

## ABSTRACT

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| Title of Dissertation | URBAN AGRICULTURE TYPOLOGIES, SOCIO-ECOLOGICAL CAPITAL CREATION, AND THE EVOLUTION OF A RESILIENT, LOCAL FOOD SYSTEM IN ATLANTA, GA |
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Kevin Adams, Doctor of Philosophy, 2015

Dissertation Directed by Dr. Victoria Chanse, Plant Science and Landscape  
Architecture and Architecture, Planning, and Preservation

As urban agriculture evolves in North America it is fostering social and ecological benefits, not just in isolation but as a more comprehensive system where physical, social, and ecological aspects intertwine and scale into an urban food mosaic or a new type of green city. How is this change occurring and what are key characteristics? Building on traditional urban planning and design methods of keen observation, listening, mapping, and visualization and updating these methods with current techniques such as photo voice and map voice, this inquiry unpacks the rapidly evolving context of urban agriculture with in the metro area of Atlanta, GA.

The dissertation breaks the inquiry into three parts or ‘essays’ each with its own sub-question and research literature on which it builds. Essay one asks how urban agriculture is integrated socio-ecologically on site and across city scales, looking for variation as it interacts with fifteen Atlanta urban entities representing forty sites. Essay two then asks how this variation can be typed, and essay three adds a quantitative piece to the ensemble by taking the fifth and last theme of essay two, the eco-literacy value of urban agriculture, and creating a tool to measure its distribution in Atlanta. Although the primary disciplinary focus is urban and landscape design, since the inquiry also sits within a college of planning and design, the concluding essay reflects on the dissertation and its methods and how they correspond to urban planning theory.

URBAN AGRICULTURE TYPOLOGIES, SOCIO-ECOLOGICAL CAPITAL  
CREATION, AND THE EVOLUTION OF A RESILIENT, LOCAL FOOD  
SYSTEM IN ATLANTA, GA

By

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Dedication:

To Lois M. Adams, 1934 to 2009, primary funder of this project as well as farmer, mother, social activist, and professional educator in the humanities and youth and adult literacy

## Preface

As urban agriculture evolves in North America it is fostering social and ecological benefits, not just in isolation but as a more comprehensive system where its physical, social, and ecological aspects intertwine and scale into an urban food mosaic or a new type of green city. How is this change occurring and what are its key characteristics? Building on traditional urban planning and design methods of keen observation, listening, mapping and updating these methods with modern techniques such as photo voice and map voice, this dissertation unpacks the rapidly evolving context of urban agriculture with in the metro area of Atlanta, GA.

The dissertation breaks the inquiry into three parts or “essays” each with its own sub-question and unique research literature on which it builds. Essay one asks how urban agriculture is being integrated socio-ecologically on site and across city scales, looking for variation as it interacts with fifteen Atlanta urban entities representing over forty sites. It connects this research to the literature on urban agriculture value creation, which crosses many disciplines, especially in the social sciences, but in which urban design research has been sparse.

Essay two then asks how this variation can be typed. Constructing typologies is a foundational technique in urban design. However, this inquiry asks not just how urban agriculture can be typed physically, as is characteristic of urban design, but also socially and ecologically. It then unites this research with the inchoate design literature on urban agriculture typologies. Additionally, essay two outlines five strong themes that emerged from the sample. Each of these themes is accompanied with an urban design or planning recommendation.

Essay three adds a final more quantitative piece to the dissertation ensemble by taking the fifth and last theme of essay two, the eco-literacy value of urban agriculture, and creating a tool to measure its distribution within the context of Atlanta. Essay three builds on eco-literacy theory and research, adding a survey of another population, Atlanta's urban agriculturists, to existing eco-literacy surveys of ecologists, teachers, and theorists. Additionally, it keeps this more social science methodology tied to the disciplinary methods of urban and landscape design by then mapping and visualizing of eco-literacy distribution across Atlanta's urban landscape.

Although the primary focus of the inquiry is urban and landscape design, since the inquiry also sits within a college of planning and design, the concluding essay reflects on the dissertation and its methods and how they correspond to urban planning theory. The dissertation ends with a discussion of planning as an "art" of not just visualization but also of community involvement and the need to better integrate planning and design action with knowledge creation. Knowledge to action steps to be initiated based on the Atlanta urban agriculture findings are also briefly displayed.

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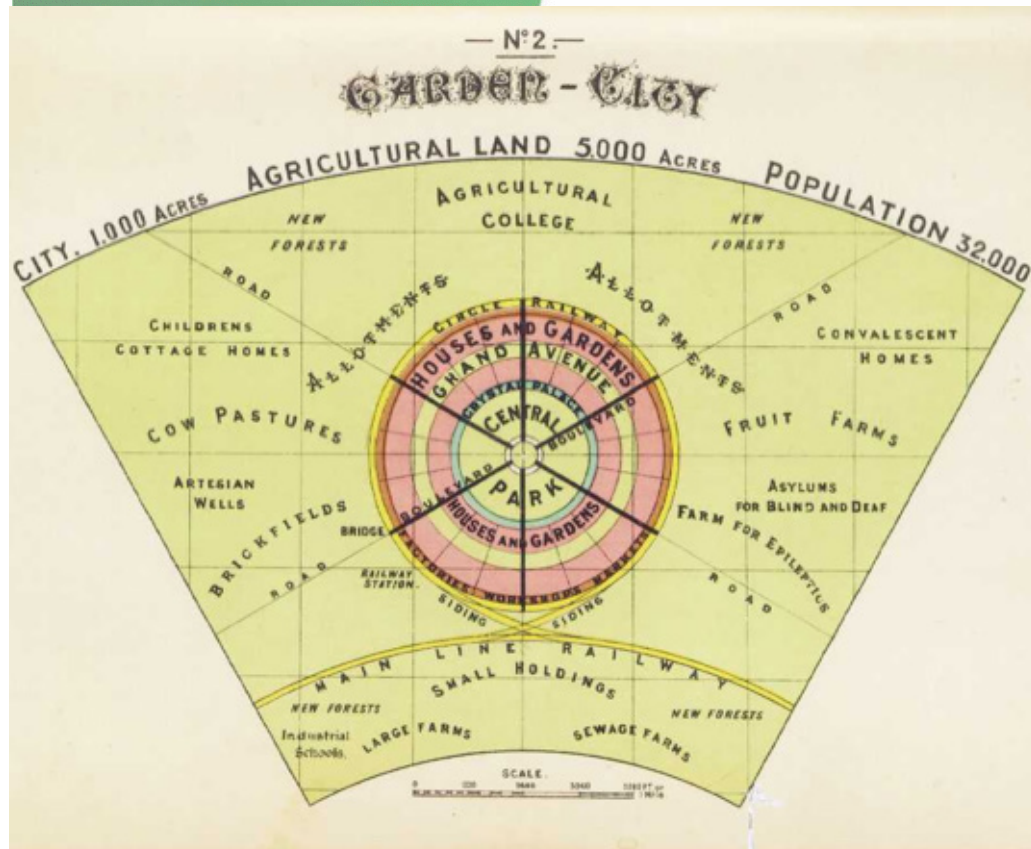
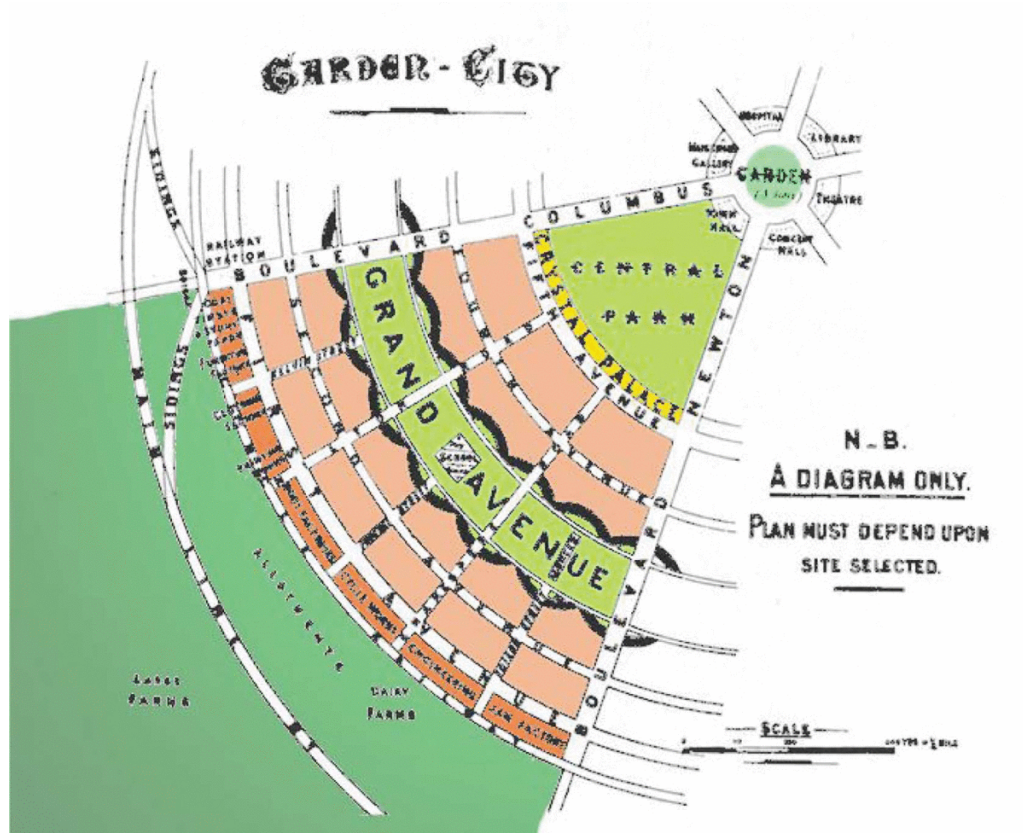
# Introduction

Every year food growing is becoming a more integral aspect of the urban landscape. Visions integrating food production with cities are not new. Utopian visions of cities have often incorporated food nearby. Ebenezer Howard's 19th century Garden City is an historic example. As Lewis Mumford explained the greenbelts around Howard's garden cities would provide each city with its own source of fresh fruits, vegetables, and milk. (Lucarelli, 1995, Duany 2011) **[Figure A]** But while food production via community gardens or the occasional backyard vegetable patch has always been around, more expansive visions like Howard's and Mumford's have remained mostly dreams, and even Howard's vision kept food at the urban periphery. Fast-forwarding to the early 21st century and suddenly one can sense a change.

Perhaps the movement towards food localism may finally be helping these Garden City and other urban food growing ideas come to fruition. Perhaps Americans, concerned about issues from declining resources to climate change, are determined to produce their own food or be involved with people who do right where they live. Whatever the reasons, there seems to be an increasingly new urban fabric appearing in cities and neighborhoods large and small, where food is not simply near-by but an integral part of cities. Rather than simply being coupled with cities, meaningful levels of food production is occurring within them.

With new schemes popping up in new and at one time unimaginable urban locations regularly, the variation and value of these new schemes is not well understood. What are the different types of urban agriculture schemes? How are these urban food phenomena integrating at different levels within cities? What is the value being created? And how should it be assessed? If designers, planners, and policy makers are expected to

Figure A:



formulate a response to the growing trend of producing food not simply near cities but as a part of the urban fabric, a more fundamental understanding of this phenomenon is overdue.

## Urban Agriculture Defined

What is urban agriculture? Food shed expert Ackerman-Leist from the University of Vermont defines urban agriculture as the local and regional level agricultural systems. These are two levels of agriculture within a set of agricultural scales, which also include national and international agriculture. (Ackerman-Leist, 2013) From an urban design lens Ackerman-Leist's "local" could be called the neighborhood whereas "regional" could be seen as agriculture at the scale of the city and its surroundings. Of all the systems the most beleaguered, writes Ackerman-Leist is the most local scale; he also recommends that "We as a culture need to get beyond equating 'agriculture' with 'rural' and start expanding our visions of agriculture possibilities." (Ackerman-Leist, 2013)

Urban Agriculture in these local settings, unlike urban gardening, however, is a relatively new phenomenon and there is limited research of it. Five Borough Farm, an extensive qualitative research project of hundreds of urban agriculture schemes in New York City published in 2012, is an exception. Five Borough Farm has the following definition of the phenomenon: "urban agriculture can be defined as growing fruits, herbs and vegetables and raising animals in cities, a process that is accompanied by many other complimentary activities such as processing and distributing food, collecting and reusing food waste and rainwater, and educating, organizing, and employing local residents. Urban agriculture is integrated in individual communities and neighborhoods as well as in the ways cities function and are managed." ('Added Value', 2012)

Conducted at the same time as this inquiry was being conceived, the publication of Five

Borough Farm was an exciting development for this study because its definition of urban agriculture as well as its methods for assessing it are very similar. This has opened up the possibility to build on its research. This inquiry also defines urban agriculture as a multi-faceted endeavor which integrates social, ecological as well as physical facets of cities. A critical distinction, however, is that unlike Five Borough Farm and other studies to be discussed, the primary disciplinary lens of this inquiry is the field of urban design rather than policy, business management, the social science of geography or some other frame, and it is mostly from urban design's disciplinary orientation that the phenomenon of urban agriculture will be approached in this inquiry.

## Urban Design Defined

Since there is some confusion about the meaning of the term urban design it is critical to be clear about what is meant by it here. When the term urban design first appeared in the mid-twentieth century it was most commonly associated with architecture. Urban designers were often seen as builders of not just buildings but compositions of buildings, of not just objects but the relationships between objects. The best example of this mid-century urban design focus in America is Jose Louis Sert, then Dean of the Harvard Graduate School of Design, and his conference which debuted the concept in America in 1956. Sert was an architect from Barcelona and while he invited non architects including then journalist Jane Jacobs, the guest list as well as the focus of his conference was still primarily architectural. (Krieger and Saunders, 2009) As the discipline has become more defined, however, there is an increasing understanding of urban design as not primarily architectural, though buildings more often than not are part of the urban designer's pallet. Instead, urban design focuses on the spaces between buildings, and more importantly not just their physical characteristics but all the things that make them "places" where many different human activities occur. As famous Danish urban designer Jan Gehl explains in his 1987 book of the same title and thirty years after Sert, urban design is about "life

between buildings.” (Gehl, 1987)

Since Atlanta became the site of this inquiry, I spoke with urban design scholars there in 2013 to better understand the discipline as well. They share the more current views of Gehl. According to architect and planner Michael Dobbins former planning director for the City of Atlanta and author of *Urban Design and People*, emphasis most of all in the discipline of urban design is on “public places—the streets, parks, plazas that everyone shares.” But urban design also concerns itself with how these public spaces “interface and connect to the private places” of work, home, and personal activities. (Dobbins, 2009)

Urban designer and landscape architect Doug Allen, founder of Atlanta’s urban design program at Georgia Tech, further fleshes out this dichotomy between public and private places in urban design with his theoretical framework of the “constitutional” and the “representational” orders. In Allen’s words, “The city is the largest man made artifact in human history. It is a political association manifest as a collective work of architecture, built over time. A city contains two orders: A political order and an economic order. The political order is a framework of common elements owned collectively. The economic order consists of individually owned parcels and their occupants within the collective framework.” (Allen, 2013) [**Figure B**]

The constitutional order brings a collective structure into being Allen explains. It organizes society, separates us from one another as well as joins us together. It consists of streets, public spaces, parks, monuments and lines such as parcels that demarcate public from private and private from private spaces. Architecture, except sometimes as monuments, is notably absent. The representational order on the other hand fills that order in and is of what most of the built environment consists. This is where buildings enter into the framework. As Allen describes it, the representational order animates



- 

Ansley Park,  
Atlanta, GA.

Streetcar neighborhood  
designed by Olmsted

the constitutional frame and gives it meaning. The representational order is economic in nature. Thus the representational order changes more rapidly over time than the constitutional order. The representational order is fluid and subject to variations in exchange value. Its structures mainly has two sub categories, which Allen calls Houses, a broad category that includes industrial sites and even farms, and markets, which includes things such as commercial areas and in modern times offices. (Allen, 2013)

This inquiry shares this broad understanding of urban design as described by Gehl and Atlanta scholars such as Dobbins and Allen; however, the frameworks of traditional urban design quickly lose their expediency for understanding the nuances of urban agriculture within cities. In Allen's order, for example, urban agriculture along with buildings simply becomes a private filler of the representational order. It is one more economic activity among others. However, there is research to be discussed showing how urban agriculture often functions as open space making it more like a public park than a private plot, and thus part of Allen's "constitutional order," or Michael Dobbins "public places." Moreover, even if one accepts urban agriculture as mostly private, representational, or economic in nature, is it a "House" to use Allen's terminology, a place of production, or a "Market" a place of food exchange, it does not take rigorous observation or case study to quickly note that these clean distinctions used by urban designers start to fall apart. There are questions about where urban agriculture truly belongs in the urban fabric, is it public, private, commercial, civic?

While staying firmly planted in urban design, this inquiry through multiple methods strives to dig deeper than the broad outlines of urban design theory and its simple distinctions between public and private space. Indeed, even just a cursory look at the literature and instances on the ground reveals that the urban design of urban agriculture takes many physical forms from traditional community gardens to urban farms to more



integrated food schemes such as front lawn to vegetable garden conversions or fruit trees in city parks, schoolyards, or even on roofs, not to mention the social and ecological functions of these sites, which is also, as this research demonstrates, much more complex.

## Urban Design and Urban Agriculture

More recent design theory has begun to respond to these iterations of urban agriculture. New Urban designer Andres Duany, for example announced in 2010 at the Annual Conference of the New Urbanism in Atlanta that his influential practice in Urban Design, Duany Platter-Zyberk, would be incorporating more ecological concerns. (Duany, 2010) Most intriguing was Duany's advocacy of urban agriculture, and he even has an urban design theory, Agrarian Urbanism, which plots out how urban design and food growing can be integrated into multiple types of urban fabric. Duany is known for his promotion of the idea of the urban transect and true to form he is now applying transects to his concept of Agrarian Urbanism. (Duany, 2011) [**Figure C**]

While vocal, Duany, however is certainly not the only architect of flashy urban food scheme theories. Proposals by others range from the grandiose to the more modest. Vertical food towers, for example, usually in the form of skyscrapers, are an idea often proposed by visionary architects of a more high-modernist persuasion. These towers are a grand expressions of the concept of stacking which is employed more modestly by intensive horticultural and small animal tenders. If you can stack rabbit hutches and chicken coops why not keep going these visionaries argue. Pig City proposed by Dutch architect Natalie de Vries for instance calculated the value of pork consumption in the Netherlands and determined that as fanciful as it seems such vertical pig farms could be economically viable. In essence the transportation costs are swapped for the costs of housing the pigs vertically in these towers, although the jury is out on the giant lipstick like containers de Vries would like to house them in. (de Vries, 2000)[**Figure D**]

Figure C      Agrarian Urbanism, (Andres Duany)

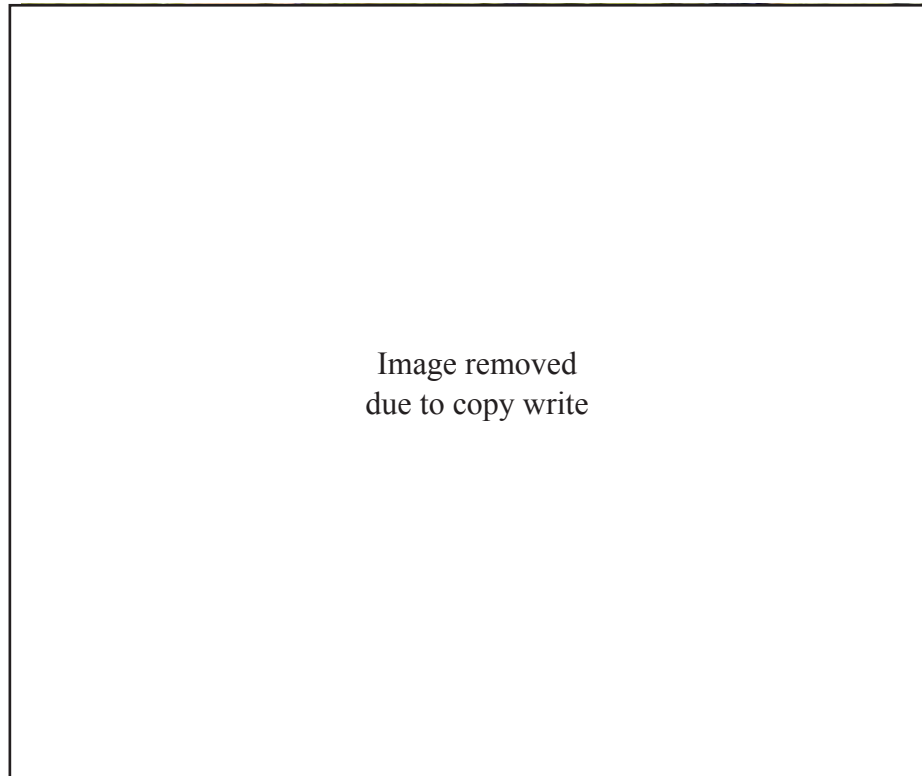
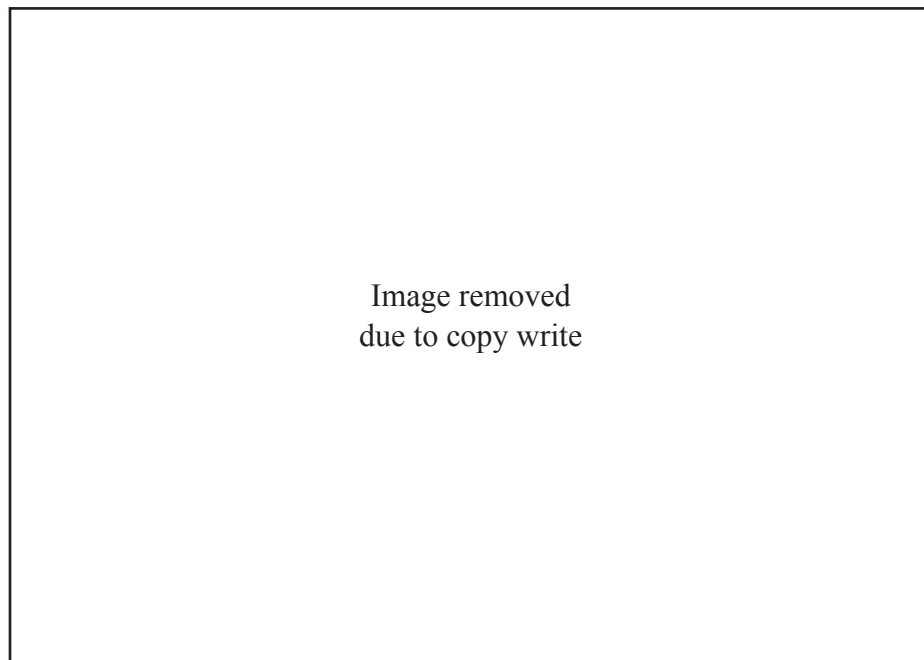


Figure D      Pig-City, (Natalee de Vries)



Yet another example is the more modest garden block concept, which retrofits the standard American grid so celebrated by New Urban designers. Figure E developed by Daniel Nairn is an example based on a 340' by 340' block type in Richmond, VA. The Garden block cobbles together property in the block's interior into a sort of community land trust. The block is then redeveloped along standard urban design principles along its streets, while placing edible landscapes mostly in the courtyard interiors. Households along the street own their homes or businesses but share ownership of the land in the block interior with other households along the blocks perimeter. Maintenance of the edible landscape is done either through payment or as a community garden. (Narin, 2010)

**[Figure E]**

Not to be left out, the Landscape Urbanism is also discussing the phenomena of integrating food into cities. Leaders of this movement include Charles Waldheim the current head of Harvard's Urban Design School. Waldheim explains Landscape Urbanism as a layered, non-hierarchical, flexible and strategic approach. (Waldheim, 2006)

Landscape urbanism views 'event' and 'program' as legitimate design focus. Instead of master plans or tidy transects, landscape urbanism calls on landscape professionals to make partial interventions, strategic moves that might incite loops, and non-linear change in a city system. Landscape urbanism also rejects the opposition of nature and city associated with the influential landscape architect Ian McHarg. As designer Chris Reed proclaims, via landscape urbanism the design professional becomes "urbanistic systems builder" (Reed, 2006).

This is the lens of systems science. There aren't many landscape urbanism projects, however, to show how this new ecological systems engagement is functioning in cities or what techniques worked best to produce it, but edibles are certainly one part of the pallet

of this landscape urbanism design approach. Evidence of the edible landscape's influence on landscape urbanism's visions can be found in Harvard's mostly conceptual 650 page design tome *Ecological Urbanism*. (Mostafavi and Doherty, 2010)[**Figure F**]

While design theory is instructive for what could be, it does not, however, tell one what actually is happening. Do these various visions align with actual urban agriculture on the ground? Another problem with grand design visions is that they are very focused on the spatial aspects of urban agriculture, the physical placement of urban agriculture, or in short, the 'where' and 'what size' of urban agriculture, its spatial placement and dimensions. But what about the 'what' or the 'why' of urban agriculture? What is the social or ecological value of urban agriculture? Why grow food in cities at all?

Obviously the first benefit of any urban food scheme is its food. Food is a pretty broad term; there are all kinds of foods meeting all kinds of caloric needs. There are grains, fruits, vegetables, greens, and many kinds of proteins, plant and animal. Intuitively a mono-culture crop requiring large open spaces will never be an urban food-growing prospect. Wheat, rice, or corn is unlikely to be pursued. Pastured animals requiring large acreages such as cows or buffalo are also likely out of the question. A fruit tree, a vegetable garden, a chicken coop, or rabbit hutch, however, are a different matter. And although the former may provide the bulk of the caloric intake of a household or community the latter arguably is the more highly valued type of calories for its protein, vitamin, and mineral density. Indeed, high-value, specialized agrarian products such as these have always been the forte of cities. (Jacobs, 1969) Still, there is the question of how much food could be produced. What are the potential calories created by urban food in the aggregate?

To address this question The Landscape Architecture Foundation has included food

Figure E      Garden Block, (Daniel Nairn)

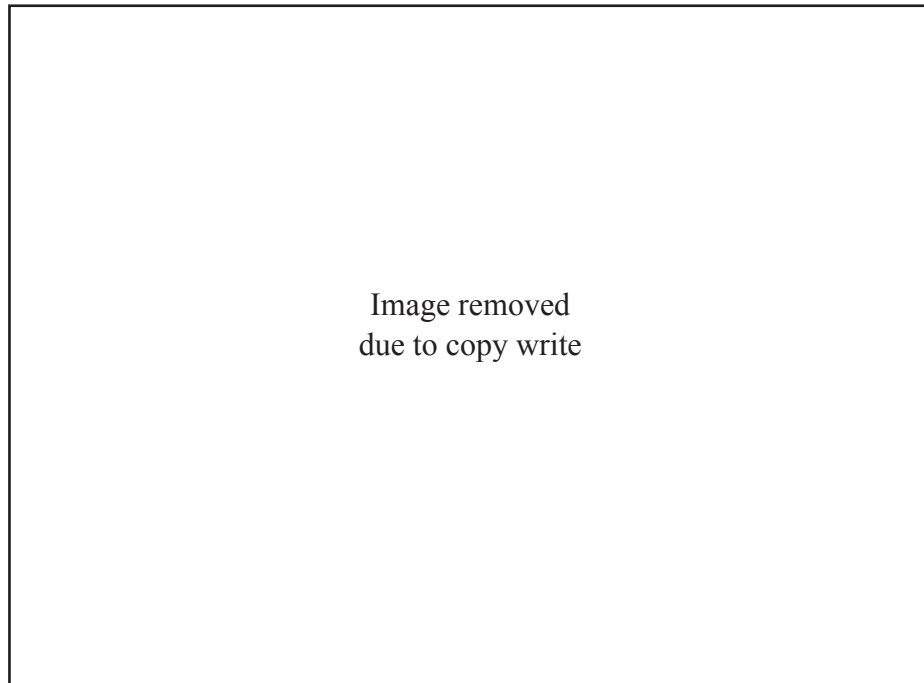
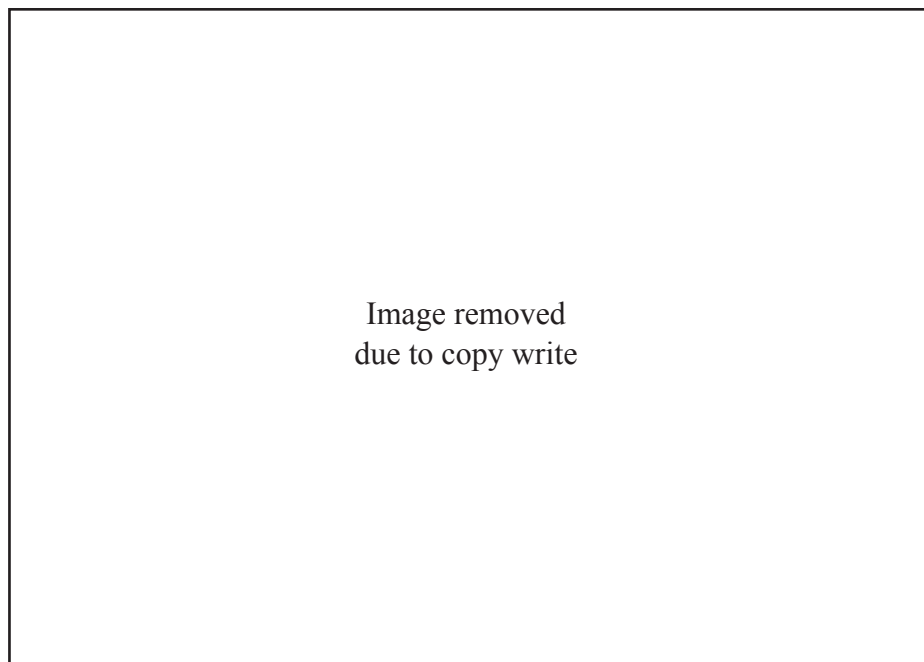


Figure F      Ecological Urbanism, (Charles Waldheim)



calories in the development of its various landscape performance metrics. The inclusion of such a metric is understandable. For example in the 1940's it is believed that 20 million gardens in cities and suburbs across America were producing 8 million tons of food. And community garden researcher Laura Lawson claims that in the 1940's some estimates had victory gardens producing 42% of the nations' vegetable needs. (Lawson, 2004)

Clearly there is a lot of potential for providing critical calories via small plot intensive urban food schemes within cities. But even this is not the only impact of urban agriculture, each iteration of urban agriculture is likely affecting its streets, cities, and neighborhoods in different ways, producing not just food, but creating and enforcing different social, cultural, and ecological patterns, and this multi-functionality must also be considered.

Urban food production doesn't just produce calories in cities it also produces ecological benefits, as well as social benefits, and when one combines these two types of impacts one could argue that urban agriculture as production within cities is not just fostering social and ecological benefits in isolation but as a more comprehensive socio-ecological system where the physical, social, and ecological aspect of urban food production schemes begin to intertwine or aggregate into multiple types of urban agriculture, which in turn scale up into an urban food mosaic or a new type of green city.

As food systems expert Ackerman-Leist states, "I firmly believe it is not enough simply to describe the incredible array of food system innovations out there...we have to understand how they fit into the broader systems." (Ackerman-Leist, 2013) Therefore, this inquiry takes as a secondary focus a systems approach, and will not just describe the variation of urban agriculture schemes and type them via urban design, but will also

attempt to do so with a view towards how these types are scaling up into a greater urban or regional system. The goal of this inquiry is not just to understand urban agriculture as an urban spatial phenomenon, its “urban design,” but also to understand it from a systems lens, both social and ecological systems, which is more of an applied landscape ecology approach.

## Research Questions

The question that crosses all aspects of this inquiry therefore is the following: how does agriculture as ‘urban agriculture’ create socio-ecological capital and scale into a regional mosaic of urban food production? This may sound like an odd question for urban design research but this inquiry is concerned not just with urban agriculture as physical urban phenomena straddling the division between public and private space but also in how its food production sites, whatever their urban design character, scale into a system or do not, whichever may be the case. This question would also be useful to planners, designers and policy makers who strive to inform change not just of city form but its function.

Moreover, design, as an instrumental and visionary discipline, is not just about what is but what could be, and to express what could be it must have a holistic understanding of a phenomenon.

To unpack how urban agriculture functions, both as spatial urban design phenomena and as a component of local social and ecological systems also requires breaking the broad question into more specific sub-questions. The specific questions of each sub-section of this inquiry become the following three:

First, how is urban agriculture being integrated socio-ecologically on site and across city scales? (essay 1) This question addresses the urban function of urban agriculture and its intra-scale characteristics, examining it from a perspective of the city. This question sits

in the discipline of urban design but also strongly in the systems lens of landscape design. Next, what are urban agriculture types physical, social and ecological and their key characteristics? (essay 2) This question, addresses the form and function of urban agriculture and how it intertwines at the scale of the site, and the scale of the neighborhood. Of the three sub-questions, this question sits the most firmly in the discipline of urban design, since typing is a fundamental research approach of the discipline. But this question also has systems and landscape design aspects since those systems components inform the typologies.

The last sub-question asks how critical socio-ecological characteristics are distributed across the urban landscape. (essay 3) This question begins to unpack specific attributes of urban agriculture revealed in the complexity of questions one and two. As expected, the research produced many different aspects of urban agriculture that could be more quantitatively examined, so only one was chosen for this final phase. That construct was eco-literacy, one of the stronger constructs to emerge from the qualitative probing of phases one and two. Phase three's question, with its more quantitative approach fits more with the social sciences, and is an example of options for further study made possible by the qualitative research of the first two questions.

## Dissertation Structure

Since the main question has been divided into three sub-questions the dissertation has been broken into three phases or "essays." These essays are presented here as parts of one contiguous dissertation structure, with each question and its results logically flowing into the next; however, since each essay has its own sub-question, it can also be detached as a stand-alone inquiry with its own question, its own literature review outlining the body of work on which it builds, and finally a results section of key findings.



Though this inquiry uses a combination of methods that are recognizable in other disciplines, including interview techniques and a survey, these methods have been adjusted. A discipline can be defined by its methods and this inquiry strives to use methods that place it with in the discipline of urban design and historic researchers of that discipline including Jane Jacobs, Allan Jacobs, Christopher Alexander and Kevin Lynch, but also more recent researchers who claim to be urban designers such as Anne Forsyth and other researchers who also identify as designers such as Randy Hester. This inquiry believes these design oriented researchers share some methodological dispositions to which this inquiry hopes to construct its research case and answer both the over-arching question of the dissertation and the sub questions of each phase or “essay.”

The methodological procedures are presented in detail in the methods section; however, a few critical methodological differences between urban design and other disciplines such as anthropology or geography should be made clear before diving into a thorough methods discussion. Urban design can be considered a qualitative field and therefore its approach to issues such as reliability and validity is qualitative. For example urban design recognizes that there is an objective reality out there but also shares the view that such reality is filtered through the designer or design researcher. Therefore, at least in the spirit of transparency, or reliability and validity if one is inclined to use those more social science terms, it is necessary to outline not just the techniques the design researcher uses to measure the reality ‘out there’ but also the internal reality of the design researcher, the reality ‘in here’, or the filters through which the designer or design researcher will process that reality in order to inform design or design research. In the methods sections these filters are first explained as a ‘core logic’ literature review and then the urban data collection techniques and instruments are explained.

Next, urban design is not just qualitative but also heavily descriptive. While it uses

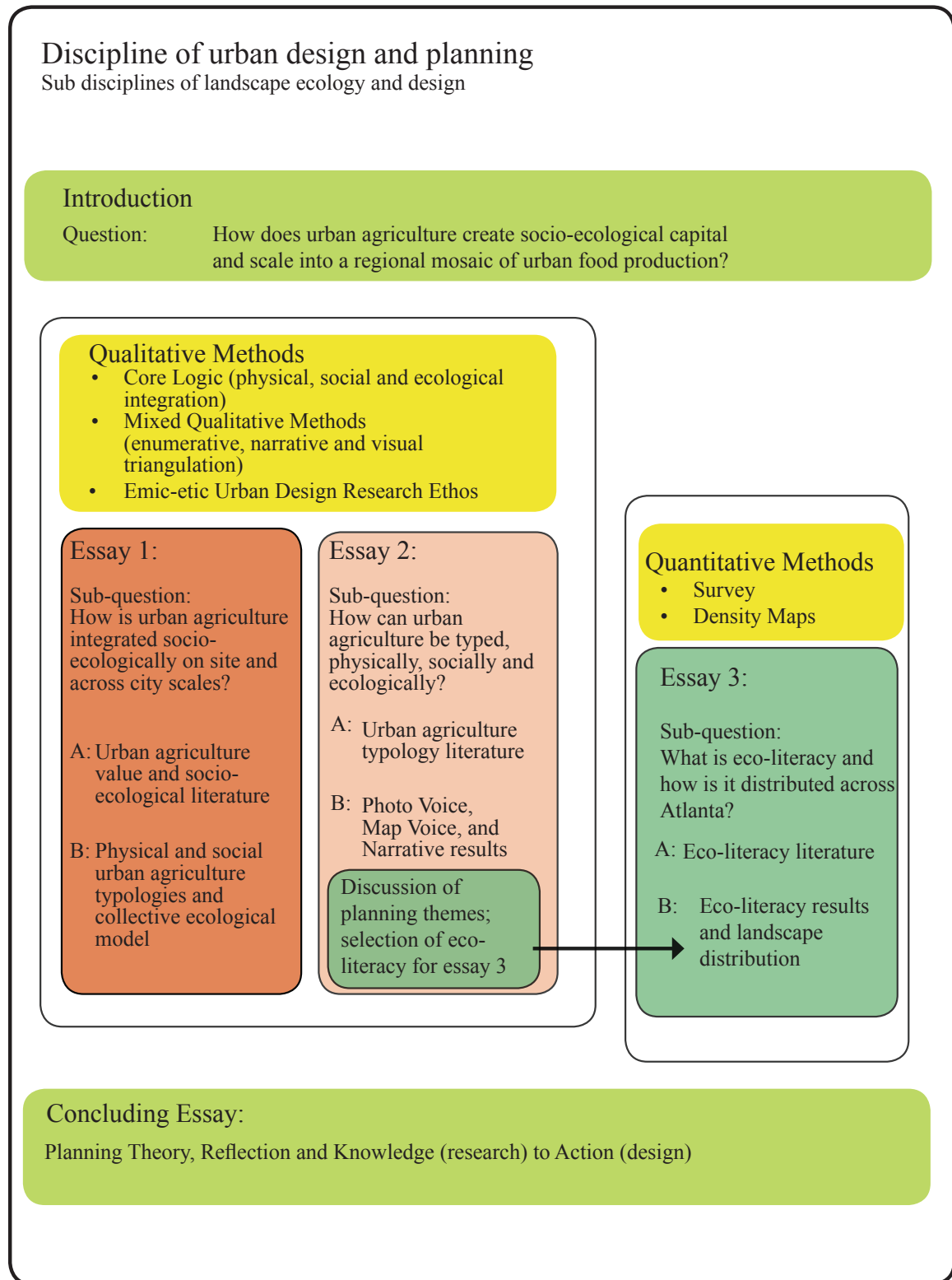
information such as numerical data, such information is often represented as counts, dimensions, or scales rather than inferential statistics. Within urban design and especially landscape design, with its sister field of landscape ecology, which also has some influence on this inquiry, there is a great deal of modeling, which can become quite mathematical. This inquiry will present models such as GIS mapping models, but with the exception of some kernel density functions in the quantitative third essay; these models remain mostly qualitative and descriptive.

The last important methodological underpinning of urban design that should be noted is that this discipline is also—above all other forms of knowledge—visual. It is a requirement of urban design to present results visually, which is understood in the field as a different way of knowing as valuable as any other way of knowing. (Cross, 2001) Unlike many other disciplines, which treat visuals simply as collateral support to other types of information, in design visual representation is often held above other forms of information and in design research it is at the very least held at the same level as narrative or enumerative types of knowledge. Therefore visual representation permeates all of the essays, even the quantitative last third of the inquiry.

In short, urban design is a descriptive discipline. It is most concerned with form, but understands that form also has social and natural implications. Urban design as a spatially oriented discipline relies heavily on spatial data, such as dimensions or locations and visualizations of that data. When describing a city or a phenomenon like urban agriculture within a city urban design uses these spatial and representational lenses to understand or order it. The first two questions of this inquiry fit squarely in the descriptive tradition of urban design and rely on the discipline's many descriptive techniques. The last question, however, is more analytic, and thus has more in common with the social sciences and thus uses their methods somewhat.

Lastly, while this inquiry is firmly planted in the discipline of urban design it is also connected to the discipline of planning as well as a college of architecture and planning. Therefore, the concluding essay, which can be considered either as a fourth standalone essay or simply as the concluding piece of the entire dissertation, briefly discusses planning theory and then reflects on how the entire process, all three essays and their methods, fit with in urban planning theory. Although this inquiry is not a policy inquiry and does not make detailed policy recommendations, it does reflect on the results in each of the essays and on the entire process in the final concluding essay, and makes some broad recommendations based on this experience. **Figure G** represents the overall structure of the dissertation.

Figure G





## METHODS



# METHODS

## 1. Research Filters:

Developing a Core Logic of the Social, Physical and Ecological Integration of Urban Agriculture

### Core Logic

In pure grounded theory a generalization is crafted after the data have been collected, patterns assessed, or themes coded. (Agar, 1996; Bernard, 2006) Few social phenomena, however, are observed in a theoretical vacuum and since the rich literature of urban agriculture and urban design from Howard's Garden Cities to Duany's Agrarian Urbanism are already informing any descriptive urban design research on urban agriculture, it is best to take a middle ground between pure deductive hypothesis testing on the one side and grounded theory pattern recognition and theory construction on the other. Therefore, creating a core logic based on the discussion of urban agriculture in the urban design and planning and other relevant literature, and then using that logic as part of the method of assessing instances of urban agriculture is the initial qualitative research mechanism of this inquiry.

The core logic informing the first two qualitative essays of this inquiry starts from the assumption that urban agriculture is integrated and scaled up in three primary ways, through *physical integration*, *social integration*, and *ecological integration*. Moreover to understand each of these types of integration, it is necessary to operationalize them into key variables. Nine variables have been chosen.

While this inquiry sits within the discipline of urban design it is also influenced by other fields and their research and theory and thus the operationalization of those variables also draws from a broader mix of theory. Fields influencing this inquiry, in addition to urban design theory on urban agriculture include:



- Landscape ecology theory
- Systems theory and food shed theory
- Planning theory, especially the more empirical branches of the discipline
- Ecological design theory emanating from the discipline of landscape architecture.

The research also operates under the premise that in qualitative research the researcher is a kind of filter, and builds knowledge and understanding based on the theoretical constructs to which he or she has been exposed. Explaining the theoretical underpinnings of the core logic therefore becomes a form of reliability by making the researcher's 'filters' transparent.

The following review outlines the ideas and authors influencing this researcher's world view, uncovering the theoretical soil from which each of the three sub categories and nine variables were nurtured. Other researchers will have other influences, and thus may filter data somewhat differently and ultimately use a different set of variables to assess urban agriculture and its urban integration.

Core Logic of Integration:

- Social Integration Variables: membership, accessibility, and social program
- Physical Integration Variables: location, pattern, and physical extent
- Ecological Integration Variables: multi-function, closed loops and eco-revelatory designs

## Design Integration Theory

Urban design theorist Nan Ellin's theory of integral urbanism suggests one way to operationalize urban agriculture integration. To integrate is to form, coordinate, or blend into a functioning or unified whole. In architecture and urban planning Ellin asserts

that a backlash to the modern and postmodern ways of designing, which ‘separate’ and has manifested in sprawl has been brewing, in its place is a movement towards more ‘integration.’ (Ellin, 2006)

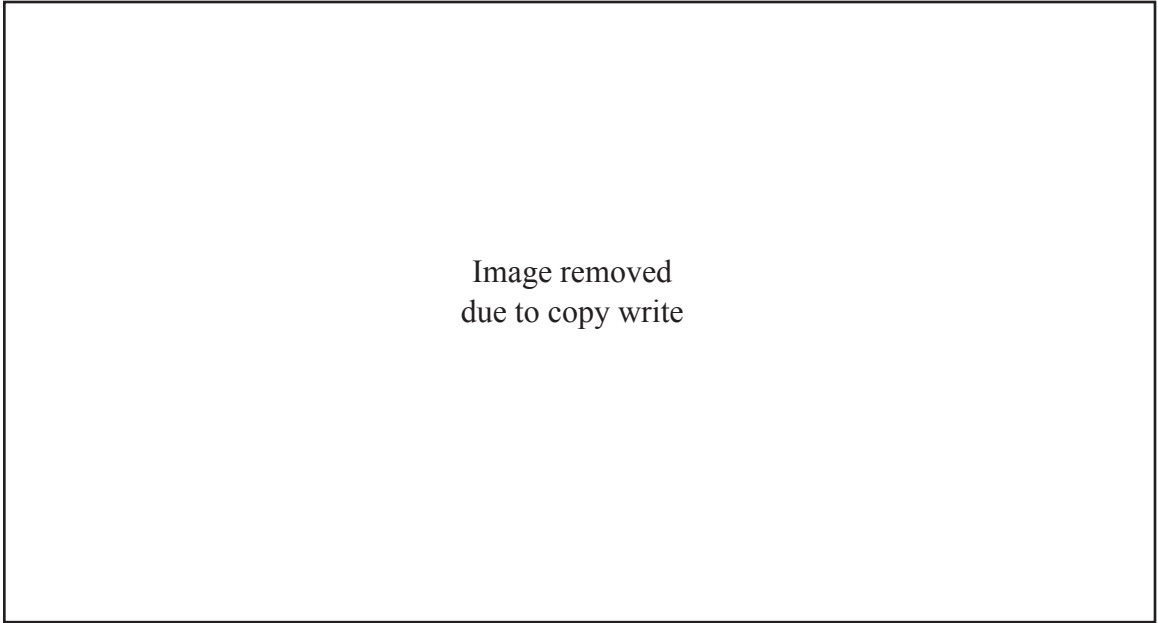
All kinds of things can be integrated, including uses or functions, conventional notions of private and public realms, horizontal and vertical, the built and unbuilt, processes and products, theory and practice. As one moves between these elements Ellen describes how they are in “flow.” (Ellin, 2006). The concept of flow however “also represents the form of this movement, three-dimensional webs of networks, in contrast to the traditional model of central places and hinterlands.” (Ellin, 2006) One can also describe Ellin’s integration theory as an ecological approach, at least in metaphor. “We must mirror nature’s deep interconnections in our own epistemology of design,” says Ellin. (Ellin, 2006)

As an anthropologist as well as a design theorist Ellin bases her integration variables on a review of multiple cases of postmodern urban design. From these cases Ellin distills integral urbanism into five qualities: hybridity, connectivity, porosity, authenticity, and vulnerability. “Together, these qualities,” writes Ellin, “describe a shift from emphasizing isolated objects and separating functions to considering larger contexts and multi-functional places.”(Ellin, 2006)

Although this inquiry is primarily an urban design inquiry and Nan Ellin’s integral urbanism is the one of the most current examples of urban design’s renewed interest in integration, this inquiry is also influenced by other theories and disciplines and has developed a more straightforward construct of integration than Ellin’s integral urbanism and its five primary constructs.



Figure A: Cedric Price's 'The City as an Egg'



This research's core logic of integration is based on the broad sub categories of *social, ecological and physical integration*. It further breaks these categories down into nine observable variables. Before discussing those variables, however, it is important to discuss the theorists, not necessarily from urban design, which inform the core logic.

## Landscape Ecology and Landscape Urbanism Theory

From landscape ecology and systems theory the question of this inquiry is not simply how much each food scheme is integrated, but how socio-ecological phenomena becomes embedded not just in a 'landscape patch,' meaning an urban agriculture site, but into a 'landscape mosaic' meaning the urban agriculture system forming across a city. In short, how are these sites scaling up into a metro food system. It is in the aggregation of smaller units from islands to a network or patches to a mosaic, to use the language of landscape ecology, in which a deeper examination of on the ground cases of urban agriculture becomes critical.

The theoretical construct of the mosaic comes from the discipline of landscape ecology. Landscape ecology studies the relationship between environmental pattern and ecological process. Landscape ecologists divide the landscape into patches, relatively heterogeneous spaces; corridors, narrower strips that differ from patches; and matrices, the degree of connectivity of the background eco-system (Turner et al., 2001). Mosaics are the composite of these different spaces that make up a definable landscape at a larger scale. In a perceptual sense the mosaic is kind of a connective layer of thickness and thinness in which all kinds of events and relationships occur. It is a kind of catalytic emulsion of connective tissues that organizes not only objects and spaces but also the dynamic processes that move through them. (Weller, 2006)

Landscape urbanism has also adopted this idea of mosaics to describe the urban landscape that has spread like “emulsion” across modern urban landscape since the last century. British design theorist Cedric Price’s metaphor of this configuration as a cooked egg is perhaps the most striking expression of this change. **[Figure A]** According to Price, where the 18th century city was an egg with a defined core and periphery, a “boiled egg,” and the 19th century city was an egg still with a core but more spread out, a “fried egg,” the 20th century city and beyond has morphed into a “scrambled egg,” where a little bit of everything is everywhere. (Shane, 2006)

With the introduction of green roofs and other sustainable building technologies, this concept of a kind of organic quality to this mosaic, to the connective urban layer, or Price’s scrambled egg, is evolving in public consciousness. As Charles Waldheim states, in this new organic urbanism “continuities are emphasized and roofs and grounds become one and the same.” (Waldheim, 2006) But more importantly the city is becoming more physically like a living entity, a little thicker there and little thinner over here, but a connected and often literally living tissue weaving in and out of streets and buildings. As this type of city grows, the traditional distinctions between green and non-green spaces become increasingly difficult to distinguish.

Perhaps what is really propelling this concept of the mosaic, claims Landscape Urbanism’s Clair Lyster, is not primarily coming from the architectural or urban disciplines. With the development of networked computer systems, the idea of a connective tissue uniting economic and cultural space is growing. (Lyster, 2006) Nan Ellin’s theory also acknowledges this technology driver, noting “new technologies have been enabling the ecological approach.” (Ellin, 2006) The mosaic is not just an ecological and physical entity but a virtual and social reality. And it is likely to become more prevalent as technologies become thinner and smaller and more embedded in our

everyday physical environments.

Even though the idea of the mosaic is physical, social, and even technological, however, it is most importantly organic, giving the idea of the urban mosaic its 'green' patina. To understand and develop this 'green' urban mosaic planners and designers have been using the lens of ecology. In ecology spatial form is on it's way to becoming something else. Other ecological metaphors such as diversification, flows, instability, indeterminacy and self-organization are also aiding urban designers to place "cultural systems within the epic narrative of evolution" (Weller, 2006)

The construct of the urban mosaic is not necessarily the 20th century environmental perspective of Ian McHarg, either. To design solely "with nature" (McHarg, 1969) is a somewhat different perspective, which arguably places nature and human settlement in separation, each with its own 'suitable' location more often than it integrates the two into a social and ecological system.

Often missing in strict ecological planning and landscape ecology research, which emanates from the theoretical soil of McHarg, is a deeper understanding of the cultural aspects of landscapes and how they integrate with ecology. (Ndubisi, 2002) Writing with landscape architect James Corner, Marc Treib asserts, "we need to consider a broader range of factors—cultural, imaginative, mythic, and intuitive—than the quantifiable ones alone...when we design *with nature* we would lack the human dimension that lies behind designing landscapes in the first place." (Treib, 1999) The frame of the urban mosaic on the other hand is a concept that provides for all three orientations, physical, social, and ecological. It then ties them together into a 'green,' socio-ecological system.

Lastly, what is the role of food growing in cities to this landscape design theory? How

does it fit with this new conception of city space as urban mosaic? Food growing and sharing is a time honored means of cultural transmission, suggesting that it may be, more than many other aspects of the urban mosaic, a critical player in the socio side of a socio-ecological system creation. It is the assumption of this inquiry that food growing uniquely unites people to their local environments, and this assumption informs the core logic.

## Systems Theory and Food Shed Research

Next it is important to mention the influence of systems thinking, and specifically the conception of the food shed as a type of system, on this research. From the system thinking lens every natural and social entity is a complex system. Every person or family, neighborhood or city, tree, garden or farm. (Meadows, 2008) Systems are not linear, but are complex, moving in multiple directions at once. This is a very different theoretical lens than rationality which breaks systems into small understandable pieces in order to solve specific problems, with linear causes and effects. (Meadow, 2008) You can break a system into its parts to help understand it but ultimately one must put it back together to show how the parts interconnect and perhaps move into different system phases. The systems lens is about focusing on these interconnections and how their elements are brought together for a goal. To use a systems lens one of its more well known theorist Donella Meadows of *Limits to Growth* research fame recommends “starting to look for the interconnections, the relationships that hold the elements together.” (Meadows, 2008) This way of looking is strongly represented in this inquiry. There are many other important concepts in systems theory including stocks, flows and feedbacks. However, this research focuses primarily on looking for the basic interconnections, rather than measuring stocks, flows or feedbacks. This is why systems theory is placed underneath broad urban design theory and landscape ecology as a theoretical influence on this research.

The local food system is another category of system, but clearly at a larger scale than a person, tree, or garden. In the literature this system can also be spatially represented as a food shed. While the concept of the watershed is well developed, the food shed, although conceived in the 1920's, has only recently been taking hold. Whereas a watershed captures all the water in a certain basin, with smaller water sheds being nested in larger ones, a food shed represents all the flows of food into an area. Food inputs can be from international, national, regional or local sources. The primary difference between a food shed and watershed was described by Walter Hedden of the Port Authority of New York who first used the term in 1929 in his book *How Great Cities Are Fed*. Hedden writes, "The barriers which deflect raindrops into one river basin rather than into another are natural land elevations, while the barriers which guide and control movements of foodstuffs are more often economic than physical." (Ackerman-Leist, 2013). A key problem with the concept of the food shed is establishing boundaries. Wherever one draws the boundaries, however, foodstuffs do flow in and out of different geographies as a kind of system. To somewhat revise Hedden's views, this inquiry suggests that food system drivers are not just economic but most likely socio-economic.

While food shed research was revived on the fringes of academic theory, when Permaculture designer Arthur Getz re-introduced Hedden's concept in 1991 in the magazine *Permaculture Activist*, (Getz, 1991, Ackerman-Leist, 2013) more main stream thinkers have been making it the basis of their research in recent years. Food shed expert Ackerman-Leist, at the University of Vermont for example, uses a system thinking approach when researching food sheds. Ackerman-Leist broadly sees the food system's boundaries in terms of scales, including, local, regional, national and international. With the "most beleaguered of those systems" being where most urban agriculture lies. "the local food scale." (Ackerman-Leist, 2013) Additionally, through his systems lens he breaks the food system down into a list of system drivers where interventions in urban

agriculture can be made including energy inputs, environmental inputs such as soil, food security and justice concerns by public officials and grass roots organizations, bio-diversity in food system plants and animals, and finally since the food system is an economic sector, echoing the initial thoughts of Hedden in 1929, the business concerns of market value and marketplace values. Systems thinking and specifically food shed and local food systems theory by experts such as Ackerman-Leist is another lens strongly influencing this inquiry.

### Social Integration Variables

The primary problem with the landscape ecology construct of the mosaic or the systems approach of the food shed is that they are not easy to study. When everything becomes fundamentally intertwined with everything else, how does one begin to make sense of it and design appropriately? Rather than simply creating another ideal scheme, as planners and designers so often do, another agrarian urban transect, food tower, or garden block, we should take some advice from stalwarts of the classic empirical urban planning and design literature, Jacobs, Whyte, or Appleyard for example and actually observe what's happening on the ground, in real cities where this integrated and edible urban mosaic or the local food system is emerging from the innovative combination of social and ecological phenomena.

To exam this mosaic it will be important to get into neighborhoods, streets and communities, of a city in order to get a more complete understanding of how food schemes are integrating with cities not in design visions but in design reality. This doesn't mean throwing out the work of designers such as Duany, Waldhiem and others and their visionary schemes discussed earlier, but rather tethering those visions better to the reality of neighborhoods and districts and the social and ecological functions of those places

as Jacobs, Whyte, Appleyard and other urban planning empiricists have taught us is necessary for a richer understanding of urban phenomena. This empirical approach is just as relevant for studying urban agriculture sites today as it was for studying eyes on the street in Greenwich Village, public plazas in Manhattan or the relationship between street traffic and neighborhood formation in San Francisco, all ground breaking empirically based urban planning and design studies of earlier eras. Therefore the goal of this inquiry is to first create an understanding of what may be occurring amongst urban agriculture sites based on the literature; to turn the key aspects of this literature into variables; and then, without getting too attached to these variable, to test them by visiting real sites on the ground.

Starting with the socio-economic function of the urban mosaic the obvious place to turn is to urban design's sister field of urban planning. Until recently the urban planning literature and its treatment of urban agriculture has been sparse. When discussed in planning literature, urban agriculture is often simply a line item as an inconsequential type of community open space or an aspect of civic revitalization. (Hou et al., 2009)

In more recent years the little planning literature that exists on urban agriculture, however, has moved away from open space to the issue of food access. There is an extensive economic development literature on food access and security from the developed world, where in some cases 80% of urban dwellers are engaged in some kind of urban food activity. (Pearsons, 2010) Planners in the developed world, however, have also begun to recognize the food security issues within cities. Pothukuchi and Kaufman (2000) for instance assert local food networks are an important planning concern because food is an essential human need and an important part of the economy. Or the work of Cornell University's Anne Forsythe's for example creatively combines the issues of food access and the built environment. (Forsyth, 2010) Forsyth is the urban planning and



design expert for many long term research projects such as Eat III, which is conducting a longitudinal study that measures multiple connections between health and the built environment. But Forsyth's and other urban planning research focuses mostly on access to grocery stores, especially stores selling fresh fruits and vegetables, rather than food production in urban locations. Speaking at a colloquium at Clemson University in the Spring of 2010 Forsyth even made the claim that community gardens and urban food may have important social roles but are not, she believes "significant contributors to health and food security issues in American cities." (Forsyth, 2010)

Forsyth's claims may be true for the moment but planning needs to pay more attention to urban agriculture's potential impact. Planning is ultimately about change and impacting the future of cities. But beyond a few community garden examples, there is insufficient planning and design research into urban agriculture as a planning phenomenon. There is a need for urban design and planning research that assesses potentials based on existing cases.

When looking at potentials in existing cases, one issue is to know what variables to operationalize in regards to the social function of urban food. The extensive social networking literature is a good source for clues. Reviewing the full spectrum of social networking literature is beyond the scope of this inquiry. One example of the potential of this literature that is relevant to this urban design and planning inquiry, however, is Scott Feld's research into the social organization of neighborhoods. Feld demonstrated how individuals whose activities are organized around the same focus will become interpersonally tied, forming a cluster. In order to understand the patterns that are found in a social network it is necessary to investigate the sociological nature of the foci and the distribution of the individual relations to it. Foci can be many different things including people, places, or activities. (Feld, 1981, Brower, 2011) Clearly urban agriculture has the

potential to be a social focus. In short, Feld shows that two people who share a focus are more liable to form a connection than two random people and through this process values are transmitted. Feld is thus providing a more fundamental understanding of how theory's such as Nan Ellin's integral urban design concepts of connectivity and hybridity can come into being around design interventions such as integrating urban agriculture into cities.

As already discussed the classic planning literature on social networking should not be overlooked either, when considering the social dimensions of urban agriculture. There is a rich literature about the social ecology of "the street" by stalwarts in the urban planning literature such as Jane Jacobs and Donald Appleyard, which could help to form a model of integral urban agriculture. While architects such as Duany tend to focus on Jacobs' observations about physical urban form such as frequent blocks and mixed uses, Jane Jacobs in interviews a few years before her death claimed she was more proud of her urban ecology ideas, concepts such as her street ballet concept. Or the ubiquitous Jane Jacob concept of "eyes on the streets". (Goldsmith and Lynne, 2010)

Donald Appleyard's classic planning study of the urban street also has implications for measuring social process aspects of the urban mosaic. In his book *Livable Streets* Appleyard outlines his famous study of personal territory and street space and whether there was a sense of stewardship on the street based on the urban street type. Territorial use patterns in his study corresponded to physical patterns. (Appleyard, 1981) The potential of applying Appleyard's research to urban agriculture is intriguing. Rather than a negative value such as traffic, one could look at a positive attribute such as an integral urban agriculture scheme, to determine its ability to connect people to each other as well as to ecological process.

The ideas of Feld, Jacobs, and Appleyard when applied to implementing food in cities begin to suggest ways it could be understood more systematically. To begin the process of understanding social networks and their relationship to urban agriculture design, this research recommends three social indicators: *membership, accessibility and program*. This inquiry believes the core aspect of social integration is membership, while the mechanisms of aggregation can be measured by accessibility and program.

**Membership:**

An obvious measure of the power of a social network is the number of people participating in it. However, there are different levels of participation. Some activities of an urban agriculture scheme may be exclusive to members while other activities are open to the public. To delineate between these different levels of participation the concept of participation here is focused more on membership, which will be defined as individuals who have actively signed up to engage in whatever the urban agriculture scheme is promoting whether as members of a community garden, workers on an urban farm, or purchasers of a community supported agriculture network.

**Accessibility:**

Accessibility covers the non-membership types of social interface with in any given urban agriculture scheme. While everyone may not actively participate with the scheme, individuals may interact with it more intermittently in a myriad of ways. If it is an urban farm, they may go to its Saturday market. Or they may simply pass by a community garden and have casual conversations or interactions with the more active members of the scheme.

**Program:**

The level of membership or accessibility will depend on the kinds of food growing

activities the urban agriculture scheme is promoting. In short programmatic elements become foci described by Feld. Therefore, program is another measure of the social integration potential of an urban agriculture scheme. Generally a scheme with more than one or a few types of program will interact with the community more, creating more avenues for cultural and social capital creation. There is the issue of quality over quantity of program, but this inquiry will defer to the idea that a variety of actions produces more varied and richer interactions.

Via these variables hopefully one can begin to describe how urban agriculture could be socially integrated into a real world neighborhood. However, none of these variables adequately addresses where food should be placed in cities nor the ecological aspects of urban agriculture. The next sets of core logic variables address more directly these physical and ecological parameters.

### Physical Integration Variables

A better understanding of the physical aspects of urban agriculture is especially critical now that urban agriculture is leaping beyond the confines of the typical community garden on marginal urban land and developing into a movement that integrates food into a myriad of components of the built environment. There are multiple examples of edible gardens being placed on rooftops for example. (Cohen and Reynolds, 2012) An edible roof is just one component of a building system. Since this inquiry emanates from urban design and not architecture, however, the expansive edible green architecture literature is beyond the scope of this inquiry. It is indicative, however, of the physical changes spreading across developed world cities at all urban scales, including the more urban design oriented scale of streets, open spaces, neighborhoods and districts.

Unfortunately there is a lack of sufficient research into the relationship between urban agriculture and the built environment at the urban design scale. In an extensive urban agriculture literature review by Australian research team Leanie, Linda and Craig Pearson of the Melbourne Sustainable Society Institute, which examined urban agriculture in all contexts both developing and developed world, the Pearsons concluded that although social, environmental, and economic measures of urban agriculture have been taken in urban settings around the globe, planning studies are remarkably sparse. And knowledge gaps are widest and research weakest where urban food production relates to the impact of urban form. (Pearsons, 2010) There is a strong need for urban agriculture research at the urban design scale, which is a gap in the literature this inquiry attempts to fill.

One study that has addressed the relationship between gardens and urban design, however, was actually in the Pearson's hometown almost four decades ago. (Gehl, 1977) Later, in 1994 Melbourne published *Places for People* in collaboration with Gehl, building on some of his original garden and physical placement research. While Gehl's work was not an urban agriculture study, it has implications for the physical placement of food growing in cities. The study examined the issues and opportunities regarding public space and collected data on public life in those physical spaces. Gehl offered a vivid picture of the quantity and types of activity in Melbourne's public spaces. One key finding was the role of front gardens in facilitating social mixing in residential public space. The placement of the gardens was key in what Gehl called a soft edge between private and public realms. (Gehl, 1994) While the gardens observed by Gehl were not necessarily food producing the results of this study is transferable to urban agriculture schemes.

The phenomena Gehl described in Melbourne is rapidly moving to America via the edible

landscapes movement. For example an August 2009 edition of *Planning Magazine* was dedicated solely to the intersection of food and the planning profession. Most interesting was its article entitled “*Lawn Be Gone: The Time Has Come For Edible Front Yards.*” The article expands on the positive environmental impacts of taking the 49,000 square miles of American lawns and replacing them with less chemical and water intensive landscapes, including sustainable food gardens. (Worrel, 2009) Based on Gehl’s work, one can argue that the most interesting impacts of such a change, however, are cultural. As a special space between the private and public spheres, Gehl’s “soft space”, there is the view that front lawns as food growing spaces can change culture from the bottom up. Author of *Food Not Lawns*, Heather Flores claims “one’s yard can be a vehicle for personal growth and transformation—as well as the transformation of the surrounding community, the local ecology, and ultimately, the planet.” (Worrel, 2009)

Whether it is via private lawns or some other aspect of the urban landscape, there is an assumption that that small, bottom-up interventions change regions. As landscape urbanist Denise Descombes’ claims, “the largest of territories can be irreducibly restructured through small, laconic interventions.” (Descombes, 1999) Descombes also compares these small, laconic landscape interventions to a can of preserves in that they are never finished or completed, like a can of preserves they are “an accumulation of events and stories, a continuously unfolding inheritance.” (Descombes, 1999)

Fortunately, the “can of preserves” that is the movement towards edible urban landscapes has been fermenting for some time among urban design thinkers. Lewis Mumford in his writings and work with the Regional Planning Association of America often referred to the importance of productive landscapes over consumptive ones, and in particular landscapes used for growing food. Mumford detested how our culture often “consumed nature” rather than participating with it for positive change. Raw land of the modern day

real estate developer, as Mumford framed it, “is to be conquered and consumed.” Instead Mumford advocated for a productive culture. (Luccarelli, 1995). Moreover, Mumford believed creating the right communities creates “little theaters,” an alternative society growing within the shell of new planned communities, and Mumford’s little theaters also required an ecological worldview. (Luccarelli, 1995)

Although Mumford was not talking about food production within cities, one could transfer his ideas from Garden Cities to more mundane spaces such as ‘city gardens’. Jane Jacobs in her text *Economy of Cities* outlines the idea of cities as incubators, even of agricultural innovation. (Jacobs, 1969) In light of Jacob’s insights, perhaps Mumford had the process flipped; instead of creating large-scale new regional locations where these “little theaters” of ecology could be incubated, perhaps it is best to plant them in the existing urban fabric via urban agriculture.

Kelly Shannon’s discussion of contemporary architectural theorists such as Sebastian Marot is also instructive. Shannon points out that French thinker Sebastian Marot has already been suggesting an elevated role for urban change in urban liminal space. Marot recommends that the design professions such as urban design and landscape architecture focus on “suburban experiments and their landscape methods (especially their gardens) as genuine laboratories of urbanism and land development.” (Shannon, 2006) Finally, urban design theorist Nan Ellin via her integral urbanism theory discussed earlier has also asserted that edges and borders are the most critical spaces for urban change. “These qualities [of integral urbanism] place a premium on borders, the site of these relationships.” (Ellin, 2006) While Ellin is not referring to urban agriculture or even necessarily to gardens like Gehl, her ideas could also be transferred to these realms.

Next, bumping up in urban scale from the front yard, Andre Viljoen and Katrina

Bohn have proposed an unusual idea for greenways in greater London, which he calls CPUL's "*Continuous Productive Urban Landscapes*". CPUL's are another expression of the potential physical attributes of the urban mosaic and the landscape ecology concepts of patches and corridors. Generally greenways have been conceived as riparian, or wilderness corridors that interface with cities bringing a variety of recreation opportunities to city residents, but via CPUL's the concept is evolving to include food production. (Bohn and Viljoen, 2005) It is perhaps an unfortunate name but certainly a unique concept as it combines the physical connectivity of greenways, such as London's famous greenbelts, with the idea of productive urban landscape, such as community gardens, urban farms, and other food producing urban landscapes. By consciously creating such a physical network Viljoen and Bohn argue that urban food and sustainability as well as a variety of open space needs could be better integrated into London and other cities (Viljoen and Bohn, 2005).

While, unlike water and wildlife corridors, at first it may be hard to see why urban food schemes should be in corridors, when combined with the socio-cultural potentials of liminal food production described by Gehl, Marot, Flores and others, the imaginative power of the physical connectivity of CPUL's becomes more apparent. CPUL's redefine the street or the parkway not just as a productive food growing space but also as a critical conduit for the transmission of the value system connected to these spaces.

Dropping back down in scale from physical corridors to patches of yard, while all these theorists are postulating about the importance of locating urban food in liminal spaces such as front yards and greenways, landscape designer and artist Fritz Haeg has actually been implementing it via his ongoing project *Edible Estates*. Although front yard lawn to edible garden conversions have become more noticeable in recent years, Fritz Haeg's project is credited for making this idea more visible. Haeg's intent was political; he



wanted to make an “in your neighbor’s face” food production scheme and he hoped to turn the idea of a suburban lawn on its head. As liminal space, the front yard, especially in the typical American neighborhood context, does serve as a social and cultural space and an individual’s expression of how or how not their household conforms to landscape mores. By 2010 Haeg had installed several high profile edible front yard gardens. Haeg’s book *Edible Estates* details many of his projects. The location and visibility of Haeg’s and others’ front yard food gardens may be helping to push cultural change towards more productive and perhaps ecological uses for these liminal spaces via urban agriculture. (Haeg, 2010)

Mumford, Jacobs, Marot, Ellin, and advocates of reformulating front lawns and city parks as edible landscapes such as Viljoen and Haeg all seem to be calling for design that takes on the issue of the small scale site at the most democratic of levels and then linking it up. Therefore based on the weight of all of this theory of physical integration three variables have been chosen to study the physical aspects of urban agriculture in cities: Pattern, Extent and especially Location, which this inquiry assumes to be the variable which has the most impact on an urban agriculture scheme’s potential for scaling up into a socio-ecological system.

**Pattern:**

As a greater number of participants in urban agriculture emerge in a community, patterns of this land use also emerge. The pattern begins to create a mosaic of production. Ecologists have noted these phenomena in other contexts. Ecologist Eugene Odum for example describes the phenomena of suburban trees creating a spotty forest canopy with certain ecological benefits and costs. (Ndubisi, 2002) Mosaics are not the only patterns possible however. Food can be placed in cities as large-scale urban agriculture on large super blocks or it can be located in the connective tissue of a city, such as fruit trees in

city streets or community garden plots in greenways.

Figure B displays the concept of pattern, using a food scheme proposed for a section of North Philadelphia around 2009 with several abandoned inner city lots. The diagram depicts similar amounts of urban land, but representing very different levels of integration. The image on the left is a large urban farm created from several centralized blocks, urban renewal style. The central image reveals the areal underneath with green lots representing all the available abandoned sites for food production in a patchwork pattern. The image on the right is the food located in the public spaces of the streets and some of the lots as is being proposed by the Philadelphia orchard project and is similar to CPUL's. Each of these schemes has very different implications for this inner city neighborhood based solely on the variable of pattern. **[Figure B]**

#### **Extent:**

Extent is related to pattern but is a size issue, the amount of land dedicated to food regardless of how it is laid out in the landscape. The image from Philadelphia **[Figure B]** displayed similar amounts of urban agriculture distributed differently. However, bigger doesn't necessarily mean better. More land dedicated to food will simply create a different set of benefits and costs. A current example of the impact of extent is the amount of land in cities dedicated to lawn as discussed earlier. Lawns also indicate acres of land also dedicated to fertilizers, water, human labor, lawn mower fuel and many other resources, all simply to maintain a cultural landscape construct, arguably with few ecological benefits. Replacing lawns with edibles depending on how they are grown may or may not change figures on labor or water use, however, it will make these highly resource intensive and unproductive landscapes into more productive ones for humans. Since these sites represent land that will never likely revert to wild lands or traditional agriculture, turning them into intensive urban agriculture could have significant indirect

ecological impacts in non-urban locations as well, a kin to the urban design concept of the transfer of development rights but at a greater urban scale.

### **Location:**

Lastly, the physical variable of location refers to the placement of the urban food scheme. If located on a site, is the location behind a structure in completely private space or is it in liminal space, such as in a home's front or side yard. If located in a neighborhood is it in a public park or a community lot? Whether or not a food scheme is on public or private land, as Gehl and others point out, it will have an impact on a community when it is *visible* from public space. Cultural value is then created when a critical mass of community participants are taking part in an action. When those gardens are dedicated specifically to edibles, clearly food production also becomes a part of those interactions and the cultural and social value creation process. Therefore location is critical, perhaps even more so than pattern or extent. **Figure C** reveals how location of urban agriculture impacts visibility, which in turns aids in culture creation.

### **Ecological Integration Variables**

Ecological integration is the last type of integration in the core logic. This research does not derive its ecological understanding directly from the science of ecology but rather indirectly through the design filter of the discipline of landscape architecture. Ecological science, which is the study of interactions between organisms and their environments, has influenced the landscape architecture profession from its conception, with luminaries such as Frederick Law Olmsted, Jen Jenson and Ian McHarg all basing their design work on the latest understandings of ecological science.

Since landscape ecology is arguably dominate in the field today, landscape architecture

often attempts to link the flows and relationships of ecological science to the art of landscape construction and maintenance in distinct spaces and places by designing for landscape ecology's two primary lenses of 'processes' and 'patterns.' In landscape ecology *process* is essentially landscape flows, energy, water, genes etc. and *pattern* the spatial dimensions where the processes occur. In turn pattern and process couplings are linked like nested dolls across scales, which is known as panarchy (Forman et. al., 1996, Turner et. al., 2001, Wiens et. al., 2006)

By measuring or observing different patterns and process one can operationalize the construct of ecological integration. Urban agriculture must deal with multiple processes from the fundamental concerns such as sun collecting, soil building, water harvesting to the less dominate but still critical more micro processes of soil fertility or pollination for example. One can assume that a highly ecologically integrated urban agriculture scheme is one that has many of these different processes represented within its spatial pattern. Therefore, the level of multi-functionality in the spatial pattern of an urban agriculture scheme is at the core of its ecological integration.

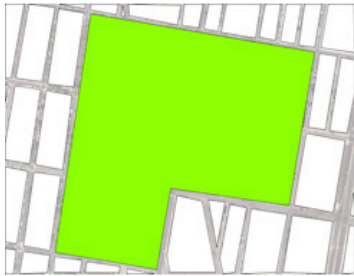
To illustrate the concept of multi-functionality there is perhaps no better resource than the classic permaculture diagram of the products and behaviors of a chicken. **[Figure D]** The ecological design science of Permaculture hails from Australia. The continent of Australia is a complex and fragile series of mostly dry land eco-systems and is a sort of global 'canary in the coal mine' of problems in the biosphere. Since the 1980's Australians have developed permaculture landscape design to combat the continent's environmental problems by changing how they manage and design their individual parcels. Permaculture creates edible landscapes based on ecological principles. It is both a set of techniques and a worldview. The Permaculture movement's classic chicken diagram depicts how a

Figure B: Case of North Philadelphia Urban Agriculture

Large Urban Farm  
in aggregated blocks

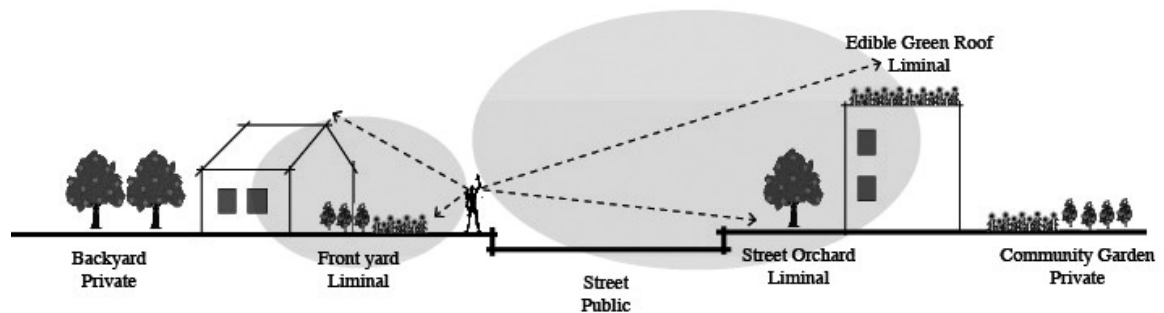
Mosaic of gardens and farms  
in abandoned lots

Continuous Productive Urban Landscape  
(CPUL's) in public space networks



Urban food production schemes of similar land coverage in the same Philadelphia location, representing different levels of integration, with very different neighborhood implications.

Figure C: Visibility and Location

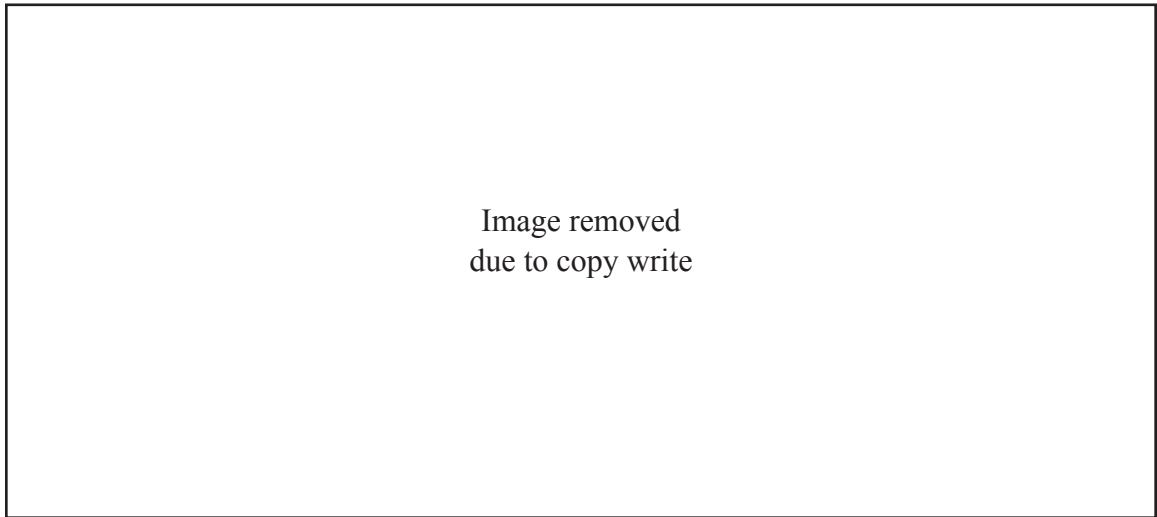


simple food raising scheme such as a chicken coop can have many complex and multi-functional relationships.(Mollison, 1988, Holmgren, 2002)

While it is not possible to go into all the ways permaculture designs more ecologically with multi-function, one example of its approach is in the permaculture planting plan. Permaculture doesn't just plant a tree or a shrub or an aesthetic grouping of trees or shrubs but rather a poly-culture, a small group of plants that support that tree or shrub in mutually beneficial relationships found in nature. Moving up to the scale of the garden, permaculture doesn't simply tend a garden, it designs a garden so it does not need as much tending. These kinds of landscape practices are a fundamentally different orientation towards landscape. The Permaculture Chicken therefore does not serve one function that is linear but has multiple functions, which loop back into the processes of the food garden. Any urban food scheme utilizing this kind of ecological process integration, regardless of what they call it or if it's with chickens or other things, will be using a form of ecological integration.

Besides multi-function the permaculture chicken also illustrates another important concept of ecological integration, the closing of resource loops. Closing resource loops is a goal common to most landscape architecture design pursuits not just permaculture, perhaps since the sustainability cause has moved into the mainstream, but also because the science of ecology has gone through a paradigm shift. Gone is the idea of static equilibrium and in its place there is a new conception of eco-systems in disequilibrium. Rather than as independent primarily closed entities this is a conception of eco-systems as primarily open systems strongly influenced by inputs from their contexts. (Pulliam and Johnson, 2006) However, there are degrees of autonomy, and when one examines the global resource exchange system with its nodes of massive global cities, in its current iteration there are many critiques of its sustainability. Specifically there is a movement

Figure D: Permaculture Design Chicken



Source: Bill Mollison Permaculture a Designer's Manual

towards greater food localism to begin to close urban resource loops, if not on site at least within metropolitan regions. (Ackerman-Leist, 2013)

Rather than massive movements of resources across their boundaries local conceptions of food systems strive to harness flows within localities, for both ecological and economic benefits. Good ecological design, argue many current landscape architects, should focus on simplicity, efficient use of resources and a close fit between means and ends. (Karr, 2006) Closing loops on and between sites is considered one of the best ways to achieve such goals.

There is also an understanding among landscape architects and designers that ecological systems are not just made up of natural components such as soil, water, sun, plants and animals, but also people. Together people and nature form not just an integrated ecological system, but a socio-ecological system. Landscape architects are continually branching out into more socio-ecologically oriented fields such as restoration ecologists, who restore battered landscapes, or eco-system managers, who serve as the gate keepers of various eco-system stocks, flows and feedbacks. (Barten and Hill, 2001)

While the discipline of landscape architecture has made this theoretical jump, many citizens interacting with these socio-ecological systems are very unaware of their roles or that they are even actors upon an eco-system. Therefore, many landscape architecture thinkers believe eco-revelatory design, at least at this cultural juncture, is an important aspect of ecological integration in cities. (Barten and Hill, 2001, Hester, 2006)

The direct experience of nature has been advocated by numerous luminaries of American ecological design. Henry David Thoreau for example spoke of the need for direct experience of nature within cities. "A river, with its waterfalls and meadows, a lake a hill



....If the inhabitants of a town were wise they would seek to preserve these things....for such things educate far more than any hired teachers or preachers.” (Thoreau, 1854)

In the modern era David Orr argues that more than books direct experience of nature with in cities is critical for individuals to become ecological literates and thus ecological stewards. (Orr, 1992)

However, even if one puts people in the middle of natural processes they are not necessarily visible. Eco-revelatory design is an approach which makes these processes better understood and in a sense visible. The most obvious type of eco-revelatory design could be signs which quite literally spell out the process or function of a landscape. But there are more subtle techniques such as daylighting a stream so its presence is known.

Indeed, being involved in food production in itself could be an excellent means for teaching natural process and people’s relationship to a socio-ecological system. In *Design for Ecological Democracy*, Randy Hester’s normative theory of good urban landscapes, he outlines many facets of the socio-ecologically based city. At the core of Hester’s theory is the concept of sacredness, but several other attributes are critical including what Hester dubs ‘inhabiting science’. (Hester, 2006) Besides being involved more consciously in one’s local watershed, the second best way according to Hester to inhabit science is through urban farming. “Farming requires an understanding of vital, complex, and invisible processes such as water, oxygen, nitrogen, and carbon cycles. In fact most of what we need to know to design intelligent cities can be learned from farming...the splendor of urban agriculture is that while we cultivate the land, the land cultivates our minds.” (Hester, 2006) In this way involvement with urban agriculture, one could argue is a form of eco-revelatory design. Still, it could be made even more deliberate via specific eco-revelatory design interventions. A scheme that is conscious of its eco-revelatory

potential can make design decisions that accentuate this potential and these design decisions can be observed as a separate variable of ecological integration.

Based on this theory from landscape architecture and landscape design, in order to measure ecological integration this inquiry has chosen three variables, 1) the variety of ecologically based activities taking place within the urban food scheme, its *multi-functionality*; 2) how these functions are tied to each other via closed loops and 3) the level of awareness by members of these different ecological activities which can be measured by the level of eco-revelatory design. The multi-function and closed loops represent the patterns and processes, and the awareness is the way of linking the processes up with in the larger scale socio-ecological system that makes up an urban landscape.

### **Multi-Function**

Multi-functionality is a broad category that could include multiple ways of engaging a food production scheme with ecological principles including but not limited to:

- Rainwater harvesting
- Energy use, including labor and labor saving techniques
- Solar access design
- Pest control measures
- Poly-cultures, and other overlapping horticultural practices
- Animal integration into the system
- Soil and soil inputs, composting

Again, just as with the variable of program discussed as part of social integration, there is the issue of quality of actions over the quantity of actions. The more variety of functions one could argue represents a more complex system that is more likely to mimic the

complexity of systems found in ecology. Therefore this variable will be based on the number of such different activities, rather than their size or a subjective measure of their quality.

### **Closed Loops**

Like multi-functionality there are many ways to close loops, for example fuel for farming machinery could be derived from the grease from neighborhood restaurants, livestock feed could be used from the waste of nearby grocers or compost materials could be collected from local yard waste. By whatever means these local loops are created, the number of such deliberate acts of recycling can easily be assessed. The number of deliberate closed loop design interventions is assessed.

### **Eco-revelatory design**

The last variable is the use of eco-revelatory designs. A food scheme may employ many different actions that could be considered more 'ecological' with members being unconscious or barely aware of what they are doing. When consciousness of these actions is wide spread among members of an urban food scheme the likelihood of transmitting these concepts and creating social and cultural capital around such principles and passing them up an urban panarchy increases. To be able to cultivate a cultural of ecology or a socio-ecological world view it is better to have as many participants in the scheme who are conscious of their actions as possible. When all members are fully aware of how their scheme interfaces with water, wildlife, soil systems etc. a higher level of ecological integration should be the result. In essence, the urban mosaic gains a kind of nervous system. This variable is very important yet difficult to measure through observation and other qualitative techniques traditionally used by designers. As a proxy, however, the use of eco-revelatory designs such as signs or highly visible design features such as water catchment systems can be observed.

## 2. Applying the Core Logic to a Sample

A critical consideration in primary research is what types of cases to review and how many cases. Whereas a random sample of 30 is often the minimum sample threshold of statistical research, the field of anthropology has determined in its literature that 6 to 12 instances is often acceptable when the goal is to more deeply probe the variation of a phenomena rather than its statistical distribution. (Guest et. al.) This number is based on the anthropological concept of sufficient redundancy, where at a certain point themes begin to repeat and an acceptable level of variation has been reached. (Trotter and Schensul, 1998) Indeed, many studies of community gardens and urban agriculture schemes fall between the 6 to 12 standard. (Hou and Lawson, 2009; Duchemin 2008) Therefore at least six urban agriculture cases are assessed in this inquiry with the goal of observing twelve or more, or until a ‘sufficient redundancy’ has been achieved.

Due to limited time and budget which twelve cases to review was also a critical consideration. The literature on case study research often suggests choosing atypical or outlier cases when the goal is variation. The logic behind this strategy is that a representative sample is not possible and the exceptional cases will provide more information on variation. (Yin, 2008,; Flybjerg, 2006) However, to have a fuller comprehension of these important cases there is an argument for also observing at least a few more standard examples in order to have a comparative context in which to place the exploration. It is hard to demonstrate why something is special or of emergent importance without also showing the more typical.

In this urban agriculture study the more typical case is the community garden, which many researchers have demonstrated is a type of urban food production scheme that has been a part of the cultural consciousness and the urban landscape for decades. (Bassett, 1981; Lawson, 2004; Lawson, 2005; Pudup, 2008) In contrast to the traditional

community garden are the newer urban agriculture schemes currently appearing in cities, which may or may not have community gardens included in them. Therefore, this inquiry chose to study at least a few examples of community gardens as well as more emergent urban agriculture schemes.

An additional issue of case selection is from where to pull cases. While many non-academic authors have looked at instances of special urban agriculture cases in cities across the US (Rich, 2012; Hanson and Marty, 2012), this inquiry has chosen to observe schemes within one metropolitan context only, the urban core of the Atlanta metropolitan area. A city such as New York is a strong candidate for study due to its global reach, or DC for example would clearly have a national impact, but Atlanta, often called the “Capital of the South,” has a regional influence, making it a good candidate for study. Atlanta is embedded in a region rich with agricultural history. As a large but Middle American metropolitan area, with a diversified populace and economy, Atlanta should also make a better bell weather for how deeply some of these urban agriculture trends have penetrated into more middle American locations. Most of all however, unlike some of these other locations, Atlanta’s urban agriculture has not been studied by scholars or appeared in books such as Rich and Benson or Hanson and Marty’s recent urban agriculture inventories. Despite its absence in the literature, however, Atlanta is not sitting still. Like most American cities it is grappling with how to deal with the emergent phenomena of food production more richly embedded in urban fabric and the city is currently planning to undergo a noteworthy and extensive urban agriculture zoning overhaul, with the goal of making local food available to 75% of its residents by 2020. (Cite) Research now, pre-overhaul, could be used for longitudinal studies of this significant planning change. Therefore by choosing urban food production schemes solely within the metropolitan context of Atlanta this inquiry can also be called a multiple-

embedded case study, with multiple units of analysis being embedded within their metropolitan context. (Yin, 2008)

Typically an embedded design conducts the same methods across sub-units. This study will follow that systematic approach, (Yin, 2008) with the goal of observing at least six but perhaps twelve or more instances to produce a meaningful set of observations for revealing variations.

Once the number of case studies has been chosen the question becomes which sites. When social scientists choose samples for research generalizable to a population they are concerned with “bias.”(Babbie, 2010) However in non-probability sampling bias may actually be the goal of the study. Since the goal of this qualitative sample is variation the research actually seeks out “bias” in the sense that deviant as well as regular cases need to be interviewed. (Babbie, 2010)

Snowball sampling was the procedure used to find this variation. Snowball sampling is usually undertaken when members of a special population are difficult to locate. The researcher collects data on the few members of the target population he or she is able to locate, and then asks those individuals to provide information for locating others, especially special cases of importance. Snowball refers to the process of accumulation as each subject suggests other subjects. (Babbie 2010; Trotter and Schensul, 1998)

Although farmers and gardeners were not necessarily difficult to find, this method was used and did help to find special cases. The inquiry began the process first by filtering the database of the extensive local farming network of the premier local agriculture organization in the state, Georgia Organics. The database from Georgia Organics covers agriculture schemes both rural and urban across the state, but which tend to have a more

local and or ecological business model or orientation. The database was filtered first for urban agriculture that had a primary production component rather than a processing, retailing, or distribution function. Next, urban agriculture sites were filtered by only those in the core of the Atlanta metro area, which was determined to be parts of Fulton and DeKalb Counties. Within these counties sites that were far outside the perimeter road wrapping around Atlanta's urban core were also filtered out. Atlanta's perimeter ring road, similar to the Beltway in Washington DC, is the means which locals distinguish between more urban, or at least older communities and neighborhoods, and newer and more suburban locals. Locals refer to more urban locations as "ITP" and more suburban locations as "OTP."

