

Urban Agriculture in the Southwest:
A Comparative Study

There are two spiritual dangers in not owning a farm. One is the danger of supposing that breakfast comes from the grocery, and the other that heat comes from the furnace.
-Aldo Leopold

Introduction:

This paper examines the role that urban agriculture plays in cities within the American Southwest. The primary goals of this research are to 1) add to the academic understanding of urban agriculture in the Southwest by assessing the status of urban agriculture in the region and identifying its strengths and limitations, and 2) determine whether or not urban agriculture is addressing the national and regional food crisis. This topic is important for Southwest Studies because the literature on urban agriculture in the Southwest is sparse. In the past two decades there has been a deluge of books and academic articles pertaining to urban agriculture; however, the American Southwest is not typically included in the myriad case studies. This research is also important due to the Southwest's distinctive climate and corresponding agrarian conditions. Due to its hot and arid climate as well as infertile soil, the Southwest differs from all other regions in the United States in regards to agriculture. Because of these unique conditions, most Southwestern agriculture takes the form of cattle and sheep ranching (Blair and McSherry, 1996). The majority of crops grown go to feed these animals. This means that nearly all food crops must be imported from outside the region's borders (Miller, 2014). Because of this it is particularly important to find innovative methods for growing food crops in the Southwest.

Because food insecurity is an issue in every region of the United States, this

research can serve as a model that is beneficial beyond the Southwest. Results of this research include successful urban agriculture tactics that could be employed almost anywhere. Additionally, this paper will draw specific examples from the case studies to show which public policies encourage and which obstruct urban agriculture. Using these examples, I will address how public policy can be improved to accommodate urban agriculture in the Southwest and other regions as well.

This paper is grounded in political ecology theory, which looks at the relationships between environmental issues and social, economic, and political spheres (Robbins, 2012). Chapter one discusses the current national food crisis, specifically addressing the issues of environmental degradation, health inequity, food insecurity, and public policy's shortcomings in dealing with these issues. Chapter two is a detailed overview of urban agriculture. In particular, this section contains a literature review of the subject, an analysis of the strengths and limitation of urban agriculture, and a discussion of its current status. Chapter three looks at urban agriculture in the Southwest. It draws from the month long research I did in which I looked at urban agriculture initiatives in Santa Fe and Albuquerque, New Mexico, Phoenix, Arizona, Las Vegas and Reno, Nevada, Fresno, Santa Cruz, San Francisco and Oakland, California, and Salt Lake City, Utah. Chapter four goes into depth about political ecology and how it is a relevant theoretical grounding for these case studies. I will conclude with an overview of the role of urban agriculture and how it can be supported by public policy.

Chapter One: *The National and Regional Food Crisis*

To start, there are a number of key terms used throughout this paper that may

not be clear without definition. The definition I use for urban agriculture is: “agricultural production that is located in and near urban centers, and that which is integrated in the urban economic, social, and ecological system” (Reynolds, 2010, 7). Another important term used in this paper is food security, which I define as having consistent and affordable access to an adequate quantity of nutritious food. This relates to food deserts, which are urban areas lacking “access to fresh, healthy, and affordable food” (Sparks, 2012). Food sovereignty, another term used in this paper, differs from food security because it emphasizes the right of individuals and communities to define their own food system and to have a say in all of its components. Finally, the term food system encompasses every aspect of the food cycle including production, processing, distribution, consumption, and waste management.

Our current food system is in trouble. Following the “Green Revolution” of the 1940s-1960s, American agriculture has primarily been focused on producing and distributing crops as uniformly, conveniently, and cheaply as possible (Meredith, 2010). This has resulted in a shift from a system based on small-scale family farms to one that is heavily commercialized and industrialized. This change has led to many negative unintentional consequences. These include environmental degradation, social injustices, health problems, and economic costs, all of which are complicated and require further explanation.

Environmental Costs

Industrialized agriculture has taken a huge toll on the environment, especially with regards to its carbon footprint. One reason is that most food items are transported far away from where they are grown. In fact, “the average ingredient in a North

American meal travels 1500 miles from farm to plate” (Smith, 2008, 3). Another factor is that the machinery required to operate a large-scale farm requires fossil fuel energy and emits harmful greenhouse gases. Because of this and all of the cross-country transportation, 20 percent of fuel in the US is used for industrial agriculture (Meredith, 2010). At the end of the food cycle lies yet another contributor to greenhouse gases: food waste. It is estimated that 40 percent of our country’s food goes to waste (Bloom, 2010). This waste makes up a large percentage of our landfills and contributes a significant amount of methane to the environment as it decomposes (Environmental Protection Agency, 2011).

Loss of biodiversity has been another environmental consequence. For one, there has been a dramatic decline in genetic diversity of crops. In the last century alone we lost 96 percent of fruit and vegetable varieties (Meredith, 2010). This is problematic because biodiversity provides more nutritious and overall higher quality food; it nourishes the soil, conserves natural resources, generates more employment and provides farmers with higher incomes (Shiva, 2007). It is also one of our greatest forms of security because in a diverse crop production setting if one, or even a few crops fail, numerous other crops will be available to eat. It is not only crops that are losing biodiversity. Large-scale agriculture, typically in the form of monocultures, uses large quantities of land and chemical pesticides, which can destroy animal habitats (Winne, 2010).

Industrial agriculture poses a monumental threat to water quality as well. According to the National Water Quality Inventory, pollution from agriculture is the “leading source of water quality impacts on surveyed rivers and lakes, the second

largest source of impairments to wetlands, and a major contributor to contamination of surveyed estuaries and ground water” (Environmental Protection Agency, 2005). This is caused by the irresponsible application of pesticides, fertilizer, and irrigation water, overgrazing, over plowing, over tilling, and inadequately managed feedlots and animal operations (Ongley, 1996). Industrial agriculture is also accountable for depleting both surface and groundwater reservoirs. As it stands, agriculture uses approximately 80 to 90 percent of the country’s consumptive water (Aillery and Schaible, 2013). This number could drop dramatically if farms, particularly those on a large scale, used more efficient practices, such as drip irrigation as opposed to overhead sprinkler systems.

Soil damage is yet another environmental problem associated with industrialized agriculture. For one, intensive agriculture depletes soil of its “natural supplies of trace elements and organic matter” (Porter, Trautmann, and Wagenet, 2012). The larger issue, however, is soil erosion. Throughout the course of a single growing season, “an average of 10 times as much soil erodes from American agricultural fields as is replaced by natural soil formation processes” (Porter, Trautmann, and Wagenet, 2012). This is especially problematic because it takes approximately 300 years to form 1 inch of agricultural topsoil. This loss has been masked by increased use of pesticides and fertilizers to replace the lost natural nutrients. These, however, only perpetuate the problem. Soil erosion is also accountable for water pollution, increased flooding, and destroying the habitats of aquatic species (Clark, Haverkamp, and Chapman, 1985).

The environmental costs of industrialized agriculture are many. If we wish to maintain a habitable earth, we must find alternatives. A habitable earth will not mean

much to humans, however, if we are not healthy enough to enjoy it. The health and social costs of our current food system are equally daunting and in need of solutions.

Health and Social Costs

The previously mentioned air and water pollution are an obvious threat to human health, but the list goes on. Diabetes, cardiovascular diseases, obesity, and food-borne illnesses have all been on the rise in our nation and disproportionately affecting minority and impoverished populations. This is largely because of the vast disparity in access to nutritious food. In America alone, 49 million people experience food insecurity and 23 million live in food deserts (Dukto, Ver Ploeg, and Farrigan, 2012). In spite of this, 40 percent of the country's edible food is going to waste every year (Bloom, 2010). Another group that is disproportionately at risk for food-related health problems are the farm workers themselves who can be exposed to dangerous chemicals, operate dangerous machinery, constantly damage their bodies from the hard work, and are often barely paid a living wage (Miller, 2014).

