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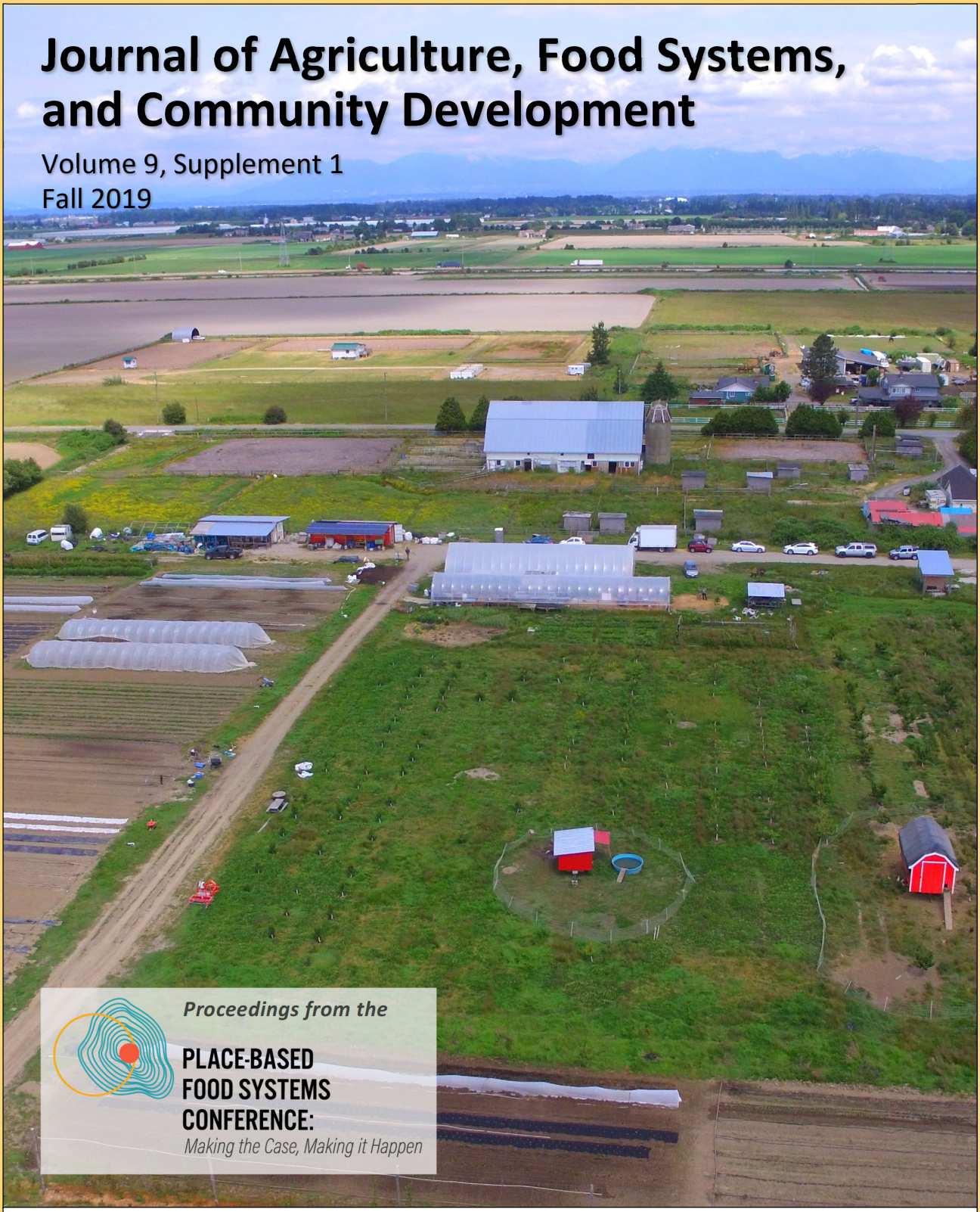

Proceedings from the

PLACE-BASED FOOD SYSTEMS CONFERENCE:

Making the Case, Making it Happen

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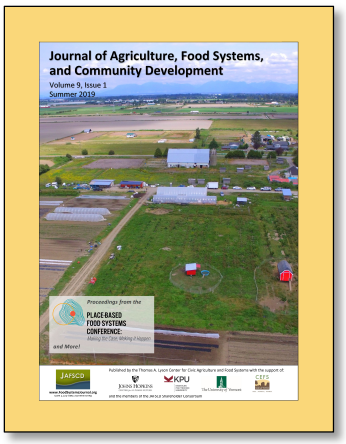

On our cover: The Tsawwassen First Nation Farm School in Metro Vancouver, British Columbia, Canada—shown here at the onset of the growing season—is a 20-acre (8-hectare) certified organic teaching farm on Tsawwassen First Nation ancestral lands. The 9-month training program focuses on small-scale ecological crop and animal production, as well as alternate marketing channels. The program emphasizes experiential learning and includes access to incubator farm plots for novice farmers. The farm school is a collaboration between the Tsawwassen First Nation and the Institute for Sustainable Food Systems at Kwantlen Polytechnic University. The diverse agricultural landscapes surrounding Vancouver's dense urban center are some of Canada's highest quality agricultural land, and they lend a strong urban-agrarian character to the region—as well as the potential for regionalized, place-based food systems. For details, see https://www.kpu.ca/tfnfarm. *Photo copyright © 2019 by Gerardo Garcia Zendejas.*

PLACE-BASED FOOD SYSTEMS CONFERENCE: *Making the Case, Making it Happen*

Proceedings from the Place-Based Food Systems Conference
Sponsored by the Institute for Sustainable Food Systems at Kwantlen Polytechnic University
August 9–10, 2018

The Thomas A. Lyson Center for Civic Agriculture and Food Systems, a project of the Center for Transformative Action (an affiliate of Cornell University), is grateful for the support of **JAFSCD's partners:**

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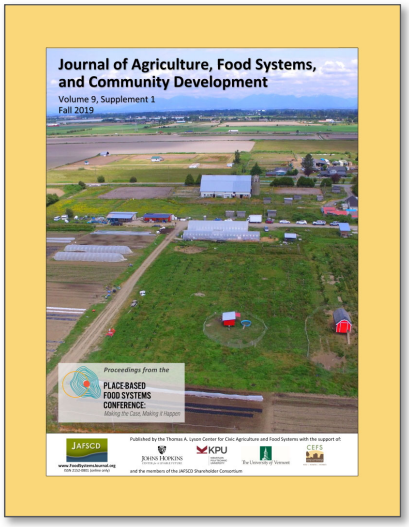
PREFACE TO THE PROCEEDINGS OF THE PLACE-BASED FOOD SYSTEMS CONFERENCE

Place-based food systems: Making the case, making it happen

Kent Mullinix,[a] Naomi Robert,[b] and Rebecca Harbut [c]
Kwantlen Polytechnic University



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In less than a century, our food system has been transformed into a complex network of global-industrial supply chains, increasingly disconnecting us from the people and processes that provide our food. Such a 'market-driven' system externalizes many of its social, environmental, and economic costs. At the same time, it concentrates power and profits among a few stakeholders who maintain hegemonic control of the food systems, yet are often far removed from its negative impacts. The list of transgressions is long and familiar to us: extensive environmental degradation, unjust labor conditions for food workers, the collapse

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[b] Naomi Robert, MLWS, P.Ag., Research Associate, Institute for Sustainable Food Systems at Kwantlen Polytechnic University; naomi.robert@kpu.ca. Naomi's work at the Institute for Sustainable Food Systems focuses on the integration of food policy and planning across jurisdictions. She is particularly interested in the ecological and human impacts of land use decisions and how food systems planning can facilitate resilient communities and ecosystems. Naomi has a Master of Land and Water Systems from the University of British Columbia and B.Sc. from McGill University. She is a Professional Agrologist with the British Columbia Institute of Agrologists.

[c] Rebecca Harbut, Ph.D., Lead Faculty, Sustainable Agriculture and Food Systems, Kwantlen Polytechnic University; rebecca.harbut@kpu.ca. Rebecca received a B.S. and M.S. from the University of Guelph and a Ph.D. in Horticulture from Cornell University, where she conducted research on fruit crops.

of farming communities, epidemic occurrence of western diet–related disease, biodiversity loss, and on it goes. It is a system that produces more food than at any period in history—more than enough to feed the global population (Holt-Giménez, Shattuck, Altieri, Herren, & Gliessman, 2012, Food and Agriculture Organization of the United Nations [FAO], 2017)—yet leaves more than one in 10 people experiencing hunger (Food and Agriculture Organization of the United Nations [FAO], International Fund for Agriculture Development [IFAD], UNICEF, World Food Programme [WFP], & World Health Organization [WHO], 2019).

But, contrary to former UK Prime Minister Margaret Thatcher's neoliberal rebuke,[1] there is an alternative.

We can glean from humanity's 11,000-year agricultural history, including the hard lessons learned over the last 60 years of food system globalization and industrialization, to envision and create a better food system for the future. Indeed, many community leaders, food system businesses, and academics are striving to do just that. The food system future they are working toward responds to the needs of their communities. It does this by not only providing access to sufficient, safe, and culturally appropriate food, but also by upholding the community's economic, social, and ecological well-being. These are place-based food systems.

Navigating toward a better food system future will require a dramatic change in thinking and concerted action from both academics and communities. As such, we wanted to provide a platform to share the latest research that makes the case for place-based food systems, as well as innovative practices putting place-based food systems into action. The foundation for the conference *Place-Based Food Systems: Making the Case, Making It Happen* came from this aspiration.

The programmatic focus at Kwantlen Polytechnic University's Institute for Sustainable Food Systems and the Sustainable Agriculture Program is an exception to the norm. Our applied research, extension, and education programming concentrates exclusively on advancing food systems that are attuned to and nurturing of the environmental and cultural community character of our life-places. Conversely, the rank and file at mainstream colleges and faculties of agriculture are vested largely in maintaining the status quo of the global-industrial food system. Yet within these bastions are those who champion the concept of the place-based food system, and who are prepared to work with community place-based food system leaders and builders. Many such people participated in this conference. It was a tonic and inspiration to connect with so many like-minded academic and community leaders. We feel these exchanges are required to advance place-based food systems as a well-regarded academic focus and a central dimension of community development. Thus we sincerely hope this conference is not a one-off event, and that the momentum connecting academic researchers and civil actors results in a regular exchange of ideas and work.

Our hope for the conference was that participants would gain an empowering vision of the critical role that place-based food systems can and will play in achieving our sustainable economic, ecological, and societal futures. We also hoped it would foster more collaboration between community activists and academics. Although the conference was North American–focused, it attracted participation from activists and academics from around the world, including China, India, the UK, Portugal, and Ireland.

The conference was opened with a welcome and blessing from Kwantlen First Nation Elder and KPU Elder in Residence *Leyketan*. Kwantlen Polytechnic University, as well the communities and farms of southwest British Columbia, are located on the traditional, ancestral, and unceded territory of the Coast Salish Nations and Peoples. The subject of Indigenous foodways and sovereignty was incorporated throughout the conference program.

Over 50 oral and panel presentations were given. These were selected to address the following questions:

- How can place-based food systems contribute to sustainable human economies?
- How can place-based food systems foster environmental stewardship and ecological integrity?

[1] See https://en.wikipedia.org/wiki/There_is_no_alternative

- What policy and governance structures are critical to advancing place-based food systems?
- How can we increase the capacity of place-based food systems?

Additionally, 14 community-focused projects were showcased via poster presentations.

Eight invited plenary session speakers reflected these themes with presentations distributed throughout the conference. In the spirit of the conference, we sought to pair civic leaders with those from academic institutions to highlight how complementary research, extension, and community action can incite transformative food system collaborations.

We had the goal of creating an exchange that lived the place-based values it was aiming to advance. From minimizing waste, to the careful sourcing of venue and materials, to reducing barriers to participation by providing small grants—our hope was to have an event that was as sustainable and inclusive as possible. Some of these undertakings were easy, like foregoing conference swag. Others were more involved, like adopting a 100% local procurement policy for catering (with the important exceptions of coffee and tea). These efforts were not perfect, and we learned a great deal in the process. Much like the conference itself, we hope that the effort here is another step toward sustainability, inclusion, and the creation of communities that are better connected to place. We believe that efforts big and small all add up.

We are grateful to all who presented and participated for making this such an enriching exchange. We are also grateful to the conference planning committee members: Marcy Ostrom, Washington State University; Mary Beckie, University of Alberta; Alison Blay-Palmer, Wilfred Laurier University; Sarah Elton, University of Toronto; Greg Cameron, Dalhousie University; and Amy Christian and Duncan Hilchey, Lyson Center for Civic Agriculture and Food Systems (publisher of the *Journal of Agriculture, Food Systems, and Community Development).*

We are exceedingly proud and pleased to have partnered with the *Journal of Agriculture, Food Systems, and Community Development* to publish these conference proceedings. All conference presenters were invited to submit a paper for the proceeding. Herein you will find 30 submissions covering the breadth of conference themes, including eight manuscripts from plenary speakers, nine peer-reviewed papers, 12 'snapshot' papers, and one viewpoint paper. Our hope in producing these proceedings is, of course, to further the utility of the conference and support collaborative research, extension, and community action toward place-based food systems that nurture people, community, and Mother Earth.

Ultimately our challenge is to reconnect people to each other, to the earth, to deeply meaningful purpose, and to place. Toward this, our food systems offer a perfect path forward.

Kent Mullinix, Naomi Robert, and Rebecca Harbut

Kwantlen Polytechnic University
Unceded Coast Salish Territories
British Columbia, Canada
August 27, 2019

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PLACE-BASED FOOD SYSTEMS KEYNOTE ADDRESS

Why place-based food systems? Food security in a chaotic world

William E. Rees *
University of British Columbia

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Abstract

Techno-industrial society is founded on a 'socially constructed' myth of perpetual economic growth propelled by the cult of efficiency, expanding trade, and continuous technological progress. But this neoliberal vision has resulted in an increasingly unsustainable entanglement of nations in a world compromised by ecological overshoot. Today, many countries are dependent on others for critical resources, including food, even as population growth and increased consumption deplete and pollute the ecosystems essential for human survival. Climate change and energy uncertainty further threaten trade-dependent populations. Indeed, societal collapse is a growing possibility. The future food security of cities—or any size of human settlement—lies in greater regional self-

Note: This paper is adapted from a keynote address given at the Place-Based Food Systems Conference, hosted by the Institute for Sustainable Food Systems at Kwantlen Polytechnic University in August 2018. The conference brought together community and academic leaders to share research and practice, and to foster effective collaboration. More information is at https://www.kpu.ca/pbfs2018

* William E. Rees, PhD, FRSC, is a human ecologist, ecological economist, former director and now professor emeritus of the University of British Columbia's School of Community and Regional Planning. His research focuses on the ecological requirements for sustainable development and on the behavioral and socio-cultural barriers to change. Best known as the originator and co-developer of ecological footprint analysis, Prof. Rees has authored over 160 peer-reviewed papers and numerous popular articles on sustainability (or the lack thereof). He is a founding member and former president of the Canadian Society for Ecological Economics; a founding director of the One Earth Initiative; and a fellow at the Post-Carbon Institute. His research has received frequent awards, including the Boulding Prize in Ecological Economics and a Blue Planet Prize (jointly with his former PhD student, Dr. Mathis Wackernagel). Dr. Rees can be reached at wrees@mail.ubc.ca.

reliance, particularly through the protection of arable land and the re-localization of both primary agriculture and food processing.

Global Context—Beyond Carrying Capacity

> A small village on good land beside a river is a good idea, but when the village grows into a city and paves over the good land, it becomes a bad idea. (Wright, 2004, p. 108)

This paper makes the case that food security is a core element of sustainability and that both depend on how climate change and the composition of energy supplies evolve in coming decades. Based on current trends, the most food-secure populations by the second half of the 21st century will be those populations that have deliberately chosen and planned to re-localize as much of their own food systems as possible.

This prescription is at odds with the efficiency-based 'globalize, specialize, and trade' component of the neoliberal (neoclassical) economic ideology that currently dominates human material affairs. We should not be surprised, for both textbook neoliberalism and Ricardian trade theory date back to the 19th century, when the world was relatively pristine and, at least in human terms, ecologically empty.

That time has passed.

And the reason is simple. Consider the blinding pace of change since the Industrial Revolution. It took 200,000 years for the human population to reach its first billion in the early 1800s. Since then, energized by abundant fossil fuels, the human family has exploded by seven-and-a-half-fold. It hit 7.6 billion in just the next 200 years (by 2018)—*1/1000th of the time required to reach the first billion!* Meanwhile, real gross world product increased 100-fold and per capita incomes (consumption) increased by a factor of 13 (25 in rich countries) (Roser, 2018).

Most people today take this recent period of growth to be the norm. The reality is that it is the single most *anomalous* period in history. Only the last 8-10 generations of thousands of human generations have been around to enjoy it—and the next generation will have to suffer the negative consequences. The human enterprise is well into overshoot.

The problem is that Earth didn't get any bigger. In fact, one could argue that, in ecological terms, it has shrunken and diminished. The symptoms are the stuff of daily headlines: accumulating greenhouse gases, global climate change, dissipating soils, expanding deserts, shrinking tropical forests, acidifying oceans, rising sea levels, toxifying fresh waters, expanding marine 'dead zones,' collapsing fisheries, plummeting biodiversity (humans are extinguishing other species at up to 1,000 times the natural rate), etc., etc. These trends—many of which are accelerating—tell a story of gross human ecological dysfunction. The load imposed on the ecosphere by industrial civilization exceeds the long-term human carrying capacity of Earth.

The Human Eco-footprint

We can measure just how far we have overshot carrying capacity by using ecological footprint analysis (EFA). EFA estimates the physical area of land and water ecosystems (biocapacity) that any specified population requires, on a continuous basis, to support its bio-resource consumption and waste production at a defined material standard of living (Rees, 2013a; Wackernagel & Rees, 1996). This area, composed of cropland, grazing land, forested land, carbon-sink land, productive marine area (fishing grounds), and built-up or urbanized land, constitutes the population's ecological footprint.

EFA is unique among sustainability indicators in that it enables us to compare a population's demand for biocapacity with available supplies. It turns out that most countries today have eco-footprints that significantly exceed domestic supplies of biocapacity—that is, their populations depend, in part, on biocapacity imported from other countries or from the global commons (e.g., the oceans) (see Global Footprint Network [GFN], 2018, for examples). Such countries are running an ecological deficit with the rest of the world. This is the essence of overshoot.

The bigger problem is that the world as a whole (the 'human enterprise') is in eco-deficit. There are about 29 billion acres or 12 billion hec-

tares of ecologically productive land and marine habitat on Earth (most ocean area is biological desert), but by 2014 the aggregate human ecofootprint had already reached 19 billion global average hectares (gha). (That's 1.7 gha of available biocapacity per capita, compared to an average human EF of 2.6 gha/capita.) This means that humans are using Earth as if it were almost 60% larger than it is (data from World Wildlife Fund [WWF], 2014, 2016). Freed from natural negative feedback, *H. sapiens'* relationship to the rest of the ecosphere closely resembles that of parasite to host—we are literally growing ourselves by consuming the ecosphere from within.[1]

One symptom of overshoot with which everyone is familiar is human-caused climate change. Carbon dioxide (CO_2), derived from burning fossil fuels,[2] wildfires, deforestation, and soil disturbance, is the greatest waste product of industrial societies by weight. It is also a major greenhouse gas (GHG) and a contributing factor to global warming. The atmospheric concentration of CO_2 averaged a record 410.8 parts per million (ppm) in June 2018, and the running average is about 408 ppm, almost 46% above the preindustrial level of 280 ppm. The rate of increase in atmospheric CO_2 concentrations is itself increasing, seemingly unaffected by the unenthusiastic policy responses to the series of global climate conferences and international agreements dating from the mid-1970s.

Temperatures are therefore also rising. The past four years are the four warmest years in the instrumental record: 2016 was the warmest, 2017 was second, followed by 2015 and 2014! In fact, 17 of the 18 warmest years on record have occurred in this young century (data from National Aeronautics and Space Administration [NASA], 2017, 2018; National Oceanic and Atmospheric Administration [NOAA], n.d.). (It should be noted in passing that the global food system accounts for as much as one-third of GHG emissions and associated warming.)

We will return to the implications of accelerating carbon emissions and climate change below. For now, take them as indicative of human interference in important global life support systems and our general overuse of the ecosphere.

We can summarize our predicament as follows:

- The sheer scale of the human enterprise already exceeds the long-term carrying capacity of Earth; material production, consumption, and waste generation exceed the regenerative and assimilative capacities of the ecosphere.
- We are "financing" the growth of the human enterprise by liquidating essential natural capital upon which civilization depends for long-term survival.[3]

Globalization, Free Trade, and the Global Growth Fetish

Overshoot is, in part, a result of modern society's economic growth fetish. Recent decades of globalization and ever-freer trade has placed global growth on steroids. The dream of globalizers today is the dissolution of national boundaries and the horizontal integration of national economies into one highly efficient world economy.

According to Ricardian trade theory, if each country specializes in products for which it has a 'comparative advantage' (i.e., that it can produce most efficiently and at lower opportunity cost than its competitors), and then trades for everything else, the world can maximize global production. Because goods are being produced efficiently everywhere for the largest possible market, prices will be lower and demand higher. Both gross production and producers' incomes will increase. Higher incomes and lower prices enable people everywhere to maximize their consumption of goods from all over the world.

[1] A parasite gains its own vitality at the expense of the vitality of its host.

[2] Carbon-sink ecosystems account for over half the ecological footprint of many industrial countries.

[3] Our ecological predicament has actually come about naturally. Like all other species, *H. sapiens* has an innate tendency to multiply and expand into new territory. Normally, however, negative 'feedback' (disease, resource, or habitat shortages, territoriality—often war in the case of humans—keeps things in check. The human difference is our technological prowess; we have eliminated (albeit temporarily) many important negative controls, and, with the aid of abundant cheap energy, have plundered the entire planet for the habitat, food, and other resources needed to expand the human enterprise.

There are, however, major ecological downsides. Most importantly, global integration exposes the world's remaining pockets of resources and natural habitats to the largest possible market, one with an ever-increasing number of rich consumers willing to pay top dollar for whatever they fancy, legal or not. Humans are plundering the ecosphere at an accelerating pace; nothing is sacred or spared: consider just the destruction of the Sumatran orangutan habitat for commercial palm plantations and the tragic illegal poaching of remaining herds of African elephants—even in game reserves—for their ivory. Bottom line: liberalized borderless trade may facilitate GDP growth (i.e., production and consumption) at least dollar cost. However, it is also a prescription to maximize the overexploitation of resources, the degradation of ecosystems, and the emission of pollutants everywhere. The unaccounted social and ecological costs of growth (non-market 'externalities') may already exceed the economic value of growth at the margin—in which case we have entered an era in which growth is making us poorer rather than richer (Daly, 1999). Sometimes editorial cartoonists seem to grasp this reality more securely that politicians (see Figure 1).

Implicit in globalization and the cult of efficiency are a number of mostly unstated assumptions:

- Human happiness or well-being always increases with higher income and consumption;
- Any resource scarcity can be relieved by enhanced 'factor productivity' (efficiency) or factor substitution; and
- There are no ecological or geopolitical limits to growth (i.e., there is no threat from climate change, ecosystems collapses, or competition for resources).

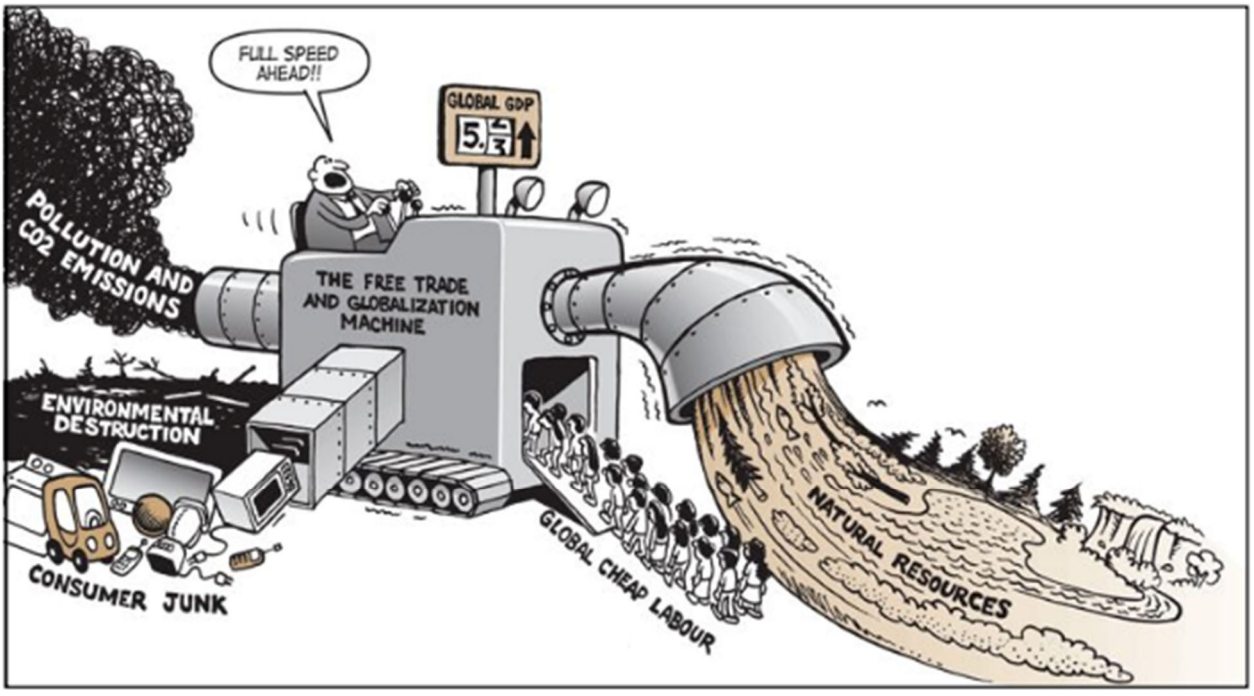
All of which implies that:

- The world is infinite;
- Geopolitical stability is assured; and
- There is no serious downside to interregional dependence.

All these assumptions are proving to be false.

Another problem derives from elevating economic efficiency above all other considerations.

Figure 1. Full Speed Ahead



Source: Unknown.

While it might initially seem odd to balk at economic efficiency, a moment's thought gives us pause. What would your life be like if the only consideration were to maximize the efficiency of everything you did? (Why prepare a gourmet meal if tossing everything in a blender and compressing the product into edible pucks would save so much time and energy?) What might we be losing by organizing the global economy around a singular objective? Among the many other values that are sacrificed or impaired are:

- Local economic diversity and resilience in the face of market or ecological fluctuations;
- A multiskilled population with the diverse capacities to respond to new challenges;
- Community integrity and cohesion (because of the loss of traditional economic sectors);
- Local (and national) self-reliance in key economic sectors, especially food systems;
- The conservation of arable land ("We can always import food from somewhere else!").

On all these grounds, neoliberal globalization on a finite planet is arguably producing an increasingly unstable and inherently unsustainable entanglement of interdependent nations and regions (Rees, 2013b).

Consider the most essential of resources: food. Trade enables countries to vastly exceed domestic biocapacity and the ability of local agriculture to sustain their growing populations. Various United Nations (UN) and Food and Agriculture Organization of the UN studies show that globally, a significant proportion of the human population already relies on imported food: at least 34 countries are unable to produce much or most of their own food, 50 countries have some degree of food insecurity, and about 108 million people are severely food insecure. With population growth, water shortages, and land degradation, the situation is worsening—by 2050 more than half the world's population is expected to be reliant on food produced in other countries, a situation that cannot be sustained unless climate, geopolitics, and other factors remain 'normal.'[4]

The Southwest British Columbia bioregion is only about 40% food self-reliant (Mullinix et al., 2016). If imported animal feed had not been available, its total dietary self-reliance would be only 12% (Mullinix et al., 2016). The majority of the BC population currently depends on imports for most of its food. How secure should we feel in an era of accelerating global degradation and geopolitical instability?

The Particular Vulnerability of Cities

Globalization made today's mega-cities possible but may soon turn against them. The problem is that, in biophysical terms, cities are incomplete heterotrophic (literally 'other feeding') ecosystems. They are consumptive nodes that produce and maintain themselves by feeding on the productivity of rural ecosystems. (In this respect, cities are the human equivalents of livestock feedlots). To be considered whole or complete, the human urban ecosystem must include both the consuming node and the vastly larger rural productive area (Rees, 2012). Together, these areas compose the city's true ecological footprint EF, and many cities' EFs are several hundred times larger than their political or geographic areas.

Consider the city of Vancouver proper (not the metro region): Vancouver's population of approximately 632,000 geographically occupy about 11,500 ha (28, 400 acres), but the city's actual EF is close to 3,150,000 gha (about 8 million acres) (~5 gha/capita). If we assume Vancouverites enjoy a typical high meat-protein diet, then it takes almost 315,000 hectares (about 778,000 acres) (~.5 ha/capita) of crop- and grazing land elsewhere just to feed the city (this is 27 times Vancouver's political area).[5]

[4] National eco-deficits must be made up by natural capital depletion or from surplus biocapacity elsewhere. For example, Kissinger and Rees (2009) found that over 60% of Canada's prairie cropland is already effectively 'exported' as food exports, often to eco-deficit countries.

[5] Note that this number would be even larger if converted to global average hectares (gha), because North American agricultural lands are on average more productive that world average land types.

Moore and Rees (2013) found that, all in all (i.e., including carbon assimilation land, etc.), the agri-food system composed half of the city's total EF.

It should be clear from this example that urban dependence on the rural is absolute. If any modern city were enclosed in an impermeable glass bell-jar—cut off from its supportive ecosystems—its population would simultaneously starve and suffocate. Disturbingly, because of globalization and trade, cities' sprawling EFs are increasingly scattered all over the world. By increasing the distance between the consumptive and productive components of typical 'urban ecosystems,' globalization increases the urban components' vulnerability to accelerating global change. Indeed, climate chaos, energy shortages, geopolitical discord, etc., all have the potential to destroy transportation links and isolate cities from their life-support hinterlands.

The Climate Change-Energy Conundrum

Interregional dependence, climate change, and energy choices are converging in ways that put cities in a particularly difficult position. As noted previously, climate-forcing CO_2 concentrations are at record levels. The exponential growth in consumption of fossil fuel means that more carbon has been released into the atmosphere since the late 1980s than in the entire previous history of civilization! Meanwhile, other GHGs are increasing as fast as or faster than CO_2. As a result, the world is on track for warming by 3 to 5 Celsius degrees (C°) (5.4 to 9 Fahrenheit degrees or F°).

A 5 C° (9 F°) warming would be catastrophic, perhaps fatal, to urban civilization. Even a three-degree (5.4 F°) warming implies widespread disaster—and Robert Watson, a former director of the United Nations Intergovernmental Panel on Climate Change, has asserted that a "3-degree warming is the realistic minimum" we can expect (cited in Rich, 2019, para. 3; see also Kirby, 2013). Change is so rapid and responses so slow that some scientists believe that climate chaos and societal collapse are now inevitable (Bendell, 2018; Institute for Leadership and Sustainability [IFLAS], 2018).

But what about international climate agreements? These have so far been ineffective.[6] For example, the national emissions-reductions targets agreed to in the 2015 Paris climate accord are only a third of what is necessary to achieve the ostensible goal of less than 1.5 C° (2.7 F°) warming. And even if the full Paris goals were met, there is a growing risk of Earth entering "Hothouse Earth" conditions, in which a 1.5 C° or 2.0 C° (2.7 F° or 3.6 F°) warming might be enough to trigger irreversible positive feedbacks (permafrost thaw, loss of methane hydrates from the ocean floor, weakening land and ocean carbon sinks, increasing bacterial respiration in the oceans, Amazon rainforest dieback, boreal forest dieback, reduction of northern hemisphere snow cover, loss of Arctic summer sea ice, reduction of Antarctic sea ice and polar ice sheets., etc.) that would accelerate warming. Be warned! "Hothouse Earth" implies a catastrophic long-term global average temperature at least 4 C° to 5 C° (7.2 F° to 9 F°) higher than pre-industrial temperatures, with sea levels 10 to 60 meters (33 to 197 feet) higher than today (Steffen et al., 2018).

Clearly urban civilization must decarbonize as rapidly as possible. Many people, aware of the falling costs and much-vaunted rapid uptake of wind and solar electricity generation in the past couple of decades, believe that the renewable energy transition is already well underway. This is incorrect. Global society remains addicted to fossil carbon. In 2017, global energy consumption rose by 2.2%, with fossil fuels contributing 70% of the increase and 85% of total world primary supply. (After remaining flat for three years, carbon dioxide emissions increased by almost 1.5%). Renewables (wind, solar, geothermal, biomass, and waste), starting from a much lower base, did see the highest rate of growth but altogether supplied only a quarter of the increase and only 3.6% of total

[6] "In 1979, the World Meteorological Organization . . . convened the first international climate conference in Geneva. At that time, annual carbon emissions of about 5 gigatonnes per year (GtC/yr) were increasing atmospheric CO_2 content by about 0.5 ppm per year. Now 30 [*sic*] years later, after 29 international climate meetings, and with over 800 international climate laws on the books, carbon emissions have grown to over 10 GtC/yr, and — since carbon sinks have become saturated — we are now increasing atmospheric CO_2 content by about 3.5 ppm per year, seven times faster" (Weyler, 2018, "We'll always have Paris," para. 4).

demand (see data in BP, 2018). (Other estimates put the contribution of renewables at less than 3%.) And just when it should be ramping up, investment in green energy seems to be stalling. It hasn't increased in the Americas since 2007, in Asia since 2015, and has actually been declining in Europe since 2011, where new investment is approaching zero in the UK and Germany. Meanwhile, coal consumption and emissions seem set to rise again dramatically in energy-hungry China (Hao, 2018).

There is another problem: most renewable energy, including wind and solar, is in the form of electricity, which still typically provides less than 20% of final energy consumption. Even if all electrical generation turned green, electricity is not yet a viable substitute for fossil fuel in the key areas accounting for 80% of urban society's energy consumption, including mining, various industrial processes, heavy construction, intercity transportation (air and highway), *and agriculture.* Our modern industrial trade-based food system floats on fossil fuels, soaking up 10 calories of commercial energy for every food calorie produced (for a simple breakdown, see Starrs, 2009).

An Existential Risk to Civilization

Urban civilization is squarely stuck between a carbon-emissions rock and an energy-deficit hard place. An insufficiently rapid transition to renewable energy implies that the world will remain reliant on fossil fuels; atmospheric carbon dioxide and other GHGs will increase for decades; and the ecosphere will experience 3 C° or more warming. That warming would result in widespread disaster: more and longer heat waves and droughts, accelerating desertification, melting permafrost, Arctic summers free of sea ice, rising sea levels, water shortages, disrupted agriculture, the eventual loss of many coastal cities, mass migrations, civil unrest, and geopolitical chaos.[7] Many cities will be isolated from food land and other essential resources[8]; urban life may become untenable in the more vulnerable parts of the world.

On the other hand, as of yet, there are no adequate substitutes for fossil fuels. If we have to abandon fossil fuels in the coming decades to avoid climate disaster, the world may face crucial energy shortages and shrinking economies. This implies falling agricultural production, reduced trade, broken international supply lines, failing intercity transportation, declining incomes, widespread unemployment (i.e., global depression), and international conflict. Urban populations are again particularly at risk. As matters stand, it is likely many countries will experience both more dramatic climate events and energy shortfalls.

Toward Place-based Food Systems

> Society is only three square meals away from anarchy. (Anonymous)

Either accelerating climate change or energy shortages could make it impossible to provision or maintain many existing cities, let alone accommodate the additional 2.5 billion urban dwellers expected by midcentury. Ample food produced locally for local consumption will enhance any city's chances for survival. Indeed, it is possible that for much of the world, place-based food will be the only food available by late this century.

To acknowledge and prepare for this possibility, governments everywhere should[9]:

1. Implement serious energy-conservation measures to reduce consumption, lower carbon emissions to safe levels, and conserve fossil fuels (we may still need them in 50 years);
2. Develop an implementation strategy to allocate or ration the remaining fossil fuel budget to essential uses only (e.g., food production, intercity road transport);

[7] Remember, even 2 C° warming could generate positive feedbacks that would push the system toward "Hothouse Earth" catastrophe and the collapse of global civilization (see Steffan et al., 2018).

[8] "Agriculture is in fact the real underlying problem produced by climate change. Even without climate change, it would be somewhere between hard and impossible to feed 11.2 billion people, which is the median UN forecast for 2100" (Grantham, 2018, p. 3).

[9] See Rees (2018) for an expanded rationale and prescription for planning in the Anthropocene.

3. Ramp up investment in renewable energy and infrastructure beyond the current total investment in energy;
4. Acknowledge publicly that to act consistently with our best science may well require a planned economic contraction;
5. Plan for the consequences of reduced GDP/capita, including developing strategies for income redistribution (climate justice); and
6. Implement carrot and stick policies (e.g., positive incentives taxes and consumption-related taxes) to encourage people to adopt 'One Earth' lifestyles (implies a 66% reduction in energy and material consumption by Vancouverites and 75% in most of North America).

Measures specifically directed at re-localizing food production should include:

1. Reshaping city form and governance into more self-reliant urban-centered bioregions (eco-city states) that incorporate as much as possible of their extended eco-footprints, particularly food- and fiber-producing ecosystems;
2. Conserving regional farmland; encouraging food co-ops; re-localizing food production and processing ("trade if necessary, but not necessarily trade");
3. Increasing local and regional food storage capacity to buffer populations against drought or other climate-induced local crop failures and the contraction of interregional trade; and
4. Densifying urban development to reduce demand for arable land and increase the efficiency of urban infrastructure (transportation, water, sewage, electrical, and recycling systems).

Societal collapse and the policy measures necessary to avoid or mitigate its consequences seem impossibly radical notions to people accustomed to continuous growth and rising expectations. Even many who acknowledge the severity of our predicament remain confident in rescue-by-technology. It seems that *H. sapiens'* natural expansionist tendencies combined with our global cultural myth of perpetual growth are sufficient to override rational responses to existing data and prevailing trends. Mainstream global society remains woefully unprepared for the story that our best analyses are telling us.

Hope resides in the beliefs and actions of grassroots movements by clear-eyed people committed to trying another path. The worldwide surge of interest in place-based food systems is surely one of the most important and potentially catalytic of such community-oriented initiatives. After all, there can be little doubt that food security is a prerequisite for humanity to learn to live more equitably within the means of nature.

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PLACE-BASED FOOD SYSTEMS KEYNOTE ADDRESS

A new cosmology * A new food system

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Abstract

Our European ancestors came as a poor people to a seemingly empty land in North America, and we built our institutions with that perception. Now we've become a rich people in an increasingly poor land, one that's filling up, and our institutions don't hold. We've patched them up, given them a lick and a promise, but they don't hold.

Dan Luten said almost those same words nearly four decades ago as the two of us crossed the Bay Bridge from San Francisco to Berkeley. I will go beyond citation of the source here to entertain a useful digression. Dan was a U.C. Berkeley professor. We were on the board of Friends of the Earth (FOE). The staff director of FOE was Rafe Pomerance, who, backed by the board, tried to spur some grassroots action which would lead to policy to reduce greenhouse gases. But it was clear FOE was failing in that and other environmental efforts, and thus the conversation with Dan.

* * *

Note

This paper is selected remarks from a keynote plenary entitled *The Food System Imperative: Shifting Ideologies to Meet the 21st Century Challenges* at the Place-Based Food Systems Conference, hosted by the Institute for Sustainable Food Systems at Kwantlen Polytechnic University on August 9, 2018. The conference brought together community and academic leaders to share research and practice and to foster effective collaboration. More information is at https://www.kpu.ca/pbfs2018

* Wes Jackson is co-founder and president emeritus of The Land Institute. After attending Kansas Wesleyan (B.A. Biology, 1958), he studied botany (M.A. University of Kansas, 1960) and genetics (Ph.D. North Carolina State University, 1967). He established the Environmental Studies department at California State University, Sacramento, where he became a tenured full professor. He resigned that position in 1976 and returned to Kansas to found The Land Institute. Dr. Jackson's writings include both papers and books. His most recent works, *Nature as Measure* (2011) and *Consulting the Genius of the Place: An Ecological Approach to a New Agriculture* (2010), were both published by Counterpoint Press. He can be reached at jackson@landinstitute.org.

Here we are nearly four decades later, still missing the deep causes of what's wrong. The rapacious use of carbon by humans, with so many of Nature's checks reduced or eliminated, is why heat-trapping carbon is accumulating in our atmosphere. The course seems to have been set in oceanic thermal vents 3.4 billion years ago. That is when some experts estimate the transition from mere minerals to cells began. Those cells got the energy they needed first from those hot ocean vents, but eventually they adapted to metabolize carbon compounds to produce energy. Ever since, we animals have gone for that carbon-based energy. I call this the 3.4-billion-year-old 'carbon imperative.'

Let's entertain for a moment the idea that our big problem does not come primarily from our institutions or our religions, but from this carbon imperative. We are like bacteria on a sugar-laden petri dish. We have eliminated essentially all of our predators and attempt to manage what wants to eat us from the inside. Our population is exploding like deer whose predators are greatly reduced. We have a mind that could practice restraint, but we act more like the bacteria or the deer. We don't seem to have a way to effectively motivate ourselves to do what it takes to restrict carbon use. Just mention the need for rationing fossil fuels along with a tightening cap on carbon and see where that goes. We fool around our institutions' edges with economic tricks like cap-and-trade and carbon taxes. But by refusing to cap and ration carbon, we are likely to reach a point where our options to preserve a healthy and productive ecosphere will be gone. No species has ever had to do what we must do to overcome what must have begun in those early cellular energy wars.

We know that long before our evolution, which gave us the big brain, some 150,000–200,000 years ago we lived in a world run mainly on contemporary sunlight. It was only in the last 10,000–12,000 years, through agriculture, that we gained access to the first rich pool of carbon: the young, pulverized coal of the soil. The domestication of both plants and animals kicked the human carbon-grabbing enterprise into high gear—and put us on a trajectory that now makes a human future uncertain. This and all of our other carbon pools took longer to accumulate than it will take us to exhaust them. We know the next pool was tapped 5,000 years ago, when we began to rapaciously cut and burn trees to smelt ore in the Bronze and Iron ages. The soil and forest carbon were ecological capital, and we dismembered self-sustaining ecosystems long before the burning of coal, oil, and natural gas. But we humans have become so good at getting and using that carbon that we endanger the rest of the creation. It is a cruel irony that our success in seeking carbon not only allowed the expansion of our species, but also created the conditions for our potential demise.

Our brain power, collaboration, and language allowed us to get at carbon in ways no other species could have imagined. And for a time, our cleverness has allowed us to transcend the limits that the ecosphere had long imposed—or, more accurately, to *appear* to transcend them, since no organism can live outside the laws of physics and chemistry that organize the ecosphere. That's the trap we've walked into. It is the Elegant Trap, elegant in at least three ways:

1. By the time we could understand the consequences of that pedal-to-the-metal pursuit of energy-rich carbon, there was no easy way out. It was like the long con before the trap is sprung in the movie *The Sting*.

2. Once we were aware of the trap, we believed that doubling down with cleverness would get us out. Our collective hubris led us to believe we were smart enough to invent our way to sustainability. Wind machines, solar collectors, and greater efficiency combined will not be enough to save us.

3. Finally, the trap plays on the better angels of our nature, on our compassion. Because we feel the suffering of others, we struggle to find ways to feed our less fortunate brothers and sisters. We are often cruel, but we also care about others, an instinct that we want to foster. We don't want to kill our own kind with war or starvation in the interest of reducing our carbon footprint.

Some societies have avoided the Trap. Maybe they weren't tempted by its elegance, or perhaps their science and technology simply hadn't advanced to the level necessary to tap the five carbon pools. But once the Trap was sprung in the world, no one could escape the consequences. Humans travel the globe, and those who have been willing to do what's necessary to accumulate wealth and power have generally dominated.

Is there any hope? What do we need for an Elegant Escape? Well, the scientific method and the thoughtful deployment of technology produced from science is certainly part of the process. Rather than a knowledge-as-adequate worldview (Vitek & Jackson, 2008), we might turn instead toward an ignorance-based worldview, where we acknowledge that we are billions of times more ignorant than knowledgeable, as a way to dampen human cleverness. This would amount to a direct attack on technological fundamentalism. But we also need a new story.

Where will this new story come from? It will draw on the wisdom of the ages, especially the wisdom of those people who were not pulled as deeply into the Trap. But things are different today, and one of the differences is how much we know about our origins and about ecosystems and how they work.

The Journey of the Universe project (Tucker, Grim, Kennard, Northcutt, & Butler, 2011) features the universe as a story, not a place. It was done by Mary Evelyn Tucker and her colleagues. They hoped that if more of us knew of our origins, we would be inspired to act in better ways. Through this large-scale story, we know the cosmos and Earth as our creator.

In the last 50 to 100 years, discoveries have led us to our cosmic beginning from stardust. And our universe turned out to be larger, more dynamic, and with a composition different than what we had thought. It is sobering that we humans have become matter and energy's only known way to self-recognition. In a certain material-energy sense, we have, as the scriptures promised, a new heaven. Other scientists have given us a framework for the journey from minerals to cells. There is much left to do, but we already have Darwin's picture of vertical evolution through natural selection.

No previous cosmology has had the science to back it up. Now the origin and proliferation of life have come to be understood on scientific grounds. These stories have the potential to inspire us. The late, great George Wald (1964) said it well a half-century ago:

> We living things are a late outgrowth of the metabolism of our galaxy. The carbon that enters so importantly into our composition was cooked in the remote past in a dying star. From it at lower temperatures nitrogen and oxygen were formed. These, our indispensable elements, were spewed out into space in the exhalations of red giants and such stellar catastrophes as supernovae, there to be mixed with hydrogen, to form eventually the substance of the sun and planets, and ourselves. The waters of ancient seas set the pattern of ions in our blood. The ancient atmospheres molded our metabolism. (p. 609)

Will this help us see ourselves as participants in the creation? All of this inspiring knowledge resulted from our becoming a species out of context, meaning out of our evolution in the Upper Paleolithic. It started with agriculture. The resulting literature, art, and scientific discoveries seem to have been a bargain. But there has been a cost: our destructive course. Ending that cost need not demand giving up all we have learned. Few of us would want to live in a world without the insights of Copernicus, Newton, Lavoisier, Darwin, and Einstein, or the Sistine Chapel ceiling, Michelangelo's David, *Ode to Joy, Amazing Grace,* and Shakespeare's sonnets.

* * *

So, the good news is that reducing our dependence on energy-dense carbon through rationing would not mean all is lost. It could start us on the path toward a more information-intensive world. After all, that was the primary feature for gatherers and hunters. To explain what I mean by information, here is an example. A legume's roots use bacteria to capture atmospheric nitrogen and make it useable for growth. This involves 21 enzymes derived from the plant's DNA code. The industrial capture

of nitrogen, considered by Winnipeg professor Vaclav Smil (1991) as the most existentially important invention of the 20th century, requires temperatures of 400° to 650° C (752° to 1202° F), pressure of 200 to 400 atmospheres of pressure, and burning loads of fossil fuel. This is the energy-intensive way. The bacteria and legumes rely instead on information.

Nitrogen fixation is only one of nature's countless efficiencies. Let's imagine a natural ecosystem such as a prairie, which, like all of nature's ecosystems, is information rich. If we were to put a cap on carbon—at the mines, the wellheads, the ports of entry, the forests, and even the soils—is there not reason to believe that with those limits we might begin a journey to discover those information-intensive efficiencies?

* * *

Wisconsin's Aldo Leopold was the author of *A Sand County Almanac*. In noting the failure of education to do something for conservation, some of his colleagues had said more education was needed. Leopold asked, "Is it certain that only the *volume* of education needs stepping up? Is something lacking in the *content* as well?" (1949, p. 173). He went on to say, "No important change in ethics was ever accomplished without an internal change in our intellectual emphasis, loyalties, affections, and convictions" (1949, p. 174). Part of the answer to Leopold's question came from the late, great University of Saskatchewan ecologist J. Stan Rowe. Rowe teamed up with a colleague, Ted Mosquin, to publish a manifesto (Mosquin & Rowe, 2004), which de facto provided the missing content. Their manifesto features an ecocentric, or home-centric, worldview to replace the current biocentric, or organism-centered, standard. The stated aim in their manifesto is to extend and deepen people's understanding of the primary life-giving, life-sustaining values of Planet Earth.

Scientific, philosophical, and religious attitudes toward nonhuman nature have advanced in recent decades. Much of our vision has turned outward to the values of lands and oceans and plants and other creatures. In spite of all this progress, Mosquin and Rowe (2004) say we still lack an ecocentric philosophy. Our increased goodwill is "scattered in a hundred directions" and, "made ineffective by the one, deep, taken-for-granted belief that assigns first value to Home sapiens… We're first, and what we directly need is second" (p. 7).

Where might we find more missing content that could change our loyalties and affections? Maybe not in words, but with action. For example, if we cap carbon, accompanied by rationing, we will begin a journey to move from an energy-intensive world to one that is more information-intensive for meeting our bona fide needs. Consider the fossil carbon behind nitrous ammonia versus the 21 enzymes and sunlight behind biological nitrogen fixation. The language would say, "We need a more *information intensive* world, both culturally and biologically." Add the ecosystem concept for the management of our resources, and we will be moving away from the too-narrow biocentric emphasis.

This information-intensive, ecocentric approach is exemplified in The Land Institute's effort to solve the 10,000-year-old problem of agriculture. That effort began as the result of two experiences in 1977, when I read the U.S. General Accounting Office (GAO; 1977) study of soil erosion in the United States. It looked to me like erosion was about as serious as when the U.S. Soil Conservation Service was born back in the mid-1930s. I thought, how can this be? Thousands of miles of terraces, grass waterways, shelter belts, to little effect. Shortly thereafter, I took my student interns to the never-plowed Konza Prairie, and we recognized this: no detectable soil erosion, no fossil fuel dependency, no chemical contamination of the land. The only visible industrial product was the barbed wire fence. Coming and going to that native prairie 60 miles away, we passed corn, with soil erosion; soybeans, with soil erosion; sorghum with soil erosion. We all knew that fossil fuels had been spent for fertilizer, traction, and pest control. The Konza Prairie, like most natural ecosystems of the land, whether rainforest or alpine meadow, features perennials growing in mixtures. Why did humans not have perennial grains growing in mixtures like most of nature's ecosystems after 10,000 to 12,000 years of agriculture?

I talked to my geneticist and ecologist colleagues about the possibility of perennial grain

polyculture. Their response was something like, "Well, Wes, everybody knows that's not possible. A plant will either allocate its resources to the root or to the seed, but it can't do both." I asked, "How about fruit trees? They're high-yielding." That was considered different, because they are woody. But what does that have to do with a trade-off?

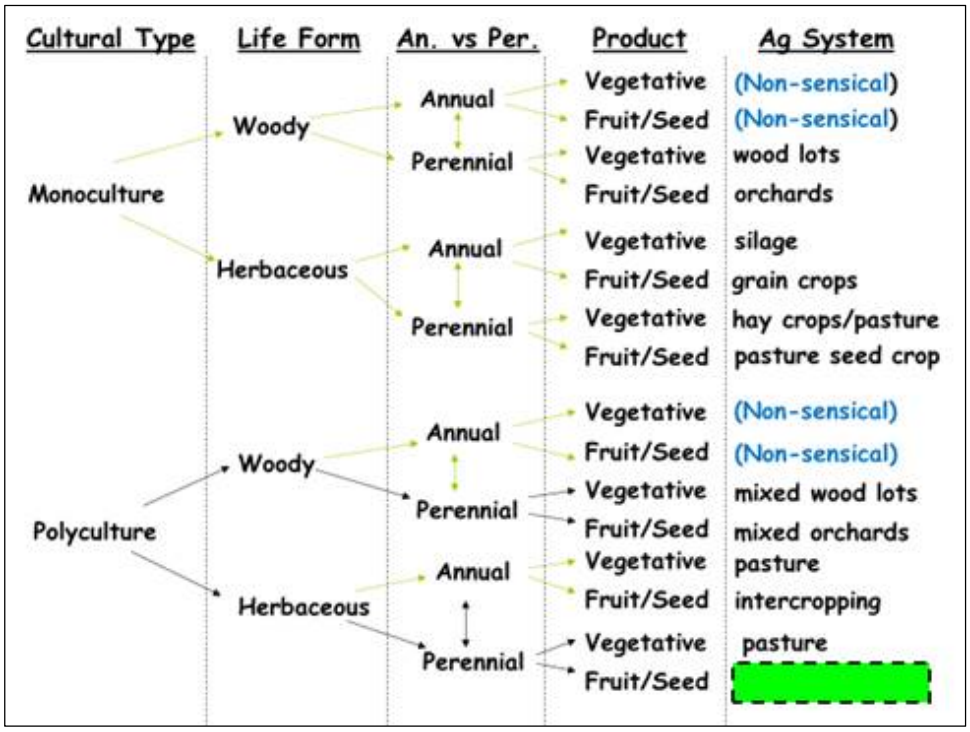
I thought of how humans have used plants, based on four contrasting traits: herbaceous vs. woody, perennial vs. annual, use of seed vs. vegetative parts, and polyculture vs. monoculture. This yields 16 combinations. Four are irrational (there's no such thing as woody annuals), leaving 12 possible combinations. Eleven of those had been used by humans. There was one blank: There had been no herbaceous, perennial, seed-producing polycultures used by humans (see Figure 1). If there had been, it would be a perennial grain polyculture—a domestic prairie. With such an ecosystem could we see those wild integrities of the prairie come to the farm? I reckoned that if we stopped with a perennial grain monoculture, we would miss half the point. So, we set our sights on perennial grain polyculture: a domestic grain-producing prairie.

The GAO report and the Konza field trip were on my mind in 1977. Soon after, I wrote a piece for our *Land Report* and for a Friends of the Earth publication called *Not Man Apart*. I reckoned it would take 50 to 100 years to develop perennial grain polycultures. You can imagine the enthusiasm for that projection.

Our research efforts started 41 years ago. David Van Tassel is now working on an oilseed crop called silphium; it is in the sunflower family. Pheonah Nabukalu came to us as a post doc from Uganda to work with Stan Cox on sorghum. She is now a full-time staff member. She and Stan have their perennial sorghum breeding done here and in Africa. Lee DeHaan is working on intermediate wheatgrass. We call this perennial Kernza®. Shuwen Wang is working on perennial wheat, Brandon Schlautman on legumes. There are now thousands of acres of perennial rice in China. Three-year-old plants are still experiencing high yield two times a year.

Three of our scientists—David Van Tassel, Lee DeHaan, and Stan Cox—have concluded why our ancestors never developed perennial grains and why we can now. It has to do with the fact that annuals tend to accept their own pollen—which, when it happens, represents the tightest form of inbreeding. Any lethal or sublethal mutation that happens will be eliminated. Desirable traits such as resistance for the seed to shatter are retained, allowing seeds to be harvested, rather than falling to the ground. In such a way, agriculture became possible. Perennials tend to outcross, and therefore their genetic load builds up. (Humans are outcrossers, but we manage it with an

Figure 1. The Blank



incest taboo.) We now know how to purge the genetic load in perennials with knowledge of molecular genetics and with modern computational power.

Now we're helping scientists at Saint Louis University and Missouri Botanical Garden develop a global inventory of herbaceous perennials as possible new "hardware" for agriculture. I don't like that word for organisms, but it is useful for now.

The annual grain hardware is limited and requires agronomists to be primarily prescriptive. Ecologists have from the beginning been descriptive. With perennial polycultures, the descriptive and prescriptive can become one, bringing two scientific cultures together. Ecological agriculture may be—just may be—our last best hope to keep alive all that we have discovered during our prodigal journey. If we are successful, we will protect our potential for producing food by reducing soil erosion and getting rid of fossil fuels and chemicals. A whole different kind of flowering is needed and seems possible for meeting our bona fide human needs. Leading this orchestra is our ecologist and research director, Tim Crews. He and his colleagues are studying mixtures of various perennials, with ecological intensification as a major goal. The Land Institute researchers, along with an increasing number of colleagues around the world, are out to fill that blank on Figure 1.

In the poem, "For the Children," from his book *Turtle Island,* Gary Snyder (1974) captured the challenge that is ahead of us.

> The rising hills, the slopes,
> of statistics
> lie before us.
> The steep climb
> of everything, going up,
> up, as we all
> go down.
>
> His poem continues on with a note of hope.
>
> In the next century
> or the one beyond that,
> they say,
> are valleys, pastures,
> we can meet there in peace
> if we make it. (p. 86)

The Land Institute research has contributed and still contributes to those rising hills, the slopes of statistics. The researchers and their technicians have tractors, combines, lots of lab equipment, and three greenhouses. Every scientist has a pickup truck. All of that is industrial equipment, which contributes to those slopes and rising hills of statistics.

Once established, will these new perennial grain mixtures still require the industrial world that brought them into existence? With "require" as the key word here, my answer is no. Their creatureliness remains and will depend only on the long-term life support system of our Earth. Should one of our ancestors, Rip Van Winkle–like, appear from the first millennium of agriculture, he or she would know what to do, with less time managing weeds, and, with this being a polyculture, experience fewer whole-field crashes. The industrial or material world can't say that.

Once we assess our technologies against a background of ecosystem concepts that feature creatureliness, information-intensive becomes a way of being. Once we put a cap on carbon emissions and keep ratcheting it down, an information imperative will gradually replace energy-intensive culture.

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PLACE-BASED FOOD SYSTEMS KEYNOTE ADDRESS

Capitalism, food, and social movements: The political economy of food system transformation

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Do foodies need to know about capitalism? Everybody trying to change the food system—farmers, farmworkers, chefs, people fighting to end hunger and diet-related disease—all of us need to know about capitalism. Why? Because we have a capitalist food system. After all, you wouldn't start farming without knowing something about growing plants, or start a website without knowing something about computers, or fix the roof on a house without knowing something about carpentry. I know, most of us are too busy trying to solve problems *within* the food system to sit around analyzing the food system as a whole. We concentrate on one or two issues—healthy food

Note
This article is adapted from a keynote address entitled *Capitalism, Food, and Social Movements: The Political Economy of Food System Transformation* at the Place-Based Food Systems Conference, hosted by the Institute for Sustainable Food Systems at Kwantlen Polytechnic University on August 9, 2018. The conference brought together community and academic leaders to share research and practice and to foster effective collaboration. More information is at https://www.kpu.ca/pbfs2018

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access, organic agriculture, GMO labeling, pesticide poisoning, seed sovereignty… The list is long. On top of that, we don't really talk about capitalism in capitalist countries. Before the 2008 financial crash, it was awkward even to mention the term 'capitalism.' But the truth is our food and capitalism have co-evolved over the last 200 years. If we want to know about our food system, we have to know about capitalism. That way, we can change it.

Global Hunger: Scarcity vs. Injustice

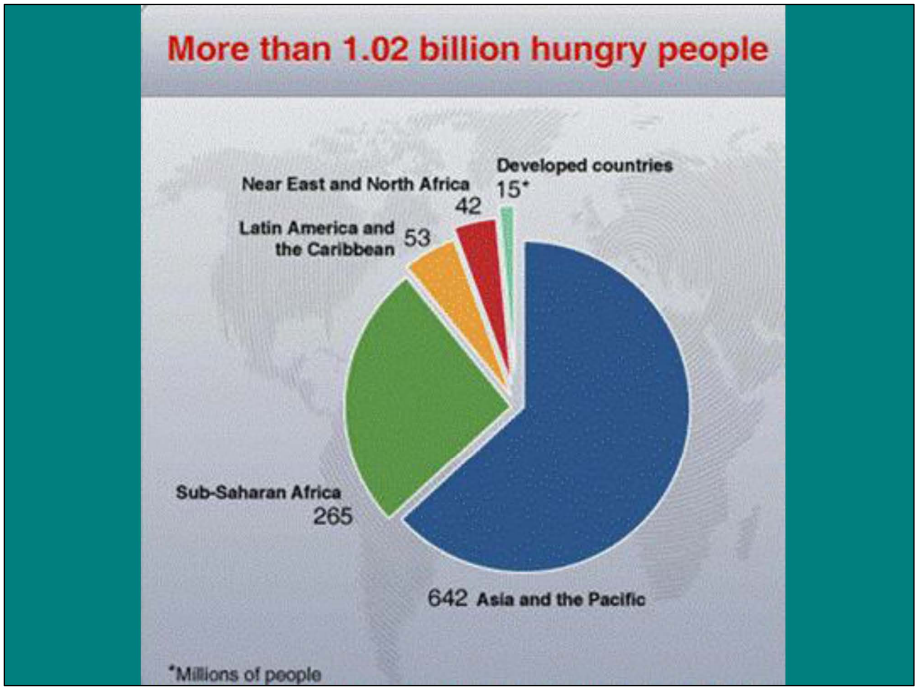
Frances Moore Lappé founded Food First 42 years ago with the proceeds from the book *Diet for a Small Planet*. Frankie said two things in that book which were absolutely revolutionary. The first was, "One in seven people on this planet is going hungry. And yet we produce one and a half times more than enough food for everybody." So clearly, hunger is not the result of scarcity. Hunger must, therefore, be a result of people not being able to afford and access food. The question "Why can't people afford to buy food?" then forged the mission of Food First: To end the injustices that cause hunger. So you can see we're not Malthusian. We don't believe in the scarcity that you hear talked about today, that there just isn't enough food in the world.

The second thing that Frankie said was that we eat too high on the food chain and it's causing environmental problems. She was one of the first people to say this publicly and attract attention to this dietary shift. So in a way, I'm not going to say anything new because today, 42 years later, we still have one person in seven going hungry on this planet, and we still produce one and a half times more than enough food for every man, woman, and child. We still eat too high in the food chain, and the way we produce food is causing massive environmental and social problems.

It's important to mention that the measurement of a billion hungry people in the world—one in seven—is likely a gross underestimation (Slide 1). This is due to the way that hunger is measured. People are only identified as hungry if they experience hunger 12 months out of the year. If they experience hunger for only 11 months out of the year, they're not counted as hungry. Second, this measurement is based on caloric intake, and you can imagine that the required number of calories an individual must consume varies substantially according to height, gender, occupation, age, etc. The caloric intake threshold for determining hunger (around 2000 kilocalories) is fine if you sit quietly behind a computer for 8 hours a day. But most hungry people in the world are women farmers in the developing world who work under a hot sun all day long and are nursing one or more children. They need as much as 5000 kilocalories a day. Official estimates miss all of this.

The other thing is that most of the hunger in the world is concentrated in Asia and the Pacific.

Slide 1. Global Hunger by Region



Source: Food and Agriculture Organization of the United Nations (FAO).

But Africa is the region we most hear about, from institutions such as the Food and Agriculture Organization of the United Nations (FAO), World Bank, Bill and Melinda Gates Foundation, United States Department of Agriculture (USDA), and Monsanto. Hunger in Africa is highlighted with an expression like, "Africa needs a new green revolution" or "It's Africa's turn." Why are we so concerned about hunger in Africa without mentioning Asia, where we find the majority of the world's hungry population?

There is a reason for the high profile given to the issue of hunger in Africa relative to that in Asia. The approach to end hunger routinely proffered is the Green Revolution: produce more food with more chemicals and high-yielding seed varieties. Asia already had a Green Revolution and is consequently saturated with chemical fertilizers, GMOs, and modern farming machinery. While this transition has not eliminated hunger in the region, it has saturated the market for machinery, chemicals, and industrial seed. However, Africa is a wide-open market for a Green Revolution, and there is substantial money to be made selling these technologies. And while I think it's important to talk about the issue of hunger in Africa, I think this is why hunger in this region receives much more attention relative to Asia.

Contradictions of Capitalism and Overproduction in Our Food System

Although she didn't know it 42 years ago, in her book Francis Moore Lappé was addressing what political economists call 'the first and second contradictions of capital.' Capital is wealth that is seeking more wealth—this is the basis of capitalism. The first contradiction of capital involves labor, and it leads to all kinds of interesting situations. The contradiction of labor goes basically like this: Let's say an industrialist hires six people to produce six widgets. If the owner pays their workers enough money to buy those widgets, they won't make a profit. So, on one hand, they have to pay workers just enough to keep them working, and on the other, they have to produce more widgets to sell to more people. As an owner of capital, I have to expand markets beyond my workers, who don't make enough money (or need) to buy all the widgets they produce.

Now, Henry Ford was one of the first to try to address this contradiction. He made an assembly line and said that the workers were going to be able to buy cars. And sure enough, through the miracle of credit and the efficiencies of the assembly line, they were. But Ford produced so many cars that he had to expand into an open market where people who were wealthier than the workers were also buying cars. Other car manufacturers followed suit, creating industrial competition.

And now, coming back to our example, this group of six people is competing with that group, and that group is competing with another group, and so on. Each group is trying to sell more widgets than the other. One way to do this is by being more efficient in production. Another way is by producing more widgets and selling them at a lower price—the lower profit margins can be compensated for by just selling more widgets. The point of competition is to increase both profits and market share. Since everyone is becoming more efficient and producing more, pretty soon there is more product than demand and prices fall below the costs of production. This is called a crisis of overproduction. Small firms go out of business and larger firms take over, concentrating market power in just a few hands. Overproduction is a natural part of capitalism. And this is particularly true with capitalist agriculture.

Farmers usually aim to produce a surplus. They borrow a lot of money up front and want to be sure they sell enough to cover their costs of production. But there's a lot of uncertainty. Agricultural markets are volatile and very demanding. A large portion of farmers' costs are fixed—they can't just plant less when the market is bad, and they can't move their farm to find a better market. This means that when prices drop (because of overproduction), farmers don't cut back on production—they produce more to cover their fixed costs, "farming their way out of debt." What if the price goes up in the market? Again farmers produce more because they need more money to make up for the years they lost money. So farming especially lends itself to overproduction.

With overproduction, goods pile up unsold, workers are laid off, and demand drops. As a

capitalist, what can I do? I can break into some other market which is already established. With food production, one good way to do that is through food aid. The USDA started providing food aid because it had a huge surplus of grain and had to get rid of it. And so, through an arrangement with the governments in the developing world, they broke into those markets, basically selling the grain there at prices that were below the cost of production. This destroyed the markets for local farmers and made those governments dependent on foreign grain. Subsequently, they—well, we—had the markets to ourselves. So the contradiction between capital and labor has all kinds of consequences.

And of course, we know about the second contradiction—the ecological contradiction in which production and consumption ruin the environment. But where does it really start? It starts with the metabolic rift. The metabolic rift results from physically separating the places where we produce most of our food from the place where we consume most of our food. Nutrients used to produce food are not returned to the farm to be recycled through the food chain. Instead, these nutrients are consumed in cities, and dumped into rivers and oceans as waste.

The metabolic rift was first identified just as capitalism was emerging. Justus von Liebig, known as the father of fertilizer, isolated nitrogen, phosphorus, and potassium in plants and noted that these could be added to the soil as fertilizers. He didn't elaborate on the process, but he got the theory right. Von Liebig actually wrote to the mayor of London cautioning that industrialization was driving people into the cities, where nutrients are not getting back to the farm but polluting the waterways.

The metabolic rift leads to all kinds of environmental challenges like overshoot, pollution, and, as we now know, global warming and resource depletion. It's been said that "All progress in capitalist's agriculture is progress not only in the art of robbing the worker but robbing the soil, the source of all wealth" (Marx, 1867/1976, pp. 637–638).

We know now that these externalities are quite severe. To list a few examples:

- **Soil loss:** About 75 billion tons/year, and it's been estimated that global losses in soil-based ecosystem services cost between US$6.3 and US$10.6 trillion annually. (That's about the same amount as the value of business the food system does every year.)
- **Water loss:** Agriculture uses up 80% of the world's fresh water. A large portion of industrial agriculture is reliant on aquifers with geologic recharge rates. Some of the largest of these ancient aquifers are located in the Punjab, India, where the Green Revolution was introduced, and in the American Midwest.
- **Biodiversity:** We've lost 90 percent of the world's agrobiodiversity because of monocultures and chemical use in agriculture.
- **Aquatic ecosystem health:** Eutrophic dead zones are growing in our bodies of water around the world, mostly from agricultural runoff and exacerbated by rising ocean temperatures. For example, the Gulf of Mexico is experiencing unprecedented plankton blooms and fish kills.
- And the other thing which has more to do with the first contradiction is if you look around the world today, **farms are getting bigger**—much, much bigger. To stay in business they have to produce much, much more because the profit margins are very small. So the volumes have to be very large in order to cover costs. But farms are also getting very, very small and around the world. Most of the smallholder farmers in the world are women. They produce over half of the world's food. Small farmers, by the way, produce about 70 percent of the world's food on 25 percent of the agricultural land. Now, this has got nothing to do with Cargill, has nothing to do Monsanto, has nothing to do with "Big Ag." These are peasant farmers. Although poor peasant farmers produce most of the world's food, most of them are going hungry. Their parcels of land are too small. What they get paid for the products is too low. They sell it off

right away as soon as they harvest because they're poor and need money. Six months later, they're buying back food at higher prices, but they don't have enough money, and so they go hungry. The women and girls who feed most of the world make up 70 percent of the world's hungry. And these small farms are getting smaller. The most rapidly growing sector in U.S. agriculture is small farms, and most of these farmers are women. We can celebrate this. I think it's a good thing. However, we are condemning most of these women farmers to poverty because their farms are too small. And so you can see the sexism in all this . . . You know, the big boys on the big farms and the women with their families on little farms. That's the feminization of agriculture. But the way it's being done is not good.

- **Food waste:** Between 30 and 50 percent of our food is wasted somewhere between farm and fork. Food waste takes different shapes depending on where it's being wasted (e.g., Global North vs. South), demographics, cultures, etc. It's very particular. What's not particular is that a huge amount of our food is wasted. It's often said that reducing food waste can eliminate hunger. While this is conceptually true, it overlooks the influence of our capitalist food system. Food waste is part of that system. Industrial agriculture, capitalist agriculture, has to overproduce in order to stay in the market, and food waste is a consequence. There are programs that have invested millions of dollars in recovering food waste, such as the Rockefeller Foundation or the Ford Foundation. However, the moment you do this, food waste, which before was just throughput, now has value. Consequently, retailers, distributors, and other food supply chain actors will want to capture the value of food waste, and we're quickly going to see the capitalization of food waste. If you really want to stop food waste, we have to stop overproduction.

So where does this leave us? Here we are talking about place-based food systems. The sessions that I was able to participate in today were filled with incredible initiatives being done to reinvent our food systems so they're more equitable, sustainable, and democratic. We should continue to do this. However, in this work, we too often get dichotomized. "Yeah, that's nice, but it's too small, and actually we need big," or "that's great locally, but we need to go global because there are hungry people all around the world and we've got to feed them," or "Yeah, that's organic, that's quaint, but we really need chemicals because we have so many pests."

The discourse can become community versus corporate, people versus profit, authentic versus productive, idealistic versus scientific, traditional versus modern. And I think these are false dichotomies. I think this is a huge smokescreen. It's similar to what my president does. He gets caught doing something, and he says, "Oh, look over there. There's some real bad stuff happening there," or he'll make some other outrageous statement and you forget about the thing he did the day before. These are basically to take our minds off the real problems of hunger and production.

The Scarcity Narrative

The "golden fact" is the idea that, because of population growth, we're going to have to double our food production within a generation in order to feed the population.

Well, you'd be surprised who says this—people who know better. The FAO says this even though quietly they admit it's not true. USDA says this. Monsanto loves this. Respected scientists, whom I admire very much, such as Thomas Foley, a global ecologist, says this in *National Geographic* when he also knows it's not true. The scarcity narrative is such a powerful narrative because scarcity is an integral part of capitalism. Why? Because it brings up prices and generates more profit. Scarcity must be created even if it isn't there. And if you create it in people's minds, that's even better. (And by the way, who is going to produce all this new food? Modern industry, industrial agriculture, new capitalist technologies. . .)

We know the scarcity narrative is false because

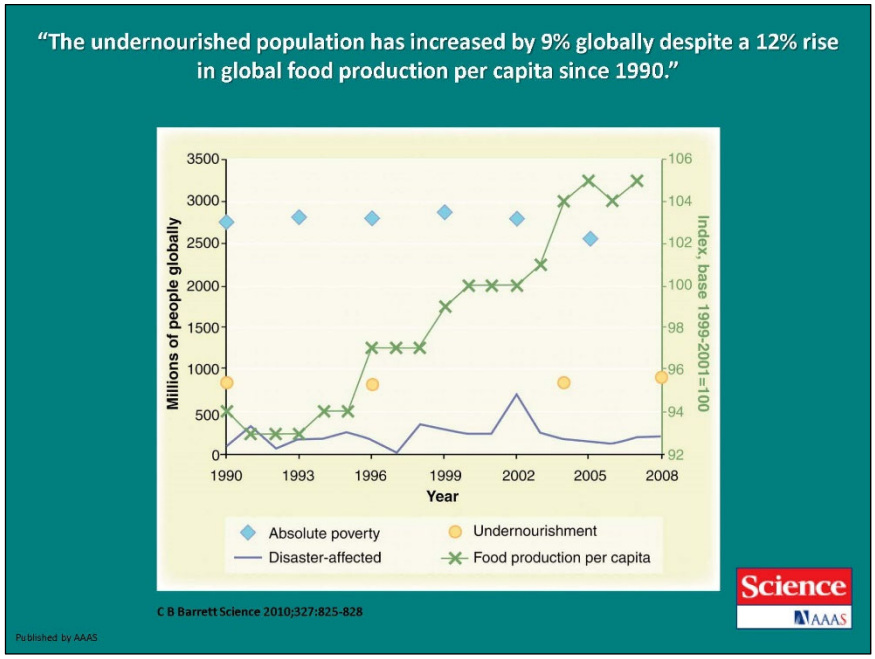
if you look back over the last 10, 20, 30 years—if you go even farther back than this graph (Slide 2), what you see is that we have been increasing production by 12 percent per capita every year consistently for decades. *Per capita*. This accounts for population growth; every single person in this room, and everywhere around the world every year should be getting 12 percent more food. And yet we have at least one fifth or a third of the world population going hungry or malnourished. Despite this, absolute poverty has not changed. So no matter how much food you produce, these people can't buy it in a capitalist food system. Similarly, undernourishment—the little yellow dots—that hasn't changed. Why is it that we keep producing more and more food without solving hunger or malnutrition, yet the solution is always—always—to produce more food?

Food Crises in a Capitalist Food System

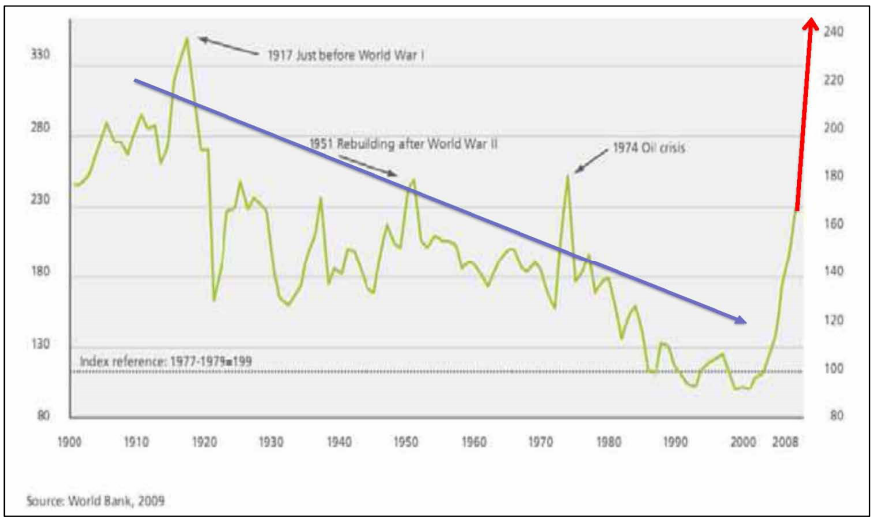
The food price index (Slide 3) illustrates the decline in food prices since the turn of the century. Why would that be? Again, overproduction. We're producing so much food that we have been driving down food prices for the past hundred years. We have never had a problem of underproduction. On the contrary, since the beginning of capitalism, we've had a problem of overproduction.