From this filtered list an initial set of sites was contacted. If they agreed to an interview they were also asked to designate other unusual and or important sites to visit. It is certain that this process left out many valuable locations, however, if the number of informants is sufficient most major themes and variations should emerge from the sample. (Trotter and Schensul, 1998) By the end of this process a total of 16 sites were visited, 20 key informants were interviewed, and these sites and individuals were the members of organizations representing a total of more than 40 locations spread across ITP Atlanta. **[Figure E]** Additionally a few sites such as the two sites Buckhead locations from the Park Pride Community Garden network were deliberately selected over other Park Pride locations in order to ensure that a more robust ITP geographic coverage was achieved. Interestingly, the wealthiest sections of ITP Atlanta tended to be under represented by any type of urban agriculture, and unlike other Park Pride gardens, these two locations corrected for that coverage gap.

As Babbie notes, such a process has "questionable representativeness" unless "it's used primarily for exploratory purposes." (Babbie, 2010) Exploration, however, is another way

to characterize this inquiry, since so little is known about urban agriculture and many assumptions have been made about it without truly looking at real contexts as many planning empiricists such as Jane Jacobs, William H Whyte, or Allan Jacobs advocate. There is a bias in the planning academy against the qualitative observation used in this inquiry. (Flyberg, 2006) One common criticism is that it is not rigorous as traditional hypothesis testing. This criticism is unfounded. Interviewing, observing, coding, theming and interpreting is a method which takes a great deal of time and attention to detail. As long as it is transparent and systematic it can still be useful, and it's this kind of urban exploration that the discipline of urban design embraces.



Figure E: Urban Farms, Metro Atlanta

Data Source: Atlanta Regional Commission 2012

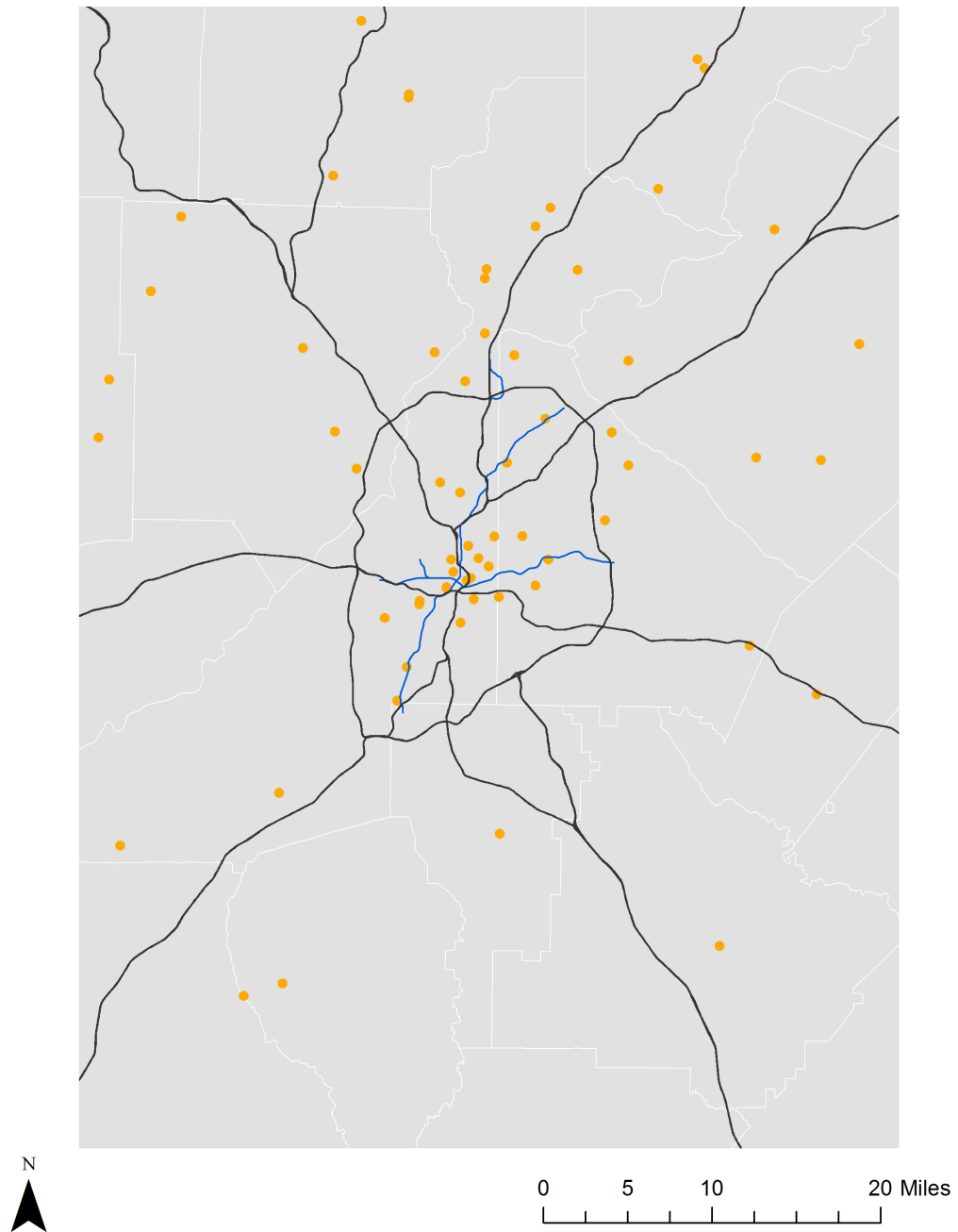
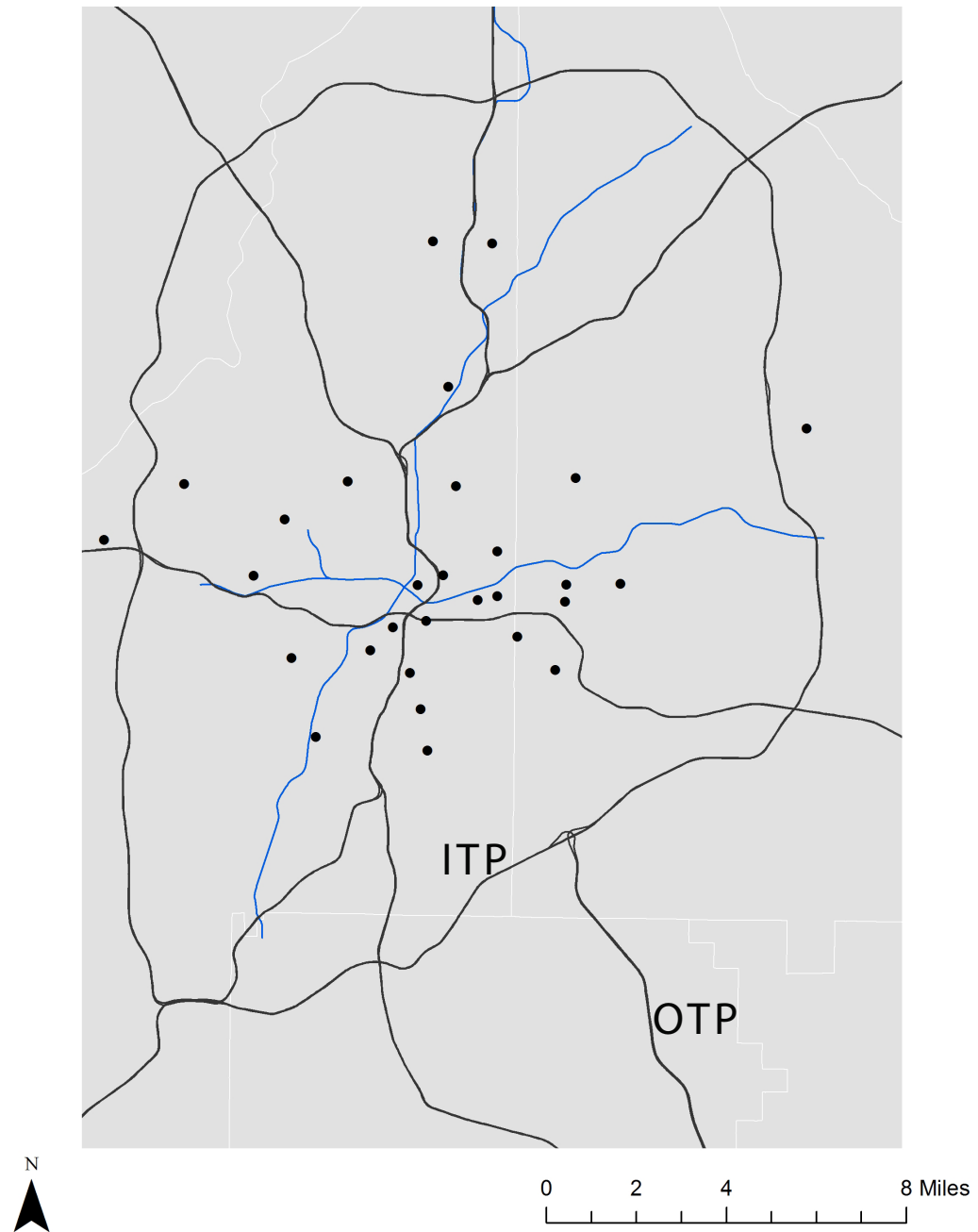


Figure F: Snowball Sample  
Atlanta ITP 'Urban Agriculture' Sites



### 3. Qualitative Research Methods of Essays 1 and 2

After cases have been selected, evaluation methods must be determined. Intensive participant observation of one case is a typical inductive approach; however, participant observation is extremely time intensive, often taken years of commitment. (Dewalt, 2010) Instead of a time intensive anthropological approach, this inquiry developed a mixed-method approach for site visits and interviews that allowed knowledge to be generated as efficiently as possible. A mixed-method approach does not have the depth of participant observation research but if comprehensive it can obtain a relevant amount of data within the short time frame of one or more growing seasons. In addition to mixed-method, the methods of this inquiry can also be categorized as triangulated (Tashakkori et al., 1998), etic-emic (Moudon, 1992) and imageable. (Lynch, 1960)

#### Mixed-method and Triangulated Research

Mixed method studies combine qualitative and quantitative approaches in a single or multi-phased study. Inherent within mixed method approaches is the idea of triangulation. In essence triangulation is comparing different kinds of data to determine whether they corroborate one another. (Silverman, 2006) In purely quantitative terms it is used to map one set of data onto another. (Silverman, 2006) Types of triangulation include not just this kind of pure data triangulation but also investigator triangulation, theory triangulation and methodological triangulation. (Tashakkori et al., 1998) The most typical use of triangulation in more qualitative inquiries is the use of multiple methods by combining, interviews with observation or more quantitative surveys. (Silverman, 2006)

In the past mixing of methods was sometimes disdained, with pure positivists and empiricists arguing from their assumptions about objective reality and pure constructivists arguing from a paradigm of constructed or phenomenological realities.

However, in a post post-modern era of social science research, these paradigm wars have subsided with most social science researchers agreeing that there is a reality out there but social phenomena such as behaviors or actions, texts or maps are all theory laden and concept-dependent. The researcher is therefore not completely objective even if an objective reality exists, and the construction of knowledge in itself is a social practice and thus validly open to using more than pure deductive and empirical methods. (Sayer, 1992.)

Moreover, knowledge and action are tied from the start and knowledge creation is not simply achieved by passively observing but by simultaneously doing or acting on the subject. Researchers both investigate and change the social objects that they are investigating and this is especially true for social phenomena. UK scholar Andrew Sayer who received degrees in geography and urban and regional planning has dubbed this view of knowledge creation as a critical realism. (Sayer, 1992) In *Making Social Science Matter* urban planning scholar Bent Flyvbjerg goes as far as to claim that social science is not really a science or 'epistime' like the natural sciences but an entirely new branch of knowledge tied fundamentally to social action as well as knowledge generation which he bases on the theories of Aristotle and Foucault and dubs 'phronesis' in contrast to 'epistime.' (Flyvbjerg, 2001)

With this understanding of knowledge creation, triangulation no longer adds empiricist validity to data in an old-school positivist-empiricist sense, but it can add "rigor, breadth, complexity, richness and depth to any inquiry." (Silverman, 2006) which leads to the social wisdom described by Flyvbjerg in his urban planning case studies. Additionally, as Sayer would claim, triangulation adds a more critical understanding of reality that has the potential to not simply create knowledge but propels it forward in action. (Sayer, 1992)

Leaving the theory of social knowledge creation and returning to the nitty gritty of research design, once it is understood how mixed methods and triangulation are perceived by the researcher, the next step is to break down how they will be applied. There are four types of mixed method research designs.

1. A sequential study, where the researcher first conducts a qualitative phase and the quantitative follows or vice versa.
2. Parallel simultaneous studies where qualitative and quantitative methods are conducted at the same time
3. Equivalent status studies where quantitative and qualitative approaches are equally weighted.
4. Dominant studies where the researcher leans more to quantitative or qualitative techniques.

(Tashakkori et al., 2010)

These are tidy designations but the reality of this research design in total is that it follows all four. The design will be sequential in that qualitative techniques will be conducted in first more inductive phase of the research but will be followed up with more quantitative social science techniques based on what is induced from the first phase of research.

Since the first phase is focused only on qualitative techniques and when numbers are used they are purely descriptive it could also be called a qualitatively dominant study. Still more confusing is that between phases no type of research method is privileged, with quantitative surveys being used in phase or 'essay' three and qualitative methods in phases one and two. If it is necessary to make one classification, however, the most appropriate description of this research design is perhaps Parallel/Simultaneous.

The qualitative methods of the first two essays are not dominated by one qualitative

method but rather gather enumerative, narrative, and visual data from sites simultaneously in just a few intensive site visits. In this way the research design is parallel/simultaneous by method. Additionally, this first two essays are also parallel-simultaneous in their logic structures. They are simultaneously deductive and inductive in approach. Some of the methods such as the interview protocol to be discussed in the data collection section follow a more deductive approach since key variables have already been generalized and abstracted from theory in order to determine what is to be measured; while other methods to be deployed such as photo voice and map voice are more inductive and allow knowledge to emerge from the subjects rather than from a priori theory. Therefore this research design is parallel simultaneous in that it also hopes to triangulate these inductive and deductive reasoning approaches. This technique can also be called an Emic-Etic approach.

### Emic-Etic Research Ethos

In a “*Catholic Approach to What Urban Designers Should Know*” published in the *Journal of Planning Literature* (1992) Anne Vernez Moudon creates a typology of research strategies as well as concentrations of study within the relatively young discipline of urban design. Most constructive for this inquiry’s choice of methods is Moudon’s discussion of research ethos. She notes that the earliest urban design research tended to be object oriented but as planning and design developed more sociological ways of understanding cities, a more subject oriented research approach developed, for example in the research of Herbert Gans or Amos Rapoport.

According to Moudon there are two broad categories of research ethos within our discipline, a more etic approach versus a more emic approach. These terms entered urban planning and design from anthropology through Rapoport’s behavioral research.

They refer to the nature of the source of information. The researcher informs etic research, for example observations of behaviors as in William H Whyte's planning and design research. Subjects on the other hand inform emic research such as Gans' case studies. This ethos is grounded to borrow additional language from the social sciences. (Silverman, 2006) Grounded theory has three strategies. It first attempts to develop categories for research based on data rather than theory. It attempts to saturate these categories by generating data from multiple cases or subjects. Lastly, it tries to generalize into theory from this process. (Silverman, 2006) Participant observation, oral histories and other narratives, and unstructured interviews are straightforwardly emic, whereas anything done by professionals such as observations or theory derived structured interviews are straightforwardly etic. (Moudon, 1992)

There is no reason why a mixed method approach, especially a parallel simultaneous methodology cannot be both etic and emic, with some methods being more towards the emic end of the spectrum and other methods towards the etic end. Indeed, this etic-emic approach to research ethos could become yet another category in Tashakkori's mixed method typology. It is also the view of this researcher that a dual etic-emic approach is fundamental to post rationalist understanding of planning and urban planning and design research since it adopts the more communicative ideas of current participatory planning. Therefore the mixed methods of this inquiry follow an etic-emic ethos. Additionally one can also trace this ethos back to Kevin Lynch's imageability research, which is the last pillar of research design theory strongly influencing this inquiry.

## Imageable Research

Kevin Lynch's influence on city planning and urban design is broad and his importance as a scholar goes beyond just planning and design impacting fields and scholars across the

globe. (Moudon, 1992) Of particular influence is Lynch's *The Image of The City*, which emphasizes understanding how people see and feel about their urban environments. Lynch writes, "There seems to be a public image of any given city which is the overlap of many individual images." (Lynch, 1960) He calls this phenomena imageability "the quality in a physical object which gives it a high probability of evoking a strong image in any given observer." (Lynch, 1960) Lynch's work focused on urban design elements within the broader context of a city such as paths, edges, landmarks, nodes and districts. However, the core of his imageability concept is the mental map and its meaning which subjects create of their surroundings. Moreover, his methods for obtaining those meanings via actual image making were ground breaking for etic-emic urban planning research.

The image of a city writes Lynch "is the result of a two-way process between observer and observed" (Lynch, 1960) For Lynch this was in the context of architectural form, but there is no reason why Lynch's image-able city research cannot be transferred to emerging city forms such as the urban agriculture schemes and the new local food systems they may be creating. These places are just as likely to evoke meaning in subjects, which can be extracted to better understand key characteristics of these open space and food systems and how they may be scaling up. Just as with broader city images, the images of the emerging food systems likely also have broad outlines formed from the overlapping of many individuals acting upon the city to create them. Therefore, this inquiry borrows from Lynch's ground breaking method, replicating it within the context of a city in the process of building a new, local urban agriculture system—as most American cities are currently in the process of doing—from the bottom up, as citizens grow food in ways and for purposes that go beyond the traditional community garden.

Since Lynch's methods also enabled him to enter the minds of his subjects quickly and



the triangulation of his mix of methods allowed him to develop robust findings from a relatively small sample of subjects, his methodology is applicable to the constraints of this inquiry. Additionally, since Lynch's work is a backbone of planning theory and research tradition, replicating his approach in new urban contexts and emerging situations also strengthens the epistemology of our discipline.

The specifics of Lynch's techniques included interviews during which subjects were asked to make cognitive maps and explain their images of their cities as well as direct observation, field reconnaissance walks, aerial and ground-level photography and synthesis maps by trained observers, also making his approach an etic-emic design. Data were then compiled, compared and synthesized into illustrations of those elements that were most recognized and remembered. This kind of visualization of data in abstracted maps and diagrammatic drawings is another epistemological marker of the planning and design disciplines.

While the methods chosen for this inquiry are not exactly the same as Lynch's, his semi-formal interviewing and cognitive mapping techniques are replicated and triangulated against other methods not available in Lynch's day such as Photo Voice. And as much as possible results are presented visually through maps and diagrams to carry on this important visual standard of the discipline. The imageable, etic-emic and mixed methods of the first two essays of this inquiry produces three types of data, including: Narrative Data, Enumerative Data and Visual Data

### Narrative Data (Coded interviews)

The first type of data to be collected in the first two essays of this inquiry is narrative data. The value of narrative data comes from the view that stories are fundamental

to human experience and that in all human affairs and experiences there are starting points, climaxes and endings. (Fay, 1996) Narrative realists go so far as to say that these narrative structures exist not just in the stories people tell about human affairs but are fundamentally embedded in cultural artifacts. Therefore “true stories are found not constructed.” (Fay, 1996) Narrative Constructivists argue that narratives are later imposed on free flowing events. They are simply the researcher such as ethnographer or historian imposing a structure on events to make sense out of them (Fay 1996)

It is not the goal of this inquiry to debate the ontology of narratives as human communication device or narratives as fundamental cultural construct. Clearly there are narratives within and about human experience. Therefore, as a first data collection method this inquiry will look for stories that can help shine light on the research sub-questions of this inquiry concerning the key characteristics and system scaling up capacities of urban agriculture schemes in Atlanta. Narrative data should be particularly useful for the first half of this inquiry’s question about the scaling up of urban agriculture, since that is a process rather than a static condition.

To uncover these stories this inquiry will use a grounded research approach as discussed earlier. Grounded theory has three strategies. It first develops categories from within a data set. Next it tries to “saturate” the categories by interacting with a significant sample. Lastly it generalizes to theory rather than from theory by developing analytical frameworks that can be applied to data sets outside the specific research contexts. (Glaser and Strauss, 1967)

That a grounded approach starts with the data set rather than with theory is a critical distinction. Somehow data must be generated. The most pure form of grounded theory method is perhaps pure ethnographic participant observation, but since that is so time

consuming the more precision oriented technique of the semi-formal interview has been chosen. Problems with this interview technique is that the stories and themes derived from it may be somewhat superficial or thin. Pure grounded theorists might complain that even though multiple cases will be visited, sufficient time will not be spent to gain their trust and get to deeper meanings and narratives and thus true saturation will not occur. It is the hopes of this inquiry that the mixed methods triangulation approach will make up for some of that criticism.

Criteria for evaluating narrative data include whether the narrative interpretation of stories is persuasive, plausible, reasonable and convincing. (Riessman, 2008) There are techniques which can be used to increase the level of 'persuasive and plausible' narrative research. Digitally recording and transcribing conversations is one technique. This technique should also help with reliability since it produces verbatim transcripts, which, at least theoretically could be reviewed and interpreted by another researcher.

Validity, meaning the extent which an account accurately represents the social phenomena to which it refers (Hammersley, 1990) is problematic in narrative research based on the philosophical conundrum just discussed between narrative realism and constructivism. However, reliability in interviews can be adequately achieved by sticking to topic during the interview via a structured interview protocol that follows the same format at each site and can be easily replicated by other re-searchers. (Bernard , 2006) This inquiry does not have multiple researchers but through the use of a semi-formal interview protocol it strives to be a process that could easily be extended to multiple researchers.

Research interview formats fall on a spectrum from informal to semi-structured to very structured questionnaires, the last category essentially being surveys with open-ended questions. (Dewalt, 2010) This inquiry's protocol will fall somewhere in the middle of the

spectrum. Whatever the level of formality, however, a primary goal is to get out of the way of the informant as much as possible in order to let them fill in the information for themselves. (Bernard, 2006)

This method is not simply a conversation. The researcher is interested in a question or questions and can steer the conversation to try to elicit enough talk to achieve a level of topic saturation, which hopefully covers the questions at hand. (Trotter and Schensul, 1998) A researcher tries to follow the lead of the informant but can introduce occasional questions to focus the topic by using techniques such as active listening, sensitive silence and “uh-huh” or “tell me more” prompts. (Dewalt, 2010) This type of qualitative interviewing has been used extensively in the urban planning literature. But perhaps most influential for the field was Herbert Gans’s work. He is noted for pushing design and planning to have more of a subject than an object orientation. (Moudon, 1992) Like Jane Jacobs Gans was interested in understanding the complexity of the social city. Gans is famous for his use of interviews in ethnographies of the new suburban residents of Levittown, an icon community of post-war American urban planning and design or in his studies of Italian Americans in Boston. (Gans, 1962; Gans, 1967) This inquiry carries on this Herbert Gans urban design methodology tradition via the narrative data collection of the first two essays.

After the interviews have been transcribed, a process by which one interview can produce multiple pages of raw text, this narrative data must be scanned for patterns. Data reduction is the process by which the argument is boiled down from this raw text. Data reduction techniques include indexes and coding. Indexes refer to a data reduction scheme that is etic, in which the text is scanned for a priori categories. Coding refers to a more inductive and emic approach where themes emerge from the data. (Dewalt, 2010) Both indexing and coding attach names and labels, essentially abstract concepts,

making the piece of text an example of the theory. Once a theme arises it is treated like a hypothesis that deserves multiple returns to the data to build a reasonable argument to support it. This is how one generalizes to theory via a grounded approach (Silverman, 2006) There is always a subjective element to such a process. Each researcher is a unique filter. Large studies with multiple researchers use this as an advantage via researcher triangulation (Bernard, 2006). This is not possible in this study; however, a systematic approach can be employed which reads each transcript in the same way by keeping the broad questions in mind about key urban agriculture characteristics and how different urban agriculture schemes might be scaling up from sites to a city wide system.

This inquiry filters text using both an indexing and coding approach. The text is first coded. Text coding is a form of inductive qualitative analysis in which the researcher thinks about what each piece of text means, develops hypotheses, and boils the text into a series of mnemonics (Bernard, 2006) Emic themes then appear in the narrative and visual components of the interview protocol. Since the key informant are also validating enumerative data during the interview, a second filtering of the transcripts via an indexing of physical, social, and ecological integral-ness variables derived from the literature is also used. In this way the etic-emic ethos of the research design is embedded even in this text analysis process. It is also important to note that the coding and indexing of themes is not a counting process. While patterns are sought, one instance of a theme is enough for it to be considered important if a reasonable case can be made for it. The data reduction process should be seen more in terms of variation than statistical distribution. One casts a wide net to see what the variation may be, but there is no way to know how many times or “statistically significant” any given theme will be in any given population.

In summary, this inquiry generates transcripts from semi-formal interview discussions with key-informants from each urban agriculture scheme sampled. For each respondent

‘a story’ is generated as well as themes that emerged from the ‘stories’ they chose to express. Analysis of this narrative data is coded to systematically note themes that emerge in the aggregate across key informants. It is also indexed. Since the narrative data generated is intertwined with the collection of enumerative and visual data, a copy of the semi-formal interview protocol is located in the data collection section of this methods chapter.

### Enumerative Data (descriptive dimensions)

Designers often use research-like techniques in which they quantify things to aid in design. These techniques are commonly grouped under the category of ‘site analysis.’ (Deming and Swaffield, 2011) Seldom are these techniques experimental and statistical, where the causal relationships between variables are observed, measured, and evaluated with consideration for the classic research concerns of validity and reliability. Instead, design ‘site analysis’ is typically numerically descriptive and empirical.

Empiricism is connected with the philosophy of Aristotle, and it privileges knowledge gained from direct observation. (McIntyre, 2005) The empirical description often employed by designers as analysis often relates to the literal meaning of the word description as the “writing” of information. Usually this is the recording of information that is readily available to the design investigator and can be easily counted and noted without complex analysis or statistical techniques. (Deming and Swaffield, 2011) To make this kind of simple descriptive empiricism, so common in design, fall closer to the scientific concerns of validity and reliability, it is recommended to be as systematic and clear as possible about the method of notation. Reliability can be addressed for example by standardizing what is described and noted. (Silverman, 2006) Applying the same set of enumerative metrics across sites, with those metrics having the same general level of

difficulty, is also a means for achieving reliable systematized data collection. (Bernard, 2006)

As this inquiry is investigating urban agricultural sites, the research precedents of landscape architecture site analysis is instructive. Assessing ‘the genus of a place’ in landscapes dates back to the 18th century when Alexander Pope for example recommended that land owners make keen observation of site features and characteristics. Since then analysis of site has become a corner stone of the discipline. (Meyer 2005). Other landscape designers and architects using this technique but each building on its applications include luminaries such as Capability Brown, Patrick Geddes, Frederick Law Olmsted, and Ian McHarg. Fast forwarding to the current era, landscape architecture researcher Mark Francis, through the Landscape Architecture Foundation, further codified a site based case study method for landscape architects, which includes many systematically collected criteria. (Francis, 2001)

The problem with Francis’s current case study technique, however, is that it asks many questions about implementation, cost, maintenance and management. Since these kinds of questions are not part of this inquiry’s scope, the enumerative section does not follow the Francis method. Instead, basic descriptive numbers such as size, dimension, and participants are assessed for each site and displayed in diagrams so that basic comparisons can be made across sites. Rather than the Francis method, the goal of this enumerative data is to provide a reliable ‘foot print’ of the level of integration occurring at the site. This data collection should be understood more as a landscape site classification scheme rather than as a fully fleshed out landscape case study with numbers such as costs, real estate values, or other such metrics found in the Francis landscape architecture case study method.

Classification is one of the most elastic research strategies and can be found in most disciplines. At the highest levels of classification complexity it is used to draw attention to meaningful patterns and themes often hidden in data, and it commonly appears in the research literature of landscape and urban design. Classification produces new knowledge by structuring data into a system of organization. If those themes emerge from the data then it can be called grounded but if theory is used first in order to establish a clear conceptual framework a priori, it is more akin to classical deductive research. (Deming and Swaffield, 2011)

Through the narrative data collection process of this inquiry emergent themes are codified and categorized using a more grounded and inductive approach. When the system of classification becomes a more comprehensive taxonomy of forms or concepts it becomes a typology. (Deming and Swaffield, 2011) It is a goal of this inquiry to move the understanding of urban agriculture schemes toward a typology. Since typologies especially in landscape and urban design depend on metrics such as dimension, size, use, and program, the success or failure of the enumerative data collection aspect of the research design has a disproportionate impact on whether the classification scheme of the method rises to the level of a true typology.

### Visual Data (imageability photos and mapping)

The final set of data in this inquiry is visual data produced via techniques such as photography and mapping. This data will aid in spatial understandings of each urban agriculture scheme as it interfaces with its community. While qualitative research is text driven and quantitative research is numbers driven, design research uses visuals as an exploratory tool which could be considered a third form of understanding, a “designerly way of knowing.” (Cross, 2006)



During the 20th century there was a strong desire to “rationalize” design or make it more like science. This continues to the present with a strong research bias currently within the design profession for design metrics. While these may be valuable for design evaluation, the design process in its entirety is a fundamentally different kind of thinking with different goals. Whereas science tries to replicate and validate results, design often tries to do exactly the opposite by accentuating what is unique and not replicable about a certain context or situation. (Cross, 2006) By overly rationalizing design as Nigel Cross asserts one could argue our towns, cities and landscape have become modulated and placeless. There is an entire body of literature of place and placelessness that addresses this concern. (Relph, 1976; Norberg-Schulz, 1980; Oldenberg, 1999)

Additionally, when visual research is conducted by the social sciences it is often biased towards artifacts such as films or existing drawing or images. Such artifacts are often analyzed via text and numbers, such as the number of instances a theme occurs within a visualization. This type of research is called content analysis. (Silverman, 2006)

“This focus on cultural products has meant that researchers have tended to neglect the places and settings –the actual environment or locals in which humans conduct their lives.” (Emmison, 2004) Focusing on places rather than visual artifacts seems a more appropriate method of visual data collection for the fields of planning and urban design. An important goal of this inquiry is to solidly embed it within the disciplines of planning and design rather than simply producing another dissertation that thinly mimics the social sciences. Visualization is a fundamental aspect of the design disciplines and there is an argument that urban planning and design research without it is inauthentic. Therefore, rather than visual content analysis this inquiry will produce visual imagery produced both by informants and the researcher in the research tradition of Lynch and the etic-emic urban design research ethos described by Moudon. Specifically, two types of visualization

activities have been employed by this inquiry: Photo Voice and Map Voice.

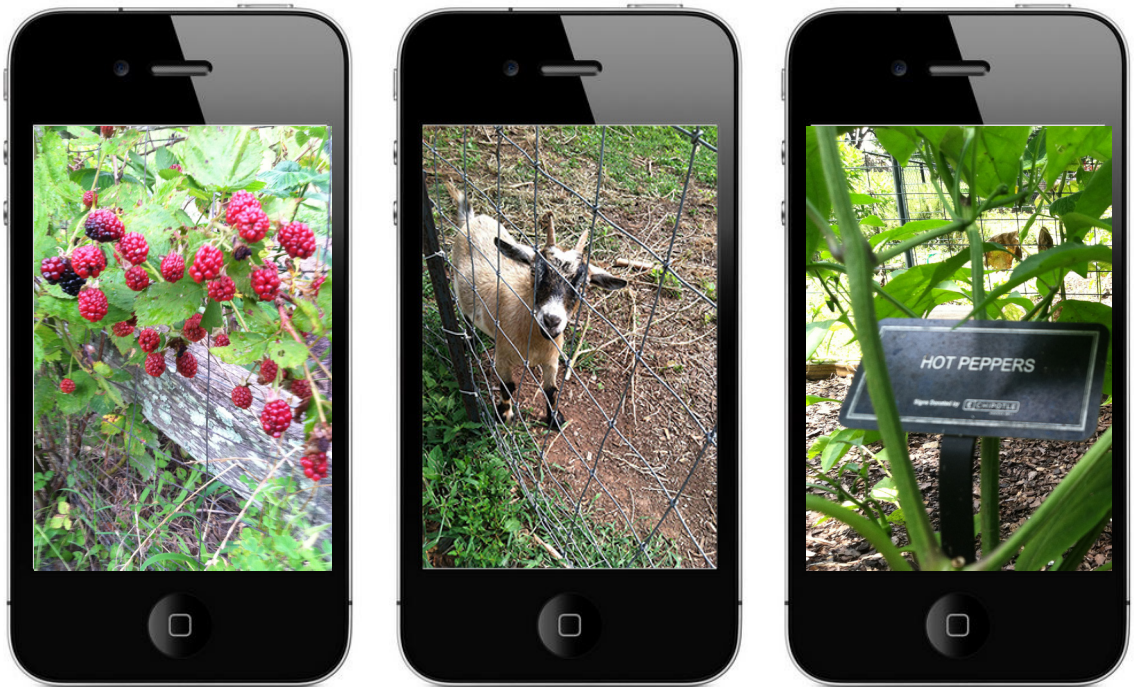
### Photo Voice:

Photo voice is a method first used in the field of public health. It usually combines photography with action research. Participants are asked to express their points of view by photographing scenes relevant to them and their experiences. Often photos are used with in a focus group setting to create group narratives for better understanding a place and its hidden issues. For example landscape architect Samuel Denis, whose map voice work will be cited shortly, also used the photo voice method in his research to better represent youth voices in the community design of a Madison, Wisconsin neighborhood. (Denis 2006)

Examples such as Denis's work are typical of photo voice, since it is often used with marginalized group's or individuals. The technique was first developed by Caroline Wang as way to enable the rural Women of Yunnan Province, China to influence public health policy. (Wang, 1997) Photovoice has also been used alongside methods such as collaging, drawing, and mapping in participatory design. Now with the advent of smart phones and visually based social media applications such as instagram, the potential for photo voice to be taken to a new level or at least become a more fundamental aspect of community design process for all groups, not just the marginalized, is now possible.

With the proliferation of smart phones the potential of more user design in the planning and design process is immense. Unfortunately planners and designers have barely begun to scrape the surface of these technology's potentials. This inquiry makes an initial step into this world by using photo-voice at the very beginning of its interviews. Near the beginning of each interview key informants were given a smart phone and asked to take at least five photos of important aspects of their urban agriculture schemes. They were

Figure G: Photo Voice



then asked to explain the photos. The goal was to create trust or at least a comfort zone with key informants as quickly as possible. True to an emic approach, starting with an activity such as photo voice ensures that the informants initiate the discussion. This is a new technique not fully explored in the literature. Whatever its strengths and weaknesses, its use in this inquiry builds on the urban planning and design photo voice literature.

### Map Voice: a variant of Participatory GIS (P-GIS)

Not simply photos but the drawing and making of mental maps is a second type of visual data collection tool of this inquiry. Unlike photo-voice this technique, however, is well documented in the urban planning and design literature. Imageability theory and method by Kevin Lynch has already been discussed. Other more current precedents for Map Voice can be found in the participatory geographic information system (PGIS) literature. Since qualitative map making comprises over half of the interview time with key informants, some of the research literature of participatory map techniques is instructive. PGIS examples presented here include the research of Denis, Cinderby and Elwood.

Samuel Denis is a landscape architecture at the University of Wisconsin who has studied a 10-year participatory GIS process in Harrisburg, PA. This PGIS project was typical in that it involved residents in construction of parcel level land use, absentee ownership, and building conditions data. Denis asserts, however, that this kind of map making or 'GIS' privileges an instrumental and rational world view at the expense of important qualitative data. "Simply put" claims Denis, "GIS is the language of planning power." (Dennis, 2006) Denis rejects the notion that GIS is rooted only in a numerical and quantitative epistemology claiming that GIS can also be applied qualitatively by linking GIS objects (points, lines or polygons) to qualitative appraisals of those objects in order to maintain the important qualitative assessment that comes out of the participatory process. In

Denis's Harrisburg study he facilitated such qualitative techniques and compared them to more typical quantitative GIS outputs. Denis found that GIS was more than a spatial analyst tool but also an invaluable *communicative* tool. His findings inform the emic use of mapping in this inquiry.

Also writing in 2006 Sarah Elwood a geographer at the University of Washington was documenting the move of GIS from strictly quantitative to a more qualitative use. Elwood describes how the first wave of critiques of the use of GIS centered on access and that participatory GIS emerged as a response to these critiques. However a new set of ambiguities and contradictions has now emerged. Namely, Elwood claims, epistemology and power issues have become even greater concerns. In the mainstreaming of GIS Elwood claims much is often said about data access or how communities can organize the complexities of GIS but little about how GIS can be used for community change. Like Denis Elwood believes GIS increasingly needs to be seen as a communicative tool. Epistemological questions such as what kinds of information are being included and what is being excluded also need to be asked. Elwood also discusses the small but growing literature on qualitative GIS, where mapping has become more of a community negotiation tool. These groups used GIS to produce "*cartographic spatial narratives*." The use of GIS to visually inform narratives also informs this inquiry.

Cinderby describes what he calls an "on the street" methodology for reaching the "hard to reach" via mapping. He also employs an on the street method of participatory mapping which he dubs Rapid Appraisal Participatory GIS (RAP-GIS). This technique conducts group and individual mapping with standard community design tools and techniques such as dot map placement methods. It also employs structured questions rather than open-ended ethnographic questions at outdoor "street" events, where the hard to reach are likely to be found. Cinderby's work is very different from Denis in that participants

never used GIS technology. This inquiry also will not have participants use GIS directly but will use MAP Voice to generate map diagrams which will be juxtaposed to other GIS images.

The map voice technique developed in the first essay of this inquiry builds on the qualitative P-GIS literature of Denis, Elwood, and especially Cinderby's RAP-GIS research methodology. Key informants will be asked to construct maps of sites and connections to their communities and city, however, they will not actually use GIS software nor will their data be placed in a data base. Instead their information and maps will help the researcher in creating map visualizations. As Elwood discusses, this is mapping as a communicative tool. The participatory mapping of this inquiry also adheres to the etic-emic ethos. Map voice and subsequent maps and visualizations constructed by the researcher are a form of multiple researcher triangulation described earlier by Bernard. Since informant and researcher are both creating maps they can be juxtaposed for better understanding of urban agriculture; its key characteristics, as well as how it crosses urban scales from site, to neighborhood to city.

## 4. Quantitative Methods of Essay 3

### Survey Method

Based on the qualitative results of essays one and two the construct of eco-literacy emerged as a highly regarded value of urban agriculture. An explanation of that finding is in the results sections of essay two. A literature review of eco-literacy and how it can be operationalized can be found in essay three. After the construct of eco-literacy was defined and operationalized, the method used to ascertain its presence in Atlanta was the traditional survey method of the social sciences.

Surveys are an established research method and can be used for descriptive, exploratory, or explanatory purposes. (Babbi, 2010) Survey's are a good method for describing a population too large to observe directly. Probability sampling is often used to extrapolate characteristics to a larger population. (Singleton et al., 1993) Surveys are also an excellent vehicle for measuring attitudes and orientations in a large population. As a primarily descriptive dissertation within the disciplines of urban and landscape design, this inquiry uses the survey mostly as a descriptive and exploratory tool rather than for explanatory purposes.

The survey sample was the membership roster of the Wylde Center, one of the organizations interviewed in the mixed method analysis of essays one and two. The Wylde Center has a member list of 3000 individuals mostly from but not limited to Atlanta's ITP locations, which was the geographic scope of the qualitative research in essays one and two. As one of the older more established models of urban agriculture in Atlanta, as well as an organization which interacts with a broad public across the metro area via its education mission, the Wylde Center serves as one of the most extensive data sets of Atlanta area urban agriculturalists. Moreover, it was also the only organization generous enough to take the risk of trusting its private rosters to this inquiry. So whatever

its strengths or weaknesses, it was simply the best option available.

The survey of Wylde Center members is not of a sample but an assessment of the actual population of all Wylde Center members. Thus the Wylde Center population cannot be considered a true random probability sample. The primary goal of this survey is to measure attitudes. It uses mostly ordinal data to assess whether respondents agree or disagree with different statements. The other half of the survey is mostly categorical questions about the respondents.

After constructing the survey based on the literature review of essay three it was emailed to the target population. As recommended by online survey experts the questions were limited to 26 questions so that it could be filled out in less than 15 minutes. (Babbie, 2010) The survey instrument is provided in this chapter's data collection section. An more detailed explanation of how it was constructed is in the literature review of essay three.

### GIS Density Mapping

In addition to the descriptive data from the survey the other quantitative method employed in essay three was the mapping of the survey's population via a GIS density function. By mapping the population of the survey, essay three shows the distribution of their responses in the urban landscape. It also keeps this more social science oriented technique within the realm of planning and design by providing data not just numerically but visually and spatially.

Urban agriculture mapping is extensive in its literature. Examples include urban agriculture inventories, urban agriculture site suitability analysis studies and many other



urban planning projects which employ mapping as a method for understanding urban agriculture in their communities. Examples of urban agriculture mapping research highlighted in this inquiry include:

1. Taylor's Chicago mapping study discussed in the results of Essay One
2. The socio-ecological mapping research discussed in the literature review of Essay One
3. *Five Borough Farm* in New York to be discussed in the typologies literature review of Essay Two
4. Multiple municipal inventories also discussed in the typologies literature review of Essay Two
5. And maps of Atlanta's urban farm density, a data set provided by the Atlanta Regional Commission, which is compared to the results in all three essays but especially the density maps of Wylde Center members of Essay Three.

The specific GIS function chosen for this inquiry was the kernel density feature. In more colloquial terms kernel density is a form of 'heat map,' which is a graphical representation of data where the individual values contained in a matrix are represented as colors. In statistics, kernel density estimation is a non-parametric way to estimate the probability density function of a random variable. Kernel density is a form of data smoothing. Kernel Density calculates a magnitude per unit area from point or polyline features using a kernel function to fit a smoothly tapered surface to each point or polyline. Larger values of the search radius parameter produce a smoother, more generalized density raster. Smaller values produce a raster that shows more detail. (Maantay and Ziegler, 2006; Bolstand, 2008)

Essay three applies the kernel density function to the Wylde Center population as well

to other data sets such as the density of Atlanta's urban farms. This inquiry makes the assumption that the Wylde Center survey reflects the population of urban agriculturalists in Atlanta and therefore each hot spot in any of these density maps likely has a similar level of eco-literacy to the Wylde Center survey results. The results of the quantitative methods are discussed in detail in Essay Three.

## 5. Data Collection Tools

### Qualitative Data Collection

This mixed-method approach was pilot tested at an urban agriculture site in Washington DC and was found to be quick, cost effective, and able to produce data and information which supports the dissertation question. Site visits adhere to the following protocol:

1. The researcher obtains the measurements for the nine variables of integral-ness developed in the core logic from secondary sources such as websites, on line maps or other secondary information sources in the public realm as available.
2. The researcher visits the site to assess key attributes as well as to take photos and make notations about key characteristics prior to discussion of the site with key informants.
3. Next a key informant for the scheme is approached, such as a farm manager, or whomever the site designates as their key informant. The interview asks the informant about their personal information; their name, the site they represent, and any other information about themselves they desire to share.
4. Next the key informant is asked to take 3 to 5 photos with an I-phone and then explain those photos as part of a photo-voice activity. It is essential that this activity occur before the semi-formal interview in order for at least part of the process to be truly emic and grounded.
5. After the photo voice discussion the interview was divided into three 'imageable' map voice activities
  - The informant is asked to construct a map of the site plan of the location in which the interview is being conducted and to explain the map's key characteristics. Since this activity is after the photo-voice activity informants are already thinking deeply about their sites, creating a richer map diagram.

- The informant was asked to assist the researcher in creating a concentric circle map of the numbers and kinds of individuals involved with the site. The process was initiated by the researcher drawing a circle in the center of a blank piece of paper while asking respondents to put the core number of individuals involved with the location in the circle. From there the respondent is asked to draw the rest of the map of the kinds and numbers of individuals involved with the site.
  - The informant is asked to create a brain storm map of the various entities with which their site is connected. Again the name of the site is placed in the center of a circle on a blank piece of paper, but rather than individuals the respondent is asked to list the kinds and number of organizations with which the site interacts.
6. After the map voice activity the informant is asked again to discuss key themes that emerged in the interview process with questions, such as “you mention X can you tell me more about that?”
  7. If necessary the interview asks a series of questions to verify numbers about key physical, social and ecological characteristics that may not have been mentioned earlier or found in secondary sources about the urban agriculture site.
  8. Lastly the informant is asked for a final comment or closing statement.

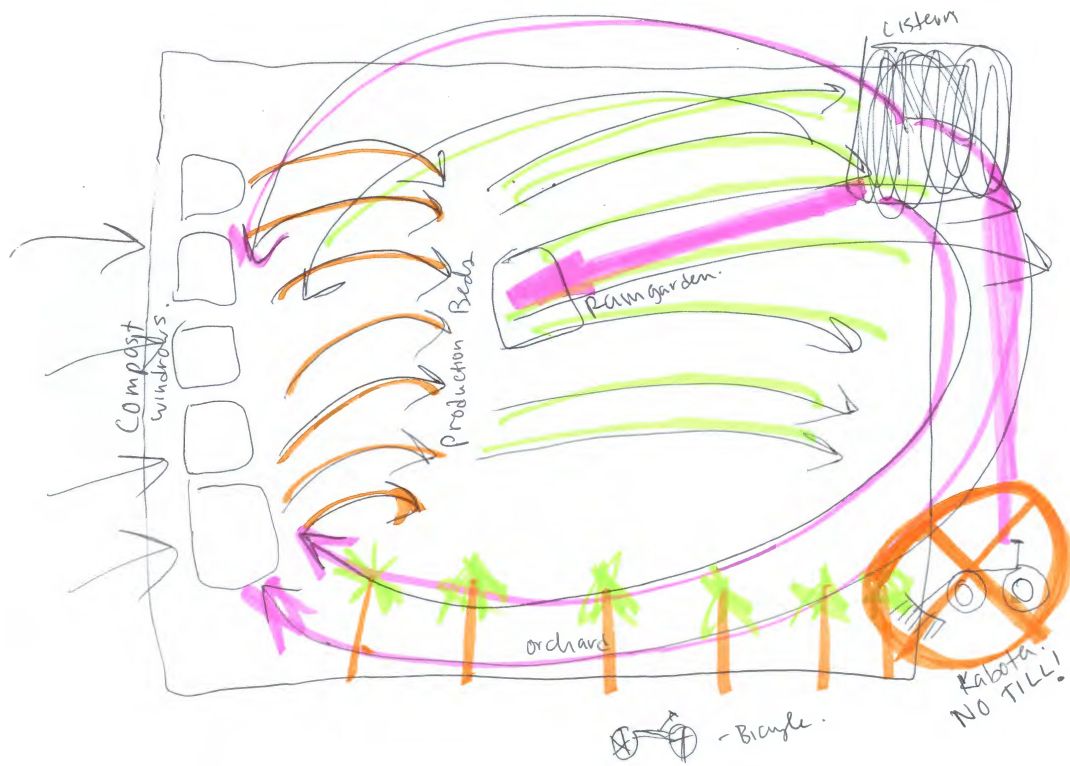
Qualitative Data Collection Pilot Project  
Common Good City Farm, Washington, DC

Figure H: Photo Voice Examples CGCF





Figure I: Map Voice, Site Drawing Example, CGCF



## Narrative Examples, CGCF

### **CGCF Map Voice: Social Integration**

“So the stars are like our direct community. That’s where we make the most impact and where we wanna make the most impact, and that’s our priority no matter what.... then we have these connections throughout the DC area and some of those are purely for money, so like when we sell to restaurants that’s for profit... The ones with the apples are people in the community who we’re just trying to network with.”

### **CGCF Photo Voice: Ecological Integration**

“It is full circle on the farm. We put food scraps and horse manure on our compost and for every single bed that we dig and plant we’ve incorporated a wheel barrel full of compost and then in turn we take the produce out, we harvest the produce, anything that is rotten we put back into the compost, we also take....volunteer’s scraps. So it’s full circle. Its going from field to plate, back into compost back into the field.”

### **CGCF Key Informant on Scaling Up**

“So we built raised beds at a place in Pentworth called Colony House Senior Housing. We plan on continuing that, building beds in other places.”

## Site Visit Protocol

Reference Number:

Key Informant:

Date:

Location:

City:

Site:

Contact Information:

### OPENING QUESTION

- 1) Who are you and how did you become involved with this site?

### PHOTO VOICE

Here is my camera. Please take 15 minutes to take 3 to 5 Photos that best represent this place. You may take photos of anything you think is important. Don't think too much about it. After you have five photos come back and we will talk about your selections.

- 2) Can you give this photo a title?
- 3) What does it depict?
- 4) Why is that important?

### MAP VOICE: Site Plan

- 5) Can you draw a map of your site.
- 6) Can you explain this map?
- 7) Can you indicate how your site is addressing environmental sustainability?
- 8) Are there any physical ways in which you attempt to explain sustainability on your site? Signs, guides, demonstration sites, anything really



#### MAP VOICE: Community

- 9) How many people are involved with this site? Can you start with core members and then move onto other types of participants?
- 10) Do you have any special relationships with any other organizations or networks? Can you draw those relationships?
- 11) When people ask you about (X site) what do you like to tell them? What do you share most?
- 12) Do any of these relationships involve resources, such as water, soil, energy or other such resources?

#### Additional Enumerative questions as necessary

- What is the square footage or acreage of this site
- How many locations does X include
- How many members are involved with X site
- How many formal programs are at X site
- What are the access hours of X site

#### WRAP UP

Did we miss anything? Is there something else you would like to emphasize?

## SURVEY INSTRUMENT SECTION 1

Q1: How many years have you been involved with the Wylde Center?

\_\_\_\_ Years

Q2: How many years have you been growing food at your home or residence. If you have not been growing food please put zero.

\_\_\_\_ Years

Q3: Do you live in the Oakhurst neighborhood of Decatur?

Yes                      No

Q4 If No, what is the name of your neighborhood and city? \_\_\_\_\_

Q5 Are you a member of any environmental, landscape, or agricultural organizations?

Yes                      No

Q6 If Yes, how many years have you been a member of any environmental, landscape, or agricultural organization?

Q7 Do you have any education in the following topics? This education does not have to be a degree or credential. Please mark all that apply.

Ecology

Environmental Science or Planning

Landscape Science or Design

Systems Science

Other Sciences

Q8 What is your highest level of education?

Grammar School Graduate

High School Graduate

University or Vocational School Graduate

Q9 What is your gender?

Male    Female

Q10 What is your age?

Q11 How many people are in your household?

## SURVEY INSTRUMENT SECTION 2

Q12. How often do you talk to people not associated with the Wylde Center about the organization?

Never

Less than Once a Month

Once a Month

2-3 Times a Month

Once a Week

2-3 Times a Week

Daily

Q13. How often do people not associated with the Wylde Center ask you about the organization?

Never

Less than Once a Month

Once a Month

2-3 Times a Month

Once a Week

2-3 Times a Week

Daily

Food Growing Question

Q14. Have you applied anything you have learned at the Wylde Center site at your home or in your community?

Yes    No

Q 15. If yes, can you list the things you have learned from the Wylde Center?

(I should have asked what they have learned in order to see if eco-literacy etc shows up)

### SURVEY INSTRUMENT SECTION 3

Do you agree or disagree with the following statements?

Q16 “Studying things in isolation from their connections and interactions severely limits understandings”

Strongly disagree      disagree      neither agree or disagree      agree      strongly agree

Q17 “Humans are fundamentally connected to natural systems.”

Strongly disagree      disagree      neither agree or disagree      agree      strongly agree

Q18 “Natural systems have insurmountable limits.”

Strongly disagree      disagree      neither agree or disagree      agree      strongly agree

Q19 “Species differ in their abilities to acquire, store, allocate and compete for essential elements.”

Strongly disagree      disagree      neither agree or disagree      agree      strongly agree

Q20. “The human species is altering elemental ratios in the environment at an incredible rate and on a global scale.”

Strongly disagree      disagree      neither agree or disagree      agree      strongly agree

Q21. “Observation and experiment are fundamental skills for working with the natural world”

Strongly disagree      disagree      neither agree or disagree      agree      strongly agree

Q22. “When working with the natural world one must often make their best, most educated guess for how to proceed.”

Strongly disagree      disagree      neither agree or disagree      agree      strongly agree

Q23. The Wylde Center is connected to a web of natural patterns and processes greater and smaller than it.

Strongly disagree      disagree      neither agree or disagree      agree      strongly agree

Q24. "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."

Strongly disagree      disagree      neither agree or disagree      agree      strongly agree

Q25. The Wylde Center has increased my appreciation for the natural world.

Strongly disagree      disagree      neither agree or disagree      agree      strongly agree

Q26. The Wylde Center has increased my knowledge of my local environment.

Strongly disagree      disagree      neither agree or disagree      agree      strongly agree



# Essay One

How is urban agriculture integrated socio-ecologically on site and across city scales?





# ESSAY 1: LITERATURE REVIEW

*Research informing the socio-ecological capital creation and systems evolution of urban agriculture*



Winding down an Olmsted designed path in Atlanta’s Piedmont Park, one is greeted by a little community garden in some marginal space next to a great green lawn. At the garden’s gate one of its many signs reads:

“Seed to Market Garden: This Garden is dedicated to growing vegetables and Enviro-ventures summer camp children. We don’t actually grow children, we grow their minds and experiences by teaching them to plant seed, harvest vegetables, farm organically and know the origin of food. All harvested produce is sold at Piedmont Park’s Green Market. All proceeds are used for the next year’s seed to Market Garden. Let the children GROW by letting the Vegetables GROW. Let the children pick the produce—Piedmont Park Conservancy”

Looking around North America there are many examples of a movement to change “minds and experiences” coalescing around the issue of food.

There are many questions, however, about what exactly these small urban landscapes of food production are creating.

While there is copious literature on the different ways urban food production, usually as traditional community gardens, creates specific forms of capital, from human to social to natural capital, literature on how these different forms of capital interact to form a socio-ecological system is sparse. Additionally while there is literature, notably with in the social sciences and especially the discipline of geography, about alternative food networks and how urban agriculture is embedded into the local scale, there is very little instrumental research into how urban agriculture schemes become embedded in the first place and ultimately how individual sites may aggregate into a local system which places itself in opposition to the higher levels of national or internationally scaled agriculture systems. This essay therefore addresses the question of whether socio-ecological capital is being created and how it may begin to scale up into a regional mosaic of urban food production.

### Assessing the economic value of urban agriculture

In any discussion of food production, obviously the first benefit to discuss, regardless of the form of the urban agriculture, is its food value, and especially how that food interfaces with the economic system; however, measuring the economic value of urban food production simply in dollars and cents may not be the best measure of the value of food or even the economic value of urban agriculture. Unfortunately, there are not many studies from a developed world context about the pure economic value of urban agriculture in terms of dollars and cents.

There has been some research indicating that urban agriculture saves participants money

on household food expenditures. Community gardeners who participated in research studies frequently point out the cost savings of growing food. (Blair et al., 1991; Patel, 1991; Suarez-Balcazar, 2006) Some reports quantify the savings, which ranges from \$475 a season for individual gardeners (Patel, 1991) to \$915,000 worth of food a year for an entire community garden program (Bellows, Brown, & Smit, 2005). Since most gardeners have to pay little or nothing for plots and many programs provide tools and utilities, the average cost of gardens was \$25 per plot, giving gardeners a high return. (Patel, 1991) There are also studies that show how food production in home gardens has reduced household expenditures via the sale of excess produce. (Domene & Sauri, 2007; Reyes-Garcia et al., 2012 via Taylor).

At the household and community level not all economic activities, however, can be commodified. Historically most work at this level has not been part of the market economy at all but rather the home economy, which includes many unpriced items from child rearing to home cleaning or improvement. There is research of food producing gardens as components in economies of reciprocity and redistribution, at least in rural areas. (Morton et. al, 2008) Like these rural systems, small scale urban food growing could also be part of a home economy whose benefits are best measured in other ways.

One way to ascertain the value of urban agriculture whether or not it is commodified is to determine its level of caloric pounds rather than its price on the market. If urban agriculture can produce meaningful calories, regardless of whether those calories can be sold in some aspect of the market economy, households and communities could opt for food growing activities for a number of reasons. Many things are grown in cities. Why not food? Unless food is exceptionally arduous or costly to grow in a city, indeed, then why not grow food, rather than rose bushes, lawns, or ornamental street trees?



Food is a rather broad term. There are all kinds of foods meeting all kinds of caloric needs. There are grains, fruits vegetables and many kinds of proteins, plant and animal. Intuitively a mono-culture crop requiring large open spaces will never be an urban food-growing prospect. Wheat, rice, or corn crops are unlikely to be pursued. Pastured animals requiring large acreages such as cattle or buffalo are also likely out of the question in an urban setting. A fruit tree, a vegetable garden, a chicken coop or rabbit hutch, however, are a different matter. And although the former may provide the bulk of the caloric intake of a household or community the latter arguably is the more highly valued type of calories for its protein, vitamin and mineral density. Moreover, high-value, specialized products such as these have always been the forte of cities. (Jacobs, 1969)

### Small Plot Intensive ‘SPIN’

Are there business models today providing high valued-added food items to local urban markets? One interesting case study is the SPIN model. SPIN stands for Small Plot Intensive Farming and it is a good representative of the value of any kind of intensive farming pursuit in cities. According to SPIN advocates its organic-based techniques “make it possible to generate 50,000 in gross sales from a ½ acre of land growing common vegetables.” (Satzewich and Christensen, 2011) SPIN advocates also note that the ½ acre can begin with a small plot of only 1000 square feet and can be “multi-sited on several residential backyards,” opening up the possibilities for mosaics of food production in urban areas. (Satzewich and Christensen, 2011)

SPIN methods are mostly organic and labor intensive, and there is little overhead. The intensive and organic tilling techniques require no debt or fossil fuel inputs. The one major exception being that the system relies on the local public water utility. As for hours spent, they are equivalent to most full time jobs. The main difference is that unlike regimented jobs with weekends off and no difference between seasons, SPIN farming

requires daily visits to sites but provides several weeks off in winter. Summer hours are about fifty hours a week, which is not much more than the average professional work week.

Currently, to meet there 50,000 in gross sales the SPIN model's market seems to be the growing base of customers who want a direct connection to the source of their food and are willing to pay the cost. (Satzewich and Christensen, 2011) Therefore SPIN vegetables produced in cities are slightly more expensive than vegetables trucked from California and other industrial agriculture locations. Naturally these trends could change. Whenever fuel prices are high, intuitively SPIN would become increasingly cost competitive with industrial agriculture, especially in the market of highly perishable products such as vegetables. Nevertheless if its promoters are correct, SPIN's urban food growing model is economically possible in cities even with today's low transport costs simply due to the growth of the local food market niche. SPIN farms have been set up in rural and urban areas, however, the urban areas, despite the land assemblage issues, have better access to large and diversified customer bases and make the model more adaptable and thus successful. With increasing pressure on household food budgets, SPIN techniques, regardless of how they are integrated with the market economy, will likely continue to be economically attractive.

So what are the drawbacks as well as the benefits in the aggregate of intensive urban food growing models in cities such as SPIN? How much land could be converted to this kind of production and what would that mean? Based on a 2005 NASA study using aerials the agency estimated that there are 49,000 square miles of lawns in the country. Gabriel Worrel writing for the American Planning Association in 2009 noted that this is an area the size of Greece and is three times as many acres compared to irrigated corn production. (Worrel, 2009) That is a lot of irrigation for not much economic return. Being

based on the municipal water system one critique of SPIN is that it does not reduce this water use. However, replacing this irrigation of lawns into edibles does get a value added product for this expense. Food can be traded or sold and processed into other products and has more economic benefit, lawns cannot.

Moreover, there are ecological benefits of organic food growing over lawn care. As Worrel also explains “All that grass requires mowing, which is no small thing. According to the U.S. Environmental Protection Agency, a traditional gas-powered lawnmower emits carbon monoxide, hydrocarbons and nitrogen oxides, which react in the atmosphere to create ground-level ozone, leading to smog and harming human and plant health.” (Worrel, 2009) Using organic techniques SPIN and other intensive forms of agriculture like it mitigates this environmental impact.

Still there is the question of how much food could be produced. What are the potential calories created by urban food production in cities in the aggregate? One could assume that it's crudely equivalent to America's corn crop, if Worrel's and NASA's estimates are correct. That crop produced 97.4 million acres in 2013. (USDA, 2013). The average cornfield potentially can deliver more than 15 million calories per acre each year, which is sufficient to feed 14 people per acre, with a 3,000 calorie-per-day diet. (Foley, 2013) This number, however, assumes all the corn is consumed by Americans. The reality is that 40% goes to ethanol and 36% to livestock feed, which may or may not end up on ones table. Adjusting for these corn uses, one ends up with 3 million calories of food per acre per year, mainly as dairy and meat, which could feed three people per acre. (Foley, 2013) Certainly, urban agriculture is competitive with numbers like these.

Historic data on Victory Gardens during WWII suggests how. In 1943, 20 million gardens in cities and suburbs across America were producing 8 million tons of food. And

community garden researcher Laura Lawson claims that in the 1940's some estimates had victory gardens producing 42% of the nation's vegetable needs. (Lawson, 2005) Clearly there is a lot of potential for providing critical calories via small plot intensive urban food schemes in cities. The next question becomes what value is being created beyond this raw economic value?

## Capital Theory and Urban Agriculture

Modern theory of capital provides a frame for categorizing the various measures of urban agriculture value beyond just its economic benefits. The idea of different forms of capital can be traced back to Adam Smith who described for example “the acquired and useful abilities of all members of a society” as “human capital.” (Smith, 1776) Urban agriculture could be valuable by effecting stocks and flows of multiple forms of capital beyond just the economic meaning of the term. Urban agriculture could augment natural capital by adding stocks of productive green space in urban areas. Productive green space for example would mean less lawn landscape or ornamentals and more landscape for edibles, which can be both aesthetic and more economic if connected to a local food system. There are also many ways urban agriculture could affect different forms of human capital. These “human stocks” could be augmented through improved diet and exercise. Or urban agriculture could augment social and cultural capital by increasing the flows of social interactions by increasing levels of civic engagement. Urban designer Jahn Gehl demonstrated in a case study of front yard gardens—although he did not distinguish whether they were food producing gardens—just such an effect in Melbourne, Australia. (Gehl, 1977) The following review therefore breaks down urban agriculture value research into three broad categories of capital: *human capital research*, *social capital research* and *natural capital research*.

## Human Capital Research

The extensive community garden literature is rich with research on the impact of urban agriculture, especially community gardens, on different forms of human and social capital. Laura Lawson documents how the community garden has represented many values through time. In the 1890's for example urban food production via community gardens was seen as a form of unemployment relief and skills development and was therefore a traditional Adam Smith type of social and human capital. Or in the war garden campaign of the First World War or the Victory Gardens of the Second World War, community gardens were viewed as patriotic and focused populations and resources on the war efforts as a form of political capital. In the 1940's some estimates have victory gardens producing 42% of the nation's vegetable needs, revealing the potential of urban and suburban land. (Lawson, 2004) The most intuitive link between community gardens and capital relates to health and urban agriculture. Community garden health studies are extensive, including research into physical health as well as psychological wellbeing.

Physical health studies often quantify community gardens impacts on nutrition and attitudes and behaviors towards nutrition. Alaimo et. al (2008) demonstrated that "Adults with a household member who participated in a community garden consumed fruits and vegetables 1.4 more times per day than those who did not participate, and they were 3.5 times more likely to consume fruits and vegetables at least 5 times daily." Disdal et. al (2002) demonstrated how low income consumers perceptions of fruits and vegetables and likely-hood to consume them increased with community garden participation. And Ober et. al (2008) had similar results when focusing on youth, showing that community gardens improved consumption of healthy foods by the youth involved. Armstrong (2000) and Wakefield et al. (2007) used survey methods to understand participant's key reasons for engaging in urban food growing. Their studies found that nutritional reasons often trumped other values. Armstrong's study is very well cited since it surveyed

twenty community garden programs in upstate New York, representing over 60 actual gardens. The most commonly expressed reasons for participating in gardens were access to fresh foods, to enjoy nature, and general health benefits. Wakefield's results suggest that community gardens were perceived mostly by gardeners to provide health benefits, including improved access to food, improved nutrition, increased physical activity and improved mental health.

Psychological well-being studies of community gardens tend to focus on two measures of the impact of urban food production, stress relief and psychological restoration or recharging. Most famous is the work of the Kaplan's from the 1970's and 1980s into how green spaces in general provide restorative opportunities. Much of the Kaplan's classic research was set in the context of urban food production via community gardens. (Kaplan, 1973, 1998) Another classic contribution to the literature on urban food production and human capital creation via community gardens is the work of Charles Lewis. Lewis's text *Green Nature/Human Nature* is a culmination of his years of research as a plant-people interaction specialist. Lewis's horticultural therapy research also was often set in a community garden context. (Lewis, 1996)

Psychological wellbeing research into community gardens continues today. In a 2011 study by Van de burg and Curtis, neuroendocrine stress relief was tested in a field experiment of thirty allotment gardeners. After being assigned stressful tasks, participants were randomly assigned to 30 minutes of outdoor gardening or indoor reading on their own allotment plot. Van de burg's experiment made several measures of cortisol levels and self-reported mood, finding that while gardening and reading both led to decreases in cortisol, during the recovery period, "decreases were significantly stronger in the gardening group" Additionally, "positive mood was fully restored after gardening, but deteriorated during reading" (Van de burg and Curtis, 2011)

## Social Capital Research

Many researches have also looked at the impact of community gardens on social capital. Karl Linn's research into community building and community gardens demonstrated how the creation of gardens is a kind of "barn raising." (Linn, 1991) Other researchers have shown how the social organizational underpinnings of community gardens give rise to a range of social processes, including social connections, reciprocity, mutual trust, collective decision-making, civic engagement as well as Linn's community building. (Landman, 1993; Armstrong, 2000; Twiss et al. 2003) As Laura Lawson's work has shown, community gardens have also been used for political capital, a subset of social capital. Besides the world war era examples already discussed, of particular interest to planners is how, as Lawson describes, urban planners of the 1960's and 1970's following an advocacy planning paradigm used community gardens as "participatory assets" (Lawson, 2004) Lawson points out that there has been ambivalence between seeing community gardens as either physical or social assets. This ambivalence has permeated the urban planning professions current orientation towards new forms of urban food production.

Other social science fields have also dealt with this social capital conundrum of urban food production. Karen Schmelzopf's (1995) research discusses how community gardens are claimed space. Aponte-Pares (1996) and Winterbottom (1998) discuss how this claiming of space is particularly important with immigrant groups. And Troy Glover's research has delved into the perspective of community gardens as symbols of democratic values and collective resistance. (Troy, Glover 2003, 2005) Similar to Lawson's research sociologist Michael Jamison (1985) has researched gardens as conflicting interpretations of meaning between different social institutions and groups including non-planning bureaucrats and various social movements.

The socio-economic benefits of urban agriculture are also strongly represented in the literature. Skills training is often cited as a socio-economic benefit with many sites employing youth to manage farms or gardens. (Metcalf & Widener, 2011) Often urban agriculture sites are located in neighborhoods where unemployment is high and some studies have documented how participation with farms or gardens serve as community catalysts for other entrepreneurial endeavors (White, 2010; Bradley & Galt, 2013) Finally, one should add to any discussion of urban agriculture literature the impact of community gardens on financial capital. Vikki Been (2006) studied the effect of community gardens on property values in New York. Vikki Been found that the opening of a community garden has a statistically significant impact on properties within 1000 feet of the garden and that the real estate impact increased over time. Been also found statistical relationships between opening a community garden and rising home ownership levels, particularly in disadvantaged neighborhoods. She concluded that urban agriculture, at least via community gardens, can serve as “catalysts for economic redevelopment of the community.” (Been, 2006)

### Natural Capital Research

While community gardens tend to be at a neighborhood scale, which is perhaps easier for measuring human and social capital benefits of urban food production, urban farming, or at least the studies of it tend to look at entire regions to assess the ecological impacts of urban agriculture. Urban farms contribute to natural capital by improving air quality, offsetting urban heat island effect, assisting in carbon sequestration studies, or facilitating wastewater recycling and filtration. (Pearsons, 2009) This body of research is extensive, especially in the context of the developing world, and is beyond the scope of this review. At such a macro scale it often does not adequately separate out urban agriculture from other types of green space. Examples of this extensive research that include either the study area or a reference to agriculture uses include many air quality



and urban heat island effect studies (Taha, 1997; Dixon and Mote, 2003; Wong and Yu, 2005; Strathopoulou and Cartalio, 2007) carbon sequestration studies, (Lebel et al, 2007, Sovacoola and Brown, 2010; Wentz et al, 2002) wastewater recycling and filtration studies. (Forkes, 2007; Khai et al. 2007) urban home garden and eco-system services, (Calvit-Mir et al., 2012) and studies of urban agriculture as sites for agro-biodiversity and cultural reproduction. (Domene & Sauri, 2007; Galluzzi, Eyzaguirre, & Negri, 2010; Nazarea, 2005).

### Socio-ecological Capital Theory

Capital creation literature is also breaking beyond its traditional silos of the broad categories of human, social, and natural capital. The literature continually experiments with additional frames for capital such as the sociological concept of cultural capital and the anthropological concept of symbolic capital. (Faud-Luke, 2009) Socio-ecological capital could be a new form of capital as well. Public health officials such as the researchers at the Centers for Disease Control in Atlanta have often referred to a socio-ecological model of public health which relates the individual to the community, (Moos, 1980; Stokols, 1992; Stokols et al., 2003; Glass and McAfee, 2006) however, a socio-ecological conception of capital could go further, relating individuals not just to human communities but actual ecologies of natural communities and human-nature connections.

An important step in the literature towards this socio-ecological concept of capital was the UK's Forum for the Future's "*Five Capitals Model of Sustainable Development*" developed from the late 1980's and early 1990's, as part of that decade's growing body of sustainability literature. Forum for the Future's contribution to the literature is particularly important since it did not just describe their five types of capital but showed how they are related to or nestled within each other in a more sustainable system. Forum

for the Future maintained the Adam Smith frame, of two primary forms of capital, natural capital and human capital, however, they embedded human capital in natural capital in their model before further subdividing it into the sub-categories of social, manufactured, and financial capital. (Forum for the Future, 2000) This change may seem mundane but it is fundamentally different from other world views, such as early to mid 20th century neo-classical notions of capital, which essentially ignore nature or even the ideas about land discussed by classical economists such as Smith.

Subsequent economic and business sustainability literature, however, such as Avory Lovins' *Natural Capitalism* (1999) or Michael Braungart and William McDonough's *Cradle to Cradle* design concepts and business models (2002) has followed Forum for the Future's perspective on capital, where human capital is embedded in natural capital. Economic paradigms such as Herman Daly's steady state economics or the new branch of ecological economics expanding on Daly's world view. (Daly, 1991; Farley, 2003)

Urban agriculture could play an important role in these more sustainable versions of capital theory. By increasing the stock of "healthy culture," defined as a culture with more complex and interactive understandings of what it means to be environmental and which embeds human activity more consciously as well as more actively into ecological systems, urban agriculture could be accruing a new type of capital, socio-ecological capital. In short it would not just be increasing awareness, the human capital part of the equation, or just augmenting natural systems such as soil building, the natural capital part of the equation, but something stronger, a fundamentally intertwined phenomenon that could be called socio-ecological capital. This goes a step further than either the public health model which shares the socio-ecological name or the sustainability literature, which mostly just embeds social capital with in natural capital.

Figure B: Models of Capital

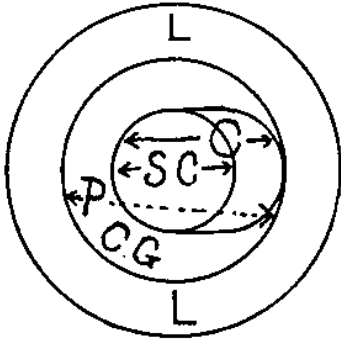
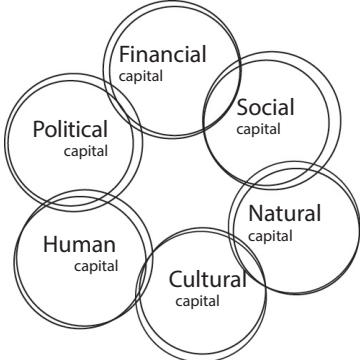
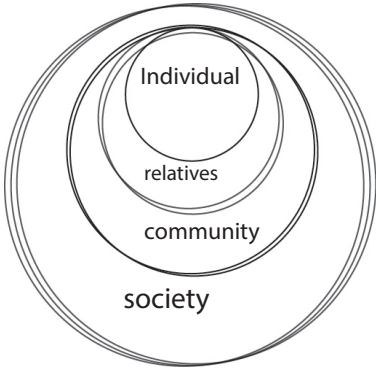
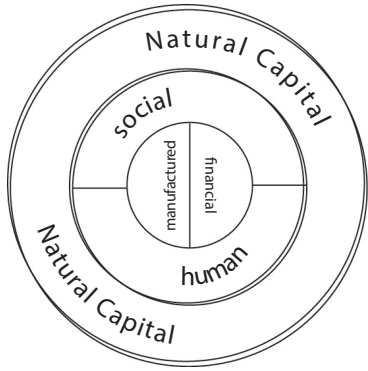
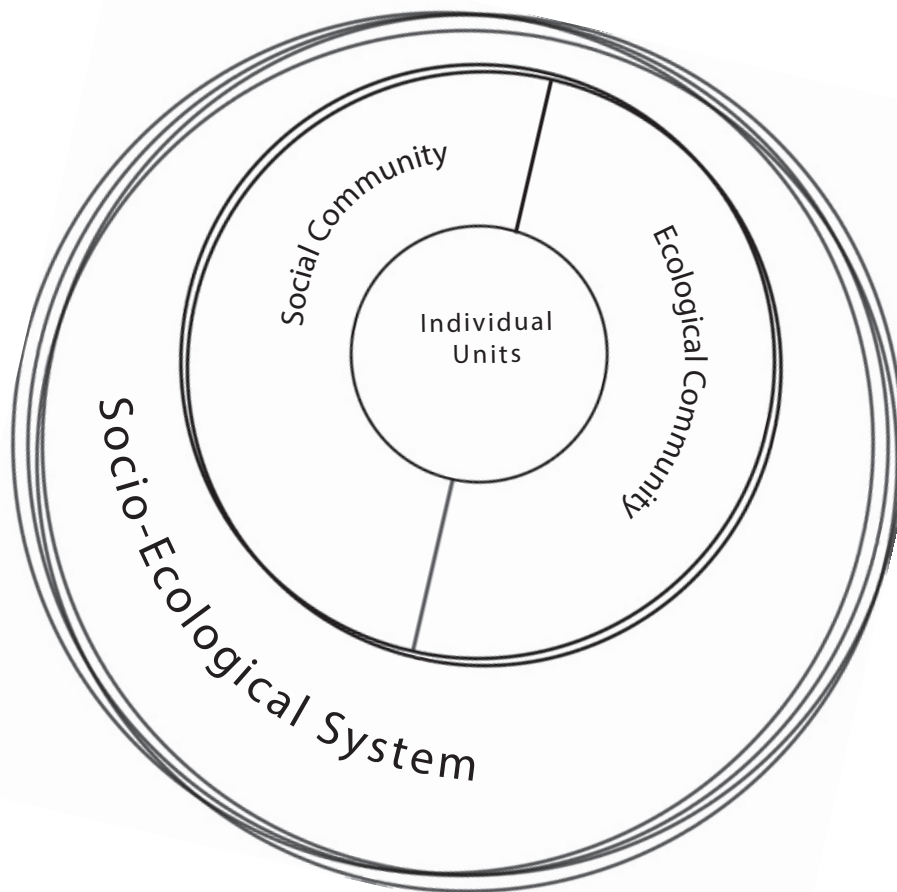
|   |   |
|---|---|
|    | <p><b>Historic Economic Models:</b></p> <ul style="list-style-type: none"> <li>• Adams Smith</li> <li>• Karl Marx</li> <li>• Böhm-Bawerk Positive Theory of Capital</li> <li>• John Bates Clark's value conception of capital</li> </ul> <p>19th Century economic debate on capital as physical assets vs abstract stocks such as social capital or Adam's Smith's notion of human capital.</p>                                     |
|   | <p><b>20th Century Models of Capital:</b></p> <p>Widespread acceptance of abstract notions of capital appear across disciplines, however, the view of land as a common foundation is no longer evident.</p>   |
|  | <p><b>Socio-Ecological Model of Health:</b></p> <ul style="list-style-type: none"> <li>• Centers for Disease Control, Atlanta</li> </ul> <p>Social-ecological models emerge in the public health arena. These models use ecology as a metaphor without including natural or ecological criteria. These models reference scale.</p>  |
|  | <p><b>Sustainable Models of Capital:</b></p> <ul style="list-style-type: none"> <li>• Forum For the Future's Model</li> <li>• Amory Lovins 'Natural Capitalism'</li> </ul> <p>In these models all forms of social capital become embedded within natural systems and their stocks and flows, or 'natural' capital. Interestingly this is somewhat a return to classical models, with land being re-purposed as natural capital.</p> |

Figure C:  
Socio-Ecological Capital Model

The model underlying this research combines the relationship and scale orientation of the public health model with the embeddedness of the sustainability model of capital, creating a socio-ecological capital model. Capital accrued includes the 'stocks and flows' of human connections to nature and society via activities such as urban agriculture.



Food production and consumption is a time honored means of culture creation and transmission and urban agriculture is uniquely positioned to change cultural understandings of not just human-to-human relationships but also human-to-nature relationships. Food consumption is also one of the most fundamental of physical human-nature interfaces. Involvement with food production, even in dense cities could be a gateway to stronger understandings as well as physically and spatially meaningful human and natural system bonds. For years the science of ecology has asserted that boundaries between human and ecological systems are often arbitrary and that a better frame is of a socio-ecological system. (Hawley, 1950; Odum, 1953) Urban agriculture may be making those bonds more evident.

These bonds have two important components: first, the actual activities such as the food growing techniques that tie individuals into a socio-ecological system in a very real and physical way, but secondly and just as important, some kind of awareness or understanding of this process. This awareness is sometimes called ecological literacy in the literature (Orr, 1992; Bowers, 1996; Cutter-Mackenzie, 2003; Berkowitz et al., 2002, 2004; Fritjof Capra, 2005) other times it has been dubbed ecological consciousness (Light, 2003; O'Sullivan, 2004; Kirshenmann, 2010) Whatever term one uses, however, this socio-ecological-ness, 'activities + consciousness' is not well articulated as a separate capital category, despite being so fundamental to the Forum for the Future's, Lovin's, and other sustainability advocates' world views of human capital being embedded in natural capital.

This inquiry agrees with the sentiment that there are few better ways to connect people with nature and ecological systems than involving them in food growing, especially when people are in cities. A variety of educational research into the value of garden education supports this assumption. (Spirn, 2005; Krasny and Tisdal, 2009; Cutter-Mackenzie

and Smith, 2003) There is also extensive but non-scientific experience with gardening and especially the growing of edible plants or tending of livestock that reveals that food producing and consumption at small scales deeply connects people- to-people and people-to-nature in multiple ways, both literally through physical consumption of the edible products of such gardening or husbandry, but also cognitively or even spiritually. (Berry, 1981; Fritz Haeg 2008; Barry, 2009; Kirschenmann , 2010)

It is not the intention of this research to question that fundamental link. Anthropologist are more suited for that type of inquiry. Instead, this research will assume that this strong link between involvement in food production and ecological connection exists. However, this research does question how well if at all this link translates into a socio-ecological system, not just a connection to nature but a highly conscious awareness of that connection, which can also be transmitted and scaled up into a more resilient or sustainable socio-ecological system of a food growing city. There is also insufficient literature on the topic of scaling up these food system connections.

## Socio-Ecological Systems Research

Before moving forward it is important to clarify what socio-ecological systems are in theory and what has and has not been studied about food producing socio-ecological systems and how this inquiry fits into that research. Literature of all socio-ecological systems is known as SES literature, and when those systems include food production they are known as SEPL's or socio-ecological production landscapes. (Gunderson and Pritchard, 2002; Holling, 2004; Walker, 2004; Walker and Sale, 2006; Belair et al., 2010)

An important aspect to understand about SES's and SEPL's is the concept of feedbacks that can "flip" the eco-system into different "trajectories" or "basins of attraction." Thus

these systems are in a state of constant change rather than the common and antiquated view of ecological systems as reaching climax equilibriums. However, as a system cycles it often maintains a series of constant transitions which can span decades of even millennia as anthropologist Jarred Diamond documented in the SEPL's of Paupau New Guinea (Diamond, 2005).

When systems do not flip into a different basin they are considered resilient (Holling, 1973; Gunderson, 2000; Walker and Sale, 2006) When a system—such as the current North American system of national or even internationally scaled agriculture—becomes stressed, however, it can shift to another “basin of attraction” (Gunderson, 2000) That basin is neither good nor bad but simply different. It could be local and abundant or something less fecund, depending on what human activities have been made available to from the new basin. This is an important point and one justification for this research. Sophisticated modeling of urban agriculture systems can be useful, but how valuable is it without deeper, descriptive and more qualitative understandings of the modeling options? If the current nationally scaled agriculture system “flips” into something more local, what is available to scale up into a new system? Unfortunately many localities do not know.

SES's are increasingly being researched but it's usually very mathematical and highly removed from contexts on the grounds. Additionally the location of most of the SES research is problematic. Most of this research is rural (Wiens et al., 2007) but in an increasingly urbanizing world, where now the majority of the globe lives in cities, that focus comes into question. Additionally, when SES and SEPL research does model for cities it is almost solely from the developing world (Pretty and Pearson, 2010). An example of this kind of SEPL research includes the many report's sponsored by the United Nations University Institute of Advanced Studies, (UNU IAS, 2013) which are almost exclusively developing world focused. Fortunately the need to include large

human settlements such as large towns or metropolitan areas in SES research has begun to be recognized. (Bordern 1993, Picket 1993, Grimm 1997, Picket et al. 2001, Grove et. al. 2003, Grimm and Redman 2004) Alessa et.al for example have even created a typology of these ‘messy’ socio-ecological urban systems and they have framed the differences between urban socio-ecological systems based on criteria for resilience in developed world cities. (Alessa et. al, 2009)

There has not been much SEPL research in the developed world and more importantly for this inquiry there has been very little SEPL research into the impact of growing food within urban fabric in order to make a more resilient or sustainable cities, or to send an urban area’s food production system or its “socio-ecological production landscape,” towards a different ecological “basin of attraction.” One can continue to excessively apply mathematical models from 30,000 feet up, but perhaps analogous to the difference between Newtonian and quantum physics, what is happening contextually at smaller scales could be a very different reality, and it is at these lower levels and contexts where most urban policy, planning and design is made, especially in de-centralized planning regimes such as in the US. Indeed, what is happening at the finer urban grain? More research not just at the macro urban level via quantitative modeling but that gets under the hood of the metro scale so to speak, is also needed.

### Alternative Food Networks Research

Fortunately there is an extensive social science literature on alternative food networks (AFN’s) in and around cities that can inform this inquiry. This literature is not specifically concerned with socio-ecological systems or instrumental questions of scaling up these alternative food networks, but the lessons and methods of some of this AFN research could be transferable to this inquiry.



The local food 'networks' in the AFN literature are 'alternative' in that they connect producers and consumers in usually small-scale and local ways that cut out large-scale and distant industrial agriculture. (Martinez et. al, 2010) Some ecological writers refer to these closer relations as a 'trust horizon' with local relationships being easier to maintain within the trust horizon. Distant systems, such as nationally scaled systems tend to be based on trust not of individuals but of the systems. (Foss, 2012) Meanwhile trust in these national systems has been eroding in public consciousness. Evidence of this shift can be seen in popular books such as Michael Pollan's many food system exposes such as the *Omnivores Dilemma* (2006) or *In Defense of Food* (2008) to documentaries such as *Food Inc.* (2009) and memoirs such as farmer Joel Salatin's popular texts about the trials of local farmers in an industrially oriented system. (Salatin, 2007, 2011).

In the academy the discipline of geography should be credited with devoting the most attention to developing the AFN literature. Geography as a sub-set of the AFN literature understands urban agriculture as part of a local system which is 'embedded in a place,' as opposed to higher scaled agriculture which is considered placeless in that it represents a dis-embedded, globalized food system. (Ilbery and Kneafsey, 2000; Winter 2003; Boggs and Ratisi 2003) This dichotomy is simplistic since the boundaries between local and global on the ground are often blurry. (Kirwan, 2004; Morgan et al., 2006) But it does describe perhaps a more personal relationship oriented agriculture, an agriculture that is geographically nearby, allowing for the possibility of enhanced relationships between consumers, farmers, and communities that is less possible when agriculture is remote.

There are a variety of questions being addressed by AFN literature. A common theme is the political nature of the AFN, whether it is oppositional to the global food system or simply alternative (Allen, 2003). There is also much research into the economic value of AFN's (O'Hara, 2001; Marsden and Everard, 2005) However, the most relevant variant

of AFN literature to this discussion is research that looks at either the type of information that is being transmitted within AFN's and literature that at least begins to point to how AFN's are becoming networked and thus scaling up into a system of not just patches but of an urban mosaic—to borrow the language of landscape ecology—of a food producing city.

Since most AFN research does not focus specifically on socio-ecological capital creation this is also a gap in the literature, which this dissertation can begin to address. By scrutinizing AFN research that examines promotion of other values or how AFN's build networks, one can draw conclusions about how best to proceed with a study on the value of urban agriculture for creating and accruing socio-ecological capital.

### Lessons from Selected AFN Research

Patricia Allen's 2003 study of California AFN's is an informative study. Allen's qualitative study of AFN's across the entire state of California was a study of the values promoted by these organizations. Specifically Allen sought to understand to what degree California AFN's seek to create a new structural configuration—which is essentially a basin in socio-ecological theory—and to what degree California AFN's were “significantly oppositional or primarily alternative in their political values orientation.” (Allen 2003) While these political values are not necessarily the same as the socio-ecological values orientation of this study, Allen's methods could be transferable. Allen interviewed a snowball sample of 37 leaders of California AFN's. With a semi-structured open-ended interview format Allen was able to address her specific question about political values as well as identify emergent themes by counting the occurrence of certain topics across the AFN's in her sample.

Some of Allen's findings while not relevant to her political values question are relevant to this study, such as the finding that Farmers Markets and CSA programs (Community Supported Agriculture) were important linkers between organizations and community. However, CSA's had an inherently scale limited impact. Other findings surprising to Allen were that most AFN's were incubated inside major metro areas such as San Francisco and Los Angeles and not in rural areas. This finding is not surprising to urban theorists and supports propositions such as Jane Jacobs' ideas about cities being the source of most innovations, including agriculture innovation. (Jacobs, 1969)

The importance of the need to form relationships with local planning bodies while surprising to Allen is probably not surprising to urban planners. Although it seems that Allen is disappointed that the values in her sample were more "alternative," "local," "foundational" and "entrepreneurial" rather than "oppositional" or "anti-global" in focus, this is not a problem for this inquiry. Allen is likely detecting the dynamic shift to a new basin of attraction at its inchoate stage, the emergence of a new SEPL. But most of all, Allen's research is instructive for its finding that place and social form are linked and that link is important to understand. Moreover, Allen calls for further research into the link between place and social form, and although she does not use the same terminology, this is a call for the socio-ecological research orientation of this dissertation which will look for those links. Finally, returning to the issue of scale, Allen's findings about metro areas as incubators helps make the argument for a metropolitan rather than a state level study, which is also the sample method of this inquiry.

Unlike Allen's California wide study, Christine Buchmann's study (2009) of Cuban home gardens and their role in socio-ecological resilience was at a more appropriate scope for this inquiry. Buchmann's study focused on food producing gardens in one metro location, the town of Trinidad de Cuba. Specifically Buchmann was interested in the use of plants

and how plant material is exchanged both between wild plants and gardeners as well as between gardeners and gardeners. Through participant observation and interviews of 25 gardeners in Trinidad de Cuba, Buchamann was able to document these links. The strength and weakness of Buchmann's study is its laser like focus on plant usage. While the horticulture orientation of Buchmann's study and its focus on one town is instructive, when assessing a multi-faceted topic such as socio-ecological capital creation a more open ended interview approach such as Allen's is likely preferable. Additionally, a larger, more urbanized metro area such as Havana is also preferable. As discussed in the methods chapter, this inquiry has chosen the metropolitan area of Atlanta for the basis of such a study.

Fortunately there are AFN studies of other metro areas that can inform this inquiries developed world Atlanta study as well as serve as a body of work to which this research can be added. Three recent studies in the developed world stand out: Hou and Lawson's case study of six Seattle community gardens (2009), Duchemin's study of twelve Montreal community gardens (2008) and Edwards (2011) review of three Melbourne food networks.

Hou and Lawson review six community gardens in Seattle. With a focus on planning, design, and civic activism, their six case studies do not have either an explicit or implicit socio-ecological frame. Instead, Hou and Lawson gathered information on history, partnerships and members, programs and functions, design and design implementation, and management in order to learn about the value of community gardens and how to implement them. However, after discussing the specific implementation lessons of each case in their study, Hou and Lawson make an argument for further research that is more socio-ecological, even specifically using some of the terminology found in landscape

ecology in their assertion that next steps should be on how to move “from islands to networks” of urban food production. (How and Lawson, 2009)

Duchemin’s metropolitan Montreal study examined six community gardens. While secondary surveys conducted by the community garden organizations themselves were analyzed, the primary research method was semi-structured interviews from twelve key informants representing the six gardens. Additionally, Duchemin conducted participant observation. Duchemin’s Montreal study examined social interactions and links between organizations. Unfortunately Duchemin’s study exclusively had a social orientation rather than an ecological or socio-ecological frame. However, Duchemin did find that “there exists a complete system of values underlying all this” (Duchemin, 2008) in that the community gardens provide participants with the opportunity to develop a social, community, as well as an environmental consciousness. Duchemin is beginning to scratch the surface in regards to socio-ecological capital creation and like Hou and Lawson has set the stage for research with more explicit questions about socio-ecological capital creation and transmission or ‘scaling-up’.

