

**IT STARTS WITH A SEED:  
EXPLORING PLACE-BASED SOCIO-ECOLOGICAL CARE AND ALTERNATIVE ECONOMIES  
IN COMMUNITY SEED SAVING INITIATIVES**

A Thesis Submitted to the Department of Urban Planning and Design,

Harvard University Graduate School of Design

by

KATIE GOURLEY

In Partial Fulfillment of the Requirements for the Degree of

MASTERS IN URBAN PLANNING


May 2019

The author hereby grants Harvard University permission to reproduce and distribute copies of this Thesis, in whole or in part, for educational purposes.

Student Signature

Advisor Signature

  
\_\_\_\_\_  
Kathryn Gourley

  
\_\_\_\_\_  
Lily Song

IT STARTS WITH A SEED:  
EXPLORING SOCIO-ECOLOGICAL CARE AND ALTERNATIVE ECONOMIES IN  
COMMUNITY SEED SAVING INITIATIVES



Katie Gourley  
Master in Urban Planning  
Harvard Graduate School of Design  
Spring 2019

## Table of Contents

Preface .....	5
Abstract.....	6
Acknowledgements.....	6
Reflection the thesis.....	8
Chapter 1: Starting with Seed.....	10
The commodification of seed .....	11
Other causes of alienation in the food system .....	18
Seeds of resistance.....	19
Ex situ, in situ & in vivo conservation .....	20
Exploring community seed saving.....	22
CHAPTER 2: Research Aims, Design, and Methodology.....	23
Research aims .....	23
Research design & case selection .....	24
Methodology.....	30
CHAPTER 3: Conceptual Framework: Towards a feminist political economy of seed .....	34
Theorizing community seed saving.....	34
The rise of seed movement scholarship.....	35
Existing alternative food movement discourses .....	36
From food security to food sovereignty.....	38
Territorial binaries in AFM discourse .....	40
(Re)thinking of food as nature.....	41
Political ecology .....	42
More-than-human epistemologies .....	42
Feminist political ecology as an approach.....	43
Feminist critiques of ‘the green economy’ and ‘techno-fixes’ .....	45
Care.....	46
Place.....	46
The study of the everyday.....	47
Diverse economies theory.....	48
Food commons and public libraries.....	50

CHAPTER 4: Findings: Seed Saving as Place-Based Socio-Ecological Care.....	52
The material and conceptual practice of seed saving .....	52
Place-based care.....	53
Social care (for self, other humans and culture) .....	57
Ecological care (for more-than-human).....	61
From care to counterhegemonic practice.....	64
Situating urban seed saving .....	66
CHAPTER 5: Findings: Public Seed Libraries and the Re-Commoning of Seed.....	68
Operations: How does a seed library work? .....	69
Operations: Seed selection.....	73
Operations: Educational programs .....	76
Operations: A heterodox seed library movement .....	80
Operations: Challenges.....	81
What are the larger goals of a seed library set out to achieve?.....	82
How do public libraries function as sites to achieve these goals?.....	85
Conclusion: Planting New Seeds of Care.....	88
Appendix A: Semi-Structured Interviews .....	97
Appendix B: Sample Interview Guide.....	98
Appendix C: Email outreach .....	100
Bibliography .....	102

## Preface: Gratitude

“We are showered every day with the gifts of the Earth, gifts we have neither earned nor paid for: air to breathe, nurturing rain, black soil, berries and honeybees, the tree that became this page, a bag of rice, and the exuberance of a field of goldenrod and asters at full bloom. Though we live in a world made of gifts, we find ourselves harnessed to institutions and an economy that relentlessly asks, “What more can we take from the Earth?” This worldview of unbridled exploitation is to my mind the greatest threat to the life that surrounds us. Even our definitions of sustainability revolve around trying to find the formula to ensure that we can keep on taking, far into the future. Isn’t the question we need, *What does the Earth ask of us?*”

...

Our first responsibility, the most potent offering we possess, is gratitude. Now, gratitude may seem like weak tea given the desperate challenges that lie before us, but it is powerful medicine, much more than a simple thank you. Giving thanks implies recognition not only of the gift, but of the giver. When I eat an apple, my gratitude is directed to that wide-armed tree whose tart offspring are now in my mouth, whose life has become my own. Gratitude is founded on the deep knowing that our very existence relies on the gifts of other beings. The evolutionary advantage for cultures of gratitude is compelling. This human emotion has adaptive value because it engenders practical outcomes for sustainability. The practice of gratitude can, in a very real way, lead to the practice of self-restraint, of taking only what you need. Naming and appreciation of the gifts that surround us creates a sense of satisfaction, a feeling of “enoughness” that is an antidote to the societal messages that drill into our spirits, telling us we must have more. Practicing contentment is a radical act in a consumption-driven society.

...

I don’t think that it is more technology we need, or more money or more data. We need a change in heart, a change in ethics, away from an anthropocentric worldview that considers the Earth our exploitable property, to a biocentric, life-centered worldview in which an ethic of respect and reciprocity can grow.

...

How can we reciprocate the gifts of the Earth? In gratitude, in ceremony, through acts of practical reverence and land stewardship, in fierce defense of the beings and places we love, in art, in science, in song, in gardens, in children, in ballots, in stories of renewal, in creative resistance, in how we spend our money and our precious lives, by refusing to be complicit with the forces of ecological destruction. In healing.”

Selections excerpted from “Returning the Gift” by Robin Wall Kimmerer, *Minding Nature Journal*, vol. 7, no. 2, 2014

## Abstract

Humans have sowed, saved, and shared seeds for millennia. Maintaining relationships with seeds allows food growers to influence yield, taste, nutrition, as well as adapt to uncertain and changing climatic conditions. Yet, in the last half century, legal and policy regimes of biotechnology, intellectual property rights, and corporate consolidation have threatened rights and freedoms to save seeds, and the knowledge of how to do so. In turn, resistance efforts seeking to get seeds into the hands of the people and protect the ability to grow out and save open-pollinated, heirloom seeds through living conservation practices (*in situ* conservation) have sprouted up from the global to hyper-local scales. This thesis explores particular trends in community seed saving and the seed sovereignty movement in North America through the lens of feminist political ecology. This multi-site case study of public seed libraries in the San Francisco Bay Area investigates seed saving as a material and discursive practice of place-based socio-ecological care, as well as public libraries as sites of alternative sharing economies. The stories presented here suggest that seed saving and sharing—within and across place-based communities—can stoke transformative imaginations, spur collective action, and nurture hope for dealing with the multiple crises and injustices perpetuated by the industrial agro-food system through enacting an ecological-economy of care. Emphasis is placed on the need for scholarship to make uncompensated acts of care visible and to foreground non-dominant worldviews.

## Acknowledgements

I am endlessly thankful to the many people who provided support throughout this project and beyond:

To the seed keepers, food activists, librarians, and urban gardeners who shared your resources, stories and immense wisdom with me, thank you for modeling such care for the planet.

To my brilliant advisor, Lily Song, thank you for being an endless inspiration, for your mentorship, and for challenging me to bring imagination to the realm of critical planning.

To the Harvard GSD Healthy Places Design Lab and the Harvard Native American Program for providing support which made research travel possible.

To the Ohlone people, thank you for hosting me on your lands as I conducted much of my field research.

To my network of immensely powerful, brilliant, and inspiring womxn, thank you for being far-and-away been the best teachers I could have hoped to find at the GSD.

To Mother Earth, thank you for the endless lessons and inspiration, and for the physical and spiritual nourishment you continue to provide in spite of the trying conditions we have created.

To my best friend Kristen Emery, thank you for forever and always being on Team K with me.

Finally, to my mother, Cecily Gourley, thank you for teaching me everything I know about how to make sense of the world around me. Thank you for teaching me when to follow a recipe and when to throw caution to the wind and add *just a bit more*. Thank you for the cream puffs that you didn't know I was slowly eating my way through straight from the freezer as a child. And, thank you for modeling an endless capacity for care.



**“Small Flowers Crack Concrete”  
Reflection the thesis**

Walking up a stereotypically steep hill of San Francisco this January, I stopped to purchase a copy of *Street Sheet* (a newspaper published by San Francisco’s Coalition on Homelessness). As I glanced down at the cover, a woodblock print<sup>1</sup> depicting a messy pile of dandelions cracking through harsh cement stared back at me. This image travelled home with me has remained next to me at my desk all along as I worked on this project.

---

<sup>1</sup> Created by Bay Area printmaker Buddy Whisler.



Though I set out to write this thesis with a set of questions some of which I have found answers to, however incomplete, I am going forwards with more questions than ever. This thesis does not conclude with a magic formula or prescribed set of policy objectives or interventions. I am left holding on to the power of the big questions that surface when we dare to demand more from the world around us. Imagination and creativity are essential in today's day and age when hope can feel anemic. So, I interested readers to join me in sitting with questions that can help us reimagine the world and our responsibilities within it.

What would it look like to wake up and think differently about the spaces our bodies inhabit? What would it take to replace human arrogance with empathy toward the multitude of other beings we share those spaces with? What would it mean to act from a place of gratitude and humility rather than expectation and extraction? What would it mean to say the words wellbeing, justice and love more often in our educational and policymaking arenas? What would it mean to seek *less* not more? Where are the stories that remind us of our responsibility to act as custodians and caretakers for each other and our places? What are the stories held in the soils in our front and back yards, in the plants that feed us, in the waters that sustain us?

Many times, the answers to these questions are found already living and breathing in our communities. The stories of these worldviews are the small flowers that grow up through the cracks in the concrete. I am interested in imagining what our power is to tend to these flowers. I am interested in imagining a world so full of these flowers that our concrete paths, the very ones that once often seem so impenetrable, become cracked with so many small flowers that they are too crumbled to walk on. We may finally be forced to confront it is time to replace them with something softer.



## Chapter 1 Starting with Seed<sup>2</sup>

“How generously they shower us with food, literally giving themselves so that we can live. But in the giving their lives are also ensured. Our taking returns benefit to them in the circle of life making life, the chain of reciprocity. Living by the precepts of the Honorable Harvest—to take only what is given, to use it well, to be grateful for the gift, and to reciprocate the gift” – Robin Wall Kimmerer<sup>3</sup>

Seed sovereignty: the rights to breed and exchange diverse open-source seeds which can be saved and which are not patented, genetically modified, owned or controlled by emerging seed giants.<sup>4</sup>

Seeds provide a physically and metaphorically powerful starting point for imagining and enacting a more just and sustainable food future. What is more, they are a *necessary* starting point. For most of human history, seed saving was simply a cultural norm (Phillips 2005, 2013). However, the practice of saving seed from season to season is now the exception to the rule, seen as an anachronistic practice or

---

<sup>2</sup> The photographs that appear at the start of each chapter were taken by the author during field research conducted in the San Francisco Bay Area during January 2019.

<sup>3</sup> From *Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge, and the Teachings of Plants* (2013), pg. 20.

<sup>4</sup> Definition by Dr. Vandana Shiva

merely a hobby in the eyes of decision makers who embrace and endorse the standards of industrial agriculture and intellectual property rights (ibid.). The material practice of seed saving,<sup>5</sup> as well as the cultural traditions, stories, and embodied knowledge related to seed, are increasingly marginalized and threatened with extinction (Campbell and Veteto 2015). Traditional crops are being lost to climatic change, political upheavals, and developments in the biotechnology industry and in plant genetic patenting laws as the seed industry becomes increasingly consolidated into the hands of a few powerful multinational corporations (Nazarea and Rhoades 2013, 7). Upon paying attention to the world of seeds, it is hard to overlook the urgent implications of how disconnected and alienated we have become from the material on which our survival depends (Kloppenborg 2004; Phillips 2011). This is particularly apparent in urban settings where land-based knowledge, along with the labor and care involved in sustaining the food system, are made invisible.

This thesis explores urban community seed saving to unpack and understand the significance of local grassroots efforts to get open-pollinated, heirloom seeds into the hands of the people. Applying the lens of feminist political ecology, which centers care, everyday life, and practices which establish “diverse economies” (Gibson-Graham 1996, 2006), this paper presents particular trends in the seed sovereignty movement as they play out in North American seed libraries. Specifically, through a multi-site case study in the Bay Area, it reads the act of seed saving as a practice of place-based socio-ecological care and public seed libraries as alternative economies which facilitate the translation of that care to the public sphere by a process of re-commoning. The stories presented here suggest that seed saving and sharing – within and across place-based communities – can stoke transformative imaginations, spur collective action, and nurture hope for dealing with the multiple crises and injustices perpetuated by the industrial agro-food system.

### *The commodification of seed*

Present day disconnection between humans and the arts and sciences of seed saving is no coincidence. It is the direct byproduct of a century defined by market consolidation, manipulation of nature, expansion of private property rights into the realm of plant genetic resources, a hollowed out public agricultural research sector, and enduring impacts of colonization and racialized spatial politics. Turning our attention to the ways in which both nature and people are oppressed by the driving ideologies behind the industrial agro-food system reveals how centuries of traditional seed exchange, collective local knowledge, and ethical seed stewardship (Center for Food Safety 2013) have been replaced by an

---

<sup>5</sup> The definition used throughout this thesis when referring to seed saving is from Phillips (2013, 3-4) as: “a shorthand term that represents the complex acts of planting, tending, harvesting, storing, eating, and replanting of seeds, as well as the attendant processes of exchanging and knowledge building.”

increasingly dystopic global seed system. This section provides a brief context-setting exploration of the dynamics of this system within the U.S.<sup>6</sup>

Farmers and gardeners around the world have sowed, saved, and shared seeds for millennia. Yet, over the past century, the driving forces of capitalism have manipulated policy, as well as seeds themselves, in order to privatize and commodify these natural resources (Kloppenborg 2004). The privatization of the seed industry is a mirror of today's "dominant economic paradigm [which] converts basic elements of life – such as seeds and genetic resources – into private commercial assets" (Center for Food Safety). Capital has pursued this process of commodification despite the fact that seed inherently resist commodification as a resource which naturally and abundantly reproduces itself (Kloppenborg 2004, see also Shiva 1993, 2000; Classens 2014). Commodification has been achieved through two primary channels: the manipulation of genetic material through biotechnology and genetically engineered seed (GE, also commonly referred to as genetically modified organisms, or GMOs), and the extension of intellectual property rights (IPR) and patenting regimes to plant germplasm (Kloppenborg 2004). These two forces can be understood as mutually-reinforcing: "IPR rules, particularly following the 1985 *Diamond v. Chakrabarty* decision (the first ever patent issued to a life form), have expedited the adoption of GE seeds and simultaneously, GE seed technology broadens the scope of seed patenting" (Center for Food Safety, parenthesis added). The rise of a "commercial seed culture" (Gonzales 2013) reflects broader trends in the industrialized food system towards monoculture, mechanization, specialization, and consolidated power.

Prior to colonial occupation, Indigenous communities in North America maintained seed keeping practices which allowed them to survive sustainably for thousands of years. Even following colonization and the rise of settler agriculture in the US, seeds remained in the public commons as freely-exchanged, renewable natural resources. Seed was saved from year-to-year on farms or shared within social networks. At the turn of the twentieth century, seed development and distribution largely shifted to the public sector, which worked in collaboration with small-scale, on-farm seed breeders (Center for Food Safety). In fact, when the U.S. Department of Agriculture (USDA) was established in 1862, at least one-third of its budget was explicitly allocated to collecting and distributing seeds (ibid.). By 1900, the USDA was shipping over one billion packets of free seeds around the country each year (Carolan 2018). During this time period, legislation also consistently allocated public funds to research and development at public land grant universities. However, when private interests began to get involved with seed breeding, the history of American seed politics took a turn. As the Center for Food Safety states:

---

<sup>6</sup> A complete critical history of the seed industry and plant biotechnology developments is beyond of the scope of the present paper. See Jack Kloppenburg's *First the Seed* (2004) and The Center for Food Safety's report "Seed Giants vs U.S. Farmers" for a more comprehensive review of the political economy the seed industry its impacts on farmer and consumer choice.

“With the view that government seed programs constrained potential profits, the nascent seed industry aimed to shift seed breeding and development away from government programs toward private, commercial entities. Through lobbying and other means of influence in the last several decades, industry has steadily established intellectual property rights and patent regimes of exclusivity through legal and policy instruments.”

The rise of this profit-seeking mentality is demonstrated in a letter from two plant breeders belonging to the newly formed American Seed Trade Association in 1919: “The man who originates a new plant which may be of incalculable benefit to the whole country gets nothing – not even fame – for his pains, as the plants can be propagated.” (Carolan 2018). This excerpt reveals the way heteropatriarchal, hyper-individualistic ideals began to infiltrate the realm of seeds. The sentiment betrays an ahistorical stance which neglects to account for the ways a new plant is not an achievement of one plant breeder but rather builds on the labor of past breeders as well as the labor of the seeds, soil, and water that co-generate new plant varieties.

Understanding the regulatory mechanisms which allow seeds to be patented, and which simultaneously erase centuries of collective knowledge, is important to situate the community seed saving explored in this thesis in a framework of resistance. As Breen (2015) notes: “Both scholars and food sovereignty activists have characterized the increasing dominance of proprietary seeds as a trend that dampens local efforts to save seed, maintain diverse food crops, and control agricultural production” (40). While a full historical analysis is beyond the scope of this thesis, the following timeline<sup>7</sup> outlines select milestones that help put the development of the U.S. patenting system and GE seed development into this context:

<b>1930 Plant Patent Act (PPA)</b>	Allows asexually reproduced plants, excluding tuber-propagated plants, to receive patent protection
<b>1970 The Plant Variety Protection Act (PVPA)</b>	Gives plant breeders 25 years exclusive IPR for newly developed plant varieties, including sexually reproduced plants and tuber-propagated plant varieties.
<b>1980 <i>Diamond V. Chakrabarty</i></b>	Supreme court case awarding the first patent on life – a utility patent – for a genetically engineered bacterium.
<b>1980 The Bayh-Dole Act</b>	Allows public institutions to obtain patents on publicly funded research; this initiates the rise of private industry-funded public plant breeding research.
<b>1985 <i>Ex Parte Hibberd Case</i></b>	Extends the ruling of <i>Diamond v. Chakrabarty</i> to include sexually-reproduced plants.
<b>1994 First GE Crop</b>	Calgene’s Flavr Savr tomato approved for commercial sale in the U.S.
<b>1995 Rapid Rise in GE patents</b>	Canola (Calgene), Bt corn (Ciba-Geigy), herbicide-resistant (HR) cotton (Calgene), Bt cotton (Monsanto); Bt Potatoes (Monsanto), HR soybeans (Monsanto), virus-resistant squash (Asgrow), and three

<sup>7</sup> Timeline reproduced by author using materials and research conducted by the Center for Food Safety and Kloppenburg (2004).

additional delayed ripening tomatoes (DNAP, Zeneca/ Peto, and Monsanto).

<b>1995 World Trade Organization's Trade-Related Aspects of Intellectual Property Rights (TRIPS)</b>	Introduces intellectual property law into the multilateral trading system; remains the most comprehensive multilateral agreement on IPR to date
<b>1998 U.S. Patent No. 5,723,765</b>	Issued to the USDA and Delta & Pine Land Co for seeds which had been engineered so that, when drenched with the antibiotic tetracycline, a toxin gene is activated which does not impede the plant's growth but renders its seeds infertile; This is often referred to as "terminator technology"
<b>2001 J.E.M. Agricultural Supply V. Pioneer Hi-Bred</b>	Supreme court case upholds that utility patents may be issued for crops and other sexually-reproducing plants. Justice Clarence Thomas, who authored the majority decision in the case, had formerly served as a lawyer for Monsanto in the 1970s, yet was not required to recuse himself from the case <sup>8</sup> .

Given the rapid changes in seed regulation in the last few decades, power over the global seed market is now concentrated in the hands of the world's largest agrochemical producers. After the recent mergers between Dow and Dupont (a \$130 billion deal announced in 2015), Chemchina and Syngenta (a \$43 billion announced in 2016), and Bayer and Monsanto (a \$63 billion deal announced in 2016) what used to be known as "The Big 6" became "The Big 4" (Howard 2019). Figure 1 depicts ownership changes from 1996 to 2018 in the seed industry. These four companies, which control over 60 percent of the global proprietary seed market, also control over 70 percent of the global pesticide market. Economists consider an industry to have lost its competitive character if the concentration ratio within top four firms reaches 40 percent (Hubbard 2019). The seed industry far exceeds this level of concentration.

---

<sup>8</sup> This fact comes from the 2008 documentary film Food, Inc.



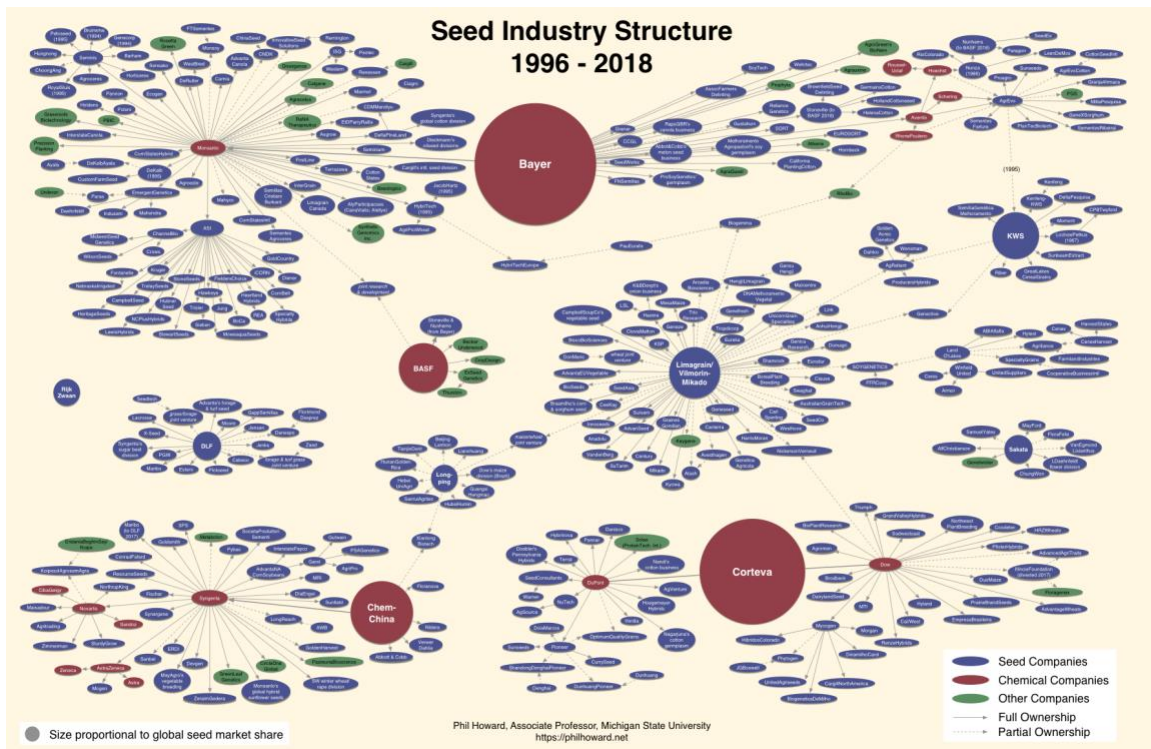


Figure 1. This chart documents ownership changes in the seed industry from 1996 to 2018. The size of the largest circles is proportional to global seed sales, which are dominated by Bayer and Corteva. Produced by Phil Howard, Michigan State University, January 2019.

The consolidation of the seed industry by agrochemical corporations means that global seed markets are driven by these corporations’ motivation to sell seeds and chemicals as a package. Given this, commercial seed is defined by two ecological and economic features worthy of concern. First, commercial seed is bred to not be able to reproduce itself. Second, it is bred to be dependent on a prescribed set of proprietary chemical inputs in order to grow survive. The impacts on human and planetary health of what Schapiro (2018) refers to as “entire generations full of crack-baby seeds” (10), are cause for significant concern. Every year, an estimated 250 million pounds or more of glyphosate, just one of the over 20 proprietary chemicals active in Monsanto’s Roundup, are sprayed on American crops. Figure 2a maps agricultural glyphosate usage in 2016 while Figure 2b charts the chemical’s use by year and crop type since 1992. By reading these graphics with timeline shown above, we can see the rise of patented GE seed – particularly in commodity crops such as corn and soybean – and the massive spike in glyphosate application occur at the same time in the 1990s.

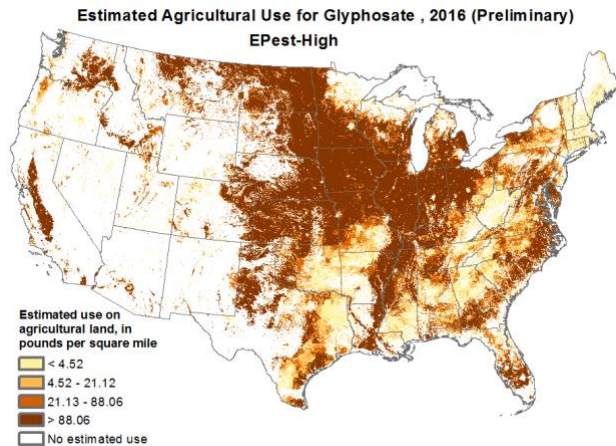


Figure 2a. Map created by the U.S. Geological Survey (USGS is the sole science agency for the Department of the Interior) estimating agricultural pesticide use in the conterminous United States based on farm surveys of pesticide use and estimates of harvested crop acres.

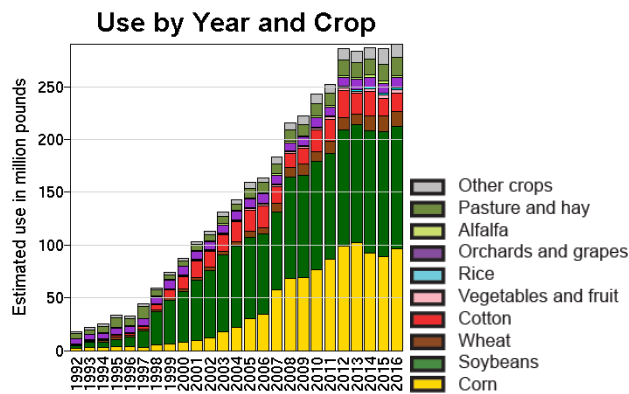


Figure 2b. Chart depicting annual national glyphosate use by major crop each year. Source: USGS

The correlation between GE seeds and pesticide use is important as more awareness is raised about the impacts of these chemicals on human and environmental health. Marginalized farmworkers are the most vulnerable to these threats, yet the pesticide-dependent production of commodity crops continues to be heavily subsidized by the U.S. government. This spring (2019), a jury in California just ordered Monsanto – one of the three multinational corporations that control over 60 percent of the global seed market<sup>9</sup>– to pay \$2 billion in damages to a couple whose cancer was found to be caused by exposure to glyphosate from Roundup. This decision came just months two similar cases ruling against the chemical giant (Reuters 2018). These precedent-setting court rulings are the first ever of their kind and offer a small glimmer of hope for legal justice in the context of an otherwise sobering reality of how deeply our lands

<sup>9</sup> Corporations control an even larger portion of the proprietary seed market in the US, where genetically modified seeds predominate (Lianos and Katalevsky 2017).



and bodies are impacted by chemicals seeds are bred to be dependent on. There are currently more than 11,000 similar suits filed against Monsanto in state courts across the country. More than 800 lawsuits are pending in the U.S. District Court of San Francisco alone (US Right to Know).

Genetic manipulation, chemical dependency and the extension of IRP to seed has given rise to other impacts on social and environmental wellbeing as well. This includes dramatic declines in biodiversity being witnessed worldwide, increased vulnerability to disease and crop failure (the Irish Potato Famine provides a particularly striking example of this type of risk), and threatened global food security. This is in addition to the fact that cultural foodways and traditional ecological knowledge are marginalized and erased under commercial seed culture (Nazarea 2013, Shiva 2000, Kloppenburg 2013). Given the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystems Services's release of a sobering 1,500-page report in May 2019, which concluded that humans are altering the natural world at rates "unprecedented in human history" and biodiversity loss is set to threaten thousands of species with extinction while negatively impacting food security and access to clean water, the implications of biodiversity loss must be treated with express urgency (Carneiro da Cunha et al. 2019, 3). Agro-biodiversity is the subset of natural biodiversity which includes plant genetic resources used for food and agriculture (Galluzzi et al. 2010, 3636). An estimated 75 percent of all crop plant varieties were lost in the 20th century (Food and Agriculture Organization of the United Nations 1999). This loss is depicted in Figure 3. The loss of agro-biodiversity produces an image of the global food system as a tree with thinning root structures, metaphorically suggesting its vulnerability to collapse, even if it looks otherwise from the visible surface (National Geographic).

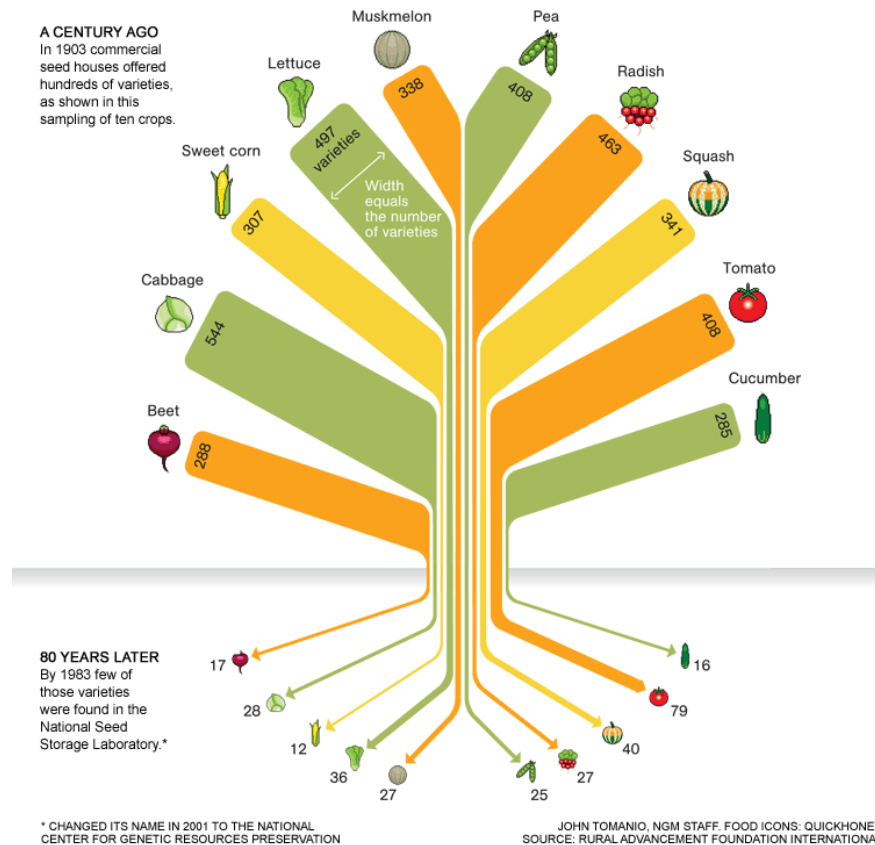


Figure 4. Results of a 1983 study of crop plant diversity loss in commercial seed houses between 1903 and 1983 calculated by the Rural Advancement Foundation International as published in the July 2011 issue of National Geographic.

In light of increasing ecological threats directly tied to the industrial agro-food system, the movements for food and seed sovereignty are more urgent than ever. In this urgency, it is important to view seeds not merely as sites of despair, but instead as sites of resistance, hope and possibility for new worlds. Cheney (2016) writes, just as food is a “locus of oppression, so too can it be a site of resistance against capitalism and patriarchy.” The same can, and must be, said of seed.