The downward trend in food prices changed suddenly in 2008, when prices shot up beyond anything we had ever recorded in the past. Why? Did food suddenly become scarce? No. Actually, 2008 was a time of record harvests. This was also the case in 2010, when there was another food price spike. In these years, we saw record harvests, record hunger, and record profits by the oligopolies that control our food system. This means that the Monsantos, the Cargills, and the large retail chains were all making record profits at a time when millions of people were being driven into the ranks of the hungry

Slide 2. Global Food Production per Capita, Undernourishment, and Absolute Poverty, 1990–2008



Slide 3. Food Price Index, 1910–2008

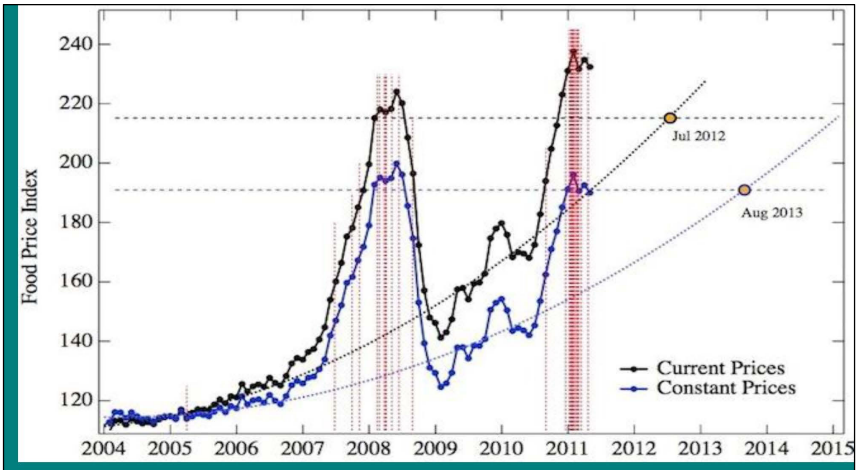


because they couldn't afford to buy food.

Slide 4 shows the two food price spikes in 2008 and in 2011. The vertical red lines represent the frequency of food riots around the world. The figure illustrates the threshold at which increasing food prices cause people so much pain that they start rioting. When food price decrease below that threshold, people stop rioting. You can see this threshold being crossed in both 2008 and 2011, where high food prices are accompanied by spikes in food riots. It's important to note that these riots did not just occur in locations that have ongoing struggles with hunger, such as Sub-Saharan Africa and Haiti, where people were subsisting off of mud biscuits at the time. Riots also occurred in Italy and Milwaukee, rich, productive places. So what does this mean? What's happening with our food?

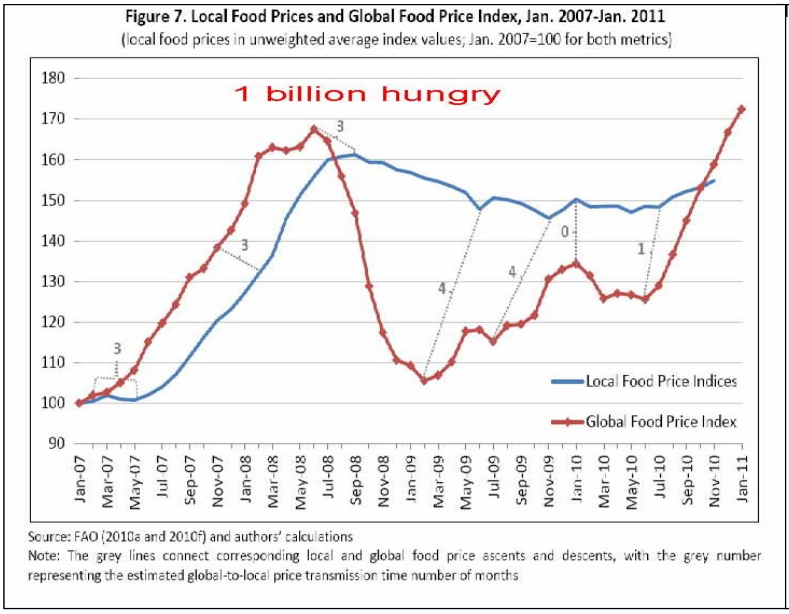
Slide 5a illustrates the global (red) and local (blue) food prices between 2007 and 2011. Again, we see the spikes in global prices in 2008 and 2011.The local price—the retail price—increases with the global price in 2008. This makes sense; as food gets more expensive globally, its price in the store increases as well. But then the global price of food drops precipitously while the retail price stays the same. This is called gouging. There's no other word for it. Consumers

Slide 4. Global and Local Food Price Index and Frequency of Food Riots

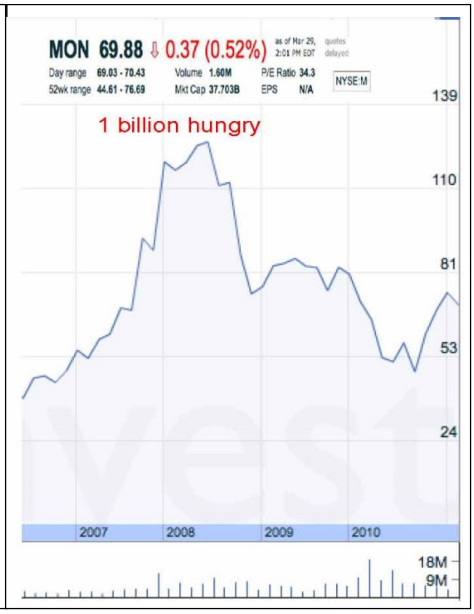


FAO Price Index at current prices (black curve) and corrected for inflation (blue curve) between January 2004 and May 2011. Red dashed lines signify the beginning dates of food riots and unrest in North Africa and the Middle East. Black and blue horizontal lines represent the current-price and inflation-adjusted food price thresholds for riots. *"The Food Crises and Political Instability in North Africa and the Middle East." By Marco Lagi, Karla Z. Bertrand and Yaneer Bar-Yam. arXiv, Aug. 11, 2011.*

Slide 5a. Global and Local Food Price Index, 2007–2011



Slide 5b. Monsanto Share Price, 2007–2011



are getting gouged; poor people are getting gouged while food companies make incredible profits. For example, Wal-Mart, one of the biggest grocers in the world (soon to be outseated by Amazon) made so much money that they had a crisis of over-accumulation. They had made huge profits that needed to be reinvested as capital, but there was nowhere to go because we were in a recession.

The share prices of Monsanto's stock (Slide 5b) reflects the profits seen by large food oligopolies during these food crises. Monsanto's share prices increase as people go hungry. As people's hunger is alleviated, Monsanto's share price goes down. So what does Monsanto need? They need food crises.

There's a lot of talk about the causes of global food price spikes, including increased droughts globally, changing climates, rising meat consumption in India, Brazil, and China, low grain reserves, etc. I call these proximate causes. But really, while we have all of those contributing factors, what raised food prices beyond anything we'd ever seen was speculation with our food, as reflected in the explosion of trading in commodity index funds. Financial houses were speculating with our food and pushing prices up.

The Corporate Food Regime

I want to talk about the root causes of these crises, namely the concentration of power across the food system that leaves it vulnerable to shocks. We've experienced unprecedented consolidation across agri-food industries, such that only a few companies control most of the sector. For example, in 2014, the top eight firms held over 60 percent of the market share of crop seeds/traits, farm machinery, animal pharmaceuticals, and agrochemical. In the case of the agro-chemical, the top eight firms held over 80 percent of the sector's market share (IPES-Food, 2017). This is what we call the "corporate food regime," where the global food system is governed according to a small number of corporate interests.

We've had several food regimes throughout history: a colonial food regime, a Keynesian food regime, but what we have today is the corporate food regime. The food regime is defined as all of the institutions and all of the rules that control our food. Examples or institutions that make the rules include the World Trade Organization and the free trade agreements, the USDA, the farm bill, etc., and then the global corporations that profit from this. These institutions all dictate the conditions and rules for our food systems and effectively set the price of grain for the world. This food regime began with the Green Revolution that sold the forms of industrial production from the Global North to the Global South.

First, in the '50s and '60s, we loaned the South the money to buy new hybrid seeds, agrochemicals, etc., for them to start producing more food. But the North was also producing food so there was oversupply and the market crashed. This meant that neither the countries of the Global South nor the farmers on North America could pay back their loans to the banks on Wall Street. As a result, U.S. farmers went bankrupt. For the countries of the Global South, the World Bank and International Monetary Fund applied structural adjustment programs (SAPs) in the 1980s and '90s. The World Bank said, "I will loan you the money so that you can keep up your payments to these banks on Wall Street." (World Bank money, by the way, is public money. It's from our taxes.) However, these loans were conditioned on structural adjustment policies from the International Monetary Fund. The policies included privatizing economies, devaluing currency, dismantling grain reserves and marketing boards, specializing in non-food export crops, etc. The North continued to send food aid to the South.

With the corporate food regime, instead of Southern colonies supplying the North with raw materials (including food), now the North supplied food to the South. The South become dependent on the North for its food to a tremendous degree. Then these structural adjustment policies become signed into the free trade agreements of the 1990s (e.g., NAFTA, CAFTA, etc.). And what this did is sanction overproduction in the North (using subsidies powered by tax dollars) to dump the surplus in the South. Essentially the public is coerced into destroying the food systems of Global South so that Big Grain can make its money. What was the result?

Well, the Global South went from producing a

food surplus to becoming food-dependent. In the 1970s, the Global South generated about a billion dollar surplus annually from food production. Toward the end of the century, this changed to an annual deficit of approximately 11 billion dollars. In addition to forcing food dependence on the Global South, the expansion of the global food regime has unleashed far-reaching ecological, economic, and social crises on the entire planet. Industrial agriculture is responsible for:

- Producing up to 40% of the world's greenhouse gases (depending on how you calculate it).
- Using up 80% of the world's fresh water.
- The loss of 75% of crop diversity.
- Widespread bankruptcies; e.g., the bankruptcy of 1.3 million smallholder farmers in Mexico following the signing of NAFTA. This initiated the large-scale migration of farmers to the United States in search of work.
- The explosion of diet-related diseases from the increased prevalence of grain-based processed foods that are high in salt, sugar, and fat.
- The financialization and concentration of agricultural land.

The thing that really strikes me about this process is the erosion of the public sphere. Our public institutions were privatized, our grain boards and our marketing boards were dismantled… even our schools in the United States and our health system—virtually everything—was privatized. Our minds become privatized, and we begin to think that the only available solutions to our problems are through the market—not through community, and not through negotiation, and not through deciding things among ourselves.

I went through school and finished my doctorate without paying a penny. I got public scholarships. The students interning at Food First today have US$30,000–US$40,000 in debt for a liberal arts degree because we've privatized education. But we've lost the practice and power of the public sphere to hold the market and the private sector accountable.

Ten years ago, the International Assessment for Agricultural Science and Technology for Development [IAASTD] came to this conclusion after a five-year study (financed in large part by the World Bank):

> The way the world processes food will have to change radically to better serve the poor and the hungry if the world is going to help cope with growing population and climate change while avoiding social breakdown and environmental collapse.

The backstory here is a funny, actually a sad, story. It was, in fact, Syngenta who went to the World Bank and said, "We need a global study which shows that we can save the world with our GMOs." So James Wolfensohn, director general at the World Bank at the time, pulled together a very large and talented crew, including 300 scientists who, for five years, investigated this problem of hunger and environmental destruction in great detail. At the end of the study, they said, "Actually, GMOs are irrelevant to ending hunger, and the free trade agreements don't really benefit poor people. What really works are things like agroecology and placed-based food systems in order to build wealth in rural communities through agriculture." The United States, Canada, and Australia refused to sign off on the work. Syngenta walked out in a huff, and the World Bank shelved the report.

It isn't surprising that we talk about our food system as a broken food system. But I would submit that we don't have a broken food system, and I think this is really the wrong way to think about it. If you think that the food system is broken, it implies that it used to work well. When did it work so well? And for whom? It certainly didn't work well for the native peoples who lost their land, or the slaves and indentured servants who worked the plantations, and it hasn't worked well for immigrants who pick our crops in the U.S. today.

So I don't think that the food system is broken. I think it is working *exactly* as a capitalist food system is supposed to work. It overproduces, it concentrates power in capital in the hands of a few, and it leaves us with all of the externalities.

I think we're looking at a battle between an old system, which is clearly dysfunctional but refuses to die, and a new system which is having tremendous difficulty being born. More than this, I think we are actually all engaged in a long-term, deep historical process when we talk about place-based food systems and these alternatives.

Now, capitalism does a curious thing. We've actually been studying capitalism for several hundred years, and know a lot about it. (You don't get to learn about it in university. You learn about markets, but you don't learn about capitalism.) Capitalism has two phases: one is a phase of liberalization. That's what we mean by neoliberalism. In this phase, we take the gloves off the market. We take off all the regulations. We take off the environmental regulations, labor regulations, bring tariffs down, etc. The WTO and free trade agreements advanced liberalization, which removes restrictions to allow capital to move freely. The result of liberalization is a tremendous concentration of wealth, not necessarily overall economic growth. An example of this would be the Roaring Twenties. But liberalization is often followed by a phase of reform.

Countermovements

Capitalism continues to successfully concentrate wealth. We have significantly more billionaires today than we did 10 years ago. It's predicted that we'll soon have the first trillionaire. But the liberalization period of capitalism wreaks such havoc and visits such pain on communities that they eventually rebel; they can't take it anymore. We can't take being unemployed anymore. We can't take having our water polluted. We can't keep getting sick from eating this lousy food. And people develop what's called a "countermovement" and demand reforms.

The last countermovement against capital was in the 1930s. In 1930s, following the liberalization of the Roaring Twenties—and the devastating financial crash of 1929—staggering unemployment rates and poverty among a large portion of the population caused people to join unions, form alternative political parties (e.g., communist parties, socialist parties), and build an extremely powerful countermovement to liberalization.

Franklin Delano Roosevelt (FDR) was president at the time in the United States, and it looked like capitalism might fall. So he introduced reforms to stabilize the system. Markets and overproduction were brought back under control, and social programs were implemented. He broke up monopolies. That was the New Deal. The only reason FDR was able to do that was because there was a powerful countermovement that created the political will for reform.

Now it's important to realize that liberalization and reform are two sides of the same coin. The New Deal reforms were not introduced to move us out of capitalism toward socialism; they eliminated the excesses of capitalism to stabilize it and avoid socialism.

Countermovements in the Food System

I think that the food movement is an emerging counter movement like just like the global women's movement and the climate justice movement. These are counter movements that, at their core, are pushing back against the injustices of capital.

We have a corporate food regime and a counter food movement. Each of these can be separated into two political tendencies (Slide 6), and I'll talk a bit about each one.

Corporate Food Regime

Within the corporate food regime, we have a neoliberal wing and a reformist wing. Right now the neoliberals are in command, and they have been for some time, while the reformists are very weak.

Food System Countermovement

The countermovement also has two different tendencies: a progressive tendency and a radical tendency. The progressive tendency, I think, is probably most of us [in attendance]. These are people who are really doing things: starting a CSA or a farmers market, creating food co-ops and food hubs, convening conferences and figuring out the next steps, etc. This movement is solving the problems that are being visited upon our food system in favor of people who need it. It is very practical.

And then you have the radicals. These are

Slide 6. Politics, Production Models, and Approaches of the Corporate Food Regime and Food System Movements

	Corporate Food Regime		Food Movements	
POLITICS	**NEOLIBERAL**	**REFORMIST**	**PROGRESSIVE**	**RADICAL**
Discourse **Main Institutions** **Orientation**	**Food Enterprise** International Finance Corporation (World Bank); IMF, WTO; USDA; Global Food Security Bill; Green Revolution; Millennium Challenge; Heritage Foundation; Chicago Global Council, Bill and Melinda Gates Foundation; **Corporate**	**Food Security** International Bank for Reconstruction and Development (World Bank); FAO; U.N. Commission on Sustainable Development; International Federation of Agricultural Producers; mainstream Fair Trade; Slow Food; some Food Policy Councils; most food banks and food aid programs. **Development**	**Food Justice** Alternative Fair Trade & many Slow Foods chapters, many organizations in the Community Food Security Movement; CSAs; many Food Policy Councils & Youth food and justice movements; many farmworker & labor organizations **Empowerment**	**Food Sovereignty** Via Campesina, International Planning Committee on Food Sovereignty; Global March for Women; many Food Justice and rights-based movements , UN Committee on Food Security CSO Committee , many farmer organizations w/in federations (PELUM, ROPPA, ESAFF,) African, US, EU Food Sovereignty Alliances **Entitlement**
MODEL	**Overproduction;** Corporate concentration; Unregulated markets and monopolies; Monocultures (including organic); GMOs; Agrofuels; mass global consumption of industrial food; phasing out of peasant & family agriculture and local retail.	**Mainstreaming/** certification of niche markets (e.g. organic, fair, local, sustainable); maintaining northern agricultural subsidies; "sustainable" roundtables for agrofuels, soy, forest product, etc; market-led land reform	**Agroecologically-produced local food;** investment in underserved communities; new business models and community benefit packages for production, processing & retail; better wages for ag. workers; solidarity economies; land access; regulated markets & supply	**Democratization of food system;** Dismantle corporate agri-foods monopoly power; parity; redistributive land reform; community rights to water & seed; Regionally-based food systems; sustainable livelihoods; ; protection from dumping/ overproduction; Revival of agroecologically-managed peasant agriculture to distribute wealth and cool the planet
Approach to the Food Crisis **Guiding document**	Increased industrial production; unregulated corporate monopolies; land grabs; expansion of GMOs; public-private partnerships; Liberal markets; Int'l. sourced food aid; **WB 2009 Dev. Report**	Same as Neo-liberal but w/increased middle peasant production & some locally-sourced food aid; more agricultural aid, but tied to GMOs & "bio-fortified/climate-resistant" crops. **WB 2009 Dev. Report**	Right to food; Better safety nets; sustainably-produced, locally-sourced food; agroecologically-based agricultural development; guiding document: **IAASTD**	Human right to food sovereignty; Locally sourced, sustainably produced, culturally appropriate, democratically controlled focus on UN/FAO negotiations **Peoples' comprehensive framework for action; UN Right to Food series; IAASTD; Food Movements Unite**

movements such as *Via Campesina*—a global peasant movement. They say, "All those things are great, but for them to prevail what we need is structural change. We need land reform because young farmers don't have access to land. It's too expensive." Now they're not talking about land trusts—who has enough money to buy all that land? We need land reform. We need to take agriculture out of the World Trade Organization. Food is different. Get it out of there. We need to dismantle the oligopolies. Not just actually implement our anti-trust laws (which we're not doing), but go farther and dismantle these huge corporations that are too big to fail—because they're going to fail us all. So radicals are looking at the structures, and the progressives are looking at the practices. I think that if these two tendencies were to integrate, the food movement would become a powerful countermovement. It could apply social pressure onto the corporate food regime and create the political will to institute reforms.

What kind of reforms? This is the real political question. Will they be reforms to stabilize capitalism, which is always expanding and eating us out of house and home? Or will they be transformative reforms to fundamentally change our food systems?

The problem is that most of us don`t have money. Certainly the farmers don`t have enough money, and community organizations don't have much money. And so the reformists, who are weak and can't really institute reforms, reach out to the progressives to form alliances. And the reformists actually do have money. They've got foundations, and they have corporations. They`ve got political power in government—not much, but it's there. And so obviously we want to reach out to them and build support for reforms. But historically this

is *not* how reforms are introduced. This alliance would split the back of the countermovement. It is the countermovement that provides the social force for the political will for reforms. So I think that it's important to build these alliances between progressives and radicals that would strengthen rather than split the countermovement. Well, why haven't we? Because it's hard. If it was easy, we would have done it already.

There are a couple of major obstacles which we have to confront head-on. Those things which deeply, deeply divide us; historically, that would be racism, sexism, and classism. So, yes, it's true that the white patriarchy is a real problem for the food system and the food movement. Racism is a problem for the food system and for the food movement. Most of the people who are working in the food system are women, and people of color have the highest rates of food insecurity. So racism and sexism are ingrained within our food system.

But it's not just our food system; it's within our own organizations. As I look around me today and I look at the faces here, it shows me that this is a place of extreme privilege. It may not feel like you have a lot of privilege; you may have difficulty making your house payments every month. But in fact, if you're here, you have some privilege, more than most people in the world. So when we talk about dismantling racism in the food system and food movement, we also have to think about dismantling these things within ourselves. Racism, sexism, and classism are double-edged swords. On the one hand, they hurt women, people of color, and working people. But on the other hand, they also hurt white people and men. Those of us who care about this can easily become immobilized with fear and guilt, whereas people who are discriminated against because of their color, or their gender, can experience internalized oppression.

So this is an internal process as well as a social and political process. And it's very hard. It's actually painful. And it's impossible to do alone. Luckily there are a lot of groups out there, programs out there that deal with this kind of trauma. And how do you work through this trauma and how do you get your mind clear? We need to be thinking clearly. We can't be held down by trauma and guilt and pain.

At Food First we say dismantling racism isn't extra work that you do after you're working on the cooperative or the CSA. Dismantling sexism isn't extra work after you've formed a food hub. *Dismantling racism, classism, and sexism is the work, and we have to do it now.* This is just as urgent as everything that was talked about this morning in terms of global collapse. If we don't do it, then we can't form a strong countermovement. If we don't form a strong countermovement, then we can't get create the political will for the change that we desperately need.

I'll close with something that a farmer said to me in Latin America, where we were at a farming workshop with a group of poor peasant farmers. These farmers were part of a movement called *Campesino a Campesino* (farmer to farmer). They were working to reinvent agriculture, share their knowledge with each other, establish agroecological systems, and wean themselves off of the Green Revolution's technological treadmill that perpetuates the cycle of debt for farmers.

This farmer said, "Look," as he drew a picture of a stick figure on the ground with his machete, "Our movement walks on two legs: innovation and solidarity. We invent new things, and we share them with each other. And it works with two hands; production of food and protection of the environment. We know we need both." He drew two eyes, "And we have eyes to see a change and imagine our future. We have a mouth and a voice: we can say what we want and what we need to do."

Then he drew a heart. He said, "This work is hard. Farming is hard. You can't farm unless you love farming. And it's even harder to change farming, to introduce agroecology and new ways of doing things. That's even harder. So I think you have to love more. You have to love farming and nature and your family, and you have to love all farmers, and you have to love your God. We can't do this and we can't change the world unless we love."

I believe my friend. We need to love to transform the food system. Thank you.

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PLACE-BASED FOOD SYSTEMS KEYNOTE ADDRESS

hishuk'ish tsawalk—Everything is one. Revitalizing place-based Indigenous food systems through the enactment of food sovereignty

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My name is Charlotte. My traditional name is *thlutismayulth,* Carrying Thunder, from our whaling heritage. I'm going to talk a little about who I am and where I am from. I am from the Tseshaht Nation, one the 14 groups that make up the larger Nuu-chah-nulth Nation on the west coast of Vancouver Island.

Before I begin, I want to pay respect to the

Note
This paper is adapted from Dr. Coté's keynote address on August 10, 2018, entitled hishuk'ish tsawalk – *Everything is One. Revitalizing Place-Based Indigenous Food Systems through the Enactment of Food Sovereignty,* given at the Place-Based Food Systems Conference that was hosted by the Institute for Sustainable Food Systems at Kwantlen Polytechnic University. The conference brought together community and academic leaders to share research and practice and to foster effective collaboration. More information is at https://www.kpu.ca/pbfs2018

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First Peoples of this land, the Coast Salish peoples. Every time we enter these territories—unceded, recognized traditional territories—we need to acknowledge not just the people, the elders, and the leaders, but also the ancestors whose spirits still walk in these spaces. So, I acknowledge that before I begin.

The material in this talk comes from a book I have been working on for quite a few years since I published my last book.

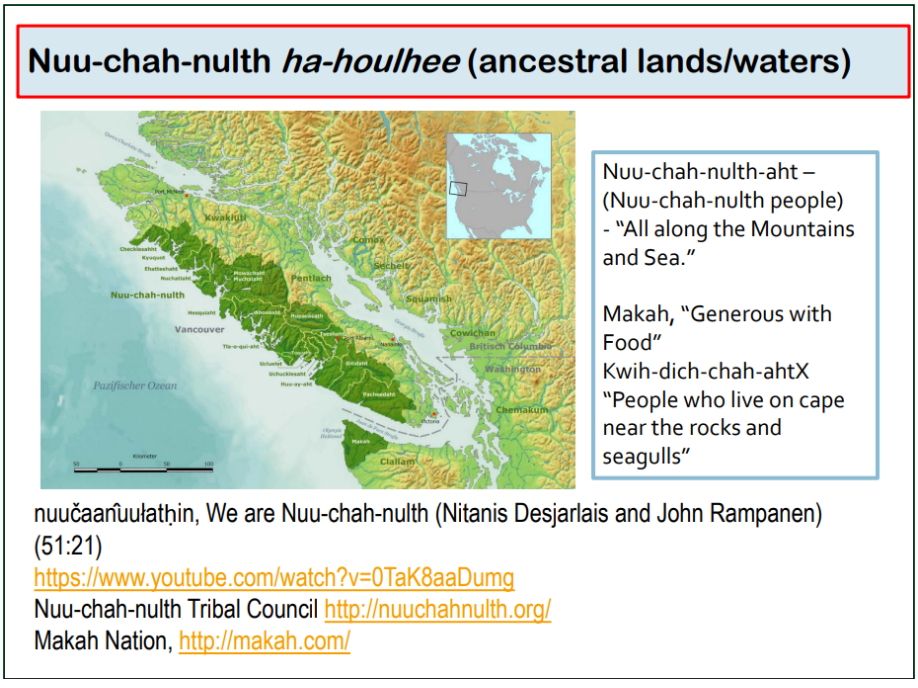
So, who we are. The Nuu-chah-nulth are on the west coast of Vancouver Island. The traditional territory of the 14 nations also includes the western tip of western Washington, because the Makah in western Washington are our relatives (Figure 1). It was the border that separated us, but we are recognized as relatives and share the same language, the same traditions, and the same whaling heritage.

I want to show a couple of minutes of this video, *nuučaanʔuułatḥin We Are Nuu-chah-nulth,* produced by Nitanis Desjarlais and John Rampanen.[1] John Rampanen is a member of the Tla-o-qui-aht First Nation, one of the Nuu-chah-nulth Nations, and he and his wife created this film. His wife is Cree and has lived in our community for quite a few years.

> *Our day begins with an expression of gratitude for the gift of life that we've been provided. We trace our roots back to our origins. The first breath. The first steps taken upon these lands. The wisdom and strength of our ancestors courses through our veins, passed from generation to generation. With care and gentleness, we carry forth our obligation to add to these teachings and pass them along to the next generations, so that they may walk gently upon this land and thrive. Our way of life was crafted through thousands of years of connecting with our lands and waters. We recognize that all life is precious and contains a spirit, and none are superior or inferior to another. Our life stems from the abundance of the ocean and land. We have established some expertise in harvesting foods and medicines and other day-to-day materials to live a comfortable life. We are the people of the ocean. We are a whaling society. We are warriors and healers. Our nations are many, and we live along every inlet, harbor, river and stream along the western coast of this great island. Our hereditary chiefs and their advisors maintain stewardship over our lands and ensure that our protocols and laws are followed, so that future generations may share in the abundance of our territories.*
>
> —*nuučaanʔuułatḥin We Are Nuu-chah-nulth,* Desjarlais & Rampanen, 2015

I just wanted you to see a little of that video because it really nicely shows our connection to our homelands. Since we're talking about place-based food systems, it's important to situate, to

Figure 1. Nuu-chah-nulth *Ha-houlhee* (Ancestral Lands and Waters)



[1] See the video at https://www.youtube.com/watch?v=0TaK8aaDumg

position, my talk in that framework.

So, I am from the Tseshaht First Nation. It's one of the central groups that is part of the larger Nuu-chah-nulth Nation. Our traditional territory was in the Broken Group Islands, but following colonization, we were pushed up the Alberni Canal into an area that was our winter village just outside of the city of Port Alberni. The town hasn't grown since I've been there; 20,000 people. We were created on what has become known as Benson Island; there is a little spot on that island where our elders bring us, and we walk to that spot, and they tell us that's exactly where we were created. The area is called *Ts'ishaa,* so *Tseshaht* is the people of Ts'ishaa. Ts'ishaa literally translates to the place that reeks of whale remains.

And so, we're The-Place-That-Reeks-Of-Whale-Remains people. That's connecting us to the whaling heritage.

I'm going to begin with a quote as I start into this presentation:

> Children, language, lands: almost everything was stripped away, stolen when you weren't looking because you were trying to stay alive. In the face of such loss, one thing our people could not surrender was the meaning of land. In the settler mind, land was property, real estate, capital, or natural resources. But to our people, it was everything: identity, the connection to our ancestors, the home of our non-human kinfolk, our pharmacy, our library, the source of all that sustained us. Our lands were where our responsibility to the world was enacted, sacred ground. It belonged to itself; it was a gift, not a commodity, so it could never be bought or sold. (Kimmerer, 2013, p. 17)

This quote is from a well-known ethnobotanist, a Potawatomi scholar, Dr. Robin Wall Kimmerer. Have any of you heard of Dr. Kimmerer? If you have never read her book [*Braiding Sweetgrass*] and you believe in these connections to our lands, to our waters, to everything around us, to the environment, you have to read it. It's one of the most amazing books I have ever read. In this book, she summons readers to imagine a different relationship with the land, the waters, with the plants and animals, and to rebuild a sustainable relationship where people and animals, plants, the environment are good medicine for each other, and so she writes:

> In the indigenous worldview, a healthy landscape is understood to be whole and generous enough to be able to sustain its partners. It engages the land not as a machine but as a community of respected, non-human persons to whom we humans have a responsibility. Reconnecting people and the landscape is as essential as re-establishing proper hydrology or cleaning up contaminants. It is medicine for the Earth. (Kimmerer, 2013, p. 338)

Indigenous peoples and communities worldwide have experienced a series of traumatic invasions that have resulted in long-lasting and disastrous outcomes. Massacres, genocidal policies, disease pandemics, forced removal and relocation, Indian boarding schools, assimilation policies, and prohibition of spiritual and cultural practices have produced a history of ethnic and cultural genocide. Many of the health issues and socioeconomic inequalities indigenous people face today can be linked directly to colonization through the brutal disposition of homelands, through globalization and migration, forced in many cases, and culture and language loss.

Beginning in the 1970s, indigenous peoples began focusing on self-determination and decolonization strategies through the restoration and revitalization of cultural traditions, language revitalization, and implementation of our own education, social and child welfare programs. These efforts were centered in a movement toward actively shaping, nurturing, and fostering culturally, spiritually, and emotionally healthy and sustainable communities. The boarding school system had a profound effect on our health, whereby indigenous children were not just removed from their families, communities, language, and culture, but were removed from their traditional foods. They were fed processed foods laden with salt, sugar, and fat. Today, we indigenous peoples face the highest rates of food-related diseases, such as type 2 diabetes, cardiovascular disease, hypertension, autoimmune

disease, and obesity—more than any other racial or ethnic group in Canada and the United States. These diseases are at epidemic levels, making autonomy over our indigenous homelands crucial to our very survival as people. As part of the decolonization movement, we are recognizing the need to decrease our dependence on the globalized food system and revitalize our indigenous place-based food systems and practices. We must do this through the reaffirmation of a physical, emotional, and spiritual relationship that we have to the lands, waters, plants, and all living things that sustain our communities and cultures.

The last 30 years have seen an increase in the globalization of food systems through neoliberal state policies that place decision-making authority over food production and distribution in the hands of national, state, supranational, and transnational organizations promoting agricultural practices that do little to alleviate world hunger. The overcommodification of food after World War II resulted in concentrating the decision-making power over food, land, and seas in the hands of only a few. Policy development regulated food to meet the demands of the agribusiness industry (Patel, 2009; Trauger, 2015; Wittman, Desmarais, & Wiebe, 2010).

This neocolonial process impoverished millions of indigenous peoples by displacing them from their homelands, resulting in many of them being forced into wage labor to serve the global food economy. In 1993, small-scale farmers' organizations formed La Via Campesina, and since then this global agrarian movement, representing 182 organizations from 81 countries (La Via Campesina, n.d.), has become the strongest voice in radical opposition to the globalized neoliberal model of agriculture and food production. In 1996, La Via Campesina challenged the state-led food security movement, asserting that it did little to end global hunger, and introduced a new global food review concept: food sovereignty. La Via Campesina established 11 principles that were integrated into its position on food sovereignty and presented at the World Food Summit in Rome in November 1996 (La Via Campesina, n.d.). The meaning of food sovereignty was further developed in various forums and meetings, and, in 2007, at an international forum on food sovereignty in Mali, a definition was articulated that has become the one most cited:

> 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 agricultural 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. (Declaration of Nyéléni, 2007, para. 3)

This notion of food sovereignty became a uniting call to small-scale farmers and indigenous peoples throughout the world. While this movement developed in an agrarian-based Latin American context, indigenous peoples with fishing, hunting, and gathering traditions were able to connect to its underlying philosophy: All nations, including indigenous nations, have the right to define strategies and policies, and develop food systems and practices, that reflect their own cultural values around producing, consuming, and distributing food. Indigenous peoples in Canada and the United States began exploring ways that food sovereignty could be both defined and deployed as a concept in creating dialogue and action around the revitalization of indigenous food practices and ecological knowledge.

In British Columbia, the Working Group on Indigenous Food Sovereignty (WGIFS) was created in 1996, and was one of the first indigenous groups to explore the new concept of food sovereignty. Through meetings, forums, workshops, and discussion groups, the WGIFS brought together indigenous elders, traditional harvesters, and community members who developed four main principles of indigenous food sovereignty to frame and guide this new indigenous food sovereignty movement. These principles are:

(1) Sacred sovereignty, that food is a sacred gift from the creator.
(2) Participatory, that it is a call to action and that people have a responsibility to uphold

and nurture healthy and interdependent relationships with the ecosystem that provides the land, water, plants, and animals as food.

(3) Self-determination, that food sovereignty needs to placed within a context of indigenous self-determination with the freedom and ability to respond to community needs around food.

(4) Policy, to provide a restorative framework for reconciling indigenous food and cultural values with colonial laws and policies. (Morrison, 2011, pp. 100–101)

I argue and assert that indigenizing this food sovereignty movement means moving it beyond a rights-based discourse to emphasize cultural responsibilities and relationships that indigenous peoples have with their environment. This also requires examining the efforts being made by indigenous communities to strengthen their place-based food systems and restore these relationships through the revitalization of our own indigenous foods and ecological knowledge as we assert control over our own well-being.

Indigenous peoples are united in cultures that are embedded and shaped by deep and meaningful relationships to the land, waters, plants, and animals that have sustained our cultures. While indigenous communities are distinct, making it impossible to define food sovereignty in a way that reflects all of our cultures, WGIFS Director Dawn Morrison says we are united by eco-philosophical principles that have guided indigenous people's interactions with the environment and the non-human world that has informed our food systems. This philosophical understanding, Morrison asserts, is antithetical to the relationship that Western society has with the environment. She writes, "in the Eurocentric belief . . . humans are to dominate and control nature, and therefore seek to 'manage' the land that provides us with our food. Indigenous eco-philosophy reinforces the belief that humans do not manage land, but instead can only manage our behaviours in relation to it" (Morrison, 2011, p. 99).

Indigenous food sovereignty weaves together the theoretical and analytical strands that many indigenous scholars such as Taiaiake Alfred, Jeff Corntassel, Robin Kimmerer, and others have explicated regarding indigenous people's relationship to the natural world, and which was weakened by colonialism, neoliberalism, displacement, and capitalism. Thus indigenous food sovereignty is defined within a restorative context that works to nurture individual and community health by repairing and fostering these healthy relationships.

Placed within the context of self-determination, indigenous food sovereignty as a concept aligns with principles developed by Cherokee scholar Jeff Corntassel (2008) in his notion of sustainable self-determination. Corntassel positions responsibilities and relationships at the core of indigenous self-determination. In order to de-colonize, he contends, indigenous peoples need to direct change from within and through action and policy toward becoming sustainable, self-determining nations. Corntassel maintains that the existing rights discourse can only take indigenous peoples so far. The rights-based framework to date emphasizes the sovereign state—political and legal recognitions of indigenous rights—which ignores the cultural responsibilities and relationships indigenous peoples have with their environments, and that have sustained their cultures. Within a sustainable self-determination framework, the emphasis is placed on de-colonization and restoration that connect political autonomy, governance, the environment, and community health. For indigenous peoples, sustainability is intrinsically linked to the transmission of traditional knowledge and cultural practices to future generations. Without the ability of community members to continually renew their relationships with the natural world, through practices such as gathering medicines, hunting and fishing, basket-weaving, speaking our indigenous languages—teachings that are core cultural values—all of these will be jeopardized.

Corntassel's (2008) notion of sustainable self-determination and the WGIFS's definition of indigenous food sovereignty emphasize responsibility, mutuality, kinship, and relationships. This is what Kimmerer (2013) calls "cultures of reciprocity." She writes:

> Humans and non-humans are bound to each other in a reciprocal relationship that creates duties and responsibilities. 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'm 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. (p. 115)

The human-ecosystem relationship is characterized as one of reciprocity and respect, where humans do not control nature but live in harmony with it. Restoring the health of indigenous communities means restoring the health of the land, or as Kimmerer (2013) so aptly states, "We restore the land, and the land restores us" (p. 336).

So, today, my people, the Tseshaht and the larger Nuu-chah-nulth Nation, are actively engaging in de-colonization and sustainable self-determination through reinstatement of authority over our *ha-houłthee* (our ancestral territory), and through the development of strategies and implementation of policies aimed at the sustainable production and consumption of traditional foods through an ecologically sound, place-based food system that honors our sacred relationships to the land, water, plants, and all living things. We have philosophies that guide this work that we are doing, and we place these within important strategies that we're working through, in developing sound economic programs, and also in the kind of the work we're doing individually within our communities. We follow these principles, and I just wanted to go through them before I show some of the work that we're doing, and specifically work that I've been doing with some people in my community.

Embodied in the Nuu-chah-nulth philosophy of *iisaak,* which literally translates to "respect," *uu-a-thluk,* which means "taking care of" or "taking care of the *ha-houłthee,*" our ancestral homelands, and *hishuk'ish tsawalk,* literally translated to "everything is one" but means "everything is connected," is the understanding that we must keep and honor the wisdom and values of ancestral knowledge in maintaining responsible and respectful relationships with the environment. Nuu-chah-nulth-aht or Nuu-chah-nulth people are raised with the understanding of iisaak, which applies to all life forms as well as the land and the water. Iisaak is about a most basic understanding, which teaches that all life forms are equal, that they all are held in equal esteem. Our relationships to the plants and animals that give themselves to us as food derive from this notion of iisaak, which enforces sustainability and places sanctions on those who are stingy or those who are wasteful (Turner, Ignace, & Ignace, 2000). The vision of uu-a-thluk is to take care of, especially take care of the *ha-houłthee* in a way that's consistent with Nuu-chah-nulth values and principles of responsibility given to us by our creator, N'ass. These principles of iisaak and uu-a-thluk are embedded within this overarching philosophy of hishuk'ish tsawalk, everything is one.

Have any of you read any of Chief Umeek's work? He wrote a couple of books, has a background in education, and is one of the first indigenous scholars in this area to really look at core principles or philosophies of an indigenous nation and think through them within a context of philosophical meanings, and how you can use those philosophical meanings and apply them in a modern-day society. He looks at these meanings, especially hishuk'ish tsawalk, in his book *Tsawalk: A Nuu-chah-nulth Worldview*. Here he introduces us to this indigenous worldview and ontology drawn from the Nuu-chah-nulth origin stories and includes a lot of stories in this book.

Within the Nuu-chah-nulth worldview, Chief Umeek explains that the universe is regarded as a network of relationships. *Hishuk'ish tsawalk* represents the unity of the physical and metaphysical in a relationship embodied in the principle of iisaak. This philosophy connects people, animals, plants, and the natural and the supernatural or spiritual realms in a seamless and interconnected web of life where all life forms are revered and worthy of mutual respect. The land, water, animals, and plants are regarded as your kinfolk, not as a commodity that can be exploited. The stewardship of our homelands was embedded in this philosophy that Chief Umeek articulates in his book, and this is what we are striving to revitalize.

So, I want to now look at and share with you some of, what I would say, is reconnecting us to our place-based food system. to be be honest, I've never used the term "place-based food systems" until this conference. I mean, we just know the work we're doing, and that our foods are place-based.

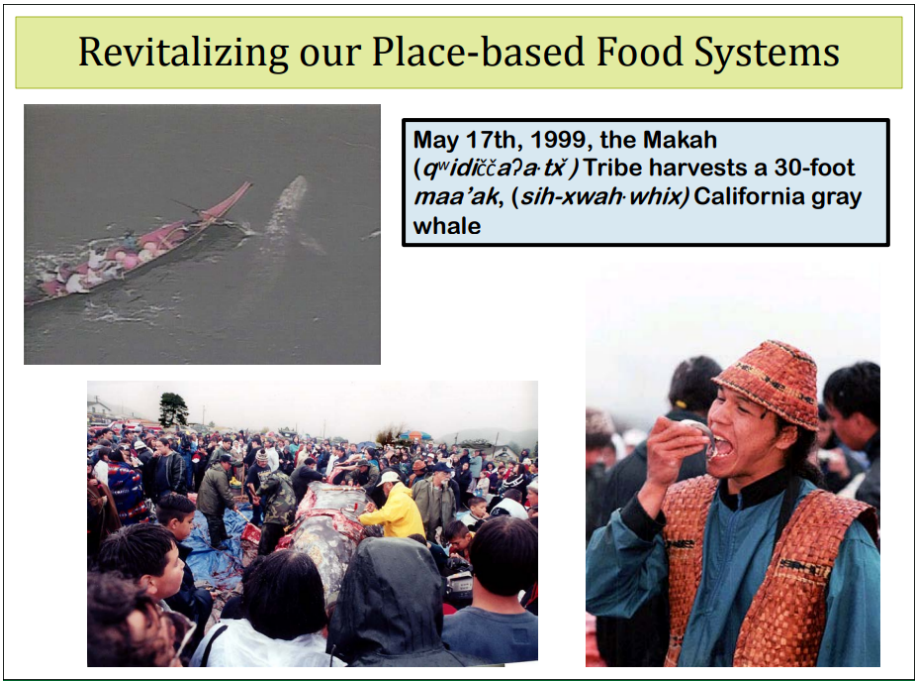
Revitalizing our Place-Based Food Systems

Makah Whale Hunt

How many of you heard of the Makah whale hunt in Western Washington? It's very controversial to some people, with many people not realizing why the Makah had decided to revitalize that one aspect of their larger tradition—a whaling tradition in which the hunt is one part. There was so much controversy over it, that when I was a graduate student in 1994 and the Makah made a decision they're going to revitalize their hunt, I decided I needed to write about this. I wrote my dissertation on the revitalization of whaling because, following the announcement by the Makah, we also, the Nuu-chah-nulth and specifically Tseshaht, were talking about revitalizing our whale hunts as well. Against a lot of opposition, I think misdirected in many ways, the Makah in 1999 were able to harvest *maa'ak,* in our language, the Californian grey whale, or *sih-xwah-whix* in their language (Figure 2).

The Makah, or the Kwih-dich-chuh-ahtx people, revitalized a very important connection to their place-based food system. And we have to think beyond place-based, meaning land; for the West Coast peoples we have a marine-based culture and marine-based economies, and our sustenance comes from the waters. So, many people look at mapping or geography, look at land as substance, water as void. In our cultures, the water is the substance, the land is void. So, for the Makah to restore their whale hunts in 1999 was significant to reconnecting to that major aspect of their cultures and to their identities. The Makah, as well as the Nuu-chah-nulth, are recognized as whaling people, and we're the only people who culturally whaled on the West Coast until you get up into Alaska and northern Canada, where there are strong whaling cultures as well.

Figure 2. The 1999 Makah Harvest of Maa'ak



Tseshaht Communal Fish Days

I grew up with our communal fish days. We still have these community days where we gather on Sundays to come together and fish (Figure 3). We begin fishing at 5 AM, very early in the morning, so there are few people there. We usually end up with a few hundred there by noon when we start handing out the fish. The reason why I include this is because a lot of people don't understand the significance of salmon to our cultures and identity. Every year we hold our breath wondering if our salmon will return. It's not just a matter of them returning and us eating salmon; you can get salmon at any store. It's the connections you have to space, to place, to family, to community when you

gather for those communal fish days, and also the sharing of those foods. Those salmon that continually return to our rivers do so because of that connection that we have to them within our cultures and the spiritual connection we have to the spirits of the salmon.

So, it's not just a matter of connecting through the fishing of salmon, but also that we process salmon. I grew up processing *miʔaat,* which is sockeye salmon in our language. I wasn't able to smoke salmon this year, but last year right next door to where I live in my community on Vancouver Island we did. My aunt and uncle live right beside me. This photo (Figure 4) is of my aunt and me preparing the smoke house, and you can see in in the bottom left, there is a bear also wanting to check out our smoke house. We have a lot of black bears on Vancouver Island. They don't bother you. They are usually there for what you're there for along the river, and that's to get the salmon.

Harvesting in our *ha-houlhee,* in our traditional homelands: this photo (Figure 5) is myself with my sister on the right, in the hat. On the left, that's Nitanis Desjarlais, the one who created the video (with her husband John) that I showed a part of, earlier. We're harvesting devil's club. I like these photos, especially the one at the bottom left, because they really identify what place-based means and where we're going. We're walking up the stream to where there

Figure 3. Tseshaht Communal Fish Days

Figure 4. Preparing the Smoke House and Smoking *MiʔaaT* (Sockeye Salmon)

is a very large harvesting area. And so, you can really see those connections to place, to our homelands or to our *ha-houłhee*.

I have to say something about that photo (Figure 5). This is in the afternoon after I don't know how many hours of harvesting. About two hours into our harvesting, it started to rain, and I said to my sister, this is how urbanized I've become—as soon as it started to rain, I said, "Are we gonna leave?" And she said, "Are you kidding? What do you mean are we're going to leave?" All I was worried about then was whether I was going to have fuzzy hair, like it matters, we're in the middle of the forest.

ʔicmapt in our language is fern. How many of you here are harvesters? Have any of you harvested the liquorice fern root? Oh my gosh, one of the best things you can count on. Great if you have a sore throat. Put it in some tea, steam it, it's wonderful to eat. This is us harvesting and eating. There is no way to pass by without eating some of it. And again, I like the photos (Figure 6) because they really show the connections that we have and how place-based our harvesting is.

This is another film project that Nitanis did: *Nuu-chah-nulth Language Lessons on the Environment*.[2]

Figure 5. Harvesting in our *Ha-houłhee* (Traditional Homelands)

Figure 6. Harvesting *ʔicmapt* Fern and Fern Root

[2] See the video at https://www.youtube.com/watch?v=jRR4-EA4dlM

This is significant to my research, how indigenous place-based food systems are connected to language revitalization and traditional ecological knowledge. In this film project, Nitanis looked at understanding how you can learn and restore Nuu-chah-nulth language and how that plays an integral role in sustainability and restoring traditional ecological knowledge systems. So, this is a video she did with one of my late aunts, Linda Watts, who was the linguist in our community. It focuses on learning words that connect to the environment. It's a two-minute video, and I want to show a little bit of it because it isn't just about reconnecting this work that we're doing in our communities and reconnecting to our traditional food sources. It entails a lot more than that, and I think Nitanis really was able to demonstrate that in these film projects. This was particularly evident in placing our elders and traditional knowledge holders at the center of the work that we're doing. This was done here by working with one of my late relatives, my aunty Linda Watts, and really making sure that as we move forward in becoming self-determining and sustainable nations, that we're doing that with language revitalization as well.

Figure 7. Harvesting *Qawiisa*, Salmonberry

Figure 8. Harvesting Devils' Club

I don't know if you've noticed as I went through the presentation, but my slides do have our words. In the book that I'm working on related to revitalizing indigenous food traditions, I'm

doing that as well because it's not only reconnecting to our language for our own purposes, but it's also sharing that with others so that others will also understand those words. Maybe those are the words that we can use instead of colonizers' words for some of these plants, places, and significant elements of our cultures.

So, these are another couple of photos that I took of harvesting *qawiisa,* salmonberry (Figure 7).

And this is, I'm not going to try to say our word for devils' club, it's very hard to say, but this is us harvesting devils' club (Figure 8). We did a couple of videos of the harvesting as well, but I can't figure out how to embed the video into my PowerPoint, so I can't show it.

Figure 9. The Tseshaht Garden Project

The Tseshaht Garden Project

I'm going to end with this and then a short quote, but this is a garden, and it's not a traditional foods garden (Figure 9).

It's a garden that grows kale and spinach and carrots and squash. My sister created it in my community for one main reason. If you can see there on the right, there is a building. That building is a boarding school that shut down in the 1970s. When it was shut down, we removed that building and we built our Nuu-chah-nulth Tribal Council there. The council serves all 14 of our nations, but that space, that land that's there on the bottom right, where you see the garden, that was, and I put in air quotes, "a playground." Children never played in these schools. They were always under surveillance. They were always waiting to see if they would be the next victims of the people who abused them in these schools. There was a lot of violence and trauma that happened in these schools and to these children.

And so, when my sister decided she was going plant a garden there, I said to her, "Why are you planting the garden here of all places?" And she said, "But this is the whole idea of what I wanted to show, that when people, former students of these schools come here, they don't see that any more. What they see is my garden." So, I asked her, "Well, do you think the land can feel the pain the same way these children felt the pain?" And she says that the land, the plants, the animals, everything around here, they saw what happened. There is trauma in that land. We need to heal that land too. Believe me, I can't grow kale for the life of me although I've tried; her first year—she is into her third year with this garden—and it's like a Jurassic Park garden. That land needed to heal so badly that it's producing all of this bounty for us and for the people, some of whom went to those schools and experienced extreme hunger. Now here they are, eating this nutritious food and not only becoming nutritionally healthy, but also spiritually and emotionally healthy by removing those memories and replacing them with this beautiful space.

I'm going to end with this quote from one of our whaling chiefs, Chief Mexsis (Tom

Happynook, 2001). I think it really does a nice summary of what I've covered in my presentation.

> When we talk about indigenous cultural practices we are in fact talking about responsibilities that have evolved into unwritten tribal laws over millennia. These responsibilities and laws are directly tied to nature and is a product of the slow integration of cultures within their environment and the ecosystems. Thus, the environment is not a place of divisions but rather a place of relations, a place where cultural diversity and bio-diversity are not separate but in fact need each other. . . . This is cultural biodiversity; a practice which has been developed and nurtured over millennia; in the Nuu-chah-nulth language "Hishuk Tsawalk", everything is one, everything is connected. (p. 1)

Tleko. Thank you very much.

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PLACE-BASED FOOD SYSTEMS KEYNOTE ADDRESS

Syilx perspective on original foods: Yesterday, today, and tomorrow

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> We're a part of this land, and a necessary part of it. The land needs us, and the planet loves us, and we don't know how to be a part of that anymore, in a real sense, in a physical sense. A coming back to that is something that we as humans have to figure out together.
>
> —*Laxłaxtikʷ, Dr. Jeannette Armstrong (quoted in Hall, 2007)*

Note
This paper is selected remarks from a keynote plenary entitled *The Food System Imperative: Shifting Ideologies to Meet the 21st Century Challenges* at the Place-Based Food Systems Conference, hosted by the Institute for Sustainable Food Systems at Kwantlen Polytechnic University on August 9, 2018. The conference brought together community and academic leaders to share research and practice and to foster effective collaboration. More information is at https://www.kpu.ca/pbfs2018

Where It All Begins

What is your first memory of being on the land? Is it picking berries? Digging up carrots in the

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garden? Maybe it's fishing with your dad. Take a moment and let the memory fill your senses. This is what "place-based" means. It means remembering where we come from so that we may understand more fully where we are today.

I come from the Okanagan Nation. My people, the Syilx/Okanagan, are a transboundary tribe separated at the 49th parallel by the border between Canada and the United States. Our Nation comprises seven member communities in the Southern Interior of British Columbia and the Colville Confederated Tribes in Washington. We share the same land, the same *nsyilxcən* language, culture, and customs. We are a distinct and sovereign Nation. We are deeply rooted in our land and waters. Our territory is a diverse and beautiful landscape of deserts and lakes, alpine forests and endangered grasslands that extends over 17 million acres (69,000 square kilometers) from just north of Revelstoke, BC, south to the vicinity of Wilbur, Washington. Today we continue to assert our jurisdiction and responsibility over the stewarding of our lands. Our *nsyilxcən* language and our Syilx/Okanagan culture respectfully honor the natural laws of the *tmix*^{w}[1]—that which gives us life.

A Sacred Responsibility

Land. Food. Family. Community. For us, they are all interwoven.

Ḱ^{w}*əlncutn,* the Creator, put us here and gave us a sacred responsibility to care for the land. From time immemorial, our knowledge institutions were based on being out on the land: developing a relationship with, being sustained by, and becoming one with the land. We have been—and continue to be—nourished by a wealth of biodiversity, including fish, game, berries, roots, and medicines. Hunting and gathering these resources require a localized knowledge that is dictated by the seasonal cycles of the land. We pick *siya* (saskatoon berries) in the early summer, then huckleberries, and soon afterwards it is time for salmon fishing.

Syilx/Okanagan families and community systems are united by the gathering of foods. This traditional gathering on the land is ceremony itself and demonstrates honor and respect for the *tmix*^{w}. Values come from this: reciprocity, responsibility. As caretakers of the land, it is our responsibility to use the land and water such that future generations may gather from these same places. **To care for the land is to care for the people.** Our people do not think in terms of five years, ten years, or retirement. We think in terms of those who are yet to be born. That is the lens. We are thinking that far ahead.

As my friend Denisa Livingston, a representative with Indigenous Slow Foods International, recently said, "We are the ancestors of our descendants." So, with that comes responsibility and the need to see that the decisions we make today affect our children, grandchildren, and all the children yet to be.

How Food Was Given

Our cultural ways of knowing are passed from one generation to the next through our *captikwł,* our stories. Within these stories we find our values, protocols, and laws. They share a worldview that understands the reciprocal nature between Syilx/Okanagan peoples and our territory. Our *captikwł* tell us how to live on the land. They serve as a reminder of natural laws and protocols that need to be followed in order for future generations to survive in harmony with the *tmix*^{w}. These stories are embedded in our culture and language and are important to cultural renewal and revitalization.

Our origin *captikwł* is grounded in foods that emerge from these lands. In it, *Ḱ*^{w}*əlncutn* sends *Senklip* (Coyote) to tell all the plants and animals that new people are coming and that the *stelsqilxw*, the people-to-be, will need help to survive. The chiefs of the plants and animals gather together to discuss what to do. Chief *Skmxist,* or Black Bear, is the oldest. He is chief of all the animals that walk on the earth and he brings the perspective of wisdom and culture. Chief *Spitlem,* or Bitter Root, is chief of all those who grow below the ground. He brings the perspective of community and interconnectedness. Chief *Siya,* or Saskatoon Berry, is chief of all who grow above the ground and brings creativity and innovation. And finally, Chief *N'titx*^{w}, or

[1] *tmix*^{w} is the sacred life force of all living things.

Salmon, who is chief of all those who live in the water, brings the perspective of action.

After *Senklip* tells them about the people-to-be, the chiefs hold a council. They consider how they can help the people-to-be. They talk about what the people-to-be will eat. Finally, the oldest among them, Chief *Skəmxist*, says, *All those who walk on the earth will give our bodies so that the people-to-be will survive*. The other chiefs say, *Surely if Chief Skəmxist gives himself, then we can do no less*. So one by one, they gave themselves and all those they represented to help the people who were coming. So when *Ḱʷəlncutn* put the Syilx people on Syilx territory, the agreement was that the Four Food Chiefs and all those who they represent would lay down their lives, but we, in turn, would always take care of them.

I get emotional about this because every one of those Four Food Chiefs are suffering right now. Our four-legged ones. Our plants in the earth. Our fish in the waters. They are all we need to sustain ourselves: *skəmxist*, *spitlum*, *siya*, and *n'titxʷ*. And the agreement was that we would take care of them.

Today

In a contemporary context, what does it mean to honor this reciprocal relationship with the Four Food Chiefs and all they represent? It means returning to the land and to our original foods. It means bringing our children to the land so that they know the territory and the territory knows them. It means actively recovering from the colonization that alienated us from our lands and displaced us from our foods. It means that we talk about Indigenous food sovereignty. It means that we talk about food security.

From a more global perspective, organizations around the world are beginning to affirm what we have always known, that our original foods are essential to the health and well-being of our communities.[2]

The movement toward Indigenous food sovereignty has a longstanding history within BC, with many champions working to further a sustainable food system for everyone. The BC Food Systems Network was formed in 1999 to foster dialogue and action and has been a strong partner with Indigenous peoples.

In our territory, Dr. Jeannette Armstrong and others at the En'owkin Centre have been at the forefront of working to rejuvenate Syilx/Okanagan foods and their ecosystems for decades.[3] The En'owkin Centre and the Okanagan Nation Alliance (ONA) have taken a leadership role and collaborated in making a systematic effort to research, document, and transmit the knowledge that our communities still holds, while documenting traditional ecological knowledge with new scientific methods and understandings.

Many of our people have been raising awareness and doing advocacy on Indigenous food sovereignty. The ONA contributes to a wide range of traditional food initiatives, including on-the-land camps to ensure that our food systems continue despite ongoing challenges.[4] Harvesting is grassroots. It is so important to acknowledge that our community members are out there doing this informal, unseen work of connecting with the land and sustaining their families.

Internationally, the discourse around Indigenous food sovereignty has emerged from multiple international forums that bring leaders from around the world together to advocate for rights and raise awareness on a global scale, where poverty and sustenance are recurring themes.[5]

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[2] See the BC-based Traditional Foods Fact Sheet prepared by Syilx/Okanagan scholar Suzanne Johnson: http://www.fnha.ca/Documents/Traditional_Food_Fact_Sheets.pdf

[3] See http://www.enowkincentre.ca/departments-ecommunity.html. The En'owkin Centre has hosted several key meetings promoting Indigenous food sovereignty on the territory in partnership with the BC Food Security Network. See http://bcfsn.org/wp-content/uploads/2017/03/Gathering2016Report.pdf and https://bcfoodsecuritygateway.ca/2503-2/

[4] See https://www.syilx.org/natural-resources/

[5] The United Nations Declaration on the Rights of Indigenous Peoples is a key document in asserting indigenous rights to first foods. See http://www.un.org/esa/socdev/unpfii/documents/DRIPS_en.pdf. Slow Food International has become a global movement involving millions of people in over 160 countries working to ensure everyone has access to good, clean, fair food. See https://www.slowfood.com/

Yesterday

Colonization impacted our Food Chiefs badly—and these impacts continue today. The work of honoring our reciprocal relationship within the reality of these impacts is immense and pressing. Let me tell you about what honoring Chief *N'titxʷ* has meant for the Okanagan Nation.

For time immemorial, salmon runs on the Okanagan River were so plentiful that our way of life was based on them. Our biggest villages were built beside the best fishing spots. The hot winds of summer, quickly dried salmon into durable protein that sustained our people through the winter. Our fish camps drew other tribes from as far away as the Great Plains, who brought horses and buffalo robes to trade for dried fish. Thousands gathered and the festival atmosphere carried on for weeks. *N'titxʷ* were not only sustenance, they were our relative, and an essential part of the continued resilience of the *tmixʷ*.

ONA is dedicated to restoring our Indigenous food systems and ensuring food sovereignty for the well-being and resilience of our community members. Salmon is central to connections between generations, communities, humans and non-humans, terrestrial and aquatic species, and transboundary watersheds along the Columbia River system.

But first, we had to bring our Chief *N'titxʷ* back from the brink of extinction. The Okanagan River sockeye population is now one of only two remaining populations of sockeye salmon in the international Columbia River Basin. Historically, chinook, coho, chum, and steelhead were also indigenous salmon species in the Okanagan Basin, but today they are either extinct or found in very low numbers.

Brink of Extinction

Overfishing due to colonization was already an issue by the late 1800s. Logging and farming destroyed the gravel bars and clear streams where salmon lay their eggs. Then, in the 1930s, came the hydro-electric dams on the Columbia River, making fish passage impossible and devastating the annual salmon runs.

Any salmon that wants to spawn in the Okanagan River must first get there by swimming up one of the most dammed rivers in the world. The Columbia has more than a dozen dams from the estuary at Astoria, Oregon, to the headwaters near Invermere, BC. The waters of the Okanagan River join the Columbia just south of the legendary Kettle Falls. In 1940, Kettle Falls was destroyed by the Grand Coulee Dam, which stopped all salmon migration to more than a thousand kilometers of spawning river, much of it in Canada. That same year, at the Ceremony of Tears, 10,000 Native Americans mourned the loss. Soon our fishing grounds at Okanagan Falls disappeared, too. In the 1950s, the Okanagan River was channelized for irrigation and flood control to better serve the needs of agriculture and urban sprawl. The winding riverbed and wetlands that make ideal salmon habitat were reduced to less than 10% of their original size. By the 1990s, the Okanagan sockeye were almost extinct.

But the Syilx/Okanagan people had made a commitment to the Food Chiefs. Our Elders and leaders started talking about their collective vision. "Let's bring the salmon back," said the late Chief Albert Saddleman, and our Chiefs remain determined and resolute in this work up to the present day, including the assertion and practice of our Aboriginal title and rights. Indigenous peoples are finally gaining recognition by our respective governments. First Nations are taking the government to court and winning. The playing field has shifted. The ONA represents this collective action with a Fisheries Department that began working with tribes and governments in Canada and the U.S. to save the sockeye under the mandate of our Chiefs.

Our Prayers Brought the Salmon Back

kt cp'elk' stim' is an nsyilxcen term that roughly translates as "to cause to come back." With the guidance of our Elders and sacred teachings, all seven Okanagan Nation member communities and the Colville Confederated Tribes were determined to see the sockeye salmon return.

The recovery of our salmon was a 20-year process of initiatives undertaken together with other tribes, governments, and agencies. It wasn't easy. A number of elements were essential, including creating partnerships, optimizing flow levels, restoring

habitat, and re-introducing salmon into the extended Okanagan River system.

Our ceremonies are built into everything we do. Our obligation was to protect our salmon and bring it back, to call it home. So while our salmon struggled, the Syilx/Okanagan people continued to pray for our relative. Our Salmon Feast was held at our traditional fishing grounds each year, to honor the sacredness of the river, while we sang and prayed for the return of the sockeye.

Finally, in the summer of 2010, the salmon came back in numbers not seen for 100 years. They were three times more numerous than even the most optimistic estimates. At the annual feast, our people offered prayers of thanks and sat down together around tables laden with the food of our ancestors.

Tomorrow

In 2014, the ONA opened the *kɬ cp̓ə̓lk̓ stim̓* Hatchery — a testament to the perseverance of our people to realize the dream of restoring *n̓titxʷ* to their original habitat and rightful place in our territory. This conservation hatchery represents a critical stage of our Nation's restoration initiative and is part of a long-term program to restore the historical range of sockeye in the Columbia River Basin.[6]

Alongside revitalized salmon are rejuvenated indigenous fishing practices. Beliefs and traditions are very important parts of indigenous culture and often reflect a deep understanding and respect for nature. ONA honors our roots by using holistic traditional practices—handed down from our ancestors. The Okanagan Nation has a dedicated group of fishermen committed to these methods who harvest for our artisanal fisheries. During fish harvest, certain parts of the salmon are returned to the river of origin. Portions of fish are also offered to eagles and owls, reinforcing strong reciprocal bonds within the broader ecosystem.

We continue to nurture our relationship with a small collective of inland Tribes whose work includes the economic aspects of salmon harvest approached with similar management practices. This work is presented through the River Select brand.[7]

Prioritizing the distribution of fish for food, social, and ceremonial purposes is paramount to balancing the capitalist model of economic profit and respecting our Chief *N̓titxʷ*. The Nation is working diligently to ensure fresh fish is distributed, with equal opportunity, to Nation members. In 2016, over 13,000 fish were distributed for food, social, and ceremonial purposes to all Nation member communities.

Every new success raises new problems, but with those come opportunities to innovate and open new dialogues. The Okanagan Nation is transitioning to a fully participatory fishery. Fishing gear is made available to communities and our Nation donates rods at Winter Ceremonies to encourage and enable people to fish for themselves. Each year we see more Indigenous fishers at *sx̌ʷəx̌ʷnitkʷ* (Okanagan Falls).

As a Nation, we continue to look at ways to sustain the thriving population of sockeye salmon in the Okanagan sub-basin and the Columbia River. There is never any certainty when it comes to restoring original foods, and, despite our successes, this remains an arduous task.

Memory and Transformation

In recent years, our Nation has received growing recognition for our efforts to rehabilitate salmon stocks. Increasingly, we find ourselves playing a role in public dialogues about Indigenous food sovereignty, food security, and sustainable fisheries.

We are tenacious in this work because our perspective includes the well-being of the people-to-be. Our Syilx leaders have been advocating for our Indigenous title and rights for a long time. We persist in the vision of these sacred responsibilities to care for our Four Food Chiefs. We carry on because of our memories of connectedness to the land—and our determination that the people-to-be must also have the opportunity to share in those same memories.

A paradigm change is needed, and Indigenous perspectives are essential. The Four Food Chiefs are a foundation for governance. The values that

[6] See https://www.syilx.org/fisheries/hatchery/
[7] See https://www.riverselect.ca/

are inherent in this form our civil society: reciprocity and responsibility. There must be an acknowledgment of our role as Indigenous peoples in restoring our Food Chiefs. We have longstanding experience protecting original foods from environmental challenges. We are here still and we will be here for a long time to come. We are here to lead, innovate, and perpetuate the values that sustain us all. We must acknowledge that we are in this together.

What does it mean to restore our Food Chiefs? It means we recognize the social and ecological values and importance of food is for all human beings on this very small planet. It means we talk about building relations with communities across cultures and across Nations. We work to build and hold each other up, not to tear each other down by dominance, power, and greed. We would rather cooperate. We would rather share. We would rather be in this work together.

Making it happen means we have to take risks and step forward. We are talking about change and transformation. We are talking about a food system where no one goes hungry. Revisit those memories that ground you in this work. We can remember. We can dream. And we can act. I get excited about our ability, intelligence, and collective wisdom to find a solution for all those other species that we should be taking care of. We were thriving, sustaining communities once. We can be again. All of us together. There can be abundance wherever we are. There can be a sustainable future for all of us.

Additional Resources

- *Our Salmon, Our People.* This short film covers both cultural and historical connections with *sc'win* and current efforts in regards to salmon restoration. https://youtu.be/Fhr7Rv3sqkk
- Syilx/Okanagan scholar Dallas Good Water completed a master's thesis on sockeye salmon and food systems. See *Okanagan Syilx Historical and Contemporary Salmon Distribution: Underpinning Social and Governance Structures* at https://doi.org/10.14288/1.0365707
- The Okanagan Nation Alliance has been involved in Thompson Okanagan Slow Foods since 2012 at local, international, and Indigenous events, and has collaborated on communication material, including a video entitled *Slow Fish sc'win Master* at https://youtu.be/MgiH5nfWXB0

Reference

Hall, D. E. (2007, October 21). Native Perspectives on Sustainability: Jeannette Armstrong [Interview]. Retrieved from http://www.nativeperspectives.net/Transcripts/Jeannette_Armstrong_interview.pdf

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PLACE-BASED FOOD SYSTEMS KEYNOTE ADDRESS

The importance of vision in food system transformation

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Abstract

Despite growing calls for food system transformation, the need to develop a vision to guide that transformation is sometimes overlooked. Vision is essential to inspire, mobilize, and keep a collective of people on track toward their goals. Individual visions can be exhilarating, but the visions that create change are taken up by large groups or movements of movements. A vision is a beginning for transformation, but it requires policy that enables it to be enacted, ideally through democratic processes. The vision, buttressed by policy and democratic governance, is what determines where people are able to buy food, how much they pay, whether farmers earn decent incomes, and whether the food is healthy. Without vision, policies are

Note

This paper is selected remarks from a keynote address on August 10, 2018, entitled *What Do We Need for Food System Transformation?,* given at the Place-Based Food Systems Conference that was hosted by the Institute for Sustainable Food Systems at Kwantlen Polytechnic University. The conference brought together community and academic leaders to share research and practice and to foster effective collaboration. More information is at https://www.kpu.ca/pbfs2018

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likely to be incoherent or to work at cross-purposes, as has happened in the farm bill and the European Union's Common Agricultural Policy. A range of visions generated at different scales, from autonomous community to state to region, can serve as examples for people committed to food system transformation.

Keywords
Food System, Transformation, Agroecology, Vision, Indigenous Cosmologies, Commoning, Solidarity Economy, Food Sovereignty

The need for fundamental food system transformation has become more urgent in light of growing evidence of the destructiveness of the industrial food system (IPCC, 2019; IPES-Food, 2016; Steffen et al., 2015). The dominant food system has contributed in major ways to each of the planetary boundaries that society has crossed (e.g., loss of biodiversity, disruption of nitrogen and phosphorus cycles), pushing us into zones where damage is irreversible. The question of what is needed for this transformation is big, but not impossible to answer. We can look to many other instances in human history in which people have achieved seemingly impossible victories, from the collapse of the Berlin Wall and the formal abolition of slavery (although it continues to exist in every country) to relatively modest successes such as smoke-free public spaces in the United States and being able to breastfeed in public.

Among the requirements for transformation is a citizenry that is sufficiently outraged by "business as usual" to demand change by electing people to public office who will support the public good instead of private interests, and then holding those officials accountable. That is extremely difficult to do now in the United States, given constant assaults on independent media, legislated restrictions on democratic process, and the dumbing down of the public through years of divestment in public education, privatization of educational institutions, and high prices for higher education. Many other "lock-ins" inherent to the food system impede transformation, including the expectation of cheap food, export orientation, short-term thinking, and the most common measures of success, such as increasing yields and productivity (IPES-Food, 2016). But the likelihood of massive changes in society is high. The levels of inequality that we face in the United States today are unprecedented, and no society through history has endured for long when wealth and assets are so radically skewed by class and ideologies of race.

The biggest question about this imminent social transformation is whether it will be violent and deadly or peaceful. This is where our vision of food system transformation, and how it will happen, is vitally important. Humans need vision to inspire, to mobilize, and to keep us on the track of constructive action. The current crisis of the Democratic party in the U.S., which contributed to the election of Donald Trump, exemplifies what happens without vision. After the midterm elections, as a wave of young progressive legislators entered the House of Representatives, the Democrats faced another turning point of whether to adopt the Green New Deal or remain mired in "Republican lite" policies that continue to funnel wealth, power, and assets to benefit those who are already powerful.

My own food system vision includes healthy food for everyone as an accepted human right, healthy ecosystems that are not polluted by agrichemicals and fertilizer or soil runoff, decent livelihoods for everyone working in the food system, and opportunities for everyone to help make decisions about the kind of food system we have, and not to be outgunned by corporate lobbyists. I do not want my own food and health to come at the cost of other people being enslaved or impoverished, or having persistent toxins dumped into the ecosystem. But this is simply my own vision (albeit shared with many other people), and it has no power unless it is carried forward indefatigably by collective action.

As we think about visions of the future, it is important to acknowledge that continuing in the rut we dug in the 20th century with mechanization, synthetic fertilizers, and other labor-displacing inputs—i.e., industrial agriculture—is simply not viable. We do not have "world enough, and time"; the food system based on industrial agriculture is consuming resources that cannot be replenished and producing wastes that cannot be absorbed

without damage to ecosystems. Furthermore, it is producing food that is responsible for most of the major causes of mortality in the U.S.: heart disease, many forms of cancer, strokes, diabetes (The US Burden of Disease Collaborators, 2018). "Sustainable agriculture" became a popular term about three decades ago, but as a kind of fringe alternative that never merited the funding from the U.S. Department of Agriculture that went to other agricultural systems. Somehow the logical implication that this other agriculture is *not* sustainable was lost, and we did not embark on a national search for viable alternatives.

There are many potential sources of vision for our food system, some already being acted upon with positive impacts. Indigenous cosmologies are among the most powerful visions we can find of how we must live to sustain our lives on this planet. Robin Wall Kimmerer (2014) explained some of her learnings from the place she inhabits between membership in the Citizen Potawatomie Nation and being a professional botanist in a university, in her book *Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge and the Teachings of Plants.* Indigenous cosmologies and wisdom often emphasize harmony and interdependence with nature, reciprocity, taking only what is needed, gratitude, the sacredness of Mother Earth, and respect for other ways of knowing beyond science.

U.S. institutions would do well to learn from Indigenous peoples and help to keep those teachings alive. Arundhati Roy (in *Walking with the Comrades,* as quoted in the film *Keepers of the Future*) explains:

> Can we expect that an alternative to what looks like certain death for the planet will come from the imagination that has brought about this crisis in the first place? It seems unlikely. If there's any hope for the world at all, it does not live in climate change conference rooms or in cities with tall buildings. It lives low-down on the ground with its arm around the people who go to battle every day to protect their forests, their mountains and their rivers because they know that the forests, the mountains and the rivers protect them. To gain this philosophical space, it is necessary to concede some physical space for the survival of those who may look like the keepers of our past but who may really be the guides to our future. (EcoViva & Lewis, 2017)

The brutal U.S. history of exterminating and enslaving Native Americans and forcibly removing their children to State-run boarding schools does not bode well for our ability to learn from Indigenous peoples. Although efforts to face revisionist history regarding slavery and racism are underway (e.g., the *New Yorker Magazine*'s 1619 Project; Newkirk, 2019), the U.S. has never apologized nor tried to discover ways to repair the relationship between settler society and Native Americans, other than isolated efforts such as the Maine Wabanaki-State Truth and Reconciliation Commission.

Most of us in North America no longer have deep roots to place and a truly sustainable cosmology. This means that we have to make our vision. We do not need to start from scratch, however. People around the world are creating and implementing food system visions. As important as the original vision is how it is supported and kept alive. Each of the visions below is also described by how it is being supported through commitments by an organization or social movement.

Visions do not have to be concrete: some visions arise from abstract ideals. The concepts of social and solidarity economies integrate the economic, social, and political dimensions of life, and respond to emancipatory aspirations aimed at promoting global changes (Gaiger, 2017). Food and agriculture have been part of social and solidarity economies, expressed in ancient practices such as shared kitchens, community ovens, seed-sharing, and commensality. Today we see social innovations such as CSAs, "free refrigerators," collective ownership and working of land, and revived seed exchanges (Carolan, 2018). It is only since industrialization that food and agriculture have become part of market economies that deal with food merely as a commodity.