One drawback of both Hou and Lawson and Duchemin’s research is their exclusive interviewing of community garden organizations. There are many different types of urban agriculture schemes in cities now which do not resemble the standard conception of a community garden. In a study of three urban agriculture entities in Melbourne Australia, Edwards breaks out of the community garden mold by examining three food organizations in that metropolitan area, specifically with a networking focus: PermaBlitz, a private garden network which explicitly states socio-ecological capital creation as an organizational goal; the Urban Orchard Project which is also a network of private gardeners who swap, share, and donate their food production surpluses; and Food Connect, which is similar to a CSA but at a regional scale connecting multiple local food

producers and consumers, breaking beyond the limits of the CSA model as described earlier in Allen's California AFN research.

Edwards' Melbourne study was interested in consumer and producer roles within each of these networking organizations. Edwards was also looking for commonalities between organizations and found three themes: "small, slow and shared". Edwards' study did not discuss methods and was published in a humanities journal. However, Melbourne is a global leader in the development of urban agriculture schemes including these networking organizations, and Edwards' research, while perhaps not as systematic and transparent in methods as other studies, is valuable in that it sheds light on a region that is an incubator of new urban agriculture concepts. Both the PermaBlitz and Food Connect organizational models have recently broken beyond their Melbourne origins, spreading to all Australian cities as well as a few North American locations. Thus these types of urban agriculture schemes are not represented well in the literature and are ripe for more systematic research in their new North American contexts. Lastly Edwards Melbourne research like other authors points the way for a more socio-ecological oriented study. "Future food possibilities could form a force of change, a change in system parts, or a change in the system overall" Edwards concludes, setting the stage for research that more explicitly looks into the linking of these parts. (Edwards, 2011)

One more AFN study to consider is Svendsen and Campbell's extensive review (2008) of 100's of civic environmental organizations in six large metropolitan areas in the North Eastern part of the US. Svendsen's and Campbell's sample is relevant to this dissertation because even though their sample included groups from tree planters to open space designers, urban food producers and community gardens made up a large part of their sample. Through survey tools Svendsen and Campbell assessed organizational demographics and key attributes such as management type and age, and were able to

determine major barriers to achieving missions as well as the scale of the impact of these organizations on their various cities. Findings were that social capital is not necessarily on decline (Putnam, 1995) but is appearing in new areas of concern such as civic environmentalism. However, the growth or scaling up of these networks is hitting a wall due to lack of understanding of the breadth and dynamism of these various groups by public officials and funders. This is strong argument for further capital creation research, especially research concerned with the instrumental questions of how these networks scale.

While the AFN literature cited is useful on how to conduct an AFN inquiry, which this study can be characterized as, there is a strong need for all types of studies both qualitative and quantitative that can more directly addresses how urban agriculture schemes are becoming not just isolated sites but a whole organism which is greater than the parts. Rather than just the alternative character of urban agriculture, there needs to be research on its systems evolution.

### Literature on the ‘scaling up’ of urban agriculture

Many researchers believe that knowledge not just about individual urban agriculture sites and contexts but into how those sites and contexts are moving as Hou and Lawson describe “from islands to networks” (2009) is critical, but there is not nearly enough inquiry into the matter.

There are some recent case studies. Sociologist Harriet Friedmann for example describes efforts by the University of Toronto to help the local food system expand by sourcing a portion of their institutions food purchases from it. (Friedman, 2007) Lindsay Day-Farnsworth’s report *Scaling up-Meeting the Demand for Local Food* sponsored by the

Wisconsin Center of Integrated Agriculture is a more comprehensive set of case studies of business efforts to “scale-up” (2009) Standard case study research such as Friedmann and Farnsworth’s research provides valuable lessons for the business and operational functions of urban agriculture sites, and how one might scale these functions up. But what about the more spatial aspects of the scaling up process? To date this literature is insufficient.

Some geographers with their spatial, social science orientations are tackling the topic. Michael Glowa and Michelle Gray for example have presented geography papers on the potential of private gardens to scale into a larger local food phenomenon. (Gray, 2011; Glowa, 2011) As with the dissertation by Brook McBride that heavily informs essay three of this inquiry, Glowa and Gray’s work is another example of how a new generation of researchers, in this case geographers, is reaching out towards these gaps in the literature, and is one more indication of how necessary it is to make this body of research more robust.

This dissertation is not situated within the discipline of geography and is unfamiliar with their theory and methods, but as is discussed in the methods chapter, as an urban and landscape design as well as planning inquiry, the matters of site, scale, and the social and ecological flows across sites and how these elements can be harnessed for the pursuit of place making are concerns of our field. This inquiry can add to the gaps in the urban agriculture literature by approaching ‘scaling-up’ from an urban design and landscape planning lens.

Scale matters. When one crosses scales properties of systems at smaller levels can combine into complex multi-unit structures that interact as a whole. Knowing everything about one cell, however, is not enough. As was demonstrated with the review of the urban



agriculture capital creation literature you can know everything about individual cells from how they create neuroendocrine stress relief (Van de Burg and Curtis, 2011) to financial value at adjacent properties (Been, 2006) but that tells one little about how these units are becoming not just cells or collection of cells but a multi-cellular organism, to extend the analogy.

If the complex whole is more than the sum of its parts, how do these individual cells begin to get to that state? Is there a spatial aggregation process and if there is what's being transmitted? Without looking carefully, as stalwarts of empirical urban planning from Jane Jacobs to Allen Jacobs have advocated, one will never know. It is a gap in the urban agriculture value creation literature that needs to be addressed. That literature spans many disciplines, but few of these studies take a bigger picture. Asking the big picture and instrumental questions is a role of planning and design and a way it can add to the urban agriculture literature as a whole.

A food system is complex. It has distribution, processing, legal, financial and many other organs. This study has entered into the system just via its production organs with the hopes that spatial scaling up processes will be discernible at these entry points. As systems theorist Donella Meadows explains "A system is an interconnected set of elements that is coherently organized in a way that achieves something ...it must consist of three kinds of things: elements, interconnections, and a function or purpose" (Meadows, 2008) This first essay, although the core logic described in the methods chapter singles out nine specific variables, is essentially looking for Meadows "three kinds of things" of "elements, interconnections and purposes."

To date urban agriculture researchers, mostly of a social science persuasion, have spent a lot of effort quantifying individual aspects of the food system, without taking steps

toward understanding the elements, interconnections and purposes of the system in which these aspects are embedded.

This research, as a planning and design pursuit, undertakes that descriptive and bigger picture task. It is qualitative, but hopefully, as it dives into these elements through the narrative, enumerative and visual techniques described in the methods chapter, the outlines of how a local food system is forming, a system that is greater than the parts, will emerge. This descriptive information can then inform other research questions such as essays two and three of this inquiry, future academic research by others, quantitative or qualitative, as well as the nonacademic work of planners, policy makers, designers and communities.

# ESSAY 1: RESULTS

*socio-ecological capital creation in metro Atlanta: the evolution of a local food system*

Research in practice is never as tidy as the theory behind it. The mixed qualitative methods of this inquiry outlined in the methods chapter, however, worked well in addressing the question of how Atlanta's emerging food system is integrating socially, ecologically, and physically and scaling into something greater than its parts.

The narratives of key respondents were particularly informative about urban agriculture evolution in Atlanta, the process by which their urban agriculture practices are aggregating, connecting, or transmitting to a larger socio-ecological urban system in Atlanta. The narrative data and its interpretation are the primary mechanisms for disseminating results in this essay. Visual and enumerative data based on the Photo Voice and Map Voice exercises, however, are also used in this essay accompanying each narrative in order to provide a "foot print" of each urban agriculture site from the sample.

Since the condition of map voice diagrams varied considerably, rather than raw 'emic' maps, the map voice diagrams have been distilled into standard diagrammatic formats. These site images have also been juxtaposed with more accurate figure field diagrams at 400 foot scales as well as GIS maps of each key informant's site or sites with in greater Atlanta at 15,000 foot scales. These more standard maps visually represent where the sites are geographically embedded.

As diagrams, generated via map voice and the emic-etic and image-able methodology discussed in the methods section, the site images have discrepancies. Dimensions are not necessarily precise. For example compost piles may not be in their exact position or may be under or over exaggerated. The same caveat applies for other elements in the site diagrams, even including the exact property boundaries of sites. However, these

images provide a general understanding of what's happening on each site, and through the standardization of the images as well as juxtaposing them with more accurate figure field and GIS maps at greater scales, the diagrams aid in understanding how these various locations fit with in Atlanta's emerging food system.

Photographs from the photo voice exercise are also displayed alongside the narratives. Of all the methods deployed in this inquiry the photo voice activity proved to be the most useful in soliciting feedback—less biased by the researcher's personal lens, which was described in the core logic section of the methods chapter—about the values being transmitted by different urban agriculture schemes. Much of the information in the narratives is also derived from the photo voice exercise.

## Food Systems Evolution

Two broad types of system scaling emerged from the narratives, *variation in direction* and *variation in process*. Variation in direction could be further divided into *ratcheting up* and non-additive moves such as *jumping scales* and *feedback*. Variation in process included *metastasizing*, *organizational networking*, and *site saturation strategies*

### *Variation in Direction: Ratcheting up, Jumping Scales and Feedback*

Ratcheting up from a smaller scale of operation to a higher level is perhaps the most expected method of scaling up a local food system, and this kind of orderly movement often appeared in the urban agriculture narratives of this inquiry. Four types of orderly ratcheting up from one type of urban agriculture scheme to another emerged. Park Pride's Peachtree Garden founder shows this evolution from the grass roots. East Lake Community Learning Garden and Urban Farm's discussion of moving from a "traditional community garden" to an urban farm reveals yet another level of ratcheting up, and Atlanta Food and Farm's discussion of trying to move from a collection of community

gardens and school gardens to a district level Food Commons is another change in scale. Finally, Concrete Jungle and Truly Living Well both have interesting perspectives on what it means to become an urban food producing metropolitan region.

Not all systems change was in one direction from a smaller scale to a greater one, however, nor were all movements orderly. Two types of non-ratcheting up moves, christened here as “non-additive directional moves,” emerged from the inquiry. These moves included jumping scales, especially via national level networking and were found at multiple sites including Clarkston Community Center and Truly Living Well but were especially represented by Berea Ministries Oak leaf Farm’s national level farm labor advocacy.

The other type of non-additive directional moves of Atlanta’s food system change has been named “feedback moves” where participants involved in a greater scale of urban agriculture brought the practice home and spread the system in their neighborhoods at a lower level. Examples of this process occurred across the sample, but is represented here by the narrative of Emory University’s Erin Mooney. Together these stories form a suite of personal experience with Atlanta’s emerging local food system. Bit by bit this system’s whole is becoming more than its parts.

#### *Variation in Process: Saturating, Catalyzing and Metastasizing*

After variation in direction there was also variation in scaling technique or “variation in process.” System *metastasizing* could be seen in the expansion of The Wylde Center, Truly Living Well, Fresh Roots Farms, and even Concrete Jungle and Park Pride which each moved from one site into a constellation of sites.

Next a catalytic process was demonstrated by many of the sites including Clarkston

Community Garden, Fresh Roots Farms, Truly Living Well and Park Pride's deliberate expansion of the system via skills transfer. This catalytic process can be achieved in multiple ways, from programing such as CSA's and farmers markets as a form of tactical urbanism, to more micro and serendipitous exchanges of information due to a site's high visibility in the public realm. The strategic location of Piedmont Park's Demonstration Garden, though small, excelled at this micro level systems expansion.

Several sites had no intention of spreading to other locations but had developed *saturation strategies* of trying to expand as much as possible within a well-defined boundary. Strong examples of saturation strategies included, Manual's Tavern, Clarkston Community Garden, Chosewood Edible Neighborhood, and Piedmont Park's Educational Garden at the neighborhood levels; and The Wylde Center, and Atlanta Food and Farm at the district level. In the aggregate, however, these sites are beginning to form a system, which influences the entire city. A few sites more assertively pursued this metro level of integration including Concrete Jungle, Truly Living Well, and Fresh Roots Farms. Truly Living Well now has several sites in the city as well as production sites located in the peri-urban locations of Atlanta's sprawl. Though less developed than Truly Living Well, Fresh Roots Farms was also forming a symbiotic relation between in town urban agriculture sites and more production oriented sites on larger tracts of land just outside Atlanta's perimeter. In this model in-town urban agriculture sites become *local food demand* and *socio-ecological capital creators*, while more *suburban sites become the locations of meaningful levels of food production*. Finally, Global Growers Network, also following this symbiotic relationship between city core and sprawling food producing periphery, demonstrates how production sites must take further steps to better differentiate functions.

A food system cannot simply consist of growers and eaters but must have all kinds

of processors and distributors of that food. This is true even at a local level, but with different parameters and values than the industrial system, with its 1000 mile salads or cold storage chains spanning continents or even oceans. A primary difference in the local food system emerging in Atlanta is that it is not only more fresh but more ecologically oriented than these industrial chains. It is also more human scaled and relationship oriented. In short it is a socio-ecological endeavor in which people, local people, are intimately tied to the food, its production, distribution and consumption, as well as the land and ecological processes that produced it. Within this system the more in-town or neighborhood oriented sites have an important role to play as the creators not of food calories, although food growing takes place at these locations, but as growers of a socio-ecological appreciation of food and how it arrives at our tables.



## Photo Voice Manual's Tavern

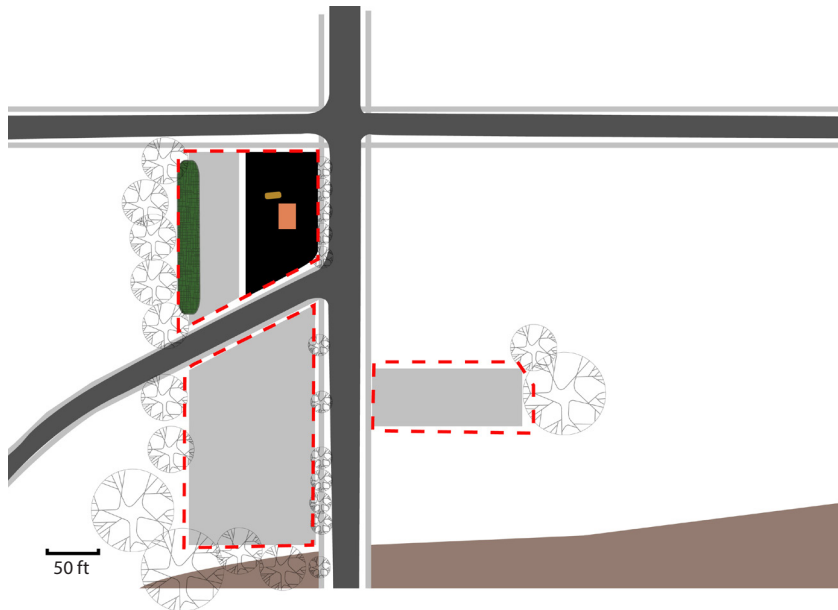




# Map Voice Manual's Tavern

SITE VISIBILITY & ECO-REVELATORY DESIGN

MULTI-FUNCTIONS  
& LOOPS:

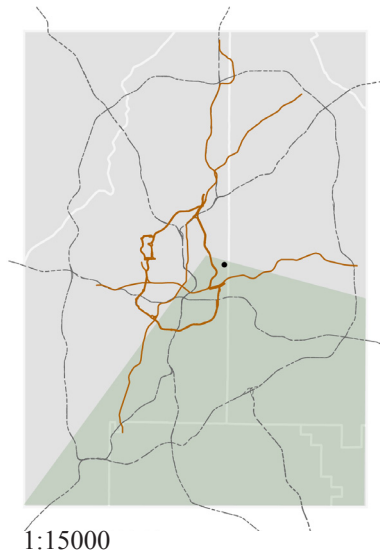


- Building
- Compost
- Chicken Coops
- Food Forest

PATTERN:  
1 site, Poncey Highland

LOCATION:  
Highland Avenue  
Private parcel

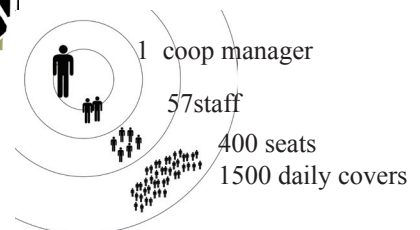
- PROGRAMS:
- Restaurant
  - Annual Atlanta Chicken Coop Tour
  - Egg grader
  - Youth 'chicken coop' mentoring
  - Chicken coop consultations



EXTENT:  
550 sq ft chicken coop  
7,500 sq ft restaurant  
45,000 sf ft parking

ACCESS:  
Daily, 11 AM to 1 AM

MEMBERS:



## Narrative Manual's Tavern

“The genesis of an urban agriculturalist”

How does one become an urban agriculturalist, not just a gardener, but an agent or catalyst for an emerging urban food system? There are likely as many paths as there are individuals. One of the most inspirational stories from this Atlanta sample is the case of Brian Maloof, owner and manager of Manual's Tavern perhaps the city of Atlanta's ultimate third place, and a fixture of Atlanta's cultural and political scene, especially in its democratic incarnation. In Maloof's words, a deeply spiritual man and a devout Christian, he was guided down this path via prayer and meditation. But as a tavern owner, of course prayer and meditation included a drink or two.

Manual's Tavern began as a bar in 1956, founded by Maloof's father. As devout Catholics the bar always had a spiritual twist. Whenever a new employee interviews for a job Maloof makes sure that it's understood that Manual's is run by people who “use prayer and meditation to make their business decisions.” In Maloof's words, “It's a family run place. It's truly a family run place and our influence is truly based on our faith. That's what makes us run different. It sounds strange to say this but it's a faith run bar.”

Manual's Tavern, however, has been evolving, and food has now risen to two thirds of their percentage of sales. “I think my father's ear would start to smolder” Brian explains laughing, “but the reality is that we have become more of a restaurant than a bar.” Partly because of this change in his business, it deeply troubled Maloof that he knew little about food and agriculture. This lack of knowledge Maloof dubbed as food arrogance and when asked what the opposite of that may be, he suggested not just food awareness, but “precious food awareness”

As a bar focused business, even a faith based bar, Maloof had many alcohol based

business relationships. He had met with everyone from the master distiller at Jack Daniels to Lincoln Henderson of Woodruff Preserve. Since Manual's Tavern is a large and influential Atlanta business, seating 400 hundred and also lubricating Atlanta's political culture, Maloof had been a special guest at Budweiser and brewed beer at Sierra Nevada. "but what struck me stupid" Brian explains was "that despite becoming a restaurant with approximately 1500 covers daily, 1500 plates of food, I didn't know the name of a single farmer. That really bothered me."

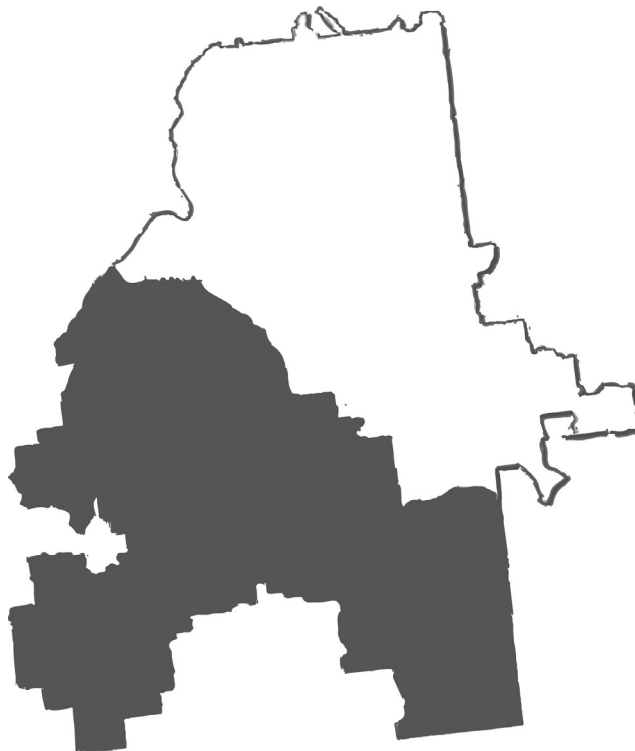
Manual's Tavern "spiritual experience" as Brian describes it, since he sees the establishment's ultimate mission as providing customers with a reviving and even spiritually fulfilling breaking of bread in their community, begins as soon as one steps inside. Manual's is an old building but not a particularly attractive one. It's quite inside, but the atmosphere is relaxed and its welcoming spirit is felt immediately. The walls are covered, nearly floor to ceiling, with the kind of photographs one expects from a family run business firmly anchored in its community. As a fixture of Atlanta's democratic political culture, and Maloof's roots, a proud portrait of John F Kennedy also hangs over the main bar.

Geographically Manual's Tavern sits in an interesting and rapidly changing slice of Atlanta's eastern flank. It is at the corner of Freedom Parkway and Highland Avenue with The Carter Presidential Library around the corner. This is where the old street car neighborhood of Inman Park meets the bungalows and garden apartments of the Poncey Highland and Virginia Highlands neighborhoods of Atlanta, or at least what remains of those neighborhoods. In the 1970's Georgia's powerful DOT planned to wipe out a significant chunk of both areas with a highway. They had already plowed through 500 homes before being stopped with protesters chaining themselves to DOT bulldozers. (Freedom Park Conservancy, 2014) Under pressure the high way plans were nixed, what

had been destroyed was turned into a park and parkway. Additionally, the nearby Carter Center which includes the Jimmy Carter Presidential Library, was plopped in the middle of it all. Through all this urban renewal style destruction establishments such as Manual's Tavern were fortunately able to soldier on. For years the neighborhood was a bohemian hotbed, kind of like Atlanta's Greenwich Village. The Martin Luther King memorial is also just a five minute drive from Manuals. While the King Center sits at one end of the DOT parkway, now dubbed Freedom Parkway in ode to Atlanta's civil rights movement, Manual's Tavern sits at the other end.

Where Freedom Parkway ripped its path across the city is also right across the divide where Atlanta's cultures traditionally have collided. It has been a sort of ecotone between white and black, rich and poor. The following diagram is produced from data provided by the Atlanta Regional Commission as well as urban planning demographer and author of *The Creative Class*, Richard Florida. (Florida, 2014) **[Figure E1.D]**

**Figure E1.D:**  
Atlanta's racial and  
economic divide



Wealthier Atlanta neighborhoods are more North and East of the parkway and Manual's location and the less well-off and historically African American neighborhoods are mostly to the South and West. While the Atlanta Regional Commission displays this divide in traditional demographic terms such as race or income, Richard Florida depicts this divide according to the types of jobs residents of these two halves of Atlanta tend to occupy in its thriving knowledge economy. The Tavern lies in the zone, a diagonal slash across the city, where for years these two halves bumped up against each other. At Manual's Tavern it is also possible for both halves to come together. It is a quintessential example of sociologist Ray Oldenburg's third place, meaning neither a working location nor a residential location but a place where residents of all types rub shoulders and create civic life. (Oldenburg, 1989) Manual's Tavern, however, could be described as not just a third place for its immediate neighborhood but as a third place for the entire city of Atlanta.

While not all aspects of this divide in the city of Atlanta are laudable, Manual's Tavern is a positive outcome of the cultural ferment along this urban eco-tone. The tavern also represents the cultural vibrancy of this area, which continues today with leaders such as Maloof spearheading a different kind of urban cultural change, an urban food growing culture, which in Manual's case has manifested into a rooftop chicken coop of 550 square feet. Unfortunately super gentrification has arrived in the area turning even the smallest and simple bungalows of the area into half a million or even more dollar value homes, but at least Manual's will likely soldier on.

The shift toward less "food arrogance" came for Maloof in 2008. "I was struggling and the downturn of the economy that took place had a huge impact here, for Atlanta and this business both." Maloof explains, "Discretionary spending just fell off to nothing. You know we have a lot of chairs here and I've got to park a lot of asses in a lot of chairs to

make this place work.” In this economic crisis, Maloof did what he always does when he needs guidance: prayer and meditation. Rather than looking deeply at his accounting books, Maloof looked inward praying for an answer to being a better owner, employer, and a servant to everyone, both customer and employee. The answer he received from this process was--chickens. One can almost picture Maloof’s large physical presence standing on the roof of Manual’s Tavern like Moses on Mt Saini, but instead of the commandments the word handed down was to build a chicken coop on that roof.

When he told his staff some of them had thought that he, in his own words, had “really crossed that first line of insanity” but having worked with Maloof they gave him the benefit of the doubt. Establishment of the chicken coop on the roof was no simple task. It took a year of labor, of Maloof learning everything he could about chickens from heat tolerant varieties that would thrive on the roof, to searching for cheap materials such as discarded lumber and pickle buckets from which to make the coop. Maloof also wanted the chickens to be as natural and organic as possible, and he even went out of his way to receive non inoculated chicks, which resulted in a greater rate of chicken attrition.

“I raised them in the garage of my home.” Maloof explains, “I handled them every day and it just became a joy, and along the way I just learned so many things about life. Even little silly things about life. I learned about where all these phrases that we use throughout this country, like hen pecked, feathered nested, you know different things that you hear, and it all made sense to me, you know rules of the roost, and those sorts of things...I worked my ass off for those chickens, for months. I mean worked for months before I ever saw any reward for my labor. And that first day that egg came, I can tell you exactly when it was, the Friday after Thanksgiving 2013, that first egg was laid! I can remember holding it in my hand. It was such an enormous revelation to me, how special this was. This egg was 7 to 9 months of my work to get here.”

When asked if this process was economic Maloof laughed, “Oh god, it’s not economical at all! But is it the right thing to do? I’m absolutely convinced that it is.” The efficiency of a chicken is based on food consumption to egg production. The industries premium standard is to produce about a dozen eggs from 5 lbs. of feed. Maloof’s heat tolerant rooftop chickens are well outside that range, consuming considerably more feed than 5lbs to produce 12 dozen eggs. But Brian says he’s fine with that, because the chicken coop’s primary benefit isn’t necessarily efficient food production.

Manual’s chicken coop is now well established and its adult hens and one rooster are thriving. Finally its non-egg benefits are making themselves clear. The coop has set a series of changes in play, cascading outward from Brian Maloof’s “crazy,” prayer inspired and infectious pure chicken joy. The first domino to fall was Maloof’s own personal transformation, which he describes as no longer taking creation’s bounty for granted. Maloof describes this personal process as a replacement of his “food arrogance” with what he calls “precious food awareness.”

Next, “precious food awareness” began spreading to his employees starting with the egg lady, who cooked most of Manual’s omelets on weekends. She noticed all kinds of things. The roof top chicken eggs were physically different. The shells were harder to break but once cracked the yokes were richer and thicker. The color was different and so was the taste. Maloof swears this is due to his “all-natural organic diet from birth, no steroids, and no hormones, no anti-biotic of any kind” regimen. Kitchen staff also began taking scraps from food prep up to the chickens and suddenly less food waste, an unexpected and potentially economic impact began to accrue. “During our prep if we are peeling onions, then we take the onion peel that we were going to throw away up there. They are eating the stuff that we were going to throw away and they produce in exchange this magical perfect protein that is a perfect protein in every way, and it comes from food scraps and

flies that they catch and it's just fascinating that that even happens.”

The following ripple out was to the staff outside the kitchen. “Absolutely everyone knows what’s going on up there. And there’s been, I can’t tell you, you couldn’t put a price on what those chickens have done for morale around here, and what it has done for a level of pride for the people that work here.”

Since Manual’s is a cultural hub, the city’s “third place” potentially feeding 400 customers nightly, many of those individuals began to notice as well. You can actually see the coop on the roof from the street and word began to spread. As Brian explains this ripple, “Somebody an employee somewhere says, I’m working at Manual’s and they’ll tell me ‘you know I told someone I was working at Manual’s and the first thing they said to me was Oh you’re at that place that has those chickens on the roof!’” And it starts a conversation.”

Not all ripples were one directional out into the world, another ripple went back the other direction, as Maloof began raising chickens at his home as well and bringing the concept to his neighbors. Brian also began realizing he was part of a growing body of citizens who were growing their own. Indeed, walking among the Poncey Highland bungalows behind Manual’s Tavern one can here the occasional rooster and see the occasional chicken coop and Maloof began to notice these fellow chicken raisers as well. They had been there for a while, but now, with his precious food awareness he could truly see them. Brian Maloof began realizing he was part of something much bigger. “You know backyard chickens are a huge deal.” he explains still sounding in awe. “I mean it is an enormous deal. And you can go right down the street here, at the hardware store, and they have chickens at the hardware store that are in a nest! It’s an amazing thing. Right here on William’s Mill [street] there are chickens over here.”



Since starting his chicken coop Maloof is finally getting to know local farmers, besides being one himself. He now knows farmers not just whisky distillers and brewers. He has also become a certified egg grader and has even started helping other organizations set up their own coops, such as a local center for homeless teenage boys, which Maloof helped establish a coop for the youth to manage themselves.

Moreover, Maloof's new food awareness and practice is spreading beyond chickens. He raises his own eggs, and is licensed now and certified by the local department of agriculture to do so, and thus has no need of local eggs, however, many other products from beef to vegetables he is now sourcing from the local farm economy, something he had not done before his very personal and spiritual chicken awakening. Now his influential business is having a local multiplier effect on the Atlanta region. Studying the multipliers of Maloof's efforts would be an interesting economic study. Although it may not be the most cost effective strategy on his personal business ledger, Maloof's effect very well could be having a beneficial impact on the local economy. It would be interesting to bring in local economy experts such as Michael Shuman one of the founders of the BALLE the business alliance for local living economies to quantify the impacts of the tavern. (Shuman and Poole, 2012; BALLE, 2013) Unfortunately that is beyond the scope of this inquiry, but it is quite possible that Maloof could be creating customers and growing local economy that eventually circles back into his establishment, offsetting the upfront costs of his chicken coop and the other products he now has supplied locally.

As for next steps, Manual's is also moving beyond chickens with the planting of new fruit and vegetable garden as well. In the summer of 2014 the tavern had established a garden along the edge of its back parking lot. It is essentially a long strip of tomatoes plants, peppers, herbs and fruit trees between Manual's bungalow neighbors' back fences

and the tavern's smaller of its three parking lots, the one that sits directly behind the tavern which, naturally, Maloof reserves for two special sets of clients retired clergy and electrically charged vehicles.

About his new garden efforts Maloof apologetically explains, "I wanted to see if it was possible. So now even though it's kind of been a pathetic attempt and even though we haven't really put a super focus on it, I know that it can work and so next year along that entire bank I plan on planting over 100 tomatoes plants and 50 bell pepper plants and jalapeno plants and fresh herbs. That's the goal." This new garden is also intricately intertwined with the chickens as their organic compost goes onto the depleted soils next to the parking lot, and the organic scraps from the food prep go back to the chickens in a virtual circle. Additionally, since there is more organic chicken manure from Manual's coop than Maloof can use, even on his new garden, a local composting company has started to collect it, thus sending Maloof's efforts into the soil, the vegetables, and the body and souls of surrounding neighbors.

But most of all Maloof describes all these changes as a spiritual as well as an educational awakening. "You would have had to walk this journey with me to comprehend all the little things we have learned and appreciated because of those chickens... You know one of the most interesting things to me that came about with these chicken was that I realized no matter what you do for a living, you are in the food business, every single one us. We need to be, every one of us needs to be because food sustains us, and if you are not focused on whatever you are eating and whatever you are nourishing your body with then you are making a horrible mistake. I didn't realize that until we had these chickens."

## Photo Voice Farmer D

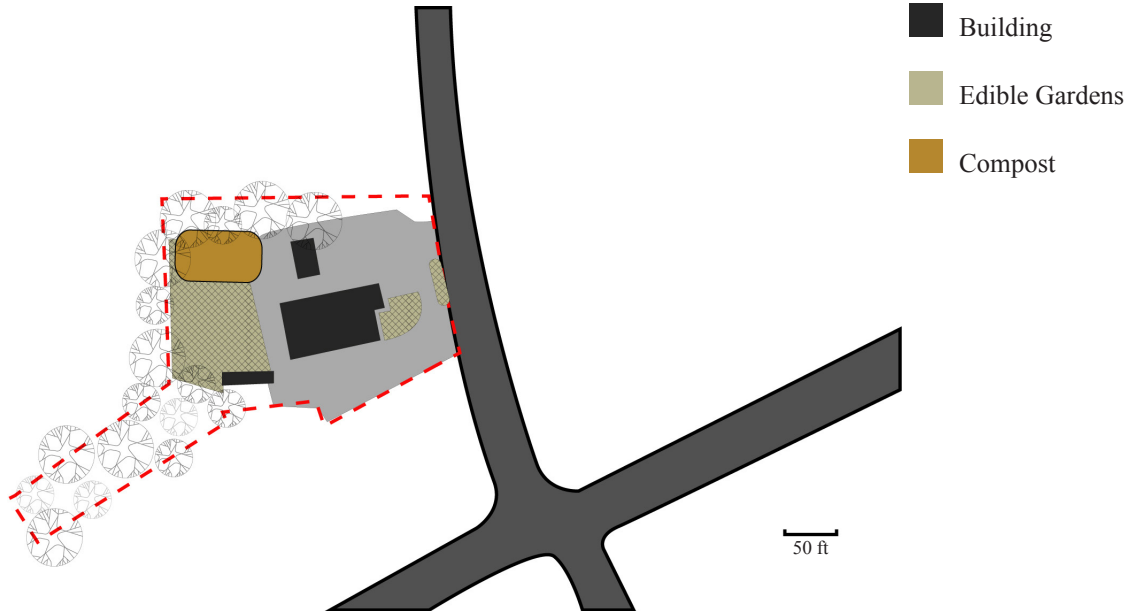




# Map Voice Farmer D

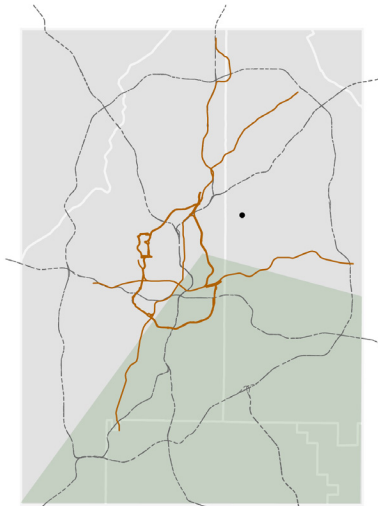
## SITE VISIBILITY & ECO-REVELATORY DESIGN

## MULTI-FUNCTIONS & LOOPS:



### PATTERN:

1 Flagship site; mosaic of private garden installations



1:15000

### LOCATION:

Briarcliff Road  
Private parcel



1:400

### PROGRAMS:

- Organic gardening sales
- Free edible garden advice
- Edible landscape consulting
- Edible landscape installations
- Edible landscape maintenance
- Composting services

### EXTENT:

Private garden acreage is unknown  
Flagship site, 1 acre

### ACCESS:

6 days a week  
9 AM to 5 PM

### MEMBERS:



## Narrative Farmer D

“Transforming sprawl into an edible urban mosaic”

Manual Tavern’s saga is the story not of a farmer but of a private gardener, or rather chicken raiser. Any study of urban agriculture should not overlook the private edible gardens of growers and tenders like Maloof and many others. Whether via backyard chickens or vegetable patches countless home owners today are opting to transform their lots into food production sites. As their numbers accrue, however, they transform not just their own homes but perhaps entire neighborhoods into a landscape of urban agriculture. In essence, they are transforming our cities from sprawl into an edible urban mosaic.

By some counts private home gardening may already be the most prevalent form of urban agriculture. In an extensive analysis of aerial photography of the city of Chicago, John Taylor at the University of Chicago determined that private gardens were three fold of public gardens. Taylor’s research after determining visual markers from known urban agriculture sites in Chicago used high resolution aerial images in Google Earth to determine the extent of urban agriculture in that city. Taylor identified 4,668 sites with the vast majority of those sites, 4001, being residential urban agriculture locations. Naturally, many of the residential sites were small, but when adjusted for area these residential lots at 158,876 square meters were three fold the 54,518 square meters of community gardens and urban farms. (Taylor, 2012)

In Atlanta, with its thick tree canopy, Taylor’s study would not be as easily replicated but one can assume that there is a large amount of private gardening going on in the Atlanta metro area as well, places like Manual Tavern’s parking lot garden and roof top chicken coop. These private gardens can be placed in back yards, side yards and now controversially in front yards next to the public right of way. As Taylor points out most studies focus on public spaces such as community gardens, when private gardens,

especially home gardens, have an overlooked and extensive potential for augmenting any local food system. Taylor also specifically calls out the potentials of “scaling up” this extensive layer of private urban agriculture. As a quantitative landscape study, Taylor does not shed light, however, on how this private lot agriculture system is coming into being. (Taylor, 2012)

Most of the individuals interviewed for this study, like Maloof, were urban agriculturalists at their homes as well as at the community garden, farm, or other entities which they were representing. And one organization that appeared repeatedly in the interviews when respondents were asked about private home based gardening in Atlanta was Farmer D Organics. Despite the name, Farmer D is not a farm but rather an edible landscape consulting and installation firm that got its start in Atlanta’s sprawl but now is offering its services around the country. On its website it bills itself as a “creator of farms for the earth and its people.” (Farmer D, 2013)

Farmer D has helped many private entities across Atlanta turn their landscaping into a more edible variety and as such is a good barometer of the extent of urban agriculture via private garden plots occurring in Atlanta. It is also a catalyst for that system. Farmer D’s impact in the aggregate is the many gardens it installs, but its flagship sites is decked out with a highly visible demonstration edible garden, a composting area, and an organic seedling store.

Its flagship Atlanta site is located in western DeKalb County, inside the perimeter as Atlantan’s would say. It is technically outside the city proper, but nestled in the wealthy former street car neighborhoods that surround the CDC’s sprawling complex and Emory University. Interestingly the plat of these neighborhoods was originally designed by Olmsted’s firm, but the bucolic suburban landscape envisioned over 100 years ago is now

clogged with strip malls and automobiles.

Briarcliff Road, the road Farmer D lines is a busy suburban arterial. Farmer D sits at the location of a former gas station and car wash. As the epitome of car culture this location seems an odd place for an organic farming store to sprout. The car wash facilities remains on site but has been reincarnated as an organic car wash, which at least tries to keep pollutants used by non-organic washes out of the nearby streets and eco-system. The rest of the site is dedicated to Farmer D's organic mission, and the car wash shares a lobby with an organic gardening store and the offices of the Farmer D operation in Atlanta. The site is a fascinating example of a new order taking seed right in the car centric carcass of the old one. One must fight the traffic to get there, and the left turn into the site is daunting, but the site itself is a little green oasis onto of a parking lot.

Surrounding the adapted building and car wash are demonstration gardens and seedlings for sale and the an area in the back have been turned into an organic composting operation with piles of rich compost stretching across defunct asphalt. While it is a business it almost has a community center feel. Patrons getting their car washed can leisurely sit in the waiting area on comfy green lounge chairs while reading about the principles of organic gardening and Farmer D's story, and it wouldn't take much to turn the site into a mini food park where clients could walk and recuperate in nature just as Frederick Law Olmsted intended of parks, since the site is sprinkled with the natural wood benches Farmer D is also known for hand crafting and selling.

The Founder of Farmer D, Darren Joffe, recently moved to California to manage the Leichtag Foundation, a sustainable community and Jewish heritage site, so I sat down with Joshua Tabor who manages the Flagship Farmer D site on Briarcliff Road in Atlanta. Tabor manages the garden center as well as business aspects of the consulting part of the

business. Before coming to Farmer D “I did a lot of landscaping and garden design and personal gardening for people in Atlanta,” Tabor explains. “I eventually went and worked with a hydroponic supply company for four years and then came to Farmer D because I missed soil,” says Tabor. Like Maloof, Tabor also is an avid home gardener but instead of chickens Tabor has become known for its herbs. Tabor is a member of the American Herbalist Guild and according to the reading material one finds in the dual organic car wash and garden store lounge he “has a specific passion for herbs, in the garden, in food or in a cup of tea.” Through his photo voice Tabor snapped pictures for me of the many herbs for sale on site. Selling but also educating about Herbs and other edibles “is one of the things we do here at Farmer D,” Tabor explains. “We show people how they can grow their own food and how they can contribute to the good food movement, you know organic, sustainable, healthy eating.”

While Farmer D, through its founder Joffe has expanded to consulting for larger operations and institutions across the country they still install and manage many private gardens in Atlanta. According to Tabor they do private edible installations for a couple of dozen local clients every season. These lots are typically a quarter acre or less. Often they are the standard 50 by 100 foot lots sizes found in many American suburban locals.

The main way Farmer D, however, catalyzes the private edible garden system in Atlanta is perhaps not through its installations but through the conversations it has with the countless people whom come by the Farmer D garden store on Briarcliff Road. Unfortunately, Tabor did not provide specific numbers on these conversation, saying only that the number of clients looking for edibles to plant in their home gardens is in the hundreds. Not all of these clients buy something and therefore the number of these interactions is not calculable, but Tabor explained that the business tries to help these people, whether or not they make a purchase. “One of the things we are trying to do with



this site is to get people to visualize their own lifestyle.” Tabor explains. “So we have this site on Briarcliff Rd...I think education is one of the biggest things that we do. Even on a micro level. Every customer that comes in has a number of questions that need to be answered before they are comfortable enough to grow food for themselves.”

I asked Tabor if he felt the site was the best location. “It really is the ultimate in car culture here. It really is one of the worst intersections in the city, I feel.” Tabor opined, then unprompted he began going through a litany of bad intersections that make up the tangle that is sprawling Atlanta. “There are a couple of intersections that I think are particularly terrible.” Tabor eagerly shares. “Briarcliff and Ponce de Leon is an awful intersection. Memorial and Mooreland is a really bad one. Ponce and Boulevard is a pretty terrible intersection, and then Freedom Parkway, Freedom Parkway and Boulevard! So yeah this is one of the worst ones in Atlanta. Well, Atlanta south of the Buckhead area” Tabor chuckles, “because Atlanta is chock full of bad intersections!”

The Farmer D experience, even its location along the sprawl of Briarcliff Road, poses an interesting question for sprawling suburbia not just in Atlanta but across the country. What can become of these locations? Urban design guru Ellen Dunham Jones and nationally renowned Architect out of Atlanta’s Georgia Tech has proposed retrofitting these locations for more density and walkability in her book *Retrofitting Suburbia*. (Dunham-Jones and Williamson, 2011) The Farmer D location inside the Atlanta perimeter and between dense mid-town and the CDC complex is probably a good location for a corridor retrofit. This would mean that the Farmer D gardens are actually better candidates for dense housing rather than dense edible landscape. Slap a street car on Briarcliff and then intensify the site with urban style development and the area could easily become a city. But there are plenty more arterials the Farmer D store could re-inhabit, and clearly not all roads have the urban potential of Briarcliff, what is to become

of these arterials, of this un-urbanizable suburbia?

While many of the suburban strip malls could become denser many will not, and the tracts and tracts of single family homes will likely never be converted into true cities. Many experts are now questioning what will become of these places as the low tax base of the declining sprawl can no longer cover the maintenance costs or debt of the roads and other expensive infrastructure around it. (Marohn, 2012) Will these places devolve back into degraded landscape, where foundations and vinyl siding parcel by parcel become abandoned and covered in kudzu and saplings, or are there other options? One possibility is to more intensively farm these former single family home sites. But in the aggregate or one by one these lots are not likely to become the many arced farms of yester-year. If they are to be farmed it will more likely be through the organic and intensive horticulture practices experts like Tabor promote at Farmer D.

Indeed, the 100's of client's asking for advice from Tabor and purchasing herbs and tomatoes plants have clearly opted for, at least in a small way, this option by converting their formerly ornamental 50 x 100 ft. lots into something more productive. And as more of them exercise this option, their actions become more visible and the system expands.

More visibility of this suburban option is an important goal of the Farmer D operation according to Tabor. "From Briarcliff back you have the display food garden which we change out seasonally so people can see that even out there on that busy road you can grow some food. *It's all about visibility*" he explains. "So not only are they going to come in and get great costumer service but they need to see things that are going to stimulate them, both on an emotional and physical level. Our mission is basically that we're trying to encourage people and to facilitate and empower people to grow their own food and do things that are good for themselves and for the environment."

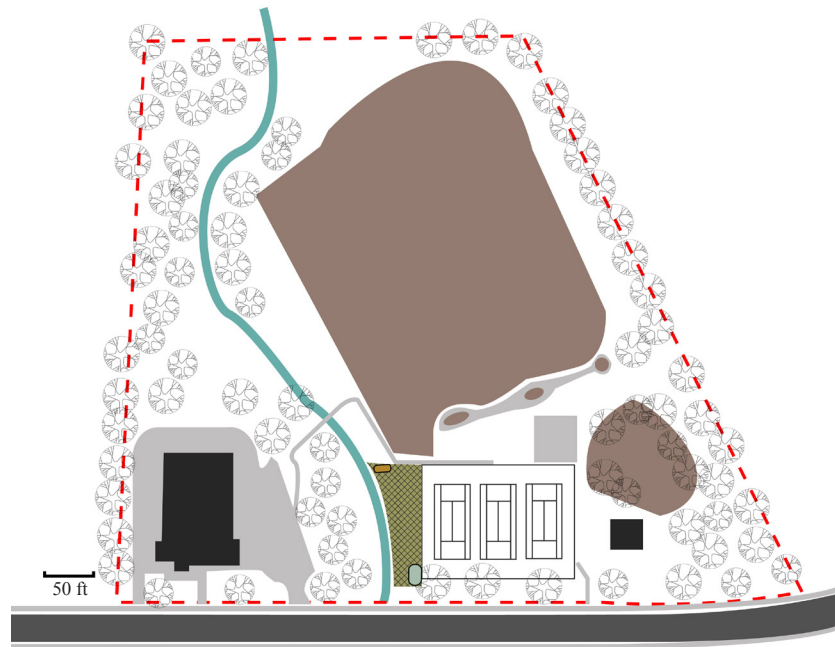
## Photo Voice Park Pride, Peachtree Hills





# Map Voice Park Pride, Peachtree Hills

## SITE VISIBILITY & ECO-REVELATORY DESIGN

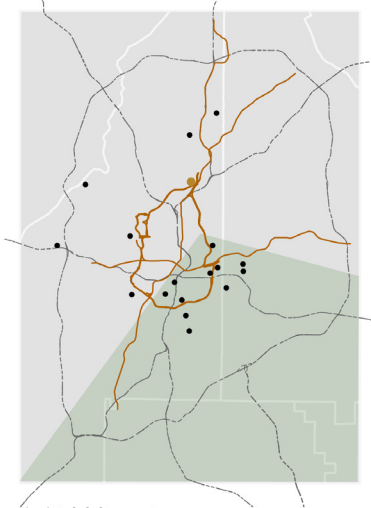


## MULTI-FUNCTIONS & LOOPS:

- Building
- Play Area
- Compost
- Water Catchment
- Edible Gardens

## PATTERN:

1 garden in network of 20



1:15000

## EXTENT:

Peachtree Hills Park 8 acres  
Community garden 0.10 acre

## LOCATION:

Public open space network



1:400

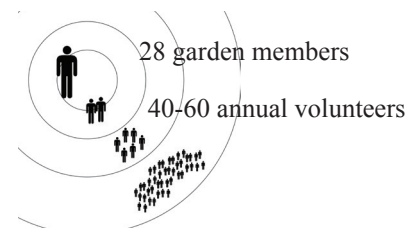
## ACCESS:

Gated garden

## PROGRAMS:

- Passive education
- Food production for the homeless
- Volunteer work days once a season
- Gardening consultations with local urban agriculture experts (Wylde Center, TLW, ALFI)

## MEMBERS: Fresh Roots



## Narrative Park Pride, Peachtree Hills

“Private garden, to right of way garden, to community garden”

When most individuals think of food growing in cities, beyond the private garden probably the other most common conception is of the neighborhood community garden. Private gardens and community gardens are probably the most common types of food growing in most cities, as Taylor has shown in Chicago and other studies such as the *Five Borough Farm* report has extensively documented in New York City. (Cohen and Reynolds, 2012) As for Atlanta, The Atlanta Community Food Bank estimates that in 2014 there were 325 active community gardens in the metro. (ALFI, 2014) Historically these gardens have been in the older communities and neighborhoods inside Atlanta’s perimeter road, or ITP as locals call it.

Community gardens require land that is publicly held or whose owner allows access. Finding suitable land can be difficult due to land tenure obstacles alone, but Atlanta’s many wonderful trees also add a natural obstacle to community garden aspirations. The city has one of the largest urban canopies in America, earning it the reputation as a city in a forest. Atlanta’s canopy is extensive because it sits land locked in the foothills of the Appalachian Mountains. At 1050 feet above mean sea level the city has the highest elevation of cities east of the Mississippi River. The city also straddles the Eastern Continental Divide, which is actually Peachtree Street, the city’s premier street. (USGS, 2013) Atlanta’s skyscrapers tend to march up Peachtree along this ridge forming a grand urban spine. Water running off the east of Peachtree Street flows into the Atlantic Ocean, while water running off the west of Peachtree goes into the Chattahoochee River basin and ultimately into the Gulf of Mexico. Atlanta’s many trees suck up a great deal of this water before it enters the watershed. Through their shade they also perhaps reduce the number of private edible gardeners.

Most gardeners are interested in tending perennials, such as tomatoes and peppers, and without proper sun these items aren't easy to grow. Peachtree Hills Community Garden's founder Anne Stanley, however, demonstrates how this obstacle can be overcome by an avid vegetable gardener. Her experience is also an instance of how private gardens can scale up into community gardens.

Stanley's story does not start with a back yard however, and also demonstrates why private gardens, even if they are the dominant type of urban agriculture in a metro area are not the only option one finds in most cities. In 1978 when Anne Stanley graduated from nursing school and moved to Atlanta to work for Emory's medical facility she found a little apartment. Stanley didn't know why, perhaps it was her interest in health, perhaps something else, but she knew she wanted her own vegetable garden. The problem for Stanley is she had nowhere to plant one. She didn't own her own home nor did she rent a house so there was no yard in which to plant her vegetables. "It was in a little tiny apartment complex. Not too far from here. It has been torn down, but it was a real small apartment complex" Stanley explains.

From her description one can imagine it was the standard garden apartment complex of that era, with two story boxes scattered across a landscape of very impervious parking lot and mostly impervious green lawns replacing Atlanta's forest. It was in one of those lawns where she took the initiative and started her first vegetable garden. As Stanley's prospects evolved she eventually moved to a large complex near Emory where residents actually had spaces allotted for growing flowers. Stanley of course grew vegetables.

"The apartment I was going to move into had a balcony and then stairs leading to this long strip of sunny land where people had flowerbeds. And there was nothing outside my apartment; it was just grass, and I knew right then that I was going to plant a vegetable garden. So I tilled that area up!" Eventually Stanley did purchase a home of her own. She

chose Atlanta's Peachtree Hills neighborhood in South Buckhead, a prewar neighborhood of bungalows and consequently a well-developed urban canopy. "I tried to grow tomatoes in my yard, but it was just too shady, but I kept trying year after year and I would get a few tomatoes" she explained.

A few years ago, while strolling with a friend along Peachtree Hills canopy covered streets, Stanley got the idea of "how fun it would be if we could get a group of people together to have a neighborhood garden." At the time one could not grow food in parks, so again she took the initiative, walked the neighborhood with a mission this time and found a home with a very sunny side lot, a valuable asset for an avid vegetable grower. "So we knocked on his door and we asked 'can we rent your yard to grow vegetables?' and he said 'yeah!' and so we dug up his side yard to grow vegetables."

Stanley and her gardening partner, now a community of two, gardened the neighbor's side yard for a couple of years until legislation was passed that did allow for food growing in parks at which time Peachtree Hills Community Garden was inaugurated on the edge of Peachtree Hills Park. It is now a member of Park Pride which oversees twenty such community gardens inside parks owned by the City of Atlanta. (Park Pride, 2013)

Of all the districts in Atlanta, however, Buckhead, Atlanta's most expensive quadrant and also least endowed with open space, has few places for parks and thus Peachtree Hills is a rarity of park based food production in this part of the city. Despite the hurdles, however, from Stanley's persistence a community garden was born, which had gone through a several iterations from an unsanctioned garden apartment vegetable garden, to sanctioned garden apartment vegetable garden, to a nascent community garden in a visible (an interesting point to be discussed later) neighbors side yard, to a traditional community garden in a public park, and finally to a member in a larger network of such gardens.

As explained by Ayanna Williams, director of the city of Atlanta's community garden program in its public parks, the network shares a number of resources which make it a more robust system of food growing in the city. "When a community is interested in building a community garden we help them work through all the steps, from site plans, to garden build volunteers, prep work, and coordination with the parks department. ... We have also received funding in the past for supporting the gardens, so we are able to give grants for upgrading the gardens, whether it be for additional beds or putting up a fence, or tools or that kind of thing," explains Williams. Once embedded in the Park Pride network, the Peachtree Hill Community Garden has taken full advantage of the network with food systems ecology instruction assistance from Atlanta urban agriculture luminaries such as Fred Conrad from the Atlanta Community Food Bank and Rashid Nuri of Truly Living Well.

"Fred Conrad has just been instrumental in helping us." Stanley glows when she talks about the connections to Atlanta's greater food system community she has made first through her side yard and then through the Peachtree Hills Garden. "He tilled up our neighbor's side yard for us. We didn't know if that would be permitted. But he indicated he would help with anything to help start a community garden and he viewed that as a neighborhood garden. So he came out on a rainy day and tilled that up for us and single handedly on one day tilled the ground, built our beds, and filled them with soil. He has just been a mentor and teacher."

Now that she has established the larger garden at Peachtree Hills Park, it has become an integral part of her life. "I don't know what I would do without the community garden" Stanley remarks enthusiastically. "It just gives me a lot of joy. I think about it a lot. I work down there a lot. I love being down there."



Moreover, Stanley not only physically builds her involvement with Atlanta's local food system by growing food in her garden, she also incrementally spreads knowledge of it amongst her neighbors and thus grows the awareness of the food system and her role in it. "The tennis players come in and they want to know about it." She explains. "The people walking their dogs come in and they want to know about it. And it has really given me a sense of pride to have people just wander in and say 'tell me about the garden' and to be able to say 'I'm Anne Stanley; nice to meet you, I started this garden.'

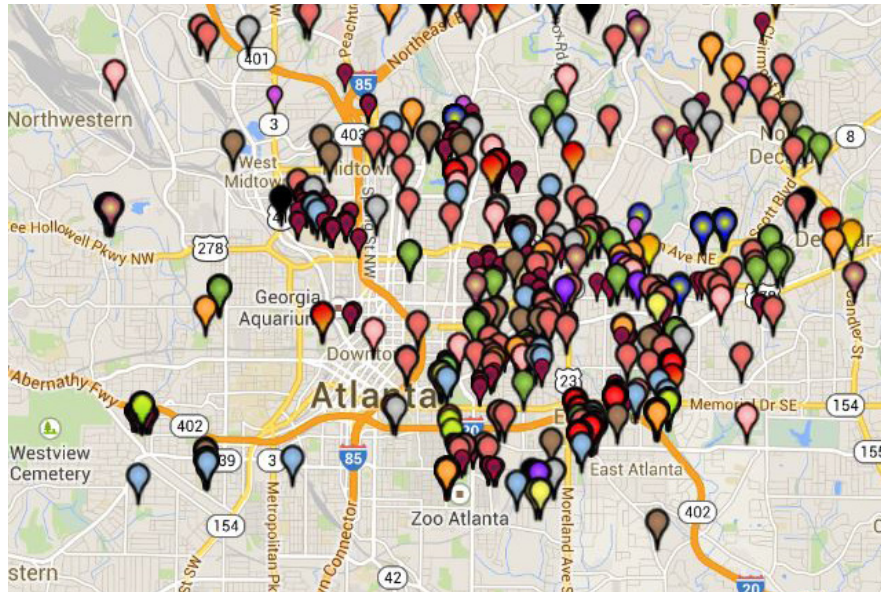
## Photo Voice Concrete Jungle





# Map Voice Concrete Jungle

## SITE VISIBILITY & ECO-REVELATORY DESIGN

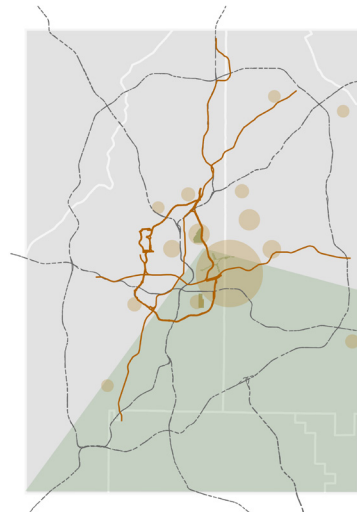


## MULTI-FUNCTIONS & LOOPS:

- Food Forest
- Edible Gardens

## PATTERN:

1500 trees concentrated in SE



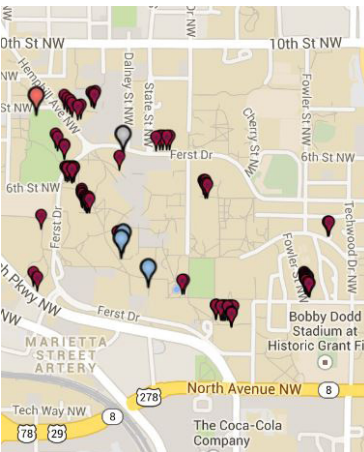
1:15000

## EXTENT:

1 urban farm  
1500 urban fruit trees  
12 schoolyard orchards  
5 formally planted orchards

## LOCATION: (City)

Private and Public Spaces



1:400

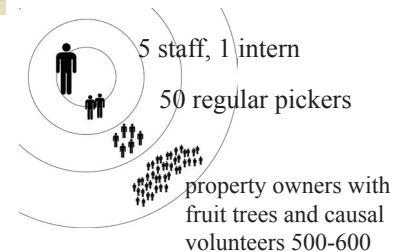
## ACCESS:

Most trees on private parcels  
Many trees accessible to right of way

## PROGRAMS:

- Food production at Doghead Farm
- Volunteer picking sessions of Atlanta's fruit forest
- Donations to food organizations, sales of unwanted or excess fruit
- Tree literacy, "fruit eyes"
- Annual end of season jamboree

## MEMBERS:



## Narrative Concrete Jungle

“Private gleaning to public gleaning”

Craig Durkin’s personal story of a food aficionado wanting to take his food interests to a higher level of personal and community involvement mirrors Anne Stanley’s in many ways. Craig Durkin is a 20 something Georgia tech engineering grad, who’s background had little to do with food or nutrition, but like Stanley deep down he knew there was something fundamentally enjoyable about being involved with food production. Durkin’s story, however, representing a different generation and arguably a more food system aware era, has a more current twist. Rather than a traditional vegetable grower ratcheting up to a traditional community gardener, as co-founder of the Atlanta organization Concrete Jungle, Durkin could be called a private gleaner ratcheting up to a community gleaner.

Darrin Nordahl’s book *Public Produce* describes the concept of gleaning as the age old practice of putting food on the table by picking up grains left after a harvest. It was an accepted social practice for feeding the needy in many agrarian communities. Nordahl theorizes that this age old practice could be modernized and alleviate hunger and the need for fresh local produce by providing inhabitants of cities the opportunity to forage off of urban public lands and streets, which is clearly a different form of food in public space than is promoted by Atlanta’s Park Pride. (Nordahl, 2009) By picking the fruit in abandoned lots along streets as well as from property owners who do not value it, Durkin’s Concrete Jungle, however, is bringing gleaning into 21st century Atlanta in practice rather than just theory.

As a tree city Atlanta also has a lot of fruit and nut trees and Craig Durkin’s organization has made its mission to harvest those neglected fruits and bring them to the needy, but also just to change their view of food and life and the lost joys from agrarian tasks like

picking fruit. For Durkin, gleaning is all about abundance. “We just want to have tons and tons of fruit trees everywhere,” he says and when asked why, he captures the essence of the experience described by Dahl. “It’s kind of like an abundance thing to be able to walk around and say, ‘hey here’s an apple!’ and you know – ‘pluck’ and ‘delicious!’ ”

Durkin’s gleaning started as fun thing to do with a friend, and much like Stanley’s vegetable garden initially ratcheted up into a side yard shared with a friend and a neighbor, Durkin’s gleaning ratcheted up when he and a friend started gleaning from Atlanta’s many abandoned side and back yard fruit trees. In his words “A friend of mine and I, we had been picking fruit around the city for many years, and we had been picking it primarily because we just noticed it was there. So we would go all over the city and pick apples and buy cheap freezers off of Craig’s List and then at the end of the summer we would freeze them or thaw them and then make cider out of them and have a big country jamboree with trampolines and dogs and it was a lot of fun. We still do it.”

In 2008 they formed an organization dedicated to gleaning and aptly christened it Concrete Jungle. As the organization became noticed amongst Atlanta’s urban agriculturalists it was taken under the wing of one of the State’s premier local agriculture organizations, Georgia Organics, who serves as Concrete Jungle’s fiscal agent. “They kind of umbrella us under their 503C status,” explains Craig, “You know, we funnel grants through them. They take an administrative fee...so if we were going to get a big grant for something it would be made to Georgia Organics, and then they would pass it on to us. So yeah, they have some amount of oversight of us but primarily they provide the tax benefit so that people are more encouraged to donate to us and they have a lot of background and experience in seeking out donors as well.” In this way one can see some similarities between Concrete Jungle’s relationship with Georgia Organics and Peachtree Hills’ relationship with Park Pride.

As for the location of the fruit bearing trees of Concrete Jungle's focus, they are generally in front or side yards *in view* of discerning eyes such as Craig Durkin's. "We pick anywhere basically we can," explains Craig "so it will be on private property or public property or commercial property, which we consider as kind of as a mix between public and private... basically no one in Atlanta who has a fruit tree in their front yard wants to have anything to do with it . So, we will knock on their door and say, 'Hey, we are from Concrete Jungle, we pick fruit from all over Atlanta and donate to local homeless shelters.' And sometimes we don't even have to finish our pitch. As soon as they here we pick fruit they say 'take it! Get it out of here. It makes a mess in the yard, squirrels come, and it brings wasps.'"

As a Park Pride member Peachtree Hills is required to donate some of its food to Atlanta's food insecure and is forbidden to sell food since its sits on public lands. In this way Peachtree Hills has some mission similarities with Concrete Jungle, since the vast majority of the produce gleaned by Craig and other Jungle members goes not to their end of season jamboree nor to restaurants or farmers markets, but mainly to Atlanta's food needy. Other similarities between Concrete Jungle and Peachtree Hills personal stories are the initiative taken by both Stanley and Durkin to approach neighbors about a food growing resource and from there, folding that resource back into the food growing system. In Stanley's case it was a sunny side yard, a special spot under Atlanta's thick canopy. In Durkin's case, however, it was the canopy itself, or at least the fruit producing part of it.

From there, however, the two organizations part ways in their stories. Whereas Peachtree Hills remains a traditional community garden, and a smaller one within the Park Pride network, Concrete Jungle's gleaning has now spread to multiple locations across the city, and it is therefore scaling up not just from an individual gleaner to a community of

gleaners, but from a community of gleaners to a community networking, harvesting, and now planting new trees all over Atlanta. When I interviewed them Concrete Jungle was taking initial steps from simply being a gleaner of the canopy to a caretaker of it.

Sadly Atlanta's canopy has been suffering under years of neglect and under appreciation. A 2001 study by the organization American Forests found that Atlanta's canopy declined from 48 percent to 38 percent forest cover from the 1970's to the 1990's. (American Forests, 2001) This loss of tree canopy has also resulted in increased storm water problems, since there are fewer trees to filter it. Additionally, a good number of Atlanta's trees are 100 or more years old and thus reaching the end of their normal lifespan. (American Forests, 2001) Atlanta could be on the verge of losing many trees, and thus organizations like Trees Atlanta and the city government are planting and distributing trees across the city as well as regulating their removal and replacement. Concrete Jungle, however, so far is one of the few organizations recognizing the food producing value of many of these trees. Perhaps they have arrived on the scene just in time to ensure that many of those tree replacements continue not just Atlanta's reputation as a city in a forest, but as a city in a *food forest*.

Food Forests are a very old type of agro-forestry well documented in the tropics. Anthropologist Jarred Diamond documented food forests in the tropical jungles of Papua New Guinea for example. (Diamond, 2005) Traditional food forestry is not necessarily a conscious endeavor, since they appeared via the process of people incrementally improving their immediate environment by selecting for forest tree and vine species with edible and medicinal qualities. As author Charles Mann points out in his text *1491: New Revelations of the Americas Before Columbus* there is some archaeological evidence of Brazilian rain-forests being created or at least enhanced in this way, as one of humanity's most impressive food forests. (Mann, 2005) Fast forward to the 20th century

and permaculturalists and other alternative gardeners are bringing the concept more consciously into the pallet of modern horticulturists. English horticulture expert Robert Adrian de Jauralde Hart for example pioneered the food forest concept quite deliberately in temperate locations such as England. (De J Hart, 1991)

Food forests tend to be thick with edible plantings at all levels of the forest from canopy, to tree trunk vines, to forest floor under story species. This is an ancient poly-cultural planting wisdom that has yet to be fully reintroduced in places like Atlanta. The first step towards any food forest cultivation, however, is simply recognizing that an urban canopy can even be edible, which is an appreciation Durkin's group is cultivating. They call this art acquiring "Fruit Eyes," where by just picking fruit one begins to notice both the prevalence of existing fruit trees as well as the potential for fruit growing everywhere, but more on that later.

The value of growing fruit trees was a concept not lost on earlier Americans, whether or not their edible trees could be called a food forest or were planted more as mini urban orchards or single ornamentals. Durkin points out that most of the edible trees in Atlanta were planted by previous generations with a different idea about what urban landscapes should be. "A lot of these trees came from when our grandparents were living in Atlanta and it was much more common for you to grow your own food and have a little garden" explains Durkin. He also believes that times are changing. "There's a resurgence of what people are interested in. It [interest in food growing in cities] may have skipped a generation with our parents but I definitely have seen it with my contemporaries."

At the time of the interview Concrete Jungle was struggling with how to appropriately ratchet up its organization and take advantage of this growing interest in all forms of urban agriculture including their gleaning focus. They have planted perhaps a dozen



orchards in school yards through the special efforts of Concrete Jungle member Robbie Astrove. They have also planted about a dozen sanctioned fruit tree orchards in the public right of way, which is certainly an altogether different kind of urban agriculture. Additionally they started their own farm, Dog Head, to meet some of the more traditional and non-tree related produce that some of the food security organizations they donate to require. But the vast majority of their ‘urban agriculture’ although that term begins to break down when the practice is mainly gleaning, are the hundreds of trees the Jungle community has found, harvested, and folded back into Atlanta’s local food system.

The Concrete Jungle website in 2014 claimed that over 16000 lbs of food, mostly from these trees had been donated to the food insecure in Atlanta. And Concrete Jungle’s map, of which Craig is extremely proud, documents over 1500 trees. “It’s like you see this [Concrete Jungles Tree Inventory] map. And you go ‘wow this stuff grows everywhere!’” (Concrete Jungle 2013)

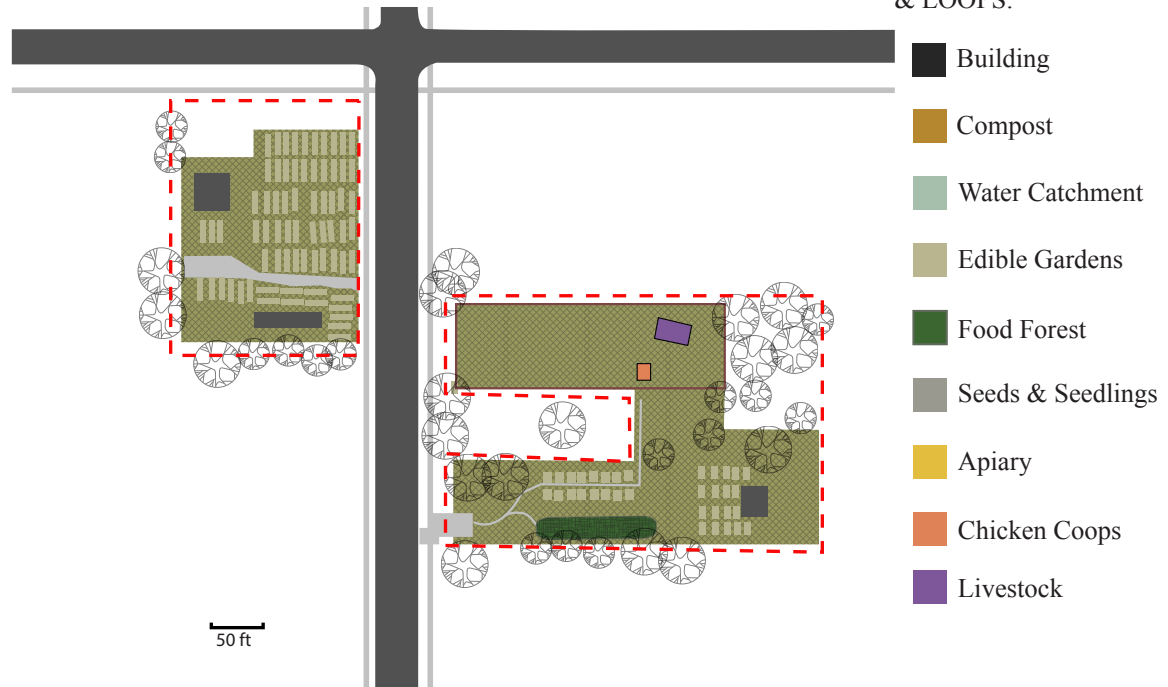
This is the essence of Concrete Jungle’s “fruit eyes,” or there variation on Brian Maloof’s concept of “precious food awareness.” It also represents yet another form of ratcheting up from not just an individual gleaner to a group of gleaners but potentially to a vaster network at a greater urban scale as Jungle members tie themselves to the Atlanta Local Food Initiative (ALFI), Georgia Organics and other urban agriculture organizations promoting food growing in the city and move those organizations into the camp of urban food forest tenders as well as urban farmers and community gardeners. This is certainly a different type of food production and scale than a traditional community garden or even Concrete Jungle’s Dog Head farm. And while I question Craig’s assumption that the previous generation, Anne Stanley’s Baby Boom generation for example, was not interested in food growing, one can agree that the food forest Concrete Jungle tends is something special that needs to be revived. We all need to cultivate our “Fruit Eyes.”

## Photo Voice East Lake Community Learning Garden and Urban Farm



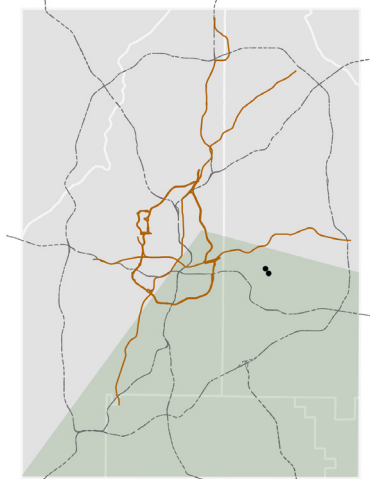
# Map Voice East Lake Community Learning Garden and Urban Farm

## SITE VISIBILITY & ECO-REVELATORY DESIGN



### PATTERN:

2 sites, one farm and one garden



1:15000

### LOCATION:

Private parcels



1:400

### PROGRAMS:

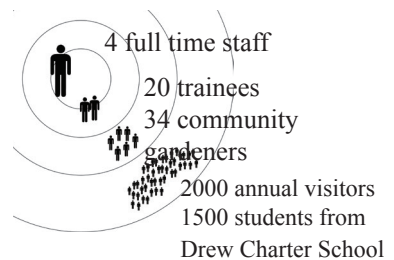
Community Learning Garden:

- 34 community garden plots,
- Community Supported Agriculture
- Active Education: youth green works grow summer training and adult classes in bee keeping, water harvesting etc.
- Passive Education: beehives, goats chickens, sheep, food forest, water harvesting

Urban Farm

- Food production
- Market
- You Pick service

### MEMBERS:



### EXTENT:

1.25 acre garden and livestock pen  
0.50 acre urban farm

### ACCESS:

Urban farm: limited access  
Garden: open access



## Narrative East Lake Community Learning Garden and Urban Farm

“Community garden to urban farm”

While private gardens and community gardens are perhaps the first and second types of agriculture that come to people’s minds when they think about urban agriculture types and gleaning or urban food forests are most likely far off of most people’s radars, many people are becoming more aware of urban farming. But though recognized, it is still quite rare.

Urban farming is not the same thing as a community garden. In an inventory of urban agriculture by the American Planning Association in 2011, farms were separated from gardens primarily by their commercial character. The APA study broke urban farms into three primary types including market farms, urban farms and peri-urban farms, which tended to get larger in size as one moved from one type to the other. Sale of products in the market was the common thread in APA’s definition of urban farms. (Hodgson, et al., 2011) Another recent study from 2011, *Five Borough Farm* by the New York City non-for-profit Added Value is another example of a recent study trying to get a handle on the number of city farms in their midst. Their typology had four broad categories of urban agriculture two of which they exclusively designated as farms. The primary driver of their typology was not product for sale however but managerial structure. (Cohen and Reynolds, 2012) Whatever the method for defining urban farms, increasingly distinctions between just gardens whether private or community oriented and actual farms is being made.

While many urban farms are conceived as farms from the get go there are also instances of community gardens ratcheting up into urban farms as a significant part of their mission becomes food production and sales. One such case in Atlanta is the East Lake Community Learning Garden. Founded in 2010 key informant Khari Diop describes East

Lake's original operation "as a traditional community garden," clarifying that definition by stating that "folks who live in the neighborhood can come, own a plot, and grow their own fruits, herbs and vegetables, and flowers." Diop explains how his organization has also moved from community gardeners to urban farmers. The initial goal was simply to provide a food growing space from a massive patch of Atlanta Kudzu. "I began on this journey back in 2010. I was hired by the Southeastern Horticultural Society as an environmental educator and community organizer. Two jobs combined into one." Diop explains. "Environmental educator because we all know it's important that we connect people with the environment, with their food, and community organizer because when I came out to this space there was absolutely nothing." Nothing but kudzu that is.

Diop talks passionately about how his organization transformed an abandoned lot thick with Kudzu into a trans-formative neighborhood green space. He sees the kudzu clearing as the first step in a greater trans-formative process. "This ground that we are standing on was covered in maybe 8 to 10 ft. of kudzu and other invasive species of plants," he explains. "You saw this expansive sea of green and it almost looked level but once you got in there we had kudzu that was taller than I can reach. So we brought in a herd of goats. They completely cleared the land of its kudzu, whose roots can grow up to a foot in diameter, so it grows back in a year. The goats came in and completely cleared it. The following year we brought in a flock of sheep. We have a guy who runs the sheep; they completely cleared the land again. The kudzu can grow up to a foot a day as well as the roots that are up to a foot in diameter."

Once the land was cleared by the livestock, Diop's next step was to bring in the mostly African American community of East Lake, especially the youth "The following year, 2011, the summer of 2011 we hired some young people from the neighborhood as part of what we call Green Wage Grow summer training program and they got environmental

education, horticultural and agricultural training.” eventually Diop and the youth wrestled the kudzu under control “and got our own herd of goats,” he explains, “to ensure it would not return.”

If there is any plant that defines the concept of invasive species it is the Japanese vine known as kudzu. The now prolific southern vine is often referred to as the plant that “ate the south.” (Glaser, 2014) Kudzu is an East Asian vine brought to the US as an ornamental. Prevalent in Japan it took to the South’s similar climate. But outside of its native eco-system it quickly took over sunny spots across the region, even climbing up trees and killing canopy. To cut kudzu a break, however, it was only responding to a southern landscape that has been degraded and disturbed by haphazard human landscape care. If there is not a disturbed spot for kudzu to take hold it will not, and as Diop’s community garden transforming into an urban farm displays, if that spot is more actively engaged in a socio-ecological system, kudzu will not thrive either. In kudzu eradication there is an opportunity to rethink our land management, especially on the disturbed sunny sites the vine loves so much in the south. It’s not that hard to imagine cities like Atlanta filled with edibles instead of kudzu. Simply look at every kudzu patch and a transformative edible space can be substituted in one’s imagination. In the case of East Lake Community Learning Garden and Urban Farm, however, this vision became a reality with a ‘green-field’ reclamation.

More importantly for this discussion, however, was how the site transformed from kudzu, to garden, and then up to the next level of community based urban farm. In addition to the original community garden the organization also took over an abandoned gas station corner lot just up 2nd Avenue on Hosea L Williams Drive to complement their learning garden with a food growing site with a more expansive mission. Thus East Lake

added farming to community gardening and brown field reclamation to its green field reclamation.

According to East Lake Community Learning Garden's website, the farm portion of their operation has a the mission "to provide fresh, organically grown produce at an affordable price for all of East Lake's residents, our neighbors and friends from all across the greater Atlanta community." (East Lake Community Learning Garden, 2013) East Lake's farm manager, Uwezo Akili Flewellen, known to the community as Farmer Zo and who has been the urban farm site's manager since 2012, explains that the goal of the farm is still community based and education oriented but the operation is also clearly an economic endeavor, the distinction between urban farms and gardens also made by the APA urban agriculture typology. In Farmer Zo's words, "We primarily serve the East Lake community and also anybody else that comes around. We are open daily and we are generally open around the hours we are servicing the farm, so that gives everyone in the community the opportunity to come and pick your own. We show people how to cut the greens and you can come and pick your own greens straight out of the ground. Same thing with the vegetables, when we have them."

While this educational experience is part of the process, ultimately East Lake's Urban Farm sells whatever is picked by the pound. Farmer Zo explains, "The actual individual items we sell like onions and leeks we sell individually by the piece. Onions I believe two for a dollar, and leeks are a dollar a piece because they grow a little thicker. But everything else we sell, we sell by the pound."

While many organizations have mixed private and public models, if your primary model is to produce and sell food as in the urban farm component of East Lakes' operation, clearly the organization is something more than just a community project. Park Pride

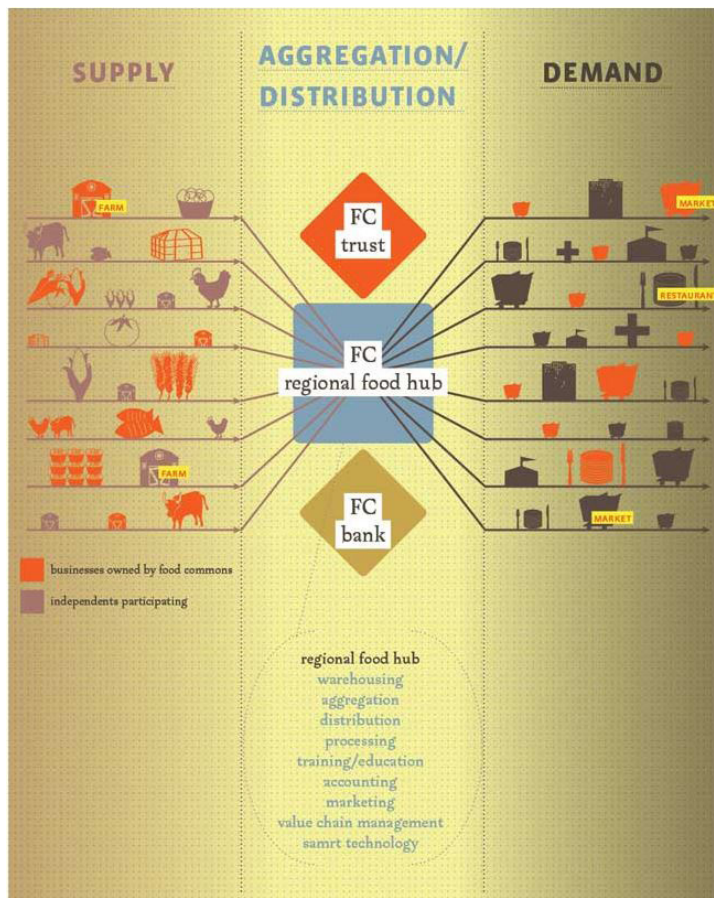


for example forbids its members to sell food. It must be donated. And Concrete Jungle, while it does sell some items now, such as the fruit that cannot be unloaded otherwise, the vast majority of its gleaning is for donation. Durkin talks about the ‘siren song’ that the idea of selling has become for his organization. “It’s kind of an interesting time here, [at Concrete Jungle] of nailing down to what extent do we want to get paid for this; to what extent is it right for us to get paid or is it a good deal for a donor to pay us?... this is our year of experimentation so we have done a fair amount of sales with service berries and one of the things we wrestle with about selling fruit, is that it’s tough to align it with our interests. What do we pick and donate and what do we pick and sell? They seem a bit at odds with each other. So stuff like Flying Dragon, we really can’t donate it, that’s a perfect clear-cut thing. We could probably get a premium with it [Flying Dragon]. Bars could make interesting drinks with it. No one else has it and so on. There’s definitely a siren song. There’s definitely a ton of potential. But there’s a conflict of interest. We want to grow by donating more not by having a ton of money.”

In the case of East Lake Community Learning Garden and Urban Farm, they have found a way to answer the siren song of food production for the market by splitting their operations into two distinct sites. As Concrete Jungle’s Durkin expresses, clearly there is a distinction between a community food producing scheme such as a community garden or community gleaning and an urban farm. Whether it’s at the East Lake Urban Farm site, which sells vegetables, or at its Community Learning Garden, which as the name explains focuses on learning, Diop points out that at East Lake the broad mission of both sites, farm and garden, is simply to be transformative, to transform the sites, the community, and the food system of Atlanta. In this mission East Lake Community Learning Garden and Urban Farm has already pushed beyond just the small footprints of each of their two sites.

East Lake is doing its part to create the larger local and socio-ecological food system. In Diop's words that mission has three pillars, "We are feeding the community. We are transforming spaces. And I think we are setting an example for working with the land and the environment." Through this vision both East Lake's farm and its garden begins to take on a role which one could describe as more socio-ecological than just economical. Diop further explains how this socio-ecological system accrues in many small but meaningful ways. "When I come, and there are people here and I had absolutely nothing to do with it, or there is an activity going on here, and I had absolutely nothing do with it, I come and see remnants of a party, you know positive stuff like streamers or something, or I come, and people are over there enjoying the animals and I had absolutely nothing to do with it, I feel like my job is done. I have completed my mission which is creating a space where people can interact with Mother Nature."

## Photos Atlanta Food and Farm\*



\*Atlanta Food and Farm did not participate in Photo Voice

# Map Voice Atlanta Food and Farm

## SITE VISIBILITY & ECO-REVELATORY DESIGN



### MULTI-FUNCTIONS & LOOPS:

- Building
- Compost
- Water Catchment
- Edible Gardens
- Food Forest
- Seeds & Seedlings
- Apiary
- Chicken Coops
- Livestock

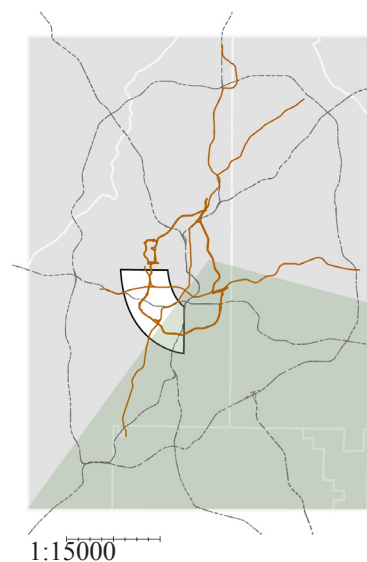
**PATTERN:**  
Localized mosaic, SW Atlanta

**LOCATION:**  
Urban District

### PROGRAMS:

#### Civic Agriculture Consulting Services

- Planning, design, grant writing and installations of 7 types of civic agriculture and edible landscaping
- Food System Planning & Public Policy Quarterly civic agriculture conference
- SW Atlanta Food Commons initiatives

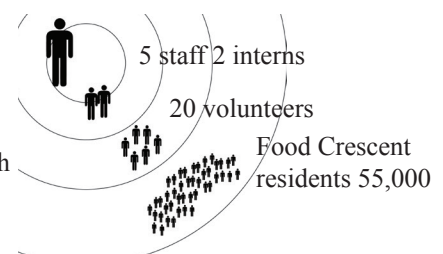


**EXTENT:**  
6,000 acres  
Beltline overlays, 1, 2, 9 and 10



**ACCESS:**  
Multiple forms of public, private and civic spaces, with different access levels.

### MEMBERS:



## Narrative Atlanta Food and Farm

“From food gardens to food commons”

When local food becomes a business it isn't always as an urban farm. Sometimes it can be as a for profit local food consultant as in the case of Atlanta Food and Farm (AFF). When I met Kwabena Nkromo in 2013 he was in the process of transitioning his non-profit Atlanta Food and Farm into a for profit firm focused on expanding local food production in the city. Like all of the sites in the sample AFF had a food producing component that they actively managed. At the time of the interview, for Nkromo it was their active relationship with a charter school in the Vine City neighborhood as well as the Pittsburg Community Improvement Association's Welch Street Garden. Both entities are located in Atlanta's southwestern quadrant, rich with African American communities and history but also poverty. Nkromo was especially pleased with the success of their edible school yard garden in Vine City, which by “meeting the metrics of the original concept from California” became registered in the national edible schoolyard database, “we are really proud of that site,” Nkromo explains, and “so edible schoolyard gardens are likely to be a staple of AFF's new business model.”

Schoolyard gardens are often considered a distinct type of urban agriculture, but there is a strong argument that schoolyard gardens, with their well defined community member boundaries both social and physical as well as their unlikeliness of becoming farms with market orientations, are more a subtype of community garden than a broad category of urban agriculture. As an emerging local food consultant ratcheting up their organization beyond the community garden concepts of the past, AFF does not plan to limit itself to the boundaries of the school yard either.

AFF's goal is not simply education but rather to expand market share of multiple aspects



of local food production. As Nkromo explains, when a client says “we want a community garden here or there, we want a sustainable green.” AFF’s goal is then “to take that desire to the next level” beyond a community garden or even an urban farm and to fold that into something much larger. In his words, “we take that and upgrade it to the cutting edge language around urban farming, you know, bringing things to scale, food hub; we add all of that as part of that process. And then of course our main client is Food Commons,” Nkromo adds, “which is a national food system development model out of California. We’re the contractors and developers for that system; you know developing it here in Atlanta.”

Food hubs are central locations where agriculture goods are brought together, processed, and or shared with local consumers and other institutions within the local food system. The Food Commons is a specific project started in 2010 by Larry Yee and James Cochran in California as Nkromo mentioned, which takes the Food Hub concept and blows up its geography, so that an entire section of a city can become food oriented. The goal of a Food Commons according to its founders is to build a new type of food system that is “labor-friendly, ecologically responsible, hospitable to a variety of small enterprises, and able to grow high-quality food for local consumption.” (Food Commons, 2013) AFF’s Food Commons in Atlanta encompasses the whole overlay area of the Atlanta Beltline’s Sections 1, 2, 9 and 10, and the neighborhoods that either abut or are within those areas. As Nkromo explains, “We have a list of those neighborhoods. Its about 6,000 acres, 55,000 people.” But although ambitious AFF is not moving beyond this district, “We haven’t moved yet outside the southwest neighborhoods” because its “where we have the most comfort level.” So AFF’s Food Commons is not yet quite a completely cultivated edible city.

Many of the entities in the sample are also focusing on ratcheting up to a district level

starting in areas, just like AFF, where they “have the most comfort.” AFF’s work is in the historic African American communities of Atlanta’s southwest. The Wylde Center, not yet introduced, is predominately in Atlanta’s Southeast. And Concrete Jungle has been mostly on the East Side of Atlanta, but has designs on the South where AFF and Wylde Center’s quadrants are located because of its likely stash of grand mature fruit trees as well as people that would have an interest in cultivating them. Together the swath of land swinging from the edge of Nkromo’s Food Commons in the Southwest across the Southeastern section of the city and into the East perhaps ending at the city of Decatur in Dekalb County forms a very special section of metro Atlanta. One could call it the metro areas ‘favored food quadrant.’

In urban planning and real estate development theory the favored quadrant is the section of the metro with the highest real estate value. (Leinberger, 1997) Urban agriculture also apparently occupies a value quadrant. Rather than raw real estate value, however, the ‘favored food quadrant’ is where culture and affordable real estate collide to create conditions favorable for urban agriculture to incubate. The favored quadrant for local food system incubation, however, has different criteria. Favored food quadrants do not form in areas such as Atlanta’s wealthy northern neighborhoods. Some of the necessary criteria that make the South of metro Atlanta the epicenter of Atlanta’s local food movement become clearer in Concrete Jungle’s discussion of their interest in moving into South Atlanta and joining up with the Wylde Center’s and AFF’s urban agriculture efforts. In Durkin’s words. “South Atlanta has so many great old neighborhoods where they haven’t been turned into subdivisions, so they haven’t just been clear cut, you know, with new trees and new houses and just kind of bulldozed with everything just replaced. I feel like much more opportunity lies towards the city and to the South of the city. People are moving into old homes and maybe redoing them and kind of relishing there historic look and feel. In North Atlanta” adds Durkin, “There’s a lot more new development, you

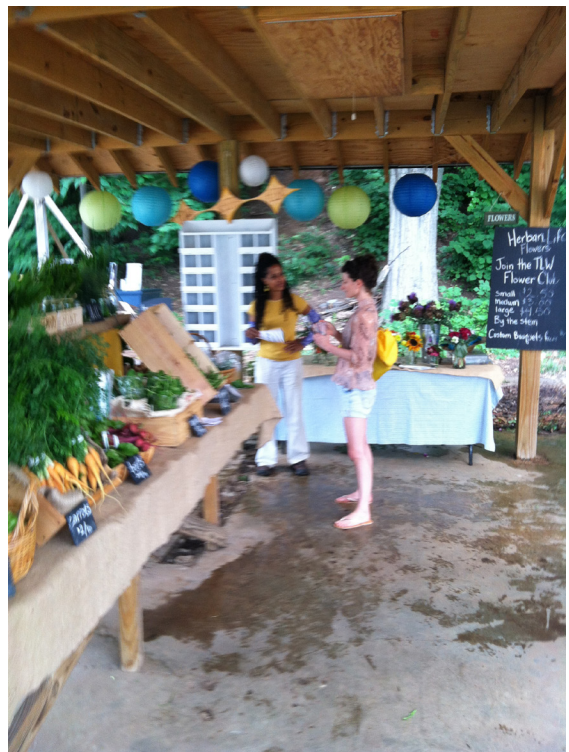


know like the infill, tear it down and build it bigger. So that's partly why we want to get more into South Atlanta."