#### *Other causes of alienation in the food system*

There are many other factors at play when considering how and why alienation<sup>10</sup> from our food system occurs. These require careful and contextualized consideration. Communities of color often experience heightened alienation from the source of food in nature due to the continuing impacts of white supremacy, and colonialism. The unhealed wounds that originate in the very founding of the nation have produced legacies of trauma and lasting policy ramifications which further serve to inscribe a sense of

<sup>10</sup> A useful definition of the word alienation as it is used in this thesis comes from Marx’s notion of people being estranged from their “species essence;” however, here the term pays more close attention to the disconnection and dissociation of humans from the natural world, including plant life, wildlife, and elements such as water, soil, and air, all of which are required to produce the foods we consume.

alienation between certain communities and the act of growing food. For example, the erasure of Native American foodways is the direct result of settler colonialism, scorch and burn tactics, and multiple centuries of U.S. governmental policies which have sought to acculturate tribal communities through the control of food (Breen 2016). The institutions of slavery and subsequent systems of sharecropping involved forced agricultural work under inconceivably violent conditions. Gendered relations and unequal distribution of care labor related to food deeply affects social and ecological experiences in the food system. Further, class-based experiences of food dictated by the violence of systemic poverty and economic inequality hinder closeness and intimacy with food and nature relations.

However, communities with conflicting and oft-traumatic experiences with food growing, on the other hand are those most often leading the way in reclaiming the act of gardening and farming as a source of liberation (see: White 2018; Breen 2016; Nelson 2009; Penniman 2018). Gardening and farming have played an important role in grassroots resistance movements in marginalized urban communities as means of asserting agency and control over spaces of the built environment neglected by public and private entities. Sensitivities and cultural awareness of experiences of food related to the legacies dispossession, displacement, and forced land-based labor must be at the forefront when discussing topics such as those presented in this thesis.

### *Seeds of resistance*

Alarmed and concerned by the commercial seed industry, motivated seed savers all over the world – including urban and rural farmers, home gardeners, chefs, Indigenous community leaders, agricultural anthropologists – refuse to accept corporate control, monoculture, rampant pesticide use, and shrinking human rights as the new normal. Unwilling to wait for politicians to promote change, seed savers engage in everyday practices and grassroots strategies to achieve “agrobiodiversity conservation and food sovereignty” (Campbell and Veteto 2015). Preserving and reawakening the practice of seed saving has risen as a form of resistance with radical political implications. Struggles over seed issues go beyond “protest and denunciation” (Demeulenaere 2014, ii) and move towards real alternatives at multiple scales. From the hyper-local to the global, seed activists are engaging in diverse articulations, from “lobbying for international policy and performing street theatre [to] doing scientific research into the ecological impact of GE crops and growing [their] own food in the backyard with open-pollinated seed” (Phillips 2006, 169-170).

Stories of seed-based resistance are nothing new. My exploration of this topic builds on generations of knowledge and wisdom involving a powerful legacy of seeds linked to survival in the face of struggle, oppression, and violence. Oral histories tell of women who braided rice, okra, and millet seeds into their hair before being forced to board the ships of the transatlantic slave trade “as insurance for

an uncertain future” (Penniman 2018, 149). Leah Penniman, who dedicates her book *Farming While Black* to “our ancestral grandmothers, who braided seeds in their hair” notes that modern day seed stewardship is the work of honoring those ancestors (ibid., 161). These are the powerful stories to which we can turn which demonstrate how seed savers, as well as seeds themselves, contain stories of hope, resilience, adaptation, tradition, and new life. The practices of seed saving suggest counter-hegemonic place-based resistance rooted in ecological care and economic alterity.

#### *Ex situ, in situ & in vivo conservation*

To contextualize the types of seed practices explored here, this section articulates an important distinction between two types of biodiversity conservation. This thesis concerns the *in situ* (on site) and *in vivo* (living) conservation practices of urban home and community gardeners (henceforth referred to as *in situ* for simplicity). Mainstream Western scientific discourse has long-prioritized *ex situ* (off-site) methods of conservation (Phillips 2006; Nazarea 2006; Nazarea and Rhoades 2013). *Ex situ* conservation occurs in genetic storehouses, such as genebanks, seed vaults, university research labs, or botanical gardens and involves the removal of species from their natural, ecological, and evolutionary context (Nazarea and Rhoades 2013). *Ex situ* methods halt plants’ adaptive and evolutionary potential for improvement (Galluzzi et al. 2010), and (arguably more importantly) largely erase cultural traditions and fracture the stewardship and reciprocity between humans and seeds.<sup>11</sup> Therefore, *ex situ* methods have been met with increasing skepticism from both social and environmental sciences (Nazarea 1998; Nazarea and Rhoades 2013). This skepticism was recently elevated when the Svalbard Seed Vault flooded.

Located on a Norwegian archipelago between mainland Norway and the North Pole, the Svalbard Seed Vault is an imposing modernist structure carved into the ice, storing millions of seed samples as a “safe haven of the earth’s most important genetic resources” (Schapiro 2018, 11). Svalbard is emblematic of a conservation science predicated on control and domination. Though the structure was previously “deemed impregnable”; yet, on May 19, 2017, in the blink of an eye, the most important genetic resources on the planet were threatened as the structure experienced flooding as a result of climate change (ibid.). Schapiro (2018) writes: “the flood at Svalbard was a brutal reminder of the difference between a diversity of seeds in a frozen vault...and a diversity of seeds out growing in the fields, responding and adapting to conditions that are changing more dramatically and decisively than ever before” (12).

---

<sup>11</sup> There are exceptions to this generalization. For example, the Seed Savers Exchange maintains a seed bank which is an *ex situ* method, but the organization makes an effort to document the stories of their collection and ensure the seeds are grown out regularly to promote adaptability and resiliency. They are also increasingly working with indigenous communities to rematriate plant genetic resources which have long been disconnected from their original stewards as they are stored in university labs and genebanks (see Seed Savers Exchange Blog post entitled “One Happy Homecoming.”

Scholars and food activists, therefore, increasingly look to place-based, community-led *in situ* conservation to identify alternative efforts which can compliment the (still necessary) efforts of *ex situ* conservation. Figure 5 depicts some of different values upheld between *ex situ* and *in situ* conservation. Ethnoecologist Virginia Nazarea’s (1998, 2006, 2013) work contributes understands of “everyday conservation in place” (Nazarea and Rhoades 2013, 6). She stresses the need for qualitative methodological and theoretical imaginings of which elevate the importance of cultural memory, place, and marginality:

Biodiversity flourishes under conditions of marginality, hand in hand with memories that enliven culinary and healing traditions, as well as reciprocity and commensality. Hence, allowing spaces for traditional ways of life to prosper *in vivo* as viable alternatives to global monocultures of capitalism and consumerism is even more imperative than the collection of germplasm and codification of traditional genebanks and archives (Nazarea and Rhoades 2013, 5 see also Rhoades and Nazarea 1998; Nazarea 1998, 2005; Hunn 1999; Ingold 2000).

Reframing biodiversity conservation agendas in terms of “people as they relate to and deal with the diversity of their human and other-than-human kin” (Nazarea and Rhoades 2013, 5), requires more nuanced and fluid academic treatments of genetic conservation.

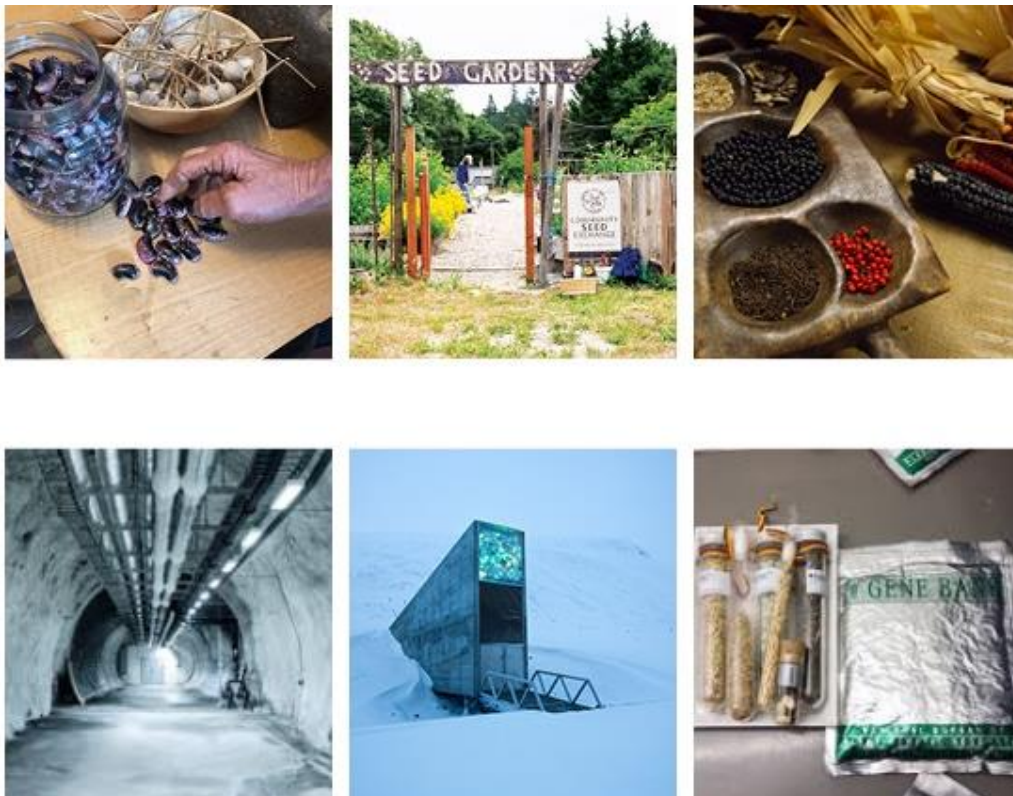


Figure 5. Top row: various practices demonstrating in situ conservation (center image courtesy of Civil Eats, left and right images taken by the author). Bottom row: images of the ex situ conservation approach taken at the Svalbard Seed Vault (image sources, left to right: Svalbard Global Seed Vault, Time Magazine, Crop Trust).

*Exploring community seed saving*

The remaining chapters explore the implications of seed saving and seed sharing through a multi-site case study based in San Francisco Bay Area community seed initiatives. Seed saving is discussed for how it presents a model of place-based socio-ecological care, and public seed libraries are explored as sites of alternative care-based alternative economies modeling a process of re-commoning. This thesis takes the position that scholars and practitioners interested in emancipatory futures can, and should, make the unrecognized – and uncompensated – acts of care that sustain our world visible and foreground non-dominant worldviews in the process of doing so. The aims of this scholarship are to replace ideologies of dominance with an ethic of care, commonality, and ecological interdependence in recognition that the liberation of any is dependent on the liberation of all (including the more-than-human world). As critical planners, community activists, and eaters, we all can play a role in elevating the seed sovereignty movement from the margins to the center stage.





## CHAPTER 2

### Research Aims, Design, and Methodology

“Paying attention is a form of reciprocity with the living world, receiving the gifts with open eyes and open heart.” Robin Wall Kimmerer<sup>12</sup>

#### *Research aims*

This thesis details a journey into the stories of seed saving. The aim of this research stems from a desire to build an understanding of what it could look like to remake the agro-food system by centering social and ecological liberation and care. A more just, culturally-appropriate, and caring food system requires that we make the narratives we have about food thicker. Conversations about critical planning and food systems must be about more than building grocery stores in “food deserts,”<sup>13</sup> promoting organic farmers markets, or banning sugary drinks (this is not to say those are not also incredibly important efforts). It demands recognition of the ways food links us materially to the ecosystems to which we belong. It demands that we ask how to strengthen these links with an eye towards freedom. How can we

---

<sup>12</sup> Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge, and the Teachings of Plants (2013), 222

<sup>13</sup> There is a robust set of literatures dealing with the problematic nature of the label of ‘food deserts’ and why it is not an appropriate term to use in food systems planning contexts. For example, see Guernica’s May 2018 interview with Karen Washington’s entitled “It’s Not a Food Desert, It’s Food Apartheid” (Jones 2018).

attune ourselves to stories of lived practices that build alternative ways of living and couple these stories with practices and policies? The following research questions stem from a desire to unpack and tease out these goals and guide this project’s contribution to the realm of feminist political ecology and critical planning:

- How can community seed saving cultivate more care-centric relationships between people, place, and plants in urban environments?
- How is growing, saving, and sharing seeds an act of resistance to the capitalist food system?
- How do the ethics of care enter the public realm through the creation of seed libraries?
- How does seed saving function as a broad-based social movement to contribute to transformation of socio-ecological ethics in the food system?

### *Research design & case selection*

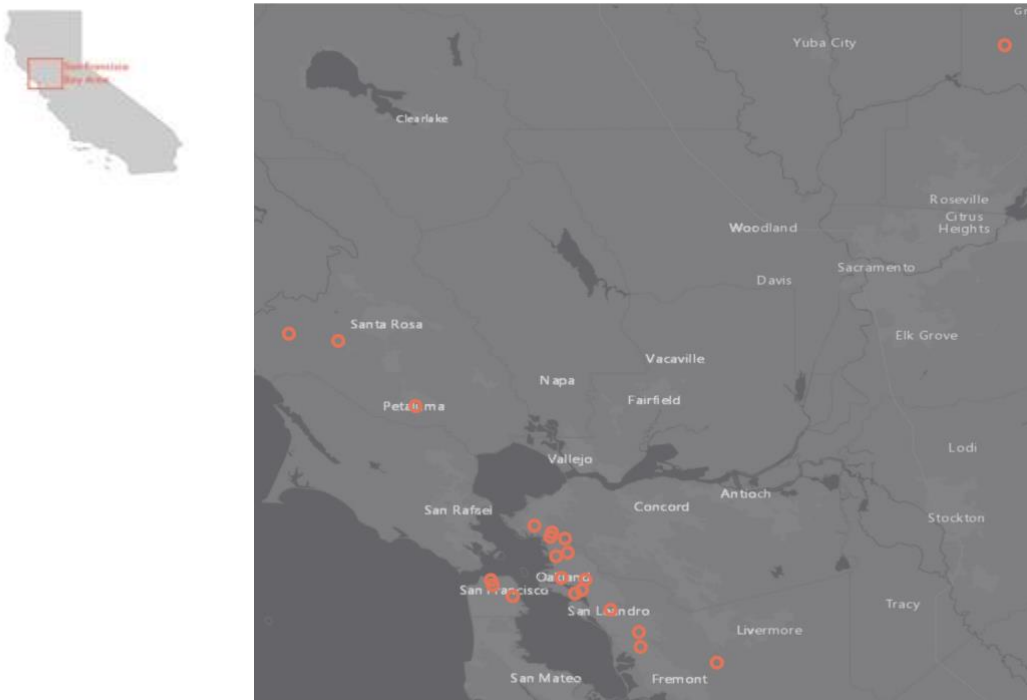


Figure 6. Initial site map of seed saving initiatives in the Bay Area produced by author during research design stage.

These research questions are explored in the context of the San Francisco Bay Area, a site selected as a critical and emblematic case study. Despite living in a ‘globalized world,’ the realities of life and the ways we come to know the world still happens *in place* (Harcourt and Bauhardt 2019). Place is where we find “material manifestations of worldviews, knowledges, virtual and physical transactions and the relational performance of subjectivities” (ibid). Therefore, the specificities of the place of my research



design require consideration. A number of characteristics, both social and biophysical, made the Bay Area a particularly fertile geography to study North American trends in the seed saving and seed library movements. As a case study, it provides insights into broader systems and trends, while simultaneously respecting the boundedness and specificity of place-based scholarship. Full accounts of California's particular role in capitalist agrarian history, agricultural labor movements, and alternative food movements (both radical and reformist), as well as influential trends in auto-dependent suburban development, the tech industry, and gentrification are beyond the scope of this thesis. However, they are all relevant considerations that form the backdrop of my research, and which I give an overview of below.

### *Bay Area food culture*

Food is a profound medium to understand the political economies and ecologies of a place. The Bay Area is an urban region known for its diverse – and oft-contested – food cultures, food economies and food justice activism. Labeled a “culinary never-never land” by the New York Times (Brown 2014). San Francisco, Oakland, and Berkeley hold national reputations for their foodie cultures. The region is therefore uniquely situated to influence other regional food politics and activism (Guthman 2008b). Bay Area food dynamics involve the celebration, erasure, and appropriation of the racial and cultural foodways of the many immigrant and minority communities who call the region home, but also radical resistance in the name of food sovereignty, largely led by California's Indigenous and immigrant communities. From San Francisco's “foodie culture” of high-end dining and world-renowned farmers markets, to Berkeley's reputation as the birthplace of the farm-to-table movement (home to local food and “know your farmer” champion Alice Waters), and Oakland's historical and contemporary contributions to radical food movements including the Black Panthers' free breakfast program, the overarching racial disparities in food in the Bay Area are worth noting. Food movements often promote narratives which “derive from whitened cultural histories” (Guthman 2008b, 434) and code alternative food provisioning as culturally white. For example, phrases such as ‘putting your hands in the soil’ or ‘getting your hands dirty’ are often assumed to be universally appealing, yet are inadequately attuned to racialized and traumatic histories of land and labor dynamics in the U.S. touched upon in the previous chapter (ibid., 435). This tension is at inherent odds with the stated goals of those working for a socio-ecologically equitable food system and deserves attention from scholars and practitioners, particularly those identifying as white. There is a particular need to foreground case studies and stories that create a more culturally-inclusive food discourse in the Bay Area.

### *A Tale of two agricultures*

With over 25 million acres of farm and ranch land, California is the nation's leading agricultural producer. The state produces 13 percent of the nation's total cash agricultural receipts, and is the sole

producer (99 percent or more) of crops including almonds, figs, olives, peaches artichokes, and dates (California Ag Today 2013). California’s agricultural landscape is emblematic of multiple colliding and conflicting agricultural ideals and imaginaries. Largely, these take form in two contrasting legends about the state’s agricultural history (Olmstead and Rhode, 2017). The first legend presents California farmers as “progressive, highly educated, early adopters of modern technologies, and unusually well organized” while the second, focuses on California’s land-grabbing, colonial past and persistent exploitation of migrant workers and environmentally harmful farming practices (ibid., 1). As the epicenter of hyper-industrial agricultural capitalism, as well a global leader in the organic food movement, food and agriculture have an outsized impact on social and ecological identifies of California, at both the local and international scale.

Agriculture in California both contributes to and suffers from the realities of climate change. Recent cycles of extreme drought and flooding, and unprecedented and unpredictable wildfires make climate change an everyday reality for California farmers and home gardeners alike. Many food growers interviewed for this thesis reported that they are already observing significant changes to their local growing conditions. While climate vulnerability affects all Californians, its threats are not evenly distributed. Farmers of color (who manage one in four farms in the state) and women farmers (one in five farms), are disproportionately vulnerable, due to the fact that they tend to operate on significantly smaller acreages, earn less revenues, and receive less government funding than white male farmers (Merrill and Shobe 2018, 30). This underscores the impossibility of separating ecological ethics from social justice goals.

*“The bay is hard to get one’s head around...”*

The Bay Area is the fourth largest urban area in the U.S. (Walker and Schafran 2015). While many conjure the image of the dense core of San Francisco when thinking of the Bay Area, in reality, the majority of the region’s seven million residents are spread across a geographic extent spanning 100 miles north to south and 50 miles east to west (ibid, 10). The geography carries many divergent, and often conflicting, identities. Some are proudly claimed, such as a reputation as ‘a green’ or ‘eco-friendly’ place to live, or as a tech startup hub. Other realities of the place are often overlooked. For example, the geography’s spatial and racial inequality, its pervasive NIMBY<sup>14</sup> culture, and a set of educational narratives which valorizes the colonial genocide of the mission system while erasing the lived and inherited traumas of Native residents are all under-recognized (Castillo 2015). Walker and Schafran (2015) suggest the Bay Area is an exceptional site for case study research because, despite being “hard to

---

<sup>14</sup> An abbreviation for Not In My Back Yard, commonly used to refer to homeowners who oppose to developments close to their own homes which they perceive to be a threat to their property value, such as low-income housing, landfills, etc.

get one’s head around” and “frequently misunderstood,” its trends and characteristics can be seen as “chiefly exaggerations (or advanced forms) of fundamental forces at work in North American cities” (11).

### *Biodiversity hotspot*

The Bay Area also sits in within the geographic bounds the California Floristic Province (Figure 6), one of 36 “biodiversity hotspots” of the world, determined by Conservation International. These are the home of Earth’s most biologically rich—yet threatened—terrestrial regions, and are thought to be the most important places for conserving species richness. To qualify as a biodiversity hotspot, an area must meet two strict criteria: (1) Contain at least 1,500 species of vascular plants found nowhere else on Earth, known as “endemic” species; (2) Have lost at least 70 percent of its primary native vegetation. (Conservation International). With 3,500 plant species (more than 61 percent of which are endemic) the California Floristic Province is home to a greater number of vascular plant species than the total number of species from central and northeastern U.S. and adjacent parts of Canada combined, an area ten times its size (ibid.). Specific concerns about the loss of biodiversity in California are related to

destruction caused by large commercial farming and extreme expansion of urban areas (ibid.). This context gives particular significance to the desire of community seed savers residing in the Bay Area to preserve, protect, and revitalize biodiversity through their seed saving and sharing efforts.

### *Bay Area seed libraries*

Via online research and outreach, my initial research located a concentrated cluster of seed saving initiatives within close geographic proximity (Figure 6). This contributed to my selection of the Bay Area as a case study site because and provided an ability to visit diverse seed library locations within a single region. The diverse microclimatic and socioeconomic characteristics of the San Francisco Bay also meant that each seed library I visited was still highly differentiated in terms of participants as well as growing conditions and types of plants and seeds grown and saved. The year-round growing season and a high level of social interest in food politics meant that I was able to connect with many well-informed and experienced food justice and urban agriculture practitioners. The decision to select only one relatively small geography as a site of study was driven by a desire to zero in on the local particularities of seed saving work. The findings are not presented as generalizable across contexts; however, there are themes and patterns that start to emerge that have relevance in many contexts at many scales. The following brief



Figure 7. Map of the California Floristic Province, one of 36 “biodiversity hotspots” of the world as determined by Conservation International (source: Point Reyes National Seashore Association).

profiles of select Bay Area seed libraries is included to give a more detailed picture of some of the types of sites that inform the following findings and conclusions.

### *Profiles of Select Bay Area Seed Libraries*

#### **Richmond Grows Seed Lending Library**



Location: Richmond, California

Founded: 2010

Mission: “To increase the capacity of our community to feed itself wholesome food by being an accessible and free source of locally adapted plant seeds, supplied and cultivated by and for Richmond area residents. Richmond Grows celebrates biodiversity through the time-honored tradition of seed saving, nurtures locally-adapted plant varieties, and fosters community resilience, self-reliance, and a culture of sharing. We celebrate our human diversity through outreach and inclusion. Richmond Grows strives to fulfill its mission by focusing on two activities: 1) To establish and grow a seed library—a depository of seeds held in trust for the members of that library —available to all Richmond residents; 2) To provide information, instruction, and education about sustainable organic gardening.”

#### **Cesar Chavez Branch Library Seed Library**





Location: Fruitvale neighborhood, Oakland, CA

Founded: 2012

Mission: “The seed library is a free urban seed project committed to increasing the capacity of our community to feed itself wholesome food by means of education that fosters community resilience, self-reliance, and a culture of sharing.”

### Community Seed Exchange



Location: Sebastopol, CA

Founded: 2009

Mission: “We aim to create a grassroots community seed library that supports Sonoma County gardeners with free, locally grown, open-pollinated, pesticide- and GMO-free seeds! We grow in our seed garden many of the seeds available in our library. All gardeners, with or without seeds to share, are

welcome. We hope that many gardeners will grow out and donate back to the Community Seed Exchange.”

In 2018, the Community Seed Exchange also began bringing in their seeds to the local public library branch, establishing a “satellite seed library” in order to make the seeds they save more accessible to a wider set of community members.

### *Methodology*

My data collection took a place-based approach to case study research that privileged storytelling, community knowledge, and lived experiences. Primary data was collected using multiple complimentary qualitative methods: semi-structured interviews, site visits, participant observation, and document analysis. Given the research questions and aims above, interviews were designed excavate the meaning of the *practice* of seed saving and my site visits and participant observation was intended investigate the meaning of the physical *sites* of seed saving. I conducted field research over the course of three weeks in the winter of 2019 in the San Francisco Bay Area. During this time, I interviewed seed savers and seed library managers, learned how to save seeds, heard to stories about seeds, visited gardens, and searched seed collections.

This data is not presented as a comprehensive or complete view of seed saving or seed libraries. Nor does my analysis intend to make generalizable statements representative of all seed savers or of the communities or cultures from which interviewees come from. Rather, as with any research, the depictions here are my own interpretations, are mediated by my own worldviews and experiences.

Given the immense range of culturally-mediated relations held between people and seeds/plants/food, my research design focused on engagement with as many racial, cultural, religious and socio-economic perspectives as possible. Engaging perspectives from a range of ages and gender expressions was also important. While I was able to discuss seed saving with individuals identifying as African American, Latinx, Korean, Jewish, Indigenous, and White, I recognize the incomplete comprehension of this data, particularly as a white researcher. As such, I have attempted engage with other perspectives that were not able to be included in primary data collection for various reasons. To do so, I turned to a wide range of other mediums including the visual arts,<sup>15</sup> ethnoecology and creation

---

<sup>15</sup> Maren Solomon’s Neighborhood Seed Project: <http://marensalomon.com/neighborhood-seedz>

stories,<sup>16</sup> oral histories,<sup>17</sup> documentary film,<sup>18</sup> podcasts<sup>19</sup>, and fiction.<sup>20</sup> I recognize that these are merely the beginnings of an understanding of the broad epistemologies, ontologies, and cosmologies associated with seeds and their stewards.

### *Semi structured interviews*

A total of 26 individuals were interviewed in 14 in-person interviews, 10 phone calls, and one email correspondence. Other than one group interview conducted with four seed savers at once, all interviews were semi-structured, one-on-one conversations. These ranged 1-2 hours in length. Notes from casual and unscheduled conversations that took place during site visits were also included for analysis but are not represented in the above numbers (all participants were made aware that our discussions took place as part of my master's thesis research and consent was obtained). A complete list of interview participants and a sample interview guide are provided as Appendix A and B.

All interviewees were directly engaged in the seed saving movement in one way or another. This included seed savers who save seed from their home and community gardens, as well as organizational leadership from seed saving initiatives, including librarians and nonprofit staff who may or may not save seed or grow food themselves. Seed libraries are maintained by a range of actors including home gardeners, individuals who maintain seed programs under the umbrella of their nonprofit organization; and public library staff who were otherwise uninvolved in seed saving or gardening initiatives. Participants held multiple roles within- and outside the seed saving movement and identified as the following: seed savers (n=21), librarian (n=5); master gardener (n=4), farmer (n=2), chef (n=2), urban agriculture professional (n=5), nonprofit (managerial staff level or above) (n=3), teacher/professor (n=4), artist (n=1), lawyer (n=1), scientist (n=1).

Some individuals were interviewed initially over the phone before meeting in person, however most participants were only interviewed once. Initial outreach was done by email using contact information identified in online searches. I identified myself as a researcher interested in community seed saving and asked if anyone within the organization would be willing to further discuss their seed saving work in an interview. An email outreach template is provided as Appendix C. After initial outreach, snowball sampling methods led to additional contacts for interviews. Most interviews were

---

<sup>16</sup> see: Robin Wall Kimmerer (2013) *Braiding Sweetgrass*; Leah Penniman (2018) *Farming While Black*

<sup>17</sup> see: the Cultural Conservancy's Oral Histories of Native Food Revitalization: <http://www.nativeland.org/oral-histories-native-food>; SeedBroadcast's Mobile Seed Story Broadcasting Station: <https://soundcloud.com/seedbroadcast>; and Southern Foodway Alliance Oral History Program: <https://www.southernfoodways.org/oral-history/>

<sup>18</sup> see: "Seed: The Untold Story" (2016); "Open Sesame: The Story of Seeds" (2014)

<sup>19</sup> see: The Native Seed Pod: <https://www.nativeseedpod.org/episodes-1>

<sup>20</sup> see: Tiya Miles (2015) *The Cherokee Rose*; Octavia Butler (1993) *The Parable of the Sower*; Leslie Marmon Silko (1999) *Gardens in the Dunes*

audio-recorded, however, at times only handwritten notes were taken. Recorded interviews were all fully transcribed and coded for key words and themes.

Interviews aimed to explore the significance of seed saving, as well as the motivations behind being involved in seed-related activities. Questions ranged from what the perceived threats against seed saving are; what is lost when seed saving is lost; and why seed saving is important today. I asked questions intended understand relationships held between seeds, community, and place. I also asked about the relationship between seed saving and local food justice movements. Participants were encouraged to share personal narratives and favorite stories related to local seeds and their community, all of which contributed to a more complete understanding. Interviewees were eager and excited to talk about a subject they are passionate about and many expressed a hope that more research on this topic would raise awareness and spark interest in seed saving. Conversations often included discussions well beyond seeds and seed libraries, including culinary arts, food justice, emergency/disaster preparedness, local history, genealogy/family heritage, traditional medicines, neighborhood change, housing affordability, among others.

#### *Site visits*

The sites visited were primarily seed libraries located in local public library branches (n=8), however some were located in other places, including ecology nonprofits (n=2), private academic libraries (n=1), a church (n=1; this particular seed library has no religious affiliation), and a community recycling center (n=1). A complete list of sites visited is included as Appendix D. Immediate reactions and observations were recorded in a field diary and documented in photographs. I analyzed this documentation alongside interview transcription data. Field photographs have been used in various presentations about my research on seed saving.

While at seed libraries, I conducted interviews, engaged in passive and active observation, or volunteered my time and physical labor. For example, I learned how to process and save seeds during a garden volunteer day at a biodiversity garden and ecological intentional community in Sonoma County. Phillips (2011) discusses the integral role that seeds and plants themselves played in shaping her research. This held true during my own research experience. By engaging in the act of sifting, winnowing and sorting seed while sharing stories of food heritage and discussing ecology with other seed activists, I came to more deeply appreciate the beauty and wisdom of seeds. An epistemological respect for the more-than-human is an inherently political act, both for the “knowledges produced as well as for the process of research itself” (Bawaka Country et al. 2014 cited in Head et al 2014).

On unscheduled visits to seed libraries, I interacted with the space as a participant observer, intending to understand the experience of a community visitor to the space. I engaged in the multi-



sensorial process of thumbing through drawers of seeds, reading gardening books on display, and experiencing the labels, stories, and growing instructions left by previous seed savers. Particularly, the information depicted on labels of the various packets, jars, or envelopes I found in seed libraries exposed me to the wide range of information, stories, and meanings shared via seed in these settings. These were unexpectedly one of the most enriching and illuminating sources of information from my research (discussed in greater detail in Ch. 5).

During site visits, I was able to observe users as they interacted with the seed libraries. This contributed to my understanding of these operations, as well what drove users to visit the seed library, how they learned about it, and/or how they intended to use the seeds they were ‘checking out.’ This allowed insight into the role of the seed library from multiple perspectives. Spending extended time in seed libraries also gave me the opportunity to share in and experience how public libraries or other public institutions and community spaces foster spontaneous intergenerational and intercultural exchanges.

I also attended relevant events and meetings and sat in on two “core planning group” meetings with a community seed library organization where I observed and participated in conversations about topics including: workshops and events for the coming year, an upcoming seed swap, an upcoming seed librarians summit, redesigning the labels for the seed library, and outreach goals. I experienced firsthand the culture of generosity and sharing of the seed saving community during my site visits and interviews. Seeds, food, produce, as well as photographs and educational materials and resources were frequently shared with me.

#### *Document analysis*

This included informational brochures about seed libraries and their related programs, outreach or marketing materials, educational worksheets, photos from events, seed saving and gardening guides, flyers, seed envelopes, catalogues, visitor tracking binders, and organizational archives (for example, one seed library tracked seed library participation from 2013-2018). Most of these documents were shared on site during field visits; however, some were shared electronically following up from an initial interview.

Over the course of my research (September 2018- May 2019), I monitored news and unfolding events related directly and indirectly to seed saving, including news of seed library openings, developments in the corporate seed industry, and various global “rights of nature” movements. I did this through Google news alerts, and interest group newsletters. Not all of this information is formally presented in my analysis, but informed my thinking and allowed me to better situate my research within civil society movements and broader political contexts.