Restoring food and agriculture to the commons and decommodifying food are also relatively abstract concepts that are receiving new interest (Bollier & Helfrich, 2019; Vivero-Pol, Ferrando,

De Schutter, & Mattei, 2018). Some of the innovations in societies that consider food to be a human right are close to commoning. For example, in Brazil, school children get healthy free lunches prepared from local food that is purchased from nearby low-income farmers. Purchasing local food by preference is a form of decommodifying: food takes on added value because it is produced in close proximity to where it is eaten. But commoning and decommodifying require social norms that respect and protect farmers' livelihoods as much as consumers' needs and preferences. This might be done through governmental purchase of food staples according to a quota system that allows farmers in each territory (established by a county, state, or region around a municipality) to grow abundant healthy food for its people. Farmers would be able to produce nonstaples in addition, and sell them at market prices, but the quota purchase price would be sufficient to ensure a profit margin over operating costs.

Tobacco production quotas are a precedent for this kind of system and help to explain why small farms were able to survive in tobacco-producing states longer than in other regions: supply control kept prices high enough that farmers could ensure a basic income from their tobacco crop alone. Of course, initial reactions to such as plan might well be resistance to government "interference" in markets, but those who cry loudest about the need to "get government out of agriculture" often mean that they just want governmental protections for their own interests. The government has constantly disrupted markets through tariffs, trade agreements, regulations, and other means. Furthermore, without some kind of coordination across farmers, each individual has incentives to overproduce, even to the point of land degradation, in our current form of capitalism where there are no supply controls and externalities are not internalized.

An example of a food system vision at the state level is Vermont's Farm to Plate plan, generated through discussion with over 1,200 farmers, producers, technical assistance providers, and farm and food-sector industry leaders. It is the most comprehensive state strategy in the U.S. and is supported by the Vermont Sustainable Jobs Fund (functioning as a backbone organization) through a mandate and funding from state government. After nearly 10 years in operation, the plan has achieved its goals of increasing local food purchases from US$176 million in 2010 to US$310 million, or 13.9% of total food and beverage sales. In the same time period, Vermont created 6,559 net new food-related jobs and 742 net new food businesses. And the percentage of food-insecure Vermont households dropped to 9.8% from 13.2% in 2010 (Vermont Sustainable Jobs Fund, 2018). These achievements required steady work by a network of people and organizations across the state, meeting regularly in committees and annual summits, where they communicated with each other to share solutions to problems. The state legislature has approved another tranche of funds to support the next 10 years of Farm to Plate, and the group is rethinking its goals to accommodate what has been achieved so far.

At the regional level, a group came together in New England in 2014 to create a food vision that challenges the region to produce 50% of the value of food that is consumed in New England by the year 2060, while improving environmental impacts and fisheries and nourishing everyone. Food Solutions New England, based in the University of New Hampshire's Sustainability Institute, adopted this vision and built a network of people who want to implement it in their own states. Food Solutions New England has sponsored summits in all six New England states (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont) and promoted the vision through a website and publicity. Vermont is something of an exception, since the Farm to Plate Strategic Plan had been developed before the New England Food Vision; however, its goals of enhancing food security, consumption of local food, and environmental quality are congruent with the vision.

At the national level, Food Secure Canada was a leader in creating a broad-based food systems vision, published as "Resetting the Table" in 2009. While the vision was taken up by other organizations, Food Secure Canada continued to promote it and distill it down to specific policies that it urged the Trudeau government to adopt. In 2019, Canada's Minister of Agriculture and Agri-Food and its Parliamentary Secretary announced the first

federal food policy, "Everyone at the Table," after consultation with 45,000 food producers and processors, experts in environment, health, and food security, Indigenous groups, nongovernment organizations, and community advocates. The vision for the Canadian food policy is, "All people in Canada are able to access a sufficient amount of safe, nutritious and culturally diverse food. Canada's food system is resilient and innovative, sustains our environment, and supports our economy." The Canadian government has pledged CA$134.4 million to a local foods infrastructure initiative, reductions in food waste and food fraud, a new school lunch program, and formation of a Canadian Food Policy Advisory Council, among other initiatives (CISION, 2019).

The process that Food Secure Canada led to create a vision for the Canadian food system has been replicated in many other countries, such as Australia, Scotland, Norway, and Bhutan. In the European Union, IPES-Food coordinated a Common Food Policy project, consisting of a series of roundtables on different food system issues, multiple working groups that developed specific policies, and a summit in Brussels in 2018 that brought together more than 200 food activists and was attended by high-ranking EU officials (De Schutter and IPES-Food Secretariat and Panel, 2019). This effort resulted in a promise to create a European Food Policy Council and announcement of a "Farm to Fork Strategy" for the EU by the new European Commission president, Ursula von der Leyen. IPES-Food members are being consulted on policies regarding research and innovation, soil health, and adaptation to climate change.

One of the most striking visions for future food systems is food sovereignty, the call for self-determination of a community's food system. Food sovereignty first came to public attention at the 1996 World Food Summit; it is now supported by more than 6,000 organizations and La Via Campesina, a social movement of 300 million small-scale food producers. This vision is especially important because social movements that include front-line defenders of human rights are advocating for it. This advocacy responds to often egregious abuses of human rights: Global Witness has documented that more than three people were murdered each week in 2018, with countless more criminalized, for defending their land and environment from agribusiness incursions and other corporate interests. Agribusiness was the second deadliest sector in the report, following mining and extractives (Global Witness, 2019)

Through peoples' organizing, food sovereignty has been written into the constitutions of countries including Ecuador, Brazil, Bolivia, Mali, Venezuela, Nepal, and Senegal. Constitutional recognition allows mechanisms for taking action if food sovereignty is violated. In addition, food sovereignty advocates have gained voice in international forums such as the United Nations Human Rights Council, meetings to review progress toward Sustainable Development Goals, and the Committee on World Food Security. A recent victory was the approval by the UN General Assembly of the UN Declaration on the Rights of Peasants and Other People Working in Rural Areas (La Via Campesina, 2018). Just as the 1948 adoption of the visionary Universal Declaration of Human Rights paved the way for a steady expansion of the concept of human rights and whose rights mattered, so it is hoped that the 2018 Declaration on Peasant Rights will foster recognition of the human rights of marginalized people in the food system.

Making the Vision Real

A vision is a beginning, but it needs policy that enables the vision to be enacted, ideally through democratic processes. The vision, buttressed by policy and democratic governance, is what determines where people are able to buy food, how much they pay, whether farmers earn decent incomes, and whether the food is healthy. Without vision, policies are likely to be incoherent or to work at cross-purposes, as we have seen in the U.S. farm bill and the EU Common Agricultural Policy. A vision must energize us to overcome the terrors that confront us in daily media and "decolonize the public imagination from neoliberalism" (Grear, 2017, para. 7).

A vision for a healthy, sustainable food system will only succeed if it joins with visions held by other groups beyond food system activists: people of color, Indigenous, labor, women, climate change activists. The food system touches everyone, so it

can be a great organizing core as long as people are willing to work together and make compromises. The compromises must not be ones that lead to exploitation of any group or increased suffering, however; a vision must be big enough that everyone can see how their life would be better within it. By becoming a platform for a movement of movements, vision can unite groups that had not previously dreamed of working together to achieve a future that benefits all (Lakey, 2016). 

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PLACE-BASED FOOD SYSTEMS KEYNOTE ADDRESS

Increasing the capacity for place-based food systems

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Communities across North America are responding to environmental, economic, and social challenges in our food and agricultural systems by creating and nurturing "place-based food systems." Some distinguishing features of place-based, regional food systems are that:

- They are deeply connected to the environment and to caring for it in a particular place;
- There are relationships of trust within supply chains from farmers and ranchers to processors to distributors to retailers or other institutions to consumers;
- Community food security and food sovereignty are important goals and rights;
- The health of individuals and communities is paramount;
- There are infrastructures in place to support healthy place-based food systems; and

Note
This article is adapted from a keynote address entitled *Increasing the Capacity of Place-Based Food Systems: Challenges and Opportunities in Food System Infrastructure and Distribution* at the Place-Based Food Systems Conference, hosted by the Institute for Sustainable Food Systems at Kwantlen Polytechnic University on August 10, 2018. The conference brought together community and academic leaders to share research and practice and to foster effective collaboration. More information is at https://www.kpu.ca/pbfs2018

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- All members of the food system have an opportunity to participate meaningfully in its development.

Challenges for Place-Based Food Systems

Our place-based food systems, however, operate in conjunction with—sometimes separately, sometimes integrated with—an industrial food system that may not always embody the same values. This more industrial food system emphasizes efficiency, profit, and power in ways that are more narrowly construed, sometimes at the expense of other environmental and social values. This apparent tension with place-based food systems leads to many of the challenges that follow.

Place-based food systems face particular challenges in creating sustainable infrastructure and distribution systems. First, challenges arise from our currently dominant, industrial food system. This industrial food system, with its highly efficient, consolidated, and globally organized transport system, has contributed to a long list of environmental impacts, such as contamination of air and water supplies, decreased genetic diversity, and increased greenhouse gas emissions—all affecting climate change. Related social impacts of the dominant food system include unfair risks and gains across supply chain actors, and racial and class disparities related to food access and labor opportunities in the food system. From farmers to food chain workers (including farmworkers), the current food system infrastructure and its embedded values have created poor working and living conditions as well as economic inequities. On the farmer side of the supply chain, the struggle is most evident with small and medium-sized farms. These are the farms we call "Agriculture of the Middle," those that are generally too large to make a living by selling through direct markets, but too small to be competitive in larger commodity markets. Food system infrastructure—processing, warehousing, and distributions systems—is often not designed for their scale, and so they struggle with market access and profitability. As Stevenson et al. (2011) point out, challenges for midscale food value chains are significant. They include (1) finding appropriate value chain partners and the mechanisms for creating trusting relationships, including how to make decisions together and be transparent in business dealings; (2) determining effective strategies for differentiation, branding, and regional identity, as well as for (3) pricing products based on true costs; (4) acquiring adequate capitalization and management; (5) developing effective quality control and logistics; and (6) developing economic power for value chain negotiations.

Day-Farnsworth (2017) highlights barriers faced by both farmers and eaters related to food system infrastructure. As she and others have noted, the challenges tend to fall into one of two categories: farmers and consumers. On the farm side, challenges include production methods and appropriate technology, food safety certification, access to capital, staff capacity, supply chain and distribution infrastructure, and marketing and branding. On the eater side of the supply chain, challenges include food outlet access and food availability, affordability, lack of cultural appropriateness, lack of economic opportunity, and community viability.

Unfortunately, these two sets of challenges and potential solutions are often described separately even though they are intricately related. As Day-Farnsworth (2017) points out, producers ask, "How can we reduce barriers to market and configure supply chains so that small and midsize local and sustainable producers can make a living" (p. 66)? Consumers (eaters) ask, "How can we reconfigure food supply chains to ensure that everyone has access to fresh, healthy food" (p. 66)? The real challenge is how can we meet both sets of goals simultaneously and move from siloed thinking to systems thinking, from single issue–oriented solutions to multi-issued, cross-sectoral solutions, and from individual to community orientations?

Changing Views of Sustainable Distribution

So, what might sustainable distribution and infrastructure in a place-based food system look like?

Our understanding of sustainable infrastructure, particularly in respect to distribution, for place-based food systems, has changed and matured over time. In the 1970s and 1980s, during the renaissance of farmers markets, sustainable dis-

tribution meant direct sales from farmer to consumer, typically at roadside stands or farmers markets. The idea behind direct marketing was to "shorten the supply chain" and help farmers get retail prices by selling direct to consumers, instead of trying to make ends meet by selling to wholesale markets, in which the provenance of one's products were unknown and prices were notoriously low. Farmers markets also bring fresh, local, and seasonal produce (and now more often, meat and fish) to consumers who may not otherwise have access to it, thus supporting the local food economy and building social networks and community capacity. Farmers markets have rapidly escalated in number, almost quintupling from 1,755 in 1994 to 8,687 in 2017 (U.S. Department of Agriculture, Agricultural Marketing Service [USDA AMS], 2018). They continue to be a very popular direct distribution strategy for small and some midscale farms.

In the late 1980s, CSAs—community supported agriculture operations—came onto the scene in the United States as another form of direct sales. In the purest form of CSA, consumers could actually partner with farmers by paying upfront for the costs of production and later receiving a share of the bounty in the form of weekly boxes of fresh produce. In those early halcyon days, sales through distributors were considered to be disadvantageous for small farmers whose products would disappear into oblivion with only a very low price to account for all their hard work.

In the 1990s, researchers began to focus on the disappearance of midsized farms and ranches. The alarm was raised about the connection between these farms and rural community vitality. As Goldschmidt (1947) had shown 50 years earlier in California's Central Valley, the community Dinuba, surrounded by small and midsized family farms, had richer and more diverse community institutions than the community Arvin, surrounded by large, agribusiness-owned farms. Yet, these midsized farms were failing across the country. Farmers markets, CSAs, and other direct-sales outlets alone could not stem this tide. So, in the early 2000s, various foundations in conjunction with sustainable agriculture institutions at several land grant universities came together as part of a task force to focus on renewing what we called "an Agriculture of the Middle."[1] The idea behind Ag of the Middle was for farmers and ranchers of small to midscale operations to work together strategically with other supply chain partners to distinguish their products in the marketplace, based on values such as environmental stewardship, food quality, fair trade, and regionality. Farmers and ranchers would receive a premium for their products and sell them regionally through "values-based supply chains" (VBSCs). Several case studies were created (including Red Tomato in the Northeast United States, Organic Valley based in the upper Midwest, Country Natural Beef in Oregon, and Shepherd's Grain in eastern Washington) and provided data and strategies about how these values-based supply chains might work.

As we began to understand the dynamics of these VBSCs, it became clearer that they were not always separate entities, divorced from more conventional distributors in the food system. In fact, we began to see some conventional broadline distributors (such as Sysco and FreshPoint), and regional distributors include "local lines," in which local farmer suppliers were identified on their availability lists such that buyers could choose specific locally grown products. Ruhf and Clancy (2010) described these supply chains as "hybrid models," in which there are elements of values-based supply chains and of more conventional supply chains. The USDA began to document sales of farm products through both direct and what Low and Vogel (2011) call "intermediated marketing channels," in which farmers sell to retailers, such as grocers and restaurants, regional aggregators such as food hubs, and institutions. In 2008, farm sales of farms marketing food locally—exclusively through intermediated channels—was US$2.7 billion, three times higher than the value of local foods marketed exclusively through direct-to-consumer channels (Low & Vogel, 2011). By 2012, the USDA's Economic Research Service (ERS) estimated that local food sales through only intermediated markets was up to US$3.3 billion (Low et

[1] See http://www.agofthemiddle.org

al., 2015). These types of marketing channels for values-based foods are definitely expanding.

Practical Examples of Sustainable Place-Based Food Systems

There are thriving examples that highlight how food system infrastructures support place-based food systems and break down some of the silos we face. Two key areas include farm to school programs and food hubs.

Farm to school programs "enrich the connections that communities have with fresh, healthy food and local food producers by changing food purchasing and education practices at schools and early care settings" (National Farm to School Network, n.d.). Children gain access to healthy, local foods in their cafeterias, gardens, cooking lessons, and farm field trips. Farm to school empowers children and families to make informed food choices while strengthening the local economy. From just a handful of farm to school programs in the late 1990s, they have grown to more than 5,200 school districts and 42,500 schools in the U.S. (USDA Food and Nutrition Service [USDA FNS], n.d.). More than 23 million students are developing healthy eating habits and learning where their food comes from as a result of farm to school programming (USDA FNS, n.d.). Furthermore, almost US$790 million have been invested in local communities (USDA FNS, n.d.), mostly through school cafeterias purchasing food from regional farmers. Oakland Unified School District (OUSD) in California is a stellar example of one that has methodically improved its infrastructure and distribution to support more regional farmers. For example, since 2014 OUSD has partnered with the Center for Good Food Purchasing to evaluate its procurement practices. Between 2012 and 2017, it improved its rating (from 2 to 4 stars, out of 5 possible stars) by increasing purchases of foods that are local, humane, sustainable, fair, and nutritious (Center for Good Food Purchasing, 2016).

Another strategy for supporting partners all along a supply chain is a food hub—a business or organization that manages source-identified food products. These businesses are helping small and midscale producers scale up through various models involving socially conscious business decisions. According to the 2017 Food Hub Survey done by Michigan State University (Colasanti, Hardy, Farbman, Pirog, Fisk, & Hamm, 2018), food hubs are continuing to grow in number. Overall, results show that they are creating new jobs (almost 1,900 paid staff of the 119 responding food hubs) and that they are sourcing from an average of 78 producers and suppliers per hub and marketing to four customer types (restaurants, direct-to-consumer, colleges and universities, and grocery stores). Over half of a hub's producers (suppliers) are considered beginning farmers or businesses, and about 89% source mostly from small and midsized farms and ranches. More than two-thirds of those surveyed are breaking even or better, and more are becoming profitable over time. Older hubs seem to be scaling up to supply larger customers. They continue to be challenged, however, to balance supply and demand.

One food hub in California that is building a place-based food system is Mandela Foods Distribution in Oakland. Mandela Foods Distribution is a program under Mandela Partners, a nonprofit that works with local residents, family farmers, and community businesses to increase wealth and build assets through local food enterprises in low-income communities.[2] Mandela Foods Distribution supports local, under-resourced farmers by establishing an alternative distribution network that links them to an emerging urban retail base and passes on wholesale prices to community retailers and institutions. Forty percent of the produce purchased by Mandela comes directly from local family farms using sustainable practices on the Central Coast, Capay, and Central Valleys of California. Some of the buyers for this local food include the Mandela Foods Cooperative as well as other retailers in their Healthy Retail program and Zella's Soulful Kitchen.

Reflections

So, what have we learned from reflecting on the challenges we face and the opportunities we see in building the capacity and infrastructure of a

[2] See https://www.mandelapartners.org

sustainable food system? Let me share three observations:

1. Although we've developed alternative distribution strategies that are working to meet multiple food systems goals, it has taken time—decades even—to go from conceptual models to realities that actually work in communities over time. We continue to need a combination of research and on-the-ground implementation by food system businesses along the supply chain to reflect together on what works and what doesn't, and figure out how to move forward. The Ag of the Middle research and outreach group is one good example of how this could happen.

2. We need diversity in the system as we take the next steps. That means that we need to respect, listen to, and include different ways of knowing (knowledge systems), different ways of communicating, and different strategies for achieving goals we can all agree on. Sustainability by its very nature is multidisciplinary and multifaceted. We absolutely need all views and perspectives at the table together. Food policy councils are potentially a fertile ground for practicing how we model diversity.

3. Finally, we need to continue to be mindful of power dynamics in the food system and continue to expose and attempt to improve areas that do not support justice, food sovereignty, and participation by all.

With these things in mind, where do we need to concentrate our efforts in the immediate future? I think there are three places we might begin.

The first is to pay attention to giving voice to people of color and those who are disadvantaged in the current food system. To claim social and environmental justice, we have to start walking the talk at all levels. Looking more closely at food system labor may be a place to start. Another is education. I learned this summer how my colleagues in colleges and universities across the country (led by Molly Anderson) are including classes for their undergraduates on becoming more aware of the social and racial injustices in our food system, and how we need to start by examining our own biases.

Second, we need to pay attention to developing the next generation of leaders that take these issues seriously and know how to collaborate to build long-lasting strategies that are not grant dependent, bringing together food security and midscale producers and distributors successfully.

Finally, we need to keep talking, networking, and ramping up communication, outreach, education and organizing among all parts of the supply chain and beyond. We need massive commitment from all of us if we hope to get to a sustainable future.

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PLACE-BASED FOOD SYSTEMS KEYNOTE ADDRESS

Place-based food and farming systems: Reconnecting people with purpose and place

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We are living through a time of fundamental change in human society, as is becoming increasingly clear. Climate change, fossil energy depletion, loss of biodiversity, and growing social and economic equity all threaten the future of human civilization. Only the most adamant deniers fail to accept the necessity for change. The primary point of contention seems to be whether the current global challenges can be met by transitioning to a new phase of *economic* development or instead will require a fundamental transformation to a new era of *human* development.

Defenders of economic growth as the primary indicator of progress tend to place their faith in future technological developments that will be

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motivated by economic incentives. As the challenges of climate change and fossil energy depletion grow more critical and are better understood, economic incentives for the development of technologies to mitigate the negative impacts on society will increase. Market economies respond to scarcity. As clean air and clean energy become scarcer, they become more economically valuable. Greater economic incentives will provide motivation for new technologies to mitigate climate change and develop substitutes for fossil energy. Whenever public policies are deemed necessary, "market-based" solutions are favored over government regulations and restraints.

Its defenders believe economic growth is still the ultimate means of alleviating hunger and poverty and reversing current trends toward greater economic and social inequity. They do not concede the existence of finite ecological limits to economic growth. They believe we simply need to use the remaining fossil energy more efficiently, while we transition to renewable energy and use new technologies to reverse climate change and eliminate our dependency on biologically diverse ecosystems. "Dematerialization" is a term used to define the process of making economic growth less dependent on the natural resources of the Earth. "Ephemeralization," the ultimate goal, is a term coined by Buckminster Fuller, meaning the ability of technological advancement to do "more and more with less and less until eventually, you can do everything with nothing" (Ephemeralization, n.d.).

Those who believe in finite limits to economic growth believe a fundamental transformation of human society will be necessary to avoid a civilizational collapse. William Rees, a prominent ecologist, documents the impacts of economic development on the Earth and concludes that the "ecological footprint" of humanity has already exceeded the long-run carrying capacity of the Earth (reference his article in this issue of JAFSCD, Rees, 2019). He has concluded that a major change in global climate is likely inevitable, and will have catastrophic effects on the future of humanity. Shifts to renewable energy and pollution-mitigating technologies may slow the rate of ecological disintegration, but a civilizational collapse is highly likely, if not inevitable.

Wes Jackson contends that past economic progress has been largely dependent on readily accessible, inexpensive, and relatively "clean" sources of fossil energy (Jackson, 2019). Old growth forests, shallow veins of coal, and accessible pools of oil and natural gas have fueled the early stages of industrial economic development. However, the old growth forests are gone, and the remaining sources of fossil energy are less accessible and thus more expensive to extract, economically and ecologically. Far fewer kilocalories (kcals) of energy are produced relative to kcals of energy required for extracting and refining the remaining stocks of fossil energy than in earlier times. Each kcal of a new fossil energy source, such as fracked oil or natural gas, also releases more pollutants into the environment than did previous energy sources.

Thus far, new technologies have failed to even offset the impacts of less available and more costly sources of energy. "De-energization," or increased energy efficiency, has only led to increased energy use and greater environmental pollution as the economy has continued to grow. Jackson believes that humanity has reached the end of the "Neocaloric era." The only solution will be a transformation to a new "Ecozoic era," a term coined by Thomas Berry in the book *The Universe Story* (Swimme & Berry, 1992) to describe a new geologic era. In the new era, humans will live in a mutually beneficial relationship with the Earth and the other living and nonliving things of the earth. Technology is fundamentally incapable of separating the well-being of humanity from the well-being of the Earth's integral community, of which humans are both members and caretakers.

Human progress in the new Ecozoic era will require an economic system that is fundamentally different from the economic systems of the Neocaloric era. Industrial economic development has provided, and still provides, the foundation for both capitalist and socialist economies. Industrialization was designed for maximum economic efficiency in extracting and exploiting the Earth's natural resources, the ultimate source of all economic value. However, these resources are finite and limited, and thus their usefulness and value ultimately will be exhausted through continuing extraction and exploitation. All forms of resource utilization

for economic development require the use of energy. According to the first and second laws of thermodynamics, energy can't be created or destroyed, but each time energy is used some of its usefulness is lost through the process of entropy (OpenStaxCollege, n.d.). Industrial economic development is simply not "sustainable."

As Eric Holt-Giménez explains in his book, *A Foodie's Guide to Capitalism: Understanding the Political Economy of What We Eat,* capitalist economic systems inevitably tend toward concentration of economic power and wealth (Holt-Giménez, 2017). With economic power comes political power, which inevitably leads to economic inequity and social injustice. The dominant economic and political power in most so-called developed nations is now held by multinational corporations rather than individuals. This "corporatization" of capitalist economies has removed previous spatial and temporal limits to economic extraction and exploitation. Corporations can operate *everywhere* and can live *forever*. Socialist societies suffer a fate similar to capitalism. Socialist oligarchs eventually emerge and use their economic and political power to exploit the natural resources under their control for their personal benefit rather than the benefit of their constituents. As the Neocaloric era comes to an end, avoiding a civilizational collapse will require more than reforms in economic policy. Life in the Ecozoic era will require an economic *transformation*.

The global food system is now the front line in the battle between those who put their faith in transitional agri-food technologies and those who believe nothing less than transformational change in agri-food systems can meet the future food needs of humanity. In spite of persistent denials, both sides in this battle are coming to the realization that today's so-called modern food system is not sustainable. Mounting evidence of the negative impacts of industrial agri-food systems on the natural environment, public health, animal welfare, and quality of rural life is becoming increasingly difficult to deny and impossible to ignore. Virtually every major agri-food corporation now includes a commitment to sustainability in its mission statement and issues an annual sustainability report to convince its investors and customers that the corporation is responding to growing public concerns. However, with few exceptions, corporate sustainability programs today are clearly transitional rather than transformational.

Transitional technologies tend to focus on separating and insulating agriculture from the ecological and social environment in which *farms* and farmers must function. For example, confinement livestock and poultry operations remove animals from their natural habitat and isolate them physically and visually from public exposure. Similarly, hydroponic vegetable production removes crop production from reliance on soil fertility as well as the vagaries of weather variability and changes in climate. Both of these technologies are now allowable under U.S. standards for "organic" food production. Genetic engineers are working to weather-proof crops to cope with an increasingly volatile climate. GPS-guided robots and drones are being developed and tested to reduce future needs for farmworkers and the associated risks to public health. Separation of agriculture from nature and society seems to be the ultimate objective of all of these industrial technologies.

The logical alternative to technological *transition* is transformational *change*, to replace industrial agriculture with systems that reconnect agriculture with nature and society. Today, non-industrial farming systems go by various names, including organic, ecological, biological, biodynamic, sustainable, resilient, regenerative, and restorative agriculture, as well as permaculture, holistic management, and nature farming. The unifying principle of all of these systems is recognition and respect for the inherent interconnectedness of agriculture with its natural environment—with the air, water, soil, and energy flow of nature. The ultimate goal of these transformational farming systems is to find ways to meet the agri-food needs of humans by farming in harmony with nature, rather than trying to either conquer nature or separate farming from nature.

The concept of "agroecology" provides a unifying conceptual framework for these and other agri-food systems that reconnect agriculture with both nature and society. Miguel Altieri, an intellectual pioneer and longtime advocate, has called agroecology "the science of sustainable agriculture." He describes agroecology in terms of farm-

ing systems that are rooted in the science of ecology (Altieri, 2000). Ecology is a study of the relationships of living organisms, including humans, with the other elements of their natural and social environment. A common phrase in the discipline of ecology is: "You can't do just one thing." The relationships in agroecosystems are incredibly complex—living soils, plants, animals, people… Everything is related to everything else, somehow, in some way. Anything a farmer does affects everything else on the farm—some in small ways and others in important ways. The unintended consequences may appear either quickly or at some time in the distant future.

Agroecology respects the "ecology of place." Every agroecosystem is unique, in that unique relationships constitute unique wholes—even for wholes made up of similar components. The farmer is a member of a farm's integral agroecosystem, and the relationship between a specific farm and specific farmer is critical to the farm's success or failure. Agroecology also respects "the social ecology of place." In agroecology, humans are treated as part of the Earth, rather than apart from the Earth. Farms and farmers are inherently connected with the specific communities and societies within which they function. The economic sustainability of a farm obviously is interdependent with the willingness and ability of people in its local community, or the larger society, to buy its products at profitable prices. Less appreciated, the quality of life of farmers and farm families are critically affected by their personal relationships with others in their communities—their sense of acceptance, belonging, and self-esteem.

Agroecology also provides a conceptual framework for growing local food movements in the U.S and around the world. For example, agroecology was a natural choice for the global food sovereignty movement. Food sovereignty is a term coined in the mid-1990s by La Via Campesina, which is "one of the largest social movements in the world, made up of more than 200 million small and medium-scale farmers, landless people, women farmers, indigenous peoples, migrants and agricultural workers" (Global Justice Now, n.d.). In 2007, more than 80 countries signed the Declaration of Nyéléni, which proclaims "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" (Nyéléni Forum on Food Sovereignty, 2007).

Agroecology supports the principles of food sovereignty in that it is a science-based approach to "ecologically sound and sustainable farming methods" that can be used to produce "healthy and culturally appropriate foods" and to retain the rights of people "to define their own food and farming systems" that respect the natural and social ecology of place. Although less prominent in the U.S., agroecology seems a natural choice to provide a science-based conceptual foundation for the local food movement. If this movement is to be sustained, it must be an alliance or network of local, community-based food systems committed to the purpose of producing food in harmony with nature and community. Otherwise, in an attempt to "scale up" to access larger markets, it is likely to be co-opted and integrated into the industrial food system. A commitment to agroecology is a commitment to food systems that reconnect people with purpose and place.

Fundamental transformations in agri-food systems, economies, and societies will all require a recommitment to purpose. The existence of purpose cannot be proven scientifically. Thus, the very existence of purpose—in any sense other than some innate desire to continue living—has been vigorously denied by scientists and is routinely ignored by contemporary society. From the time people are children, most are taught to think critically and rationally, meaning they should not believe anything that can't be proven scientifically. However, people behave instinctively and intuitively, as if life has purpose. Without purpose, it wouldn't matter what people did or didn't do. There would no means of distinguishing between right and wrong or good and bad. Anything would be okay—or not; there would be no way of knowing. In spite of a supposed belief in scientific rationality, people still behave as if life has purpose.

In the absence of a serious inquiry or thought given to purpose, many people seem to have accepted earning and accumulating money as their purpose—or at least as a proxy for purpose. This

contains an element of rationality. Money has no intrinsic value; it is simply a *claim* to something of potential value. The uniqueness of money is that it can be used to claim anything that can be bought with money. A person who has money can buy and do many different things—the more money, the more things. Money also can be saved as a hedge against some of life's uncertainties. In the absence of a clear idea of what people are meant to do with their lives— their purpose— acquiring and accumulating money might seem to be a logical purpose for committing their time and energy to a particular endeavor.

The fundamental problem is that over time, money has become the cultural measure of success—of society's validation of a life of usefulness, worth, or purpose. Power and fame also are accepted measures of success, but power and fame almost invariably lead to economic success—to money. Over time, people in so-called developed societies seem to have forgotten that acquiring money is not a reflection of a life of true worth or purpose, unless it is used to contribute to some worthwhile purpose or the greater good. Those who are unable or unwilling to commit sufficient time and energy to endeavors that earn money are considered as worth less than others, or even worthless.

An over-reliance on money to meet basic needs also has led to a growing disconnect of people from each other and from the other living and nonliving things of the Earth. Everything of use or of value in sustaining human life on Earth, including everything of economic value, ultimately comes from the Earth—minerals, soil, water, air, energy. There is no other source. Beyond self-sufficiency, or meeting needs individually, people must rely on other people. They may rely on people they know personally—within families, friendships of local communities—to meet some of their needs. Money and markets allow people to meet their needs through *impersonal* relationships or transactions, buying and selling, rather than through barter or gifting. People can earn and spend money to get what they need or want that is produced by people whom they don't know personally.

In fact, economic value is inherently *impersonal.* If something can't be bought, sold, or traded, it has no economic value. Relationships with a spouse, children, or friends may be the most valuable and important aspects of a person's quality of life. However, people can't buy, sell, or trade personal relationships; so they have no economic value. Some economic value may accrue as a consequence of such relationships, but the purely personal or social connection with another person is of value only to those who share personal relationships.

Over time, increased reliance on the money economy and diminished necessity for personal relationships weakened the social cohesion within families, communities, and society. Reliance on economic transactions rather than self-reliance has also weakened the social sense of connectedness with things of Earth—the source of all real wealth. Increasing economic inequity and social injustice, and relentless resource depletion and ecological degradation during times of tremendous economic growth and individual wealth, are logical consequences of a growing sense of disconnectedness. This is the legacy of the industrial era of economic development. The call for transformational change is a logical response.

The call for transformational change is also being driven by questions of sustainability, which means, by the most general definition, the ability to meet the needs of the present without diminishing opportunities for the future. Ecological integrity, social justice, and economic viability are generally accepted as the three essential pillars of sustainability. The most fundamental flaw of industrial economic development is that economic growth is simply not sustainable in a world with finite productive resources and capacity to absorb and detoxify waste. However, as Molly Anderson points out, "Sustainability per se is an empty goal for food system reform, unless *what* will be sustained and *for whom* are specified" (Anderson, 2008, p. 593). Transformational change in the agri-food system must be motivated by a sense of purpose that transcends money and impersonal economic values.

Among the essentials of agri-food sustainability, Anderson (2008) includes *democratic participation in food system decisions, absence of human exploitation,* and *absence of resource exploitation.* In his book, *Development as Freedom,* Amartya Sen (1999) points out that free-

doms without the capability to fully utilize or express them are limited and, in extreme cases, are not freedoms. For example, someone might have the right to vote but be barred from voting by restrictive voter registration rules or be unable to travel to the polling place. So a person or community who has the right to determine their own food system, but lacks the capacity or authority to do so, still has no food sovereignty or opportunity for agri-food sustainability. Sen includes *economic facilities, political freedom, social opportunities, transparency guarantees, and protective securities* among essentials for true freedom. He argues that authentic human development requires securing greater freedoms.

Consistent with Sen, Anderson (2008) suggests that authentic agri-food sustainability must be framed in terms of basic human rights. She identifies *food security, health, decent livelihoods, gender equity, safe working conditions, cultural identity* and *participation in cultural life* as basic human rights. As she points out, food supply chains that strive to meet the multiple goals of social justice, economic equity, and environmental quality are gaining popularity in the U.S. However, she feels that terms such as community-based, local, and sustainable are generally assumed to include assurance of basic human rights, whereas in many cases even social or economic equity is given little if any consideration. She advocates a new concept of "rights-based food systems," which clearly connects localization and social justice with agri-food sustainability.

Gail Feenstra, Tracy Lerman, and David Visher (2012) define "values-based supply chains" as nondirect market channels "where consumers receive information about the social, environmental, or community values [essentials of agri-food sustainability] incorporated into the production of a product, or the farm or ranch producing it" (p. 4). Processors, distributors, packers, shippers, wholesalers, and retailers, as well as farmers and ranchers, may all be involved in the supply chain. Regardless of how many are involved, the specification of the non-economic values embodied in the production process must be preserved throughout the supply chain. "Value-based" supply chains thus depend on "transparent, collaborative, equitable relationships based on trust, and work together to make sure everyone benefits, and in particular the farmers and ranchers" (Feenstra, Lerman, & Visher, 2012, p. 4).

These authors identify the difficulty in establishing and maintaining *trust* as the most important obstacle to transformational change in the agri-food system. Relearning the art and science of positive human relationships may well be the greatest challenge in transforming the agri-food system to achieve sustainability. Values-based food supply chains could conceivably include a commitment to basic human rights as well as shared core social values. Few if any in the U.S. today actually do so, and many do not include commitment to any social values.

To emphasize the social and ethical nature of authentic sustainability, John Ehrenfeld (2014) advocates modifying the definition of sustainability to "the creation and maintenance of flourishing" (para. 15). He agrees with Anderson in pointing out that the word sustainability is a noun, and nouns are meaningless in practice unless they refer *to something*. He suggests the purpose of sustainability, what is to be sustained, is *human flourishing,* which he defines as "a measure of the fullness of life, not some material metric" (para. 14). He writes that flourishing "comes when one can say that life's cares are being attended to — when every human being is successfully caring for themselves, other humans, and the non-human world that is vital to our maintenance" (para. 14).

The logical place, then, to look for guidance in the quest for sustainability as assurance of basic human rights, sustainability as freedom, or sustainability as flourishing would seem to be the wisdom of Indigenous peoples. People living in hunting and gathering societies understood the importance of caring for themselves, other humans, and for the non-human world (Ikerd, 2014). They didn't need science to validate the rationality of their sense of connectedness. They had intimate relationships with the earth and with all of the living things with whom they shared the earth. They lived with nature and depended on nature for food, clothing, and shelter. Indigenous peoples also depended on their families, tribes, or villages for protection from enemies and assistance during times of need. They shared the tasks of securing food, clothing, and shelter with others.

Furthermore, their lifestyles reflected a personal sense of connectedness with other people that went beyond meeting their physical needs. They formed gifting economies in which people actually strive to give away more than they receive in return. They understood that humans are inherently social beings; people need to relate to each other personally. Their ethical and cultural values concerning their relationships with each other and with nature evolved from these personal relationships.

They also passed on stories and rituals that reflected their sense of spiritual connectedness. They considered stewardship or caring for nature to be a distinction of honor—a sacred trust or responsibility. Their stories reflected a sense of kinship with the animals, and even the plants, from which they derived their sustenance. They did not take food from nature; instead, nature gave them food—and they gave back to nature in return. Indigenous peoples understood they were socially and spiritually connected, not only with other people, but with all the living and non-living things of the earth.

With growing concerns for the sustainability of today's disconnected world, there is a resurgent respect for the wisdom of Indigenous peoples who have refused to sacrifice their sense on interconnectedness with all living and non-living things of the Earth. Pauline Terbasket, executive director of the Okanagan Nation Alliance, proudly confirms: "For Syilx Okanagan peoples, our food systems have been deeply rooted in our territory and are articulated in our origin *captikwl* (stories). These are embedded in deeper worldviews that understand the reciprocal nature between Syilx Okanagan peoples and our territory" (Terbasket, 2018).

Dr. Janette Armstrong, when asked how she would define sustainability, replied: "With great difficulty, because I'm a fluent speaker of my language, and if I try to translate that, or even interpret that into my language, it's not a very good word. Though in the intent of that, in terms of how unsustainable this culture is towards the resources on the land, towards what community is, and what people really are, within that, the word seems to have a better meaning than some of the other words. Sustainability on one level means to be able to maintain and sustain the fullness of health that needs to be there for us to thrive, and for everything else to thrive. In that context, it sounds like it fits with the way I would think about sustainability in my language. But the way in my language that it translates is sustaining the human abuse to a certain level, and keeping it at a level that it doesn't quite destroy everything. So that's not an adequate definition. . . . It's not just about the land, but it's about yourself. That issue in our traditional teachings is: every year, continuously, the people who are caretakers, and people who are careful of the harvest, whoever they might be, are reminded at our ceremonies and at our feasts that *that* is what our responsibility and our intelligence and our creativity as human beings are about. If we cannot measure up to that, and we cannot live up to that, we're not needed here, and we won't be here" (Armstrong, 2007, p. 4). Sustainability is not just a human right; it is also a human responsibility.

Indigenous concepts of *food sovereignty* also reflect a reciprocal relationship between humans and the earth. Charlotte Coté lists four main principles of "Indigenous food sovereignty" identified at a conference of Indigenous elders, traditional harvesters, and community members: "(1) Sacred sovereignty: food is a sacred gift from the Creator; (2) Participatory: is a call to action, that people have a responsibility to uphold and nurture healthy and interdependent relationships with the eco-system that provides the land, water, plants, and animals as food; (3) Self-determination: it needs to be placed within a context of Indigenous self-determination with the freedom and ability to respond to community needs around food; (4) Policy: provides a restorative framework for reconciling Indigenous food and cultural values with colonial laws and policies" (Morrison, 2011, in Cote, 2016, p. 9). Indigenous food sovereignty is rooted in spirituality as well as social and ecological responsibility, self-determination, and reconciliation.

Coté points out that Indigenous cultures have been shaped by deep and meaningful relationships to the land, water, plants, and animals that have sustained them. She notes that Indigenous communities are distinct, so it is impossible to define food sovereignty in a way that reflects the realities of each tribe or community. So Indigenous food sov-

ereignty is inherently place-based or connected to the Earth in particular places, including the people who occupy those particular places. However, all sovereign tribes of communities are united by the same "eco-philosophical principles that have guided their interactions with the environment and the non-human world that has informed their food systems" (Cote, 2016, p. 9).

There seems to be a general public awakening to the Indigenous wisdom that national and global problems must first be addressed locally. Although there are common principles that permeate the whole of reality, every ecological place and social community is different, not trivially different but importantly different. In his book, *How to Thrive in the Next Economy*, John Thackara focuses on "bioregionalism" as a means of escaping from an economy that devours nature in the name of endless growth (Thackara, 2015, p. 31). He highlights local initiatives to address problems related to soils, forests, water, food, housing, clothing, health care, the commons, and other basics of life and Earth. The Business Alliance for Local Living Economies (BALLE) "represents thousands of communities and conveners, entrepreneurs, investors and funders who are defying business as usual" (BALLE, n.d., para. 1). For more than 15 years BALLE has been "imagining, incubating and refining new systems, and then moving beyond them. 'Buy local' — once a radical rallying cry — is now mainstream" (BALLE, n.d., "Mission," para. 3).

Perhaps the greatest obstacle in relocalizing economies and societies will be reestablishing the individual identity of local communities and at least a degree of community sovereignty. The corporatization of capitalist societies has removed much of the political and economic sovereignty of local communities. One-size-fits-all federal and state laws now preempt local laws needed to protect fragile ecosystems of specific bioregions. International and interstate trade laws prevent local communities from protecting local natural ecosystems and local community members from economic exploitation. However, even in the U.S., some limited means remain for local communities to claim at least a degree of food sovereignty, where ecologically and socially responsible, place-based food systems can be established and flourish. This seems the logical place to begin, or more accurately continue, localizing the larger economy and society.

Municipalities or other local governments have the authority to use existing public lands, or acquire additional lands, to support production for local, community-based food systems. Agricultural land trusts allow publicly or privately owned farmlands to be preserved indefinitely for sustainable production of food that could be used to support local food systems (American Farmland Trust, n.d.). Federal and state laws allow a variety of local zoning and land-use plans and ordinances to preserve land for agricultural uses. Such laws presumably allow municipal and county governments to designate local agricultural areas as sustainable agriculture or socially responsible agricultural areas. Even in cases where state laws prohibit the exclusion or regulation of agriculture within such areas, local governments could certainly *encourage* sustainable agriculture and *discourage* industrial agriculture in areas preserved to support local food systems.

Local public utilities also might provide a means of *insulating* sectors of local economies from the competitive pressures of national and global economies. Public utilities are commonly used for providing electricity, natural gas, water, and sewers, but would seem logical and legal means of providing any essential public service to everyone in a community. In essence, public utilities establish legal monopolies for the provision of specific public services. "Community food utilities" would seem a logical means of procuring locally grown food for local public schools, hospitals, elder care centers, and other local public services (Ikerd, 2016). This would give fledgling local food systems protected economic bases from which they could expand to serve their broader communities. Fledgling industries have always required government protection to become established.

Through consensus, a community could proclaim "local food sovereignty" and define enough safe food to meet basic nutritional needs as a "community right." Local community food utilities might then be utilized to integrate all current government food assistance programs into a single community-based food assistance program. The local utility could show a preference for local producers by procuring as much of its food needs as

possible from local, sustainable producers. Land owned by the local government, land in local food trusts, and land in sustainable agriculture preservation areas could be integrated into the community food utility. Local taxpayers could agree to make up any revenue shortfall—the public cost of food sovereignty.

All local organizations involved with food sovereignty functions could be democratically organized to ensure the basic democratic rights of all to participate in the process of governance. Over time, community food utilities could be expanded to *community economic utilities,* which would not only ensure the basic needs of all for food, clothing, and shelter, but also would ensure that all have the "capacities and abilities" to fully participate in the public life of their communities. In return for assurance of these basic human rights, all people who receive benefits from the utility would be required to contribute whatever they are able to contribute to the good of the community, regardless of economic value. Those who contribute ethical and cultural value as well as social value to the community would be rewarded equally with those who contribute economic value. Responsibilities would be linked with rights, as in Indigenous cultures.

As such communities learn from their mistakes and increase in efficiency and effectiveness, their numbers would naturally multiply, eventually giving them the political power to change state and federal laws to accommodate their further development. The objective would not be to create a new equivalent of today's industrial agri-food system or industrial economy, but instead to replace current systems with networks of "locally sovereign" community-based food systems and economies. These communities would all share a common commitment to caring for each other and caring for the other living and non-living things of the Earth.

Within the larger national and international communities, competitive market economies would function within the bounds of socially equitable and morally just societies. The lower bounds of economic and individual freedoms would be defined by sets of basic human rights, including economic rights to the basic necessities of life. The upper bounds of the economy would be defined by limits to the use of natural resources—the other living and non-living things of the Earth—to ensure their integrity and sustainability. The upper bounds would also be defined by limits to economic and social inequity, to ensure a sense of fairness and commonality. Within these bounds, opportunities would exist for some to have incomes and wealth far greater than others, reflecting their greater economic contribution. However, differences would not so great as to deny the economic rights of any or threaten the social foundation of society.

The greatest challenge of transformational change would likely be reestablishing the personal relationships essential for sovereign communities. Meaningful personal relationships have been sacrificed for the sake of economic efficiency. The art of personal relationships has been lost, and the science of personal relationships has yet to be fully explored. Reconnecting with each other, and with the Earth in a meaningful sense, will also require a recommitment to a higher purpose than the pursuit of income, wealth, or economic growth. It will require a commitment to "sustainability as flourishing"—to well-being or happiness. To meet the challenges that threaten humanity with a civilizational collapse, people must become reconnected with their purpose for relating to other people, and relating together to a particular community or place. There is no better place to begin or to continue this process than in communities committed to sustainable, place-based food systems.

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PLACE-BASED FOOD SYSTEMS VIEWPOINT

Early lessons from The Food Commons: A new economic whole system approach for regional food

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Abstract

The Food Commons is an agro-ecological approach to local and regional food in which the health of employees, the community, and the commons are considered holistically. Food Commons Fresno is operationalizing the model with wholesale, food box, hub, commissary, and farming businesses managed through a linked for-benefit corporation and a community trust. Aside from typical start-up challenges, the key hurdles include the cultural and economic unfamiliarity with ecological models and relational operating systems.

Keywords

Commons, Ecological Model, Agro-ecology, Holism, Food Systems, Integrative, Relational Model, Regenerative Capital, Inequality, Health, New Paradigm, Systems Thinking, Impact Investing

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Disclosure

Mr. Harvie is the volunteer coordinating director of The Food Commons and serves on its board. He is also an independent consult, but for the presentation at the Place-Based Food Systems Conference and this resulting paper, his time and expenses were volunteered.

Introduction

The economic model for the U.S. food and agricultural industry is predicated on scale, technology, centralization, and consolidation, serving large enterprises and global markets. It is widely recognized that this industrial food system—how we currently produce and distribute food—is intimately linked to the declining health of individuals, communities and the planet.

Over the last two decades, we have observed important and necessary responses to the industrialized food model. One notable example is The Food Commons (TFC), a new economic paradigm and whole system approach to local and regional food in which the health of employees, the community and the commons are considered holistically. Its prototype, Food Commons Fresno, is based in the heart of the industrial food industry, home to a nearly US$8 billion agriculture industry, but also which hosts the zip codes with some of the highest rates of persistent poverty, pollution, obesity, diabetes, and food insecurity in the country.

Our Failed Industrial Agriculture Paradigm

It is widely recognized that our industrial food system is intimately linked to the deteriorating health of individuals, communities and the planet (Harvie, Mikkelsen, & Shak, 2009). We are already experiencing significant impacts in the form of increased antibiotic-resistant bacteria, polluted air and water, food-borne pathogens, and the loss of mid-size family farms with negative impacts on the economies of rural communities and farm states. Obesity is now a global health concern, representing 21% of health costs in the United States (Harvard School of Public Health, n.d.). Poor nutrition is a risk factor for four of the six leading causes of death nationally: heart disease, stroke, diabetes, and cancer. According to recent data, 10% percent of households with children (3.9 million households) were unable to provide adequate, nutritious food for their children (Coleman-Jensen, Nord, & Singh, 2013). The global food system is responsible for up to 29% of climate change emissions (Vermeulen, Campbell, & Ingram, 2012), leading to a host of climate-related health impacts such as heat stress and respiratory distress— conditions to which children and the elderly are the most vulnerable. Mirroring changes in manufacturing and retailing sectors, the industrial food model is now a highly consolidated economic model, characterized by global supply chains, commoditized foods, externalized health, and social and environmental costs. Farmers, as original stewards, have been largely supplanted by a plant and animal manufacturing system, supported by chemistry and technology. Experts have compared our industrial food system to a runaway train (Aubrun, Brown, & Grady, 2006), and unless it is brought under control, the industrialized food system will continue to exert negative impacts on the health of people and planet.

The Call for a Systems Paradigm

Over the last several decades, the Good Food Movement has offered a critical response to the industrialized food model. The Good Food Movement is a broad collection of food system actors—consumers, farmers, distributors, retailers, healthcare, and others—who have evolved a "bottom up" response through a call to action for good food for all. Good food is a holistic definition of food that bridges various food value systems—environment, access, justice, and nutrition—rather that a continued siloing of consumer, producer, and community needs and interests. The Good Food Movement has helped elevate the importance of food sovereignty, the right of people to healthy and culturally appropriate food and to define their own food systems.

At the global level, a variety of governmental reports underscore the need for a transformation of global food systems. Noteworthy is the International Assessment of Agriculture Knowledge, Science, and Technology for Development (IAASTD), funded by the United Nations organizations (McIntyre, Herren, Wakhungu, & Watson, 2009). This report highlights the findings of global scientists charged with answering the question: What must we do differently to overcome persistent poverty and hunger, achieve equitable and sustainable development and sustain productive and resilient farming in the face of environmental crises (Ishii-Eiteman, 2009)? Their conclusion explicitly recognized that the health of the environment,

social health of communities and the sustainability of agriculture are interrelated and must be considered holistically.

Recommendations include the need to promote value chains, fair trade, organic agriculture and local food systems that distribute benefits fairly and equitably along the chain, and the support of democratic institutions. Moreover, the report highlighted that the continued reliance on simplistic technological fixes will not reduce persistent hunger and poverty and could exacerbate environmental problems and worsen social inequity. This landmark report has become the basis for the UN Human Rights Commission support for agroecology, a local food systems model, and the Right to Food, providing a global framework that is consistent with the development of the Good Food Movement.

In 2015, an Institute of Medicine and National Research Council report concluded that the food system can be conceptualized as a complex, adaptive system and that "systemic approaches that take full account of social, economic, ecological, and evolutionary factors and processes will be required to meet challenges to the U.S. food system in the 21st century" (Institutes of Medicine, 2015, p. 15). Similarly, through a study of five case studies, researchers recently concluded that, "adaptive governance of agro-ecosystems will likely hinge upon three paradigm shifts: viewing farmers and ranchers not only as food producers but also as land and water managers; seeking not yield maximization but rather resilient management of food ecosystems; and critically, as it transcends the production-system literature, engaging broad audiences not only as consumers but also citizens" (Chapman, et al., 2017). It is clear that food system design for a livable economy necessitates a broad cultural paradigm shift towards a new operating system in which the relationships between people, their communities and planet are paramount.

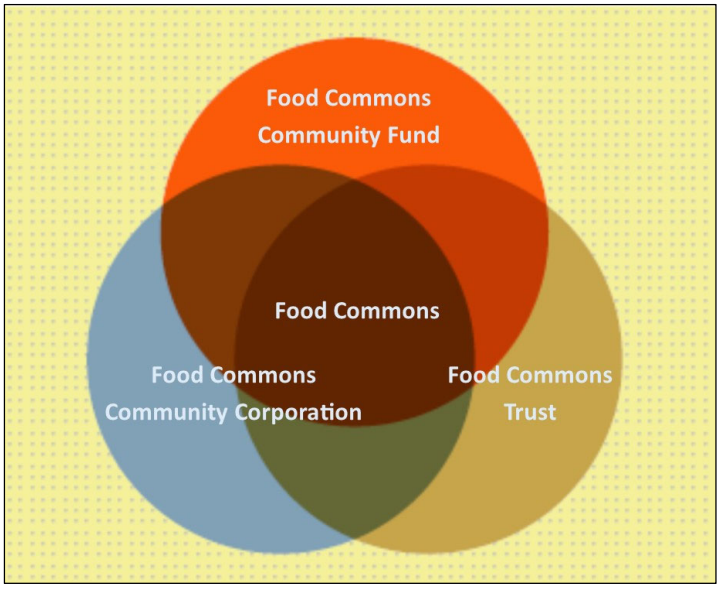
The Food Commons Model

Inspired by the grassroots movement and global call to action, TFC was developed to design and build a new food system model. TFC implicitly recognizes that that the failures of and the problems associated with the industrial food system are largely a function of its concentrated ownership, mechanistic design, and an industrial model based on efficiency and extraction. Moreover, a food system that truly meets the long-term needs of people and the planet should follow ecological principles, to reflect the complexity of its living systems. With this vision, TFC initiated convenings with a broad set of community actors to explore questions central to their vision:

- What would it take to bring to scale a nationwide regionalized food system?
- What is the necessary physical and organizational infrastructure?
- How do we capitalize and finance for the long term?
- How do we develop such a system to be integrative and holistic?
- What economic principles would ensure equity, fairness, and sustainability?
- How would such a system be governed?
- Why would this new system be desirable and how would it help people prosper and flourish?

In 2011, after a one-year community process,

Figure 1. Food Commons Components



TFC published its findings in the document *Food Commons 2.0* (The Food Commons, 2011). The vision outlines linked, localized food systems, each consisting of three interconnected organizational components (Figure 1) and governed by a set of core principles (Figure 2). These components include:

1. A Food Commons Trust, a nonprofit, quasipublic entity to acquire and steward critical foodshed assets;
2. A Food Commons Community Fund, a

Figure 2. Principles for a Just and Sustainable Food Commons (The Food Commons, 2011)

1. Fairness
Across the entire value chain all participants' needs, from farmers and food business owners to agricultural and retail workers, are met in a balanced way, and all get a fair deal. Throughout the food system, the value of human labor is fairly recognized and appreciated. Individuals and institutions shall return to their communities' fair measure for what they receive.

2. Sustainability and Stewardship
In all aspects of food production and distribution, stewardship of our land and marine ecosystems is required to ensure that succeeding generations will have an equal or better opportunity to flourish from its resources. With respect to human relationships, active stewardship is also required to ensure a holistic vision of sustainability that includes ecological, social, and economic components. The true costs of food production should be reflected in market pricing to the fullest extent possible, though not all social, environmental or ethical values can be monetized.

3. Economic Opportunity
Create economic opportunities that facilitate the pursuit of Right Livelihood, so that people may earn a living without compromising the underlying principles of the Food Commons. Expand ownership opportunities for those who may not have access due to the high cost of infrastructure and expand career opportunities and access to good jobs with benefits and security, restoring hope to the unemployed and restoring craft and pride to labor.

4. Food Sovereignty
All people have the right to have access to quality, healthy food that is produced and distributed through environmentally and socially sustainable methods.

5. Integration
Create an integrated value chain, from farm to table, in order to achieve economic efficiency and fairness. Think systemically.

6. Transparency
Openly and honestly, share costs and pricing information essential to the equitable functioning of the value chain. Facilitate traceability of products, procedures and other relevant information throughout the value chain.

7. Ethics and Accountability
Governing bodies maintain the highest standards of credibility and ethical conduct, fair and accurate dissemination of information and full disclosure and accountability for their affairs. Representatives are accountable to the environment, to workers, to the public, and to future generations. Representatives set policies, but do not have any personal ownership in participating businesses.

8. The Commons
The segment of the food system that falls within the Food Commons is based on the establishment of shared and collectively managed infrastructure and resources, operating for the benefit of communities.

9. Subsidiarity
Decisions should be made at the most local level possible. Regional and national decisions should involve only those matters that are relevant to that level of governance, coordination and representation. The Food Commons will provide structures for overall coordination to allow decentralized management structures to operate efficiently and develop network linkages for formal and informal connections at the local and regional levels.

10. Reciprocity
The whole is responsible to all of the parts as well as the parts being responsible to the whole.

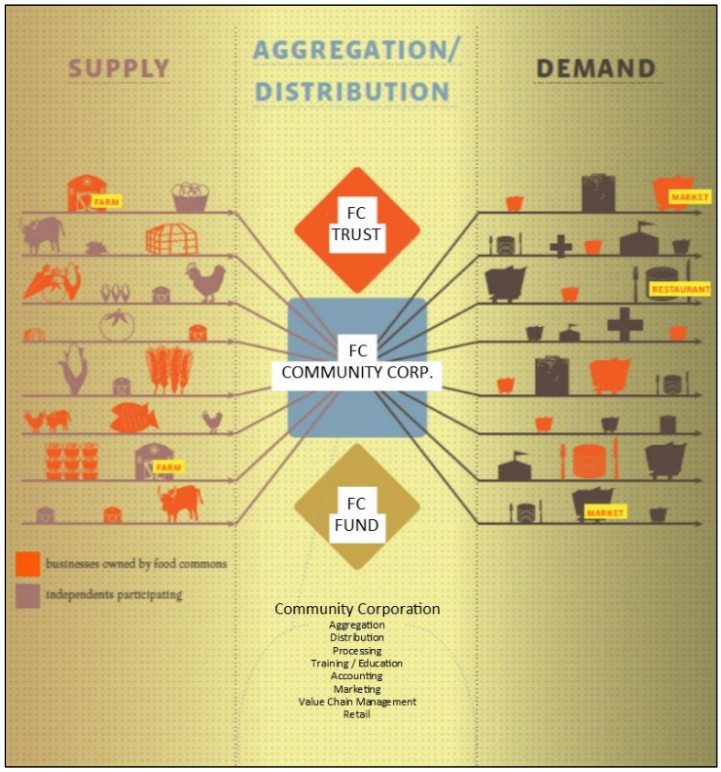
11. Representation and Decision-making
Equitable participation of the Food Commons stakeholders shall be present at all levels and entities of governance throughout the Food Commons, from farmers, to workers, to consumers. Decisions and deliberations must fairly represent the diversity of affected views and interests and not be dominated by any single view or interest.

community-owned financial institution that provides capital and financial services to foodshed enterprises; and

3. A Food Commons Community Corporation, a locally owned, cooperatively integrated business enterprise that builds and manages foodshed-based physical infrastructure and facilitates the complex logistics of aggregation and distribution at different scales among all the moving parts of the system, and provides scale economies, business services, technical assistance and training to new small food businesses.

In simple terms, TFC model is a new economic paradigm for local and regional food. It seeks the efficiencies of vertical integration with the goal of sharing the benefits across the value chain and within the community, rather than extracting and exporting wealth. Central to the model is the recognition that farmland must be protected from privatization and held as a long-term public good. Through vertical (or holistic) integration and broad shared ownership, the Food Commons model aims to provide an economic alternative to the industrial food system for individuals, independent businesses, and producers seeking access to a community-owned food system operating in accordance with commonly shared principles of fairness, sustainability and accountability (Figure 3).

Figure 3. The Food Commons' Vertical Integration



The Food Commons model follows Buckminster Fuller's maxim, "You never change things by fighting the existing reality. To change something, build a new model that makes the existing model obsolete." However, in order to build a prototype, TFC required a community willing and able to imagine and support an entirely new approach to food, health and community.

Food Commons Fresno

Fresno, California, was selected as the location of the first Food Commons prototype after it became clear there was a need, an invitation, and the support of community leadership. While Fresno County is home to a nearly US$8 billion agriculture industry, it also hosts the zip codes with some of the highest rates of persistent poverty, pollution, and food insecurity in the country, and its poor residents are among the most isolated of any American city, regardless of race (Jargowsky, 2015). Yet these deficits mask many community assets. One example is the Fresno Business Council (FBC), whose board and membership span the public and private sectors and led the development of Fresno's Community Values. Written to serve as guiding principles for community action, they align closely with The Food Commons principles. The FBC also applies The Four Sphere Framework, a model developed to illustrate a systems approach to community business because "treating only symptoms means the problem is never really addressed or corrected. Instead, we must address the system holistically—from the fourth sphere" (Fresno Business Council, 2018, para. 1). Through a different sectoral lens, the FBC's holistic framework and associated

guiding principles offered important community alignment with TFC model.

Building the Prototype

In 2015, TFC incorporated two of the three Food Commons components for its Fresno prototype: the Food Commons Fresno Trust and its fully owned business, Food Commons Fresno Community Corporation (henceforth, we will refer to both, interrelated entities as Food Commons Fresno [FCF]).

Operations began with the launch of Ooooby, FCF's organic produce box business, which has now delivered over 95,000 boxes to families across the region. In 2017, FCF took over operation of a 75-acre (30-hectare) certified organic farm, renamed Road 20 Farm, and is developing it into a showcase and training ground for regenerative practices, as well as a supplier of high-quality organic produce for local markets. FCF also established a hub facility in a disinvested neighborhood of Fresno to aggregate local produce from more than 60 small-scale organic and sustainable farms and ranches, and a separate facility to serve as a commissary kitchen for local food trucks and carts. FCF distributes product from its hub to area hospitals, institutions of higher learning, and wholesale restaurant customers. FCF's farm-to-fork operation now employs nearly 50 individuals, of whom an overwhelming majority reside in the low-income neighborhood it serves.

With the goal of community ownership and governance of the business, in 2018 FCF launched a direct public offering. Direct public offerings (DPOs) are a way for small businesses to raise capital directly from their communities and customers. Like in an initial public offering (IPO), people buy shares in a company, but unlike an IPO, the shares are not traded on the stock market or sold through investment banks. Also planned is an employee stock ownership program (ESOP), by far the most common form of employee ownership in the U.S. (National Center for Employee Ownership, 2018).

Planning was underway at the time of this writing for the development of a multifunctional Community Food Hub and grocery store in southwest Fresno in 2019. This area is a food desert, where the median income of the diverse population is less than US$25,700 and the unemployment rate is 10.4 percent (PolicyLink & Program for Environmental and Regional Equity, 2018). Other planned activities include expansion of the farm, Ooooby, and wholesale distribution businesses.

Through earned income, philanthropy, and significant internal and external support, FCF has been able to successfully scale operations; increase access to affordable, healthy food; create well-paying urban and rural jobs; support vibrant community spaces and revitalize urban neighborhoods; practice regenerative agriculture; develop leadership and engagement in food system governance; and foster community pride and a sense of place. And FCF continues to wrestle with a host of challenges consistent with a start-up business: cash flow, tight budgets, development of an organizational culture, hiring, and more.

What FCF Is Learning

While FCF faces the daily challenges of any start-up business, these trials are frequently compounded by the unique, holistic vision of The Food Commons model. Following are some of the trials and opportunities FCF and TFC are uncovering.

Regenerative Capital Formation

New paradigm models like TFC are trying to relocalize wealth and create regenerative capital. However, access to working capital is a constant battle in which TFC values and principals often feel held captive by markets that are seeking control or above-market returns. It has been difficult to distinguish between investors and impact investors, those willing to forgo market returns in exchange for true impact. Moreover, it has been surprising to FCF that they must pitch or "sell" the benefits of local capital formation, which FCF felt were self-evident. Ideally, forward-thinking impact investors would create a group that would work together, an impact investing network, which takes a systemic approach to their investments, similar to philanthropic affinity groups. As Rodney Foxworth, executive director of the Business Alliance for Local Living Economies (BALLE) aptly states, "if mainstream impact investing continues to operate

within the culture of the 'free market' and prioritize capital returns, by definition it will promulgate economic injustice" (Foxworth, 2018, para. 7)). In short, the power and narrative of capital markets make it difficult to develop capital that is representative of the community versus extractive from the community.

Let the Business be in Service to Principles and Values Embedded in the Legal DNA and Culture

TFC's board of directors represents more than a century of food-systems and systems-thinking experience and includes leading legal expertise. This experience helped inform the need to weave TFC's core principle and values into the legal structure of the organization before operationalizing work. For example, FCF was designed such that the FCF Trust would maintain local community control and oversight of the FCF Corporation so that it could never be bought or sold. With the FCF now operational within the broader extractive economy, this foresight feels invaluable in helping protect core values that might otherwise be tested and eroded.

A New Operating System: The What is Easy, the How is Hard

A shift from a linear model to an ecological model also shifts what is considered as important (Center for Ecoliteracy, 2018). This change in perception unleashes the emergence of new relationship-focused operating styles characterized by networks and organizational approaches such as collaboration, teamwork, empowerment, and connection rather than hierarchies and control. The challenge is that the broader culture largely operates through the old paternalistic or mechanistic operating system, so many of the skills needed to work in a new paradigm business are difficult to find. From day one, the intent for FCF was to operate holocratically (Holocracy, n.d.), or holocratic-like, yet the challenging reality of a start-up with many moving parts resulted in the business defaulting to a traditional organizational structure. There was not enough time to learn, hire, and embed a new operating system and open a new business. FCF maintains formalized collaborative leadership as a goal as it shifts from start-up mode.

Find, Build, and Support Human Capital

For the TFC model to succeed, its leaders and advocates must represent the community; however, FCF is having trouble finding the necessary business experience within the local community. Many grassroots advocates drawn to TFC model bring an important holistic community approach but lack needed business skills. FCF is exploring how it might formalize training, coupled with the concept of the "opportunity of, by, and for the community." This opportunity might also include the farming community and FCF's interest in assisting farmers in meeting their business, environmental, and community goals.

To Unlock Our Potential We Need a New Model of Health

What is health? At the heart of this question is a debate over the influence of the bio-medical model, which has shaped modern medicine and underpins our healthcare system and cultural beliefs about health. As it has the physical processes of disease as its focus, and assumes linear singular cause and effect, it is poorly equipped to accommodate multiple influences on health. The limits and associated costs to health and well-being of these linear models and embedded assumptions are now impossible to ignore. Although there is a more widespread appreciation for the significant role of social determinants or social and environmental factors, in health outcomes we too often overlook the fact that each of these factors works synergistically with one another and the individual. Similarly, overlooked yet equally important as these risk factors are qualitative factors such a sense of individual control and agency (Tamber & Kelly, 2017).

FCF has discovered that many customers, funders, and community and healthcare leaders still consider foods' relationship to health as singularly related to nutrition. This limiting view diminishes the true benefit of good food and a holistic food system model to individual and community health. Health benefits include the sense of control and self-worth that comes from employment, the sense of community from shared ownership, the ecological health benefits from sustainable agriculture, and the sense of pride and connectedness from cultural

food traditions—all of which holistically support whole health and wellbeing of the individual and community in the context of place.

The ecological model of health, or a systems worldview, is representative of new expansive science and by explaining the interconnections between individual, community, and planetary health, the ecological model provides an important unifying model. And, in our culture that is heavily influenced by a bio-medical model that represents 18% of the GDP, an ecological model is both difficult to explain and difficult to grasp, concealing the full benefits of holistic models such as TFC. Ironically, whole-paradigm models such as TFC offer an important means to catalyze health and wellbeing broadly.

Wealth Creation and Root Cause Healing

TFC views centralized ownership and organization of capital as critical root causes of the growing economic inequities, environmental degradations, food system dysfunctions, and health disparities. As the majority of these impacts fall disproportionally on the poor and on communities of color, the hierarchy of human value built into our economic system is glaring.

High inequality is linked to a sense of personal and public insecurity and increased consumption of resources and waste production, which negatively influence health through multiple means (Dorling, 2010; Warfield, 2016; Dorling, Barford, & Wheeler, 2007; Philips, 2016). In a vicious loop, unequal access to education, poor health, and inadequate nutrition are reasons and results of inequality, thwarting the ability of individuals to thrive (Spratt, 2017). Those suffering from the highest economic disparity experience higher infant mortality and decreased mental health, life expectancy, levels of trust, altruism, social cooperation, reciprocity, and trust in political institutions (Attanasio, Fitzsimons, Grantham-McGregor, Meghir, & Rubio-Condina, 2001; Bowles & Gintis, 2011; Burns, Tomita, & Kapadia, 2014; Elgar & Aitken, 2011; Justino & Moore, 2015; Organization for Economic Development and Cooperation, 2018).

According to a recent study, if current trends hold, median wealth for African Americans will fall to US$0 by 2053, while median wealth for Latino Americans will fall to US$0 about two decades later. By 2020, white American households are projected to own 86 times more wealth than African American households, and 68 times more wealth than Latino households. (Collins, Asante-Muhammed, Nieves, & Hoxie, 2017). This does not bode well for the health and welfare of the United States as a whole, where demographic projections indicate that whites will become the numerical minority in 2044 (Frey, 2014). Viewed holistically, wealth inequity may in fact represent one of the largest influences on the health of individuals, communities, and the planet (Harvie & Guarneri, 2017). It is clear that we must acknowledge that until we change the status quo and capital is owned more widely and governed more locally, the negative health outcomes on society and the environment from capital deployment within the food system and elsewhere will be difficult to reverse, no matter the volume of nutritious food grown.

Conclusion

The Food Commons is but one entity working nationally to demonstrate a new systems approach. It offers an important new operational model that links the health of individuals, community, and the planet. TFC's strategy of systems change driven by community ownership and governance structures and beyond-the bottom-line returns links its work to a whole host of movements from climate change and environmental justice to worker equity and living wages, from cooperatives to community financing, as well as to the many facets of the sustainable agriculture, Good Food, and food democracy movements. TFC is helping elevate the collective benefit of a living systems model and the intractable resistance of culture and economy to change. The lessons from TFC suggest the need for rapid development of true regenerative capital, deepened networks, and collaborations with similar whole-system, place-based models and communities of practice across sectors.

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Communing with bees: A whole-of-community approach to address crisis in the Anthropocene

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Abstract

We are currently facing myriad socio-ecological crises, from global climate change to resource depletion to the loss of dozens of species every day. Despite a longstanding and impassioned environmental movement, these problems persist and are worsening. The extent and degree of human-induced change on the planet is significant enough to have placed us in a new geological age: the Anthropocene. Three perspectives are engaged as a way to understand this new era and address our fractured human-nature relationship: (1) political ecology, (2) the ecological humanities, and (3) the informal economy. An exploration of intersecting themes leads to the start of a new theoretical contribution, which manifests at the convergence of theories: a "whole-of-community" approach. This whole-of-community approach is one that is concerned with both inter-human and interspecies relationships to move us towards communities that are place-based, integrated, participatory, and grounded in eco-social justice and equity. Pollinating bees are used as an illustrative example of how to achieve this vision. Bees can be both a bridge and gateway. As a bridge, they can provide a way of (re)connecting human and nonhuman nature and as a gateway, they can guide humans to a deeper understanding and connection with urban natures. Reconciling humans with the rest of the biotic community through place-based initiatives is possible by fundamentally and radically expanding our current framing of the concept of community.

Keywords

Pollinators, Political Ecology, Community, Ecological Humanities

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Introduction

A dualistic and dysfunctional human-nature relationship that fails to recognize humans *as* nature, rather than humans *in* nature, has resulted in many of the socio-ecological crises that significantly impact and threaten food systems and the planet (Gaston, 2010; Plumwood, 2002; Gibson, Rose, & Fincher, 2015). Despite awareness of these issues, they still exist and are worsening: "forests are shrinking, water tables are falling, soils are eroding, wetlands are disappearing, fisheries are collapsing, rangelands are deteriorating, rivers are running dry, temperatures are rising, coral reefs are dying, and plant and animal species are disappearing" (as cited in Hawken, Lovins, & Lovins, 2013, p. 309). These insights are not new—in fact, this quote comes from the Worldwatch Institute's State of the World Report from two decades ago (Brown et al., 1997).

The current "biodiversity crisis" (Gaston, 2010, p. 134) can be traced to a fractured human-nature relationship that reflects the dominant, anthropocentric (human-centered) bias in Western ecological thought (Gibson et al., 2015; Myers, 2005; Plumwood, 2002). Political ecology provides a useful theoretical framing to view the relationship between humans and the rest of nature. This is because political ecology addresses the power imbalances at the root of environmental issues where the current power laden conditions often serve the "elite at the expense of the marginalized" (Heynen, Kaika, & Swyngedouw, 2006, p. 6). Through this theoretical lens we can begin to understand that some of the most pressing ecological issues stem from an imbalance in socio-ecological power structures in which some humans are perceived as superior to other people and species. A second perspective, the ecological humanities, presents a complementary framework to political ecology in that it challenges this perceived exceptionality of humans (Rose et al., 2012). This helps us to engage with both human and interspecies power imbalances that exacerbate some of the most pressing socio-ecological crises (e.g., global climate change). A third theoretical framing, the informal economy, is applied as a way to illustrate the important contributions of the nonhuman co-creators of the environments in which we live, and that feed us.

Humans have been transforming local, regional, and global ecosystems for millennia (Ellis, Klein, Goldewijk, Siebert, Lightman, & Ramankutty, 2010), but the modern extent and degree of human-induced change on the planet is significant enough to have placed us in a new geological age: the Anthropocene (Arias-Maldonado, 2015; Gibson et al., 2015). Moving beyond an over-simplified human-nature division requires recognizing the limitations of any approach that views nature purely for human utility (Soper, 1995). However one chooses to define nature, it ought to be considered "the habitat for the human species, the habitat for other species, and a significant entity in itself" (Arias-Maldonado, 2015, p. 6). We must critically examine our relationship with nature in an increasingly urbanizing world. In other words, "whatever nature may mean, we must determine in what way humanity fits into it" (Bookchin, 1992, p. 1). The fundamental problem with trying to separate humans and nature is that "the relationship is so close, the human influence on nature so large, the intertwining of the social and natural so deep, that it is not easy to extricate" one from the other (Arias-Maldonado, 2015, p. 47). In no way is this made more apparent than the fact that we have now entered the Anthropocene.

The Anthropocene—literally meaning the human epoch, or the age of humans—was a term first popularized by Crutzen & Stoermer (2000). Recognition of the new epoch demonstrates that the "human species is becoming conscious of itself as a planetary force" and how we impact and are impacted by nature, at the largest and smallest scales (Blasdel, 2017, para. 9). There is often a gap between academic scholarship and "the real world" (Castree, 2014b, p. 235). The concept of the Anthropocene provides an intimate and relevant way to help address this gap by bringing together the "cerebral" and the "practical" along with the social and the natural (p. 235).

In 2008, after testing the Anthropocene hypothesis using geological criteria previously used to establish naming new epochs, the Anthropocene Working Group (AWG) was created by the International Commission on Stratigraphy (Castree, 2014a). In 2016, at the 35th International Geological Congress, the AWG voted in support of the concept, agreeing that, "the Anthropocene

concept … is geologically real. The phenomenon is of sufficient scale to be considered as part of the Geological Time Scale" (University of Leicester, 2016, para. 3). Because of this decision by the AWG, the Anthropocene can no longer be considered a fringe concept, and yet, modern strategies have been unsuccessful at resolving the complex socio-ecological crises that we are faced with.

The term Anthropocene is used as a way to understand our human impact on Earth's systems, based in science. It is also used to politicize human impacts and the need for us to change our behavior in "new and unprecedented ways" in order to avoid ongoing environmental disaster (Bowden, 2017, p. 53). Although it's been nearly two decades since the advent of the term, the question remains: do the extensive human impacts on the ecosphere pose only an existential threat and cause for grief, or do they also provide a transformative opportunity? (Castree, 2014a; Cunsolo & Landman, 2017; Moragues-Faus & Marsden, 2017).

