Research Institute. Last

modified November 16, 2016. https://permaculturenews.org/2016/11/17/problem-urban-agriculture-fact-based-rebuttal-landscape-architectures-misconceptions/.

Eliades, Angelo. "Understanding Urban Agriculture – Part 1, the Present State in Historical Context." Permaculture Research Institute., last modified October 5, 2016. https://www.permaculturenews.org/2016/10/05/understanding-urban-agriculture-part-1-present-state-historical-context/.

Eliades, Angelo. "Urban Agriculture and Food Sovereignty." The Permaculture Research Institute., last modified December 22, 2016. https://permaculturenews.org/2016/12/22/urban-agriculture-food-sovereignty/.

Facebook, Inc. "Facebook." Apple App Store, Version 274.0. (Accessed on 20 May 2020).

"Fallen Fruit." Fallen Fruit. Accessed April 20, 2020. fallenfruit.org.

Fresh Food Connect. "Fresh Food Connect." Apple App Store, Version 1.6.8. (Accessed on 20 May 2020).

"Food Action Plan." Office of Sustainability & Environment, Seattle. Accessed April 29, 2020. https://www.seattle.gov/environment/sustainable-communities/food-access/food-action-plan.

FROM SEED TO SPOON, LLC. "From Seed to Spoon." Apple App Store, Version 7.2.13. (Accessed on 20 May 2020).

Garcia, Eduardo. "Where's the Waste? A 'Circular' Food Economy could Combat Climate Change." *New York Times*, September 24, 2019. https://www.nytimes.com/2019/09/21/climate/circular-food-economy-sustainable.html?searchResultPosition=1.

Garcia, Eduardo and Lisa Friedman. "One Thing You can do: Know Your Organic Food." *New York Times*, November 6, 2019. https://www.nytimes.com/2019/11/06/climate/nyt-climate-newsletter-organic-food.html?searchResultPosition=7.

Geise, Judie. *The Northwest Kitchen.* B. Wright & Co: Seattle, 1978.

Glean, LLC. "Glean." Apple App Store, Version 1.2.0. (Accessed on 20 May 2020).

GPSmyCity.com, Inc. "Seattle Map and Walks." Apple App Store, Version 7.1.1. (Accessed on 20 May 2020).

Growing Interactive. "Homegrown." Apple App Store, Version 3.1.2. (Accessed on 20 May 2020).

Hart, Jane. "Culinary Medicine: Home Cooking Essential for Good Health." *Alternative and Complementary Therapy* 25 (1): 43-45. 2019. https://doi-org.offcampus.lib.washington.edu/10.1089/act.2018.29203.jha.

Hegstand, Patsy Adams. "Queen City of the Puget Sound." Accessed May 10, 2020. Scandinavian Settlement in Seattle 30: 55. https://www.naha.stolaf.edu/pubs/nas/volume30/vol30_02.htm.

Hinchliff, Catherine. "Ethiopian and Eritrean Communities in Seattle." History Link., last modified November 16, 2010. https://www.historylink.org/File/9615#:~:text=Since%20 2000%2C%20very%20few%20Ethiopian,to%20Seattle%20on%20Diversity%20 Visas.&text=The%20first%20Ethiopians%20came%20to,work%20and%20live%20in%20 Ethiopia.

Hou, Jeffrey. "Urban Community Gardens as Multimodal Social Spaces." In *Greening Cities: Forms and Functions*, edited by C. Y. Jim and Puay Yok Tan, 113-130. Singapore: Springer Nature, 2017.

Hou, Jeffrey and David Grohmann. "Integrating Community Gardens into Urban Parks: Lessons in Planning, Design and Partnership from Seattle." *Urban Forestry & Urban Greening* 33: 46-55. 2018. https://doi.org/10.1016/j.ufug.2018.05.007.

Hou, Jeffrey and David Grohmann. "Urban Forestry & Urban Greening." *Urban Forestry & Urban Greening* 33: 46-55. 2002. http://www.sciencedirect.com/science/article/pii/S1618866717306805.

Hucka, Judy. "About the P-Patch Program: History." Seattle Department of Neighborhoods. Accessed June 1, 2020. http://www.seattle.gov/neighborhoods/programs-and-services/p-patch-community-gardening/about-the-p-patch-program/history.

Husted, Kristofor. "Want to Forage in Your City? there's A Map for That." *NPR.org*. Last modified April 23, 2013. https://www.npr.org/sections/thesalt/2013/04/23/178603623/want-to-forage-in-your-city-theres-a-map-for-that.

"Imperfect Produce Storage Guide." Imperfect Produce.com. Received Spring 2018.