### CHAPTER 3

#### Conceptual Framework: Towards a feminist political economy of seed saving

“The very earth that sustains us is being destroyed to fuel injustice. An economy that grants personhood to corporations but denies it to the more-than-human beings.” Robin Wall Kimmerer<sup>21</sup>

##### *Theorizing community seed saving*

This thesis is situated within the traditions of feminist political ecology (FPE). This branch of political ecology focuses inquiry on gendered relationships between humans and the environment, combined with critiques of capitalism by centering studies of care, the politics of place, and everyday lives (Harcourt and Nelson 2015). This chapter outlines my framework to conceive of a feminist, ecologically attuned approach to studies of alternative food movements (AFMs), by building on FPE critiques of human/nature binaries and human-centered logics of dominance and control (Plumwood 1993; 2002) and theories on the ethics of care (Tronto 2013) and diverse economies (Gibson-Graham 2002; 2006; Harcourt and Bauhardt 2019; Wichterich 2019; Harcourt and Nelson 2015). These theories share the stance that capitalism, and its driving ideological and material forces, are detrimental to the

---

<sup>21</sup> From *Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge, and the Teachings of Plants* (2013), pg. 376.

social and ecological survival of humans, more-than-human others, and the planet (Gibson-Graham 1996, 2006; Plumwood 2002; Harcourt and Bauhardt 2019; Magdoff and Williams 2017).

The work of Indigenous ecologist and storyteller Robin Wall Kimmerer (2013) is also deeply influential the understanding of seed saving presented here. Her methods of “intertwining of science, spirit, and story” suggests how critical inquiry can serve as “medicine for our broken relationship with earth” and opens the space to imagine alternative worlds (ibid.). This imaginative capacity is used to suggest the role critical planning can play in supporting seed sovereignty by emphasizing the spaces where the practices of alternative world building are already occurring.

### *The rise of seed movement scholarship*

Scholars from various disciplines and regional contexts contribute understandings of seed saving and contemporary seed politics in relation to the future of global food security and food sovereignty (e.g. Helicke 2015; Soleri 2018; Wolfhorst and Haugestad 2006; Kloppenburg 2014; Phillips 2005, 2011, 2013; Pottinger 2016, 2018; Schapiro 2018; Carolan 2018; Campbell and Veteto 2015; Breen 2016). Seed, as the “irreducible core of agricultural production” (Kloppenburger 2014), cannot remain invisible in critical food and agriculture planning discourse. Yet, this seemingly obvious concept is under-recognized in academic discourse surrounding the intersection of food politics, social justice, and urban development. Given the consequences outlined above, more holistic awareness must be raised about the fact that farmer-breeding and seed saving practices in both the Global South and Global North are becoming ‘endangered phenomenon[s]’ (Campbell and Veteto 2015). Seed saving sits at the nexus of climate resilience, cultural preservation, and food security, yet, is largely absent all of these discourses. This gap is symptomatic of the dysfunctional relationships between humans and their food systems, land-based knowledge, and growing traditions.

The fields of ethnobotany and ethnoecology have contributed a rich body of historically- and geographically-grounded ethnographies on seed practices (e.g. Nazarea 1998,2006; Nazarea et al. 2013; Campbell and Veteto 2015; Nabhan 2002). These help illuminate profound relationships between humans and plants. Gender, as well as other subjectivities such as race and class, are explored in studies on the traditional social roles of seed saving in anthropology, emphasizing how seed saving, and food provision more generally, the world over, has traditionally been stewarded by women (Bezner-Kerr 2014). Ethnoecology emphasizes Traditional Ecological Knowledge (TEK), including knowledge of seeds and a respect for traditional ways of tending to the earth. These forms of knowledge have long been marginalized by dominant Western scientific discourse and practice; yet “our ability to withstand stress and change while retaining cultural integrity and identity, food security and overall well-being” is entirely dependent on maintaining these ways of knowing (Turner 2014, 5).

A body of work on the topic of Indigenous seed sovereignty in North America (Hoover 2018; Nelson 2013, Breen 2016, White 2018) stresses the particular importance of seed keeping within indigenous Native American contexts and contributes to an understanding of how the practices explored in this thesis are to be understood as differentiated across spatial contexts and irreducible to essentializing claims.<sup>22</sup> Indigenous seed sovereignty attends to agricultural traditions that have sustained human-seed relationships for millennia, as well as to the specific violent colonial context of the U.S. Colonization and acculturation intentionally disrupted and erased native foodways. Much of this involves access to and control of seed. Contemporary movements for Indigenous food sovereignty, led by organizations such as Indigenous Environmental Network and the Indigenous Seed Keepers Network, center traditional seed stewardship and seed advocacy in their efforts to revitalize native foodways and traditional farming practices. Much more work in theory and practice is needed to sufficiently understand and construct discourses of decolonization within seed practices, even those which arise as alternatives to the mainstream.

Activist-anthropologists Campbell and Veteto (2015) issue a call to their field to study seed saving: “Applied work by agricultural anthropologists on collaborative and grassroots agrobiodiversity conservation projects is an important trajectory ... [we] will likely continue to play an important role in efforts to ensure the continued maintenance and availability of agrobiodiversity in diverse world contexts” (447). I build upon this claim to suggest that planners and community organizers can – and should – play a role in creating community channels to support grassroots *in situ* seed conservation efforts. Urban centers play an important role in biodiversity conservation in the face of climate change and increasing capitalist urban expansion (Carneiro da Cunha, Mace, and Mooney 2019). Further, establishing frameworks to understand how civic infrastructure can support democratic resource sharing and decommodification while also creating platforms to expose, educate, and politicize communities about plant-human relationships in the food system is an important contribution to scholarship.

#### *Existing alternative food movement discourses*

Grassroots community seed saving initiatives can fall under the umbrella term of alternative food movements (AFMs). Situating seed saving within the AFM articulates a better understanding of how these practices contribute to the goals of food sovereignty (defined below). Within this discourse, seed saving has been recognized as an act of “Green Citizenship” (Phillips 2005), a form of “quiet activism” (Pottinger 2016), and part of a “moral food economy” and “food sharing revolution” (Carolon 2018). Helicke’s (2015) overview of alternative seed networks in the U.S. (including seed libraries, values-

---

<sup>22</sup> The Cultural Conservancy produces a podcast called The Native Seed Pod which provides diverse entry points into this topic. The podcast can be found at <https://www.nativeseedpod.org>

driven seed companies, and hybrid civil society-business models) creates a link between these initiatives and AFMs given their concern for conserving agricultural biodiversity and building community resilience.

Diverse citizen-led platforms rise up in opposition to the dominant industrial agrifood system as AFMs continue to gain prominence in U.S. civic life (Carney 2012; McClintock 2012, Nierenberg 2018, Alkon and Agyeman 2011). However, these movements differ in the range of things they are articulating an ‘alternative’ to. Therefore, disagreements and divergences emerge in scholarship and practice regarding their intentions, possibilities, and limitations. AFMs fall along a broad political spectrum of structural critiques, ranging from radical to reformist (McClintock 2012), and take up various priority areas.<sup>23</sup> Some decry processed foods and diet-related epidemics by working to promote healthier alternatives through public health channels (i.e. VeggieRX initiatives). Others emphasize re-localization of community food systems through urban agriculture and farmers markets to reduce environmental impact and build community cohesion. Others organize for labor justice rejecting the widespread exploitation that fuels the food economy on farms and in kitchens. Others assert that the necessary approach to food systems reform must articulate more radical alternatives to capitalism (Holt-Giménez 2017).

Scholarship on AFM projects often point to their beneficial outcomes as if they are inherent, including climate change resilience, food security, biodiversity, ecosystem services, urban regeneration, better land management, public health, social cohesion, and economic growth (Artmann and Sartison 2018). While optimistic, this treatment is limited in analytic insights into the role of power differentials as well as racial-, class-based, and gendered experiences of privilege and oppression in food. Celebratory AFM scholarship risks romanticizing resistance activities (Guthman 2008a) by uncritically praising localism and consumer choice. This discourse fails to question underlying market mechanisms of capitalism and lacks considerations of the racial and economic homogeneity commonly found within alternative food spaces (Food Chain Workers Alliance and Solidarity Research Cooperative 2016). There is also a need to adequately address what change processes look like, not just intended outcomes, in AFM discourse. Attending to these issues by situating seed saving within broader political and economic structures is an important avenue to overcome these limitations and contribute a nuanced study of AFMs.

AFNs are often associated with ‘foodie culture’ which often caters to the interests of primarily “educated, [white] middle-class consumers” (Food Chain Workers Alliance and Solidarity Research Cooperative 2016, author’s addition in brackets). Food planning strategies largely remain in this realm.

---

<sup>23</sup> For the purposes of this review and I focus on literatures dealing with urban food movements in the Global North, there is an immense body of interdisciplinary literature approaching these topics from a rural/agrarian perspective or directed at alternative food movements and peasant-led resistance in the Global South that lies beyond the scope of the present analysis.

Planners often equate farmers markets or farm-to-table businesses with community development. Consumer-based catchphrases tell consumers to ‘eat closer to home,’ ‘know your farmer,’ and “vote with your forks.” Yet, these engender problematic narratives, ascribing moral superiority to those who are financially able to make alternative purchasing decisions (ibid.). These slogans do not address underlying socio-ecological realities of food systems, nor do they confront structural violence experienced by most workers in the food chain (Food Chain Workers Alliance and Solidarity Research Cooperative 2016). Therefore, there is a need to deepen the spectrum of structural critique within food planning discourse. Some of these issues are taken up by critical scholars in the field of food studies and human geography (e.g. Guthman 2008a, 2008b, Alkon and Guthman 2017; Holt-Gimenez 2018). They document ways that AFMs still “produce and re-produce neoliberal forms, spaces of governance and mentalities” even if they initially emerge out of opposition to neoliberalization of the food and agriculture sectors (Guthman 2008b, 1171).

#### *From food security to food sovereignty*

In order to better articulate what it is seed saving demonstrates an “alternative” to, it is useful to consider the recent discursive shift in critical scholarship from the term ‘food security’ to ‘food sovereignty’ (Whittman 2011; Grey and Patel 2015). In the past two decades, the term food sovereignty has grown to encompass “a political project and campaign, an alternative, a social movement and an analytical framework” (Holt-Giménez et al. 2017).<sup>24</sup> The term is closely associated with *La Via Campesina*, an international grassroots “peasant farmer” resistance movement, which introduced it at the World Food Forum in Rome in 1996. The most widely cited definition for food sovereignty was codified in the Nyeleni Declaration of Food Sovereignty<sup>25</sup> of 2007:

“Food sovereignty is the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems. It puts the aspirations and needs of those who produce, distribute, and consume food at the heart of food systems and policies rather than the demands of markets and corporations.”

---

<sup>24</sup> For more robust discussions of the rise and evolution of global discourses on food sovereignty see: the special issue of the *Journal of Peasant Studies* vol. 26 no. 3, 2009 edited by Raj Patel; Wittman 2011; conference papers published from Yale’s “Food Sovereignty: A Critical Dialogue International Conference,” September 14-15, 2013; and the special issue of *Third World Quarterly* “Food Sovereignty: convergence and contradictions, condition and challenges” vol. 36 no. 3, 2015 edited by Alberto Alonso-Fradejas, Saturnino M. Borrás Jr, Todd Holmes, Eric Holt-Giménez & Martha Jane Robbins.

<sup>25</sup> In 2007 more than 500 representatives from more than 80 countries, of organizations of “peasants/family farmers, artisanal fisherfolk, indigenous peoples, landless peoples, rural workers, migrants, pastoralists, forest communities, women, youth, consumers and environmental and urban movements” gathered in Mali to articulate the demands and aspirations of a global movement for food sovereignty. The name “Nyléni” as a tribute to a legendary Malian peasant woman who farmed and fed her peoples. The full declaration can be found at [http://fdm.rio20.net/sites/default/files/IMG/pdf\\_0072\\_Declaration\\_of\\_Nyeleni\\_-\\_ENG.pdf](http://fdm.rio20.net/sites/default/files/IMG/pdf_0072_Declaration_of_Nyeleni_-_ENG.pdf)

Table 1 (Rossett 2003) outlines some of the basic contrasts between dominant development models and food sovereignty (note the specific position on seed issues).

Food sovereignty is considered a departure from traditional uses of the phrase food security. There are critical epistemological, methodological, and ethical divergences between the two concepts and how they treat issues related to the global industrial agro-food system, food insecurity, and hunger (see Carney 2012 and Patel 2009 for more rigorous comparisons between the two terms). Food security is an insufficient term to represent broader goals of liberation because it takes a *needs-based* approach to programs and policies (Trauger 2015; Patel 2009). These strategies are criticized as solidifying neoliberal ideologies that place the responsibility of food provisioning on the free market. Food sovereignty, however, promotes a *rights-based* approach. Carney (2014) frames the movement from food security to food sovereignty as such: “top-down to bottom-up streams of power; technocratic to participatory planning contexts; and compartmentalized to integrated food and agriculture polities” (72). Food sovereignty is an ideological departure allowing for transcendence of dominant neoliberal trends of localization and ‘sustainable’ food movements in the global North (Trauger 2015). It inherently questions relations of power and place and demands political and economic alternatives to capitalism (Trauger 2015; Akram-Lodhi 2013). While the short-term, reactive mentality of urban food security might inherently marginalize a topic such as community seed saving, the deeply critical and imaginative considerations of food sovereignty is more suited for understanding its transformative potential.

*Table 1. Comparison of food sovereignty to dominant approach. Reproduced and shortened from Food First article “Food Sovereignty: Global Rallying Cry of Farmer Movements” (Rossett 2003).*

Issue	Dominant Model	Food Sovereignty Model
Trade	Free trade in everything	Food and agriculture exempt from free trade
Urban consumers	Labor costs cut to extent possible	Need living wages
Crop prices	“What the market dictates” (leave intact mechanisms that enforce low prices)	Fair prices that cover costs of production and allow farmers and farmworkers a life with dignity
Market access	Access to foreign markets	Access to local markets; an end to the displacement of farmers from their own markets by agribusiness
Food	Chiefly a commodity; in practice this means processed contaminated food that is full of fat, sugar, high fructose corn syrup, and toxic residues	A human right; specifically should be healthy, nutritious, affordable, culturally appropriate and locally produced
Another world (alternatives) Hunger	Not possible/not of interest Due to low productivity	Possible and amply demonstrated A problem of access and distribution; due to poverty and inequality
Food security	Achieved by importing food from where it is cheapest	Greatest when food production is in the hands of the hungry
Control over productive resources (land, water, forests)	Privatized	Local; community controlled
Access to land	Via the market	Via genuine agrarian reform; without access to land the rest is meaningless



<b>Seeds</b>	<b>A patentable commodity</b>	<b>A common heritage of humanity, held in trust by rural communities and cultures; ‘no patents on life’</b>
Monopoly	Not an issue	The root of most problems; must be broken up
Overproduction	No such thing, by definition	Drives prices down and farmers into poverty
Genetically modified organisms (GMO)	The wave of the future	Bad for health and the environment; an unnecessary technology
Farming technology	Industrial, chemical-intensive, GMOs	Agroecological, sustainable farming methods, no GMOs
Farmers	Anachronisms; the inefficient will disappear	Guardians of culture and crop germplasm; stewards of productive resources; repositories of knowledge; internal market and building block of brand-based, inclusive economic development

### *Territorial binaries in AFM discourse*

While AFM literature documents the extent to which privatization and commodification (Phillips 2013, 5) within contemporary seed systems impact farmer and rural seed networks in the Global South or ‘developing countries’ (Coomes et al. 2015; Shiva 1993, 1997, 2000; Kloppenburg 2004), there is limited understanding of what these topics mean in North America (c.f. Phillips 2005, 2011, 2013; Kloppenburg 2014; Schapiro 2018; Carolan 2018). Seed politics are assumed to more significantly impact communities in social and political contexts where peasant farming and land-based struggles form a more visible part of daily life. Global NGOs such as La Via Campesina (based in Latin America) and Navdanya (based in India) issue demands for ‘seed sovereignty’ in their international resistance movements through international conferences, manifestos, reports, and global campaigns against the genetically modified (GM) seed industry and are directly linked contexts of extremely contested and often violent political unrest. There is broad scholarship on these movements and it tends to treat these forms of resistance as territorially bound to the Global South (Halewood 2011). While on the other hand, scholars tend to uphold normative assumptions that agriculture in the Global North has become “fully modern” (Phillips 2013, 5). Therefore, there is a lack of scholarship about seed sovereignty in North America.

This trend echoes the territorial binary found more broadly in food sovereignty discourse which upholds a false narrative that these issues only exist in rural and developing contexts. Trauger (2015, , introduction) asserts that there exists a “theoretical gap in the food sovereignty literature as well as a relative shortage of empirical work on food sovereignty in the global North, much previous work having focused on Latin America.” Taylor and Lovell (2014, 286) critique AFM scholarship for a “perplexing” lack of interest on the Global North (in reference specifically to home food gardening here) given a wide body of literature documenting the “social, economic, and health benefits” in the Global South. They attribute this lack of interest to Western capitalist bias, which undervalues the “unpaid labor of women” as well as “indigenous” and “folk” sources of knowledge (ibid).



Given food sovereignty's origins, debate is to be had over how it is utilized in the Global North where it is now popping up in mission statements of nonprofits (Patel 2009; Trauger 2015). For example, Clendenning and Dressler (2013, 1) conclude that "the substance of food sovereignty in the U.S. urban context is largely limited by neoliberal framing and political dampening, mainstreaming the approach and lessening its radical framework." Important questions about whether and how food sovereignty can be appropriately translated to these settings remain unaddressed.

However, seed saving movements share many values, methods, and practices across Global South/North contexts in ways that challenge such binaries. These dualisms flatten the realities across territorial boundaries. For example, in my interview with Sarah, a California seed saver, she expressed a sense of solidarity uniting her with global seed struggles:

*The whole community seed movement started internationally. People realized their seeds were at risk with the loss of local food systems to corporations coming in. I saw that happening and at first didn't realize that I could be claiming that same role. I could be protecting seed and reclaiming seed for my community here.*

This thesis challenges these territorial binaries across North/South as well as across urban/rural understandings of food by centering my investigation in an urban context in the Global North, where seed saving is least considered in the literature. Plants are socially, politically, and physically backgrounded in urban discourse. Understanding seed sovereignty through an urban lens, therefore, is particularly crucial, as well as particularly challenging.

#### *(re)thinking of food as nature*

At the end of the day, most critical theories of AFMs remain incomplete and reductive because they uphold anthropocentric worldviews. They detach food and agriculture from their ecological realities (Moragues-Faus & Marsden 2017; Classens 2014) and perpetuate false human/nature binaries. This limits an analytic understanding of the ethical socio-ecological interconnectivity of food production, provisioning, and consumption. To challenge hierarchies and to better find alternatives to a global industrial agro-food system obsessed with domination, we must identify non-anthropocentric theories to understand and relate to food, both materially and ethically. Responding to Wall Kimmerer's (2013) provocations on gratitude (see the preface to this paper) this thesis searches for emancipatory alternatives of other ways of relating to the natural world through food. There are two discourses that offer helpful frameworks to bridge this gap and develop feminist, eco-centric and care-centric food scholarship: political ecology, and feminist political economic theories of diverse economies.

### *Political ecology*

Political ecology has the potential to contribute productively to the study of alternative food systems and food politics (Galt 2013; Agyeman & McEntee 2014; Moragues-Faus and Marsden 2017). Moragues-Faus and Marsden (2017, 277) present a useful definition of political ecology in three parts which suggest how it can assist the present study of seed saving as an alternative food movement:

1. A theoretical commitment to critical social theory and a rejection to positivist approaches to social relations, understandings of nature and the production of knowledge about it.
2. A methodological commitment to in-depth, direct observation that combines different methods to understand place-based and historically constructed socio-ecological relations.
3. A normative political commitment to social justice and structural political change, seeking to conduct research to understand the world in order to change it.

An important contribution of political ecology (as well as related lines of thinking in political geography) is the understanding that nature is neither entirely dependent upon nor independent from human worlds. Rather, nature and society are co-productions and entirely interdependent.<sup>26</sup> Haraway's (2003) concept of "natureculture" – is a recognition of the inseparability of the ecological relationships of nature and culture that are both biophysically and socially formed. This concept emerges as a critique of dominant dualisms which dissociate humans and natures (Malone and Ovenden 2017). Urban studies and critical political geography (Heynen et al. 2006) increasingly explore contemporary environmental crises using principles related to naturecultures, yet these principles remain scarce in food studies (Moragues-Faus and Marsden 2017). Political ecology therefore presents an, as yet, untapped, potential to "create counter and equally compelling normative narratives which can begin to reconstruct a more democratic and inclusive food politics and sovereignty" (ibid.).

### *More-than-human epistemologies*

The second framework which strengthens an understanding of food as nature is literature on ecological relationality and "rethink[ing] what it means to live with plants" (Head et al 2014<sup>27</sup>). Despite the fact that humans are an entirely plant-dependent species, plants are chronically marginalized in academic and civic discourse.<sup>28</sup> Head et. al (2014) suggest that plants hold a "ghost-like presence in contemporary theoretical approaches" (4) even though they are undeniably important in society (Baudry 2014). This mismatch distorts our understanding of the relationship between humans and the natural world. Kessler (2018) suggests rather than treat issues such as of climate change, loss of biodiversity, and

---

<sup>26</sup> Framing this concept on these terms comes from a lecture given by Rosetta Elkin, Associate Professor of Landscape Architecture at the Harvard Graduate School of Design.

<sup>27</sup> For more on this topic see contributions to the recent special issue of *Social & Cultural Geography* Vol. 14 no. 8, 2014 "Vegetal politics: belonging, practices, and places".

<sup>28</sup> Informed by Rosetta Elkin's work.

other ecological catastrophes as root problems, we should understand these as symptoms of the faulty relationships between humans and more-than-humans.

This approach also contributes to a productive mode of challenging and replacing anthropocentrism. Head et. al (2014) write: “attending to and attuning to the radical difference of plants will not only reveal our interconnectivity – it will necessarily challenge us, requiring us to ask which categories are useful and which need rethinking. It may also decenter our very human sense of authority” (Head et al. 2014). Therefore, critical food planning discourse can contribute by identifying and elevating the narratives of socio-ecological interconnectedness (Magdoff and Williams 2017, 12) and of human closeness with the more-than-human world (Kessler 2018) which persist despite many pressures against them.

Exploring food and food systems in particular can expose ecological interdependence and destabilize myths of individualism and human supremacy. For example, describing fermentation processes, Fishel (2019) writes that the topic of food can “call our attention to other lives and how we depend on [bacteria]... [and] help unsettle the great chain of being with humans at the top or at the center of the universe.” These kinds of signifiers of interconnectivity and continuity can be seen as “revolutionary” within a dominant culture that denies and marginalizes human-plant relations to the extent that human identity is considered “only minimally and accidentally connected to the earth” (Plumwood 1993, 6).

This thesis contributes to the task of decentering human senses of authority and takes the intelligence of plants and seeds seriously. This goes beyond metaphorical readings of seeds, but attends to the literal knowledge seeds contribute to our understandings of the world. Phillips (2013) notes that an ability to appreciate seeds as living agents with creates the space to function in more ethically and ecologically responsible ways.

### *Feminist political ecology as an approach*

I turn specifically to feminist branches of political ecology (FPE) to advance the framework detailed above. FPE simultaneously holds space for nuanced critiques of human supremacy, the study of everyday life, practices of care, the politics of place, and the existence of diverse economies. Feminist thinking is not a singular or static mindset. Rather, as Rocheleau (2015, ch. 1) articulates, it is an ever-evolving, continuously-challenged and heterodox approach to critical theory. FPE, she writes, “is a work in process (not progress) and hopefully on a path, however circuitous, to decolonization” (ibid.) Because contemporary feminism explores interlocking forms oppression, it acknowledges that these systems affect all people differently, not just a ‘singular, universal experience of women’ (Hey 2018).

Therefore, as I turn to my analysis of community seed saving below, I insist on a feminism that resists essentialist views of liberation, but is instead ceaselessly committed to the collective liberation of *all* beings and identities. To borrow from Harcourt and Bauhardt (2019, introduction): “feminism here is not just about women... but about all kinds of “Others” – sexual, cultural, class, ethnic, indigenous and more – whose perspectives are essential to a process of engaging with diverse ontologies and decolonizing knowledge.”

Within the context of contemporary seed systems, FPE helps advance a critique of the ways corporations commodify and objectify seeds. FPE “displaces humanity from its pedestal and corrects idea that the environment and other species are mere resources, restrains, or context to humanity” (Harcourt and Bauhardt 2019). FPE scholars give name to the power dynamics that uphold these harmful human-centric ideologies (ibid.; Plumwood 1993, 2002) and illuminate how both subjugated human identity groups and nature are similarly oppressed by systems of racism, colonialism, and sexism in the food system. In fact, the capitalist system builds its conceptual strength by casting marginalized sexual, racial, ethnic, and socio-economic “others” as “closer to the animal and body construed as a sphere of inferiority, lacking the full measure of rationality or culture” (Plumwood 1993, 15; see also Shiva 1989, 1991; Haraway 1985).

In order to clarify what the oppression of nature and culture looks like in contemporary socio-ecological politics, we can turn to the American lawn as an illustrative example. The aesthetic ideals of the lawn are, as Pollan (1991) writes, “a symptom of, and a metaphor for, our skewed relationship to the land” and an emblem of the deep human urge to dominate nature. In his essay, Pollan illuminates the ideals which render ecology placeless and places nature “under culture’s boot”:

“[Lawns] depend for their success on the *overcoming* of local conditions. Like Jefferson superimposing his great grid over the infinitely various topography of the Northwest Territory, we superimpose our lawns on the land. And since the geography and climate of much of this country is poorly suited to turf grasses (none of which are native), this can't be accomplished without the tools of twentieth-century industrial civilization: its chemical fertilizers, pesticides, herbicides, Machinery, and, often, computerized irrigation systems. For we won't settle for the lawn that will grow *here*; we want the one that grows *there*, ...Lawns, I am convinced, are a symptom of, and a metaphor for, our skewed relationship to the land. They teach us that, with the help of petrochemicals and technology, we can bend nature to our will. Lawns stoke our hubris with regard to the land” (63).

The ideology demonstrated also further cultural narratives which are used to oppress. Lawns are “powerful current” (ibid.) of economic and cultural value judgements that get translated into exclusionary practices. In a country where lawn maintenance is regarded as a civic responsibility, neglect is (falsely) taken as a marker of, poverty, sloth, or cultural ‘primitivism.’ This example articulates the same logics found in food and seed systems.

*Feminist critiques of 'the green economy' and 'techno-fixes'*

The same logics of objectification and control demonstrated by the example of the lawn have come to govern mainstream, top-down approaches and quick fixes to food systems problems. These approaches insist on finding solutions that will continue to support endless economic growth, but in a *green* way. Robotics-based food manufacturing, lab-grown meats, hydroponic startups, and data-driven 'smart' and 'green' farming systems are all touted as pathways to a more sustainable food system. For example, Figure 8 shows an image of the "Food Server," a project of MIT Media Lab's Open Agriculture Initiative. This shipping container-sized "production unit for any specified crop of interest" is emblematic of the types of techno-managerial rhetoric promoted by powerful players in dominant knowledge production spheres. Policy-oriented strategies to combat negative externalities in the food system remain in the institutional domains of governmental stakeholders and nonprofits (Figueroa 2013). However, these types of homogenized, technocratic green economy solutions are insufficient to address the root causes of our epoch of socio-ecological failures (ibid.). An economic system that prioritizes profit and human gain above all will inherently continue to re-inscribe and perpetuate anti-democratic, imperialist, and anti-environmental ideologies, despite any attempts to call it green (Magdoff and Williams 2017).



*Figure 8. The "Food Server," a project of MIT Media Lab's Open Agriculture Initiative. This shipping container-sized "production unit for any specified crop of interest" is emblematic of the types of techno-managerial top-down solutions promoted in elite sustainability discourses. Image source: Caleb Harper*

FPE frameworks resist these kinds of top-down, technocratic, market-based approaches, and therefore, offer a useful critique. By exposing "fissures, gaps, and inequities that are propelled through neoliberal environmental governance" (Harris 2015, ch. 5), FPE scholars illuminate the failures of technoscience and market instruments as strategies (see collections edited by Harcourt and Nelson 2015 and Harcourt and Bauhardt 2019). Feminist approaches to sustainability over the last 30 years have consistently focused on *systems* rather than *symptoms* and "offer alternative visions" for sustainability

discourse (Gottschlich and Bellina 2016, 945). This is done by and promoting cultures of care and advancing alternative labor models (ibid.).

### *Care*

FPE takes the notion of care seriously. Through a consideration of the radical potential – both latent and manifest – in daily practices, care becomes a conceptual tool to imagine life beyond capitalism (Gottschlich and Bellina 2016). Re-evaluating our relationships to and through care involves a search for “ways to live with and [to] redefine capitalism aware of social and ecological limits and to see how to change our economic values to include care and respect for our families, communities, other knowledges and cultures” (Harcourt & Nelson 2015). By studying community seed saving, this thesis explores care as an activity or set of practices not only directed at the self, but also other people, things, and the environment (Gaybor 2019). Tronto and Fisher’s definition of care and care ethics inform this understanding: “On the most general level, we suggest that caring be viewed as a species activity that includes everything we do to maintain, continue, and repair our ‘world’ so that we can live in it as well as possible. That world includes our ‘bodies, ourselves and our environment, all of which we seek to interweave into a complex, life-sustaining web.” (Tronto 2013, 19) In this definition, care is not only entirely essential to mere survival, but is central to *living well*.

Here, I take time to make a distinction often missing from mainstream food planning scholarship and activism. There is a radical difference between surviving and thriving. For example, there is a difference between literally having the bare minimum calories to survive and having the freedom and cultural sovereignty to determine one’s own experience with food; there is a difference between being able to show on a map that there is or is not a grocery store in a given zip code and being able to document the ways that food cultivates feelings of home and builds community around moments of shared joy and identity expression. Dignity, beauty, joy, abundance and choice, must be considered equally as important as caloric intake or price when planning and implementing food systems strategies. Failing to do so is detrimental to human society and the environment. Because FPE is not only concerned with post-growth perspectives as a political goal, but as a search for “good living,” and the “sustainability of life” (Harcourt & Nelson 2015), it is a useful framework to advance this theory.

Care is an important framework for resistance to the logics, policies, and legal frameworks an un-caring and un-careful food system. In this light, the care explored in community seed saving may stoke our imagination for caring *for* and *with*– not merely *about* – food.

### *Place*

Place is another fundamental concept in FPE. Focusing on “place-based models of nature, culture, and politics” FPE emphasizes places as the “sites of negotiation and continuous transformation” (Harcourt

and Bauhardt 2019). Fishel (2019) links place to liberation: “any feminist approach would have to be grounded in place and time to be emancipatory and participatory.” Exploring the role of place and the biophysical and social qualities of living in place is, in-and-of-itself, a radical epistemological stance to take. It flies against the homogenizing notion that we live in a ‘globalized’ world in which place is overshadowed by technological advancements, cross border economic flows, financial liquidity and privatization (Sassen 2005).

FPE as well as diverse economies theories (discussed below) for search for “an imaginary of the economy and environment where everyone can engage in its making” (Harcourt and Bauhardt 2019). This imaginary depends on “local and place-based initiatives” which allow people to engage “in their everyday life, their situated knowledge as well as their situated experience” (ibid., introduction). Seed saving warrants a deep consideration of knowledge about place and asks us to consider how relationship to place is developed in the material act of stewarding seeds and how place is transformed when seeds travel from one home place to a new home place. Arturo Escobar (2001) argues that “culture sits in places” and Gonzales (2013) pushes this idea farther in the context of *in situ* biodiversity conservation. He contends: “place and culture are dynamically and inextricably rooted in land and territory, spirituality, language and worldview... place is where identity and language are forged through interaction with the natural and the supernatural” (ibid., 88).

### *The study of the everyday*

Feminist theories of social and ecological life uphold the inherent value of lived experiences and practices of struggle and survival. FPE departs from other critical literatures which decry neoliberalism without putting forth new or honoring existing alternatives. This kind of armchair critique fails to go beyond merely, in bell hooks’ words “naming one’s oppressor or naming one’s pain” (hooks 1989, quoted by Fishel 2019). FPE responds by linking oppression and pain to “strategies for resistance and transformation” (ibid.). FPE insists on scholarship that is more than “anti-(fill in the blank)” and moves into the space of developing actual practices and governance models (Harcourt and Nelson 2015, 12). Acknowledging the heterodox practices of everyday lives and embodied knowledges can provide road maps for remaking the world as we want to live in it.