Economic Costs

A century and a half ago, nearly 80 percent of the country's population identified as a farmer. Now the number is down to less than 3 percent (US Department of Labor, 2014-2015). As agriculture gets larger and more mechanized, there is decreased need for workers. This directly affects unemployment rates and the myriad economic problems that coincide with unemployment. Commercialized farming also takes a toll on local economic development, as most communities are reliant on food exports. Other economic costs of industrial agriculture are not as visible. They come in the form of externalities, such as soaring health care costs due to obesity, diabetes, and

cardiovascular issues (Franceschini and Tucker, 2010). Environmental externalities are also very expensive. For example, the external costs of cropland erosion in the United States costs over one billion dollars every year (Porter, Trautmann, and Wagenet, 2012). These economic costs, along with the environmental, social, and health costs, could be at least somewhat alleviated with the help of effective public policy.

The Politics of the Food Crisis

One reason that these consequences are perpetuated is because there are many policies in place that do not promote a healthy food system. The United States government has the opportunity to implement policies that support food systems in which workers are treated ethically, nutritious food is distributed more equally, natural resources are conserved, and pollution is reduced. Unfortunately, more often than not public policies inhibit socially and environmentally just and sustainable agricultural practices instead of promoting them.

One example of this is the subsidy system in which the United States government gives financial assistance to farms. This is great in theory; however, the subsidies are primarily for corn, wheat, cotton, and soy. This is problematic for several reasons. For one, the majority of these crops does not go towards human consumption and instead are fed to animals. What is fed to humans from these crops is typically highly processed and depleted of nutrients. This creates a system where unhealthy foods, such as foods containing high fructose corn syrup, are much cheaper than unsubsidized highly nutritious foods, such as leafy greens, tomatoes, etc. Another example is the structure of the organic sector. For one, there is often little uniformity between state and federal regulations as well as different certifying agencies, which

can undermine the credibility of organic agriculture because it has different definitions across the board. Also, the system inherently favors large commercial operations because it is very costly to get an organic certification (Guthman, 2004). Yet another example is that the Agricultural Act of 2014, also known as the Farm Bill, includes cutting the Supplemental Nutrition Assistance Program by \$8.6 million over the next decade (Ayres, 2014). According to author and activist Marion Nestle,

Because many people lack resources to obtain adequate food on a reliable basis, hunger is a matter of politics. Political conflict, insufficient responses to natural disasters, corrupt institutions, and inequalities in income and education constitute the “root” causes of malnutrition. It’s not enough to distribute food to hungry people. Governments should take actions to redress system inequities that lead to hunger in the first place. (Nestle, 2015)

Not only did the most recent farm bill take away food security from some of the neediest people in the country, but it also failed to implement programs to break the cycle of poverty and hunger. Clearly, policy at every level plays a monumental role in the fate of our food system. The next three chapters will include information about how urban agriculture, specifically, is impacted by policy.

Chapter Two: *Urban Agriculture*

The complex tangle of the United States food system makes it difficult to know where to begin in addressing its many shortcomings. This research focuses on urban agriculture because of the ever increasing urban populations and the pressure they impose on our food supply. Urbanization requires a huge transformation of agricultural land to urban space. This is evidenced by the fact that “in the past 50 years, urban sprawl has paved over close to a million acres of our best topsoil” (Meredith, 2010, 23). If we do not reorganize our food system, this number will

continue to grow in congruence with our population. Rises in urban populations translates to a decline in rural populations, which typically means a loss in farm labor. In turn, this encourages a more mechanized means of food production. Additionally, the increased gap between urban and rural life disconnects people from their food source, which can result in harmful dietary choices as well as apathy towards social and environmental injustices often committed within the industrial food system.

In this chapter I will show how urban agriculture addresses these problems and more. Before discussing them, however, it is important to provide an overview of urban agriculture in the context of the local food movement.

Urban Agriculture as a Facet of the Local Food Movement

In the past decade, local food has become a focal point for activists everywhere. Its champions, such as Alice Waters and Michael Pollan, have become household names. Everyone from soccer moms to liberal college students are promoting it. According to David Suzuki, “eating locally isn’t just a fad, it may be one of the most important ways we save ourselves and the planet” (Smith, 2010, cover). Its benefits, which are widely advertized by passionate food activists, are many. For one, farmers who sell their produce locally typically engage in direct marketing. This enables them to skip distribution centers, which decreases their food miles and allows them to breed for regional flavor, cultural significance, and ecological principles rather than the ability to endure transport and storage (Masi, Schaller, and Shuman, 2010). Additionally, the food “hasn’t cost an ecological fortune in fossil fuels coming across the continent (Singer, 2006, 139). There is also a benefit to the relationships and trust formed between the consumer and producer of local food. Economically, this practice

enhances local economies by keeping money circulating within the community (Pinchot, 2014).

The local food movement, however, is not without its flaws. One critique is that localizing food systems does not necessarily decrease fossil fuel use. According to Matthew Mariola, “we should be careful not to conflate spatial relations with ecological relations, for energetic sustainability is premised on far more than simply distance traveled” (Mariola, 2008, 194). Typically, local food means more, albeit smaller, vehicles traveling to distribution centers, as opposed to a large truck coming from location. Those transporting goods from smaller farms and shorter distances are transporting less than those coming from large, industrial farms. Despite the fact that the small farm distributors are traveling less distance, they are using more fuel per item transported. When one looks at it this way, local food provides only a superficial resilience because simply being local does not make an environmentally sustainable food system.

The local food movement’s emphasis on consumption has also been met with criticism. The majority of local food advocacy “encourages consumers to purchase more food from local purveyors rather than, for example, producing it themselves” (Mariola, 2008, 195). Although there is something to be said about voting with your dollar, critics argue that this is not doing much for the structural change of the food system. In many cases, the increased demand for local food does not mean an increase in small farms but instead a scaling up of operations by the current direct-market farmers (McWilliams, 2009).

Another shortcoming of the contemporary local food movement is its elitism

and polarizing effect. According to Melanie Dupuis, “the local is often a site of inequality and hegemonic domination” (Dupuis and Goodman, 2005, 359). This is not because localized food systems are bad in themselves. Instead it is a result of the unreflexive localism that characterizes the current movement. Unreflexive localism is a result of unreflexive politics, which are defined as, “a small, unrepresentative group (who) decides what is ‘best’ for everyone and then attempts to change the world by converting everyone to accept their utopian ideal” (Childs, 2003).

The contemporary local movement, and all of its hype, has become a romanticized ideal. It is framed as a social good and yet it largely ignores social justice problems (Allen, 1994). According to various case studies, members of the local food movement are typically white, middle-class consumers, which can bring about an exclusive and socially homogenous movement (Hinrichs and Kremer, 2002). In order to be successful on a social level, the movement needs to become more democratic and include a “broadly representative group of people to explore and discuss the ways of changing their society” (Dupois, 2005, 361). The movement’s advocates must dismiss the notion that there is a universally correct way to eat, for this concept of “right-eating” is informed by prejudices of race, class, and gender (Guthman and Dupois, forthcoming).

As stated previously, the local food movement is not inherently bad. It has immense potential but needs to be re-thought out. In the words of Dupois, “we have to move away from the idea that food systems become just by virtue of making them local and toward a conversation about how to make local food systems more just” (Dupois, 2005, 364). Urban agriculture undoubtedly fits into this conversation. Most

urban agriculture initiatives to date incorporate, and often emphasize, social justice. They also address the other main critiques of the local food movement by limiting reliance on fossil fuels and empowering citizens to produce instead of consume.