Objectives

This paper seeks to answer the following questions as part of a comprehensive review of the literature: How can a better theoretical framing of human-nature (dis)connections provide insights to address challenges related to living in the Anthropocene? How can our knowledge of food systems and the informal economy add to the theory needed to address these challenges, and what would that theoretical convergence look like?

To meet these objectives, this paper begins by describing a dualistic human-nature relationship common in Western ecological thought and a defining feature of the Anthropocene (Rademacher, 2015). In order to begin to adopt a reparative stance to our relationship with the Earth and stop seeing humans as separate from nature, this paper will engage with the following intersecting themes: the concept of hybrids (Castree & Braun, 2001; Latour, 1993; Swyngedouw, 2006; Whatmore, 2006; Zimmer, 2010) and the theory of othering (Gibson et al., 2015; Heynen et al., 2006; Plumwood, 2002; Soper, 1995). We use the example of pollinating bees to illustrate the convergence of these themes through the notions of sharing and decentering humans in the concept of community. The paper presents a conceptual model of the convergence of theories understood as a whole-of-community approach and concludes with identified gaps and ways forward.

Human-Nature Dualism

Nature is one of the most complex words in the English language (Castree, 2014c; Soper, 1995). People define nature differently, and there remains an unresolved debate about how to define nature and what to include in the definition. Considering that most of the biosphere has been altered by human settlements and agriculture, and that human anthromes (defined below) now constitute three-quarters of the terrestrial biosphere (Ellis, 2013), humans, human activities, and urbanization must be factored into any definition. In fact, there is no part of the biosphere untouched by human influence due to the global impacts of climate change (Arias-Maldonado, 2015).

Anthromes are "anthropogenic biomes [that] offer a new view of the terrestrial biosphere in its contemporary, human-altered form" (Ellis & Ramankutty, 2008, p. 439). In other words, anthromes are comprised of the interactions between humans and nonhuman ecosystems. These include, but are not limited to, "mixtures of settlements, agriculture, forests and other land uses" (Ellis & Ramankutty, 2008, p. 443). While conventional biome mapping remains a useful tool "based on climate, terrain, and geology," anthromes are a more accurate description of the terrestrial biosphere that does not separate humans from ecosystems (Ellis & Ramankutty, 2008, p. 445). This is one way of recognizing that humans and nature are not distinct and bounded entities, but rather, they are inextricably tied by social and ecological fusions that create global flows and networks (Latour, 1993; Whatmore, 2002).

To advance the discussion on the human-nature relationship, we must return to the fundamental question: what is nature? Recognizing that there are concepts of nature outside of a Western worldview, I will focus on the Western perspective in view of its current dominance in ecological constructs (Arias-Maldonado, 2015). The word 'nature' first appeared in 7000 BCE referencing plants (Arias-Maldonado, 2015) and common usage of

the word describes everything that is not human (Latour, 1993; Plumwood, 2002; Soper, 1995). The term 'nature' is used to describe a complex, multi-layered, multi-faceted, place-based, relational concept. Nature as a single entity is fairly unique to Western culture (Arias-Maldonado, 2015) and Williams (1980) cautions against using "a singular name for the real multiplicity of things and living processes" that constitute nature (p. 69).

References to nature in our daily lives are diverse, primarily through the media, marketing, and education (Castree, 2014c). These references are all part of "the social construction of nature" (Castree, 2014a, p. xxiii). In these various references, a line is often drawn between natural and built environments (Arias-Maldonato, 2015, p. 19). This separation becomes problematic when we begin to dissect what it means to be built. Everything that is built comes from materials found in the natural world, and the line between natural and artificial then becomes blurred. The following narrative helps to confront our current framing of the human-nature separation in this context:

> Think about a forest. All around you there are trees rising up to form a dense canopy. In one of the trees is a bird's nest, twigs carefully woven together by a pair of birds, to produce the perfect cradle for their delicate cargo. As you walk on a little further into the forest, you encounter a river. Looking downstream, you notice a large pile of sticks and branches gathered together. But this is not a haphazard collection of driftwood. Rather, it's the purposeful work of a beaver, a lodge carefully constructed to provide shelter and warmth. All of what we've seen so far would be called nature, by most people. But if we move on a little further into the forest, and encounter a small clearing, and within it, a modest wooden hut, would this too be a part of nature? For many people, the bird's nest and the beaver's lodge are in, but the human hut is out. All three structures are built by their inhabitants, but only one is not natural. (van Dooren, 2016, 0:57')

This illustration of human versus nature helps us to understand humans within the domain of nature, rather than removed from it. This passage describes the ways that we are part of nature, showing the parallels between our homes and the homes of other animals. Soper (1995) asks "what is it exactly that makes human interactions with nature intrinsically devaluing?" (p. 19). Why is the human home less natural than the bird's nest or the beaver's lodge? Building on the observations of Jacobs (1961), who suggested that urban environments are "as natural as colonies of prairie dogs" (p. 443), Harvey (1996) claimed that "in a fundamental sense, there is nothing *unnatural* about New York City" (p. 186). What he means is that we cannot claim that everything is connected to everything else (as ecologists do), and then somehow exclude human settlements.

"First nature" is nature is its pristine form, untouched by human disturbance (Cronon, 1991; Marsden, 2012). This conceptualization of nature as a pristine wilderness strongly reinforces the human-nature dichotomy (Bennet & Teague, 1999; Muir & Cronon, 1997; Plumwood, 2002). Lefebvre (1966) made the distinction between the cities where we live, the countryside as the place of [agricultural] production, and nature as the place of escape. A pristine nature appeared in the Bible, first as an Eden and then as a wilderness to be feared (Muir & Cronon, 1997). This view of nature understands humanity and development as autonomous from the environment and creates its own paradox: if the "romantic ideology of wilderness" is that nature must "be wild, then our very presence in nature represents its fall" and therefore the word itself "embodies a dualistic vision in which the human is entirely outside the natural" (Cronon, 1995, p. 16-17.) Wilson (1984) reveals how strongly we can dissociate ourselves from nature by drawing lines between areas with and without human activity, and by identifying human thought as something distinct and separate from nature:

> The wildernesses of the world have shriveled into timber leases and threatened nature reserves. Their parlous state presents us with a dilemma, which the historian Leo Marx has called the machine in the garden. The natural world is the refuge of the spirit,

> remote, static, richer even than human imagination. (p. 11)

In this account, we are suspended "between the two antipodal ideals of nature and machine, forest and city, the natural and the artifactual, relentlessly seeking … an equilibrium" (Wilson, 1984, p. 12). The dualism created by these distinctions is so entrenched that perceived differences are "familiar to the point of being common sense" (Castree, 2014c, p. 24). In other words, the human-nature divide has been normalized in Western thought. Examples of Western, 21st-century symbols for nature in language include "environment, wilderness, biodiversity, animal, instinct, and ecosystem" (Castree, 2014c, p. 18). The removed quality of nature in these conceptualizations is incompatible with the concomitance of humans with the rest of nature.

"Second nature" is another paradigmatic view of nature: nature as a commodity (Cronon, 1991; Marsden, 2012; Smith, 2009). Second nature is a cultural, social, and political nature that has "all but absorbed first nature" (Bookchin, 1992, p. 13). Greenwashing, or green capitalism, is a "major strategy for ecological commodification, marketization and financialization which radically intensifies and deepens the penetration of nature by capital" (Smith, 2009, p. 17). Some argue that the commodification of nature began in earnest with the industrialization of the 19th century (Jaffee, 2007; Spash, 2015). In other words, the "appropriation of nature as resource for the production of culture" (Haraway, 1991, p. 292) has become a defining feature of Western-centric social structures. This view of nature as commodity forms the basis of the Limits to Growth theory by Meadows, Meadows, Randers, and Behrens (1972) that simulates exponential population growth with a finite amount of natural resources to support such growth, and more recently described as "peak everything" (Heinberg, 2010, p. 1; Meadows, Randers, & Meadows, 2004). The "second nature" view also informs a productionist perspective for food systems, which identifies producing more as the way to reduce hunger and ensure that there is enough food for a growing global population (Fraser, 2013). This commodity-based view of nature can often be measured in terms of the market value of natural resources. In food systems, industrial agriculture is pitted against the organic and food sovereignty movements in a debate about which is better from a multitude of perspectives (Friedmann, 2005; Guthman, 2004). Even within the organic movement, there is concern about co-option of small-scale initiatives by industrial and global food corporations (Blay-Palmer, Sonnino, & Custot, 2016). Co-optation of the organic movement is illustrative of nature as commodity—when food is treated like a commodity on the market, it is often to the detriment of other factors such as ecological health, human relationships, and social movements.

This view of nature as commodity or resource is a form of "reductive materialism" associated with modernity (Plumwood, 2009, p. 119). Nature as defined by its utility for humans is also called surface or shallow nature, or more commonly, ecosystem services (Arias-Maldonado, 2015; Soper, 1995; Waliczek & Zajicek, 2016). This 'shallow nature' perspective lies at the heart of the conservation movement, which often has an underlying justification of protection based on the "importance in providing a scientific laboratory for naturalist studies… as a means of recreation and retreat, to the potential pharmacological value of its flora, or to the role it plays in maintaining genetic diversity" (Soper, 1995, p. 253). In other words, conservation is primarily concerned with managing human impacts in natural spaces through reduction of harm and efficiency of use. Use and enjoyment by future generations (of humans) is often the justification for this utility-oriented approach. Preservation, on the other hand, is about eliminating human impacts as much as possible, or the idealization of a pristine nature (Mare, n.d.; National Park Service, 2015). While conservation is critical to help mitigate anthropogenic planetary impacts, we must challenge the derivative notions of nature that dominate our language and education about nature by recognizing that humans and nature are not mutually exclusive (Castree, 2014c).

"Third nature" represents a new wave of "sustainable development and ecological modernization" (Marsden, 2012, p. 258). This new wave of green economy is understood as conventional (bio-economy) and alternative (eco-economy), but both

present "new arena(s) for capitalist penetration" (Kitchen & Marsden, 2011, p. 757). The bio-economy includes the "transformation of nature at a more fundamental and genetic level" (Marsden, 2013, p. 218) through processes such as transgenic food crops, or crops that contain genetic material from an unrelated organism that has been artificially introduced. The eco-economy offers an alternative form of production—in food systems, alternatives are often grounded in agroecology and food sovereignty (Marsden, 2012).

As these approaches indicate, there has been a conceptual evolution from a conventional human-centered perspective to a more nuanced intertwining of society and nature, evidenced by a growing interest in ecological issues and healthy diets. Yet our language and understanding remain largely bipolar. The vast range of socio-ecological problems we face globally would suggest that we have still not embodied a true understanding of our role as part of the larger global ecosphere, and instead we continue to see ourselves as autonomous beings operating outside of nature (Cronon, 1995; Rademacher, 2015).

Theoretical Framework

In order to advance the discussion on reconciling human and nonhuman nature, my theoretical framework comprises three relevant perspectives: (1) political ecology, (2) the ecological humanities, and (3) the informal economy. The following section will indicate how each perspective adds to, and complements, the discussion about the human-nature relationship.

The politicization of our relationship with the environment is the foundation of political ecology scholarship (Robbins, 2012). Political ecology is an approach used to address and challenge the power imbalances (particularly in institutionalized forms) that create and maintain destructive environmental behaviors—also called the politicization of nature (Classens, 2015; Rademacher, 2015). By politicizing the human-nature relationship, we can "break from an image of a world where the human and the nonhuman are disconnected" (Robbins, 2012, p. 3). For example, from a Malthusian perspective, the rapidly growing human population is to blame for mass resource depletion and global change (Ehrlich, 1968; Meadows et al., 1972). In other words, from this perspective, many modern socio-ecological crises are driven by an unchecked growth rate in non-industrialized countries. The primary problem with these Malthusian theories is that in fact, affluence and overconsumption of and from a very small number of people is what constitutes the highest resource (ab)use (Robbins, 2012). Political ecology grew from the need to challenge these views that "blame proximate and local forces" rather than identifying the broader, power-laden, normative systems at work in creating environmental problems (Robbins, 2012, p. 13).

Political ecology was a term first used in 1935, and later popularized by Blaikie and Brookfield (1987), when they identified that land degradation as an environmental challenge has social causes (Thone, 1935). They claimed that society-nature interactions must be better understood if solutions to socio-ecological problems are to be found (Blaikie & Brookfield, 1987; Wolf, 1972). Alternatives to the dominant social conditions that perpetuate our current socio-ecological crises are those that are regenerative, participatory, multigenerational, and grounded in social justice and equity (Dahlberg, 1994). Urban political ecology is about radically democratizing "the organization of the processes through which the environments that we (humans and non-humans) inhabit" (Heynen et al., 2006, p. 2). This conceptualization emphasizes "equity and access" and addresses issues of power that are integral to political ecology scholarship (Agyeman & McLaren, 2015, p. 4).

One way to approach this radical democratization is to challenge the idea that humans are superior to the rest of nature. This is a concept that is central to the ecological humanities, a theoretical perspective that was named in the late 1990s by Australian researchers and the first *Environmental Humanities* journal, published in 2012. The environmental humanities grew from the foundational work of the early 19th- and mid-20th century environmental movement by attempting to "locate ecological problems in the behavior of human institutions, beliefs, and practices" (Emmett & Nye, 2017, p. 3). In the first volume of the journal, the environmental humanities are described as enriching "environmental research with a more

extensive conceptual vocabulary, whilst at the same time vitalizing the humanities by rethinking the ontological exceptionality of the human" (Rose et al., 2012, p. 1). The environmental humanities, therefore, grew and evolved out of the need for a more transdisciplinary and integrated approach to environmental issues and combined environmental concerns with social criticism (Rose et al., 2012; Emmett & Nye, 2017).

Where political ecology provides a foundation that offers insights into some of the power dynamics at play in the human-nature relationship, the environmental humanities provide a different underpinning for such insights by decentering human agency (Rose et al., 2012). Defining nature as separate from humans is problematic, but rather than expand who is privileged, we must break down the dichotomy (Plumwood, 2002; Said, 1978; Soper, 1995). What is needed for this to happen is:

> An ecocentric paradigm that displaces the anthropocentrism predominant in Western thinking about the natural world. Rather than positioning humanity at the center of the natural world, with human priorities as the only legitimate concern, ecocentricity decenters humanity and repositions us as interconnected and on an equal plane with other beings. Such an ecocentric perspective would … engender a sense of responsibility and care. (Myers, 2005, p. 9)

The concept of connectivity—that humans and nonhuman nature are mutually constitutive—is integral to the environmental humanities (Rose & Robin, 2004). Given the current environmental crisis globally, "we are no longer in the position of being able to sustain the idea that humans are separate from nature" (Gibson et al., 2015, p. 1). Disassembling the human-nature dichotomy and showing how nonhumans are co-producers of environments creates a mutuality that requires all urban actants to share democratic participation in human-nature relationships (Zimmer, 2010).

Similar to the human-nature dichotomy, the formal versus informal economy is another example of how humans use opposition to understand complex issues. Inasmuch as the human-nature dichotomy is problematic, so is a dualistic construct of the economy. Using a strictly dichotomous framework risks failing to notice overlapping, semiformal activities (Hussain, 2011; Kamrava, 2004). Semiformality is understood as the areas of overlap between the formal and informal economy (Kamrava, 2004).

The informal economy is growing globally, and because of this, it has attracted the attention of many disciplines including geography, sociology, and economics (Godfrey, 2011; Hébert & Mincyte, 2014; Portes & Sassen-Koob, 1987). The concept of the informal economy has experienced several shifts, and many descriptions have emerged since its conception in the 1970s (Hart, 1973). Like the formal economy, the informal economy is the production, distribution, and consumption of goods and services, but untaxed and unprotected by labor laws the way formal economic activities are supposed to be (Chen, 2012; Hussain, 2011; Kamrava, 2004). Consensus on a comprehensive definition has proven difficult due to the vast array of informal economic activities spanning sectors in both industrialized and non-industrialized countries. Regardless of how one defines this process, failure to include informal economies in policy-making and analysis can lead to exclusion being built directly into programs. Better integration of informal economies into formal structures is a matter of "equity and social solidarity" (Becker, 2004, p. 4; Chen, 2007).

The informal economy additionally implies inherent power relations because the act of being informal implies structures of both dominance and resistance. As Foucault (1978) famously said, "where there is power, there is resistance" (p. 95). Foucault's view of resistance aligns nicely with the concept of the informal economy in that just as no single informality exists, he posits that there exists a "plurality of resistances, each of them a special case" (p. 96). In looking at power dynamics, the informal economy is directly concerned with alternativeness, which is inherently linked to resistance.

Informal economic activities can be categorized as follows: paid informal work, self-provisioning, and mutual aid (i.e., volunteer) (White, 2009; Williams & Windebank, 2003). These categories provide a way to understand the human labor

in informal economies, but there is another way to engage with informality: through nature. The economic contributions of nature are commonly referred to as ecosystem services. Ecosystem services are the socio-economic benefits that people derive from ecosystems, including provisioning, regulating, cultural, and supporting services (Atkins & Atkins, 2016; Hassan, Scholes, & Ash, 2005). These services are broadly defined as "something out there (ecosystems, nature, forests, watersheds...), provides things (resources, goods, products, services...), useful to people (health, livelihoods, fundamental life-support systems...), and this should be valued (often in monetary terms)" (Kull, Arnauld de Sartre, & Castro-Larranaga, 2015, p. 122). As discussed previously, this view reinforces a utilitarian perspective, where the value of nature is based on its utility to humans, thus largely based on the market economy and the commodification of nature (Atkins & Atkins, 2016; Hassan et al., 2005).

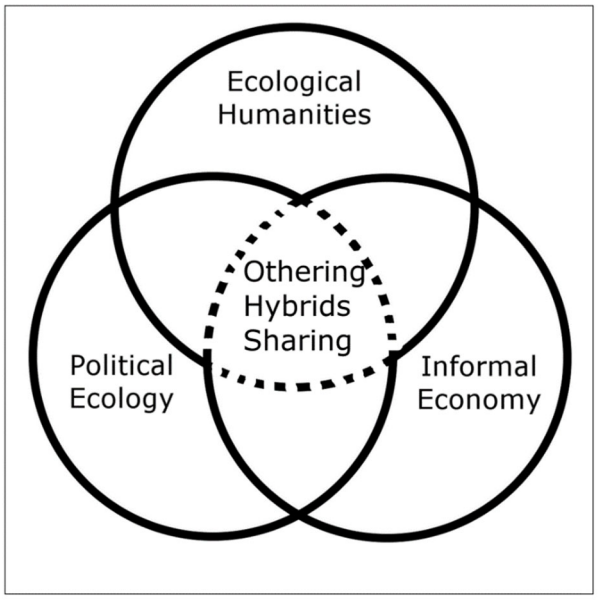
Nature's economy, however, is both formal and informal. For example, a Government of Canada survey focused on the economic benefits of nature for Canadians, indicating that more than CA$11.7 billion was spent on nature-related activities in 1996, looking at GDP, jobs, and tax revenues (Environment Canada, Federal-Provincial-Territorial Task Force on the Importance of Nature to Canadians, 2000). Informally, engagement with urban nature, particularly in the form of urban gardening, has been shown to provide multiple benefits including improved overall well-being (Blum, 2016; Erickson, 2012; Gaston, 2010; Gentry, Anderson, Krause, Tucker, & Tuddenham, 2015; Marcus & Sachs, 2014; Shoemaker, 2006; Waliczek & Zajicek, 2016). Ecosystem services have been increasingly quantified into the formal economy, and can be used as a justification for green development (Artmann, Bastian, Grunewald, 2017). But there are many ecosystem services whose benefits are largely unmeasured within the informal economy, including certain forms of biotic pollination (e.g., pollination by native bees of backyard and community gardens) (Andersson, Barthel, Ahrné, 2007; Matteson & Langellotto, 2010).

As described, political ecology, the ecological humanities, and the informal economy are perspectives that provide a foundation for engaging with the human-nature relationship. Building on this foundation, I have identified three key intersecting themes that illustrate how these perspectives are linked.

Theoretical Points of Intersection

The previous descriptions show the complementarity between perspectives. I have identified several overlapping themes which the following sections will address in more detail: othering, hybrids, and sharing (Figure 1).

Figure 1. Overlapping Themes of Political Ecology, the Ecological Humanities, and the Informal Economy Perspectives



Othering

Othering is the active process of creating the *other* as a form of exclusion. The concept of the other is reliant on "broadly drawn dichotomies" (Mountz, 2009, p. 238) inherent in any dualistic conceptualization (Haraway, 1991). Othering serves to both fetishize and dominate (not unrelated concepts), and the tendency to name things and places (such as humans *and* nature) as distinct and bounded entities creates "false models of reality" (Wolf, 1982, p. 41). In the human-nature relationship, othering allows people to affirm their own dominant status by identifying and naming difference (Canales,

2000; Jackson, 2012). In the case of nature, a utilitarian perspective serves to other nature by making it inanimate, thus creating an "impediment to the emergence of more ecological and … sustainable models of production and consumption" (Bennett, 2010, p. ix).

The otherization of nature provides a convenient platform from which to extract and abuse resources and creates a "remoteness [that] negates responsibility" (Plumwood, 2002, p. 16). In other words, "by longing for the pure and untouched wilderness spaces where they do not live, people tend to disavow any responsibility for the heavily urbanized environments in which they actually live" (Castree & Braun, 2001, p. 26). Holding ourselves separate and apart from nature allows us to "evade responsibility for the lives we actually lead" (Cronon, 1995, p. 17). Dualistic language remains problematic, since discussions referring to humans *in* nature or humans *as* nature inherently divide and separate the two into two distinguishable entities (Cronon, 1991). A dominant worldview that privileges humans over other nature deprioritizes our dependency and interconnectedness with other living things and our environment (Plumwood, 2002; Soper, 1995).

Ecological concerns are "not independent of class, gender, ethnicity, or other power struggles," (Heynen et al., 2006, p. 10) where the other is "contained and represented by dominating frameworks" (Said, 1978, p. 40). Caniglia, Vallee, and Frank (2016) explore the relationship between different forms of oppression: "the oppression of various devalued groups in human societies is not independent and unrelated [to human-nonhuman oppression]; rather, the arrangements that lead to various forms of oppression are integrated in such a way that the exploitation of one group frequently augments and compounds the mistreatment of others" (p. 22). There is an interweaving thread of othering as a form of domination and control connecting human and nonhuman forms of oppression (Caniglia et al., 2016; Heynen et al., 2006; Plumwood, 2002). For example, food deserts, generally defined as a geographical area where access to healthy food is lacking or non-existent (Widener, 2018), were identified in the 1990s as being associated with poverty, class, and race (Blay-Palmer, 2016). Not surprisingly, where there is a lack of access to fresh food, there is also a lack of green space, pointing to a deprioritized status of both human and nonhuman nature in these settings (Alkon & Agyeman, 2011). Urban food justice must be inclusive of the biotic community beyond humans, and resources must be understood in a "more-than-human relational context" (Cadieux & Slocum, 2015, p. 14). Since human and nonhuman nature is co-constitutive, it is critical to recognize the related structural inequalities that necessitate both the urban food justice and the urban environmental movements (Classens, 2015).

Recognizing difference is not synonymous with othering. Humans have created the socio-ecological crises we are now faced with, which points to some of the ways we differ from other animals and species. Canales (2000) identifies two kinds of othering: inclusionary and exclusionary. Both are based in the context of power, but inclusionary othering practices "attempt to use power to create transformative relationships in which the consequences are consciousness raising, sense of community, shared power, and inclusion" (Canales, 2000, p. 25). In contrast, exclusionary othering uses power for domination, subordination, and control (Canales, 2000). While both forms of othering confer an unequal power dynamic, inclusionary othering is about "reconceptualizing meanings and understandings" by expanding the "boundaries for defining self in relation to other" (Canales, 2000, p. 26). In theory, otherization needs to stop in all manner of human relations, as it is tied to "denials of dependency" that express the "failure to situate the human in ecologically embodied and socially embedded ways" (Plumwood, 2002, pp. 34, 27). In practice, using a form of inclusionary othering may help to dissemble the human-nature binary in creative and empowering ways grounded in sharing and reciprocity.

Hybrids: The Role of Cities

More than half of the global population is now living in cities, yet cities are still a relatively "new landscape for food studies" (Moragues-Faus & Marsden, 2017, p. 283; United Nations, Department of Economic and Social Affairs, Population Division, 2014). More than 80 percent of the

population of North America lives in cities, making urban spaces the environments that most people have contact with on a daily basis. In other words, cities are the places where the most human-nature interaction takes place. Therefore, fixing the planet necessarily means fixing cities (Agyeman & McLaren, 2015; Fincher & Iveson, 2015; Swyngedouw and Kaika, 2008; United Nations, Habitat III Secretariat, 2017; Waliczek and Zajicek, 2016). I use the term "interact" loosely because not all interactions are of equal quality. An interaction by definition requires some degree of mutuality or reciprocity, or "two elements engaging and influencing each other" (Gaston, 2010, p. 137). Interactions are two-way relationships. However, this is not the case with all human-nature interactions, particularly when nature is viewed from a utilitarian perspective (Gaston, 2010). In terms of the power dynamics, the relationship remains largely hierarchical, with humans assuming a controlling or dominating role to a subservient nature. The relationship is still two-way, but humans typically benefit at the expense of nonhuman nature, therein establishing a conspicuous lack of reciprocity.

Regardless of which conceptualization of nature is used, we must ask ourselves what "visions of nature, and what urban socio-ecological relations we wish to inhabit" (Swyngedouw and Kaika, 2008, p. 104). Political ecology problematizes a pristine nature outside of cities by attempting to integrate the seemingly disparate concepts of urban and natural (Classens, 2015; Cronon, 1995). Cities are "metabolic socio-ecological processes" connecting our "immediate environment to the remotest corners of the globe" (Swyngedouw & Kaika, 2008, p. 98). Specifically, food systems "link rural and urban communities within a country, across regions and sometimes between continents" (Food and Agriculture Organization [FAO] and Resource Centres on Urban Agriculture and Food Security [RUAF] Foundation, 2015, p. 3). In this way, cities are fusions of social and physical resources that create global flows and networks (FAO and RUAF Foundation, 2015). In other words, development and capital accumulation are dependent on nature for their very existence, making nature and society inextricably "tangled" under the current capitalist system (Zimmer, 2010, p. 345). This pattern of production and consumption linking global environments to urban dwellers requires that environmental management begin in cities (Heynen et al., 2006). One way to begin the work of addressing the created inequalities that stem from anthropocentrism and to re-establish humans *as* nature is to view these relationships as hybrids (Latour, 1993; Swyngedouw, 1996; Whatmore, 2006; Zimmer, 2010).

Urban hybrids are mixtures of seemingly disparate entities and are understood as urban social natures or *socio-natures* (Braun & Castree, 1998; Castree, 2014a; Latour, 1993; Swyngedouw, 1996; 1999). There is nothing purely social about a city, nor is there anything purely natural—they are liminal spaces comprised of what Haraway (1991) calls "cyborgs" (p. 291), or "couplings between organism and machine" (p. 150). Cities are often thought of as the antithesis of nature and epitomize hybridity. Hybrid mixtures are seen everywhere: "concrete alleys of trees … urban drinking water and waste water…, [and] urban air that is polluted with different chemical compounds" (Latour, 1993, p. 10).

The food system is a global patchwork of hybrids across scales and modes of production. For example, rather than existing in isolation, concepts of conventional and alternative, and urban and rural, are relational rather than separate (Moragues-Faus & Marsden, 2017). As an "intimate commodity"—literally taken into the body (Winson, 1992, p. 4)—food and food production are perhaps the most significant points of engagement between humans and their environment. And yet the lack of necessity (and capacity) for many North American homes to provide food for themselves leads to a greater disconnect between people and the very environment needed to grow that food. Prior to the 19th century, nearly all food in North America was local and seasonal (Waliczek & Zajicek, 2016). Consumers often had direct contact with producers and good seasonal knowledge, until food preservation and transportation were modernized. Post-WWII eating out became common in North American households, alongside large scale uptake of packaged and processed foods. This industrialization of the food system resulted in reduced seasonality, as foods could be shipped long distances

and stored for longer periods of time (Waliczek & Zajicek, 2016).

Over the past couple of decades, eating locally or seasonally has been re-popularized, being baptized with the term "locavore" (Waliczek & Zajicek, 2016, pg. 271). Some manifestations of the local food movement are urban farming, urban gleaning, community gardening, community supported agriculture, rooftop gardens, edible landscapes such as food forestry, institutional gardening, foraging, and home gardening (Waliczek & Zajicek, 2016). In a rapidly urbanizing world, these manifestations indicate a desire to become more connected with our food and provide a pathway to reconnecting with our natural environment.

An estimated 15 percent of global food production happens in cities (Blum, 2016). Most industrialized nations rely largely on imported food products, and yet millions of urban residents are taking part in some form of urban agriculture (Grewal & Grewal, 2012). The Resource Centres on Urban Agriculture and Food Security [RUAF] Foundation (n.d.) defines urban agriculture as "the growing of plants and the raising of animals within and around cities" (p. 1). There is a growing body of literature on the benefits of urban agriculture, including mitigating food insecurity, global climate change, the urban heat island effect, the various forms of malnutrition, and creating more sustainable and resilient communities (de Zeeuw & Drechsel, 2015). Urban agriculture is not a new phenomenon—for as long as there have been cities, people have been growing food and raising animals within city limits. And in fact, today there are more than 800 million people practicing urban agriculture—or "urban own-growing"—globally, and the number is growing in North American cities (Blecha & Leitner, 2014; Wolch & Emel, 1998). These activities are happening in both formal (e.g., market gardens) and informal ways (e.g., "urban own-growing"), and provide another form of hybridity by merging elements conventionally thought of as urban and rural, and from the natural and built environment (Blum, 2016, p. xvii).

Sharing and the Commons

With urbanization increasing along with its associated negative socio-environmental outcomes, how can urban landscapes be managed to minimize negative impacts? Marx (1867) spoke of the "enclosure of the commons" as a "parliamentary form of robbery" (p. 513). He was referring to the appropriation of land that "increase[d] the monopolies of farms, [and] raise[d] the prices of provisions" (Marx, 1867, p. 513). Harvey (2013) later called this the neoliberal capitalist "accumulation by dispossession," capturing the concept of unequal power distribution and confinement of agency that are foundational to the ecological humanities and political ecology scholarship (pp. 53–54).

A sharing paradigm is based on the ideas of mutuality and reciprocity. As co-creators of the environments we inhabit, our world and everything we need for survival are shared. It is possible to create more just, sustainable, equitable cities, both socially and ecologically (Gibson et al., 2015; McLaren & Agyeman, 2015). A "sharing city" is "an advanced democratic city," and is "not one where even the poor own cars, but one where even the rich ride busses" (McLaren & Agyeman, 2015, p. 4). Fairness and justice between species are also possible, through developing "ethical ontologies that make available richer and less reductive ways to individuate, configure, and describe the world that make the most of the non-human other" (Plumwood, 2002, p. 169). In other words, by recognizing and maximizing the real and potential contributions of both humans and nonhumans, we can create urban environments that are richer, more just, and equitable.

Harvey (2003) imagined the creation of a new urban commons where the right to the city is about the "right to make the city different" (p. 941). He stated that "if our urban world has been imagined and made then it can be re-imagined and re-made" (Harvey, 2003, p. 941). If "we individually and collectively make the city through our daily actions and … engagements," (Harvey, 2003, p. 939) then we are capable of fundamentally changing our way of being in cities. By doing so, we can create more equity and use resources in more sustainable ways (Agyeman & McLaren, 2017). Unfortunately, equity and justice are often an afterthought in urban creative processes (Agyeman & McLaren, 2017). This is not dissimilar to the tendency of the social sciences to *add nature in*, rather than being critical

about existing "social hierarchies and discursive conventions" (Whatmore, 2002, p. 23) that maintain nature's subordinated status.

Agyeman and McLaren (2017) describe cities as "the centrality of collaboration and sharing" (p. 24). Cities provide new, innovative opportunities for the kind of sharing that enhances trust and builds social capital. Sharing is already happening in cities in myriad ways: shared services, shared values, shared activities, and shared experiences (McLaren & Agyeman, 2015). Cities can become places where "sharing resources fairly [and] nurturing the collective commons" (McLaren & Agyeman, 2015, p. 9) are the standard. But is it possible to "construct a socially just city" (Harvey, 2003, p. 940) when cities have never been harmonious places, free from conflict? For cities to embrace a sharing paradigm, we must move past our obsession with consumption and ownership. This system change can best be done by "strategically combining re-invention and subversion," which "seek interlinked opportunities to enhance well-being, increase justice and equity, and spread participative democracy" (McLaren, 2015, para. 80).

Sharing, and the concept of the commons, intersect all three theoretical framings. From a political ecology perspective, sharing inherently bypasses issues of power imbalances and creates more just and equitable environments and communities. Sharing and commoning are forms of political collectivity that push back against exclusive capitalist power structures, an action that constitutes a form of resistance. Where the ecological humanities refute a human-centered worldview, informal food economies are pushing back against the industrialized and destructive food system.

I have provided an overview of how we might begin to understand the human-nature relationship through the intersecting themes of three perspectives. This is meant to provide a preliminary thought experiment about how these perspectives interact and how they can be used to engage with the literature. I have shown how understanding and linking the concepts of hybrids, othering, and sharing can help us to move beyond our binary thinking about the human-nature relationship. In moving past this binary thinking, we need to learn "new ways to live with the earth, to rework ourselves and our high energy, high consumption, and hyper-instrumental societies adaptively … we will go onwards in a different mode of humanity, or not at all" (Plumwood, 2007, para. 1).

The Convergence of Perspectives

Teasing apart the human-nature relationship continues to elude academics and researchers, although the conversation is vibrant (Blay-Palmer, 2016; Bowden, 2017; Gibson et al., 2015; Heynen et al., 2006; Latour, 1993; Mitchell, 2018; Moragues-Faus & Marsden, 2017; Plumwood, 2002; Swyngedouw & Kaika, 2008). Figure 2 shows the conceptual model of the convergence of perspectives in an attempt to capture some of the complexity of the relationship(s) between them.

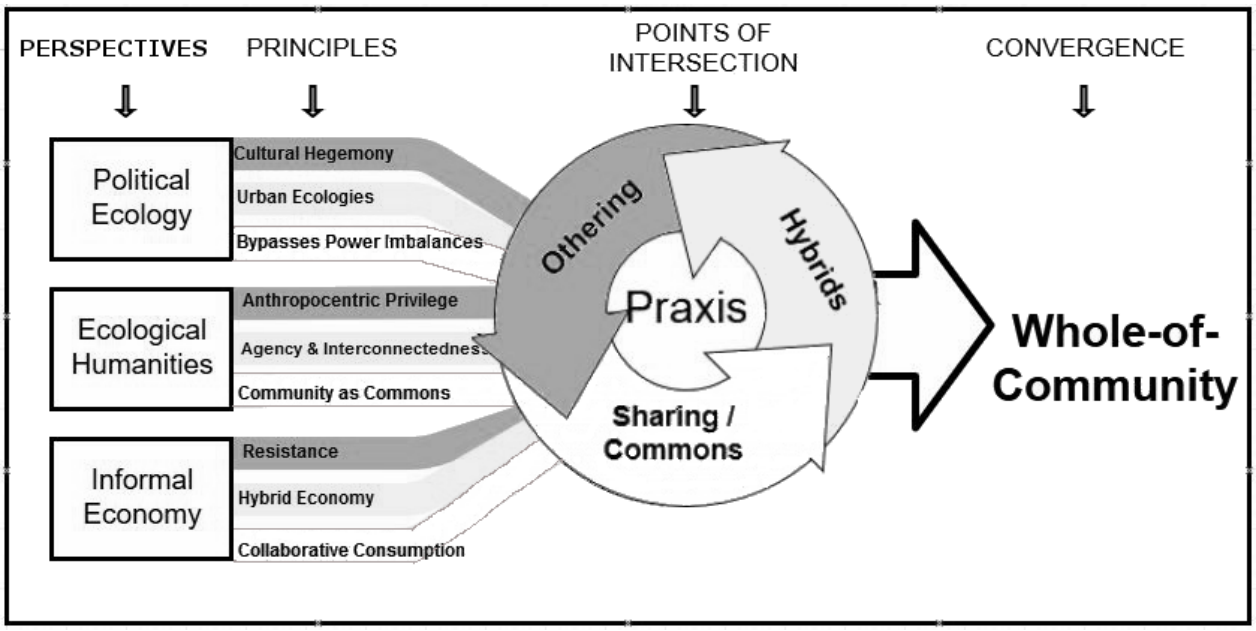
This section begins with the result of the convergence of perspectives understood as a "whole-of-community" approach. To illustrate this convergence, pollinating bees provide both a bridge and gateway: as a bridge, they can provide a way of (re)connecting human and nonhuman nature, and as a gateway, they can guide humans to a deeper understanding and connection with urban natures.

Whole-of-Community

Gibson et al. (2015) describe community as a process: "being-in-common—that is, *community*—can no longer be thought of or felt as a community of humans alone; it must become a *multi-species community* that includes all of those with whom our livelihoods are interdependent and interrelated" (p. 10). Even though the concept of community is not synonymous with the concept of the commons, community can be viewed *as* commons. In other words, the community itself is a shared resource that benefits all community members. The challenge then is to enable and operationalize multi-species communities which reflect the "doctrine that humans share a profound identity with non-human nature" (Naess, 1989, p. 6, 17).

Bird (2016) reminds us of the etymology of *"communitas,"* which simply means exchange of ourselves (p. 156). To build on the ideas of sharing and community, as described by the works of Marx (1867), Leopold (1949), Plumwood (2002), Naess (1989), Rose et al. (2012), and others, I propose that we find new ways to operationalize a whole-

Figure 2. Conceptual Model of the Convergence of Perspectives



of-community (WOC) approach to living in urban settings. A new WOC approach will build on some of the principles of earlier conceptualizations of whole society or previously used whole community approaches, such as those used in emergency management and public health initiatives (Boelsen-Robinson et al., 2015; Dube et al., 2010; Federal Emergency Management Agency [FEMA], 2011; Ewart-Pierce, Mejía Ruiz, & Gittelsohn, 2016; Ollerenshaw, 2012).

Whole community strategies have been used in emergency management as well as to address illiteracy and obesity (Boelsen-Robinson et al., 2015; Ewart-Pierce et al., 2016; Ollerenshaw, 2012). This approach is recognized as a way to empower and integrate people from the community to strengthen social infrastructure and facilitate community resilience, particularly by building social capital (FEMA, 2011). An interspecies approach to building social capital—or what Carr (2004) calls "ecosocial capital" that is "concerned with both interhuman and interspecies relationships"— (p. 47) is missing from current whole community conceptualizations.

The call for a novel concept of community is not new. In *A Sand County Almanac*, Leopold (1949) called for an ethic that "enlarges the boundaries of the community to include soils, waters, plants, and animals" (p. 239). In other words, a "concept of community … that would include the whole of the biotic community" (Gibson et al., 2015, p. 2). This concept of working toward connectivity means re-situating humans in ecological terms; that is, addressing human-centered approaches in ways that recognize, embrace, and uphold the co-constitutive networks that humans are part of (Plumwood, 2002).

The "effective functioning of any ecosystem depends on the interactions that occur between species" (Gaston, 2010, p. 46). Leopold (1949) challenged the human-nature dichotomy with his concept of an ecological ethic, and he believed that environmental issues cannot be solved unless people feel they are *part* of the natural world, rather than mere visitors or observers. This idea is echoed in the work of Plumwood (2002), who identified the two central tasks of the ecological humanities as being (1) to resituate the human within the environment, and (2) to resituate nonhumans within cultural and ethical domains. Leopold's (1949) land ethic is described as a reflection of the existence of an "ecological conscience" which "in turn, reflects a conviction of individual responsibility for the health of the land" (p. 258). Merchant (1995) calls this a "partnership ethic," described as:

> A relationship between a human community and a nonhuman community that recognizes its connections to the larger world … in which humans act to fulfil both human needs and natures needs by restraining human hubris. (p. 158)

My WOC approach aims to disassemble destructive binaries and actively reassemble collaborative and inclusive communities in cities. This can begin with embracing the nonhuman as a part of the community by acknowledging that "the environment itself can suffer injustices" (Moragues-Faus & Marsden, 2017, p. 278). This WOC approach will represent the ultimate hybrid, for it is a way of truly integrating urban socio-natures. Modern communitarianism has missed the mark by "invoking normative configurations of community, like the family, the neighbourhood and the nation, without examining the power relations they enact" (Whatmore, 2006, p. 151). Drawing on the "more-than-human" literatures (Braun, 2005; Cianchi, 2015) can augment the process of recognizing all living organisms as members and co-creators of urban environments. Including more-than-human agency in a WOC approach allows for the integration of the human-nature relationship "in ways that are not accessible if agency is restricted" (Cianchi, 2015, p. 34).

Pollinators as Praxis

Praxis is broadly defined as the unity of theory and practice. As co-creators of urban spaces, pollinating bees are important members of our urban communities as part of the socio-natural capital. From a theoretical perspective, bees present some interesting and relevant linkages between the themes identified in political ecology, the ecological humanities, and the informal economy. The commodification of pollination services is a form of othering that prioritizes human interests over the health and well-being of nonhuman nature (i.e., both bees and the flora that depend on them for reproduction). This hierarchy has created a division even between bee species where the financialization of the pollination services of the honey bee, *Apis mellifera,* is deemed more valuable than pollination services provided by other bee species, possibly at the expense of native species. Like many contributions to the informal economy, the everyday contributions of wild bees have become a "subordinated and dependent feature of capitalist development" (Chen, 2012, p. 3).

Pollinators provide an estimated 35% of global crop volume (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services [IPBES], 2016) and pollinate an estimated 90 percent of flowering plants on Earth (Atkins & Atkins, 2016; Ollerton, Winfree, & Tarrant, 2011; Yang, 2006). Yet the value of pollination by wild bees has been "overlooked for centuries" (Klein et al., 2007, p. 307). In Canada, there are more than 1,000 species of biotic pollinators, including bees, wasps, flies, beetles, butterflies, moths, and birds, with 856 native bee species accounting for more than 70 percent of the biotic pollination (Seeds of Diversity, n.d.; Sheffield et al., 2017). Worldwide, pollination services are estimated at hundreds of billions of dollars annually (Atkins & Atkins, 2016; Chaplin-Kramer et al., 2014). Yet, in an increasingly urbanizing world, the importance of urban spaces for pollinator habitat is still understudied (Baldock et al., 2015). Similar to the growing interest and body of research on urban natures, available studies indicate that any strategy addressing pollinators needs to address pollinators in urban spaces (Baldock et al., 2015; IPBES, 2016; Hall et al., 2017; Shephard, Vaughan, & Black, 2008; Tonietto, Fant, Ascher, Ellis, & Larkin, 2011).

As has been stated, bees can be both a bridge and gateway: as a bridge, they can provide a way of (re)connecting human and nonhuman nature, and as a gateway, they can guide humans to a deeper understanding and connection with urban natures. In recent years, there has been a significant uptake of urban beekeeping and an increase in pollinator research, especially on the European honeybee, *Apis mellifera* (Deveau, 2016; Lorenz & Stark, 2015; Wright, 2017). *Apis mellifera* has become something of a charismatic micro-fauna or flagship species (Matteson & Langellotto, 2010). Flagship species are defined as "popular charismatic species that serve as symbols and rallying points to stimulate conservation awareness and action" (Barua, Gurdak, Ahmed, & Tamuly, 2012, p. 1458). The increased interest in *Apis mellifera* is largely driven by

"the value of pollination services …and contribution to human food supplies" (Hicks et al., 2016, p. 1).

Concerns for bees grew in response to the phenomenon called Colony Collapse Disorder (CCD) in *Apis mellifera*. CCD is defined as when entire managed colonies die off or disappear suddenly (Atkins & Atkins, 2016; Kosek, 2011; Suryanarayanan & Kleinman, 2016). In 2006/2007 approximately 10 percent of *Apis mellifera* colonies were entirely lost in the United States, with affected beekeepers losing 30 to 90 percent of their colonies, an event which resulted in the naming of the phenomenon (Atkins & Atkins, 2016; Suryanarayanan & Kleinman, 2016). With that said, reported cases of CCD have continued to decrease in recent years, although colony losses are still a concern (United States Environmental Protection Agency, 2018).

Even though *Apis mellifera has* become something of a stand-in for all pollinators, wild bees are more efficient pollinators of many plants and are responsible for the majority of pollination, especially in urban settings (Atkins & Atkins, 2016; Pfiffner & Muller, 2016). *Apis mellifera* is also not currently an endangered species, contrary to media messaging (City of Toronto, 2017). Instead, there are seven species of native bees that are endangered or of concern in Canada, and those are only the species that have been identified (Government of Canada, 2018). Along with habitat loss, exposure to pesticides, diseases and pests, and poor nutrition (Ontario Ministry of Agriculture Food and Rural Affairs [OMAFRA], 2016; Woodcock et al., 2017), the commodification of *Apis mellifera* threatens and marginalizes native, wild bees through increased competition for food and disease transmission (City of Toronto, 2017; Graystock, Blane, McFrederick, Goulson, & Hughes, 2016).

From an anthropocentric perspective, the loss of bees poses the obvious risks of threatening food supplies and associated financial losses. From an economic perspective, a future with compromised pollination from a lack of pollinating bees points to the need for pollination by hand, or innovative technology. The labor costs involved in hand pollination are significant, and hand pollination could result in an estimated 500 percent increase in production costs to US$90 billion in the United States alone (Atkins & Atkins, 2016). This potential increase in the cost of food production could cause an increase in food prices, creating a new form of food elitism. While the debate about the threats to bees goes on in earnest, one question remains conspicuously unanswered: "how can we possibly value, in monetary terms, the loss of a species" forever? (Atkins & Atkins, 2016, p. 4).

Given the widespread use of pesticides in rural areas and the restrictive changes to pesticide use in urban areas, cities can provide a necessary habitat for wild bees, which include bumble bees and solitary bees (Woodcock et al., 2017). There is a relevant link between the literature on human well-being, contact with nature, and the kinds of urban environments that benefit bees. For example, along with providing a food source for wild bees, urban agriculture can benefit from increased yields with an increase in wild bee diversity (Colla, Willis, & Packer, 2009). Recent research indicates that cities can provide important ecological landscapes as a refuge for wild bees (Baldock et al., 2015). This research shows the "biological value and ecological importance of cities" in this context (Hall et al., 2017, p. 27). Novel urban green space, such as green roofs, can benefit both people and pollinators, although their "value for biodiversity" requires further investigation (Colla et al., 2009; Tonietto et al., 2011).

Arguably, all pollination services by bees are informal economic activities, as there are no labor protections in place for either *Apis mellifera* or native species. With that said, pollination services contribute significantly to the market economy as outlined previously. In this way, services provided by bees have been divided into market services (formal) and non-market services (informal) (Hanley, Breeze, Ellis, & Goulson, 2015). Contributions to the informal economy include the "aesthetic and cultural value of the wildflowers and garden plants which require pollination to sustain them" (p. 124). There are also the benefits pollinators provide to classroom learning, through an increase in outdoor classrooms and schoolyard gardens (Green & Duhn, 2015; Winig & Wooten, 2013). Additionally, there are the therapeutic benefits of gardens, such as hospital and long-term

care gardens that rely largely on pollinators for their flowering plants (Gentry et al., 2015; Marcus & Barnes, 1995). There is a growing body of literature on the health and well-being benefits of urban nature, much of which is dependent on bees (Artmann et al., 2017; Guerry et al., 2015; Kaplan & Kaplan, 1989; Mayer, Frantz, Bruehlman-Senecal, & Dolliver, 2009; Corvalan et al., 2005; Ulrich, 1984; Wolf & Housley, 2013). Pollination dependent fruit and seed production also supplies important food sources for birds and other animals (Hanley et al., 2015).

Pollinators provide a unique opportunity for creating healthier whole-of-community urban spaces. The needs of pollinating bees require small actions that can yield large benefits for all community members (Hall et al., 2017). Few can argue against the need for a more integrated human-nature relationship that acknowledges and supports the intrinsic value of all parts of the ecosphere. Against a backdrop of cities, bees have been offered as a gateway and community bridge between human and nonhuman nature. In this new era, the Anthropocene, we must find "new ways of thinking and knowing, and innovative forms of action" (Gibson et al., 2015, p. i).

Conclusion

Bookchin (1992) called for an ecologized dialectic to "provide the basis for a living ecological ethics". Along with giving a more "liberatory meaning to vague words like interconnectedness," an ecologized dialectic can help us achieve "a conscious and ethical nature [and] ecological society" (Bookchin, 1992, para.63). Can we find examples of ways to achieve this vision? If "rather than seeing nature just as a passive recipient of human influence" we see it as "an agent that constrains and influences human beings and societies" how could this view radically alter how we interact with the rest of the biotic environment? (Arias-Maldonado, 2015, p. 10).

To build on the vision of an ecological society, we need to know more about "how place-specific physical environments can act as facilitators for, or barriers to, collective action" (Swyngedouw & Kaika, 2008, p. 101). Classens (2015) identifies the failure "to adequately scrutinize the enmeshed character of nature and society" as a gap that could "ultimately contribute to untangling the potential and limits of urban gardens as sites of socio-political change" (p. 230). Blum (2016) has also identified a gap in understanding the relationship "among the sociocultural and physical-ecological variables of urban properties" (p. 14). Moragues-Faus & Marsden (2017) call for a "far more inclusive and publicly engaging" approach to the "debates around food and nature" (p. 285). They suggest this be achieved by developing unorthodox techniques of creativity from different perspectives such as political ecology. Mitchell (2018) draws from Indigenous knowledge systems to suggest that what is needed is "repairing and strengthening" of broken "laws, agreements, treaties and protocols" between humans and nonhumans (p. 3). To this end, learning from, and engaging with, Indigenous knowledge systems could be a critical step towards "flourishing of future generations of multiple life forms" (Mitchell, 2018, p. 3).

A new urban WOC alternative is a radical approach in that it addresses power dynamics in and between all urban actants. Along with filling existing gaps, a WOC alternative is a fundamentally new way of being in common with the rest of the biotic community. If nature is everything and everywhere, and humans are just a part of the larger biotic community, then how can we interact with urban spaces to minimize negative impacts and allow for all biotic inhabitants to thrive? Our relationship and place in the natural world have changed over time, as have our impact and understanding of that impact (Bowden, 2017).

Leopold (1949) said, "A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise" (p. 262). It is important to understand the relationships between and among things—that is, how we interpret and interact with the world—if we are to exact any lasting positive changes. Two decades into the 21st century, we are faced with unprecedented human-induced ecological crises. Given this fact, it is important to ask: "why is the imaginary of possible alternative urban natures still impotent" (Swyngedouw & Kaika, 2008, p. 101). Examining the human-nature relationship through community-based, pollinator-friendly urban spaces

is one way to engage, based on the premise that "to the degree that we come to understand other organisms, we will place a greater value on them, and on ourselves" (Wilson, 1984, p. 2). A WOC approach can help translate urban spaces into more integrated, productive, and inclusive communities and help to situate humans in more ecological terms to mitigate, and adapt to, the anthropogenic socio-ecological crises of the time. 

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Connecting new farmers to place, agroecology, and community through a bilingual organic farm incubator

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Abstract

Renewed public interest in the localized dimensions of food and farming systems offers opportunities for citizens to become more engaged in decision making about how their food is produced, distributed, and consumed, and, for all these actions, by whom. This paper explores an initiative designed to reinvigorate the production components of a place-based, regional food system through connecting diverse aspiring entrepreneurial farmers, nonprofit organizations, land grant university faculty, and food consumers around shared values. The characteristics that distinguish values-based food systems can be sets of values associated with environmentally sustainable production practices, the qualities of the food, the distribution of the food, and/or relationships with particular farmers and places (Ostrom, DeMaster, Noe, & Schermer, 2017). Based on interviews and participant observation, our participatory research with the Viva Farms bilingual farm incubator program

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explores the role of place, social, and environmental values, and social learning in launching an incoming generation of women, immigrant, and low-income farmers. These themes have not been previously explored in the literature in relation to the success of new entry farmer initiatives. As of 2016, six years into the program, our findings show that 77 percent of past program participants were still farming in the same region, using agroecological farming practices and employing place-based marketing strategies.

Keywords
Agroecology, Beginning Farmers, Bilingual Education, Community Food Systems, Farm Incubator, Organic Farming, Place-based Food Systems, Values-based Food Systems, Food Sovereignty

Introduction

Agriculture is central to the economy of the Northwestern United States. With rich soils, engineered irrigation systems, and a wide range of microclimate zones, Washington is the second most agriculturally diverse state in the U.S. in terms of the crops produced. An apparent landscape of plenty with over US$10 billion in annual production value (U.S. Department of Agriculture, National Agricultural Statistics Service [USDA NASS], 2017), Washington agriculture has focused on agro-exports that closely articulate with global markets, encourage agricultural consolidation and industrialization, and draw an international labor force. However, such agricultural restructuring has led to steadily declining numbers of profitable small and mid-sized farms, an aging farmer demographic, and insecure agricultural working conditions. In Washington State, approximately half of all farmers are over the age of 60, and only 6.8 percent are under the age of 35 (USDA NASS 2012).

In keeping with movements to counter the negative effects of agricultural and food system globalization emerging around the world, Washington residents are responding to the challenges in different ways. Some of these ways are explicitly oppositional to each other and others are focused on the creation of alternative models (McMichael, 2014). Aligning with the observation by food system scholar McMichael (2014) that in response to current food system crises and contradictions "communities are developing adaptive strategies that intersect with food sovereignty visioning, whether they call it food sovereignty or not," (p. 952) we propose a case study of one such response. Regardless of how they themselves characterize their participation, a renewed public interest in local foods in Washington appears to offer new opportunities for citizens to become more engaged in decision making about how their food is produced, distributed, and consumed, and by whom. When randomly surveyed, most Washington consumers expressed a strong desire to support local farmers with their food purchases (Ostrom, 2017). While promising, transformation toward a more sustainable agriculture will require actions across the food system, encompassing research and education to on-farm practices to market development to policy reform, all going well beyond consumers that make more intentional food purchasing choices. As articulated by a wide range of food system critiques, solutions to modern food system problems will require both producer and consumer engagement in ensuring equitable access to farming resources and markets, as well as the restoration of agroecosystems (DeLind, 2011; Ostrom, 2015; Reganold et al., 2011). And, while it may appear at face value that consumers of alternative foods are primarily concerned with their own personal health, nutrition, and gastronomic satisfaction, when asked specifically about how they view their food choices, random sample survey research with Washington residents has shown that many do see connections among their food purchasing choices and aspects of ecological, economic, and farmers' well-being. However, these associations emerge most clearly in relation to specific places rather than in relation to social or political movements (Ostrom, 2006). This survey research found that "identification with a locality" offered prospects for "building common ground among consumer and farmer" interests related to food production and distribution (Ostrom, 2006, p. 77). This is significant because, as Marsden (2012) and others contend, many agroecological solutions to farming problems appear to be most effective if they are "place-based" and designed in response to specific ecological, economic, social, and cultural settings

(Méndez, Bacon, & Cohen, 2013). This builds on earlier observations by Flora (1998) that attachment to place forms a necessary foundation for generating community capital and sets the stage for Marsden's (2012) ideas about adaptive capacity building through generating place-based "communities of food practice" that support innovative, new institution-building and governance at a scalable level of "city-regions" (pp. 271–272). Finally, from the standpoint of redesigning agri-food systems based on "agroecological principles," (Méndez et al., 2013, p. 10) to optimize agroecosystem health, sustainable livelihoods, and food system self-determination, change strategies may be most effective if they are participatory, bottom-up, politically engaged, and action-oriented. Further such systems will need to be adjusted to particular environments and "facilitate inter-generational transfers" (Méndez et al., 2013, p. 11). Thus, food system values that evolve in relation to particular places and their residents may encourage collective action strategies that directly engage concerns about environmental sustainability and the well-being of farmers and farmworkers at a manageable scale (Ostrom 2006, 2017).

Farm incubators, programs that aim to reduce barriers to entry for beginning farmers,can be seen as one manifestation of food-sovereignty related movements that are concerned not only with the quality and secure availability of food, but also with how and where the food will be produced and by whom (McMichael, 2014; Méndez et al., 2013; Ostrom, 2017). They offer one example of local community-based action to counter global market forces by reconnecting food, farms, and communities through the support of new farmers with access to land, equipment, direct markets, training and capital attached to a particular place (Lelekacs, O'Sullivan, Morris, & Creamer, 2014). In 2012 the National Incubator Farm Training Initiative counted 61 farm incubator programs in the U.S.—a number that grew substantially to 220 programs in 2016 (New Entry Sustainable Farming Project, 2016). The rise in incubator programs could be viewed as one expression of growing public awareness that the future of agroecosystems and community-based food systems is critically dependent on the access to resources, knowledge, skills, and strategies of incoming farmers. However, it is unclear how successfully these programs can realize environmental and social sustainability values and whether the broad-based community support engendered through these programs can be translated into greater viability for new farmers.

In this paper, we examine whether cross-organizational partnerships, formed with a connection to a particular place, a commitment to farmer and farmworker well-being, and a commitment to agroecological principals, can foster environmental stewardship and the strong social connections and infrastructure development required to support the next generation of farmers. Our participatory research with the Viva Farms bilingual farm incubator program participants seeks to understand the role of place, community, and social and environmental values from the perspective of beginning, women, immigrant, and low-income farmers. We employ a concept of community that is based on connections to "place" as observed by Flora (1998) and draws from a rich community development literature that conceives of community as both a physical space and a dynamic, interactive social space as elaborated by Liepins (2000) and Flora (2001). Thus, the project under study operates within a particular social space that encompasses a web of relationships, values, aspirations, and identities that inspire various actors and organizations to form commitments to the project and to each other, thus ultimately building and reinforcing a form of social capital (Flora, 1998). However, when referring to the land-based production and learning site offered through the incubator, we focus on the physical location of Skagit County, Washington, where a network of resource providers, including local government and nonprofit entities, have secured the material means of production, financial resources, and the educational facilities needed for the project to operate. When referring to marketing, sales, and consumption networks, we expand our physical geographical context to include the greater regional community of consumers and buyers in the Puget Sound Region between Seattle and Bellingham.

Our research aspires to contribute to the body of knowledge developing around beginning farmer training programs and farm incubator programs by

more closely examining their socio-ecological dimensions. While there has been rapid growth in the numbers of beginning farmer training programs, little systematic research has been done either on the unique features of educational approaches that are embedded in strong community support networks, or on the role of these programs in developing alternative, sustainable, and inclusive community food and farming systems (Niewolny & Lillard, 2010). Much of the literature has documented the rise in incubator farm programs and the practical aspects of program models and design (Lelekacs et al., 2014; Melone, 2006; Overton, 2014; Winther & Overton, 2013). Several have considered the role that farm incubator programs can play in providing opportunities for diverse beginning farmers to engage in regional food system economies (Brodt, Feenstra, Kozloff, Klonsky, & Tourte, 2006; Overton, 2014). Additionally, researchers have noted that while Extension may be well positioned to support farm incubators, programs may be more successful if they are not directly operated by an educational institution (Flora, Emery, Thompson, Prado-Meza, & Flora, 2012; Lelekacs et al., 2014). Calo and DeMaster (2016) identify the need for continued support after the incubator program and recognition that such programs alone cannot solve issues of land access for socially disadvantaged and beginning farmers. There are complex socio-cultural and economic barriers including race and power relations beneath the barriers of price and availability (Calo & DeMaster, 2016). Gaps remain in understanding the extent to which incubator programs can address issues of equitable access to farming, how farm incubator programs influence participant farming and marketing practices and how farmer values related to environmental sustainability and community connections can be cultivated (Brodt et al., 2006; Ewert, 2012; Niewolny & Lillard, 2010). We aim to build on the existing literature by exploring themes of place, community linkages, inclusive learning models, and environmental farming practices through the case study of Viva Farms to answer questions about the role of farm incubators as a broad-based community change strategy to enhance food system sustainability.

Incubator Program Background

Viva Farms is a nonprofit organization operating a bilingual, certified organic farm incubator program on 78 acres of land in Skagit County, Washington, approximately 70 miles north of Seattle (Viva Farms, n.d.). The Viva Farms farm incubator program was founded on an initial 33-acre (13.4 hectare) property through a cross-organizational collaboration in 2010 among the project organizers: Washington State University (WSU) Skagit County Extension, the Port of Skagit, and several other community funders. The collaborators came together with the goal of investing in the place-based regional food system through the support of new entry farmers. With the mission to launch the next generation of farmers and reduce barriers to entry for beginning farmers, Viva Farms provides access to the top five essentials for farming including land, infrastructure, markets, capital, and training (Ewert, 2012). In 2017, Viva Farms purchased a 45-acre (18.2 ha) property also located in Skagit County to expand available land for participants. In 2018 Viva Farms launched a new additional incubator site in King County, in the greater Seattle metropolitan area.

The Viva Farms incubator program is open to all beginning farmers who qualify, and is offered in English and Spanish to meet the needs of the local agricultural population in Skagit County. With a long history of Latino farmworkers and a growing number of Latino farm operators in Washington state, there is a demonstrated need for bilingual educational programs (Ostrom & Donovan, 2016). Strategic outreach to the Latino community is conducted through collaboration with WSU Extension. Infrastructure includes shared farm equipment, access to a greenhouse, barn storage space, water, cooler, wash pack station, and computer access. In addition to the hands-on learning that participants acquire through growing and managing their own parcels, workshops are offered throughout the year on business management, marketing, food safety, and agroecological production practices including cover cropping, pollinator habitat, and soils management. In 2016, Viva Farms began facilitating the Practicum in Sustainable Agriculture, a hands-on farming course for Viva Farms participants during their first year before

leasing their own farm plot, offered for credit in collaboration with the Skagit Valley College Sustainable Agriculture Education Program. Viva Farms operates a wholesale marketing program and a Community Supported Agriculture (CSA) program where participant farmers learn how to market their produce. Viva Farms wholesale markets include restaurants, grocery stores, food cooperatives, schools, daycares, and businesses. Farmers also market their own produce through local farmers markets, CSA, and wholesale accounts. Farmers are expected to become increasingly independent over a five-year trajectory.

Farm Incubator Program Models and Adult Learning

In assessing how farm incubator programs serve as a place-based food system model to foster environmental stewardship among new entry farmers, we found it important to look at how adult learning influences adoption of agroecological practices. While it has been found that farmers' adoption of practices is influenced by production yields and costs (TerAvest, Carpenter-Boggs, Thierfelder, & Reganold, 2015), a review of the literature shows that adoption of agroecological practices depends not only on the innovations and practices presented, but also on the social networks that support the implementation of those innovations and behavior changes (Kroma, 2006). Adults have accumulated knowledge and experience that they apply to the learning process (Kroma, 2006), constantly reflecting and rethinking as part of learning and decision making (Barrantes & Yagüe, 2015). Social learning brings together knowledge through relationships and interactions with others over time (Flora, 1998). Because of this, agroecological behavior change requires not only technological innovations and practices, but also effective education methods and social support networks (Röling & Wagemakers, 1998; Kroma, 2006). Both internationally and nationally, NGOs and social networks play a large role in disseminating information about organic agriculture, influencing adoption of those practices (Goldberger, 2008).

Additionally, agroecology is, at its roots, a participatory and action-oriented approach that recognizes farmers' own knowledge and expertise in understanding the complexities of ecosystem interactions (Gliessman, 2014; Méndez et al., 2013; Wezel et al., 2009). Through this lens, hands-on participatory methods that facilitate an environment where farmers can experiment, and then relate those experiences within a social network, can lead to learning and innovations in agroecological resource management (Barrantes & Yagüe, 2015; Hassanein & Kloppenburg, 1995; Kroma, 2006). This is especially important for participant groups with a diversity of educational experiences, as hands-on learning through field programming has been shown as an effective educational strategy accessible to all, even those with limited or low levels of formal education (Davis et al., 2012). Although participatory methods and relationships are often emphasized in international projects, recently they have been recognized as important components of community development projects in the United States (Nerbonne & Lentz, 2003).

As many farm incubator programs have been created, one important component of these programs is the teaching of agroecological practices to new farmers as an expression of environmental values in agricultural production. For example, many beginning farmer programs focus on ecologically sustainable production methods that include organic amendments, cover cropping, crop rotations, pollinator hedgerows with native plants, compost and manure to increase organic soil matter, and other practices that relate to the local ecological systems of the place where they farm. Indeed, most farm incubators teach sustainable techniques as well as conservation-minded decision-making strategies for their new farmer participants (Melone, 2006). Beyond the direct ecological impact of these adopted practices, programs that connect people to place have the power to develop an ecological conscience in the next generation of farmers and consumers (Herman, 2015). Immersion in agroecological practices at the beginning of farmers' careers could result in the normalization of these practices as a standard over time, increasing the ecological integrity of place-based food systems. While farmer values guide production practices, it is important to recognize that industry and market forces including the low market value of produce and the high costs of land and labor challenge whether a farmer can

maintain agroecological production practices when faced with an unsustainable economic reality (Guthman, 2004).

Research Methods

We used qualitative and quantitative methods to conduct this in-depth case study in 2016, through interviews and surveys with current and past participants, participant observation, and Viva Farms staff interviews. The selection of our interview participants included all current and past participants. Interview and survey questions were patterned after the Agriculture and Land-Based Training Association (ALBA) End of Year Interviews and a study of the University of Santa Cruz Apprenticeship in Ecological Horticulture (Perez, Parr, & Beckett, 2010).

Using the preferred language and communication format of the participants, Viva Farms staff contacted past Viva Farms participants via phone, text, and/or email in May 2016 to share the purpose of the study and invite them to participate in a scheduled interview at their farm. In June 2016, we sent follow-up emails and phone calls. Additional follow-up included phone calls, voice messages, text messages, email invitations, and contact again from Viva Farms and from the previous leadership. The interviews consisted of a field visit and a structured interview that was audio-recorded with participant consent. We conducted structured interviews in person and over the phone when necessary with eight previous participants and thirteen current participants during spring and summer 2016. Interviews ranged from 20 to 60 minutes. Interviews were conducted in Spanish or English according to the preferences of the participant. Secondary data was collected through survey results and Viva Farms materials, including responses from 2015 End of Year Surveys conducted in November and December with fourteen Viva Farms participants.

As a program partner at WSU Extension, our case study incorporated ongoing participant observation that included shadowing farmers during operations, supporting farmers in farm management and providing Spanish interpretation for monthly Viva Farmer meetings, allowing triangulation of self-reported data, and facilitating in the development of codes and themes for analysis (Jorgensen, 2015). Participant observation also allowed the growth of trust with participants to develop in-depth farmer narratives.

According to Viva Farms records, 28 farm businesses participated in the program between 2010 and 2015. We were able to contact and conduct interviews with 22 of the 28 farm businesses, a response rate of 79 percent. Those 22 farm businesses were represented by 27 farmer participants, as several farms were operated by couples. The remaining six participant farms were unreachable through various outreach methods including phone, email, and contact with previous organizational leadership. Two past participants who were unreachable appear to be currently farming. There was no observable pattern or response bias in the reason for not participating in the evaluation. If the total is adjusted for the two phone numbers that could not receive messages, 22 of the 26 farmers who received invitations to participate in the study chose to do so. This leaves an adjusted response rate of 85 percent, which is quite high and increases the likelihood that these results are representative.

To address our research questions, we asked participants about the practices they used on their farms and what they felt were benefits of the program. From end of year survey results from 21 of the 22 respondent farm businesses, we measured self-reported utilization of agroecological practices in farming or gardening since participating at Viva Farms as an indicator of ecological stewardship of a place—in this case, the Skagit Valley of Western Washington. Surveyed practices included: water conservation; cover cropping; soil testing and nutrient management; utilization of practices that promote soil quality and health; physical, cultural, and biological controls for pest and disease management; planting of pollinator habitat; improved nutrient cycling; improved energy efficiency or green energy sources; use of approved organic inputs; crop rotation plan; non-use of synthetic or petrochemicals; and other environmental sustainability practices. The Viva Farms program focuses education and technical support on these practices and requires some of these practices in the land lease. Interviews also

documented participant demographics, acres farmed, diversity of crops planted, and organic certification by each farm as indicators of ecological integrity and environmental values. We asked open-ended and structured questions about the value of the program to explore how values of place and community were expressed by participants. Viva Farms also uses an annual "Self-Assessment of Skills" for participants that evaluates the knowledge and implementation of various agroecological production practices. Qualitative data were analyzed using comparative coding to identify common themes and explore the range of responses.

Results

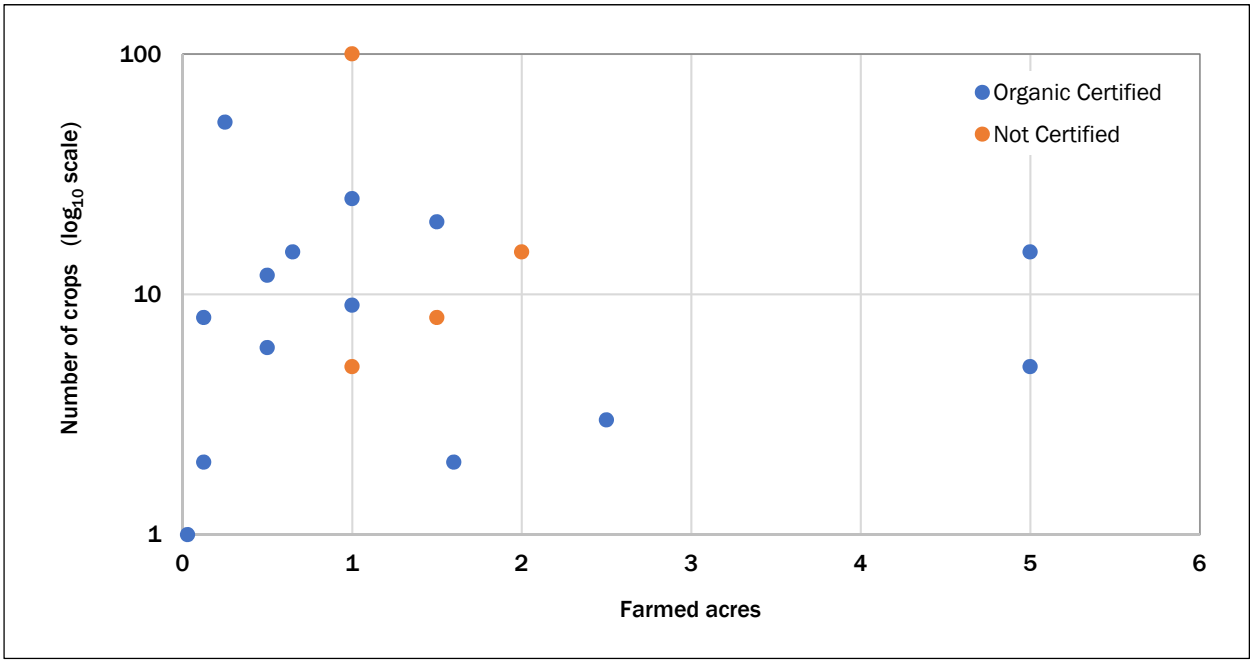
The Viva Farms participants self-identified their gender, ethnicity, education level, and family class demographics (Table 1). Latino and Indigenous Latino participants identified their primary language as a language other than English, including Spanish and Mixtec. We decided to include a "Latino and Indigenous" category even though the census does not have this listed option, as many of the participants shared their ethnicity as Mexican Indigenous. Participant education level ranged from 2nd grade to graduate degree, and the average farmer age was 40.2 years. As a point of comparison, Skagit County farm operator demographics indicate that 23 percent of farm operators are female, .03 percent are of Spanish, Hispanic, or Latino Origin, and the average age is 58.4 years (USDA NASS, 2012).

Of the participant farms interviewed, 17 reported farming in 2015 on 25.28 acres (10.23 ha) total ranging from .03 to 5 acres (.01 to 2 ha) in Skagit County and adjacent Whatcom County. Crop diversity grown by participants ranged from 1 to 100, and included mixed annual vegetables, perennial vegetables, perennial berries, herbs, flowers, and grains with an average diversity of 17 crops per farm (Figure 1). Of the 16 growers (73%) who operated a farm business in 2015, five worked on the farm full-time seasonally, while 11 worked on the farm part-time. When asked to "generally describe your farm business in 2015," participants used terms explaining their practices including "organic," "diverse," "sustainable," "biodynamic," "permaculture," "low-input", and "natural practices." One participant shared that the reason they came to Viva Farms to start a farm business was because "farming is a means to impact the world, to live according to morals." While participants often bring values with them when they begin, the program appears to serve as a vehicle to develop preexisting values and a means to take action on those values. Research by Minkoff-Zern (2012) on indigenous Oaxacan farmers in California suggests that while farmers bring with them their traditional ecological knowledge and values, they combine those with practices they learn working on farms in

Table 1. Viva Farms Farm Owner/Operator Participant Demographics

	N	Percent
Gender (*n*=27)		
Female	11	40.7%
Male	16	59.3%
Ethnicity (*n*=27)		
African American	0	0.0%
Asian American	1	3.7%
European American	13	48.1%
Hispanic/Latino	6	22.2%
Indigenous and Latino	6	22.2%
Other	1	3.7%
Age (*n*=23)		
Less than 35 years	6	26.1%
35 to 64 years	17	73.9%
65+ years		0.0%
Education Level (*n*=26)		
Less than High School	12	46.2%
Some College or Associates Degree	2	7.7%
College Graduate	8	30.8%
Master's Degree	4	15.4%
PhD	0	0.0%
Family Class (*n*=24)		
Wealthy	0	0.0%
Upper Middle Class	1	4.2%
Middle Class	7	29.2%
Working Class	9	37.5%
Low Income/poor	6	25.0%
Don't know	1	4.2%

Figure 1. Crop Diversity, Acreage and Organic Certification of 2015 Participant Farms (*N*=17)



California to form practices that best fit that specific ecosystem and place.

Exploring the adoption of agroecological practices, we asked respondents "since participating at Viva Farms, have you incorporated any of the following into your farming or gardening?" All Viva Farms participants reported implementing some agroecological production practices on their farms or gardens (Table 2). For the 14 farms growing on Viva Farms land, some practices are a requirement of the Viva Farms lease, including the use of approved organic inputs, non-use of synthetic or petrochemicals, cover cropping, and crop rotation. Several participants who reported not utilizing a given practice expressed future plans for implementation. From observations and participant comments, those respondents not yet implementing a desired practice generally understood the ecological value of the practice, but stated economic limitations to implementation. Some of the early participants in the program, or those that had short tenure, indicated lack of practical experience over multiple seasons as the reason for not

Table 2. Agroecological Production Practices Adopted by Viva Farms Incubator Program Participants (*N*=21)

Practice	Positive	Percent
Water Conservation Practices	21	100.0%
Use of Only Approved Organic Inputs*	21	100.0%
Utilization of Practices that Promote Soil Quality/Health	20	95.2%
Non-use of Synthetic or Petrochemicals*	20	95.2%
Improved Nutrient Cycling	19	90.5%
Soil Testing and Nutrient Management	18	85.7%
Cover Cropping*	16	76.2%
Physical, Cultural and Biological Controls for Pest and Disease	16	76.2%
Planting of Pollinator Habitat	16	76.2%
Crop Rotation Plan*	15	71.4%
Improved Energy Efficiency/Green Energy Sources	7	33.0%
Individual Farm Organic Certification	3	14.5%

*Required practice for those farming at Viva Farms

currently using those practices.