Seed savers, through this theoretical framework, can be seen to “not only demand alternative food systems, but create them through their practices” (Phillips 2006, 174). These kinds of everyday practices of alternative world building are “living indicators” of what planning and policy agendas should take seriously (Kaika’s 2017). Lefebvre’s (1991) theories on everyday life are relevant here. Despite “dehumanizing” alienation under capitalism, he writes:

It is in everyday life that the sum total of relations which make the human – and every human being – a whole takes its shape and its form. In it are expressed and fulfilled those relations which



bring into play the totality of the real, albeit in a certain manner which is always partial and incomplete: friendship, comradeship, love, the need to communicate, place, etc. The substance of everyday life – human raw material in its simplicity and richness – pierces through all alienation and establishes ‘disalienation’ (97).

Bringing Lefebvre’s theories in direct conversation with concepts of food sovereignty, Figueroa (2013, 11) notes that it is within these ‘residual’ spaces that we “catch glimpses of fragments and possibilities for a life not dominated by alienated social relations.” He continues: “The idea of an undisciplinable universe of subsistence practices that falls, partially or completely, outside the purview of capitalist logics gains particular relevance in the current era.” This recognition is indispensable for unpacking the transformative potential of community seed saving.

Discussing the role of critical theory in emancipatory politics, de Sousa Santos (2015, viii) writes: “critical theory is meaningless without a search for truth and healing, even if in the end there is no final truth or definitive cure.” It is within the practices of care found in everyday life that we can find the existing spaces where hegemonic structures are already being challenged, subverted, and reworked. Borrowing from Marxist sociologist Olin Wright’s (2010) term, these are the “real utopias” that give access to tools needed to imagine radical yet practical “emancipatory alternatives to the dominant forms of social organization.” Searching for narratives of “real utopias” brings forward the utility of Gibson-Graham’s (2006) theories of diverse economies discussed next.

### *Diverse economies theory*

FPE does not merely seek to insert care into existing economic structures. Rather it concerns a mandatory reconceptualization of the economy itself (Gottschlich and Bellina 2016, 949). In this light, the aims of feminist political ecology and feminist alternative economics theories are closely related. Many scholars have engaged in the pursuit of alternatives and departures from capitalism, all indicating the need to dismantle “capitalocentrism” (Gibson-Graham 1996). Capitalocentrism is a term that comes to describe a monolithic view regarding “all economic activities in terms of their relationship to capitalism—as the same as, the opposite to, a complement of, or contained within capitalism” (Gibson-Graham 2006, 56). Capitalocentrist ideologies pervade treatments of food in academia, policy, and practices.

Gibson-Graham’s term “diverse economies” redefines economic activity as a space of multiplicity and a plurality rather than a singular capitalist system. Similar to FPE studies of everyday care, diverse economies research reprioritizes a wide spectrum of community of economic endeavors which are “marginalized, hidden and alternative” (Pottinger 2018; Gibson-Graham 2008, 613). The diverse economies framework encourages scholars and activists dislodge forms of hegemony and “to promote ‘collective disidentification; with capitalism, as Judith Butler and other queer theorists did for heterosexuality and the binary gender categories” (Butler 1993, 4, cited in Gibson Graham 2006, 54).

They define economy in terms of difference rather than dominance. Gibson-Graham's economic iceberg model (Figure 9) is a useful visual tool for understanding these concepts. They write:

This image is one way of illustrating that what is usually regarded as 'the economy' - wage labor, market exchange of commodities and capitalist enterprise - comprises but a small subset of the activities by which we produce, exchange, and distribute values. It honors and prompts into expression our multivariuous ways in which all of us are engaged in economic activities. It opens up conceptions of economy and places the reputation of economics as a comprehensive and scientific body of knowledge under critical suspicion for its narrow focus and mystifying effects (2002, 1).

This thesis situates seed saving as a diverse economy practice.



Figure 9. J.K. Gibson-Graham's Diverse Economies Iceberg. They explain: "This image is one way of illustrating that what is usually regarded as 'the economy' - wage labor, market exchange of commodities and capitalist enterprise - comprises but a small subset of the activities by which we produce, exchange, and distribute values" (2002, 1) (Frawing by Ken Byrne).

Feminist political economy and the diverse economy theory are often in, however these two schools of thought have rarely been brought into dialogue together in the space of critical food scholarship. Galt (2013, 646) suggests that "a great deal of theoretical work is needed to bring political ecology and Gibson-Graham's community/diverse economy approach into dialogue around alternative food networks." The present study of community seed saving interrogates and reimagines the dynamics of capitalism through the lens of these mutually reinforcing feminist theories. Lessons and stories from urban seed saving and sharing practices and spaces can inform wider understandings of diverse community economies and ways of living and caring in place (Pottinger 2018).

### *Food commons and public libraries*

The final body of literature this thesis is in conversation with is scholarship on food and the commons. These works aim to disentangle individualized and communal property relations and explores avenues of possibility for “generating decommodified relationships with plants, seeds and food within jointly used growing spaces and food sharing projects” (Pottinger 2018). Theories of re-commoning emerge in critical food studies to document “reaction[s] to the massive abuses visited upon nature and community by the imperatives of reproduction of the dominant structure of power” (Vivero-Pol et. al, 2019, 2). Like seed saving, the notion of the commons is nothing new and has a long and often radical history associated with “resilience, collective governance and sustainability” (ibid.). Re-commoning studies identify narratives to promote ecological collectivity and liberate social sciences from “the idea that society is and should be composed of atomized individuals, acting as rational agents seeking to maximize their individual utility and competing against other individuals in order to thrive as a separate individual” (ibid., 3-4).

While recent scholarship on the commons has focused new collective forms of knowledge and media initiatives like Wikipedia, open source software, online forums, and the Creative Commons license (Bertacchini 2012; Wallaert 2012), theories of *physical* and *spatial* re-commoning remain marginal. The reality is, however, we still live in spatial realities and our food cultures are entirely dependent on physical places and infrastructure. Therefore, we must recognize that re-commoning theories require adequate attention to the physical venues in civic life that can support these processes. This thesis turns to the role public libraries can play in achieving the goals of re-commoning.

Since 1994, photographer Robert Dawson has documented hundreds of the more than 17,000 public libraries in the US. Wallaert (2011) notes that Dawson’s photos have a unique power to reveal the public library as “perhaps the greatest” commons America has ever had. Similarly, Klinenberg (2018) makes the case that libraries are the best example we have of critical “social infrastructure.” Defining social infrastructure as “the physical places and organizations that shape the way people interact,” he suggests that they must be prioritized in the face of budget shortfalls and existential debates over the utility of a library in the digital age. Libraries, he writes, are “the public institutions that – even in an age of atomization, polarization and inequality – serve as the bedrock of civil society.” As Wright (2015) notes, libraries embody “principles of access and distribution which are profoundly anticapitalist... they embody emancipatory ideals of equality, democracy and community.” Therefore, libraries are uniquely well-situated to explore the decommodified models of economic alterity present in community seed saving practices.

The role libraries play in civic life becomes more dynamic as they take on more non-traditional roles today. Recent popular media has illuminated the emergence of “libraries of things” (LoTs) around

the world (Johnson 2016; see Figure 10). These physical interventions aim to reorient humans' relationships to material possessions and private property in promising directions. LoTs are not necessarily new, for example, the Grosse Pointe Library Tool Collection in Michigan started in 1943 by the Boys' Work Committee of the Grosse Pointe Rotary Club to make tools available during the scarcity of wartime (Benedictus 2019). However, the idea has rapidly grown in the last decade. LoT projects can be found lending out community resources such as toys, kitchen utensils, musical instruments, neckties, learning materials, crafting tools, etc. (Johnson 2016). Despite certain operational differences (mainly that seeds are not *shared* in the strictest definition of the word), the seed libraries explored in this thesis can be situated within this emerging trend as a way to translate cultures and practices sharing and mutual interdependence into the public sphere.



Figure 10. An example of a 'Library of Things' found at a library branch in Philadelphia, where neckties are available for to for three weeks at a time, free of charge. (Image source: Facebook / Paschalville Library)





## CHAPTER 4

### Findings: Seed Saving as Place-Based Socio-Ecological Care

“We need acts of restoration, not only for polluted waters and degraded lands, but also for our relationship to the world. We need to restore honor to the way we live, so that when we walk through the world we don’t have to avert our eyes with shame, so that we can hold our heads up high and receive the respectful acknowledgment of the rest of the earth’s beings.” – Robin Wall Kimmerer<sup>29</sup>

#### *The material and conceptual practice of seed saving*

This chapter presents findings from case study research in the San Francisco Bay Area regarding the practice of seed saving, and how it materially and conceptually functions to reconfigure relationships between people, place, and plants. This thesis seeds to present a wide range of relationships communities hold with seeds, yet, given the complexities of this topic, and the way each individual’s and community’s experience of seed is historically- culturally- and spatially-mediated, this chapter has presented only a glimpse into the particularities of this single study. The acts of seed saving and sharing involve the types of physical and ethical care that are marginalized and overlooked in contemporary capitalist systems, largely because they are illegible when measured in terms of purely monetary value. These practices

---

<sup>29</sup> From *Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge, and the Teachings of Plants* (2013), 195.

involve tactile interaction and intimate stewardship with nature; they cultivate a sense of communal sharing and solidarity within and across communities; and they require careful consideration of the past, present, and future of a place (including that place's people, culture, and ecology). The claims made here to interpret the practical and conceptual meaning of seed saving should not be taken as beliefs shared by all gardeners or seed savers. In fact, Phillips (2013) notes in her ethnography on Canadian seed savers that commitments held by some are not held by all and are subject to debate.

Many seed savers view their practices as building an alternative to the commercial seed industry and as an opportunity to contribute to practical, yet radical, change at both the social and ecological levels. Many, especially those who are driven by more politically-oriented goals, also explicitly reject the idea that seed saving is merely a hobby or niche activity. They stress that it is very literally necessary for the survival of humans and the planet, both quantitatively (by ensuring enough food is grown for the world's growing population) and qualitatively (by ensuring cultural sovereignty, equity, and joy). Maya<sup>30</sup>, an urban farmer and seed steward who runs the Indigenous food sovereignty programs at the Cultural Conservancy in San Francisco expressed these imperatives: "Seed saving is not just important and critical, we simply can't *not* have seed saving. It is necessary for our survival. Not only in terms of getting enough nutrition, but in terms of cultural survival. All of those things rely on each other. Especially in Indigenous communities, if we can't practice our cultural traditions, we can't mitigate climate change. It is that huge, and that connected." In this statement, it is clear how the care taken to maintain connections to seed saving touches upon the diverse, yet interconnected, relationships that these practice impact.

Interviewees expressed a wide range of motivations for why they engage in seed saving practices. This includes wanting to strengthen local resilience to climate change, honoring cultural or spiritual practices, preserving endangered knowledge, building community, and creating local food security. Many also expressed multiple and mutually-reinforcing motivations and all of these can be considered a commitment to what I term *place-based socio-ecological care*. I develop this concept to articulate that food systems reform requires critical consideration of much more than food itself. It requires the types of care that can transform human-place, human-human, and human-nature relationships and can destabilize hegemonic logics of dominance, individualism, and alienation. The following sections detail and demonstrate how the practices of community seed savers embody place-based, social, and ecological care.

#### *Place-based care*

This phrase refers to how the care expressed in community seed saving is undeniably place-based. As a practice, it cultivates a deeper sense of place through direct engagement with particularities of

---

<sup>30</sup> Unless otherwise noted all interviews referenced in these sections were conducted by the author in January 2019.

environment and culture. In order to start a plant from seed and to save seeds, one must be highly attuned to local micro-climates, neighborhood soil conditions, and ecological knowledge inherited about a place inter-generationally or shared from neighbor to neighbor. This active participation in place can reconfigure relationships to place by replacing extractive expectations with a sense of moral reciprocity and responsibility. Kristin, a farmer, seed saver, and active food sovereignty organizer explained: “It is about asking how do I best serve a place? Instead of how do I take something from this place and serve my needs?” In this way, seed saving articulates a resistance against colonial and capitalist ideologies which erase and commodify place (see Gonzales 2013 for a deeper exploration place in these terms).

Despite the driving forces of globalized capitalism, which seek to universalize and standardize the experience of space and time, stewardship of seeds restores an awareness that life is determined by the realities of time and space and restores the art of living within the limits of place and seasonality. This is demonstrated by seed savers’ awareness of which varieties grow well in their individual microclimatic conditions. Rather than eschewing difference, a grower observes, plans for, and celebrates the uniqueness of the ecological realities of a place and how that place changes over seasons. They strategically value and embrace difference across landscapes, across geographies, and across the particular methods used to save seeds. David (a), an urban gardening educator and founder of the Jewish Community Center of San Francisco’s rooftop seed library articulated how caring for seeds embraces difference:

*We are connected to place; seeds are specific to place. There is a reason certain things grow well in a certain place and why they are so beneficial in and to that place. For example, San Francisco is not great for growing tomatoes. Beginning gardeners always want to grow tomato seed but you have to apply an understanding of time and appreciate a sense of place and what is in this place. You can retrain your understanding of what you can grow that is delectable and rewarding and nutritious and healthy in a place.*

This level sensitivity to place was also clear in seed savers’ awareness of differentiated geographies within the Bay Area, where growing conditions can change significantly from neighborhood to neighborhood within the same city. As Debbie, a librarian at the University of San Francisco seed library said, “Seeds that grows well in the Mission won’t always grow well in Sunset.” Respect for place-dependency is a radical departure from the monoculture mindset of the global industrialist food system.

Seeds themselves also contain knowledge about a place. Interacting with and becoming aware of this knowledge is a major part of *in situ* conservation. Seeds adapt more each time they are grown out in a place. Over time this builds a resilient local seed stock that becomes *of* a place, regardless of the original origins of a crop. Maya noted that observing the ways a seed comes to grow in a place contains a kind of wisdom that mainstream environmentalism and technocratic rationalism overlooks: “Seeds that have been saved for generations, and have been grown in place and have grown in reciprocity with that place. Those are the seeds that contain the knowledge that will help us get through whatever we are facing now.”



Liz, a gardener and seed saver in Sebastopol explained that the seed she saves for her community “is seed that is really adapted to the microclimate here. Which leads to healthier crops, better yields and further adapting.” Sarah, a fellow Sebastopol seed saver and food activist, added: “We are trialing which varieties do better here. We know that one has too long of a season, or that one needs too much heat. We are creating a seed library that is full of seed we know grows well here.” These statements all exemplify a seed saver’s caring commitment to cultivating a more authentic sense of place.

Place-based care is also articulated in the ways seed savers use their practices as methods to mitigate the specific ways in which climate change is already affecting the Bay Area. Many prioritize growing and saving seeds for food crops that can tolerate the increasing cycles of extreme drought and wildfires that are significantly impacting urban and rural agriculture in the Bay Area. Liz said, “The weather is already changing. Going forward there is more and more having to learn to dance with that fact.”

A sense of place is cultivated also in the reverse, as seeds move between places. Seeds travel with people, allowing them to remain connected to distant home places. During processes of displacement and migration, planting seed in new earth is a powerful mode of maintaining connections to relationships lost in movement, while at the same time forming a new relationship to a place. An awareness and respect for the historical connection of between seeds and displacement was demonstrated by the many differently-situated seed savers who brought up the story of the Cherokee Trail of Tears beans during interviews. As Liz described, these beans were “one of the foods the Cherokee carried with them on their forced march southeast to Oklahoma. It is one of the things that kept them alive. I started growing it because I used to live in North Carolina and for this story.” An example of the ways seeds can maintain or restore relationships between people and distant places was illuminated by the story Electra, a Sonoma County seed saver and Master Gardener, told from a recent community seed swap event:

*I sat with the corn. We had our Zapatista Blue, Oaxacan Green and Cascade Ruby Gold – all flour corns. I spoke to a young woman from Bogota, Columbia. The corn reminded her of home. I asked her if she misses her country. She said yes and no. She doesn’t miss the craziness, but she realized [seeing the corn] that she does have a connection to her ancestral land and the plants she grew up with.*

Similarly, Pete, of the César Chávez Public Library remarked that seed saving is a way for the predominantly Latinx community to maintain a connection to the cultures of Mexico, Central, and South America. Pete explained that by having access to seeds in the seed library, people could grow the vegetables and cook the recipes they associate with those home places. This serves as a source of comfort and stability for a highly stressed population, particularly given today’s volatile political discourse around immigration issues.

Many seed savers also remarked on how seeds can create a restored appreciation of the agricultural identity of California's landscape, much of which has been lost to development pressures. This is particularly true in the Bay Area, where what once was known as the "Valley of the Hearts Delight" has been replaced by Silicon Valley's booming tech industry. Hillie, who saves seeds in the South Bay, remarked that growing from seed allows her to reimagine the land when "it was the agricultural star of the world before we covered it all up" and to honor that place-based memory. Tending to the land with her gardening practices becomes a way for her to reconnect the land she remembers growing up on.

However, just as seed saving fosters positive nostalgia for history and place-based identity, it can also conjure the somber realities of how legacies of settler colonialism and displacement – of both people and seeds – intersect with *in situ* conservation. Saving seed creates an opportunity within and across Native and non-Native communities to acknowledge colonial and white supremacist suppression of traditional agriculture and provides space to challenge assumptions about what seeds mean in a place. Maya, whose seed saving and ethnobotany work serve to reconnect urban Indigenous communities of the Bay Area with traditional food crops, expressed that a major part of re-establishing an ethic of care in seed systems in a framework of care involves healing the way that seed relations have experienced the traumas of displacement and erasure. She explained:

*We have native folks who are in diaspora disconnected from their ancestral territories and we have seeds that are in diaspora. Reconnecting [seeds] with their original stewards is a really important process for cultural revitalization also for healing of both people and seeds. The genocide that was experienced in California was one of the worst across the nation and [California Indians] are for the most part unrecognized – by the State and definitely Federally – so, that brings challenges of honoring their sovereignty on this land. The way we do that is through growing and distributing food and seeds and educational opportunities to connect with elders and other knowledge holders to pass on this traditional knowledge.*

*In situ* and *in vivo* conservation practices, which honor the concept place and all of its nuance, more directly navigate and must interact with healing these complex spatialized traumas and cultural memories

Within an intensely place-specific practice, seed saving also functions to unite passionate seed savers who identify as part of a broader global social movement for seed sovereignty. This type of movement-thinking strengthens the impact of seed saving across urban communities and gives seed savers a greater sense of purpose and a feeling of being a part of something bigger. Seed saving may effectively create a sense of philosophical unity and awareness of the similarities as well as profound differences between seed politics in the Global North and in the Global South. Interviewees expressed a desire for solidarity across these territorial boundaries. This is crucial for deepening goals of food sovereignty given the globalized politics of our food systems. As Kristyn expressed, her awareness of the political economy of seed issues directly influences her agricultural practices: "I am not faced with the

daily violence of those systems like peasants in lots places of the world are. But, I am susceptible to the type of coercion that lets me enable things to happen. This system doesn't even have to exert a lot of effort or threaten me or imprison me to do it. So, how can I not consent to those things?" It is seen here that by centering the principles of care in food growing, seed saving is considered an important way to resist and re-route power and support global food sovereignty.

On a more tangible level, seed savers extend their place-based care to organize and extend their day-to-day impacts which are hyper-local. This is done through conferences and online networking platforms to share resources and exchange experiences. Rebecca, co-founder of Richmond Grows Seed Lending Library, said she is interested in bringing together seed savers from around the world, although most of her work involves a group of northern Californian seed savers who meet regularly to build momentum for change. "This *has* to become a movement," she expressed. To catalyze this movement, she started an online network of seed libraries called seedlibraries.net and founded a regional networking group called East Bay Local Seeds. This group started a statewide seed saving initiative called One Seed, One Community, encouraging communities in participatory plant breeding project by growing the same variety of seed in gardens across the state.

#### *Social care (for self, other humans and culture)*

This section outlines the caring social relationships cultivated for the self, for community, and for broader cultural considerations, as they exist in the past, present and future. As a practice, it connects individuals with personal heritage and brings people together to build community. Tending to these relationships, seed saving also promotes social care in the form of gifting food and seed and creates channels to share traditional and knowledge and stories within and across individuals and groups.

The first way social care is found in seed saving practices is how they allow for individuals and communities to connect with personal, cultural, spiritual and ancestral meaning. By engaging with traditional agricultural practices or the cultural significance of crops, seed saving is thought of as being as much about cultural restoration and revitalization as it is about ecology and agronomic sciences. This once again stresses the importance of *in situ* conservation practices, which are geared towards both the genetic and ethical and cultural dynamics of seed.

Another demonstration of social care is how this practice allows individuals and communities to take matters into their own hands to stand up for what they believe is worth protecting. They do so because they feel that the powers-that-be in the public and private sector are failing to do so. Emily, who started saving seed to produce her own fabric dyes for her work as a fiber artist remarked:

*People are afraid that these seeds could go away if they are not doing this work, that is the ultimate act of social justice. People standing up and saying, 'No, it is important for us to have*

*these seeds. To have the seeds from our past. To have all the diversity in our seeds. This is a way of standing up for what we believe in.*

Liz expressed this on a personal level:

*There was a cucumber I grew every year and it was my favorite cucumber and suddenly it disappeared from the seed catalogues, the same thing happened to my favorite lettuce. I became aware, that this is a problem. This is not okay.*

People save seeds in order to claim power by maintaining access to the crops and ways of life that are important to them.

Vincent is a member of the Muwekma Ohlone Tribe and owner-chef of a Berkeley organization that runs a cafe serving traditional foods indigenous to the East Bay and works collectively to restore and revitalize Ohlone foods, language, and environmental practices. For him, saving seeds has allowed him and his community to connect to traditional ecological practices, many of which were suppressed through occupation and urbanization. “We still eat those seeds today, but a lot of the specific traditions with seed gathering have been out of practice for at least a generation. We’re just now starting to get back to gathering traditional seeds. This has been really exciting for us.” Maya also expressed that her motivation to get involved with seed-based work in the Bay Area stemmed from a desire to connect to her own personal tribal community and spiritual culture, while at the same time addressing broader issues of “cultural loss and stolen cultural property.” She described the impact reconnecting with ancestral seed she has observed, even when someone has never worked with seeds in their life, there is an awakening of latent embodied knowledge that occurs.

This can mean maintaining a way to grow culturally or emotionally significant foods that are not easily found in commercial markets. Kristyn, who grows mostly Korean herbs and vegetables, was adopted by a white American family and raised in New York. She began saving seeds when she turned to Korean natural farming practices as a way to reconnect to her heritage, but found these crops difficult to obtain: “I don’t have a commercial source for these crops, so if I am going to grow them, I am going to have to do it myself.” She also grows and saves seeds for Kitzatawa Seed Company, the oldest seed company in America specializing in Asian vegetable seeds and gives much of her farm’s excess produce away for free to the surrounding Korean community. This is a way of restoring cultural identity and creating community relationships on that basis.

The notion of protecting culturally important crops was also articulated by Vincent’s story of why he and his partner Louis, who is Rumsen Ohlone, started a garden as a way to protect and preserve the foods essential to their cultural sovereignty

*We started a garden that will help to keep a lot of these plants in our lives. In the old days, we would just gather these foods, we wouldn't plant them. But there are a lot of restrictions to that today. Even though we have permits and we are able to gather legally, that doesn't stop people who*

*are on the trails from harassing us or bothering us when we are out gathering with our community. That's not a good feeling... We make do and we are always going to continue to gather because we've been dealing with occupation for 242 years and we are still doing it. But, having a garden means we can have a safe space. If we want to gather some Mugwort, we don't want to have to deal with all those people. Sometimes, you just don't want to have to explain 242 years of colonization to everyone.*

Here, seeds provide an important avenue to strengthen food sovereignty by creating channels of self-determination and choice.

Next, within the theme of social care seed savers often form strong social bonds and build community by bringing people together around a shared passion and community of practice. Sara described how community has been built within her group of seed savers in Sebastopol, CA:

*This is the way seed saving should be, we should be saving and cleaning seed all together as a community. We are all learning a lot, we are building community, we are processing gallons of seed. It is the best of all of it. These gorgeous harvests, building community, and being able to gather and celebrating what we did for the year.*

A fellow member of this Sebastopol seed community recently lost her home, her garden, and her entire seed collection to the Santa Rosa Fires of 2017. She expressed the seed library's community became her support system for healing during this trauma.

The commitment to building community creates avenues for gardeners who often spend a lot of time alone to engage in greater social connections and to be involved in systems larger than themselves. Liz articulated, "I grow as much of my food as I can so I spend a lot of time in my garden alone. When I come here [to her community's seed garden], I get to garden with other people and do seed cleaning days and I know more gardeners in the area than I would have any other way. There is a strong bond between us." This demonstrates a remedy to the isolation, individualism, and idealization of private life and private property upheld in American culture.

Saved seeds also can help maintain connections to lost loved ones in a community. Tom described that saving the beans he was gifted was a powerful way to keep his friend's memory alive after he passed away: "As he was dying, I used to go over and take care of his vegetable garden. One day I said, 'can I have some of your seeds?' He said, 'I thought you would never ask!' [with tears]. It was the most wonderful moment. I still treasure those beans!" This level of social and emotional care is a radical departure from the dominant ways individuals engage with food.

Finally, the communities of practice around seed saving inscribe a deep ethic of sharing and demonstrated commitment to impact lives beyond the self, demonstrating how seed savers care for others. Claudia, a seed saver and urban gardening educator said, "I don't know a single gardener who doesn't share." Minna, who does not save seeds herself but manages a free seed library echoed this point: "This is not a solitary activity. You don't just save seed for one. If you're growing food for yourself, you're

probably doing it for your whole block.” This contributes to a mentality of communal enjoyment and shared abundance. Kristyn explained this impact directly: “Nothing has taught me more about generosity more than seed saving... each one seed is returning your care and devotion a thousand-fold, this is undermining the culture and paradigm of scarcity that capitalism has taught us with something that is really the opposite of that.” Sara similarly linked her practices to the concept of abundance: “We want to share the abundance that seeds give us. When you are trying to grow good quality seed, you are growing population sizes that don’t make any sense unless you are going to be sharing.”

The culture of sharing involves not only circulation of material resources (the seeds themselves) but also of immaterial knowledge about seed saving, food and nutrition, sustainable gardening, and stories. Sharing within communities suggests a recognition of the value of interdependence, which Claire, a plant breeder and open source seed activist noted: “You don’t need everyone saving every seed of every variety because seed multiplies on such a scale. If you get together and each grow one or two seeds and pool resources, that is when it becomes really powerful.” The coming together of shared seeds also strengthens genetic diversity and resilience of local seed stocks, which has important implications for preserving agrobiodiversity and improving climate adaptation.

Particularly as seeds and knowledge about them flow from expert gardeners to inexperienced gardeners, there is an implicit recognition of structural inequalities in the food system on the part of well-resourced seed savers. Many gardeners who save seeds expressed that what they are doing is attempting to establish a form of resource redistribution and are motivated by a moral imperative to share seeds with those who cannot access seeds due to wealth and resource disparities. Liz explains this awareness:

*We realize that there are vast number of people who will never have the situation where they can grow something out for seed. But what we hope to do is build a group of people who can save seeds, who have the land and the time to save seed, and have them become more educated and able to bring seed back to the library.*

Sara emphasized this point: “We don’t have the expectation that everyone can grow seeds, but we will grow seeds so they can grow food.” Emily, a seed library volunteer remarked: “It is inspiring to see the people donating the seeds they are not using, they are giving it to the whole community. Even if those people never meet, it is inspiring that they are contributing to each other.” Members of seed saving communities make a commitment to others’ needs in a way that can inspire recognition of other ways of organizing our social bonds.

When biodiversity conservation takes place *in situ* within communities, social care is also found in the esteem held for the stories that accompany seeds. When seed is commodified and objectified, as it is under the logics of industrialized agriculture, personal connections and stories are lost. Rebecca expressed how seed saving in her community is a way of bringing these connections back:

*I think we've become so disengaged and disconnected from our food sources. We've lost flavor, we've lost stories. When there is a story attached to something there is so much more of a desire to cherish food. It is not just a disposable commodity. For example, a couple of years ago one of my colleagues had these sunflowers and they've been these beautiful sunflowers that he grew with his daughters and he had this beautiful picture of his daughter running through the sunflower fields. You weren't just borrowing sunflowers, you were borrowing sunflowers from Alberto and from this beautiful picture of him and his young daughters running through the patch in the front yard. We've also got Great Great-Aunt Rosie's Italian Pole Bean that has been saved on my block for 30 years. When you hear the story about Great-Great Aunt Rosie and her big Italian family, you want to be part of that. We want to be part of something larger than ourselves. Food is a great way to do that.*

Storytelling is just one of many ways seed savers often translate their personal practices into educational efforts in their communities.

Particularly in urban settings, a social form of care comes from a sense of responsibility felt to preserve a skill and body of knowledge seed savers fear is being lost and to impart this knowledge on as many people as possible. Gardeners expressed how they work against the ways industrial agriculture, urbanization, and a culture of convenience have marginalized seed saving and other of labor- and time-intensive food practices. David(a) expressed that his desire to educate, especially youth, about seeds in order to counteract a loss of knowledge: "Forgetfulness is essentially a disease! We are forgetting from one generation to the next. Which is scary. What does that mean for our future?" Claudia expressed that she wants to educate the Oakland community about seed saving and growing food because she knows that even when many people want to, they don't have access to the type of specialized knowledge needed to start. There is also an expressed ambition amongst seed savers wishing to rewrite the narrative that growing food and saving seed is difficult or intimidating. Rebecca noted, "anyone can do it, it is just about reawakening the knowledge." Therefore, seed savers express social care in their desire to remove barriers to entry and to educate for new gardeners in their community.

#### *Ecological care (for more-than-human)*

This refers to the ways seed saving redefines care-based human relationships with plants. Seed savers reveal care for the natural world in their commitment to preserving biodiversity, mitigating climate change, and in the tangential considerations related to saving seeds for local pollinator and other wildlife populations. Their practices transcend ideologies that situate humans as dominant over nature. Rather, seed savers see themselves as being in ethical, reciprocal relations with more-than-human others. Seed saving re-embeds an awareness that humans are an entirely plant-dependent species, a fact that is significantly backgrounded in contemporary life, and even more so in urban settings. Seed-based practices deepen a lived understanding that the liberation of human and nature are intricately bound. As feminist theory demonstrates, both require that we radically de-center notions of human supremacy.



Kristyn demonstrated how seed saving functions in this framework: “It really does mean thinking about collective liberation. A liberation that considers the plants and animals of the places we inhabit. What is the most heartfelt way we can design a system where everyone’s needs are tended to and cared for?” This also includes a belief that the knowledge seeds themselves contain crucial lessons to turn to. Seed savers cultivate an appreciation of seeds as agents with their own lives, interviewees referred to them as guides, teachers, kin, and relatives and many expressed a desire to model their own behaviors off of the resilience and abundance they identified in the seeds they worked with.

As humans develop ecological relationships through seed saving, they begin to understand seeds themselves as rights-holders. Interviewees articulated a sense of responsibility to care for seeds as a way to express gratitude for how seeds provide for humans. As Maya articulated, seed saving restores human awareness as being *part of* rather than *in control of* the ecosystems they inhabit: “This work is a reminder not just to native people but to everyone that we are a part of the ecosystem and not trying to dominate it.” This recalls the concept of care as one that fundamentally acknowledge human needs as just one of many in a complex web of needs (Tronto 2013).