Jacobson, Arthur Lee. *Wild Plants of Greater Seattle.* Self-published, Arthur Lee Jacobson, 2001.

Jennings, L. Deziah. "Washington Equal Suffrage Association. (1909-1908). Washington women's cook book." The Washington Equal Suffrage Association, Seattle, 1909. https://hdl.handle.net/2027/nyp.33433082247440

Kaiser, Libby Sky. "Seattle Grows an Edible Urban Forest." *Planning;* Chicago 78 (7): 8. 2012. https://search.proquest.com/docview/1033365760/abstract/5AF2BBAE07574FD4PQ/1.

Kiersz, Andy and Carmen Reinicke. "These 5 Charts show how the Coronavirus Crisis has Dwarfed the Great Recession in just 2 Months." *Business Insider*, May 23, 2020. https://www.businessinsider.com/5-charts-how-coronavirus-economic-fallout-compares-to-great-recession-2020-5.

Kistler, Nicole. *agriCULTURE: A Plan for Cultivating Arts and Culture in Seattle's Urban Agricultural Sites*. 2013. https://www.seattle.gov/Documents/Departments/Arts/Downloads/Arts-Plans/agriCULTURE.pdf

Koltko-Rivera, Mark E. "Rediscovering the Later Version of Maslow's Hierarchy of Needs: Self-Transcendence and Opportunities for Theory, Research, and Unification." *Review of*

General Psychology 10 (4): 302-317. 2006. https://www.simplypsychology.org/maslow(2).pdf.

Kranz, Lauri and Dean Kuipers. *A Garden can be Anywhere: Creating Bountiful and Beautiful Edible Gardens*. New York: Abrams, 2019. E-book.

Krishna, Priya. "How Native Americans are Fighting a Food Crisis." *New York Times*, April 13, 2020. https://www.nytimes.com/2020/04/13/dining/native-americans-coronavirus.html.

Kruckenberg, Arthur R. *The Natural History of Puget Sound Country.* Seattle: University of Washington Press, 1991.

Kurth, Angela M., Darcia Narvaez, Reilly Kohn, and Andrea Bae. "Indigenous Nature Connection: A 3-Week Intervention Increased Ecological Attachment." *Ecopsychology*, May 2020. https://doi-org.offcampus.lib.washington.edu/10.1089/eco.2019.0038.

LettuceLink. *Gardening for Good Nutrition: A Guide to Growing Your Own Healthy Food*. Solid Ground. Accessed April 1, 2020. https://www.solid-ground.org/wp-content/uploads/2015/11/GardeningGuide.pdf

Lödige, Marie. "Trace Your Food Back to its Source." Food Unfolded., last modified April 9, 2019. https://www.foodunfolded.com/how-it-works/trace-your-food-back-to-its-source.

Love Food Stop Waste. *Fruit & Vegetable Storage Guide*. Seattle Public Utilities. Accessed February 1, 2020. http://www.seattle.gov/util/cs/groups/public/@spu/@conservation/documents/webcontent/1_037049.pdf

Malone, Karen. "Uneasy Assemblages of Childearthbodies." In *Nurturing Nature and the Environment with Young Children*, edited by Janice Kroeger, Casey Y. Myers and Katy Morgan. New York: Routladge, 2019.

Marris, Emma. *Rambunctious Garden: Saving Nature in a Post-Wild World*. New York: Bloomsbury, 2013. E-book.

Mather, Robin. *The Feast Nearby*. Berkley: Ten Speed Press, 2011. E-book.

Mary's Blog. "Pacific Northwest Vegetable Planting Guide." Mary's Heirloom Seeds., last modified November 29, https://www.marysheirloomseeds.com/blogs/news/78211329-pacific-northwest-vegetable-planting-guide.

McGowan, Kerry. "What's Happening to the Coho Salmon in Longfellow Creek?" Puget Soundkeeper., last modified February 21, http://pugetsoundkeeper.org/2017/02/21/whats-happening-coho-salmon-longfellow-creek/.

McLain, Rebecca, Melissa Poe, Patrick T. Hurley, Joyce Lecompte-Mastenbrook, and Marla R. Emery. 2012. "Producing Edible Landscapes in Seattle's Urban Forest." *Urban Forestry & Urban Greening* 11 (2): 187-194. https://doi.org/10.1016/j.ufug.2011.12.002.

McLeod, Saul. "Maslow's Hierarchy of Needs." Simply Psychology., last modified March 20, 2020. https://www.simplypsychology.org/maslow.html.