Of the 17 farms in operation in 2015, 15 were certified organic, including all farms operating at Viva Farms under the umbrella of Viva Farms Organic Certification and one farm off Viva Farms property. Twelve participant farms reported planning to certify individually in the future. The Viva Farms lease contract requires all current participants to comply with organic certification requirements for production and record keeping under the Viva Farms Group Organic Certification. In decisions to obtain their own organic certification, farmers expressed that their decision was market driven. All participants, including those who did not organic certify their farms, stated that they practice non-use of synthetic and petrochemicals on their farms. Through participant observation and unstructured interviews, several participants said that they wanted to farm organically for their own health and the health of their family and workers. For example, one farmer shared that after working on conventional farms for years, she wanted to begin her own farm organically to reduce pesticide exposure while she and her family were working in the fields. Beginning her own farm business gave her the power to make those management decisions.

Ongoing participant observation revealed other components of the Viva Farms incubator program that influenced the adoption of agroecological practices by participants. These included organized yearly group purchasing of winter cover crop seed and fertilizer and shared equipment for reduced tillage, and seeding and incorporating cover crops. The Viva Farms lease contract requires cover cropping of leased parcels not planted in perennial crops. Viva Farms also organizes soil and water testing for the property, sharing the results with the growers to emphasize and demonstrate the importance of these components for on-farm nutrient management. In 2016 Viva Farms participated in a restoration project onsite to replant the waterway running through the property, serving as a demonstration restoration buffer zone. Replanting included native species to attract and provide habitat for pollinators. Following the replanting of the buffer, we observed the informal sharing of flower seeds and tubers between farmers for increased pollinator habitat within their own plots.

We coded participant responses to open-ended questions about the benefits of the program (N=20) and identified common themes. The most common cited benefits were "the value of education" (60 percent), "learning from other participants or staff as neighbors and friends" (55 percent), "creation of community while farming" (35 percent), and "bilingual English/Spanish component of the program" (30 percent), identified by both native and non-native English speakers. These themes, combined with the finding that the majority of participants implemented agroecological practices, highlight the value of the social network and of bilingual education to support social learning and implementation of production practices by beginning farmers.

In this quote from an interview discussing what it is like farming alongside others at Viva Farms, this farmer highlighted the importance of social learning to the program model.

> If you want to learn more, I think that you have to see it as a personal benefit, but if you aren't interested in moving forward and learning more, then not really. But if you are interested in flying really high, then yes, it is beneficial. Because you are going to learn from others. And others are going to learn from you.

This quote, translated from Spanish, exemplifies the sharing of knowledge through relationships and interactions with others over time (Flora, 1998).

Through participant and program observation, we saw increased marketplace access and representation for participant farmers. Buyers from regional food coop stores, food hubs, restaurants, and regional stores of national chains purchased product from both the Viva Farms wholesale program as well as individual Viva farmers. Regional farmers markets and buyers began actively recruiting Latino farmers to sell in their markets. CSA subscriptions from Viva Farms more than doubled from year one to year two, as more businesses throughout the region offered to host drop sites for individuals to pick up their boxes of

produce grown by beginning farmers in the program.

We also observed how cross-organizational collaboration has continued through the development of the Viva Farms program. Viva Farms and WSU Skagit County Extension continue to collaborate on programming, grant projects, and individual farmer support. WSU Skagit County Extension offers courses to assist potential farmers in preparing for beginning the Viva Farms program, including the Cultivating Success courses and Tractor Safety course. Local government continues support through the continued lease of land to Viva Farms through the Port of Skagit and has expressed a commitment to support beginning farmer development and local agriculture. To provide more land for participants and increase the stability of land tenure, Viva Farms has also built partnerships with a regional land trust that assisted in providing the down payment for the purchase of the 45-acre (18.2 ha) land purchase in Skagit County. Local banks have collaborated to offer capital access for participants, and a farmland preservation organization has begun support to assist in linking farmers to farmland after participation. Access to land following participation remains a weakness. However, the incubator is addressing this in a small way through these collaborations and through supporting farmers to gain the management experience and skills to apply for and obtain farm loans. Staff recognized the importance of these community partnerships in the development of the program.

The Role of Incubators in Building Sustainable Community Food Movements

Through this case study, we observed how a place-based solution to a food systems problem in the form of an incubator program can be designed in a way that both respond to the needs of communities and build on and enhance their existing ecological, economic, and social assets. The Viva Farms participants outpaced state and national demographics for beginning farmers in racial and ethnic diversity, gender, and age with a lower average age, a higher percentage of women farmers, and a higher percentage of minority farmers (USDA NASS, 2014). Additionally, these new business owners were supported through new and existing market spaces such as farmers markets, food co-ops, grocery stores, and food hubs. This shows community support for the economic sustainability of the producers. All program participants who responded were using ecological farming practices taught in the program curriculum, which improve environmental sustainability. These results suggest that in this case, when embedded in community collaboration and connections, a farm incubator program has the potential to foster more sustainable social, economic, and environmental outcome.

Our quantitative data on participant-reported implementation of agroecological practices showed widespread use and adoption of these practices. The data also suggest that the program requirements and educational support of the farm incubator program provide the structure for participant farmers to enact agroecological values through their farming and marketing practices in connection to a specific geographic place, as those participants continued to farm in the same region. The production and marketing practices that Viva Farms employs in their training and technical assistance clearly influenced the production and marketing practices that the participants employ. This demonstrates the important role that the structure provided by the incubator program can play in supporting the implementation of place-based agroecological practices, giving a beginning farmer the opportunity to experiment and then integrate the practices into their production system for future seasons. The high implementation rates of these practices indicated participants' expression of environmental values through the management of agroecological systems, which is then expressed to buyers and consumers through branding and storytelling. Future opportunities exist to research how buyers and consumers identify with both place and community when purchasing from Viva Farms and its farmers, and how they view themselves as partners in the development of a regional food system.

We found that social network created through participation at Viva Farms played a role in supporting the adoption of those practices through social learning. The themes from participant responses on the benefits of the program confirmed adult learning theory that social networks and social learning influence adoption and

implementation. Farm incubator programs enable the social learning process through the intentional design of grouping farmers on one site to facilitate observation, reflection, knowledge sharing, experimentation, and implementation from one season to the next. This happens both through structured training and meetings, and occurs organically in the field. Those participants who said they plan to implement surveyed practices in the future demonstrate the need for programs and social networks that support beginning farmers over several seasons. Observations indicated that the adoption of practices in farming is a multiseason learning process, strengthening the importance of long-term social networks in supporting the increased implementation of agroecological practices.

Important to the transformation toward sustainable agriculture in this specific example, the hands-on incubator education model proves accessible for equipping beginning farmers with a wide range of educational experiences, including social learning, to become knowledgeable and skilled environmental stewards and business managers. The dissemination of information through the social network and hands-on training facilitated through the Viva Farms incubator program demonstrates the ability of this model to provide access to information that accommodates the diverse educational background range of participants. Increased access to markets for these beginning farmers, including many women and immigrant farmers, increases options for buyers and consumers to participate in a food system that reflects and values those farmers as important contributors to food systems. At a community level, this increased access enables the social movement around food to support values of social inclusion and environmental protection. It should also be noted that access to products from diverse producers does not always increase consumer purchasing from these producers as it has in this community (Cooper, 2018).

Our case study suggests the value of additional future research focused on the role of beginning farmer education programs in contributing to the environmental and social sustainability of commnity-based food systems. It also raises questions about the significance of the educational formats employed, including the capacity for welcoming and serving diverse farmer audiences, and the critical need for broad-based community engagement and support. If some of these same kinds of results emerge from other incubator projects in other locations, it would suggest that this model can be tailored to respond to the needs of particular communities and places. Beyond serving the obvious practical need to transition to the next generation of farmers, the model may offer an important means for engaging community food movement actors and concerned food consumers to participate in and support decision-making about by whom, where, and how food will be produced.

Conclusions

This case study suggests ways that community food system actors can engage with the production and social equity aspects of place-based food systems. Cross-organizational collaboration and support for diverse new entry farmers show promise for enhancing the ecological, economic, and social sustainability of community-based food systems. Our participatory research with the Viva Farms bilingual farm incubator program indicates initial success in educating and retaining beginning organic farmers, women farmers, and immigrant farmers. Several years out, a high percentage of past program participants are still farming and employ agroecological farming practices and place-based marketing strategies. The participatory, multiyear educational design of the incubator program facilitates strong peer social networking and ongoing social learning, which are unique attributes of models that support long-term implementation. If the outcomes from this example are similar to other incubator initiatives structured in similar ways, they would suggest that when values about food, place, and the environment are enacted collectively at a community level by a variety of actors working collaboratively, new farmers have a more realistic opportunity to succeed. Perhaps even more critically, with this model, aspiring farmers do not have to come from economically, socially, or racially privileged backgrounds to succeed. This intersects with the food sovereignty movement through equitable access to food production.

Our exploration of themes of place, commnity

connections, social equity, and agroecological farming practices provides a contribution to the literature that details how farm incubator programs can influence participant farming practices and cultivate values related to environmental sustainability and community. Farm incubator programs support the development of beginning farmers by linking them to place via the social networks, knowledge set, and markets they become connected to through the program. Through cross-organizational collaboration, social networks are expanded, which in turn increases behavior change. By participating in the incubator program, farmers can experiment with agroecological techniques over several seasons, sharing and reflecting with other farmers and they can begin to learn about how to successfully employ community-based marketing strategies. Following participation, once they have launched to their own plots of land, farmers appear to maintain the social networks that they created to extend learning—with some years of experience utilizing these practices—making them effective beginning environmental stewards and direct marketers. The place-based farm incubator model prepares future farmers to create local networks of lasting relationships with farmer peers, farmer mentors, buyers, and consumers, while employing production approaches that steward the land in that place.

Continued research is needed to track how farmers who move onto their own land continue and develop their agroecological practices and expression of values and motivations over time. Considering that there continue to be challenges in land access after participation in the incubator program, long-term research will be critical determining the viability of this model. Future interviews with buyers of Viva Farms produce and participating producers could elaborate our case study to further explore the role that values-based food system development can play in agricultural sustainability. Comparisons of farm incubator programs with other types of programs and programs lengths could further clarify what is uniquely contributed by this model.

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Hidden Harvest's transformative potential: An example of 'community economy'

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Abstract

Drawing on an in-depth case study of Hidden Harvest Ottawa—a for-profit social enterprise that aims to legitimize and support the practice of harvesting fruits and nuts in urban areas—this article explores the transformative potential (both realized and unrealized) of place-based urban foraging. It briefly delineates the organizational model employed, including its innovative practices and strategic 5-year vision. It then explores Hidden Harvest's transformative potential realized: notably, it reconceptualizes surplus (and thus profit); makes visible a nonmonetary social return on investment (SROI, defined as substantive contributions to building community, adaptive capacity, prosperity, social capital, and community-based food security); normalizes access to public space for food provisioning; and, finally, frames Hidden Harvest as an illustrative example of Gibson-Graham's (2006) notions of community/alternative/ethical economy, an initiative that destabilizes dominant economic assumptions while fostering meaningful interconnection. Throughout this article, we argue that only through collective resignification of our economy can initiatives such as Hidden Harvest adequately receive the support warranted by its impact and outcomes to fully realize its potential and achieve long-term viability.

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Keywords
Social Enterprise, Urban Foraging, Gleaning, Community Economy, Social Return on Investment, Fruit Rescue

Introduction

Gleaning, a term historically associated with the harvest of surplus or economically nonviable produce from farmland, has been extended over the past two-and-a-half decades to include the collection of fruit and nuts in urban areas, sometimes also described as fruit "rescue." Food rescue organizations can be found throughout North America, and are largely citizen-based and volunteer-driven. In fact, the movement has become global through Falling Fruit, a massive collaborative initiative to map urban harvests around the world (Falling Fruit, 2018). In Canada, volunteer-led urban harvesting initiatives have emerged in many major cities: for example, LifeCycles, in Victoria (1994); Not Far From the Tree, in Toronto (2008); Operation Fruit Rescue, in Edmonton (2009); and Les Fruits Défendus, in Montreal (2011/2). In 2012, Hidden Harvest Ottawa (referred to throughout as Hidden Harvest), a for-profit social enterprise, emerged in Ottawa to legitimize and support the practice of harvesting fruits and nuts in urban areas. Hidden Harvest attempts to address food security issues in a way that makes use of locally available resources: the large amount of unused and wasted fruits and nuts on trees throughout the city.

The motivations of these organizations are partially material, in that they deal directly with food in its physical form. However, the larger driving forces for groups like Hidden Harvest include social dimensions such as building community, environmental considerations such as diverting waste, and the desire to contribute to systemic change. For instance, in seeking to collect and use previously wasted food, and ultimately to alter the definition of urban fruits as food rather than waste products, Hidden Harvest works to create a more resilient local food system and economy. It is these organizational characteristics, rather than just Hidden Harvest's self-declared status as a social enterprise, that situate its efforts within the social economy of food.

Social economy is an umbrella term that refers to collective economic activities for which economic benefits are only one of, and often not the primary, set of motives. Rather than a set of discrete organizations, the social economy is an organizing principle that encompasses a wide range of activities and values (McMurtry, 2008) that put people before profits. Such initiatives are community-oriented, autonomously managed, and participatory (Canadian CED Network, n.d.), and include such enterprises as cooperatives, credit unions, and even not-for-profit organizations. Social economy is sometimes also referred to as the 'collective economy' or 'third sector,' as distinguishable from the government and private sectors. Because of the sector's emphasis on social, and to a lesser extent environmental, values alongside its recognition of the importance of economic viability, the social economy sector stands in contrast to the core values of the neoliberal economic order. The neoliberal order prioritizes free market, privatization, and deregulation (Harvey, 2007) and privileges individual economic gain at the expense of collective social and environmental benefits. The resulting social inequity and environmental degradation (Milanovic, 2016; Perelman, 2003) have been particularly salient in the food system (International Panel of Experts on Sustainable Food Systems [IPES-Food], 2016; Patel, 2007). Social economy initiatives seek to address some of those concerns, by trading profit maximization for the pursuit of multiple collective goals.

Whereas social economy has been studied substantially and is even enshrined in some countries' legislative frameworks,[1] the sector has focused largely on cooperatives, which have a long and rich history around the globe (Thompson, 2012). More recently, parts of the financial sector have begun to turn to "impact investing," an investment approach that conceptualizes social and environmental values as add-ons to traditional investing (Responsible Investment Association, 2016). Smaller, less

[1] Belgium, Spain, Greece, Portugal, France, and Romania have all passed laws in recent years to protect social economy and recognize its contributions to social prosperity (European Economic and Social Committee, 2017).

formally organized initiatives receive less attention in the literature on social economy, although our anecdotal knowledge suggests they may be more numerous and more diverse than enterprises like cooperatives.

Our study of Hidden Harvest aims to address that gap and consider how these understudied forms of social economy destabilize dominant economic assumptions and foster meaningful interconnection by redefining such concepts as surplus, return on investment, and public space. In doing so, we highlight the work of food systems activists, such as the proponents of Hidden Harvest, to explore the transformative potential of place-based urban foraging. Specifically, we draw on Gibson-Graham's (2006) notions of 'community economy' to suggest that urban foraging helps resignify our economy, and as such warrants community and public support.

Legitimizing, Conceptualizing, and Critiquing Urban Gleaning

Contemporary foraging is growing in popularity, "transcends the urban–rural divide," and is practiced by diverse populations (Sachdeva, Emery & Hurley, 2018, p. 978). Within this larger set of activities, urban gleaning has received particular scholarly attention as it proves to be more accessible (and more visible) than foraging in rural forested areas. Scholars of urban gleaning have sought to legitimize, normalize and laud the practice; conceptualize its significance; and offer critical perspectives, in part by delineating its associated challenges.

Poe, McLain, Emery & Hurley (2013) have sought to legitimize the practice of foraging and gathering from urban lands. They emphasize the need to reduce regulatory barriers to facilitate such activity, noting uneven governance regarding collection of food on public lands, and differing public and municipal government attitudes (McLain, Hurley, Emery & Poe, 2014). In this regard, city planners and landscape ecologists have begun to recognize the myriad benefits of urban forests, including ecosystem services, although improved food security remains an underrecognized advantage (Clark & Nicholas, 2013). The authors further identify proximity to people and the high level of engagement in urban agriculture initiatives as contributing factors. However, they warn that despite the growing popularity and interest in urban harvesting projects, the scalability of these initiatives is difficult to ascertain (Clark & Nicholas, 2013). Cognizant of its popularity, Marshman (2015) explores the myriad motivations people have to pursue urban gleaning across five case study sites in Ontario, identifying three key reasons (to mitigate food waste, build community, and access free food) amid other desires (to engage socially or generally seek alternatives).

Clark and Nicholas (2013) argue that urban harvesting requires a more fulsome theorization. To this end, McLain et al. (2014) offer a way to conceptualize the significance of urban harvesting. The authors generate insights from four U.S. cities (Baltimore, New York, Philadelphia, and Seattle) to frame foraging for "wild" foods in urban settings as a subversive practice that can reconceptualize human agency in urban green spaces while supporting sustainability goals, and that understands urban green spaces as providers of ecological services and material products. The authors write, "The spaces in which foraging occurs, like those dedicated to urban agriculture, constitute landscapes of material production in the city and are important for more than just their aesthetic, recreational, and ecological values" (McLain et al., 2014, p. 236). Urban foraging—what McLain et al. characterize as a "productive nature practice" (2014, p. 237)—connects people to nature through urban ecologies, green spaces, and edible landscapes. They note in particular the potential for planners of urban green space to broaden the distribution of benefits in their consideration of and support for foraging in order to be more inclusive and environmentally just (McLain et al., 2014). McLain et al. (2014) further note that urban foraging or harvesting is a distinctly noncapitalist practice, as outlined by Gibson-Graham (2006), since predominantly nonmarket values are derived from collected products. This is a notion we explore more fully in this article.

Urban gleaning projects offer a means to provide fresh and healthful foods to low-income populations, often through partnerships with emergency food organizations, such as food banks.

However, the reliance on emergency food organizations in Canadian cities remains a concern in and of itself, as these do little to attend to the systemic issues that drive unequal access to healthy foods (Wakefield, Fleming, Klassen, & Skinner, 2012). Wakefield et al. (2012) note that, while gleaning projects can help to address the lack of nutritious foods offered by emergency food providers, concerns with regards to the stigma associated with food bank usage persist. Although emergency food organizations provide necessary services, they entrench feelings of marginalization and powerlessness in those who are food insecure (Knezevic, Hunter, Watt, Williams, & Anderson, 2014).

In building legitimacy around urban gleaning and harvesting, relationships between people and urban natures must be examined. Often, people are hesitant to collect wild foods,[2] which are viewed as forbidden, particularly in public spaces. McLain et al. (2014) surmise that the relationship between people and urban nature remains predominantly oriented toward conservation, rather than use. They allude to the "museumification" of nature in parks, which acknowledges the benefits trees provide to the broader ecosystem, but not to people as goods to be harvested (McLain et al., 2014). This notion of nature as something to be observed and untouched by people, upheld by practices such as "Leave No Trace" outdoor recreation and regulations in many public parks, may feed into this idea that harvesting food from trees on public lands is inherently "wrong." Although fruit- and nut-bearing trees are often planted throughout cities, their potential use value as food is neglected, as foraging is not included in land-use planning considerations (McLain et al., 2014). Proponents of urban gleaning seek to broaden the conceptualization of urban agriculture to include edible landscapes and both formal and informal foraging.

Finally, Bartlett (2012), Poe et al. (2013), and Nordahl (2014) have sought to problematize urban gleaning and delineate its associated challenges. Poe et al. (2013) and Nordahl (2014) note that urban areas are potentially contaminated and thus pose food safety concerns. Specific sources of contamination might include heavy metal and chemical contamination from former brownfield sites, feces from urban pets, and salt runoff from roadways (Nordahl, 2014). Bartlett (2012) identified the health hazard of rotting, surplus fruit that falls to the ground if unharvested, and the corresponding need to dispose of it—a problem that may be exacerbated if municipalities begin to increase their plantings of edible landscapes. Certainly, proponents must remain attentive to the laws governing urban harvest and keep food safety and other legislative barriers in mind at all times. Some question whether online mapping software, such as Google Maps, can identify edible resources accurately, and they are concerned further with the ability for people to tamper with or delete data. In addition, some critics view the model of urban harvesting as an inefficient and illegitimate means of producing food and assuring food security in cities that has little to no potential for scalability. In fact, scaling up and out[3]—becoming bigger and more profitable—brings potential liability, exposure, regulation, competition, and criticism.

Of note to our study are the dimensions of urban gleaning that place it squarely in the social economy sector. The materiality of gleaning makes it an economic activity, but one where the neoliberal notions of economy are set aside to give way to the social and environmental benefits that gleaning offers to the communities in which it takes place.

Applied Research Methods

This research reflects one of several case studies explored through a Canadian research project called The Social Economy of Food: Informal, under-recognized contributions to community prosperity and resilience. The project conducted 12 case studies through a set of common research questions that took a participatory approach, in which community groups under study took active

[2] Note that foraged foods, wild foods, and country foods are used interchangeably in literature and policy alike; e.g., Indigenous communities in Canada prefer "country foods."

[3] Hidden Harvest's "scaling up and out" proved localized to Ottawa, as increasing numbers of trees were mapped, the number of volunteer neighborhood leaders grew, and the software infrastructure allowed for autonomous organization.

roles in shaping and conducting the research. The case studies allowed for comparative analysis across sites and also addressed a variety of practices, from a community investment fund in the province of Nova Scotia, to an endeavor to re-establish wild rice in an Ontario lake, as a form of cultural and environmental remediation. The cases examined understudied activities within the social economy that bolster food security and community development while aiming to benefit marginalized communities.

Research assistant and co-author Poitevin-DesRivières compiled an in-depth case study of Hidden Harvest Ottawa over the course of a year, capturing the various activities and outputs of the organization (see Poitevin-DesRivières, 2018a, 2018b). Specifically, Poitevin-DesRivières conducted semistructured interviews with Hidden Harvest co-founders and was able to derive insights through participant observation of harvest events, workshops, and lobbying activities. With regard to the latter, she attended council meetings at city hall to offer support for the organization based on her findings, which was part of our action research agenda. Through participant observation, we placed harvest activities in particular geographies, lending a practical and material understanding of harvest events. The physical aspects of research sites, along with the people present and their interactions, can generate useful research materials (Elwood & Martin, 2000). This deliberate immersion through participant observation allowed for an understanding of context-specific dynamics and practices to "produce rich, detailed and empathic understandings" of particular social and cultural groups (Anderson, 2004, p. 255).

The study is only partly about Hidden Harvest, and is more substantially about utilizing the organization as a site through which to generate insights and practices related to the social economy. In other words, this paper is less about evaluating Hidden Harvest and more about the lessons this organization offers to scholarly efforts to better understand the social economy. The participatory, community-based approach in this work facilitated this understanding and allowed for key insights to develop collaboratively between community and academic researchers. Consequently, the paper may at times seem uncritical of Hidden Harvest. However, in this process, Hidden Harvest is not the primary subject of study. Instead, the organization acts as a vehicle that helps identify and articulate the reasons for, and pathways to, effective resignification of economic activities.

Hidden Harvest: Rescuing Urban Fruit and Nuts

Jason Garlough and Katrina Siks, cofounders of Hidden Harvest Ottawa, frame their work as "rescuing" urban fruit and nuts that would otherwise go to waste, and "sharing it with those in need" (Hidden Harvest, n.d. -a). Bethea (2018) aptly describes them as the "Robin Hoods of food waste." Poitevin-DesRivières (2018a, 2018b) has explored their history and innovative model at length, and thus it will only be summarized here. Specifically, this section will briefly delineate the organizational model employed and highlight its various substantive contributions to building community, adaptive capacity, prosperity, social capital, and community food security, all of which are aspects of sustainable human economies.

In spring 2011, a group of like-minded people met and became friends through an Edible Wilds course run by prominent and much-loved Ottawa field naturalist, interpreter and educator Martha Webber. During a harvest weekend later that year, the group planted the seed of the idea that became Hidden Harvest. In 2012, the city of Ottawa released data that revealed the existence of more than 4,000 unharvested food-bearing trees on city property,[4] spurring Garlough and Siks into action. In August 2012, they launched Hidden Harvest in an effort to mitigate local food waste and put it to good use. Using that city data as a starting point, Hidden Harvest has mapped diverse fruit and nut trees on public, and some private, properties across the city. Groups of volunteers participate in insured harvest events, organized by "neighborhood leaders" trained by Hidden

[4] In 2013, the city hired consultants to understand the impact of the invasive and destructive emerald ash borer *(Agrilus planipennis),* which indirectly facilitated the identification of 17,000 food-bearing trees.

Harvest. The bounty is then split: one-quarter goes to the nearest food agency (shelter or food bank), and the remaining three-quarters is divided equally among the homeowner (if private property), the volunteer harvesters, and Hidden Harvest, who raise funds for the initiative by selling their share to local restaurants and processors.

Run as a for-profit enterprise, Hidden Harvest "is a social purpose business aiming to create a blended return on investment that is financial, social and environmental" (Hidden Harvest, n.d.-a, "The Model," para. 1). However, the initiative is run on a self-described "shoe-string budget," without full-time staff, an office, or a phone number (Hidden Harvest, n.d.-a, "The Model," para. 2). It manages to achieve a disproportionate impact in terms of its desired triple return based on volunteer efforts and tremendously dedicated leaders, who bring creativity, innovation, and technological skills to virtually everything they do. As such, they provide a textbook example of a social enterprise, employing "entrepreneurial methods, such as risk-taking, innovation, and team building, to bring about positive social change, typically with extremely scarce resources" (Johnson & Ballamingie, 2010, p. 1). Operating within the social economy—straddling private and public sectors—Hidden Harvest is more akin to a not-for-profit or charitable organization than a for-profit enterprise, in spite of its earnest efforts to become economically viable. As Garlough laments: "A good deal of the success of the Hidden Harvest model is the charitable aspect. Nobody gets paid anything, unless we get grants" (Garlough, 2018).

For the past six years, Hidden Harvest has sought to become economically viable and self-sustaining through entrepreneurial activities, strategic partnerships, and efforts aimed at raising the organization's profile. First, it partnered with Oak Computing to develop its website to allow the public to register trees for harvest and sign up to volunteer. Garlough, who possesses advanced technical skills, further developed an interactive map of potential harvests and an email notification system for upcoming harvests. In 2012, it shared its first compelling story digitally. It now has a total of seven clips posted on Vimeo (Hidden Harvest, n.d.-b). In 2012, it also sought to raise funds by selling food-bearing trees, a venture, according to Garlough, "that broke even but did not generate sufficient profit to also support core organizational operating costs" (Garlough, 2018). In 2013, it filmed a humorous My Giving Moment for Governor General David Johnston, titled *Hinterland Who's Who: Urban Harvesters* (Hidden Harvest, 2013a). From 2014 to 2015, it partnered with Bridgehead Coffeehouse to receive CA$1 to CA$2 for every pound of sales on a fundraiser Hidden Harvest Blend coffee, and with Beau's All Natural Brewing Company to raise funds by running the midway games at their annual Oktoberfest event. Throughout its existence, Hidden Harvest remained politically active in an attempt to create regulatory legitimacy for urban fruit tree harvesting in Ottawa, including the food value of trees. Its ongoing advocacy for Ottawa urban forests resulted in Hidden Harvest being featured in Ottawa's Urban Forest Management Plan and influencing recommendations #17 (develop an urban tree product utilization strategy [2022–2025]) and #23 (draft an urban forest outreach and engagement strategy (2018–2021]) (City of Ottawa, 2017). In 2018, the organization was named Best Social Enterprise at the 2nd Ottawa Impact Awards for its work to make Ottawa "a more inclusive, safe, resilient and sustainable city" (Monro, 2018, para. 2).

Hidden Harvest's steering committee (board members with whimsical roles such as income eagle, strategic policy porcupine, secretariat hare, tech fox, governance groundhog, cataloguing chipmunk, and outreach racoon), along with staff, key volunteers, and partners, delineated a five-year strategic plan for 2017 to 2021 (Hidden Harvest, 2018). Most notable are the ambitious goals for year 5, including increasing annual funding to >$300,000; growing harvesting and volunteer management to cover the whole city in response to increased demand to participate; automating harvest coordination with a reservation system; and achieving governance sustainability.[5]

[5] Future research could involve follow-up evaluation of the opportunities and constraints realized in executing this five-year plan.

Not Business-as-Usual: Transformative Potential Realized

Because organizations like Hidden Harvest are not commonly considered in the social economy literature, a more nuanced conceptualization can help us better understand how urban gleaning projects challenge and redefine mainstream economic values. Gibson-Graham's (2006) work on diverse economies provides a nuanced framework as it incorporates notions of social economy into a larger and more complex context of multiple economic relations produced through diverse forms of social interaction. The following section situates Hidden Harvest as an illustrative example of Gibson-Graham's notions of community/alternative/ethical economy—as one initiative that destabilizes dominant economic assumptions. In fact, this case study raises profoundly political issues with transformative potential, such as reconceptualizing surplus, making visible myriad nonmonetary returns, bridging the gap between alternative and conventional economies, and normalizing access to public space.

Reconceptualizing 'Surplus' and Thus 'Profit'

Surplus, in economic terms, represents total revenue generated after accounting for the fixed and variable costs of production.[6] While fixed costs for Hidden Harvest are limited, they include insurance, set-up costs such as incorporation and website hosting, and harvesting infrastructure and equipment (plus depreciation and replacement of such means of production), but currently not rent. As detailed above, the organization mitigated many of these costs by partnering with businesses supportive of their broader social and environmental mission. Variable or direct costs proportionate to output (harvests) are similarly limited: people get themselves to the harvest, so fuel costs are absorbed; the model relies on volunteer labor[7] and one paid staff person, supported by government grants; and the raw materials are the rescued fruit and nuts. Regarding the latter, the costs of securing them involve the time and energy to document their existence and negotiate access, and allocation of one-quarter of the harvest to private landowners when desired (otherwise it is donated). At this point, there is limited competition for raw goods in this realm.

Hidden Harvest's model, wherein at least one-quarter of all harvest is donated to those in need, reflects an ideological commitment to redistribute surplus in a fundamentally ethical and equitable way. This simple act normalizes for all involved a charitable aspect to self-provisioning and consumption. Imagine if every time an individual spent $100 at the grocery store, a surcharge of $25—one-quarter of the "harvest"—were added? In fact, food agencies use this tactic during annual food drives when they distribute donation bags at the start of a shop. Many of the folks attracted to these harvests embrace this community orientation readily, with some participants attending the harvests with the intention of donating their own share rather than retaining the food.

Hidden Harvest donates one-quarter of its raw material, and all of the corresponding embodied labor represented in its harvesting, out of an ideological commitment to more ethical sharing of bounty. The surplus that would typically remain in private hands as profit is voluntarily shared to benefit as many people as possible. As Gibson-Graham (2006) points out, many alternative community-based initiatives are about "resocializing economic relations" (p. 79), and the act of donating one-quarter of the surplus would be consistent with Gibson-Graham's characterization of commerce and sociality: "These practices involve ethical considerations and political decisions that constitute social and economic being" (Gibson-Graham, 2006, p. 83). It reflects a recognition of the embeddedness within community—conceived of primarily at the neighborhood scale—and the responsibility of enterprise to not only operate in a self-sustaining way, but also benefit those in need.

[6] Further regarding the notion of 'surplus': do the fruit and nut tree harvests represent previously untapped surplus? Or expropriated surplus from other species? Or a little bit of both?

[7] As Garlough notes, conventional u-pick farms leverage similar reductions in variable costs on transportation of finished product and 'volunteer' labor.

Profit is broadly understood to represent a financial reward for the risks capitalists take in their entrepreneurial activities. But it remains an inherently problematic notion, since most social and environmental costs are externalized and thus not represented in market prices—generating an illusion of profit enacted in the economy in real and deleterious ways.

Bridging the Gap between Alternative and Conventional Economies

Hidden Harvest's aim to enhance local economies remains a long-term project, and its impacts are not easily measured through conventional conceptualizations of economic values. As a social enterprise, Hidden Harvest ultimately aims to become profitable. However, its approach to understanding profit differs from the narrow capitalist definition, which more often than not relies on the exploitation of 'other,' whether 'other' involves labor, species, generations, and/or natures. Instead, it views profit as a social good that ought to benefit the broader community. Co-founder Katrina Siks lamented the notion of profit as a less desirable goal for an organization than striving to create social good, and posited the idea that "good work should generate good pay," in that people who engage in work that benefits the wider community should be afforded a living wage.

As Hidden Harvest develops the capacity to generate funds independently, it seeks to build and strengthen partnerships with local businesses, particularly with food processors. Using the organization's quarter share of fruits retained during harvest events, Hidden Harvest approaches local food processors interested in using the harvested fruits in their products; to date the products include preserves and beer. These exchanges often involve bartering, and Hidden Harvest is able to monetize the transactions with food processors by taking a share of the profits of the final product. To build on these arrangements, Garlough hopes to enact a supply-management model in which Hidden Harvest could be guaranteed a more consistent and stable income. In this, 'sponsorships' would be sold to food processors and business, allowing them the first right of refusal to a specific type of fruit in a particular neighborhood, along with pictures and a social media story about the harvest events and trees to share with consumers. The proposed model would emulate a community supported agriculture (CSA) model by selling foods while sharing risks with buyers.

Since Hidden Harvest's activities function within a nontraditional economic model, it is difficult to estimate more concrete economic impacts. 'Profit' and other economic outputs are typically calculated in a monetary sense and may not be evident when working in alternative economies. While the organization is able to successfully conduct most of its activities outside the formal economy, it nevertheless needs to evaluate the monetary value of its activities to be able to communicate its impact to the government and other potential funders.. As such, it uses social returns on investment (SROI) as a tool to estimate how its activities generate direct economic benefits for the community. This tool provides a means to convey the monetary value of typically non-economic activities using proxies (Rotheroe & Richards, 2007). These non-economic activities include the ecological and social goods produced by harvest events, which make indirect, but nonetheless important, contributions to local economies. For instance, the organization attempts to recognize the multifaceted values of fruit trees in urban areas, which provide tangible goods, in the form of food, as well as essential ecosystem services.

Equally, Hidden Harvest seeks to acknowledge the role of harvest events and other activities in building social capital through experiential learning processes. In drawing from food sovereignty principles, the organization attempts to build capacity so that people are able to have control over their food system. These capacity-building efforts include the teaching of food skills through workshops on food preservation and preparation, as well as advocacy efforts that allow volunteers to gain experience in policy-making processes. While earning these tangible skills, volunteers gain an appreciation for how food is grown, and for those that grow it, through a more hands-on participation in their local food system.

Harvest events create spaces for diverse and underrepresented populations in the food system, including low-income populations, people with

disabilities, women, New Canadians,[8] and Indigenous people,[9] to learn about and access fresh, healthful foods, and in certain cases, culturally significant foods. Members of the Hidden Harvest board and steering committee, like so many actors in the food movement, are predominantly from White, middle-class backgrounds. To break barriers, they have made a concerted effort to work directly with food agencies to secure multiyear grants to train, equip, and support Hidden Harvest's volunteer neighborhood leaders. To date, Hidden Harvest has worked with Parkdale Food Centre, Dalhousie Food Cupboard, Gloucester Emergency Food Cupboard, and Centre 507. However, in fairness, the success of this initiative has been mixed. While the diversity of volunteer harvesters has increased greatly (and now includes foodbank clients), the neighborhood leaders tend to be food bank volunteers. Foodbank clients who have expressed an interest in leading, for various reasons, have not managed to continue their leadership role for more than a year. Hidden Harvest further strives to break down barriers by donating culturally significant foods, such as elderberries, serviceberries, Concord grapes, black walnuts, and ginkgo nuts to many of the food banks noted above, as well as to the baby food cupboard run by Minwaashin Lodge (an Indigenous women's support center in Ottawa). Recipients have genuinely appreciated these foods, as they are rarely donated and are otherwise difficult to access.

In further developing social capital, the organization endeavors to build different social networks, and thus relationships around food, between and among food agency coordinators, local processors, business operators, harvest volunteers, and leaders. The networks and relationships are further strengthened through the local design of harvest events, in which the algorithm used for invitations is centered around specific geographies to facilitate participation and community cohesion. People are more likely to attend a harvest close to home, and in so doing, get to know their neighborhood as well as the trees and people in it.

Challenging Blinders: Transformative Potential Unrealized

Having summarized the transformative potential Hidden Harvest achieves, this section explores the broader significance of this type of initiative as a manifestation of community economy that ultimately spurs greater interconnection and reflects on its unrealized transformative potential, including the challenges it must overcome in this regard.

To begin, Gibson-Graham's (2006) notions of 'community economy' and 'ethical economy' offer a productive site of engagement. First, understanding urban gleaning, which is ostensibly autonomous collective self-provisioning, as an expression of community economy allows us to evaluate its more disruptive and potentially transformative potential to oppose dominant economic relations. The act is inherently communal—a physical coming together to harvest local landscapes. Construction of community is place-based, privileging localized relations as harvests are first broadcast within a given geographic area or neighborhood to recruit hyperlocal volunteers and then broadcast more broadly only when extra labor is required. For Gibson-Graham, community economy involves "a set of concepts and practices concerned with economic interdependence" (2006, p. 79).

Figure 1 delineates the ways Hidden Harvest corresponds closely with Gibson-Graham's characterization of community economy.

Fostering Interconnection and Re-Embedding Identity in Place

All of the 'community economy' attributes described above result in greater interconnection—within community, and between human and non-human species—across time and space. Urban gleaning initiatives connect people to one another, and to the place in which they live. They help connect the elderly, who may no longer be able to harvest their own trees, to those who can. They help connect people to their cultural roots, evoking memories for those transplanted from remote geographies and ecosystems. Founder Garlough

[8] The term "New Canadians" refers to newcomers to Canada, including recent immigrants and refugees.
[9] The extent of that diversity is impossible to estimate, as Hidden Harvest currently does not have the capacity to track the demographic data of their participants.

Figure 1. Ways Hidden Harvest Manifests Principles of Community/Alternative Economy

Aspect of Community Economy	Application to Hidden Harvest
place-attached	privileges hyperlocal scale, neighborhood residents
diversified and multiple	184 trees or vines harvest in 2017 across 10 plant types and various species
small scale	comprises ~2–8 volunteers per harvest
cooperative	requires voluntary collaboration, unpaid labor, access to private property
decentered	assigns decision-making to board and neighborhood leaders
culturally distinctive	includes harvest of culturally significant plants
socially embedded	situates food-bearing trees within neighborhood social relations
dispersed	conducts harvests events and workshops across the city
autonomous	facilitates self-organizing harvests through technological platform and trained neighborhood leaders
oriented to local market	works with local businesses such as Beau's and Michael's Dolce for value-added processing
values long-term investment	delineates ambitious long-term strategic plan
vitality oriented	aims to foster food security and community vitality
recirculates value locally	shares surplus for collective impact (intrinsic to model)
community owned	no; for-profit social enterprise
community led	relies on neighborhood leaders
community controlled	steering committee provides governance
communal appropriation and distribution of surplus	yes; modus operandi, *raison d'être*
environmentally sustainable	fosters deeper connection to and protection of urban ecosystems
ethical	yes; ¼ of raw materials donated to charity
locally self-reliant	aims for independent income generation that is locally embedded

Source: Adapted from Figure 23, "Keywords of economy and community economy" in *Postcapitalist Politics*, Gibson-Graham (2006, p. 87).

recounted instances of harvest participants keen to access particular fruits and nuts that feature in their traditional cuisine that are not readily available in retail locations. He pointed to elderly participants eager to harvest black walnuts, as evocative of their childhood diets, as well as Asian immigrants keen to access ginkgo, which holds cultural significance for them. Community-based gleaning further connects people to place across time, and in so doing, to the survival strategies of our ancestors, who surely would have valued these trees for the food they provide. All these activities re-embed identity in place, and few such activities in our foodscape are so obviously performative in this sense: gleaning and foraging, ecological restoration, purchasing a CSA, gardening, and attending a farmers market all come to mind. As participants engage in intimate ways with their urban trees, they actively re-embed identity in place—recognizing that identity and place help bring each other into existence.

Moreover, the practice can help connect low-income and other marginalized populations to their local ecologies. To this end, Hidden Harvest collaborates with local food banks to train and equip neighborhood leaders based at those food agencies to run harvest events involving clients and community members. If turnout is low for a given event, the online system can suggest other volunteers to bolster capacity. Thus far, the organization has worked with Parkdale Food Centre and Dalhousie Food Cupboard (2014–2016, through grant funding from the Trillium Foundation), and Gloucester

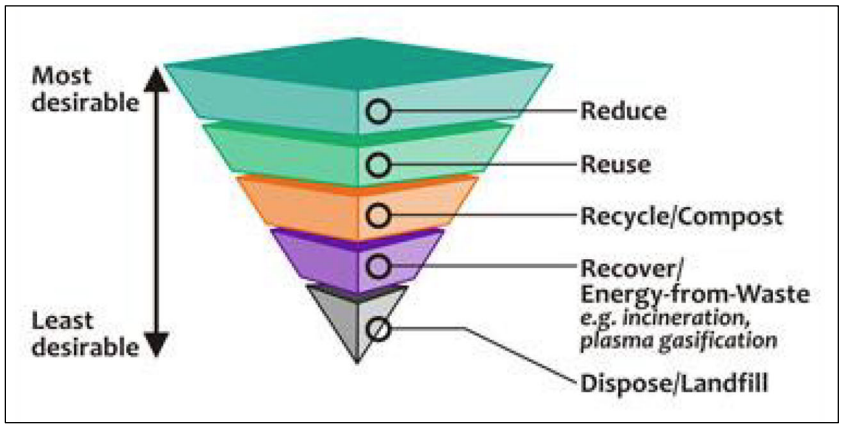
Emergency Food Cupboard (2017–2018), and Centre 507 (2018, through grant funding from the Ottawa Community Foundation).

Initiatives such as Hidden Harvest counter feelings of alienation and social isolation, allowing people to bind themselves in meaningful ways to each other, their home place, and urban ecosystem.

Ensuring Financial Viability

To ensure its long-term sustainability, as a for-profit enterprise, Hidden Harvest seeks to become a self-sustaining, economically viable business that does not rely on external or grant funding, distinguishing it from other similar urban gleaning and harvest organizations. Herein lie the limits to social enterprise: they can be as all-consuming as running a small business, with similar odds of success or failure, and business logistics can distract from the core mandate and broader pro-social and environmental mission. The pursuit of economic viability has led the social enterprise to form unique and meaningful partnerships with local food processors (Michael's Dolce, Beau's All Natural Brewery) and other businesses (Bridgehead Coffeehouse) in a move to secure a more stable form of income. Harvest events and outreach activities aim to enhance community food security and sovereignty, and local ecologies and economies. Although the organization still relies on grant funding to operate, its ability to innovate and develop networks has enabled it to grow and develop distinct ties and networks in Ottawa.

Figure 2. City's Adopted Waste Hierarchy



Source: City of Ottawa, 2012, p. 3.

Resignifying the Economy Contingent on Municipalities Shifting Their Frame

Garlough often quips that once you begin to look for fruit and nuts to rescue, "You start to see the world through 'fruit goggles'—wherein you start to see something everywhere" (Garlough, 2017). In fact, we must challenge our municipal officials and funders to put on SROI goggles when they consider the value of Hidden Harvest and similar civil society initiatives and social enterprises. In terms of the city's budget allocations, the work and potential of Hidden Harvest remain undervalued by municipal authorities, and thus under-resourced.

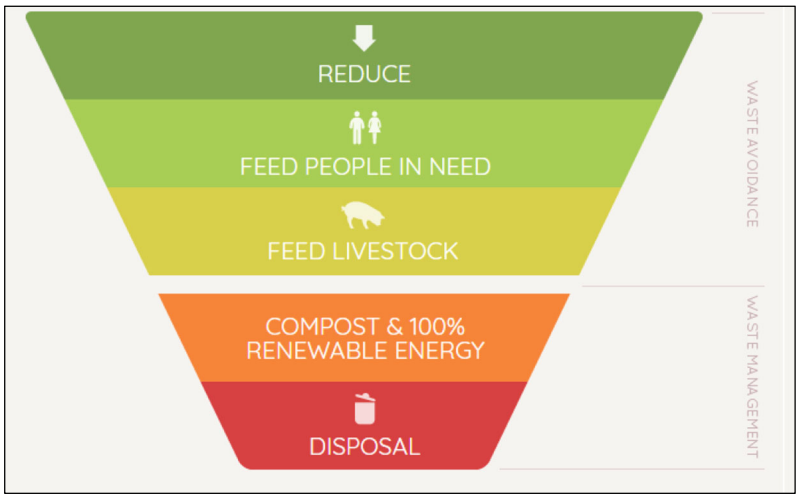
As a case in point, consider the ways in which cities think of and deal with trees, food, and waste. Notably, Ottawa posits the following schema as its adopted waste hierarchy (see Figure 2). However, the reality is that household waste in the city still largely ends up in landfills, rather than being diverted when possible. The city spends less on compost and recycling promotion and education compared with other large Ontario municipalities, and limits to the composting program mean that residents of multi-unit buildings and high-rises often cannot participate (CBC News, 2017).

At a City of Ottawa environment committee meeting on November 27, 2015, Garlough and co-founder Siks attempted to influence the draft 2016 municipal budget. Alluding to Figure 2, they asked the committee how much money would be spent on the supposedly "most desirable" outcomes of "Reduce" and "Reuse." The response was CA$0—"nothing." Meanwhile, Garlough lamented that the budget allocation for all other outcomes—composting, recycling, generating energy from waste, and disposing of waste in landfill—were clearly delineated and generously supported, each with multimillion dollar budgets.

Hidden Harvest asserts a fundamental paradigm shift in how food waste ought to be treated, illustrated in Figure 3. They posit an approach to mitigating food waste aimed

first at reducing, then feeding people in need, then feeding livestock, then composting and generating 100% renewable energy, and only then, if absolutely necessary, disposing of remaining material (Stuart, n.d.). However, before Hidden Harvest can secure municipal contracts for services or charge prices that adequately reflect the value (writ large) or collective impact generated, a fundamental resignification of the economy would be required.

Figure 3. Tristram Stuart's Food Waste Pyramid



Source: Stuart, n.d.

Conclusions

Our study examines the for-profit social enterprise Hidden Harvest Ottawa, an urban fruit and nut gleaning initiative, in light of its transformative potential as an illustrative example of Gibson-Graham's community economy. Hidden Harvest exemplifies Gibson-Graham's (2006) understanding of transformative potential as multiscalar and multifaceted, making use of existing and context-specific materials and actions: "...we can start where we are with any site within a diverse economy and at any scale, from the local to the global, to begin to build community economies" (p. 167). Thus, grassroots action can be thought of as a starting point for socio-economic transformation.

First, in normalizing the charitable donation of one-quarter of its raw materials, and its embodied labor, and distributing equitably remaining surplus, the organization fundamentally reconceptualizes the profit typically held in private hands in more ethical and distributive terms, and in so doing, re-embeds the social in community-based economic relations (following Gibson-Graham, 2006). It begs the questions: How can we normalize mandatory public redistribution of surplus? As these initiatives seed locally, could they inspire others elsewhere?

Second, in myriad ways, Hidden Harvest augments meaningful connection: harvesters to each other, to landowners, to local food agencies, to place and nature. Urban gleaning can be a progressive practice for food self-provisioning, with the potential to engage diverse and marginalized communities.

Third, Hidden Harvest makes visible a SROI—in other words, a non-economic return; and it challenges traditional neoclassical economic assumptions, highlighting tensions between social economy and social entrepreneurship. These concepts are overlapping but not identical, and the latter is often posited as the desired strategy for nonprofit organizations to become financially viable. In fact, though on paper Hidden Harvest runs as a for-profit social enterprise, it shares many similarities with nonprofit and charitable civil society initiatives: from its explicit and expansive cultivation of community, remaining mindful to attempt to include marginalized communities; to its pursuit of grant funding to cover core operational costs (if they are covered at all); to its reliance on volunteer labor as a critical element of the means of production—one that covertly teaches consumers the value of production. To this end, the organization may become a project of Tides Canada, a move that would grant them charitable status and thus make them eligible to apply for grants to cover core annual funding and issue charitable tax receipts for personal donations.

Fourth, both social enterprises and nonprofit civil society organizations must make visible their extra economic social return on investment to

warrant, in the case of the former, prices charged for goods, and in the case of the latter, grant funding. To this end, Hidden Harvest has developed an SROI tool to illustrate its larger collective impact, i.e., beyond the economic value of harvested fruits and nuts. Perhaps this tool could be of use to other similar initiatives.

Fifth, the following prescriptive recommendations primarily aimed at municipalities would help to advance urban gleaning initiatives:

- Support the planting of edible landscapes and encourage registration of existing edibles on public and private lands;
- Improve access to public space for food self-provisioning;
- Divert funding from less desirable forms of waste mitigation to models like Hidden Harvest;
- Reduce regulatory barriers to facilitate urban gleaning;
- Site urban green spaces adjacent to low-income and food-insecure people;
- Conduct public awareness campaigns about what is safe and edible to harvest from urban environments, further elevating the profile of urban harvesting efforts;
- Involve diverse, underrepresented, and marginalized populations in gleaning activities; and
- Consult with immigrant populations and ethnic communities for culturally appropriate plantings.

However, Hidden Harvest's long-term success, and the success of similar initiatives in other cities, requires a reconceptualization of value by economic decision makers. Funders and municipal officials must sport SROI goggles, and allow what is made visible to influence their funding decisions, policies, and governance. To date, the state fails to adequately embrace the transformative potential of Hidden Harvest because it fails to value its collective impact. Only by expanding how profit is conceived and what 'counts' as economic, can the work that Hidden Harvest and similar organizations do be fully captured and appreciated.

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Web Resources:

Falling Fruit: https://fallingfruit.org
LifeCycles Project: http://lifecyclesproject.ca
Not Far From the Tree: https://notfarfromthetree.org
Iskashitaa Refugee Network: http://www.iskashitaa.org
Operation Fruit Rescue Edmonton: https://operationfruitrescue.org
Les Fruits Défendus: https://santropolroulant.org/en/what-is-the-roulant/collectives/fruits-defendus/

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Enhancing smallholder resilience through place-based knowledge and resource generation

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Abstract

Rice systems are of particular significance to building climate resilience in the Philippines. This research brief summarizes a case study that comparatively measures differences in climate resilience between organic and conventional rice systems in four neighboring villages in Negros Occidental Province, as well as explores features of smallholder rice systems that are significant to building resilience. Data were collected through surveys, interviews, focus groups, and participant observation. A participatory approach was applied to account for socioecological context and to identify targeted interventions for enhancing climate resilience based on local conditions and farmer experiences. The results indicate that (a) of the participating rice systems, organic systems exhibit greater resilience than their conventional counterparts; (b) the current institutional arrangement prevents smallholders from transitioning to organic; and (c) a polycentric food sovereignty development approach helps Philippine smallholders overcome these institutional barriers, as well as builds smallholder capacities for resilience by supporting place-based knowledge and resource generation. More effort is needed to explore, analyze, and strengthen such polycentric food sovereignty interventions for climate change.

Keywords

Agroecology, Food Sovereignty, Institutions, MASIPAG, Organic, Philippines, Polycentrism, Resilience, Rice, SHARP, Smallholders

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Introduction

The Philippines is one of the foremost countries at risk to climate change, ranked number 3 for the third consecutive year by the 2017 World Risk Index and number 5 by the 2017 Global Climate Risk Index. All regions in the Philippines have been deemed highly vulnerable (Yusuf & Francisco, 2010), and Philippine farmers are struggling to cope with intensified typhoons, changing rain patterns, floods, droughts, and temperature and sea-level rise (Institute for Global Environmental Studies [IGES], Southeast Asian Research Center for Graduate Study and Research in Agriculture [SEARCA], 2012). Smallholders (farmers managing less than 7.4 acres [3 ha] of land) manage nearly 90% of farms, accounting for approximately half the farmland in the country (Philippine Statistics Authority [PSA], 2015). A third of the labor force works in agriculture (Food and Agriculture Organization of the United Nations [FAO], 2017), and half the population relies on income generated through cultivation (United Nations Development Programme [UNDP], 2013). As is the case in many parts of the world, Philippine smallholders suffer from high incidences of poverty (PSA, 2017). Agriculture is also the second largest source of greenhouse gas emissions in the Philippines (United Nations Framework Convention on Climate Change [UNFCCC], 2014), with rice cultivation being the highest emitter (FAOSTAT, 2017).

Rice is not only the main staple crop in the Philippines, but is also a crop that has cultural meaning and significance and has been embedded in the social fabric of the Philippines for centuries (Kilusang Magbubukid ng Pilipinas [KMP], 2007). Over the last six decades, the ways in which rice is grown and the varieties that are grown have changed drastically with the implementation of the Green Revolution, resulting in more homogenous farming systems that are dependent on costly fossil fuel–based external inputs (Ceccarelli, 2012; Lappé, Collins, & Rosset, 1998; Montenegro de Wit, 2015; Patel, 2013). The increased use of agrochemicals and highly monocultured farm systems resulted in the loss of supplemental food resources, such as frogs, mudfish, tilapia, birds, crabs, snails, and insects, as well as water spinach and water chestnuts found in rice paddy systems prior to the Green Revolution (Medina, 2004; Mendoza, 2004; Ong'wen & Wright, 2007).

In the last four decades, however, there have been grassroot farmer-led mobilizations aimed at revitalizing indigenous or traditional rice varieties and the organic agroecological systems from which they are derived (Medina, 2004; Sanchez, 2011). Born out of social unrest and rural mobilizations, organic agriculture emerged in the 1980s as an alternative to the Green Revolution regime. Advocates believed that organic agriculture was capable of addressing the social, economic, and political root causes of food insecurity and inequity by reducing dependence on capital-intensive chemical inputs, restoring sociocultural processes (e.g., *bayanihan* [communal work] and farmer-to-farmer exchange), and facilitating self-sufficiency and farmer empowerment through increased farmer control over agricultural resources (Bachmann, Cruzada, & Wright, 2009; Frossard, 2002; Olano, 1993; Sanchez, 2011). Efforts to promote organic agriculture recently gained institutional support, first among local governments that passed ordinances in support of organic agriculture (Aruelo, n.d; Salazar, 2014), and later culminating with the passing of the 2010 Organic Agriculture Act (Republic Act 10068) (Sahakian, Leuzinger, & Saloma, 2017; Salazar, 2014). The act mandated local government units to put in place their own organic programs and establish a technical working group to oversee the promotion of organic agriculture (National Organic Agriculture Board [NOAB], 2011).

To date, despite the apparent effort to support a transition to organic agriculture, less than 2% of the agricultural landscape is considered organic (Willer & Lernoud, 2017). This is in stark contrast to the Green Revolution, which was responsible for transforming 40% of the Philippine rice growing area in three years from 1966 to 1969 (Bautista & Javier, 2005) and 90% of the area by 1987 (Estudillo & Otsuka, 2006; Hayami & Kikuchi, 1999).

The considerations being underscored here are the sense of urgency and gravity of the situation in the Philippines and also tensions surrounding the development and deployment of agricultural

interventions (see Stone & Glover, 2017; Vidal, 2014). Given that the agricultural sector is crucial for reducing poverty and improving environmental management and that any loss or damage has serious adverse implications on farmers as well as the general population, my interest lies in informing the development and deployment of climate interventions in the Philippines. I do this by identifying multiscalar implications of development initiatives. This research brief, therefore, summarizes the processes and outcomes occurring at the farm, community, and institutional levels that are either facilitating or obstructing smallholder capacities for building resilience. Here, "resilience" refers to farming system processes and outcomes that serve to improve smallholder adaptation and mitigation capacities, as well as reduce their vulnerability to climate-related disturbances (Heckelman, Smukler, & Wittman, 2018).

Applied Research Methods

The research design and analysis took an integrative and collaborative approach, relying directly on contributions of participating smallholders, as well as the insights and feedback provided by representatives from government and nongovernmental organizations (NGOs) driving agricultural development in the Philippines.

A survey tool developed by a team at the FAO called the Self-evaluation and Holistic Assessment of Climate Resilience of Farmers and Pastoralists (SHARP) (Choptiany, Graub, Dixon, & Phillips, 2015) was adapted and used for the purposes of this study. The survey tool measures 13 agroecosystem indicators of resilience identified by Cabell and Oelofse (2012). The indicators are behavior-based, integrate core aspects of socio-ecological systems, and encompass the four phases in the adaptive cycle: growth/exploitation, conservation, release, and reorganization/renewal (see Walker, Holling, Carpenter, & Kinzig, 2004). Similar to biotic indicators typically employed to monitor ecosystems, Cabell and Oelofse (2012) suggest that the presence of these 13 agroecosystem indicators in a farming system indicates a capacity for adaptation and transformation, while their absence signals vulnerability and the need for intervention.

In addition to collecting 40 SHARP surveys completed by organic (n=18) and conventional (n=22) smallholders from four neighboring villages located in Negros Occidental, data was also collected through focus groups, smallholder interviews, key informant interviews, and participant observation that occurred between August and December 2016. Three focus group discussions were facilitated with participating smallholders. The focus group discussions were used to characterize socioecological conditions and identify appropriate interventions for enhancing resilience. Ten semi-structured farmer interviews were conducted to gather personal perspectives on rice farming in Negros Occidental, including insights on farm management practices, current socioecological conditions, and challenges related to climate change. Seven key informant interviews were carried out with representatives from universities, NGOs, and the Philippine Rice Research Institute (PhilRice). Questions posed to key informants were designed to explore how smallholders are affected by the governance environment (or institutional arrangement), facilitating consideration of relevant policies and laws occurring at the national, regional, and local levels. Key informants were also asked to discuss how their respective organizations are navigating and responding to climate change given social, environmental, and institutional conditions. Participant observation included attending an impromptu meeting with the residing governor of Negros Occidental, attending the 2016 Negros Island Region Organic Summit, a meeting at the Vice Chancellor's Office for Research Extension at the University of Philippines Los Baños, a Department of Agrarian Reform (DAR) Dialogue held in Bacolod, several farmer association meetings, and a farmer breeder training.

Results and Discussion

I summarize here three key findings from the overall study: (1) organic rice systems exhibit greater resilience than their conventional counterparts; (2) the institutional arrangement responsible for supporting organic transition remains locked in the Green Revolution paradigm; and (3) a polycentric food sovereignty development approach is key to addressing these institutional lock-ins and creating pathways for smallholder resilience.

Key finding 1: Organic rice systems exhibit greater resilience than conventional

Organic rice systems contain higher crop, farm, and landscape diversity, which serves to enhance adaptive capacity; employ more land- and soil-improvement measures that increase mitigation potential; and are governed by household and community mechanisms that serve to reduce vulnerability (Heckelman et al., 2018). This finding is consistent with Philippines-based research indicating that organic systems outperform their conventional counterparts due to yielding similar or sometimes higher production levels (Bachmann et al., 2009; Broad & Cavanagh, 2012; Icamina, 2011; Mendoza, 2005, 2016) and being more profitable due to lower production costs and higher returns (Bachmann et al., 2009; Lamban et al. 2011; Mendoza, 2004; Pantoja, Badayos, & Agnes, 2016; Rubinos, Jalipa, & Bacaya, 2007). It is also consistent with systematic reviews of comparative research on organic and conventional systems across the globe that suggest the former often performs better under adverse environmental conditions (see Badgley et al., 2007; Seufert, Ramankutty, & Foley, 2012), as well as exhibits greater adaptation and mitigation capacities (see Fließbach Oberholzer, Gunst, & Mäder, 2007; Harvey et al., 2013; Rodale Institute, 2014).

When smallholders were asked to share their recommendations for climate interventions, their responses centered on building individual, collective, and local capacities for enhancing resilience through increased farmer control of agricultural resources, and improved government provisions to ensure that smallholders have access to land and tenurial security, veterinary and paraveterinary services, crop and livestock insurance, and financial support (Heckelman et al., 2018). Such recommendations counter the current institutional trend and tendency to direct government funds for the purposes of developing technological innovations that are eventually made available through commercial and market mechanisms.

Given the accumulating empirical evidence that smallholder organic rice systems outperform their conventional counterparts, and given the persistence of an organic movement in the Philippines that recently gained some institutional support (Sahakian et al., 2017; Salazar, 2014), why do organic systems occupy such a small fraction of the agricultural landscape?

Key finding 2: The institutional arrangement remains locked in the Green Revolution

To explore why organic agriculture remains in the margins, I conducted a critical institutional analysis of agricultural transition in the Philippines, relying on Ostrom's (2011) Institutional Analysis & Development (IAD) Framework to explore the dynamic interactions between institutions, key actors, and social and biophysical conditions that drive human behavior and socioecological change. Resilience theory was integrated into the framework to clarify the suite of farming system processes and outcomes necessary for simultaneously augmenting adaptation and mitigation capacities (see Cabell & Oelofse, 2012; Harvey et al., 2013; Thornton & Mansafi, 2010), as well as reducing farmer vulnerabilities (see Barret & Constas, 2014; Berkes & Ross, 2013; Magis, 2010; Miller et al., 2010).

Beginning in the 1960s, a substantial amount of foreign funding was directed toward the development and deployment of Green Revolution technologies in the Philippines (Chandler, 1992; Patel, 2013; Putzel, 1992). Since then, Philippine agrarian reform programs and national agricultural development programs have been largely oriented toward farmer adoption of these technologies. For example, Marcos' land reform program (Presidential Decree 27) required beneficiaries to become members of cooperatives, called *Samahang Nayon*. These were used as an organizing mechanism for not only providing trainings on how to use Green Revolution technologies, but also to enforce the adoption of these technologies (Araullo, 2006; Putzel, 1992). These early policies and programs established the administrative infrastructure for developing and deploying Green Revolution technologies in the Philippines, which was not only maintained but expanded upon by subsequent agrarian reform policies and national agricultural development programs (i.e., national programs for rice self-sufficiency). Consequently, locally adapted cultivars, landraces, and the traditional and indigenous knowledge associated with their cultivation, utilization, and conservation eroded over time

(Altoveros & Borromeo, 2007). Farmers became "passive recipients of technology, to the extent of even forgetting how to farm" (Medina, 2004, p. 2) as all technologies and problems were supplied and solved by extension workers.

When we examined the institutional arrangement responsible for supporting organic transition, we found that key agricultural organizations remain locked in the Green Revolution paradigm, as the same government agencies and research institutions that were (and are) responsible for promoting Green Revolution technologies are now the same ones that are charged with supporting and facilitating organic transition according to the passing of the 2010 Organic Agriculture Act (Republic Act 10068). These key agricultural organizations, such as the Department of Agriculture and the Philippine Rice Research Institute, are regarded as inappropriate and inadequate champions of organic agriculture. For example, experts and representatives at the Department of Agriculture are perceived by smallholders and government and non-government civil society representatives as having limited to no training in organic agriculture. According to an NGO representative, "most of the Department of Agriculture and extension agents don't know how to implement organic agriculture; they are trained in conventional agriculture but not in organic agriculture" (Key Informant 3, personal communication, Dec. 16, 2016). Another government representative indicated that "there are also various groups within the Department of Agriculture who are not really supportive of integrative farming" (Key Informant 1, personal communication, Oct. 18, 2016). Furthermore, the way in which organic research and development have been taken up by PhilRice has been to develop high-yielding organic rice varieties and inputs that are to be made available to farmers commercially. This mimicks the Green Revolution model and contradicts smallholder motivations for transitioning to organic, which center on severing dependencies on costly external inputs through increased farmer control over agricultural knowledge and resources (Medina, 2004; Sanchez, 2011).

If the goal is to genuinely enhance smallholders' capacities for building resilience through organic transition, then there is a need to overcome and address these institutional lock-ins, including barriers to (re)generating agrobiodiversity, place-based knowledge, and local resources. The question is, how?

Key finding 3: A polycentric food sovereignty approach builds pathways to resilience

To better understand how to address these institutional lock-ins and barriers to smallholder resilience, I turned my attention to existing organic smallholders and asked how they were able to transition despite the existing institutional arrangement. To answer this question, I examined *Magsasaka at Siyentipiko para sa Pag-unlad ng Agrikultura* (Farmer-Scientist Partnership for Development, MASIPAG), a grassroots, farmer-led network that mobilized over 30,000 farmers to transition to organic and agroecological farming systems in 63 provinces across the Philippines without the support of the state and despite antagonistic development policies (MASIPAG, 2018). The network subscribes to a food sovereignty development approach, meaning it is broadly oriented toward ensuring the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods as well as their right to define their own food and agriculture systems (Nyéléni Forum for Food Sovereignty, 2007).

MASIPAG utilizes a polycentric system as a mode for developing and implementing food sovereignty initiatives across the Philippines. That is, it subscribes to a bottom-up, dispersed, multilevel pattern of governing (Jordan, Huitema, van Asselt, & Forster, 2018; Ostrom, 2010). For example, MASIPAG's decentralized structure is oriented toward local empowerment and cultural sensitivity. This has not only translated to helping over 30,000 farmers transition to organic, but has also resulted in the training of 70 farmer rice breeders and the establishment of two national back-up farms, eight regional back-up farms, and 188 trial farms that are maintaining a minimum of 50 traditional rice varieties (MASIPAG, 2018)—all of which contribute to the *in situ* conservation of 2,000 traditional rice varieties that are freely exchanged and propagated among farmers. The local trial farms are established and maintained by members, ensuring that they have a shared space to gather and carry out

observations and experiments as part of the effort to promote farmer-developed agricultural technologies and innovations. In this way, farmers are treated as fully capable of developing their own organic cultivars that are drought, flood, and saline resistant; establishing their own local seed banks; and developing their own composting and vermiculture systems—and all such place-based knowledge and subsequent innovations are shared and taught freely (Frossard, 2002; Medina, 2002, 2004, 2009, 2011; Olano, 1993; Oram, 2003).

What the MASIPAG example ultimately reveals is that polycentric food sovereignty initiatives help smallholders overcome adverse socioecological conditions, including institutional barriers to organic transition. Further, if we understand resilience to be multiscalar and interdependent processes and outcomes that support smallholder capacities for simultaneously addressing adaptation, mitigation, and vulnerability (including building local resources and capacities for social learning and collective action), then what we have learned is that MASIPAG's polycentric food sovereignty development approach, which centers on revitalizing place-based knowledge and resources, is creating pathways for smallholder resilience in the Philippines.

Conclusions

There is much to be learned from grassroots farmer-led mobilizations, especially among marginalized communities and developing countries where smallholders have been contending with centuries of development policies responsible for their plight and vulnerability. How they organize, cooperate, and strengthen community capacities in spite of adverse socioecological and political economic conditions is something to which we should be paying attention. What the MASIPAG example tells us is that resource-poor smallholders are often at the front lines of community development, agricultural transition, and resilience building, and we should be exploring, analyzing, and strengthening such polycentric, localized, place-based interventions.

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Growing food in the city: Urban agriculture in Quito, Ecuador, through a feminist lens

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Abstract

While much research has been done on urban agriculture (UA), globally, less is known about the impact of gender and the implications on access to food, social relationships, and power relations. More work is needed on how to link place-based UA case studies across different locations with varied levels of political support to promote transformational change in policy and development. In addition, more exploration is needed that analyzes gendered experiences of UA and how intersections of social location affect how a person experiences and accesses UA and its varied benefits. This preliminary research brief explores the potential for using intersectional experiences and feminist political ecology to assess UA programming in Quito, Ecuador. Exploring the intersectional experiences of UA and program development can influence increased access to nutritious food for the most marginalized people, promote equality and inclusion, and improve urban environments.

Keywords

Urban Agriculture, Feminist Political Ecology, Intersectional Analysis, Gender

Introduction

This research brief will outline the preliminary results from a scoping research project I completed prior to embarking on a larger project that will ultimately become my dissertation. I traveled to Quito on this research trip to meet with community partners and urban agriculture (UA) participants to ensure that the larger project is participatory and will meet the needs of the community. There were interesting findings from the trip to share, especially in terms of how it fits within feminist political ecology theory. This paper explores the theoretical framework that will underline the larger project and begins to connect the dots from theory to practice. This is an ongoing process that will evolve as the project continues.

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Literature Review

Urban Agriculture

UA is a practice with multiple benefits for urban populations, the economy, and the environment. These benefits can be considered through social, economic, environmental, cultural, and health lenses. Socially, for individual growers, UA can increase access to food (Dubbeling, de Zeeuw & van Veenhuizen, 2011); increase social and economic empowerment (Sonnino & Hanmer, 2016); enhance self-worth, improve psychological well-being, reduce stress (Battersby & Marshak, 2013); provide leisure and recreation, and improve knowledge and skills (Renting & Dubbeling, 2013). For the community, UA can promote resilience (Adam-Brandford & van Veenhuizen, 2015); strengthen social ties in the community (WinklerPrins, 2017); increase social inclusion and reduce isolation (Battersby & Marshak, 2013); help to build supportive relationships (WinklerPrins, 2017); promote social justice and human rights (Sonnino & Hanmer, 2016; WinklerPrins, 2017); provide social cohesion (Battersby & Marshak, 2013; Renting & Dubbeling, 2013); and increase safety and improve neighborhoods (Battersby & Marshak, 2013; Renting & Dubbeling, 2013).

Through an economic lens, UA can alleviate poverty, increase food security, cut costs spent on food for consumption (Cabannes, 2015), provide employment within urban areas, promote enterprise development (Renting & Dubbeling, 2013), help growers increase and diversify their income (Cabannes, 2015), assist growers in incurring profit, provide crisis stability for households (Hovorka, de Zeeuw, & Njenga, 2009), and promote city self-sufficiency (Renting & Dubbeling, 2013; WinklerPrins, 2017).

Environmentally, UA can improve the overall urban environment, promote the "greening" of cities (Renting & Dubbeling, 2013; WinklerPrins, 2017), encourage a sustainable city (WinklerPrins, 2017), shorten food chains and the proximity to food, reduce the need for a global market (Dubbeling et al., 2010), promote adaptive capacity (White, 2015), provide disaster preparation (Adam-Bradford & van Veenhuizen, 2015), and increase ecosystem services (WinklerPrins, 2017). Ecosystem services UA can affect include a reduction in the urban heat island, improved carbon storage and sequestration (Prain & Dubbeling, 2011), improved microclimate (Hovorka et al., 2009), prevention of flooding and erosion (Hovorka et al., 2009; Renting & Dubbeling, 2013), mitigation of urban storm water, provision of windstorm control (Lwasa & Dubbeling, 2015), lessened agrichemicals use (McClintock, 2010), climate change mitigation (Lwasa & Dubbeling, 2015; Renting & Dubbeling, 2013), increased species diversity (WinklerPrins, 2017), enhanced efficiency of resources (Hovorka et al., 2009), safe and productive reuse of urban wastewater (Renting & Dubbeling, 2013), organic waste recycling (Hovorka et al., 2009; WinklerPrins, 2017), lowered energy use for transportation, processing, and packaging (Renting & Dubbeling, 2013) and reduction of distance food needs to travel to the consumer, leading to less food waste (Prain & Dubbeling, 2011).

While UA has great potential to better the lives of vulnerable groups in cities, it also has many barriers that hinder access, which affects the practice's capacity for positive change. Depending on the place, different aspects can impede the ability to participate in urban growing, like social category, political situation, or available land. Because UA varies so greatly, a place-based analysis based on intersectional identities of the participants and community members is necessary. Identity, whether that is gender, ethnicity, race, class, ability, or otherwise, affects the rights and responsibilities of individuals and affects power relations, which in turn affects their access to the benefits of practices like UA. The practice thrives in cities where there is political support for UA through programs, funding, and making appropriate space for growing, and Quito is a great example. If a municipal government is not supportive of the practice, it can inhibit individual citizens' capacity to participate. Urban land is often in high demand, and it can be exacerbated in certain cities, which, again, limits the potential for urban food growth. There is a significant amount of UA research globally, as there are many proponents and critics of the practice. Because of its place-based nature, the research varies depending on the geographical location, making

it challenging to generalize. There have been several studies of the impacts of various social locations on access to urban agriculture, but more is needed, especially from the view of the theoretical framework of feminist political ecology (FPE).

Women's experiences with UA includes unique barriers that can be amplified based on their social location. While all women in a specific city may struggle with barriers to participation in UA, if a woman is also a part of an ethnic or racial minority, belongs to a lower class or caste in society, or has limited physical or mental abilities, the barriers can be intensified. When assessing UA programs, it is critical to provide an assessment of the situation based on the lived experiences of the participants. These experiences are affected by the social categories women belong to and affect their participation in UA based on power dynamics, divisions of labor, lack of resources including secure access to land, differing needs, and other challenges.

Feminist Political Ecology

FPE is a critical framework that can be used to analyze power relations and equality across scales. It makes an "…explicit commitment towards tackling gender disadvantage and inequality" (Elmhirst, 2015, p. 519). Elmhirst (2015) expresses that while there is diverse representation within FPE research, but some central tenets can be discussed. The framework emphasizes politics and power at multiple scales; highlights gendered power relations; commits to addressing gendered inequality and disadvantages; challenges dominant ways of knowing and leadership; promotes social and ecological change by empowering those who are marginalized; commits to feminist epistemology, methods, and values; explores the connection between nature and society; and finally, observes connections between dimensions of social location and subject formation. More recently, Elmhirst (2011; 2015) and Mollett and Faria (2013) have proposed ideas for a new FPE that is more open-ended and that opens the door for further explorations of the framework and how it can be used.

FPE has the capacity to address power and equity across multiple scales, which is significant for UA analysis as the practice varies between scales, as well as place to place globally and in the same region. Due to the unique barriers faced by women in UA, more research is needed that takes their lived experiences into account. Their marginalized experience can be affected by their gender, race, ethnicity, class, ability, and others, and these can vary by both space and time. Advocates for a new FPE iterate that this new imagining must include intersectionality.

Intersectionality

Coined by Kimberle Crenshaw in 1989, the term intersectionality explores how social location categories are interconnected, socially constructed, and unfixed, and therefore are constantly changing. To analyze the power relations present within experiences of UA, we must look at the lived experiences of the people participating in urban growing. In UA, the daily performance of gender has to do with the roles and responsibilities of each gardener (in their garden as well as at home), the division of labor in both spaces, access to necessary resources, including secure access to land, control of decision-making, and access to the different spaces needed to benefit from urban agriculture (garden, market, etc.). The intersectional identities of each gardener affect their access to the practice. For example, if a woman has little control over the decisions of her household, she may not have the power to begin growing food for their household or to sell. If only certain classes of people are allowed to sell at the city market, the capacity of UA as a livelihood is diminished for those who are marginalized in those spaces. When considering the removal of barriers to the practice of UA, it is important to move beyond empowerment and explore how to create the conditions in society that allow for shifting power relations through accountability, inclusion, and nondiscrimination (Cornwall & Rivas, 2015).

Using early literature as well as the recent theorizations on what can change within FPE, a new framework is emerging that is well situated to analyze experiences of UA across scale. This framework analyzes how to change and shift power relations and increase equity. UA has immense transformative potential for individuals through enhanced livelihoods and food security, but also as a means of transforming power relations and creating a more just and inclusive society.