To save seed, one must be closely observant of the entire life cycle of a plant. The physical intimacy necessary in seed saving creates a bond with the natural world which is increasingly rare in today’s urban lifestyles. Seed saving, however, encourages the development of a new level of personal relationships to growing food. Sara described how she and her fellow seed savers often end up with seeds from their harvest stored in their bedroom closets before they get processed and cleaned. Another example of this is Kristyn’s story of the bond she formed by growing out a variety of Korean soybean. Her story evokes a level of intimacy akin to child rearing: “It is 150 painstaking days of being stressed out every day. You wake up and think ‘are all my soybeans okay?’ ... The gestation period is pretty much as long.” This story reveals a level of intimacy with the natural world that even a typical urban gardener does not experience, given that many gardeners obtain their plants yearly as seedlings from a nursery.

Instead, engaging with the entire life cycle life from seed to plate establishes a connection to plant life that also includes an awareness of death and regeneration. It instills humility in regards time and ecological rhythms of seasons and growing cycles. Many seed savers demonstrated that this led to a new way of relating to and appreciating nature. David (a) remarked, “I am in awe of the experience of seeds. The process of opening a plant at the stage of decomposition and the end of its life, and finding something within it that carries so much potential.” Enoch also emphasized how seeds can redefine an understanding of food: “We have a huge disconnect with the food that we consume. To save your own seeds and look at the entire life cycle of a plant is a way to understand more deeply how you got your food on the table.” It is clear how seed savers are engaging in ecological care at multiple scales.

As already expressed, seed savers are highly-attuned to what it means to live in a world defined by a changing climate. Many are motivated the responsibility to mitigate the effects of climate change and how they anticipate it will influence local food systems in the short-and long-term. Minna expressed this sentiment:

*The genetic diversity will help us as water gets short and soil gets worse and basically, we have to start growing food in a climate that was not meant to grow that food. It is not going to be long before we have to figure out how to grow stuff without water. The importance of biodiversity is literally being able to grow stuff. It sounds pretty apocalyptic.*

Relatedly, involvement with and care for seed is seen as an important way to foster connections to the natural world. Tom emphasized this impact: “People are better connected to the environment and to the planet when they are putting things in the ground. I don’t care if it is a carrot or if it is a dandelion. The act of growing seeds is a whole new connection.” The relationships formed with plant life by growing from seed can have ripple effects into how humans engage with food and the environment on multiple levels.

An example of these ripple effects is Emily’s interpretation on how community seed saving can benefit the issue of food waste: “It is so much harder to waste something you grew and watched all the way from a tiny little seed. When you get to the harvest season you are so much more likely to share because it is something you spent so much time and care on.” When ecological relations are premised on care, broader transformation towards holistic sustainability becomes possible.

Seed saving forms constitutes a part of a more holistic approach to sustainable agriculture in urban settings, where concerns over pesticides and gardening for wildlife are particularly of concern. This is apparent in many seed savers’ driving motivation to positively impact biodiversity – of both plant and animal life – through their actions. Enoch explained how he sees his work as important for supporting urban pollinator populations:

*That is another reason why I started this. I am not a fan of the typical green lawn. It is like a disease in terms of its impact on biodiversity. I encourage people to plant seeds of native flowering plants that support pollinators and parasitic wasps and insects that are natural ways to fight pests in your garden.*

The care taken to consider pollinators in planting and seed saving decisions again reveals the ways these practices drive people’s desire to have an impact on things beyond the self.

This also has demonstrable biophysical impacts in the gardens. When compared to the large-scale industrial models of agriculture, most urban gardeners grow considerable variety in their gardens and their motivations to preserve culturally important crops inherently intersect with their impact on biodiversity preservation. Maya told a story that articulated these impacts:

*This past season, I was focused more on showcasing cultural diversity and having a lot of different seeds from different communities. I wasn’t even thinking that much about the biological*

*diversity before but when the seeds bore fruit there was so much biological diversity that came. There were pollinators across the board, from bees to moths. There was a great abundance and ecosystem that was created by planting so many seeds from so many different communities. Having a diversity of food in the garden meant a diversity of beneficial insects that come.*

The relationships held between humans and seeds can be profoundly personal, emotional, and spiritual. Re-establishing kin-like relationships with seeds and re-interpreting them as innate holders of rights is seen as an important part of the seed saving movement. Seed stewardship is suggested to be similar to taking care of a relative, particularly in indigenous worldviews. An important part of this work is re-writing the narrative which treats seeds like objects and to better come to understand them as beings of their own. This is demonstrated in the many ways seed keepers come to refer to seeds as teachers, guides, and keepers of memory. As Maya expressed:

*Our seeds have as much memory as we do and have as much generational knowledge as we do. Once we stop treating them like commodities and start treating them like relatives, we realize they have wisdom that helps us address the problems we are faced with.*

When we explore human-seed relationships with respect for seeds as relatives and as agents with rights and relations, the application of intellectual property laws and the genetic manipulation of plant germplasm by biotechnology corporations becomes even more explicitly violent.

#### *From care to counterhegemonic practice*

This section reflects on how, and to what extent, the place-based socio-ecological care found in seed saving can be linked to bigger issues as a radical practice of everyday resistance. Ultimately, seed saving can be seen as an antithesis to commodification of place, hyper-individualism, and the human will to dominate nature. It is an example of communities building lived examples of other worlds and suggests a significant contribution to feminist understandings of post-capitalist, care-centric, and eco-centric modes of living. Many seed savers reject the notion that private property logics can be extended to seeds. They express a belief that seeds should not and cannot be owned by anyone, but rather belong in the public commons. As Neil remarked: “It is important to recognize seeds, like other resources, are things that don’t belong to any one person. They are there for us to be connected to, but we don’t actually have ownership of them. Same as land, air, and water.” Sara also asserted that this belief is what motivates her work to grow and share seeds for her community: “We believe that seed is part of the commons. This quinoa is not something that I grew and is mine. This quinoa goes back 7,000 years and was developed by people in Peru and Bolivia. It’s not something I have any right to own.” Therefore, one significant conceptual contribution of seed saving is the way it can stoke imagination for post-capitalist and post-growth modes of governance.

Neil also acknowledged that privatization and commodification of seeds is a relatively recent development:

*Seeds are one of the places where we've extended the notion of private property through intellectual property. That is a really recent phenomenon, and so it is ripe for challenge. A hundred and fifty years ago, there was no such thing as a patented seed and seeds belonged to everybody. It is a really important intervention point to challenge the industrial agro-food system if we want to make any kind change.*

Demonstrating an awareness of the relative newness of contemporary seed issues suggests that seed savers act out of an imaginative, yet practical understanding that enacting alternatives is possible.

Seed sovereignty advocates commonly express a common belief that their practice is a way to reclaim community control and take power away from corporations. As Pete of the Cesar Chavez seed library remarked: “We’re taking control away from corporations and things like Monsanto! We’re growing our own food and don’t have to rely on corporate industries.” David (b) noted, “Seed saving is devoid of feeding into consumer capitalism. With seeds, you can grow more food for yourself and your family and your community. Seed saving can be a revolutionary act, if even just for a moment.” These sentiments gesture towards the political economic implications of seed saving. Minna articulated a particular awareness the direct ways that seed saving challenges hegemonic Western economic assumptions and practices:

*It is everything that capitalism is not. It is self-reliance. It is the opposite of the depletion of the land. All of the thing capitalism does – exploiting the planet, exploiting labor, forcing things into the cash economy – seed saving is literally the opposite of all of that. It removes you from having to be in the cash economy. It is about sustenance. You are also actually regenerating the environment. It stands counter to the tenants that make up the profit structures of capitalism.*

This suggests the link between seed-based acts of care and radical economic reconfiguration.

The acts of seed saving also present a challenge to temporal binaries upheld by Western rationalist ideologies. By keeping seed alive and continuously grown out in a community, a grower is not just caring for the people alive now, they are also expressing care for the people who came before them and honoring the past steward who grew and save those seeds, ensuring survived and adapted. Within their respect for the past, however, is interwoven considerations of futurity, expressing care for future generations by working to protect important food crops and to mitigate climate change. In this way, seed saving instills a felt responsibility to be both a good descendent and a good ancestor.<sup>31</sup>

Revitalizing traditional gardening methods and knowledge reframes a conversation about sustainability to better involve recognition of that past. As Maya explained:

*I have spent a lot of time in food justice and urban agriculture, and the definition or framing of*

---

<sup>31</sup> The phrase ‘be a good ancestor’ is deployed in many social justice spaces and is often attributed to Marian Wright Edelman who founded the children’s defense fund.

*sustainability is always lacking in those spaces because it never embeds it in the past. This is what our work is about. Re-embedding sustainability in traditional and generational knowledge.*

The blurring of temporal binaries allows for a conception of sustainability that becomes rooted in the past. This requires a new understanding of the past as not static, ‘primitive,’ or unevolved, but rather, fluid, ever-changing, and living.

Maya further explained how seed saving practices require us to hold space for this nuance:

*Especially in Native communities, in both seed saving and any other aspect of cultural revitalization this tension exists. It is about the balance of connecting to the past while understanding that we are a living culture that adapts. It is this adaptability and resilience that got us here not. So, in seed saving that tension exists, too. There is an understanding that you can have an heirloom seed<sup>32</sup> but if you don’t adapt that heirloom seed to where you’re growing it, then it is stuck in the past. But when seed saving is a living practice, not like the Svalbard seed vault or something, you are taking that seed memory and allowing it to continue to create new memories and new opportunities to adapt and best be resilient. That takes constant experience. That constant experience comes from growing out the seed every year in every condition.*

Here we see how seed saving as place-based socio-ecological care blurs the – often pejorative – conceptual lines drawn between the past and present and contributes to a more radical understanding of its role as practice of counterhegemonic resistance.

#### *Situating urban seed saving*

This thesis has explored seed saving – an activity often discursively relegated to the rural – as it plays out in highly urban contexts. Therefore, the particularities of urban experiences of seed and place deserve careful consideration. There are some social and biophysical limitations when it comes to saving seeds in an urban context. First, it is a significant departure from the typical urban experience of food, meaning it requires shifting expectations and norms. This is challenging cultural work, as Sara described:

*If you want to get people to grow their own food, there is already a huge hump to do that. Then, if you want to get people to grow from seeds not just buy plants from a nursery, that is another huge hump. And then you get to actually saving the seeds, which is a whole other thing to ask. There are so many levels before someone will actually take on seed saving.*

There are also physical limitations within an urban ecosystem that inhibit certain levels of seed work. Kristyn told a story from her peri-urban farm that illuminates how urban home gardens cannot always support the kinds of breeding activities needed when breeding seed directly for climate change considerations:

*We were trying a broccoli seed experiment for a seed breeder with the Organic Seed Alliance and had to grow out a minimum of 400 plants with the expectation that only 2-10 of those plants were*

---

<sup>32</sup> The definition of an heirloom seed is one that has been passed down from generation to generation. Some define it specifically as a seed that has been passed down this way for at least 50 years, however many do not use a specific time frame.

*going to survive. That is a numbers game simply not feasible at a small scale. A lot of plants requires a minimum of 20 plants for genetic viability and to not experience genetic bottleneck. You need space.*

These dynamics highlight some of the limitations of what can be accomplished by urban seed saving. However, urban home gardeners offer important qualities in service of seed sovereignty. First, urban gardeners contribute to biodiversity preservation in landscapes increasingly fragmented by urban development by growing more experimental and highly variegated crops. Sara, explained how she has come to understand the role of urban gardeners in the bigger picture of biodiversity conservation. As opposed to commercial farmers who, by the nature of their industry, must commodify food and seed for a living, she expressed:

Gardeners are going to be the caretakers of diversity. Farmers have to think about yields and has to make sense in the complicated economy of food. Gardeners don't have to be that practical. I see how valuable our role is as gardeners around caring for diversity. We know that Cherokee Trail of Tears is the most productive bean, so we could just grow that for yield, but instead we also grow 50 other varieties because we love the diversity and care.

Rebecca, articulated a similar understanding:

*The urban setting is where the diversity is going to be saved. We've lost so much biodiversity and the big seed companies – which are actually just a few chemical companies – are not going to be who saves biodiversity. It is going to be saved by neighbors and in communities where you have this amazing intersection of all these different cultures sharing ideas, sharing seeds, and sharing stories. That is where there is going to be a lot more preservation.”*

This belief that urban gardeners are important keepers of biodiversity is supported by consistent ecological research on biodiversity. For example, a review by Galluzzi et al. (2010) of *in situ* conservation in urban home gardens found that home gardeners create “ecological niches” which serve to preserve the diversity of landraces and adapt to local environmental conditions.

Second, seed saving establishes connections for urban populations who may never have thought about seeds and create an avenue to learn more about food and food politics. Understanding the role of seed saving in urban contexts allows us to ask what possibilities open up when we consider place-based socio-ecological care in urban planning practices.



## CHAPTER 5:

### Findings: Public Seed Libraries and the Re-Commoning of Seed

“Each person, human or no, is bound to every other in a reciprocal relationship. Just as all beings have a duty to me, I have a duty to them. If an animal gives its life to feed me, I am in turn bound to support its life. If I receive a stream’s gift of pure water, then I am responsible for returning a gift in kind. An integral part of a human’s education is to know those duties and how to perform them.” - Robin Wall Kimmerer<sup>33</sup>

To better explore how, and to what extent, the place-based socio-ecological care found in seed saving practices contributes to transformative change, this chapter turns to the operationalization of this care in urban seed libraries in the Bay Area. As noted before, nothing about seed saving is new. However, in the past two decades, seed savers have established seed libraries in public spaces to increase involvement and raise awareness about seed politics and bio-cultural diversity loss. Since the first was established in Berkeley, CA in 1999, the number of seed libraries in the U.S. has grown to well over 600 in 48 states with roughly 680 more in some other phase of planning or implementation.<sup>34</sup> There are over 100 seed libraries in the State of California alone, distributing roughly 6,450 packets of free seeds

---

<sup>33</sup> From *Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge, and the Teachings of Plants* (2013), 115

<sup>34</sup> As of May 2019. Numbers calculated by Katie Gourley using data from the self-reported “Sister Seed Libraries” list available at [seedlibraries.org](http://seedlibraries.org)



annually (Soleri 2016). Seed libraries help us imagine real pathways to post-capitalist ways of living which can support the caring and careful practices needed to establish and elevate food sovereignty. Abstracted ideals of ‘the commons’ are much discussed in critical scholarship, however, the *processes of commoning* are less often explored. Seed libraries suggest what a process of re-commoning looks like by operationally creating space for theories of change regarding community seed systems to be enacted as an alternative economy. This establishes a praxis of seed saving which brings these theories of change beyond private gardens or self-selecting networks of existing food growers and out into the public sphere. Exploring seed libraries – those who run them, those who use them, and the networks that form between them – reveals that these grassroots community initiatives contribute in a number of ways to broader issues of food sovereignty, cultural preservation, and socio-ecological resilience. They do so by activating a community of gardeners who are breeding, exchanging, propagating and adapting regionally situated open-pollinated seed (Helicke 2015) while also providing education on seed sovereignty and broader food politics to the public.

This chapter presents research findings regarding seed libraries, their operations, and their significance to broader transformative and emancipatory futures. Specifically, it considers how seed libraries operate, who the key actors are, what their motivations are, and how these motivations are enacted; What the larger goals of seed libraries are; how public libraries as civic institutions function to support these goals; and how seed libraries suggest transformative change aligned with the principles of food sovereignty.

#### *Operations: How does a seed library work?*

There are a wide range of initiatives working to create alternative seed systems in the U.S. (see Helicke 2015 for a review) and public seed libraries are one such alternative. These initiatives provide communities with access to free, open-pollinated heirloom seeds, along with related educational programs, seed swap events, and community organizing. Urban seed libraries most often located in heavily-trafficked public spaces, such as public library branches, community centers, and churches.<sup>35</sup>

A seed library operates much in the same way a book lending library does, with a few unique differences. To ‘check out’ seeds, a ‘borrower’ takes home any seeds they would like from the library’s collection and plants them at home or in a community garden. Then, if possible, they let some of their harvest go to seed to save and return for others to borrow. Although it is encouraged, this last step is

---

<sup>35</sup> All of the seed libraries considered here are located in Bay Area urban and suburban communities, and therefore these findings are specifically attuned to a role of a seed library in these contexts. However, across the U.S. seed libraries exist in a range of community settings in urban, suburban, and rural places.

always optional in these programs and donating seeds is not required in order to receive free seeds. Seed libraries don't have fines for not returning seeds.

In California, roughly 100 seed libraries are located in communities with a wide range of socio-economic characteristics, with community poverty rates ranging from less than 4 percent to more than 41 percent (according analysis of U.S. Census data by Soleri 2016). Overall, most of the seed libraries in the California study were in communities with poverty rates higher than the national mean (ibid.). Most interviewees for this research self-identified their communities as politically progressive and seed libraries were often considered an expression of that identity. Although, given the geographic diversity of seed libraries across the U.S., this cannot be taken as a generalization that holds true across the board.

The Bay Area in particular is a rich area to study California seed libraries, not only because there are a large number of them in this region, but also, in part, because it is home two catalytic sites of the national seed library movement. The Bay Area Seed Interchange Library (BASIL) in Berkeley, CA was America's first seed library. Food activists and permaculturalists Sascha DuBrul and Christopher Schein founded BASIL in 1999 after DuBrul returned from the anti-globalization protests taking place that year outside the meeting of the World Trade Organization in Seattle, WA (DuBrul 2015). The same year, the University of California Berkeley signed a deal with the Swiss agribusiness giant Novartis and evicted an on-campus CSA farm to replace it with genetically modified corn trial fields. In light of this, DuBrul and Schein took the seeds remaining from the evicted farm to create BASIL, a grassroots seed lending library (ibid.). The project is now part of a nonprofit called the Ecology Center which now maintains daily operations and encourages community seed awareness through seed saving classes, access to literature, and one-to-one help from experienced seed savers.

Another nationally-influential Bay Area seed library is the Richmond Grows Seed Lending Library in Richmond, CA, whose co-founder Rebecca has been instrumental in consulting with others to establish seed lending libraries around the country in the past decade based on her experiences. From the get-go, her intention at Richmond Grows was to design and implement a system in Richmond's local setting, but that would serve as a widely replicable model for other communities to be able to do the same. By putting in significant effort and intentionality to make the seed library easy for people to use and to replicate in diverse community settings, she said she hoped she could create a movement of seed libraries opening in public libraries all over: "From the start, I wanted to start it as an international seed library movement. Let's aim big because we need to aim big. Every single community should have one of these. To support her ambitions to catalyze a movement, she created a "sister seed library list" online to document seed libraries as they started to pop up around the country and posted materials and templates available for free, as well as a YouTube channel full of instructional videos on all things seed libraries. The replicable, open-access materials provided by Richmond Grows were repeatedly cited at other seed

libraries in the Bay Area for their support and education on establishing their own local initiatives. Additionally, seeds saved by Rebecca herself have contributed to many Bay Area seed libraries' start-up collections, establishing the foundation seed which allowed them to get up and running.

Seed libraries in the Bay Area take many different physical forms depending on where they are located, management styles, and priorities of these place-based urban programs. Many sites store their collection of seeds in repurposed library card catalogues of varying sizes. Others are stored in plastic Tupperware containers or filing cabinets. They contain seeds donated from community members in repurposed jars and bottles, plastic baggies, paper coin envelopes, and purchased seed packets. Some seed libraries, particularly those with a dedicated staff person or consistent volunteers (which many do not necessarily have), choose to create their own uniform packaging and labeling systems. However, most collections are more informal and contain an eclectic range of seed storage and labeling styles with distinct personalities.

There are different iterations of how seed libraries are managed. Some are considered “passive”<sup>36</sup> programs within the library. These operate as a self-serve system, available to users at any point during library opening hours and are maintained by an honor system. Most do not require a library card or any form of identification to use the seed library and very few collect any required information about users, although almost all have a check in/out binder asking users to write down what seeds they take or donate. A few of these check out systems collected names or emails, but only if done so voluntarily. One seed library manager expressed that they aim to collect this information in the hopes that they can track the success of the program and have metrics to demonstrate to potential funders to grow the program. Other seed libraries operate on a set schedule where a volunteer (usually the founder of the program) hosts open hours to bring out the collection and make themselves be available in person to help patrons check out seeds and answer questions. In this management style, the collection of seeds also remains available at other hours but this is by request and is usually stored behind the front desk. This latter model emphasizes direct exchange through face-to-face interaction and pays careful attention to how to make the experience more accessible for new and inexperienced gardeners or those who have never used seeds. Enoch described his decision to operate his seed library program in this way:

*Rather than having the seed library permanently exposed and out, anyone can come at any time and request to see it and exchange seeds but I come once a month and am out here to talk to people. During the summer, it is fun because people bring all of the seeds they saved from winter crops and are asking me, ‘what do you have that’s new? What are you going to grow this season?’ Some kids come up and have no idea what they are looking at and have never seen a seed library before so I get to talk to them about it. I ask, ‘do you have a backyard?’ If not, ‘do you have some pots?’ It sparks a conversation.*

---

<sup>36</sup> This term was used by Karen of the Palo Alto public library in an interview with Katie Gourley, January 2019.

This explanation shows how seed libraries facilitate interaction between existing gardeners and those with no experience growing food or saving seed. Many seed libraries also facilitate this kind of face-to-face exchange by periodically hosting seed swaps and workshops. Minna described an annual seed swap as the organization's most well-attended event, drawing over 100 people each year and engaging a socio-economically diverse audience: "I think the seed swap draws a lot of lower income folks and a lot of folks who don't necessarily use the library all the time. But the swap is the time they come and get their yearly seeds." This demonstrates how seed libraries can support opportunities to draw wider audiences who might not otherwise be involved in seed activities.

Given that seed libraries operate on the honor system and do not do quality control or germination tests on donated seeds, there is some level of unknown when obtaining seed from them. However, this non-standardization is reflective of a community seed project's ethos of trust and informality. Minna, expressed this:

People who are putting in the efforts to save and bring in seeds are going to be doing it because they care about people's access to it and they care about the biodiversity. [Seed saving] is not an easy thing to do, so I am trusting that people who put in all that work are bringing in something they want to take out.

This notion helps recognize that seed libraries are imperfect by nature. Interviewees expressed an embrace of the inevitability that not everything will go well, and not every seed planted or saved will be a success story. However, this was not treated as inherently negative. In fact, most interviewees welcomed these challenges as learning opportunities. Rebecca said:

*When people make mistakes it is an opportunity to ask questions. My seed teacher always said, 'Let us eat our mistakes.' If someone has a pumpkin growing in their compost pile, people are going to eat it. And then you can ask some questions and maybe you understand what cross pollination is.*

In this way, the risks associated with growing one's own food can be collectivized shared. Borrowers of seed can learn from the resources and social support provided in the library setting. Given that the seeds are given for free, the risks of crop failure which might keep new gardeners from otherwise experimenting with growing their own food are reduced. Enoch of San Leandro Seed Library articulated how this works:

*Part of seed sovereignty in terms of more disenfranchised populations being able to have access to seed is the realization that a lot of plants are not that difficult to grow. You just have to try. Just throw some seeds in the dirt and see what happens. I don't think a lot of us even think to try because it is not part of our everyday life. It is not something you think about because of the way our society evolved. You have the expectation to just go to Safeway and buy some mass-produced vegetable that is probably horrible tasting and not so nutritious. That is why I come here. I encourage people to experiment. Just try! Water it and see what happens!*

In the way they work, seed libraries are functioning at various levels to translate the place-based socio-ecological care to the public realm.

Seed libraries have a tangible impact on their communities in ways that are contributing not just to survivalist notions of food systems planning, but to considerations of thriving and flourishing community food sovereignty. This is because they have practical implication for local food security, while also promoting experiences of joy. This is reflected by coupling the following two comments made by interviewees. Rebecca expressed the impact a seed library has on food security: “Especially when we were in the midst of the economic downturn, people told me if this weren’t here they really wouldn’t have enough food to eat. That made it all really worth it.” Enoch’s remark demonstrates the excitement and joy the seed library brought the community, describing the opening weekend of the seed library in San Leandro:

*We like 40 people come in one day, I was here talking to a whole host of people and having great discussions, people ranging from young couples like myself that moved here recently and are trying to figure out what to do in a backyard to people who are retired and have been gardening for a long time. They were all so excited.*

#### *Operations: Seed selection*

Sourcing seed can pose a challenge to these grassroots initiatives, particularly because seed libraries have struggled in getting community members to return seeds. Thus far the ‘interchange’ part of seed libraries’ design has been the hardest part of their missions to operationalize. The ultimate goal of these initiatives is to become self-replenishing by having a robust community of seed savers ‘checking out’ and ‘returning’ seeds in a sustainable cycle. In its ideal form, this would remove a seed library from the commercial seed market entirely. However, given the fact that seed saving is a relatively lost and specialized skillset in these urban communities, libraries are confronted with figuring out how to increase the number of people actually returning seeds. Minna of BASIL noted, “That is my main priority now, getting people to bring seeds back. I would say 1 to 5 percent bring seed back, maybe less.” Hillie emphasized “it is a great idea but many of them are just giving the seeds away.” Some view the lack of returned seed as challenge to their mission to protect and preserve biodiversity and increase local seed adaptation. Tom said, “We have got to grow seeds in a bunch of different places with different climates and mix them all up so we continue to increase the genetic diversity and so I am always disappointed when stuff doesn’t come back.” However, others are less concerned with getting seed returns and are more focused on getting seed out to the community.

The success of these initiatives, therefore, tends to rely on one or two committed and passionate community members saving seeds. Rebecca remarked “at this point, I am growing a huge portion of the seed collection. All it really takes is a couple seed savers to grow a huge volume of seed. But what I am really hoping is how do we expand that out.” Although this fact is a challenge for the long-term goals of

becoming a self-sustaining alternative seed economy, it reveals two points worth noting. The first is the natural abundance of seeds. The second is the commitment to collectivized community care made by seed savers by providing seeds for their community.

Most seed libraries initially acquire seeds from founders' personal collections, and then rely on donations from community members or donations directly from heirloom seed companies. Some have small budgets to purchase seed. However, where seeds are originally acquired from has the potential to pose contradictions to some of the social justice and alternative economic ambitions of community seed libraries. Maya who works to restore Indigenous seed stewardship, explained this tension with regards to how seed libraries can remain complicit in colonial seed histories:

*There is a lack of ethical seed saving that happens when the seed's original steward is not honored and that relationship is not honored. Farmers don't think enough about where their seed is coming from or which community their seed has come from and whether that community has given them permission to grow that seed. There have been too many examples of companies like Baker Creek refusing to give their seed stock back to the community it was stolen from or give profit to the communities it was stolen from. Our current legal system prioritizes patents. One white farmer from the Midwest can patent their seed and reap the benefits of that, but a community that has grown that seed for generations and generations legally doesn't have the intellectual property rights that allows them to benefit from that seed's dispersal. In sustainable agriculture people are not asking these ethical questions about seed enough.*

This reveals the complexities faced by seed libraries and suggests the role they can – and sometimes do – play in broader efforts to decolonize foodways. Maya explained that unpacking these complexities involves going deeper than just making seeds free: “even in those seed libraries, as much as they are operating outside of a capitalist system, their origin is still in capitalism. How did they get those seeds and where did they come from?” Restoring ethical seed relationships will look different for every place and for every seed, however it should involve working directly with local Indigenous communities and may involve asking for permission, honoring Indigenous stories, or paying reparations. Maya noted, however, that these sorts of healing actions are commonly taken in the Bay Area, more so than other parts of the country, given the politics of the place: “The Bay Area is a different beast. There are definitely more farmers and seed keepers here who do the work to understand the story of the seed and how the story may or may not include indigenous people.” The tensions between Maya's comment and how many seed libraries currently accept donations for their collections are complicated because many seed libraries are operating on shoe-string budgets and are sustained by hundreds of hours of volunteer, unpaid labor. Therefore, taking the time and care required to interrogate these complexities may pose a challenge, but it is crucial and can form a bigger part of the seed library movement as it grows.

At their core, seed libraries are designed to preserve biodiversity. However, the specific varieties held in collections reflect the shared socio-ecological values, yet diverging priorities and capacities of

each initiative. Some place more emphasis on the plant genetic diversity while others place higher levels of importance on the cultural role of specific seeds. Almost all libraries have some combination of both of these priorities, however one usually is prominent over the other. Therefore, standards for seed varietal selection change depending on the needs or issues a particular seed library is responding to, as well as the ecological (the microclimatic characteristics related to sun, soil, past and present land use) and cultural (the demographic characteristics including race, prominent immigrant populations, or socio-economic) conditions of the spatial context in which the library is located. This reveals again how rooted in place these initiatives are and how they form a site to reconfigure relationships to place. For example, a seed library whose primary mission is to provide free seed to impact food security and reduce barriers to gardening for marginalized populations might not have any particular rules as to what seed donations they will or will not accept. This is also usually the case in seed libraries that do not have the staff capacity to closely monitor seed donations. Alternatively, the primary mission is more directed at improving the quality locally adapted seed with an aim towards re-localizing food systems and strengthening climate resilience, stricter standards may be upheld.

The different considerations and competing priorities are seen in the following comparison. Sara, whose seed library is located in West Sonoma County, explained: “For us, the priority is very much having locally-grown seed. That’s why we don’t let any outside seed in. We don’t have any seed donated by businesses.” On the other hand, Pete, who manages the César Chávez branch of the Oakland Public Library expressed: “Right now, it is just about getting any seeds we can get. This is about getting somebody started and to discover how easy it could be to garden.” However, even those who accept denotations of seed regardless of its origin or type still stressed that they would like their collection to be composed of seeds adapted to their local neighborhood growing conditions. Pete continued, “We are trying to get seeds that are surviving in the conditions of our neighborhood. The goal is to have all neighborhood-based seed eventually.” The diversity in seed collections are directly related to the communities they reside in.

Some initiatives are primarily engaged with considerations of culturally- and historically-important seeds in a particular community context. These libraries emphasize seed as a part of broader cultural revitalization or cultural sovereignty goals. For example, the Cultural Conservancy’s Native Seed Library aims to store and protect rare and endangered heirloom varieties of indigenous food plants (Cultural Conservancy). This is a part of the organization’s work with urban indigenous communities to support reconnections to cultural foodways that have been suppressed and fractured as an enduring effect of colonial occupation and erasure. Claudia also expressed an interest in creating a more culturally-specific seed collection related the African American Museum and Library of Oakland’s mission:

*I am especially interested in African American heritage seeds. Foods that are culturally based. To preserve that history is to know it first. And then to understand why, and what it was used for and then to continue to make it relevant today, why it is still important. That is what I want to bring to the seed library.*

A further example of libraries emphasizing cultural seed comes from a story from Rebecca about learning from her Laotian neighbors about a pumpkin they were growing. She remarked:

*To be able to bring those seeds in here to the library, to have a photograph of those crops, people would just be super excited. It's not just a pumpkin you can get in any big box store. It is something special, especially when it is connected to your own culture. It is nice to be able to still have access to that, or to re-find it after having lost it.*

Despite these differences described in seed selection standards, almost all seed libraries maintain strict non-GMO standards and encouraged donations of seeds saved from plants grown using organic practices (although there is no way to actually test for this). Most avoid hybrid seeds, although there is a distinction between seeds produced through at home hybridization and cross pollination, and F1 hybrids produced and patented by corporate seed companies like Monsanto. Efforts to improve quality of seed is contingent on educating communities about a largely unknown practice.

#### *Operations: Educational programs*

Seed libraries necessarily incorporate complimentary educational components in their operations. Many interviewees expressed concern over the widespread collective cultural loss of knowledge about seed saving. In response, they stressed that educational programming within seed libraries is explicitly designed to counteract that loss and revitalize seed saving as a practice. Minna remarked, “There has to be a teaching element too. What we are losing, is the knowledge that is passed down about [seeds].” This includes teaching not only the technical skills needed to engage with seed saving, and edible gardening generally, but also the immaterial forms of knowledge related to the cultural, spiritual, historical importance of seed worlds. Many seed libraries also use the physical space of their collection to include displays of books from the library about seed and gardening topics, pamphlets with technical guides and how-tos, as well as lists of resources on how to more or get more involved in the seed saving community. Topics such as culinary heritage, place-based food and agriculture practices, and language revitalization are also brought to forefront through seed libraries’ educational offerings.