Nabhan, Gary Paul. *Growing Food in a Hotter, Drier Land: Lessons from Desert Farmers on Adapting*

to Climate Uncertainty. White River Junction, Vermont: Chelsea Green Publishing, 2013.

Nabhan, Gary Paul. *Renewing America's Food Traditions: Saving and Savoring the Continent's Most Endangered Foods*. White River Junction, Vermont: Chelsea Green Publishing, 2008.

"Handle with Care." *Nature* (445): 263–264. 2008. https://doi.org/10.1038/455263b.

Nettle, Claire and David Crouch. "Allotments and Community Gardens: History, Culture and Landscape in Britain, North America and Australia." In *Routledge Handbook of Landscape and Food*, edited by Joshua Zeunert and Tim Waterman, 462-474. New York: Routledge Handbooks, 2018.

Nextdoor. "Nextdoor: Local Neighborhood." Apple App Store, Version 5.209.6. (Accessed on 20 May 2020).

Nordahl, Darrin. *Public Produce: The New Urban Agriculture.* Washington, DC: Island Press, 2009.

Nosrat, Samin. "Samin Nosrat Wants Us to make Lasagna Together." *New York Times*, April 27, 2020. https://www.nytimes.com/2020/04/27/dining/samin-nosrat-lasagna.html.

Nourish. "Glossary." Nourish. Accessed May 15, 2020. https://www.nourishlife.org/learn/glossary/.

Papertank Limited. "World Walking." Apple App Store, Version 2.1.18. (Accessed on 20 May 2020).

Parham, Susan and Jacques Abelman. "Food, Landscape, and Urban Design." In *Routledge Handbook of Landscape and Food*, edited by Joshua Zeunert and Tim Waterman, 409-432. New York, New York: Routledge, 2018.

PICDLOCAL LLC. "PicdLocal." Apple App Store, Version 3.3.0. (Accessed on 20 May 2020).

Pollan, Michael. *Cooked.* New York: Penguin Books, 2004. E-book.

Pollan, Michael. *Second Nature: A Gardener's Education.* New York: Grove Press, 1991.

"PNW Women's Wild Foraging and Bushcraft Connection." Facebook.com., last modified October 20, 2017. https://www.facebook.com/groups/1836857379674913/about.

Prati, Fabio. "Gardenia." Apple App Store, Version 2.4.9. (Accessed on 20 May 2020).

Project Drawdown. "Project Drawdown." Project Drawdown. Accessed March 1, 2020, https://www.drawdown.org/frequently-asked-questions.

Quested, Eleanor, Cecilie Thøgersen-Ntoumani, Hannah Uren, Sarah J. Hardcastle, and Richard M. Ryan. "Community Gardening: Basic Psychological Needs as Mechanisms to Enhance Individual and Community Well-Being." *Ecopsychology* 10 (3): 173-180. 2018. https://doi-org.offcampus.lib.washington.edu/10.1089/eco.2018.0002.

Ray's Boathouse and Cafe. "Cedar Plank Salmon." James Beard Foundation. Accessed May 1, 2020. https://www.jamesbeard.org/recipes/cedar-plank-salmon.

reddit. "Reddit." Apple App Store, Version 2020.21.1. (Accessed on 20 May 2020).

Reill, Sally. "Growing Vegetable in the Pacific Northwest Coastal Region." Oregon State University. Last modified July, 2017. https://extension.oregonstate.edu/gardening/vegetables/growing-vegetables-pacific-northwest-coastal-region.

Salmon Safe. "Every Place Matters in Keeping our Rivers Clean." Salmon Safe. Accessed April 20, 2020. https://salmonsafe.org/.

Seattle Department of Neighborhoods. "About the P-Patch Program." City of Seattle. Accessed June 5, 2020. http://www.seattle.gov/neighborhoods/programs-and-services/p-patch-community-gardening/about-the-p-patch-program.

Seattle Department of Transportation. "Gardening in the Planting Strip." City of Seattle. Accessed February 2020. https://www.seattle.gov/transportation/permits-and-services/permits/planting-in-the-right-of-way.

Seattle Department of Transportation. "Street Tree Manual." December 2014. https://www.seattle.gov/Documents/Departments/SDOT/About/DocumentLibrary/StreetTreeManualWEB.pdf

Seattle Public Utilities, Department of Neighborhoods, Department of Planning and Development, Department of Transportation, Department of Parks and Recreation, Office of the Mayor, Seattle City Council, The Local Hazardous Waste Management Program in King County, and Public Health - Seattle and King County. "Growing Food in the City" City of Seattle. 2016. http://www.seattle.gov/util/cs/groups/public/@spu/@conservation/documents/webcontent/02_013331.pdf.