Atlanta's late 20th century expansion north into Marietta, Alpharetta, Smyrna and other communities is notorious for being one of the fastest expansions in US history. (Kundell, 2002) However, while the favored northern quadrant of the Atlanta metro, in real estate development terms has been ground zero for Atlanta's 20th century expansion and economic development, from a local food perspective, the South of Atlanta may be its food industry economic development future.

Nkromo explain why so much urban agriculture potential is in Atlanta's South. "We [AFF] believe that the country is undergoing or is at the precipice in a sort of seismic shift in how it thinks about basic societal organization, and these questions around how we get our food are central to that. I mean you know our financing system, other systems...you know...reconnecting, recalibrating, re-civilizing our basic foundational policies of maximum high calorie food at low cost is a paradigm that has dominated our food system for at least three or four generations, and we're realizing the inadequacies of that policy framework. And *our government*" Nkromo emphasizes, "is not leading this transition as much as on the ground stakeholders like ourselves."

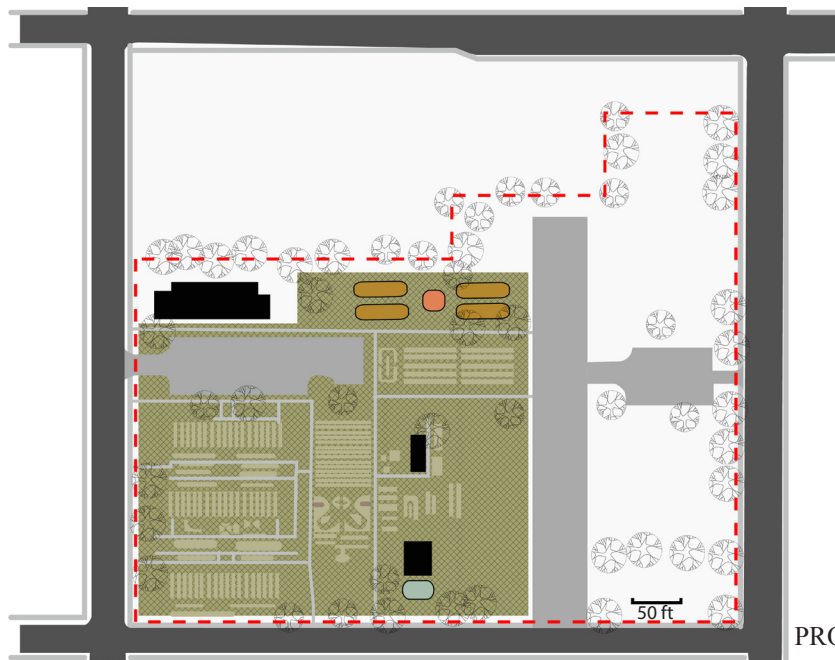
## Photo Voice Truly Living Well, Wheat Street





# Map Voice Truly Living Well, Wheat Street

## SITE VISIBILITY & ECO-REVELATORY DESIGN



### MULTI-FUNCTIONS & LOOPS:

- Building
- Compost & Vermiculture
- Aqua-culture
- Edible Gardens
- Chicken Coops
- Apiary
- Seeds & Seedlings

### PROGRAMS:

#### TLW

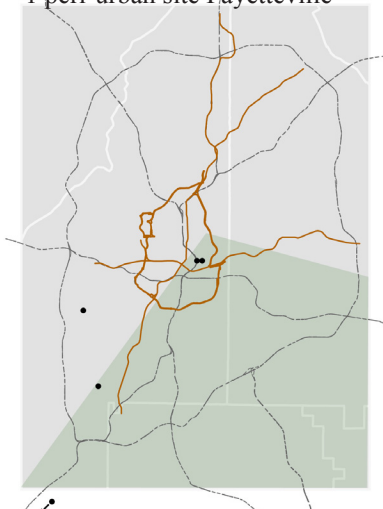
- Food production at five sites: 3 urban, 2 Peri-urban
- Education: classes, summer camp, urban grower training
- Consulting: training, consultations, and urban agriculture installations, and technical assistance
- Agriculture tours

#### Wheat Street Site:

- Passive Education: aqua-culture, composting, chickens, edible landscaping
- Park Amenities: sitting areas, paths, space rental
- Neighborhood Programs: farmers market, and CSA

### PATTERN:

4 ITP sites, SW Atlanta  
1 peri-urban site Fayetteville



1:15000

### LOCATION:

Wheat Street, private parcel



1:400

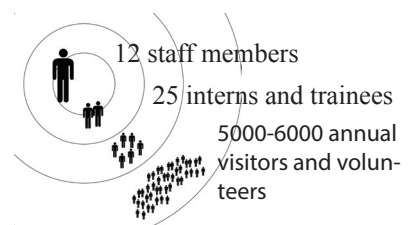
### EXTENT:

Wheat Street 2 acres  
Wheat St. West: 4 acres  
East Point 2 acres  
Harbin Rd. 2 acres

### ACCESS:

Wheat Street: private parcel  
with public access, 24/7

### MEMBERS: TLW



## Narrative Truly Living Well, Wheat Street

“From growers and gleaners to a citywide system”

For a metropolitan vision of a food system beyond a private site, a community garden, one farm, or even a collection of sites in a food commons, there is perhaps no better advocate of that system in Atlanta than Rashid Nuri. Speaking with Nuri felt a bit like a garden side chat with Atlanta’s local food systems elder statesman. I interviewed Rashid Nuri on a steamy Atlanta Fourth of July weekend, perhaps foreshadowing his role in what Nuri sees as the next American Revolution, the local food system revolution.

While he exudes statesmanship, Nuri is foremost a farmer, which means he still gets his hands in the soil. He is a practitioner, an expert in farming in unusual spaces and places, but he’s also an advocate, sitting on boards such as Georgia Organics. Most interesting is his deep thinking about what it would take to turn all of Atlanta, not just one site or one section of it, into some kind of farming operation. Of the entire sample only he and Fresh Roots Farms, much younger Chris Edwards displayed this level of theory tied to practice.

Nuri’s enterprise, Truly Living Well, has about six sites with the Flagship site nestled against the expressway which wraps around downtown cutting off the historic Sweet Auburn district and MLK national historic site from Atlanta’s office core. Truly Living well’s flagship is an odd juxtaposition of raised beds, chickens, and compost—lots of compost—next to this perennially clogged highway river, towering modern and postmodern office blocks, and historic structures such as the nearby Baptist churches, including Ebenezer Baptist Church, home to Martin Luther King during the Civil Rights movement. (Historic Ebenezer, 2013)

Why such an urban location for a farm, I wondered, intending to prod Nuri for answers. Even for urban agriculture it is about as urban as one can imagine. According to the

website, TLW's Wheat Street location "combines the vitality of city life with the benefits of being close to nature, creating communities that are truly living well." But the Wheat Street site is hardly natural. Every plant, animal and wheel barrel of soil had to be created from scratch. And if markets were to change a bit, this site's proximity to downtown could easily see it being absorbed by Atlanta's central business district. According to Nuri, as well as other TLW employees whom I approached informally at the flagship location, TLW is about "growing where people live" regardless of the obstacles or threats.

While Ebenezer Baptist Church is a vibrant local establishment in the district, most of Sweet Auburn is a little rough around the edges, with very few still living there, at least compared to its history. (National Park Service, 2013) It's the kind of community that has fallen victim to about every wave of urban planning fashion throughout the decades, and it has suffered for it. The district has seen public housing dormitories and their removal. TLW's Wheat Street location sits on top of the former foundations of abandoned public housing units. By transportation policy the district has been ripped in half by a highway. The 14 lanes of commuter traffic and exit ramps of a combined interstates 75 and 85 slicing through Atlanta's urban core have devoured an unfortunately large swath of the Sweet Auburn neighborhood as they curve around the east side of Atlanta's Downtown. As a pedestrian, one must pass under a dark and massive structure to reach downtown from Sweet Auburn and TLW's Wheat Street site abuts this highway on its eastern flank. For now, however, this juxtaposition may be what's protecting it from the "highest and best use" of the real estate market in favor of the "highest and best use" for the community, which Nuri and other community members envision for the site.

Even today Atlanta's new street car has been run through the neighborhood, the latest iteration of urban planning run amok. The hope is that it will stop disinvestment. (Atlanta Street Car, 2014) The fear is that it is just another federally funded urban planning fad

that will do little for the neighborhood besides ferry gawking tourists across it on their way to the MLK historic sites, or worse bring gentrifiers to displace what is left of the historic African American character of the district as well as the grass roots innovations that have sprouted from within it such as Rashid Nuri's Truly Living Well flagship urban farm. In 2014 Sweet Auburn also became a stage for the tactical urbanism fad. Young tactical urbanism consultants like Mike Lyndon swept into the neighborhood and threw a party with locals which experimented with reducing travel lanes along Auburn Avenue for a couple of days. It remains to be seen if this effort, however, will have any lasting impact, negative or positive. (Lydon, 2012)

Truly Living Well's Rashid Nuri on the other hand isn't interested in out of town consultants or planning fads. One regional planning fad he calls out is the local food movements arbitrary 100 mile local food shed concept. He believes you have to create a local food economy right where people reside; right in places like Sweet Auburn, and thus his flagship site, full of urban agriculture variety is located where it is, on Atlanta's hallowed yet run down grounds of some of its richest African American heritage. When asked why it is important to grow where people live Nuri explains succinctly, "The food system in this country, the agricultural system that we have been employing in this country for the last several generations is bankrupt. It doesn't work anymore. The land is deteriorated. Food is not bringing life, it's bringing death. That has to be changed." And echoing other respondents Nuri is sure that "Urban agriculture is here to stay ...the commercial paradigm we live under now is not going to work. So we are going to have to come up with a new one"

As for the city of Atlanta, besides being "where the people are" Nuri sees the entire city, in all of its sprawl and thus fractured landscape glory, as a potential growing spot. While a disadvantage in other aspects of urbanism, Nuri believes this landscape fragmentation

could be turned into an urban agriculture asset. Whether it is in the smaller ITP (inside the perimeter) prewar street car suburb lots or the OTP (outside the perimeter) post war lots, Atlanta, if seeded with the right kind of intensive agriculture, in Nuri's view could become much more abundant.

From the ecological systems perspective, which resides just behind everything Nuri says, sprawl is disturbed landscape, so it might as well produce food. According to Nuri if you can grow grass and trees why not food as well. In his own words, "Atlanta is the greenest city in America, by virtue of trees and open space. We have enough land here and we have a climate here that we can grow food 52 weeks a year and I think we should and we can grow all the fruits and vegetables to feed everyone here. Food can be grown anywhere," Nuri claims "front yards, backyards, roofs, on the street." And he points out that the raised beds of his flagship site in Sweet Auburn were once buildings. "What you see here is built on the foundations of a former housing project."

From Nuri's vision the macro scale of an interlocking system with urban agriculture types, private gardens, community gardens, urban farms, all working to produce an agrarian metropolis takes shape. In the urban design literature, Andrews Duany theorizes about this possibility with his concept of Agrarian Urbanism, but Rashid Nuri in Atlanta makes it real. (Duany, 2011)

Nuri also seems to have a small bone to pick with the food security community. He agrees that urban agriculture is important for mitigating food insecurity but he also thinks it has a part to play in most urban problems. In his words, "our work helps to mitigate any and all problems, any and all problems that you can find in urban society. Urban agriculture will mitigate it; it will contribute to the solutions. I don't care what you name." Nuri emphasizes. "I can show you how urban agriculture can fit in. We have had folks



who have done work in the alcoholics homeless center; we've had four of them come through our training center. Up on the roof of Peachtree and Pine [homeless facility] they got 40 something beds up there to help feed their fellow colleagues. Four of them came through here and trained and now they are back there doing work, helping their fellow homeless folk. This site used to be a place of vice, sex, drugs; we pulled a mattress off the hill where they were having sex. The drug dealers were down on the corner, but we cleaned it up. Our footprint has cooled the air. We have a little oasis here where people can feel that it's cooler. You know it cools down the city. I could go on and on. If you are overweight come out here and do some work, and you'll lose some weight. If you need some quality food come out here and get some food. Right here. You can't get fresher. Picking it this morning. Rather than taking garbage and trash to the dump, put it into this compost and give it back to the soil. I can go on and on."

According to Nuri, to mitigate these problems it is important to have the right focus, and his last remark about the soil and waste is a theme he stressed over and over. For Nuri it's not about the sites, or even the food, but about the system both social and natural and how one is nurturing that socio-ecological system. It's not the food that should be the focus but the *food growing system* he stresses. Don't "put it on the food," he says, "No its *urban agriculture* and all of its ramifications."

Of all the respondents discussed so far, perhaps Concrete Jungle gets closest to this metro scale concept of food growing. However, a key difference is in the tending. Truly Living Well has a much deeper and developed closed loop systems approach. A problem with Concrete Jungle is that at this point they mainly harvest the trees; they are not providing full tree care. Nuri's vision on the other hand is complete land and people care. Urban agriculture weather tree based, as a food forest, or as perennials or annuals in a garden, is much more system focused, with care given to not just the harvesting of food and feeding of people but also to returning organic matter to the soil, and sustaining the system.

“Because” as Nuri points out from his deep systems perspective, “what you return to the soil is going to return to you.” At its core Nuri’s vision and practice is socio-ecological.

Additionally Nuri is concerned about transmitting his systems approach to the more food aware younger generations. Truly Living Well as part of their work has a young farmers training program that tries to spread the skill set and grow the local food economy one farmer at a time. Nuri would like to see this system grow.

Perhaps because our discussion was on the 4th of July weekend he evoked Daniel Boone, “Boone took folks across the Cumberland Gap” Nuri mused, “but what happened to him after that? He’s a hero for getting people out of the east and began the wave of the west. It’s the same with most pioneers. It’s the people that come after who are able to cement the institution....I’ve got to train people....I can’t manage it all,” he says, but then chuckles, “but I would like to have 40 acres here in the city . And then I’m going to buy a matched pair of white mouth Georgia mules and drive them down Peachtree and I can tell the world I got 40 acres and two mules!”

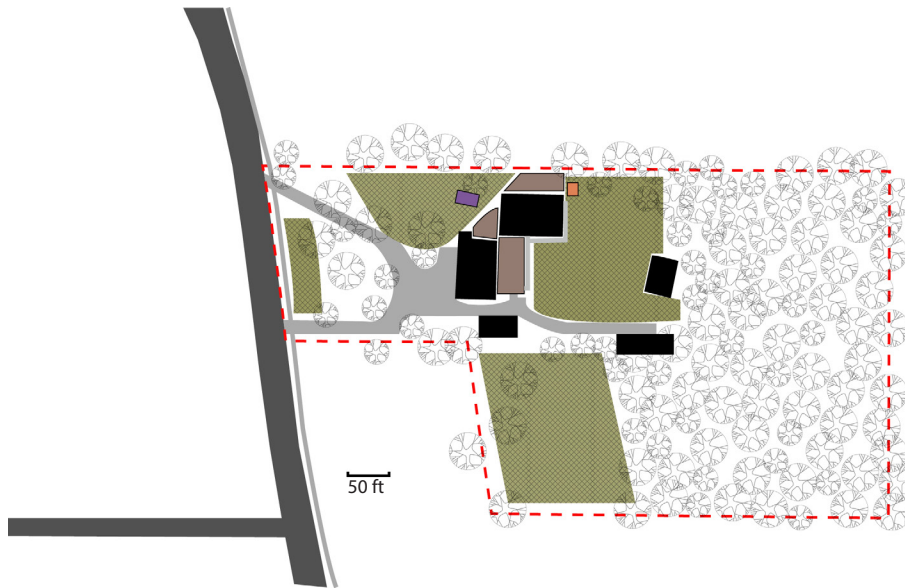
## Photo Voice Berea Mennonite Oak leaf Farm



# Map Voice Berea Mennonite Oak leaf Farm

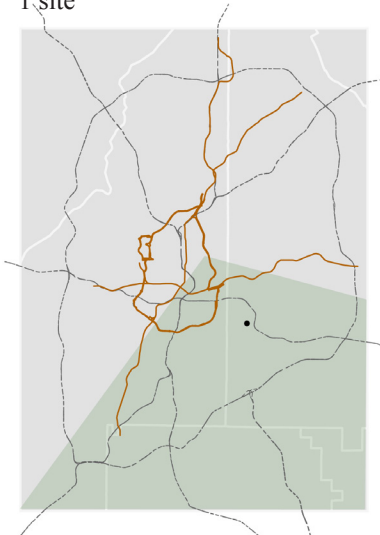
SITE VISIBILITY & ECO-REVELATORY DESIGN

MULTI-FUNCTIONS  
& LOOPS:



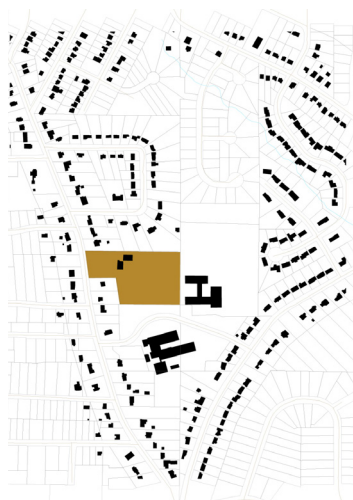
- Building
- Play Area
- Edible gardens
- Chicken Coops
- Livestock

PATTERN:  
1 site



1:15000

LOCATION:  
Private parcel

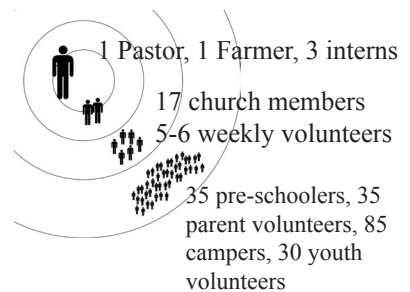


1:400

PROGRAMS:

- Active Education: The Language Garden (Spanish immersion and food literacy pre-school, Peace and Carrots summer camp for homeless children Intern program for seminarians 20 hours of farm labor a week.
- Farm volunteer program, with six universities across the country
- "Neighbors Garden" a right of way garden with free u pick scheme.
- National farmer labor rights advocacy with Coalition of Immokolle
- Farm production and on site sales

MEMBERS:



EXTENT:  
9 acre site  
1.5 acre farm

ACCESS:  
Private site, no access



## Narrative Berea Mennonite Oakleaf Farm

“Jumping Scales: urban farm to national farm labor leader”

Jutting into Dekalb County is an appendage of the city of Atlanta known simply as East Atlanta. The neighborhood is also now known for its lively alternative bar scene, and like many of the city’s former street car communities inside the perimeter (ITP) East Atlanta is gentrifying. Not long ago it was a mostly low-income African American community.

At the very tip of East Atlanta sits the tiny Berea Mennonite community, whose peace loving Christian doctrine drew them to their Atlanta home during the civil rights era. The Berea mission was established in 1962. Atlanta, a devoutly Christian city, does not have a history of the Mennonite version of the faith, and for years locals didn’t know quite what to make of the community, so Berea’s latest pastor, John Wierwille, had an idea: the nine acre church site of mostly kudzu and canopy should become an urban farm.

Young Wierwille had come to Atlanta to study law at Emory University but his interest in social justice eventually led him to Emory’s seminary. Wierwille also had a bit of a farming background. “I grew up with really red neck uncles in Ohio,” he explains. “They were big, tough, strong union men and I love ‘em for that but they were rough, gruff and terrible to almost every human being on the earth and they still are. But they take care of their cows and their hogs, well not so much their chickens, they’re really rough with their chickens,” Wierwille laughs, “but they take care of those animals as if they were babies... They can show compassion to them in ways they don’t to people.”

Wierwille hoped to combine this farming and husbandry experience with his passions for justice at his new Mennonite ministry in East Atlanta. “The bricks in the windows tell you everything you need to know about the place.” Wierwille gestures towards the tiny

Mennonite church. “It had turned itself into a fortress and they met on Sunday mornings for an hour and half. The rest of the week it was all steel doors and bricked up windows. My question is how do you get the neighbors onto the property? And how do you work with neighbors in a place where you got low income African Americans a lot of whom are being driven out by gentrification and you also have young mostly white semi-professionals. Mostly sort of semi-professionals moving in. You know people buy in East Atlanta because it’s cheaper than other places....how do you get those folks altogether?”

Echoing Rashid Nuri, Wierwille’s answer was not simply to grow the food but to sell it and to distribute it on the spot. “We have a pumpkin sale out front right now, right. And the first time ever people with kids are walking on the property for one reason or another. Our neighbors know who we are now,” explains Wierwille. “They call us; they interact with us; they come to potlucks when we have meals on the lawn; they show up.” It had not always been that way, and Wierwille launches into a recent exchange with a fellow East Atlantan. “Our neighbor over here, T-jay,” Wierwille gestures, “was laughing last night because he was telling one of the elders, ‘you know all the people in the neighborhood think you’re a cult, but I told them they’re just good Christian folks’.” Wierwille laughs, “Then she [the elder] said ‘A cult! Why would they think we’re a cult?’ And T-Jay said, ‘You don’t exactly look like a regular church!’ I thought it was hysterical. But at least they are saying, ‘oh my gosh, something is going on over there.’”

Wierwille attributes this new found community presence, despite the congregation being in the community for over five decades, to the farm activities he has brought to the ministry, from pumpkin sales to an open access you-pick garden. “Without question. That’s why people come to the place.” Wierwille explains. “They pull in because we have a sign out that says chickens or eggs for sale. They come in because we have pumpkins. They come in because they can see that we’re a farm and have produce.”

Becoming a farm was natural fit for a Mennonite community for many reasons. As Pastor Wierwille explains, “People first new God in a garden. Why in hell,” Wierwille laughs, “did they think they had to go into a building to find him. I don't know!”

The Mennonites, who share some history with Christian sects like the Amish have a long history of hard work and trades. (Mennonite Church, 2013) Farms are work, and Mennonites are no strangers to labor. “Menno Simons whom we are named after is a Catholic priest who told his people stop being professionals. Stop going to theology school. We can learn this on our own. And learn a trade.” Wierwille explains. “It’s much more important for you to learn a trade. Because if you can learn a trade and be useful to people as a tradesman, they are not likely to kill you just because you won’t go to war. If you can learn a trade and be useful as a tradesman and give them fair prices, they will push you around but they will let you go to church however you want. And we have been doing that for 500 years.”

Mirroring Concrete Jungle’s “siren song” of farm sales, Berea, as a church owned farm, struggles somewhat with balancing its mission and being mostly a for market urban farm. Most of the land is not farmed by the members, although as pastor, Wierwille adds quite a bit of land care and farm program management of Oakleaf to his long list of Berea responsibilities. Instead, Berea’s land is leased to local urban farmer. “It’s very very awkward in some ways.” Wierwille sighs. “We lost our first farmer because he wanted to connect with the Grant Park Farmers Market on Sunday mornings and the elders just lost it. ‘You cant possibly do that, that’s Sunday morning. You’re supposed to be here.’ “ Wierwille relays. “his only interest was ‘I can sell all my produce at Grant Park Market.’ And so there was a conflict about it. We have had several of those [conflicts with farmers].”



Similar to East Lake Community Learning Garden and Urban Farm, Berea's Oakleaf Farm has found a way to balance the siren call of the market with their land leasing model. Berea currently leases its farm out to a young farmer named Erin, who raises traditional rows of market driven crops such as greens and strawberries. Meanwhile the elders have adjusted some of their expectations. Berea sticks to its religious mission by having a you-pick community garden and a preschool, which has food awareness as an important aspect of its curriculum. They also have young seminarians who keep up the property in exchange for room and board. Daniel Lashoto, the seminarian on duty at the time of the interview describes how the you-pick promotes the Mennonite's religious philosophy. "There are homeless men in the area who come by and we'll have them work for 30 minutes and we'll give them food." Lashoto explains. "I suppose it feels good because they feel like they've earned it. They feel a responsibility now to the land and themselves."

Berea has no intention of ratcheting up their Oakleaf Farm beyond the nine acre site behind the school and church buildings; however, in their own way they are impacting the food system at a greater scale. Rather than more local connections, like the Grant Park Farmers Market, which got their first farmer in hot water, Berea is interested in cultivating the agriculture system at a national and global level. Through their farm and religious community the ministry is now taking on the national industrial food system with the same zest that they participated in the civil rights movement.

"We are very," Wierwille emphasizes, "connected to CIW, Coalition of Immokalee Workers for farm worker justice issues. (CIW, 2013) We spend a lot of time working with them. We host them when they are here in town every time. We fund a lot of their activities. We are a tiny little congregation but we make a fair impact on these issues." Additionally, Berea sponsors students from multiple universities from Idaho to Georgia,

who visit the farm, putting in some solid Christian Mennonite labor as well as learning about CIW and farm labor issues. In these ways, Berea is an example of a very local urban agriculture site that is impacting national agricultural priorities. Berea Oakleaf farm is jumping scales, influencing agriculture systems far beyond its 9 acre site embedded in East Atlanta.

## Photo Voice Emory University Educational Food Gardens



# Map Voice Emory University Educational Food Gardens

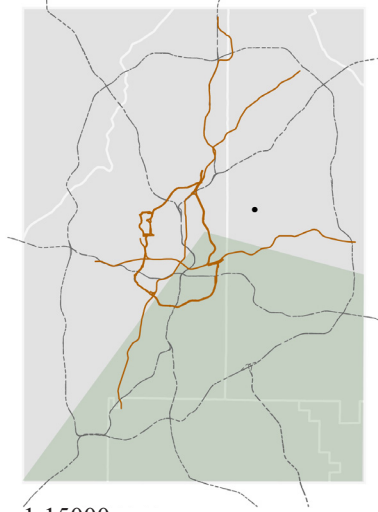
## SITE VISIBILITY & ECO-REVELATORY DESIGN



## MULTI-FUNCTIONS & LOOPS:

- Building
- Play Area
- Compost
- Edible Gardens

**PATTERN:**  
8 sites across Emory campus



1:15000

**EXTENT:**  
8 small plots less than 1 acre total  
Campus size, 631 acres

**LOCATION:**  
Large private parcel (campus)



1:400

**ACCESS:**  
Open access, 24/7

## PROGRAMS:

Passive Education:  
Education sign age

Active Education:  
8 student cultivated community gardens

Emory Farmers Market

(Emory to open non-urban farm to serve its campus sustainable food initiatives i in Oxford, GA, 2015)

## MEMBERS:

1 staff 12 students

at Rollins site

100 annual volunteers,

(future student classes  
at Oxford site)

14500 Emory students

Several thousand staff



## **Narrative** Emory University Educational Food Gardens “Feedback: from community garden to private garden “

Not all of the sample moved from one type of urban agriculture to another at a higher scale. There were also instances of moving in the opposite direction, indicating a complex system that evolves in multiple directions at once. Often this process involved individuals who were participating in a higher scale of urban agriculture taking what they learned to their homes and adding to the mosaic of private gardens in the local food system. This ‘feedback,’ as insignificant as it may seem, potentially could be a powerful way that the local food system spreads and evolves from person to person.

The case of Erin Mooney, an Emory University employ involved in Emory’s edible demonstration garden program is an example of how this feedback can work. Mooney didn’t know much of anything about plants, ecology or gardening, when she decided as an Emory employee to take on the responsibility of shepherding one of the institution’s eight demonstration gardens sprinkled across the vast Emory campus. The school was founded in 1836 in Oxford Georgia and named for the Methodist bishop John Emory. In 1915 it moved to its current site on a ridge overlooking Atlanta, joining the dozens of Atlanta Methodist congregations that call the city of Atlanta their home. Today Emory is a well-endowed private research university with a reputation in medical education and research. The Centers for Disease Control’s campus sits side by side with the university and its flagship hospital. (Emory University, 2013)

Mooney recalls how she became involved with Emory and then its demonstration garden program. “I’ve been working at Emory for, let’s see, I started in ‘98 so 15 years, I started working at the library and I’m still at the library. Before that I was an English teacher....A couple of years ago I got interested [in the garden program]. ... I thought that would be too cool to learn something about growing food. I didn't know anything

about it, like most Americans, and so I signed up to work and asked the then director of all the gardens, and she said this one needed people, so I started working here and in a few weeks I became the lead on the garden, even though I knew nothing about gardening of any kind.”

Mooney’s garden is located in the quad next to the Rollins School of Public health. On its website Emory explains that the demonstration gardens are part of their sustainability initiative. The Rollins Garden “is one of eight educational gardens that are maintained by a team of staff, students, neighbors and faculty. The harvests, which boast tomatoes, lettuces, peas, beans, greens, eggplant, broccoli and herbs are shared within each team of harvesters.” Rather than food for sale or even donation, Emory states that “the food gardens exist to increase awareness of and interest in local food and to educate the Emory community about what food crops look like, seasonality, and how they grow.” (Emory University, 2013).

Mooney is realistic about the ups and downs of keeping such a garden. Students come and go, and the garden is mostly a summer season activity when many students aren’t there, but it has been a personally rewarding experience and Mooney continues to learn with each season. She recollects her first experience with an exceptionally large sweet potato. “I had just never seen a potato that was that big before and I had never pulled a potato out of the ground. So it was amazing to me to see how big it had gotten, and it was probably bigger than it should have gotten, but it was still wonderful. I think we tried to plant some last year and it didn't work. And this year we didn't try and it grew on its own! But that sweet potato, that ginormous sweet potato was very cool, and it was very meaningful to me personally.”

Since her sweet potato experience Mooney has also started to learn about other things

such as the systems ecology of urban agriculture, and especially compost, which Rashid Nuri of TLW claims is a critical way of framing urban agriculture. “What I’ve learned.” She exclaims, “Oh god, a lot. The different growing cycles, the different kinds of ways to start vegetables. You don't just throw everything in the ground. Some things have to be prepped in advance and then transplanted. I didn't know any of that. I basically didn't know much of anything. Now the one thing I think I really need to learn about is organic pest control.”

Looking at a figure field of Erin Mooney’s little Emory garden nestled in between the school of Public Health’s large campus one could be skeptical that such a little demonstration garden could have any impact on such a modern campus but clearly, at least from Erin’s personal experience it has. Moreover, Mooney’s education has not stopped with her Emory demonstration gardens, she has since taken what she has learned home. “It’s very exciting. I want to do my own too.” she explains. “You know here you have to coordinate with like a whole bunch of people with what to grow, but at home I make my own decisions.”

Since becoming a gardener she has realized, echoing Concrete Jungle’s ‘fruit eyes’ concept and Brian Maloof’s idea of ‘precious food awareness,’ that in her neighborhood there is a lot of edible gardening going on now. Her efforts are now melding into a mosaic of individual private gardens and slowly turning her corner of Atlanta into a complex multi-layered food growing city.

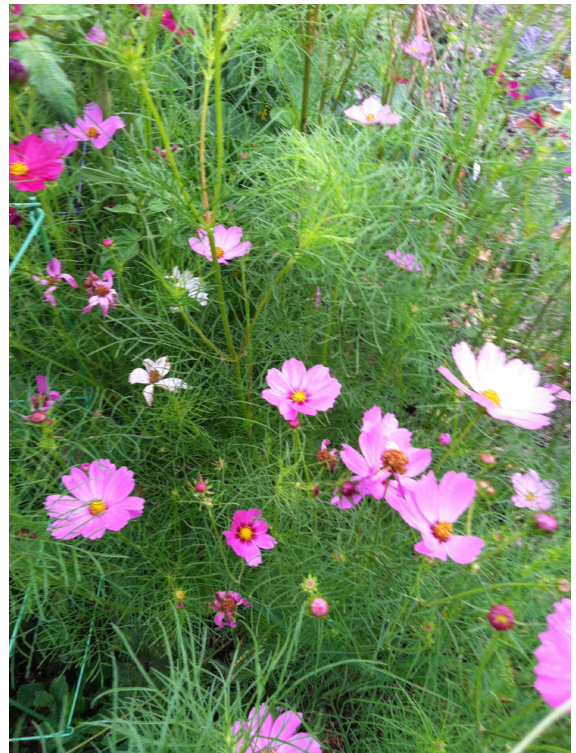
Erin is not the only one from this sample that mentioned brining their food growing experiences at work back home. Brian Maloof, Manual’s Tavern owner, raises chickens at his home as well. Berea Ministries Pastor Wierwille also explained how he has taken food growing back to his neighborhood from the farm. “You know I don't actually buy a CSA



share here [Oakleaf Farm] because I got a quarter acre plot over in Decatur at my house and I grow all my food in my beds right there. I don't need to. But people don't know how to do it. My neighbors are learning it from me. And they are fascinated. First they came over to get food from beds, whatever I would give them. And now they are starting to do the same thing at their homes,” Wierwille emphasizes.

Small exchanges like these between Wierwille and his neighbors and Erin and hers could be quite powerful and could be an interesting path for further inquiry into how a local food system spreads and scales through these individual actions.

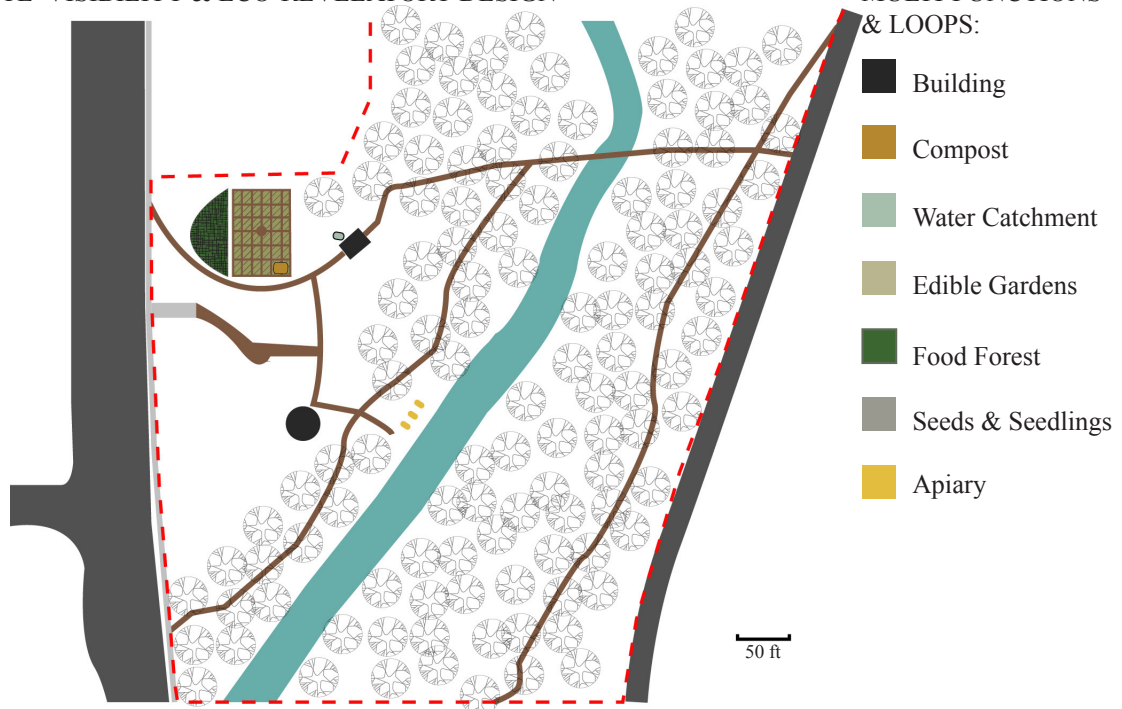
## Photo Voice Blue Heron Community Garden



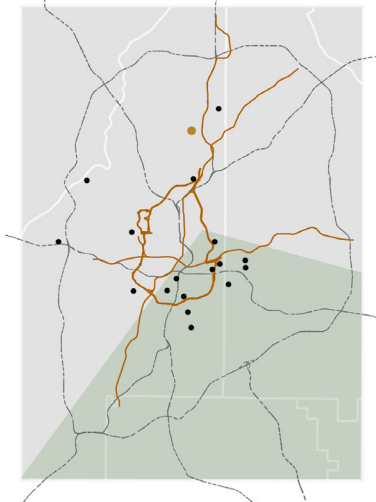


# Map Voice Blue Heron Community Garden

## SITE VISIBILITY & ECO-REVELATORY DESIGN



**PATTERN:**  
1 garden in network of 20



1:15000

**LOCATION:**  
Public open space network

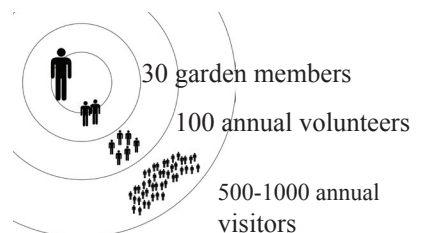


1:400

**PROGRAMS:**

- Passive Education
- Food Production for the Homeless (St Lukes, Midtown)
- Supper Club with Buckhead Restaurant
- Closing ecological loops with local restaurants
- Organic Gardening classes
- Annual Harvest Dinner
- Community Service day once a month with scouts
- Participant in Park Pride's annual garden tours

**MEMBERS:** Fresh Roots



**EXTENT:**  
Blue Heron Preserve 25 acres  
Blue Heron Community garden  
0.10 acre

**ACCESS:**  
Gated garden  
Public access orchard area

## Narrative Blue Heron Community Garden

“Saturation Strategy: step 1, reclaiming degraded land”

The Buckhead section of Atlanta is a wealthy sprawling mix of modernist urban design, with clogged arterials, super blocks, and very wealthy subdivisions. Since Buckhead is older than Atlanta’s northern suburbs, which, as Atlanta’s “favored quarter,” (Leinberger, 1997) radiates in all directions from Buckhead, this large and wealthy district of Atlanta has a little more architectural character with its grand 1920’s era mansions, attractive early to mid-20th century bungalows and more recently, skyscrapers, lots of them.

Altanat is spliced in two by Peachtree Street an old Cherokee foot path, the Eastern continental divide, and Atlanta’s answer to New York’s Broadway. In Buckhead Peachtree Street becomes Peachtree Road, a modernist ‘arterial’ controlled by the Georgia DOT, which now sports an ever intensifying parade of skyscrapers marching north. With its subdivisions butting right up against these skyscrapers in this section of Atlanta one gets a Koolhass style delirious experience of sprawl on the verge of becoming Manhattan. (Koolhass, 1994) It is an urban morphology of stark contrasts, that even New Urbanist Andres Duany has admitted is striking. (Duany, 2014)

Buckhead is a vibrant real estate market. In a sense it is ‘saturated’ with real estate value, but unlike Manhattan there isn’t a strong street plan or open space plan girding this value. Consequently, Buckhead, while rich in income is very poor in both urban street scape and more importantly parks, and thus places for community gardens or urban farms of any type to locate, at least at ground level, are rare. The roof top garden option found in similar dense cities, like Manual Tavern’s chicken coop in this sample, are another matter, but unlike Chicago or New York that is a story that is yet to be told in Atlanta.

Along Roswell Road, which branches off of Peachtree Road at the district’s Buckhead

Village Center, one does find a tiny triangle of public space in the district. Also, not far from Roswell Road, on Buckhead's far western flank is Chastain Park, large but tucked in between Bulkhead's wealthy subdivisions. Not far from Chastain is Blue Heron Nature Preserve along the banks of Nancy Creek. Briefly, the preserve's dense canopy opens up, and in this sunny spot sits the Blue Heron Community Garden, quite visible but unnoticed when driving at 45 miles per hour or likely faster along Roswell Road as one heads into Atlanta's sprawling northern suburbs. Blue Heron was founded by Kevin McCauley who also is the current board president of the nature preserve. Kevin's garden was also one of the first in the Park Pride system of which Anne Stanley's Peachtree Hills Garden, in the southern part of Buckhead, is also a member.

An avid outdoors man and nature buff, McCauley talks passionately about how this end of the preserve next to Roswell Road and the creek used to be quite degraded but has since been transformed into an oasis which includes his Park Pride garden. "Just to give you a little history here," McCauley explains, "This used to be a construction site. You can't really see it any more but beyond that tree is a big box, which is essentially a filter. There's a deep sewer tunnel that was built 150 ft. down, 14 ft. wide and runs about 7 miles and it takes all the sewage water from parts of Fulton and DeKalb County and then it takes it down to the plant. So for two years this was a construction site. There were cranes that were creating the shaft and took the rocks and dumped it into dump trucks and took it out. The settling pond where the garden is now they took all the water that came into the tunnel and drained it out by putting it into the creek. So it's kind of interesting how this has kind of evolved, which is another lesson that has been really useful to us as a nature preserve, that you can take a really degraded place and improve it."

For the full diversity of Park Pride gardens one can take their annual tour, and Kevin McCauley has been amazed at how many communities in the Park Pride system and

elsewhere in Atlanta have appropriated vacant or marginal lands, and used their ingenuity to saturate them with all kinds of ecological food producing diversity.

“It’s very enlightening; to me a lot of people are dealing with much more challenging conditions. Down South there were a lot of places that had been vacant lots where houses were. There’s still a lot of foundation rock left and they were able to make use of it. There was this one garden that was built on a hill side that was covered in kudzu that was growing on it, and the community decided they wanted to do something to kind of make a change, and collectively came together and got permission from the property owner. They took a lot of the concrete rock and used it as terracing that they were then able to plant on. It’s interesting to see how others have taken a problem that they have been faced with and turned it into an asset.” Blue Heron is certainly an example of that process. “You take a much degraded place and over the course of seven years” McCauley explains, “you can convert it into something that is very different.”

McCauley would like Buckhead to become saturated with more than just real estate and hopes to see other areas of the district with food production besides his garden. “There is definitely a park deficit, [in Buckhead] which creates this deficit of community gardens.” He explains, “There isn’t a lot of community space that you can utilize. There are not vacant lots for example that you could use in Buckhead. It’s a very different kind of socio-economic environment here than what you have elsewhere, so you don’t have the same opportunities that you may have elsewhere, in my opinion.” So oddly Buckhead’s wealth has also become its poverty, at least from an urban agriculture perspective. But it’s also a cautionary tale on what could happen to many other parts of Atlanta.

“A lot of people come here” McCauley says, “and when you tell them there is a wait list they ask if we are going to expand the garden, which is really not in the cards. I keep

telling them that they just need to look for other parks that have space. Chastain Park is a great example. They don't have a garden in Chastain yet, but they were talking about doing something, actually an urban farm. And I have really been anxious to see them make progress on that.”

Ayanna Williams, Park Pride’s garden coordinator, explains the dilemma in an area with so few open spaces; In essence the open space needs begin to cannibalize each other, “Chastain is actually a very programmed park” she explains, “There’s not a lot of open sunny land that isn’t already being programed. And many parks have waiting lists. When asked about waiting lists, Williams remarks, “It really depends on the part of town. The northeast [Buckhead] most of those have a waiting list.”

In a sense Buckhead is so rich it has become community poor, at least in comparison to financially poorer districts such as Atlanta’s southwest. But why should one, care? Why does it matter if Buckhead has a community garden deficit or whether Blue Heron has a waiting list? For Kevin McCauley it’s also the lost opportunities in what Brian Maloof at Manual’s Tavern had called precious food awareness. “I don't know if you can necessarily live off of a 5 ft. by 10 ft. plot.” McCauley chuckles, “You put a lot of time and money into it and in terms of the amount of produce it doesn't necessarily balance, but I think it's a great lesson in understanding what it takes to grow things and appreciating things that you often times take for granite, when you go to for example your supermarket”

Most of all McCauley, who as a leader of both the garden and the preserve, tries to get his participants to understand that the community garden is part of something bigger. To him it is creating value through both its community building potentials and its natural experience potential, two experiences with which park space poor Buckhead denizens are



missing out. Although he would not use the term, McCauley sees the gardens value as both social and ecological.

In his words these spaces are a great way for people to simply get outside and be with each other and with nature. “There are so few opportunities where we have common places for people to go to that are *outside*,” he emphasizes, “that are not either affiliated with a retail establishment or some other type of venue, where they can go and just enjoy the outdoors and each other. This [community garden] is a way to get people outside and going outdoors and doing something that is constructive and possibly for other people... that’s really critical.”

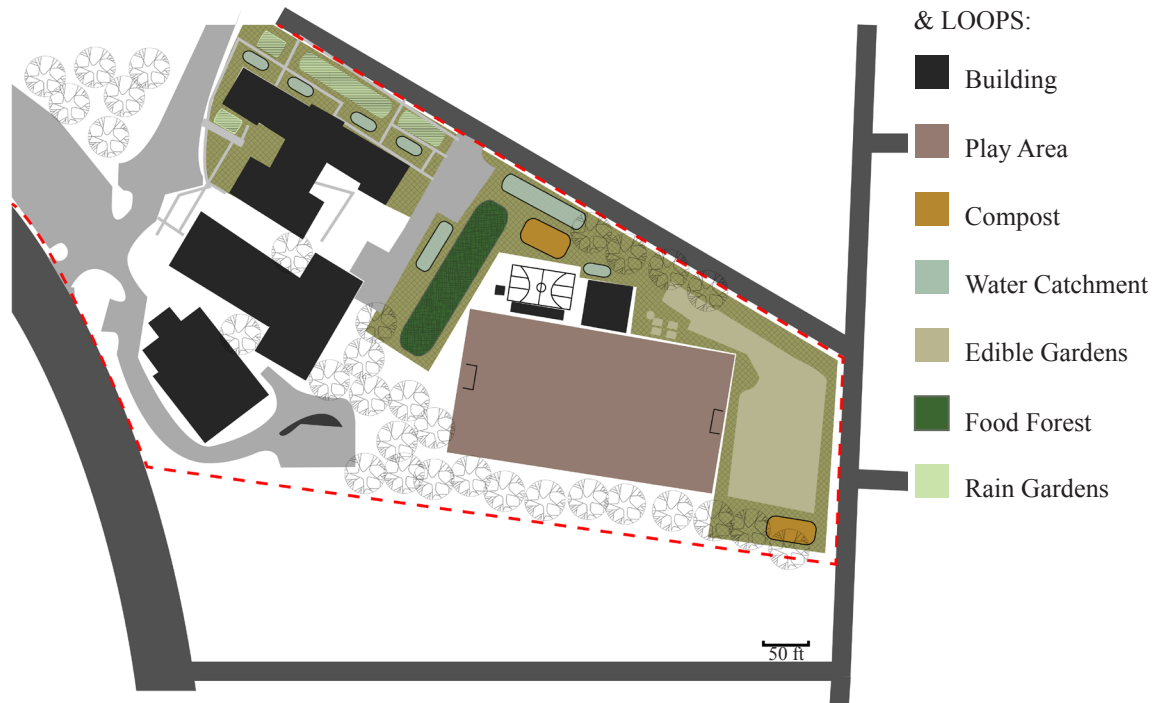
In short one could say that the value of the Blue Heron garden and the preserve is socio-ecological, actively connecting people into one social and ecological system via a former Buckhead construction site and degraded drainage ditch.

## Photo Voice Clarkston Community Center

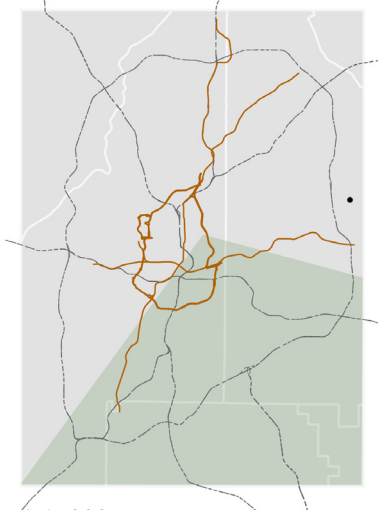


# Map Voice Clarkston Community Center

## SITE VISIBILITY & ECO-REVELATORY DESIGN



**PATTERN:**  
1 site



**EXTENT:**  
3 acre community center site  
1 acre in food production

**LOCATION:**  
private parcel



**ACCESS:**  
Gated garden

**PROGRAMS:**

Six Food Security Programs:

1. Food pantry
2. Food cooperative
3. Farmers market with donations of left over produce
4. Growing food for homeless, and Community Garden plots
5. CSA
6. Refugee farm training

Passive Education:

Food forest, water catchment, rain gardens, international growing styles

Active Education:

After school garden and garden summer camp

**MEMBERS:** Wylde Center



## Narrative Clarkston Community Center, Clarkston

“Saturation Strategy: step 2, maximizing the site”

As Alan Erhenhalt points out in his book *The Great Inversion and the Future of the American City* immigrants in Atlanta go directly to the burbs now, places like Atlanta’s now infamous immigrant Buford highway corridor and Gwinnet counties on the metro area’s northwestern flank. (Erhenhalt, 2013)

Buford Highway is a former country road leading to Buford, GA. As a road in Atlanta’s ring of mid-20th century suburban development it was quickly filled up with strip malls and garden apartments and traffic engineers, with their religion of auto speed, also worked their magic to turn the little road into a multi-lane, high speed ‘Stroad’, as reformed traffic engineer and author Charles Marohn would call it. (Marohn, 2013) Today the road is still multi-lane but also multi ethnic as it has become the corridor for Hispanic and Asian immigrants alike. Its many strip malls are currently filled with ethnic cuisine, bodegas, and businesses. Unlike 19th century cities such as New York or Chicago, when immigrants enter modern Atlanta, they head straight for the suburbs and the many Buford business service their needs. Also unlike 19th century immigrant enclaves, for the most part no section of the highway is dominated by one group, with its 1000 plus immigrant owned, operated and frequented businesses sitting cheek by jowl with signs in very different languages. Buford highway is a true melting pot, though spread more thinly along a corridor of 20th century sprawl.

A trip down Buford Highway one will see many of the foot paths formed along the road by car-less immigrants trying to avoid the traffic nightmare created by the engineering profession. Buford Highway is not a pedestrian friendly strip, with a seven-lane highway with no median and few sidewalks, and unfortunately many immigrants are not successful in surviving let alone avoiding its traffic. In 2010 a PBS documentary



highlighted the corridor as an example of a suburban America arterial failing to recognize the demand for walkability due to changing demographics. According to PBS, thirty individuals had died and 250 were injured while trying to cross Buford Highway, which is pedestrian and auto collision rate three times higher than any other road in Georgia. (Larson and Moore, 2010) It truly has become a shameful example of the failures of auto-speed oriented transportation planning.

Focused on urban agriculture, this inquiry limited its sample to entities within the two counties, Fulton and DeKalb, which make up Atlanta's ITP urban core. The infamously deadly six mile stretch of Buford Highway is the northern most flank of DeKalb County, as it heads out to neighboring Gwinnett County. That county is more immigrant dense than DeKalb, however, DeKalb as one of the two inner counties in Atlanta has a lot of mid-century 20th century sprawl like the Buford Corridor and thus many immigrant communities as well. Sitting almost smack in the middle of DeKalb County is the tiny community of Clarkston a roughly one square mile circle which sits on a rail road juncture and the old road to metro Atlanta's Stone Mountain Park. Clarkston is just outside the perimeter but by its location is in the eco-tone between the denser urban core neighborhoods inside Atlanta's perimeter (ITP) and the more sprawling and less dense communities outside the perimeter (OTP).

As a more suburban but inner ring location the area around Clarkston, like the Buford Highway corridor to its north and Gwinnet County to its northwest, has seen its share of international population. Tiny Clarkston has embraced this new diverse population. On its website the community center puts this new identity front and center, "We are the Clarkston Community Center, located in the heart of one of America's most diverse, international communities." It proudly explains, "We celebrate and support this diversity and honor and recognize how the richness and strengths of many different cultures can

help build a sound and progressive city.” (Clarkston Community Center, 2013)

The Clarkston community center site is tucked behind a complex of public amenities including a library, a playing field and further tucked behind that is Clarkston’s amazingly diverse edible landscape, which is a part of Clarkston’s Food Security Initiative. The garden is as varied in horticultural and ecological function as the people that care for it. Janice Giddings who directs Clarkston’s food initiatives gave me a tour of the community garden plots, unlike any I had seen anywhere else in Atlanta, “That is one of the community garden plots that a woman from Burma manages, her name is Katazar and she builds these fantastic structures that our garden is really known for and that people come out to see....the trellises that are back there in the garden. Her garden is very different from any American born farmers and growers that I’ve seen, and people always talk about them and want to come out and look at them. She even did a little workday with the community gardeners trying to teach us how to build bamboo.” Janice explains. “She’s using shade with certain crops over here and then she’s growing things under it to do season extension as well. And then a lot of her foods are different. This is a squash she calls Bouti. I’ve never seen it or heard about it before, but it gets to about ten pounds and she carries these giant gourds on her head.”

In addition to the unique community garden plots which hug the space between the playing field and the properties edge, and which seem to be spreading willy nilly into all available corners of the lot, Clarkston Community Center has a recently installed food forest along the slopes between the playing field and the center. Add in all the edibles, rain gardens, and water harvesting schemes between the site’s buildings and the sidewalks around it and Clarkston is probably the best example of how to squeeze the most out of any mundane location. Clarkson is a prime specimen of a site saturation strategy.

Giddings describes as an example of Clarkston's ecological function diversity her rain water collection system running off the community center roof. "I know that we are collecting off of a 5000 sq. ft. portion of our 10,000 sq. ft. roof. In a 1 inch rain we collect 622 gallons of water that flows throughout the retention basins." With all of this diverse food growing and ecological function, through its saturation, Clarkston Community Center has become something much more than just another community center nor is it just another community garden. Clarkston is more like an 'ecological center' combining its social mission with its intensive food growing and ecological practice into something that is much more than either of the two goals alone. For short one could call it an 'eco-center.'

Clarkston also has no intention of metastasizing, or expanding its social and ecological activities to another location. "That's not really my mission or my charge to continue growing more and more food." Janice explains, "It's really to build this local food system and to provide access for people in a variety of ways."

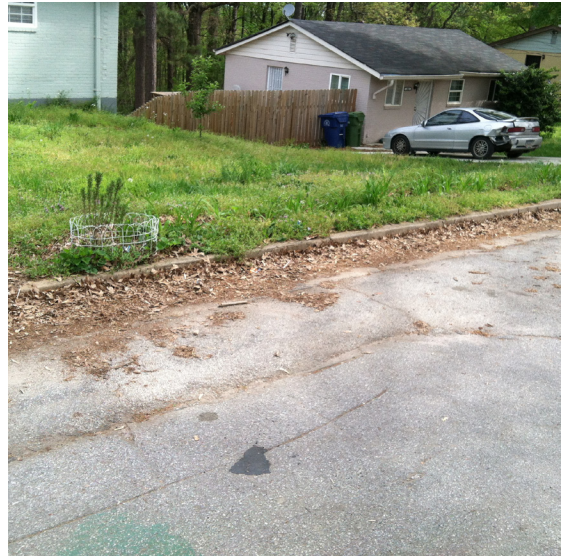
Instead of expanding to other sites, via its saturation strategies Clarkston brings people to it. Clarkston includes in its food security initiative a food pantry, a food cooperative, a farmers market with donations of left over produce, a growing food for the homeless program, a CSA, and a refugee farm training program. According to Giddings the food initiatives are directly responsible for bringing in at least 10% of the people annually participating in Clarkston's innovative community center approach. But all 35,000 individuals who visit the center see Janice Giddings' food initiatives regardless of their purpose for being at the community center because her internationally flavored gardens are so hard to miss.



Giving me a tour of their water harvesting system, Giddings explains, “That’s the cistern rain harvesting system, and the gutter system that comes off of there and its always such an huge educational piece and a point of surprise for people when they visit. They see all the water that we are harvesting and that we are able to feed many of our projects up here, minus the community gardens, off of just rain water harvesting. We’re not out there watering.”

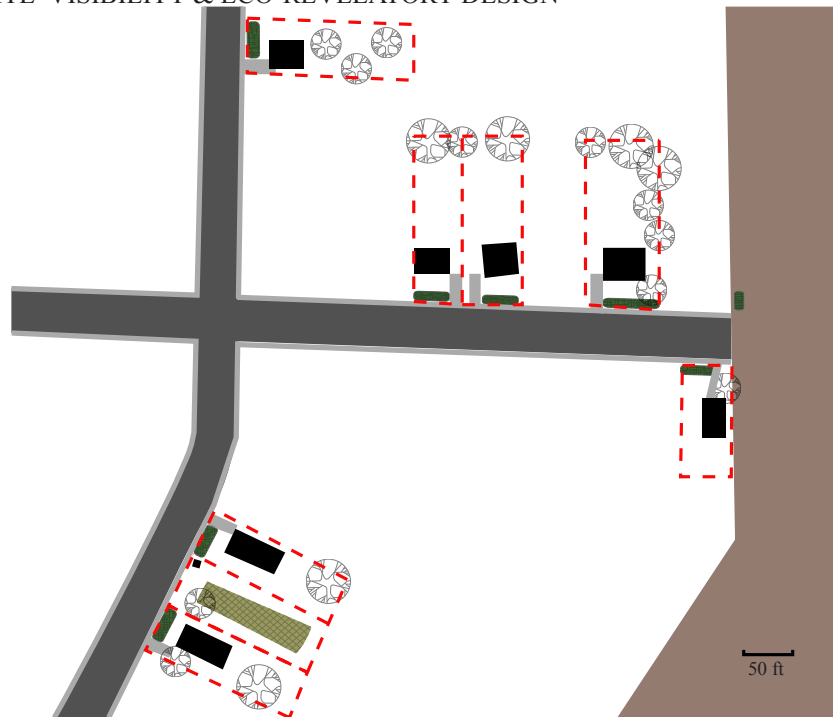
Reminiscent of Concrete Jungle, Clarkston has also begun a food forest. Giddings points to a little piece of land with fruit tree and other samplings, “It’s very low input, so there’s not a whole lot of management that has to go into it and it will produce for decades and decades and centuries to come as long as the trees stay standing.” When the food forest becomes more mature it too will likely be a successful community educator of Clarkston’s eco-center model. Giddings adds, “We are trying to be somewhere that’s also a model for other places, to show that it can be done, and that it can be integrated into communities very successfully. A place that serves as an example to people, a place that exists on a shoestring budget, but still forms a lot of solid partnerships and connections to people and is able to demonstrate what can be done.” Clarkston community center is something quite extraordinary in a very ordinary inner ring suburb of Atlanta. As not just a community center but an ecological oriented community center , an ‘eco-center,’ it is a purposeful and eco-revelatory socio-ecological system.

## Photo Voice Chosewood Park Edible Neighborhood



# Map Voice Chosewood Park Edible Neighborhood

## SITE VISIBILITY & ECO-REVELATORY DESIGN



## MULTI-FUNCTIONS & LOOPS:

- Building
- Play Area
- Compost
- Edible Gardens
- Food Forest

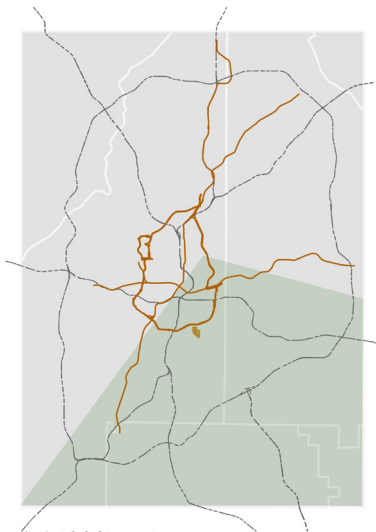
## PATTERN:

24 ROW gardens, 1 neighborhood Civic space, along sidewalks

## LOCATION:

## PROGRAMS:

- Food forest along street Right of Way
- Community garden on abandoned lot
- Community lending library
- Abandoned or neglected lot reclamations



1:15000

## EXTENT:

30 to 35 Right Of Way (ROW) gardens  
50 ft lots, front 4 ft planted



1:400

## ACCESS:

24/7 access

## MEMBERS:

- 1 property owner, and 3 real estate partners
- 6 engaged tenants
- 12 engaged community board members
- 800-1000 members of neighborhood

## **Narrative** Chosewood Park Edible Neighborhood

“Saturation Strategy: step 3, maximizing multiple sites, the Edible Neighborhood”

All food system innovation does not necessarily come from the non-profit world; it can also be for profit as in the case of the Chosewood Park Edible Neighborhood. Edible neighborhood is the brain child of long time Atlantan, and award winning architect and planner, Clayton Preston. Earlier in his career Preston with Greg Ramsey had won a prestigious global award, beating out 180 international competitors for his co-housing community East Lake Commons in metro Atlanta. (East Lake Commons, 2013) Preston, a shrewd business person as well as a social visionary, had always wanted to get more involved with real estate. The crash of 2008 and the social mess it left in foreclosed and abandoned housing in South Atlanta provided Preston the opportunity to address both his financial goals and social stewardship proclivities. Preston, however, decided to focus his attention on one neighborhood, Chosewood Park. “In the crash I quit working in planning because I was waiting for an opportunity to get into real estate and that was a good time” Preston explains, “and that’s what we are doing here; we have been buying real estate in this neighborhood [Chosewood Park] buying vacant houses, fixing them up and renting them out . And so me and a couple of partners have bought and renovated a bunch of houses in Chosewood Park where we are now, probably over half of the vacant houses we have renovated.”

For many reasons Chosewood Park is a very sound choice from both a financial and demographic perspective. With a mix of Whites, Blacks, and Latinos, no one ethnicity dominates. It also is a neighborhood with an active community group and many home owners of all backgrounds who would like to see their properties stabilize or even increase somewhat in value, but blown over by the consequences of the popping of the 2008 real estate bubble, few residents had the resources to tackle these issues alone. With his financial capital and urban planning expertise, Preston was a strong addition to the



neighborhood mix and has become a formidable force for neighborhood stabilization. Preston is not starry eyed about the neighborhood and understands that he is one of several forces working in Chosewood Park.

“We’ve been working down here for what, five or six years now, a lot, daily, and so we know the cast of characters. We know the thieves. We know the drug dealers. And everybody in between and generally they leave us alone because they kind of get that we are kind of being good for the place. And we treat them with respect.” Since the interview took place in a couple of lawn chairs in front of one of Preston’s Chosewood rentals he waves at a group of men sitting in front of the rental two houses over. “They are very much the eyes on the street,” Preston remarks, referring to Jane Jacobs writings. “I have a great story about them sitting there by that fence and one of my partners going ‘we are never going to rent this house with these guys sitting here.’ And I went to the tenants who were moving out and asked ‘were these guys a problem for you?’ and she says ‘you know at first it really made me nervous that there were these men hanging out there and after a while I learned their names and I realized, when they are sitting there, I’m safe.’ So they mostly do keep an eye out. So they go in the plus column for us.”

In Preston’s view the primary negative forces acting on the neighborhood are not the locals but the distant financial interests and absentee owners. Atlanta was hit particularly hard by the post 2008 crash foreclosure crisis. (Rugha and Massey, 2010) Chosewood Park is still reeling from its impacts. During the interview Preston took me on a walking tour of the neighborhood in which he hopes to be a positive force, all the while weeding as we walked. “Bank of America owns that empty lot. They have no idea that they own it,” he says tossing a weed away from one of his fruit trees. “They are totally uninterested in it. They don’t do anything to take care of it. And when they show up, I’m going to tell them it is time for them to donate that land to the neighborhood. And I’ll make it into the

biggest PR nightmare they've ever had if they don't. But they got to show up," he says as another weed flies over his shoulder.

Large corporations are not the only culprits in Chosewood Park's crisis. Smaller entities are abusing the neighborhood as well. Clayton points out another property owned by a less remote and nowhere near as large an entity as Bank of America but whose neglect is having just as much a drag on the neighborhood. "This guy's place is boarded up." He points out. "We report him once a year and he cuts the grass once a year. Same for this one and there are a couple more lots down here like that. And so these are people who are not contributing. They are just sitting. They are actually kind of an undertow that we have to work against. We report them to get their lots cleaned up. But other than that they are totally not contributing. I'm kind of looking for exactly the right way to shame them to get them to start to be responsible owners here. The absentee investors they are the real negative."

Although Preston's latest hat is as property owner and neighborhood steward, interestingly, it is not his real estate, urban planning, or even architectural expertise that Preston decided to draw on in order to create real estate value and stabilize a community, but rather something a few years ago he knew very little about, urban agriculture. But Preston was not interested in starting an urban farm or community garden, although with his help a community garden complete with a 'lending library,' a small book depository installed in the right of way, is forming on a lot next to one of his salvaged properties.

Instead, Preston decided he would plant the front of his properties with fruit and nut trees as well as lower level edibles such as herbs and day lilies as a kind of urban food forest. These were the trees Preston lovingly weeded as we walked by the bank owned properties of neglect. Like Clarkston Community Center's food forest or Concrete Jungles trees,

Preston's plan meant the edibles would spill into the boundary between public and private space, as they would be planted in the right of way, or at least very near the right of way. This was quite intentional. Preston was seeding the food forest that could be harvested by future Concrete Jungles.

I asked Clayton to explain why he was planting these Right of Way Gardens. "Gathering fruit, picking fruit, is fun and exciting," he explains, "And it's something that you can do in community, with people you don't know and you can get to know them while you are doing it. And it brings a quality of life. Picking fruit together with people is great fun. That's why there's pick your own fruit places. And there is no reason not to have it on the sidewalks in your neighborhood." Clearly Preston was tapping into the same spirit informing Durkin at Concrete Jungle.

Few examples exist of such a conscious adaption of this urban landscape strategy, but a visionary, Clayton Preston is adamant that Right of Way gardens should be allowed by cities all over the country. The only place I had heard of consciously allowing such Right of Way Gardens were in California. (APA, 2014) When asked if he had any communication with the city of Atlanta, he vigorously responded, "Well the fruit trees are actually on my land, the only thing in the right of way currently are herbs and flowers. But Trees Atlanta plants fruit trees in the right of way all the time . They generally do service berry, which is a particular kind. But I would not be concerned if they [the city] did have a problem with it. This neighborhood, the city ignores it anyway. If they came down here with a problem I would raise unholy hell with them."

Preston is early in the saturation process of Chosewood Park but his hope is that his plan will spread to other locations. He will be staying, however, in Chosewood Park. Last year I planted the fruit trees; I planted a bunch of fruit trees. I got the neighborhood



association together we did a fund raiser we're I gave them day lilies and we sold them to be planted and day lilies are an edible flower. You can eat the buds, the blossoms and the rhizomes. I don't want to tell people that until they start taking over the neighborhood but it's an edible plant too. Then I put in rosemary, oregano and thyme all in the right of way or right at the property edge and now I'm doing spearmint, peppermint, sweet mint, whatever they call that, sage, blueberries, muscatines, all in the front of the house; it's there for the neighborhood, and I haven't really reached out to the neighborhood, I haven't reached out in a concerted way to say 'come on y'all let's do this.' "

There are small signs, however, that owners besides him and the neighborhood association are picking up on the idea. Preston spotted fruit trees unrelated to his efforts in the public park, Chosewood Park, for which the neighborhood is named. "I've noticed a couple of other neighbors that are planting fruit trees. One went down and bootlegged some fruit trees into the park, which is great. Some apple trees and that's why I moved my apple trees down there too so that they could cross pollinate" Preston explains. While Preston calls it "boot legging" most urban agriculture aficionados would recognize this clandestine fruit tree planning as Guerrilla Gardening. (Tracey, 2007)

Although Preston has no intention of taking his real estate ventures beyond Chosewood Park, his edible neighborhood scheme, while still young could catch on to other neighborhoods in Atlanta or beyond. He would love for the idea to become a movement. Meanwhile the plants themselves are starting to spread on their own. This was actually a theme that emerged across the sample. Erin Mooney from the Emory demonstration garden program described how strawberries began spreading outside their original location. There is also the case of the Piedmont Park garden yet to be discussed whose native paw paw plants began colonizing the wetlands behind the park. With a little nudge here and there it doesn't take much to make a city in a forest like Atlanta into the urban

agriculture system vision of Rashid Nuri or the Fruit Forest concept of Concrete Jungle.

Meanwhile, Clayton Preston is doing his part along the sidewalks of Chosewood Park. Preston's tree's are also socio-ecological, being not just about the plants but also the community that is engaged with them. Explains Preston, "I think that there is something about generosity and planting your fruit at the sidewalk for people to share. I think there is something there about building community. There is something there about building an abundant life, that has to do with sharing fruit and sharing the experience with your neighbors."

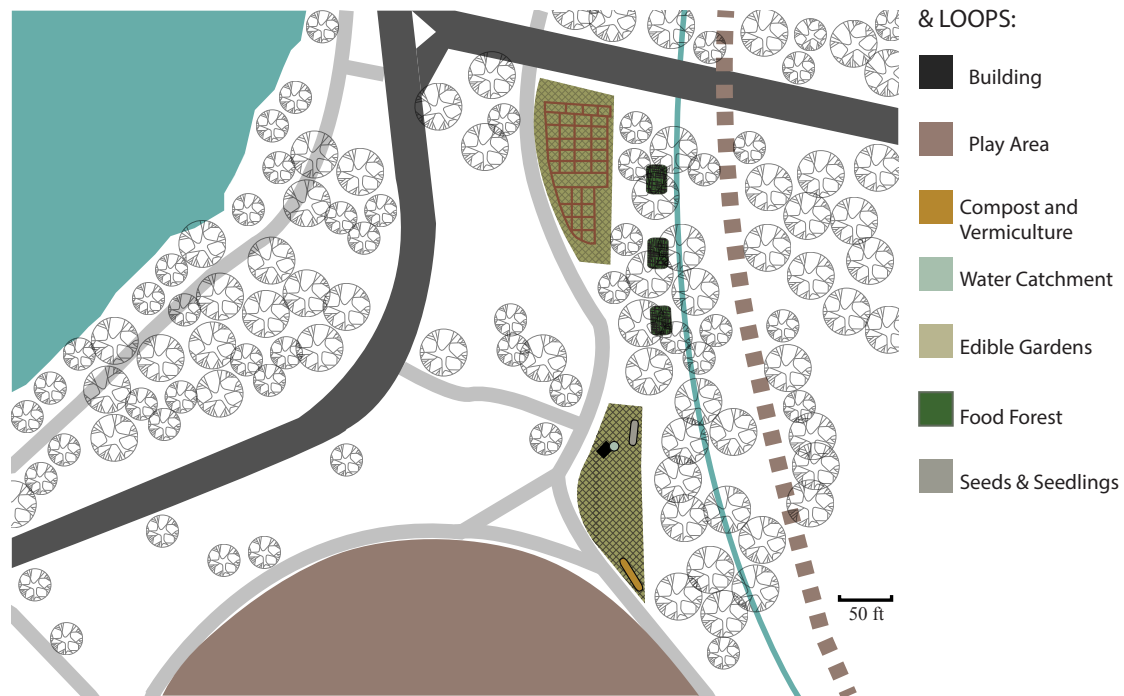
## Photo Voice Piedmont Park Demonstration Garden



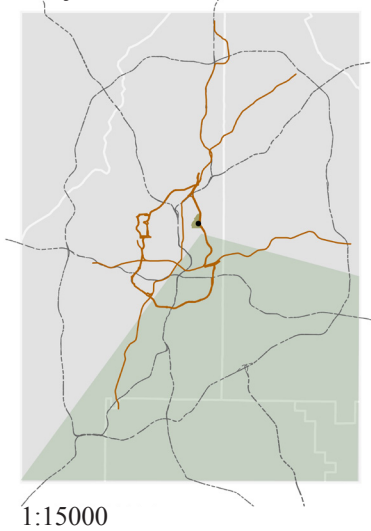


# Map Voice Piedmont Park Demonstration Garden

## SITE VISIBILITY & ECO-REVELATORY DESIGN



**PATTERN:**  
2 adjacent sites



**EXTENT:**  
Demonstration garden .50 acre  
Orchard .25 acre  
(1-2 acre community garden plans)

**LOCATION:**  
Public open space



**ACCESS:**  
Open orchard  
Fenced garden

**PROGRAMS:**

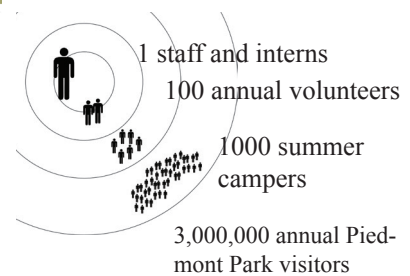
Passive Education:  
Extensive Education sign-age

Active Education:  
Environ-volunteer summer camp,  
school year field trips and kids  
cooking, adult classes

Piedmont Green Farmers Market

Compost Wheels and seed to  
market programs

**MEMBERS:** Education Garden



## Narrative Piedmont Park Demonstration Garden

“Catalyzing: growing the system through small but strategic acts”

Piedmont Park is often called the jewel of Atlanta’s park system. Located on the eastern edge of Midtown it is a 189 acre triangular configuration of lawns, woods, paths, and ponds in the core of the metro area. The park also has an historical connection to farming. In the late 1800’s the site was actually on the edge of Atlanta and its owner, Benjamin Walker, used it as an out of town farm. He sold it in to a driving club in 1897, tying the park in history to both Atlanta’s landscape and automotive proclivities. Fortunately at this site landscape won out, when the Piedmont Exposition Company after holding two expositions on the driving grounds to display Atlanta’s prosperous post-civil war economy, decided to make it a park. The prestigious Olmsted Landscape Architecture Firm out of Boston, now run by Olmsted Junior received the redesign commission (Piedmont Park Conservancy, 2013)

In a city infamous for tearing down its history for the new and shiny, Piedmont Park’s 19th century Park ideal bucks that proclivity, still sporting much of its original design to this day. Programing and facilities have been added but it retains its 19th century essence, even though the oddities of modernist 20th century zoning designate the park as a residential land. (Allen, 2013)

If there is one view that is quintessentially Atlanta, it is the Piedmont park pond and tranquil Olmsted landscape framed by Midtown Atlanta’s crop of newest skyscrapers. At the time of this inquiry that backdrop was about to become much denser with the proposal of two dozen more towers, almost all residential. Atlantans would not be very happy though if Piedmont Park, like the rest of midtown, were to become a thick collection of condominiums and apartments. If any space in Atlanta is sacred, for Atlanta, Piedmont Park is most certainly one of those places. (Hester, 2006)

The parks preservation and programing for the past 25 years has been charged to the Piedmont Park Conservancy and among others they have turned to Arthur M Blank the prominent Atlanta businessman who's Home Depot is one of the strongest national brands out of Georgia, for support for the park's preservation mission. Quoting Blank, the conservancy reminds us that, "Great parks are an essential ingredient in great cities. Piedmont Park is the green heart of Atlanta, and our city is blessed to have it. We must commit to being good stewards of its preservation." (Piedmont Park Conservancy, 2014) Nevertheless, at least on its margins there are a couple of local food related programs now integral parts of the parks programing, which demonstrate how even-small changes can make out-sized contributions to Atlanta's emerging local food system. Piedmont Parks' Olmstedian lawns and paths will not be dedicated to food production anytime soon; and most of the park will not revert to its earlier use as a farm, but its food programing, though small in area, is serving as a catalyst for urban agriculture in other places in Atlanta as well as doing its part to create a new generation of ecologically aware urban dwellers.

One of the Conservancy's most successful local food initiatives is its farmers market, christened the Piedmont Park Green Market, the market meets almost weekly, since this is balmy Atlanta, offering local produce and other goods from March to December. According to the Conservancy "Green Market encourages sustainable communities in the most basic way - by providing shoppers with direct access to local farmers and merchants." (Piedmont Park Conservancy, 2014) One of the more interesting Green Market Vendors is Compost Wheels, which promotes an even more fundamental means for Green Market goers to access the sustainable food system emerging in Atlanta. (Compost Wheels, 2014)

Holly Hollingsworth, who started the Green Market for the Conservancy, explains the recent addition of Compost Wheels to the Market as well as its role as a partner for some of the Piedmont Park's edible green spaces. "This year we have partnered with a company called Compost Wheels. Basically, what they do is a subscription. People pay them to remove their kitchen waste. So they have different areas and Midtown is one of their areas. They have a bucket and people put it outside their condo door or whatever. Compost wheels comes by once a week and picks up the bucket, then they take that waste to whatever garden they are working with in the area, including ours... We are hoping to do a larger compost program with them, like windrows" Participation in waste removal while perhaps not as glamorous as buying fresh produce is also a critical part of any local food system, and the conservancy catalyzes that part of the system as well by introducing vendors like Compost Wheels to it market goers.

Compost Wheels also views itself as a micro-catalyzer of the larger system. According to their website, "The mission of Compost Wheels is to remain small but to have a large impact on the local food system, economy, and environment in which we work." And they achieve this through, a "closed loop mentality and efficiency... We achieve this through the use of minimal amounts of fossil fuel resources by never taking the organic waste out of the surrounding neighborhood." (Compost Wheels, 2014).

It's a good thing Compost Wheels has a booth at the Piedmont Park Green Market, since farmers markets are often the first point of access for many individuals into a local food system. In 2011 ALFI, the Atlanta Local Food Initiative, estimated that there were 91 farmers markets in the Atlanta region, a little over half of those being in the core urban areas of Fulton and DeKalb Counties. Besides just serving as micro catalysts of individual hearts and minds some of these markets have also transformed entire sites and neighborhoods.



Just as Piedmont Park was transformed from a driving range by expositions, a farmers market can also spark interest in urban food and help organizations to expand their physical space. In this sample East Atlanta Urban Farm's abandoned concrete corner lot began as the East Atlanta Farmers Market. Other Farmers market catalysts in the sample include Truly Living Well's year round, Wednesday markets in East Point, an inner ring suburb just south of Atlanta, and Friday Markets at their downtown flagship Wheat Street Garden site. There is also Clarkston's Farmers Market, with twenty-six Sunday markets from April to October. But there are also smaller markets, such as the Wylde Center's annual seedling sale each spring, or Berea Oakleaf Farm's roadside stalls, such as their October pumpkin sale.

These markets are often nothing more than trucks, tents, products and people parked in an open space, such as the abandoned lot that became East Atlanta's Urban Farm, and there is some question as to whether they are a viable distribution strategy since very little produce changes hands, however, since they influence individuals or even transform sites and neighborhoods, all of these market examples can at least be regarded as forms of Tactical Urbanism with a food system spin.

Tactical urbanism is a new name for grass roots actions, or tactics, that lead to long term changes. Author of the *Tactical Urbanism Primer*, Mike Lydon, explains how the concept is not that new "Really, tactical urbanism is how most cities are built especially in developing nations. It's step-by-step, piece-by-piece," says Lydon. (Lydon, 2012)

In essence tactical urbanism, whether sanctioned or guerrilla, is characterized by grass roots interventions with incremental goals. Popular examples of it today are annual parking days where parking spaces are temporarily turned into parks. Strong examples

of tactical urbanism from this sample include the guerrilla gardening of fruit trees cited by Preston in Chosewood Park, but also some of the farmers markets discussed by the sample. Weaker forms of tactical urbanism are the one-off parties or events, which get most of the tactical urbanism press, such as the Sweet Auburn example described earlier. Strong forms are concepts such as Piedmont Park's green market, which by showing up every week, continually reinforce in a community's mind the potential of a space.

Farmers markets while popular are not the only model for bringing people to a site and catalyzing a food system. Clarkston's Janice Giddings explained the value of all kinds of programming, stating, "I want to make the point that the reason we have so many different programs is to be able to serve a very diverse clientele, a community that has issues of access kind of along the spectrum of need." As Giddings points out diverse programming can link up not just farmers to markets but the needy to the more resource rich. And needy can be broadly defined, not just those needing healthier food options but even towns that need the more efficient organic waste disposal systems provided by companies such as Compost Wheels.

Another form of innovative food programming that has mushroomed over the past decade is Community Agriculture Systems or CSA's. Many of the respondents in this sample had CSA programs, which are systems where participants pledge to support a select group of local farms or producers. (DeMuth, 2013) One entity such as Clarkston Community Center or Fresh Roots Farms will often serve as a distribution node for the members or network.

One of the most developed forms of programming however will always be the traditional community garden. Piedmont parks demonstration garden is a form of community garden. The demonstration garden has two components, an orchard and a fenced area,

which grows vegetables. Volunteers, often-corporate entities, maintain both sites such as employees of Home Depot quoted earlier. Many corporate entities are often looking for service opportunities and Holly Hollingsworth has an impressive list of corporate sponsors of Piedmont Park's urban agriculture efforts, including but not limited to the Home Depot. "I have volunteers throughout the season for different plantings. We organize volunteer projects. It's learning based and functional," she says.

The primary role of the orchard and vegetable garden, Hollingsworth explains is to "teach people who have small spaces, how to grow fruit in that very very small space." With the current expansion of Piedmont Park, which has recently annexed land next to Monroe Drive and is developing several new park acres that will not necessarily follow the Olmstedian designs of the park's past, Hollingsworth hopes there will be more spaces for community gardens and orchards. "Hopefully we'll get five to ten acres of that. [Park expansion] I hope. Yes. I hope they don't just give me 1 or 2 acres. More is better. You got to get more people! There are so many people near here. There are 50,000 people who live within walking distance of the park who may not have a yard."

Of all the ways the conservancy is catalyzing Atlanta's emerging local food system, however, perhaps the most profound is the most micro, the hundreds of conversations that are sparked by the prominent location, high visibility and most importantly, well-signed Piedmont Park edible demonstration garden. The orchard and vegetable garden are less than an acre. They also sit on the margins of the park squeezed up against the eastern flank where the park meets a wetland and the Atlanta Belt Line trail. But the site is still highly visible from the Park's great lawn, and with the development of the Beltline's rail, will be visible to many more Atlantans in years to come, who may someday be able to see the little gardens signs as they ride the train on their morning commutes. Even without the potential Beltline users, the current number of visitors who potentially pass

the demonstration garden is nothing to sneeze at. According to Hollingsworth, “We have about 3 million visitors to this park every year, to Piedmont Park. And therefore we feel our education should be mostly signs because most of the people we aren’t actually going to speak to.”

The high visibility of the Piedmont demonstration garden does engender conversations. “I get stopped almost every time I’m down here, and then I tell them about the programs.” Hollingsworth explains, “They read the signs, and they inquire.” This is a prime example of phenomena that urban and landscape designers have been noticing for years. Danish urban designer and author of *Places for People* Jan Gehl discusses how gardens can activate neighborhood space, by prompting conversations. Gehl especially documents this phenomena in his research from Melbourne, Australia. (Gehl, 1977) On this continent there is the example from Fritz Haeg’s Edible Estates projects, where Haeg has placed vegetable gardens quite deliberately in suburban front yards, in order to spark neighbor interaction and conversations. (Haeg, 2010)

This inquiry’s respondents mentioned this phenomenon often. Anne Stanley discussed how people using Peachtree Hills Park for its community center or tennis courts will see her in the garden and ask her about it. Emory’s Erin Mooney, although being on a busy university campus next to the CDC says she has these conversations as well. “When I’m working in here [the garden] people will come up and ask me about it.” The most intriguing story of such an exchange in this sample came from Choseword Park’s Clayton Preston, while he was planting up his edible right of ways. “When I was planting this mint a couple of six year old girls came over and said ‘what you doing?’ So I let them help me plant. And a couple days later I saw them over here and they were tending them. And I said ‘OK, yatze!’ that’s what we’re after!’”

These conversations become even more powerful when they are teaching moments where skills and knowledge are also transferred. Many of the respondents discussed their own efforts to catalyze the food system through more planned conversations including consulting, seminars, or garden side chats, often for free. Rashid Nuri for example is willing to talk to anybody about his work, which was demonstrated when our interview was interrupted by a couple from Iowa who had driven into Atlanta just to see his urban agriculture aqua-ponics experiment at the TLW flagship site on Wheat Street. Afterword's, Rashid commented, "A lot of people come out here and I greet everybody. I mean everybody!" Nuri also takes his talks on the road and Anne Stanley shared how Nuri spent an afternoon with her Peachtree Hills Community Garden. "I just really love Rashid. I don't know how I found out about Rashid, but I try to reach out. I try to keep current and I'm always looking for other people that I can learn from. I think one of the most important things about a community garden is education and teaching people." Stanley says.

Janice Giddings also is doing her part within Clarkston and other communities in DeKalb County by helping with grants to get other gardens going. As she explains about the Dekalb Green Spaces to Gardens project, "It wasn't for me to start the gardens, or for me to do them. It was just to put that application process forward, so that anyone who wanted to garden in Clarkston on a city owned space had a resource to move forward."

Chris Edwards of Fresh Roots Farms yet to be discussed also takes his expertise to gardeners especially in Atlanta's south and western communities very seriously. Edwards introduced his organic and low cost growing techniques for example to the Jose Williams hunger coalition. People taking courses have also visited his site. Edwards explains, "Truly Living Well's classes come. Habersham Work's classes came. They actually came on the same day and just listened to me talk about farming" But it has also gone the

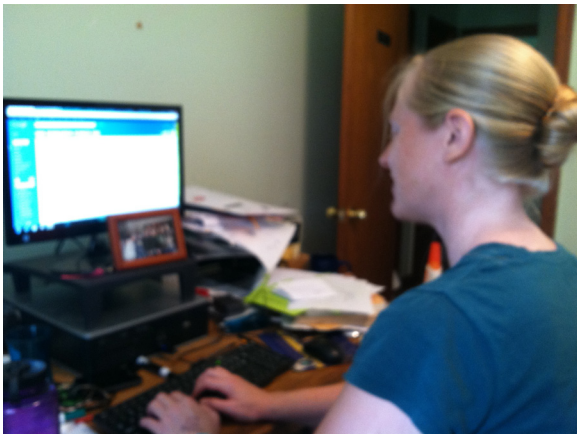
other way, with Edwards learning from others, often in unexpected places, such as his encounter with Outdoor Activity Center in Atlanta's West End neighborhood, where he was "stunned" by their aqua-ponic demonstration system.

As for the Piedmont Park Conservancy, it also practices this form of system catalyzing via its canning classes and workshops to show people how to preserve their own food. In the entire Atlanta sample, however, there is probably no better example of catalyzing through skills development than the Wylde Center in the ITP city of Decatur who has dedicated fifty percent of its mission to this task, but more on them in a minute.

The Piedmont Park Conservancy's Holly Hollingsworth, frames the worth of all these conversations, gardens, and diverse food initiative programming of the Conservancy and others well. She states these catalyzing activities in terms of making connections "It's all about connecting people to the earth and ultimately what it takes to sustain life. I absolutely love what I do and I love telling people how things work in terms of growing things. Sharing the beauty of growing and gardening with people is priceless."

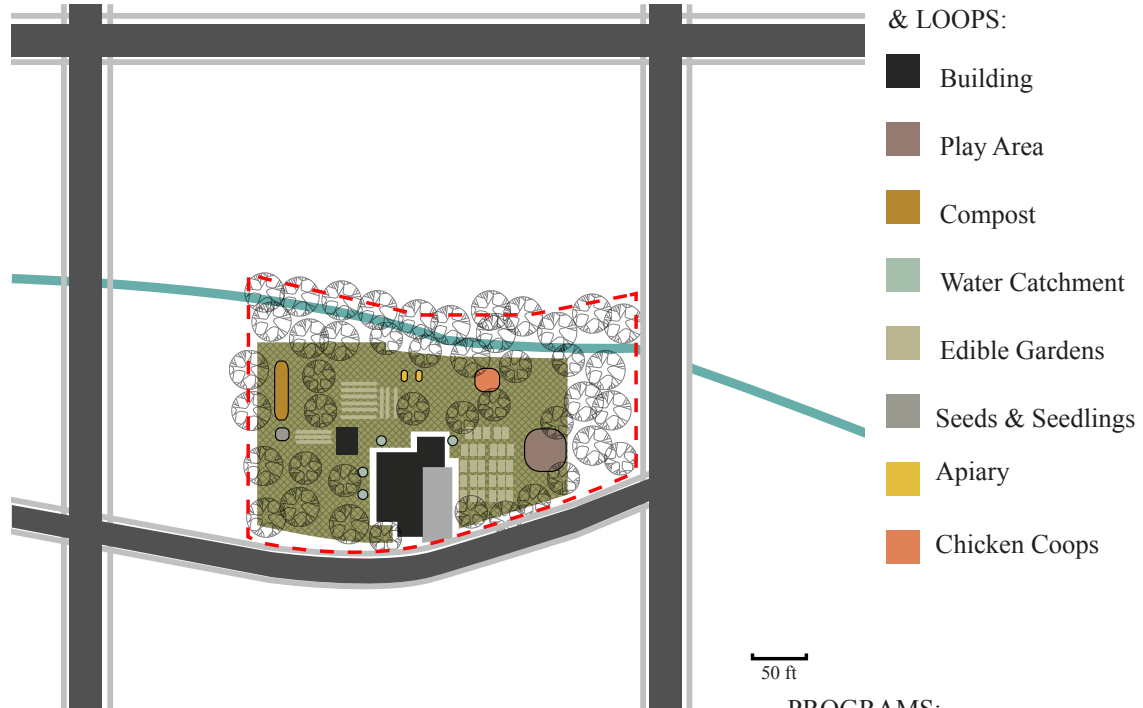


## Photo Voice Oakhurst Community Garden to the Wylde Center

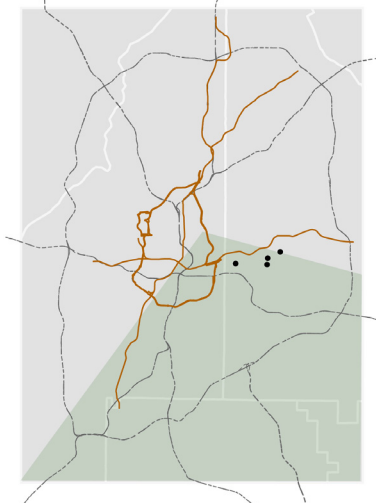


# Map Voice Oakhurst Community Garden to the Wylde Center

## SITE VISIBILITY & ECO-REVELATORY DESIGN



**PATTERN:**  
4 sites, SE Atlanta



1:15000

**LOCATION:**  
Oakhurst, private parcel



1:400

## PROGRAMS:

The Wylde Center

- Youth Programs: "Field trips, science education, and farm to school education"
- Adult Education: 100 classes annually
- Plant Sales: Hoop house at Oakhurst; sales in farmers markets across Atlanta

Oakhurst Community Garden Site:

- Passive Education: apiary, chickens, edible landscaping
- Neighborhood Programs: CSA, composting, and 3 community garden (34 plots)
- Park Amenities: open access open space, play areas, trails, space rental

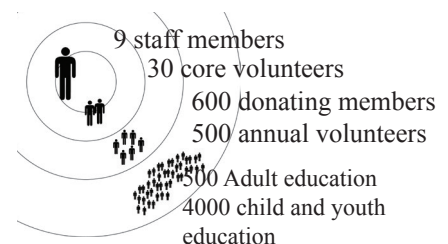
## EXTENT:

Oakhurst 1.75 acres  
Sugar Creek 1 acre  
Hawk Hollow 1 acre  
Edgewood .75 acres

## ACCESS:

Oakhurst: private parcel with public access, 24/7, no fences

## MEMBERS: Wylde Center



## **Narrative** Oakhurst Community Garden to the Wylde Center

“Metastasizing: growing the system by growing locations”

In a leafy inner ring suburb near Decatur, located in Atlanta’s DeKalb County, sits a little 1950’s era bungalow surrounded by an acre of land. But look carefully and one realizes that this is not your standard suburban lot. The yard, side, front, and back is covered with all kinds of gardens, beehives, compost bins etc., all in a park like setting. This is the Wylde Center, which though small and suburban, is one of the older and more established community urban agriculture sites in the Atlanta region. “Fifty percent of what we do is manage green spaces and the other fifty percent of what we do is our youth programing outreach,” explains the Wylde Center’s director Stephanie Van Parys.