The Strengths and Limitations of Urban Agriculture

The rise of urban agriculture has sparked a surge of creativity in the ways we grow food. From vertical farming to underground tunnel farming to truck farming, urban citizens across the globe are seeking innovative solutions to the problems of limited arable land and other essential resources. Geographer Luc Mougeot addresses this by saying,

Urban agriculture is typically opportunistic. Its practitioners have evolved and adapted diverse knowledge and know-how to select and locate, farm, process, and market all manner of plants, trees, and livestock. What they have achieved in the very heart of major cities, and dare to pursue despite minimal support, and often in the face of official opposition, is a tribute to human ingenuity. (Mougeot, 2006)

These unconventional urban farmers, however, recognize that their method alone will not solve the problems that our food system faces. Ian Cheney, a New York urban farmer who has been growing food in his truck bed for three years says, “it's not likely we'll be sourcing the majority of our food from moving vehicles in the near future, but the Truck Farm project shows how thinking outside the garden box can introduce a new audience to natural foods” (Howard, 2014). Another creative farmer, Steve Dring, created a farm in underground tunnels. His take on the matter is this: “we're not planning to take over traditional farming. But we are trying to confront the idea that we're running out of land and need to find new places to produce food” (Howard, 2014). This brings up the question of whether urban agriculture is the most efficient method with which to feed billions of people. The answer is that it is not, at

least not all by itself. Due to a variety of limiting factors, urban agriculture is simply not able to suit all the food production needs of a city. Some activists believe that focusing energy on local food and urban agriculture is actually a setback to the rehabilitation of our food system (McWilliams, 2009). However, most research, this paper included, has found that the benefits of urban agriculture go far beyond food production and therefore, it remains an important activity to promote and enhance.

According to the EPA,

The benefits that urban agriculture projects bring to many communities are tremendous. Urban agriculture reuses provide a local source of fresh healthy food, increase surrounding property values, reduce environmental hazards, create biologically diverse habitats, reduce storm water runoff, create jobs, promote physical activity, increase community connections, and attract additional economic activity. (Environmental Protection Agency, 2011)

One major way to improve urban agriculture is through changes in public policy. To date, most American cities have inadequate policy support for urban agriculture (Mougeot, 2006). The following chapter will discuss this in the context of the Southwest.

Chapter Three: *Urban Agriculture in the Southwest*

This research took place at 13 farms in 10 cities within or bordering the Southwest region. These cities include Santa Fe, Albuquerque, Phoenix, Las Vegas, Fresno, Santa Cruz, Oakland, San Francisco, Reno, and Salt Lake City. My case studies were Gaia Gardens and the Community Farm in Santa Fe, Majestic Valley Farms, The Rio Grand Community Farm, and Growing Awareness Farm in Albuquerque, The Urban Farm in Phoenix, Vegas Roots in Las Vegas, Tower Family Urban Farms in Fresno, Santa Cruz Homeless Gardens in Santa Cruz, City Slicker Farms in Oakland, Marin County Day School Farm in San Francisco, Urban Roots in

Reno, and Frog Bench Farm in Salt Lake City. Through interviews with farmers, farm tours, and occasionally volunteering at the farms, I got an inside view of the strengths and limitations of growing food in Southwestern cities. Through these case studies, I discovered five major positive impacts that these urban farms and gardens are having on their cities. They are health equity, environmental sustainability, community building, education and empowerment.

Health Equity

Health equity is defined as the “absence of systematic disparities in health between groups with different levels of underlying social advantage/disadvantage” (Braveman and Guskin, 2003). This requires tackling structural inequalities as well as past and present injustices in order to eradicate health disparities. Several of these case studies confront this issue simply by their choice of location. Most of them explicitly incorporate social justice into their goals as well. Four examples stood out to me in particular as organizations that are successfully defying health inequity in their communities. They are Tower Urban Family Farms in Fresno, the Community Farm in Albuquerque, Vegas Roots in Las Vegas, and City Slicker Farms in Oakland.

Fresno, California is located in the number one agriculturally producing county in the world. Over 300 commodities are grown here and the county’s farmers produce \$6.4 billion worth of crops each year (Shmidt, 2014). Yet the industry is based on exports, leaving the citizens of Fresno largely reliant on imports, and creating many food deserts within the city. The lack of access to healthy food is a monumental issue in Fresno, as many neighborhoods do not have grocery stores or markets with fresh food. Additionally, the extensive urban sprawl and the nearly non-existent mass transit

system in Fresno make it even more difficult for people to get food (Shmidt, 2014). Even when residents do have access to grocery stores, there is still the issue of affordability.

Kiel and Nolan Shmidt, two of the founders of Tower Urban Family Farm understand this issue well. They grew up in a family of four boys, with a single mother who earned wages below the poverty line. Yet their mother tried her best to not have this impact their diets. “My mom raised us with a strong connection to food, we had a garden in our backyard, so even though we had these access issues we didn’t see that as much because we always had supplemental fresh produce in our backyard as well as chicken and geese” (Shmidt, 2014). This background combined with Nolan’s experience as a chef, launched them into the creation of Tower Urban Family Farms. The produce from their multiple locations is sold to several local restaurants for reasonable prices, which allows these small restaurants to provide healthier meals for their guests.

The brothers also have a weekly farm stand as well as a series of farm to table dinners, giving their neighbors access to more nutritious food. During our interview, Kiel recounted a story to me in which a group of young Hispanic children walked by his farm stand on their way to 7/11 to purchase a snack. Kiel called them over and asked if they had ever tried kiwi before. They had not and so he gave them several. They returned home with these as opposed to the chips and soda that they most likely would have purchased (Shmidt, 2014).

The Community Farm in Albuquerque runs off an entirely different model yet also addresses health equity. John Stephenson, who celebrated his 100th birthday this

summer, founded the farm 60 years ago. Over the past 6 decades the farm has experimented with different models and techniques but they have always been committed to providing healthy food to those in need. Since 2009, they have worked with the Food Depot, a non-profit that receives food donations from a number of locations and then delivers it, daily, to 75 different organizations in the area. 90 percent of the Community Farm's produce, harvested from their 11 acres, is donated to the Food Depot. Ed Maglisceau, who has been volunteering at the farm since 1995 commented, "what we're always trying to do with the homeless and the hungry is give them fresh, nutritious food, because lots of times those guys and gals are eating out of cans, and other processed food, food that is not as good as fresh food" (Maglisceau, 2014). The Community Farm greatly increases access to nutritious, high quality food for those who need it most in Santa Fe.

Vegas Roots, of Las Vegas, is another example of a completely different model that is striving towards health equity. Roz Brooks founded the four-acre urban farm in 2010. The farm consists of individual beds that are rented out by community members, a chicken coop primarily for educational purposes, and several rows of crops that are there for anyone to pick. The assistant director, Maticia Sudah, spoke to their ability to combat health inequity:

The strengths of this project are obviously the area that it's in. It's a very urban area so we attract a lot of minority people, a lot of Latin people, a lot of African American people, even a lot of homeless people who come and trade their services for food. There are also a lot of children that come. I think the area that it's in attracts those groups that are not normally exposed to fresh food because there aren't a lot of grocery stores in this area that have adequate produce. (Sudah, 2014)

Vegas Roots goes beyond simply providing produce to those in need. They also

promote healthy lifestyles by hosting fitness events and fundraisers, as well as fitness and nutrition classes that are open to anyone.