Claudia remarked, “our vision is to start from seed and let it branch off into different aspects to a holistic approach to the whole system. It starts with seed, mind you.” She highlighted the wide variety of topics covered in workshops offered, ranging from container gardening for small apartments, to aromatherapy, to gardening for mental health. She also uses the seed library to teach how to avoid herbicide and pesticide by using natural remedies, such as companion planting where the scent of certain



plants like marigolds will deter insects. Claudia emphasized that the seed library's role is not just to provide seeds but to act as an information resource center:

*People should be able to get information about the seeds and also collect the stories that go along with the seeds and go along with herbal remedies and that reach back into our own culture and history. How would our parents and grandparents use plants and medicine in order to heal? We need a desk area for people to sit down and research and they might have a problem at home with their plants or their seeds may not be germinating properly so we have resources and books there.*

Her last comment reveals how many of these seed libraries have broader ambitions for their programming than is presently actualized. This is due, in part, to the fact that many seed libraries are quite newly established, and in part because many are significantly under-resourced. Pete expressed that if the library had the staff capacity he would like to create a more robustly-established educational program to run monthly workshops at the seed library. In particular, he said he would like to branch out into teaching about cooking. His ambitions reflected his desire to address problems of hunger in the neighborhood: "To teach the teens how to cook. It would address the issue of hunger in the community. This is a food desert." This suggests how seed libraries have ambitions to strengthen and deepen their impact.

Educational programs can also emphasize an intersection of seeds, arts and culture, and storytelling. For example, the University of San Francisco Seed Library partnered with a local artist to explore seed packets as an art form. David (b) noted that the program saw the potential for seed packets as sites of production, creativity, and storytelling: "Can we get an 18-year-old to make connections through seed stories?" The library held a workshop where students told personal stories of relationships to a food by decorating seed packets and recipe cards to go in the school's seed library collection. Generally, the diversity of educational programs in seed libraries demonstrates how public institutions can value other ways of knowing and challenges hegemonic conceptions of knowledge production to re-center traditional, local, and lived experience.

The educational spaces created by seed libraries, knowledge primarily flows from experienced gardeners with longstanding practices and new gardeners who are given a new platform to experiment with growing their own food in a supportive setting on their own terms. They can engage as much or as little as they would like with the activities. Sara expressed how their community seed garden significantly contributed to their educational capacity:

*If you want to learn to garden just come work with us every Wednesday. There are some really long-term skilled gardeners here, you learn so much just by working side by side and coming together with this group. Someone who doesn't have as much experience can ask how do you do that? Why do you do that? It is an educational space and a peer gardener space where we are learning together.*

This was also demonstrated at César Chávez, where the seed program spurred the library to start a rooftop garden. Pete said that the seed library and garden have become spaces for the community to come together and share stories and knowledge about growing. For example, Pete shared a story about how a garden volunteer taught him about the Three Sisters growing tradition, a tradition her mother had passed down to her. Pete said these kinds of interactions in the garden got him personally “hooked” on how easy growing food can be even though he had never been a gardener before. Now, he said, he goes into the garden to escape the sometimes-stressful environment of work.

Another, less traditional way, seed libraries educate users was found by carefully exploring the labels within library collections. While not all of them are remarkable, there is a unique way in which these labels come to act as informal educational texts, facilitating the flow of knowledge from one grower to the next. There is a wide diversity in what different seed savers deem most important to pass on to the next grower. This is reflected in what they choose to include on the labels they create. Most, at minimum include the name of the plant, the year it was saved, and basic planting instructions. However, many seed savers take the time and care to share things such as geographic origin stories, adaptation traits, flavor characteristics, cultural associations, medicinal uses, culinary tips, or other ecosystems services (such as how a plant may be good for pollinator populations or act as a good cover crop). This information, conveyed via handwritten post-its or stickers taped to the side of re-used jars, connects people to the past social and ecological life of a seed. This highlights that by planting a seed, a grower participates in a particular history and ecosystem that transcend their own personal existence. They are linked across time and space to the past growers and savers of that seed, creating more intimate forms of knowing and inspiring a sense of responsibility to care for the seed. As Wendell Berry (2003) writes, “We know enough of our own history by now to be aware that people exploit what they have merely concluded to be of value, but they defend what they love. To defend what we love we need a particularizing language, for we love what we particularly know.” I suggest the labels found in seed libraries are a way to cultivate this kind of knowing-loving. Figure 11 demonstrates a glimpse into the types of information communicated via seed labels. For example, a label found on a jar of tomato seeds at CSE reads:

Japanese Trifele Black Tomato: *Solanum lycopersicum* 80-85 days. Marilyn’s favorite!! Pear-shaped fruit has green streaked shoulders, deepening to a burnished mahogany and finally to a darkened nearly black base. The meaty interior has similar opulent shades and an incomparable complex and rich flavor to match. The fruit reach 2.5’-3’ long and wide and are very crack resistant. Despite the name, this thoroughbred has its origins in Russia. Indeterminate, potato-leaved plants. Start seeds inside in March, plant outside in May.

In this short note, we see knowledge about culture, geographic origin story of the seed, taste characteristics, advice on how / when to grow, as well as information about the individual who saved the seed (Marilyn) creates a personal connection. Another example emphasizes the culinary preferences of

the grower: “Open-pollinated mustard greens. Good w. noodles, tofu, soy sauce, sesame.” These notes ask for a very different way of relating to the plants that grow our food, and the communities in which we eat.



Figure 11. A sample of the notes found on seed labels in Bay Area seed libraries. Photos by author.

Educational programming has the potential to bring seed topics to a more diverse audience and strengthen the impact of a seed library. Pete explained that he was shocked how many people turned up for library’s latest seed saving workshop, which was offered entirely in Spanish. He remarked that it brought a wide mix of people, but predominantly adults from Mexico and younger children of Latinx immigrants. Operating from within public libraries, these initiatives foster cross-cultural and intergenerational exchange which not only generates a flow of knowledge but also encourages empathetic relationships and emphasize shared common ground between groups. Claudia remarked that seed saving workshops draw “college students through grandparents,” demonstrating public libraries as spaces which act as a platform to reach a wide range of publics.

### *Operations: A heterodox seed library movement*

The needs and motivations of seed savers are shared globally but each is hyper-locally-situated and responding directly to different contextually-mediated needs, which is part of why this movement is so powerful. In this observation, a striking thing about seed libraries is how the movement mirrors the diversity they are fighting to protect in seeds. These are inherently place-based and community-led programs rooted in local micro-climates and the cultural identities of the communities they are located. The nature of these programs offers a way to understand a pathway towards food systems change that is predicated on heterogeneity and is capable of scaling *out* not *up*. Neil demonstrated how seed library operations themselves mirror the philosophies of their resistance:

*The insistence on uniformity is the same logic that is applied to seeds and agricultural food production that says all seeds should be the same, all corn should be the same, for example. That is exactly the notion that seed saving and seed biodiversity challenges. This is not a monoculture. There is strength in the difference across landscapes, across geography, across climate across the way seeds are kept. The same with seed libraries, the strength of them is that they are not going to look the same everywhere you go.*

This conceptually echoes the tradition of feminist political ecology which emphasizes the TAMA principle, which stands for “there are many alternatives” (Harris 2015). TAMA as an approach to understanding social change is the belief that there is “neither a one-size-fits-all way of being or knowing in relation to the world” but instead there are, “multipolar entry points, opportunity spaces and transition strategies” (ibid, Ch. 5). One may recognize this principle as an inversion of former British Prime Minister, Margaret Thatcher’s famous quote, “There is no alternative” in reference to the free market economy.

The most successful strategies for scale within the seed library movements have not been in trying to grow the operations of individual libraries, but instead have come from the creation of templates and open source platforms of collectivized information sharing which people can replicate but modify in light of their specific needs. There is a fervent dedication to openly-shared resources and information within the seed library community. For example, after founding Richmond Grows Seed Lending Library, Rebecca established the website SeedLibraries.net where there are countless templates and resources to be replicated and edited with details of any community wishing to use them to start their own seed library. For example, the website offers a tutorial on how to host a seed swap at a library that reads: “The signage you need may be scaled to the size of your event and venue. Take it. Tweak it. Make it your own. If you come up with some cool ideas, please do let us know as we widely share our resources with others.” This idea is also present in every edition of the “Cool Beans” e-newsletter sent out on behalf of the group called:

*All of the articles and resources in this newsletter and on SeedLibraries.net are open source, except where noted. They may be freely used. We encourage you to use these articles and*

*resources and share them in your community. You may repost articles in your own community newsletters or emails. Attributions to SeedLirraries.net are appreciated, but not required.*  
(Seedlibraries.net)

This ethos of collectivizing knowledge is found throughout seed saving movements (see Figure 12). This kind of forthcoming, open, free, and widely-distributed knowledge is the opposite of the logics found in the intellectual property laws and genetic patenting schemes of the corporate seed industry.

**This work has been released to the public domain and is to be considered open source, open-pollinated or anti-copyright. As they say at the slingshot collective "feel free to borrow any of this, we did".**



*Figure 12. An example of how the seed saving community emphasizes open source publicly shared information and collectivized knowledge resources. This image is taken from the seed saving handbook made by the Seed Ambassadors Project*

### *Operations: Challenges*

The seed library movement faces certain challenges and limitations. Many struggle with capacity because they are often all-volunteer run or programs embedded within already over-taxed nonprofit staff responsibilities. Seed libraries often depend on many hours of unpaid work, and are reliant on the sustained passion and commitment of an individual to maintain seed operations, as Sara explained:

*The viability of our longevity is based on keeping people's passion up. There could be a moment when there aren't enough of us. That has happened in the past when things felt very stretched. I love being an all-volunteer organization, it goes with the sharing economy, everything is free, we are just bringing everyone together. But it means there are some limitations. Always at our January meeting we are so excited about all these things we want to do all year, but by the time gardening season comes, we all have multiple gardens we are caring for, it all of a sudden can become too much. It's okay. We do good enough.*

This means that capacity ebbs and flows both according to the number of community members involved as well as according to the rhythms of the season as administrative tasks take the backseat during peak gardening or harvesting season.

Additionally, those seed libraries run by older, affluent, and white seed savers expressed that they felt their work did not engage enough with young people or people of color or communities with lower incomes. Liz noted: “We need to continue to grow the group of people who are drawn to join whether it is just to come take seeds or help in the garden. We need people who don’t have white hair. And also to expand beyond mostly white people.” Tom also expressed that, as a “rich white gardener” he was concerned about how to engage younger people, especially since he felt if he were to be gone, the seed library might not have anyone to continue its operations: “How can we possibly get someone under 50 to show up? Because why would young people want to hang out with us old people?” These sentiments, however, reveal a disconnect between various arms of the seed sovereignty movement even within the Bay Area. This is given that some of the most politically-involved and resistance-driven seed activism can be seen as largely led by women and people of color, a lot of whom are younger adults. This reveals how seed saving as a spatial practice is itself embedded in highly racialized and differentiated geographies.

*What are the larger goals of a seed library set out to achieve?*

Community seed libraries are a response to many threats facing the practice of seed saving and to access open-pollinated heirloom varieties. Interviewees who founded community seed libraries expressed their personal unrest with corporate consolidation in the seed industry as well as sense of urgency to address the decline in agro-biodiversity. Some also noted that their seed library is a direct resistance to protect and preserve cultural sovereignty and culinary traditions. Many seed libraries started by one or two individuals with an existing passion and a drive to get their seeds to others. Sara of CSE said, “There were people like me who had tons of seeds. I always joked that seed savers have these closets full of seed and we need to get our seeds out of the closet and into the community.” Enoch of San Leandro Seed Library echoed the notion that he founded the seed library as a way to give back to his community: “I wanted to share that surplus with the community and I thought a seed library would be a good way to both share with the community and get other people to start growing their own vegetables and herbs, especially younger people who don’t have that experience.” Repeatedly, interviewees stressed that these initiatives first and foremost arose out of a desire to create an important resource to serve the community.

Despite differences in mission statements, priority areas, and logistical operations, public seed libraries share in the vision that protecting the future of our food system and moving towards food sovereignty, has to start by bringing open-pollinated seed back into the public domain (McDorman and Thomas 2012). The primary function of these seed library is to get seeds out into the public while

reducing barriers to growing one's own food. Tom, founder the Seeds of El Cerrito, noted that this was the reason he founded the seed library: "My view is about trying to remove one barrier to people growing food at their house. I am just getting people connected to the dirt in a way that they aren't now." Emily, a volunteer at BASIL, described how free seed libraries expand public access and reduce barriers:

*For anyone who wants to garden or even think about gardening, it can be intimidating. To go into a big gardening store or even a small nursery. You don't know what to get. You don't want to buy something expensive. It's like \$3 for a packet of seed, even more if you want organic. It is pretty risky to spend that much at any income level, even though in the long term you will save money. Having something like BASIL or any of the seed libraries, takes away that first barrier of price and risk. There are also stacks of information about growing and other resources about seed saving. Having those resources to make it less intimidating helps people continue to use it.*

Providing free seeds and education means that someone who has no experience can feel empowered to experiment under conditions that the financial risks have been reduced. In this way, the stigmas about gardening being a luxury hobby begin to be challenged.

The programmatic and physical design of seed libraries promotes the accessibility of edible gardening, done by incorporating educational workshops and informational signage. For example, many libraries have drawers labeled "super easy" "easy" and "difficult" with signage encouraging home gardeners to save seeds from the drawers of the seed library labeled "super easy" such as tomatoes, lettuce, beans, and peas and cautioning: "Do not save seeds from plants in the easy or difficult drawer until you have more experience seed saving."

Perhaps the most important factor serving to reduce barriers is that everything in the seed library remains free. For example, a young woman explained while she was getting seed from a seed library from BASIL that she came explicitly because the seeds are free. "I don't have any money to spend on seeds right now," she said. She needed the seeds she was getting to grow medicinal and edible plants for herself. Her motives in selecting which seeds to take were personal taste, medicinal use, and the desire to care for local pollinator populations by selecting seed for plants that attract bees on her small shared balcony in an East Bay apartment. In the libraries visited for this research, there were no costs associated with taking seeds, educational programs were either free or donation based. Sara of CSE noted that keeping everything free was the primary commitment of the organization: "Seed production is so abundant. There is a really strong commitment to the idea of sharing that abundance and supporting an all-volunteer, gifting economy." Interviewees also noted that the fact the seeds are free is well-received and often rather surprising to users of the library. Enoch said that when he introduces people to the seed library he tells them: "This is all here for you and you can come any time and it is free. You don't need to pay for anything. At that point, people are like 'It's free? That's great!'" This reflects how seed libraries disrupt deeply engrained assumptions under a capitalist society and how they serve as a platform to

decommodify a material normally considered to be an input that must be purchased under the Western industrial models of food production.

Seed libraries, therefore, conceptually fit within emerging attention on the role of sharing within food resistance movements (Carolan 2018). Many interviewees directly described their seed libraries as “sharing economies” or “true sharing economies.” However, there is some tension embedded within this term and there is reason to question if the sharing economy is an adequate term to describe what occurs in a seed sharing community. Some scholars suggest sharing trends can “turn cities into great places to live for everyone while addressing challenges that threaten our species’ very existence like climate change, wealth inequality, and social division.” (Shareable 2018, 21). Yet, the term is most often utilized in association with of sharing platforms like Uber and Airbnb) that adopt the vocabulary of sharing to veil hyper-capitalist logics. Further, Frenken & Schor (2017) note that burgeoning uses of the term risk further erasing and invalidating narratives from the margins. This discourse “betrays both class and race myopia as well as what historians call ‘presentism’ or blindness to the past ... the claim that sharing is new ignores the higher levels of sharing that the working class, poor, and communities of color have historically practiced and have partially maintained in the face of the growth of markets” (ibid., 4). Many interviewees took the time to differentiate between how they used the term and how they see it used in the mainstream. For example, Emily noted, “There’s the sharing economy with Uber or something but this is nothing like that.”

Seeds are also materially and conceptually unique within the context of sharing discourse. Users are not necessarily *sharing* seeds in the most literal sense of the word. Rebecca described seed library operations as more like “like checking out a book, except that you’ve added a chapter when you return it.” In this sense seed libraries might be better explained as *paying-it-forward* economies. Minna of BASIL described this semantic tension:

*When it comes to seeds, I don’t know if it is so much about sharing as it is planning for and prioritizing your community. Basically, it’s more of a pay-it-forward, than a sharing economy. The sharing economy still has this ring of ‘tit-for-tat.’ It is still an economy. You give me this, I’ll give you that. That’s not really what [the library] is. This is, ‘I grew this thing and I’m going to save its seeds and now like 50 people can take a seed each and can grow this thing too. It is thinking ahead for the diversity and for the access of your community. That feels truer than a sharing economy.*

The idea of collectivized responsibility or paying it forward relates to the ideas held in these spaces about the commons and the need to re-common seed systems.

Many interviewees explicitly used the term commons to describe their seed library. The commons, according to Bollier (2014), can be defined as:

A self-organized system by which communities manage resources (both depletable and replenishable) with minimal or no reliance on the Market or State. The wealth that we inherit or



create and must pass on, undiminished or enhanced to our children. Our collective wealth includes the gifts of nature, civic infrastructure, cultural works and traditions, and knowledge. A sector of the economy (and life!) that generates value in ways that are often taken for granted – and often jeopardized by the Market-State.

Electra described her involvement in a seed library as directly motivated by the idea of the commons: “I realized that heritage seeds were being bought up and probably wouldn’t be available anymore. I wanted to be a part of a group that was doing something to combat that. To keep seeds in the public commons.” Kristyn similarly referred to her work as “building a more fortified seed commons.”

The fact that the seed library movement has seen such dramatic and rapid growth in the last decade across the U.S. indicates that people are compelled by this form of activism and are interested in restoring the ethic of the commons in their community food systems. In this way, seed libraries can be seen as a starting point with potential to scale into broader systems change in relation to processes of re-commoning. Enoch of San Leandro Seed Library demonstrated the belief in this potential: “I think it really starts at the community level where you have a basic service like this seed library that facilitates that de-commodification. And if every community library had a seed library I think that’d be great for our society.” A re-commoning of seeds also inherently impacts other forms of social and ecological organization and collective management.

#### *How do public libraries function as sites to achieve these goals?*

The aims of seed savers to reach broader and more diverse populations reveals the importance of public libraries in the movement to recreate community seed saving. Public libraries are uniquely positioned in society to bring together diverse populations that span cultural-, age-, racial-, class-based boundaries into contact with seed saving on equal terms. The public libraries these initiatives are located in are spaces that are already connecting people to critical social supports and resources. Take, for example, the César Chávez seed library. It is located a branch of the Oakland Public Library, which in 1966 became the first public library in the U.S. exclusively dedicated to serving a Spanish-speaking community. The branch remains a fully bilingual library and many of the library’s staff also speak the Indigenous languages represented in the surrounding community, including Mam, spoken by the neighborhood’s large Guatemalan population. This demonstrates the many roles of a public library as a community resource. It is located within the Fruitvale Transit Village, a transit oriented development (TOD) project located directly adjacent one of the East Bay’s busiest transit stations. The library serves a zip code with over 50 percent Hispanic / Latinx population and almost 30 percent non-U.S. citizen population (ACS 2017 5-year estimates). The branch provides support and stability and services to help serve immigrant and undocumented communities from Mexico and Central America through programming including bilingual study hours, Spanish language book club, emotional support circles, and CalFresh (food stamps)

enrollment clinics. Pete noted, “It is much more than a library. A lot of this community’s population is in stress. People are happy to escape into the library.” Incorporating the seed library has provided the opportunity to include culturally relevant gardening and culinary advice into the branch’s community supports.

The benefits of seeds within a public library, in particular, even as opposed to public spaces, even those that are entirely open to the public, is demonstrated by a story how the Community Seed Exchange whose seed library is located in a local church decided to also bring their seeds to the local public library. The vast majority of visitors to the church location belong to the town’s robust and already well-networked gardening community. Therefore, the all-volunteer core planning group made the decision to also start bringing their seeds to the local public library branch to get the seeds out into the public. Their “satellite” seed library in the public library is geared more toward educating a population that doesn’t already know about food growing. “Getting people to know the fact that you can grow your own food is what we are all about. That is why we save seed.” Public libraries offer specific infrastructural support needed to expand seed libraries’ missions to get seeds out into the public.

Particularly because they are located in public spaces, seed libraries serve as crucial entry points for people who otherwise might not be aware of seed issues at all by captivating the interests of someone who might not have otherwise known about the. Liz said that when people walk into the seed library they are “wowed” by the seeds and intrigued in a way that inspires them to get more involved. Neil, “seed libraries can contribute by proliferating consciousness and education or re-education about seeds in local communities and [by] reviving people’s understanding of the importance of seeds.” In public space, libraries can have an impact beyond already-existing gardening communities of practice as seen in Emily’s description of who engages with BASIL:

*Some people come to the seed library as a destination, but other people are just shopping there [at the Ecology Center’s “Ecostore”] and they come across it. It is really cool to educate people about what it is. Maybe they’ve never gardened before and didn’t know this is a resource.*

Gardening is sometimes conceived as an activity that that is only accessible to those with a certain “cushy” lifestyle, as described by Enoch. However, the missions of seed libraries are to create bridges for involvement regardless of socio-economic status. This is done in how they bring together experienced gardeners with those who have never gardened before and also in how it creates a democratic and decommodified entry point.

In this light, even more than bringing more people into contact with free seeds, libraries become a platform with potential to build broader awareness and deeper involvement in alternative world building. Neil reflected this role: “When people enter a seed library and get involved in seed sharing it is an opportunity to say ‘I am interested. What else can I learn about it? What don’t I know that I can learn

more about?” Not all seed libraries take advantage their platform to be more explicitly oriented towards igniting more radical food sovereignty activism. However, there is potential as these new forms of resistance continue to network and articulate a shared vision of what role seed libraries can play in the U.S. food system.

One way people expressed a desire to deepen their seed library’s impact is by partnering more with local food justice and urban farming organizations. At present, there is a disconnect between the food justice space and seed saving world. Claire said: “The relationship has been so severed between plants and growing. Seeds are not the first things people think about in relation to the ‘good food movement’ and reclaiming your food system but seed is such a fundamental part of that.” Minna stressed that her ambitions with BASIL are to better bridge gaps between the seeds and in the incredibly active local food justice scene in the Bay Area:

*Slowly but surely, I’m trying to make more connections with people who are doing urban gardens, people who are doing justice and ag work, to say ‘we are here, we have free seeds, we have classes, use us,’ basically. Because people don’t necessarily know about us or know that it is all free. So, I think we –and other libraries probably too - could do better with being resources, literal resources, for food justice people. Literally we have the seeds to grow the actual food. So, I think in that local way if people are growing food from the seeds that we give here, I think that is impactful on someone’s life, on someone’s family. They say growing food is like growing money.*

There is an easy line to draw between seed libraries and activism that imagines this movement’s potential to push back against the structural underpinnings of the industrial agro-food system and promote alternative possibilities modeled after lived revolutionary change.



## CHAPTER 6: Conclusion: Planting New Seeds of Care

“Until we can grieve for our planet we cannot love it—grieving is a sign of spiritual health. But it is not enough to weep for our lost landscapes; we have to put our hands in the earth to make ourselves whole again. Even a wounded world is feeding us. Even a wounded world holds us, giving us moments of wonder and joy. I choose joy over despair. Not because I have my head in the sand, but because joy is what the earth gives me daily and I must return the gift.” - Robin Wall Kimmerer<sup>37</sup>

“... the change of mind I am talking about involves not just a change of knowledge, but also a change of attitude toward our essential ignorance, a change in our bearing in the face of mystery. The principle of ecology, if we will take it to heart, should keep us aware that our lives depend upon other lives and upon processes and energies in an interlocking system that, though we can destroy it, we can neither fully understand nor fully control. And our great dangerousness is that, locked in our selfish and myopic economics, we have been willing to change or destroy far beyond our power to understand. We are not humble enough or reverent enough.” – Wendell Berry<sup>38</sup>

---

<sup>37</sup> From *Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge, and the Teachings of Plants* (2013), pg. 327.

<sup>38</sup> From “Think Little” in *A Continuous Harmony: Essays Cultural and Agricultural* reprinted in the Whole Earth Catalog 1969

The seed saving practices and spaces described in this thesis represent a movement supported by and for people, in community, and in relation to each other and place. This constitutes a form of everyday activism sustained by aspirations, labor, care, and imagination towards a better world. As a demonstration of abundance, sharing, and interdependence, the struggles for seed sovereignty ideologically and materially contribute to a post-capitalist understanding of the world premised on care and ecological considerations.

This thesis comes to a conclusion by reflecting on how community seed saving plants new seeds for community relationships, public awareness, organizing and mobilization, policy changes, and infrastructure priorities by offering a set of logics that de-stabilize the hegemony of current approaches. The careful study presented in the previous chapters reveals lessons not just about directions towards alternative seed systems in North America, but also about broader care- and eco-centric relationships spurred by modes of bottom-up, community-led food resistance. Seed libraries present implications for transformative civic life premised on collectivized natural resource stewardship, and more inclusive conceptions of ways of knowing. Public libraries support these transformative potentials by offering the public space to establish modes of re-commoning and decommodification. These spaces are a framework for imagining how to strengthen and deepen the impact of counterhegemonic behaviors at multiple scales. While it is clear that community seed savers in the Bay Area demonstrate resistance and build capacity to protect and preserve open-source heirloom seeds and their stories, there are still significant conditions that threaten seed sovereignty – locally and globally. Therefore, creating supportive avenues for seed saving, and, more broadly, the worldviews and land-based methods of ecological knowledge production that have sustained ethical seed saving for millennia, is of urgent importance.

As articulated Robin Wall Kimmerer’s epigraph to this chapter, we are in desperate need of ways to re-connect intimately with our earth. We need to hold space to become upset and grieve what we are losing. We need tangible reminders and visceral experiences to foreground our dependence on the more-than-human world and to illuminate our interwoven survival. We need channels to find the kind of love it will take from us to identify a renewed approach to sustainability. And, we need practices that model what it looks like to consider needs beyond human supremacy and beyond profit. This thesis has explored how seed saving offers an example of how to address these needs.

### *The importance of care*

Practices of care often remain unrecognized as valid forms of political and economic resistance, yet, care is a way for individuals and groups who refuse to remain indifferent to the world’s socio-ecological failures to participate in alternative world building (Kaika 2017). By tending to the actual lived experiences of other ways of knowing and becoming found in daily demonstrations of care, we open

avenues to imagine new futures. Turning our attention to seed saving, we see that it functions as a material and conceptual practice to make the power dynamics of dominance and control in the capitalist food system visible while also working to remake and rebuild new socio-ecological conditions of human existence and experiences of food (Gottschlich and Bellina 2016, 651). The notions of individual liberties and independence (i.e. the toxic myth of the ‘self-made man’) upheld by hegemonic logics of monopoly capitalism only serve to undermine emancipation. However, the ideas and ideologies of an authentic relationship to seeds demonstrate a culture of collective care, community reciprocity, and modeled abundance that suggest a framework to advance community practices premised on the fact that fully-realized freedom and liberation is predicated on interdependence and mutualism, within and across species boundaries.

To counter the biases that marginalize these sources of care and embodied or inherited knowledge in mainstream planning canons, we must non-dominant and non-Western epistemologies to open avenues for more adequate understanding of plants as active agents, critical allies, and teachers and allow us to elevate the lessons seeds offer us for how to adapt to a changing climate and connect to our foodways in more culturally and nutritionally nourishing ways.

#### *Re-working relationships to nature*

The place-based, social, and ecological care explored in this thesis offer implications for the types of care that can – and should – be internalized in approaches to practices and methods of community governance. The important thing that seed saving reminds us is that these acts of care and love must go beyond the self and beyond the human. Centering human-plant relationships can challenge dominant modes of urban development and help identify ways to restructure policies and governance (Head et al. 2014) by asking us to consider more deeply how human actions impact the natural world and more authentically consider our needs as just one part of a complex web of life-sustaining needs. The logics of community seed saving can serve as a model for how this might be articulated. Seeds must be thought of as living beings not as objects. They cannot be separated from the realities of soil, water and climate. They force us to understand that all of these are essential to sustaining and supporting life. We cannot let the will to dominate and beat out nature persist. The very survival and ability to flourish, in body, mind, and spirit– of humans and more-than-humans – depends on this pivot.

The stories of seed saving described begin to paint a picture into how an intimate engagement and awareness of this reality creates new perspectives and catalyzes action. Seeds become a way to shatter neoliberal illusions of scarcity, individualism, and homogeneity and offer more creative ways of thinking about abundance and generosity, resilience, and survival. A single bean seed can yield dozens of seeds for next year’s garden, and one amaranth seed can yield tens of thousands of seeds (Cain 2015). Seeds adapt,



evolve and survive under changing conditions. These qualities demonstrate literal modes of governance might turn to these qualities of Mother Nature as guidelines for influencing and transforming policy and practices. By engaging with more-than-human others, we can craft more ethical and post-growth understandings of the biophysical limits and that should govern our practices and policies and the pathways towards cultural liberation we need. These are the methods we need now more than ever as we venture forward into an increasingly urgent and unsure social and climatological future.

### *Incorporating in situ conservation into urban practices*

The findings in this thesis also underscore the importance of *in situ* conservation and creating frameworks to support and expand these approaches to biodiversity protections in our urban environments. Given the urgency with which global biodiversity loss is threatening the health and safety of communities of species the world over, we need every community – urban and rural – to rethink their role in making broader commitments to stewardship of biodiversity. We know that when biodiversity is preserved in communities, hand-in-hand with the diversity of stories, cultural heritage, place-based culinary identities and personal connections, conservation efforts are considerably more effective and participatory. In contrast to methods of *ex situ* conservation where only those deemed “experts” by Western scientific rationalism get to determine how the world’s plant relatives are preserved; *in situ* practices expand knowledge and practices. It builds practical awareness and momentum for new involvement in tactile stewardship of the earth’s biodiversity. This is the kind of involvement we need to challenge monopoly agro-industrialism.

Fostering these kinds of authentic place-based modes of conservation is always going to involve imperfection, inconsistency and fluctuations. Standardization and uniformity should not be the goal. The imperfections and messiness found in the everyday acts of love, care, and community commitment in seed saving initiatives in the Bay Area can instead be seen as part of their strength. This recalls ethnocologist Virginia Nazarea’s (2013, 5) assertion that *in situ* conservation inherently resists rigid frameworks of analysis: “to impose discipline and order in home gardens in an attempt to extract principles and come up with a succinct list of ‘lessons learned’ is to suffocate the very spirit (or, more simply put, joy) that nurtured diversity in the first place.”

As Gonzales (2013) notes, achieving a “holistic and eco-centric paradigm” in our food systems is possible, but it will require first and foremost an authentic reform of “culturally appropriate, participatory reforms consistent with indigenous and ecocentric values.” We need these processes to start at the local level, and he notes, “land, territory, spirituality, and institutions are all central to this process.” The emphasis on the role of institutions here helps illuminate the role those who operate in community development- oriented fields can play to spur a transformative approach to what it means to do planning



and development, land use, and food systems work. Centering a care-centric logic, like the one we can learn from seed saving, can help us transform our approach to community policies and governance.

This study of urban seed saving also suggests a need to bridge gaps and create more interaction across urban and rural seed systems. Urban centers tend to be where seeds are grown for ideological reasons, but farms require a different consideration of agricultural economics. A productive avenue for further inquiry into this topic would identify ways to bridge these gaps and incentivize and re-establish seed saving as an on-farm activity. Seed saving on farms used to be the norm, however the practice was largely lost with the rise of industrial agriculture practices which pushed American farmers more and more towards specialization. Given skyrocketing interest in heirloom varieties and preservation and a gap in organic seed supply, re-equipping farmers with the specialized skills to save seed could strengthen seed sovereignty work while also creating economically viable ways to support farming practices rooted in socio-ecological care.

#### *Seed libraries and collectivized community care*

While talk of the modern commons often centers things like the Open Source Software, the Creative Commons license or Wikipedia, it is important to think about the actual physical and emotional spaces we can create in order to support a restoration of the public commons. This can service to institutionalize, legitimate, and elevate the care-based resistance found in community seed saving and similar practices of collective community care. Seed libraries do this by creating the physical space for theories of change regarding community seed systems to be enacted in a public space experience by people on their own terms.