Although children and youth are their primary clients, for years the Wylde Center has also been cultivating adult education in food growing and ecological understanding, with classes in everything from proper chicken care to safe bee keeping. Consequently they have developed one of the more extensive membership rosters of food growing organizations in the Atlanta metro area via the hundreds of people whom have attended their classes. Through these classes they may also be the strongest example of feedback and catalyzing through skills development currently in Atlanta’s evolving local food system.

“Back in 2004 we started our first classes and now we offer about 100 a year at my last count. It could be more than that,” says Van Parys. “We have sustainable life skills classes. So far this year we had about 250 people take a class here... what’s really nice about The Wylde Center is that it’s a place where you can learn how to can, you can learn how to take care of your chickens, you can learn about having your first bee hive, you can learn about having quails, rabbits, fermenting your food.” Gardening is a topic that has been growing in interest in recent years explains Van Parys. “We started these classes



right before the wave where people wanted to grow their own or eat organic, really that's where it all started, the organic part, and then it was followed by 'I want to grow my own because of the economic crash' and all that kind of stuff that happened."

How the Wylde Center got involved in simultaneously cultivating youth and gardens is also a classic example of a private food grower ratcheting up into a food growing scheme at a greater scale. Located in the ITP neighborhood of Oakhurst in Decatur, for the Wylde Center its initial step was as the Oakhurst Community Garden, founded by Western Massachusetts transplant Sally Wylde.

The "Happy Valley," of Western Massachusetts, better known as the Connecticut River Valley, for decades has been a hot bed of ecological education and innovation and Wylde, illustrating a form of national level catalyzing, brought her Western Massachusetts environmental perspective to her new Decatur, Georgia neighborhood of Oakhurst.

Wylde's story is proudly displayed on the Wylde Center's Website. "When Sally Wylde moved to the Oakhurst community of Decatur from rural Massachusetts in 1993, she observed a troubling phenomenon taking root, an urban community becoming increasingly separated from the natural world," the site explains. "Every afternoon, children leaving the nearby elementary school cut through the yard of Sally's neighbor, Mrs. Louise Jackson, and trampled her beloved garden. Instead of involving the police, Sally and Mrs. Jackson partnered with a group of neighbors to invite the children to become caretakers of the garden. Working together, they restored Mrs. Jackson's garden and added a beautiful, hand-painted fence. The children watched with delight and amazement as their plantings flourished and something ordinary turned into something special — a process they had never noticed or understood before." The group went on to create a garden in the median strip of the street in front of Mrs. Jackson's house.

The following year, Sally acquired a nearby, undeveloped half-acre lot that had been used to grow arugula, and was at risk for infill gentrification. Instead the site became a community garden and today has evolved into a much greater community asset. (Wylde Center, 2014)

Oakhurst Community Garden has operated in that spot for over fifteen years. The site is essentially the corner lot of an Atlanta ITP neighborhood of mostly prewar bungalows, partially shaded by Atlanta's lush forest canopy. At the corner of McDonough and Oakview, just south of Agnes Scott University, the canopy opens up on two sides exposing Wylde's creation. The garden though not more than an acre is an oasis chalk full of food production variety. In addition to the former bungalow, which serves as headquarters for Wylde Center education operations, there is a stretch of trees with walking paths. This diversity of use and ecologically and socially based food production also makes The Wylde Center an example of a site saturation strategy.

Most of the food production is for demonstration rather than production, such as there chicken coop and bee hive areas, but the center also has a hoop house production area for their annual seedling sales, and of course plots for the original community gardeners. Talking with Van Parys surrounded by all this variety in what was just another lot in a traditional American neighborhood I was stuck by how much could be done with so little and how much like a park it felt. There are no fences and the design of the site beckons visitors to wander in. While meeting with Van Payrs I noticed a jogger had diverted her path through the site as well as a young mother with a toddler. Surprised, "It's almost like a park here" I had blurted out. And Stephanie responded. "It is! That's what's great about it." But she explained, "I had to start saying that we are a garden that *hosts* a community garden. We are not a community garden in the strictest form. We have all these community green spaces. That's where all the birthday parties happen. The bier garden

event was over there. We just have lots of green spaces, gardens, for the community to enjoy. Parents, kid, and we have a children's play area, which is a huge draw, and it has a mud house in it!"

With all this park like amenity intertwined with their food production and demonstration gardens the Wylde Center's Oakhurst site seems to be a form of urban agriculture completely different from the community gardens or urban farms of most of this sample. The Wylde Center 's Oakhurst site feels like that community's ecological- center, or 'eco-center' for short. One could also call the Wylde Center a 'food park,' since its gardens operate like a community park space.

After having this insight about the function of the Wylde Center's Oakhurst location. Nuri's Truly Living Well site at Wheat Street also struck me as serving this eco-center or food park function for its community in Sweet Auburn. Despite the Wylde Center's focus on education and TLW's focus on farming and production, both organizations' flagship sites had a similar, open, public park like quality about them. The key point being, however, that their flagship sites, located in densely populated parts of in-town Atlanta such as Sweet Auburn and Oakhurst are where this food park function is occurring. The functions of these site is less agriculture production and more *agriculture awareness*. TLW has six sites several in the less densely populated fringes of metro Atlanta where the bulk of its production takes place, such as its farm near College Park. Likewise for educational purposes the Wylde Center has made the very calculated move into the city of Atlanta proper, and some of the food insecure areas in the Southeastern quadrant of the city. These sites are not food parks or eco-centers yet, but as they evolve assuming, they acquire a similar character as the Wylde Center's Oakhurst location, they could easily ratchet up into a food park or eco-center role.



The Wylde Center metastasized from one community garden or arguably from one “food park” with a community garden as one of its “eco-center” functions, into a more spatially diverse entity with four physical sites and several affiliate school sites, since they have programs with schools in Decatur and Southeast Atlanta. When Sally Wylde passed away in 2010, in her honor and to better represent the organization’s multi-location and educational focus the name was changed from Oakhurst Community Garden to the Wylde Center. Van Parys explains the importance of this transformation and name change, “Before that this garden was in Decatur, in Oakhurst to be specific, and people perceived it as serving the citizens of Oakhurst. And then when you offer these classes suddenly you have people coming from Clayton County and Roswell and Atlanta and suddenly this place is not just for Oakhurst it’s for all of Atlanta...So that’s how we jumped into that next sphere, ... this garden you know physically still serves Oakhurst. Most of the people who come here walk here in that capacity just to enjoy it. You know, just the casual person who comes here to enjoy it, they are usually walking. So this physical space serves Oakhurst, but our program, our continuing education program, where people may take a class, who are supporting our organization and our youth education mission, they are coming from different places, so we jumped the hurdle into serving a greater population.”

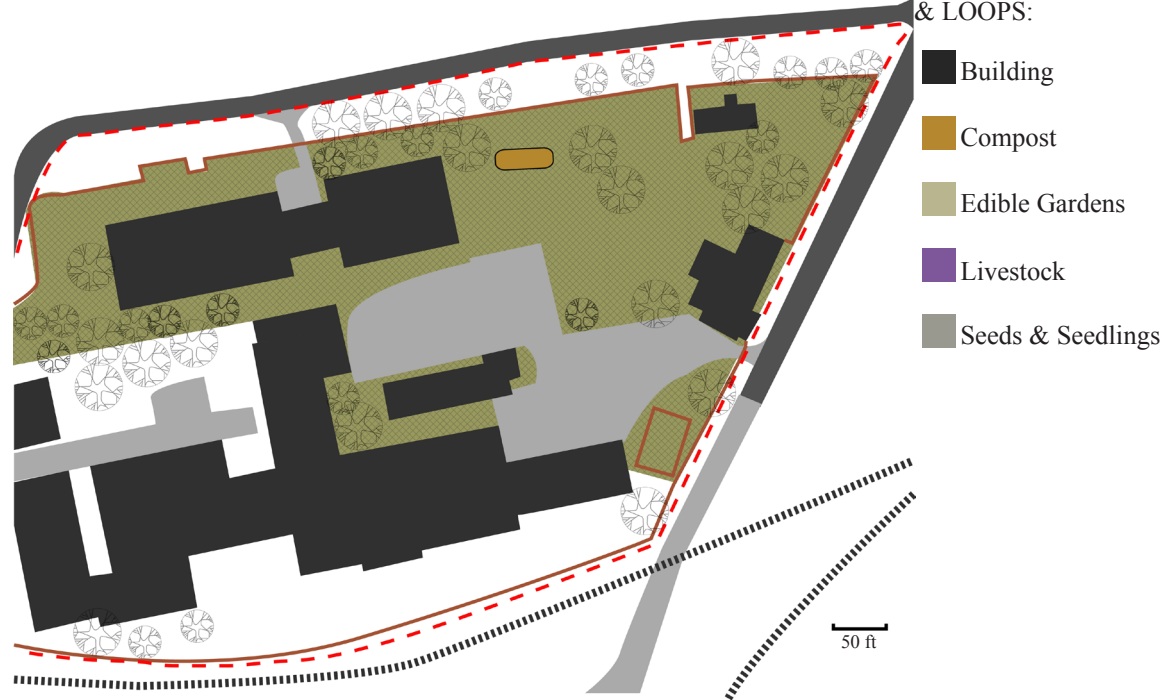
## Photo Voice Fresh Roots Farms



# Map Voice Fresh Roots Farms

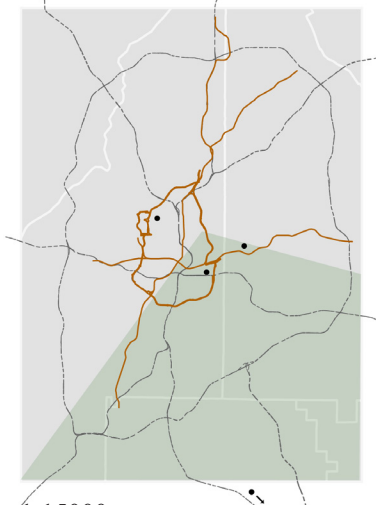
## SITE VISIBILITY & ECO-REVELATORY DESIGN

## MULTI-FUNCTIONS & LOOPS:



### PATTERN:

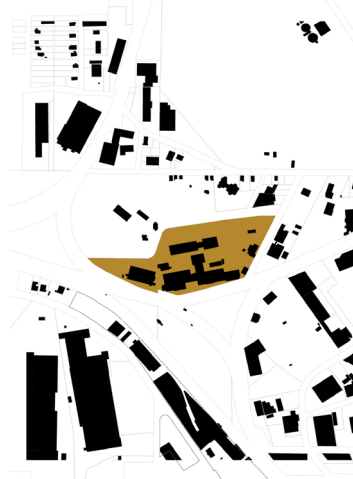
3 urban sites, 1 peri-urban site



1:15000

### LOCATION:

Goat Farm: private parcel



1:400

### PROGRAMS:

Fresh Roots Farms

- Food Production
- “Bio-mimicry” Consultation and technical assistance
- Restaurant Sales

Goat Farm Site:

- CSA
- “Bio-mimicry” classes
- Events

Cabbagetown Site:

- Community garden plots
- Passive education

### EXTENT:

- Goat Farm Site .25 acres
- Cabbagetown Site .25 acres
- Springdale Site .50 acres
- Stockbridge, peri-urban 8 acres

### ACCESS:

- Goat Farm: private parcel with partial access
- Cabbagetown: private parcel with public access 24/7
- Druid Hills: private parcel, leased, no public access

### MEMBERS: Fresh Roots





## Narrative Fresh Roots Farms

“From urban farm to urban agriculture systems model”

In a rapidly gentrifying industrial area in Northwest Atlanta is a sprawling complex of mostly 19th century brick industrial buildings known as the Goat Farm. Rather than tearing it down, in 2010 the building ensemble was turned into an arts center where some of Atlanta’s most innovative visual and performing artists create, show, or perform their work. Naturally as an early 21st century concept, the Goat Farm includes an innovative organic food growing entity called Fresh Roots Farm.

In 2013 Chris Edwards was the young farm manager of Fresh Roots. Sporting a straw hat, a folksy Georgian quality, and baby face freshness, I interviewed Edwards at the end of a long wood table in the Goat Farm’s beautifully re-stored inner courtyard. Having interviewed Rashid Nuri before Chris Edwards I couldn’t help wondering if he was a younger version of Nuri. Although young, Like Nuri, Edwards’ thoughts were theoretically rich, the difference being that Edwards’ ideas were flavored with a feisty youthful zest for how he believes the local food system should be arranged. Edwards explained how he became a farmer, inspired by his parent’s private garden, a case itself in how private gardens can inspire larger scales of urban agriculture such as Fresh Roots or in Chris Edwards’ special case a vision for an entire urban food system.

“My interest is nature, agriculture, medicine and it started when I was really young.”

Both of his parents were from rural southern backgrounds. His mother from rural Tennessee and his father from southern Georgia. Growing up with parents with that sort of rural background highly impacted Edwards’ life. “We had gardens, tomatoes, squash, onions, you know your basic southern things,” Edwards explains, “So growing up doing that my parents were able to teach me and I was able to see what growing plants and vegetables was about. My mother had roses, flowers and bushes in the front yard and the

backyard was where we did our gardening.”

I asked Chris if it was a farm “I wouldn't say a farm” Chris clarified because we weren't producing. It was just for our house. I call those gardens, for me, so I can kind of keep them separate. And gardens are usually a little bit more intricate, but that's changing. Farming should be intricate as well. It should be diverse. But usually people's houses, that intricacy just happens. People just stumble upon ‘oh no, I planted too much in one space’ but actually they did it correctly. It should be thick.”

After a stint in Ghana, learning about that culture's approach to medicine, Edwards came back to the states and embarked on a career in local agriculture which he felt in his native Georgia, and despite his particular upbringing, is an occupation in need of revival. “To me it's just a shame...the South has a history of agriculture, but it's just dying. It's gone. Like my grandfather farmed. My dad grew up with you know their own animals and what not. It was just what you did. You had chickens. In the fall you killed a hog and harvested every part of it. You had a garden.”

Now Edwards manages two farms, Fresh Roots at the Goat Farm complex and a few spin offs under the Fresh Roots umbrella being one set and a farm in Stockbridge south of Atlanta. Being in the southern half of metro Atlanta, the Stockbridge farm has more acreage. From Stockbridge to the other Fresh Roots sites Edwards manages in Atlanta's urban core is about 25 miles. Edwards describes the Stockbridge farm as sprawl. “It was pretty much farmland up until a few years ago but now it's developed into this urban sprawl kind of thing. Well I wouldn't say farms, but there's land, how about that? Large land plots.” Edwards laughs.

Of the two organizations, the land rich Stockbridge site over Fresh Roots urban locations

is where he sees the bulk of metropolitan farming taking place in the future. “It’s not as heavily populated. But it’s also not far from the city. That’s really ideally where I see the agricultural movement in Georgia, at least with in Atlanta. Those places [like Stockbridge] being the strongest places to start,” says Edwards.

Chris Edwards’ vision of farming taking place mostly just outside cities is not original, that has been a pattern of agriculture for eons. However, Edwards and the Fresh Roots organization believe there is also a place for farming in closer in locations. These urban agriculture sites, in their view, just have a different role. The Fresh Roots organization explains their position well, directly on the website. “Fresh Roots Farm sells naturally grown vegetables in the heart of Atlanta.” the site explains. “Fresh Roots Farm strives to build a locally sustainable future for ourselves and our community through a commitment to food security, education and grassroots organizing.” (Fresh Roots Farms, 2013)

The constellation of Fresh Roots sites that Edwards manages is a form of metastasizing. As with the Wylde Center or Truly Living Well, Fresh Roots has its flagship location in the city. In this case it is at the Goat Farm. It is at this site for example, where events occur, such as supporters picking up their CSA allotments. But it also has two other sites, what Chris calls a demonstration site in the Cabbagetown neighborhood, a very unique Atlanta neighborhood of tiny shotgun houses that resemble a piece of New Orleans, and what Edwards calls an in-town production site on the grounds of an old 1920’s era estate near Druid Hills not far from the CDC.

When this constellation of urban agriculture sites in Atlanta’s core ITP neighborhoods is added to Chris Edwards’ farm in Stockbridge in Atlanta’s OTP sprawl as Edwards calls it, then the outlines of a new urban agriculture system emerge. In the close-in sites, where land is scarce and expensive and many “eyes are looking,” as Edwards says,



the goal of urban agriculture is to demonstrate “what can be done” and to get people involved with the system so it can be catalyzed. “If it’s not part of your behavior, you’re not inclined to think that way. You know what I mean?” Edwards explains, following this wisdom with, “You can’t convert people’s hearts and minds just like that. You have to be sort of awakened from within.” These in-town urban agriculture sites are the spaces where people become awakened as they allow people to have the same kind of hands on experiences Edwards received from his parents. On the other hand, in the more sprawling OTP locations, there are fewer eyes and more space according to Edwards and thus there is the flexibility to produce meaningful levels of agriculture in caloric terms.

These two types of urban agriculture, core and periphery, make up an interlocking system in Chris Edwards’ mind and he even suggested a distance limit, not based on the arbitrary 100 mile radius so often used by local food advocates but rather a time based limit derived from Edwards’ experience as a busy farm manager. “I would say that more than 45 minutes [outside of the urban core] is too much.” To be a part of this local system. “30 minutes” is about right, he suggested because its. “Where, you know, you’re not losing money on the transport.” Interestingly this is similar to the distance of the participants in Holly Hollingsworth’s Piedmont Green Market “We don’t have anybody over 100 miles, but the average is about 40 miles.” Hollingsworth had explained. The main production site of Rashid Nuri’s Truly Living Well system, located in College Park, Georgia is also well within Edwards dual urban agricultural systems model.

Indeed, Edward’s systems model and Rashid Nuri’s Truly Living Well have a lot in common. Both have production sites on the periphery and eco-centers or food parks at the core, although as the elder, Nuri’s constellation of sites is much more developed. One can imagine that Truly Living Well is what Edwards envisions for his Fresh Roots Farms urban agriculture systems model.

More striking, however, as deep thinkers as well as doers, who combine action with ecological systems theory and developed production models, both Chris Edwards and Rashid Nuri have not only well thought out schemes for a local, urban food system in its totality, but they also have well developed mental models of the values of such a system. Nuri describes his mental model as a three legged stool. First he recommended urbanites “Grow food naturally and sell it.” This is the urban agricultural system focus rather than the strict food focus championed by Nuri earlier. Next he recommends teaching people horticultural literacy, which he is doing at his Flagship TLW site in Sweet Auburn near downtown Atlanta. And finally, his three legged stool recommends building community, which is deliberate economic development, skills training and other programs that Nuri demonstrated through his catalyzation strategy of skills transfer to gardens and gardeners such as Anne Stanley at Peach Tree Hills Community Garden.

Chris Edwards’ abstract model was similar but had four “pillars” instead of three legs. Edwards’ first pillar was similar to Nuri’s in that Edwards’ advocates an urban agriculture method that uses bio-mimicry and other forms of natural experimentation. For his second pillar, also just like Nuri, Edwards recommends education. Throughout his discussion he mentioned the need for people to be consciously reawakened to how they are connected to the food system. Third, Edwards also brings in the element of community, saying, “I think the community aspect is definitely a pillar. You need the people to be involved. It’s good when people are attuned to their food, and have food security as a community.” But true to his youthful zest and deep thought, Edwards added a political point to his model. To Edwards the fourth and critical pillar to a local food system is local ownership.

Without land ownership Edwards was skeptical that any of the new farms he is managing will be transformational. While Edwards was extremely socially and ecologically minded,

one could not call him a socialist, while a savvy business man he was not foremost a capitalist for that matter. Edwards' model escapes simple political boxes.

“OK all these classes and all these organizations that are teaching people.” Edwards asks, “what are you creating? They are growing farmers to do what? To become sharecroppers? Come on.” He exclaims. “That’s not sustainable. The whole thing is this sustainable food idea, right, well OK, it goes beyond just growing. It’s survival. It’s livelihood. Do you see what I mean? You have to go that extra step. Land ownership has to be on the table. If the farmers don’t own the land then they’re sharecropping, more or less. There are only two farmers in the city that I know of that actually own their land. If you don’t own the land you’re a slave, to one or less degree. If you are always buying stuff that you need? What is that? If you have the ability to produce it or with someone in your community, then why buy? Isn’t the goal to be self-sufficient.” Edwards pauses, glancing at the Goat Farm. “I’m not buying manure if I own a cow!”

## Follow Up Site Visit:

### Metro Atlanta's Peri Urban Agriculture

Many of the urban agriculture spaces in Atlanta's core, if allowed to meet their potentials are acting more like parks or community centers than farms. This does not mean they are insignificant players in the food system. They simply have a different role to play than a typical farm. When they are small and embedded in a neighborhood such as The Wylde Center's Oakhurst Garden their function is more like an ecological systems center. This is a place where people can come and garden in a community plot, take classes about canning, bring their compost scraps, or just enjoy the productive landscape as they would a more traditionally landscaped park. When sites are larger and more centrally located, such as Truly Living Well's Wheat Street Gardens, they function more like a Food Park where people from all over the city can learn about farming techniques such as aquaculture and composting, can enjoy a regular farmers market, or can volunteer to get their hands dirty if they are inclined to be more active in the food system.

As the role of these more urban ITP sites emerged it became clear that a sample of sites outside Atlanta's perimeter, of sites functioning more like farms, might produce a different set of narratives, maps, photos, and themes. Two of the sample's farmers Rashid Nuri and Chris Edwards actually farmed sites in the peri-urban belt of sprawl that surrounds Atlanta's core in addition to their ITP locations. Edwards in particular had developed a model of urban agriculture where most of his urban farming efforts takes place in these peri-urban locations.

While a sample of another dozen sites located in this belt just outside Atlanta's perimeter is beyond the scope of this inquiry at least one bridge interview to that data set is provided. Global Growers Network, a collection of food production sites and farmers located mostly in DeKalb County just to the east of the perimeter, seemed a good candidate to begin the exploration of these food production sites as described in the sample by Nuri and Edwards.

Figure E depicts the Global Growers Network node forming just outside Atlanta and its relationship to other Atlanta ITP and OTP sites. Robin Chanin Global Grower's director agreed to an interview at that organization's flagship site, Bamboo Creek Farm in Stone Mountain, GA. Although Chanin is not part of the sample her narrative as well as map and photo collateral are provided as a concluding piece to the sample's ensemble.

**Figure E:** Peri-Urban Agriculture, Global Growers' Network

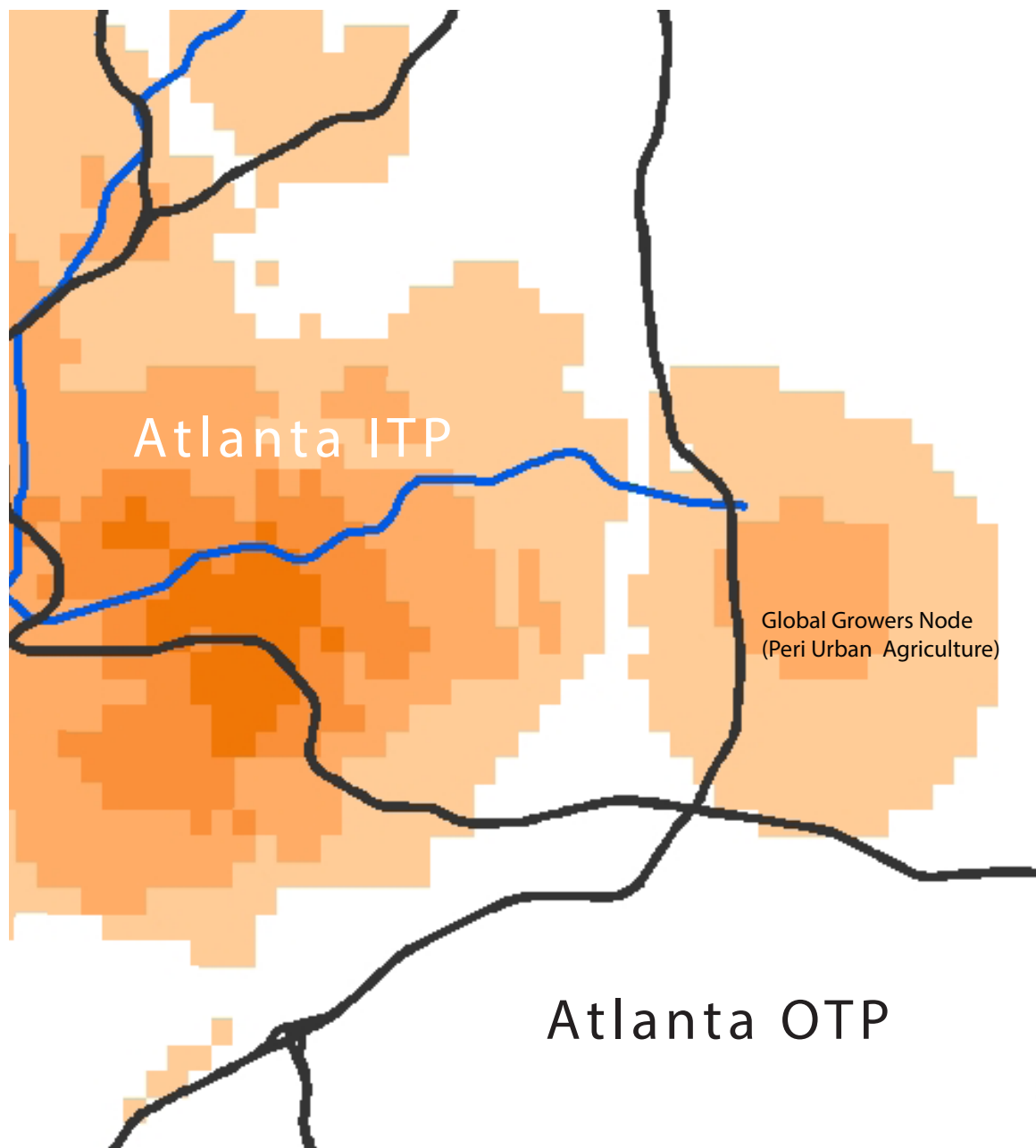




Figure F: Global Growers' Network, Bamboo Creek Farm





## Interview, Global Growers' Network

"From food producers to other food system functions"

Just east of the perimeter ring road that separates the 'more urban' from the 'less urban' Atlanta, sits Georgia's massive geologic formation known simply as Stone Mountain. Primarily composed of granite, the dome of Stone Mountain was formed during the creation of the Blue Ridge, the eastern edge of the Appalachian Mountains. The granite intruded into the metamorphic rocks of the Piedmont at the geologic moment when North America and North Africa collided. Over time some geologists believe that erosion exposed the mountain in processes similar to the ones that exposed Devil's Tower out west. (Stewart, 2004)

Today Stone Mountain sits on the border between DeKalb and Gwinnett Counties making it a meeting place of Atlanta's immigrant communities, mirroring the geologic history of the formation. Eastern DeKalb County, located between the city and the mountain is especially rich in immigrants of African heritage. DeKalb Counties Umurima Wa Burundi for example is a small immigrant led farm that is part of a greater network of Atlanta's immigrant farmers known as the Global Growers Network. Clarkston Community Center from this sample is one member of their constellation of production sites as is Bamboo Creek Farm, a fifteen acre farm on the banks of Snapfinger creek just outside of Atlanta's perimeter and about five miles due south of Stone Mountain Park and its massive granite monument. This suburban site of unbuildable creek bottom lands, with its waving bamboo stalks lining the edges of the Snapfinger, is where many of the global growers come together either to farm together or to combine functions they could not afford on their own such as cold storage, washing stations, or distribution of products to markets.(GGN, 2014)

Like so much of Atlanta's emerging local food system, Bamboo Creek Farm, where the

Global Growers Network currently headquarters, is almost invisible, despite its fifteen acres. To get to it one must drive into a dendritic 1970's era subdivision of deteriorating ranch homes, and at the end of one of these cul-de-sacs, behind and several feet below one of these indiscreet ranch homes, is the farm. Nestled in Atlanta's sprawl in this way it is both an example of Chris Edwards' Atlanta food systems model and what this kind of development could gradually evolve into given time or better acknowledgment.

Global Growers straddles the line drawn by this sample between ITP in town Atlanta urban agriculture and more OTP peri-urban agriculture, but since, as Chris Edwards explained, these two types of agriculture are locked into a symbiotic relationship with different functions, I approached the Global Growers Network towards the end of these interviews and site visits, to get a better handle on what's happening with that model, also consciously outlined by Rashid Nuri and faithfully cultivated by all the others. Robin Chanin, Global Growers young executive director, had a lot to say about the local food system emerging in Atlanta and especially its struggles as it moves from a system of producers to a system of many functions, from storage to processing to distribution.

Serendipity led Chanin to her current position at Global Growers. "My professional background before I got into agriculture was in youth education." She remarked. "That was how I originally got connected to Atlanta's refugee community. I was working with an organization called Atlanta Refugee Services. I left my work there to do some contract work in South Africa, and when I got back to Atlanta, I didn't have a job, so as an in-between thing and very much on a whim, I took a job at a local organic farm just to be able to make a little bit of cash while I looked for something a little bit more permanent. I did not expect that would be the beginning of what has turned into a career as an agricultural professional. But here we are."

What Chanin has achieved by uniting her refugee contacts with her more recent organic agriculture colleagues is impressive. Chanin had the opportunity to bring together two pieces of her life, the refugee community and organic farming, and seeing the possibilities she cultivated those connections. “I continued to maintain and build a lot of the relationships with various families” she says. Providing support as a family advocate in any way I could, whether that was helping their kids with homework or helping them to read their mail or bills, and learning from them really, what they needed to be successful in their new country.”

Atlanta is a part of the federal government’s refugee relocation program, and has become an epicenter, or at least the quadrant around Stone Mountain has become an epicenter, for many different refugee communities. Whatever their origins, they often work in the poultry business, “chicken factories” as many of the refugees call them, but they would prefer to be involved in “true farming,” which in their view involves the organic techniques from their homelands and the vegetables that make up a greater portion of their diets. Explains Chanin, “one of the interesting things about all the international families that we work with is how many more vegetables they eat compared to the standard American family. I eat at the higher end of what a typical American person consumes,” she says glancing over the farm and at a member family who had just set up at Bamboo Creeks’ washing station, “but when compared to Tang out there, his family is eating tremendous amounts of leafy greens, herbs and spices.”

Chanin is quick to disparage her contribution, noting that most of the hard work of Global Growers is indeed done by its refugee growers like Tang, but her role as a connector should not be overlooked and it is this role that Chanin cultivates as she tries to take her network’s set of growers as well as the local food system in Atlanta to a higher order of operation. “When we first got this started we called this a training farm and

we thought that people would come here and practice for a year or two until they felt confident enough in their own skills and abilities so they could go out and start their own independent farms,” she explains. “But I shifted that due to really good feedback from the farmers that we work with and I now call this a *co-farming* space, and we are working to build a larger co-farming space where farmers can have their own independent farm businesses, have their own specialties, but can be able to share infrastructure such as equipment, walk in coolers, irrigation systems. I think that there is a way for communities to maximize their resources and thereby their impact and reduce waste by not replicating the same things over and over again and that’s where I think there has been some real issues with so many farms getting going.”

What Chanin describes sounds a lot like the concept of Food Hubs. When asked about hubs Chanin shrugged. “Food hub has gotten to be this term, and it’s not that I don’t like the term, but it gets thrown around a lot and we don’t really talk about what we mean with it, but that’s exactly what I think is part of the solution.”

Global Growers Bamboo Creek Farm essentially operates as a mini food hub. It aggregates vegetables from a network of farmers and then distributes this produce through various market outlets. Chanin picks up an eggplant on our tour to illustrate how the system works. “We don’t have eggplant coming from one farmer that we are sending to customers we have eggplant coming from, I believe today, four different farms that are providing eggplant. We need a couple hundred pounds of it that we need to pack into shares tomorrow and right now not a single one of our farmers can produce that whole load. By bringing farmers together, we have this expanded customer base, and our farmers are benefiting, staying within the scale of the production operation that they have but still gaining market access that they wouldn’t otherwise be able to if Global Growers was not here to pull together the logistics of these pieces.” She emphasizes. “So in that

sense it's not, a food hub is just one version of the logistics play that is necessary to create a smoother system to move food around.”

Chanin is doing her best to facilitate these logistic plays and other needs of local growers, but she sees a lot of problems in the system that need to be addressed. Atlanta's local food system is struggling to grow from a hodge podge of growers and suppliers to a host of other local food systems businesses and providers. There is demand and supply but Chanin sees ‘bottlenecks in the system’ getting that supply to the demand because appropriately scaled intermediaries don't exist.

There are a lot of young people Chanin explains, taking up organic farming. “It used to be even five years ago I knew just about everybody. It was a fairly small community, pretty connected with one another. ... In the last I would say two years, I go around to the farmers markets and there are so many new faces ...it's definitely growing very very quickly.”

There is also an incredibly high rate of failure. One reason for these failures is what Chanin sees as a misunderstanding of the roles of the various parts. Chanin is quick to point out the problems of Farmers Markets as a distribution system function as one of the misguided notions floating around in the local food culture. “Working a four hour farmers market is a minimum ten hour day,” she explains, “especially if you have to travel an hour or two to get to that market. If it rains you get no customers that come, so I think it is one of the riskiest ways to distribute food.” Better distribution options are still relatively few, explains Chanin, “the options for a small farmer tend to be farm to table restaurants, which are growing but still you can only distribute so much food through them. Then there are weekly farmers markets. They are starting to get more competitive and you start seeing vendors getting in fights with one another, feeling like ‘are you

undercutting my prices?’ or ‘did you really grow that?’ some suspicions like that flying around.”

At a farmers market the producer essentially invents a store. They put out a tent and a sign, baskets, tables and display information, which perhaps is an effective form of marketing, but as distribution, Chanin points out, it is highly ineffective, perhaps leading to the unnecessary conflict between growers she describes. Chanin believes distribution in general is a big part of the problem within the emerging local food system, but also believes it can be overcome if more efforts were made to think as a system rather than simply as growers and customers. “I have not at any point in this conversation suggested” says Chanin “that we have a [local] model that is going to feed the world, and that’s not because I don’t believe that it could, but because I think that we can do a much better job with our networks for distributing local food, our formal networks so to speak. We have farmers markets, we have farm to table restaurants and *where else are you really seeing local foods?*” she emphasizes. “That’s pretty crappy as far as I’m concerned. Farmers Markets are wonderful centers of the community. I love to go to them. I love to be able to talk to farmers, I like to see my neighbors there, and I think they are great places to connect on a societal level, but as far as an efficient form of food distribution... it’s a joke.”

Chanin also believes there are lessons to be learned from other systems, even the industrial one. “So there is a whole distribution and retail system that the industrial system plugs into,” she explains “On a lot of levels that system is absolutely incredible. Isn’t it incredible that you can produce a chicken in the United States and have it sent to China to be processed and then have it shipped back to the United States, and there are people out there whom are actually making that work? It’s disgusting... but it is incredible!”





Chanin wonders if we cannot take some of that expertise and graft it onto the local food systems emerging around the country. “It’s kind of cherry picking in a sense,” she suggests “looking at your systems and saying what do we have that is good and valuable in here; what do we have that we need to get rid of; what puzzle pieces do we have and how do they fit together?” She uses cold storage as an example of this systems triage. “A big part of the produce industry and something that is really successful in our global industrial food chain is cold storage. We have managed to create a cold chain, and you have produce that ends up in your local supermarket that may have come from another country, it may have been on two different ships, five different trucks and a train and into four different packing warehouses before it lands on a super market shelf and it is in pristine condition.... So can we take some of that expertise?” she muses.

Unlike Chanin I question whether the cold storage chain is the place to begin looking for what’s useful and what is not in industrial agriculture. That system is highly energy intensive and dependent on a suite of transportation technologies and investments. Indeed that particular element of the industrial system, cold storage, may actually be the Achilles heel of the industrial system and an opening for the more local and fresher varieties of food production such as Chanin’s Global Growers, but her points about having a better understanding of all the parts of the local food system and how they can work together makes sense.

From a spatial perspective Chanin’s vision of how urban agriculture and the more peri-urban and larger farms of her network, such as Bamboo Creek, fit together is an insight that fits well with the words of all the other individuals from this Atlanta inquiry. On the one side, in Atlanta’s case mostly inside the perimeter, there are the small urban agriculture sites like Clarkston, The Wylde Center, The Goat Farm or Truly Living Well,

which are serving a cultural need and a market need, creating a demand for local food by engaging people with it more deeply via Food Parks or Eco-centers and all their programs from education, to community gardens to CSA's as well as Farmers Markets. Then on the periphery, "in the sprawl" as Chirs Edwards describes it, are the close-in but slightly larger farms and food hubs and aggregators which can engage with more meaningful levels of production as well as distribution and the other services needed.

Chanin also seems to share this spatial vision of the system. "I think that the small to medium sized farms, that agriculture in the middle" she says, "they have a huge role to play but they have been cut out from our food system in the last 20 or 30 years...I would like to see an investment in improved infrastructure in and around our urban areas that are designed to support those small to medium sized farms, where food can be aggregated so that a number of small to medium sized farms, 200 acres or less is really what I'm talking about, can be able to bring their produce together in one central storage facility and have that go out to some of our large customers."

Chanin, like Edwards and Nuri, also points out that there are a lot of opportunities in American's current landscape of urban sprawl. "There is a tremendous amount of unused land sitting around the city." She says, "I don't want to suggest that we should take every parcel of unused land and turn it into production agriculture but there are a couple of things that can be done. One is we have an image of a farmscape that is rolling hills and enormous pastures and all of that and it doesn't need to be that way. It can be an aggregated collection of parcels of land. We are currently looking for more land and I have been for the past couple of months looking for potential sites that are still accessible to the city and the metro area, close to population centers both for connecting with existing and potential farmers but also with markets, and looking at clusters, clusters of land," Chanin emphasizes, "where you have clusters of farm sites that are maybe 15 acres

here, 50 acres there, 5 acres there, 30 acres here, but that are still able to benefit from some shared infrastructure.”

Between the industrial farms on the one hand and the small boutique agriculture Chanin believes there is a place for a local food system to thrive. “On the one end of the spectrum you have these large behemoth industrial farms out there that are inefficient and creating tremendous amounts of waste and doing a whole lot of damage that is ecological or environmental and I personally think that there is really a sweet spot in the middle of all that,” she says. “If we really broadened our horizons about the type of food that we consume, the diversity of the farmers that contribute to it, and the diversity of consumers that consume, what all of that *looks like*, I think we would all be much healthier.”

## NEXT STEPS: TOWARD A TYPOLOGY OF URBAN AGRICULTURE

This essay asked the question of how a socio-ecological food system may be forming, what the key characteristics are and how different urban agriculture schemes within Atlanta may be scaling up to something greater than just the parts, the individual cells of the greater organism which they represent. It documented that process through the mixed methods of the inquiry and especially the stories of the key informants and the visuals of their sites at different scales. However, there were many qualitative themes that emerged from the sample, and from those themes it is possible to construct not just one but two or three typologies of urban agriculture based on the physical, social, and ecological aspects of integration from each site.

Typological description is an important method of the discipline of urban design. As a design inquiry, this inquiry does not delve much into matters of policy, a better understanding of urban agriculture typologies however, could also be useful for policy makers and communities involved with urban agriculture. If one cannot name or properly define something how can they successfully plan for it? Far too often urban agriculture is pigeon holed into categories such as farms and community gardens, but as this Atlanta sample reveals there is far more going on than those two types explain. Building on existing urban agriculture typology literature, the next essay in this inquiry unpacks the qualitative data further, moving that literature towards a more robust understanding of urban agriculture types.





## Essay Two

How can urban agriculture be typed, physically, socially and ecologically?





## ESSAY 2: LITERATURE REVIEW

*Research informing urban agriculture typologies creation*

The creation of typologies is an important method of the urban design discipline. At its core urban design is about dividing up urban space and typologies order those patterns. More academically a typology can be described as a taxonomic classification scheme applied comprehensively to entire categories or forms in cities. Typologies seek to distill vast arrays of design attributes from size, cost, or program into broad conceptual patterns and values. (Deming and Swaffield, 2011) This essay builds on the existing urban agriculture typology literature by proposing not just one but three typological frames encompassing the social, physical, and ecological aspects of urban agriculture discussed in the core logic section of the methods chapter. Additionally, key themes that emerged from the qualitative data will be discussed and one selected for quantitative assessment in Essay 3.

In the literature urban agriculture typologies can be divided into several categories including *academic typologies between cities*, *academic typologies with in cities*, *non-academic professional typologies*, and *professional urban agriculture guides*.

### Academic Typologies Between Cities

A typology between cities looks at the city as a type itself, at a macro urban scale, and then compares different cities to one another. The criteria for comparing cities, however, can be physical, social, ecological or any combination of these aspects of integration.

### **In Urban Design Research: Forsythe**

Creating typologies is a standard practice in the discipline of urban design. A relevant and relatively recent example of typological research in the field of urban design is

Anne Forsythe's *Typology of Comprehensive Design Communities*, which classifies designed comprehensive districts and towns from WWII to the present. (Forsythe, 2005) Forsythe's typology of these communities is derived from the key assumptions and histories of the designs but also the ecological, political, economic and aesthetic character of them. Forsythe's typology draws on over 200 interviews with designers and residents over the course of her career as well as focused formal site visits to 24 sites. Forsythe's broad categories of ecological, economic, and aesthetic attributes are very similar to the categories of physical, social and ecological integration found in the core logic of this urban agriculture inquiry. Aesthetics is a slightly different frame than physical integration, however, since Forsythe defines aesthetics as both styles and physical form, it at least partially aligns with the category of physical integration of this inquiry. Forsythe's research resulted in seven types of comprehensive design communities: social neighborhoods, architectural villages, districts for diversity, designed enclaves, eco-burbs, eco-cities, and developments around technology, and she creates two matrices delineating these types, one describing how each relates to her broad categories and a second which places the twenty-four visited locations into one of the schemes showing its primary emphasis and secondary emphasis. Building on Forsythe's methods, a similar strategy of ranking urban agriculture schemes is deployed in this inquiry.

Interestingly, what is not included in Forsyth's typology is a comprehensive post World War II district category based solely on urban agriculture. In her defense these types of districts built primarily around food production in the city or suburbs are new. There are only a few examples held up in the real estate development literature as models, Prairie Crossing on the edge of Chicago, New Town St Charles outside St Louis and Serenbe just south of metro Atlanta built at the same time Forsythe was finalizing her research are some of the first master planned communities integrated with agriculture. (Lerner, 2011) These districts can be defined as developments that are equipped with a working farm.

Often the agriculture has a connection with nearby residents and businesses but how deep that integration goes is sometimes in question. (Duany, 2011) These developments could be interpreted as 21st century versions of the agrarian landscape as backdrop such as John Wood the Younger's picturesque sheep meadows equipped with ha-ha barriers in Bath, England (Allen, 2013) Other proposed schemes such as Southland's outside Vancouver BC and The Farmstead in Charlotte NC, and Hampstead outside of Montgomery Alabama almost were developed but were tabled during the real estate crash of 2008. (Lerner, 2011) However, new districts built around food production will likely emerge again and could be included if not as an exclusive category in a typology of comprehensive urban design districts such as Forsythe's then at least in a typology of urban agriculture, the typological focus of this inquiry.

### **In Urban Design Theory: Duany**

Design thinker and founder of the New Urbanism Andres Duany's Agrarian Urbanism theory does not simply describe food growing in different types of districts but shows how all aspects of the rural to urban transect can be dedicated to food production.

This comprehensiveness also places Duany's work in the camp of an urban agriculture typology between cities.

In the discipline of ecology, transects describe changes in habitat along a physical gradient, such as topography stretching from sea level to a mountain range. The urban design transect is borrowed from earlier urban planning theorists such as Patrick Geddes, who believed human settlement could also be placed in relation to a transect of a natural region. **[Figure A]** (Welter and Lawson, 2000)

In a sense a transect is a kind of linked typology where one type blends uniformly into the next. In Duany's Agrarian Urbanism transect food production types move from rural

agriculture forms in transect zones one and two to peri-urban food production forms in transect zone three to intra urban forms in zones four, five and six. These forms include forageable wilderness, farms and orchards, in zones one and two to front yard gardens, backyard gardens and community gardens in zone three, to roof balcony and window gardens as the transect moves into denser urban cores. **[Figure B]** (Duany, 2011)

As an architectural theorist, Duany's transect is almost exclusively dedicated to concerns of form and physical placement. Duany writes, "I was able to keep this treatise short by off-loading the techniques of tending crops, animal husbandry and soil care that are integral to Agrarian Urbanism. That expertise is mature, with many superb publications already available. One more is not necessary. There is, however, a dearth of literature about urban design dedicated to the production of food under modern social circumstances" (Duany, 2011) This inquiry agrees with Duany that there is this gap in the urban design literature, however, this inquiry is also interested in the ecological and social integration of urban agriculture, how it integrates with the physical form aspects of integration, and ultimately how it scales up into a city such as Duany's theory of Agrarian Urbanism.

At the macro scale of the urban region or city Duany also contributes a typology of urban agriculture paradigms to the literature that he juxtaposes against his own paradigm of Agrarian Urbanism. The first paradigm Duany dubs 'agricultural retention.' Operating at the regional scale, this paradigm tries to preserve farm land on the urban edges. Next Duany highlights what he calls 'urban agriculture.' According to Duany urban agriculture is simply food cultivated in community gardens or farms on available parcels with in cities and suburbs but which is not integrated into built forms in any other way. Often these parcels are vacant or marginal. Next Duany's third type, 'agricultural urbanism,' not to be confused with the paradigm with the same name by De la Salle and Houland

Figure A: Geddes, Valley Section

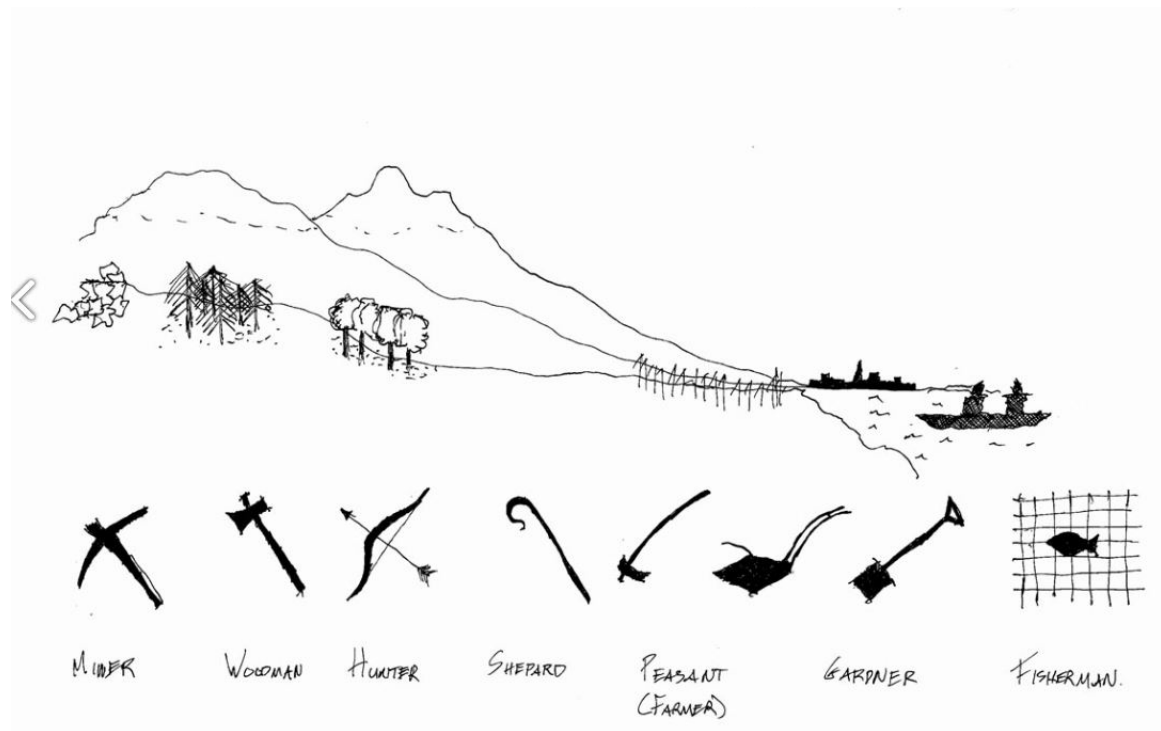
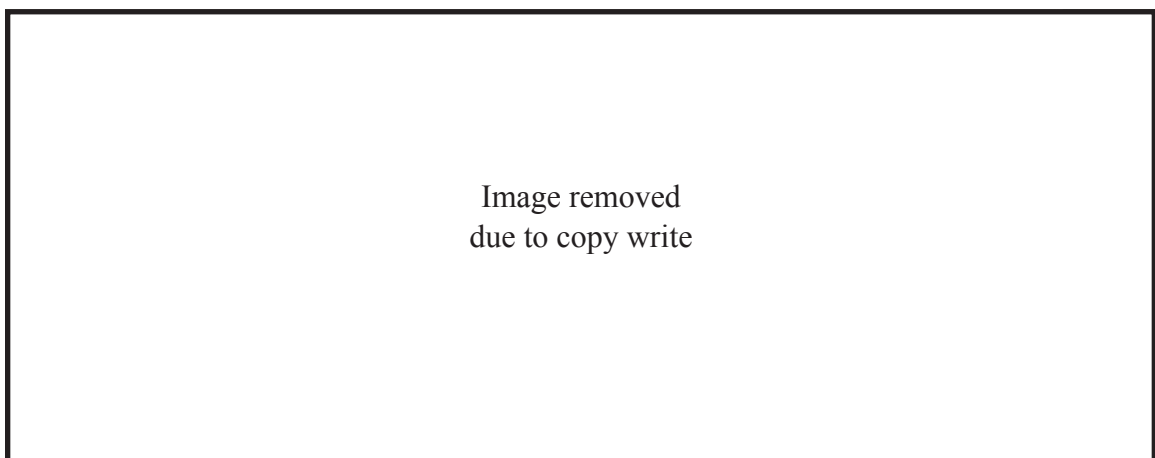


Figure B: Duany, Agrarian Urbanism Transect



to be discussed, views urban food production more like a discreet type that could be included in Forsythe's typology. For Duany Serenbe outside of Atlanta would fit under this type. Duany's critique of these real estate development products which include farms is that "while anyone may visit, volunteer or learn from the farm...few of the residents participate in the productive activities." (Duany, 2011) That strikes this inquiry, however, as a distinction without a difference.

Duany sets his paradigm of Agrarian Urbanism apart from these paradigms, claiming it is more integrated with society. Duany writes, Agrarian Urbanism is "Where the society is involved with food in all its aspects, organizing, growing, processing distributing cooking and eating it." (Duany, 2011) One could claim this to be true in all societies, but Duany makes the distinction that the "physical pattern of the settlement supports the workings of an intentional agrarian society" (Duany, 2011) with in every transect zone. This makes Duany's mostly form based typology straddle both typologies between cities and typologies that focus on food production types within cities.

Lastly, Duany's Agrarian Urbanism pattern book, depicting Agrarian Urbanism's physical integration is both its strength and weakness. Again, while his physical integration is in line with this inquiry's interest in physical integration, a typology that gives attention to ecological and social integration, not just physical integration, would also be useful.

### **In Human Ecology Research: Alessa et al**

Another type of classification between cities relevant to this inquiry comes from the human ecology literature. Besides being urban, food growing in cities is also part of natural systems. And as a mix of social and ecological phenomena they can also be called socio-ecological. In *Toward a Typology for Socio-ecological Systems* Alessa, Klisky and Ataweel have developed a matrix for these kinds of socio-ecological systems. Alessa et



al's classification is more than the eco-burbs or eco-cities of Forsythe's typology since it contains the whole metro-area and its urban and ecological patterns and processes in the aggregate. The primary theoretical frame of Alessa, Klinksy, and Ataweel's research is the concept of resilience, and the typology classifies cities with this yardstick. One can assume that the more socio-ecological and resilient urban systems also include urban agriculture. (Alessa et. al., 2009)

Unlike Forsythe, Alessa et. al.'s typology is informed not just by subcategories but specific variables including size, diversity, distance, retention, distribution, persistence, collectivism, variability, directionality, substitutability, diffusion of knowledge and risk. These variables are more specific than Forsythe's broad categories. Several of these elements are also similar to the variables in this inquiry's core logic. For example, size is the same as the physical variable of extent used in this inquiry; Alessa et al.'s variable of variability looks very similar to location, a critical physical variable of this inquiry. Their construct of diversity shows up in this inquiry's social integration variable of program; and since by retention Alessa et al means recycling, this concept is related to this inquiry's ecological variable of ecological activities.

As a comparison between metro areas Alessa et al.'s typology is one scale up from Forsythe's comparison of districts, and unlike Forsyth's typology, their work can inform this inquiry's focus on scale. Alessa et al's variable of diffusion of knowledge and risk is an attribute describing how food schemes scale up to a socio-ecological system. The attribute of diffusion is not operationalized by this inquiry's core logic, but was a process described in the narratives of essay one.

The result of Alessa, Klisky and Ataweel's typology is a matrix of resilient mix and vulnerable cites assessed by each of their variables. Like Forsythe they also provide

examples of their various categories. While this inquiry begins at a different scale and point in the system, entering the local food system from the site scale and the food production function, this inquiry builds on Alessa et al's work by showing how food is integrated and thus how resilience is achieved within cities, creating the categories of resilient cities that make up Alessa et al's typologies.

### **Academic Typologies Within Cities**

An academic typology within cities, looks at all the forms of urban agriculture in a city and puts a framework on to these different types. These typologies also may use physical, social or ecological criteria in their construction.

### **Ecological Types Within Cities: King**

The academic research on typologies specifically dedicated to urban agriculture is thin; however, a study by Christine King (2008) on agri-ecological systems does include a typology of urban agriculture schemes. King's work does not use the concept of the urban mosaic with its accompanying theory of urban integration but rather hangs her typology on the concept of resilience, just as Alessa et al had done. A resilient system is more able to respond to external impacts on that system. King makes explicit the connection between food growing and socio-ecological systems, asserting urban agriculture adds a level of resiliency to city systems. When parsing out resilience before applying it to urban agriculture, King breaks it into three primary components: engineering resilience, ecological resiliency, and resilience as adaptive capacity, and she has eight measures of these three primary components. Just like Alessa et al and Forsythe, she then produces a matrix and fits each type of alternative food scheme into one of the three primary components. For engineering resilience she places conventional agriculture, for ecological resilience organics, CSA's and farmers markets, and for resilience as adaptive

capacity, community gardens, bio-dynamics, and permaculture. While King's matrix is constructed in a manner that could be replicated in this inquiry, unlike Alessa et. al it is not always clear how her eight attributes fit each type of food scheme. To create a reliable typology of urban food integration this study can learn from King's work and build on it by applying the frame of integration rather than resilience to schemes.

### **Lawson: typologies with in cities but across time**

Laura Lawson, in *The Planner in The Garden: A Historical View into the Relationship between Planning and the Community Garden* published in the *Journal of Planning History* unpacks the American community garden and the response to it by city officials since the 1890's. Lawson's conclusion is that planning still doesn't quite know what to do with community gardens, writing, "On the one hand, garden programs are praised and supported as local action to serve environmental, social, and individual objectives. On the other hand they are perceived as opportunistic and temporary...community gardens are largely ignored in long-range planning." (Lawson, 2004)

Writing in 2004, the urban agricultural movement was on the verge of becoming more recognized phenomena. Planners have begun to take urban agriculture schemes including community gardens more seriously, The APA published a report six years later in 2010 for example to help planners become less "ambivalent." (Hodgson et al., 2011) Still the value of community gardens and the proper disposition of cities to them is still far from settled. It is also made more difficult as urban agriculture has metastasized into a plethora of new forms.

Lawson's historical research is an excellent example of all the ways planners have framed the value of community gardens through the years, and as such is a kind of temporal typology of the community garden mission that can inform typological creation in this

inquiry. Over that 125 year period Lawson documents six types of community garden missions including garden as employment relief, education through gardening, war and then victory gardens, depression era relief gardens, and more contemporary ‘community gardens’.

Lawson concludes that the historical persistence of community gardens “justifies consideration of communal gardening as a public good worthy of long-term public investment.” But she acknowledges that this is not simply the role of a city but also requires the commitment of participants. The problem is that “their grass roots nature denies control, and thus they elude the planners map. Lawson concludes that “they require a different approach to public support than other types of open space that can be managed by the city for the generic public” (Lawson, 2004) With the advent of urban agriculture and its mix of models, this likely has become even more true. This inquiry can add to Lawson’s historical review by documenting types in the current era, perhaps adding a phase to her temporal typology, which began around 2008 with the economic down turn.

## Non-academic or professional typologies

### **Municipal and planning studies: Oakland, Ca example**

While there are academic case studies of urban agriculture land inventories, (Mendes et al., 2008) and social science research into the value of vacant lands as urban agriculture (McClintock, 2010; Colasanti et. al, 2013) typologically oriented peer reviewed journal articles are sparse. By examining the actual inventories, many of which have been produced at the intersection of academia and professional practice, however, typological understandings emerge. For example in “*Cultivating the Commons an Assessment of the Potential for Urban Agriculture on Oakland’s Public Land*” Nathan McClintock &

Jenny Cooper at UC Berkeley's department of Geography is an example of an inventory which sought to understand the options for urban agriculture on Oakland's public lands. Although much of the research report is about the available public lands within Oakland, food schemes are also broken into a typology. McClintock and Cooper's typology breaks urban agriculture into three categories: community gardens, market gardens, and urban farms. (McClintock and Cooper, 2010)

Since a food scheme classification was not the goal of the Oakland inventory, the differences between their schemes were not well defined, however, they are clearly based on distinctions of socio-economic function. As the literature has shown such socio-economic distinctions are important attributes of urban food schemes, but physical and ecological distinctions are also important and were not made in the Oakland inventory. This was an interesting omission since the multi-functionality of urban food schemes was addressed in the report, citing social functions such as property values, educational opportunities or civic participation along with ecological functions, such as eco-system services.

### **Municipal and planning studies: American Planning Association (APA)**

While Oakland has been highlighted here, many other cities have produced inventories of their food schemes, especially their community gardens. Indeed most do not even break their schemes into the three categories as the McClintock and Cooper inventory has done, but often lump them into one large group such as community garden's or simply 'urban agriculture.' ALFI, the Atlanta Local Food Initiative has a data set it simply labels 'urban farms,' although that data represents many different types. (ALFI, 2013) This inquiry has not done a comprehensive study of how all American cities have classified urban agriculture, and will leave such a thorough inventory, a meta-inventory so to speak, to another project. However, this inquiry has included the most recent urban agriculture

classification scheme recommended by the American Planning Association to all its city members.

In 2010 the American Planning Association stepped into the urban agriculture classification gap via its planning advisory report *Urban Agriculture: Growing Healthy, Sustainable Places*. APA notes that planners have not historically been interested in food systems issues. (Pothukuchi and Kaufman 1999, 2000 Canton Campbell 2004) Indeed, the urban agriculture movement has been a decidedly grassroots phenomena as the APA admits, “led primarily by dedicated individuals and community based non-profit organizations.” (Hodgson et al, 2011) APA’s goal is to provide a “conceptual and practical guide” to help public planners deal better with the phenomenon. (Hodgson et al, 2011)

APA’s typology has three broad categories, non-commercial, commercial, and hybrid based on the schemes propensity “to process, distribute or sell food products.” (Hodgson et al, 2011) In its non-commercial typology APA includes the following types:

- Private gardens, where “end products are used for personal consumption.”
- Community gardens whose “end products are typically used for consumption or education”
- Institutional gardens whose “end products are typically used for donation or consumption”
- Demonstration gardens where “end products are typically donated to local organizations and food banks”
- Edible Landscape, again whose end products are “consumption”
- Guerilla Gardens who’s “end products are typically used for neighborhood revitalization purposes.”
- Hobby Beekeeping whose “end products are typically used for personal consumption



education or donation”

- Hobby Chicken Keeping whose “end products are typically used for personal consumption, education or sale.”

APA’s commercial category has four types where sale dominates all “end products,” however, physical characteristics such as location and extent seem to be the defining characteristics, including:

- Market Farms “Small to medium scale production
- Urban Farms “typically larger than market gardens and include larger-scale production of food”
- Peri-urban Farms “Practiced outside or on the fringes of metropolitan areas”
- Beekeeping “medium to large-scale keeping of honey bees for commercial use.”

Lastly APA’s hybrid category includes “any combination of gardens and farms...for personal consumption, education donation and sale.” (Hodgson et al, 2011)

APA’s designations should be lauded, for being one of the most comprehensive in this review. But, as with all typologies, it is problematic. Sales dominates there framework, creeping into the categorization of the non-commercial types. APA’s commercial orientation is so strong one wonders if there interest in the economics of urban agriculture is blinding there assessment of it. Most organizations likely have some type of sales function, even if they are primarily categorized as a non-commercial entity and one begins to question the efficacy of this distinction. Moreover, if most schemes are a commercial mix does this mean that they are all actually APA’s hybrids? How much does “sales of end products,” the attribute APA seems to care most about, make a scheme more commercial or non-commercial? There is also the issue of barter, while sales may not be

generated, most schemes are probably producing more than they can consume, and this excess does enter the economy with spin off impacts, whether or not money is exchanged. The excess produce would have to be transported for example. Organic waste materials will also enter the urban waste stream with subsequent impact on the municipality. At this point their commercial vs. non-commercial based typology begins to unravel.

Within APA's typology are the seeds of other potential approaches. For example in APA's commercial category is the seed of a classification scheme based on scale akin to Duany's transect. APA's commercial types are more like a model of a metropolitan food system with smaller food schemes presumably in cores and larger ones in peri-urban locations suggesting scale as a way to classify schemes. However, APA does not make that theoretical leap. Another typological possibility suggested but not fully embraced by APA is classification by mission and purpose as Laura Lawson had done in her temporal typology of community gardens. Both purpose and mission are present throughout APA's typology, especially in the non-commercial category, but do not define their categories. Using this mission lens the argument can be made that profit is just one mission among many possibilities. Organizational mission may be a better way to understand differing urban agriculture schemes and this inquiry will consider this typological structure.

It is no surprise that the APA typology has a profit and products orientation since as APA points out urban agriculture falls somewhat outside the range of traditional land use regulations.(Hodgson et al, 2011) APA's concern with land use legal frameworks and thus end product consumption and sales is a legitimate lens, especially for regulators who are charged with making such distinctions and whose decisions have powerful implications for issues such as traffic, legal nuisance conflicts, and of course municipal tax base. One wonders, however, if this concern for such regulatory matters is clouding APA's view of the phenomenon.

APA talks about other benefits of urban agriculture, even asking questions such as “is a commercial urban farm as a land use most similar to a rural farm, a commercial enterprise, or a public park?” (Hodgson et al, 2011) But ultimately its classification scheme is based on commerce, and its decision to divide urban agriculture schemes into commercial, non-commercial and hybrid categories suggests where it believes the most useful distinctions lie. It is the view of this inquiry that APA is prematurely jumping to conclusions about urban agriculture’s most appropriate land use role. Rather than insisting on an economic frame, by more thoroughly observing urban agriculture this research has developed a more complex understanding of urban agriculture than the APA’s excessively commercial paradigm.

#### **Municipal and planning studies: Five Borough Farm, New York, NY**

*Five Borough Farm: Seeding the Future of Urban Agriculture in New York City* was the brainchild of Added Value a non-for-profit in Brooklyn with urban agriculture as part of their social programing. In their words, Added Value has “transformed more than four acres of underutilized City and State parkland into vibrant urban farms where young and old can grow and learn as they sow seeds and harvest crops.” (Cohen and Reynolds, 2012) Added Value is one of the non-profits alluded to by APA that is leading the shift to urban agriculture. In 2011 at the same time as this inquiry was being conceived, Added Value was partnering with the Design Trust for Public Space to produce the *Five Borough Farm* report which appeared in 2012. Just like this inquiry Added Value had noticed the need for a better understanding of citywide urban agriculture systems and frameworks for understanding them as well as their various benefits. Five Borough Farm’s research inquiry like this one was more interested in the rich complexity of the urban agriculture phenomena rather than different benefits understood from disciplinary silos. With their substantial funding via the trust they were able to assess an extensive population of the

more than 752 public, institutional and communal farms and gardens in New York City that grow food. Their primary conclusion was that urban agriculture is about much more than just growing or selling food.(Cohen and Reynolds, 2012)

While Five Borough Farm's policy recommendations for New York City planners were numerous, the typology that emerged from their research is instructive. "Urban agriculture involves many different types of food producing spaces, stakeholders, resources, and policies, and contributes to many benefits," the report explains. (Cohen and Reynolds, 2012) Their typology has four broad categories: *Institutional farms and gardens, commercial farms, community farms, and community gardens*. The primary driver of their typology , rather than commercial activity, is managerial structure.

The first type, institutional farms and gardens are primarily affiliated with two New York City institutions, the public school system and the New York City Housing Authority although prison gardens and other institutional gardens also fit under this type. In total there were 245 NYCHA gardens and 117 public school gardens, representing slightly 48% of the entire NYC urban agriculture population. (Cohen and Reynolds, 2012)

Commercial farms were managed by for-profit entities and there were three with in their population, all located on the roof tops of larger former industrial buildings, an example being the Eagle Street Roof top Farm in Queens. The lack of space for commercial enterprises in their population is an interesting finding of the report, which suggests why food production for profit is often not the primary goal of urban farming, at least in dense cities like New York. The report also calls into question APA's commercially based typology. Additionally, the report notes that commercial farms are focused on maximizing crop performance to achieve profitability, suggesting that they are really intensive horticultural enterprises, rather than traditional farming as it is popularly conceived. As

urban agriculture they also share many of the social and ecological goals of the broader urban agriculture community. (Cohen and Reynolds, 2012)

Community Farms are the other type of farm in the report's typology, with 7 urban agriculture schemes falling into this category including Added Value's Red Hook , Brooklyn scheme. Community farms grow food, but unlike commercial farms their primary goals is usually some kind of community development or social programing. Community Farms are also managed by non-for-profits. (Cohen and Reynolds, 2012) Typically managed by "a group of local resident volunteers" Community Gardens were also prevalent in *Five Borough Farm's* population. At the time of the report there were 390 community gardens represented making up just above 50% of all urban agriculture in New York City. Community Gardens proliferated on New York's vacant lots during the 1970's and 1980's. Now that real estate value has recovered from that nadir in New York's financial history, Community Gardens are under pressure. Many gardens have been replaced. Half of the current 390 gardens have been transferred to the city's Department of Parks and Recreation and only a quarter of those are protected by land trusts. Interestingly, though run by private resident volunteers, community gardens located on city lands, must *function like parks* and have public access hours. (Cohen and Reynolds, 2012)

*Five Borough Farm's* policy recommendations were diverse including: formalizing city government's support for urban agriculture. This recommendation included:

- Establishing a clear urban agriculture policy, especially around the issues tenure and preservation and an urban agriculture plan, complete with urban agriculture land use map and an inventory of existing and potential sites
- Integrating urban agriculture better with green infrastructure policies. Under this

- recommendation the issue of soil, compost, and organic waste figured prominently
- Identifying innovative opportunities to build urban agriculture into the cityscape. As a densely developed city, rooftop and small space urban agriculture schemes ranked high in priority. Not just production, but food hubs, which provide items like markets, cafes and organizational space, was also a recommendation.
  - Addressing disparities in New York's urban agriculture community. This item is particularly interesting when juxtaposed with the reports comprehensive map of the 752 sites. Sites tended to cluster in corridor along the border of Brooklyn and Queens, in upper Manhattan and the lower east side, and in the South Bronx, all lower income areas of New York City.
  - Fostering urban agriculture grant making, was the last recommendation, which included equalizing access to grants and finding a sustainable funding source.

This inquiry is like *Five Borough Farm* in multiple ways and can build on its research but in a different urban context. Like the report this inquiry relies heavily on interviews in its methodology. Also like the report this inquiry's goal is to understand not just form but also the socio-economic and ecological aspects of urban agriculture. And this inquiry hopes to uncover the complexity of urban agriculture as these different aspects of the phenomenon integrate.

Differences are that the research methodology of this inquiry though interview heavy is grounded in urban planning and design research precedent and theory. Another difference is that this inquiry, without the deep pockets of the Trust and zero financial support from the University of Maryland, depends on a small sample. Still, it is useful to determine whether this inquiry's results corroborate any of *Five Borough Farm's* conclusions in a different context. It should also be noted that Added Values goal was a New York City specific typology, whereas this inquiry, hopes to produce a typology transferable to



other urban contexts. Unlike the *Five Borough Farm* report this inquiry also has more of an urban design lens than a policy focus. Lastly, since *Five Borough Farm* was able to research an entire population it can make claims about the distribution of types. This inquiry, however, is only able to make claims about the variation of types and not their distribution.

### **Professional Design Guides: Designing Urban Agriculture (weak example)**

Landscape Architect April Philips *Designing Urban Agriculture: A Complete Guide to the Planning, Design, Construction, Maintenance and Management of Edible Landscapes* is an example of a professional urban agriculture guide. As a practitioner Philips shares a view of urban agriculture as integrating physical, social and ecological spheres. “Designing urban agriculture is about the intersection of ecology, design and community.” writes Philips. (Philips, 2013)

Rather than a systematic design research inquiry, *Designing Urban Agriculture* is more a compilation of her experiences, thoughts and conversations with her colleagues. Philips work, like many texts on urban agriculture, is filled with case studies illustrating various ideas on design, construction, or maintenance. To her credit Philips discusses theory such as systems and integration theory. However, Philips case study approach is not as systematic or transparent as an academic research inquiry and it is not always clear how the case studies connect to systems integration theory.

Philips discussion of typologies is also typical of how most practitioner guides or journalistic case studies construct typologies; they simply become lists of known instances of urban agriculture in cities. Philips “urban agriculture types” include many forms of urban agriculture, however, her list is not adequately connected to theory and

one can argue does not rise sufficiently to the level of a typology. Philip's list includes: urban farms, community gardens, experimental gardens, edible school gardens, food pantry gardens, restaurant gardens, edible resort landscapes, yard share, multifamily edible landscapes, planner neighborhood food landscapes, company food landscapes, edible street-scapes, edible parks and plazas, victory gardens, and wellness gardens. (Philips, 2013)

### **Agricultural Urbanism (strong example)**

Edited by Janice De la Salle and Mark Houland *Agricultural Urbanism: Handbook for Building Sustainable Food and Agricultural Systems in 21 Century Cities* is a Canadian guidebook for planners and designers representing the stronger end of the guide book spectrum. Its goal is to “more fully integrate” urban agriculture innovation led by the non-for profit world “into the planning and design of our metropolitan regions.”(De la Salle and Houland, 2010) Planners and designers, according to agricultural urbanism, need to embrace a new model of food systems because “the current model” and scale of global industrial food system is unsustainable. Agricultural Urbanism also sees urban agriculture through the ecological prism of interlocking scales, making it a guide more akin to the perspective of this inquiry. (De la Salle and Houland, 2010)

Unlike most guides, its typologies are not simply a list of known instance of agriculture but rather are types framed by different theoretical lenses. Agricultural Urbanism is also unique in that it places urban agriculture into several well-constructed typologies.

First, there is a socio-ecological typology which included different social and ecological goals of urban agriculture, echoing Donella Meadow's system view discussed in the methods chapter about system mission being a fundamental way to understand how a system functions and how it is likely to change and grow. (Meadows, 2008) *Agricultural*

*Urbanism's* socio-ecological goals include but are not limited to learning gardens, significant food production, education aqua culture, recreation, community capacity building, crime reduction, addition reduction, open space management, storm water management, urban bio-diversity, and waste diversion and composting (De la Salle and Houland, 2010) Unlike, the APA typology the economic goal of significant food production is just one item amongst many rather than a driver of the typology.

Next, there is a purely ecological typology based on “agricultural and urban resource flows” including water, material and energy flows, which informs planners and designers about what can be done at the input and output stage of the flow. (De la Salle and Houland, 2010)

Measuring flows at each site unfortunately is beyond the scope of this inquiry, however, these flows will be observed.

One of the more developed *Agricultural Urbanism* typologies is a physical typology, which gives over 100 design ideas for different scales of built environment including rooftops, balconies, around buildings, inside lobbies, in courtyards and pocket parks, parks, plazas and public squares, schools and community centers, community demonstration gardens, and streets. (De la Salle and Houland, 2010)

Lastly, there is a Food Systems Opportunity Matrix (De la Salle and Houland, 2010) that juxtaposes different stages of the system such as production, processing, transport, retail and waste disposal with options for local government planning and design interventions in different spheres, including but not limited to parks and open space, transportation policy, or land use and growth management.

As for the issue of scale aggregation, like Duany's Agrarian Urbanism, *Agricultural*

*Urbanism* embraces a transect from wild, rural, suburban and urban areas, each with differing planning, policy and design goals.(De la Salle and Houland, 2010) With in the urban end of their transect, however, *Agricultural Urbanism* sees interventions occurring primarily at two scales regional or metropolitan level and the local or neighborhood level. (De la Salle and Houland, 2010)

This is a much more complex understanding of urban agriculture and its multiple typologies, and it is a refreshing perspective that mirrors this inquiry's use of different types of integration in the core research logic. *Agricultural Urbanism's* social typology has similarities to this inquiry's social integration variable of program. Its ecological flows typology is akin to the multi-function and closed loops variables of this inquiry's ecological integration construct. And *Agricultural Urbanism's* "design ideas" typology located in its appendix is akin to this inquiry's physical integration construction. As a well developed design guide, its intervention discussion is much more developed and goes beyond the scope of this inquiry. In forming its typologies this inquiry takes cues from *Agricultural Urbanism's* many typological approaches.

Finally *Agricultural Urbanism's* food systems opportunities matrix, with its many recommendations is also useful to this inquiry. Like *Five Borough Farm's conclusions Agricultural Urbanism's*, conclusions will be compared to this inquiry's results to discern areas of agreement or disagreement concerning policy and next steps and in this way this inquiry hopes to build on De la Salle and Houland's guide.

## Summary of Typology Literature Gaps

New ways to classify urban food schemes would add to the literature on urban food typologies. Research such as Forsythe's represents the lack of academic urban design

literature that constructs a typology exclusive to urban agriculture. When an urban agriculture typology is attempted, it often focuses only on a sub-set of integration such as Andres Duany's *Agrarian Urbanism* spatial and physical orientation or as a subset of type, such as Laura Lawson's *Planner in the Garden* discussion just of the community garden types through time.

There is a need with in the academic literature for a more comprehensive classification system addressing all three key areas of integration: spatial, social, and ecological integration across a variation of urban agricultural types. The non-academic literature while often being more comprehensive in categorizing what is happening in different metro contexts, often pigeon holes schemes into simplistic classifications such as community gardens vs. commercial gardens. This is true both for most municipal inventories as well as guides such as the April Phillips guide, which was presented as an example of typical urban agriculture design guide.

In the case of the American Planning Association this pigeon holing is the most problematic, since it has created a commercially oriented typology without adequately making the case that for profit, commercial functions are the primary orientation of urban agriculture. Even from a business lens there are other goals urban agriculture could serve including creation of market share for example. Perhaps urban agriculture has a different business orientation than profit creation, such as serving the local food sector in creating market share, or perhaps urban agriculture as a typology is not truly business driven at all. From the typology literature this is not clear. This essay hopefully will shed some light on this gap in the literature.

While there are strong examples of guides such as De la Salle and Houland's *Agricultural Urbanism*, a key difference between the *Agricultural Urbanism* guide and this inquiry,

however, is that it is after all a professional guide and is not attempting to build theory. This inquiry, as a research endeavor and not simply a guide aspires to add to *Agricultural Urbanism's* many typology's not just by showing how urban agriculture types fit at different scales but also revealing how they may move from one scale to another. The primary question of this inquiry, a thread which runs across all three essays, asks how urban agriculture is scaling up into a socio-ecological system. The evidence of integration and scaling was provided in the narrative discussion from essay one. In sum, in that essay there was a directional and a process answer to this question. Direction was represented by instances of ratcheting up, feedback and jumping scales. Process was represented by instances of saturation, catalyzation, and metastasization.

The closest examples of these directional and process categories in the typology literature of this essay are in Alessa et al's resilience typology between cities. Alessa et al's variables of distribution, distance and diffusion of knowledge constructs were similar to the processes the urban agriculture entities in essay one used to move from a lower scale to a higher one. Metastasizing, growing the system by growing locations, relates to Alessa et al's distribution and distance. Strategies such as organizational networking and site saturation relates to Alessa et al's variable of distribution of knowledge and risk. There was a stronger resemblance, however, to Alessa et al's concept of diffusion of knowledge and risk and the idea of catalyzation in this inquiry. Respondents in this sample often catalyzed the system and scaled it up by engaging in informal and formal conversations. Examples of informal transfers of knowledge were provided in the narratives of Berea Oakleaf Farm, Chosewood Park, Park Pride's Peachtree Hills site, Emory's demonstration garden and especially Piedmont Park's demonstration gardens. More formal examples included grant writing assistance by Janice Giddings from Clarkston Community Center, consulting by Fresh Root Farm's Chris Edwards, and especially the broad-based teaching and consulting provided by the Wylde Center and Rashid Nuri's Truly Living Well.



Alessa et al's main theoretical frame was resilience. This inquiry documents the variation of Atlanta's emerging local food system, and from the many instances of low input community based food production observed one can claim that resilience is increasing in Atlanta. However, from this inquiry's qualitative sample there is no way to quantify how much resilience. There is also no way to say if the various urban agricultural sites are making the city resilient enough to raise it to a higher order of resilience according to Alessa et al's typology of resilient cities.

Besides Alessa et al's resilient cities typology between cities, the scaling up question of this inquiry also builds on Andres Duany's theoretical typologies between cities. Duany posited that there are four approaches to growing food in cities, which he dubbed Agriculture Retention, Agricultural Urbanism, Urban Agriculturalism, and his more integrated concept of Agrarian Urbanism. This inquiry reveals that what he calls urban agriculture is still more of the norm in Atlanta.

Because of its less dense and sprawling layout, with a lot of the low hanging fruit of marginal lands even in the city's core, most of the Atlanta food schemes are indeed reclaiming marginal sites, placing Atlanta firmly in Duany's concept of urban agriculture rather than agrarian urbanism. However, via the scaling up processes of catalyzation, saturation and metastasizing this inquiry also uncovers a city in the process of becoming the agrarian urbanism ideal, where the entire city is integrated with food production.

If one accepts Duany's theory, one could say it shows how a city, in this case Atlanta, is moving from just 'Urban Agriculture' towards 'Agrarian Urbanism.' The work of Concrete Jungle, who is trying to make Atlanta's existing fruit forest more visible, also builds on Duany's Agrarian Urbanism paradigm. Through one interpretation, Atlanta, as

America's most forested city already has an extensive fruit forest, if more residents better understood what was right in front of them, that fruit forest could easily become a version of Duany's Agrarian Urbanism.

Through a second interpretation there is also the possibility that 'city as food forest' could even be a completely different paradigm, a fifth type, the food forest city, which Duany did not adequately address in his theory. These types of typological questions are addressed in the results section of this essay.

Lastly, as for the methodologically strong *Five Borough Farm* report, its typology has two problems, its management lens while useful, is also just one way to type urban agriculture. Other ways for typing schemes should be explored. Also, the *Five Borough Farm* study is heavily New York City centric and it is not clear how transferable its lessons may be to other locations. The examination of the more sprawling case of Atlanta can add to *Five Borough Farm's* denser New York City research.

A robust typology would be able to include any form of urban agriculture, located anywhere along the urban transect, whether it is a humble urban balcony integrated into the fabric of a building or a massive urban agriculture scheme taking up multiple city blocks in a horizontal plane. And while typologies are always form biased, the better ones would be a more sophisticated combination of physical, social, and ecological criteria. Moreover, the typology literature, with the exception of the *Agricultural Urbanism* work by De la Salle and Howland usually looks at urban phenomenon through one scale or another, either the scale of sites or the scale of cities, but seldom, site, neighborhood, district and city as an interlocking system. And even De la Salle and Howland, while acknowledging these different scales do not reveal how these higher scales are being achieved and how the system is evolving from one scale to another. The issue of

scale and how different schemes are scaling up is also a gap in the literature that this dissertation addresses. In essay one the research revealed how this may be happening via narrative, enumerative, and visual snapshots of different schemes. In this essay typologies and ultimately an agriculture model are provided, which shows how different urban agriculture types fit into the overall multi-scalar system.

The knowledge from this essay would be useful for food shed researchers, designers, city officials and many others hoping to assist their cities more vigorously with the grass-roots phenomena of urban agriculture in their own communities.

Lastly, important urban agriculture themes that emerged from the qualitative data collection are presented at the end of this essay in order to help narrow the field for the quantitative approach to understanding the value of urban agriculture and how it is scaling up, which is the quantitative focus of essay three. That discussion follows the typological construction of this research, which is the focus of the next section.

## ESSAY 2 RESULTS:

### *Building urban agriculture typologies*

When this research was conceived, the expected outcome was that one typology would emerge incorporating the three sub-categories of integration as well as demonstrating how each scheme scales up from neighborhood to city. However, like the proverbial elephant of Indian fable, the reality was quite different depending on the focus of observation. Schemes shifted their relationship to the others depending on the lens being used.

Schemes which shared a classification in physical integration did not necessarily sit side by side when viewed from the social lens. As for the scaling up process, while most schemes were excellent examples of one form of the process or another, most schemes had examples of most of the processes within them, making this part of the question less of a typology and more a description of strategy or change. Essay one held up one site for each type of change or strategy, but the reality was that sites usually exhibited more than one concept. Moreover, as a complex system the direction was not always 'up'. Schemes did not move from one lower-scale type to a higher-scale type in an orderly fashion but rather displayed all kinds of complex systems interactions going in multiple directions.

The most unexpected outcome, however, was with the lens of ecological integration. There was the unexpected result of little difference between schemes in this area. Rather than a typology of ecological integration, the very different social and physical schemes all shared one ecological vision, all striving to reach a similar bar as if it came from one collective conscious rather than individual aspirations.

While this vision of ecological integration was more successfully reached by some

schemes than others, the goal posts appeared to be similar. Usually the vision was described in positive terms but it was also expressed as ‘oppositional,’ where the common view of urban agriculture was defined by what it was not: the current system dominated by industrial practices as well as national and international scales of operation.

This finding supports the frameworks often found in social science literature on urban agriculture such as the characterization of local food systems as being primarily alternative, the Alternative Food Networks (AFN) literature presented in the literature review of essay one.

Therefore, in this essay instead of one typology, two typologies, of physical and social integration have been derived from the sample. Moreover, despite being a sample that was selected strictly because of their engagement in some form of the food production aspect of the local food system as opposed to processing, distributing etc., this inquiry found that the food production role of this *urban* sample went well beyond growing food. A model for a local system emerged with a food production role for urban agriculture in denser city fabric and urban cores that is distinct from the production roles of agriculture not located in dense urban cores. Just as the *Five Borough Farm* report had concluded in the context of dense New York City, urban agriculture sites in this Atlanta inquiry found that urban agriculture centrally located in the denser areas of Atlanta was about more than just production. These core urban sites often emphasized socio-ecological systems functions rather than simply being sites to grow food.

### Emic Typologies:

While most of the urban agriculture typologies developed in this inquiry are constructed via the emic-etic ethos of this inquiry’s research methodology, many of the respondents had their own typologies, which this inquiry has dubbed the ‘emic typologies’ of the

sample. Before launching into the physical and social urban agriculture typologies derived *from* the sample, these pure emic typologies described *by* the sample are presented first. **[Figure C]**

Of all the emic typologies, Atlanta Food and Farm perhaps had the most conscious and well developed scheme. As a consultant AFF's perspective on typologies was based on their various site design products. "We do several different tiers of urban ag projects.," explains AFF's Kwabena Nkromo, "So it's all the way from an individual home garden all the way up to a commercial farm, so in that range we have six or seven different iterations. We have market gardens, institutional gardens, school gardens but all that is within the project development bucket."

Even when not as articulated as AFF many of the respondents, however, had some concept of the types of urban agriculture and where their scheme fit. Figure C breaks down the different emic typological concepts of the sample into five categories: farms vs gardens, community garden iterations, types by landscaping, types by placement, and AFF's types by design products.

### Physical Integration Typology

Urban design, as discussed, is a physical-form centric discipline. But although form dominates its perspective, how urban form relates to social and more recently ecological concerns is also important to the field. As urban design research this inquiry viewed the urban agricultural schemes from the disciplinary lens of urban design and the physical form typology that emerged fits the theoretical literature such as Doug Allen's division of urban form into a constitutional order discussed in the dissertation's introduction. (Allen, 2013)



## Figure C: Emic Typologies

### “Farms” vs “Gardens”

- East Lake Community Learning Garden and Urban Farm
- Fresh Roots Farms
- Truly Living Well
- Berea Mennonite Oakleaf Farm

### Community Garden Iterations (school yard gardens, neighborhood gardens, public housing gardens)

- Wylde Center Sites
- Farmer D’s (non private residence clients)
- Park Prides Community Gardens

### Types by Landscaping

- Piedmont Park (orchards, wetland, community garden)
- Concrete Jungle (Atlanta’s food forest vs hugelkulture at Doghead Farm)
- Clarkston Community Center (food forest, community garden, rain gardens)

### Types by Placement (roof, side yard, front yard, back yard, parking lot, public spaces, parks)

- Peachtree Hills
- Manual’s Tavern
- Chosewood Park
- Concrete Jungle (location of trees)
- Emory Demonstration Gardens

### Types by Design Products

- Atlanta Food and Farm  
(home gardens, commercial farms, market gardens, school gardens)

This inquiry's physical integration typology displays how urban agricultural aligns with the key aspects of the constitutional order; however, it also adds the dimension of scale as urban agriculture is integrated first into private sites and parcels, then civic spaces, streets, parks and open spaces, next into districts and then is integrated at the level of entire cities. The types within these broad constitutional order categories are also more articulated. Rather than just open space for example, the physical integration typology includes food parks and eco-centers.