City Slicker Farms of Oakland, is yet another model that is using urban agriculture to tackle health inequity. Their intent is clear by their mission statement, which is “to empower West Oakland community members to meet the immediate and basic need for healthy organic food for themselves and their families by creating high-yield urban farms and backyard gardens” (Garcia, 2008). West Oakland is an area with high poverty rates. It is home to 21,000 residents, 32 percent of whom live beneath the poverty line. 24 percent rely on food stamps. In addition to this, West Oakland has very few stores selling healthy, affordable foods. In contrast, there are over 40 liquor stores in the area, which provide alcohol, tobacco, and highly processed foods, as well as several fast food operations (Garcia, 2012). City Slicker Farms, which has been in operation since 2001, addresses this by converting abandoned lots into gardens and helping residents do the same in their own yards. In order to be economically sustainable, they sell all of the produce from their five public lot locations. It is sold on a sliding scale so that those who cannot pay are still able to acquire fresh produce. In addition, they do not advertise the farm stand outside of West Oakland, so that they can focus on getting nutritious food to everyone in the neighborhood. These four different models show that urban agriculture can be very affective in confronting issues of health equity. Each one is tailored to its own community, and shows that there are many ways to successfully address this complicated issue.

While urban agriculture is important for dealing with issues of human health, it also has tremendous benefits for the environment.

Environmental Benefits

Every farm that I visited addressed environmental issues in some manner. The main environmental benefits of urban agriculture that I discovered were smaller carbon footprints, efficient water use, supporting biodiversity, and increased greenery. I found examples of these in each case study and will go into detail about a few, as well as speak generally about my findings.

As mentioned in chapter one, industrial agriculture relies heavily on fossil fuels. Chapter two described the dismay of some environmentalists who believe that the local food movement is not doing its part to curtail this dependence because it uses more fuel per item transported. Urban agriculture differs in this regard. Because of its central location, most people are able to walk or bike to the farms. Additionally, the farms' size and location near residential areas typically prohibits the use of large, gas-guzzling machinery (Dziedzic, 2012).

One example of this is at Tower Urban Family Farms in Fresno. Fresno is a sprawling city with an inadequate public transportation system, causing many residents to rely on cars for transportation (Shmidt, 2014). The Shmidt brothers confront this by biking produce from their harvesting sites to the restaurants and markets where they are eventually sold. Another example is that many of the organizations I visited were helping residents to create their own backyard gardens. This greatly decreases fossil fuel dependence because people are able to access fresh produce simply by stepping outside their door. However, many of these small garden plots are in very dry areas, which begs the pesky question of whether or not this is the most efficient use of water. To my surprise, I discovered that when done right, it is.

All of the farms included in this research are very concerned with water conservation. Each one uses drip irrigation, which is essentially a network of tubing with strategically placed holes that allow water to seep slowly into the roots of plants. This is a far more efficient method than overhead sprinklers, which lose a lot of water to evaporation before it can even reach a plant's roots (Stephenson, 2014). Because all of the farms are on a small scale, they are able to better monitor and manage efficient water use. At Vegas Roots, the staff instructs community members to use the water as sparingly as possible. "In order to save water, we always tell them not to saturate their fruits and vegetables; it's not good for them to be saturated anyway" (Sudah, 2014).

Poittin brought up the point that small, organic farms are able to use less water because their soil is generally richer:

If your soil is very rich and well done then it retains water, it pulls water from down below, and you can grow with very little water. We have a lot of land that is in cultivation. We use 1,200 gallons per day on our drip system, and it's a very slow and very low-pressure system. We turn the timers on 3 times every 12 minutes. So it's not even a cup of water per plant. (Poittin, 2014)

Not only is healthy soil good for water retention, it is also a building block for a healthy ecosystem. Many of the farms I visited had a flourishing ecosystem and subsequent biodiversity.

The Rio Grande Community Farm in Albuquerque stood out in this regard. The farm resides on a 140-acre piece of land that is owned by the Open Space Division of the city, of which the farm manages 50-acres. The city set aside this land in 1995, their main objective being to provide natural space and habitat for the area's flora and fauna. The Rio Grande Community Farm, which runs separately from the municipal government, takes this mission very seriously and manages the farm in a way that

allows biodiversity to thrive (Phillips, 2014). According to Jamie Phillips, one of the farm's full time staff, "we've got roadrunners, snakes, all sorts of birds, and coyotes when the crop is tall enough. It's really the way a farm should be. It should not be a sterile atmosphere. It's part of an ecosystem" (Phillips, 2014). Gaia Gardens operates on a much smaller scale, three acres, but has the same aim. When describing why urban agriculture is important, Poittin states,

It provides habitat and food for the wildlife, which we depend on and we need to support and nurture. When you have a place like this, with so many sunflowers, you see how many birds come. If you were to tally the number of visits from insects and birds in the day you would realize that you're not just growing food for people. And it's not like the animals are stealing from you. They pollinate your food, they spread the seeds, and they eat the pests. (Poittin, 2014)

Hand in hand with higher quality soil and increased biodiversity, is increased greenery, the fourth major environmental benefit that I found.

Many of these farms and gardens are planted in formerly vacant lots. This added greenery provides many advantages. From an environmental perspective, the greenery reduces harmful runoff, increases shading, and can inspire a sense of environmental stewardship in the people who spend time there (Environmental Protection Agency, 2011). Piottin remarks that urban agriculture is "good for climate change because it cools the environment because there's no bouncing back or absorption of heat by the asphalt or concrete" (Piottin, 2014). Additionally, research has found that when communities have a beautiful space that they are proud of they become more protective of their neighborhood and crime rates go down (Branas, 2011).

One example of this is in West Oakland, California. West Oakland is an area

with high crime and poverty rates. When City Slicker Farm first started in this neighborhood, someone from outside of the community came in and destroyed all of the garden beds and chicken coops. The neighborhood members cared so much about the farm that they rallied and rebuilt the whole thing. Afterwards they created a neighborhood watch team to prevent this, and other crimes, from happening again. This is also an example of the community development aspect of urban agriculture, which I saw several examples of throughout my research.

Community Building

The majority of the farms that I visited are located within diverse communities. In recent years, some of these communities have had trouble getting along. Urban farms in these areas have been central for bridging gaps between neighbors by giving them a common purpose. Poittin put it this way, “In the city, you have the opportunity to touch a lot of people. You can create a place for people to gather. And growing a cohesive, resilient community is just as neat, if not more neat than growing food is” (Poittin, 2014). It is also a great tool for breaking cultural barriers. One urban farmer in California mentioned that there were five different languages spoken at her farm and that every farm meeting was like a “miniature United Nations meeting” (*Growing Cities*, 2013).

One example I saw of this was in Salt Lake City at the Frog Bench Farm. This is a one-acre farm in the backyard of Joe and Paula Sargetakis’ home. Nearly every week of summer and fall, the couple opens up their home and yard for neighbors to come visit and eat from the farm. I was lucky enough to witness one of these gatherings, along with 50 other guests of all ages and backgrounds. Speaking to some

of the other attendees it was clear that the farm has been monumental in bringing together different social circles and communities in the area.

Gaia Gardens, which was founded three years ago, has also been successful in bringing together a disparate group of neighbors. The farm is in the middle of a residential neighborhood that is home to a wide variety of people. The farm has become a meeting ground for the neighbors, and they frequently gather here for potlucks. One of these potlucks took place the night prior to our interview about which Poittin remarked,

We had a great mix of people; a business person who just retired from Hallmark, Christians, a lesbian couple that just got married, single moms, old hippies, gypsies, beatniks and hipsters. The whole gamut is represented here, and they all talk and have a good time. That's what I find interesting about urban farms and gardens; they're a really good ground to just mix and kind of massage a new kind of cultural energy. (Poittin, 2014)

Another successful tool in community building are community gardens. In this model, community members rent individual plots and are provided with tools, seeds, water, and assistance, but ultimately have control over their plots. Vegas Roots and the Rio Grande Community Farm of Albuquerque both use this model. Jamie of the Rio Grande Community Farm mentioned that people from all different backgrounds rent out plots. Often the different gardeners overlap and make connections that they would not have otherwise made (Phillips, 2014).