Urban Agriculture in Quito, Ecuador

Objectives

The objectives of this preliminary study were fairly open-ended. The intent of the trip to Quito was to meet with community partners, participants, and stakeholders to discuss the larger project and determine the focus in a participatory manner, as well as to evaluate if FPE could be used to assess the results. I intended to interview stakeholders who were a part of the development of the participatory UA program in Quito (AGRUPAR), those working within municipal secretariats related to UA, or those participating in the project currently. I was able to gain knowledge from key informants around at the beginning of the project and from those who were newer to it from both the municipal and grower perspectives. This allowed for a well-rounded analysis to guide the larger research project that will ultimately become my Ph.D. dissertation. The scoping research project allowed me to build a relationship with the research participants and to define the objectives of the larger project. The interviews focused on the history of UA in Quito, the key stakeholders in UA in the city, barriers and successes to the practice, and how Quito is connected into the regional food system. From this preliminary study, I have been able to design my proposal for future research based on information from stakeholders so that the research will be embedded in the community needs.

Methods

The research is situated in the municipality of Quito, Ecuador. The last two years have been spent working on the development of the project with partners in Quito through the RUAF international partnership on urban agriculture and sustainable food systems. I traveled to Quito for a scoping research project in July 2018 and completed 10 interviews and participant observation in six urban, peri-urban, and rural gardens as well as the organic markets (*bioferias*). In the interviews, I asked the following questions: What is the history of UA in Quito?; What actors were involved in the development of UA in the city?; Who are the actors currently involved in UA in the city?; What is working well in Quito's UA scene? (with a focus on benefits, programs for women, and if they had many women leaders in UA in Ecuador); What could be improved in Quito's UA scene? (challenges, barriers, equal access, connections); Is Quito connected to the regional food system?; and What other cities participate in UA in Ecuador? The observations were less formal and were guided by the growers. I visited people's gardens, and they told me about their history with AGRUPAR, the different crops they grow, and the animals they raise. This allowed me to become more immersed in the culture of UA in Quito and will help guide the focus of further research.

I met my partners in Quito through the municipal economic development agency, CONQUITO, and the urban agriculture development program called AGRUPAR. AGRUPAR has been a partner of the RUAF organization for over 15 years, and the staff are very engaged in research within the city. The interviews and observations were organized through the research partner at AGRUPAR. I interviewed representatives from four municipal offices: CONQUITO, the Secretary of Environment, the Secretary of Planning, and the Metropolitan Urban Planning Institute. I also interviewed two representatives from the National Polytechnic School in Quito. Additionally, I was able to visit six gardens. I also attended one of the busiest *bioferias* in the city, La Carolina Market, where I was able to interview the growers who were selling veggies, fruit, meat, and prepackaged goods at the market. Assistance with language translation was through a local Quito resident who spoke both English and Spanish.

Study Area

Quito's innovative UA projects have won international awards, and the municipal government has supported the practice for over 15 years. Because AGRUPAR contributes not only economic sustainability for participants, but also social and environmental sustainability, it is interesting that it is housed solely within the economic department (Municipality of the Metropolitan District of Quito [MDQ], 2017). According to an interviewee who was a part of the development of AGRUPAR, the project initially was part of the social development structure to address vulnerable populations

(women, young people, vulnerable children, the disabled, and Indigenous and African Ecuadorians), but was moved after the establishment of CONQUITO in 2004, when the municipality split the social and economic sectors to help more people. AGRUPAR was seen as a tool for economic development for Quito's residents living in poverty through microloans, infrastructure development, and intensive training in UA.

Through an interview with CONQUITO staff, I was given updated statistics about AGRUPAR as of May 2018. As it stands now, participants in Quito's AGRUPAR project grow in over 3,600 gardens implemented across the city. They estimate that there are 4,500 beneficiaries of the program per year. Over 21,000 farmers have been trained by AGRUPAR to date on organic farming practices and market sales. There are 17 *bioferia* markets in Quito where AGRUPAR participants can sell their excess products to consumers. This provides approximately US$175 of extra income per month to the growers, which is 3.5 times the government human development funding available to those living in poverty. Approximately 84% of the participants in this program are women.

According to the environmental secretary of the Metropolitan District of Quito (MDQ) (2016), as of 2010 the urban area within the city of Quito was home to 1.6 million people, while the entire MDQ had around 2.2 million inhabitants. From 2011 to 2016, the urban sprawl of the MDQ increased by 11.17% despite municipal planning and regulations. In the district, 72% of the population live in urban areas, while 28% are in the valleys and rural areas. The agricultural production sector is 35.5% of the total area occupied by the MDQ. Of this area, agro-productive systems are 28.2%. The recorded differing types of cultivation in the district are predominantly maíz (corn; *zea mays*) and frijoles (beans; *Phaseolus vulgaris*) (46.38%) followed by caña de azúcar (sugar cane; *saccharum officinarum*) (21.13%), frutas (fruits) (9.5%), flores (flowers) (9.44%), and papas (potatoes; *solanum tuberosum*) (6.72%). Other crops in the area include cebollas (onions; *allium cepa*), ajo (garlic; *allium sativum*), cereales (cereals), alfalfa (*Medicago sativa*), vegetales (vegetables), palmitos (palm hearts), cebada (barley; *hordeum vulgare*), plátano (banana; *musa*) and fava (faba; *vicia faba*) (Environmental Secretary of the MDQ, 2016).

The city is situated in a valley surrounded by mountains and volcanos, which provide a picturesque setting but also many disaster risks. Over half (53%) of the food imported into Quito does so through the southern corridor. If there is an eruption of the Cotopaxi volcano, aside from the obvious issues that come with such a disaster, this corridor into the city would be blocked, and the food would be unable to be transported in. With the support of the Rockefeller Foundation's 100 Resilient Cities initiative,[1] Quito presented its Resilience Strategy in 2017. For the first time, food was taken into account in city planning, with a focus on three dimensions: urban agriculture, sustainable rural production, and the food system as a whole (Municipality of the MDQ, 2017). The environmental, planning, and resiliency secretariats in Quito whom I interviewed believe AGRUPAR is critical to sustainable agriculture in the MDQ and can also play an important role in increasing urban resilience and the capacity to supply food in times of crisis. For example, if an eruption of the Cotopaxi volcano occurs, the food grown through UA could be critical to survival. However, there is not currently enough food being grown via UA (only 5% of the total food consumed) to support the extensive population of the city. Many secretariats in the municipality are aware of this issue. Quito is highly dependent on food coming from other regions of the country and imported from other countries. There is great potential to build relationships and linkages between these different areas of government to build UA into existing and future plans for the city.

Results

The results of this preliminary study were found through an analysis of the semistructured interview data and participant observation notes. I coded the data based on recurring themes. While the AGRUPAR program is considered extremely successful for economic and social development of

[1] http://www.100resilientcities.org/

those living in poverty, according to this scoping research project, it has the potential for far greater impact. I observed three areas of potential growth: increased funding; knowledge sharing; and scaling up and out. While these are quite general results, they can guide the focus of future research and ensure that stakeholders' voices are included in the development of the larger research project. I propose that the impact of this project be assessed through the lens of FPE using intersectional analysis to discover the way forward. Because the project participants are 84% women, this type of analysis opens doors for an analysis of power relations and experiences and how those affect urban agriculture in Quito.

The research participants gave robust answers to the interview questions. Through these interviews, it was clear that with increased funding, the project could easily expand the number of beneficiaries, and through that, better safeguard Quito's food system for disaster resiliency by growing more food within the city. The participants thought funding could be achieved through increased municipal budgeting for AGRUPAR, partnerships with other municipal government secretariats, increased marketing and promotion of the program to the public, or increased self-sustainability with community partners. Additionally, the interviews indicated that the program's success could be shared with other cities in Ecuador by building UA networks to share this wealth of knowledge and experience from Quito.

Discussion

The areas of potential growth for the UA program in Quito were clear. The more intricate details given by participants indicate that change is needed to support more vulnerable residents and Quito as a whole. Future research will assess the program and make recommendations based on the assessment. As feminist political ecology addresses power and equity at multiple scales, I propose that it would be an excellent framework to assess the potential for UA in Quito. For this assessment, the lived experiences of the growers, as well as the situation of the city, need to be analyzed. This exploration can be done through the use of FPE, as it is a means of analysis that allows for intersectional experiences and makes room for the most vulnerable within the assessment.

Through an FPE analysis of UA at the local level, we can work to determine how to make larger-scale change by building connection and developing good practices situated within lived experience. In order to discover the potential for scaling up and out for AGRUPAR in Quito, it will be necessary to examine the political situation in the city as well as how power is distributed throughout society (Elmhirst, 2015). First-hand knowledge of how power is disbursed within UA in communities can assist in forming solutions to make changes that can work toward a process of empowerment for those who are marginalized in the system. To promote new ways of knowing, we must include and connect these marginalized voices.

Again, to assess Quito's UA potential, different perspectives and experiences need to be included. A discovery of the dominant ways of knowing that influence development is needed. Is the dominant knowledge based on lived experience? If not, this can be remedied by the development of an ongoing construction of a network of those with lived experience and knowledge (Harcourt & Nelson, 2015; Rocheleau, Thomas-Slayter, & Wangari, 1996). This way, a conversation can happen, and learning and collaboration have the potential to build across the process. Additionally, the social location of the researcher needs to be taken into account, as their lived experience will provide a lens through which they see the results of the study. As a white researcher from the Global North, with a language barrier, my participation in this project could impact the results. Assessing UA through FPE needs to be an iterative process with flexibility and attention to the effects of the study on participants and the city as a whole, based on social location and other factors.

Conclusions

Urban agriculture in Quito is thriving through the support of AGRUPAR and CONQUITO, as well as the many eager participants who hold the project together with their hard work and knowledge of the system. Through the interviews with representatives from the municipality and the

UA participants, it is clear that the program can improve through increased funding, scaling up and out of the project, and knowledge-building through partnerships and networks. To assess the best way to move forward with these improvements in Quito's UA, a place-based analysis is needed of these areas through feminist political ecology. Allowing for a study that considers the intersectional identities of the participants, examines power relations across the system, and challenges dominant knowledge while including voices of those who are marginalized has the capacity to expand the project in a way that is holistic and mutually beneficial. UA in Quito is unique, with each participant's experience differing based on many factors. In expanding the AGRUPAR program and linking with other city networks, this analysis has the potential to encourage increased access to nutritious food for the most marginalized people in Ecuador, promote equality and inclusion, and improve the urban environment for all the residents of the city.

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A mixed-methods examination of the geospatial and sociodemographic context of a direct-to-consumer food system innovation

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Abstract

Spatial context may be important to direct to consumer (DTC) programs aimed at improving fresh fruit and vegetable access for low-income individuals. The purpose of this study was to examine the sociodemographic and geospatial context (distance to pickup sites, number and density of proximal food retail outlets, etc.) surrounding community supported agriculture (CSA) pickup locations in relation to low-income customer residential locations, and to synthesize this information with inter-

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view-derived perspectives on the challenges and opportunities of the pickup location from DTC producers and customers. This in-depth study examined cost-offset community supported agriculture (CO-CSA) operations across four U.S. states (New York, North Carolina, Vermont, and Washington) and varying pickup sites (n=23), with pickup operational decisions determined by farmers (n=12). Physical addresses of farms, CO-CSA customers, and pickup sites were collected and geocoded. Geographic information systems (GIS) was used to examine road network distances for pickup locations across the study sites. Demographic information at the census block level (e.g., percent racial minority, percent poverty level) was obtained for all study sites. Descriptive statistics were generated for geospatial variables. In-depth interviews with farmers and focus groups with CO-CSA customers were conducted to understand experiences with the CO-CSA in terms of physical access of pickup sites. We found that pickup sites were an average of 6.2 miles (10 kilometers) from customers' homes, and on average, further than the supermarket (2.9 miles or 4.7 km). Farmers reported their efforts to select convenient pickup locations for low-income customers, though CO-CSA customers expressed mixed levels of accessibility. Spatial inaccessibility and differences in sociodemographic data for customer versus pickup may explain perceived inaccessibility for some customers. These findings may help inform future approaches to plan and evaluate DTC operations targeting low-income individuals by considering geospatial context and stakeholder experiences.

Keywords
Direct to Consumer, Community Supported Agriculture, Geographic Information Systems, Spatial Context

Introduction and Literature Review

The concept that "place matters" is central to the concept of direct to consumer (DTC) retail food system models (Blake, Mellor, & Crane, 2010; Lohr, Diamond, Dicken, & Marquardt, 2011). In DTC interactions, producers and customers are likely influenced by environmental context. The environmental context of food systems includes physical attributes related to land quality, marketing opportunities, and structures and facilities (including buildings, road networks, and public transportation systems), as well as nonphysical attributes, such as policies and regulations, residents' demographics, habits, perceptions, and social norms (Blake, Mellor, & Crane, 2010; Lohr, Diamond, Dicken, & Marquardt, 2011; Park, Mishra, & Wozniak, 2014).

All these attributes can influence distribution channels and site location for producers to sell their goods, particularly for smaller-scale farmers who may not have the resources to overcome environmental barriers to reach certain populations or locations (Cone & Myhre, 2000; Galt, 2013; Hinrichs & Allen, 2008). On the customer side, the environmental context may influence the accessibility to DTC operations, particularly for low-income individuals who face additional resource barriers (Galt, 2013). Low-income individuals have cited cost, time, transportation, habit, and food preferences as potential barriers to using DTC operations for food purchasing (Leone et al., 2012; McGuirt, Pitts, Seguin, Bentley, DeMarco, & Ammerman, 2018; McGuirt, Ward, Elliott, Bullock, & Pitts, 2014; Racine, Smith Vaughn, & Laditka, 2010). Hilbert, Evans-Cowley,Reece, Rogers, Ake, and Hoy (2014) found that rural low-income populations may be particularly vulnerable to food-access issues because of transportation costs associated with pursuing a healthy diet, and that policy efforts should always consider place-specific factors given variation in costs.

Community supported agriculture (CSA) is a DTC model that may have potential to improve access to fruits and vegetables because of the flexible distribution opportunities compared to traditional brick-and-mortar stores or even farmers markets (McGuirt, Pitts, Hanson, DeMarco, Seguin, Kolodinsky, & Ammerman, 2018; White et al., 2018). Given this, CSA programs may help increase access to food in both urban and rural food deserts (areas that lack access to affordable fruits, vegetables, whole grains, low-fat milk, and other foods) and food swamps (locations with food stores with abundant less healthy foods) that are common in low-income areas in the United States (Centers for Disease Control and Prevention, 2017;

Rose et al., 2009; Walker, Keane, & Burke., 2010). Since CSA offerings include mostly fruits and vegetables, the CSA model may also increase exposure to healthier foods and reduce exposure to less-healthy items that are commonly found in stores within food deserts (Walker et al., 2010).

However, currently, most CSA members are middle to upper-income households, with few low-income individuals (Cooley & Lass, 1998; Hanson et al., 2017;; Russell & Zepeda, 2008Vasquez, Sherwood, Larson, & Story, 2017). Standard CSA models have been deemed elitist by some critics (DeLind, 1999). This is likely because few CSA programs have been designed for lower-income populations (Leone, Haynes-Maslow, & Ammerman, 2017; Quandt, Dupuis, Fish, & D'Agostino, 2013). This structure has led to low-income consumers having limited access to local foods opportunities (Sbicca, 2012). While CSAs emphasize 'community' and a 'sharing' relationship, it is subject to the influences of 'marketness' (price as the dominant factor) and high 'instrumentalism' (prioritization of economic rather than social or moral goals) (Block, 1990). These influences have produced the predominant model that often makes CSAs inaccessible to people with limited means (Hinrichs, 2000). Some have called for the radical transformation of the agrifood system as part of the food justice movement to increase access to opportunities for low-income people (Gottlieb & Joshi, 2010). Recent research indicates that modifications of the typical CSA approach may be necessary for low-income individuals, given resource constraints and that a convenient pickup location was a major factor for low-income consumer willingness to participate in CSA programs (McGuirt, Pitts, Hanson et al., 2018). Individuals in that study stated they were more likely to participate in a CSA when it was closer to their home than the supermarket, and if there were a price saving with the CSA (McGuirt, Pitts, Hanson et al., 2018). Previous research also suggested that accessibility was among several important factors that influence participation in a cost-offset CSA (CO-CSA) program aimed at reaching low-income individuals (White et al., 2018). This aligns with the geospatial distance decay theory or "friction of distance," where the interaction among two entities decreases as distance increases (Pun-Cheng, 2016). Thus, the further away a person lives from a CSA pickup, the less likely the person is to purchase the CSA, or once purchased, the less likely he or she is to pick it up regularly.

While pickup location may be a factor for all CSA customers, including high-income individuals, the additional resource constraints experienced by low-income individuals, including transportation problems (including funds to purchasing gas) as well as the time limitations with working multiple low-wage jobs, makes CSA participation riskier. The consideration of placement for low-income individuals is unique and important to any program geared toward reaching this population (Quandt, Dupuis, Fish, & D'Agostino, 2013; McGuirt, Pitts, Hanson et al., 2018; McGuirt, Pitts, Seguin et al., 2018). For high-income populations, accessibility may be a challenge; for low-income individuals, it is a decisive consideration that may increase the risk of not having resources needed to accomplish other life needs (McGuirt, Pitts, Hanson et al., 2018; McGuirt, Pitts, Seguin et al., 2018).

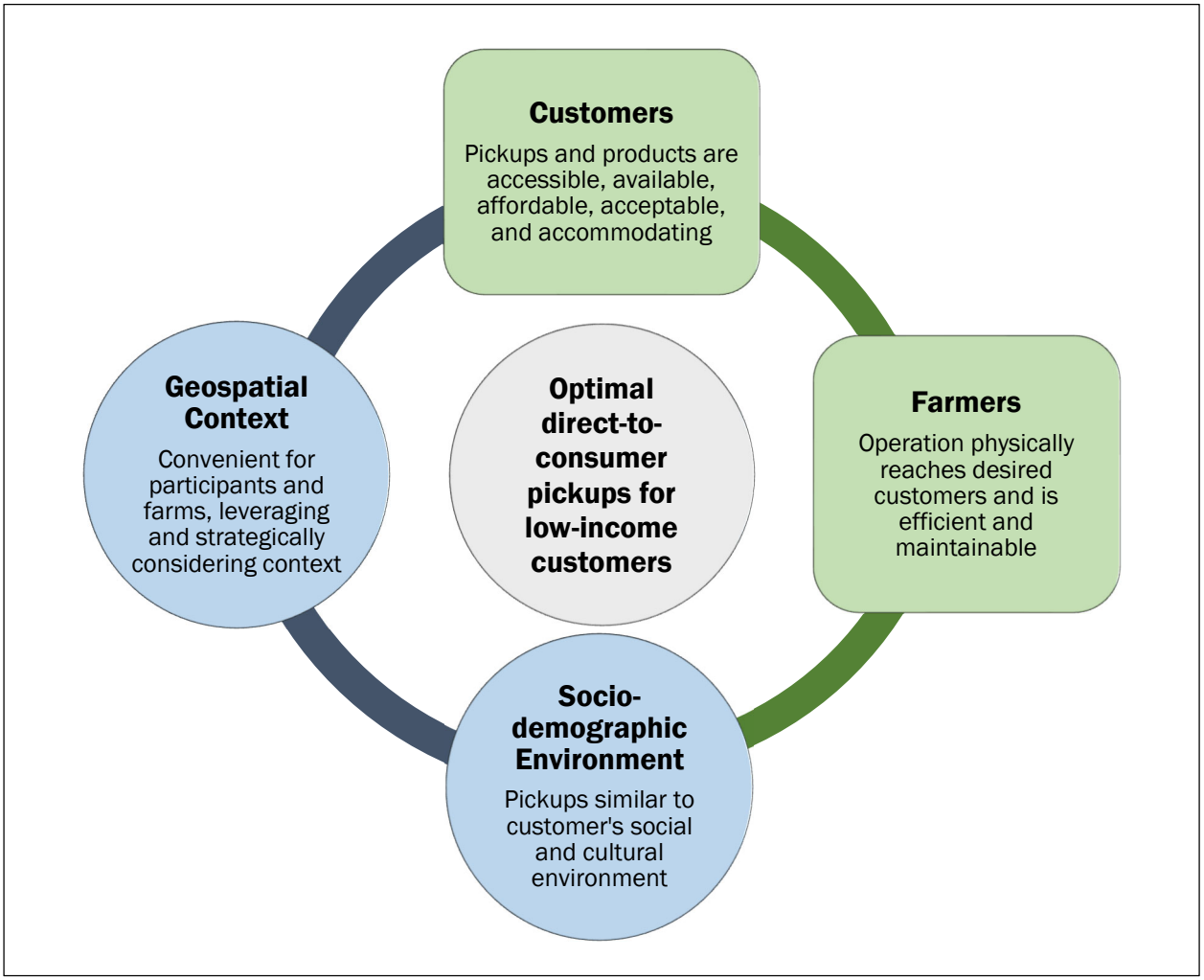
There is a paucity of research that considers physical accessibility for producers and customers, the retail food environment context around distribution points, and the sociodemographic environment of farmers, customers, and pickup sites. The importance of studying the context of the accessibility of CSA models to low-income individuals is rooted in the idea that physical and human geographies are created and influenced by social and political processes that determine whether there is spatial justice (Feagan, 2007; Soja, 2013)—in this case, equitable access to healthy local foods. Understanding the dynamics of these different relational, operational, and environmental factors will help increase our understanding on food systems geography for low-income individuals, and how to achieve spatial justice as it relates to access to local healthy foods (Feagan, 2007). Factoring in physical and human geography may also help create a more holistic characterization of DTC markets for low-income individuals. Typically, there has been an emphasis on the social and economic connections driving CSA participation, but these factors may be potentially inadequate in explaining and developing an interest in and privilege to CSA opportunities

among low-income individuals (Hinrichs, 2000). Galt (2011) suggested the need for additional qualitative and quantitative data to better understand the distribution of CSAs.

The purpose of this study was to examine the sociodemographic and geospatial context (i.e., distance to pickup sites, number and density of proximal food retail outlets), surrounding community supported agriculture (CSA) pickup locations in relation to low-income customer residential locations, and to synthesize this information with interview-derived perspectives on the challenges and opportunities of the pickup location from DTC producers and customers.

We report the results of an exploratory approach that combines quantitative spatial analysis and qualitative evaluation. This mixed-methods synthesis approach is rooted in the 'political ecology' approach suggested by Shannon (2014), which emphasizes the usefulness of more in-depth approaches to understanding low-income geographic context based on experiences and social relations, rather than the typical strict geospatial approach that pathologizes low-income residents and leads to an unclear understanding of relations between areas and their residents (Shannon, 2014). Thus, we examine stakeholder feedback plus sociodemographic and geospatial contextual approach,

Figure 1. A Conceptual Model of Our Analytic Approach for Determining the Optimal Direct-to-Consumer Operation Locations for Farmers and Low-Income Customers (the Actors [Participant in a Process]; Green Squares) with Consideration of Spatial Factors (Influencers [the Environmental Context that Influences the Actors]; Blue Circles)



as a model to help plan and evaluate DTC operations targeting low-income individuals. Figure 1 serves as a conceptual model of our analytic approach for determining the optimal DTC operation locations for producers and low-income customers with consideration of spatial factors, illustrating the four domains we perceive as relevant to this issue based on the previously described literature. For customers, pickups and product need to be accessible, available, affordable, acceptable, and accommodating given income constraints and sociodemographic characteristics (Caspi, Sorensen, Subramanian, & Kawachi, 2012). Farmers must make strategic, operational decisions regarding the CO-CSA, specifically the placement of pickups to meet the customers' needs as well as their own needs. The geospatial context of operation must be convenient for customers and farms, and pickup sites should be strategically selected with consideration of context (including the food store environment, which may be a facilitator allowing more efficient shopping, or a barrier if a food stores are competing against the CO-CSA). Lastly, the sociodemographic context must be considered, with pickup sites being similar to the sociodemographic context of customers. Sociodemographic differences could help explain misplaced pickups (as a proxy for being located in a different area not close to their home) and a reduced level of social and cultural connectivity, as participants may feel uncomfortable in a setting dissimilar to their typical experience. In the model, we have represented customers and farmers as formal 'actors' (participants in a process) (green squares) and the geospatial context and sociodemographic environment as contextual 'influencers' (the environmental context that influences the actors) (blue circles). The model demonstrates how the domains potentially relate and contribute to the overall goal of developing an optimal DTC operation for low-income customers. The geospatial and sociodemographic information may help triangulate findings from qualitative feedback.

Applied Research Methods

This in-depth mixed-methods cross-sectional study examined CO-CSA operations (12 farms and 16 pickup sites) across four U.S. states that were participating in the Farm Fresh Foods for Healthy Kids (F3HK) project, a U.S. Department of Agriculture (USDA) Agriculture and Food Research Initiative (AFRI) funded, randomized controlled trial that is testing a CO-CSA model in Supplemental Nutrition Assistance Program (SNAP)-eligible individuals in North Carolina (NC), New York (NY), Vermont (VT), and Washington (WA) (Seguin et al., 2018). All customers were at or below 185% of the federal poverty level (as self-reported). The program consisted of a 15- to 24-week summer CSA share combined with tailored nutrition education. The share price was subsidized by 50%; weekly payments were allowed, and the participating farmers had to accept SNAP Electronic Benefits Transfer (EBT) as a form of payment. All F3HK participants provided their physical home address. Farms were recruited to the study by the project team based on existing CSA operations and an interest in offering a CO-CSA. Operational decisions were determined by farmers, and customer participants chose their pickup sites; thus, the research presented in this paper regarding CO-CSA pickup sites is likely representative of typical pickup site operations for CO-CSA for low-income populations. This study examined only the intervention group customers during one year of the program as an in-depth examination of farm operations across multiple states.

Data were collected, derived, and analyzed to examine the initial suitability of the conceptual model in Figure 1. The goal was to examine whether the components of the model were influential in the success of the CO-CSA pickups for low-income customers.

The distance between pickup locations for farmers and customers, as well as the walkability (the amount and proximity of nearby amenities that can be accessed on foot) of pickup neighborhoods and those of customers, was assessed using geospatial data. We conducted all spatial analysis using ESRI ArcMap geographic information systems (GIS) (ESRI, Redlands, CA). We collected physical addresses of farms (n=12), CO-CSA customers with complete home address information (n=92), and CSA pickup locations (n=16). Food store location (supermarkets, North American Industry Classification System (NAICS) 445110)

data were obtained from the RefUSA business database. All address points were batch geocoded with the Google Maps application programming interface (API) through the BatchGeo website and geocoded to the highest level of accuracy possible, either to the rooftop (street address precision) or range-interpolated (interpolated between two precise points) levels.

ArcGIS and Google API were used to generate road network distance between farms and customer residences to pickup sites and to large supermarkets. Two-mile road network buffers were generated to obtain counts of supermarkets and other grocery stores near pickups and customer home address. The mRFEI data were spatially joined to customer address and pickup site locations. The U.S. census block group–level demographic information (percent minority, percent poverty level, etc.) was spatially joined to the farms, pickup sites, and customer home address data.

We used the Walk Score website (https://www.walkscore.com) (Walk Score, 2018) to generate an estimate of walkability around both customer addresses and CSA pickup sites to see if both areas were walkable (also considering the potential for walking to and from public transit stops) given the potential for transportation issues for lower-income individuals. Higher Walk Score value, which ranges from 0 to 100, indicates increased walkability (Carr, Dunsiger, & Marcus., 2010, 2011). Previous research has shown Walk Score to be a valid and useful measure of walkability (Duncan, Aldstadt, Whalen, Melly, & Gortmaker, 2011; Duncan, Aldstadt, Whalen, & Melly, 2013; Hirsch, Moore, Evenson, Rodriguez, & Roux, 2013). The Walk Score website also provides information on proximity to public transit opportunities, which has implications for physical access to venues (Walk Score, 2018).

Accessibility to healthy food and the healthfulness of the retail food environment in both customer residential areas and pickup areas was assessed using the USDA food desert locator and the Centers for Disease Control and Prevention (CDC)'s Modified Retail Food Environment Index (mRFEI). We used the USDA Food Desert Locator to obtain polygon shapefiles designating USDA designated "food deserts," which are low-income census tracts where a significant number or share of residents is more than 1 mile or 1.6 km (urban) or 10 miles or 16 km (rural) from the nearest supermarket (USDA Economic Research Service, 2017), to determine if pickup sites were being located in food deserts to reach low-income customers with limited food access. We used the mRFEI dataset to examine the presence of healthier food stores (supermarkets, larger grocery venues, supercenters, and fruit and vegetable markets within census tracts or ½ mile [.80 km] from the census tract boundary) relative to less healthy food venues (fast food restaurants, small grocery venues, and convenience venues within census tracts or ½ mile [.80 km] from the census tract boundary) (CDC, 2018) around pickup sites and customer residences, as the relative healthiness and makeup of the food environment at either the customer residence or pickup area could influence interest in a CSA program. A higher mRFEI indicates a healthier food environment (CDC, 2018).

The sociodemographic data were used to examine how the sociodemographic context of the pickups matched that of customers, as differences could suggest misplaced pickups and a social disconnect. Demographic information was gathered from U.S. Census data (from the American Community Survey, 2012-2016, 5-year estimates) at the census block group level, and spatially joined to block group polygon spatial layers. Demographic information included(1) 'total population' (total population), (2) 'median age' (median age of the total population), (3) 'percent minority' (all non-White, including Hispanic), (4) 'percent poverty level' (income in the past 12 months below poverty level divided by total households), (5) 'percent car to work' and 'percent transit to work' (means of transportation to work for workers- 16 years and older divided by total workers 16 years and older, for both cars and public transit), (6) 'percent with high school degree' (high school graduate divided by Total Population 25 years and older), (7) 'median household income' (median household income in the past 12 months, inflation-adjusted), and (8) 'percent receiving SNAP' (received SNAP past 12 months divided by total population). The 'total population' variable was included to measure the potential market reach. The variables of 'percent

minority,' 'percent poverty,' 'percent car to work,' and 'percent transit to work,' 'percent with high school degree,' 'median household income,' and 'percent receiving SNAP' were all used as potential proxies and differentiating characteristics of limited-resource populations who may have previously described resource and transportation constraints. The rationale of using these variables was to identify whether the CO-CSA pickup sites were meeting their intentions to reach customers from limited-resource populations and to see whether they were matching the sociodemographic characteristics of their customers.

Descriptive statistics, including counts, means, and proportions, were generated for all the previously described geospatial and sociodemographic variables, to compare the spatial context of pickup locations with customer home addresses. Results from customers, farms, and pickups sites were aggregated to facilitate comparison across spatial and demographic factors. One-way ANOVA was used to examine differences between farms, customers, and pickups for geospatial and sociodemographic variables. Analyses were conducted using RStudio Team (RStudio, 2016).

In-depth interviews were conducted with farmers after completion of the CSA season to understand their experiences with the season. Farmer interviews were examined to determine ways in which environmental or sociodemographic context may have influenced their experiences with a CO-CSA after the first season. Farmers were asked about their overall experience with the CO-CSA, facilitators, challenges, and changes they anticipated making for the following year. Farmers were not directly prompted to discuss spatial factors.

Focus groups were conducted with CO-CSA customers after their first season of participation in the CO-CSA to better understand their experiences. Customer focus group data were examined to determine the degree and impact of physical access and environmental context on their participation. Customers were asked about their experiences, challenges, and facilitators to participation, with probes about the influence of physical accessibility.

Interviews and focus groups lasting approximately one hour were conducted by study staff using semistructured questionnaires. Audio recordings were transcribed verbatim, a detailed codebook was developed, and transcripts were coded by independent double coders using AtlasTi (AtlasTi Scientific Software Development, 2018) (for farmer data) and NVivo qualitative data analysis software (QSR International Pty Ltd., 2012) (for customer data). Relevant quotes and themes were extracted from transcripts. A word cloud generator (https://wordclouds.com) was used to display keywords that were frequently men-

Table 1. Geospatial Characteristics of Environmental Context of Farms (*n*=12), Pickup Locations (*n*=16), and Customer Residential Locations (*n*=92)

Geographic Characteristic- Distance to Pickups or Farm	**Results** (average [avg], standard deviation [sd])		
Distance to pickup for customer		6.2 (5.1)	
Distance to farm for the customer		18.4 (11)	
Distance to closest pickup for the farmer		10.6 (11.3)	
Distance to furthest pickup for the farmer		13.1 (11)	
Geographic Characteristic-Environment	**Farm Locations**	**Pickup Locations**	**Customer Address**
Modified-Retail Food Environment Index (avg, sd)	---	7.6 (13.0)	8.8 (14.0)
Food desert (%)	---	13% (2/16)	46% (42/92)
Distance to SM (miles) (avg, sd)*	5.3 (4.0)	2.4 (3.1)	2.9 (3.1)
Number of supermarkets within 2 miles (avg, sd)	---	2.5 (2.3)	1.8 (2.1)
Walk Score (avg, sd)	10.0 (14)	40.0 (25)	26.3 (23)
Transit within 1 mile (%)	8% (1/13)	56% (9/16)	38% (35/92)

Note: 1 mile=1.6 kilometers

tioned in both the customer and farmer interviews (Cidell, 2010).

Finally, all domains in the conceptual model were combined to examine how each operation comprehensively aligned with the recommendations for the domains in the conceptual model and to see if the model constructs were potentially substantiated. Quotes from customers and farmers were summarized. The following variables were included for comparison with the summary of quotes: (1) customer distance to pickup, (2) farm distance to closest pickup, and (3) difference in percent of the poverty level between customer census block groups and pickup site census block groups.

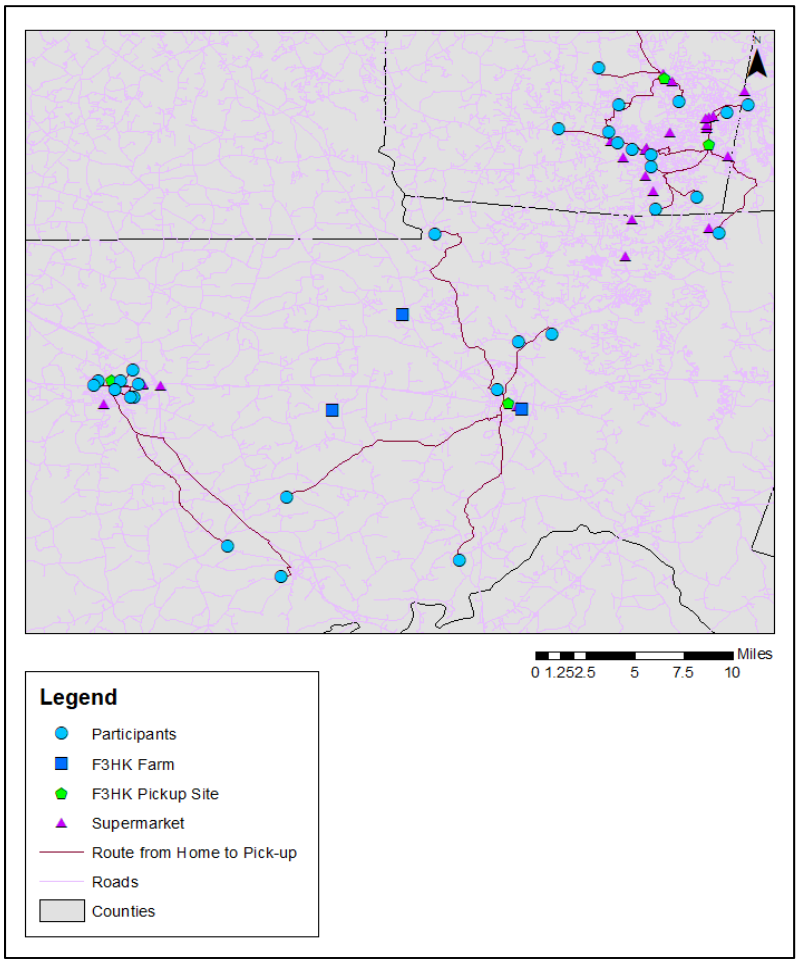
Results

The results of this study are grouped according to the domains found in the conceptual model (Figure 1).

Geospatial Context

The geospatial findings are shown in Table 1. Example maps are shown in Figures 2 and 3. The average distance from the customer's home to the pickup sites was just over 6 miles (9.7 km), which was twice the average distance from the customers' homes to the closest supermarket (2.9 miles or 4. 7 km). Farm locations were, on average, over 10 miles (16 km) from the closest pickup location, and over 13 miles (21 km) from their furthest pickup location, but there was a fair amount of variability in distance to the pickup location. Four of the 12 farms (33.3%) had on-farm pickups. Three of the farms were greater than 20 miles () from their furthest pickup. Farms were on average 5.3 miles or 5.3 miles (median=3.8; range=1.1–11.8; sd=4.0) from the closest supermarket, with pickup and customer residences around half that distance, which was the only variable with a significant difference across the three groups (pickup site, residential address, and farm address) (F=3.77701, p=0.02).

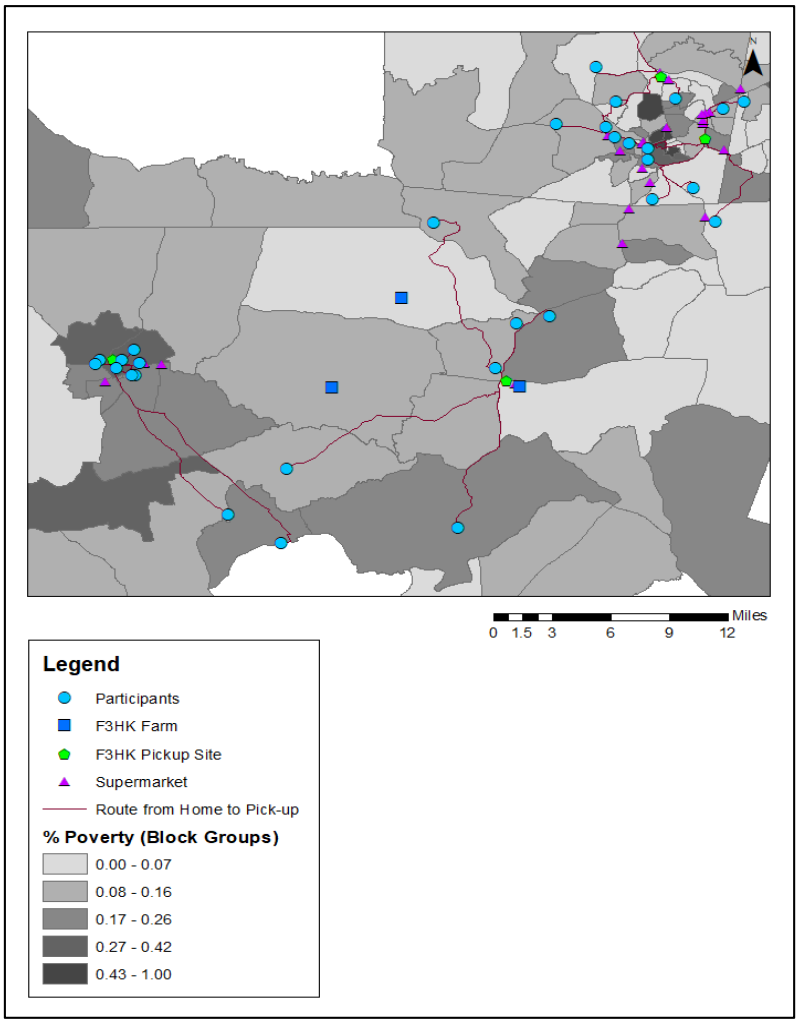
Figure 2. Map of GIS Road Network Analysis between Participant Addresses, Pickups Sites, Farmer Addresses, and Retail Food Stores at North Carolina Project Site



Sociodemographic Context

A summary of sociodemographic contextual findings can be found in Table 2. The average median household income for the pickup site location (US$48,113) was below the average U.S. median household income ($US57,617) and the average median household income for each study state (NY: US$62,447; NC: US$50,343 VT: US$63,805; WA: US$75,418), but above 185% of the federal poverty level for a family of four (US$44,995) (Guzman, 2017). Pickup sites on average were located in areas with 20% or less percent poverty, percent utilizing SNAP-EBT, and percent minority. The average age of pickup site block groups was less than 40 years old, and pickup sites were located in areas where citizens mostly

Figure 3. Map of GIS Analysis for Geospatial Characteristics of the Environmental and Sociodemographic Context of Farms, Pickup Locations, and Participant Residential Locations at North Carolina Project Site



drove for transportation with little public transit use. Pickup sites were located in areas with relatively lower median household income, higher poverty levels, lower age, and higher SNAP participation compared to the block groups where customers resided, but there were no significant differences across groups (pickups versus participants). Pickup sites and customer addresses were in areas where most people drive to work, and few people take public transit. Though not statistically different, pickup sites appeared to have greater transit opportunities and walkability compared to customer residential locations.

Farmer In-depth Interviews

Emerging themes from the farmer interviews included (1) realization of participant needs, (2) identification of ideal locations, (3) willingness and need to adapt the CO-CSA pickup from the typical CSA, and (4) impact on the viability of operations. Farmers identified that the CO-CSA customers often needed additional support, and when the pickup locations or time frames (related to location) may have made it conducive or challenging for some participants. Farmers mentioned strategies they took to improve customer access, including changing pickup locations or pickup times:

> Farmer 2 (State 1): "I offered to switch pickup locations. Just gave them a lot more flexibility and customer support…So I think I moved fairly far away from the traditional CSA model to a more customer service subscription model."

Farmers were able to identify locations that made their operations more viable, including locating the pickup in a more central and convenient location:

Farmer 22 (State 3): "… it [was] so much easier to have central locations. It was really good. People were really happy."

Farmer 13 (State 4): "I know just walking through the regional market, the downtown market [is not great] … There is virtually no grocery stores in that neighborhood. To be able to have a distribution point where people come with their WIC checks and EBT cards and not have to go out of their way to go to a market . . ."

Some farmers said they plan to offer more

flexible options in the future to better reach and increase convenience for participants, such as moving pickup sites or offering multiple time points and locations.

> Farmer 22 (State 3): "Well, we were talking about having the drop site at the [blinded] office [nonprofit offering services to low-income families]. I think that could change things and might make it more accessible to people—[with] a window of time . . ."

> Farmer 13 (State 4): "I found for some people between work and their kids getting out of school, the time frame of that market I don't think it was most convenient for quite a few of the members. So we are looking at a couple hour farm stand [with business owners] to distribute our CSA."

For other farmers however, this amount of additional effort was troublesome for the return on investment or too burdensome to be feasible from a business operations perspective:

> Farmer 43 (State 2): "So it was an issue to come pickup their food . . . And my perspective is we have three different times and places . . . But the way I was thinking of it was there's no other CSA in the area that's as available and flexible. I was just surprised in general the irritation with having to come get their veggies which in my head I was like, man, you've got a sweet deal, you should be psyched to come get these veggies."

> Farmer 2 (State 1): "We were not going to be able to sustain the program in the future because they required a substantial amount of additional legwork and organization and flexibility that just wasn't a great fit for our farm, and potentially could be difficult for any farm … The locations that we'd arranged were difficult."

Figure 4. Word Cloud Summary of Farmer Interviews

Figure 4 provides a word cloud summary of farmer interviews. Salient words included "locations," "flexible/flexibility," "time," "difficult," and "central."

Customers In-depth Interviews

CO-CSA customers mentioned spatial factors that affected their experience in positive or negative ways. Customers reported picking up their CSA shares at a variety of locations, including at the farm, the farmers market, and at commercial locations and community buildings, and often at more convenient locations than originally planned:

> PT 2 (State 1): "And it was not that bad for me because I work in [town] and I was able to pickup in [town] . . . [sometimes] they actually met me, like a mile from where I work which was really super nice of her to do that, so, it's pretty convenient for me . . . Oh, and I picked up a couple of times too at the [town] farmers market . . . Yeah, that was convenient."

Some customers felt that site pickup locations were adequate or even increased their ability to participate. Customers said it was easier to participate when the pickups were near their home or routine daily activities, and when pickups were flexible given distance and/or time constraints:

> PT 1 (State 4): "It's literally a mile from my house. It was very easy to just hop in the car, hop over there in the afternoon and then be done with it for the day. I know that's not the case for everyone."

> PT 3 (State 3): "I know that it did not apply to everybody, but for me it was convenient and I am sure that if I worked at a different place or worked at different hours it would have not been convenient."

> PT 1 (State 3): "It was really easy. . . I work right over by the [pickup site]. So getting here at the time that it was available was really easy."

Some customers characterized certain locations as ideal. For example, those with school-aged children appreciated having a pickup site near their child's school, and others mentioning the usefulness of a central location.

> PT 2 (State 3): "It was very conveniently located for me because it was right by the school pickup. Preschool pickup on the day—so I could pick my kids up and on the way back we would go because it would be about 4:00 and we kinda made an activity of it."

Others found pickup inconvenient due to spatial factors. Several customers mentioned barriers such as distance to the pickups, traffic, placement along travel routes, parking difficulties, and time and effort (related to distance) to the pickup site given their personal time constraints. For many customers, produce pickup was "too far out" or "an extra errand" requiring more "distance traveled":

> PT 7 (State 1): "I mean I think this side of town is a little far for me too because it was just out of the way after coming . . . because I would pick my oldest up from practice and then come all the way over here to go all the way back home . . . like it was basically a big circle around town. Gas money . . . First thing that comes to mind . . . or travel time . . . So this place for me was not a great location either."

> PT 2 (State 4): "For me our family only has one vehicle and my husband is at work until six. I make sure I'm able to get out at some point to the farm so that was kind of difficult, but we were able to work around it."

Some customers benefited from changes in pickup locations, which made it easier to get their share:

> PT 5 (State 3): "After it shifted to being able to get it downtown where there was a four-hour window it was super easy and comfortable and great . . . The thought of coming here [original pickup] seemed like such a hassle and so hard and stressful. After I went there I was like oh this is paradise, I love the experience. It totally shifted once that other option was given to me."

Customers mentioned several site locations that would increase accessibility to CSA pickups, including schools, homes, and central areas:

> PT 2 (State 1): "Or even if they could like come to our schools you know? We have to pick our kids up at school that would be an option . . . So we don't have to go out of our way. It's something we're already doing…Just make it a little more accessible."

> PT 4 (State 3): "It was sometimes difficult to pick them up . . . I would love to see the pickups . . . if you guys could deliver our boxes to us than that would be awesome. Then I would have a box every week . . . one time she left our boxes on our doorstep and that was so amazing . . . I think the program

deals with low-income people, that's my understanding, people that are really super low-income . . . everything is exponentially more difficult for us."

PT 7 (State 1): "Maybe Town Hall would have been a better place to pick it up because it's like literally in the middle of town and for people who are definitely in town it's kind of not out the way. It's the center of town. It's literally near everything. Everybody probably goes to there."

Figure 5 provides a word cloud summary of customer interviews. Salient words included "convenient," "distance," "time," and "location(s)."

Figure 5. Word Cloud Summary of Customer Interviews

Combined Domain Results

Table 3 stratifies data across all four domains of the conceptual model by farm, breaking out sociodemographic and spatial data from Table 1. In combining and comparing the four data sources, we found that farmer perceptions about their distribution approach generally matched CO-CSA participant feedback. This was particularly evident regarding discussions around the flexibility of pickup locations and times and which locations were more or less successful. Many participants acknowledged and appreciated the efforts farmers made to reach them; some farmers described those efforts as worthwhile, and some described them as too challenging to retain. Farmers and participants often agreed that additional pickup opportunities were necessary to improve accessibility. Some farmers mentioned that they planned to relocate pickups to the farm; on average, that would mean greater traveling distances for pickup for customers. Not all farmers provided feedback about pickup site locations; in those cases, participants had mixed experiences, with some finding pickup locations challenging in terms of distance or spatially related attributes like proximal parking, with others having no problems with pickup locations.

Sometimes, the customers' residences were close to the pickup locations and the two locations had similar sociodemographic profiles. In other cases, pickup locations were further away and differed in sociodemographic context than the customer's residential context. Comparing the geospatial and sociodemographic data with the participant data allowed for a greater understanding of why certain customers found the pickups accessible, while others had accessibility issues. Locations that were on average further away from customers or that had site-specific characteristics (e.g., traffic, crowds) often led to perceived challenges with accessibility, and locations with larger variation in travel distances resulted in mixed levels of perceived accessibility. Differences in pickup versus customer block group percent poverty did not appear to bring out any clear differences in perceived accessibility among the customers. Though farmers often acknowledged the challenges of their pickup sites, they rarely mentioned geospatial or sociodemographic factors, and in some cases proposed pickups sites further from customers. For example, multiple farms wanted to add an on-farm pickup, which would

Table 3. Synthesis of Customer Interviews, Farmer Interviews, and Geospatial/Sociodemographic Data

Farm ID	Customer Summary	Farmer Summary	Geospatial/Sociodemographic Variables [a] (Yes/No)
Farm 1 (State 1)	Customers were evenly split about the accessibility of pickup. Some described distance as a "challenge," while some described it as "reasonable" or "convenient."	The farmer said they offered to switch pickup locations to improve customer support but moved away from the traditional CSA model. The farmer did not think they could sustain the flexibility and legwork required for this population.	No
Farm 2 (State 1)	Most customers felt the pickups were not in the best location, mentioning distance, time, and traffic as barriers. Those who found it convenient lived close by or drove by from work.	The farmer mentioned that they expanded hours to give people more time to get there, that customers would ideally pick up at the farmers market for efficiency, but they were willing to add another pickup (if on the farm).	Yes
Farm 3 (State 2)	Most customers found the pickup site at the farmers market challenging due to the crowds. Those who picked up at the farm had a better experience.	The farmer mentioned that they try to be flexible through multiple pickup locations, more than other CSAs, but that they found meeting customer needs challenging.	No
Farm 4 (State 3)	Customer described it as convenient as it was near other shopping, and farmer made it easy to pick up share.	Farmer was interested in moving the pickup site to their fruit stand to make things more efficient for them.	No
Farm 5 (State 3)	Customers were evenly split on the accessibility of the pickups. Some found it "convenient" and "easy," whereas others said they "struggled" or found it "difficult" to get there. One customer found a shift in the pickup to a more accessible location making it "super easy" after originally finding it "hard and stressful."	The farmer mentioned that it was so much easier for them and the customers to have it at central locations and was planning on offering at another central location (near other resources) to make it more accessible.	No
Farm 6 (State 4)	Most customers found it convenient and accessible because it was near their home or work. One customer lived further away and called it a "haul" and a "challenge."	The farmer stated that they positioned the pickup near where their customers lived, which helped make it accessible to the customers.	No
Farm 7 (State 4)	All customers interviewed found the pick-up location convenient because it was near work or school. One mentioned that on-farm pickup would have been nice.	The farmer recognized that some members did not find it convenient and that they were considering an on-farm stand to distribute the CSAs given interest.	No
Farm 8 (State 4)	Most customers found the on-farm pickup challenging due to "distance" and "tim-ing," but one liked the on-farm pickup and found the pickup location "beautiful."	No relevant quotes	No
Farm 9 (State 2)	A customer found the location challenging to get to, especially given pickup times.	No relevant quotes	No
Farm 10 (State 2)	The customers found the on-farm pickup enjoyable but challenging since it was not convenient to their homes and work, citing "time" and "distance."	No relevant quotes	No
Farm 11 (State 2)	Customer opinion on accessibility was evenly split, citing location as a problem if they lived far away, or as a benefit since it was close to the school.	No relevant quotes	Yes
Farm 12 (State 3)	No quotes	No quotes	No

[a] Average customer distance to pickup ≤5 miles [3 km] AND difference in % poverty between customer and pickup block groups ≤20%.

have been about three times greater distance from the customers than the pickup location(s).

Discussion

This study examined the geospatial and sociodemographic context of CSA pickup locations, and the influence of accessibility on both producers' and low-income consumers' experiences and decisions. Examining geospatial and sociodemographic context, followed by synthesis with customer and farmer qualitative data, allowed for a more comprehensive understanding of the reasons why customers and farmers may have experienced challenges in participating with this type of DTC model. The mixed-methods approach used to synthesize findings across different domains may help elucidate strategies needed to optimize of DTC pickups for low-income customers, as theorized in the conceptual model (Figure 1).

Customers and farmers reported that certain locations were more accessible than others, citing spatial factors like "convenience," "distance," and "time," that impacted participation and operations. This is consistent with previous research by McGuirt, Pitts, Hanson, et al. (2018) that found pickup accessibility may be an important factor for participation in CSA programs among low-income individuals. We found that customers on average traveled further to their CSA pickup than they did to the closest supermarket. This may suggest that some customers were committed to participating despite the further distance traveled, or that the CSA was an extra shopping opportunity that complemented items obtained at the supermarket. Pole and Kumar (2015) would classify these customers as quintessential CSA members—those who would drive the extra mile to the pickup because they believe in the CSA model so much. It could also be that they really wanted and valued the fruits and vegetables offered by the CSA. The importance of pickups being convenient was mostly referred to in relation to location, but in some cases customers may also be referring to slightly different dimensions of access beyond accessibility, including availability and accommodation (Caspi et al., 2012). Thus, it may be a combination of these dimensions of access contributing to ease of pickup.

Customers mentioned the positive benefits of farm pickups, including aesthetics and experience. Research into general shopping behaviors indicates that customer satisfaction leads to increased loyalty (Suh & Yi, 2006), and this may be particularly true for CSA participants (Hunt, Geiger-Oneto, & Varca, 2012). In fact, the mere act of increased behavioral involvement may lead to more product satisfaction and loyalty in the CSA experience (Hunt et al., 2012). The impact of this on some low-income individuals is less clear, and financial factors may overcome this loyalty at some level. Some of our previous research indicated that low-income consumers' willingness to participate in a hypothetical CO-CSA program was reduced when the CSA was closer to the supermarket, given their familiarity with that shopping venue and opportunity to meet all shopping needs in one place (McGuirt, Pitts, Seguin et al., 2018. Thus, future efforts should further explore and more closely consider the location of CSA pickup sites relative to other food shopping opportunities to better understand the contextual factors for low-income consumers.

Examining the geospatial and sociodemographic results showed that pickup sites were often different in context from places where customers lived, which may have influenced participation. This aligns with the previously suggested assertions that local food systems opportunities often do not align with what may be needed to encourage marginalized populations to participate (Feagan, 2007; Hinrichs, 2000; Soja, 2013). Thus, future efforts should aim to improve accessibility for customers by considering the geospatial and sociodemographic context to encourage participation in these populations.

We found that some farmers mentioned taking geographic access for limited-resource populations into account for their operations. When selecting locations, farmers may have tried to address perceived community-level need and/or tried to reach the most population-dense areas to maximize convenience and reach larger venues with more people within a smaller radius. Future research should focus on further understanding farmer-level factors for determining site location of DTC pickup locations. Multiple farmers also suggested that they had to modify their typical CSA operations for lower-

income customers. Similarly, research by Andreatta, Rhyne, and Dery (2008) found that farmers required similar adjustments to the accessibility of operations in order to reach reaching low-income individuals with CSA programs.

This study raises important questions about how much accommodation can and should be made by farmers in terms of the number and location of CO-CSA pickup sites given the realities farmers face keeping their business operation economically viable (Galt, 2013). While reaching a new market of customers may increase sales, it also may increase the costs and time needed to distribute to the new market. Multiple farmers mentioned that they were considering moving some or all their distribution sites back to the farm to make their operations more efficient and profitable. In turn, that may increase challenges in terms of physical access to the farm's product, especially for low-resource populations, who may find traveling out to the farm more challenging given the time and costs related to personal vehicle travel and (lack of) public transportation availability in the non-urban settings where farms are often located (McGuirt, Pitts, Seguin., et al., 2018; Walker et al., 2010). Future research should specifically explore the influence of transportation access and modes, including the use of public transit, on the ability of low-income individuals to access CSA pickup sites.

Another important finding of this study is that it is possible to find synergies in pickup location and distribution strategies that work for both the producer and the consumer. Customers mentioned the convenience of sites near schools and other shopping opportunities. Additional examples may include delivering to large worksite areas, daycares, after-school programs, community centers, and churches. If pickups are in more challenging locations (e.g., heavy traffic, limited parking), providing an increased window of time to pick up shares or offering pickups on multiple days would likely improve overall accessibility. Notably, farmers who mentioned making pickup sites more accessible to consumers either saw or anticipated benefits from doing so.

While combining and comparing customer and farmer feedback with geospatial and sociodemographic data may allow for more comprehensive triangulation of factors influencing customer participation and farmer operations, more work needs to be done to determine the best way to bring these data together. This novel approach comes with its own conceptual challenges and thus should be further explored, refined, and validated. This includes the need to figure out how to best interpret these differences across sites given different contexts. For example, comparing perceived accessibility with geospatial accessibility across locations can be challenging, as a distance described as "far" may be different for people across different contexts. While the impact of geospatial factors, like the road network distance to the pickup site, seems relatively clear, the use of sociodemographic data is less clear. For example, how impactful is the discrepancy in the sociodemographic context of pickup site versus customer residence? Our study did not find clear issues with perceived accessibility by differences in customer versus pickup block group percent poverty. There has been discussion that there are clear cultural differences and paradigms that have led to the exclusion of people of color from alternative food systems (Guthman, 2008), but determining the proper way to measure this impact remains unclear, particularly in the context of the accessibility of local food systems mechanisms like CSAs, which are built on social interaction and trust (Hinrichs, 2000). Thus, future research should fully investigate data across all four domains to clarify the impact of access on participation, including the use of latent variables, effect moderation, and factor analysis.

While 'location' is emphasized in this paper, it may be one of many factors in consumer decision-making. For example, according to Zepeda and Deal (2009), price, location, and demographics are factors that mediate the underlying relationship between values, beliefs, and norms that are the real drivers of purchase behaviors. The setting may also be important. Picking up at a location perceived to be "elitist" might result in lower participation than pickup locations that are familiar (DeLind, 1999). Thus, the sociodemographic context of distance and area is important but may be one of the multiple factors associated with customers' satisfaction and willingness to participate in CSAs.

The limitations of this study include the small sample size, which limited analytical opportunities and generalizability. However, this study did examine CO-CSA operations across four U.S. states (NY, NC, VT, WA) with operational decisions determined by farmers, and thus may represent diverse experiences. A few of the focus groups had low participation, and participant focus group feedback may only represent those who stayed actively engaged in the program. Those who did not maintain participation in the CO-CSA program and/or did not participate in the focus group may have greater challenges with spatial factors regarding participation, and thus feedback on pickup challenges may be underrepresented. The study also fills important gaps in the field and has several notable strengths. The strengths include the mixed-methods approach integrating qualitative and quantitative data; the examination of varying aspects of the food system, including producer, consumer, and environmental context; and the use of geospatial analytics. Future research could compare location and pickup timing with other competing priorities that low-income/CO-CSA customers have (i.e., price, quality, other CSA characteristics, children's extracurricular activities, and work) to participating in CO-CSA programs. Future research should also compare low-income/CO-CSA customer priorities with priorities of higher-income/conventional CSA customers to examine for differences in priorities.

Conclusions

Our findings concerning customer and farmer perceptions on CO-CSA pickups in light of the surrounding sociodemographic and geospatial contexts suggest that there are multiple challenges and opportunities to making these DTC programs accessible for low-income populations. We suggest key domains that must be considered when optimizing a CO-CSA program for low-income individuals: (1) For customers: physical and financial accessibility to the CO-CSA; (2) For farmers: making CO-CSA operational decisions that increase accessibility, (3) For the geospatial context: must be convenient and consider the food store environment, and (4) For the sociodemographic environment: should be similar to the customer environment to maximize connectivity. The findings of this study and the conceptual model proposed may help inform future work related to DTC operations targeting low-income individuals by understanding the sociodemographic and geospatial environmental contexts. This field of research would benefit from a focused examination of the influence of the spatial context on this type of operation. There may be a need to test approaches to increase farmers' awareness of low-income populations' needs for accessibility, including developing an approach to help farmers better evaluate the context of the market environment for low-income customers. This might include operation optimization models that help balance consumer and producer needs. Such research could help ensure that DTC operations, such as CO-CSAs, remain economically viable and profitable, while also reducing food injustice by improving equitable access to fruits and vegetables among all populations.

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A place-based turn in multifunctional agriculture: The case of Italy's Garfagnana region

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Abstract

The Garfagnana region of Tuscany has witnessed a resurgence in the small-scale farming sector. Rooted in a historical practice of multifunctional agriculture, over the last decade family farmers and local institutions have increasingly focused on place-based development initiatives, such as revalorizing native livestock breeds and promoting agroecological practices, as ways to strengthen small-scale agriculture and the local rural economy. This place-based turn is now reshaping the development trajectories of many family farms and communities in Garfagnana.

Drawing on qualitative field research conducted in 2015, this paper utilizes the sociological conceptual lenses of multifunctional agriculture and place-based development to analyze three case-study farms, each with different production systems and territorial relations. Multifunctional agriculture theory is used to analyze how farming practices in the three case-studies represent a range of adaptive shifts away from productionist trends and toward a more diversified farming approach. Then place-based theory is used to demonstrate how these multifunctional agriculture practices relate to the distinct socio-ecological landscape of Garfagnana, uniquely rooting these farms in the territory. This article ultimately examines how new forms of multifunctional agriculture are fostering a place-based food and agriculture system in central Italy and how this approach can strengthen family farming and rural communities.

Keywords

Family Farming, Multifunctional Agriculture, Place-Based Development, Territorial Development, Agroecology

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Author Note

The views expressed in this paper are those of the author and do not necessarily reflect the views of the Food and Agriculture Organization of the United Nation.

Introduction

The Garfagnana region of northern Tuscany, located between the Apuan Alps and the Apennine mountain ranges of central Italy, has witnessed a resurgence of the small-scale family farming sector.[1] Despite the general trend in Italy (and, more broadly, in Europe) of rural abandonment and agricultural concentration since the 1980s, much of the farming sector in Garfagnana continues to be oriented toward small-scale production. This development trajectory is a result (in part) of efforts by local farmers and institutions both to strengthen historically rooted agricultural practices and values and adapt these practices to new socio-economic and environmental dynamics in the territory[2] (Camilli & Pieroni, 2016; Rovai & Andreoli, 2016). With growing European socio-political recognition of the diverse social, environmental, cultural, and economic roles and functions that small-scale agriculture plays in rural communities, Garfagnana has been increasingly recognized for its family-farming sector and approach to community-oriented development as a potential model for other regions. Academic research in Garfagnana has illustrated some of these dynamics, using multifunctional agriculture theory. But continued adaptive changes by farmers in Garfagnana, particularly over the past five to ten years, are not effectively explained by this theory. Therefore, building on past research on the multifunctional nature of the Garfagnana farming sector[3], this paper argues that multifunctional agriculture in Garfagnana is increasingly taking a place-based turn, which is reshaping the development trajectories of many family farms and communities in the territory.

Drawing on qualitative field research conducted primarily in 2015, this paper utilizes the sociological conceptual lenses of multifunctional agriculture and place-based development to analyze three case-study farms, each of which demonstrate different elements of place-based multifunctional agriculture in Garfagnana. For this analysis, multifunctional agriculture theory is used to consider how each case-study farm represents a range of adaptive shifts away from agricultural productionist trends, and toward a diversified farming approach oriented around non-capitalistic practices. Place-based theory is used to demonstrate how these multifunctional agriculture practices engage local histories, relationships, and materialities to embed farms in place-based identities and geographies, and in turn reshape community development trajectories in Garfagnana. The core research question therefore focuses on how new forms of multifunctional agriculture in Garfagnana are fostering a place-based food and agriculture system. In exploring this question, the paper's contribution to this field of study is to deepen understandings of how multifunctional agriculture is changing and becoming increasingly relational (in terms of socio-ecological relations) and place-based, as well as provoking discussion of how these emerging forms of community-based development (in terms of practices, relations and policies) can support the family-farming sector.

Theoretical Framework

Two theoretical lenses are used to analyze the case-study farms and build the argument for a place-based turn in the multifunctional agriculture practices of Garfagnana. A dual lens approach has been chosen in part to recognize criticism of multifunctional agriculture theory as too narrow in its analytical scope, focusing primarily on on-farm activities while leaving conceptualization of the off-farm context under-analyzed (Cairol et al. 2009; Huylenbroeck, Vandermeulen, Mettepenningen, & Verspecht, 2007). By coupling multifunctional agriculture theory with place-based theory, this paper aims to illuminate how on-farm practices are

[1] For the purposes of this paper, 'small-scale,' 'family,' and 'peasant' agriculture are used interchangeably. This is due to the fact that the farmers interviewed for this research in Garfagnana used 'family farmer' and 'small-scale farmer' terminology to describe themselves. The term 'peasant' is used here in reference to the extensive literature on new peasantries in Europe (primarily inspired by the work of J.D. van der Ploeg), which both informs the theoretical framework and closely relates to the farms of this research.
[2] For the purposes of this paper, the term 'territory' is conceptualized as a dynamic socio-ecological area of cooperation, defined loosely by local actors in that area (Bocher, 2005). For further discussion see Cairol, Caudel, Nickel, Caron, and Kroger (2009).
[3] For additional research on multifunctional agriculture in Garfagnana, see Camilli & Pieroni (2016); Mantino & Vanni (2018); Rovai & Andreoli (2016).

"embedded in new networks" (Ploeg & Roep, 2003, p. 4) of the off-farm territory, and provide a new perspective on multifunctional agriculture and place-based development in the Garfagnana context.

The first theoretical lens of this paper is multifunctional agriculture, which takes a holistic perspective on agricultural practices by recognizing the intersectionality of farming in providing socio-cultural, environmental, and economic benefits, as well as material sustenance, to producers and rural communities (Huylenbroeck et al., 2007). According to Cairol et al. (2009), multifunctional agriculture theory "differs from other approaches in that it takes the interrelations between several functions fulfilled under the umbrella of a single activity… [and]… places these interrelations centre-stage" (p. 275). The theory emerged into mainstream research and policy circles in Europe in the early 1990s as a response to the reductionist perspective of farm transition theory and the narrow productionist goals of the Common Agriculture Policy's agricultural modernization agenda in Europe (Cairol et al., 2009; Ploeg & Roep, 2003). As the concept evolved in both academic and policy circles, Wilson (2008) developed a more defined theoretical framework for multifunctional agriculture, emphasizing a spectrum of productionist and non-productionist activities with social, environmental, and non-capitalist characteristics, which can be evaluated at the individual farm level (Cairol et al., 2009; Ploeg & Roep, 2003). In this framework, Wilson (2008) described the main characteristics of strong multifunctional farms[4]:

- Strong social, economic, cultural, moral, and environmental capital
- Strong tendency for local and regional embeddedness in local governance structures
- High environmental sustainability
- Focus on relocalized agro-food chain
- Low farming intensity and productivity
- Production of foods with high, often regionally based, symbolic characteristics
- Farm diversification activities that lead to reduced farm production activity
- Weak integration into the global capitalist market
- Substantial changes in the expressed philosophical understanding of the role of farming outside of traditional productivist food and fiber activities

Wilson (2008) acknowledges that these characteristics of multifunctionality "may often represent a theoretical ideal rather than a fully achievable goal. . . . It would be rare to achieve strong multifunctionality for all indicators highlighted above" (pp. 2–3). Thus, a farm does not have to exhibit all the multifunctional characteristics to be considered a strong multifunctional farm.

In addition to its contribution to rural sociological theory, the concept of multifunctional agriculture "has become a leading paradigm for creating a framework for explaining policy actions, mainly in Europe" (Huylenbroeck et al., 2007, p. 24). Perhaps most significantly, the reform of the Common Agriculture Policy in 2000 adopted language recognizing multifunctional farming as part of European agriculture systems (Huylenbroeck et al., 2007; Knickel, Renting, & Ploeg, 2004; Wilson, 2007). This policy history is relevant to this research for two reasons: first, following the inclusion of multifunctional farming in the 2000 Common Agriculture Policy reform, the Italian government placed significant emphasis on the concept in its national and sub-regional agriculture policies, linking multifunctional agriculture to the concept of territoriality and sustainable agricultural development in an effort to strengthen the country's investment in small-scale and diversified farms (Cairol et al., 2009). Second, as discussed below, local government institutions in Garfagnana have played an increasingly important role in supporting multifunctional and place-based agricultural initiatives, which again must be considered within the broader policy environment of the Common Agriculture Policy and its promotion of multifunctional agriculture across the European Union.

The second theoretical lens of the paper draws on place-based theory to analyze the case-study farms and their relational links with the broader

[4] Wilson (2008) contrasts weak agricultural multifunctionality as being the inverse of these characteristics (p. 2).

territory. Place-based theory is diverse, drawing on a wide range of perspectives from feminist, rural sociology, and political geography literature (Healey & Jones, 2012; Massey, 2004). The cross-pollination of these disciplines in place-based theory has fostered new ways of understanding place, moving away from seeing place as a static topographic space to reconceptualizing it as a more fluid and heterogeneous network of social relations and practices linked across geographies (Halfacree, 2014; Harvey, 1994; Massey, 1994, 2005; Ray, 2002). For example, Massey and Escobar have articulated place as a "dimension of multiplicity" (Massey, 2004, p. 14) which is "constituted by sedimented social structures and cultural practices" (Escobar, 2001, p.143) and emplaced or enacted through the individuals that identify with that place (Escobar, 2001). Likewise, Pickerill and Chatterton (2006) state that places are open "entanglements and configurations of multiple trajectories, multiple histories" that are "always contested and fractured, contradictory, and overlapping" (pp. 736–737). These more fluid and relational perspectives on place have allowed issues such as power hierarchies and rural identities to be more explicitly examined in research related to agriculture policy and rural development.

In addition to these socio-cultural components of the concept of place, there is also an important socio-ecological element in place-based theory, emphasizing how natural resources and economies of exchange shape places. A relevant academic perspective is that of Richardson and Weszkalnys (2014), who see natural resources not simply as static goods or assets that societies exploit through extraction, but, rather, conceptually as materialities, to which society gives (social, economic, and cultural) value and thus are "always informed by the historical, social, and material environments within which resource matters are constituted" (p. 15). As societal (re)valorization of different natural resources changes over time, natural resource economies in turn shape societal identities and socio-ecological relations in different ways. Therefore the interaction between natural resources and society is relational and always in flux: "The processes of resource extraction generate a constant reworking of the boundaries between nature and culture" (Richardson & Weszkalnys, 2014, p. 8). This conceptualization of natural resources is closely linked to the relational socio-cultural understandings of place discussed above. The common threads among these place-based perspectives coalesce around the idea that places are dynamic territorial fora (with loose ecological boundaries) in which identities, practices, relations, and materialities are negotiated, shaped, and exchanged.

This paper uses multifunctional agriculture and place-based theory complementarily, illustrating that for many of the Garfagnana case-study farms, socio-ecological relations in the form of non-productionist farming practices are changing, often increasingly linked to the specific socio-ecological geography of the territory. At the same time, the socio-cultural boundaries of Garfagnana are being increasingly shaped by these emerging place-based agro-ecological practices, particularly as local institutions seek to promote a territorial (agricultural) identity. While multifunctional agriculture theory examines social, economic, cultural, moral, and environmental capital at the farm level, this analytical approach does not adequately capture these territorial dynamics in Garfagnana and falls short in explaining how socio-ecological relations shape farm practices and regional development trajectories. Place-based theory thus plays an important role in understanding how multifunctional agriculture practices in Garfagnana are embedded in a broader territorial shift toward place-based development, by examining the values of farmers and their relations to the land, agriculture, and broader communities.

Methodology

The three case-study farms of this research were analyzed for practices of multifunctional agriculture and place-based characteristics. The farm data for this analysis was collected through mixed-method qualitative research, based on the Rapid Rural Assessment methodology (McCracken, Pretty, & Conway, 1988). First, the three case-study farms were selected from a larger set of six rural enterprises in Garfagnana visited in July 2015. The three farms, Maestà della Formica, Azienda Agricola Cerasa, and Societa' Agricola Filippi, were chosen because each exhibits different characteristics of

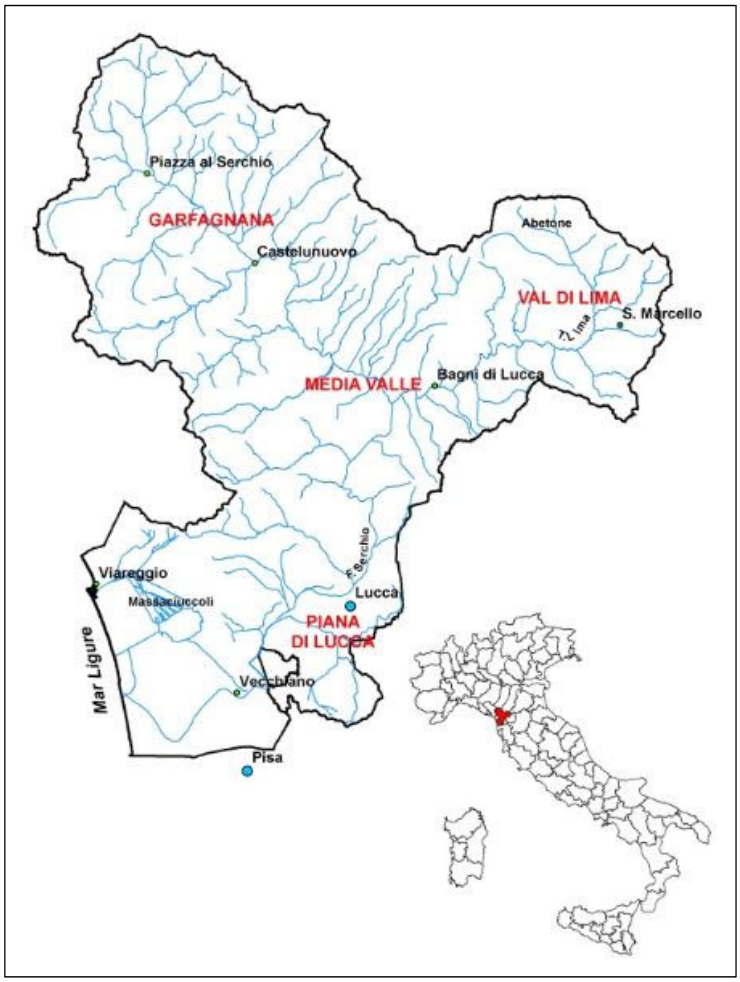
agricultural change, but also represents the ongoing territorial shift toward place-based multifunctional agriculture in Garfagnana. Each farm was visited by the researcher in July 2015, and farmers were asked semi-structured interview questions in both focus group sessions and one-on-one conversations. In almost all cases, a translator was used to interpret farmer responses from Italian to English.

In addition to the farmer interviews, this paper also draws on qualitative information collected through interviews with other agricultural stakeholders, such as local administrators and agronomists in the region.

Because almost all data received from the interviews was provided through personal narrative, a Discourse Analysis method was used to analyze these narratives in ways appropriate to this paper's theoretical framework. Discourse Analysis is a broad method that analyzes the meaning behind forms of verbal expression, such as word choice, and non-verbal expression, such as responding to a research question with emotion or change of subject (Gill, 2000). Discourse Analysis was chosen to analyze the interview data because the method pairs well with semi-structured interviews; both illuminate how interviewees emphasize issues such as environmental philosophy, personal values, and cultural tradition. Because the research examines potentially sensitive issues such as farm economic stability, personal identity, and community relations, pairing Rapid Rural Assessment methodology with Discourse Analysis was considered effective for capturing all the ways that communication is used to give meaning to these issues, and filtering these responses through the paper's theoretical framework.