This typology is also more articulated than what is commonly found in the non-academic literature, such as the municipal inventories which often type urban agriculture simply into community gardens and urban farms, or the less developed studies and design guides such as Philip's *Designing Urban Agriculture*, which lists numerous schemes but does not order them into a true typology. (Philps, 2013) The physical integration typology, echoing Forsythe's typological research, also places the forms into a matrix showing which variables of the core logic dominate the character of each type. **[Figure D]**

One notable difference of this physical integration typology is that neither Duany's concept of Agricultural Urbanism nor Forsythe's type of comprehensive planned communities, what she calls the Eco-suburb, appears. This is partially due to the fact that the sample limited itself to urban sites. In the context of Atlanta this meant ITP (inside the perimeter) locations, which though not all dense, are mostly pre-war street car suburbs. Serenbe, a nationally famous example of a community planned around agriculture and located in the far southern end of Fulton County is clearly a new type of urban agriculture district or at least a potential sub category in Forsythe's eco-burbs. But as an exurban phenomenon it did not fit the geographic scope of this research sample. Because it is a special case it had been contacted; however, it declined to be interviewed. Therefore,

Figure D: Physical Integration Typology Matrix

|  | Atlanta Food and Farm | AFF English Avenue | Berea's Oakleaf Avenue | Berea's Oakleaf Memorial Farm | *Chose wood Church Language Garden | Clarkston Community Center | Concrete Jungle (Network) | Concrete Jungle Edible Neighborhood | East Lake Community Center | East Lake Community Doghead | Emory Urban Farm and Market | Farmer-D Organic Food and Market | Fresh Roots Farm (Network) | Fresh Roots at The Goat Farm | Fresh Roots Cabbage Town | Manuel's Tavern | Park Pride Peach Tree Hills Community Garden | Park Pride (Network) | Park Pride Blue Heron Community Garden | The Wyde Center, Orchard and Green Market | Wyde Center Oakhurst Community Garden | Wyde Center Edgewood Learning Garden | Wyde Center Hawk Hollow | TLW Center for Natural Urban Agriculture (network) | TLW at Harbin Road | TLW at Fayetteville | TLW at East Point |
|--|-----------------------|--------------------|------------------------|-------------------------------|------------------------------------|----------------------------|---------------------------|-------------------------------------|----------------------------|-----------------------------|-----------------------------|----------------------------------|----------------------------|------------------------------|--------------------------|-----------------|--|----------------------|--|---|---------------------------------------|--------------------------------------|-------------------------|--|--------------------|---------------------|-------------------|
| PRIVATE (parcels)                      | ●●●                   | ●●●                | ●●●                    | ●●●                           | ●●●                                | ●●●                        | ●●●                       | ●●●                                 | ●●●                        | ●●●                         | ●●●                         | ●●●                              | ●●●                        | ●●●                          | ●●●                      | ●●●             | ●●●  | ●●●                  | ●●●                                    | ●●●                                       | ●●●                                   | ●●●                                  | ●●●                     | ●●●  | ●●●                | ●●●                 | ●●●               |
| Private Garden                         |                       |                    |                        |                               |                                    |                            |                           |                                     |                            |                             |                             |                                  |                            |                              |                          |                 |  |                      |  |   |                                       |                                      |                         |  |                    |                     |                   |
| Community Garden                       | ●                     |                    | ●                      |                               | ●                                  | ●                          | ●                         | ●                                   | ●                          | ●                           | ●                           | ●                                | ●                          | ●                            | ●                        | ●               | ●  | ●                    | ●                                      | ●   | ●                                     | ●                                    | ●                       | ●  | ●                  | ●                   | ●                 |
| Urban Farms                            |                       | ●                  |                        | ●                             |                                    | ●                          | ●                         | ●                                   | ●                          | ●                           | ●                           | ●                                | ●                          | ●                            | ●                        | ●               | ●  | ●                    | ●                                      | ●   | ●                                     | ●                                    | ●                       | ●  | ●                  | ●                   | ●                 |
| PUBLIC or CIVIC                        |                       |                    |                        |                               |                                    |                            |                           |                                     |                            |                             |                             |                                  |                            |                              |                          |                 |  |                      |  |   |                                       |                                      |                         |  |                    |                     |                   |
| Right of Way Garden (Streets)          |                       |                    |                        |                               |                                    |                            |                           |                                     |                            |                             |                             |                                  |                            |                              |                          |                 |  |                      |  |   |                                       |                                      |                         |  |                    |                     |                   |
| Eco-Centers & Food Parks (Open Spaces) |                       |                    |                        |                               |                                    |                            |                           |                                     |                            |                             |                             |                                  |                            |                              |                          |                 |  |                      |  |   |                                       |                                      |                         |  |                    |                     |                   |
| DISTRICT                               | ●                     |                    |                        |                               |                                    |                            |                           |                                     |                            |                             |                             |                                  |                            |                              |                          |                 |  |                      |  |   |                                       |                                      |                         |  |                    |                     |                   |
| Edible Neighborhood                    |                       |                    |                        |                               |                                    |                            |                           |                                     |                            |                             |                             |                                  |                            |                              |                          |                 |  |                      |  |   |                                       |                                      |                         |  |                    |                     |                   |
| Food Commons                           | ●                     |                    |                        |                               |                                    |                            |                           |                                     |                            |                             |                             |                                  |                            |                              |                          |                 |  |                      |  |   |                                       |                                      |                         |  |                    |                     |                   |
| CITY or METRO                          |                       |                    |                        |                               |                                    |                            |                           |                                     |                            |                             |                             |                                  |                            |                              |                          |                 |  |                      |  |   |                                       |                                      |                         |  |                    |                     |                   |
| Farm and Garden Network                |                       |                    |                        |                               |                                    |                            |                           |                                     |                            |                             |                             |                                  |                            |                              |                          |                 |  |                      |  |   |                                       |                                      |                         |  |                    |                     |                   |
| Urban Food Forest                      |                       |                    |                        |                               |                                    |                            |                           |                                     |                            |                             |                             |                                  |                            |                              |                          |                 |  |                      |  |   |                                       |                                      |                         |  |                    |                     |                   |

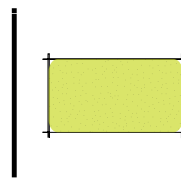
# TYPES

Defining  
Characteristics

## PRIVATE Parcels (Location)

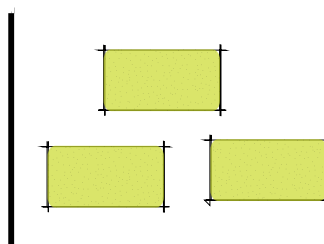
### Private Garden

No Access



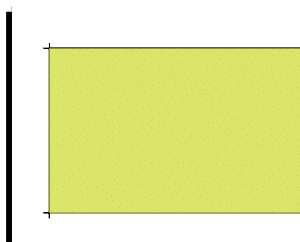
### Community Garden

Members



### Urban Farm

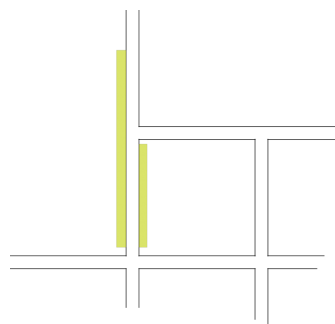
Extent  
Program (The Market)



## Public Streets (Location)

### Right of Way (ROW) Garden

Access  
Eco-revalatory

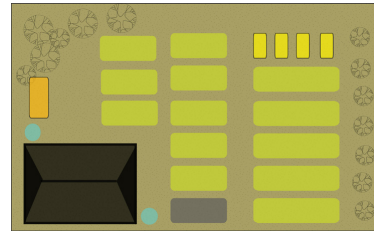


# Public

Open Space (Location)

Access  
Program  
Eco-revalatory  
Multi-function  
Closed Loops

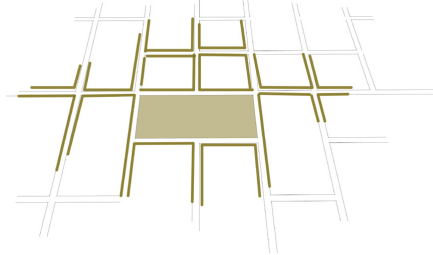
## Food Park or Eco-center



# Districts

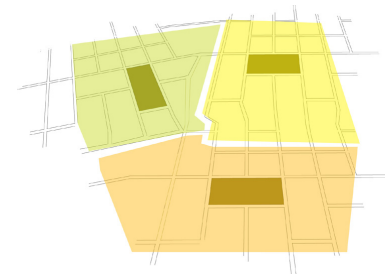
Access  
Eco-revalatory  
Extent

## Edible Neighborhood



Members  
Extent  
Closed Loops  
Multi-function

## Food Commons



# Cities

Pattern  
Closed Loops  
Multi-function

## Farm and Garden Network or Urban Food Forest



this inquiry did not build on Forsythe's typology by showing how a comprehensive development, or eco-burb, could be arranged around urban agriculture.

Andres Duany is very critical of development products such as Serenbe, claiming that "anyone may visit, volunteer or learn from the farm ...but " few of the residents participate in the productive activities." (Duany, 2011) That sounds like a distinction without a difference. This inquiry does not see the fact that residents are not more integrated in the daily function of a scheme such as Serenbe as a problem. A farm must have an overseer, most urban farms will have an organization that runs them. While nearby residents may not actively participate in them this inquiry's sample suggests that there is also value whenever and however individuals interact with urban agriculture, passive or active.

This inquiry focused on in-town urban locations, but suburban or exurban developments built around a more traditional farm could be a form of suburban Eco-center or Food park. A study of communities like Serenbe as eco-centers or food parks is an opportunity for further research. With the recent uptick in the real estate cycle there are likely more examples of these types of communities being developed across the country. A study of a sample of these entities, which includes Atlanta's unique case of Serenbe, could build on the research of this dissertation.

### Theme: Deep Visibility

There is a lot of discussion in urban and landscape design literature about the importance of making things visible. The qualitative research of this dissertation tests these assumptions by showing how deep visibility rather than simply visible location is critical. The importance of placing food production in liminal spaces where it can be seen, was



common in the design literature from urban designer Jan Gehl's Melbourne Research, to *Food Not Lawns* author Heather Flores, to many landscape urbanists such as Charles Waldheim who also held up visibility as an important landscape urbanism design approach. (Gehl, 1977; Worrel, 2009; Waldheim, 2006)

Ecological thinkers such as Randy Hester also speak of the need for eco-revelatory designs, so that people may become more aware of the processes of ecology. (Hester, 2006) Therefore, the core logic reasoned that physical location is a critical variable, perhaps even more than the other physical variables of pattern or extent, and it also made it part of the core logic of ecological integration via the attribute of eco-revelatory design. Landscape designer Fritz Haeg, for example, deliberately puts his edible landscapes in highly visible spaces such as front lawns to "get in people's face" and to "start conversations." (Haeg, 2010) **[Figure E]**

In this research sample visibility proved to be more complex than simply being bodily able to see the urban agriculture scheme or not. Visibility required a deeper understanding of what one was looking at for it to be meaningful. And what might seem like an eco-revelatory design act such as installing a water catchment system isn't necessarily so revealing to the unformed. Without some kind of explicit instruction, individuals do not necessarily see what is in front of them. A finding of this research is that truly seeing required a deeper level of visibility linked to a food or ecological literacy. **[Figure F]**

The theme of visibility as well as the importance of deep visibility and literacy appeared more than once in the sample. As the literature asserts, the visible location of site often did indeed lead to questions to growers from observers, and as this inquiry's essay one asserts, these conversations are sparks, the micro process of catalyzation that can lead to system expansion. For example Holly Hollingsworth of the Piedmont Park Conservancy

Figure E: Visibility

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FRITZ HAEG'S EDIBLE ESTATES  
BALTIMORE, MD





ACTUAL

CONCEPTUAL

CONCRETE JUNGLE  
ATLANTA FOOD FOREST MAP

mentioned how their demonstration garden was potentially seen by thousands if not hundreds of thousands of visitors each year, and that whenever she was “down in the garden” she often had people ask her about it. To reach people when gardeners were not in the garden and able to provide explanations first hand, Piedmont, however, also had an extensive sign program to help make people more aware of the garden and its ecological functions such as its composting program with Compost Wheels. Other examples of visibility being important from the sample include the eco-revelatory acts at Clarkston Community Center, such as their extensive water catchment system and their unusual Burmese community garden plots. These design acts did indeed spark curiosity and questions.

At the TLW site the researcher even witnessed one of these micro interactions when a visiting couple nearly high jacked one of the interviews to ask about some of the unusual things they were seeing on site, such as the developing aqua-ponics system. Rashid Nuri commented afterwards that he always takes these questions seriously and drops whatever he is doing to field them, indicating his view of the value of these exchanges.

Yet another unique visibility theme from the sample was demonstrated at Berea Oak leaf Farm. John Weirwille explained how urban agriculture had helped make a misunderstood institution, more transparent. Berea had been perceived as “a cult,” claimed Wierwille, but the farm and especially visible aspects of it like the pumpkins sales off the street, which were taking place during the interview, brought neighbors to the site, sparked conversations and made the tenants of the Mennonite tradition more clear to outsiders Emory’s Erin Mooney also noted that she has these conversations even on less active days,

“Sometimes when I’m working in here people will come up and ask me about it... I come out on Saturday and Sunday so the campus is obviously less active. But I still have people walking by and asking me about it.”

Finally, The Right of Way (ROW) Gardens in Chosewood Park, also relied heavily on visible location. Clayton Preston discussed how he experienced conversations with residents by being in these highly visible locations, a particularly interesting exchange being with two six year girls who saw him working, asked him about it, and then later were seen by Preston mimicking Preston's care of the gardens; evidence that these conversations can be catalytic.

Some respondents, however, such as Anne Stanley from the Park Pride Peachtree Hills site, remarked that even though their garden was visible from the street, it didn't necessarily catalyze understanding if she was not there to field questions. "I don't know if anybody would really notice it unless they were looking for it," explains Stanley. When in the garden, Stanley relayed in Essay one how it often became a conversation starter, but she doubted its impact on people simply passing by on the street, unless they already understood something about community gardens and food growing. **[Figure F]**

Concrete Jungle's Craig Durkin echoed Stanley's concerns, and spoke extensively about the need to be able to see more deeply. Though Atlanta is covered with trees, many of them bearing fruit, many residents are unable to see this abundance right in front of them. This lack of a deeper understanding of Atlanta's partially edible canopy so bothered Concrete Jungle that they made it a defining characteristic of their organization.

The Concrete Jungle website for example dedicates significant space to how to identify trees.

"Once you're able to identify trees," their website claims "it lets you pick up on one further detail of the world, and formerly mundane details begin to jump out at you." (Concrete Jungle, 2013)



Once trees are cataloged they are added to their map, which Concrete Jungle also sees as an eco-revelatory tool. “When you see the map.” Craig explains, “And it’s just like this big blob of stuff that’s growing everywhere, I think that’s a really powerful thing.” Since their focus is fruit trees, Concrete Jungle uniquely calls the process of cultivating deep visibility “Fruit Eyes” **[Figure F]** Durkin spoke passionately about this fruit eyes experience.

“one of the cool things that happens when people start working with us or just having us in mind and going picking with us, is that you get like an eye for a certain kind of tree. And so once you’ve seen five or six apple trees, you start to be able to see them everywhere. Stuff that you didn’t even know was there starts popping out at you. And like every year we are picking we find something new that grows here. We’ll see one, and say, ‘oh that’s weird, I didn’t know this grew here,’ and then in the next two weeks we will see seven or eight more and say ‘man these things are everywhere!’ And so I feel like that is the really cool part of Concrete-Jungle, ...helping people realize this stuff is all over the place, that there is a service berry tree right there. That is ubiquitous....*We call it the Fruit Eyes*...I don’t know what you would call it otherwise, anytime you pick up a new interest you start to notice it everywhere. Like I have a friend who plays drums and every time we are driving around playing music, he’s always noticing the drum line. And he’s saying ‘man this part is freaking impossible, I could never play that’ But to everyone else it like ‘oh yeah music...cool’ It’s just picking up stuff you don’t normally notice.”

Cultivating understanding of ecology and food growing was so important to the sample that some organizations such as the Wylde Center have dedicated half or more of their mission to it. Stephanie Van Parys calls it “learning environmental awareness.” From the very beginning the Wylde Center, when it was just one community garden instead of a constellation of sites and school programs, made cultivating ecological and food growing awareness as a primary focus. But even if it is not the main part of their mission, as at the Wylde Center, there was a consensus across the sample that awareness and deeper understanding are a critical value of urban agriculture, especially in dense in-town areas or at the neighborhood scale. Fresh Roots Farms and Truly Living Well who are primarily agriculturalist focused on production also make education and awareness



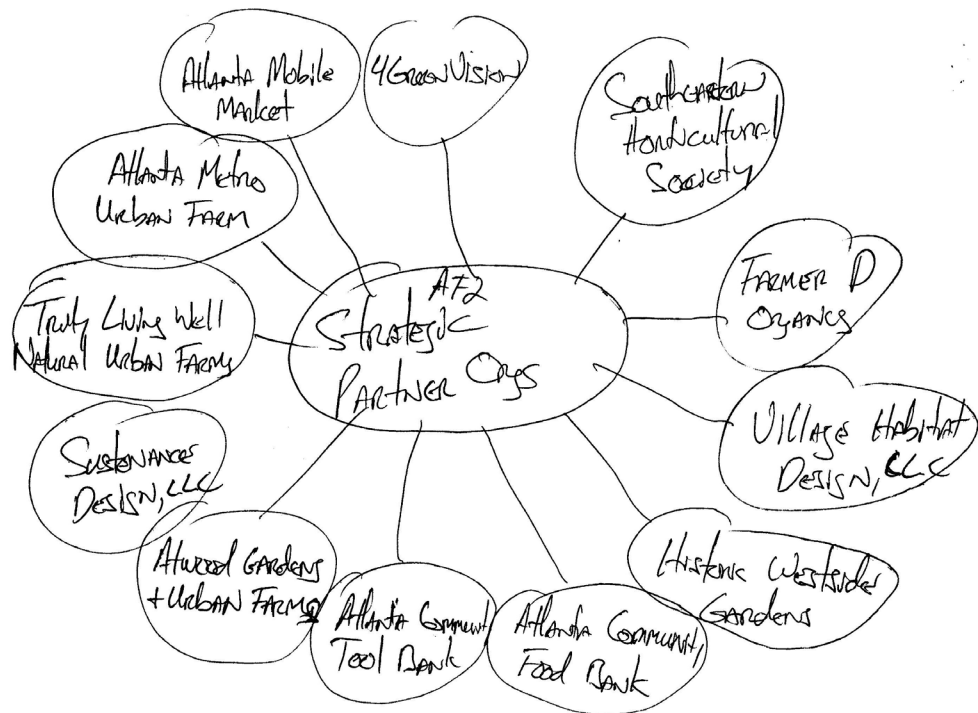
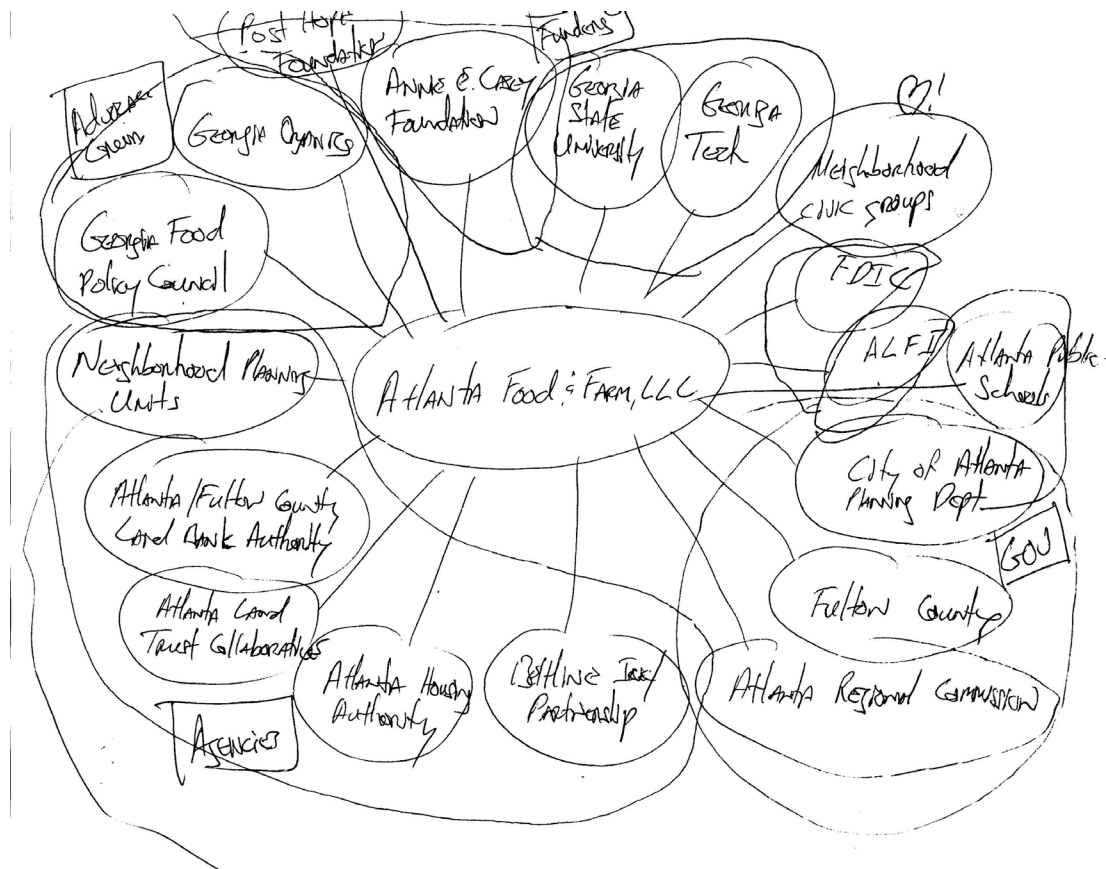
pillars of their agricultural models. Since it is such a strong theme in the sample, we will revisit this topic in depth later. But a key take away from all this discussion is that seeing requires more than just placement of an activity in liminal space where it can be seen, the assumption in this inquiry's core logic; it also requires deep visibility, the cognitive ability to process what you are seeing.

## Social Integration Typology

To understand social integration this inquiry turned to the social networking literature and the classic planning and urban design literature of the human ecology of public space. The core logic then chose three variables to represent these networking processes: Membership, Access, and Program. Membership is defined as the number of people actively involved with an urban agriculture scheme, access captures the more passive affiliations, and program the diversity of participants.

In addition to assessing these variables from the core logic via observation and structured interviews this inquiry also had respondents draw their social integration via two social integration map voice activities. In the first activity respondents were asked to place a number for the core members of their urban agriculture scheme in the center of a blank piece of paper, and then radiate out from that core the different levels of membership of their organization. While drawing styles differed, these map voice membership drawings were consolidated into a standard that appears as part of the site foot print diagrams of essay one. An additional map voice activity asked respondents to diagram or map the many different kinds of relationships of their organization. Not every respondent took to the activity and others were zealous in covering all their important connections, but one must assume that there brain storm is just the tip of the iceberg of connections. Figure G represents an example from this map voice activity. **[Figure G]**

Figure G: Map Voice Example, networks question



The map voice activity in the aggregate makes clear that the urban agriculture movement is deeply embedded in their neighborhoods, the city of Atlanta, the region, and in some cases the nation with information and resource flows moving in multiple directions as in any complex system. As a qualitative study this inquiry has only documented the variation of these flows rather than quantifying their size or strength. However, it is clear that the variation and interconnection in this network represents a resilient movement with a great deal of capacity that could potentially be leveraged for greater effect. By recognizing the eco-center and food park role of urban agriculture in densely populated areas, a new urban agriculture type defined by this research, communities have the option of assisting that system to grow and thrive in whatever ways those communities deem appropriate.

### Theme: Connection

Returning to the social integration variables of the core logic, program diversity stood out as the more critical variable because it provided multiple ways for people to “connect” on the site. The idea of connection was an exceptionally strong theme showing up over and over again in the sample. Consistently it was seen as one of the most important values of urban agriculture. “Connection” was discussed in social, ecological, as well as socio-ecological terms, as well as in terms of “disconnection” and related words such as building “relations” and fostering “interactions.”

## CONNECTION THEMES

### 1. Connection

“A lot of its about enhancing **community connection**”

“We are trying to be a somewhere that’s also a model for other places, to show that it can be done, and that it can be integrated into communities very successfully. A place that serves as an example to people, a place that exists on a shoestring budget, but still forms a lot of solid partnerships and **connections to people** and is able to demonstrate what can be done.”

“It’s important that we **connect people with the environment**, with their food, with nature”

“There is something about digging in the dirt that makes you feel **connected to the life cycle**.”

“It’s all about **connecting people to the earth** (emphasizes) and ultimately what it takes to sustain life”

“Well , people are the most important elements. Engaging People. Involving people. **Reconnecting people to the soil to the land**, bringing health to the people. It's the people who form the community, create the community. It's because of the people why we do the work that we do.”

“You got to **connect people in the city to the land somehow**.”

“Being able to look with in and rediscover **how we are connected to nature**. That to me....when you open yourself up in that kind of way, lights start to come on. You start to notice, ‘oh wow the bees come at this time of the day. The mosquitoes come at this time of the day.’ You know what I mean?”

### 2. Disconnection

“It’s like when you go to the grocery store every week **you have no connection** to anything”

“**Connecting us to the life process. Things that we are disconnected from** in our, you know, comfortable, air-conditioned, car-driven world. So just that whole connection. I just feel so

happy when I'm digging in the dirt. It's really a good way to clear your head. It's hard to achieve anywhere else."

When I was doing my food and nutrition studies I really noticed that there was **a huge disconnect** between what we were growing and what we were consuming. And I wanted more of an education of food from the ground up, instead of the mouth out solely"

**"We are so disconnected from reality. We are connecting people to the reality that we live on this planet** and that nature is special and important and we are part of it."

### **3. Related terms: relations and interactions**

"We see ourselves as part of this movement and are very hyper aware of the things that we are doing that are designing a new America that will by extension design a new planet. How we manage our natural resources **in relation to** our most basic human need is how we maintain our bodies."

"Well they are trying to get people to enjoy and appreciate and use the park space that they have in a different way. Um, gardening has got all kinds of things that are good about it, but one of the things is that it gets people outside **interacting with their neighbors, interacting with their environment**, um interacting with themselves (laughs) learning what they are capable of and that kind of thing"

Fostering connection could be an important goal of urban agricultural in general but especially the role of the Food Park or Eco-center type, since this urban agriculture type provides a wide range of ways for people to gain exposure to the benefits of urban agriculture but at an intimate community scale. While any urban agriculture scheme can be seen as a foci of interaction, (Feld, 1981) the various programs of a food park or eco-center also layer on place meaning. The theory of place is an important subset of urban design literature, which was not discussed in the literature review, but, in light of the strong connection theme emerging from the sample, should be mentioned now.

Geographer Edward Relph author of *Place and Placeless-ness* analyzed the growing sense of placeless-ness in America in the 1970's. According to Relph the main features of 'place' include a sense of belonging, human scale, and fit with local and physical cultural context. The main features of 'placeless-ness' include an overriding concern for efficiency, mass culture, and anonymous exchangeable environments. (Relph) Relph supports the idea that place making is also heavily tied to the variable of programming from this inquiry's core logic. "Places" claims Relph "are defined less by unique locations, landscape, and communities and more" by focusing of experience and intentions onto particular settings." (Relph. 1976) The sample of urban agriculture sites of this inquiry, through participation in the various food growing schemes, whether that interaction was passive or active, did indeed seem to work as Relph describes. The sample consistently described this 'experience and focusing of intentions' in terms of connection.

Food-shed expert Ackerman-Leist, more specifically writes about this place making role of urban agriculture, "Place is foremost the intersection between latitude and longitude, but place as it relates to local food is also the intersection of people and their environs. And it is not just about existing relationships. In fact one of the most compelling arguments for rebuilding community based food systems are that it requires us to broker new relationships—relationships that help build local economies, conserve local landscapes, create entrepreneurial collaborations, enhance food security, enlighten and educate, and generate new friendships," (Ackerman-Leist, 2013)

Desire for meaningful places that foster relationships has led to strategies for place making by urban designers of all stripes not just those involved with urban agriculture. Traditionally urban designers with an architectural bias focused on building place meaning by creating relationships between buildings rather than relationships between people .An example is Gordon Cullen whom in his book *Introduction to the Concise Townscape*, (1961) early in the discipline's history defined urban design as the "art of relationship." The goal according to Cullen was to manipulate groups of buildings and physical town elements so as to achieve visual impact. Cullen as an architect is still very



object oriented, but his relationship focus is an example of the discipline of urban design including this focus quite early in its history. This change in perspective can also be found in the planning empiricists already discussed such as Jacobs, Appleyard or Whyte, with their human ecology orientations.

Next, place theory moved into the social relationship building realm. A prime example of this discussion is Ray Oldenburg's *The Great Good Place*. (1989) Oldenburg believed that the solution to the problem of placelessness in American is the championing of what he dubbed "third places." (Oldenburg, 1989) Third places are not one's home or one's work, but places where people interact in a more civic sense. Oldenburg's third places focused on establishments such as libraries and bookstores or coffee shops and drinking establishments but there is every reason to believe that urban agriculture, or at least the food park and eco-center type of urban agriculture, could also serve this purpose.

Tom Lyson a sociology professor at Cornell University coined the term "civic agriculture" so that local or urban agriculture would better reflect what he saw as its primary goal of socio-economic connection. Lyson states, "From the civic perspective, agriculture and food endeavors are seen as engines of local economic development and are integrally related to the social and cultural fabric of the community. Fundamentally, civic agriculture represents a broad-based movement to democratize the agriculture and food system." (Lyson and Hinrichs, 2009)

Eventually place making theory became more landscape and then ecologically focused. Kevin Lynch's image ability research discussed in the methods section and which was perhaps the most influential research method on this inquiry is perhaps the primary example from the urban design literature, but there are also the works of thinkers such as landscape architect Michael Hough who in his 1990 text, *Principles of Regional Design*

from *Out of Place: Restoring Identity to the Regional Landscape*, demonstrates how the landscape architecture profession has come to focus on ecology as well as aesthetics in its place making endeavors. Michael Hough associates sense of place with regional landscape identity and a new sense of ecological responsibility. The idea is that through an understanding of a regions landscape and ecology a fundamental component of a sense of place is also fostered. Place is becoming not just physical as with Cullen, nor is it social as with Oldenberg, but through Hough it is also landscape or ecologically based. (Hough, 1990) One could say that it is socio-ecological.

Food shed expert Ackerman-Leist states this socio-ecological perspective well, writing “when you create a piece of land with which you have a relationship—not just something you look at—it becomes something completely different. You’ve restored meaning to the place.” (Ackerman-Leist, 2013) With their consistent discussion of connection and the relationship building qualities of urban agriculture with both human and biotic communities the sample showed how urban agriculture schemes can build a sense of place as described by place theorists.

### Urban Agriculture Missions

While each scheme in this sample had multiple programs with somewhat different goals both social and ecological, each scheme tended to have a primary goal or mission that dominated their scheme. These missions were often the place meanings of the founders and managers of each agriculture scheme and they provide another way to construct a typology of urban agriculture based on social foci.

System’s theorist Donella Meadows discussed earlier explains that mission is a critical part of any system, “the least obvious part of the system, its function or purpose “

explains Meadows, “is often the most crucial determinant of the system’s behavior.” (Meadows, 2008) This is also a strong case, from a systems theory lens, for defining urban agriculture types by their missions.

Therefore, the following typology, a mission typology of urban agriculture, places the sample into a matrix of missions. **[Figure H]** In the following figure mission is then split into primary and secondary facets, since no organization in the sample has only one purpose. Primary mission as described by the respondents is represented by the larger dots. Secondary missions, if they were discussed, are represented by the smaller dots. **[Figure I]**

### Ecological Integration Model

In the core logic three variables were chosen to represent ecological integration, multi-function and closing loops in order to integrate natural and ecological functions with food producing as well as the geographies they inhabit and eco-revelatory acts, in order to tie natural systems to people in a more socio-ecological based system. These variables, rather than coming directly from ecology, were derived from ecological design ideas found in the landscape architecture literature as represented by landscape architectural theorists such as Randy Hester and design and ecology education theorists such as Bart Johanson and Kristian Hill. (Hester, 2006; Johnson and Hill, 2002)

While these functions were observable on the ground, they were difficult to assess qualitatively. Perhaps more quantitative studies by actual landscape ecologists rather

than landscape designers could better determine how much a scheme achieves ecological goals by measuring the size of various system stocks or counting the diversity in



FIGURE H: MISSION TYPOLOGY

#### FELLOWSHIP

- Blue Heron Community Garden
- Peachtree Hills Community Garden
- Berea Oakleaf Mennonite Farm

#### ABUNDANCE AND FOOD SECURITY

- Concrete Jungle
- Clarkston Community Center
- Manual's Tavern

#### PASSIVE EDUCATION

- Piedmont Park Demonstration Garden
- Emory University Education Food Gardens

#### ACTIVE EDUCATION

- The Wylde Center
- East Lake Community Learning Garden and Urban Farm

#### MARKET SHARE

- Atlanta Food and Farm
- Chosewood Park Edible Neighborhood
- Farmer D Organics

#### FOOD PRODUCTION

- Truly Living Well
- Fresh Roots Farms

Figure I: Mission Matrix



ecological functions. Perhaps another study could measure the size of system flows as well as statically determine the number of loops that are connected or loops that are closed. As a qualitative study, however, it was striking that even if a scheme did not have a significant number of functions or systems connections, all the schemes, even the farms, which one would assume would have an economic efficiency imperative, were trying to achieve as much multi-function and loop closing within their capacity. Many respondents in the sample lamented the fact they did not have the capacity to do more ecological integration. The following quotes are evidence of some of the ways respondents were able to include functions as well as close system loops at their sites.

## Multi-function

### 1. Biodiversity/Crop Diversity

“We grow chickens, we grow worms, we are going to grow fish down here and use the fish waste to feed plants. We are creating ...we have created an ecodiverse, biodiverse environment that invites the beneficial insects, birds...emulating nature as much as we can.” “Compost, Aquaculture, Bees, we have bee hives; Trees, we have fruit trees. I can’t tell you how many varieties of fruit we have here.”

“gardens are usually a little bit more intricate, but that’s changing. Farming should be intricate as well. It should be diverse...you don't want to have just one crop. That’s foolish in a lot of ways. If something comes along and destroys that one crop you have you’re toast. But if I have twelve crops and I lose three of them, I can survive with my other nine.”

“We have guilds that are planted along the laser cut pathways that I was attempting to point out to you. And those guilds are comfrey, chocolate mint and what am I leaving out ...chickaree is the other one. And those guilds are planted there intentionally to help draw up nutrients from the ground that the fruit trees like to access. And they like to grow near the fruit trees so that’s why they are planted there too.”



## **2. Bio-mimicry**

“I really like the diversity agriculture. I’m not into the mono-crop. It just never made sense. I never grew that way. It just doesn't make sense when you see it.... to me that’s not what nature looks like. I’ve never seen that [mono-crops] in nature. Why go against the grain? You should follow along so it’s easier for you.”

## **3. Food Forest polycultures**

“It’s [the food forest] very low input. So there’s not a whole lot of management that has to go into it and it will produce for decades and decades and centuries to come as long as the trees stay standing.”

“You may have noticed on the right there is a paw paw path. It’s called that because its interspersed with paw paw between the trees, not to be confuse with papaya. Paw paw is a native Georgia plant. It’s an understory plant that does well under a canopy and the fruit is akin to a small mango and the taste is also akin to a mango a pineapple and a banana. One of the best tasting fruits I’ve ever had, and the only thing I can compare it to is candy. I had never had in my entire life until last year. So we will probably be getting a bunch of paw paw this year”

## **4. Attracting Pollinators**

“The intentional planting that we do to bring in pollinators. That is a huge ecological function all part of our design up there. We have the lavender that you’ll be able to see on the way out, which it will probably be hard to see the lavender due to all the bees that are all over it.”

“I took a picture of that because of the type of flower it is. It tends to attract beneficial insects, pollinators and things like that, and that’s part of the basis of growing things that you need. You need insects to feed us”

“I love to see gardeners who have flowers because it attracts bees and helps support the garden.”

## **Closing Loops:**

### **1. Closing loops by integrating animals**

“We are working on having bees. We have someone who is willing to donate and maintain the hives. We are just working on getting permission from the city to have that in public space. That’s just a little bit of an issue with it being a public space.”

“We have goats that take care of the kudzu and all the leaves and poison ivy”

“This ground that we are standing on was covered in maybe 8 to 10 ft. of kudzu and other invasive species of plants. You saw this expansive sea of green and it almost looked level but once you got in there we had kudzu that was taller than I can reach. So we brought in a herd of goats . They completely cleared the land of its kudzu whose roots can grow up to a foot in diameter, so it grows back in a year. The goats came in and completely cleared it. The following year we brought in a flock of sheep. We have a guy who runs the sheep; they completely cleared the land again.”

### **2. Recycling materials (other than compost)**

“We put up 2700 feet of six foot chain link fence, put every post in the ground. We paid 900 dollars of that total because we salvaged it from junk yards , cause we went and begged people for it, cause we went and picked it off the side of the road. We’re just constantly building things out of scrap. We built all these walls, and each wall will have strawberry doobers planted in it. In the winter our strawberries should produce because they gather heat on this concrete.”

“So we then sought out a more long term solution to our bed borders and one of our neighborhood members owns a utility pole company on the west side of town and said come check out what we got over there. I was originally looking for pallets we were going to build our beds out of pallets... putting together pallets is not as easy as I thought it was, and I went out to visit this guy Scott and he said let me show you something in the back and he took me in the back and he had probably several thousand of what he called end cups, now these are untreated pine utility poles and say they get an order for a 50 ft. pole to go in somewhere in Massachusetts or whatever and all they have 55 ft. poles. They will cut off 5 ft. sections and they stock pile them, these are waste for them, so we found this great source to construct all of our beds and it has kind of taken off”

“During our plant sale, we reuse probably 50% of our plastic, our pots. People bring the their pots back and we try to reuse reuse reuse until they die.”

### **3. Compost/Diverting waste**

“We compost. It’s in the very back. So we are diverting food waste as well. Composting is something that I am really big with our after school and summer programs with, and have done lessons on throughout the year. And when we built their garden we used compost to build the beds and we did this whole series on that. So we are diverting their food waste too”

“We collect from restaurants from stores; people bring it to us. Um, the compost that I buy is made by a man down in Carol County. He collects the Zoo doo from the exotic animals at the zoo and we compost it. You look at that soil and its pretty rich.”

“We do have a composting programing...we have a compost bin and compost bin system . So all the gardeners are asked to take all their plant material and put it into the compost bin.”

“We’re trying to compost. We have this three part compost bin, which is the way you are supposed to do compost and people, a few people bring there kitchen scraps, and put them in the compost.”

“And we have compost bins, two here at the farm and one over at the garden which we allow the community to bring their compost. And that adds to the compost that we get.”

It is striking that the entire sample shared an ecological vision of urban agriculture. Perhaps it should not have been such a revelation since all of these organizations are swimming in the same cultural and temporal milieu. Nevertheless, it was an unexpected outcome. It was expected that at least one of the respondents would have been focused on a more efficiency oriented and industrial view of producing food in cities and therefore more diversity in ecological integration types of urban agriculture, from more ecological and diverse to less ecological and diverse, could have been made. That there was not one non-ecologically oriented local producer in the sample and that the respondents had a collective definition of urban agriculture that was in opposition to industrial agriculture’s

perceived non-ecological activities is a finding of this study.

While this inquiry may not have produced as rich a typology of ecological integration as intended, the finding of a strongly shared ecological model has important implications for designers, planners, or anyone else interfacing with the urban agriculture movement. In short, that it is indeed a movement—meaning a loosely organized but sustained campaign in support of a social goal—rather than simply an economic sector, and that it should be approached as such if policy or other interactions with urban agriculture are to be effective. This is not, for example the orientation of the APA's 2011 report on urban agriculture.

Rather than several ecological types of urban agriculture integration, there were essentially two models standing in opposition to each other. On the one hand was “the system”, which is dominated by industrial agriculture and on the other was “the local system” that all these schemes were trying to nurture. Revisiting the discussion of place and Relph's definitions of place and placelessness, his distinctions can be seen in the Atlanta sample. According to Relph the main features of ‘place’ include a sense of belonging, human scale, and fit with local and physical cultural context; while the main features of ‘placelessness’ include an overriding concern for efficiency, mass culture, and anonymous exchangeable environments. (Relph, 1976) The urban agriculture scene, at least in this Atlanta sample, is making a very similar distinction between the locally scaled agriculture that they practice on the one hand and industrial agriculture on the other. In some cases this distinction was in stark opposition to the industrial system in other cases their efforts were seen as complimentary to industrial agriculture, but in all cases they were self-identifying as something very different from industrial agriculture.

Perhaps a different sample in a different context will have different results. Still, this

finding does build on some existing literature on urban agriculture. The *Five Borough Farm* report for example concluded after its exhaustive study of New York City urban agriculture sites that even the commercial farms in their study “share many of the goals of the broader urban agriculture community.” (Cohen and Reynolds, 2012) Granted commercial farms were rare in the dense New York City sample, but even in sprawling Atlanta, which has more opportunities for more commercial farms with an industrial approach, such farms are rare, if they exist at all. There was an organization in metro Atlanta during the data collection phase of this inquiry which was establishing a hydroponic lettuce farm called Pod Ponics, however, since it was located near the airport outside the perimeter it did not fit the urban parameters of this inquiry. (<http://podponics.com/>)

The two organizations in this sample placing production at the head of their missions, Truly Living Well and Fresh Roots Farms, were also the most oppositional organizations with both Rashid Nuri and Chris Edwards expressing strongly how they differ in business model from the industrial paradigm. Additionally Farmer D, Chosewood Park, Manual’s Tavern and AFF, although for profit businesses, had some of the most passionate and sometimes colorful expressions of how they differ from the industrial model.

### **Alternative Food Networks Themes**

“We are willing to question to turn the whole system upside down. Tweak this element. Tweak that element. Just be unafraid to try something drastically different. You could call it revolutionary or innovative. However you want to look at it. That’s what it takes. You can’t patch up a crappy built wall. You know the wall didn’t have the right angle to begin with. There’s only so much you can patch up and make it work. I’d rather scrap it. Take out the stones that we can reuse and rebuild a flat structural wall.”

“We are in a food desert here, so planting fruit is not going to cure that but it’s a statement about it and a statement about self reliance and a statement about resilience...”

“That’s not really my mission or my charge to continue growing more and more food. My mission is really to build this local food system”

“We can grow food in lots of different ways and not have to have it come through the hands of somebody who was oppressed so it could get to us. Not have to have it shipped for...I forget what they say, I cant quote that number, but the percentage of fuel in the world that is spent shipping food around. It's a lot. Its enormous. What is the percentage of fuel that goes into producing food in a factory farm or the highly processed food we have? ...I'm not sure that we don't have the answer [local agriculture] right in front of us.”

“we believe that the country (emphasizes) is undergoing or is at the precipice in a sort of seismic shift in how it thinks about basic societal organization, and these questions around how we get our food are central to that. I mean you know our financing system, ...you know...reconnecting, recalibrating, re-civilizing our basic foundational policies of maximum high calorie food at low cost is a paradigm that has dominated our food system for at least three or four generations, and we’re realizing the inadequacies of that policy framework and our government (emphasizes) is not leading this transition as much as on the ground stakeholders like ourselves (emphasizes).”

“The food system in this country, the agricultural system that we have been employing in this country for the last several generations is bankrupt. It doesn't work any more. The land is deteriorated. Food is not bringing life, its bringing death. That has to be changed.” And “Urban Agriculture is here to stay ...the commercial paradigm we live under now is not going to work. So we are going to have to come up with a new one”

Based on the strong anti-industrial agriculture sentiments expressed in this sample, the oppositional frame of the Alternative Food Networks literature is valid. An important distinction between the AFN literature and this inquiry must be made, however. The AFN literature is mostly at a scale of metropolitan areas, making it more in line with literature on urban agriculture between cities. This inquiry gets under the hood of the metropolitan scale and looks at urban agriculture schemes with in cities. Moreover, this focus has been on schemes in the more central or core locations of the city. In the context of Atlanta this meant schemes with in the mostly pre WW II fabric Atlanta locals refer to as ITP.



While all urban agriculture is local, all local agriculture is not urban. Local could be peri-urban or even rural if one defines local with metrics such as 100 miles from an urban center. The strong ecological orientation, opposition to industrial agriculture, and lack of a more robust typology found in this sample may be a function of the urban core locations. Perhaps the role of the more urban agriculture sites within the local food system is less about the “agriculture” and more about the “urban.” A key function of cities is to mix people and ideas and incubate all kinds of socio-economic change. Could that be the primary function of urban agriculture? If so, rather than an ecological integration typology what emerged from this study is a model of urban agriculture which primarily serves the role of incubating a different kind of food market, paradigm, and system, even over the role of producing food for that system. Since this may be counter intuitive, a detailed description of that model, derived from this sample, is useful and is the product of this ecological integration discussion rather than a typology.

## TOWARDS A MODEL OF URBAN AGRICULTURE

Ackerman-Leist’s original and revised models of local food are similar to the findings of this inquiry.

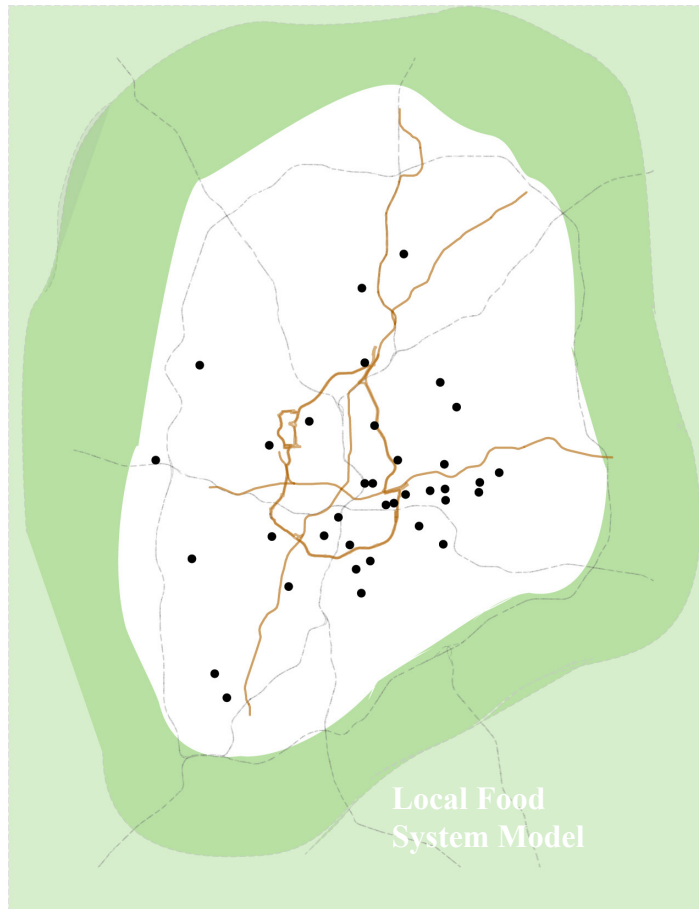
“When I began researching I had an image in my mind of local food...It was an image of a dot on a map with an almost mechanical radius...Overtime, however, that image has shifted—for the better. The image that comes to mind these days is of dynamic interlocking systems—a vast network of differently sized pulsing center points connected to one another by means of surging flows that create exchanges of resources, ideas, and of course foods.” (Ackerman-Leist, 2013)

In regards to social integration, the different interlocking nodes described by Ackerman-leist have different primary missions, only some of which pertain primarily to large quantities of food production; in regards to physical integration those nodes can be

categorized as different urban design types operating at different urban scales; and in regards to ecological integration, these nodes often see themselves as very different from industrial agriculture by their more ecological orientations. However depending on where these nodes fall geographically within the local network described by Ackerman-Leist one can make assumptions about their focus, which is a finding of this inquiry.

In urban centers, as was also demonstrated by *Five Borough Farm*'s research of New York City for example, these nodes operate more as community gardens or community farms, with many socio-economic factors coming to the fore of their operations. As one moves out into more peri-urban locations and ultimately rural locations this focus moves more towards production. This is also the model which began to emerge from this Atlanta sample. The two primarily food production oriented entities in this sample, TWL and Fresh Roots Farms, follow this model within their operations as well as in their mental models of how agriculture interfaces with cities. From a modernist urban world view of extreme separation of uses, agriculture's place is only outside of cities, in the new model agriculture laps right into the urban core, however, its goals and function begins to change the closer it gets to urban cores.

The more business oriented members of the sample often spoke about this in terms of business operations. From this sample Chris Edwards manages two farms, Fresh Roots Farms within the urban core or 'ITP' Atlanta and Stockbridge just outside of it or 'OTP'. "I manage Fresh Roots Farms, which I guess would fall under the urban agricultural umbrella; you know that's within the city limits. I also manage another farm which is in Stockbridge which is maybe about 30 minutes from Atlanta so it's part of the sprawling part of the metro area," explains Edwards. While Fresh Roots has three sites two in the urban core which serve primarily as demonstration sites and a third which follows a SPIN urban agricultural model (small plot intensive agriculture described in essay 1) on a large



“When I began researching I had an image in my mind of local food...It was an image of a dot on a map with an almost mechanical radius... Overtime, however, that image has shifted—for the better. The image that comes to mind these days is of dynamic interlocking systems—a vast network of differently sized pulsing center points connected to one another by means of surging flows that create exchanges of resources, ideas, and of course foods. (2013 Ackerman-Leist)”

- Eco-centers & Food Parks
- Urban Core
- Sprawl Agriculture

**Neighborhood Food Production + Civic Agriculture Vision  
= Eco-centers and Food Parks**

“Most of the people who come here walk here just to enjoy it. So this *physical* space serves Oakhurst, but our program, our continuing education program, where people may take a class, who are supporting our organization and our youth education mission, they are coming from different places, so we jumped the hurdle into serving a greater population. *Stephanie Van Parys, The Wylde Center*”



**Eco-centers and Food Parks + Food Production in Former Sprawl  
= A Robust Urban Agriculture System**



“Fresh Roots Farm is developing an urban farming model that is independent, diversified and scalable. We strive to make the business of urban farming commercially viable and broadly accessible. *Freshroots Farms*”

Figure J: Metro Atlanta Urban Farm Density  
(Kernel Density Function)

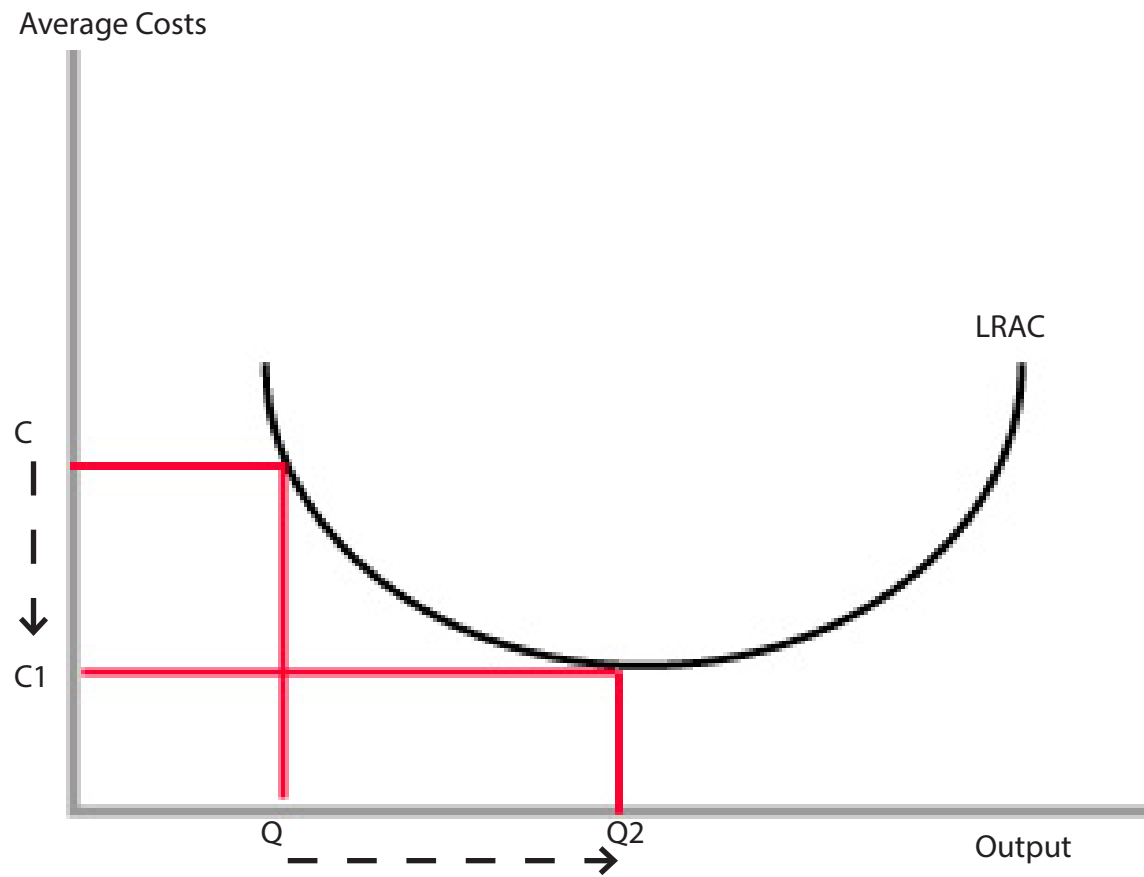


backyard within Atlanta's core, the peri-urban site in Stockbridge is larger and solely dedicated to agriculture functions.

Truly Living Well's Rashid Nuri's operation follows this same model. TLW has six sites. Its most urban location in Sweet Auburn is mostly for demonstration and connecting people to the system, while its more peri-urban sites in the suburbs have more extensive food production functions. Rashid Nuri explains, "We have two [sites] here, [Sweet Auburn] Wheat Street and Wheat Street west. We have one in Vine City. We have one in Southwest [Atlanta]. We have one at East Point which is where our office is, Washington Road, and one down towards Fayetteville. East Point [just South of Atlanta] is where we used to have our market. That's now a principle production facility."

A more ecological approach to producing food is used at all of these sites. But the size of the production is different depending on whether it's located in the core or just outside "in the sprawl" as farmer Chris Edwards describes the peri-urban landscape. Perhaps the reason this split in urban agriculture function occurs is the economic concept known as economies of scale. The economies of scale concept refers to the cost advantages that enterprises obtain due to size and thus output of operation, with cost per unit of output generally decreasing with increasing scale as fixed costs are spread out over more units of output. Economic models of economies of scale are supported by decades of economic data and research. Visually, economists explain the concept of economies of scale with a simplistic curve, as quantity of production increases from  $Q$  to  $Q_2$ , the average cost of each unit decreases from  $C$  to  $C_1$ . (Sullivan and Sheffrin, 2003)

Figure K: Economies of Scale Diagram





As economies of scale accrue, the farmer begins to accrue the other advantages of size including negotiating power with sellers and buyers or access to large volume contracts with more favorable price structures. Lastly, specialization of work and its productivity benefits also becomes an advantage of economies of scale to a point.

An important question is whether more ecological models of agriculture, wherever they are located, urban, peri-urban, or rural, can compete with the realities of economies of scale and there are no clear answers to these questions yet. The first issue is around the benefits of specialization and its productivity benefits. With its complex approach to agriculture, practices such as permaculture and bio-dynamic agriculture require a higher level of skill and time commitment to master than traditional agriculture methods that take these functions out of their growing models and in a sense outsource them to producers of fertilizers, pesticides etc. However, once these upfront ‘training’ costs for a more integrated agriculture model are mastered, it is possible that overhead costs such as seeds, fertilizers and pest control measures could be reduced enough to make the permaculture or bio-dynamic farmer cost competitive in the market place. This was the view expressed by Chris Edwards in the first essay of this inquiry.

The next issue is the size of operations. Traditionally permaculture or bio-dynamic farms have been extremely small operations of one or a few farmers (Aragona, 2014) National and internationally scaled agriculture exploits economies of scale to dominate the market in price, out-competing small operations, including permaculture or bio-dynamic farmers. However there is a glitch in this system not recognized by traditional economics. Nationally scaled agriculture, at least in its current model, often comes at an ecological cost, which can express itself in terms of the quality of the product, such as the taste of the food. (Pollan, 2008) Or these costs can express themselves via the degradation of the

land, which ultimately makes the larger scaled non-biodynamic or ‘ecological’ operations vulnerable to decreasing ability to produce at all in the long term. (The Land Institute, 2013). When systems become over used such as the soil on which any agriculture production business must rely, and which is currently the case with North America’s nationally and internationally scaled agriculture, they can collapse, often suddenly. In such a scenario, scaled businesses in operation this season could blink out by the next one.

This ecological precariousness could be the Achilles heel of national and international scaled operations, whereas local or regional farmers with a more ecological orientation such as organic, bio-dynamic and permaculture farmers can step into the gap and expand their businesses. In essence there is an ecological draw down point where non-ecologically based national models of agriculture could lose their economies of scale advantage. How much ecologically based agriculture business models can scale up to sufficiently meet these opportunities as they arise, however, is in contention. (Aragona, 2014)

A follow-up interview to the original sample, with Global Growers Network, an Atlanta organization in the inner ring suburbs of Atlanta just outside the Perimeter (ITP) and outside this inquiry’s geographic scope, depicted a farming organization struggling with just these questions. At the time of this inquiry they were striving to create a food aggregator or hub which could capture some economies of scale for their refugee farmers who practice a more ecological model of farming. Their director Robin Chanin believes this is possible. “I think that the small to medium sized farms, that agriculture in the middle, they have a huge role to play but they have been cut out from our food system in the last 20 or 30 years...I would like to see an investment in improved infrastructure in and around our urban areas that are designed to support those small to medium sized

farms,” says Chanin. It remains to be seen if efforts like her organization’s medium scaled food hub concept will come to fruition.

Finally, there is the issue of food as more than just cheap calories but as a much more complex cultural phenomenon. Economists tend to load everything into the metric of price. To hungry people price perhaps dominates food choice, but beyond that point many different reasons for food consumption come into play. Whether the more ecological food production schemes can take hold of the market opportunities from these many other avenues is also very much a moving target that must be watched. Currently this is expressed in the market as organic and local. This could continue to develop into even more ecologically sought after products such as food from permaculture or bio-dynamic systems. Clearly socio-ecologically oriented farmers such as Rashid Nuri’s Truly Living Well believe not just that they can, but they must push the market in this direction for the sake of both society and ecology. Explains Nuri. “The food system in this country , the agricultural system that we have been employing in this country for the last several generations is bankrupt. It doesn’t work any more. The land is deteriorated. Food is not bringing life, it’s bringing death. That has to be changed...Urban Agriculture is here to stay. The commercial paradigm we live under now is not going to work. So we are going to have to come up with a new one.” Rashid Nuri, Truly Living Well

## Food Parks and Eco-Centers

If food production is not the primary goal of the more centrally located or ‘urban’ sites within the food production models of farmers such as Fresh Roots Farms or Truly Living Well, what then is the goal of urban agriculture? The first role has to do with the ‘food’ aspects of food parks and the ‘eco’ aspects of eco-centers from the physical integration typology.

Rashid Nuri frames the role of urban agriculture in more social terms, but from a business lens one might also call his view of the role of Wheat Street Garden as a site for market creation and appreciation of the type of more integrated ecological and local agriculture that he espouses and practices at his other more peri-urban production sites. According to Rashid Nuri Wheat Street Garden is more about “people engagement” and less about “food” production, at least in terms of quantity. “People are the most important elements. Engaging People. Involving people. Reconnecting people to the soil to the land, bringing health to the people.” Nuri explains about his Wheat Street site.

Food System consultant Kwabena Nkromo also explains how this market creation is a primary goal of their local food system work.

“[potential clients say] we want a community garden here or there, we want a sustainable green. So we took that and upgraded to the cutting edge language around urban farming, you know, bringing things to scale, food hubs, we added all that as part of that process....community gardens and urban agriculture, it’s not just to make it more environmentally friendly, obviously that’s a big plus and it’s something that we are going for to make it more ecologically stable, but it’s also promoting a more local economy where they can build their own local way of doing things. So by building local food you can also build a local economy so it’s also helping people structurally with the economy in their areas.” Kwabena Nkromo, AFF

Chosewood Park’s Clayton Preston also a businessman but in real estate development rather than food production explains his organizations connection to local food in terms of market creation as well. “the idea was to create an identity for this neighborhood, to create a brand for this neighborhood.” Finally, Farmer D, the private garden landscaping consultant and installer also discussed their work in terms of market creation. They don’t just sell edible garden installations and organic gardening goods but weather or not customers make a purchase Farmer D, with every aspect of their customer experience and site designs, tries to help Atlanta’s “visualize their lifestyles,” as Farmer D’s Joshau Tabor explains.

Indeed, this “re-visualizing lifestyles and food systems” was a goal for the entire sample regardless of their business status. Thus branding and market creation for the more local, organic, or bio-dynamic farmer models is another role for the truly urban nodes of urban agriculture. The urban node, embedded in a constellation of connected urban agriculture sites becomes the marketing node while the peri-urban or close in rural nodes become the actual production sites where economies of scale are achieved.

The next role of Eco-centers and Food Parks has to do with the ‘Centers’ and ‘Parks.’ The more non-for profit or civic oriented members of the sample more readily described their sites from this civic perspective. Blue Heron’s Kevin McCauley explains,

“we have benches where people can come, not only gardeners, but also people from the community can come and visit. So it’s an indication that it’s not just all individual plots but there is a common component”

East Lake’s Khari Diop commented how neighbors would come down just to look at the garden and the animals; using it as a kind of park

“The neighbors don’t mind the animals at all. The animals are actually one of our biggest draws to the garden. Folks are over here every day bringing their kids. So you will come all throughout the day and people are here just coming to see the animals.”

Berea’s farm intern Nathan Lashoto likes to use their farm as a kind of recharge location, in the same way Olmsted hoped people would use many of his landscape creations.

“When I get done with school the first thing I do is take a walk around the whole place [Oakleaf Farm] just because it’s relaxing. It helps me distress and I’m sure people in the community could benefit in the same way.”

And Stephanie Van Parys from the Wylde Center also sees her Oakhurst site as a kind of park.

“We are not a community garden in the strictest form.” She explains about Wylde’s Oakhurst location, “we have all these community green spaces. That’s where all the birthday parties happen. The bier garden event was over there. We just have lots of green spaces, gardens, for the community to enjoy.”

Whether it is the sites with a business model such as TLW’s Wheat Street location or the more civic oriented sites such as The Wylde Center’s Oakhurst Garden location, this inquiry believes that most of these urban agriculture spaces, at least the ones in densely populated areas rather than in sprawl, if allowed to meet their potentials, are indeed acting more like parks or community centers than farms. When they are small and embedded into a neighborhood such as Oakhurst Garden their function is more like an ecological systems center. This is a place where people can come and garden in a community plot, take classes about canning, bring their compost scraps, or just enjoy the productive landscape as they would a more traditionally landscaped park. When they are a larger site like Truly Living Well’s Wheat Street Gardens they perhaps function more like a Food Systems Park where people from all over the city can learn about farming techniques such as aqua-ponics and composting, can enjoy a regular farmers market, simply walk through the productive edible landscapes, or can volunteer and get their hands dirty if they are inclined to be more active in the food system. The former could be called *Ecologically-based Community Center* or *Eco-center* for short and the later could be called a *Community-based Food System Park* or *Food Park* for short. Whether they are serving a small neighborhood or a district as a park, however, both are serving the primary role of connecting—to use the terminology so prevalent in this sample—to the community based food system and the people and natural systems that share it. This is something quite different than just a community garden or an urban farm and is a new type of urban agriculture which needs to be better recognized.



While this inquiry believes that three entities from this sample achieved this new role the best, the Wylde Center's Oakhurst Garden and Clarkston Community Center as Eco-centers and Truly Living Well as a Food Park, many of the sites within the sample were moving towards this typology. East Lake's Community Learning Garden and Urban Farm for example was very conscious of wanting to become more like Wylde Center.

"We look to the Wylde Center as kind of our big sister. They are a model, definitely, and they have the education down pat. They also have a great organizational model. And one thing that differentiates them from us or from a lot of different organizations is the fact that they have the house. The house is their office; it's their classroom; it's their kitchen; it's their workshop. It would be great if we could have something like that."

Piedmont Park and even Emory's demonstration gardens also seemed to have this potential if only their organizations had a more conscious understanding of their role as a new type of park or center. And it wouldn't take much for most of the Park Pride sites visited to become more articulated food parks and eco-centers. Anne Stanley's Peachtree Hills Park Pride Garden for example sits adjacent to a traditional community center, although there is no strong connection to it. Even Farmer D, although strictly a private business, has the feeling of an eco-center with its organic car wash, compost center demonstration gardens and store lounge full of organic farming books and brochures.

Food Parks and Eco-centers are at the core of urban agriculture's value. Food parks and eco-centers build markets, create community and civic engagement and disseminate ecological knowledge and understanding of how the natural world works and how we are connected to it via what we eat. But while present in the literature, they are not quite fully recognized by it. *Five Borough Farm* noted that though run by private resident volunteers, community gardens located on city lands, must function like parks and have public access hours. (Cohen and Reynolds, 2012) This inquiry would argue that these community gardens are therefore not community gardens any longer but actually are

serving as a new type of urban agriculture. They have become food parks or eco-centers for New York City.

Most municipalities don't have a well-developed scheme for classifying urban agriculture at all. APA stepped up to the plate with the creation of their 2011 classification scheme, but their commercial urban agriculture lens was problematic. Although The American Planning Association mentions that parks might be a primary role of urban agriculture they quickly revert to a food production paradigm in their typology. Most schemes, even food parks and eco-centers have some commercial function; they need these functions to survive. For some schemes this function comes to the fore, such as for the urban farms, but even urban farms often serve other purposes, especially their flagship sites deep in urban cores as was the case with Fresh Roots and TLW in this sample.

Urban farms are just one type of urban agriculture, with which entities such as the APA seemed to be enamored, however, Food parks and Eco-centers, for most cities is a more important type of urban agriculture because rather than the random urban farms sprinkled across urban cores (\*There were only 7 in all of Five Borough Farm's research Population of 700; Cohen and Reynolds, 2012) Food Parks and Eco-centers are contributing more to the local food economy by creating markets while simultaneously serving as civic space. This is an indirect economic function, but without recognizing it, local governments could be putting their efforts in the wrong places, and thus inadvertently not doing much to help their local food systems scale up and compete in the market against national or international food systems. Since the ecological viability of those higher scaled agriculture systems is now in question, this misunderstanding of urban agriculture is not just unfortunate but dangerous for social stability and economic viability of cities going forward in an environmentally fragile world.

As researcher Laura Lawson noted, the planning profession originally defined urban agriculture schemes in terms of open space but lost this understanding with the current focus on food security issues. (Lawson, 2004) Perhaps it is time for planners to move back towards the open space paradigm, but recognize that these open spaces are not traditional open spaces from a 19th century park ideal, but are rather a new kind of 21st century space centered around scaling up the local food system. Rashid Nuri, explains this viewpoint well.

“It is important not to get too focused on the food” he emphasizes. Instead, according to Nuri, TLW’s Sweet Auburn flagship site, is more about the “food-system”.

The role of these urban agriculture sites is not primarily to provide food or increase security directly at the individual site scale. They can and often do achieve these goals too, but their primary focus is to increase understanding and connection to the system more generally, and thus to grow or scale up that system so that it can address food security at a more effective level, where economies of scale in bio-dynamic or permaculture-based local agriculture can be achieved. In short, Rashid Nuri or Chris Edwards will grow you ecologically based food in the suburban towns of East Point or Stockbridge but they will connect you to that food at Fresh Roots Goat Farm or the TLW’s Wheat Street Garden deep in Atlanta’s urban core. When these eco-centers and food parks become linked to each other and to sub-urban or peri-urban production-oriented urban agriculture schemes on the edges of cities such as Robin Chanin’s Global Growers Network, they begin to take on the character of a system, the “vast network of differently sized pulsing center points connected to one another by means of surging flows that create exchanges” described earlier by Ackerman-Leist. This inquiry set out to study urban agriculture and found food parks and eco-centers instead. Further inquiry should investigate these intra system linkages between this new type of urban agriculture and agriculture “in the sprawl.”

## EMERGING TYPE: EDIBLE RIGHT OF WAY GARDENS

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RALPH MCGILL BLVD. OLD FOURTH WARD, ATLANTA







RESIDENTIAL STREET. VIRGINIA HIGHLANDS, ATLANTA





## EMERGING TYPE:

### FOOD PARKS AND ECO-CENTERS

#### Food Production and Business Functions



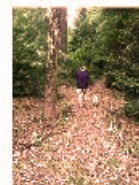
#### Organic Waste Collection



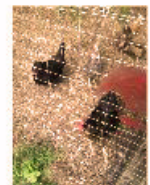
#### THE WYLDE CENTER AN ECO-CENTER MODEL



#### Community Event and Park Functions



#### Food System Education



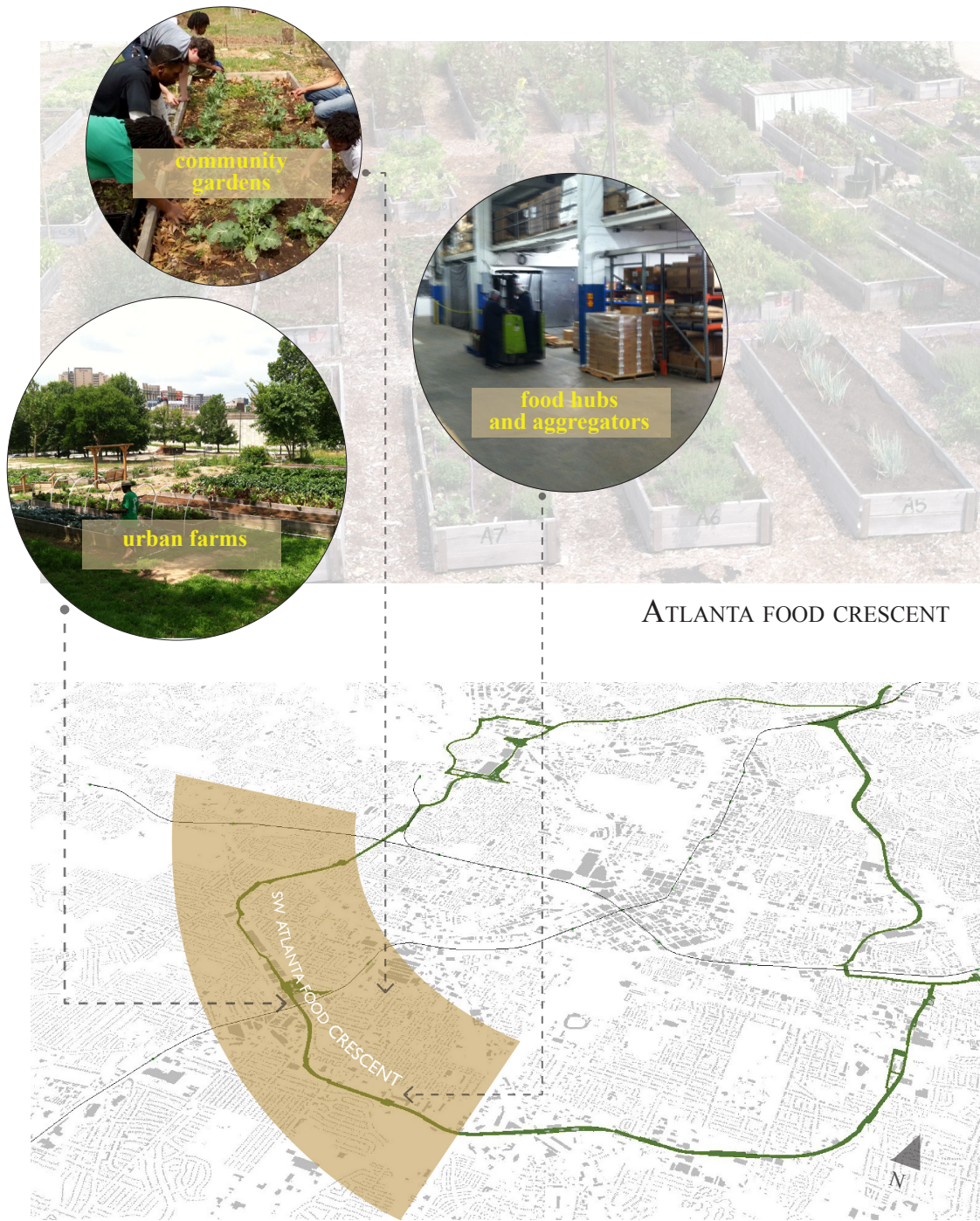


CONCEPTUAL FOOD PARK, FREEDOM PARK





## EMERGING TYPE: FOOD COMMONS



## NEXT STEPS AND RECOMMENDATIONS

As an urban design inquiry essay two has been most interested in typological construction. From its mixed qualitative methods rather than one typology it has described three ways to order urban agriculture, first as a physical, open space pattern at increasing urban scales; next as a type of social integration based on the urban agriculture scheme's program and mission; and lastly as an ecological and local model of agricultural that puts itself in opposition to industrially and nationally or internationally scaled agriculture, which could be called a typology of two.

While the sample often had an oppositional or alternative vision, for planners and designers who must balance many interests, local is not by default better. A local system's value depends on what actors in the system are trying to create. Cornell University researchers Brandon Born and Mark Purcell writing in the *Journal of Planning Education and Research* in 2006 dubbed the penchant for planners to reflexively declare the local as better without proper investigation into the values being produced by their local agriculture systems as the 'local trap.' According to Born and Purcell the local trap "conflates the scale of the food system with the desired outcome." They conclude that planning research rather than assuming a local system's value should make local benefits and local agendas the subject of critical inquiry and case studies. (Born and Purcell, 2006)

The qualitative approach of this inquiry, while not a traditional case study, did find many different perceived potentials and problems of urban agriculture in addition to the agendas represented in the mission typology. Insights from these themes can build on urban planning literature and respond to criticism such as Born and Purcell's. While some of these themes appeared in the narratives of essay one and the typologies of this essay,

some did not. Of these remaining themes, all of them are not equally relevant to urban design and planning. Five have been drawn out, however, for their planning and design implications.

These themes include:

1. The power of names
2. Urban agriculture as resilience
3. Resource constraints, natural and financial
4. Power, land, and displacement
5. The socio-ecological education or eco-literacy potentials of urban agriculture

For the purposes of this dissertation, it was necessary to narrow this value discussion down to only one construct to be measured for the next essay. The last of these themes, the socio-ecological education potential of urban agriculture was chosen for this purpose. The third essay's approach to this topic has more in common with social science, and less with the disciplines of design and planning. The concluding essay which ties all three essays to planning theory will discuss this problem at greater length. Before launching into essay three, in order to be useful and true to the disciplines of planning and design in which this dissertation sits, the other themes are discussed and coupled with recommendations that may inform action by designers, planners, or communities.

### Theme 1: The Power of Names; Why Define the Model?

A key finding of this research inquiry is that eco-centers and food parks need to be better understood as a distinct type of urban agriculture, which plays an important role in a larger interlocking system. This of course is based on the assumption that typologies are valuable, that names are important. An unexpected theme that emerged from the

sample, despite there being no direct questions about the matter, was a questioning of this assumption. There was a healthy debate about whether naming urban agriculture was useful.

On the somewhat anti-name side was the idea that names get in the way. Rather than trying to name what one is doing there was a strong view that action speaks louder than words. Through the sample there was a strong action ethic. Respondents with some of the more developed models of urban agriculture, such as Rashid Nuri and Chris Edwards also had concerns that names get in the way of this action ethic.

“One of the interesting things” explains Nuri, “is all the people that come through with these clichés. ‘Rashid I wanna go take a class on permaculture. Do you know anything about permaculture?’ Then they go take a class and then come back and say ‘Oh wow, what you were showing us out there was permaculture!’ You don’t need the labels that folks want to put on things. They are not necessary. Just do it.’ Nuri recommended. Chris Edwards echoed this view. “You got all these fancy terms. Biodynamic (emphasizes) Bio-intensive (emphasizes) To me its just nature. To me its that simple. I don’t need a name. You know what I mean? It’s like it just is.”

As a typological research project this inquiry unsurprisingly falls to the pro-name side. Rashid Nuri for example was very concerned about the stability of urban agriculture because he believes its benefits are not well enough understood by politicians or the public. Consequently, Nuri has become an active leader in many organizations including Georgia Organics. In his words,

“If you don’t have a seat at the table, then you can very likely become an item on the menu” Moreover, Nuri is concerned about passing this legacy forward. “My focus is the creation of an institution that can stand the test of time. ...and one of the problems that happens is that pioneers, folks that are at the front, is they get shot. So I need to get this thing built past me.”

Despite, Nuri’s skepticism about names, this inquiry believes that names are important for being “at the table” and for “building the system past its pioneers.” Naming a phenomena

is owning it. Inversely, if you can't name it you will have problems advocating for it.

This naming problem was the perspective of other respondents. Their experience has been that a good name is valuable. Chosewood Park's Preston Clayton is seeking to expand his edible neighborhood concept, and felt the coining of the term "edible neighborhood" was a critical step.

"I just said I'm going to write it down and it will become real .And just by writing it down a month and half ago, it has congealed the idea in my head. It really has..." explains Clayton, "when I finally came up with this expression edible neighborhood for myself. Not that I have invented it. I started putting it into our marketing material. You know this was just a matter of weeks ago and already the first house we have rented since then the people said "I saw this thing about the edible neighborhood and I thought that was great."

The Wylde Center's VanParys had a similar experience with her organization, discussing at length how changing their name from "community garden" to "center " was critical in expanding their organization's mission.

"We needed to change our name" say VanParys, "folks kept pegging us as a community garden that did some education on the side. Funders would say why are we giving you money? You're just a community garden. It was just keeping us back." "So when we changed our name things happened. Things changed! ... The name change just put us into a different level of expertise."

This inquiry also believes theory and action are not opposed but are intimately tied. (Friedman, 1987) This viewpoint was demonstrated in this inquiry by the two most food system oriented respondents, Nuri and Edwards, who were also the most engaged with both the social and ecological aspects of the system. Nuri and Edwards also were the two individuals from the sample with the best formulated models of urban agriculture. As discussed in Essay 1 Rashid Nuri's socio-ecological model of urban agriculture had three pillars including ecological food production, horticulture literacy and education and



multiple types of community engagement and Chris Edwards socio-ecological model had four pillars including: ecological food production, community engagement, education, and land ownership.

Most of all this inquiry has come to the conclusion that urban agricultural sites that rise to the level of an eco-center or food park have an important role to play in spreading the local agriculture model as envisioned by individuals such as Nuri and Edwards. While both men reject names embracing an action ethic instead, they also acknowledge that more people aren't getting motivated and not enough people share their worldviews. Better recognizing the role of urban agriculture and appropriately naming it could grow that public. The Wylde Center and Chosewood Park's experiences suggests how a good name plays a role in that process.

One can also see the value of a name in studies such as *Five Borough Farm*. The very name of that report is instructive, it was not Urban Agriculture in New York City or some other wonky planning title devoid of meaning, but it was a conception of that city as one undivided food producing landscape, or one big farm. This is an important distinction. The conception of the city as one big farm, rather than as city on one side of an arbitrary mental line and farm on the other, is a subtle but revolutionary shift in thinking.

As Ackerman- Leist notes, "It is no longer just the large expanse of fertile fields on the outskirts of our cities and towns that need to be reserved for agriculture use. It's also the vacant lots, underutilized city lots, sidewalk edges, and rooftops in and around our cities that warrant our undivided attention" (Ackerman-Leist, 2013) This vision of an "undivided" edible urban landscape was reflected in this inquiry by visions such as Concrete Jungle's vision of Atlanta as one big food forest. Ackerman-Leist also concluded that what he called the local system, it's name, is also critical. Over the

years his own conception of the system has moved from “local” to “local food system” to “community based food system”. (Ackerman-Leist, 2013) His “community based food system” name is closest to the conception of urban agriculture emerging from this inquiry, where food parks and eco-centers in the urban center are connected to more production oriented urban agriculture sites “in the sprawl.”

Names convey meaning. Names have power. No name will be perfect. But it’s important to consider them wisely.

### Recommendation 1:

#### Spatially Anchor the Model as a Method of Naming It

Since the food park and eco-center type of urban agriculture is misunderstood or not well recognized, steps to bring it into the public consciousness are necessary. A design possibility rather than a policy solution to this problem could be the construction of a flagship food park that serves as the focal point of or the jewel in the crown of a more comprehensive network of smaller food parks or eco-centers. This is one vision derived from the inquiry. Indeed the value of a flagship park even emerged directly as a coded theme, but not as expected. Craig Durkin of Concrete Jungle actually spoke against a flagship concept. Durkin had discussed how his organization perceives Atlanta as not a collection of separate sites but rather as one big food producing entity.

“I think that’s part of our big message,” he explains. “It doesn’t have to be this flagship spot, you know where you go to this one spot and there is some concept of how things could look and ‘this could be great.’ It’s like you see this [food forest] map. And you go ‘wow this stuff grows everywhere!’ ”

In light of insights from the entire data set this inquiry takes the opposite view, believing that a flagship food park could actually serve the same purpose as Concrete Jungle’s food



map by anchoring the concept in the consciousness of the community, and quite literally putting the concept of the food park on the map in a more robust and recognizable way than smaller sites such as the Wylde Center's Oakhurst Garden or TLW's Wheat Street gardens are achieving.

Virtual maps are useful, such as Durkin's Concrete Jungle Food Forest Map of Atlanta, but even on line retailers will build brick and mortar stores to make sure they have a physical as well as a virtual presence in order to better establish their name. The tiny demonstration garden in Piedmont Park, arguably Atlanta's flagship open space, for example has an out-sized impact on the community due to its location within Piedmont Park, a park with annual visitors in the millions. This inquiry is not recommending that Piedmont Park be turned into a flagship food park, but there are many other locations that could be considered as design options. A centrally located Atlanta location is important, however, since as the Wylde Center's experience demonstrates, location choice communicates value and meaning.

"So we're perceived as a Decatur organization, so that is something we've been working hard to combat," explains Van Payrs, "That's why it's important to us that we have two gardens *in* Atlanta. That we're working with students in Atlanta. It has made a huge difference. [Since adding the Atlanta locations] We have been invited by a couple of foundations to submit money for grants, because we are working in Atlanta."

One idea that emerged from this research inquiry is the idea of a flagship food park into which multiple schemes public, private, and non-profit could plug into and benefit from. The Food Commons, which AFF is championing in Southwest Atlanta is a version of this idea but for a district and without necessarily a key node.

A flagship food park would be a location, preferably a large one that is for the entire city, much the way Piedmont Park is Atlanta's primary traditional park. A flagship food park

could simply be a larger food park in a key location, which most of the city could access or it could be a food park with a food hub inside it. Whatever its programming the flagship food park could be the systems anchor and a way for a city to ensure some stability without taking on the obligations of every corner of potential food park or eco-center real estate in the system.

Atlanta, has plans for small urban agriculture sites in a future Mims park and along the emerging Belt line, but when funds are limited and there is a cogent argument for a city not taking on more obligations than it can currently handle (Marohn, 2012), this inquiry recommends that a city think carefully about where and what kind of urban agricultural real estate scheme they want to champion. An urban farm with its production focus, such as the small farm on the Belt Line, is not appropriate for a civic space. But even an eco-center or small food park which tends to be more neighborhood oriented, and which is arguably the role of the future MIMs park plan is problematic.

While the idea of the flagship emerged from this inquiry's sample, it was in opposition to the idea. Durkin, as founder of a gleaning organization, has a very unique perspective on the edible city. But a food forest is a different type of food producing urban mosaic than a network of food production sites that are growing sun loving herbs and tomatoes or are raising bees and chickens. The flagship food park through its programming could help publics to understand and support that conception of the edible city as well as more traditional food growing landscapes. As an inquiry embedded in the disciplines of urban design and landscape design, this research is partial to the Food Park Flagship concept, after all, designers make things, rather than formulate policy based solutions. For now, the flagship food park with its potential to anchor an entire system in the consciousness of a city, is an interesting possibility for communities to consider as they wrestle with how to cultivate their emerging local food systems.

## Theme 2: Urban Agriculture as Resilience

Another theme from the sample also found in the typology literature was the concept of resilience. The frame of resilience informed the typologies of Alessa et al's urban agriculture typology between cities and King's typology within cities. Resilience is essentially the ability of a something to spring back or recover from disturbances. In design and planning circles it has become defined as the capacity of communities, cities or the systems they rely to recover quickly from difficulties.

(Newman and Beatley, 2009; Newman, 2010; Ahern, 2011)

Resilience theory, what it means for designers and planners, is only now being hashed out by the discipline, but one can imagine it will likely follow a similar trajectory as sustainability, with the possibility of becoming sustaina-babble on the one hand or divided into weak and strong versions of the concept. (Dresner, 2002) This inquiry believes there is a distinction between less and robust forms of resilience. Fundamentally resilience seems to be about two attributes, diversity and redundancy, both things a local system of food production and distribution provides to any community. Resilience of single systems, such as industrial agriculture, which may be able to bounce back in the short term from shocks but whose long term viability is questionable, seems to be a weaker form of resilience. A deeper form of resilience may be a community not depending on one system, such as one industrial food system, but rather a community that nurtures multiple paths to a community need, which in the case of agriculture includes urban agriculture and all of its types.

Moreover, with threats like climate change and energy price shocks and volatility constantly impacting the international or national food system, there is a growing imperative to shore up local food systems, with local designers and planners looking for ways to build resilience through local food system capacity. (Newman and Beatley, 2009)

This Atlanta sample shared this imperative and the idea of urban agriculture as a form of food system resilience. For example, Clayton Preston when talking about his right of way gardens, singled out his efforts as a resilience statement. “We are in a food desert here, so planting fruit is not going to cure that, but it's a statement about it and a statement about self-reliance and a statement about resilience...”

There were several instances where respondents relayed how their local agriculture schemes or local agriculture in general adds capacity to their city. By showing how resilience is made possible in local food systems, the sample documents deep resilience in practice. Methods for building food system capacity sighted by the sample included: adding a layer of self-reliance and personal food skills to the system; providing a venue for food system experimentation; and shifting normative understandings about landscape and its use towards food production, or in Preston’s words making a “statement” about what urban landscape can be.

### **Self-reliance and Skills Development**

A related theme to resilience but expressed in more individualistic terms was the view that urban agriculture is valuable as a cultivator of self-reliance and personal skills.

Edwards expressed this theme well.

“I can grow my own things now,” he explains, “If you are not growing the things you need for your farm you’re in trouble... I re-mineralize the soil, which is something a lot of people haven’t been doing... I make my own fish emulsion. It’s not aqua-ponic. I ferment it. Enzymatic breakdown and bacterial stuff, like bio stuff. It’s to be self-sufficient. I’m not buying manure if I have a cow!”

Another area where Edwards cuts costs and bumps up his self-sufficiency is through seed saving, a growing practice among urban farmers of all stripes.

“I really like preserving seed, saving seed. I mean I can grow my own things now.” Edwards explains, “I’m not dependent on purchasing seed. Once you buy seed you should never buy seed again unless for some reason your crop just fails. That [seed] should be like a one-time purchase.

While Edwards is a farm manager and a business man with much technical know-how, many of the gardeners, such as Anne Stanley at Peachtree Hills echoed his self-sufficiency themes.

“Does it save money?” she asked, then answering her own question “when I think about it , I haven’t spent a penny on the spinach. This type of spinach is a perennial and it comes back. And the tomatoes plants have been producing tons of tomatoes and if I paid for them at a farmers market, you know if I had to purchase them, that would cost a fortune.”

Far more often the idea of self-sufficiency, however, was couched in the skill development benefits of urban agriculture. Khari Diop spoke about East Lakes’ commitment to fostering self-sufficiency in its youth participants including entrepreneurial skills development.

“So these 18 beds were part of our original market garden. We took our summer youth and actually showed them the process from seed, growing plants from seed, all the way to harvest, and then taking them to market, and taught them entrepreneurial skills as well.” The Wylde Center also discussed skills development but in terms of sustainable life skills. “We have sustainable life skills classes,” says Van Payrs. “So far this year we had about 250 people take a class here.”

### **Food System Experimentation**

In the planning and design theory informing the core logic of this inquiry (methods chapter), Lewis Mumford’s concept of little theaters was discussed briefly, the idea that creating the right communities creates “little theaters,” an alternative society growing within the shell of an older one. Mumford was writing about the potential of Garden Cities. (Lucarelli, 1995)

Also discussed in the core logic were the views of Landscape Urbanism theorists such as Sebastian Marot, Kelly Shannon and Charles Waldheim, who put forth urban and suburban landscapes and gardens as venues for landscape urbanism experimentation and development. (Waldheim, 2006) In this sample experimentation was also a theme that emerged from this sample as a strong value of urban agriculture and its deep resilience.

## **Experimentation**

### **1. Hugelkulture**

“We are also doing a thing called Hugelkulture, which is kind of a subset of permaculture. It's a farming technique that came out of Austria. What you do basically is underneath everywhere that you are growing, every bed that you have, you dig out a trench and you fill it with dead wood and then you cover it over with the soil. You are basically burying wood. And the thought process behind this is that when it rains the wood soaks up a bunch of the water and so it meets your irrigation needs, and ultimately depending on how big the wood is and what state of decay it is it breaks down and enriches your soil.”

### **2. Fruit tree drones**

“At Georgia Tech , there is a professor there that is building a bunch a stuff for us. He is very interested in kind of weird ideas and pursuing them at least to proto-type phase, to see if its feasible. Like having a drone to fly around and look at fruit trees is kind of a weird idea. He is also building us a sensor that we can place in a fruit tree, and it would flash some kind of light or tweet or make some kind of signal to indicate I'm ready to be picked.”

### **3. Aqua-ponics**

“That's a collaboration with Georgia Tech. They have been working on that thing for a year and half to two years...It's going to be continuous flow; plants are going to be rooted in the material. They may be on floats, but the floats are going to have compost that the seeds are put in. It's not going to be hydroponics. It's going to have a soil base to it. And we are going to use Tilapia and probably grow lettuce arugula, watercress and that kind of thing”

### **4. Urban farms as innovation incubators**

“You have your pioneers; you have your innovators to turn the whole system upside down. Tweak this element. Tweak that element. Just be unafraid to try something drastically different. You could call it revolutionary or innovative. However you want to look at it.”



#### 5. Private Gardens as experimentation

It [experimentation] just happens. People just stumble upon “oh know I planted too much in one space” but actually they did it correctly.”

#### 6. Food Forest innovation

“[we started a food forest] because its unused space and its very low input. So there’s not a whole lot of management that has to go into it and it will produce for decades and decades and centuries to come as long as the trees stay standing.”

#### 7. Cross cultural horticulture techniques

That is one of the community garden plots that a woman from Burma manages, her name is Katazar and she builds these fantastic structures that our garden is really known for and that people come out to see. Her garden is very different from any American born farmers and growers that I’ve seen, and people always talk about them and want to come out and look at them. She even did a little workday with the community gardeners trying to teach us how to build bamboo.

#### 8. Garden expansion, trying alternative growing locations

“I planted papaws when we first started it. It is way too much sun for them, so we transplanted them into our wetlands, ... its very native, natural area with the meandering path that goes through there, and we day lighted six streams so we call it six streams. Its becoming an edible wetlands!”

#### 9. New plant guilds

“L R, who just recently joined the garden last year, he’s done a lot of gardening with corn. He was reading up on gardening and was reading something about how the Indians garden where they grew several plants together, squash, beans, and corn. So last year he grew the three of them together, and they sort of cooperatively grow. This is representative of some of the experimentation that some people do.”

### **Changing perceptions about urban landscapes**

Part of what this experimentation fosters is not simply change in technique or planting choices but different meta ideas about food and cities, what constitutes food or where and how it can be grown. In essence these little theaters of food system experimentation are creating new ideas about landscapes, urban and rural, cityscape or farmscape. In the

follow up interview Global Growers Network's Robin Chanin discussed how operations like hers in Atlanta's peri-urban sprawl are shifting concepts of "farm".

"We have an image of a farmscape that is rolling hills and enormous pastures and all of that and it doesn't need to be that way. It can be an aggregated collection of parcels of land, explains Chanin.

Rashid Nuri goes one step further explaining that one of his organization's primary roles is to turn ideas about food and where it can and should be grown on their heads.

"The food system in this country..." Nuri argues. "It doesn't work anymore. The land is deteriorated. Food is not bringing life, its bringing death. That has to be changed. Now since people are living in cities, there is no reason why we can't produce the food right here." Later returning to these ideas about food growing in urban places, Nuri insists, "Urban Agriculture is here to stay ...the commercial paradigm we live under now is not going to work. So we are going to have to come up with a new one."

## Recommendation 2: Establish System of Eco-Centers

In addition to the idea of a flagship food park that may anchor the idea of food production in cities, this inquiry also recommends that cities encourage smaller, neighborhood eco-centers and their distribution across the city. Having a small food park or eco-center in every neighborhood or district allows for everyone to take part in the many benefits documented by the literature and this Atlanta sample of food growing in cities.

As this Atlanta sample suggests, cities do not have to begin from scratch or necessarily manage these sites; clearly they already exist. Four examples from the sample are arguably operating more like eco-centers or food parks at the tips of the local food system. In addition to the Wylde Center's Oakhurst Garden these sites include TLW's Wheat street gardens, the Clarkston Community Center site, and East Lake's Community Leaning Garden and Urban Farm. All of these sites produce some food like a farm. All

of these sites sell things like a market. But they also provide the recreational benefits of parks and public spaces, though with a new 21st century focus on civic agriculture.

Whether they are serving a small neighborhood or a district as a park, however, both are serving the primary role of connecting—to adopt the terminology used repeatedly by key informants of this research inquiry—their localities to the larger civic agriculture system and the people and natural systems that share it. This is something quite different than just a community garden or an urban farm and is a new type of urban agriculture, which needs to be better understood and recognized. These eco-centers can also be a hub of neighborhood sustainability and resilience.