In Fresno, Tower Urban Family Farms helps build connections by helping promote, and ultimately create a network, of small business in the area. "We do a lot of cross promoting with our customers, so one of the really strong benefits is that you're not just buying from somebody, we really try and drive our costumers to you" (Shmidt, 2014). Kiel, who is in charge of media and marketing for the farm, makes an

effort to write promotional posts about the restaurants that they supply produce for. Additionally, they are partnering with a nursery that sells elephant manure from the local zoo. In exchange for donations of this nutrient rich manure, Shmidt helps to promote the nursery and specifically, this product.

Urban Roots of Reno, Nevada has a similar initiative. Brittany Palmer, the farm's development coordinator, spoke to this. "We're trying to connect everyone. So the restaurants, and us as a non-profit, the local farmers, and the co-op, we all work together really well and we help each other out. It's really good to have those partnerships so that you're building a better community" (Palmer, 2014). Each of these examples illustrates how urban agriculture plays a unique role in these cities by bringing people together. Another way that it touches people's lives is through education.

Education and Empowerment

Four examples of this stood out to me in particular. They are the Santa Cruz Homeless Gardens in Santa Cruz, Urban Roots in Reno, Growing Awareness Farm in Albuquerque, and Marin County Day School in San Francisco. Santa Cruz Homeless Gardens is a non-profit that has been operating for 25 years. They specialize in job training and education for the city's homeless population. Every year they mentor 20-30 homeless citizens and teach them everything from how to compost to running the farm stand to business management. They blend "formal, experiential, and service-learning" and also provide transitional employment and support services (Ganzhorn, 2010). This integrated approach is incredibly effective because it breaks the cycle of poverty within these people's lives by giving them knowledge and skills, as opposed

to handouts.

Urban Roots targets an entirely different audience. The farm, which is “founded on the idea that food is a powerful tool for academic and sustainable agriculture instruction,” has a number of educational programs that are designed primarily for K-12 students (Palmer, 2014). They include a farm camp during the summer, farm school for home schooled children throughout the year, a garden classroom program in which they help schools establish gardens and corresponding curriculum, and FarmCorps, a training program for young, aspiring, farmers. Palmer believes that their urban location is a driving factor in the success of their initiatives. She noted that being a farm in the city not only makes fresh produce more accessible but also makes education more accessible. “If someone wants to learn about their food source, we are just so close. Especially out here, a lot of the farms are over an hour away from Reno. Our distance puts us in the right place” (Palmer, 2014).

Growing Awareness Farm is a part of East Central Ministries, a community development ministry that was founded by John Bulten in 1999. The University of New Mexico, as well as some local high schools, uses their large and productive green houses as hands on learning spaces. Additionally, the farm is open for anyone to come visit and learn more about everything from chickens to bees to green houses. When asked about education’s role at Growing Awareness Farm Bulten said, “that’s the main goal of Growing Awareness. We’re not trying to do mass production; we’re not trying to feed the whole city. We are trying to create a learning environment in this neighborhood” (Bulten, 2014). East Central Ministries also runs a free clinic in the area. Bulten notes that visitors to the clinic seek solace in the farm as well. The urban

farm, Bulten says, “is a piece of the holistic medicine that they don’t get sitting in the hospital. We try to tie it all in. Backyard chickens and a tomato plant are a part of a community’s mental and physical health as much as whatever medicine they prescribe” (Bulten, 2014).

The gardens at Marin County Day School are yet another example of how urban agriculture can serve as an educational tool. The school is K-8 and each grade interacts with the gardens in some way. For example, the gardens are the primary laboratories for 6th grade science classes. The students conduct experiments ranging from soil testing to building aquaponics systems. Bob Densmore, a 6th grade science teacher and the overseer of the gardens says that he has already seen a change in his student’s dietary habits.

When there is food from the garden in the cafeteria, kids jump all over it; and then they go home and eat raw kale. It’s amazing what they’ll pick and eat just because they’re involved in it. When they get separated from their food, when they never see or understand where it comes from, they lose track and that’s when they go and buy slurpees. (Densmore, 2014)

Through these educational initiatives, all four of these farms are impacting the lives of their community members. Empowerment, the fourth major impact of urban agriculture, typically comes as a pleasant side effect of this education.

Many of the farms seek people from at-risk populations for volunteer, and sometimes employee, positions. Having this role in serving their community gives people a sense of purpose and dignity that empowers them to change their situation. The people at the Santa Cruz Homeless Gardens are a great example of this. Additionally, Children and adults alike are empowered to make better choices when they have increased knowledge of nutrition and have actively taken part in producing

their own food.

Through health equity, environmental sustainability, community development, education, and empowerment, these 14 case studies are making their communities safer, healthier, and more beautiful places to live. It is clear that these farms and gardens play a monumental role in their respective neighborhoods. The full potential of urban agriculture has yet to be reached, however, due to what I identified as two primary limitations.

Limitations of Urban Agriculture:

During my research, I identified two major limitations for my case studies. They are a lack of resources and insufficient policy support. The resources that are lacking range from land to water to money to labor. Some of the case studies have found clever ways to make due without an abundance of these resources. I will draw examples from both successful and unsuccessful cases in order to illustrate how urban farms can best deal with this limitation. As for policy support, each city I visited was different in this regard and some were certainly more accommodating to urban agriculture than others. Again, I will discuss examples of each to show what is working and what is not working.

Lack of Resources

I identified four resources that are most important in urban agriculture. They are land, water, capital, and labor. To varying degrees, they are all crucial to a successful operation. Despite the abundance of vacant land in most cities, it is difficult to acquire land to grow food on. It can be expensive to buy private land and many cities have laws against farming on public land. Two of the farms I visited, Frog

Bench Farm and The Community Farm, were purchased by the farmers with money from previous jobs. For those who did not have enough money to do this, they were either donated the land or are leasing it. In Albuquerque at Majestic Valley Farms, Aaron Silverblatt-Buser leases 3 acres of land for \$1 a month. This meager payment is a formality because Aaron's presence on their otherwise dormant land provides a benefit to these landowners. For one, the region of Albuquerque that Aaron is in has a strong agrarian tradition that residents are happy to support. More importantly, however, is the water situation. The property has a well, however if it does not get used, the landowner risks losing their water rights (Silverblatt-Buser, 2014). This brings us to our next resource, water.

The southwest is a region known for its aridity. Therefore it is no surprise that lack of water can be a limitation for some of these farms. Many of the case studies intentionally selected their land for its water rights. Because water is in high demand in these cities, it can be nearly impossible to acquire water rights if they do not come with the land. The Rio Grande Community Farm is an example of a farm that is on a property with pre-existing water rights and yet has still run into some difficulty. The water rights allot the farm water from the city's water bank but this is all dependent on the availability of water. According to Phillips, "you're just given water when it's available. It is a pretty precarious situation" (Phillips, 2014). Though this has worked for them in the past, last year was particularly dry and resulted in every water bank user being cut off in May. The farm is still recovering from this and was forced to keep all of their fields in fallow this summer. Phillips indicated that relying on the water bank is not sustainable for the farm's future. "The water bank is fine for a

backyard user or something like that, but farming on this scale, it's too uncertain to rely on" (Phillips, 2014). Though this is the most drastic example of the limitations caused by a lack of water, every farmer I spoke to noted that water was something they had to be hyper attentive to.