Seed libraries model a particularly useful process of commoning because they not only challenge individualism and isolated social relations, but do so for ecological relations as well, by bringing plant life into conversation with the commons. By coupling free exchange principles with the biophysical characteristics of seeds, these programs restore an awareness that ecological care and reciprocity are a collective responsibility of all members of a community. This aids in the conceptual task of dismantling harmful human/nature dualisms. These reconfigurations encourage a different level of engagement with the food system on physical and philosophical terms and suggests what an ecological economy of care might look like.

Within the processes of decommodification and recommoning taking place in seed libraries, it becomes clear that differing levels of responsibility are established for maintaining the commons. These responsibilities may help recognize structural inequalities and counteract unevenly experienced privilege. Those who can save seeds – who have the significant land, time, resources, and knowledge needed to do so – are providing collectively for others their community who cannot save seeds but who can now access

free seeds to grow their own food. While many seed savers refer to this as a “true sharing economy,” this vocabulary seems insufficient to demonstrate what actually occurs. This is a model of mutually-beneficial collective care. It provides seed savers with a way of feeling like they are part of something bigger than themselves and provides a platform for connecting to others. It gives gardeners a sense of importance that their skills and expertise, gained through years of hard work in their soil, will have an impact on their community not only in the present but also in the future as that knowledge gets preserved and passed down to new generations. It is not a self-*less* act, but rather, an act that both cares for the self *and* others simultaneously. There seems to be a lack of vocabulary in our contemporary practices to articulate and fully comprehend what care for the self and the beyond the self at the same means. The words selfless and altruistic are often deployed in these discourses, however, these words, by definition erase and deny the self in unproductive ways. Perhaps one thing we need is a more nuanced vocabulary to understand how communities daily create conditions for collectivized community that run parallel to capitalism and create space for collective flourishing at levels that transcend individualism and alienation.

#### *The possibilities of the public library*

The findings presented in Chapter 5 bring public libraries into interesting conversation with seed and food sovereignty movements. The political ecological implications of public libraries are, as yet, not regarded in these discourses. However, they can be seen as sites to build and sustain active democratic civic life around seed saving and therefore suggest possibilities to broaden our imagination of what a public library means in our understandings of community infrastructure and civic institutions. This role warrants attention by critical planners and anyone interested in avenues for radical social and environmental change. Offering the scaffolding to support everyday practices of place-based socio-ecological care, public libraries serve as a platform to strengthen counterhegemonic practices that seek create new possible futures.

Public libraries provide a unique strength for alternative food movements more aligned with the goals of food sovereignty. Unlike many spaces associated with alternative food procurement or consumption (e.g. farmers markets or local farm-to-table restaurants), communities formed within a public library are not bounded by the ability to pay, nor are they ascribed to a certain identity group. Libraries are one of the places in society most accommodating for marginalized groups or non-mainstream lifestyles, providing safe havens and spaces of dignity within a world operating against them. Nor do libraries replicate some of the dynamics found in spaces of food systems charity. In spaces, such as soup kitchens and food pantries, food insecure individuals do receive food to alleviate immediate hunger. But they do so under hierarchical structures which pathologize poverty, uphold unequal power relations, and do little to address the socio-ecological systems which perpetuate food injustice in the first

place. Libraries, on the other hand, are inherently spaces organized around the principles of capacity building and empowerment. Libraries can provide the tools, educational resources, inspiration, communities of support, and now the literal seeds, to expand the role of edible gardening in our communities. This supports pathways to food sovereignty by not only increasing access to healthy, locally-grown produce, but by building bottom-up powers of choice and self-determination.

The potential for libraries to fully realize this role is dependent on broad-based support and partnerships across sectors to protect and elevate critical systems of place-based public life. Public libraries are the type critical social infrastructure<sup>39</sup> necessary to support flourishing public commons. They can contain layered support services, resources, and sources of joy that touch many lives across many spectrums all housed within one building. By building and strengthening structures that facilitate relationships, gifting, mutual support, and commitments made to one another, libraries offer a way of organizing community that is not predicated on transactions but, rather, on relations.

As inherently educational spaces, we can imagine how public libraries could be expanded as sites to engage with food politics on a deeper level and to unsettle structures presented as unchangeable. This means creating room for discomfort. We need places that facilitate discomfort within the current system in counter to counteract complacency on the part of those who are not daily impacted by the structural violence of the food system. We can think back to the solidarity expressed by seed activist Kristyn who remarked that her actions are motivated by an awareness that she does not experience the kind of violence peasant farmers in the Global South do. She acts in ways to remove her complacency in the systems that perpetuate this violence and leverages her position for change. Part of seed activism must consider the role it can play in healing the traumas which are directly linked to the control of seed. The underlying assumption held in this thesis is that gardening can be revolutionary and resistance-based activity. In order to realize this, however, community work requires unpacking the ways a community's food system is intricately touched by systems of imperialism, settler colonialism, white supremacy, and heteropatriarchy. Erasing food traditions and suppressing food sovereignty was one of the first tools of colonial occupation and the institutions of slavery and sharecropping created enduring legacies of land-based trauma and violence that today and shape daily experiences of food today. Even the most well-intentioned seed saving work may fall short of its transformative potential without recognition of these systems. Therefore, I ask can, seed libraries inspire communities, especially white communities, to go deeper in their gardening practices to identify how their identities and spatial practices fit within – and potentially benefit from complacency in – racialized geographies determined by occupation, genocide, and erasure? Can they inspire white allies in this work who have disproportionate representation in

---

<sup>39</sup> To remind the reader of Klinenberg' (2018) definition of social infrastructure as “the physical places and organizations that shape the way people interact.”

gardening spaces and are more likely to have access to wealth, land, and social capital to center radically transformative Indigenous food and seed sovereignty? This is obviously complicated. And Each case from seed to seed and community to community will look different. It can be a question of financial reparations. It can be matter of authentic partnerships and asking permission. It can also be just education and understanding that each seed has a story and a living perspective. Because of their embrace of difference and heterogeneity, seed libraries are uniquely positioned to participate in the work of identifying what that could look like in each place, from city to city, from town to town, across the country.

### *Seed Libraries and public policy*

To think through the political economic potentials, both latent and manifest, in the seed library movement in North America, the following story is useful and illuminates the role they can play in leveraging political and economic status to enact public policy level change. In 2014, seed libraries found themselves in a legal drama that could have been a very grave situation to the future of these initiatives. However, the drama instead spurred collective action and inspired national organizing in order to protect communities' rights to save and share seeds. A seed library at the Mechanicsburg, Pennsylvania received letter from the Department of Agriculture warning them they were violating the state's Seed Act of 2004. The department sent officials and attorneys to tell the library that in order to continue their program which gave out community-donated seeds for free, they would have to put 400 seeds of each variety through arduous seed testing procedures in order to determine quality, germination rate, in accordance with regulations on mislabeled seeds, invasive plant species, cross-pollinated varieties, and poisonous plants (McCartney 2014; Sustainable Economies Law Center). Given that the library only had a handful of each variety, these demands were clearly unachievable. The seed library was even accused by a County Commissioner of potential "agro-terrorism" (ibid.).

However, in the case of the Mechanicsburg seed library there was a good reason to believe that this law should not be applied to seed library operations. Yet, soon after this, seed libraries in Minnesota and Nebraska received the same letter from their own state agriculture departments. As word spread about this issue to California audiences, Bay area seed savers banded together with lawyers at SELC and led a multi-state legal advocacy campaign to reform state seed law to directly protect seed libraries. The California advocacy campaign brought together gardeners, Bay Area seed libraries with a class of 4<sup>th</sup> grade students – who testified on the importance of seed saving and biodiversity at the Assembly and Senate Agriculture Committees – and dozens of state and local organizations, including the California Climate and Agriculture Network, Center for Food Safety, Occidental Arts and Ecology Center, the Pesticide Action Network, Slow Food California, and California FarmLink who united for that moment to

recognize the importance of locally adapted seeds, and equally for people's rights to save and share seeds within their communities (Oatfield 2016). As a result of these efforts, in September 2016, then-Governor Jerry Brown signed AB 1810, the California Seed Exchange Democracy Act, into law. The act amended the California Seed Law to exempt non-commercial seed sharing activities from industrial labeling, testing, and permitting requirements (*California Seed Law: Exclusions: Noncommercial Seed Sharing* 2016) The efforts not only successfully changed California state legislature but inspired similar reforms in Minnesota, Nebraska and Illinois, all while creating a template of model language for other states to access should they wish to lead their own seed law campaign. The "Save Seed Sharing" campaign resulted in the publication of "The Seed Democracy Toolshed," a publically accessible, crowdsourced database of state seed laws and analysis for those hoping to launch their own campaigns to "raise awareness, build support, and effectively advocate for changes to your state's seed law that promote seed saving and sharing and protect our seed commons (Sustainable Economies Law Center). This national campaign revealed that the seed library movement functions at multiple geographic scales to ignite collective action. While rooted primarily in hyper-local and day-to-day activities of providing free heirloom seeds, they also form a broader national movement involved in public policy and reform.

### *Conclusion*

It is perhaps best to conclude by thinking of seeds as a start. This thesis has attempted to provide a brief glimpse into the world of community seed saving to illuminate those everyday struggles and resistance against systems of control and manipulation in the capitalist food system. Returning to the questions posed in the preface to this paper, how can the lessons taken from community seed saving initiatives start to deepen our imagination for other worlds? How can it spur new modes of thinking about the world that we can internalize in our professional and personal practices? Our contemporary era is defined by multi-scalar environmental and social crises. These crises are deeply interwoven with an industrial agro-food system built on dominance and exploitation. How can we choose to pursue place-based community-making efforts which support culturally sensitive policies and projects (Gonzales 2013) and which promote inter-cultural, inter-species alliances? We do not have to – nor can we – accept the food system for what it is any longer. We can choose to redefine a care-based ecological economy with the capacity to protect and preserve our collective biodiversity and cultural liberation. It starts with a seed, mind you.

## Appendix A: Semi-Structured Interviews

Name	Role / Organization	Seed Saver?	Age range	Date	Location	Voice recorded + transcribed
Electra	Core Planning Group, Community Seed Savers Exchange, founder seed stewards.com	Y	55+	1/5/19	Onsite, Sebastopol	Y
Liz	Core Planning Group, Community Seed Savers Exchange	Y	55+	1/5/19	Onsite, Sebastopol	Y
Sara	Co- Founder, Community Seed Saver Exchange	Y	35-55	1/5/19	Onsite, Sebastopol	Y
Jason	Core Planning Group, Community Seed Savers Exchange	Y	35-55	1/5/19	Onsite, Sebastopol	Y
Minna	Seed Library Manager at BASIL / Ecology Center	N	18-35	1/8/19	Onsite, Berkeley	Y
Karen	Librarian, Palo Alto Public Library	N	55+	1/8/19	Phone	N
Neil	Lawyer, Sustainable Economies Law Center	N	18-35	1/9/19	Offsite, Cafe	Y
Pete	Library Branch Manager, Cesar Chavez Library Branch of the Oakland Public Library	Y	35-55	1/10/19	Onsite, Oakland	N
Kristyn	Farmer, Namu Farm (grows produce for Namu Ganji restaurant and seed for Kitazawa Seed Co.	Y	18-35	1/10/19	Offsite, Cafe	Y
David(a)	Founder, Rooftop garden and seed library at the Jewish Community Center of San Francisco	Y	18-35	1/10/19	Phone	N
Claudia	Seed Library Manager, African American Museum and Library of Oakland	Y	55+	1/12/19	Onsite, Oakland	Y
Vita	Interim Curatorial Director, African American Museum and Library	N	35-55	1/12/19	Onsite, Oakland	Y
David (b)	Urban Agriculture professor, University of San Francisco	Y	35-55	1/12/19	Offsite, Cafe	N
Hillie	Master Gardener, Founder Silicon Valley Grows	Y	55+	1/12/19	Offsite, South Bay	Y
Rebecca	Co-Founder, Richmond Grows Seed Lending Library, Middle school teacher	Y	35-55	1/14/19	Onsite, Richmond	Y
Tom	Founder, Seeds of El Cerrito	Y	55+	1/15/19	Onsite, El Cerrito	Y
Debbie	Librarian, University of San Francisco	N	35-55	1/15/19	Onsite, USF	Y
Carol	Librarian, University of San Francisco	N	35-55	1/15/19	Onsite, USF	Y
Enoch	Founder, San Leandro Seed Library	Y	18-35	1/19/19	Onsite, San Leandro	Y
Emily	Volunteer, BASIL	Y	18-35	1/20/19	Offsite, Cafe	Y
Vincent & Louis	Co-founders and owners Mak'amham / Cafe Ohlone	Y	18-35	1/21/19	Onsite, Berkeley	Y
Sara	Seed Historian, Seed Savers Exchange	Y	unknown	2/13/19	Phone	N
Claire	Co-Founder, Open Source Seed Initiative	Y	18-35	2/18/19	Phone	N
Maya	Native Foodways Program Coordinator	Y	18-35	2/20/19	Phone	Y

## **Appendix B: Sample Interview Guide**

### Introductions

Can you state your name, organization, your position?

How did you get involved in working with seed saving?

### Section 1: Organization

What is the purpose of [name of initiative/program]?

How did the organization start? What problems/issues/topics do you aim to address?

Has the organization changed over time? As a result of what?

Why do you think the community needs a seed saving organization?

Who comes here?

What is the main challenge your organization is confronting?

What would be the one change you would want to see that would really propel this work forward?

What do you value most about what you do? Why?

Is there external support for this work?

### Section 2: Seed Saving

Why do seeds need to be saved?

How is the practice of seed saving being lost/threatened?

How do you or other access knowledge about seed saving?

How do you see seed saving contributing to a more sustainable and just food system?

Is seed saving a political act?

### Section 3: The community

Can you describe your community?

Are there specific histories of seed saving in your community tied to this community?

What conditions of this region are unique for saving seeds?

What is the food culture like here?

Are there challenges you see related to food (is fresh food widely accessible? are the foods available culturally appropriate?)

### Section 4: The seeds

Do you have standards for what kinds of seeds you save or accept? (organic, local/native?)



Can you tell me about your favorite seed to save?

What is the relationship between seed saving and place?

#### Section 5: Seed Libraries

What role do you see seed libraries and exchanges playing in the future?

Are you connected to other seed libraries? Is this work being done together or each independent initiative

#### Concluding questions

Is there anything else you would like to tell me about or that I haven't touched on you think is important?

Do you have a favorite seed story you are willing to share with me?

## Appendix C: Email outreach

Hi [name],

My name is Katie Gourley, and I'm an Urban Planning student at the Harvard Graduate School of Design. I am currently studying the topics of community level seed saving and food sovereignty for my Master's Thesis which I will defend in the Spring of 2019.

I learned [ORGANIZATION] while researching these themes in the Bay Area and am interested in learning more about your work with [XXX]. Would you be willing to speak with me a bit about your work and share your insights on challenges and opportunities related to seed saving in urban settings? I will be traveling to California for January 2019 to visit seed saving libraries and collect stories about this work. I would love to be able to connect with you and your network while I am in the area!

If you are available to initially connect over the phone, I would appreciate the chance to provide more background on the research and discuss possible dates for us to get together.

By way of introduction, my work intends to demonstrate to the field of urban planning what can be learned about food and seed sovereignty and the important connections between biodiversity, cultural preservation, culinary tradition, and local knowledge by sharing the stories and insights of local seed saving initiatives. I am passionate about how food and agriculture can be used as a way for communities to connect to nature and culture in urban environments. Studying the wide variety of seed saving initiatives in the Bay Area will help convey the importance of this work and to draw connections to the wider movement across the globe to democratize food systems.

Thank you very much for your attention and consideration. Please let me know your interest and availability. Additionally, if there is anyone else you recommend I speak to, I would appreciate your advice.

Will look forward to hearing back from you.

Sincerely,  
Katie Gourley

## **Appendix D: Site Visits**

### Public Library Branches

- African American Museum and Library of Oakland | Oakland Public Library
- César E. Chávez Branch | Oakland Public Library
- Mountain View Public Library
- Potrero Branch | San Francisco Public Library
- Richmond Grows Seed Lending Library | Richmond Public Library
- Rinconada Library | Palo Alto City Library
- San Leandro Public Library
- Seeds of Cerrito | El Cerrito Public Library

### Private / Academic Libraries

- University of San Francisco Seed Library

### Ecology Centers

- Occidental Arts and Ecology Center | Occidental, CA
- Bay Area Seed Interchange Library at The Ecology Center | Berkeley, CA

### Other

- Community Seed Savers Exchange Seed Library and Seed Garden | St. Stephen's Episcopal Church, Sebastopol
- Seed of Cerrito | El Cerrito Recycling Center

## Bibliography

- AB No. 1810 *California Seed Law: exclusions: noncommercial seed sharing* (2016).
- Ahtone, Tristan. "Tribes Create Their Own Food Laws to Stop USDA From Killing Native Food Economies." *YES! Magazine*. Accessed September 29, 2018. <https://www.yesmagazine.org/people-power/tribes-create-their-own-food-laws-to-stop-usda-from-killing-native-food-economies-20160524>.
- Akram-Lodhi, A Haroon. "How to Build Food Sovereignty." Yale University's Food Sovereignty: A Critical Dialogue International Conference, 2013. Conference paper no. 29.
- Alkon, A.H., and J. Agyeman. *Cultivating Food Justice: Race, Class, and Sustainability*. Cambridge, MA: MIT Press, 2011.
- Ashworth, Suzanne, David Cavagnaro, and Kent Whealy. *Seed to Seed: Seed Saving and Growing Techniques for Vegetable Gardeners, 2nd Edition*. Decorah, Iowa: Seed Savers Exchange, 2002.
- Barker, Debbie. "History of Seed in the U.S. The Untold American Revolution." Center for Food Safety, 2012. [https://www.centerforfoodsafety.org/files/seed-report-for-print-final\\_25743.pdf](https://www.centerforfoodsafety.org/files/seed-report-for-print-final_25743.pdf).
- Barthel, Stephan, Carole Crumley, and Uno Svedin. "Biocultural Refugia: Combating the Erosion of Diversity in Landscapes of Food Production." *Ecology and Society* 18, no. 4 (December 28, 2013). <https://doi.org/10.5751/ES-06207-180471>.
- Benedictus, Leo. "The Library of Things: Could Borrowing Everything from Drills to Disco Balls Cut Waste and Save Money?" *The Guardian*, April 24, 2019, sec. Society. <https://www.theguardian.com/society/2019/apr/24/library-of-things-borrowing-scheme-conquer-world>.
- Bernstein, Henry. "Food Sovereignty: A Skeptical View" Yale University's Food Sovereignty: A Critical Dialogue International Conference, 2013. Conference paper no. 41.
- Berry, Wendell. *Life Is a Miracle: An Essay Against Modern Superstition*. Catapult, 2003.
- Bertacchini, Enrico Eraldo. *Cultural Commons: A New Perspective on the Production and Evolution of Cultures*. Edward Elgar Publishing, 2012.
- Bezner-Kerr, Rachel Bezner. "Lost and Found Crops: Agrobiodiversity, Indigenous Knowledge, and a Feminist Political Ecology of Sorghum and Finger Millet in Northern Malawi." *Annals of the Association of American Geographers* 104, no. 3 (2014): 577–93. <https://doi.org/10.1080/00045608.2014.892346>.
- Bioneers. *Melissa Nelson - Revitalizing Indigeneity*. Accessed October 25, 2018. [https://www.youtube.com/watch?v=Gwsg\\_tRiBjo](https://www.youtube.com/watch?v=Gwsg_tRiBjo).
- Bollier, David. *Think Like a Commoner: A Short Introduction to the Life of the Commons*. 1 edition. Gabriola Island: New Society Publishers - New Society Publishers, 2014.
- Breen, Sheryl. "Saving Seeds: The Svalbard Global Seed Vault, Native American Seed Savers, and Problems of Property." *Journal of Agriculture, Food Systems, and Community Development* 5, no. 2 (2016): 39–52. <https://doi.org/10.5304/jafscd.2015.052.016>.

- Brigham, Jonee Kulman. “From Domination to a Caring Ecology: Healing Paradigms and Creative Practices for the Apprenticene.” *Interdisciplinary Journal of Partnership* 4, no. 3 (October 16, 2017).  
<https://doi.org/10.24926/ijps.v4i3.170>.
- Cain, Toby. “40 Reasons to Save Seeds in 2015.” *Seed Savers Exchange* (blog), 2015.  
<http://blog.seedsavers.org/blog/40-reasons-to-save-seeds>.
- Campbell, Brian C., and James R. Veteto. “Free Seeds and Food Sovereignty: Anthropology and Grassroots Agrobiodiversity Conservation Strategies in the US South.” *Journal of Political Ecology* 22 (2015): 445–65.
- Carneiro da Cunha, Manuela, Georgina Mace, and Harold Mooney. “Summary for Policymakers of the Global Assessment Report on Biodiversity and Ecosystems Services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystems Services.” Intergovernmental Science-Policy Platform on Biodiversity and Ecosystems Services (ISPPBES), May 6, 2019.  
[https://www.ipbes.net/sites/default/files/downloads/spm\\_unedited\\_advance\\_for\\_posting\\_htn.pdf](https://www.ipbes.net/sites/default/files/downloads/spm_unedited_advance_for_posting_htn.pdf).
- Carney, Judith A. “‘With Grains in Her Hair’: Rice in Colonial Brazil.” *Slavery & Abolition* 25, no. 1 (April 2004): 1–27. <https://doi.org/10.1080/0144039042000220900>.
- Carney, Megan. “‘Food Security’ and ‘Food Sovereignty’: What Frameworks Are Best Suited for Social Equity in Food Systems?” *Journal of Agriculture, Food Systems, and Community Development*, February 9, 2012, 71–87. <https://doi.org/10.5304/jafscd.2012.022.004>.
- Carolan, Michael. “A Sharing Economy for Plants: Seed Libraries Are Sprouting Up.” *Common Dreams*, 2018.  
<https://www.commondreams.org/views/2018/11/19/sharing-economy-plants-seed-libraries-are-sprouting>.
- . *The Food Sharing Revolution: How Start-Ups, Pop-Ups, and Co-Ops Are Changing the Way We Eat*. Washington, DC: Island Press, 2018.
- Castillo, Ellias. *A Cross of Thorns: The Enslavement of California’s Indians by the Spanish Missions*. Fresno, CA: Craven Street Books, 2015. <https://eliasacastillo.net/>.
- Ceccarelli, Salvatory. “The Centrality of Seed: Building Agricultural Resilience Through Plant Breeding.” Independent Science News for Food and Agriculture, 2016. <https://www.independentsciencenews.org/un-sustainable-farming/the-centrality-of-seed-building-agricultural-resilience-through-plant-breeding/>.
- Center For Food Safety. “Seed Giants vs U.S. Farmers,” 2013. [https://www.centerforfoodsafety.org/files/seed-giants\\_final\\_04424.pdf](https://www.centerforfoodsafety.org/files/seed-giants_final_04424.pdf).
- Cernansky, Rachel. “Are ‘Open Source’ Seeds Necessary for a Resilient Food System?” Text. GreenBiz, January 4, 2017. <https://www.greenbiz.com/article/are-open-source-seeds-necessary-resilient-food-system>.

- Cheney, Thomas. "Historical Materialism and Alternative Food: Alienation, Division of Labour, and the Production of Consumption." *Socialist Studies/Études Socialistes* 11, no. 1 (March 1, 2016). <https://doi.org/10.18740/S4JK5K>.
- Clark, Leilani. "Free the Seed"
- . "Seed Saving Is the Original Sharing Economy." *Civil Eats*, July 28, 2017. <https://civileats.com/2017/07/28/seed-saving-is-the-original-sharing-economy/>.
- Classens, Michael. "The Nature of Urban Gardens: Toward a Political Ecology of Urban Agriculture." *Agriculture and Human Values* 32, no. 2 (2014): 229-239.
- Clendenning, Jessica, and Wolfram Dressler. "Between Empty Lots and Open Pots: Understanding the Rise of Urban Food Movements in the USA," 34. Yale University: *The Journal of Peasant Studies*, 2013.
- Cohn, Avery, and International Institute for Environment and Development, eds. *Agroecology and the Struggle for Food Sovereignty in the Americas: A Collaborative Project of the International Institute for Environment and Development (IIED), the IUCN Commission on Environmental, Economic and Social Policy (CEESP) and the Yale School of Forestry & Environmental Studies (Yale F&ES)*. Reclaiming Diversity & Citizenship. London: International Institute for Environment and Development, 2006.
- Conner, Cindy. *Seed Libraries and Other Means of Keeping Seeds in the Hands of the People*. Canada: New Society Publishers, 2014.
- Cook, Christopher. "Seed Libraries Fight for the Right to Share." *Shareable*, 2015. <https://www.shareable.net/blog/seed-libraries-fight-for-the-right-to-share>.
- Coomes, Oliver T., Shawn J. McGuire, Eric Garine, Sophie Caillon, Doyle McKey, Elise Demeulenaere, Devra Jarvis, et al. "Farmer Seed Networks Make a Limited Contribution to Agriculture? Four Common Misconceptions." *Food Policy* 56 (October 1, 2015): 41–50. <https://doi.org/10.1016/j.foodpol.2015.07.008>.
- "Declaration of the International Forum for Agroecology." Mali: Nyéléni, 2015. <http://link.springer.com/10.1057/s41301-016-0014-4>.
- Desmarais, Annette Aurélie, and Hannah Wittman. "Farmers, Foodies and First Nations: Getting to Food Sovereignty in Canada." *The Journal of Peasant Studies* 41, no. 6 (November 2, 2014): 1153–73. <https://doi.org/10.1080/03066150.2013.876623>.
- Dombrodki, Kelly, Stephen Healy, and Katharine McKinnon. "Care-Full Community Economies." In *Feminist Political Ecology and the Economics of Care: In Search of Economic Alternatives*, 99–115. Routledge Studies in Ecological Economics. London and New York: Routledge, 2019.
- DuBrul, Sascha. "The Little Known History of Seed Libraries and the Radical Mental Health Movement." *Maps to the Other Side* (blog), February 10, 2015. <https://www.mapstotheotherside.net/history-of-seed-libraries/>.

- Duffy, Eileen. "Returning Native Seeds to Their Roots." *Civil Eats*, April 19, 2017. <https://civileats.com/2017/04/19/returning-native-seeds-to-their-roots/>.
- Elkin, Rosetta. "Desertification and the Rise of Defense Ecology." *Portal* 9, no. 4 (2014). [https://drive.google.com/file/d/1HFp13459aHIK1nJGn4d5pZJbe-ivuAaK/view?usp=embed\\_facebook](https://drive.google.com/file/d/1HFp13459aHIK1nJGn4d5pZJbe-ivuAaK/view?usp=embed_facebook).
- Ellen, Roy, and Simon Platten. "The Social Life of Seeds: The Role of Networks of Relationships in the Dispersal and Cultural Selection of Plant Germplasm: The Social Life of Seeds." *Journal of the Royal Anthropological Institute* 17, no. 3 (September 2011): 563–84. <https://doi.org/10.1111/j.1467-9655.2011.01707.x>.
- ExoNexus. "Agropoly: A Handful of Corporations Control World Food Production." Zurich: Berne Declaration, 2013. [https://www.econexus.info/sites/econexus/files/Agropoly\\_Econexus\\_BerneDeclaration.pdf](https://www.econexus.info/sites/econexus/files/Agropoly_Econexus_BerneDeclaration.pdf).
- Fairbairn, Madeleine, Jonathan Fox, S. Ryan Isakson, Michael Levien, Nancy Lee Peluso, and Kalyanakrishnan "Shivi" Sivaramakrishnan, eds. *New Directions in Agrarian Political Economy: Global Agrarian Transformations, Volume 1*. Critical Agrarian Studies. New York and London: Routledge, 2016.
- Figueroa, Meleiza. "Food Sovereignty in Everyday Life: A People-Centered Approach to Food Systems." Yale University's Conference on Food Sovereignty 2013, Conference paper no. 24.
- Food and Agriculture Organization of the United Nations. "The State of the World's Biodiversity for Food and Agriculture 2019." www.fao.org, 2019. <http://www.fao.org/state-of-biodiversity-for-food-agriculture/en>.
- . "What Is Agrobiodiversity?," 1999. <http://www.fao.org/3/y5609e/y5609e02.htm>.
- For the Wild Podcast. "Interview with Robin Wall Kimmerer," 2018.
- Frenken, Koen, and Juliet Schor. "Putting the Sharing Economy into Perspective." *Environmental Innovation and Societal Transitions*, Sustainability Perspectives on the Sharing Economy, 23 (June 1, 2017): 3–10. <https://doi.org/10.1016/j.eist.2017.01.003>.
- Galluzzi, Gea, Pablo Eyzaguirre, and Valeria Negri. "Home Gardens: Neglected Hotspots of Agro-Biodiversity and Cultural Diversity." *Biodiversity & Conservation; Dordrecht* 19, no. 13 (December 2010): 3635–54. <http://dx.doi.org.ezp-prod1.hul.harvard.edu/10.1007/s10531-010-9919-5>.
- Galt, Ryan. "Placing Food Systems in First World Political Ecology: A Review and Research Agenda." *Geography Compass*, no. 04 (2013): 637–58. <https://doi.org/10.1111/gec3.12070>.
- Gaybor, Jacqueline. "Menstrual Politics in Argentina and Diverse Assemblages of Care." In *Feminist Political Ecology and the Economics of Care: In Search of Economic Alternatives*. Routledge Studies in Ecological Economics. London and New York: Routledge, 2019.
- Gelder, Sarah van. Why Vandana Shiva Says Saving Seeds Is a Political Act. Accessed December 7, 2018. <https://www.yesmagazine.org/issues/how-to-eat-like-our-lives-depend-on-it/vandana-shiva-freedom-starts-with-a-seed>.

- Gibson-Graham, J. K. “A Diverse Economy: Rethinking Economy and Economic Representation,” 2002, 8.
- . *A Postcapitalist Politics*. U of Minnesota Press, 1996.
- . “Cultivating Community Economies: Tools for Building a Liveable World.” The Next Systems Project, 2017.
- . *“The” End of Capitalism (as We Knew It): A Feminist Critique of Political Economy*. U of Minnesota Press, 2006.
- Gill, Thomas, Ricky Bates, Abram Bicksler, Rick Burnette, Vincent Ricciardi, and Laura Yoder. “Strengthening Informal Seed Systems to Enhance Food Security in Southeast Asia.” *Journal of Agriculture, Food Systems, and Community Development*, May 29, 2013, 139–53. <https://doi.org/10.5304/jafscd.2013.033.005>.
- Global Alliance for the Future of Food. “Future of Food: Seeds of Resilience,” 2016. [https://futureoffood.org/wp-content/uploads/2016/09/Future\\_of\\_Food\\_Seeds\\_of\\_Resilience\\_Report.pdf](https://futureoffood.org/wp-content/uploads/2016/09/Future_of_Food_Seeds_of_Resilience_Report.pdf).
- Goddard, Mark A., Andrew J. Dougill, and Tim G. Benton. “Scaling up from Gardens: Biodiversity Conservation in Urban Environments.” *Trends in Ecology & Evolution* 25, no. 2 (February 1, 2010): 90–98. <https://doi.org/10.1016/j.tree.2009.07.016>.
- Gonzales, Tirso, ed. “Sense of Place and Indigenous People’s Biodiversity Conservation in the Americas.” In *Seeds of Resistance, Seeds of Hope: Place and Agency in the Conservation of Biodiversity*, 85–106. Tuscon: The University of Arizona Press, 2013.
- Goodman, Michael K. “Reading Fair Trade: Political Ecological Imaginary and the Moral Economy of Fair Trade Foods.” *Political Geography, Ethics in Political Ecology*, 23, no. 7 (September 1, 2004): 891–915. <https://doi.org/10.1016/j.polgeo.2004.05.013>.
- Gottschlich, Daniela, and Leonie Bellina. “Environmental Justice and Care: Critical Emancipatory Contributions to Sustainability Discourse.” *Agriculture and Human Values* 34, no. 4 (2016): 941–53. <https://doi.org/10.1007/s10460-016-9761-9>.
- Gray, Leslie, Patricia Guzman, Kathryn Michelle Glowa, and Ann G. Drevno. “Can Home Gardens Scale up into Movements for Social Change? The Role of Home Gardens in Providing Food Security and Community Change in San Jose, California.” *Local Environment* 19, no. 2 (February 7, 2014): 187–203. <https://doi.org/10.1080/13549839.2013.792048>.
- Greenway, Twilight. “For Seed Rebels, Saving Life’s Building Blocks Has New Urgency.” *Civil Eats*, 2017. <https://civileats.com/2017/04/17/for-seed-rebels-saving-lifes-building-blocks-has-new-urgency/>.
- Grey, Sam, and Raj Patel. “Food Sovereignty as Decolonization: Some Contributions from Indigenous Movements to Food System and Development Politics.” *Agriculture and Human Values* 32, no. 3 (September 2015): 431–44. <https://doi.org/10.1007/s10460-014-9548-9>.