Finally, preliminary results of this research were presented to the interviewees and other agricultural stakeholders at a public forum in Garfagnana on July 31, 2015, in which the stakeholders provided feedback and confirmed the trajectory of the research. Follow-up interviews, additional literature review, and online research followed the field research period.

Figure 1. The Garfagnana Territory, Located in the Northwest Corner of the Province of Lucca, Tuscany



Source: Autorità di Bacino Pilota del Fiume Serchio (n.d.).

Historical Socio-ecological Dynamics and Agricultural Practices in Garfagnana

The mountainous geography of Garfagnana has historically differentiated it from the rest of Tuscany, with important implications for the family farming systems of the territory. The 15 municipalities of Garfagnana are nestled among jutting mountains of the Apuan Alps and the Apennine mountain ranges, which accounts for more marginal soils associated with erosion-prone areas (Figure 1). This geography permits limited consolidation of contiguous farmland and has led

to small farm plots, restricting the extensive olive, wheat, and vineyard production found in other parts of Tuscany (Camilli & Pieroni, 2016; Mantino & Vanni, 2018). For the small-scale family farmers who historically have inhabited Garfagnana, this geographical constraint can be considered a mixed blessing: the terrain has reduced competition between smaller and larger producers over access to land, but limits successful small-scale producers from scaling up their enterprises.

Over the past century, the ways in which small-scale farmers have adapted to this geography have changed dramatically. In the early 1900s, the territory consisted primarily of small-scale subsistence sharecroppers, cultivating chestnuts, barley, potatoes, and small-scale livestock for home consumption (I. Poli, personal communication, July, 2015). Standards of living were low, pushing many families to emigrate from Garfagnana in search of employment opportunities, beginning in the 1920s. With the rise of Fascism in Italy and the beginning of World War II, the Italian government began to prioritize domestic food security, in particular the production of wheat (I. Poli, personal communication, July, 2015), through subsidized agricultural production. In Garfagnana, the government support led to extensive agricultural cultivation of commodity crops on marginal lands, causing the mountainous environment to be cultivated "like a garden," despite it being ill-suited for these practices (I. Poli, personal communication, July, 2015). The war economy temporarily sustained the rural communities of Garfagnana (which still remained relatively poor), but with the end of World War II, the Italian economy collapsed, the wheat subsidy system ended, and much of the agricultural infrastructure in the region was destroyed.

With the collapse of the wheat market, many Garfagnana family farmers re-oriented toward more diversified and subsistence-based production systems, although their efforts were challenged by limited government support and lack of adequate agricultural infrastructure. By the 1950s and 1960s, in part due to economic stimulus from the Marshall Plan[5], new mining and metal industries developed in the regions of Tuscany south of Garfagnana, drawing a second wave of emigration out of the territory (I. Poli, personal communication, July, 2015). Since the 1960s, the population of Garfagnana has decreased 34% while the population of Tuscany as a whole has increased (I. Poli, personal communication, July, 2015; Rovai & Andreoli, 2016). This emigration corresponds closely to sharp decreases in the number of farms (72.9%) and amount of Utilized Agricultural Area (54.3%) in Garfagnana from 1982 to 2010, again at rates higher than the Tuscan average (Rovai & Andreoli, 2016). During this period a significant amount of marginal agricultural land in Garfagnana, previously supported by World War II Fascist agricultural subsidies, was abandoned and left to become unmanaged forest, which remains today (I. Poli, personal communication, July, 2015; Rovai & Andreoli, 2016). The depopulation trend in Garfagnana over the past 50 years has contributed to the shift toward place-based multifunctional agriculture in two ways. First, the relationship between rural Garfagnana communities and the growing prominence of the encroaching unmanaged forest is viewed by local farmers, politicians, and academics very negatively. Many elders in Garfagnana remember when the landscape was more thoroughly managed in the 1940s and 1950s, such as a local agronomist who characterized the expansion of the forest as "shameful" (I. Poli, personal communication, July, 2015). This current loss of control over the landscape is associated with increases in erosion, flooding, destruction of agricultural land and harvests by wildlife, and a general lack of societal orderliness (I. Poli, personal communication, July, 2015). Wilson (2008) characterizes this phenomenon of comparing agro-ecological management systems, with associated strong moralistic values, as "system memory" in which "a system carries with it the memory—or in a more negative sense the 'baggage'—of previous decision-making trajectories (including missed opportunities and 'wrong' pathway choices but, at times, also highly

[5] The Marshall Plan was a U.S. development initiative, championed by Secretary of State George C. Marshall, to rebuild the infrastructure and economies of Europe after World War II. The Marshall Plan was implemented through the Economic Cooperation Act of 1948 (www.archives.gov/exhibits/featured-documents/marshall-plan).

'positive' choices)" (p. 11). In this case, the generations that remember the past agricultural productionist history of Garfagnana view it highly positively, and all current agricultural development pathways are compared to that period. As a consequence of this socio-ecological 'system memory', efforts by new farmers to reclaim abandoned agricultural land are generally supported by the local community, as they are considered part of a process of re-establishing societal control over an unmanaged nature. Second, in more practical terms, the increased proximity between the Garfagnana communities and the unmanaged forest has impacted farmer practices. Local agronomists explained that with the growth of the forest, a denser tree canopy has increasingly blocked sunlight from reaching the forest floor. This has led to fewer forage plants for forest animals and pushed the wildlife into agricultural areas in search of food, causing significant damage to crops (I. Poli, personal communication, July, 2015). This ecological process has had a range of impacts on farmers, including forcing farmers to invest more in costly fencing to keep wildlife out of fields (Maestà della Formica, personal communication, July, 2015); changing the variety of wildflowers in the area, altering the traditional flavors of locally produced honey (A. Pieroni, personal communication, July, 2015); and, for some farmers, creating access to new wild forest products, which have offered new market opportunities (Maestà della Formica, personal communication, July, 2015). Considering these historical demographic changes and their impacts on socio-ecological relations, the following three case-study farms illustrate how family farmers in Garfagnana are engaged in place-based multifunctional agriculture.

Place-based Multifunctional Agriculture through Three Case-Study Farms

Reshaping Historical Nature-Society Dichotomies Through Agroecological Practices

The first case-study farm is Maestà della Formica, a one-hectare farm located on a large mountain plateau surrounded by the Parco Alpi Apuane (Park of the Apuan Alps), near the village of Careggine. The farm is run by three young men who produce high-quality fruits, grapes, and nuts, which they process into jams, syrups, pickles, candies, fruit spreads, and Riesling wine, which are sold locally and in regional markets in the nearby city of Lucca, where the farmers are originally from. The farm is in its infancy, having been started in 2012, but is perhaps this study's best example of place-based multifunctional agriculture.

Maestà della Formica's geographical position is an important factor in shaping a range of its multifunctional and place-based characteristics. The farm is on reclaimed agricultural land surrounded by the Parco Alpi Apuane. The farmers indicated that this location has been instrumental in gaining strong support from the local community because their agricultural activities are viewed as a kind of revalorization of an area that had been gradually taken over by the Parco Alpi Apuane forest. The farmers emphasized that approval from the local community was an important form of social capital for them and helped to sustain their farm in non-capitalist ways, such as by receiving favors and non-monetary support from community members and increased word-of-mouth marketing of their products. The farmers characterized the support as particularly important because they did not grow up in the community, which they said is insular and usually hesitant to accept outsiders. The community thus sees Maestà della Formica as a buffer between wild nature and organized society, providing a kind of public good to the community. This symbolic intermediary role of the farm in the local community's historical relationship with the surrounding forest in turn provides the basis of the farm's strong social and environmental capital. Furthermore, this role embeds the farm in the community by shaping its socio-ecological relations in the territory.

Maestà della Formica can also be characterized as a multifunctional farm in terms of its on-farm production practices and weak integration in capitalist markets. Although immersed in a community culture that views nature as an adversarial force to be managed, the farmers have a more balanced relationship with the environment, as reflected by their agroecological practices. The three farmers emphasize their strong biodynamic philosophy, which promotes a reciprocal relationship with

nature by never applying chemicals to crops, using very limited organic farm inputs, and building soil fertility. On a practical level, the farmers choose to practice biodynamic agriculture for the clear environmental benefits (i.e., greater environmental capital), which they claim improves their farm through better yields, improved soil-water retention, reduced risk of erosion, and diminished costs of agricultural inputs. But while the Maestà della Formica farmers invest heavily in these biodynamic practices, in which nature is seen as a regenerative "partner" in agricultural production, they do so with an interestingly non-capitalist orientation. Although the farmers could potentially receive higher market prices with the Bio/Organic or Biodynamic market labels, they choose not to use them. Their reasoning for this choice involves their attention to striking a balance between their goals of investing in agroecological practices and maintaining close community relations in their village. For example, when engaging with older agronomists in the community, the farmers found that these more conventional local experts advised them against biodynamic practices, which they did not see as 'modern.' Publically ignoring the advice of the local agronomists would potentially negatively impact the young farmers' reputation in the community, but at the same time they were unwilling to give up their biodynamic philosophy. To mediate this situation, the farmers chose to maintain their agroecological practices, thereby benefiting from strong environmental capital at the farm level, but not to market their products with these labels so as not to oppose the local agronomists publicly. From a multifunctional theory perspective, this approach of investing in socio-ecological sustainability and social capital over potential profits from market labels is closely in line with the multifunctional characteristics of weak integration in capitalist economic systems and investment in environmental capital discussed by Wilson (2008).

In addition to its environmentally sustainable production practices, Maestà della Formica aligns with the multifunctionality characteristics of low productivity and farm diversification (Wilson, 2008). The farm produces on only one hectare of land and does not use intensive production techniques: it produces on average 3,500 liters of berries and nuts per year from 5,000 plants and trees (Maestà della Formica, personal communication, July, 2015). This limited production does not economically sustain the livelihoods of the three farmers, but the farmers have found innovative ways to diversify their farm activities to create non-productionist income streams and reduce farm processing costs. For example, being located close to the Parco Alpi Apuane, the farmers have developed a business relationship with the park administration to trade educational lectures on sustainable farming and cooking techniques for park visitors in exchange for use of park buildings for processing their fruits. In this way, the farmers build social capital with the local administration and diversify their farm activities. Furthermore, this education role expands the activities of farm in its relations with the broader public, enabling the farmers to act as kind of spokespeople for the territory's sustainability-oriented agricultural community.

In summary, Maestà della Formica demonstrates several strong multifunctional characteristics through its investment in biodynamic farming practices, low productivity and farm diversification strategies, and weak integration in capitalist markets. While all these practices illustrate the farmers' multifunctional approach, their place-based nature is unique. By carefully positioning themselves as intermediators between the community and the Parco Alpi Apuane forest, the farmers are able to strengthen their social relations with the community without having to sacrifice their biodynamic approach to farming and their relations with the local ecosystem. In this way, the farmers are gradually shaping local perceptions of family farming as well as community socio-ecological relations.

Revalorization of Territorial Resources and Engagement with Local Institutions

The second case-study farm is Azienda Agricola Cerasa, located on seven hectares in a remote and mountainous area of the municipality of Pieve Fosciana. The main activities of Azienda Agricola Cerasa are sheep breeding, wool processing, and production of cheese and lamb. The farm also runs a small restaurant and carries out a number of cultural activities, including educational visits for

schools. Eco-tourists make up an important segment of Azienda Agricola Cerasa's customer base (Azienda Agricola Cerasa, personal communication, July, 2015; Camilli & Pieroni, 2016). Established in the early 1970s, Azienda Agricola Cerasa began as a diversified small-scale livestock farm, raising sheep for milk (mostly for pecorino cheese), wool, and meat, which was typical of many small-scale family farms in Garfagnana. But in the 1980s, the Italian livestock sector began to be more concentrated, with larger producers pushing many small-scale farmers out of the sector and forcing others to adapt to the more competitive market environment by changing production techniques or scaling up production (Camilli & Pieroni, 2016; Societa' Agricola Filippi, personal communication, July, 2015). As part of this trend, most small-scale sheep farms in Garfagnana, including Azienda Agricola Cerasa, began breeding non-native varieties of sheep that produced more milk, in order to specialize in cheese production. These productionist and specialization strategies by small-scale livestock farms led to a decline of over 93% of the original stock of the indigenous variety of Garfagnana sheep over the past 60 years, from 60,000 animals to approximately 4,000 today (Azienda Agricola Cerasa, personal communication, July, 2015; Camilli & Pieroni, 2016). Thus the abandonment of the local breed of Garfagnana sheep, traditionally used for different products and markets, coincided with the loss of diversification, both in terms of products and livestock genetics, on family farms in the region, which in turn became arguably less multifunctional and less place-based. In the case of Azienda Agricola Cerasa, despite these productionist and specialization strategies, the farm struggled to compete economically. So in the early 2000s, the farmer-owners of Azienda Agricola Cerasa decided to partner with local institutions in Garfagnana to implement a number of radical changes in the practices and management of the farm to move toward a more place-based multifunctional agriculture system.

In 2004, the Garfagnana Union of Municipalities decided that reintroducing and revalorizing the indigenous Garfagnana sheep breed would be a local government priority, in an effort to preserve the cultural and bio-genetic heritage of the region and strengthen the territory's family farming sector (Azienda Agricola Cerasa, personal communication, July, 2015; Camilli & Pieroni, 2016; Mantino & Vanni, 2018). In interviews, the President of the Union of Municipalities stated that the Garfagnana sheep represented an important part of the agricultural and cultural history of the area. In his perspective, the Union's effort to reintroduce the breed is a symbolic reclamation of this history as well as an effort to build the cultural capital of the territory as a public good. To support this priority, the Union of Municipalities made European Union Common Agricultural Policy funds available to 15 farms willing to shift toward sustainable agriculture practices linked to the territory. Under this program Azienda Agricola Cerasa received public funding to reintroduce and breed the traditional variety of Garfagnana sheep to the region. In 2015, a decade into the program, the farm had 90 sheep, which the farming family indicated was the most sustainable carrying capacity of the farm's mountainous landscape. Given this low farm productivity, the Union of Municipalities agreed to support the income of the farm by providing 80 euros per sheep per year to the farm, representing an important source of (public) revenue for Azienda Agricola Cerasa. This effort toward revalorization of traditional indigenous breeds by Azienda Agricola Cerasa, with support of the Union of Municipalities, corresponds closely with the multifunctionality characteristic of farms producing foods with high, often regionally based symbolic characteristics. (Wilson 2008). Thus Azienda Agricola Cerasa's transition to raising symbolically important agricultural products and building (public) cultural capital for the region represents characteristics of strong multifunctionality and emphasizes the place-based nature of the farm.

While providing public financial support for maintaining indigenous breeds is an interesting example of place-based multifunctional agriculture, Azienda Agricola Cerasa and the Union of Municipalities went further on this development trajectory. In the early 2000s, the original Azienda Agricola Cerasa owners decided to transition the farm ownership to the Union of Municipalities. In this highly unusual move, the Union took control of

the farm, while providing the main source of farm income through the sheep program subsidies. The farmers were able to continue to live on the property, manage production, and receive income from its activities. In addition, the Union renovated buildings on the farm to provide space to be used as an education facility for visitors interested in learning about the agricultural systems of the Garfagnana territory. In this way, Azienda Agricola Cerasa turned into an agricultural learning center, hosting school groups and sustainable-tourism initiatives, with the Union producing all of the agricultural education materials. Thus educational activities on the farm, directly supported by local government, play an important non-productionist role on the farm and represent a form of farm diversification, which has been described as an important multifunctional characteristic (Wilson 2008). The relationship between Azienda Agricola Cerasa and the local government institutions also highlights the farm's multifunctional nature, as Wilson (2008) has noted that multifunctional farms tend to be strongly embedded in local governance structures.

The unique ownership and management of Azienda Agricola Cerasa, and its reorientation toward educational functions, could be seen as a financial risk-management strategy for the farmers, who were able to stay on the land but lost overall sovereignty of their farm. From another perspective, however, Azienda Agricola Cerasa represents an unconventional public-private partnership in which the farming family was able to re-invest in traditional place-based production practices. In either case (or perhaps in both), today Azienda Agricola Cerasa has become a pilot farm for the development of several projects sponsored by the Union of Municipalities, with the aim of testing place-based multifunctional agriculture production practices, strengthening public engagement with their agricultural history, and leading an agricultural place-branding initiative. Given the organizational set-up of Azienda Agricola Cerasa, the farm represents a different approach to engaging with territorial socio-ecological practices and identities when compared with Maestà della Formica, but is also a clear example of place-based multifunctional agriculture.

Supporting Local Food Systems

The third case-study farm is Societa' Agricola Filippi, a small-scale dairy, also located in Pieve Fosciana. The farm is managed by two brothers who inherited the farm as the fourth generation of farmers in the family. Societa' Agricola Filippi differs from the other case-study farms in a number of ways: it is the oldest farm analyzed, founded in 1922 by sharecroppers and since passed down through four generations; it is the largest farm analyzed, with a total of 10 hectares (both owned and rented land) in a less mountainous area of Garfagnana; and Societa' Agricola Filippi's production-marketing orientation is quite different, having the highest productivity of commodity products (milk) and contributing most directly to the Garfagnana food system. The combination of these characteristics makes it the least multifunctional of the three case-study farms, while nevertheless exhibiting several place-based characteristics.

The core agricultural practices of Societa' Agricola Filippi involve 22 Bruna Alpina (Brown Swiss) cows that produce 300 liters of milk per day (Societa' Agricola Filippi, personal communication, July, 2015). The milk is processed and sold in local supermarkets and in raw milk form directly to consumers, while a limited amount of milk is also processed on-farm for products such as cheese, artisanal yogurt, and desserts. The farm is thus characterized as small-scale, but for its size it cannot be considered to have low productivity. Societa' Agricola Filippi's development trajectory from subsistence-oriented production in the1920s to this level of commercial production began in the 1960s, when the father of the current farmers increased the mechanization of the farm to reduce labor costs in response to the increasing concentration of the Italian dairy sector. Like the livestock management decisions of Azienda Agricola Cerasa in the 1980s, Societa' Agricola Filippi also replaced the local Garfagnana variety of livestock (cows in this case) on the farm—which at the time were used for meat, milk, and cheese production—with the Bruna Alpina breed, which has higher production adapted specifically for milk bottling, rather than cheese. Thus the farm became more specialized around milk production and less multifunctional, according to diversification and productivity crite-

ria (Wilson, 2008). In 2014, Societa' Agricola Filippi continued the farm's trend of infrastructure investment by purchasing milk processing machinery. The equipment allowed the farm to become more vertically integrated and cut milk processing costs, and diversify the number of dairy products sold on-farm. In addition to dairy product diversification through on-farm processing, the farmers have strived to diversify farm activities and sources of income, particularly through specialized cow breeding. This technical skill has lowered the farmers' costs (they no longer have to pay an expert for artificial insemination) and has given them more control over the genetic make-up of their herd, and in turn over the quality of their milk. Societa' Agricola Filippi also provides breeding services to other farms as an alternative revenue stream. As a final diversification activity, the farm provides some on-farm educational activities for schools.

What makes Societa' Agricola Filippi exceptional is its success in maintaining its small-scale structure and economic sustainability in an increasingly concentrated dairy sector. In March 2015, the European Union liberalized the dairy sector by ending the Common Agriculture Policy dairy quota system. The quota system had historically been the policy tool used to manage the supply of milk and stabilize prices at fair levels for dairy producers. The dairy quota system, while complex and far from perfect, allowed many small-scale dairies to survive economically in the European Union, in contrast to their fate in the United States. Dismantling the dairy quota system has led to the overproduction of milk in the European Union, declining dairy farmer incomes, and larger dairies buying out smaller dairies (Societa' Agricola Filippi, personal communication, July, 2015). The Societa' Agricola Filippi farmers said that as milk prices have declined with the removal of the quotas, a dairy farm in Italy typically needs at least 100 cows to have the production scale to survive economically. But Societa' Agricola Filippi, with its 22 cows, has managed to be an exception to this general rule, through a mix of limited multifunctional agriculture practices and significant investment in embedding their farm in the local food system, reflecting their increasingly (if also limited) place-based nature. On this point, the geographical location of Societa' Agricola Filippi is an important factor: the farm is located on the edge of Pieve Fosciana, with residential buildings surrounding it. This location has been both an impediment and an opportunity; the peri-urban location has restricted the possibility for farm expansion, with little access to nearby pasture land for fodder production or grazing, restricting the farm from growing its herd size, which the farmers specifically stated as a challenge. However, the benefit of proximity to the town is being close to its consumer base. In recent years, the farm has increasingly sold its products locally, with particular attention to promoting on-farm milk sales through a self-service milk dispensary system started in 2008. This specialized machinery allows the Societa' Agricola Filippi to sell raw milk, not found in supermarkets, directly off the farm. This allows them to receive a milk price more than three times the wholesale price. The farm sells its raw milk for one euro per liter; at the time of the interview the wholesale milk price was .32 euros per liter (Societa' Agricola Filippi, personal communication, July, 2015). Although the Societa' Agricola Filippi's milk is not a symbolic product of the region (the cows are not indigenous to Garfagnana), this short food-supply chain allows the farm to market a unique product and provides an opportunity for consumers to interact more intimately with their food system, due to the farm's proximity to the town.

In analyzing how Societa' Agricola Filippi can be considered place-based and multifunctional, as discussed previously strong multifunctional farms are characterized as focused on local food chains and weakly integrated into global capitalist markets (Wilson, 2008). Societa' Agricola Filippi provides the best example of these two characteristics: Of the three case-study farms, Societa' Agricola Filippi has the shortest value-chains, with all of their products marketed to local consumers, rather than to tourists or in other towns in the region. This multifunctional characteristic aligns with other research showing that "farms in peri-urban fringe areas . . . [have] . . . potential for strongly multifunctional pathways" (Wilson, 2008, p. 5). In contrast to Societa' Agricola Filippi's multifunctional characteristic of strong embeddedness in the local food system, the farm does not clearly meet criteria for

engagement in local governance systems (Wilson, 2008), as Societa' Agricola Filippi receives limited institutional support. The farmers said that they would like to receive funding from the local government administration to reintroduce the local variety of Garfagnana cow, as was done with the Garfagnana sheep, but the local administration has not signed on to this idea. Although the farmers said they had received support from the Union of Municipalities as well as from the local Breeders Association to install the on-farm milk dispensary system, they said that working with the Union has been difficult because the administration appears uninterested in prioritizing support for the dairy milk sector[6]. Finally, in considering Societa' Agricola Filippi's role in the territory's socio-ecological relations, it is important to note that the farmers expressed a limited environmental philosophy; while they did show understanding and concern for sustainably managing their natural resources (e.g., using crop rotations in their fodder fields), their cows are not pasture-raised and the farm's contribution to a territorial identity appears quite limited. Thus the farm seems to have limited environmental capital, and therefore lacks a typical characteristic of criteria for multifunctionality (Wilson, 2008).

In summary, Societa' Agricola Filippi's focus on moderate dairy productivity and its lack of strong social/cultural capital and strong environmental sustainability practices limits its status as strongly multifunctional. However, the farm is well embedded in the local food system rather than in regional or global markets, and it has some limited diversification activities which contribute toward a multifunctional characterization. Societa' Agricola Filippi has also a limited place-based nature. Its production practices are strongly shaped by its geographical position, which the farmers have wisely used to their advantage to embed the farm in the local food system. On the other hand, the farm's functions are not closely tied to the socio-ecological dynamics and/or identities of the territory. In addition, Societa' Agricola Filippi has limited engagement with local governance systems that help shape these dynamics and identities in Garfagnana. Thus Societa' Agricola Filippi is an important example of small-scale family farming strongly contributing to Garfagnana's local food system, but also exhibiting weak or moderate multifunctional and limited place-based characteristics.

Discussion

As the three case-study farms demonstrate, small-scale family farmers in Garfagnana display a number of multifunctional agriculture activities which are in line with the framework developed by Wilson (2008). Furthermore, there is evidence that over approximately the past five to ten years[7], many of these multifunctional farms are becoming increasingly place-based. The five-to- ten-year window is important because it demonstrates that these agricultural and socio-ecological practices are well embedded in the farms and the broader territory, and that the farms have reached a degree of operational stability through a process of place-based multifunctional development. As described by Wilson (2008), the overall multifunctional strength or weakness of a farm falls along a spectrum, without an expectation that any single farm will exhibit all of Wilson's criteria. In considering how each farm can be framed as place-based, there are no specific indicators, but this theory is used as a lens to analyze farm/farmers' relationships with the territory. To summarize how these three case-study farms align with this paper's theoretical framework, four (non-sequential) core place-based and multifunctional themes, drawing on both sets of theory, are discussed that provide a comparison of how the three case-study farms relate differently to the concepts, and that make the argument for a place-based turn in Garfagnana's multifunctional agricultural development.

[6] Reasons for this lack of support likely have to do with the fact that the Garfagnana sheep project was funded by the European Union, so the local government may not have power to allocate other resources to similar projects for other livestock varieties and sectors.

[7] Although multifunctional or place-based farming activities rarely have definitive start dates, farmers in each of the case-study examples offered more or less defined times when they began implementing their place-based multifunctional approaches to farming. For Maestà della Formica, this began with the founding of the farm in 2012; for Azienda Agricola Cerasa, it began around 2005; and for Societa' Agricola Filippi, it was around 2008.

Ecological Sustainability and Environmental Capital

Ecological sustainability and commitment to building environmental capital on-farm are characteristics deemed central to a multifunctional orientation that indicate a difference in farmer values from productionist and profit-driven approaches to farming (Wilson, 2008). These characteristics also relate closely to the place-based theory of Richardson and Weszkalnys (2014), highlighted in the theoretical framework, recognizing the intersectionality of agriculture in shaping socio-ecological relations that can go beyond a simple resource extraction paradigm. In analyzing the case-study farms, all indicated some kind of environmental and non-productionist philosophy and commitment to environmental capital that framed their farming activities. These concepts are most clearly demonstrated by Maestà della Formica, which applies a strict biodynamic approach despite encountering skepticism from some agricultural experts in their community. It should be noted that Maestà della Formica is also the youngest farm of the three analyzed, which is consistent with a suggestion by Guy (2005), stating that young farmers often act as innovators, as they can be more open-minded about new kinds of agricultural practices and therefore may be more likely to embark on strongly multifunctional pathways which emphasize social relations and environmental sustainability. In terms of environmental sustainability, Maestà della Formica can be considered to be on the stronger end of the multifunctional agriculture spectrum.

Azienda Agricola Cerasa also demonstrates a commitment to environmental sustainability, as indicated by their efforts to maintain a small and sustainable herd size as determined by the local landscape. The agricultural education activities of the farm clearly promote sustainable agriculture practices in a territorial context. But it is important to recognize that these sustainable farming practices were implemented because of the farm's financial crisis, resulting (in part) from trying to compete in more globalized markets with a productionist orientation. Furthermore, these new sustainable farming practices are driven in large part by local institutions rather than a radical change in the farmers' environmental philosophy. Thus Azienda Agricola Cerasa's environmental sustainability characterization can be considered a moderate example on the multifunctional agriculture spectrum.

Finally, Societa' Agricola Filippi exhibits the least emphasis on ecological practices and environmental capital. While the farmers do use crop rotation, their operation is the most conventional, with little indication of steps to offset the environmental impacts of this production approach. Part of this limited environmental capital is likely due to the farm's peri-urban location, which impedes being able to engage in environmentally sustainable production practices such as pasture-based grazing, constraining the farm somewhat toward the productionist paradigm of the conventional dairy sector. Thus Societa' Agricola Filippi can be considered to have weak environmental multifunctional characteristics.

Socio-ecological Relations and Territorial Embeddedness

Socio-ecological relations and territorial embeddedness, while conceptually broad, are important components of place-based theory when analyzing how farming shapes identities, values, and materialities as described by Escobar (2001), Massey (2004), and Pickerill & Chatterton (2006) in the theoretical framework. Multifunctional agriculture theory involves these concepts by recognizing the role that geography plays in shaping farming activities, as described by Wilson (2008): "farms in countries with substantial mountainous and other agriculturally disadvantaged areas are more likely to be strongly multifunctional (in the developed world)" as an adaptive strategy when there are fewer productionist opportunities (p. 7). From these place-based and multifunctional theory perspectives, both Maestà della Formica and Azienda Agricola Cerasa offer strong (although quite different) characteristics of socio-ecological relations and territorial embeddedness. Maestà della Formica effectively became a symbolic intermediary between the parkland forest and their local community while also building both the farm's social and environmental capital through this process, which are practices closely aligned with the place-based theory of Healey and Jones (2012). This territorial embeddedness also led to farm diversification activities

educating the public about sustainable agriculture and food traditions in Garfagnana, in turn playing an important role in shaping community values around place-based agricultural practices.

Azienda Agricola Cerasa also represents an example of strong territorial embeddedness, with its focus on revalorizing the territory's local biodiversity, most specifically the local Garfagnana sheep breed. Furthermore, Azienda Agricola Cerasa's re-orientation as an educational farm and its goal of promoting a regional agricultural 'brand' for Garfagnana demonstrates the farm's strong engagement with the public and role in shaping the territory's agricultural identity, in line with the place-based theory of Richardson and Weszkalnys (2014).

Societa' Agricola Filippi offers a more moderate characterization of place-based development. While the farm's practices and marketing are strongly shaped by its peri-urban location, the farm does not clearly facilitate socio-ecological relations, nor is it deeply embedded in a territorial identity.

Engagement with Local Governance Systems

Engagement with local governance systems is relevant to both multifunctional agriculture theory (Wilson, 2008) and place-based theory (Pickerill & Chatterton, 2006). While farms do not need to engage explicitly with local institutions or governance systems to be characterized as place-based, local institutions and governance systems are common fora in which societal values are negotiated and formalized. Clark (2003) supports this point by arguing that the multifunctional pathways of farms are often strongly linked to external drivers such as the policy environment or local governance mechanisms. Analyzing Maestà della Formica in terms of these multifunctional and place-based theories, the farm only moderately meets these criteria. While the farm does collaborate with the local Parco Alpi Apuane administration, its engagement is not extensive, relying more directly on informal relations with the local community and local environment.

Azienda Agricola Cerasa, on the other hand, fits the institution-related features of place-based and multicultural theory very closely, because the Union of Municipalities has been primarily responsible for supporting the transition of its agricultural practices from a productionist enterprise to a multifunctional and educational farm. Furthermore, given the farm's unique farm governance system, Azienda Agricola Cerasa can be considered semi-public and highly embedded in the local government and territory's agricultural development strategy.

Societa' Agricola Filippi's engagement with local governance structures and institutions is limited. The farm did receive financial support from the local administration for infrastructure investments, and the farmers indicate a desire to be more engaged with local institutions and stakeholders. In practice, however, the farm appears to be the most independent of these organizations and governance structures compared to the other case-study farms.

Productivity, Diversification, and Relation to Markets

The final category for analysis involves farm production-marketing characteristics central to multifunctional agriculture and place-based theory, including farm productivity, diversification, and engagement with localized food systems rather than integration in capitalist markets. In the case of Maestà della Formica, the farm meets all of these criteria strongly, with low productivity, diverse production systems, strong investment in territorial products (including local wild fruits), and engagement in non-capitalist economies of exchange. However, the farm also markets its products outside of Garfagnana and thus does not contribute most directly to the local food economy. It should be noted that the farm appears to be the least capital intensive, as well as the least financially autonomous, as none of the farmers were able to fully sustain their livelihoods with revenue from the farm at the time of the interviews.

Azienda Agricola Cerasa, similarly, meets all the criteria strongly, with clear dedication to low productivity, farm diversification, and territorial products. At the same time, the farm does not strongly contribute to the local food system, with tourists and European Union funding providing a significant amount of the farm revenue.

Societa' Agricola Filippi again has mixed results. The small-scale dairy has moderate productivity and few farm diversification activities, with-

out producing symbolic or territorial products, thus limiting its multifunctional characterization. However, the farm invests heavily in on-farm direct marketing to the local community and is also weakly integrated in global capitalist markets, which align it with Wilson's multifunctional criteria (2008).

Conclusion

Analyzing the farming practices and place-based relations of Maestà della Formica, Azienda Agricola Cerasa, and Societa' Agricola Filippi, this paper argues that these three case-studies represent different forms of multifunctional agriculture on the spectrum of Wilson's theory (2008). In each case, the farmers and farms are redefining themselves beyond a conventional productionist and profit-oriented approach by reorienting their socio-ecological relations, farm management, products and markets toward a more diverse and non-capitalist set of agricultural practices. All three farms have intentionally linked these multifunctional practices in some way to the Garfagnana territory, giving them a range of place-based characteristics as described by Escobar (2001), Massey (2004), and Richardson & Weszkalnys (2014) and highlighted in this paper's theoretical framework. It is also important to note that local institutions are a moderate or important factor in the farms demonstrating the most strongly multifunctional and place-based characteristics (Maestà della Formica and Azienda Agricola Cerasa), which raises important questions for future research on the role(s) of local institutions in facilitating place-based development. The farm arguably most embedded in the local food system (Societa' Agricola Filippi) was the least clearly multifunctional, which also has policy implications.

The place-based turn in these farms' multifunctional agricultural activities indicate that these small-scale farmers not only thrive through a diverse range of social, economic, and environmental roles, but also critically contribute to the vibrancy of their territory's farming sector and rural economy. But there are some clear differences in how the three farms have followed this place-based multifunctional development trajectory, which indicate that structural economic factors also shape farmers' ability to be place-based and engage in multifunctional practices. In Italy, and globally, both livestock and agricultural commodity markets have become highly concentrated and globalized over the past fifty years. It was these concentration and globalization trends, emphasized by the farmers in this research, which pushed many small-scale diversified farms out of the sector in Italy in the 1980s and forced many others to adapt through specialization and productionist strategies, with arguably limited success. This research suggests that these structural economic issues not only continue to undercut family farmers, but also limit livestock and commodity farmers in particular from embarking on strongly place-based multifunctional development pathways. Clark (2005) speaks to these challenges, stating that some kinds of farms are more likely than others to be " 'locked in' to types of agro-food diversification that are framed by the agroindustrial [productivist] model" (p. 495), a phenomenon also known as "path dependency" (Wilson, 2008, p. 10). Livestock and commodity farms are particularly susceptible to this dynamic: "pure arable or livestock lowland farms…are often more likely to embark on weak multifunctionality pathways than mixed lowland farms" (Wilson, 2007, p. 275). The two commodity and livestock farms of this research appear to be consistent with to characterizations. Azienda Agricola Cerasa's multifunctionality decreased as it struggled in the productionist livestock paradigm until being financially supported by the region's public institutions and reorienting its activities to be more place-based. For Societa' Agricola Filippi, the dairy has tried to avoid being economically undercut by the conventional dairy sector by selling raw milk, but this strategy does not allow for long-term product storage such as the preserved fruits and wines of Maestà della Formica and even the pecorino cheeses and lamb meat produced by Azienda Agricola Cerasa, limiting the ability of the farm to navigate market fluctuations. It is possible to conclude that while place-based and multifunctional development strategies can strongly support the socio-economic vibrancy of small-scale family farmers and their rural communities by re-orienting farm production practices, socio-ecological relations, and territorial embeddedness, these

development strategies do not necessarily buffer farms from the impacts of the 'agroindustrial [productivist] model.' And particularly for those commodity and livestock farms striving to primarily serve their local food system, place-based and multifunctional development efforts likely need support from local institutions to weather global concentration and productionist trends.

In conclusion, multifunctional agriculture in Garfagnana is not a new phenomenon, but as evidenced by the three case-study farms analyzed, it has taken an increasingly place-based turn in the past five to ten years. By providing a critical illustration of how family farmers facilitate place-based socio-ecological relations, engage in diverse economies (Gibson-Graham, 2008; Gibson-Graham & Roelvink, 2009), and contribute to shaping territorial identities, this paper argues that these processes sustain both the small-scale farms and the agricultural communities in which they are embedded. Thus this place-based turn in multifunctional agriculture represents a relatively new development trajectory for the historically small-scale producers of Garfagnana, with important implications for the vitality of local food systems and the family farming sector.

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Local motivations, regional implications: Scaling from local to regional food systems in northeastern North Carolina

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Abstract

In communities across North America, organizations have launched local food system initiatives as a response to the depredations of the globalized agri-food economy; however, they increasingly find that they cannot achieve their desired impacts or sustain their ventures by operating solely within their home communities. Consequently, they embark on regional food system development initiatives. Drawing upon the experiences of 41 organizations—including Working Landscapes, a grassroots nonprofit that two authors of this paper

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Disclosures

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direct—this paper examines emerging regional food initiatives in the rural, economically distressed region of northeastern North Carolina. We elucidate characteristics that differentiate regional initiatives from the same organizations' local activities. We find that regional initiatives are motivated by organizations' strategic needs, which are highly variable in spatial scale, largely uncoordinated with each other, and not yet successful in fully achieving their goals. Drawing upon this analysis, we identify opportunities to increase the effectiveness of regional food system initiatives by increasing shared understandings of these initiatives and advancing region-scale planning.

Keywords
Regional Food Systems, Local Food Systems, Social Networks, Rural, Regional Planning, Scale, Collaboration, Stakeholder Engagement, Value Chains, Food Hubs

Introduction

Faced with the damage that the global food system has wreaked on their communities, farms, and environment, individuals and organizations across North America have turned to local food systems as an alternative. However, local community-based initiatives are not capable of transforming the supply chains through which most people are getting their food. In order to expand their impact, alternative food organizations are increasingly scaling up to work regionally.

Regional food system development remains poorly understood and conceptualized by both practitioners and researchers. At what scale do systems become regional instead of local? Our findings suggest that, rather than being associated with one specific scale, it is more useful to characterize regional food systems development as a distinct mode of food systems activity. We find that grassroots food system organizations are typically motivated by commitments to a particular local geography (usually county scale or smaller); we characterize their endeavors within this geography as local food systems work. Many of these same organizations, however, are also expanding beyond those locales to serve broader areas, ranging from multiple counties to parts of multiple states; the spatial extents of these initiatives vary based on decision criteria that are distinct from the organizations' local food motivations.

These strategic expansions, which we characterize as regional food system activities, cause new overlaps among organizations' service areas. This creates opportunities for collaboration, but coordinating among multiple intersecting regional initiatives can also bring new challenges. Given that numerous local food organizations are currently navigating emerging regional food economies and the new relationships that accompany them, it is important to understand better their experiences of doing so.

This paper seeks to characterize current food system efforts in northeastern North Carolina—where exploration of regional food system planning is just beginning—by studying the perspectives and activities of organizations working there. Through mixed-method research, we explore (1) the distinct motivations undergirding these organizations' local and regional food system efforts; (2) how issues of scale are navigated; (3) the degree to which organizations are collaborating regionally; and (4) the degree to which organizations are meeting their own goals (or not). Drawing upon this analysis, we address the need to build constituencies for regional food systems and support their development through coordinated planning.

Literature Review

Consideration of scale in food systems usually proceeds from a posited dichotomy between "industrial" or "mainstream" agricultural production systems and "local" food systems. Mainstream agriculture is characterized as the oligopolistic, mass-production system that relies on economies of scale within a globalized sourcing system and a national policy framework.[1] Industrial agriculture has documented connections to increasing reliance on unhealthy, fast food companies (Schlosser, 2001); attendant increases in diet-related health issues such as obesity (Fryar, Carroll, & Ogden,

[1] See Pirog, Miller, Way, Hazekamp, and Kim (2014) for a description of the origins of industrial food.

2010), with particularly worsened outcomes for people of color, people receiving low incomes, and/or people with lower levels of education (Drewnowski & Spector, 2004; Flegal, Carroll, Kit, & Ogden, 2012); a decline in the number of small farms and food businesses (Drabenstott, 2001); increased environmental degradation and greenhouse gas emissions (U.S. Environmental Protection Agency [EPA], 2013); increased disparities in neighborhood quality, specifically relating to housing, education, and employment quality; lessened access to healthy food due to discriminatory trends in the geography of food retail (Desjardins, 2010; Truehaft & Karpyn, 2010; Walker, Keane, & Burke, 2010); and increased use of discriminatory and unhealthy labor practices in agriculture and foodservice settings (Kelly, Lang, Bhandal, & Electric, 2012; Martin, 2003).

Local food was initially characterized as part of an "alternative food movement," which reflected the myriad of counter-reactions to the negative impacts of industrial agriculture (Feenstra, 2002; Hinrichs, 2000). While the phrase "local food" implies a geographic range, when used by consumers it is also associated with several nonspatial attributes: local farm ownership; small-scale farm operations; production methods that protect the environment; and foods that have natural, organic, or other "higher quality" attributes (Low et al., 2015). Planners, local governments, and impact investors extoll "local" food for its ability to contribute to the local economy (Kish, & Fairbairn, 2018; Kneafsey, Ilbery, & Jenkins, 2001). Coinciding with these patterns, there is an observed increase in demand for differentiated food in several forms: functional (e.g., specialty, higher-quality ingredients); safe (e.g., antibiotic-free or hormone-free); environmentally sustainable; or from a specific geographic location (Stevenson & Pirog, 2008). Consumers want high-quality food, produced in a way they are comfortable with, from a producer they can trust (Kirschenmann, Stevenson, Buttel, Lyson, & Duffy, 2008). These demands contributed to the widespread equation of "local" with direct-to-consumer (DTC) food systems, where the producer sells directly to the consumer (e.g., farmers markets, community supported agriculture operations [CSAs], roadside stands, and/or U-pick operations), a practice associated with high-quality food and sustainable, ethical production.

From Local to Regional

As demand for locally sourced food increases, there is growing recognition that DTC sales alone cannot meet increasing demand for local food (Born & Purcell, 2006; Janssen, 2010; Stevenson & Pirog, 2008). DTC sales grew from US$551 million in 1991 to US$1.2 billion in 2007 (Pansing, Wasserman, Fisk, Muldoon, Kiraly, & Benjamin, 2013). The number of farmers markets grew 180 percent between 2006 and 2014 (Low et al., 2015). However, the rate of growth in DTC sales between 2007 and 2012 slowed significantly (to US$1.3 billion), even though the percentage of farms that reported marketing food through farmers markets and intermediated supply chains grew. While this slowdown may be partially attributable to the recession that occurred between December 2007 and June 2009 or a natural plateau in demand reflecting the limits of consumers' purchasing power, it may also suggest that farmers growing for local consumption are increasingly using intermediated channels to sell their products (Low et al., 2015).

Consumers receive local food through intermediated supply chains via businesses such as retail outlets, restaurants, wholesale aggregators, institutional buyers, or food hubs. These intermediated arrangements often require shifting away from the local scale towards a bigger framework of supply, demand, and region of influence; this shift is referred to as increasing in scale. Reasons for growing in scale are well established. Larger-scale intermediated chains are attractive to farmers because they can create efficiencies that decrease marketing and transportation costs, develop additional markets, and stabilize their supply chains (Gwin & Thiboumery, 2014; Hardesty et al., 2014; Policy-Link, 2001). Efficiencies of scale make production (and sometimes consumption) costs cheaper (Low et al., 2015), and midsize or "mid-tier" or "agriculture of the middle" farms and processors earn higher incomes in local intermediated supply chains (Kirschenmann et al., 2008; Stevenson & Pirog, 2008).

Growing in scale often requires a regional

approach, simply to be able to garner the supply and demand necessary to grow. Lev and Stevenson (2011) document "midscale food value chains"[2] operating at a regional level, where farms and ranches, and their associated processing, distribution, and retail businesses, act collectively as bigger than local but smaller than industrial entities. These value chains are strategic alliances among farms and food businesses that handle higher volumes of high quality, differentiated food products, and distribute profits equitably.

The term "regional" is increasingly applied to food system initiatives; however, as Clancy and Ruhf (2018) pointed out in this journal, it is often conflated with local. They argue that additional attention must be paid to the term as a distinct lens through which to view food systems and not just for the economic benefits of creating efficiencies by leveraging infrastructure and market size across space. There are benefits in mobilizing multiple scales of food systems work for its resilience (Whitfield, Challinor, & Rees, 2018), for better understanding ecosystem-level impacts (Wolfe et al., 2018), and for managing land use patterns and farmland conservation (Clancy et al., 2017), among other dynamic and multiscalar processes. Finally, a regional approach to economic development that encourages connections between urban and rural areas will increase the likelihood of prosperity for those regions (Isserman, 2001; 2005). In sum, viewing local food systems in isolation misses the larger systems they function within and have the potential to affect. Examining whether regional collaboration emerges may shed light on opportunities to better support local food efforts, grow alternative food opportunities, and most importantly, better support the residents of those communities.

Regional food systems work has begun in an explicit manner, but it has been insufficiently theorized. Lengnick, Miller, and Marten (2015) (cited in Clancy & Ruhf, 2018) describe a self-organizing, regional, cooperative food network that connects smaller towns and bigger cities. Food Solutions New England is a leading example of a formalized regional approach to food systems work, involving coordinated mapping and strategy development to realize a "regional vision" for the food system across the six New England states. The organization also has an established regional food-to-institution supply chain within the same group of states, regular collaborative meetings among policymakers, and an annual regional conference (Food Solutions New England, n.d.). The emergence of phrases such as "city region food systems," "urban-rural linkages," "food-sheds," "bioregions," or "territorial development" indicate interest in approaches to food systems that encompass more than local spatial scales (Blay-Palmer, Santini, Dubbeling, Renting, Taguchi, & Giordano, 2018). Donald (2008) describes emerging "alternative food geographies," constituted as collaborative networks of producers, consumers, and actors. These networks give the local food movement the ability to create equitable outcomes by redistributing value along the value chain instead of directly to commodity producers, as well as creating collaborative processes of governance (Whatmore, Stassart, & Renting, 2003). While the greatest emphasis has been on local food production, Donald (2008) and Tewari, Kelmenson, Guinn, Cumming, and Colloredo-Mansfeld (2018) point to the (understudied) importance of intermediaries' role in developing processing, distribution and retailing capacity—the processes needed to expand and enhance alternative food systems.

Questions remain about how regional food systems emerge and function. How do local food value chains interact with one another or local initiatives in emerging regional systems? Developing local or regional food systems work often relies on leadership from within the community, while public universities and institutions may play a role in seeding some of these relationships and infrastructure investments in regional food systems work (Dunning, Bloom, & Creamer, 2015; Inman, 2015; PolicyLink, 2001). This literature, and much of the literature focusing on the politics of local food, implicitly points to the importance of relationships, and therefore social networks, in initiating new

[2] "Value chain business models place emphasis on both the values associated with the food and the values associated with the business relationships within the food supply chain" (Stevenson & King, 2011, p. 27).

food systems from the ground up (Hinrichs, 2010; Tewari et al., 2018; Watson, Treadwell, & Bucklin, 2018). Building upon this emphasis in the literature, an examination of relationships among stakeholders is central to this study of northeastern North Carolina's regional food system.

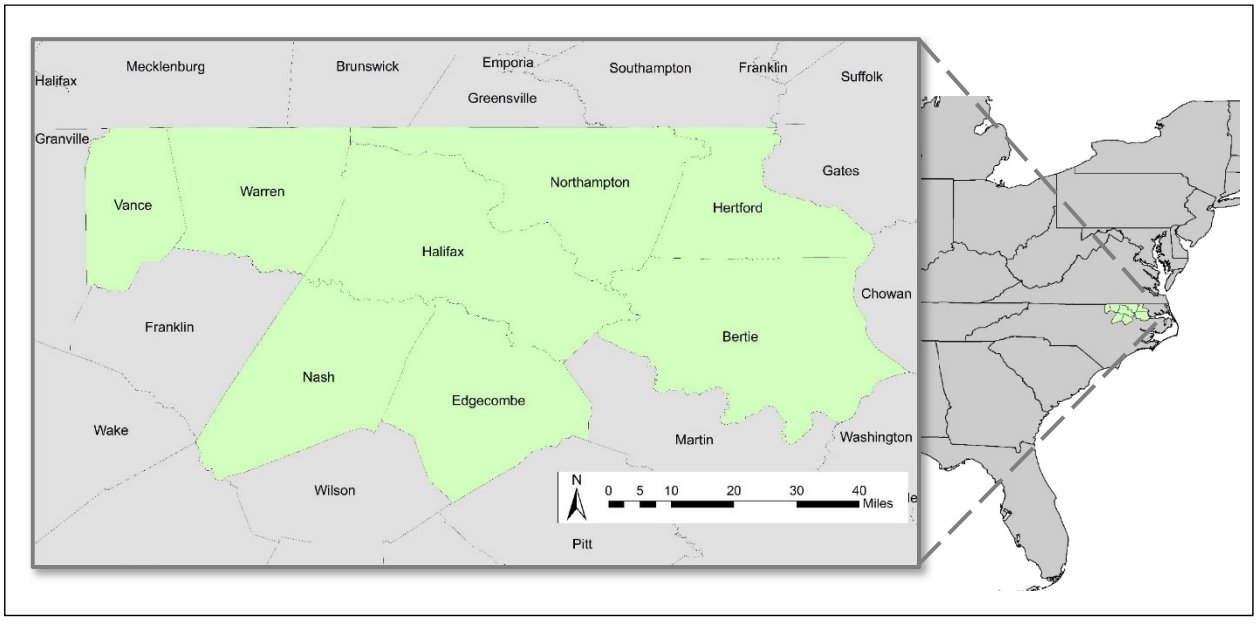
Methods: Data Sources and Analyses

To understand the motivations undergirding local and regional efforts, how organizations navigate issues of scale, and the degree to which organizations are collaborating across the region and meeting (or not) their goals, this paper draws on data collected from 41 organizations in northeastern North Carolina. These data were primarily collected through *Growing Opportunities*, a research project conducted by Working Landscapes in 2017 and 2018. Additionally, we draw upon Working Landscapes' organizational records to elucidate how one food hub is navigating the regional food system development processes covered in this paper. Drawing on interviews, surveys, focus groups, and business records, our analysis enables us to address our research questions through data "triangulation" (Lincoln & Guba, 2000; Marshall & Rossman, 2016). Data collection and analysis methods are discussed below.

Growing Opportunities was designed to advance northeastern North Carolina's emerging regional food system and foster shared understandings of gaps and opportunities in that system. The project focuses on an eight-county region of inner northeastern North Carolina, encompassing Bertie, Edgecombe, Halifax, Hertford, Nash, Northampton, Vance, and Warren counties (see Figure 1). Warren County is the home of Working Landscapes; the other counties were selected because they are demographically similar to Warren and face comparable economic, health, and food access challenges. *Growing Opportunities* employed the Community Voice Method (CVM),[3] a participatory research and stakeholder engagement methodology (Cumming & Holland, 2013; Cumming & Norwood, 2012).

CVM was developed by two of the authors in 2004 to foster more productive public dialog regarding contentious land use planning debates in western North Carolina. Stakeholder engagement efforts spanning North Carolina, the Turks and Caicos Islands, and the UK have successfully used CVM on topics ranging from food systems to land use planning and marine resource management

Figure 1. Eight-County Project Region in Inner Northeastern North Carolina



[3] See http://communityvoicemethod.org

(Cumming & Holland, 2013; Cumming & Norwood, 2012; Ranger et al., 2016). CVM begins by conducting semistructured, video-recorded interviews with diverse stakeholders on a particular topic. Interviews are then transcribed, coded, and analyzed using NVivo software; a combination of inductive and deductive coding is employed (Iloh 2016). This qualitative analysis guides both (1) the production of a film of interview clips, which represents the views expressed in the interviews, and (2) geospatial and quantitative analyses that address issues raised by interviewees (Norwood & Cumming, 2012). Facilitated workshops then share the film and quantitative data, where a broader range of stakeholders are invited to respond to the presentations, discuss options, and identify solutions to the issues raised.

In *Growing Opportunities*, the CVM process proceeded as follows. First, video-recorded interviews were conducted with a purposive sample of 14 stakeholders in northeastern North Carolina's food system. Interviewees were selected to represent diverse sectors within food value chains (farming, aggregation, processing, distribution, foodservice), as well as the geographic and demographic diversity of the project region. Interviewees were asked to describe how they became involved in food system work and how their work evolved, offer perspectives on the need for a regional food system, identify opportunities for and challenges to developing that system, and characterize a successful regional food system. Interviews were transcribed and analyzed with NVivo. Interview excerpts were selected as exemplars of these views, and those excerpts were edited into an 18-minute film summarizing interview findings.

Further stakeholder input was collected during a *Growing Opportunities* meeting held by Working Landscapes on August 28, 2018. The participatory meeting included a screening of the film; a presentation of quantitative data on the region's food system challenges, assets, and opportunities[4]; and facilitated small group discussions and ranking exercises aimed at establishing an action agenda for food system development. Participant characteristics and views were also collected through written pre- and post-surveys.

Working Landscapes recruited participants based on our professional contacts with other organizations working in the eight-county region, as well as recommendations from project participants. Fifty stakeholders representing 38 organizations attended. These respondents play a variety of roles in regional food value chains, including farming (16), aggregation (7), processing (4), distribution (13), procurement (12), and foodservice (4). Many also provide value chain and food system support services such as education (20), technical assistance (25), value chain coordination (12), and funding (13).

A social network analysis (SNA) of *Growing Opportunities* meeting participants examines the extent to which food system organizations in northeastern North Carolina collaborate regionally. This analysis visualizes and measures relationships across a potential network to assess the connectivity of the network and the centrality of individual organizations. Participants in the meeting were asked to list other organizations with which they work and to characterize their relationships as one or more of the following four categories: 1, "we know each other"; 2, "we have exchanged information"; 3, "we have collaborated"; and/or 4, "we have transacted food." For the purposes of this SNA, we conducted two network analyses following Kolaczyk and Csardi (2014).

First, we grouped the first three characterizations together hierarchically, each being considered to represent a stronger relationship than the previous. We included the "we have transacted food" characterization as a special type of collaboration, and that relationship was therefore re-coded for the first analysis as a type of collaboration. The relationships in the network analysis were weighted by the relationship characterization, with collaborations indicating the strongest relationship. This analysis aims to describe the structure of the network and whether a regional approach to food

[4] The data presentation summarized key economic, agricultural and health statistics for the region from recent US Census, USDA Agricultural Census, and Robert Wood Johnson Foundation Health Rankings, as well as original maps depicting the locations and sizes of schools, hospitals, colleges, prisons, and nursing homes in the region.

systems may be emerging.

The second analysis looks specifically at those organizations transacting food as a way to understand whether and where scale may or may not be occurring in the hypothesized regional food system. The relationships in this second analysis are not weighted, as all the relationships are characterized as having the same strength.

In addition to the *Growing Opportunities* data, we drew on the sales records and financial projections of Working Landscapes' food hub as empirical data to model the spatial of extent of a hypothetical region that an organization would need to serve in order to scale up under different market scenarios.

Results

Our results are organized around four questions aimed at characterizing food system initiatives in northeastern North Carolina as those initiatives scale up from local to regional.

1. What are the motivations for organizations' local, place-based work, and are motivations for their regional food system initiatives different?
2. How do local food system organizations conceive of and navigate issues of scale in developing regional initiatives?
3. As organizations scale up, to what extent are organizations whose service regions overlap working together?
4. Are organizations that are pursuing regional food system initiatives achieving their goals?

1. Motivations for Local and Regional Food Systems Efforts

Drawing upon the interviews with leaders of food initiatives and enterprises across northeastern North Carolina that were conducted during the initial phase of the *Growing Opportunities* project, we examined the motivations for their local and regional work. As a point of comparison, we also included our own organization, Working Landscapes. Working Landscapes is a small nonprofit organization based in Warren County, North Carolina, where it works to develop local and regional food systems. It is not by happenstance that Working Landscapes is located in Warren County; its founder and executive director, Carla Norwood, established the organization as a way of making a contribution in her home community, where her family has resided for seven generations.

The interviews revealed that, like Norwood, most *Growing Opportunities* interviewees (11 of 14) had place-based reasons for engaging in food work in a particular locality. Interviewees had preexisting family connections to the place they work, and they held strong connections to a specific, usually small, locality. Though in many cases they sought economic (livelihood) gains from working in the food sector, their selection of their home communities as a location for their food work was guided by these pre-existing, essentially non-economic commitments. For example, a hospital administrator described how her loyalty to her community motivates her work on healthy, local food:

> I'm from here, and these are my family, friends, and neighbors. … Eastern North Carolina is largely a farm community, and many of our own employees, our own team members, many of the visitors and patients that come into our hospitals are from those farm families. So those relationships matter to us. It matters to us when they take pride in recognizing that the very food that we're serving… came from their family; it came from their farm.

In some cases, their work represents an extension of unbroken, multigenerational, place-based work in a certain location. This is typical of farmers, as one describes: "My grandparents were farmers. … Grew up here and it's just been something I always did. I just never left."

In other cases, it represents a return home, as described by the co-founder of a grassroots nonprofit organization involved with food and agriculture:

> I can myself identify a situation of blacks coming back to the South and keeping the land, because it was not my intention to come to Henderson and certainly not my intention

> to stay in Henderson, but the family wanted to get rid of the property and the land. … What we realize is that our forefathers and foremothers worked so hard to accumulate those small things… and somebody must take the legacy forward. You can't give it away.… when land is given away, you can't get it back.

Despite being motivated to contribute to a particular place, most of those we interviewed also now engage in food system work that encompasses a broader geography. In every case, the reason is the same: they cannot build resilient food value chains or adequately support their missions by relying solely on their home geographies. One or more links in the chain are missing or are too small to meet the organization's needs. Several examples from the interview data illustrate this phenomenon.

Example 1: A small farmer considers his local food geography to encompass 5 to 10 miles (8 to 16 kilometers), but markets for one of his products, pasture-raised pork, are too small within that radius. He must travel over 50 miles (80 km) to a regional urban center to generate sufficient sales to support himself.

Example 2: An entrepreneur established multiple food enterprises in her hometown as a way of contributing to downtown revitalization. In order to supply her restaurant with "local" food, however, she must source from across eastern North Carolina.

Example 3: A food hub operator renovated a vacant structure in a small town to house aggregation, processing, and retail operations aimed at increasing access to healthy, local food while also creating job opportunities. The value chains that she has developed to support the hub extend much further, though; she purchases produce throughout eastern North Carolina and supplies wholesale buyers across multiple states.

As the cases above indicate, the organizations' regional initiatives are not just spatially expanded versions of their local activities; they represent a distinct mode of endeavor with distinct motivations. Their local work is typically motivated by pre-existing, place-based, non-economic factors, while their regional work is strategic and opportunistic, reflecting decisions meant to increase the viability of ventures initiated to benefit local geographies. While practical and economical, regional forays do not represent a turn away from the values that guide local food endeavors; instead, they are efforts to sustain those values by enacting them across broader geographies.

2. Navigating and Defining Scale Across Local and Regional Work

Consistent with the finding that regional food system initiatives—unlike local food initiatives—are strategic and economic, we find that how organizations define "region" is itself a strategic and fluid exercise. The geographies that interviewees defined as their service "regions" varied widely, ranging from a multicounty area to a large substate area (northeastern North Carolina or, more typically, eastern North Carolina) or even a multistate area.

These stakeholders are not interested in growth for growth's sake. They do not want to scale up indefinitely. Universally, they are not interested in franchising, opening more locations, or going national. They just want to reach a financially sustainable scale that enables them to remain as faithful as possible to their local food commitments. Thus, the size of an organization's service region depends on how far afield that organization must go to become financially viable and support its mission. One farmer put it this way:

> It would be easier to get rid of the product [if] you could just go right here in the region and load up, go an hour, two hours at the most, and come back to the farm. That goes back to… your cost, your transport, and then your labor and all, too. If you could get everything to [sell] in the region, 50 miles [80 km] would be a big plus.

To him, going further to make a sale just represents more cost. If he can make all of his sales within 50 miles, that is preferable.

Conceptions of region vary by organization; they are based on opportunities, strategy, product,

and/or season. This is illustrated by Working Landscapes' farm-to-school value-added produce operation; based on cash flow data from five years of preparing fresh-cut produce for schools, projections indicate the hub must sell 600,000 pounds (272,155 kilograms) of produce annually to cover operating costs. This level of production would support seven full-time, living-wage jobs. How broad a geography will the organization need to supply in order to support this level of production (and the organization's local community development objectives)? That depends on the depth of the market. The more regionally sourced food that a single customer buys, or the greater the number of proximate customers, the smaller the geography that Working Landscapes will need to operate within.

Taking the example of Working Landscapes' primary customers, school districts, it would need to supply districts that serve 160,000 students weekly to meet the production goal, using the assumption of a 38-week school year. There are many possible combinations of school districts that could add up to this number, all of which generate different regional geographies of supply. One approach would be to simply supply the nearest urban area—Wake County (home to North Carolina's capital)—which has 158,000 students. On the other hand, if Working Landscapes were to prioritize serving the rural and smaller metropolitan counties that immediately surround it, it would need to serve 21 counties to achieve its goal. These hypothetical scenarios illustrate the point that, for an alternative food system intermediary like Working Landscapes, the scope of the "regional food system" is mutable: it is defined by the intersection of mission, market, and strategy.

The organizations participating in the *Growing Opportunities* meeting also engage in regional endeavors of widely varying geographic scope. Of 26 organizations whose representatives completed the survey, all but one work in multiple counties within the project's eight-county focal region, meaning that their programs extend beyond their home county. The spatial extent of these organizations' activities ranges from two counties to all eight counties in the region. On average, they work in four counties. These results corroborate the finding that organizations define and implement regional initiatives at an array of scales.

3. Collaboration (or Lack Thereof) among Regional Food Ventures

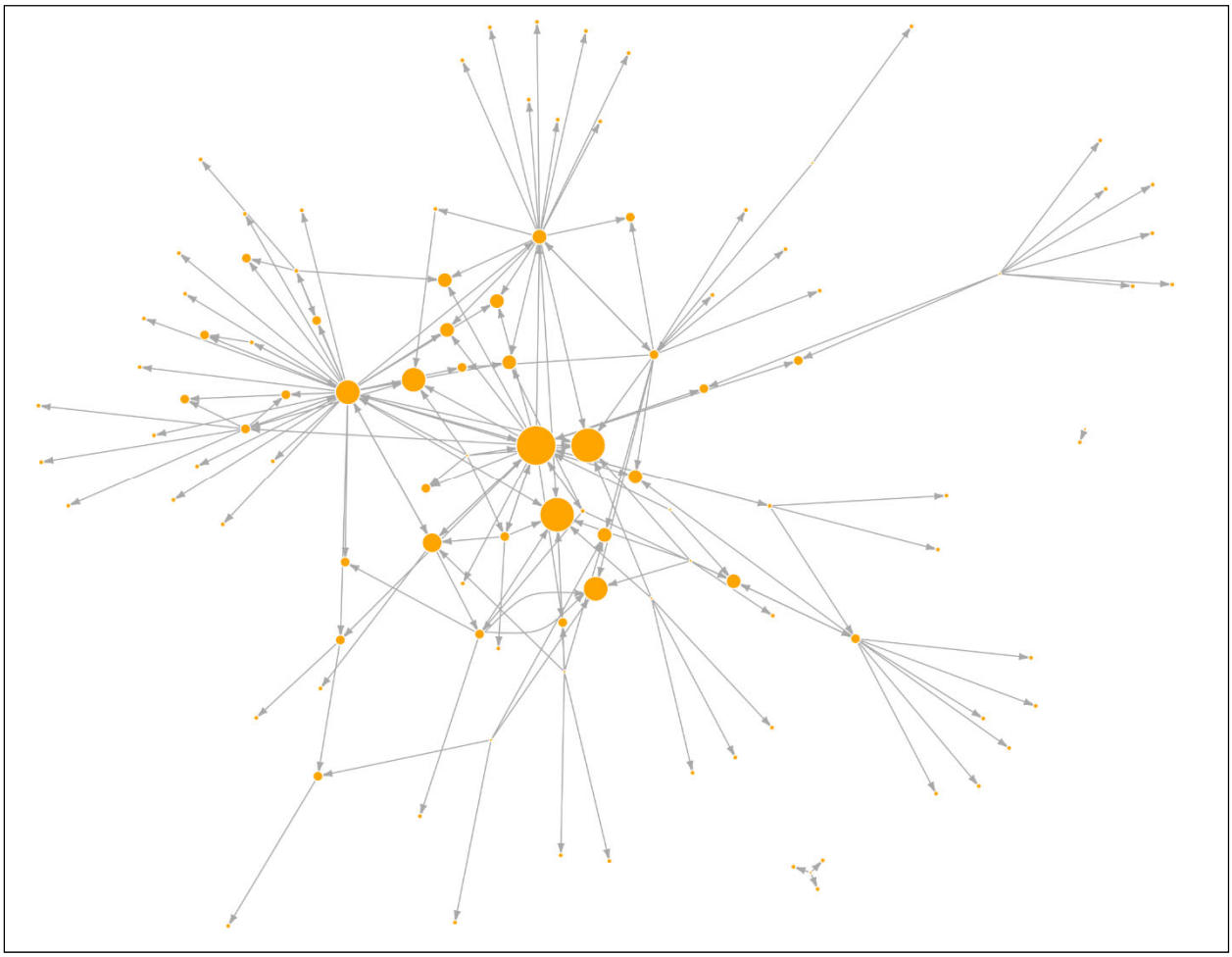
We examined the degree to which food system organizations in northeastern North Carolina are currently collaborating regionally by conducting a social network analysis (SNA) of *Growing Opportunities* survey responses. SNA maps relationships identified by respondents, where each "node" or dot represents an organization, and arrows, or "edges" between the nodes indicate a relationship. The networks are "directed," meaning that an arrow from Node A to Node B would demonstrate that Organization A identified Organization B as a collaborator, but not necessarily the other way around. Not all organizations with nodes responded to the survey; the relationships encapsulated in both SNA analyses show the network from the perspective of survey respondents.

Figure 2 depicts the network when the relationships are categorized hierarchically by relationship strength, with possible strengths organized in the following way: (1) being acquainted (the weakest strength of relationship); (2) having exchanged information and/or resources (an intermediate strength of relationship), and/or (3) having collaborated on one or more projects (the strongest relationship). A bigger node indicates that the organization was identified as a partner by more respondents. Nodes that are closer together indicate a stronger relationship between those organizations.

Figure 2 shows that much of the network is connected, with two small portions of the network isolated from the rest. There are a few central nodes that receive a lot of incoming edges, while the majority of nodes are held to the network through a single relationship, meaning it would not be very easy for peripheral nodes to communicate with nodes across the network.

The density of a social network captures the level of connectedness between nodes across a network. It is the proportion of ties that are connected out of all possible ties that could exist, where a higher density means a more connected network and a density of one is a completely connected network. In social networks, a density

Figure 2. Social Network Analysis of Food System Organizations Working in an Eight-County Region of Northeastern North Carolina; Node Size Reflects Number of "In-Degree" Connections



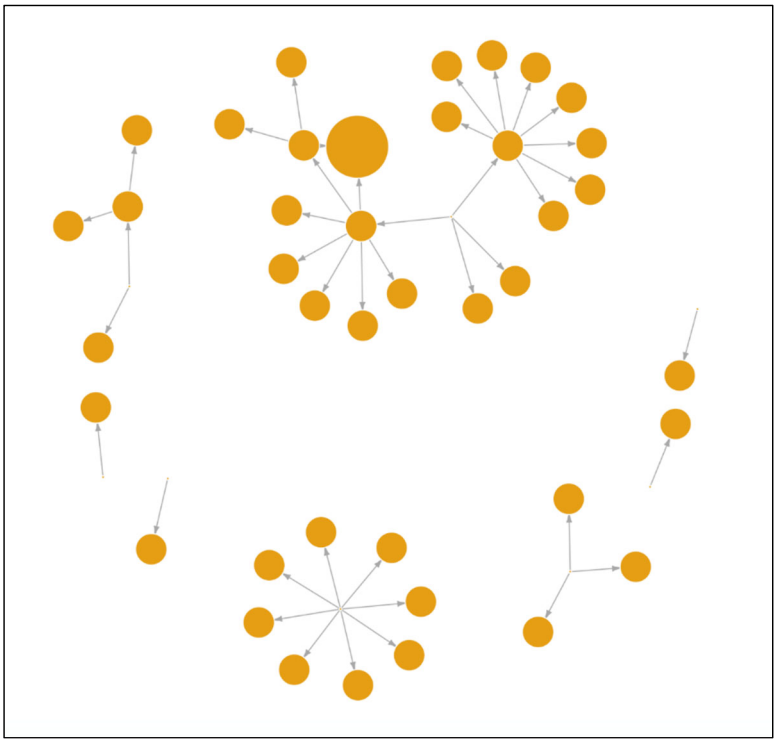
of .02 or higher is expected. The density of the network in Figure 2 is 0.014—low for a social network—confirming the conclusion in our visual analysis that many of the nodes are not connected to one another.[5]

The network in Figure 3 illustrates one type of relationship: transactions of food. It is evident, first of all, that there are simply fewer nodes in this network, because only a subset of the food system organizations represented in the survey are directly involved in transacting food. Moreover, the relationships depicted compose not one interconnected network but rather eight small, disjunct networks. Among the nodes that are represented, there is one node that receives multiple incoming edges, while the majority are held to the network through a single edge.

Most of the nodes in this network are the same size, with the exception of one node that received a few more incoming edges. The very smallest nodes indicate that those nodes were not listed by any other organization as having a relationship, likely partially because not all organizations represented in this diagram responded to the survey. However, for the most part, the network is directed by a few players. With respect to density, the transactive network is slightly more dense than the preceding relationship network, with a score of 0.018 (likely due

[5] For a network with N nodes and M edges, $Density = \frac{M}{N(N-1)}$ (Kolaczyk & Csardi, 2014).

Figure 3: Social Network Analysis (SNA) of Food Transaction Relationships among Food System Organizations Working in an Eight-County Region of Northeastern North Carolina
Node size reflects incoming relationships.



to the lower number of possible connections overall), but this is still below the minimum expected threshold for a social network (0.02).

In short, the social network analyses paint a picture of a region whose food system actors are partially but incompletely networked. A few central actors are connected to many others, but most actors are not well connected. This finding of the SNAs is corroborated by interview data: despite all being active in food systems initiatives in northeastern North Carolina, the interviewees have few value chain partners in common. This reinforces the view that the development of this region's value chains is being pursued in a highly fragmented way.

Meeting participants identified collaboration as a top priority. In a facilitated discussion, they were prompted to identify what would be needed to build a stronger regional food system. These ideas were then grouped to identify key issues. Through this process, "need for greater communication/collaboration/trust-building" emerged as the most widely shared concern.

4. Organizations Are Not Achieving their Regional Food System Goals

No interviewee reported fully achieving regional value chain development goals. Farmers lack access to markets, foodservice operators and retailers lack enough regional suppliers, and intermediaries lack connections with suppliers *and* customers. One interviewee, a university official, explained that, "The greatest obstacle I see of [my university] purchasing more local food for its students is the availability. I don't think it's cost. It's really just opportunity to purchase those items." No organizations reporting a numerical target for regional sourcing had achieved its target.

Additionally, stakeholders do not believe that the potential social, economic, and ecological benefits of the region's food system are being realized. As part of the written survey, *Growing Opportunities* meeting participants rated the degree to which northeastern North Carolina's current regional food system is achieving an array of goals adapted from Whole Measures for Community Food Systems (Community Food Security Coalition, 2009). This planning and evaluation tool is designed to aid communities in taking an integrated, whole-systems approach to food systems efforts by considering social equity, biodiversity, civic engagement, economic vitality, and other values. Responses are summarized in Table 1.

A slim majority of respondents see the region's food system as benefiting local communities. Respondents see less progress in other areas, especially food access.

In sum, food system organizations do not yet regard their regional endeavors as having produced the desired results in northeastern North Carolina, in terms of either the development of value chains or achievement of social benefits.

Table 1. Growing Opportunities Meeting Participants' Levels of Agreement with Statements about the Benefits Derived from Northeastern North Carolina's Existing Food System

Northeastern North Carolina's current food system…	Percent of respondents in agreement
… contributes to the strength of the region's communities	54%
… supports the vibrancy of family farmers	38%
… supports thriving economies	31%
… is just and fair	24%
… sustains the health of our environment	23%
… provides healthy food to everyone	13%

Discussion

The results, taken together, indicate that leaders in northeastern North Carolina's food organizations, whose work typically has been motivated by pre-existing commitments to localized geographies, are now also undertaking strategic regional initiatives. The spatial extent of those regional initiatives varies greatly, but there is considerable geographic overlap among organizations in the eight-county region that is the focus of this study. Nonetheless, the degree of coordination across initiatives is relatively low, and stakeholders identified a need for greater coordination. Meanwhile, leaders within the region report that their initiatives are not achieving the results they want, nor is the food system yielding desired benefits for the region's communities, economies, and environment.

In short, efforts to build regional food systems in northeastern North Carolina are well-intentioned and increasingly numerous, but their efficacy remains limited. This should not be attributed to shortcomings of the organizations involved, but rather to a more systemic problem: regional food system development remains poorly understood, and thus poorly supported, by constituencies the system needs to thrive, including policymakers, food-buying institutions, and consumers. Below, we discuss how the distinct characteristics and scalar variability of regional food initiatives present challenges for building constituencies for these initiatives. Then we consider ways in which an enabling environment for regional work can be established through planning and funding.

Building Constituencies for Regional Food Initiatives

A central challenge of building a regional food system is that, as our research illustrates, regional food systems are not just larger local food systems; they are qualitatively different. Local food initiatives tend to stem from their initiators' pre-existing, non-economic, place-based commitments. Regional food initiatives represent strategic linkages over greater geographic distances, to satisfy market needs or mission-driven mandates that cannot be adequately fulfilled within a local geography.

The differences between local and regional food systems are neither good nor bad; they are artifacts of scale. Neither is regional food system development a betrayal of the values that motivate local food system development; our research indicates that regional initiatives typically represent efforts to extend and sustain those values. However, the greater distances involved in regional food value chains, as well as the relative invisibility of regional food system actors from each other and external publics, present a marketing challenge for regional food systems. The archetype of the alternative food system is a farmer at a farmers market or roadside stand: the familiar face of a trusted community member who grew her wares herself nearby. This kind of hyperlocal, DTC value chain appeals to consumers. Regional food is a harder sell. Regional value chains are typically longer, representing participants who are likely not from a consumer's community and are thus unfamiliar.

Moreover, multistep regional value chains include participants (e.g., aggregators, processors, and distributors) whose existence may be unknown to consumers. Even when foods are source-identified and the identity of the supplier is presented directly to the consumer, only the farmer is typically represented. Value chains that render visible the people in the middle—delivery truck drivers, processing plant workers, food safety

managers, etc.—are exceedingly rare. This presents a challenge for regional food system development: regional value chains lack some of the charisma of "local food," while still being unable to match the low prices of globalized supply chains.

In addition to regional value chains being less visible to customers, regions themselves currently inspire little loyalty. For governmental and institutional representatives with geographically delimited jurisdictions, such as county and municipal officials, local food policy councils, or school nutrition directors, the preference for local food is not just aesthetic; it is political. Supporting food suppliers from within one's own jurisdiction is politically advantageous. Regions lack the rhetorical advantages of counties and states, whose boundaries are reinforced by political authority.

The fact that different regional food initiatives are viable at different scales further compounds the problem of fostering understanding of and support for regional food system development. There is not a uniform food "region" that advocates can readily direct attention toward; instead, the region served by each initiative and value chain is different. Rather than fitting the initiative to the geography, many regional food innovators are fitting the geography to the initiative.