Farming can be expensive and it is difficult to make a substantial profit from a small-scale operation. My case studies include both for and non-profit farms, which pose different challenges. Frog Bench Farm, Majestic Valley Farms, and Tower Family Urban Farms are the three for profit farms that I visited. As previously mentioned, the founders of Frog Bench Farm had enough capital from previous careers to start their farm. Majestic Valley Farms was able to quickly get off the ground for similar reasons. According to its founder, Aaron Silverblatt-Buser, "access to capital is a big barrier for a lot of folks. For one, you need to have a well to grow here, and to have a well you need money. Fortunately I had some family money" (Silverblatt-Buser, 2014).

Tower Family Urban Farms, on the other hand, is what Kiel calls, "bootstrapping it." The farm's founders did not have a large bank account to begin with nor did they have the benefits of tax deductions and greater opportunities for grants that go along with being a non-profit. This, however, has not stood in their way. The Shmidt brothers and their cohorts have found many creative ways to cut down expenses. One example is that they harvest fruits and nuts from properties whose owners can no longer take care of the trees and have given the farmers permission to take and sell the harvest. This program saves them the large cost of purchasing trees and allows them to add more variety to their items for sale.

The majority of these case studies, however, were registered 501c3, non-profit organizations. Despite the tax return and eligibility for grants and donations that come from this status, money is still a large concern. Growing Awareness Farm is one particularly impressive example of how to creatively deal with this. In our interview, John emphasized that just because they are a non-profit does not mean they cannot make money. Thus he implemented a number of programs in order to make the farm more fiscally self-sustaining. The three major sales made from the farm are honey, seed starts, and ollas. Ollas are small clay pots that have been used as a traditional irrigation method for centuries. They have become somewhat of a novelty, giving Growing Awareness Farm a niche market. In one year the farm is able to make \$70,000 from these products (Bulten, 2014). Most of the other non-profit case studies do not have systems in place that give them a lot of profit. These farms typically rely on donations and grants. This can sometimes be problematic because neither are a guaranteed source of income. According to Ed of the Community Farm, “Finding money is always the tough thing. We haven’t done grants as much because most of the people that work here really aren’t grant writers and so we try but we haven’t really been successful” (Maglisceau, 2014).

Lastly, there is the issue of finding labor. Many of the farms, due to tight budgets, rely primarily on volunteers. For some of the case studies this has been tremendously successful but for others it is a challenge to find reliable and accountable volunteers. The Rio Grande Community Farm was particularly interesting in regard to labor because, unlike most of the other case studies, they have the capital to provide paid positions and they are always able to fill these positions. However, labor is still a

limiting factor due to the high turnover rate as well as the type of people hired (Phillips, 2014). Jamie remarked that a number of creative and new initiatives at the farm have been blocked by unreceptive staff. He says, “I personally don’t know how strongly community oriented our model is. I think that, for example, the words Community Supported Agriculture are not even palatable for some of our folks, I think it’s the traditional farmer attitude- I grow crops and you buy them kind of deal” (Jamie, 2014). Jamie went on to mention that he was feeling impatient and frustrated by the lack of work that had been done that year. As previously mentioned, the Rio Grande Community Farm did not grow any crops this year, mostly due to lack of water but Jamie thinks there could have been other reasons as well:

It is very complicated, but it could be that at the end of the day there’s a lack of direction or inspiration or willingness to risk it all again. Folks working with RGCF are coming from a lot of different places. I think that non-profit turnover is a significant factor on display here. (Jamie, 2014)

This demonstrates that not only is it important to have enough labor, but it is also important to find people who will creatively and passionately take on positions and who are willing to commit for an extended period of time.

These examples show that having access to adequate land, water, capital, and labor is imperative for a successful operation. The different case studies deal with these categories in different ways and most are impressively creative and resourceful in finding ways to either acquire more of these things or make due with the limited resources they have. Nearly every farmer who I spoke to that felt limited by resources stated that improved public policy could help. This leads to the second limiting factor, insufficient policy support.

Insufficient Policy Support

In regards to public policy, it is typically zoning laws that inhibit urban farming. Each city has different zoning laws, some more conducive to urban agriculture than others. In this section I will focus on two farms where zoning laws have been large inhibiting factors. They are Gaia Gardens of Santa Fe and Tower Urban Family Farms of Fresno. I will also discuss how some of the farms get around inhibiting policies and lastly, how two of the cities I visited have been successful in adopting official urban agriculture ordinances.

Gaia Gardens has run into trouble due to their location in a residential neighborhood. “When you’re in the city and you live in a residential neighborhood you’re bound to operate within the confines of what’s called a home occupation ordinance. It limits the type of business as well as how many people you can have over at a given time” (Poittin, 2014). The latter limitation has generated a lot of frustration for those at Gaia Gardens. Because they are unable to host large groups of people they cannot have volunteer groups. Additionally, the city states that businesses in residential areas can only have two employees and you are not allowed to sell your products within the residential zone. This limits how productive the farm can be and how much they are able to sell.

Two states over, in Fresno, California, Tower Urban Family Farms is also feeling frustrated by zoning laws, but for different reasons. Unlike Santa Fe, Fresno’s zoning codes consider farming and management to be home occupations, which are allowed within residential areas. This means that the farmers are able to sell their products from their home. Farming in commercial zones, on the other hand, is not allowed. About this Shmidt remarks, “if it was a vacant property that didn’t have a

house on it we could not farm it. Or if there was a big piece of commercial property that we wanted to try and farm, that wouldn't be allowed" (Shmidt, 2014). What is most frustrating about this is the double standard for small businesses, such as Kiel's, and large, corporate businesses. Recently a large developer bought an old golf course in the city, with plans to convert it into a massive almond orchard. The developer was able to pay for a law change because, "the city has kind of decided that if you can pay for something than you can do it" (Shmidt, 2014). This change in zoning laws produced a big uproar from small-scale urban farmers and gardeners for two reasons. First, they were not included in the decision making process and second, the city decided to limit the law to operations that were 500 acres or larger. According to Kiel, "the deal was good for this big almond orchard but bad for us because we're still sitting in this grey area. We have some vacant lots in mind to start farming, yet we can't do that. It's not legal for us. They changed the law for the big guys but not for us" (Shmidt, 2014).

Several other farms that I visited deal with strict zoning laws simply by staying under the radar. When I asked one farmer in Albuquerque what the zoning laws were regarding urban agriculture he responded with a laugh and said, "we don't ask." The policy at their farm, which shall go unnamed, is to not ask about the legality of their operations and if someone complains they will, "beg for forgiveness." A farmer who I talked to in Phoenix said something along similar lines: "there are two cities in the Phoenix metropolitan area that do not allow chickens. But here's the thing about chickens, it's only a problem if someone complains" (Peterson, 2014).

This tactic does not work as well for Tower Urban Family Farms and Gaia

Gardens however, due to how well they are known in the community and the fact that they are registered businesses. Thus in order to remove the obstacles presented by zoning laws, both Poki Poittin and the Shmidt brothers are working hard to create urban agriculture ordinances in their city. According to Poki,

Santa Fe has not had to deal with changing their ordinance because no one has been doing this. So now that there's a fool trying to grow food in the city, they have to wake up to the fact that it may be the way of the future and they need to prepare their zoning codes to accommodate urban farming as many major cities have done." (Poittin, 2014)

Two of those major cities, in fact, are Reno and San Francisco.