- Guthman, Julie. "Bringing Good Food to Others: Investigating the Subjects of Alternative Food Practice." *Cultural Geographies* 15, no. 4 (October 1, 2008): 431–47. <https://doi.org/10.1177/1474474008094315>.
- . "Neoliberalism and the Making of Food Politics in California." *Geoforum*, Rethinking Economy, 39, no. 3 (May 1, 2008): 1171–83. <https://doi.org/10.1016/j.geoforum.2006.09.002>.
- Guthman, Julie, and A.H. Alkon. *Alison Alkon and Julie Guthman. The New Food Activism: Opposition, Cooperation, and Collective Action*. Berkeley, CA: University of California Press, 2017.
- Halewood, Peter. "Trade Liberalization and Obstacles to Food Security: Toward a Sustainable Food Sovereignty." *The University of Miami Inter-American Law Review* 43, no. 1 (2011): 115–36.
- Handy, Jim. "The 'Non-Economy' and the Radical Dreams of Food Sovereignty." *FOOD SOVEREIGNTY*, 2013, 23.
- Haraway, Donna. *A Cyborg Manifesto: Science Technology and Socialist Feminism in the Late Twentieth Century*. Accessed April 17, 2019. [https://warwick.ac.uk/fac/arts/english/currentstudents/undergraduate/modules/fictionnownarrativemediaindtheoryinthe21stcentury/manifestly\\_haraway\\_----\\_a\\_cyborg\\_manifesto\\_science\\_technology\\_and\\_socialist-feminism\\_in\\_the\\_....pdf](https://warwick.ac.uk/fac/arts/english/currentstudents/undergraduate/modules/fictionnownarrativemediaindtheoryinthe21stcentury/manifestly_haraway_----_a_cyborg_manifesto_science_technology_and_socialist-feminism_in_the_....pdf).
- Harcourt, Wendy. "White Settler Colonial Scientific Fabulations on Otherwise Narratives of Care." In *Feminist Political Ecology and the Economics of Care: In Search of Economic Alternatives*, 36–54. Routledge Studies in Ecological Economics. London and New York: Routledge, 2019.
- Harcourt, Wendy, and Christine Bauhardt, eds. *Feminist Political Ecology and the Economics of Care: In Search of Economic Alternatives*. Routledge Studies in Ecological Economics. Taylor & Francis Group, 2019.
- Harcourt, Wendy, and Ingrid Nelson, eds. *Practising Feminist Political Ecologies - Moving Beyond the "Green Economy"*. London: Zed Books, 2015.
- Hay, Maya. "The Ongoing Work of Feminism and Fermentation." Concordia University, 2018. <https://www.concordia.ca/content/shared/en/news/offices/vprgs/sgs/public-scholars-18/2018/05/08/The-ongoing-work-of-feminism-and-fermentation.html>.
- Head, Lesley, Jennifer Atchison, Catherine Phillips, and Kathleen Buckingham. "Vegetal Politics: Belonging, Practices and Places." *Social & Cultural Geography* 15, no. 8 (2014): 861–70.
- Helicke, Nurcan Atalan. "Seed Exchange Networks and Food System Resilience in the United States." *Journal of Environmental Studies and Sciences* 5, no. 4 (December 2015): 636–49. <https://doi.org/10.1007/s13412-015-0346-5>.
- Heninger, Danya. "Philly's Paschalville Library Has a New Collection: Neckties." *Billy Penn*. Accessed May 18, 2019. <https://billypenn.com/2016/04/02/phillys-paschalville-library-has-a-new-collection-neckties/>.

- Hey, Maya, and Alex Ketchum. "Fermentation as Engagement: On More-than-Human Connections and Materiality / La Fermentation Comme Moyen d'engagement : Les Relations et La Matérialité Au-Delà Du Monde Humain." *Cuizine: The Journal of Canadian Food Cultures / Cuizine : Revue Des Cultures Culinaires Au Canada* 9, no. 1 (2018). <https://doi.org/10.7202/1052113ar>.
- Heynen, Nik, Maria Kaika, and Erik Swyngedouw, eds. *In the Nature of Cities: Urban Political Ecology and the Politics of Urban Metabolism*. Routledge, 2006.
- Hofmeister, Sabine. "Natures Running Wild: A Social-Ecological Perspective on Wilderness." *Nature and Culture* 4, no. 3 (January 1, 2009). <https://doi.org/10.3167/nc.2009.040305>.
- Hoidal, Natalie. "What's in a Seed? The Critical Role of Seed Politics in the Food Sovereignty Movement." Sustainable Food Trust, 2015. <https://sustainablefoodtrust.org/articles/food-sovereignty-seed/>.
- Holt-Giménez, Eric. *A Foodie's Guide to Capitalism*. New York: NYU Press, 2017.
- Holt-Giménez, Eric, Alberto Alonso-Fradejas, Todd Holmes, and Martha Jane Robbins, eds. *Food Sovereignty. Third Worlds*. New York and London: Routledge, 2017.
- Hoover, Elizabeth. "'You Can't Say You're Sovereign If You Can't Feed Yourself': Defining and Enacting Food Sovereignty in American Indian Community Gardening." *American Indian Culture and Research Journal* 41, no. 3 (January 2017): 31–70. <https://doi.org/10.17953/aicrj.41.3.hoover>.
- Horst, Megan, Nathan McClintock, and Lesli Hoey. "The Intersection of Planning, Urban Agriculture, and Food Justice: A Review of the Literature." *Journal of the American Planning Association* 83, no. 3 (July 3, 2017): 277–95. <https://doi.org/10.1080/01944363.2017.1322914>.
- Howard, Philip. "Global Seed Industry Changes Since 2013." *Philip H. Howard* (blog), December 31, 2018. <https://philhoward.net/2018/12/31/global-seed-industry-changes-since-2013/>.
- Jacobs, Julia. "Monsanto Ordered to Pay \$80 Million in Roundup Cancer Case." *The New York Times*, March 28, 2019, sec. U.S. <https://www.nytimes.com/2019/03/27/us/monstanto-roundup-california-verdict.html>.
- Jason, Dan. *Saving Seeds: As If Our Lives Depended on It*. 3rd ed. Canada: Salt Spring Seeds, 2008.
- Johnson, Cat. "The Library of Things: 8 Spaces Changing How We Think About Stuff - Shareable." *Shareable* (blog), 2016. <https://www.shareable.net/the-library-of-things-8-spaces-changing-how-we-think-about-stuff/>.
- Kaika, Maria. "'Don't Call Me Resilient Again!': The New Urban Agenda as Immunology ... or ... What Happens When Communities Refuse to Be Vaccinated with 'Smart Cities' and Indicators." *Environment and Urbanization* 29, no. 1 (April 2017): 89–102. <https://doi.org/10.1177/0956247816684763>.
- Kessler, Neil H. *Ontology and Closeness in Human-Nature Relationships: Beyond Dualisms, Materialism and Posthumanism*. Springer, 2018.
- Kim, Hyo Jeong. "Women's Indigenous Knowledge and Food Sovereignty: Experiences from KWPA's Movement in South Korea." *FOOD SOVEREIGNTY*, 2013, 22.

- Kimmerer, Robin Wall. *Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge and the Teachings of Plants*. Milkweed Editions, 2013.
- . “Returning the Gift.” *Minding Nature Journal* 7, no. 2 (2014).  
<https://www.humansandnature.org/returning-the-gift>.
- Kivirist, Lisa, and Inn Serendipity. “Seed to Farm to Table: How Local Seed Saving Is Cultivating Sustainability - Organic Gardening.” *Mother Earth News*. Accessed May 10, 2019.  
<https://www.motherearthnews.com/organic-gardening/seed-to-farm-to-table-how-local-seed-saving-is-cultivating-sustainability-zbcz1905>.
- Klinenberg, Eric. “Opinion | To Restore Civil Society, Start With the Library.” *The New York Times*, September 20, 2018, sec. Opinion. <https://www.nytimes.com/2018/09/08/opinion/sunday/civil-society-library.html>.
- Kloppenborg, Jack. “Re-Purposing the Master’s Tools: The Open Source Seed Initiative and the Struggle for Seed Sovereignty.” *The Journal of Peasant Studies* 41, no. 6 (November 2, 2014): 1225–46.  
<https://doi.org/10.1080/03066150.2013.875897>.
- . *First: The Seed: The Political Economy of Plant Biotechnology, 1400-2000*. Second. Madison, Wisconsin: The University of Wisconsin Press, 2004.
- Kovach, Dr Margaret, Dr Jeannine Carriere, Dr Harpell Montgomery, Dr M J Barrett, and Carmen Gilles. “Experiencing and Envisioning Indigenous Knowledges within Selected Post-Secondary Sites of Education and Social Work,” 2013, 98.
- Kovach, Margaret. *Indigenous Methodologies: Characteristics, Conversations, and Contexts*. University of Toronto Press, 2010.
- Lefebvre, Henri. *Critique of Everyday Life: Foundations for a Sociology of the Everyday*. Verso, 1991.
- Lianos, Ioannis, and Dmitry Katalevsky. “Merger Activity in the Factors of Production Segments of the Food Value Chain: - A Critical Assessment of the Bayer/Monsanto Merger.” London: Center for Law, Economics, and Society. Accessed April 6, 2019. <https://www.ucl.ac.uk/cles/sites/cles/files/cles-policy-paper-1-2017.pdf>.
- Light, Andrew. *Social Ecology After Bookchin*. Guilford Press, 1998.
- Lin, Brenda B., Stacy M. Philpott, and Shalene Jha. “The Future of Urban Agriculture and Biodiversity-Ecosystem Services: Challenges and next Steps.” *Basic and Applied Ecology* 16, no. 3 (May 1, 2015): 189–201. <https://doi.org/10.1016/j.baae.2015.01.005>.
- Lui, Author Joanne. “Facts About California Agriculture.” *California Agriculture News | California Agriculture* (blog), December 5, 2009. <https://californiaagtoday.com/facts-about-california-agriculture/>.
- Magdoff, Fred, and Chris Williams. *Creating an Ecological Society: Toward a Revolutionary Transformation*. New York: NYU Press, 2017.

- Malone, Nicholas, and Kathryn Ovenden. "Natureculture." *The International Encyclopedia of Primatology*, 2017. <https://doi.org/DOI: 10.1002/9781119179313.wbprim0135>.
- Martens, Tabitha. "Understanding the Value and Promise of Indigenous Food Sovereignty in Western Canada." Masters Thesis, The University of Manitoba, 2015.
- McCartney, Kelly. "Pennsylvania Seed Library Investigated by Department of Agriculture." *Shareable* (blog), 2014. <https://www.shareable.net/pennsylvania-seed-library-investigated-by-department-of-agriculture/>.
- McCormack, Jeff. "Oral Histories: Connecting People, Plants, and Biodiversity," 2011, 17.
- McMichael, Philip. "A Food Regime Genealogy." *The Journal of Peasant Studies* 36, no. 1 (January 1, 2009): 139–69. <https://doi.org/10.1080/03066150902820354>.
- Merrill, Jeanne, and Brian Shobe. "Climate Threats, Abundant Solutions: Climate Change and Agriculture Recommendations to the New California Governor." California Climate & Agriculture Network, 2018. <http://calclimateag.org/wp-content/uploads/2018/08/AbundantSolutions.pdf>.
- Mikulak, Michael. "Seeds of Democracy." *Capitalism, Nature, Socialism; Abingdon* 18, no. 3 (September 2007): 130-132,134. <http://dx.doi.org.ezp-prod1.hul.harvard.edu/10.1080/10455750701526468>.
- Miles, Tiya. *Cherokee Rose: A Novel of Gardens and Ghosts*. Blair 2015.
- "Monsanto Papers." U.S. Right to Know. Accessed May 10, 2019. <https://usrtk.org/monsanto-papers/>.
- Moragues-Faus, Ana, and Terry Marsden. "The Political Ecology of Food: Carving 'Spaces of Possibility' in a New Research Agenda." *Journal of Rural Studies* 55 (October 2017): 275–88. <https://doi.org/10.1016/j.jrurstud.2017.08.016>.
- Nabhan, Gary Paul. *Enduring Seeds: Native American Agriculture and Wild Plant Conservation*. 1 edition. Tucson: University of Arizona Press, 2002.
- Nabhan, Gary, Paul (Editor). "Conservation You can Taste: Best Practices in Heritage Food Recovery and Successes in Restoring Agricultural Biodiversity over the Last Quarter Century." Kellogg Program of the Southwest Center of the University of Arizona, 2013. <https://www.slowfoodusa.org/files/files/conservation-you-can-taste.pdf>.
- Nazarea, Virginia D. *Cultural Memory and Biodiversity*. Arizona: The University of Arizona Press, 1998.
- . *Heirloom Seeds and Their Keepers: Marginality and Memory in the Conservatio by Virginia D. Nazarea*. University of Arizona Press, 2005.
- . "Local Knowledge and Memory in Biodiversity Conservation." *Annual Review of Anthropology* 35 (2006): 317–35.
- Nazarea, Virginia D., and Robert E. Rhoades, eds. "Conservation Beyond Design." In *Seeds of Resistance, Seeds of Hope: Place and Agency in the Conservation of Biodiversity*. Tuscon: The University of Arizona Press, 2013.

- Nazarea, Virginia D., Robert E. Rhoades, and Jenna Andrews-Swann, eds. *Seeds of Resistance, Seeds of Hope: Place and Agency in the Conservation of Biodiversity*. Tuscon: The University of Arizona Press, 2013.
- Nelson, Melissa K. "Protecting the Sanctity of Native Foods." In *State of the World 2013*, edited by Worldwatch Institute, 201–9. Washington, DC: Island Press/Center for Resource Economics, 2013. [https://doi.org/10.5822/978-1-61091-458-1\\_18](https://doi.org/10.5822/978-1-61091-458-1_18).
- Nierenberg, Danielle (Editor). *Nourished Planet: Sustainability in the Global Food System*. Washington, DC: Island Press, 2018.
- Oatfield, Christina. "Governor Brown Signs Seed Exchange Democracy Act." *Sustainable Economies Law Center* (blog). Accessed May 8, 2019. <https://www.thesehc.org/governor-brown-signs-seed-exchange-democracy-act>.
- Olin Wright, Eric. *Envisioning Real Utopias*. New York: Verso, 2010.
- . "How to Be an Anticapitalist Today," 2015. <http://jacobinmag.com/2015/12/erik-olin-wright-real-utopias-anticapitalism-democracy/>.
- Olmstead, Alan L, and Paul W Rhode. "A History of California Agriculture." *Giannini Foundation Information Series*, 2017, 28.
- Olmstead, Gracy. "Opinion | Wendell Berry's Right Kind of Farming." *The New York Times*, October 1, 2018, sec. Opinion. <https://www.nytimes.com/2018/10/01/opinion/wendell-berry-agriculture-farm-bill.html>.
- Patel, Raj. "Food Sovereignty." *The Journal of Peasant Studies* 36, no. 3 (July 2009): 663–706. <https://doi.org/10.1080/03066150903143079>.
- . *Stuffed and Starved: The Hidden Battle for the World Food System - Revised and Updated*. Revised, Expanded edition. Brooklyn, N.Y: Melville House, 2012.
- Peña, Devon, Luz Calvo, Pancho McFarland, and Gabriel Valle, eds. *Mexican Origin Foods, Foodways, and Social Movements*. Food and Foodways. Fayetteville: The University of Arkansas Press, 2017.
- Penniman, Leah. *Farming While Black: Soul Fire Farm's Practical Guide to Liberation on the Land*. Chelsea Green, 2018.
- . "Why Farming Is an Act of Defiance For People of Color." *Bon Appetit*. Accessed November 11, 2018. <https://www.bonappetit.com/story/leah-penniman-farming>.
- Perks, Robert, and Alistair Thomson, eds. *The Oral History Reader*. London and New York: Routledge, 1998.
- Phillips, Catherine. "Conserving and Growing Alternatives: Theorising Seed Saving and Exchange Networks." In *Building Sustainable Communities: Environmental Justice & Global Citizenship*. Rodopi, 2006.
- . "Cultivating Practices: Saving Seed as Green Citizenship?" *Environments Journal*, Perspectives on Ecological Citizenship, 33, no. 3 (2005).
- . "Saving More than Seeds: Natures, Technology, and Politics with/in Seed Saving." *Library and Archives Canada = Bibliothèque et Archives Canada*, 2011.

- . *Saving More Than Seeds: Practices and Politics of Seed Saving*. Burlington, VT: Ashgate Publishing Limited, 2013.
- Pibel, Doug. “Why You Should Be Saving Seeds (Even If You Don’t Have a Garden).” Accessed December 7, 2018. <https://www.yesmagazine.org/issues/science/why-you-should-be-saving-seeds-even-if-you-dont-have-a-garden-20170425>.
- Plumwood, Val. *Environmental Culture: The Ecological Crisis of Reason*. London and New York: Routledge, 2005.
- . *Feminism and the Mastery of Nature*. London; New York: Routledge, 1993.
- Pollan, Michael. *Second Nature: A Gardener’s Education*. Open Road + Grove/Atlantic, 2007.
- . “The Seed Conspiracy.” *The New York Times*, March 20, 1994, sec. Magazine. <https://www.nytimes.com/1994/03/20/magazine/the-seed-conspiracy.html>.
- Pottinger, Laura. “Growing, Guarding and Generous Exchange in an Analogue Sharing Economy.” *Geoforum* 96 (November 2018): 108–18. <https://doi.org/10.1016/j.geoforum.2018.07.007>.
- Poyourow, Joanna. *Urban Seed Saving: Best Practices for City and Suburbs*. Abundant Harvests, 2018.
- “‘Property’s a Burden... Through Sharing, I Have More Control over My Life and Business.’ This Remarkable Statement, Whic,” n.d.
- Ramsey, Ursula. “Seed Libraries and Food Justice: Cultivating an Effective Legal and Policy Environment,” no. 2 (2018): 28.
- Ray, Janisse. *The Seed Underground: A Growing Revolution to Save Food*. First Edition edition. White River Junction, Vt: Chelsea Green Publishing, 2012.
- Reuters. “Monsanto Ordered to Pay \$289 Million in Roundup Cancer Trial.” *The New York Times*, August 11, 2018, sec. Business. <https://www.nytimes.com/2018/08/10/business/monsanto-roundup-cancer-trial.html>.
- “Richmond Rivets A Transition Initiative.” Richmond Rivets. Accessed April 27, 2019. <http://www.richmondrivets.org/>.
- Rocheleau, Dianne. “A Situated View of Feminist Political Ecology From My Networks, Roots and Territories.” In *Practising Feminist Political Ecologies: Moving Beyond the “Green Economy.”* London: Zed Books, 2015.
- Roelvink, Gerda, and J. K. Gibson-Graham. “A Postcapitalist Politics of Dwelling: Ecological Humanities and Community Economies in Conversation –.” Accessed March 31, 2019. <http://australianhumanitiesreview.org/2009/05/01/a-postcapitalist-politics-of-dwelling-ecological-humanities-and-community-economies-in-conversation/>.
- Rokicka, Gosia. “On Seeds, Decolonization and the Feminine Side of Things - a Conversation with Rowen White.” *Medium* (blog), March 29, 2018. <https://medium.com/permaculturewomen/on-seeds-decolonization-and-the-feminine-side-of-things-a-conversation-with-rowen-white-4114aa19a8b8>.



- Rossett, Peter. "Global Rallying Cry of Farmer Movements." *Food First Institute for Food and Development Policy* 9, no. 4 (2003): 4.
- Ruiz-Mallén, Isabel, and Esteve Corbera. "Community-Based Conservation and Traditional Ecological Knowledge: Implications for Social-Ecological Resilience." *Ecology and Society* 18, no. 4 (2013). <https://doi.org/10.5751/ES-05867-180412>.
- Sassen, Saskia. "The Global City: Introducing a Concept." *The Global City*, no. 2 (2005): 18.
- Schapiro, Mark. *Seeds of Resistance: The Fight to Save Our Food Supply*. New York: Hot Books Press, 2018.
- Scott, James C. *Seeing like a State: How Certain Schemes to Improve the Human Condition Have Failed*. Yale Agrarian Studies. New Haven: Yale University Press, 1998.
- Secretariat of the Convention on Biological Diversity. *Cities and Biodiversity Outlook: Action and Policy : A Global Assessment of the Links between Urbanization, Biodiversity, and Ecosystem Services.*, 2014. <http://www.deslibris.ca/ID/241668>.
- Shareable, ed. *Sharing Cities: Activating the Urban Commons*, 2018.
- Shedd, Lindley, Mark Robison, Lindley Shedd, and Lindley Shedd. *Audio Recorders to Zucchini Seeds: Building a Library of Things*. Libraries Unlimited, 2017.
- Shiva, Vandana, ed. *Manifestos on the Future of Food and Seed*. Cambridge, MA: South End Press, 2007.
- . *Monocultures of the Mind: Perspectives on Biodiversity and Biotechnology*. London, UK ; Atlantic Highlands, N.J., USA : Penang, Malaysia: Zed Books, 1993.
- . *Tomorrow's Biodiversity*. Thames & Hudson, 2000.
- "Snapshot." Accessed April 25, 2019. <https://www.theguardian.com/society/2019/apr/24/library-of-things-borrowing-scheme-conquer-world>.
- Soleri, Daniela. "Civic Seeds: New Institutions for Seed Systems and Communities—a 2016 Survey of California Seed Libraries." *Agriculture and Human Values* 35, no. 2 (June 2018): 331–47. <https://doi.org/10.1007/s10460-017-9826-4>.
- Soma, Tammara, and Sarah Wakefield. "The Emerging Role of a Food System Planner: Integrating Food Considerations into Planning." *Journal of Agriculture, Food Systems, and Community Development*, October 13, 2011, 53–64. <https://doi.org/10.5304/jafscd.2011.021.006>.
- Sousa Santos, Boaventura de. *Epistemologies of the South: Justice Against Epistemicide*. Routledge, 2015.
- Stein, Karyn, Miranda Miroso, and Lynette Carter. "It's Not Just About the Destination, But Also the Journey: Reflections on Research with Indigenous Women Food Growers." *Journal of Agriculture, Food Systems, and Community Development*, May 30, 2017, 1–18. <https://doi.org/10.5304/jafscd.2017.073.003>.
- . "Māori Women Leading Local Sustainable Food Systems." *AlterNative* 14, no. 2 (2018): 147–55.
- Stock, Paul V., Michael Carolan, and Christopher Rosin. *Food Utopias: Reimagining Citizenship, Ethics and Community*. Routledge, 2015.

- Sustainable Economies Law Center. "Protecting the Seed Commons Sustainable Economies Law Center." Sustainable Economies Law Center. Accessed December 7, 2018. [https://www.theselec.org/save\\_seed\\_sharing](https://www.theselec.org/save_seed_sharing).
- . "Setting the Record Straight on the Legality of Seed Libraries." Shareable. Accessed December 7, 2018. <https://www.shareable.net/blog/setting-the-record-straight-on-the-legality-of-seed-libraries>.
- Swanson, Sonja. "Nonghwal: Korean Farm Volunteering with Political Roots." Civil Eats, September 14, 2017. <https://civileats.com/2017/09/14/nonghwal-korean-farm-volunteering-with-political-roots/>.
- Taylor, John R., and Sarah Taylor Lovell. "Urban Home Food Gardens in the Global North: Research Traditions and Future Directions." *Agriculture and Human Values* 31, no. 2 (June 2014): 285–305. <https://doi.org/10.1007/s10460-013-9475-1>.
- Thaper, Neil. "Seed Commons." *Stir to Action*, 2015. <https://www.stirtoaction.com/article/seed-commons>.
- "The Library of Things: 8 Spaces Changing How We Think About Stuff - Shareable." Accessed April 25, 2019. <http://shareable.webpublisherpro.com/the-library-of-things-8-spaces-changing-how-we-think-about-stuff/>.
- "The Pesticide National Synthesis Project." U.S. Geological Survey. Accessed May 9, 2019. <https://water.usgs.gov/nawqa/pnsp/usage/maps/>.
- The Seed Ambassadors Project. "A Guide to Seed Saving, Seed Stewardship & Seed Sovereignty," 2010. <https://www.seedambassadors.org/docs/seedzine4handout.pdf>.
- "The Seed Queen of Palestine." *Al Jazeera*, 2018. <https://www.aljazeera.com/programmes/witness/2018/12/seed-queen-palestine-181209110212131.html>.
- "The Sobering Details Behind the Latest Seed Monopoly Chart." Civil Eats, January 11, 2019. <https://civileats.com/2019/01/11/the-sobering-details-behind-the-latest-seed-monopoly-chart/>.
- Trauger, Amy, (editor). *Food Sovereignty in International Context: Discourse, Politics, and Practice of Place*. Routledge Studies in Food, Society and Environment. London and New York: Routledge, 2015.
- Tronto, Joan. *Caring Democracy: Markets, Equality, and Justice*. New York: NYU Press, 2013.
- Tuck, Eve, and K Wayne Yang. "Decolonization Is Not a Metaphor." *Decolonization: Indigeneity, Education & Society* 1, no. 1 (2012): 40.
- Turner, Nancy. *Ancient Pathways, Ancestral Knowledge: Ethnobotany and Ecological Wisdom of Indigenous Peoples of Northwestern North America*. Vol. 2 (The place and meaning of plants in indigenous cultures and worldviews). 2 vols. Québec: McGill-Queen's University Press, 2014.
- . *Ancient Pathways, Ancestral Knowledge: Ethnobotany and Ecological Wisdom of Indigenous Peoples of Northwestern North America*. Vol. 1 (The history and practice of indigenous plant knowledge). 2 vols. Québec: McGill-Queen's University Press, 2014.



- Turner, Nancy, and Pamela R. Spalding. “‘We Might Go Back to This’; Drawing on the Past to Meet the Future in Northwestern North American Indigenous Communities.” *Ecology and Society* 18, no. 4 (2013). <https://doi.org/10.5751/ES-05981-180429>.
- U.S. Food Sovereignty Alliance. “A Preliminary Report on Seeds & Seed Practices across the United States,” April 2014. <http://usfoodsovereigntyalliance.org/wp-content/uploads/2014/04/USFSASeedReportApril2014FINAL2small.pdf>.
- Van Gelder, Sarah. “Seed Saving as an Act of Resilience.” *Civil Eats*, July 3, 2017. <https://civileats.com/2017/07/03/seed-saving-as-an-act-of-resilience/>.
- Vernooy, Ronnie, Pitambar Shrestha, and Bhuwon Sthapit. *Community Seed Banks: Origins, Evolution and Prospects*. Routledge, 2015.
- Vivero-Pol, Jose Luis, Tomaso Ferrando, Olivier de Schutter, and Ugo Mattei, eds. *Routledge Handbook of Food as a Commons*. London and New York: Routledge, 2019.
- Volkening, Tom. “Seeds with Stories: Seed Savers Exchange Revisited.” *Journal of Agricultural & Food Information* 19, no. 2 (April 3, 2018): 106–15. <https://doi.org/10.1080/10496505.2018.1441578>.
- Wahl, Daniel Christian. “Bioregionalism — Living with a Sense of Place at the Appropriate Scale for Self-Reliance.” *Medium* (blog), August 15, 2017. <https://medium.com/age-of-awareness/bioregionalism-living-with-a-sense-of-place-at-the-appropriate-scale-for-self-reliance-a8c9027ab85d>.
- Walker, Richard, and Alex Schafran. “The Strange Case of the Bay Area.” *Environment and Planning A: Economy and Space* 47, no. 1 (January 2015): 10–29. <https://doi.org/10.1068/a46277>.
- Wallaert, Josh. “Public Library: An American Commons.” *Places Journal*, April 11, 2011. <https://doi.org/10.22269/110411>.
- . “State of the Commons.” *Places Journal*, November 8, 2012. <https://doi.org/10.22269/121108>.
- Warren, Karen. *Ecological Feminist Philosophies: An Overview of the Issues*. Bloomington & Indianapolis: Indiana University Press, 1996.
- Warren, Karen J. “Ecological Feminist Philosophies: An Overview of the Issues.” In *Ecological Feminist Philosophies*, 10. A Hypatia Book. Bloomington & Indianapolis: Indiana University Press, 1996.
- Weis, Lois, and Michelle Fine. *Working Method: Research and Social Justice*. New York and London: Routledge, 2004.
- Wekerle, Gerda R. “Food Justice Movements: Policy, Planning, and Networks.” *Journal of Planning Education and Research* 23, no. 4 (June 2004): 378–86. <https://doi.org/10.1177/0739456X04264886>.
- West-Barker, Patricia. “Remaining Seeded: Native Seeds/SEARCH Preserves Indigenous Food Strains.” *Santa Fe New Mexican*. Accessed November 25, 2018. [http://www.santafenewmexican.com/pasatiempo/restaurants/remaining-seeded-native-seeds-search-preserves-indigenous-food-strains/article\\_678d4f7d-1c3e-5bf3-972b-98220141958d.html](http://www.santafenewmexican.com/pasatiempo/restaurants/remaining-seeded-native-seeds-search-preserves-indigenous-food-strains/article_678d4f7d-1c3e-5bf3-972b-98220141958d.html).

- . “Your Squash Are Overdue: New Mexico’s Seed Library Collections.” *Santa Fe New Mexican*. Accessed November 25, 2018. [http://www.santafenewmexican.com/pasatiempo/restaurants/your-squash-are-overdue-new-mexico-s-seed-library-collections/article\\_c2d995ea-7f71-56e0-896d-3bb290576806.html](http://www.santafenewmexican.com/pasatiempo/restaurants/your-squash-are-overdue-new-mexico-s-seed-library-collections/article_c2d995ea-7f71-56e0-896d-3bb290576806.html).
- White, Rowen. “Fertile Resistance and Reconciliation;” *Sierra Seeds* (blog), April 13, 2018. <http://sierraseeds.org/fertile-resistance-and-reconciliation/>.
- . On seeds, decolonization and the feminine side of things - a conversation with Rowen White. Web, 2018. <https://medium.com/permaculturewomen/on-seeds-decolonization-and-the-feminine-side-of-things-a-conversation-with-rowen-white-4114aa19a8b8>.
- . “One Happy Homecoming.” *Seed Savers Exchange Blog* (blog), December 20, 2018. <http://blog.seedsavers.org/blog/seed-rematriation>.
- Wichterich, Christa. “Contesting Green Growth, Connecting Care, Commons, and Enough.” In *Practising Feminist Political Ecologies: Moving Beyond the “Green Economy.”* London: Zed Books, 2015.
- Wone, Kristine. “It’s Now Legal to Share Seeds in California.” *Civil Eats*, October 6, 2016. <https://civileats.com/2016/10/06/its-now-legal-to-share-seeds-in-california/>.
- Worth, Sydney. “This Library Takes an Indigenous Approach to Categorizing Books.” Accessed April 17, 2019. <https://www.yesmagazine.org/peace-justice/decolonize-western-bias-indigenous-library-books-20190322>.
- Wulfhorst, J. D., and Anne K. Haugstad. “Conserving and Growing Alternatives: Theorising Seed Saving and Exchange Networks.” In *Building Sustainable Communities: Environmental Justice & Global Citizenship*. Rodopi, 2006.
- Zystro, Jared, and Micaela Colley. *The Seed Garden: The Art and Practice of Seed Saving*. Edited by Lee Butta and Shanyin Siegel. Decorah, IA: Seed Savers Exchange, 2015.