Segrest, Valerie. *Coast Salish Food Sovereignty Presentation.* Video. Huxley Speaker Series, 2019. https://www.youtube.com/watch?v=0sBepRAKUn4

Sengupta, Somini. "How Much Food do we Waste? Probably More than You Think." *New York Times*, December 12, 2017. https://www.nytimes.com/2017/12/12/climate/food-waste-emissions.html.

South Seattle Community College Library. "The Delridge History Project." The Delridge History Project. Accessed February 17, 2020, www.delridgehistory.org.

South Seattle Historical Society Log House Museum. *Images of America: West Seattle.* Seattle: Arcadia Publishing, 2010.

Tamarkin, David. "Will Cooking really Help Us Feel Less Stressed?" *Epicurious*. Last modified March 12, 2020. https://www.epicurious.com/expert-advice/will-cooking-really-help-us-feel-less-stressed-article.

Tamarkin, David. "What to Cook when You're Too Anxious to Eat." *Epicurious*. Last modified November 9, 2016. https://www.epicurious.com/expert-advice/cooking-as-a-coping-

mechanism-during-stressful-times-article.

Thompson, David. "Food is Free Tacoma." Food is Free Tacoma. Accessed May 25, 2020. https://foodisfree253.com/.

Thrush, Coll. *Native Seattle: Histories from the Crossing-Over Place.* 2nd ed. Seattle: University of Washington Press, 2007.

"Tilth Alliance." Tilth Alliance. Accessed May 20, 2020. http://www.tilthalliance.org/.

Trees for Seattle. "Frequently Asked Questions." City of Seattle. Accessed April 2020. https://www.seattle.gov/trees/planting-and-care/trees-for-neighborhoods/frequently-asked-questions.

Trees for Seattle. "Trees for Neighborhoods." City of Seattle. Accessed April 2020. https://www.seattle.gov/trees/planting-and-care/trees-for-neighborhoods.

"Tree Walks." Trees for Seattle | seattle.gov., last modified April 2020. https://www.seattle.gov/trees/get-involved/tree-walks.

Troost, Kathy Goetz and Derek B. Booth. "Geology of Seattle and the Seattle Area, Washington." G*SA Reviews in Engineering Geology* 20: 1-36. 2008. https://doi.org/10.1130/2008.4020(01).

Under Armour, Inc. "Under Armour Walk." Apple App Store, Version 10.11.0. (Accessed on 20 May 2020).

Unknown. "Native Style Salmon Bake." Native American Recipes. Last modified October 20, http://nativefood.blogspot.com/2005/10/native-style-salmon-bake.html.

"Urban Agriculture." Office of Planning & Community Development, Seattle. Accessed April 29, 2020. https://www.seattle.gov/opcd/vault/urban-agriculture.

Weaver, Tara Austin. *Growing Berries and Fruit Trees in the Pacific Northwest: How to Grow Abundant, Organic Fruit in your Backyard*. Seattle, WA: Sasquatch Books, 2019. E-book.

Western Washington University Extension. "Western Washington Tree Fruit & Alternative Fruits: Pears." Washington State University. Accessed June 10, 2020. https://extension.wsu.edu/maritimefruit/tree-fruit/pears/

Whyte, William H. "The Social Life of Small Urban Places." In *Common Ground? Readings and Reflections on Public Space*, edited by Anthony M. Orum and Zachary P. Neal. Washington: Taylor and Francis Group, 2009. https://ebookcentral.proquest.com/lib/washington/detail.action?docID=446678.

Williams, Jacqueline B. T*he Way we Ate: Pacific Northwest Cooking, 1843-1900.* Pullman, WA: Washington State University Press, 1996.

Williamson, Aaron. "Ripelist." Apple App Store, Version 1.0.6. (Accessed on 20 May 2020).

WysockS. "Updating Seattle's Food Action Plan." Greenspace Blog, Office of Sustainability & the Environment., last modified August 19, https://greenspace.seattle.gov/2019/08/updating-

seattles-food-action-plan/#sthash.kwNMWjos.dpbs.

Yaffe-Bellany, David and Michael Corkery. "Dumped Milk, Smashed Eggs, Plowed Vegetables: Food Waste of the Pandemic." *New York Times*, April 11, 2020. https://www.nytimes.com/2020/04/11/business/coronavirus-destroying-food.html.

Yang, Rachel and Jess Thomson. *My Rice Bowl: Korean Cooking Outside the Lines*. Seattle: Sasquatch Books, 2017. E-book.


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