The problem is that there are quadrants of cities, such as Atlanta's south east where these food parks and eco-centers are thicker. A city's role could be to make sure that the places that exist can carry on and that the parts of town not as likely to develop these sites from the ground up can be helped. As Blue Heron's Kevin McCauley pointed out places like Atlanta's wealthy Buckhead may actually be the places in need of the most help. A local food system only focused on the wealthy or the poor will never be as strong a one which links the two. Atlanta's Park Pride program does this through its requirement that gardens donate to Atlanta's food security, but very few of the gardens are located in wealthier Buckhead, since there are so few parks in that district in which community organizers can establish gardens. All it would take is for home owners, perhaps when they pass on their estate, to establish eco-centers similar to the Wylde Center's former bungalow site in Oakhurst, to seed neighborhoods with the open space and food system benefits of these models. In short, for the resilience and food system experimentation described by the sample to be robust it needs to be more dispersed. Linking wealthy and poor and all areas of a city, the more comprehensive the network with all types of people, the more deeply resilient our communities can become.

### Theme 3: Resource Constraints, Natural and Financial

Despite the benefits of urban agriculture such as resilience capacity, respondents also frequently discussed constraints on that system, two subsets of constraints, natural resource constraints and financial resource constraints, figured prominently in the discussions.

#### **Natural Resource Constraints**

Perhaps the three cardinal elements in any farm and garden are sun, water, and soil. Proper access to these resources is always a struggle. In Atlanta, however, with its thick canopy sun can be more of a problem than in many other locations. A sunny open space in Atlanta is urban agriculture gold, and finding a sunny spot in Atlanta, except perhaps in the middle of the highway, can be problematic. In addition to the canopy, there is also Atlanta's hilly Piedmont topography. Many of the respondents spoke of their search for sun.

#### **Sun in a Forest**

“But before we had heard of community gardens, we walked the neighborhood, trying to find a sunny spot to grow vegetables”

“It [sun] is a challenge. And people often don't really take it [sun] into consideration when they pick a site, and that's our job is to say “well, if you put it here you're going to get too much shade.” ...people don't understand that as the summer moves on there will be more canopy.”

“It's a special thing in Atlanta to have a sunny yard! With these big oak trees. Where I live a couple of miles from here we've got no sun. My wife can't even keep a rosemary bush alive because it's so shady.”

After sun there comes the quest for water. Atlanta also may have peculiarities in accessing this resource not necessarily transferable to other locations. The city is situated in a wet forest that supports its canopy, but located upstream it is not along a major river

or sitting in an estuary like many other cities. The five million plus residents of metro Atlanta are thus infamous for squabbling with their neighbors in Tennessee, Alabama and South Carolina for access to water rights. Since so much rain falls on the city, 50 to 53 inches annually ten inches more annually than notoriously rainy cities such as Seattle, Washington or Portland, Oregon, an answer to this metro scale problem could be a greater focus on capturing rainfall locally. The city of Atlanta proper will indeed be following this strategy for its residents by adding a former quarry to its park system. The former Bellwood Quarry just northwest of the city's urban core is surrounded by 100 acres of land and has a 30 foot deep former granite pit which will store 30 days of back up water as well as become a new water feature park located along the Beltline corridor. It promises to become a new park jewel to revival Piedmont Park. For the smaller open spaces of Atlanta, the budding food parks and eco-centers of their open space system, the struggle for water however continues. The cost of water access in Atlanta is expensive compared to most American cities, and there is always the potential threat of having its life giving access cut off.

### **Water Access**

“Springdale is off of well water so we save lots (emphasizes) on watering.”

“Water is a big issue....I misspoke, water is a huge issue.”

“The big thing for us was a water source. That was huge (emphasizes) Well it [the site] didn't have any water. No fountains, No way to get water.”

“The owner of the property pays for the water. We do have a water source. We quickly found that dragging hoses from the green building up on the corner was quite a daunting task so we got a plumber to come in and donate his services so we now have irrigation. The water was cut off earlier this year much to our surprise and we found that it had been shut off for theft of service. It seems that no one had been paying the bill for the past couple of years and we had about a 2,000 dollar bill. We contacted the land owners and they were nice enough to take care of that so now we have water back on again”

“Right now we get water from the city of Atlanta. The agreement with them is that we paid for the running of the pipes from the street, and the garden and all the hoses and what not. They pay for the water that we use. So we don't have to pay for any of the water. So it's a freebie for us into perpetuity, hopefully for the water.”

### **Soil Misunderstandings**

Soil, not just in dense urban cities but at agriculture sites anywhere, is a critical issue that often appears in the literature. Food shed expert Ackerman-Leist explains, “Nothing matters to local food systems more than soils. Ultimately soils feed us, not food systems. Resilient food systems are established upon resilient soils.” (Ackerman-Leist, 2013) And “All farmers manage soil, good farmers steward soil.” (Ackerman-Leist, 2013) Soil is often seen as the key driver of the system and the ultimate loop to close. The system begins and ends with soil. The science of soil is beyond the scope of this inquiry but the sample shared this sentiment on the importance of soil.

### **Soil's Importance**

“Compost is important because it is the building block of everything we do out here. All of it begins with the soil, begins and ends with the soil. Healthy soil makes healthy plants, healthy plants make healthy food, and healthy food makes healthy people. It all begins, all life (emphasizes) all health, all wealth, begins with the soil. And I think that the focus that is missing from the work of most agriculture folks is focusing on the soil (emphasizes) Build soil. I don't even try to grow food. You've got to build the soil to grow the food.”

“We compost. It's in the very back. So we are diverting food waste as well. Composting is something that I am really big with, and have done lessons on it throughout the year. And when we built their garden we used compost to build the beds and we did this whole series on that.”

“We want to teach people to compost to reduce waste, you know that goes into the landfills. To make soil we need composting to make healthier food.”



While soil is championed as a key natural component of the system, however, it is also lamented that it is so misunderstood. There is a lack of basic eco-literacy on the science of soil and its importance to the food system. The sample translated this ignorance into a common misconception that compost ‘smells.’

### **Compost Misunderstandings**

“There’s is no smell, but people think there is. There’s the perception. You’re sitting on worms and rotten peaches and just rotten food right now and can you smell it?” “We’re trying to figure out where exactly to put them so that we’re not....its not going to create smell but I know there has been other compost companies in Atlanta or Georgia that have gotten in trouble with the neighboring communities. Green-co they were having a problem with that.”

“Compost is never a problem. Can you smell it? No,...Its part of it [composting]; knowing what you are doing. We have some expertise on the [composting] subject

“Our farmer is a little weary about manure and so we haven’t used it [to close loops]...The chicken poop, It’s put on the neighbors garden but not the farm.”

“Compost doesn't smell, and it doesn't attract critters. People were afraid it was going to attract critters. You know, again, I think if people understood!”

### **Capacity Issues:**

The creation of soil was one of several capacity issues mentioned by the sample. Three capacity issues figured prominently in the discussions including the lack of capacity for adding in animals, the limits of water catchment and access to municipal water sources, and the inability to meet community composting needs, even with soil misunderstandings. One has to wonder if soil’s importance to food systems were to be more embraced by the public, how the sites would handle the additional demand for their community composting services.

## Husbandry Capacity

“we don't have the staff for animals. But we have worms. You are sitting on worms right now!. So that's livestock right there. I don't think we would ever really have animals here.”

“I don't have the capacity to take it [apiculture] on (laughs) We do have a neighbor about a mile and half down who does have hives.”

“So we have had a lot of issues with rabbits recently. They have started to come in. There are kind of two schools of thought about that. There's certainly the gardeners who want to exclude (emphasizes) you know do what we can to keep them out, but then there's a community of people who um feel that well, they can have some of what we produce and its not going to devastate us.”

“I'd love to have bees. But I don't think you can have bees in a public park. I would love to have chickens but I would be worried about their safety.”

“We haven't [apiculture] because of our locations, because they are on other people's properties, at least with Fresh Roots. You get into a lot of insurance. “I don't want bees.” People are afraid.”

“Up here we have a compost garbage can for the community .People all over from this neighborhood dump their compost. ;;; more than we can handle..”

## Water systems catchment capacity

“The enthusiastic student had the idea of getting a rain barrel and you know wanted to do that, but that also requires maintenance”

“Rain water harvesting. It's part of our lessons. We harvest off of the playhouse, but that's the only place that we have a structure where we can harvest water out of this particular garden”

“The idea was to take the rain water off of this roof, put it into a catchment cistern either through gravity fed or a pump that was going to be solar powered. But that's really expensive.”

“Water is a big issue. Water is a huge issue. A number of them [Park Pride Gardens] get water from the city, just potable, regular water..”

## Compost Capacity

“...one of the challenges of having a compost bin sitting right there is that everybody around here throws stuff in it.”

“when I first got here I was out riding out trying to find where I could get some compost. Until we started making our own and generating it. I don't make enough (emphasizes) not yet.

“People have asked if they can bring their kitchen scraps, but we've told them no. “

“The gentleman who owns farm burger a restaurant in Buckhead was interested in trying to take his scraps here. We were interested in working with him. We couldn't take all of them. Quite honestly our capacity is fairly limited. We almost have too much internally. But we did want to do something with him, but it so far has not happened. To me its really a capacity issue. We definitely have an interest in trying to do something, but unless we expanded our composting system we would be fairly limited in what we could take from them. But they were interested in doing it. It just didn't happen.”

“Local Tree Company's donated the wood chips. Once you find a tree company you have to kind of turn them away because they are constantly looking for a site. ”

## Financial Resource Constraints

As with most startups, small businesses, or civic organizations steady funding is often a major concern. Funding was mentioned as an issue in this sample by Stephanie Vane Payrs of the Wylde Center, an organization that is one of the oldest in the sample and has been through multiple ups and downs in urban agriculture support.

“the squeeze point is funding, or the foundations. There are only so many that are going to fund this kind of work. Case in point, East Lake foundation, I called them up last year and said we have a garden in your community, we'd love to talk to you, and they said we only fund one organization, South Eastern Hort., and I said OK, you know, good luck with that and we will find other money to fund our projects... which we have, we've found other funds, but I think that's where the squeeze can happen. Where if you are looking for local money, foundation money, you can run into “we are already funding somebody else.”

In the literature A New York City official quoted by *Five Borough Farm* noted that cities often love to give lip service to urban agriculture but without more substantial support this “free advertising” creates more problems. “all the not-for-profits have a lot of money problems right now...Demand [for urban agriculture] is huge, the more it gets promoted by the media, the Mayor, everybody else...but there’s not people writing huge grants for [these organizations].” NYC government official. (Cohen and Reynolds, 2012)

Atlanta has certainly jumped on the urban agriculture bandwagon in spirit. Mims Park designed by Farmer D and the urban agriculture open space node on the SW quadrant of the beltline are examples of more substantial involvement at least to support of specific sites. Indeed, even Ackerman-Leist specifically praised Atlanta as a city that “gets it” in regards to urban agriculture support. (Ackerman-Leist, 2013) But what about the full local food system mentioned by Rashid Nuri? Does Atlanta truly “get it”? What about structures for financial or other types of support for that system? Where would those structures come from? These are policy questions. Resources are always scarce, but perhaps if the focus were more on the system rather than individual sites, as Van Parys points out, some of these funding conflicts could be avoided.

### Recommendation 3:

#### Support Ecological Integration Facets of Urban Agriculture, Especially Soil

A third recommendation which emerged from this inquiry has to do with urban agriculture’s potential ecological function. As with any type of park or park system, there are multiple ways to impact city ecology. Storm water management is one example that did not emerge much from this inquiry. An ecological potential and way for cities to gain from urban agriculture that did appear often in both the typological literature and the sample was the potential for urban agriculture, and especially the food park and eco-center type, to be a major player in any city’s organic waste system.

In the literature *Five Borough Farm* recommended for example that New York better integrate its food producing places better with New York's myriad green infrastructure policies. The issues of soil, compost, and organic waste also figured prominently in their report. (Cohen and Reynolds, 2012)

The *Agricultural Urbanism* guide by De la Salle and Houland also highlighted the ecological potential of urban agriculture in cities with both a resource flows matrix and a food systems opportunity matrix. (2010) Their agricultural and urban resource flows matrix informs urban designers and planners about what can be done at the input and output stage of flows of materials, water and energy. Their food systems opportunities matrix recommended policies at all stages of the food system from production to transport to processing. At the production level, which is the point of entry into the food system of this inquiry, the *Agricultural Urbanism* report recommended cities do the following:

1. "integrate edible landscaping as a use and recreational opportunity and public open space," a finding that agrees with this inquiry's discovery of both the food park and eco-center and right of way garden types.
2. that cities "use production space to manage storm water," which was seen in this inquiry at the Clarkston site but not otherwise mentioned.
3. and that cities, "provide composting space in gardening areas to help divert waste from the landfill." While there was the example of the private firm Compost Wheels diverting the waste from midtown into the Piedmont Park demonstration gardens, there was no indication that the city of Atlanta was involved in this process.

In general *Agricultural Urbanism* saw a need for more of city scaled focus on "nutrient recycling" by "supporting composting as an important activity in all land use designations." (de la Salle and Houland, 2010) Many of the respondents shared the

sentiment that cities must get more involved with nutrient recycling inside their borders, which they often discussed in terms of composting, soil, and waste diversion.

TLW

“Instead of trash going to the...garbage going to the landfill, it comes to us (emphasizes) and we put it back into the earth. How much money do we save doing that? How much energy do we save doing that and using that to grow food that feeds people, to get them healthy”

Piedmont

“It reduces the amount of waste that goes into the landfill. It builds nutrients in the soil. It makes soil, and it's a really good learning tool for the kids so they can see what it takes to actually produce nutrients”

Clarkston

“We are diverting their food waste too.... I think that it's very important because we are putting so much food back into landfills that is clogging them up.”

Soil, compost and organic waste diversion in general is an intriguing possibility for a city not just in ecological terms but perhaps financial ones. It may not be as glamorous as the production side of urban agriculture, but it potentially has a big payoff financially. This is definitely a topic this inquiry believes requires further study: the economic and financial waste disposal benefit of urban agriculture to cities. Can the cost saving justify a city's expenditures into the local food system? If it can, it could be a way to hook up this funding stream to struggling local food growing entities in one way or another and thus grow or stabilize the system.

It's a question that needs more study, but sadly it is also very much off the radar of most cities. An American Planning Association survey of public officials and their interface and understanding of urban agriculture to be published sometime in 2015 has already released some preliminary results and for the potentials of waste reduction via urban agriculture, the APA's results do not look good. Not because waste diversion doesn't pencil out, to use financial parlance, but simply because it is almost completely off the



radar of city planners. The APA announced at their annual meeting in Atlanta in 2014 they have discovered that the waste potential aspects of urban agriculture are one of the least recognized aspects in their sample of professional planners and city managers. (APA, 2014) Urban agriculture is not all food, bees and chickens, which increasingly cities are regulating. Those could be seen as the icing while the cake could be waste diversion, its cost savings, and if structured well, financial benefits to the local food system as it continues to grow. However, none of this is possible if it does not more firmly enter planners and other public official's consciousness.

#### Theme 4: Land, Power and Displacement

While natural resources such as sun water and soil and financial resources are something urban agriculture entities must contend with daily, land tenure or ownership is something that becomes an issue over time. Many urban agricultural sites begin on marginal properties with in a 'favored food quadrant,' which is favored not just because of the demographic that lives there, but also because of the low market cost of the land. But markets change. In fact, they often change due to the impact of urban agriculture.

The research linking real estate value to urban agriculture is thin, however, New York University's Vikki Been found a property value increase within 1000 feet of community gardens at least in New York City as a positive externality. (Been) One can assume that many types of urban agriculture have a similar effect just for their green, visual appeal. When these sites function more like parks, as eco-centers or food parks, one could hypothesize that the effect would be even stronger.

Naturally entities want to stay on the land they've spent years cultivating or at least within the communities in which they are embedded. However, sometimes real estate

pressures transpire to kick them out. When ownership arrangements are tenuous this can cause conflict. A particularly famous case occurred in the early 2000's in Compton, California. A developer allowed several acres of his land to be cultivated by the local Latino community. (Pena, 2005) Eventually the property value of the area increased due a great deal to the garden, and the owner decided to sell and terminate the agreement with the tacit gardeners. Unsurprisingly the land had shifted in the communities mind from just another underutilized property into a perceived community open space. The sale was highly contentious, with high profile supporters of the garden, including film celebrities chaining themselves to the fence in protest. (Hoffman, 2006)

New York city had a similar if less Hollywood influenced conflict when the real estate market picked back up in the 1990's threatening its 1970's and 80's era community gardens. 100s of the city's original community gardens were lost leading to lawsuits. (Cohen and Reynolds, 2012) As all cities cores are once again becoming attractive development sites as markets shift, what was true for New York's community gardens is now likely true for urban agriculture in general. Ackerman-Leist writes, "Across the country many community garden projects are threatened with the unexpected loss of land that they have worked so hard to transform." (Ackerman-Leist, 2013)

The value that opens space can bestow on adjacent properties is now well understood in most markets. In Atlanta, for example, the properties near the Belt Line, the swath of linear parks and paths currently being planned and developed has already leveraged 1 billion in private sector development along the corridor. (Beltline.org, 2014) And real estate developers in more exurban locations, as discussed earlier are now embracing developments around farms in regions across the country, with Serenbe outside Atlanta held up as national model. Again what is true for community gardens could be true for many forms of urban agriculture but especially for food parks and eco centers. Could

these kinds of land use conflicts be avoided and real estate values actually increased in the aggregate if food parks and eco-centers were better understood? It's an open question, but in the meantime even in Atlanta, who in the last real estate cycle has seen most of the redevelopment within its urban core, these pressures lurked in the collective consciousness of this inquiry's sample. Chris Edwards, spoke the most explicitly about this problem,

“if you're trying to grow produce on land in the city, developers are going to look at you like you're crazy because they see that land, 'oh I could put a hotel here' and make x amount of money. I could put a gas station and make this much. I put a farm, and I'm making crumbs in comparison.' it's hard to fight that.”

### **Power Discourse**

There are many ways cities could get more involved with urban agriculture. Fresh Roots Chris Edwards, while advocating that cities mostly get out of the way in the management of urban farms through land use regulations that he sees as excessive micro-management, does believe that there is a critical education role for cities in the urban agriculture movement. In Edwards view:

“If it [urban agriculture] is not something that is encouraged either through the school system or society, it's gonna develop super slow, snail pace. And that to me is where I kind of see the powers that be, government, the state, the city; they are dropping the ball, because they are not encouraging it. They are not encouraging it, and they know better. ...But again, they are bought and paid for. They are not interested in what's going on in the community or community development.”

As Edwards cutting words display, power is another important subtext that must be addressed in any discussion of urban agriculture. Edward's words in particular are a reflection of the tension between decentralized versus centralized forms of power.

Mostly decentralized visions such as Edwards', however, do not mean no involvement by government; or even necessarily less involvement in urban agriculture; it does suggest, however, a different power 'pattern,' to transfer the language of landscape ecology to a power discourse. The centralized vs decentralized world view is also relevant to urban planning which has been struggling with similar distinction for a while, with the more rationalist and top down approach of mid-century modernist planners, which arguably still dominates the field, being more centralized and the evolution of progressive, trans-active and communicative planning theories through the latter half of the 20th century being more decentralized. (Stiftel., 2000)

As urban agricultural takes hold in cities in the 21st century, perhaps it is bringing a Jeffersonian democratic agrarian ideal back into the power discourse around urban agriculture. These are interesting ideas, tied very deeply to the American story and character, whose exploration is also beyond the scope of this inquiry. Nevertheless, they are an important theme that emerged from the sample in addition to concerns such as sun, water, and soil. Although Edwards was the most forthcoming, he was not the only respondent wrestling with the issues of power and control inherent in urban agriculture.

Often respondents explained these urban agriculture struggles in terms of "ownership" and "leadership." AFF's Kwabena Nkromo echoing Edwards lamented the government's perceived lack of leadership,

"there are inadequacies in the policy framework and our government (emphasizes) is not leading this transition as much as on the ground stakeholders like ourselves (emphasizes)....It [urban agriculture] is helping socially because it brings together community members and builds involvement and makes it so that the community feels a more, almost a sense of pride with having something that is there's, and that they can own and take ownership of and take care of."

While Nkromo and others speak of a sense of ownership, others especially Edwards but

also Clayton Preston bring up issues of land tenure, of the need for urban agriculturalists to not simply have a sense of ownership but also actual ownership of land.

“OK all these classes and all these organizations that are teaching people.” Edwards asks, “what are you creating? They are growing farmers to do what? To become sharecroppers? Come on.” He exclaims. “That’s not sustainable. The whole thing is this sustainable food idea, right, well OK, it goes beyond just growing. It’s survival. It’s livelihood. Do you see what I mean? You have to go that extra step. Land ownership has to be on the table. If the farmers don’t own the land then they’re sharecropping...”

Preston’s experience with Chosewood Park also shows the problems of centralized absentee owners vs. local involved owners such as himself.

“Bank of America owns that lot. They have no idea that they own it. They are totally uninterested in it. They don’t do anything to take care of it.” Preston pointing to a lot that the community is turning into a community garden explains, “when they [Bank of America] show up (emphasizes) to complain to us about being on there, I’m going to tell them it is time for them to donate that land to the neighborhood. And I’ll make it into the biggest PR nightmare they’ve ever had if they don’t. But they got to show up, we can’t find them!”

As discussed earlier Born and Purcell writing in the *Journal of Planning Education* in 2006 argued that one should not assume local is more valuable than another scale. What they may be missing however is that local often is the value when seen from the discourse lens of centralized vs. decentralized power and the ownership themes expressed by this Atlanta sample, both in terms of a sense of ownership and actual land tenure.

This inquiry agrees that local is not necessarily always better. From this sample Chosewood Park’s experience with absentee owners of both local and national scales is instructive. Preston describes problems with both distant owners such as Bank of America and more local slum lords.

“This guy’s [house] is boarded up. We report him once a year and he cuts it [the grass] once a year. Same for this one and there are a couple more lots down here. And so these are people who are not contributing. They are just sitting. They are actually kind of an undertow that we have to work against. ... I’m kind of looking for exactly the right way to shame them, to get them to start to be responsible owners here.”

Despite stories like these, many respondents, including Preston, clearly still define local as better if only because local owners, good and bad, are easier to find.

Rather than instructing planners to disregard the reality of local being the value, as Purcel and Born have argued, the question should become ‘why do individuals embrace the local as preferable?’ Is it trust or access as Preseton seems to be suggesting? Born and Purcel cite some case studies about local food systems in particular that suggest oligarchic power for example is scale invariant. (Born and Purcell, 2006) This may be true. One can have a powerful oligarchy of food producers controlling the system at any level, but with one key difference, distance. The local oligarchy is more likely the devil you know, which brings one back to the issues of trust, access, and the dimensions of centralized vs. decentralized power. Chosewood Park’s experience is also instructive here.

“We’ve been working down here for what, five or six years now, a lot, daily, and so we know the cast of characters. We know the thieves. We know the drug dealers. And everybody in between and generally they leave us alone because they kind of get that we are kind of being good for the place.... we treat them with respect. It’s like, you kind of get that there is the kind of flow of influence that goes on.”

Clearly because of his presence Preston believes trust has been established. But even if others in the neighborhood do not see his role as positive as he may, there is no doubt that Preston is now a daily “character” on Chosewood Park’s stage. Ethnographic or case study research could answer the accuracy of his perceptions more deeply, but narratives such as Preston’s at least suggest why local is conflated with better. Even if some of



the residents were also to see Preston as a 'devil,' he is now an integral part of their community; he is the 'devil they know'.

There are qualities at a local level that do not exist as strongly at other scales. The discussion of experimentation, self-reliance, and resilience as well as visions such as Chris Edward's decentralized version of food system ownership all emerged as possibilities of local-scale specific values from this research. If the goal is these things, as opposed to some other goal, then perhaps local is "better."

### **Urban Agriculture as Social Insurance**

If all the potential of urban agriculture, from open space to waste disposal savings represent the benefits of local control are not convincing the sample added one more argument for their efforts, which also had socio-political implications. Many of the respondents presented urban agriculture as a kind of insurance policy or a social stabilizer. This urban agriculture value ties into the earlier discussion of resilience. However, it was also a very direct benefit of urban agriculture often cited by the respondents in addition to resilience. Often there was the sentiment that society is currently very unstable and through their urban agriculture efforts the respondents were adding stability back into the system.

Fresh roots Chris Edwards points out the instability of the current system while implying the value of his urban agriculture efforts to provide a stabilizing option.

"The government can't feed us all." He argues. "The shit hasn't hit the fan; it's in the fan. Think about how many people are dependent on government food stamps. Let's just say tomorrow that's all gone? What's their option?"

Kwabena Nkromo seconds Edwards's assessment of current social instability but more directly states how his urban agriculture efforts are central to stability.

“We believe that the country (emphasizes) is undergoing or is at the precipice in a sort of seismic shift in how it thinks about basic societal organization, and these questions around how we get our food are central to that.”

More seasoned, Rashid Nuri states more specifically what the social problems are and how urban agriculture stabilizes or “mitigates” them.

“Our work helps to mitigate any and all problems, any and all problems that you can find in urban society. Urban agriculture will mitigate it.... it will contribute to the solutions. I don't care what you name. I can show you how urban agriculture can fit in. We have had folks who have done work in the alcoholics homeless center; we've had four of them come through our training center. Up on the roof of Peachtree and Pine [homeless facility] they got 40 something beds up there to help feed their fellow colleagues. Four of them came through here and trained and now they are back there doing work, helping their fellow homeless folk. This site used to be a place of vice, sex, drugs; we pulled a mattress off the hill where they were having sex. The drug dealers were down on the corner, but we cleaned it up. Our footprint has cooled the air. We have a little oasis here where people can feel that it's cooler. You know it cools down the city. If you are overweight come out here and do some work, and you'll lose some weight. If you need some quality food come out here and get some food. Right here. You can't get fresher. Picking it this morning. Rather than taking garbage and trash to the dump, put it into this compost and give it back to the soil. I can go on and on.”

#### Recommendation 4: Develop a Proactive Urban Agriculture Policy

Whatever the problems and potentials of urban agriculture, is there a strong enough case for more proactive city involvement? After all most of these schemes are pretty scrappy and seem to be getting by without assistance. One could even argue that they are successful because they struggle. Should planners even be involved?

*Five Borough Farm* also noted that self-sufficiency is a key theme amongst the urban agriculture community of New York. “There was a perception that urban agriculture could thrive without much municipal support” (Cohen and Reynolds, 2012) And as discussed self-sufficiency was held up as an intrinsic value of urban agriculture by its experts in Atlanta. The reality is that these schemes do not persist in a vacuum. They exist with in cities and therefore must deal with all the complexity of cities. *Five Borough Farm* also made this observation in its report, stating, “[New York] City agencies already affect urban agriculture in hundreds of different ways even if they are not explicitly focused on food production.”(Cohen and Reynolds, 2012)

Since urban agriculture will have a relationship of one kind or another with its local government, the question becomes what is the most appropriate one. The sample approached this quandary with different conflict orientations. Chris Edwards approach is more indignant. He views himself as a problem solver and the city as more of a problem maker. In describing a conflict around compost, Chris explains.

“I’m developing a compost business now with some people with in the food industry. There’s four of us, trying to do commercial scale composting. You can’t do it because there are all sorts of legislation, and this pocket and that pocket, and you know, this or that person, you have to rub their shoulders. Well you know... what’s the motivation [to run a business] in that? Why are you [the city] hampering the development?”

Other schemes respond to city conflicts by keeping off the radar. East Lake while describing their operation’s animal diversity, which they view as central to their success as an eco-center explained,

“You can have up to 25 chickens, no roosters and the rules around other livestock like goats and sheep are kind of loose. We are sort of operating under (emphasizes) that looseness”

Most of the schemes in this sample, however, try to foster a more assertive approach

to their municipal contexts. Clarkston Community Center for example fosters good municipal will by involving city officials actively in its food security programs as well as managing programs for them. Explains Janice Giddings,

“City of Clarkston, we are very closely involved with them. They coordinated a Veggie Parade with me out of the farmers market, although it got rained out this year. They were going to be a huge part of that. I have also worked on a grant with them to support an application project to convert green spaces to gardens; their parks specifically.”

Finally, Rashid Nuri’s approach is more strategically political as he stated, he has put himself “at the table” as a leader of powerful advocacy organizations such as Georgia Organics so he does not become “part of the menu.”

Whatever their conflict orientations most of the schemes when asked about their networks included city officials. Piedmont Park listed the city of Atlanta as a major contributor in addition to their long list of corporate sponsors because after all “the garden sits on their [Atlanta’s] land.” The Park Pride schemes, also located in public spaces often have intricate relationships with the city of Atlanta. Park Pride’s Ayana Williams explains how water in particular is a form of resource sharing with the city.

“Water is a big issue. Water is a huge issue. A number of them [Community Gardens] get water from the city, just potable, regular water.”

Whether it is through active involvement, negotiation, or by just getting out of the way, however, one way or another cities will be involved with their urban agriculture community. Even doing nothing or averting their gaze is a kind of default policy.

This inquiry focuses on typology rather than policy and can only scrape the surface of the policy potentials, but based on the typological literature and the themes of the sample, this inquiry can point the way to at least some rough outlines for the interface between

cities and their urban agriculture spaces, especially those spaces which rise to the level of eco-center or food park, a new form of city open space. Cities can first stop being ambivalent. Beyond that cities should establish some kind of real estate displacement policy, whatever that may be, so that risks and rewards are clear. Lastly, the organic waste diversion potential of urban agriculture is an under appreciated value that has emerged from this research, which cities should more actively consider. Since the latter, the closed loop organic waste disposal potentials of urban agriculture has already been discussed the former two recommendations are presented here.

### **1. Shed Ambivalence towards Urban Agriculture**

In her article *The Planner in the Garden*, Laura Lawson singled out ambivalence as a problem across eras between community gardeners and their cities. According to Lawson, “On the one hand, garden programs are praised and supported as local action to serve environmental, social, and individual objectives. On the other hand they are perceived as opportunistic and temporary and are largely ignored in long-range planning.” (Lawson, 2004) As community gardens have metastasized into urban farms and as this inquiry believes other types of gardens such as right-of-way gardens and eco-centers and food parks, this ambivalence has become more of a problem. It is time to cast it off. Building on Lawson’s work the eco-center and food park with it opposition to industrial food systems and goal of expanding local ones could be considered the defining form of urban food production of our time, and city officials and urban planners should at the very least acknowledge its presence.

In the 1980’s the concept of community open space emerged, and at that time community gardens were often listed as alternative open spaces to parks and plazas. (Hou et al, 2009) In 1985 the city of New York conducted an extensive research project into the 410 community built spaces in that city. Nearly 70% of these alternative open spaces

included vegetable gardens as part of the land use. (Fox et al., 1985) Following this study landscape architect Mark Francis researched the social dynamics of community gardens as open space. Francis compared perception differences of the value of community gardens between users and officials. (Francis, 1987). Since then, however, not much has been done as planners turned mostly to the issues of food access. This is perhaps why newer reports, such as *Five Borough Farm* are now emanating from outside the planning profession.

If planners can agree with Rashid Nuri of this sample that urban agriculture is less about simplistic notions of food access and more about “people” and how people interface with the socio-ecological “food system,” planners could take a more proactive stance towards urban agriculture and especially the food park and eco-center instances of it such as Nuri’s flagship Truly Living Well site in the Sweet Auburn neighborhood of Atlanta. Rashid Nuri argues that these food parks do not solve all urban ills but they can mitigate most of them. If what Nuri is suggesting is even half true, does the city really want to forgo this potential? Instead why not find ways to support it?

Fortunately for Atlanta the city has been persuaded to act and it is going through a land use code rewrite to allow for urban agriculture’s existence. Allowing urban agriculture is an obvious and important step away from ambivalence. There are other possibilities however. Ackerman-Leist has list of city roles called “collaborative possibilities” starting with his expertise and the task of simply “mapping the food shed.” (Ackerman-Leist, 2013) In Atlanta, the Atlanta Regional Commission, the region’s MPO in partnership with advocacy organizations such as the Atlanta Local Food Alliance has been moving forward with this step. (APA Atlanta, 2014)

The unique characteristics of urban agriculture require a unique approach. Lawson



concludes that “they,” meaning community gardens but the idea is transferable, “require a different approach to public support than other types of open space that can be managed by the city for the generic public.” (Lawson, 2004) Lawson discusses the need for land trusts for contemporary gardens. Reviewing the merits of a land trust policy is beyond the scope of this inquiry, however, whether the urban agriculture system is supported via land trusts or some other mechanism, innovative policy for preserving urban agriculture is an area for further research.

*Five Borough Farm*’s policy recommendations were also concerned about zoning, tenure, and ownership solutions for formalizing the city government’s support for urban agriculture. They especially disliked the lack of clear and coordinated policy across New York City’s many agencies.(Cohen and Reynolds, 2012) Whatever a community’s philosophy of governing, if it’s more hands on or more hands off, if the policy is unclear it’s difficult to operate in that environment and conflicts will likely be more common.

*Five Borough Farm* advocated for a more proactive role for the city in finding innovative ways to build urban agriculture into the city scape. (Cohen and Reynolds, 2012) As a densely developed city this would likely include more incentives for rooftop development in New York, a possibility but perhaps not a priority for less dense cities like Atlanta with more low hanging fruit of available sites on the ground plane. Indeed, the only roof top garden in this sample was Manual’s Tavern’s 500 by 500 ft chicken coop. However, in some areas such as real estate value rich but open space poor Buckhead, Atlanta’s favored real estate quadrant, these kinds of measures could already make a difference. Moreover, as Atlanta’s favored food quadrant, which this inquiry located in the city’s Southeast, increases in value and as real estate values increase in general as the re-urbanization trends pick, eventually urban agriculture displacement will be a problem everywhere in Atlanta. In the great inversion, Alan Ehrenhalt, shows how cities are gentrifying fast

and though the data is very recent, Atlanta appears to be one of the quickest inverters; (Leinberger, 2013) thus addressing real estate displacement is a second recommendation of this inquiry.

## **2. Respond to Real Estate Market Displacement**

Real estate displacement is a concern expressed both in the literature and this inquiry's sample. In the end, just like any kind of park system, a city cannot have an urban agriculture open space network if it does not recognize it as a civic land use under different cultural and legal structures than private land parcels. Unfortunately, as Lawson has documented, many cities simply see agriculture as a private land place holder for underdeveloped private parcels rather than as an important value creator or civic land use. (Lawson, 2004)The value of these urban agriculture sites may not be direct, as in real estate value or food calories; however, as this inquiry suggests, urban agriculture's impact is often indirect as an eco-center or food park. This indirect open space value, a value that all parks play, is important to any city. In the case of food parks and eco-centers, however, it may also be critical to the success of the local food system.

To mitigate the real estate displacement of these civic spaces, cities could take the helm of an entirely new layer of urban land use, adding it to their open spaces systems or they could re-invent their streets not just as complete streets but as right of way gardens. However, this report is not necessarily advocating for the government takes the helm approach. And at least in the socio-political environment of Atlanta—but apparently also in New York City according to *Five Borough Farm*—urban agriculturalist probably would not support that approach either.

There are lots of other mechanisms. Laura Lawson's land trusts idea is one approach. These trusts could be used to support the network of small eco-centers or food parks

discussed earlier. Yet another approach may be to use the land trust mechanism to support one critical site in the system such as the flagship site also discussed earlier. Whether or not a city decides to build flagship or a comprehensive network of food parks and eco-centers, at the very least they should better support the eco-centers and Food Park already in their midst.

One of the findings of this research inquiry was the existence of ‘the favored *food* quadrant.’ In real estate development ‘the favored quadrant’ is the section of the metro with the highest real estate value. Urban agriculture also apparently occupies a value quadrant. Rather than raw real estate value, however, the favored food quadrant is where culture and affordable real estate collide to create conditions favorable for urban agriculture to incubate. As real estate values shift the favored food quadrant can change. This appears to be happening to the eastern side of Atlanta, which is experiencing extreme real estate value increases, pushing out entrepreneurial food system activity.

Depending on one’s perspective, this change can be a tax base producing neighborhood improving phenomenon or a harbinger of the Buckhead hordes descending like pale faced Visigoths on Atlanta’s southern neighborhoods. Regardless of the merits or demerits, it is a culture and real estate value change that has major implications for the emerging local food system in Atlanta’s core. Should the city respond? Even no action is a policy.

While it is good that the food quadrant is shifting west, it is also part of the bohemian soul of southeastern Atlanta. Does Southeast Atlanta truly want to become Buckhead South or should it try to keep some of its previous character? That won’t be possible in the now million dollar properties of Inman Park, but it could be possible for the underutilized lands of nearby Freedom Park. Moreover, what’s happening in Southeast Atlanta is a cautionary tale for Atlanta’s western side and the entire urban agriculture

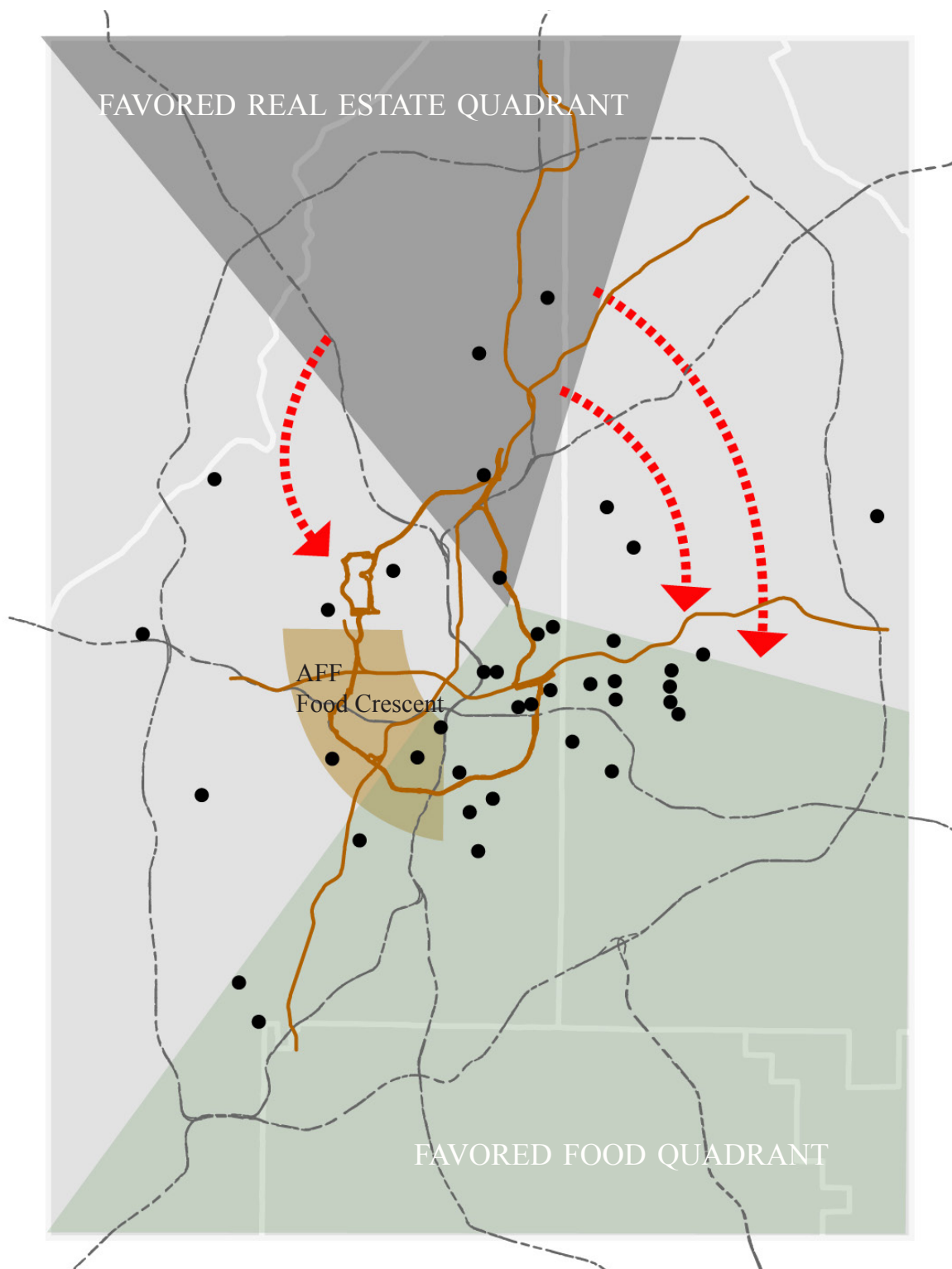
system of the city. Gentrification is a complex phenomenon; nobody wants to deny neighborhood improvement. But total annihilation of population, culture, markets and business, can't be good either. Urban agriculture is especially problematic because it can be viewed as a first step in displacement as well as a stabilizing force. If the city does not respond somehow, conflicts will emerge. Indeed, this criticism has already been lobbed at the edible Mims Park proposal for Atlanta's west side. Atlanta's future could be of a completely gentrified core, with none of the food system generators of today remaining. Like the loss of the arts and other cultural uses, this would be a loss for the city.

Food parks and eco-centers are valuable because they kill two birds with one stone: they are one layer in an open space system as well as generators of the social, economic and ecological potential of a deeply resilient local food system. It is the view of this inquiry that cities should direct policy towards not just their preservation but expansion. When one looks at the *Five Borough Farm* maps of New York's 700 plus sites and how they all cluster in low cost real estate areas, (Cohen and Reynolds, 2012) it becomes abundantly clear that 1) there is a need for a city wide policy to ensure a food park and eco-center system that is more geographically distributed and 2) that real estate value change is a major concern. Any city experiencing gentrification, which now is most urban cores, should be adopting whatever policy they intend to pursue now, in the current real estate cycle and while it is less prohibitively costly to develop or augment a local collection of food parks and eco-centers.

## THEME 5: The Eco-literacy Value of Urban Agriculture

To this point urban agriculture has been examined in the context of ITP Atlanta. Using the theory and methods of urban design, landscape design and some systems theory, and an emic-etic ethic it has built on research in both the AFN (Alternative Food Networks)

Figure L: Urban Agriculture Displacement



literature and the urban design literature for building urban agriculture typologies. Results include both directional and process scaling mechanisms (essay one) as well as urban agricultural typologies for physical integration and social integration and an ecologically integrated urban agriculture model that places itself in opposition to non-local, industrial forms of agriculture (essay two).

Of urban agriculture types the food park and eco-center was found to be an inadequately recognized form, which plays a key role in urban settings of building markets, knowledge, understanding and in the words of many of the respondents “connection” to each other, to natural process as well as to the food system. Connection, however, was not the only way the sample described this aspect of urban agriculture’s value, they also used terms such as education and literacy. It is this last theme that has been chosen for quantitative measurement of distribution in essay three.

As qualitative research essays 1 and 2 focused on variation in rather than distribution of themes. If a theme emerged once from the sample it qualified as representing part of the variation. There are problems with the validity of counting the instances of a theme; that said, however, the education and literacy theme did emerge more than any other in the qualitative sample, making it a strong candidate for quantitative research on its distribution.

The sample discussed the education and literacy aspects of urban agriculture using different terms. Many of the respondents touted the active education benefits of urban agriculture including both of the sample’s Park Pride community gardens, both respondents from Berea Oakleaf Farm, as well as the demonstration gardens at Emory and Piedmont and Chris Edwards from Fresh Roots, who further framed active education as observation vs book learning.



Khari Diop of East Lake Community Learning Garden and Holly Hollingsworth of the Piedmont Park's Education Garden sites, however, were both explicit in the distinction between passive and active education. Hollingsworth for example juxtaposed their signage as an example of "passive" education and their Eviron-ventures youth programs as "active" education.

While active education was the dominate theme, the term literacy was also used. AFF used the term literacy, holding up their English Avenue site for developing "horticultural literacy." Rashid Nuri also described his work in terms of horticultural literacy. Many of the sites also had network connections with universities or the educational aspects of various organizations. Blue Heron for example singled out the education programs with both boy and girl scouts, Rashid Nuri mentioned specifically his aqua-ponic work with Georgia Tech as did Concrete Jungle with its discussion of fruit tree drones, and Berea Oakleaf Farm had a strong relationship with interns from six universities across the country. Clarkston's Janice Giddings, however, mentioned the largest list of education oriented connections from mentoring food and nutrition interns to networking with various professors and experts at local community colleges and universities.

Meanwhile Concrete Jungle's Fruit eyes concept is the most intriguing example of how involvement with urban agriculture or in their case urban gleaning and orchards, changes ones understanding of their communities. Concrete Jungle's Fruit Eyes concept could be interpreted as a form of literacy, where involvement with urban gleaning increases awareness of Atlanta's existing food forest.

Obviously the two schemes who identified there primary missions as active education, East Lake Community Learning Garden and Urban Farm and The Wylde Center also had

a variety of ways in which they addressed it. East Lake in addition to its youth programs at the Community Learning Garden has a you pick scheme at its Urban Farm, where they engage residents in the process of gleaning to ensure that they learn where their food comes from as well as acquire fruits and vegetables. As for formal classes both East Lake and Wylde Center had classes as did TLW and Piedmont. Wylde Center, however, has had over 100 classes, and was mentioned by many respondents for excelling in education. The Wylde Center has developed an extensive adult membership roster of individuals actively engaged in Atlanta's urban agriculture scene who are not necessarily farmers or managers in the local food system but have taken an urban agriculture class with them.

While Wylde Center's adult classes have impacted greater Atlanta, its primary education focus is on youth on the eastern side of the urban core, as they have entered into formal education programs with all the schools in Decatur and several schools in Atlanta's Jackson-Maynard cluster. Wylde Center's youth education focus is on what Stephanie Van Payrs calls, "science based education." Stephanie also used the term "learning environmental awareness" Van Payrs however, did not use the term literacy.

Finally, the two farmers in the sample, Rashid Nuri and Chris Edwards, although primarily producers and not educators, also declared education as a key facet or "pillar" of urban agriculture. Edwards also spoke extensively about the importance of "awareness" and lamented that he did not have a better term, despite disparaging terms and names earlier in his interview!

Chris Edwards' and Rashid Nuri's urban agriculture models are displayed as ven diagrams in **Figure M** and the education component of each model is highlighted.

## Education, learning and literacy

“I have **learned** from it [the rooftop chicken coop] and the staff has also **learned** a few things from it. Most of the staff, I take them up and they look at it. There are people have a fascination with it.”

“I think one of the most important things about a community garden is **education and teaching** people. I think a lot of times people don't even know for example what an artichoke looks like or what an asparagus might look like. It **educates** you in terms of the things that you are putting in your mouth”

“He actually came from a farm family in North Carolina. So he's **leaning and doing** things he never did on the farm, but at the same time he's kind of **showing his kids what he's learned** and what he knows.

“Those kids love (emphasizes) these animals. And **they know** where milk comes from; **they know** where eggs come from; **they know** where meat comes from...And then they can take something healthy home and **they can see the process** of what it takes to get something on their dinner table, compared to a greasy bag of fried chicken. (laughs)”

“We have about 3 million visitors to this park every year, to Piedmont Park. And with our **education** there should be signage because most of the people we aren't actually going to speak to. So its **passive education**”

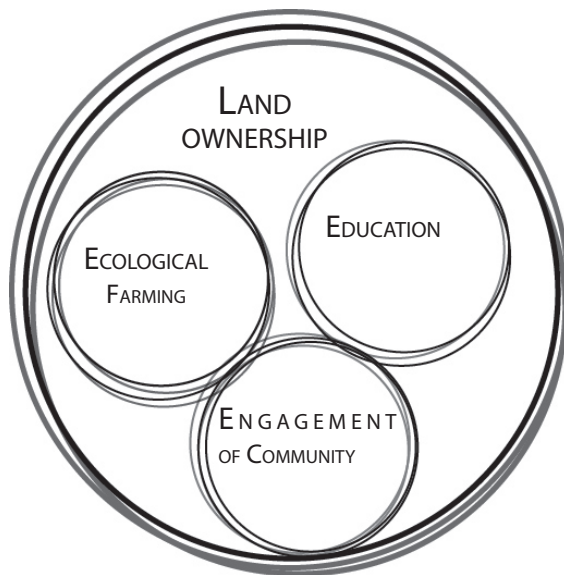
“One of the cool things that happens when people start working with us or just having us in mind and going picking with us is that **you get an eye** (emphasizes) for a certain kind of tree. And so once you've seen five or six apple trees, you **start to be able to see** them everywhere. Stuff that you didn't even know was there starts popping out at you. And like every year we are picking we find something new that grows here. We'll see one, and say, “oh that's weird, I didn't know this grew here, and then in the next two weeks we will see seven or eight more and say “man these things are everywhere.”

“[There are] 450 students at Atlanta Preparatory Academy, and we touched every one of those children. I mean we had an impact on 450 children by exposing them to **horticulture literacy** experience in the garden.

Figure M:  
Urban Agriculture Models



“Three Legs” of Urban Agriculture  
Rashid Nuri  
Truly Living Well, Atlanta, GA



“Four Pillars” of Urban Agriculture  
Chris Edwards  
Fresh Roots Farm, Atlanta, GA

“In addition to bee hives we also do **classes** in things like rain water harvesting, worm composting, and assorted other things”

“So these 18 beds were part of our original market garden. We took our summer youth and actually **showed them the process** from seed, growing plants from seed all the way to harvest and then taking them to market, and **taught them** entrepreneurial skills as well.

“**Passive learning** is going on all the time. That’s why I still have a job. **Just being in this space is transformative.**”

“ how important it is that children **learn where their food comes from and learn how it nourishes their bodies** and how when you grow these plants in a certain way, that nourishes the earth too. Um so this has been, from the very beginning of this organization, this has been the goal of the founder and of us too. To **teach** children about **environmental awareness** to teach them where their food comes from, how to prepare it in a more healthy way and how to live a more sustainable life.”

“We grow and sell food, we teach **people** how to grow food and **horticulture literacy**, the quality of your food, who grows your food, and where it comes from and through that process we build community, economic development and create jobs”

“I observe nature. Instead of me going out and getting this book you know I spend hours in the field. **Field studies. Nature is to me the ultimate teacher.** If you look, you’ll see.”

“**Awareness of Food.** The industry. How it gets to you. Who grew it. All of that. That’s **education**” “You need to be more aware. If you’re eating this stuff and you like it, be more aware of it. Understand the scope of it, the inclusiveness of it, the range. I don’t know. I wish I had better with words.”

The urban planning and design literature often mentions education and learning. Planning theorist John Friedman for example in Planning and the Public Domain dedicates an entire paradigm of planning to learning in the form of social learning. Friedmann traces this strain of planning theory in America from John Dewey to the mid 20th century management or organizational learning research. (Friedman, 1987)

In the design literature for example Randy Hester discusses the need for urban and landscape designers to “inhabit science” In Hester’s words, “Today we are a society unquestionably lacking the appropriate and relevant knowledge and skill that are necessary to design healthy cities.” (Hester, 2006) Hester explains that acquiring this knowledge is “grounded in observation” but also “in an understanding of the principles of ecological science.” (Hester, 2006) Hester, also like the sample in this inquiry talks about the importance of seeing the world in terms of “connectedness” with the primary lesson of ecology not being thermodynamics of succession for example but rather that “everything is interconnected in one single web of life” (Hester, 2006)

Many thinkers also single out urban agriculture as highly valuable in the quest for ecological literacy. Hester for example states that “the splendor of urban agriculture is that while we cultivate the land, the land cultivates our minds.” (Hester, 2006). Place theorist and landscape architect Michael C Hough also uses the term awareness and connection and indirectly makes a powerful argument for eco-centers and food parks stating, “An awareness of place can only be enhanced when it becomes a part of people’s everyday lives. Formal school programs like the once a year visit to the country to “educate” urban children in nature lore, do little to engender or deepen knowledge of the environment, or more importantly to encourage environmental values. These are more likely to come from understanding the places that are close to home.” (Hough, 1990)

In essence, according to these thinkers, learning via urban agriculture, either through passive or active exposure is a kind of gate way to greater ecological understanding and perhaps participation in society’s environmental concerns.

While the literature and this inquiry’s sample use many different terms such as



connection, observation, awareness, passive and formal education, and literacy this inquiry has placed all of these variations in the education and literacy themes under the eco-literacy rubric coined by David Orr. (Orr, 1992) Since Eco-literacy was such a strong value associated with urban agriculture, and eco-centers and food park types of urban agriculture in particular, it will be the focus of the quantitative third essay of this research. After reviewing the theory and research that better defines the construct of eco-literacy, Essay three then displays its presence in the urban agriculture landscape of Atlanta, first by surveying a population of urban agriculturalists in the region and then using GIS methods to represent the survey data spatially.

### **Eco-literacy vs. Other Constructs**

Essay three has chosen to focus on eco-literacy but there are many things to examine more closely and quantitatively about urban agriculture. The Landscape Architecture Foundation for example has developed a metric for assessing urban agriculture value by the number of food calories that a given scheme produces. (LAF) Reports like *Five Borough Farm* have developed multiple metrics in the sub categories of health, society, economy and ecology. (Cohen and Reynolds, 2012)

From a systems science lens any of the flows of water, materials or energy would also be strong candidates for quantitative urban agriculture research. Eric Garza has been conducting research into the Energy Cost of Local Food for example. Garza has argued that local is not always energy neutral, that the reality on the ground is far more complex. (Canning, 2010; Garza, 2014) This is ground breaking research that would impact one of the primary sustainability arguments held up for the value of urban agriculture including the views of this sample.

Indeed one of the Atlanta sites in this sample has already been the focus of a

sustainability study conducted by researchers at Georgia Tech University. Dr. Perry Yang used Truly Living Well's Wheat Street location as a case study of a low energy agriculture system at the neighborhood level. Yang looked at metrics such as Wheat Street's contribution to its neighborhood carbon sequestration and solar energy potential. (Yang, 2013) Unlike Garza, Yang's view of urban agriculture's sustainability potential was more positive.

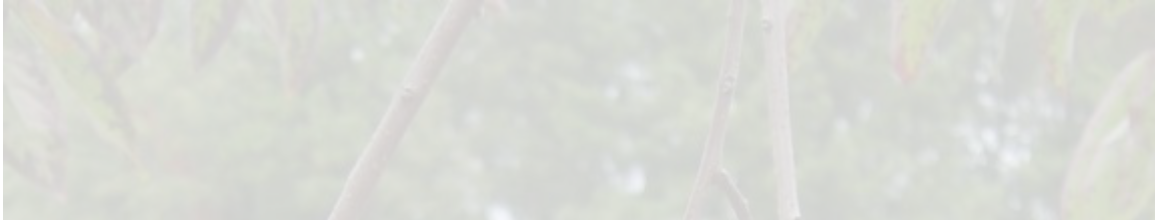
While these types of quantitative studies are useful, based on the findings of this research inquiry, one could argue, however, that both the food calories work of the LAF and the sustainability research of Garza and Yang miss the mark. From this inquiry's sample Blue Heron's Kevin McCauley explains this perspective,

"I don't know if you can necessarily live off of a 5 ft by 10 ft plot (laughs). You put a lot of time and money into it and in terms of the amount of produce it doesn't necessarily balance, but I think it's a great lesson in understanding what it takes to grow things and appreciating things that you often times take for granite."

This inquiry believes that the main point of urban agriculture at places like TLW's Wheat Street Garden is not calorie production or even sustainability. TLW at the site and neighborhood scales is above all else a food park with primary neighborhood benefits that are socio-ecological, including its eco-literacy value. If the site sequesters carbon or can aid in neighborhood solar potential, as Yang's research demonstrates, that is certainly useful, but it's not the primary role of the site. The second value of TLW—and also explicitly stated by Rashid Nuri TLW's founder—is that the site is integrated into a greater scale of the socio-ecological local food system that goes well beyond its immediate neighborhood. It is at this higher scale in which TLW's eco-center at Wheat Street is embedded, where energy savings are more likely to accrue, though that assertion would have to be tested and its results compared to the sustainability value of Wheat Street determined by Yang at the neighborhood scale. This second level of integration

from neighborhood to city and regional scales also applies to the site's food production. Wheat Street may not be able to feed its surroundings, but by contributing to eco-literacy it's helping the local food system at the regional level to become more robust and socially integrated. In short, sites such as Wheat Street are shoring up the socio half of the socio-ecological system paradigm of urban agriculture.

Naturally the advocates of urban agriculture would prefer their schemes to score high marks across many measures. This inquiry has held up the cost benefit of urban agriculture's processing potential of organic waste as an excellent area for more extensive research. To his credit Yang also begins to unpack some of this potential with his assessment of Wheat Street's material flows. But these material benefits, and especially the potential of plugging into a more closed looped organic waste recycling system at the municipal level, even if it ultimately becomes the financial mechanism that helps urban agriculture to justify its existence on municipal ledgers, are still not the core value of these sites as generators of socio-ecological capital creation, which this inquiry defines as both actions and literacy. Therefore, eco-literacy is the choice for closer examination in Essay three. The last essay in this research ensemble.



## Essay Three

What is eco-literacy and how is it distributed across Atlanta?



## Essay 3: Literature Review

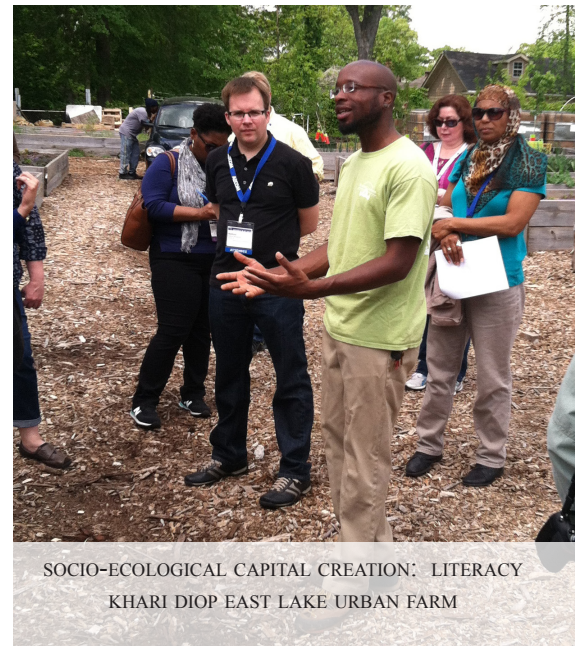
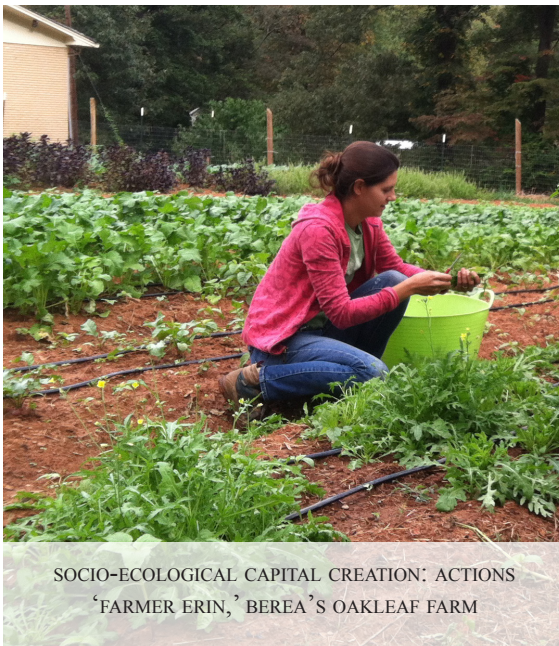
### *Theory and Research informing Eco-literacy Assessment*

In essay one the concept of socio-ecological capital, a new type of capital creation in which urban agriculture plays a special role, was introduced. In short, socio-ecological capital creation through urban agriculture was defined, at least in a modern day context of Atlanta, as being built from two components, the first being the actual ecological food growing activities and the second being the awareness of those activities which in the literature has been described as ecological literacy, (Orr 1992; Bowers 1996; Cutter-Mackenzie, 2003; Berkowitz, 2000, 2004; Capra, 2005) ecological consciousness, (Light, 2003; O’Sullivan, 2004; Kirshenmann, 2010) or landscape literacy. (Spirn, 2005) In the urban agriculture typological discussion of essay 2 urban agriculture as a generator of ecological literacy is also one of the prominent themes that emerged. It was expressed in various ways including “learning environmental awareness” (Khari Diop), “science-based education” (Stephanie Van Payrs) or “horticultural literacy” (Rashid Nuri). While Socio-ecological capital is not a simple concept to operationalize, the awareness half of its definition, the concept of eco-literacy has a rich theoretical literature that is more easily operationalized. Still, to date only a few studies have attempted to measure it. Since the ecological literacy value of urban agriculture was a prominent finding of this inquiry’s qualitative sections, essay three has focused on this concept as the quantitative piece in this research ensemble. The goal is to build on the nascent eco-literacy assessment literature.

The method and sample for assessing eco-literacy are survey techniques and the membership roster provided by Atlanta’s Wylde Center, one of the informants from the qualitative discussion of essays one and two. In this essay eco-literacy is not simply measured, but in the multi-method spirit of this inquiry and since visualization is a



primary method of the discipline of urban design, the distribution of eco-literacy across the Atlanta metro is also displayed using GIS kernel density mapping techniques more popularly known as ‘heat maps.’ Before displaying these survey and visualization results, however, it is necessary to dive deeper into the literature that informed the survey instrument’s creation and to discuss the eco-literacy theory and assessment literature on which this final essay builds. In order to measure ecological literacy luminaries of its theory such as Orr, Barlow, Capra, Meadows, Holmgren, and Hester have been reviewed.



## Defining Ecological Literacy

Ecological literacy is similar to the idea of socio-ecological capital developed in essay one of this dissertation, but as discussed differs from socio-ecological capital in that it is just the awareness half of that capital creation process. Consciousness of ecology is critical for one to be literate in it. One can be acting socio-ecologically such as the traditional Socio-ecological production landscape (SEPL) landscape management techniques found in many cultures, with little concept of how or why one action is more ecologically sound than another. (Gunderson and Pritchard, 2002; Holling et al., 2004;



Walker and Sale, 2006; Belair et. al 2010) SEPL research demonstrates that many of the most ecologically sound agriculture techniques for example have evolved within their eco-systems with their users having very little scientific understanding of the meaning of their agricultural practices. A well known example is the agricultural success of central New Guinea documented by anthropologist Jarred Diamond.

“The New Guinea highlands were one of only nine independent centers of plant domestication in the world, and that agriculture has been going on there for 7,000 years---one of the world's longest running experiments in sustainable food production...the primitive appearance proved deceptive. European agronomists still don't understand today in some cases why New Guineans' methods work.” (Diamond, 2005)

In instances such as these, the culture may have a tacit understanding, but eco-literacy requires an explicit understanding by individuals in that culture. Moreover, if the scheme has already been shown to be highly integrated urban food production scheme, via the physical, social and ecological characteristics demonstrated in Essays 1 and 2 of this dissertation one can assume that socio-ecological capital is not simply being created but is also being transmitted, ultimately creating the building blocks of a more socio-ecological urban landscape mosaic.

The idea of ecological literacy has a deep history in North America resting on the shoulders of famous American naturalists and conservationists from Henry David Thoreau to John Muir. The title of ‘parent of ecological literacy,’ however, is best placed at the feet of Aldo Leopold and his land ethic. In short, Leopold describes “humans as but plain members and citizens of the biotic community,” which is an important shift in thinking to a more socio-ecological framework. (Leopold, 1949) As nature's members it is not sufficient simply to respect and understand nature but it is also critical to understand how one is interacting with it. Rather than a subject-object approach to nature it is more an inter-subjective or inter-relational ontology.

After Leopold and the many environmentalist and naturalists of the mid-twentieth century, who established eco-system ecology and human ecology as distinct academic disciplines in North America, (Hawley, 1950; Odum, 1953) present day environmentalist and science educator David Orr deserves credit for coining the term ecological literacy. The goal of Orr's ecological literacy is the cultivation of the capacity to discern systems and human interaction with in systems. In other words ecological literacy is not just awareness that we are citizens of the environment as Leopold describes but is also a fundamental understanding of how we are members; in other words a strong awareness of how human actions impact the ecological communities with in which we all exist. (Orr, 1992)

Once one is literate it is assumed that he or she will change behavior to become a more active or at least a more responsible member of their biotic community or socio-ecological system. The positive implications for support of environmental policy are also assumed. Testing those assumptions would be an excellent inquiry, but for now this essay will focus on the first step of defining and measuring the presence of eco-literacy and thus socio-ecological capital in an urban agriculture population. Other questions such as Orr's view that more eco-literacy, especially in the young, leads to support for environmental policy will have to be tested at another time.

These are some of the broad historical outlines of the evolution of eco-literacy as conceived by North America's leading environmental luminaries, but how are current leaders of this theory defining it? Parsing out the key themes in eco-literacy is critical if one is to develop measures to evaluate it.

**Barlow:**

Since literacy is fundamentally an educational concern, prominent educators in eco-literacy are the first place to turn to understand eco-literacy's outlines. Zenobia Barlow is a nationally known pioneer in creating models of schooling for sustainability and has co-founded a center for eco-literacy, where she now serves as director.

At the center one can discern three macro themes. The first is the continuation of Leopold's land ethic. Barlow writes about whole community decisions, and specifically the need to consider multiple stakeholders, including natural ones with out a voice. (Barlow and Stone, 2005) This is clearly a reiteration of the land ethic. The second theme is the influence of landscape ecology on the center's worldview. Landscape ecology is an integrative approach to the landscape that looks at the relationship between human and natural patterns and processes. Landscape ecology has an extensive literature and Barlow echoes this academic sub-discipline of ecology when she makes statements that "solving for pattern" became one of the Center for Eco-literacy's critical guide posts. (Barlow and Stone, 2005)

Barlow talks about shifting between scales, which is also a fundamental perspective of landscape ecology, where eco-systems of patterns and processes are nestled with in each other and interacting across scales. Barlow also states that patterns can perpetuate either positive or negative outcomes, (Barlow and Stone, 2005) which links the center to a third major theme of systems thinking.

Thinking in systems is an approach that understands how things influence one another within a whole. The eco-system concept is an example of systems thinking from ecology, but human systems, such as literature on organizational structures and relationships is also a form of systems thinking. (Freidman, 1987) Via the concept of socio-ecological

systems the two, natural and human systems, are perceived as one unit. Barlow claims that along with ecological knowledge, systems thinking was one of the pillars of the Center for Ecological Literacy's founding philosophy. (Barlow and Stone, 2005) The quote about perpetuating pattern for example alludes to the systems science concept of feedback loops with-in systems.

### **Capra:**

Another luminary of eco-literacy also intimately involved with the Center for Eco-literacy is Fritz Capra. Coming from a career in physics Capra also places a premium on systems science for eco-literacy. However, as a member of the center Capra also adheres to the Leopold land ethic and one can see the influence of landscape ecology in his writings. Indeed, even when Capra talks about 'pattern' he refers to architect and urban designer Christopher Alexander. Interestingly, Alexander's idea of pattern has arguably little meaningful influence on the discipline of urban design. However, it has had a tremendous influence on computer programming and other heavily systems theory based disciplines, and now his influence appears via Capra in the theoretical literature on eco-literacy. (Alexander, 1977)

Capra also seems to be rejecting somewhat the linear cause and effect positivism he was steeped in as a physicist, replacing it instead with the systems ideas of nested scales and feedback loops. Other key systems theory ideas Capra injects into eco-literacy include optimizing processes rather than maximizing processes and the importance of redundancy over efficiency. (Capra, 1997) These are critical distinctions since most literature on human systems such as traditional economics theory probably does not share this orientation on optimization, redundancy, and feedback but is perhaps more linear and efficiency focused.

| Figure A: Capra |   |
|-----------------|---|
| Networks        | Capra first argues for trans-disciplinary approaches, stating that “bringing people together, addressing parts of the problem together in networks of support and conversation” is a central element of eco-literacy. These “robust networks” he explains, also have the ability to keep a project alive. |
| Nested Systems  | At each level, Capra argues, phenomena exhibit properties that do not exist at lower levels.  |
| Interdependence | Signs of cooperation and exchange are also critical according to Capra  |
| Diversity       | Many species for example bring overlapping functions to an eco-system. Capra’s concept of diversity is related to the literature on resilience.   |
| Cycles          | Rather than chains, Capra explains that systems work in cycles, generating little waste.  |
| Flows           | Still, all systems are open, something does flow in and out, such as solar energy. Ideally a sustainable system only uses as much energy as it can capture from the sun. The ultimate system, Capra argues, is a sun based system.  |
| Development     | A succession of stages, which Capra calls “learning” are also critical to system’s thinking. Capra’s development concept is similar to ecological succession theory.  |
| Dynamic Balance | Lastly, feedback loops is a an imporatn espec of systems accorging to Capra. A system needs a feedback loop to regulate it. A little stress on the system is good, Capra asserts, but maximization run amok collapses the system.   |

Capra's starting points for designing sustainable communities include the eight attributes: networks, nested systems, interdependence, diversity, cycles, flows, development, dynamic balance. (Capra, 1997). He claims that these are among the most important concepts based on observing hundreds of eco-systems. Thus for their empirical weight they are good candidates for key concepts to be included in any measure of eco-literacy.

**[Figure A]**

### **Meadows:**

If systems theory is so critical to eco-literacy as Barlow and Capra assert, then one should also discuss the systems theories of Donella Meadows when discussing the key elements of eco-literacy. Meadows did not use the term eco-literacy, but her systems theory writings, especially her later writings, have many precepts which could be considered key to developing an eco-literacy framework. Meadows is famous for her work with the Club of Rome's *Limits to Growth*. However in a later article, such as *Dancing with Systems*, Meadows lays out both the qualitative and quantitative characteristics that individuals should have to be good systems thinkers and thus stewards of the environment. While there are fourteen key ideas to Meadows' tacit eco-literacy theory her principles also can be broken into two of the macro aspects of eco-literacy, landscape ecology and systems science, discussed by other theorists such as Barlow and Capra. (Meadows, 2002)

However, most importantly Meadows' adds a large third group of attributes of eco-literacy that is actually very similar to social learning theory, and thus Meadows begins to unite social learning and eco-literacy theories, without actually mentioning either. Figure B divides Meadows' fourteen key ideas from her article, *Dancing with Systems*, into sub-categories. **[Figure B]**



| Figure B: Meadows  |  |
|--|--|
| Echoing landscape ecology Meadows recommends:                                      | <ul style="list-style-type: none"> <li>• Pay attention to the value of what's already there (patterns)</li> <li>• Get the beat (processes)</li> <li>• Complexity, nature designs in fractals not right angles (pattern)</li> </ul>   |
| Reiterating her field of systems science Meadows recommends:                       | <ul style="list-style-type: none"> <li>• Locate responsibility in the system (feedback)</li> <li>• Make feedback policies for feedback systems (this attribute fits in two categories)</li> <li>• Expand time horizons (scales and nested scales)</li> </ul>   |
| And forging the union between social learning and eco-literacy Meadows recommends: | <ul style="list-style-type: none"> <li>• Staying humble staying a learner</li> <li>• Honoring and protecting information</li> <li>• exposing your mental models to the air</li> <li>• Paying attention to what is important not just what is quantifiable</li> <li>• Expand thought horizons, defy the boundaries of the disciplines</li> <li>• And expand boundaries of caring</li> </ul> |

**Holmgren:**

David Holmgren links systems theory to food growing and is another important theorist to discuss. Since Holmgren co-founded Permaculture with Bill Mollison in the 1970's in Australia it has since become a global movement of individuals trying to live more ecologically. While permaculture is many things it is primarily a way of designing human landscapes, especially edible ones, with nature and ecological systems. (Mollison, 1988) In Holmgren's most recent book on permaculture theory *Permaculture: Principles and Pathways Beyond Sustainability* he outlines twelve principles for nurturing a more ecological design process. These principles hold much in common with the ideas of eco-literacy.

Like other eco-literacy theorists Holmgren puts a premium on pattern recognition and has similarities to the landscape ecology language of working with patterns and processes, including his principles to design from patterns to details, to use edges and value the marginal, and his primary principle to simply observe and interact with ecological patterns and processes. Holmgren also has many systems theory ideas in his principles including producing no waste, catching and storing energy, using renewable energy, and most of all to work with feedback loops, a concept that comes explicitly from systems theory. Holmgren also has similar ideas to Leopold's land ethic although Holmgren hails from Australia, including his ideas of using small and light solutions and to value ecological diversity even when it doesn't seem at first glance to benefit you. Finally, as a thinker mixing the ideas of food growing and ecological literacy, Holmgren adds the important principle of obtaining a yield, noting that you can't "work on an empty stomach". (Holmgren, 2002) If one is not productive as well as ecological in Holmgren's view, the system is not of full human as well as ecological value. As his ultimate goal Holmgren aims to integrate human culture and sustenance with ecology. This inquiry believes that ecological literacy is a prerequisite for that goal.

**Hester:**

Landscape Architect Randy Hester in his 2006 tome, *Design for Ecological Democracy*, defines ecological democracy as creating places that are “resilient ecologically” but are also livable “places that attract informed and active citizenry.” (Hester, 2006) Thus Hester’s world view is fundamentally socio-ecological and it believes education is critical to a socio-ecological society’s function.

Later in *Design for Ecological Democracy* Hester explains his understanding of the key attributes of an educated and informed citizenry or “eco-literacy” as “inhabiting science.” (Hester, 2006) To be eco-literate and inhabit science Hester recommends both passive and active education and engagement in natural systems right where people live. This perspective echoes many of the respondents of essay one and two of this inquiry such as Rashid Nuri and Atlanta’s Truly Living Well . Hester also highlights urban agriculture as a particularly useful way to become eco-literate remarking that “most of what we need to know to design intelligent cities can be learned from farming. ....the splendor of urban agriculture is that while we cultivate the land, the land cultivates our minds.” (Hester, 2006) “Today,” Hester explains, “we are a society unquestionably lacking the appropriate and relevant knowledge and skill that are necessary to design healthy cities. David Orr has labeled this ecological illiteracy” and Hester specifically points out urban agriculture as a way to obtain eco-literacy. (Hester, 2006)

Like many of the authors Hester also believes eco-literacy sits on top of an Aldo Leopold Land Ethic that humankind is not separate from the land but “a plain member of it.” (Hester, 2006) Next, Hester highlights pattern recognition skills including: reading the research on similar people and places; listening to people; observing carefully and wearing the shoes of others. (Hester, 2006)

Finally, Hester also highlights certain ways of seeing including what he calls “connectedness.” Hester’s elements for connectedness in city form include interdependent adjacencies; chains, webs, flows, networks cycles and cycles. An eco-literate must be able to see these forms and flows and thus needs training. Together this way of seeing form what Hester calls ecological thinking. “The holistic, systemic thinking approach of ecological thinking is the most fundamental contribution of applied ecology to design.” (Hester, 2006) Hester then wraps his ecological thinking back into the Aldo Leopold land ethic he firsts describes as the base of ecological literacy. In his words, “Ecological thinking is not simply about natural ecology. It also is about considering the consequences of urbanization actions and the interrelationships that create vibrant, self-sustaining habitats. In this sense ecological think is proactive and creative not just reactionary and prohibitive.” (Hester, 2006)

### **Berkowitz et al**

Perhaps the richest discussion of how to parse out the key attributes of ecological literacy is Berkowitz et al.’s paper “*A framework for integrating ecological literacy, civics literacy, and environmental citizenship in environmental education.*” (2005)

To Berkowitz et al. ecological literacy is the first of five key principles for a strong civic environmental education. They define ecological literacy as understanding the key ecological systems, using sound ecological thinking, while also understanding the nature of ecological science and its interface with society. Ecological literacy, however, is only the beginning of civic environmentalism Berkowitz et al argue, since having knowledge does not necessarily mean one will act on it. (Berkowitz et al., 2005)

Berkowitz et al. point out that “the science of ecology is expanding its scope of legitimate

inquiry to include humans as parts of ecological systems, including managed systems, settlements, and engineered systems. Ecology is starting to define and understand new ideas, such as eco-systems services and links with social sciences and humanities.” (Berkowitz et al, 2005) This also lays the ground for research into new arenas such as the focus of this inquiry, which is the intersection of urban agriculture and ecological literacy.

Berkowitz et al reiterate the emphasis on systems science, ecological science, and ecological citizenship as represented by Leopold’s land ethic but they also push out the parameters of ecological literacy to also include broad ways of thinking. In an expanded framework for ecological literacy in addition to understanding basic ecological systems as well as how society interfaces with ecology, they also assert that to become eco-literate one must cultivate a “disposition for ecological thinking” which includes seven critical ways of thinking. While one could argue that many of these “ways of thinking” are essentially characteristics of a well-rounded arts and science education, where quantitative thinking is an argument for basic math skills, creative thinking an argument for basic arts and humanities education, and evidence based thinking is support for fundamental science education, the remaining four principles echo the theory of other eco-literacy other writers discussed.

Everyone seems to agree that there needs to be more systems thinking, which is not part of traditional education. Additionally Berkowitz et al’s temporal thinking and spatial thinking are the patterns and processes of landscape ecology of which every theorist has referenced or echoed but again is not necessarily part of traditional liberal arts education. Lastly, their last mode of thinking, trans disciplinary thinking, has been elevated to a category of its own. To Berkowitz et al. trans-disciplinary approaches become an explicit and essential element of eco-literacy. (Berkowitz et al., 2005)

| Figure C: Berkowitz et al.                     |  |
|--|--|
| Traditional Science or Evidence Based Thinking | <ul style="list-style-type: none"> <li>• Learning by doing, engaging students in doing research.</li> </ul>  |
| Systems Thinking                               | <ul style="list-style-type: none"> <li>• Understanding of feedbacks</li> <li>• Understanding of wholes in hierarchical contexts</li> <li>• Understanding of Boundedness in time and space.</li> <li>• Knowledge of individuals and groups</li> </ul>         |
| Temporal Thinking                              | <ul style="list-style-type: none"> <li>• Understanding of evolutionary time as well as times arrow</li> <li>• Understanding of time loops</li> </ul>   |
| Spatial Thinking                               | <ul style="list-style-type: none"> <li>• Knowledge of location</li> <li>• Knowledge of adjacencies</li> <li>• Knowledge of gradients and patches</li> <li>• Ability to move between scales</li> <li>• Ability to identify boundaries and patterns</li> </ul> |
| Quantitative Thinking                          | <ul style="list-style-type: none"> <li>• Basic numeracy but especially statistical thinking about probabilities and uncertainties. Ecological phenomena are probabilistic</li> </ul>   |
| Creative and Empathic Thinking                 | <ul style="list-style-type: none"> <li>• “The ecological literate person needs a well-developed imagination.”</li> </ul>   |
| Trans-disciplinary Thinking                    | <ul style="list-style-type: none"> <li>• Ability to link perspectives from disparate disciplines</li> </ul>  |

In sum eco-literacy according to these scholars seems to be mostly about systems thinking, recognizing natural patterns and processes as well as an appreciation for humanities place in relation to them, which can be described as a Leopoldian Land Ethic. Therefore these three variables are included in this inquiry's operationalizing of eco-literacy and its assessment of socio-ecological capital creation.

### Ecological Literacy Research 2000-2010

Although the theoretical literature is rich, research literature specifically measuring eco-literacy is sparse. There is very little eco-literacy literature assessment of any group let alone urban agriculturalists.

There are many different studies of urban agriculture education usually in the form of urban gardening programs as a medium for learning in general, and especially as tools for youth development. (Krasny & Doyle, 2002; Ober Allen et al., 2008; Kerton & Sinclair, 2009; Travaline & Hunold, 2010; Bradley & Galt, 2013) Many of these youth urban agriculture studies have found that urban agricultural sites, even without formal training programs, produce learning outcomes. (Kerton & Sinclair, 2009; Levkoe, 2006) These two types of youth learning studies echo the distinction between passive and active education found in the Atlanta sample of this inquiry. Specific types of things learned when youth are involved with urban agriculture included environmental issues, food systems awareness or land ethics. (Bregendahl & Flora, 2007; Travaline & Hunold, 2010) which, based on the theoretical literature review just discussed, clearly are all aspects of eco-literacy

As for studies that specifically discuss literacy through landscape education, but not necessarily via urban agriculture or edible gardening, two studies stand out, Anne Spirn's



extensive longitudinal case study and action research in the Mill Creek neighborhood of West Philadelphia and a 2003 survey from Queensland Australia. Spirn engaged middle-school students in The West Philadelphia Landscape Project to improve what Spirn calls 'landscape literacy.' Spirn's motivation was to address environmental justice by improving young peoples' understanding of how natural and socio-cultural patterns and processes intersect and impact their neighborhood. Rather than a food shed focus, however, Spirn's research dealt primarily with Mill Creeks' watershed. (Spirn, 2005)

A multi-year literacy project that not only measures but builds eco-literacy in an action research approach spanning years such as Spirn's work in Mill Creek is well beyond the scope of this inquiry. Instead, Essay Three has chosen a survey method to ascertain the level of eco-literacy in Atlanta due to urban agriculture and how it may be distributed across the landscape creating a socio-ecological urban mosaic.

Next a study by Cutter-Mackenzie and Smith's in 2003 studied of ecological literacy and its distribution among primary school educators in Queensland Australia. Cutter-Mackenzie and Smith were concerned with the dearth of empirical literature on the prevalence of ecological literacy and used a standard mixed methods research design of first qualitative interviews to discern themes and then quantitative surveys to understand distribution of these themes. Thus there method is very similar to this dissertation. Twenty-six primary school teachers were interviewed in the qualitative stage for 90 minutes each. In the second phase a sample of 90 Queensland educators were surveyed. Participants were given four statements based on four ideas about ecological literacy that emerged from the interviews. Participants then rated their agreement with these philosophies to gauge the distribution of different modes of ecological education in Queensland. In addition to these questions, other questions about basic ecological science were asked. (Cutter-Mackenzie and Smith, 2003)

Findings were that most educators were acting at a values level but not necessarily a knowledge level of eco-logical literacy. Many could not identify basic ecological concepts. This is interesting in light of theory by Barlow, Capra, Meadows, Holmgren and others that ecological literacy is not just a Leopold land ethic but also strong understanding of principles of landscape ecology and systems science.

### Eco-Literacy Research 2010 to Present

Since 2010 others researchers have recognized the need to better define eco-literacy and have conducted extensive exploratory research projects to better define the concept. Two projects stand out here as well, Brian Nichols 2010 multi-disciplinary document review and the Cary Institute's work with Brook McBride of the University of Montana in 2011.

As anthropologist Jarred Diamond has discussed communities and societies have collapsed because they failed to adapt to environmental challenges (Diamond, 2005). But unlike communities of the past, which developed socio-ecological systems over decades and centuries, modern society must accelerate the process of ecological understanding in order to create mutually supportive socio-ecological systems.

Researchers such as Nichols believe the first step in this process is getting our terms more coordinated. Write Nichols, "What does it mean to be ecologically literate in 2010? A perusal of popular and academic literature will reveal numerous related definitions from a variety of academic disciplines and less formal sources, definitions that overlap, complement or even contradict each other. While pluralism has its advantages, this diversity of definitions makes it problematic for researchers, educators and policy makers to communicate clearly." (Nichols, 2010)

Via an extensive trans-disciplinary document review, culling the multiple variations of the eco-literacy themes in myriad literatures and disciplines, Nichols created an “eco-literacy database,” which better defines the concept. Since Nichols has collapsed all the different terms into the rubric of eco-literacy, is another reason this inquiry has also embraced that terminology. Figure D outlines key characteristics of ecological literacy according to Nichols. **[Figure D]**

Nichols extensive literature review is not the only recent research project to tackle the issue of better defining ecological literacy. The Cary institute has a team of sixteen scientists dedicated to translating ecological systems research into policy as well as environmental stewardship. At the same time Nichols initiated his document review the Cary Institute sought to better define the concept but with the goal to not lose sight of the ecological science that underpins the construct. According to the Cary Institute, “While people outside the field of ecology have developed and championed important notions of ecological literacy, a comprehensive view from within the discipline itself has yet to emerge. A strong and clear voice about universal ecological literacy from the ecological community will contribute to the broader movements for environmental citizenship and sustainability.” (Cary Institute, 2013)

Working with Alan Berkowitz cited earlier as well as Brook McBride a doctoral student at the University of Montana, The Cary Institute funded a survey of 1034 ecological scientists to define ecological literacy. Figure E displays key ecological concepts from McBride’s analysis. **[Figure E]**

Also of interest to this inquiry is that McBride did not only ask ecologists to define eco-literacy but pathways to its achievement. The top five pathways included active

| Figure D: Nichols 2010, Multi-disciplinary Document Review |   |
|--|---|
| Ecological Concepts  | <ul style="list-style-type: none"> <li>• Essential ecological principles (webs and cycling)</li> <li>• Basic Thermodynamics</li> <li>• Knowledge of human's ecological record</li> <li>• Geological and evolutionary knowledge and understanding in time</li> </ul> |
| Cognitive Skills   | <ul style="list-style-type: none"> <li>• Scientific reasoning</li> <li>• Ethics</li> <li>• Socio-political skills</li> </ul>  |
| Respect for Diversity                                      | <ul style="list-style-type: none"> <li>• Eco-systems</li> <li>• Individuals</li> <li>• Cultures</li> <li>• Future generations</li> </ul>  |
| Sense of place   | <ul style="list-style-type: none"> <li>• Local knowledge and understanding of scale, local to global connections</li> <li>• Bio-philia, connection to nature</li> </ul>   |
|  |   |

Figure E: McBride 2011  
Survey of 1000 ecologists and ecological scientists

| Ecological Concepts           |   |
|-------------------------------|---|
| Cycles and Webs               | <p>Cycles: Basic understanding of the thermodynamic laws that constrain the movement of matter and energy is a critically important foundation for an ecological mental model.</p> <p>Webs: Connecting the dots An ecological literate understands that studying things in isolation from their connections and interactions severely limits understandings</p>   |
| Eco-system Services           | The recognition that resources are consumable given the constraints on energy and flow, that resources are finite, the rate at which they become consumable is limiting and human's are connected to these limited systems.   |
| Negative Human Impacts        | All organisms are characterized by a common set of chemical requirements and are composed of similar ratios of essential elements. Species differ in their abilities to acquire, store, allocate and compete for these elements. Humans are altering elemental ratios in the environment at an incredible rate and on a global scale. Humans as components of ecological systems. Integrated view of human and ecological systems |
| Ecological Thinking           |   |
| Critical Thinking Application | Observation, experiment and hypothesis testing: the ability to apply ecological evidence. Ecologically literate individuals are not only adept at grappling with different types of evidence but can use evidence to address questions about their environment.   |
| Nature of Ecological Science  | Understanding that uncertainty is inherent in studying the natural world. Probabilistic thinking. Still he or she can act with "uncertainty in mind"  |
| Bio-geography                 | Being able to scale up or down. An ecological literate individual understands they are observing at a certain scale and can think beyond this scale, smaller or larger.   |

learning and passive learning where more Americans actually get outside for more direct involvement and experience of the environment. This finding corroborates the emphasis on active and passive education value of urban agriculture of the Atlanta sample of this inquiry. Also of interest to this inquiry McBride points out that although her work was based on a sample of ecological scientists, there was virtually no value placed on quantitative learning or modeling in defining rudimentary eco-literacy. (McBride, 2011)

This suggests that Berkowitz et al's expansive 2004 definition of eco-literacy is not as useful as the McBride study. Therefore, in addition to the key themes derived from the theoretical literature review such as the Aldo Leopoldian Land Ethic, this inquiry develops eco-literacy questions building on Nichols and McBride's research of the fundamental understandings that define the construct.

## Research Methods Review

As discussed in the methods section a survey and kernel density mapping function in GIS was used to assess eco-literacy in Atlanta within its urban agriculture community. Rather than a random sample of Atlanta agriculturalists, which would be very difficult to acquire, the sample for this survey is actually taken from the full population of the Wylde Center's membership.

The Wylde Center has developed a data base of over 3000 Atlanta area residents involved in agriculture through their organization. With such an extensive roster, the Wylde Center's database seemed a good proxy for Atlanta urban agricultural community. There are other organizations in Atlanta that could have served as survey populations as well, such as Georgia Organic's roster of farmers, from which the initial set of interviews was culled; however, the Wylde Center's roster includes private citizens as well as other

farmers. Moreover it was the only organization generous enough to turn over its private and sensitive membership information for an eco-literacy survey. Perhaps this is due to their primary mission being education, unlike many of the organizations of this inquiry whose primary focus is on other concerns such as growing the local food market, farming and production, food security or some other mission. Whatever the reason, this inquiry was both happy to receive the Wylde Center's support but also must be transparent about the strengths and weaknesses of this single data set.

For a number of reasons the Wylde Center's member roster makes a good choice as a proxy for assessing the eco-literacy levels of Atlanta's population of urban agriculturalists. The Wylde Center is one of the best examples of an eco-center one could find anywhere in Atlanta and probably the country. It is also an eco-center making efforts to be more than just a site serving its immediate Decatur community of Oakhurst. In the words of Wylde Center's Stephanie Van Parys

“This garden was in Decatur, in Oakhurst to be specific, and people perceived it as serving the citizens of Oakhurst. But when you offer these classes suddenly you have people coming from Clayton County and Roswell and Atlanta and suddenly this place is not just for Oakhurst it's for all of Atlanta... so we jumped the hurdle into serving a greater population.”

The Wylde Center is a model that has existed for two decades in Atlanta and has widespread support. Indeed, many of the other urban agriculturalists interviewed for essay 1 and 2 are in the Wylde Center's rosters. But this data set does have some unavoidable biases. To address those biases the survey gathers demographic and other information as well as the survey's primary eco-literacy questions.



In addition to the eco-literacy and demographic questions, a third set of questions was also introduced that attempts to quantify the extensive anecdotal information about eco-literacy transmission via private urban agriculture practices in people's neighborhoods, including Gehl, Haeg among others in the landscape design literature and most of the Atlanta interview sample from the qualitative essays of this dissertation. Lastly, since private production has been shown to be the most prevalent form of agriculture in the literature by Taylor at least in Chicago, a question about home gardening activities is also included in the survey.

Together the questions of this survey add to the literature about not just the extent of urban agriculture via home gardens, but its impacts as well, at least in terms of eco-literacy. After reviewing the survey results the data is displayed in heat maps, and juxtaposed with other data sets such as the Atlanta Local Food Initiatives (ALFI) data set of urban farms and orchards. Since the eco-literacy results of the Wylde Center survey are being used as a proxy, the kernel density maps of all data sets are assumed to have similar eco-literacy values of the Wylde Center survey respondents.