Reno's ordinance was passed in September of 2012 after a big push from Lyndsey Langsdale and Toni Ortega, two local urban farmers. When they decided to start a farm in downtown Reno a few years ago, they ran into a problem with zoning laws that outlawed growing vegetables within multi-use zoning districts. The two young women did not give up on their dream and spent the next 6 months meeting with city council and planning commission members. Their hard work paid off and eventually bill number 6811, also known as the Reno Urban Agriculture Ordinance, was born. Now vegetable farming, as well as some animal husbandry, is permitted within all of the city's zoning districts (City of Reno, 2012). Brittany Palmer of Urban Roots noted that this ordinance change has helped their operation immensely and has also allowed a number of other farms to emerge within the city (Palmer, 2014).

San Francisco passed a similar ordinance in July, 2012. The ordinance outlines the benefits of urban agriculture for the city and created an Urban Agriculture Program that oversees and coordinate's related initiatives in the city. The bill also allots \$580,000 a year of city funding towards urban agriculture projects. The ordinance

goes beyond municipal policy because it includes advocating for state and federal policies as one of the main duties of the Urban Agriculture Program committee. Another primary duty is identifying plots of vacant land that could be used for farms and gardens (Baxter and Torregrossa, 2014). In addition to the original urban agriculture ordinance, another bill was passed in 2014 that allows cities to designate “urban agriculture incentive zones.” In these regions, landowners can commit their land to agricultural use for at least five years and are rewarded with a sizeable property tax reduction (Baxter and Torregrossa, 2014). At this time there are nearly 100 urban agriculture projects in the city ranging from school gardens to for profit specialty product farms.

Reno and San Francisco serve as examples for other cities, such as Santa Fe and Fresno, which are currently not providing adequate support for urban agriculturists. New policies can help alleviate obstacles of not having enough land, labor, money, or water. They can also provide resources and networks for anyone interested in starting an urban farm or garden. The cities with urban agriculture ordinances, such as San Francisco, Reno, Seattle, Denver, Boston, and Chicago, all have thriving farms and gardens and communities across these cities are reaping the benefits (Poittin, 2014).

Chapter Four: Political Ecology

Political ecology is “predicated on the assumption that any tug on the strands of the global web of human-environment linkages reverberates throughout the system as a whole” (Robbins, 2012, 13). The term has a wide breadth of definitions but in essence political ecology examines the relationships between environmental

concerns and social, economic, and political factors. The field has five primary themes. They are degradation and marginalization, conservation and control, the environmental conflict and exclusion, environmental subjects and identity, political objects and actors (Robbins, 2012). Typically these five theses are used to look at environmental issues in developing countries. Recently, however, political ecologists have been “heading north” and applying this framework to western countries, including the United States (Mccarthy, 2012). Some writing has been done about political ecology and food systems but this research is “small relative to other topics addressed by first world political ecology, despite its applicability” (Galt, 638). It is applicable because food plays a prominent role in both social and environmental issues and is becoming increasingly politicized in industrialized nations. In this chapter I will analyze two of the case studies using the environmental conflict and exclusion thesis and the environmental subjects and identity thesis, respectively, to illustrate how political ecology can be a relevant framework for looking at urban agriculture.

The environmental conflict and exclusion thesis asserts that,

Environmental problems become ‘politicized’ when local groups (gender, class, or ethnicity) secure control of collective resources at the expense of others by leveraging management interventions by development authorities, state agents, or private firms. So too, existing and long-term conflicts within and between communities are ‘ecologized’ by changes in conservation or resource development policy. (Robbins, 2012, 200)

This was illustrated in the case of Fresno, California and the recent ordinance passed that granted permissions for the almond orchard to be developed on commercial property. The city is ripe with inequality; in fact, the California Health Care Almanac found that the health disparities between the wealthy and poor neighborhoods of Fresno are the largest of any city in the United States. Most of the wealth resides in the

hands of agribusiness and developers (California HealthCare Foundation, 2009). According to Kiel, they are big influencers in city politics because they contribute a lot to city council campaigns and are able to buy a lot of influence. Therefore when the city changed the zoning laws for the developer, it aggravated tensions between the developers and the middle and lower class populations participating in urban agriculture. This issue of environmental resource allocation has been further politicized because the “little guys” have submitted a proposal for updated zoning ordinances and plan on fighting hard to get it passed by the city council (Shmidt, 2014). Other examples of environmental conflict and exclusion have been resolved by giving equal rights to the two parties that are at odds (Robbins, 2012). In this scenario, tensions would certainly be eased if the city council passed this ordinance that would grant the smaller urban farmers and community gardeners the same liberties as the big developers. Cases similar to this one make up the majority of political ecology research. In fact, the environment conflict research “has arguably made the greatest practical impact” (Robbins, 2012, 208). Nonetheless, there are advantages to using the other theses as well, which brings us to the environmental subjects and identities thesis.

The environmental subjects and identities thesis argues that “people’s beliefs and attitudes do not lead to new environmental actions, behaviors, or rules systems; instead, new environmental actions, behaviors, or rules systems lead to new kinds of people” (Robbins, 2012, 216). I saw a few examples of this but the one that stood out to me most was the Santa Cruz Homeless Gardens. As previously described, the Santa Cruz Homeless Gardens is a place where the city’s homeless can come to

acquire new skills and knowledge in order to break the cycle of poverty. One of the reasons that the program is so effective is because they have a high standard for behavior and a set of rules that participants must follow in order to be there. These include timeliness, being considerate of other participants, helping with meal preparation and other chores, and not participating in drug or alcohol use while on the premises (Ganzhorn, 2010). In regards to new environmental actions, the participants are taught to regard their environment in a whole different way. By participating in the farm work they interact with natural systems and have a new appreciation for and knowledge of them. Therefore this case study supports the environmental subjects and identities thesis and can provide an example to other cities with struggling populations. Both of these example show that political ecology is a fitting framework for which to view urban agriculture.

Conclusion

As evidenced in chapter one, our food system is in desperate need of solutions. There is no panacea and it will require a multi-faceted approach. Urban agriculture is a crucial component in the comprehensive solution. In the first chapter I identified the major environmental, health, and economic costs that have resulted from our broken food system. Chapters two and three depicted how urban agriculture addresses these costs. For example, it can reduce fossil fuel dependency, give low-income neighborhoods access to nutritious food, and minimize the costly externalities of cropland erosion and food related illnesses such as obesity and its many comorbidities. These are only a few examples of the many benefits that I identified in my research.

Based off of these findings I believe that urban agriculture should be

encouraged across all cities in the American Southwest and one of the most effective ways to do this is through public policy. Specifically, cities should consider altering zoning laws so as to allow small-scale animal husbandry operations (i.e.: chickens, bees, and goats), and to allow urban farmers to cultivate abandoned lots in both residential and commercial zones. Additionally, in order to make urban agriculture more economically viable, growers should be allowed to sell their products out of their homes. Zoning law changes such as these can be included in a more comprehensive agriculture ordinance, much like those of Reno, Nevada and San Francisco, California. With the support of public policy urban agriculture could reach its full potential of providing nutritious for all socioeconomic classes in an environmentally and socially sustainable way.

Bibliography

Aillery, Marcel, and Glenn Schaible. "Irrigation & Water Use: Background." *USDA ERS*. United States Department of Agriculture, 7 June 2013. Web. 01 Mar. 2015.

Allen P. 1999. Contemporary food and farm policy in the United States. In: Koc M, MacRae R, Mougeot LJA & Welsh J (eds), For hunger-proof cities: sustainable urban food systems (Ottawa: International Development Research Centre/IDRC), pp 177-181.

Ayres, Bill. "The 2014 Farm Bill: A Reflection After 40 Years of Advocacy." *The Huffington Post*. TheHuffingtonPost.com, 5 Mar. 2014. Web. 12 Apr. 2015.