Building constituencies for regional food value chains, then, requires educating consumers, public officials, and other stakeholders on the value of investing in food systems that are scaled to enable the emergence of viable food infrastructure and ventures—even if that scale does not correspond to their preexisting sense of place or political affiliations. Stakeholders will have to look past the short-term appeal of a particular sourcing story to the longer-term appeal of having invested in a resilient food system.

Establishing an Enabling Environment for Regional Food System Development

Given the lack of widespread public understanding of and support for regional food system initiatives, organizations such as those included in our study are essentially forging their own paths without the benefit of navigational aids. This uncoordinated approach reduces the impact of participating organizations while increasing risks of inefficiency, redundancy, and competition. While stakeholder engagement projects like *Growing Opportunities* have begun to improve coordination through peer-to-peer networking, a need remains for planning and funding food systems at a regional scale—creating an enabling environment for regional food system organizations.

Efforts to foster regional food system planning and funding will confront the challenges discussed above: regional food value chains are poorly understood and variable in scale, while regional affiliations and institutions are weak. Overcoming these problems will require agreement upon defined food regions that can provide a shared, legible basis for coordinated planning and investment. Obviously, the scale of these regions is subject to debate. Our research strongly indicates that initiatives confined to individual counties or municipalities are likely to be too small to enable the development of sustainable intermediated food value chains, while statewide initiatives are too large to align with the value chains that many place-based organizations are now developing. Given the demonstrated ability of urban markets to propel value chain development, planning and funding regions scaled to encompass urban centers and adjoining rural regions hold considerable potential. Regional entities such as councils of government have jurisdictions that could support regional food system development at this scale—and some have begun to demonstrate leadership in this regard. These existing regional agencies could be given additional powers to plan food system infrastructure and prioritize projects for funding. Then, funders, both governmental and private, could use those regional plans to coordinate their investments, thus promoting the development of complementary, rather than redundant or competitive, initiatives.

A more planned, coordinated approach to regional food system development would admittedly reduce the heterogeneity, and therefore perhaps some of the creativity, that characterize today's nascent food regions. However, it would bring with it something that today's food system stakeholders sorely lack: certainty. If farmers and food system intermediaries were confident that their regional initiatives enjoyed public support and

that the region's institutions were committed to purchasing the food they produced, then participation and collaboration in regional food system development would doubtless accelerate.

Conclusion

From the vantage point of northeastern North Carolina, regional food systems hold tremendous potential. They are different from local food systems, but they represent an extension of, not a departure from, the local food initiatives from which they have sprung. Like local food initiatives, regional food initiatives are designed to boost the vitality of rural communities, creating employment while connecting small farmers to new markets. They have the potential to increase consumers' access to healthy, fresh foods, with attendant health benefits. Though regional value chains are typically longer than local ones, it is still possible to achieve high levels of traceability that educate consumers about the origins of their food. It is further possible, though not guaranteed, that regional food systems can provide more just and ecologically sustainable alternatives to conventional food systems.

While remaining true to many of the commitments that have motivated local food systems initiatives, regional food systems can offer distinct benefits. They offer greater potential for economic viability, especially in rural regions. They also offer the potential to provide significant quantities of food to institutions and wholesalers, therefore increasing access to fresh, regionally sourced food where people regularly eat and shop.

Beyond economics, regional food system initiatives enable a distinct set of relationships. Regional food system development connects people not because they are from the same locale but because of complementary interests, expertise, and aspirations. In this way, regional food system work can facilitate the development of regional practitioner networks that will spearhead further development of these systems. This has the potential to be particularly valuable across rural regions.

Despite their value, regional food system initiatives remain poorly understood and inadequately supported; therefore, they are not yet living up to their potential. We see a need for more applied research on regional food system initiatives in order to improve understandings of their distinct properties, strengths, and limitations. This study has focused on a single, rural region; comparative research across regions, along with further research comparing urban and rural-based initiatives, would add valuable new dimensions. Further regional food systems research will be valuable in guiding much-needed regional food system planning efforts, which in turn will give food system initiatives a better chance of success.

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Making place for local food: Reflections on institutional procurement and the Alberta Flavour Learning Lab

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Abstract

Part case study, part reflective essay, this paper examines questions of place and scale in relationship to local food initiatives and, in particular, institutional procurement. A recent emphasis on "place-based" rather than "local" food systems presents an opportunity to ask, What would local food look like here? The Canadian province of Alberta is a unique place defined by a set of geographical, historical, and cultural relationships and connections around food. Through the case of the Alberta Flavour Learning Lab (Alberta Flavour), an institutional procurement initiative focused on "scaling up" local food, we discuss how an increased emphasis on context and place activates strategic directions for thinking about food system change. We consider Alberta Flavour as a site of strategic localism that involves actively crafting a scale of local food that functions within a particular context. Rather than reinforcing divides between conventional and alternative food systems, Alberta Flavour interfaces between the broader values of the local food movement and the current realities of Alberta's agri-food landscape and culture. We argue that the initiative's hybrid and pragmatic approach to "getting more local food on more local plates," while not radical, nonetheless contributes to positive food system change through "transformative incrementalism" (Buchan, Cloutier, & Friedman, in press).

Keywords

Alberta Flavour Learning Lab, Institutional Procurement, Scaling up, Local Food, Transformative Incrementalism, Reflexive Localism, Strategic Localism, Place-Based Food

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Introduction

When people think about the "local" in "local food," they tend to think about proximity—the geographical distance between field and fork. The "100-mile diet" and the "food mile," for example, capture this location-based understanding of local food. As the name suggests, local food initiatives are defined largely by efforts to decrease food miles, increase local capacity and economic benefits, and improve food security. Such localization efforts are commonly understood, whether explicitly or not, as political—a response to an unsustainable and globalized food system defined by heavy reliance on agrochemicals, fossil fuels, cheap labor, and mobility of products and capital in the global marketplace. This has resulted in a global versus local food imaginary that continues to frame belief and action for many in the food movement. Discussing the U.S. context, Dupuis and Goodman (2005) note that a "normative localism places a set of pure, conflict-free local values and local knowledges in resistance to anomic and contradictory capitalist forces" (p. 359). Indeed, "local" has become more or less synonymous with resistance.

However, this tidy global versus local political imaginary fails to map onto the complexity and messiness of contemporary life. The assumption that localizing food systems necessarily represents a social and ecological good against the evils of globalization has been described by Born and Purcell (2006) as a "trap." This is not to deny or diminish the potential value of localizing food systems, but rather to acknowledge the myriad factors that must be considered when evaluating the politics of *any* scale of food system (Fraser, 2010; Harvey, 1996; Hinrichs, 2003; Mansfield, 2005). For example, well-intended local boosterism may result in a "defensive localism" that blinds itself to the plight of people and places on the margins.

A recent turn towards talk of both regional and place-based rather than local food systems presents an opportunity to reflect on the commonly assumed link between local and sustainable, and invites us to ask how an increased emphasis on context and place might activate new and productive directions for thinking about food systems and political possibility. We take the idea of "place-based" as an invitation to reflect theoretically on the relationship between food, scale, and place, with a focus on the western Canadian province of Alberta. In particular, we look at the case of the Alberta Flavour Learning Lab (Alberta Flavour), a community of practice[1] formed in 2014 in the Edmonton Metropolitan Region, focused on scaling up institutional local food procurement (Alberta Flavour, n.d.). The initiative is the only one of its kind in the province, involving a diverse group of participants,[2] including institutional food buyers, distributors, processors, producers, retailers, researchers, and government representatives (Beckie, Hedberg, & Radies, 2019). The members of Alberta Flavour convene around the shared goal of creating "a positive community impact by getting more local food on more local plates" (Beckie et al., 2019, p. 157) through scaling up institutional local food procurement.

The goal of institutional procurement is to leverage the purchasing power of anchor institutions, such as hospitals and schools, in order to generate new economies of scale that create benefits throughout the local supply chain and the wider community (Beckie et al., 2019; Friedmann, 2007; Reynolds & Hunter, 2017). Institutional procurement initiatives exist, however, in a somewhat ambiguous space between conventional and transformative food systems, leaving some scholars asking how much of an alternative they really offer (Allen & Guthman, 2006; DeLind, 2011). In the spirit of "reflexive localism" (DuPuis & Goodman, 2005), we consider Alberta Flavour as a "key case" (Thomas, 2011) that illustrates some of the debates and tensions involved in scaling up local food. Rather than something to be avoided or casually glossed over, we pursue these apparent tensions

[1] Wenger (2015) defines communities of practice as "groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly."

[2] Members of Alberta Flavour include Northlands Agriculture Society, Alberta Agriculture and Forestry, Alberta Health Services, Covenant Health, the City of Edmonton, Shaw Conference Centre, Erdmann's Gardens and Greenhouses, the University of Alberta, Northern Alberta Institute of Technology, MacEwan University, Aramark, Sysco, and Gordon Food Services.

and contradictions as an opportunity for critical reflection and productive self-critique.

As regular participants in Alberta Flavour, we are uniquely positioned to reflect on the origins and development of the initiative. The second author, a sustainable agriculture and food studies scholar at the University of Alberta, has been affiliated with Alberta Flavour since its inception in 2014. She has been directly involved in conducting research on this evolving community of practice, including the annual measurement and evaluation of institutional local food purchases, as well as overseeing the development of web and social media presence for the initiative. The first author, a Ph.D. candidate in sociology at the University of Alberta, has worked as a research intern with Alberta Flavour since 2017. His role has involved profiling local food initiatives, managing social media accounts, and developing web content.

We consider Alberta Flavour a particular scaling and emplacement of local food that, through its focus on institutional procurement throughout a politically delineated territory, aims to scale up the benefits of local food through forging strategic alliances. In addition, we reflect on Alberta Flavour as a re-negotiating of Alberta's place image where large-scale, export- oriented industrial agriculture, and in particular Alberta beef, has been dominant. Considering place as *process* rather than *container* (Harvey, 1996; Massey, 2005; Swyngedouw, 2004), we examine Alberta Flavour as a site of relational place-making (Pierce, Martin, & Murphy, 2011) in which understandings of Alberta food are reconfigured through an interfacing with Alberta's existing food system and cultural mythos.

In what follows, we outline the methods used for our analysis before turning to an interdisciplinary discussion of place and scale in relation to local food. Employing a constructivist analytical framework marked by an emphasis on the processes by which place and scale are continually made and remade, we consider Alberta Flavour as a strategic intervention into Alberta's unique local food landscape. We go on to consider the politics of up-scaling, to address critiques of institutional procurement, and to complicate distinctions between conventional and alternative food systems. We conclude by situating Alberta Flavour's efforts as an example of transformative incrementalism (Buchan et al., in press), presenting the initiative's policy of scaling up through the development of cross-sector alliances and ambivalent messaging as a tactic towards the goal of broader food system change.

Methods

This paper draws on the methodological approach of self-ethnography (Alvesson, 2003) to study a key case: the scaling-up of local food in Alberta. As Thomas (2011) writes, "the key-ness…of the case is manifested in its capacity to exemplify the analytical object of the inquiry" (p. 514). Alberta Flavour is a novel local food initiative in the province, but one that also represents a broader trend of scaling up local food through institutional procurement occurring across North America (Fitch & Santo, 2016; Reynolds & Hunter, 2017).

Our positionality as participants in Alberta Flavour has given us privileged access to our case. We recognize that our involvement in the group inevitably shapes our analysis, both in ways we are conscious of and ways we are not. While we are aware of the methodological challenges that come with insider research (Alvesson, 2003; Bourke, 2014; Brannick & Coghlan, 2007), we see it as not only a valid approach, but one particularly well-suited to the aims of this paper. Outlining some advantages of self-study, Alvesson (2003) writes, "self-ethnography may develop reflexivity in relation to one's own organizational practice, thus combining theory and practice, and transcend the border between doing research and being an organizational member in other capacities" (p. 189). We use this paper as an opportunity to reflect on and develop knowledge about Alberta Flavour as a re-scaling and placing of local food in Alberta, while at the same time working in other capacities to support the initiative's goals.

We make no claims of impartiality or objectivity in this analysis. On the contrary, we consider our investment and ongoing participation in Alberta Flavour as not only a primary motivation for our research but a methodological strength (Alvesson, 2003). Self-ethnography rejects many of the criteria of traditional ethnography (Alvesson, 2003). According to Alvesson (2003):

> Self-ethnography is a study and a text in which the researcher-author describes a cultural setting to which s/he has a 'natural access', is an active participant, more or less on equal terms with other participants"…The researcher then works and/or lives in the setting and then uses the experiences, knowledge and access to empirical material for research purposes. (p. 174)

While some may see our closeness to our research subject as invalidating (Morse, 1998), such views have come under increasing criticism (Alvesson, 2003; Attia & Edge, 2017; Brannick & Coghlan, 2007). No researcher can observe from an Archimedean point outside of a subjective position. Acknowledgment of this fact is evinced by an increasing emphasis on positionality in social research. Part of a broader emphasis on reflexivity, positionality entails consciously situating yourself in relation to research, and reflecting on potential influences and biases.

The following analysis straddles the line between case study and reflective essay, linking personal experiences, insight, and knowledge with data analysis and theoretical discussion. As part of our study, we met numerous times to discuss our perceptions of and experiences with Alberta Flavour. We also met with and interviewed other members of Alberta Flavour. These meetings involved self-reflection on key moments in Alberta Flavour history, including the group's defining of "local food." In addition, we analyzed and reflected on Alberta Flavour's online messaging with a focus on its Twitter feed, looking for connections between local food and place. The first author has managed the Alberta Flavour Twitter account since 2017, growing its following to nearly 3000 and sharing approximately 1460 tweets per year. Alberta Flavour's Twitter activity was identified as an important component of the group's collective goal of external storytelling (Beckie et al., 2019). Below, we analyze Alberta Flavour's Twitter messaging as active and ongoing constructing and negotiating of the meaning of local food in the Alberta context. Finally, our study includes an analysis of Alberta Flavour's branding in relation to dominant cultural images and imaginaries of Alberta food.

Placing Local Food

The food movement is a response to a globalized agri-food system in which food has been transformed into a commodity like any other. It can be understood as a countermovement defined by efforts to re-embed food within both ecological and social processes (Raynolds, 2010). The local food movement, in particular, has been framed by a discourse of embeddedness (Hinrichs, 2000), challenging the instrumentalism of conventional food systems and promoting more direct relationships between producers and consumers.

However, much scholarship analyzing the connection between local food systems and social embeddedness fails to reflect in much depth on the idea and role of place. If "local" emphasizes spatial proximity, "place" includes the cultural attachments, meanings, and practices associated with, but not necessarily bounded by, particular locations. While it can be said that location and context are aspects of place, place also includes how people relate to, identify with, or feel towards particular locales. Beyond this, place is further distinguished by its close relationship to culture, a relationship explored by human and cultural geographers.

Since the 1970s, geographers have been developing a humanist approach based on phenomenological ideas serving as a counterpoint to what was becoming a tendency to overlook place in favor of the abstractions of space (Cresswell, 2015). A crucial contributor to these discussions, Yi-Fu Tuan (1977) refused to divide space from place, emphasizing their close relationship. French philosopher Henri Lefebvre emphasized the dialectical relationship between place and space through the development of his spatial triad (Merrifield, 1993). Drawing on Lefebvre, Shields (1991) uses the term "social spatialisation" to reconcile space and place. Massey (2005) adopts a similar ontological position on the relationship between space and place, but with a particular focus on place. Through descriptions of the "throwntogetherness" and "event" of place, Massey emphasize places as moments of continual negotiation and potential change: "In sharp contrast to the view of place as settled and pre-given, with a coherence only to be disturbed by 'external' forces, places as presented here in a sense necessitate invention; they pose a challenge"

(p. 141). The apparent stability and coherence of place hide the fact that it is continually renegotiated and thus radically open. It is through this lens that emphasizes the relational aspects of place that we understand Alberta Flavour as engaged in a form of place-making (Pierce et al., 2011).

In the context of the food movement and local-food scholarship, this turn toward place-based thinking has been tied to rejecting a globalized, corporate, and "placeless" food system that emphasizes efficiency, scale, and profit above all else. Food regime scholars have discussed this as the difference between "food from nowhere" and "food from somewhere" (Campbell, 2009; McMichael, 2009). As Wendell Berry (2015) writes, "The great and characteristic problem of industrial agriculture is that it does not distinguish one place from another. In effect, it blinds its practitioners to where they are. It cannot, by definition, be adapted to local ecosystems, topographies, soils, economies, problems, and needs" (para. 4).

DeLind (2011) argues that rooting local food in place would result in a "deeper, more holistic description of local processes, voices, and landscapes (natural, cultural and political)" (p. 280). While the tendency has been to prioritize social and ecological embeddedness, it is also important to consider the cultural embeddedness of local food initiatives in order to develop robust place-based food systems (Feagan, 2007). This is true even when the cultural context in question does not align neatly with the predominant values of the local food movement, such as in Alberta.

If, as Allen, FitzSimmons, Goodman, and Warner (2003) note, "the local is not everywhere the same," a central question for local food advocates is, "what does local mean here?" And, perhaps more pertinently, "what might local mean here?" Throughout this paper, we ask, what is Alberta food? Alberta is not just a political territory or geographical setting of local food, but a unique place in the Canadian context defined by a set of historical and cultural relationships around, and connections to, food. While an in-depth study of food culture in Alberta goes beyond the purview of this paper, we take a moment to consider the idea of place-based food in a province where cattle, commodity crops, and cowboy culture prevail.

Figure 1. Alberta, Canada

Local Food in Alberta

Alberta (population 4,286,134; Figure 1) has a total land area of 163 million acres (66 million hectares), but only 51 million acres (21 million ha, or 32%) are used for agriculture, with 26 million acres (11 million ha) in native rangeland or tame pasture and 25 million acres (10 million ha) in annual crop production (Statistics Canada, 2017). Agriculture in the province is dominated by large-scale, export-oriented livestock and crop operations; although interest in selling into local markets is growing, currently only 2062 farms or 5.1% of the total in the province are selling direct (Alberta Agriculture and

Forestry [AAF], 2018). This percentage is below the national average (12%) and provincially is the second-lowest, after Saskatchewan (3.8%) (Statistics Canada, 2017). Farms in Alberta selling into local markets are distributed throughout the province, so no one geographic area dominates, but clustering can be seen around large urban centers, particularly Calgary (pop. 1,240,000), in southern Alberta, and Edmonton (pop. 980,000), the provincial capital in central Alberta (Kienlen & Blair 2018; Statistics Canada, 2017). These farms are also distributed across all types of farming operations (i.e., crop, livestock, horticulture). Additionally, although there is significant geographic distance (from north to south and east to west) in Alberta, the profile of what can be grown in the province does not change that significantly, regardless of location. However, certain types of agricultural production are better suited to some regions than others; for example, commercial-scale vegetable production is concentrated in central and southern Alberta, which has a longer growing season and more frost-free days than northern regions.

Consistent with the global trend, consumer demand for local food is increasing significantly in Alberta (AAF, 2016). In 2016, the total market value estimate for farmers markets, farm retail, and local food restaurants was CA$1.624 billion, quadruple that of 2004 (AAF, 2016). Currently, growth in demand exceeds supply; Christine Anderson, a local food specialist with the department of Alberta Agriculture and Forestry Explore Local Division, states that "there's room for plenty more [farmers]" to capture benefits associated with this trend (Kienlen & Blair, 2018). Local food in Alberta is defined by AAF as "food grown, made and/or harvested in Alberta and then marketed in Alberta" (Government of Albert, n.d., "Engagement," bullet 1). Using this regional framework, as opposed to the popular "100 mile" association, is beneficial given the context described above.

Alberta *Terroir*

The idea that place can be tasted is denoted by the French term *terroir*. With most understandings of terroir, "the physical environment (soil, weather, topography), not the tiller of the soil, the shepherd, or the vintner, is the primary source of the distinctive tastes of French wine and cheese" (Trubeck, 2008, p. 20). As Trubeck further discusses, however, terroir has also always been a strategic framing of the relationship between food and place propagated through the efforts of "tastemakers" and "taste producers" (p. 21).

Canada Beef,[3] a national industry lobby group, has recently taken up a vocabulary of terroir as a marketing tool. The director of the Canadian Beef Centre of Excellence is quoted on its website: "Where grape vines grow, the climate, the soil, how vines are tied and tended to; all these factors affect how a wine will taste. Canadian beef has a parallel story to be told. Raised in the great outdoors of Canada's varying landscapes, excellence in Canadian beef is shaped by the terroir on which the cattle are reared" (Canada Beef, n.d., para. 2). In contrast to this recent national marketing initiative, the rise and influence of Alberta beef has had little to do with terroir, relying on a much different sociocultural configuration of food and place—one that has relied on the forging of a link between beef and a particular image and mythology of the Canadian west (Blue, 2008).

Ask most Albertans about Alberta food, and you will likely hear about beef. If you spend some time in the province, you may even see "I love Alberta beef" on a nearby bumper sticker. Alberta is beef country, with the largest number of cattle in Canada (Statistics Canada, 2017). Gwendolyn Blue (2008) of the University of Calgary recounts how Alberta beef came to be a "defining feature of Albertan identity" (p. 70). "'Alberta beef does not simply refer to a geographically located agricultural commodity; rather, in very complex ways, it is bound up with regional identity" (p. 73). With Albertans consuming 16% or 117,128 tons of the Alberta beef produced in 2017 (AAF, 2018), it is not a stretch to say that beef is an integral part of the province's "local" food system. But, as Blue (2008) reports, the rise of Alberta beef has had little to do with the values of the local food movement and a lot to do with culture, community, and sense of place. Alberta beef has come to stand in

[3] https://www.canadabeef.ca

for a "cultural mythos" in which Alberta is "portrayed as a maverick agrarian region that is distinct, politically, socially and economically, from the rest of Canada" (Blue, 2008, p. 74). Despite the increasing urbanization of the province, "the image of Alberta as an agrarian culture alienated from, and at times under siege by the rest of the nation still captures the public imaginary" (Blue, 2008, p. 75).

The case of Alberta beef complicates simplistic narratives of local food in two ways. First, linking Alberta with beef as analyzed by Blue (2008) can be considered an example of defensive localism, whereby a food product comes to symbolize a conservative identity that stands in opposition to other cultures and peoples. Second, this case challenges the idea that local food exists distinct from and in opposition to conventional, export-oriented food systems. While Alberta beef is both produced and widely consumed in the province (Alberta Agriculture, 2018), it remains largely oriented towards international markets. Moreover, in terms of climate change beef is widely understood to be one of the worst offenders (Gerber et al., 2013; Natural Resources Defense Council [NRDC], 2017). By highlighting how a food may be simultaneously considered local while also being enmeshed in conventional, export-oriented food systems, we set the stage for our analysis of Alberta Flavour as a strategic intervention in and reconfiguring of the idea and image of local food in the province.

Re-scaling Local Food

Spatial concepts such as local, scale, and place, are not pre-existing categories but are themselves actively constructed in a wide array of contexts. Regarding the question of scale, Smith (1995) writes, "Geographical scales are the product of economic, political, and social activities and relationships; as such they are as changeable as those relationships themselves . . . Scale is the geographical organizer and expression of collective social action" (p. 60). As we have suggested, "local" is not a neutral description of proximity, but a contingent socio-spatial product that expresses and reproduces certain social, political, and economic arrangements. Our analysis of Alberta Flavour is grounded in a constructionist view that rejects fixed conceptions of "local," "regional" and "global" and recognizes both the contingency and the politics of scale (Born & Purcell, 2006; Fraser, 2010). As Winter states, "the turn to local food may cover many different forms of agriculture, encompassing a variety of consumer motivations and giving rise to a wide range of politics (in Dupuis & Goodman, 2005, p. 362).

Scale is a central concept for Alberta Flavour; indeed, the organization describes its efforts as scaling up local food toward the goal of getting "more local food on more plates" (Alberta Flavour, n.d., para. 8). However, as others have pointed out, scaling up is never a uniform expansion, but an uneven reterritorialization. It would be naive to assume that scaling up local food necessarily generates a proportionate expansion of the commonly reported benefits of local food. Rather, any such expansion of benefits is likely to be distributed unevenly across time and space; in addition, "jumping scale" also involves new socio-spatial configurations that may, in fact, contradict or counteract the foundational goals of the movement of which the organization is a part. Rather than assuming, for example, that "bigger is better," human geographers, in particular, have implored that we take the politics of scale seriously.

Fraser (2010) asks, "'what is the most effective scale for organizing?'" (p. 339). The local food movement's version of this question is, "What scale is most effective in positively reforming the current food system?" In addition to adhering to particular ideas of local, local food initiatives, whether they themselves recognize it or not, are always involved in their production—that is, in the process of enacting the idea of the local. Fraser's (2010) concept of "scalecraft" highlights the now widely accepted view that scale is a meaningful and political social product, re-focusing attention on the craft involved with such a process.

To say that Alberta Flavour is a moment of scalecraft (Fraser, 2010) is to emphasize the ways in which it is an active and strategic production of the local scale, and also to point out that such a construction has particular political effects:

> Human actors, whether individuals, social groups, or governing bodies (such as governments or state agencies) 'produce' and 'use'

> scale in all manner of attempts to create some sort of advantage, to establish associations, connections, or solidarities across social divides, or to represent their interests (to be heard or seen) amidst oppressive or otherwise difficult conditions. (Fraser, 2010, p. 332)

For Alberta Flavour, what began with a simple question of how to get "more local food on more local plates" set in motion a group of relationships and connections that has resulted in a viable version of the local scale. We turn now to looking at the definition of local generated by Alberta Flavour participants as a foundational moment of scale-craft.

Defining Local: Two out of Three Ain't Bad

Definitions of local are strategic constructs—they differ across time and space depending on organizational goals and the interests of actors involved. Regardless of what individuals might think about local food, the local scale must be operationalized in ways that function for specific initiatives. From the beginning, Alberta Flavour was aimed at getting large players in Alberta's food system to the table as participants in the local food conversation. Enrolling institutional actors and private distribution corporations into a collaborative network focused on increasing local food procurement is no easy task, and it became clear early on that scaling up local food would require a strategic definition of local.

In 2014 members of Alberta Flavour came up with three criteria for local food: (1) ingredients grown in Alberta, (2) food processed in Alberta, and (3) business owned by Albertans. Instead of requiring all three criteria, it was decided that two out of three were sufficient for a food item to be considered local. This definition prioritizes the development of a regional food system, foregrounding the political territory of Alberta. It is important to note, however, that this definition also allows for a degree of fluidity in order to accommodate the extra-local geographies and players that shape our current food system. Illustrating the point by Hinrichs (2003) that "boundaries between the local and the non-local are now borders, rather than barricades" (p. 37), Alberta Flavour's definition aims to translate the concept of "local" into a set of criteria that resonates with institutions and corporations. It translates what might be understood by large players in the food system as a chimeric ideal into something actually achievable.

The large institutions at the core of Alberta Flavour require large volumes of food that are consistently available and therefore predominantly depend on established purchasing channels controlled by large distributors such as Sysco and Gordon Food Services (GFS). Alberta Flavour also includes participants from Aramark, a multinational food service provider currently under contract with the University of Alberta. Including such participants in Alberta Flavour has been crucial to linking large institutions into a local food equation. Sysco and GFS have participated regularly in group meetings and have reorganized their product inventory to reflect Alberta Flavour's definition of local food. This initial work proved instrumental in identifying local foods available through major distributors and provided essential data for Alberta Flavour's initial baseline study of the institutions' local food purchasing.

With the increased appetite for local food in Alberta, there exists an unprecedented opportunity to scale up production and distribution. Flexible, regionally focused definitions of local food are advantageous for larger institutions and companies looking to benefit from the rising tide of local food. However, such flexible definitions of local food have been criticized by food scholars and activists as a kind of gerrymandering—a convenient shifting of boundaries designed to serve the interests of actors unwilling or unable to assent to more limited but arguably more effective definitions of local (DeLind, 2011). The worry for DeLind is that "the local food movement…may be distancing itself from its systemic roots, exchanging rhetoric for the harder work of contextual analysis" (p. 275).

Alberta Flavour might be seen as an opportunity for corporations that continue to have large stakes in conventional food systems to gain credibility and visibility and take advantage of the added value that comes with local branding. Moreover, Alberta Flavour's flexible definition of local has

resulted in some questionable product promotions, such as that of Lay's potato chips. Lay's chips are processed in Taber, Alberta and are made from potatoes grown in the province. This means that according to Alberta Flavour's criteria, a product produced by Frito Lay, a subsidiary of Pepsi, is local.[4] Promoting Lay's potato chips as local food seems like precisely the kind of "local-washing" (Roberts, 2011) that local food initiatives may wish to avoid. When large corporations co-opt "local," (re)branding and marketing their products in the race to capture market share and stay competitive in a rapidly evolving global food system, they detract from a movement grounded in deeper social and environmental values (Cleveland, 2014). If scaling up local food through institutional procurement means enrolling multinational companies beholden to the bottom line, perhaps it is a sign that we are indeed "hitching our wagons to the wrong stars" (DeLind, 2011). DeLind concludes her discussion of "the Wal-Mart emphasis" with Audre Lorde's acute observation that "the master's tools will never dismantle the master's house" (p. 278). While a truly radical alternative to the current food system may require not only new distribution systems, but a completely re-imagined economic and political system, we propose that "working with the master's tools" is not necessarily antithetical to this cause, and may contribute to transformational change.

Bridging the Divide: Strategic Localism and the Politics of Alberta Flavour

While Alberta Flavour strives towards a set of values and goals broadly associated with the food movement (Beckie et al., 2019), it relies on buy-in from institutions and companies bound by market logics. Exploring this kind of tension, Fitch and Santos (2016) have commented on the tendency for institutional procurement initiatives to prioritize economic viability over other sustainability factors. Would institutional procurement initiatives such as Alberta Flavour be more effective in contributing to the development of a more sustainable and socially just food movement if they reduced their emphasis on economic viability, thereby disengaging from the dominant food system? While some have made arguments suggesting this to be the case (Allen et al. 2003; Hinrichs, 2000), the answer continues to be both uncertain and highly complex (Sonnino & Marsden, 2006; Smith, 2006). In their analysis of the interactions between innovation networks and their environment, Klerkx, Aarts, and Leeuwis (2010) found that while actors or organizations are inevitably bounded by structural influences, they can nonetheless engage in "effective reformism" (Roep, Van Der Ploeg, & Wiskerke, 2003).

Rather than rejecting the conventional food system, Alberta Flavour emphasizes alignment between a diverse membership working within existing structures towards "transformative incrementalism" (Buchan et al., in press). Whereas transformative change is often associated with sudden and drastic shifts or breaks, Buchan et al. (in press) suggest that such change is also achieved incrementally in institutional contexts, although it is more difficult to observe. The authors emphasize the "slow and cumulative actions" that food system planners engage in toward transformative change (p. 24). Their nuanced discussion of the relationship between change and power mitigates easy categorical distinctions between "conventional" and "alternative" local food initiatives. Smith (2006), skeptical of "unchallenging, middle-of-the-road" (p. 455) innovations that concede to the requirements of existing systems, draws attention to a paradox at the heart of Alberta Flavour: "a niche which is in tune with the incumbent regime will not demand very great changes in sociotechnical practices; whereas radical niches…will not diffuse much at all" (p. 443). In the end, however, Smith highlights the tensions surrounding incremental change while also acknowledging its value. "The main lesson" is:

> It is essential for niches to be both radical and reforming. That is, there can be niche elements which can be appropriated by the mainstream relatively easily and which may form a first step towards mildly more sustainable reforms. Meanwhile, the more radical practices will con-

[4] For a description of how Lay's has been involved in a local marketing campaign see DeLind (2011, p. 277).

> tinue to be pursued by committed actors within a renewed niche. They remain advocates for more radical systems innovations. (Smith, 2006, p. 455)

Alberta Flavour represents an overarching strategy of hybridity and dialogue. This is true not only in terms of the way it navigates conventional and alternative food systems, but also in terms of the stories it tells about local food in Alberta. As Pratt (2007) argues, developing alternative food systems involves both organizational and discursive strategies (p. 298). In addition to dealing with the logistic challenges of scaling up, local food initiatives benefit from framing their efforts in ways that support their strategic goals. This includes highlighting certain scales of practice and visions of place. Through its branding and Twitter messaging, Alberta Flavour promotes a particular local food story—one that bridges Alberta's cultural and economic investments in conventional, export-oriented agriculture with smaller-scale, urban-focused, initiatives.

Alberta Flavour's marketing included the development of a logo depicting a fork set against an outline of the province of Alberta (Figure 2). Whether designed with the intention or not, using the silhouette of Alberta in the context of a local food conversation immediately evokes the "I love Alberta beef" marketing campaign discussed above. The logo interfaces with the success of this campaign, while also leveraging that success to promote other "local" foods, many of which are commodity crops. The Alberta Flavour logo subtlety frames a local food conversation within both a context of both regional food systems as well as a culture of what many would consider to be unsustainable conventional agriculture. Even in the very nature of its logo, Alberta Flavour aims to tell a unique story around local food in Alberta—one that resists the conventional-versus-alternative imaginary that permeates contemporary food politics. This particular story is told and retold daily through both the Alberta Flavour website and its Twitter messaging.

Figure 2. The Alberta Flavour Logo

The Alberta Flavour Twitter account (@AlbertaFlavour) is dedicated to telling the story of Alberta Flavour through showcasing local initiatives and advocating for benefits of local food more generally. Alberta Flavour created the hashtag #ABFoodFacts to help draw attention to and discuss the food landscape in Alberta. This hashtag is usually attached to facts about what foods are being produced and/or processed in the province, with the goal of helping the Alberta food system to be more visible to consumers. These food facts are taken from a variety of publications, including the Canadian Agriculture census and data from AAF. One of the most liked and retweeted #ABFoodFacts reads: "DYK #Alberta is the largest honey producing province in #Canada?!" Another reports that "#Alberta is the largest #potato producing province in #WesternCanada, growing over 1,800,000,000 lbs of potatoes a year." Considered as a whole, the tweets gathered under #ABFoodFacts are characterized by a strong emphasis on the productive capacity of Alberta, with little said about, for example, the sustainability implications of producing food (local or not) at that scale and for the primary purpose of export.

However, the productivist focus of the #ABFoodFacts discussion is accompanied by Alberta Flavour's messaging on alternative and urban-focused local food initiatives. For instance, @AlbertaFlavour regularly reports on topics such as the potential of urban agriculture and foraging, sharing articles from outlets such as City Lab and

Civil Eats. In addition to promoting the possibility of growing food in the city, such messaging advocates for issues such as permaculture, food hubs, food sovereignty, and social justice. One representative tweet citing a relevant CBC article reads, "Calling all foodies, gardeners, nature lovers and proponents of pollinators: bee hotels are up for grabs from the Edmonton and Area Land Trust so Edmontonians can help preserve the bee population." As another example, a *The [Toronto] Globe and Mail* article on urban foraging was retweeted, which celebrated the "incredible variety of food hidden in Alberta's landscape." Alberta Flavour also regularly re-tweets content from Civil Eats,[5] an online publication emphasizing radical food system change.

These two sides of Alberta Flavour's twitter messaging illustrate the initiative's recognition of the realities of Alberta's agri-food context and its culture. In refusing to play into the divide between rural versus urban or conventional versus alternative food systems, Alberta Flavour opens itself up to the possibility of contradiction. Such apparently confused or ambivalent messaging might be seen as signaling a watered-down food politics that, in attempting to speak to everyone, fails to speak to anyone. However, in a world increasingly defined by the false comforts of a "filter bubble," there is value in online spaces that interface between what is often presented as oppositional visions of local food. Consistent with Mount (2012), who argues that "recognition of hybridity may be a sign of an adaptive, more reflexive localism" (p. 112), Alberta Flavour crafts a story of Alberta food that recognizes local food culture and food values while also bridging a continued urban-rural divide. Through this strategy, Alberta Flavour helps create a common ground for involving more people in the local food conversation.

Conclusion

Alberta Flavour has an important story to tell. In contrast to a defensive localism that reifies fixed local boundaries, the initiative presents a strategic and pragmatic approach to the question of scaling up local food. As its name suggests, the local food movement was defined in large part by efforts to scale down food systems, re-embedding these systems in community, ecology, and place (Allen, 2008; Renting, Marsden, & Banks, 2003). As the movement has evolved, however, practitioners and researchers alike have re-evaluated previously held assumptions around scale, calling into question the presumed superiority of local (Allen et al., 2003; Born & Purcell, 2006; DuPuis & Goodman, 2005; Hinrichs, 2003; Sonnino, 2010). Alberta Flavour works to scale up the benefits of local food through leveraging the purchasing power of large institutions. Enrolling such institutions in the Alberta context means working with large corporations such as Sysco and Aramark. While the development of such alliances may be criticized for its "Wal-Mart emphasis" (DeLind, 2011), the analysis should not stop there. As we have argued in relation to Alberta Flavour's strategic localism, "working with the master's tools" is not necessarily antithetical to building alternative food futures, but is one tactic in a larger movement towards food system change.

A main strength of capitalism has always been its ability to absorb its own critique, turning potential contradictions or sites of resistance into new sources of accumulation and profit (Marcuse, 1964). Incorporating potentially transformative ideas into existing structures often involves cooptation. DeLind is right to worry that if we let "market potential" and "economic outcomes" (p. 275) guide local food practices and ignore other values (e.g., ecology, culture, biological diversity, etc.) we will be left with a watered-down and consumable commodity approach, hollowed-out of any actual alternative. Yet, as evinced by the case of Alberta Flavour, the line between conventional and alternative food systems is not always clear. As Pratt (2007) writes, these systems "shape each other and often overlap in highly significant ways" (p. 285).

Local food activists and scholars should remain vigilant and not be too quick to celebrate the embracing and scaling up of local food by large corporations. At the same time, working with corporations through models such as institutional pro-

[5] https://civileats.com/about/

curement does not automatically preclude the possibility of transformative change. Alberta Flavour disrupts local/global and conventional/alternative divides through a strategic localism defined by a re-scaling and emplacing of local food in the unique Alberta context. The initiative's hybrid and pragmatic approach to "getting more local food on more local plates," while not radical, nonetheless contributes to a more positive food system through "transformative incrementalism" (Buchan et al., in press).

Alberta Flavour's strategic localism is defined not only by its scalecraft (Fraser, 2010), but also by its emplacing of local food in Alberta. As Tuan (1977) writes, "place exists at different scales. At one extreme, a favorite armchair is a place, at the other extreme the whole earth" (p. 149). While much attention has been given to the construction of place at the level of the nation-state (Anderson, 1991), less is written on the relationship between place and the region (Cresswell, 2015, p. 14; Paasi, 2002). Alberta is both a region and a place defined in large part by commodity exports and a unique cultural mythos exemplified by Alberta beef. Rather than ignore this cultural context or reject it outright as regressive and antithetical to the local food movement, Alberta Flavour uses branding and social media to interface between agricultural productivism and food system change. If such messaging is at times contradictory, this too can be considered a gesture of dialogue—an opportunity to critically reflect on differing visions of local food in the province. We have framed these efforts as active sites of place-making (Pierce et al., 2011), where ideas about Alberta food and by extension Alberta as a meaningful place are negotiated. Conceiving of "place as event" (Massey, 2005, p. 141), we have positioned Alberta Flavour as an opportunity to intervene constructively in the existing constellation of practices, discourses, and imaginaries linking Alberta with an industrial, export-oriented food-system increasingly recognized to be unsustainable.

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PRESENTATION SNAPSHOT

Out of our silos, into the movement: Community food systems and Cooperative Extension in Oregon

Lauren Gwin, Oregon State University*

Presentation Abstract
Oregon has a vibrant community food systems (CFS) movement, which has grown from a few key actors and organizations two decades ago to an increasingly organized, statewide network of more than 50 organizations working on the full span of food system challenges. These diverse organizations have endorsed a common vision: "All Oregonians thrive with healthy, affordable foods from an environmentally and economically resilient, regional food system." The CFS movement aims to expand Oregon's sustainable agriculture and local and regional food sectors in ways that address the state's chronic challenges with food insecurity and inequitable access to healthy food. Analysts have described Cooperative Extension's potential and actual contributions to local, regional, and community food system development. Because many Extension personnel feel limited in their ability to work toward transforming the food system, researchers suggest partnering with external organizations with a similar understanding of food system problems and possible solutions. As those partners develop their own theories of food system change and strategic paths forward, Extension can use these to organize its own CFS goals and strategies. I demonstrate that this is well underway in Oregon.

Keywords: Community Food Systems, Cooperative Extension, Oregon

Key Points
- Oregon's CFS movement has evolved over two decades and is now embodied by the Oregon Community Food Systems Network (OCFSN), a statewide entity with 52 member organizations spanning the full range of CFS challenges and approaches. Over the same period, a small team of OSU Extension agents focused on sustainable agriculture and local food system development has grown into the OSU Center for Small Farms & Community Food Systems, which integrates with public health and community nutrition via an integrated CFS Working Group.
- These two increasingly connected statewide institutions bring together actors with a diverse set of expertise and experience relevant to food systems change. Information exchange, shared learning, and cross-cutting research and education projects have built relationships, trust, and shared purpose within and between these institutions.

continued

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Conclusion

The CFS working group is learning to use OCFSN's framework for food systems transformation to inform not only our projects and programs, but also how we operate as Extension agents. This means remaking our community-engagement strategies and centering equity. It also means increased engagement with public policy, as well as pushing for change within our own institution. In this way, we are better able to support the food systems transformation led by Oregon's CFS movement.

Resource

Oregon Community Food Systems Network: http://ocfsn.net/

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PRESENTATION SNAPSHOT

Telling a new story: Working together to build place-based food systems in the Palouse-Clearwater region of the U.S. inland northwest

Colette DePhelps,[a] * Soren Newman,[b] and Darin Saul [c]
University of Idaho

Presentation Abstract
From early adopters and the first stirrings of cultural change to development of a thriving local foods culture and economy, the Palouse-Clearwater region of southeastern Washington and north central Idaho has seen remarkable place-based food-system development through decades of hard work by a broad variety of players. These place-based food systems have arisen from a combination of individual entrepreneurism, organizational leadership, partnerships, and synergistic relationships across communities and the larger region. Founded on value-based relationships and a shared vision of the future, the local food narratives that have emerged during the development process have framed and shaped the character of these food systems and their expansion over time.

In the Palouse-Clearwater region, University of Idaho Extension faculty and nonprofit staff have been co-leaders in place-based food system development. As co-leaders, they have taken a participatory approach to working with farmers and ranchers, retailers, restauranteurs, community practitioners, and university researchers and staff to understand and overcome barriers and to nurture place-based food systems development. This has led to a rich exchange of ideas and resources between the community members spearheading the local food scene and the university. Multiple research and education projects have been successfully implemented.

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[b] Soren Newman is a rural and natural resource sociologist. Her current research focuses on rural food systems, entrepreneurism, and community resilience. She can be contacted at Office of Grant and Project Development, College of Agricultural and Life Sciences, University of Idaho; 875 Perimeter Drive MS 2331; Moscow, Idaho 83844-2331 USA; newman@uidaho.edu.

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Taking a historical look at place-based food system development in the Palouse-Clearwater region provides a framework for understanding how public-private partnerships in research and education have helped address critical barriers identified through ongoing participatory processes. Food systems development takes time, as do participatory processes. Key to the success of these processes is the over 20 years' experience of the leadership team in working on place-based food systems development from both nonprofit and university perspectives in the Palouse-Clearwater region.

The value of taking a participatory approach to placed-based food systems development can be seen in the region's ability to sustain partnerships, relationships, and resources supporting on-the-ground change even as the roles of individual leaders in the food system have changed. Another result of the participatory process is the development of a shared narrative—the stories of the food system that bind long-term partners and encourage new collaborations. These stories provide the baseline understanding of priorities that underly current research and education programs. It is this shared knowledge that fosters the relationships and power of the practitioner/activist/university partnerships necessary for overcoming barriers to food system expansion.

While the historical development of local food systems in the Palouse-Clearwater region provides a context for understanding the current research on barriers, opportunities, and strategies for place-based food systems development, authenticity and trust are increasingly important as the rate of this development has accelerated. Each participant in the participatory process comes from a different cultural context—be it organizational, familial, or otherwise—and it is through dialogue and joint programming that understanding, appreciation, and trust have been built.

Keywords: Place-Based Food Systems Development, Public-Private Partnerships, Palouse-Clearwater Region

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PRESENTATION SNAPSHOT

What makes food policies happen? Insights from Portuguese initiatives

Cecília Delgado, NOVA University Lisbon *

Presentation Abstract

Two key questions addressed in the current study are why urban agriculture and food initiatives in Portugal take so long to materialize, and why existing initiatives don't scale up from projects to policies. We argue that existing initiatives are mainly carried out as linear processes and have quite limited long-term political commitment. We carried out in-depth interviews with key informants involved in formulating the four initiatives examined. Findings suggest that political commitment and funding are critical points explaining why urban agriculture and food initiatives take so long to materialize in Portugal. These findings align with the conclusions of the recent reports from IPES-Food (Hawkes & Halliday, 2017) and ICLEI-RUAF (Dubbeling, 2013) on what makes food policy happen. In-depth interviews with key informants highlight additional **constraints,** notably the lack of several important facilitating tools such as **monitoring and assessment of initiatives; strong vertical multilevel governance** and **horizontal city-based governance;** and **significant participatory processes for project implementation and policy formulation.** Based on the results obtained so far, we conclude that the constraints found in Portugal come mostly from governance-related issues. Therefore, changes can only happen under a supportive policy at the national level and a facilitating legal system based on vertical and horizontal multilevel governance, strong political commitment, and a national awareness campaign among all the food systems actors. A national platform able to gather relevant data and assess and monitor ongoing initiatives may be the key step to assembling different stakeholders who can advocate and then lead to higher political commitment in Portugal.

Keywords: Urban Agriculture; Drivers; Constraints; Food Policies; Portugal

Key Points

- Portugal needs a food system approach, even if the reasons are different from Canada: For example, more people in Portugal rely on food banks, and food waste is higher in Portugal than in Canada.
- Existing Portuguese urban agriculture initiatives are viewed as single events, mainly oriented toward food

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production for self-consumption rather than considering the whole spectrum of the food system.
- Raising awareness among Portuguese decision-makers is critical to advancing place-based urban agriculture initiatives as a component of the food system.
- Portugal isolation from the international urban agriculture and food debate can partially explain why urban agriculture is still fighting to find its place in Portuguese cities and their outskirts.
- At this time, there is a huge opportunity for peer-to-peer learning, notably between Portugal and the U.S. and Canada, which have long traditions of urban agriculture and food systems development.

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PRESENTATION SNAPSHOT

Food system solutions to address food security and local economic development: The case of food hubs in the Northeastern United States

Cesare Cascella, Mediterranea University of Reggio Calabria *

Presentation Abstract
Socioeconomic inequalities and natural resource exploitation reflect the limitations of how the current food system functions. Global and local conceptual categories are used to describe two alternatives that are shaping the way food is produced, processed, distributed, and consumed. In the United States, food hubs are seen as a model that is able to scale up local and regional food systems in the face of the negative consequences generated by the dominant globally oriented system. Although food security and economic development are the main desirable outcomes for any food system initiative, not much research has been done about how food hubs contribute to these two interrelated key issues. In this study, the research questions have been narrowed down by taking into account the four dimensions through which food security is commonly framed (availability, access, utilization, and stability) and the seven drivers of the community wealth building approach to economic development (ownership, place, multipliers, collaboration, inclusion, workforce, and system). Seven food hubs operating in the Northeastern U.S. were surveyed. Qualitative information was collected about their activities in accordance with the dimensions and drivers included in the adopted conceptual framework. The results suggested that food hubs that operate as business incubators and food processing facilities are involved in several wealth building strategies. Nonetheless, food hubs cannot generally be considered a stand-alone policy to increase food access for underserved social groups.

Keywords: Food Hub; Food Security; Local Economic Development; Community Wealth Building

Key Points

- The community wealth building framework can be used as a design tool for local and regional food system strategies.
- Food hubs can be conceived as community wealth-building institutions.
- The food hubs that are performing better according to the chosen local economic development drivers are nonprofit organizations.

continued

* Cesare Cascella is a designer and researcher based in Boston, Massachusetts. The work presented at the Place-Based Food Systems conference was developed during his Ph.D. studies in urban regeneration and economic development at Mediterranea University of Reggio Calabria. Currently, he is working at a landscape architecture firm, conducting landscape performance evaluation. He can be contacted at cesarecascella@gmail.com.

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- Despite the frequently made promises, only a few food hubs are actively implementing policies to increase food access.
- Public procurement strategies represent a tremendous opportunity to increase food hubs' impact.

Food hubs are expected to fulfill multiple missions (e.g., support small food producers, increase food access, and reduce food miles) while being financially viable businesses (Hardy, Hamm, Pirog, Fisk, Farbman, & Fischer, 2016). That seems too much to promise, and the presented study confirmed a substantial gap between such high expectations and relatively modest outcomes (Fischer, Pirog, & Hamm, 2015). Nonetheless, by reframing food hubs activities using the lens of community wealth building (Kelly & McKinley, 2015), the research shed light on the importance these organizations may have for the local economies.

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PRESENTATION SNAPSHOT

Governance and innovations in local food system development: A bottom-up approach in North Carolina

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Center for Environmental Farming Systems, North Carolina State University

Presentation Abstract
Governance is a collaborative and systemic approach to governing that fosters innovation and inclusiveness of a broad combination of actors, processes, and instruments (Jordan, Wurzel, & Zito, 2005). It draws from the energy, expertise, and resources of the collaborative to employ more sustainable, bottom-up policy solutions. The growth in popularity of local foods and community-based food systems as a pushback to the globalization of our food industry has given rise to a network of coalitions, institutions, and actors in North Carolina that are engaging in local food system development and governance to create a place-based local food economy in the state. The case reviews the Center for Environmental Farming Systems (CEFS), a trans-disciplinary, interinstitutional collaboration between the state's two land-grant institutions, (North Carolina State University and North Carolina Agricultural and Technical State University), and the North Carolina Department of Agriculture and Consumer Sciences, as an active and prominent stakeholder in the process of local food system governance. The Farm to Fork Initiative, now over 10 years in operation, is reviewed to provide both insight into and reflection of a bottom-up approach to creating a local food economy through governance, innovation, and the implementation of community-based food system initiatives.

Keywords: Governance; Food System Governance; Local Food; Local Food Economy; Regional Food Systems; Sustainable Agriculture

Key Points
This publication reviews the case, including lessons learned, of how North Carolina's land-grant universities were involved as active stakeholders in an initiative of governance developing the North Carolina local food system. Critical to the initiative's success was the use of professional facilitation services to support the

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participants in navigating complex topics and identifying mutually agreed upon and achievable outcomes spanning the food system. Local funder engagement early on in the process was important to keep the initiative moving forward and creating successes to leverage for expanded funding opportunities. Finally, responding to identified challenges, such as addressing a lack of critical infrastructure, catalyzed observable growth in areas of the local food economy.

Conclusion

This snapshot provides a preview of a forthcoming publication that enters a current and relevant conversation in the literature of universities' roles in governance of food systems by introducing and reflecting on the case of North Carolina's statewide Farm to Fork Initiative. The publication shares insight into how the NC local food system has implemented an initiative of governance as well as set and prioritized objectives. Also highlighted is the universities' role in developing and implementing initiatives to achieve those objectives. The forthcoming paper will serve as a high-level introduction and review of those initiatives, with the intent of providing deeper dives in each of the initiatives in subsequent presentations and publications.

Resource

Center for Environmental Farming Systems: https://cefs.ncsu.edu/

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POSTER SNAPSHOT

Creating a food system report card to advance the Minnesota food system

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Abby Gold, North Dakota State University, co-lead of SMAT
Allison Anfinson, Blue Cross and Blue Shield of Minnesota; former co-lead of SMAT
Kristen Boelcke-Stennes, Minnesota Department of Human Services
Caitlin Caspi, University of Minnesota
Nishesh Chalise, Augsburg College
Michael Dahl, Minnesota Food Charter Network
Amanda Hane, Amherst H. Wilder Foundation
Tim Jenkins, Minnesota Department of Agriculture
Mary Marczak, University of Minnesota Extension
Ellen Nikodym, Greater Twin Cities United Way
Emily Saunoi-Sangren, Target Corporation
Amy Shanfelt, University of Minnesota
Jared Walhowe, Minnesota Food Charter Network
Ann Zukoski, Minnesota Department of Health

Poster Abstract

The Minnesota Food Charter is a roadmap to improve access to healthy, affordable, and safe food. It proposes 99 specific strategies to guide statewide planning and action to change the food system. A report card to monitor the Minnesota food system is one component of this initiative, but there is a paucity of literature to guide its development. To bridge this gap, a shared measurement action team (SMAT) was created to recommend indicators that could be used to monitor the state of the Minnesota food system, as well as to advance place-based food systems that support unique communities statewide. SMAT established a cross-sector team, created team priorities, developed a theory of change, identified criteria to judge potential indicators, and proposed indicators to be monitored statewide. In this poster, researchers and practitioners can learn about the process of selecting indicators that support the creation of a sustainable, economic, ecological, and equitable food system, and the challenges that arose during these discussions. One challenge

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was that secondary data sources do not provide specific or sensitive enough data to disaggregate differing geographic levels or cultural/ethnic backgrounds. Despite the challenges, we recommended indicators for assessing food access, affordability, and availability; discussed limitations of these indicators; and are in the process of developing indicator recommendations for food system infrastructure. These indicators represent the current state of available secondary data and can be viewed as a springboard for conversation for both researchers and practitioners. They can also serve as a call to action to develop data systems that advance a place-based food system that supports health equity.

Keywords: Food Systems, Indicators, Measurement, Statewide, Strategic Planning

Poster Presentation Key Points:

- There is a need to develop standardized food systems metrics to advance the food system in order to create a system that supports healthy, affordable, and safe food for every Minnesotan.
- To develop food system metrics, collaborate with diverse stakeholders, but recognize that a multisectoral team can generate difficult conversations as well as lead to comprehensive solutions. Embrace the messiness of the food system as well as the different types of thinking of team members. Having a skilled meeting facilitator can help with group dynamics and moving the group forward.
- There is a lack of secondary databases that capture data that can be disaggregated at differing geographic levels and for differing race and cultural backgrounds. This data gap perpetuates the current disparities in the food system.

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PRESENTATION SNAPSHOT

Changing the food environment: What is feasible in small food stores

PLACE-BASED FOOD SYSTEMS CONFERENCE: Making the Case, Making it Happen
August 9-10th, 2018

Liana R. N. Schreiber,* Teresa Ambroz, Nora Shields-Cutler, Jennifer E. Pelletier, Ann Zukoski, and Susan Bishop
Minnesota Department of Health

Presentation Abstract

Small retail food stores are on the decline in Minnesota, and 1.6 million Minnesotans have little access to a full-service grocery store (Rauch & Mattessich, 2016). Additionally, grocery stores closing in rural communities can be economically and socially detrimental to communities. Small food stores, such as convenience and corner stores, are becoming an increasingly important source of healthy food and an important partner with local food distributors in rural communities. The importance of small food stores is especially pronounced in under-resourced communities, as increasing their stock of healthy, appealing, and affordable foods, especially fruits and vegetables, could make these stores a more attractive destination for shoppers and decrease traveling time to other food stores. The Minnesota Department of Health (MDH) is responding to the need in rural Minnesota to develop flexible guidelines that advance place-based food systems. MDH collaborated with 10 local public health (LPH) agencies from across the state and partnered with small food stores to modify the availability, placement, and promotion of healthy food and beverage products. MDH and LPH agencies co-developed the intervention and evaluation and gathered input from storeowners to create innovative intervention strategies. Strategies were rooted in policies, systems, and environmental (PSE) change approaches and focused on stocking and selling healthy products. The approaches for sourcing healthy products varied, but some strategies included working with local food distributors to stock healthy products, which can not only increase healthy food availability, but also help to stimulate the local economy. In this presentation, we shared how MDH collaborated with partners to develop innovative interventions, strategies, and materials. We highlighted challenges and opportunities in evaluating an evolving, community-based intervention where implementation strategies are tailored to unique store needs. We discussed the feasibility of this model and lessons learned about how to successfully make PSE change in stores across Minnesota to create a more robust place-based food system.

continued

* Liana R. N. Schreiber, MPH, RDN, is a research scientist at the Minnesota Department of Health (MDH) who focuses on food access. She is passionate about using evaluation as a change agent and engaging stakeholders to develop evaluation plan with action-oriented results. At MDH, Liana has collaboratively developed evaluation materials and a database to capture statewide changes in policy and systems, and environmental changes related to improving food access and active living and decreasing tobacco use. She also co-leads a cross-sector team developing indicators to monitor changes in the Minnesota food system. She can be contacted at Liana.Schreiber@state.mn.us.

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Keywords: Food Retail; Policy, Systems, & Environmental (PSE) Change; Public Health; Food Access; Evaluation

Presentation Key Points

- Minnesota ranks seventh worst in the nation for healthy food access. Between 2007 and 2012, there was a large decrease in grocery stores in rural Minnesota (Rauch & Mattessich, 2016).
- The Minnesota Department of Health partnered with local public health agencies to work with small food retail stores throughout Minnesota to modify the store environment to improve access to healthy products. The store modifications were based on the marketing mix of product, placement, promotion, and price. State and local public health staff provided incentives to the stores, such as promotional signage and training in, produce handling, and stocking.
- Crucial components of moving this work forward include building trust between all partners involved, being flexible, and not rushing the process. Specifically for the evaluation, making sure that all partners were clear on the guiding evaluation questions was critical to creating shared understanding on the scope of the project. Also, limiting the number of data collection instruments decreased the stores' burden of data collection.
- Having a flexible timeline to accommodate storeowners' schedules is critical for continued partnership.

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PRESENTATION SNAPSHOT

Implementing place-based food systems when access to place is precarious

Maria J. Van Der Maaten, Iowa State University *

Presentation Abstract
Agroecologists and development practitioners claim that the use of agroecological practices can reduce poverty and increase food security. However, this assumption is made without understanding how peasant households can access land on which they can implement agroecological practices. This research explores two research questions: How does differential access to land influence a household's decision to implement agroecological practices? What types of land-tenure statuses are conducive to adapting agroecosystems? I find that household implementation of agroecological practices by peasant households in rural Guatemala is shaped by access to land, specifically land ownership and parcel size, because of the household's ability to create systematic changes to crop and livestock production. The household's ability to implement agroecosystems that cycle nutrients throughout the farm to increase productivity and reduce risk affects its decision to invest in new agroecological practices. I analyze the implementation of agroecological practices among households in San Martín Jilotepeque, Chimaltenango, Guatemala, through qualitative interviews conducted in early 2016.

Keywords: Land; Access; Agroecosystems; Political Ecology; Peasant Farmers; Smallholders; Guatemala

Key Findings

- Land tenure shapes the implementation of agroecological practices. Households did not want to make significant investments to rented land, because they feared that owners would see the land as better (i.e., improved) and be less likely to rent the land the following year or more likely to increase the rent. Most agroecological practices thus were implemented on land owned by participants. Participants implemented agroecological practices that could be implemented independently, as standalone practices, or systematically. Whether households were able to implement practices systematically was influenced by participants' land tenure and parcel size.
- Parcel size shapes the implementation of agroecosystems. Most households argued that their main barrier to the systematic implementation of agroecological practices was their lack of access to land and subsequent inability to raise large animals. The centrality of animal excrement for fertilizer demonstrates the importance of access to land for rural households to effectively implement agroecosystems. Larger animals produce more manure, but also require more food, which requires more land.

* Maria J. Van Der Maaten earned her PhD in sustainable agriculture and sociology at Iowa State University. Her research examines how access to resources affects the use of or ability of rural Guatemalan smallholder households to implement agroecological practices. She can be contacted at mariavdm@iastate.edu.

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Conclusions

Variation in land assets shapes the ability of households to use agroecological practices in rural Guatemala in several ways. First, households are unlikely to use agroecological practices on rented land. Renters acknowledge the ecological benefits of using the practices, but weigh those benefits against the risk of losing access to land that they use to produce subsistence crops. Second, households can incorporate agroecological practices regardless of their plot size, but households with smaller landholdings are more likely to need to purchase certain inputs to create complex, input-dependent agroecosystems. Agroecological practices can be implemented at any scale; agroecosystems, however, as a livelihood strategy—and the ideal of most participants—require a larger scale and greater landholdings. Finally, households with larger parcels of land are most likely to be able to implement broader agroecological practices and create simple, on-farm agroecosystems. They have the land to grow fodder for their livestock and enough livestock to use the manure to fertilize crops, which can serve as food for the household, feed for livestock, or be sold in the market to purchase other goods. The simple, independent agroecosystem is an assumed result of using agroecological practices; however, as evidenced by the households in San Martín Jilotepeque, this is a challenging outcome for marginalized households to achieve. Agroecological practices can be a development strategy, but only with changes to how households can access land. Without land to systematically implement agroecological practices, they will have limited impact as a livelihood strategy.

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PRESENTATION SNAPSHOT

Cultivating the Farmers Markets of Minneapolis Collaborative

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City of Minneapolis

Hikaru Hanawa Peterson [b] and Joseph J. Nowak [c]
University of Minnesota

Presentation Abstract

Farmers markets have operated in Minneapolis for more than 100 years. Twenty-nine markets operated in 2018 with about 800 vendors representing a range of ages, cultures, and geography. Markets are independently managed, varying in governance structure, and until recently without coordination. Collaboration among Minneapolis markets was identified as a priority in 2009 and realized in 2017 with the formation of the Farmers Markets of Minneapolis, which engaged market managers, the City of Minneapolis, the University of Minnesota, and other partners.

The 2008 launch of Homegrown Minneapolis, a citywide initiative, fostered collaborative discussions among market managers. The Minneapolis City Council adopted recommendations for markets in 2009 that included the creation of a formal means for markets to coordinate their activities. This remained a latent opportunity until 2015, when market managers with renewed interest forged a collaboration with new Homegrown Minneapolis staff and University of Minnesota-Twin Cities faculty. City and university staff time helped propel the efforts forward.

The collaboration gained momentum from the development of a market metrics project and a collaborative strategic plan and marketing campaign. The metrics project was inspired by the need for data to illustrate community impact. Following a 2016 pilot, the first season of a three-year metrics project was completed in 2017 after surveying 27 markets in Minneapolis and St. Paul. Strategic planning in 2016–2017 identified collaborative goals. The collaborative launched a marketing campaign in 2017 to establish the Farmers Markets

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† Note: The opinions expressed are those of the author and not the City of Minneapolis.

[b] Hikaru Hanawa Peterson is a professor of food marketing and consumer economics in the Department of Applied Economics at the University of Minnesota.

[c] Joseph J. Nowak is a Ph.D. student in the College of Food, Agricultural and Natural Resource Sciences at the University of Minnesota.

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of MPLS brand, supported by the City of Minneapolis and the General Mills Foundation. The collaborative is currently implementing priority strategies and evaluating potential long-term governance structures.

Keywords: Metrics, Marketing, Collaboration, Partnerships, Farmers Markets

Key Points:

- The metrics project provided an opportunity to collaborate and generated trust, momentum, and valuable data. The planning team members identified a shared vision, vetted it with more than 100 stakeholders, and formalized it by adopting a strategic plan.
- The collaborative consulted with credible leaders. They held calls with researchers at the Farmers Market Coalition and the University of Wisconsin-Madison to understand their metrics program. Support from the General Mills Foundation enabled the collaborative to enlist marketing professionals to develop a collaborative brand and marketing campaign. Data collection protocols developed by an applied economist at the University of Minnesota guaranteed the metrics' integrity.
- Decentralized roles and activity among market managers, organizations, and institutions created both complexity and stability for the partnership and leveraged a breadth of opportunities and resources.

Conclusion

The Farmers Markets of Minneapolis is a promising collaborative model, bolstered by city and university partnerships. Like any healthy organization, the system of collaborative relationships has required ongoing maintenance. Productivity coupled with time for informal check-ins and social time have been critical contributors to the endurance of the collaborative partnership and projects to date. Ongoing invitations to participate and flexible, adaptive roles and approaches have helped engage new partners when existing partners have left their roles.

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PRESENTATION SNAPSHOT

Development of a food security indicator framework in British Columbia

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British Columbia Centre for Disease Control, Provincial Health Services Authority

Presentation Abstract
Food security is complex in both content and governance, making it difficult to measure and monitor. In 2016, the Population and Public Health Program of the British Columbia Centre for Disease Control, Provincial Health Services Authority, sought to identify or construct an evidence-based conceptual framework to guide the systematic selection of food security indicators for British Columbia (BC), Canada.

A systemized scan of the literature found no existing conceptual frameworks specific to food security indicators appropriate to the Global North. The most relevant indicator frameworks for food security in the literature were environmental health indicator frameworks. These formed the foundation for the conceptual framework for food security indicators in BC. The framework is a matrix that combines an adaptation of the environmental health casual network (i.e., determinants–current state–impact–response) with food security elements (i.e., (i) individual and household food insecurity; (ii) food systems, and (iii) capacity). Use of this framework can enable program planners and policy-makers to be clear about where and how they are attempting to assess, influence, and monitor food security. It also illustrates interconnectedness between indicators.

The creation of this framework has laid the foundation for the development of a set of indicators for BC

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[b] * *Corresponding author:* Melanie Kurrein is the provincial manager of food security with the Population and Public Health Team with the British Columbia (BC) Centre for Disease Control, Provincial Health Services Authority (PHSA). She is a Registered Dietitian with a master's degree in socio-cultural studies of food and has worked in food security for over 17 years at local and provincial levels. In her current position, Melanie works closely with the regional health authorities, the First Nations Health Authority, and the Ministry of Health to facilitate provincial collaboration and coordination of activities to inform food security policy and initiatives across the province. Melanie is the project lead for the food security indicators project and can be contacted at melanie.kurrein@bccdc.ca.

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Public Health. Its wide scope allows for the potential of various sectors to populate the framework with indicators and thus create a comprehensive assessment of food security in BC.

Keywords: Casual Network; Conceptual Model; Environmental Health; Food Security; Indicators; Indicator Framework; Public Health

Key Points

- PHSA sought a systematic, evidence-based approach to indicator selection.
- While food security frameworks are abundant, no food security indicator frameworks appropriate to the Global North were identified.
- The most relevant indicator frameworks for food security identified in the literature were environmental health indicator frameworks; thus, the BC framework is adapted from these models.
- The framework illustrates causal relationships and interconnectedness between indicators.
- The framework can enable program planners and policy-makers to be clear about where and how they are attempting to assess, influence, and monitor food security.

Selected Resources

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PRESENTATION SNAPSHOT

From "informal" to "local": The role of data in legitimizing and supporting the local food economy in Malawi

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Jessica Kampanje-Phiri [b]
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Presentation Abstract

Local and regional food economies throughout Africa are critical to rural and urban food security and are common sources of income for men and women. Despite their importance, local agrifood systems are often described as "informal," a framing that obscures their value and implies chaos, inefficiency, and backward-ness. Consequently, the importance of local food economies in relation to food security and livelihood is largely unexplored.

As critical nodes in regional food networks that link rural producers to city residents, urban retail markets offer important opportunities for legitimizing and strengthening regional food systems. Better understanding these markets through research is key to developing policies and interventions that address urban factors of food insecurity, such as the condition of infrastructure, municipal policies that govern the use of space, and consumer proximity to markets. This type of research can also inform how local and regional agrifood networks, institutions, and practices can be strengthened in the service of local agrifood economies in both rural and urban contexts.

Our presentation and paper highlight significant findings from a collaborative research project conducted by Michigan State University and Lilongwe University of Agriculture and Natural Resources, the goal of

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[b] Jessica Kampanje-Phiri, Ph.D., is a social anthropologist specializing in understanding the cultural dimension of food systems in Malawi and beyond. Her areas of academic and research expertise include food and nutrition policy analysis; the natural, social, political, institutional, economic, cultural, and technological aspects of food, poverty, and livelihood security; power and gender relations; social-cultural inequalities; and humanitarian interventions and development assistance. She is a lecturer of social work and a deputy head for the Department of Human Ecology at the Lilongwe University of Agriculture and Natural Resources (LUANAR), Lilongwe, Malawi. She can be reached at jkampanje@luanar.ac.mw.

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which is to better describe and understand urban food exchange in Lilongwe, particularly in relation to sustainable livelihoods and food security. Findings from this work should inform municipal planning processes and other efforts to address urban food insecurity in Lilongwe.

Keywords: City-Region Food Systems, Malawi, Lilongwe, Informality, Food Exchange, Retail Markets

Key Points

- Analytical and conceptual frames affect how we understand reality and how we decide to enact change. In this presentation, which concerns the local food economy in Malawi, we make the case that predominating conceptual and analytical frames obscure empirical realities. We suggest that alternative frames, more attuned to and reflective of the realities of place, are more likely to result in analyses and findings that serve social and ecological wellbeing. Moreover, place, as an organizing principal, frees up analyses to recognize the emergent properties of local food systems; in Malawi, for example, a key dimension of the local system is its fluidity and flexibility, which are likely factors contributing to its adaptive capacity.
- Prevailing framing of agrifood system change in Africa is referred to as "food systems transformation." This framing says that rising incomes plus rapid urbanization drive changes that signal "modernization" is imminent. "Modernization" is conflated with the kinds of food systems that prevail in western countries. Policy prescriptions tend to call for responses that will expedite this kind of transformation.
- We assert that *a priori,* universal assumptions about where the food system is headed remove the impetus to study where the food system is presently, as well as place-based challenges, opportunities, and goals. Food systems referred to as "traditional" or "informal" often have their value dismissed because in the prevailing linear framing, it is assumed they will disappear. Yet, these local food systems reveal much about the challenges people face and why and how the system works in relation to place-based realities.
- Going forward, food systems studies in Africa should aim to expose theoretical weakness of prevailing conceptual frames, demonstrate the ways in which prevailing policy prescriptions are political, draw attention to the ideological assumptions that underlie market-oriented policy prescriptions, insist on empiricism, and recognize other forms of knowledge production and ways of being. Our work has shown that interdisciplinary, multistakeholder processes can accommodate and reconcile a wide range of experience, and are thus more reflective of democratic city development.

Conclusion

Our presentation proposes a frame based on scholarship from African urbanists AbdouMaliq Simone and Edgar Pieterse that encourages place-based analyses of food systems that can grapple with particular social, economic, political, and environmental realities in a place, as well as highlight how they are important to livelihood and other kinds of human wellbeing. In lieu of the full paper, we refer the reader to two research briefs: *Urban Food Security in Lilongwe, Malawi*[1] and *Regional Supply Chains and the Food Economy of Malawi.*[2]

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PRESENTATION SNAPSHOT

Building grantee capacity as a core strategy to improve local food systems

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Presentation Abstract

Greater Twin Cities United Way (GTCUW), Minnesota's largest nongovernmental social services funder, connects local people and resources to change systems that limit our potential. Hunger and food insecurity require a spectrum of holistic responses that address emergency and root causes, while advancing long-term solutions for individuals, families, communities, and systems. To that end, GTCUW launched Full Lives, an innovative grantmaking strategy fostering a healthy and equitable community food system where all residents can thrive. This two-year, US$1.5 million effort employs a place-based approach to community and economic development to reduce food insecurity by improving food access, food affordability, and food justice for a low-income Minneapolis neighborhood facing systemic food security issues. Full Lives grantees focus on diverse aspects of the local supply chain that strengthen North Minneapolis's local food system.

Full Lives further augments this effort through grantee learning focused on increased organizational capacity and strengthened connections among grantee organizations, with a cross-cutting theme of community development. GTCUW partners with local technical assistance providers to implement flexible, innovative, responsive, and targeted capacity-building strategies and services. This strategic investment generates cross-agency collaboration, active networking, organizational development, and enhanced food systems technical expertise. A robust evaluation—including qualitative and quantitative elements—reveals successes, challenges, and lessons learned from the design and execution of these capacity-building strategies. Practice and measurement of this grantee capacity-building investment suggests strategies and considerations for partnership development, incorporation of grantee and community voice in planning, and delivery of ongoing educational activities for grantees.

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[b] Rebecca (Beki) Saito, associate director and senior research associate at Rainbow Research, an evaluation consultancy, provides senior leadership on projects that include evaluation capacity-building for food sector grantees through Full Lives of Greater Twin Cities United Way and with tribal nations and reservations for the Northwest Area Foundation. She has over 30 years of experience conducting evaluations of, for, and with nonprofits. Ms. Saito holds a master's degree in social sciences from the University of Chicago.

[c] Margaret Adamek is CEO of Terra Soma, LLC, which works at the intersection of food, health, and agriculture. She has 25 years of food systems development experience working across the food supply, sectors, cultures, and scales. She holds a PhD in adult learning from the University of Minnesota and a BA in African American studies from Carleton College.

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Keywords: Community Food Systems, Grantee Capacity-building, Place-based Grantmaking, Partnerships, Food Security, Root Causes

Key Points

- **Framing of United Way and Role in Food Security:** United Ways are rethinking their approach to grantmaking for issues of poverty and food insecurity. Local economic and community development focused on community food systems as a grantmaking strategy shifts the emphasis from addressing individual need to a community-scaled, long-term approach. This is an important departure from traditional grantmaking approaches to food insecurity.
- **New Strategy and Full Lives Model:** The Full Lives grant program reflects this new approach, providing over US$1 million in funding and targeted, strategic technical assistance to a cluster of grassroots grantees working across the community's supply chain with robust measurement.
- **Context about North Minneapolis:** North Minneapolis, a culturally diverse neighborhood with a sizeable African American population, offers a rich array of food systems-focused, community-based initiatives designed to grow health, wealth, and connectivity. Many residents face economic and food access challenges, as well as a shared passion for building their community through food and agriculture.
- **Why Capacity Building?** Organizations that have robust management skills, fundraising know-how, and expertise in food systems development are most likely to capably and effectively generate lasting systems change for the communities they serve. That's why the Full Lives program offers a diverse array of learning opportunities and support for grantees, in addition to funding.
- **What is the Capacity Building Approach?** Initial and ongoing grantee assessment and periodic questions posed to grantees help surface their learning agenda and identify desired competencies for just-in-time, responsive support. Grantees receive cohort-wide capacity-building experiences and resources, as well as organization-specific opportunities for customized consulting from technical assistance providers with expertise in evaluation, fundraising, organizational development, and food systems development.
- **Themes and Results:** Capacity building must be diverse, strategic, and responsive, via the effective deployment of resources, expertise, and relationships of trust. A community development framework for designing capacity building is also helpful.
- **Evaluation Model for Capacity Building:** Together, grantees jointly create the measurement system to holistically assess their learning, capacity building efforts, and associated impacts.
- **Challenges:** It is important to balance individual and group readiness; acknowledge that grantees do not always understand some of their own learning needs; ensure technical assistance providers possess intercultural competency; and that funders and grantees both have learning needs that need support.

Conclusion

Now in its second year of implementation, the GTCUW Full Lives grant-making program is designed to support the development of a *healthy, equitable, and sustainable community food system in North Minneapolis where all residents can thrive*. Robust evaluation has generated data that demonstrates this approach is catalytic for food systems change at a neighborhood scale. The program is a neighborhood-focused, place-based community food security grant strategy that provides US$1.5 million in direct grants over 2 years to 14 projects in a cohort of 11 organizations working across the supply chain. Grantees include organizations working in production (development of community-owned greenhouse and urban farm), distribution, and retail (mobile markets and a nonprofit grocery store). We explore the foundational program component focused on capacity building, including the structure and community-based design. We also share early results from shared measurement evaluation, with successes, challenges, and lessons learned.