Baxter, Joseph, and Amy Torregrossa. "Urban Agriculture Ordinance." *City and County of San Francisco*. N.p., 2014. Web. 14 Apr. 2015.

Blair, John and Laurel McSherry. "Sustainable Agriculture in the Southwest United States and Its Relationship to Landscape Planning." *Journal of Soil and Water Conservation* 51.4 (1996): 280-84. Web.

Bloom, Jonathan. *American Wasteland: How America Throws Away Nearly Half of Its Food (and What We Can Do about It)*. Cambridge, MA: Da Capo, 2010. Print.

Branas, C. C. "A Difference-in-Differences Analysis of Health, Safety, and Greening Vacant Urban Space." *American Journal of Epidemiology* 174.11 (2011): 1296-306. Web.

Braveman, P., and S. Gruskin. "Defining Equity in Health." *Journal of Epidemiology & Community Health* 57.4 (2003): 254-58. Web.

Bulten, John. Personal Interview. Albuquerque, NM. 4 Sept. 2014

Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook, 2014-15 Edition*, Farmers, Ranchers, and Other Agricultural Managers

California Healthcare Foundation. *California Health Care Almanac* (2009): n. pag. Web.

Childs, J.B., 2003. Transcommunitarity: From the Politics of Conversion to the Ethics of Respect. Temple University Press, Philadelphia

City of Reno, Bill No. 6811, September 12, 2012

Clark, E.H. II, J.A. Haverkamp, and W. Chapman. 1985. Eroding soils: The off- farm impacts. The Conservation Foundation, 1717 Massachusetts Ave, N.W., Washington, DC 20036.

Dukto, Paula, Michele Ver Ploeg and Tracey Farrigan. "Characteristics and Influential Factors of Food Deserts." Economic Research Report Number 140 prepared by the US Department of Agriculture, August, 2012.

Dupuis, E. Melanie, and David Goodman. "Should We Go "home" to Eat?: Toward a Reflexive Politics of Localism." *Journal of Rural Studies* 21.3 (2005): 359-71. Web.

Dziedzic, Nancy. *Urban agriculture*. Farmington Hills, MI: Greenhaven Press, 2012. Print.

Environmental Protection Agency. *Protecting Water Quality from Agricultural Runoff*. Washington, D.C.: U.S. Environmental Protection Agency, Nonpoint Source Control Branch. Mar. 2005.

Environmental Protection Agency. *Urban agriculture*. Washington, D.C.: Office of Solid Waste and Emergency Response, 2011.

Franceschini, Amy, and Daniel Tucker. *Farm together now: a portrait of people, places, and ideas for a new food movement*. San Francisco, Calif.: Chronicle, 2010.

Ganzhorn, Darrie. "What We Do." *Homeless Garden Project*. N.p., 2010. Web. 14 Apr. 2015.

Galt, Ryan E. "Placing Food Systems in First World Political Ecology: A Review and Research Agenda." *Geography Compass*(2013): 637-58.

Garcia, Cora Lee. "Mission and History." City Slicker Farms, 2012. Web. 13 Apr. 2015.

Garcia, Cora Lee. "West Oakland." City Slicker Farms, 2014. Web. 13 Apr. 2015.

Growing Cities. Dir. Daniel Susman. By Andrew Mon Bouquette. Elmwood Motion Picture Company, 2013. DVD.

Guthman, Julie. 2004. *Agrarian Dreams: the Paradox of Organic Farming in California*. Berkeley: University of California Press.

Guthman, J., DuPuis, E.M., Why are we fat: neoliberal governmentality and the cultural economy of bulimia. *Society and Space* (forthcoming)

Hinrichs, C., Kremer, X., 2002. Social inclusion in a Midwest Local Food System Project. *Journal of Poverty* 6 (1), 65–90

Howard, Brian. "Urban Farming Is Growing a Green Future." *National Geographic*. N.p., 2014. Web. 13 Dec. 2014.

Leopold, Aldo, and Charles Walsh Schwartz. *A Sand County almanac with other essays on conservation from Round River*. New York: Oxford University Press, 1966.

Maglisceau, Edward. Personal Interview. Santa Fe, NM, 3 Sept. 2014

Mariola, Matthew J. "The Local Industrial Complex? Questioning the Link between Local Foods and Energy Use." *Agriculture and Human Values* 25.2 (2008): 193-96. Web.

Masi, Brad, Schaller, Leslie and Michael H. Shuman. "The 25% Shift: The Benefits of Food Localization for Northeast Ohio and How to Realize Them." A sponsored study, Cleveland, OH, December 2010.

Mccarthy, James. "First World Political Ecology: Lessons from the Wise Use Movement." *Environment and Planning A*(2002): 1281-302.

McWilliams, James E. *Just food: where locavores get it wrong and how we can truly eat responsibly*. New York: Little, Brown and Company, 2009.

Meredith, Leda. *The locavore's handbook*. Guilford, Conn.: ThreeForks, 2010.

Miller, Dana. Personal Interview. Boulder, CO, April 2014.

Mougeot, Luc J. A. *Growing better cities urban agriculture for sustainable development*. Ottawa: International Development Research Centre, 2006.

Nestle, Marion. "A Push for Policies for Sustainable Food Systems." *World Food Day*. United States Committee for FAO, 2015. Web. 12 Apr. 2015.

Ongley, E. D. *Control of Water Pollution from Agriculture*. Rome: Food and Agriculture Organization of the United Nations, 1996. Print.

Palmer, Brittany. Personal interview. Reno, NV. 18 Sept. 2014

Peterson, Greg. Personal interview. Phoenix, AZ. 8 Sept. 2014

Phillips, Jamie. Personal interview. Albuquerque, NM. 5 Sept. 2014.

Pinchot, Ariel. "The Economics of Local Food Systems." Diss. U of Minnesota, 2014. Web.

Piottin, Poki. Personal interview. Santa Fe, NM. 2 Sept. 2014.

Porter, Trautmann, and Wagenet, Keith, Nancy Trautmann, and Robert Wagenet. "Modern Agriculture: Its Effects on the Environment." *Pesticide Safety Education Program*. Cornell University Cooperative Extension, 2012. Web.

Reynolds, Kristin A. *Urban Agriculture as Revolution*. Ph.D., Geography, University of California, Davis. 2010.

Robbins, Paul. *Political ecology: a critical introduction*. Second Edition. Malden, MA: Blackwell Pub., 2012. Print.

Schmidt, Kiel. Personal Interview. Fresno, CA. 10 Sept, 2014

Shiva, Vandana. *Manifestos on the Future of Food and Seed*. Cambridge, MA: South End, 2007. Print.

Silverblatt-Buser, Aaron. Personal interview. Albuquerque, NM. 4 Sept. 2014

Singer, Peter, and Jim Mason. *The Ethics of What We Eat: Why Our Food Choices Matter*. Emmaus, PA: Rodale, 2006. Print.

Smith, Alisa Dawn, and J. B. MacKinnon. *The 100-mile diet: a year of local eating*. Toronto: Random House Canada, 2007.

Sparks, Gwen. "Farmers Market Promotion Program Grants Available." United States Department of Agriculture, 5 Apr. 2012. Web. 21 Feb. 2015.

Stephenson, John. Personal Interview. Santa Fe, NM. 3 Sept. 2014

Sudah, Maticia. Personal Interview. Las Vegas, NV. 9 Sept. 2014

Winne, Mark. *Food rebels, guerrilla gardeners, and smart-cookin' mamas: fighting back in an age of industrial agriculture*. Boston: Beacon Press, 2010. Print.