# SURVEY INSTRUMENT

## Section A: Categories

Q1: How many years have you been involved with the Wylde Center?

\_\_\_\_ Years

Q2: How many years have you been growing food at your home or residence. If you have not been growing food please put zero.

\_\_\_\_ Years

Q3: Do you live in the Oakhurst neighborhood of Decatur?

Yes                      No

Q4 If No, what is the name of your neighborhood and city? \_\_\_\_\_

Q5 Are you a member of any environmental, landscape, or agricultural organizations?

Yes                      No

Q6 If Yes, how many years have you been a member of any environmental, landscape, or agricultural organization?

Q7 Do you have any education in the following topics? This education does not have to be a degree or credential. Please mark all that apply.

Ecology

Environmental Science or Planning

Landscape Science or Design

Systems Science

Other Sciences

Q8 What is your highest level of education?

Grammar School Graduate

High School Graduate

University or Vocational School Graduate

Q9 What is your gender?

Male    Female

Q10 What is your age?

Q11 How many people are in your household?

## Section B: Social Networking Questions

Q12. How often do you talk to people not associated with the Wylde Center about the organization?

Never

Less than Once a Month

Once a Month

2-3 Times a Month

Once a Week

2-3 Times a Week

Daily

Q13. How often do people not associated with the Wylde Center ask you about the organization?

Never

Less than Once a Month

Once a Month

2-3 Times a Month

Once a Week

2-3 Times a Week

Daily

Food Growing Question

Q14. Have you applied anything you have learned at the Wylde Center site at your home or in your community?

Yes    No

Q 15. If yes, can you list the things you have learned from the Wylde Center?

(I should have asked what they have learned in order to see if eco-literacy etc shows up)

## Section C: Eco-literacy

(McBride's 6 key aspects of ecological concepts and thinking)

Do you agree or disagree with the following statements?

(Cycles and Webs)

Q16 "Studying things in isolation from their connections and interactions severely limits understandings"

Strongly disagree      disagree      neither agree or disagree      agree      strongly agree

(Eco-system Services)

Q17 "Humans are fundamentally connected to natural systems."

Strongly disagree      disagree      neither agree or disagree      agree      strongly agree

Q18 "Natural systems have insurmountable limits."

Strongly disagree      disagree      neither agree or disagree      agree      strongly agree

(Negative Human Impacts)

Q19 "Species differ in their abilities to acquire, store, allocate and compete for essential elements."

Strongly disagree      disagree      neither agree or disagree      agree      strongly agree

Q20. "The human species is altering elemental ratios in the environment at an incredible rate and on a global scale."

Strongly disagree      disagree      neither agree or disagree      agree      strongly agree

(Critical Thinking)

Q21. "Observation and experiment are fundamental skills for working with the natural world"

Strongly disagree      disagree      neither agree or disagree      agree      strongly agree

(Probabilistic Thinking)

Q22. "When working with the natural world one must often make their best, most educated guess for how to proceed."

Strongly disagree      disagree      neither agree or disagree      agree      strongly agree

(Bio-geography)

Q23. The Wylde Center is connected to a web of natural patterns and processes greater and smaller than it.

Strongly disagree      disagree      neither agree or disagree      agree      strongly agree

(B. Land Ethic)

Q24. "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."

Strongly disagree      disagree      neither agree or disagree      agree      strongly agree

(C. Bio-philía)

Q25. The Wylde Center has increased my appreciation for the natural world.

Strongly disagree      disagree      neither agree or disagree      agree      strongly agree

(D. Local Environmental Knowledge)

Q26. The Wylde Center has increased my knowledge of my local environment.

Strongly disagree      disagree      neither agree or disagree      agree      strongly agree

## Essay 3: RESULTS

### *Eco-literacy and its distribution in the urban landscape of Atlanta*

#### Response Rates

Of the over 3000 members contacted from within the Wylde Center's population 260 responded to the survey, for a response rate just shy of ten percent. For many years, a survey's response rate has been considered an indicator of survey quality. Higher response rates are generally associated with more accurate survey results. (Babbie, 2010) Internal surveys will generally receive a 30-40% response rate or more on average, compared to an average 10-15% response rate for external surveys. Response rates can increase when respondents are repeatedly goaded to participate. (Survey Gizm, 2010)

The Wylde Center eco-literacy survey was administered with the help of its staff, whom notified members and encouraged them to respond before and after the survey was sent out. Still the response rate was at the low end of what is typical for external surveys. How much of a problem is this low response rate? Recent research suggests that increasing response rates may not be as critical as conventional wisdom suggests. A study by Curtin et al. (2000) tested the effect of lower response rates on estimates of the Index of Consumer Sentiment. They assessed the impact of including respondents who required more than two calls to complete the ICS survey as well as respondents who required more than five calls. While goading respondents does increase response rates Curtin et al found little statistical difference between initial respondents and those who required either 2 calls or 5 calls. In another study Holbrook et al. (2007) assessed whether lower response rates are associated with less unweighted demographic representativeness of a sample. By examining the results of 81 national surveys with response rates varying from 5 percent to 54 percent, they found that surveys with much lower response rates decreased demographic representativeness but not by much.

The view of this inquiry is that response rate matters as much as accuracy is relevant to the research. Since the 260 members of the Wylde Center who responded are being used as a proxy of eco-literacy values for urban agriculturalists in Atlanta, additional accuracy in their response rates does not add much value to the survey. Moreover, this survey's main goals are to test McBride and Nicholas and the theoretical literature's construction of the concept of eco-literacy and then to map out its distribution in Atlanta. For that test the survey worked well. If the Wylde Center survey were to be used to compare its level of eco-literacy to another groups eco-literacy level, more inferential statistical procedures such as comparisons between means and t-tests between groups, however, then survey accuracy becomes a greater concern. That kind of sociological question, was not the goal of this inquiry, therefore higher response rates were not deemed necessary.

### Categorical Questions

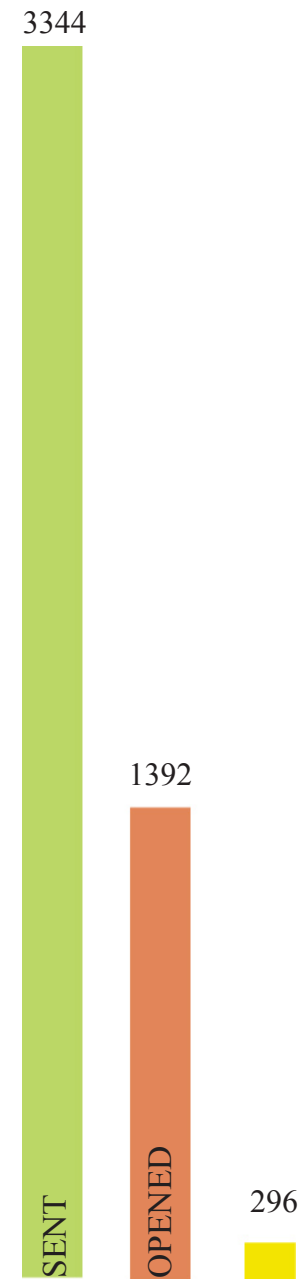
Although response rate is perhaps not a significant issue with this initial Wylde Center survey the categorical data did reveal some demographic biases in the data. The sample was overwhelmingly female, middle aged, with an average age of 47, and well educated, with 95% attaining higher education. Moreover, the respondents already had a strong eco-literacy education with nearly 60% indicating some higher level science education and 40% having studied at least some ecology.

Since most of the survey was not interval level data it's hard to say how much difference these characteristics made. Three questions were numerical allowing more inferential statistics to be applied, these variables include, years involved with the Wylde Center, years growing food and years involved with an environmental organization. An ANOVA test was used to compare years involved with the Wylde Center to years growing food



RESPONSE RATE

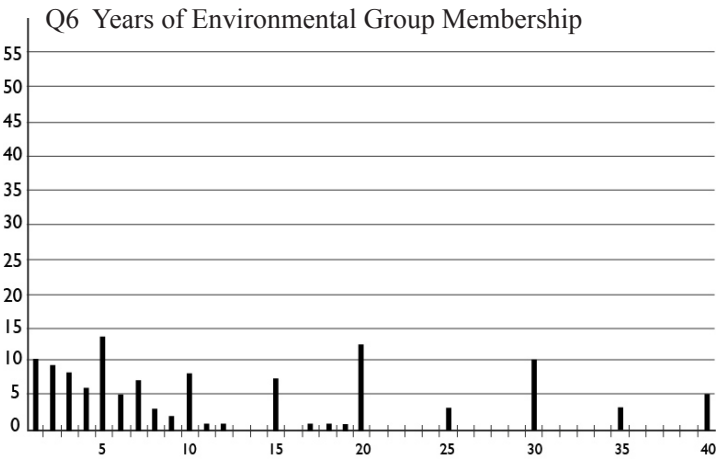
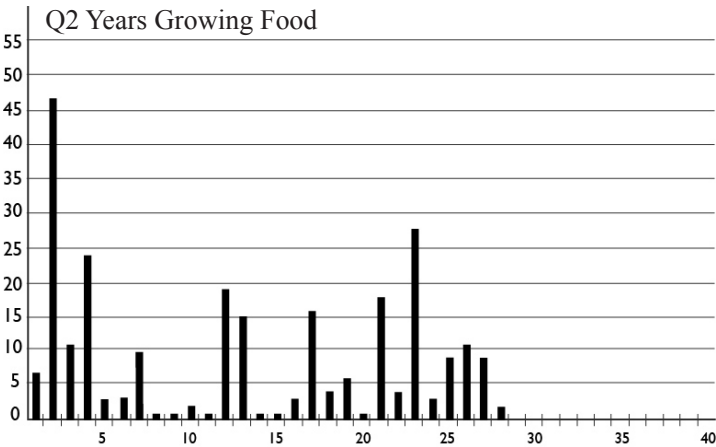
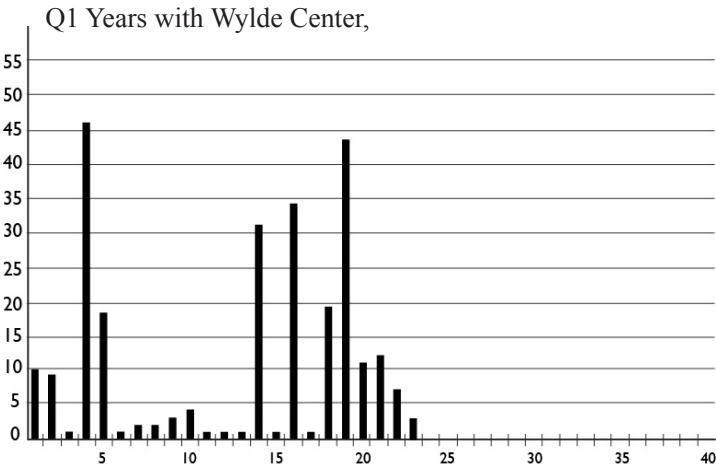
Figure F



9 % OF POPULATION  
21% OF OPENED EMAILS

FREQUENCIES

Figure G



## Q9 GENDER

|   | ANSWER |   | RESPONSE | %   |
|---|--------|---|----------|-----|
| 1 | MALE   |  | 57       | .23 |
| 2 | FEMALE |   | 191      | .77 |

| STATISTICS       |      |
|------------------|------|
| MIN. VALUE       | 1    |
| MAX. VALUE       | 2    |
| MEAN             | 1.77 |
| VARIANCE         | 0.18 |
| STAND. DEVIATION | 0.42 |
| TOTAL RESPONSES  | 248  |

## Q3 OAKHURST COMMUNITY MEMBER

|   | ANSWER |   | RESPONSE | %   |
|---|--------|---|----------|-----|
| 1 | YES    |  | 56       | .22 |
| 2 | NO     |   | 199      | .78 |

| STATISTICS       |      |
|------------------|------|
| MIN. VALUE       | 1    |
| MAX. VALUE       | 2    |
| MEAN             | 1.78 |
| VARIANCE         | 0.17 |
| STAND. DEVIATION | 0.41 |
| TOTAL RESPONSES  | 255  |

## Q8 EDUCATIONAL ATTAINMENT

|   | ANSWER            |   | RESPONSE | %   |
|---|-------------------|---|----------|-----|
| 2 | SECONDARY         |  | 11       | .04 |
| 3 | POST<br>SECONDARY |  | 239      | .95 |

| STATISTICS       |      |
|------------------|------|
| MIN. VALUE       | 1    |
| MAX. VALUE       | 3    |
| MEAN             | 2.94 |
| VARIANCE         | 0.07 |
| STAND. DEVIATION | 0.27 |
| TOTAL RESPONSES  | 252  |

## Q5 ENVIRONMENTAL GROUP MEMBERSHIP

|  | ANSWER |   | RESPONSE | %   |
|--|--------|---|----------|-----|
|  | YES    |  | 125      | .49 |
|  | NO     |  | 129      | .51 |

| STATISTICS       |      |
|------------------|------|
| MIN. VALUE       | 1    |
| MAX. VALUE       | 2    |
| MEAN             | 1.51 |
| VARIANCE         | 0.25 |
| STAND. DEVIATION | 0.50 |
| TOTAL RESPONSES  | 254  |

Q10 Age Frequencies

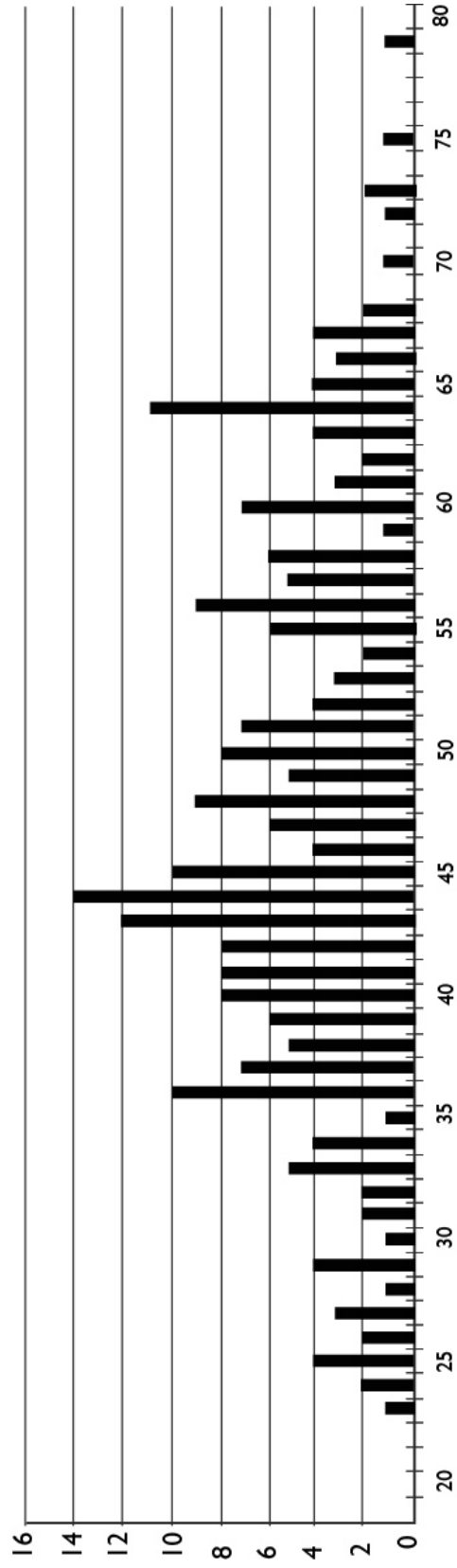


Figure H: Q1 Years with Wylde Center ANOVA

|  |                | Sum of Squares | df  | Mean Square | F     | Significance |
|--|----------------|----------------|-----|-------------|-------|--------------|
| Q2<br>years growing<br>food at home                | Between Groups | 3774.895       | 21  | 179.757     | 1.823 | .018         |
|  | Within Groups  | 22482.549      | 228 | 98.608      |       |              |
|  | Total          | 26257.444      | 249 |             |       |              |
| Q6<br>years in an<br>environmental<br>organization | Between Groups | 3558.420       | 17  | 209.319     | 1.917 | .025         |
|  | Within Groups  | 10481.835      | 96  | 109.186     |       |              |
|  | Total          | 14040.254      | 113 |             |       |              |
| Q10<br>age   | Between Groups | 5859.373       | 21  | 279.018     | 2.204 | .003         |
|  | Within Groups  | 27601.960      | 218 | 126.614     |       |              |
|  | Total          | 33461.333      | 239 |             |       |              |

or involvement with an environmental organization. ANOVA provides a statistical test of whether or not the means of several groups are all equal, generalizing t-test to more than two groups. Figure H is the ANOVA results for these categories showing significant differences between the means.

### Eco-literacy Levels

The main goal of the survey was to test the eco-literacy constructs of the literature and then to see how they are distributed in Atlanta. This can be assessed regardless of causal relationships, ie whether or not the Wylde Center population's previous food growing or previous ecological education is creating the eco-literacy in the respondents.

McBride's survey of 1000 individuals focused on ecological scientists whereas this sample focused on urban agriculturalists in Atlanta, which also tended to be well, educated middle aged women living who have landed on the Wylde Center's roster. Despite its unique characteristics the population of this survey also shared the key constructs of eco-literacy found in the research literature. This sample tended to agree with McBride's sample of 1000 ecological scientists.

The following data describes the eco literacy responses of this sample. The strongest response was an agreement with the idea that humans are fundamentally connected to the natural world with 95% agreeing and 67% agreeing strongly. Closely following this construct was the idea that observation and experimentation, the kind of applied or active education the Wylde Center is known for via its food production programs, is fundamental to understanding the natural world, also with 95% agreeing but 52% agreeing strongly. With all other questions but one there was a two thirds agreement or more, suggesting that these constructs as developed by McBride and other theorist are shared by the Wylde Center sample. The one idea not shared by this sample, however,

was the question about limits. According to the 1000 scientists of McBride's study the idea of limits was fundamental to an understanding of eco-system services. McBride summed up this understanding as "The recognition that resources are consumable given the constraints on energy and flow that resources are finite, the rate at which they become consumable is limiting and humans are connected to these limited systems." (McBride, 2011)

Interestingly, the idea that humans are connected to these systems elicited the strongest response from the survey, however; the idea that these systems have limits elicited the weakest response with only a third in agreement and only nine percent agreeing strongly. This was a full third below all other responses. Perhaps the question was worded incorrectly. McBride kept these constructs together where as this survey split them into two questions. Another interpretation is that this response indicates a disagreement with McBride's sample of ecological scientists. Whatever the case it does suggest an avenue for further eco-literacy research, raising questions about why the idea of limits being unsurmountable is a view held by scientists but not necessarily the public, even a highly eco-literate group such as this Wylde Center population.

It is very difficult to attribute any level of eco-literacy of Wylde Center members to their involvement with the center. As the categorical questions revealed many Wylde Center members had been involved with environmental organizations, growing food on their own or had had formal ecological education well before they became involved with the Wylde Center. To address this issue however the last two eco-literacy questions also allowed the respondents to directly indicate whether they believe the Wylde Center has increased there eco-literacy, at least in terms of bio-philía and knowledge of their local environment. According to the sample, the Wylde Center has added to their bio-philía, with 83% agreement, and knowledge of their local environment, with 77% agreement.



| FIGURE I: ECO-LITERACY QUESTIONS |  |       |                |       |
|----------------------------------|--|-------|----------------|-------|
|                                  |  | AGREE | STRONGLY AGREE | TOTAL |
| Q16                              | Studying things in isolation from their connections and interactions severely limits understandings  | 44%   | 39%            | 83%   |
| Q17                              | Humans are fundamentally connected to natural systems  | 28%   | 67%            | 95%   |
| Q18                              | Natural systems have insurmountable limits   | 25%   | 09%            | 34%   |
| Q19                              | Species differ in their abilities to acquire, store, allocate, and compete for essential elements  | 60%   | 28%            | 88%   |
| Q20                              | The human species is altering elemental ratios in the environment at an incredible rate and on a global scale                                | 42%   | 50%            | 92%   |
| Q21                              | Observation and experiment are fundamental skills for working with the natural world   | 43%   | 52%            | 95%   |
| Q22                              | When working with the natural world one must often make their best, most educated guess for how to proceed                                   | 63%   | 10%            | 73%   |
| Q23                              | The Wylde Center is connected to a web of natural patterns and processes greater and smaller than it   | 55%   | 28%            | 83%   |
| Q24                              | 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 | 48%   | 16%            | 64%   |
| Q25                              | The Wylde Center has increased my appreciation for the natural world   | 56%   | 27%            | 83%   |
| Q26                              | The Wylde Center has increased my knowledge of my local environment  | 56%   | 21%            | 77%   |

## Eco-literacy Differences Between Groups

For the most part, there tended to be agreement among the Wylde Center Survey takers regardless of their different demographic characteristics. There was no significant difference for example between Oakhurst residents, the Wylde Center's location, or non-Oakhurst residents. There was no significant difference between different ages either. There were, however, a few statistically significant differences between males and females as well as environmentalists and non-identifying environmentalists.

The Chi square between males and females was significantly different in three questions, the Leopold land ethic question, the probabilistic thinking question as well as the statement that humans are fundamentally tied to the natural world.

The Chi square between participants in environmental groups and non-environmental group participants was also significantly different with the Leopold land ethic question as well as both of the questions mentioning species, that species differ in their abilities to allocate and compete for resources and that the human species is significantly altering these elemental ratios.

While this inquiry has no hypothesis for the possible gender differences, it does seem reasonable that environmentalists would have a stronger land ethic as well as stronger views or value for other species and human interactions with those species. These differences are also an option for a further study.

## Figure J: Chi Square

Between Genders

|                    |                    | WHAT IS YOUR GENDER? |
|--------------------|--------------------|----------------------|
| LEOPOLD LAND ETHIC | CHI SQUARE         | 12.28                |
|                    | DEGREES OF FREEDOM | 4                    |
|                    | P VALUE            | 0.02                 |

|                                 |                    | WHAT IS YOUR GENDER? |
|---------------------------------|--------------------|----------------------|
| PROBABILISTIC THINKING QUESTION | CHI SQUARE         | 11.93                |
|                                 | DEGREES OF FREEDOM | 4                    |
|                                 | P VALUE            | 0.02                 |

|   |                    | WHAT IS YOUR GENDER? |
|---|--------------------|----------------------|
| HUMANS ARE FUNDAMENTALLY CONNECTED TO NATURAL SYSTEMS | CHI SQUARE         | 22.25                |
|   | DEGREES OF FREEDOM | 4                    |
|   | P VALUE            | 0.00                 |

Figure J: Chi Square  
Between Environmental Group Participants

|                    |                    | ARE YOU AN ENVIRONMENTAL GROUP MEMBER? |
|--------------------|--------------------|--|
| LEOPOLD LAND ETHIC | CHI SQUARE         | 15.14                                  |
|                    | DEGREES OF FREEDOM | 4                                      |
|                    | P VALUE            | 0.00                                   |

|   |                    | ARE YOU AN ENVIRONMENTAL GROUP MEMBER? |
|---|--------------------|--|
| SPECIES DIFFER IN THEIR ABILITIES TO ALLOCATE AND COMPETE FOR RESOURCES | CHI SQUARE         | 15.01                                  |
|   | DEGREES OF FREEDOM | 4                                      |
|   | P VALUE            | 0.00                                   |

|   |                    | ARE YOU AN ENVIRONMENTAL GROUP MEMBER? |
|---|--------------------|--|
| THE HUMAN SPECIES IS ALTERING ELEMENTAL RATIOS IN THE ENVIRONMENT | CHI SQUARE         | 9.03                                   |
|   | DEGREES OF FREEDOM | 4                                      |
|   | P VALUE            | 0.05                                   |

## Eco-literacy Transmission

In addition to the eco-literacy of the respondents and whether they attributed the Wylde Center to increasing that literacy the survey also sought to determine if they spread that knowledge to others. This was a value of food growing participation expressed both by the literature and the interviews from essay one and two. The survey asked how often members spoke to non-members about the Center as well as how often non-members asked them about it. Additionally, the survey asked if respondents actually implemented the food growing and other activities they acquired at the Wylde Center at their homes.

Unsurprisingly, conversations were not often, with 50% claiming they had spoken to some one less than once a month. However, 90% noted that they had spoken to others about their Wylde Center experiences. Additionally, 60% of the respondents claimed people had asked them about the Wylde Center. Although it is not known, one can imagine that such conversations were initiated by non-members after seeing Wylde Center members applying what they had learned. Lastly, 77% indicated that they had applied what they learned from the center at their homes. When asked to list some of these items, responses represented almost every type of ecological food growing activity one could imagine from composting to seed saving to the cultivation of edibles. More than one respondent had also noted starting a community garden with their neighbors based on what they learned at the Wylde Center, which is another indication of the food system evolution described in essay one. It is reasonable to assume that many of these food growing activities whether with neighbors or in private gardens are visible to more than just the Wylde Center members and thus even if conversations are not frequent the meme of cities and neighborhoods as food growing locations is being reinforced by the presence and spread of these activities across the metro area.

## Figure K: Transmission

### Q12 CONVERSATIONS ABOUT THE WYLDE CENTER

|   | ANSWER              |  | RESPONSE | %    |
|---|---------------------|--|----------|------|
| 1 | NEVER               |  | 22       | .09  |
| 2 | LESS THAN 1 A MONTH |  | 124      | .50  |
| 3 | 1 A MONTH           |  | 61       | .24  |
| 4 | 2-3 TIMES A MONTH   |  | 28       | .11  |
| 5 | 1 A WEEK            |  | 8        | .03  |
| 6 | 2-3 TIMES A WEEK    |  | 2        | .01  |
| 7 | DAILY               |  | 4        | .02  |
|   | TOTAL               |  | 249      | 1.00 |

| STATISTICS       |       |
|------------------|-------|
| MIN. VALUE       | 1     |
| MAX. VALUE       | 7     |
| MEAN             | 2.59  |
| VARIANCE         | 1.186 |
| STAND. DEVIATION | 1.12  |
| TOTAL RESPONSES  | 249   |

### Q13 TIMES ASKED ABOUT THE WYLDE CENTER

|   | ANSWER              |  | RESPONSE | %    |
|---|---------------------|--|----------|------|
| 1 | NEVER               |  | 92       | .37  |
| 2 | LESS THAN 1 A MONTH |  | 129      | .52  |
| 3 | 1 A MONTH           |  | 17       | .07  |
| 4 | 2-3 TIMES A MONTH   |  | 10       | .04  |
| 5 | 1 A WEEK            |  | 0        | .00  |
| 6 | 2-3 TIMES A WEEK    |  | 0        | .00  |
| 7 | DAILY               |  | 1        | .00  |
|   | TOTAL               |  | 249      | 1.00 |

| STATISTICS       |      |
|------------------|------|
| MIN. VALUE       | 1    |
| MAX. VALUE       | 7    |
| MEAN             | 1.80 |
| VARIANCE         | 0.66 |
| STAND. DEVIATION | 0.81 |

## Eco-Literacy Distribution

In order to show the distribution of Wylde Center member's eco-literacy, a kernel density function in GIS or "heat map" was used. The kernel density function is explained in the methods chapter. While the survey responses represent only 10% of the Wylde Center's rosters, the Kernel density map is a geo-coded sample of roughly 1000 representing every third Wylde Center member, and provides a good representation of their distribution across the Atlanta metro area.

This inquiry makes the assumption that the intensity of the maps depicts areas where eco-literacy is strong. Unsurprisingly the map depicts a concentration of Wylde Center members just north of the Oakhurst Eco-center site. One can reasonably assume that this concentration of members depicts the following:

1. A section of the city where eco-literacy is high
2. A section of the city rich with a great deal of ecological food growing activity
3. And a section of the city where transmission of these ecological food growing ideas is also strong, both through casual conversations and through the visibility of food growing activities, transmission mechanisms indicated by both the interviews of essay 1 and 2 and survey questions 12 through 15 of this essay.

**Figures M and N** depict the concentration of Wylde Center members at different map scales. **Figure O** then depicts that data as a kernel density function Using a kernel density function with other data sets reveals a fuller distribution of urban agriculturalists in Atlanta. **Figure P** depicts the density of urban farms in Atlanta based on a kernel density function of the ALFI urban farm data set. Refereing to the Wylde Center survey response results as a proxy one can also make the same three assumptions about the eco-literacy of concentrations of Atlanta's urban agriculturalists in Figure P.



The concentrations of urban farms in Figure P also reveals the concentration of urban agriculturalists located in and around the Wylde Center in Decatur. What is the relationship of this concentration of farmers to the Wylde Center data set? Do they have the same eco-literacy as the Wylde Center's members? What are the policy implications of this concentration of eco-literate urban agriculturalists on the East Side of Atlanta?

Many questions are raised by the kernel density maps and their eco-literacy implications. These questions are beyond the scope of this inquiry but suggest avenues for further research.

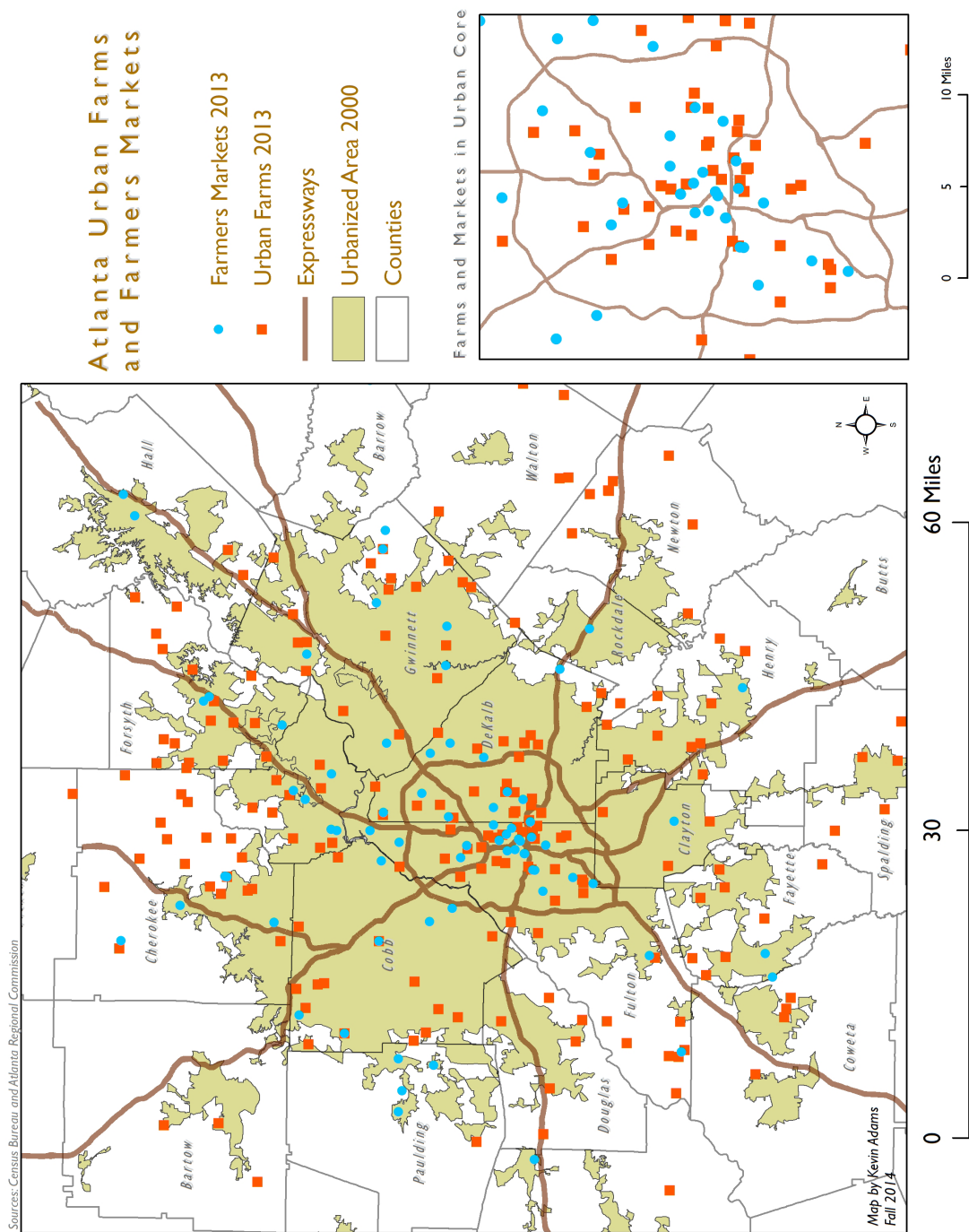


Figure M: Wylde Center Dataset Distribution  
Metro Atlanta, 1 : 40000

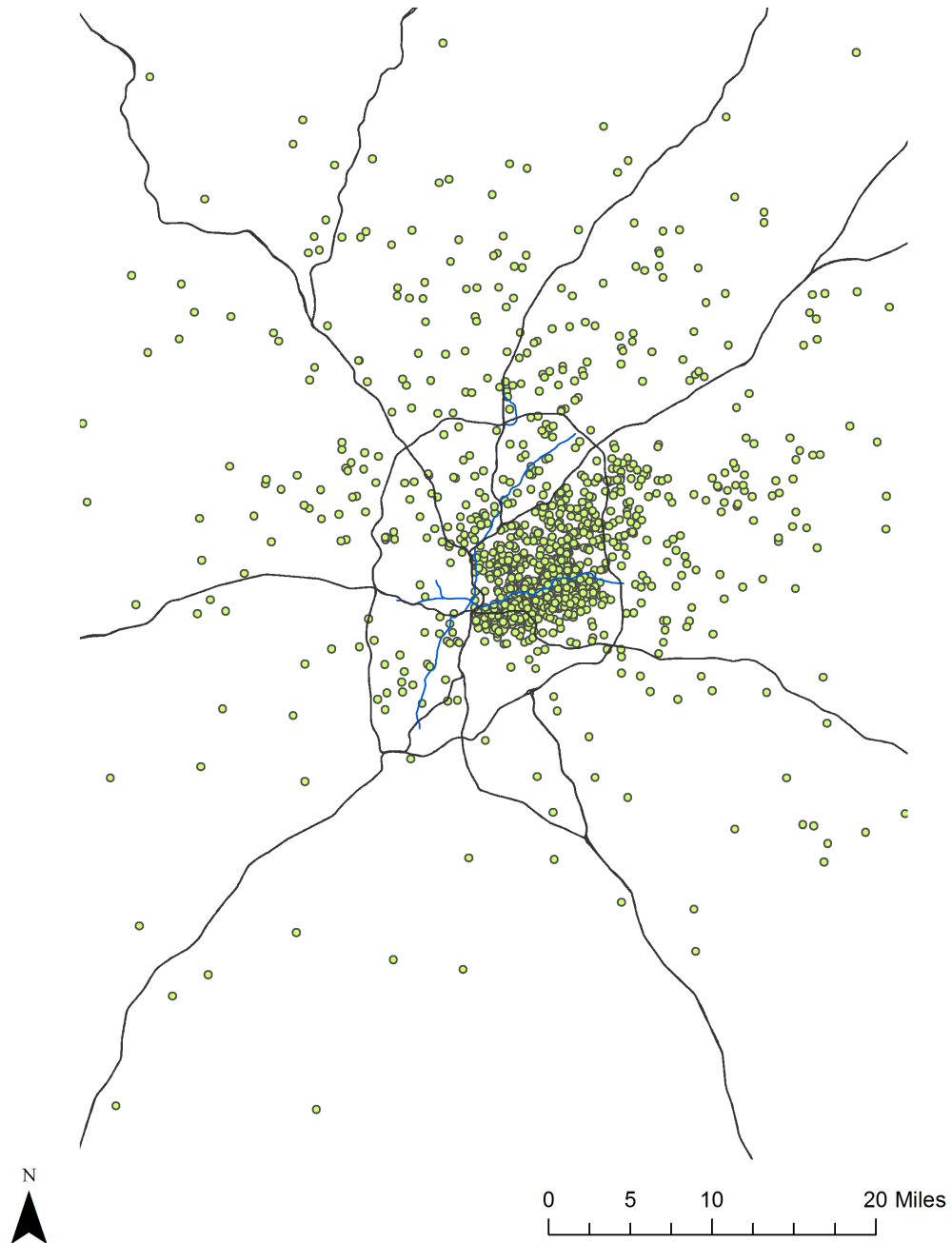


Figure N: Wylde Center Dataset Distribution  
Urban Core, 1 : 15,000

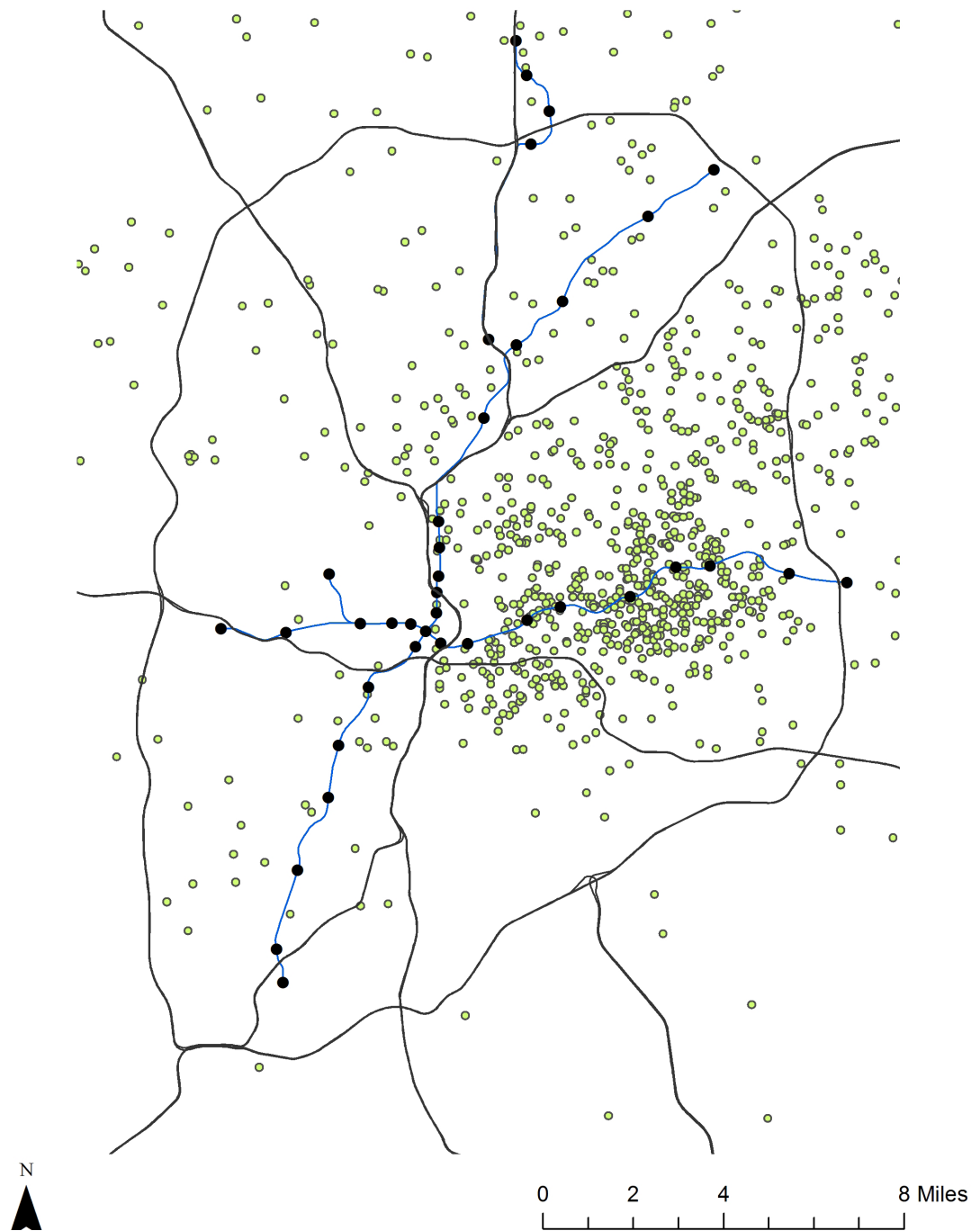


Figure O: Wylde Center Eco-literacy Density  
(Kernel Density Function)

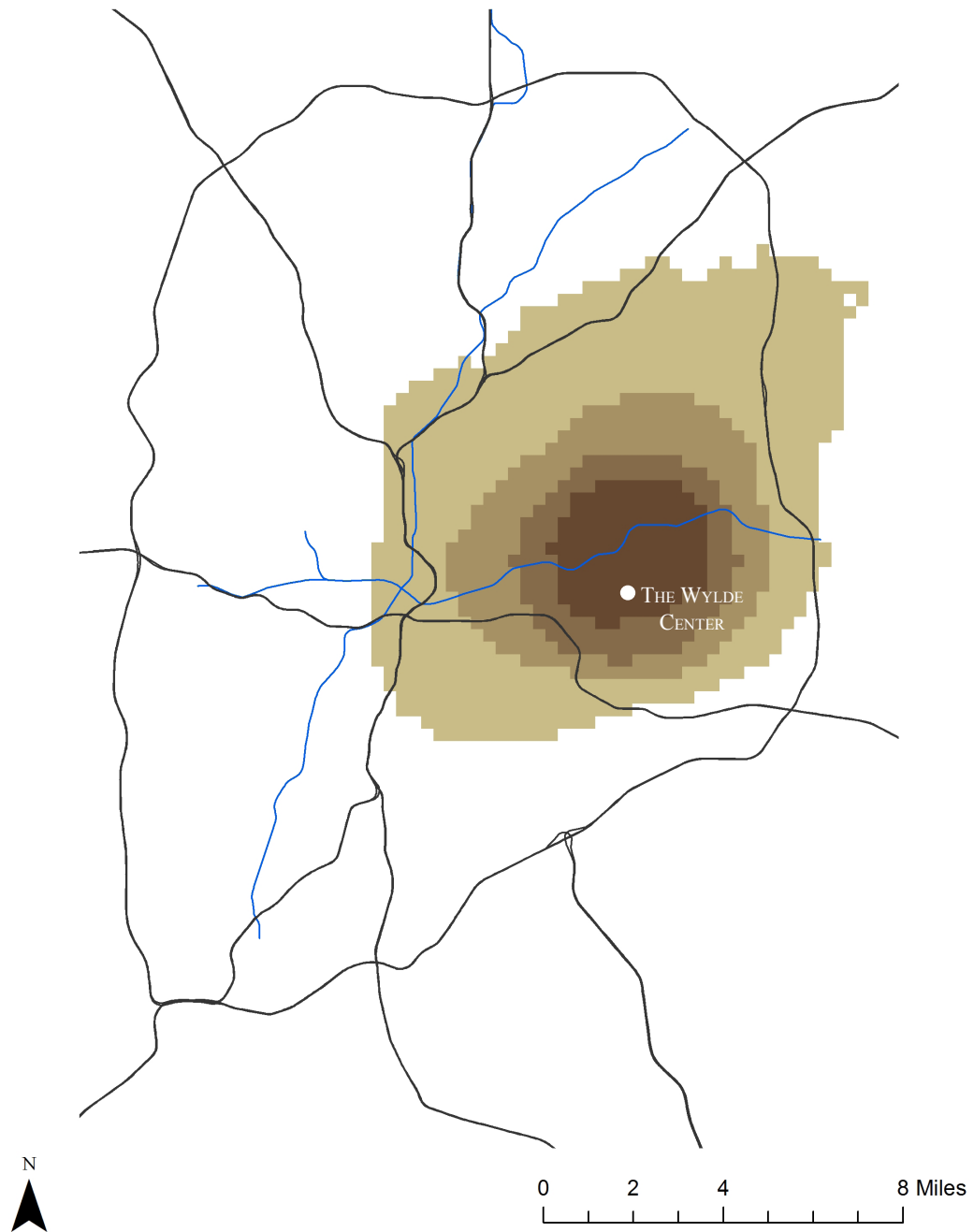


Figure P: Atlanta's Core Urban Farm Density  
as Eco-literacy Proxy (Kernel Density Function)

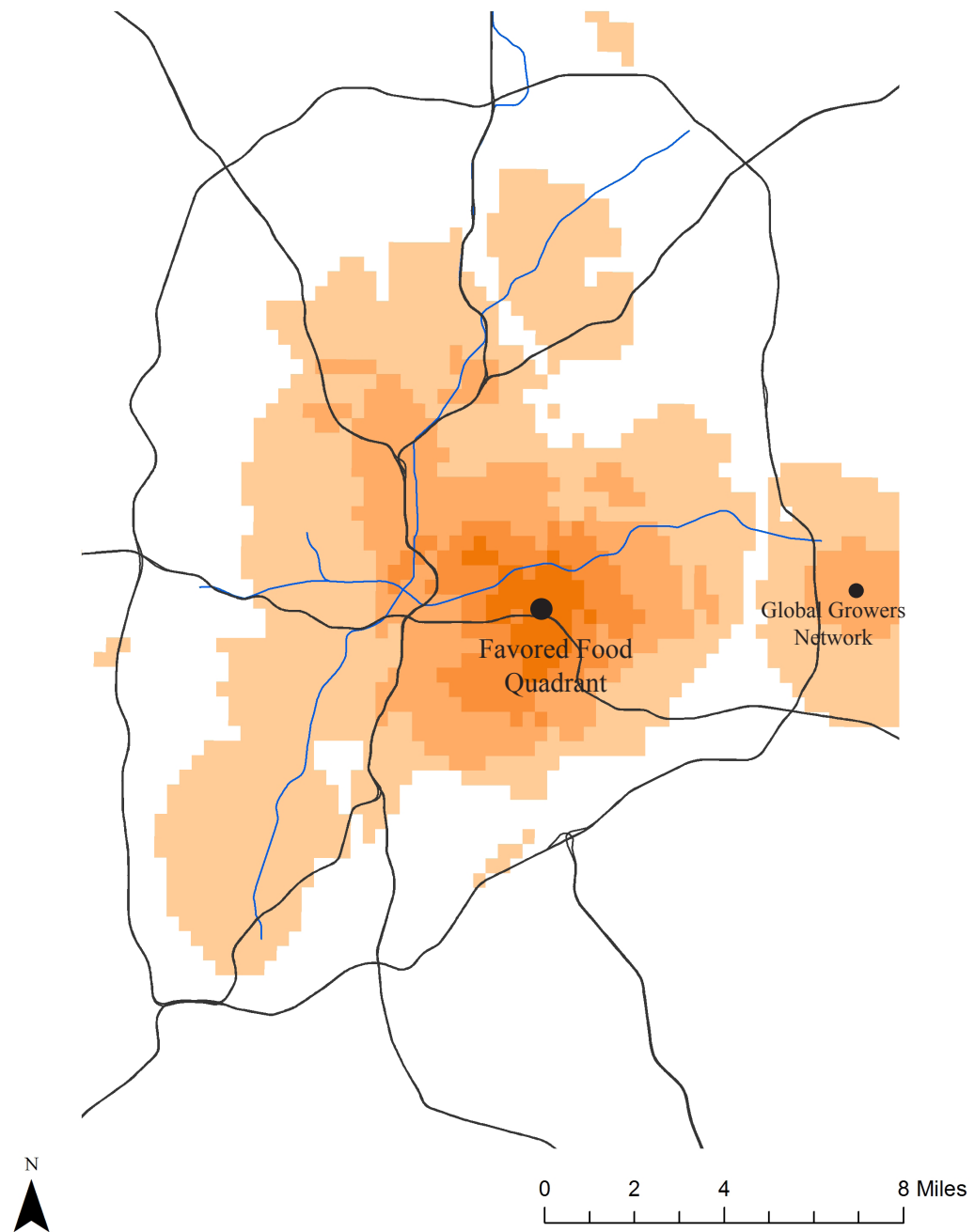
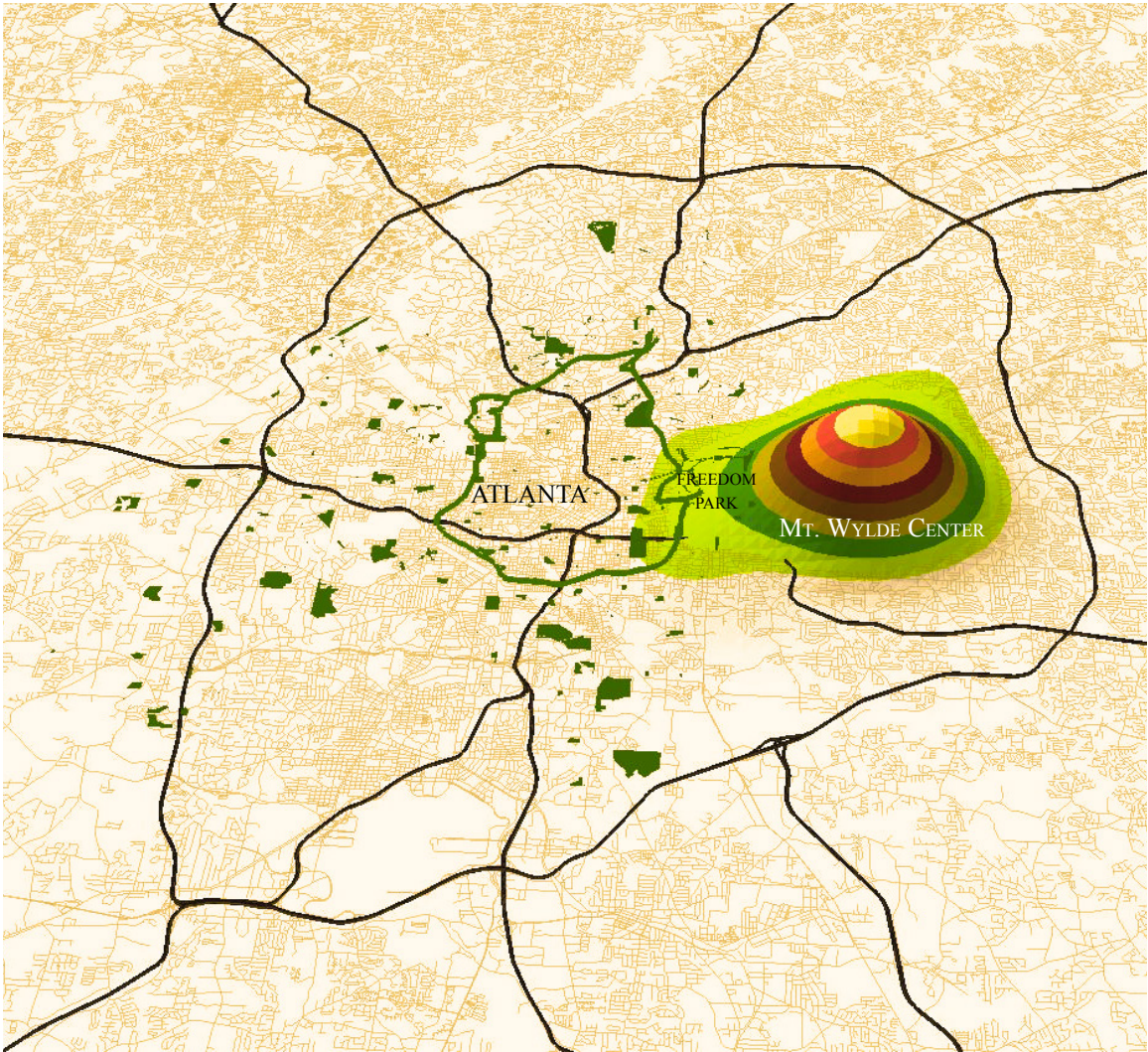






Figure Q: Eco-Literacy Visualization  
Wylde Center Dataset



Imagine if all Atlanta parks had a food park aspect.  
Eco-literacy and Socio-ecological capital creation  
could become more widely distributed in the metro.

-  Atlanta Parks
-  Wylde Center Dataset



### 3. Next Steps

The Wylde Center population is very homogeneous across gender, race, and class. Further research should consider comparing eco-literacy across these sociological differences. Many of the other sites in Atlanta, for example Truly Living Well's Wheat Street site which is functioning as a food park for the city and as an eco-center for the Sweet Auburn District, have very different demographic foot prints. TLW membership is most certainly, more African American, lower income, less formally educated, and male than the Wylde Center's membership. It is almost a complete inverse of the demographic characteristics of the Wylde Center population. Would it have a different level of eco-literacy? ‘

In the qualitative interviews of Essays 1 and 2 some of the most theoretically grounded and ecologically oriented urban agriculturalist were individuals such as Rashid Nuri, Kwabena Nkromo, Khari Diop or Chris Edwards. It would be an interesting sociological study to compare the eco-literacy levels between the organizations these African-American men head and the white female sample of the Wylde Center. It is quite possible that this group may have higher levels or a different perspective on eco-literacy, which could dispel stereotypes about eco-literacy as a white, female and bourgeoisie concept. Indeed, a more robust quantitative survey for eco-literacy would survey not just the Wylde Center and TWL but many different groups including a control of individuals not involved in urban agriculture. Such a study could derive a distribution of means, making inferences about all urban agriculturalists whatever their demographic characteristics in Atlanta.

Another option for further survey research is to compare differences between people involved with an eco-center and food park such as the Wylde Center or TLW's Wheat Street site and communities without such a food scheme in their locality. In this survey

there was no significant difference between the Oakhurst respondents and non-Oakhurst residents. Since the Wylde Center is located in Oakhurst and affords those residents more opportunity to interact with the site and

thus increase their eco-literacy it was expected that there could be a significant difference between the Oakhurst residents and non-Oakhurst residents, but this was not the case. A better test of the value of an eco-center such as the Wylde Center's Oakhurst site is perhaps to test its impact on people not intimately involved with it but who more casually interact with it like a park and then to compare those responses to areas with parks which do not have a food growing component. Such a test would also be a strong candidate for further research.

Yet another option for research is not to compare sociological groups or eco-center users to similar non-eco-center uses but to make comparisons between the types of urban agriculture uncovered in essay two of this dissertation. It is the view of this inquiry that the Wylde Center and TLW operate as food parks and eco-centers. It would be interesting to compare the eco-literacy of these types of food production facilities to other types of urban agriculture such as private gardens, community gardens, and urban farms.

Unfortunately, since this survey only had access to the Wylde Center's membership, these kinds of more robust inferential comparisons between groups were not possible here. Moreover, more robust quantitative work of this nature is probably best left to social science experts and statisticians.

Planners and designers can use this kind of data but we really should not be generating it, but more on that in the concluding piece of this dissertation. For the time being, the descriptive data sets of this inquiry's survey of the Wylde Center population will have

to be sufficient. At the very least this survey brings to the literature another test of the constructs of eco-literacy only recently developed by theorists such as Berkowitz et al. and tested by researchers such as Nichols and McBride. Before testing differences between groups it is necessary to ensure it makes sense, and this inquiry adds that value to the eco-literacy literature, showing that eco-literacy is not just the purview of scientists (Mcbride, 2011) but is also held by individuals growing food in cities.

# Concluding Essay

Planning Theory, Research Reflections, and Knowledge to Action



## CONCLUDING ESSAY

### Planning Theory, Research Reflections, and Knowledge to Action

This dissertation sits primarily within the disciplines of urban and landscape design.

Whereas planning is considered by some as a technical and political process preoccupied with the use of land and the provision of services and facilities, urban design focuses more on the layout of these things, how they manifest in physical space. Design is a broad term. There are lots of types of design but whether one designs objects or complex systems such as cities, they all share considerations of aesthetics, function, and as well as many socio-economic and political dimensions. Increasingly all types of design are emphasizing ecological dimensions as well, such as sustainability (Campbell, 1996; Wheeler, 2006; Dresner, 2009) resilience (Lyle, 1996; Beatley and Boyer, 2009; Wilkinson, 2012) or anti-fragility. (Taleb, 2012; Marohn, 2015)

While this inquiry is more focused on urban design, it also sits in a joint program of urban planning and design. Increasingly planners are folding design back into their discipline. After being scalded by the consequences of the design hubris and mistakes of the modern era, such as running highways through the hearts of cities and obliterating neighborhoods in pursuit of their ‘renewal,’ (Hall, 2002) professional planners hid in the technical and political facets of their profession, (Dobbins, 2009) but design has always been an important anchor of planning spanning the ages (Bacon, 1974) and in recent years it has returned to the planning profession. Thus this final essay discusses planning theory; how this dissertation relates to it; as well as reflects on the experience of producing a design inquiry within a planning school at a large research university. It ends with a discussion of the planning theory of knowledge to action (Friedmann, 1987) and describes the actions that have been initiated by findings from the three essays of this urban design but also urban planning dissertation.

## Urban Planning Epistemology: Science or Design?

While the creation of cities historically was often considered to be a design concern, (Zucker, 1959; Spreiregen, 1965; Bacon, 1974; Galantay, 1975) the modern idea of city planning, hatched in the early 20th century is most commonly perceived as a professionally led technical process rather than one of place based design. Typically 20th century planning has concerned itself with what it thinks are solely analytical problems such as transportation networks, environmental assessments, or land use designations. While such technical endeavors are often the meat of planning practice, these technically oriented planners have had to concede that their very rational and technical approaches to cities sit in a political context, and in the decades of the late 20th century much of planning theory has also dealt with decision theory, hoping to guide technical planners with methods for operating with in differing political paradigms and conceptions of power. (Friedmann, 1987; Flyvbjerg, 2001; Hall, 2002) Despite the advancement of planning theory well beyond rationality, however, the rational, technical, and scientific core of the 20th century planning discipline in practice, even when it folds the community better into its process, has never really been questioned. It is simply tweaked by process, creating a huge chasm between planning in theory and planning in practice.

Meanwhile planning as a non-design discipline has also begun to be challenged by ‘place makers’ whom are stepping into the gap created between planning theory and practice with a conception of city planning, or city building and place making, as more of a qualitative craft—rather than a purely analytic or rational task—that combines technical and non-technical qualities of a place. Active place makers have at their side place theories from Edward Relph’s distinction between place and placelessness to Ray Goldenburg’s description of “great good places” or “third places.” (Relph, 1976; Oldenburg, 1989; Hough, 1990)



In the design disciplines place making has manifested via movements such as the New Urbanism who uses architectural forms and dimensions to build places (Duany, 2001; Tachieva, 2010; Dunham-Jones and Williamson, 2011) or the Landscape Urbanism which derives place first from landscape form and ecological functions (Corner, 1999; Waldheim, 2006) While these two movements were spearheaded by architects and landscape architects, who never lost their art, now even the civil engineering world seems to want their art of place making credentials back with the emergence of the Shared Space Movement, (Hamilton Baillie, 2014) the Complete Streets Movement (Laplante and McCann, 2008) and the Strong Towns Movements. (Marohn, 2012) All of these engineering movements emanate from the world of transportation planning and traffic engineering and are refocusing on streets as places rather than simply conduits.

Although these movements can sometimes become formulaic, and they sometimes still exclude community, they at least acknowledge that there is a contextual and qualitative component or “art” of planning and city making as well as a science to it. Strongly held belief systems seldom are challenged without a fight, however, and there has been push back to including ‘arts’ in planning let alone relegating it below ‘science.’ At the same time that these movements have all emerged, some players are even more emphatically searching for the holy grail of rational planning, a science of cities. (Batty, 2012; Mehaffy, 2014)

Planners such as Michael Mehaffy who writes for the urban planning information exchange Planetizen, for example, asserts that planning is still primarily a science pursuit. In Mehaffy’s view it is just the type of science that has been problematic. Reducing wholes to parts has been the fundamental orientation of the scientific world view inherited from Galileo, Bacon, Descartes, and Newton and the many social science



followers, especially in the field of classical and neo-classical economics. (Orr, 2014)

For short let's call these western scientific world views Newtonian. Rather than more Newtonian influenced science pursuits Mehaffy and planners like him have become re-awakened to systems science. They argue for reforming the planning profession with a more rigorous adaption of systems science. They hope to keep planning as a scientific pursuit, but move it from a rationalistic "wholes to parts" perspective to an ecological, systems science perspective that sees how these parts are interconnected and organized to achieve some outcome.

"The idea that nothing exists in isolation—but only as part of a system—has long been embedded in folklore, religious scriptures, and common sense." Explains, systems science and environmental expert David Orr, thus it's not just parts or elements, but elements, interconnections and function or "purposes." (Orr, 2014)

Moreover, Orr believes that a systems world view would aid in governance. "Despite a great deal of talk about systems, we continue to administer, organize, analyze, manage, and govern complex ecological systems as if they were a collection of isolated parts and not an indissoluble union of energy, water, soils, land, forests, biota, and air." Explains Orr, "A systems perspective to urban governance is a lens by which we might see more clearly through the fog of change, and potentially better manage the complex cause and effect relationships between social and ecological phenomena." (Orr, 2014)

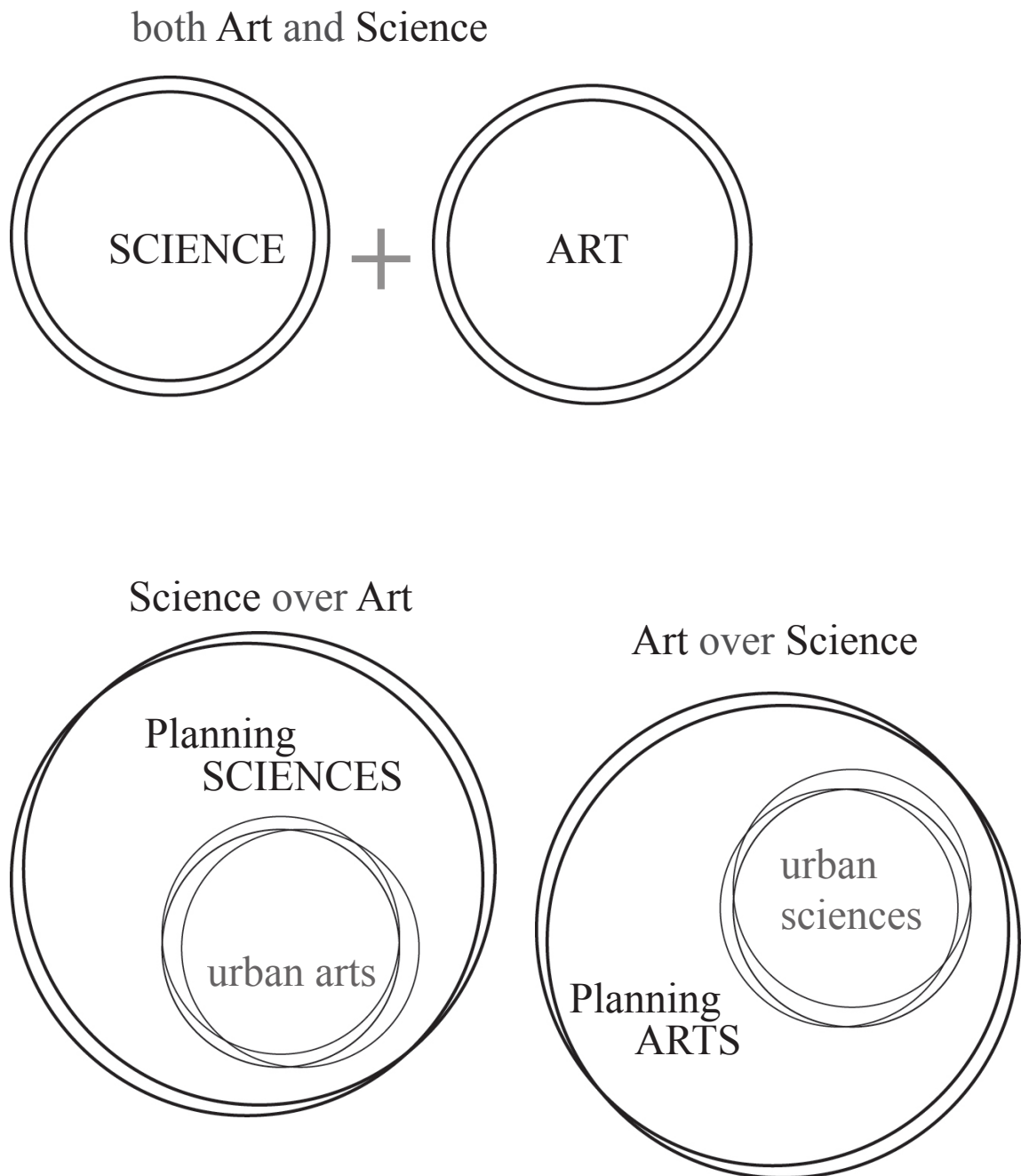
I applaud the many place making movements from the New Urbanism to the Shared Space advocates. These efforts are all important steps to restoring the art of planning and retrieving place making and urban design from its near 20th century extinction. As a landscape designer as well as an urban designer, I also applaud the efforts of David Orr and others to bring ecological frameworks more to the fore of city building.

**Figure A** displays the differing perspectives towards art and science in the discipline of planning. Art and science can be equal or dominated by one way of knowing or another. In my view the bottom right side of Figure A, however, where science informs the art of place making is preferable to either an equal shares approach, the top of the diagram, or the current state of the profession, where more scientific epistemology dominates, the bottom left side of the diagram.

Moreover, the calls for simply replacing older scientific paradigms with a reformed science of cities based on systems science is also troubling. This is not a tirade against science. Science as a method of inquiry is one of the great achievements of the western civilization. Many disciplines from urban economics to urban systems science have scientific insights into cities. While systems science frameworks are useful, a step in a positive direction, they are not quite a replacement of a “wholes to parts” world view with a “parts to wholes” place making orientation, which tries to use science for desired outcomes, for values such as sustainability, resilience or equity for example.

City making should not strive to be a science but rather fold these insights into the art of normative place design. The art of city making rather than the science of it is arguably a much better method for obtaining goals and values. Normative concerns have always been the role of the “arts” rather than the “sciences.” Scientific findings, even based on the system science of the connections of elements, relationships, and functions of purposes by which this inquiry has been heavily influenced are not normative; they too are only inputs into the normative design process, the art of city place making. This is a fundamentally different paradigm than rational planners or even current system scientists such as Mehaffy and Orr and their current holy grail of the science of cities. Instead of doubling down on the planning as a science by reforming it with a re-purposed system science, the planning discipline should be heading much of its own theory, which is rich

FIGURE A:



in recommendations for how to move beyond the dead end of scientific city building of any kind and move it towards a more normative, values laden, community place making pursuit. Sadly, however, the rational planning model has only died inside the echo chambers of planning theory, not planning practice and certainly not in the planning academy, and planners seem to be constantly struggling with these normative concerns, sometimes falling into traps, like the system science trap of Mehaffy's *Science of Cities*.

Before reflecting on the process of this dissertation and the value it hopes to add to the community of its research sample, a brief history of planning theory and its challengers is instructive.

## Planning Theory

### **The C-R Planning Model**

In the broadest sense, rationality is reason, using intellectual capacity to some end or action. A reasonable action must have a relationship between the knowledge one has and whatever one is trying to achieve. If there is no relationship, then by definition the action becomes unreasonable. With this broad definition, all planning is in essence rational planning. Rational urban planning has become, however, a code for the comprehensive rationality (C-R) model that dominated the profession in the mid-20th century and still clings to that dominance today despite many iterations of planning theory that have tried to break from its pseudo-scientific clutches. Science as a Utopian ideology and ersatz religion is simply one more belief system that promises more than it can deliver. C-R planning strikes me as such an organism. The C-R model's DNA can be traced back to key thinkers in western science such as Saint Simon and Comte, the father of positivism. Comte argued that society operates according to its own quasi-absolute laws and hypotheses about these laws can be tested with data. (Friedmann, 1987) This

systematic data driven approach is central to C-R and is its answer to the question of what intellectual capacities are relevant to planning. For the other questions about relevant actions and actors, Saint Simon made the case that what ultimately became C-R planning should be conducted by experts of “the body social whose physicians would be scientists and engineers.” These engineers would be focused on creating a future course for society “according to a comprehensive plan.” (Friedmann, 1987)

In later years the ideas underpinning C-R came from social thinkers such as Mannheim and Weber and their discussions of bureaucracy and objectivity, and the idea that separate parts of society can be analyzed in isolation and then reassembled into a whole. (Friedmann, 1987) By the 20th century these debates became part of the ongoing conflict around what Friedmann calls market rationality vs. social rationality: planning around free market self-interested actors in a capitalistic societal context or putting the group first rather than aggregating individuals in a socialistic societal context. Ultimately a modified social rationality has become the norm, where market rationality is allowed in a box.

Along with these historical roots of C-R, I would also add that the approach has a strong penchant for formal, linear process, which can be seen in authors such as Hilda Blanco or Ira Robinson, who both describe C-R as essentially a series of steps. (Robinson, 1965; Blanco, 1994) Since it reduces decisions to a checklist, it is easy to see why the C-R approach remains popular. And while it may be helpful in clarifying problems, there are many critiques about the types of data and information it employs, the legitimacy of the actors whom are creating this information, as well as the imprudence of leaving explicit discussions of politics and power out of its model. (Flyvbjerg, 2001)

### **Critiques of C-R**

The first major critique of C-R is articulated by Charles Lindblom and is described as

incrementalism. Its ideal analytic model is not formal comprehensive process but rather 'satisficing,' or pragmatically making decision as one move forward. (Lindblom, 1959) The linear progression or C-R, however, is not questioned by incrementalism. Lindblom calls his theory "the science of muddling through." In his words it is the method of "successive limited comparisons...continually building out step by step and by small degrees." (Lindblom, 1959) Lindblom especially balks at the comprehensive C in C-R, suggesting that marginal incremental amounts of value are sometimes if not most times preferred. He also calls this a "branch method rather than a root method." In a root method he explains, means are evaluated and then ends are chosen. In reality he argues, a "branch method" where means and ends are simultaneously chosen, is much more common. (Lindblom, 1959)

Lindblom's ideas about the reality of policy incrementalism in institutions may be true, especially for relatively stable systems. But when Lindblom goes as far as to say that "policy does not move in leaps and bounds." Or that policy is "not made once and for all, it is made and remade endlessly," he is denying that there are times of great instability. (Lindblom, 1959) Does incrementalism apply during those times? Biologists have shown that natural evolution is often punctuated. (Gould, 1977) This is also true for human societies, which are pushed for various reasons into new systems, whether those reasons be due to issues such as natural limits, part of the current planning discussions about global warming and sustainability, or for distributional and equity reasons, which have been debated since Marx. The urban agriculture system emerging in Atlanta from this inquiry which is rapidly changing is an example of this punctuated evolutionary environment. In system scientist jargon this is known as jumping into a "different basin of attraction," (Gunderson and Pritchard, 2002; Holling, 2004; Walker et. al. 2004) when one system, the industrial nationally and internationally scaled food system for example

shifts to a system where local food plays an increasingly important role, ultimately becoming the dominate food system.

Back to C-R, other criticism of C-R comes from theorists critical of its linearity as well as the political assumptions underlying C-R. Theorist Edward Banfield for example critiques the naiveté of the idea that planning can evaluate each alternative comprehensively or incrementally. This is sometimes possible in private firms, which have limited objectives, Banfield writes, but it is rarely true in public entities that have many ends and countless courses of actions. (Banfield 1973) The father of Advocacy planning, Paul Davidoff then picks up from this thought and suggests a whole new role for planners to deal with these ‘countless courses of actions.’ His recommendation is for planners to become like lawyers, to acknowledge that there is not just one monolithic public but rather publics, and to advocate for these different viewpoints. Davidoff’s approach to rationality brings the planner squarely into the political arena. Rather than serving as handmaidens to “societies stealers” (the financiers, industrialists, and politicians) described by Saint Simon, Davidoff suggests dealing with all stakeholders. “Why is it that no other organization within the community prepares a plan...why are there not plural plans?” (Davidoff, 1965) Davidoff laments. The idea is that plural plans would force plans to compete in public, and the plans and planners would become like legal arguments and lawyers. An offshoot of this idea is the planning approach of equity planning, well-articulated by Normans Krumholz’s work in Cleveland, (Krumholz, 1982) where planners do not simply represent different organizations, but actively represent the underrepresented in a kind of “planning legal aid,” to extend Davidoff’s advocate analogy. The many local urban agricultural entities of this inquiry would theoretically be the new publics for which one could advocate under Davidoff’s planning paradigm.

A particularly cogent critique of C-R for this discussion of planning as art rather than



science comes from Michael Goldberg. While Goldberg's arguments are nuanced, the bulk of his critiques are laid at the feet of the R in C-R. His thesis primarily addresses the question of what intellectual capacities are relevant to planning. Goldberg believes that C-R places an inordinate emphasis on analytical and quantitative methods. This so narrows the scope of rationality that it makes much of planning ineffective. More attention should be made towards building into planning decisions negative feedback, says Goldberg, and one of the best ways to do this in his view is to broaden planning knowledge to include both inductive and deductive ways of thinking. Goldberg believes that analytical rigor and "synthetic and intuitive" knowledge at the very least should be weighted equally, rather than privileging analytical or quantitative methods. Goldberg seems at the very least to believe in artistic ways of knowing and scientific ways of knowing being elevated to the same plane as in Figure A's first image.(Goldberg, 1985)

Rationality, he explains has three dimensions, objectivity, analysis, and uncertainty, and each are problematic. Virtually all of planning action does not stem from objectivity but rather planner's subjective experience. Goldberg believes planners should be recognized as persons with normative values rather than simply as technicians. Analysis is problematic because like most of the social sciences it has become an end in itself, the trap of method-for-method sake. Goldberg particularly fingers out modeling for this indiscretion, but points out those formalistic and rational participatory methods are just as culpable. But most of all, uncertainty provides the greatest "chink in the armor of rationality," writes Goldberg. It is hubristic to think we can plan so precisely. In fact this mentality has caused many of the problems planners must deal with claims Goldberg. (Goldberg, 1985)

"In urban settings, particularly in North America, we see the effects of planning under assumptions of constancy.... the mono-functional zones of land use wrought by land-use planners during the past three decades combine with the mono-functional arterial and highway transportation systems to make

urban regions remarkably vulnerable to changes in demographics, energy prices and availability, and tax policies.” (Goldberg, 1985)

Goldberg is laying urban sprawl at the feet of the C-R model. A ‘planning as art’ perspective based on these critiques by Goldberg would fundamentally be more contextual.

### Dissertation Reflection

These critiques of planning are part of the move from the privileging of scientific ways of knowing to artistic ways of knowing in urban planning and design. This inquiry strove to have both a qualitative component, essays one and two, and a quantitative component, essay three. Reflecting on the research with an eye towards this development of planning theory and its movement away from rationality, the level of value of each of the different research approaches used in this dissertation comes into question. In short, which is more useful to designers and planners with a place making orientation, the mixed qualitative methods of essays one or two or the quantitative social science of essay three? Clearly all three essays have some value; however, if a planner or designer wishes to gain similar insights into their communities urban agriculture systems and has limited resources this researcher believes the former, the qualitative component is more valuable than the later, the social science component of this inquiry.

Planners are not scientists, not even social scientists. Instead they fold science into a community process of the art of city making and they do that more by using the methodologies of the first two essays, the keen observation, listening, recording and visual and narrative communicating rather than through tools such as inferential or even descriptive statistics.

Landscape architecture theorist Randy Hester states for example that designers learn about patterns and their replications via four actions, “reading the research of similar people and places, listening to people, observing carefully, and wearing the shoes of others.” (Hester, 2006) These tasks, rather than statistical knowledge, are critical to planning and design. Hester explains further that “participant observation and other social spatial analysis skills help, but stopping there leads to a fatal flaw” understandings of “everyday actions must be integrated into a visionary future that is more than the sum of individual desires. This is typically done by a pattern maker—either professional designer, wise residents or both.” (Hester, 2006) This inquiry agrees with Hester and thus made pattern recognition and vision fundamental to its process.

There is nothing wrong with including statistics and other quantitative data into the visionary goal Hester describes, but those items cannot dominate the process. They are not ends in themselves. One can strip planning of inferential statistics, but it is hard to imagine an effective planning or design stripped of the qualitative methods of communication and synthesis in a community context. Nor can one easily imagine planning and design as a discipline with out its visual collateral. Cities are not built with formulas. Quantitative knowledge can be useful to the city building process, but such information is only a tool or jumping off point for deeper understandings and as Hester points out co-created visions.

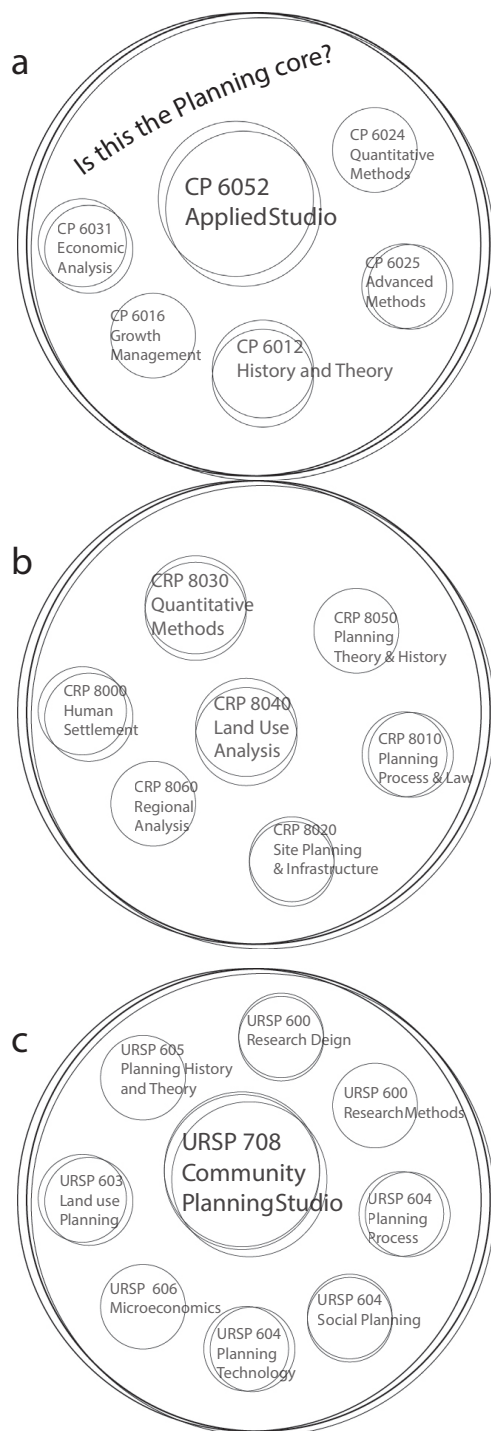
The 100 mile local urban agriculture formula from this inquiry is an example of a misplaced formula. This is a rule of thumb, but such rules are just guides, not ends in themselves. Instead, using intuitive understanding as described by Goldberg to pick a sample of urban agriculturalists in one’s community and then conducting open ended interviews seems far more useful to get at the heartbeat of the local food system and how

it is changing or expanding. This approach is what produced a more nuanced model of the urban food system in Atlanta than the 100 mile metric would have provided.

The most that can be expected from planners in regards to science is to have enough knowledge of it to consult the various urban sciences—urban economics, urban geography, urban sociology, etc.—in order to fold these disciplinary truths into the craft of the ‘artistic’ planning process. The mixed methods of this inquiry were couched in the research methodology jargon which the academy requires, but it is simply the acts of keen observation and listening to the men and women on the street, or in this case in the garden, which planning empiricists such as Jane Jacobs, Kevin Lynch or Alan Jacobs have recommended as having the most value. Sadly the recommendations of these planning stalwarts are systematically ignored as the academy, and the planners whose minds it programs, continue the pursuit of more rationalistic, or scientific understandings of cities. In short, the C-R model still grips the profession and its educators, despite the years of critique from within planning theory.

The real value that planners can bring to cities whether the topic is urban agriculture or something else is to seek a better understanding of the complexities of urban and community contexts. Unfortunately much of planning training, including its PhD experts, doesn’t adequately rise to the challenge of creating planners with a proper mix of the “artistic” talents of communication, community process, and above all else the visionary synthesis described by Hester. Instead, the discipline still seeks the holy grail of abstractions such as the science of cities. Why is it still like this? A deeper study of this rational planning bias in planning education would be interesting but is beyond the scope of this inquiry and not the goal of this final reflective essay. As the planning academy continues to cling to C-R, however, it continually drifts toward irrelevance and oblivion. With all that’s troubling an urbanizing world that desperately needs keener observation,

FIGURE B: The C-R Bias in the Planning Academy



The following examples come from the masters in planning programs at the organizations this researcher studied or worked under during the course of this dissertation. While each program has its strengths, they are still heavily influenced by the C-R model despite decades of increasing rejection of that model by the profession and the public. While this is not a representative sample, it suggests that research into the academy's planning theory biases would be enlightening.

#### Example a: GA Tech MCRP Core

- CP 6052 Applied Studio (6 hours)
- CP 6012 History and Theory (4 hours)
- CP 6016 Growth Management Law
- CP 6025 Advanced Planning Methods
- CP 6031: Economic Analysis in Planning
- CP 6024: Quantitative and Computer Methods

#### Example b: Clemson University MCRP Core

- CRP 8030 Quantitative Methods (4 hours)
- CRP 8040 Land Use Analysis (4 hours)
- CRP 8010 Planning Process and Law (3 hours)
- CRP 8020 Site Planning and Infrastr. (3 hours)
- CRP 8000 Human Settlement (3 hours)
- CRP 8050 Planning Theory and History (3 hours)
- CRP 8060 Renginoal Anlalysis (3 hours)

#### Example c: University of Maryland MCP Core

- URSP 708 Community Planning Studio (6 hours)
- URSP 600 Research Design (3 hours)
- URSP 601 Research Methods (3 hours)
- URSP 603 Land Use Planning (3 hours)
- URSP 604 Planning Process (3 hours)
- URSP 604 Planning Process (3 hours)
- URSP 605 Planning History and Theory (3 hours)
- URSP 606 Microeconomics (3 hours)
- URSP 673 Social Planning (3 hours)
- URSP 688L Planning Technology (3 hours)

listening, and informed vision for the art of democratic city building and place making, this reality is all the more dispiriting. Fortunately planning theory does have some solutions within it.

## The Social Learning Paradigm

Planning need only look into its own theory for answers to its epistemological problems. The social learning paradigm of planning theory has a different set of answers for the profession's broad questions of what intellectual capacities are relevant, and this dissertation drew on those sources. With its mixed qualitative methods, keen observation, listening, and visualizing in the spirit of Jacobs and Lynch, but most of all via its emic-etic approach this inquiry did not simply add to the critique of the rational planning, still so dominant in the academy, but it planted itself within the social learning paradigm, which the planning profession and the academy are so busy trying to ignore.

Social learning has different roots in different cultures. The Japanese consensus building approach to decisions could be called a form of social learning. John Friedmann describes how social learning in China can be traced back to Mao's revolutionaries. But in the western traditions of North America the strongest root is in the visionary urban writings of Lewis Mumford. (Friedmann, 1987) As a member of the Regional Planning Association of America Mumford expressed his concept of social learning in the context of creating healthier, more decentralized and more ecological regions, which sounds very similar to the goals of many of the urban agriculturalists of this inquiry. Mumford and his RPAA colleges were interested in "cultural renewal through lived experience" and to achieve this goal created a vision of the regional city. Mumford was responding to the industrial cities of his era and sought a method for "altering the entire basis upon which our present venal and mechanistic and life-denying civilization rests." (Luccarelli,

1995) According to Mumford, regionalism would engender civic participation at the very least through culture diversity, a diversity that could challenge the hegemony of modern industrial culture simply by existing in various corners across North America. The model of urban agriculture derived from this inquiry has a great deal in common with Mumford's vision of the ecological region

Mumford's regionalism still embraced science, but it was a science tethered solidly to place. There were four distinct phases to his regional planning: 1) surveys to obtain multi-layered and ecological understanding of the regions. This idea of the role of science is quite different from C-R's positivistic DNA. This item would be brought to planning by experts 2) An outline of critical needs 3) An imaginative reconstruction of a region's projected future; these two items could be developed by both experts and community, a process which this inquiry echoed with its emic-etic ethos. Most of all in Mumford's process was 4) "intelligent absorption" of the plan by the regional population. Mumford's intelligent absorption could be called a form of social learning, since it relied not just on expert knowledge but also on community knowledge and will. (Friedmann, 1987)

Mumford believed in "the concrete everyday experience of people...that form the basis of all reliable knowledge for guiding actions." (Friedmann, 1987) Mumford also calls this regional society a "learning society" foreshadowing the term social learning. Another colorful description of Mumford's social learning roots is his discussion of cities as "little theaters," where multiple alternatives could be tried and tested. (Luccarelli, 1995) Unlike C-R this is a vision of planning that puts expert and community on the same plain. It also addresses power in that it diffuses centralized controls by spreading diversity. It is strength through local identity and experimentation.



Whereas Mumford describes social learning in broad strokes, however, Donald Schön and Brazilian education theorist Paulo Freire fleshed out more of its details. Freire is writing from an educational perspective and discusses how the internal dynamics of Mumford's little theaters would function. Freire also coming from a Marxist paradigm talks of how oppressed populations can liberate themselves, by forging a conversation with powerful entities by "developing the pedagogy of their own liberation." (Freire, 1970) This is more than just being advocated for, as through Davidoff's advocacy planning or even Krumholz's equity planning. Freire argues passionately for communities to reflect on action themselves rather than having someone doing it for them. This reflective action puts one in a completely different frame of mind, changing individuals deeply from within instead of superficially from without. Next, to be most beneficial, this reflection must be done in dialogue with "oppressors." According to Freire it also should be non-violent, which is a departure from most Marxists and radical planning proponents. Freire's dialogue sounds very similar to the discussions or at least alternative food network juxtapositions described by the agriculturalists of this Atlanta inquiry.

Donald Schön also writes about the importance of reflection in action. Planning practice, says Schön is about tacit knowing. Far too often we are biased towards thinking and don't respect non-logical practices necessary for effective practice. Schön is saying that intellectual capacities that are relevant to planning are not just the engineering sort. "When someone reflects in actions he becomes a researcher in the practice of context" He is not dependent of the categories of established theory and technique, but constructs a new theory of the unique case" (Schön, 1983) "He does not keep means and ends separate but defines them interactively as he frames a problematic situation." (Schön, 1983) Schön's work, while influential in planning, however, was more broadly applied to all kinds of organizational learning. This inquiry's review of the context of urban

agriculture in Atlanta also echoes Schön's theory of a reflective researcher "in the practice of context."

To apply social learning more directly to a discussion of planning is John Friedmann's 1987 work *Planning in the Public Domain*. Friedmann's thesis is that the essence of planning is linking knowledge to action in the public domain, either to guide or to transform. He describes four ways this has been achieved through history:

1. Social reform, using science to inform politics
2. Policy analysis, which focuses on technical decision making processes
3. Social mobilization, collective action from below, a politics of disengagement carried out by alternative communities
4. Social Learning, which Friedmann succinctly describes as learning by doing. (Friedmann, 1987)

Writing six years later in 1993 Friedmann makes a call specifically for planners to embrace social learning in "*Toward a Non-Euclidian Mode of Planning*." Here Friedmann attacks the C-R model head on stating that

"the engineering model of planning...with its penchant for advance decision making and blueprinting...is no longer valid and must be abandoned. We are moving into a non-Euclidean world of many space time geographies and it is recognition of this change that obliges us to think in more appropriate models." (Friedmann, 1993)

Friedmann is acknowledging the postmodern context of planning of multiple goals and publics and believes the planning discipline can only stay relevant if knowledge and action are collapsed into the same space. "Planning should be about processes operating in real time." (Friedmann, 1993) While this may sound like Lindblom's planning science of muddling through, it is actually social learning, where parties engage in experimental dialogue and actions simultaneously. This sounds a lot like Mumford's' little theaters. Friedmann explicitly ties back to Mumford, when he claims that regions and localities

over national and transnational entities is where these dialogues should occur.

(Friedmann, 1993) The reason Friedmann privileges social learning at these local levels is because of its ability for critical feedback.

Finally, Friedmann makes the plea for a greater turn toward social learning rather than the antiquated C-R model that is still prevalent in planning practice:

“In turbulent times when little can be foreseen, there is a need to proceed cautiously and experimentally to learn from mistakes, to allow new information to guide the course of action, and to take immediate corrective actions as may be needed.” (Friedmann, 1993)

This inquiry’s review of urban agriculture responds to Friedmann’s call by providing new contextual, co-constructed information with which planners can better inform their actions in regards to urban form, open space, and local food systems. To stop there, however, would not be sufficient. To truly embrace the social learning paradigm and theorists such as Mumford, Friere, Schön and Friedmann, simply producing knowledge is still too close to the C-R world view. Instead, as Friedmann insists, one must also bring this knowledge to action.

## Knowledge to Action

To bring knowledge to action is hard enough in a professional setting let alone within the confines of a dissertation with in a large research university still heavily steeped in the practices of positivist science and a planning program still heavily influenced by the C-R model. An alternative to the dissertation presented here would have been action research. Described by Margaret Riel of the Center for Community, action research is a way to engage a community “through a series of reflective strategies that facilitate the development of a form of adaptive expertise. Over time, action researchers develop a

deep understanding of the ways in which a variety of social and environmental forces interact to create complex patterns.” (Riel, 2010) This sounds very much like the professional experience of a true planner, engaged with their community, rather than a planning researcher. Can it also become a research strategy for planning academics or graduate students?

One example from the fields of planning and design very relevant to this inquiry’s focus on urban agriculture as a socio-ecological landscape phenomena is the work of Anne Spirn author of *The Granite Garden*. Spirn conducted a longitudinal action research project with middle school students in the Mill Creek neighborhood of West Philadelphia. For eighteen years Spirn engaged local middle-schoolers in the West Philadelphia Landscape Project to improve what Spirn calls ‘landscape literacy.’ (Spirn, 2005) Spirn’s motivation was to address environmental justice by improving young peoples’ understanding of how natural and socio-cultural patterns and processes intersect and impact their neighborhood. Marked with population and capital abandonment as well as many landscape problems due to poor planning and design such as flooding and subsidence, Spirn writes “Mill Creek is a catalogue of the failure of 20th century urban, planning policy and design” (Spirn, 2005) However, Spirn also writes that “the landscape of Mill Creek is full of dialogues and stories, from epics to folklore to cautionary tales. To read this landscape is to understand that nothing stays the same...to read landscape is also to anticipate the possible, to envision, choose and shape the future.” (Spirn, 2005) Via her West Philadelphia Landscape Project Spirn engaged the youth of that community in producing a better story based on an understanding of landscape past, landscape change, and landscape possibilities for the future.

Broadly speaking this type of research activity emerged during the postmodern backlash to modern positivism of which the C-R model of planning is a manifestation. In action

research the subjectivity of knowing of the post modernism is at least acknowledged, but it shares more in common with the social learning paradigm in that action research's goals are both pragmatic and emancipatory. The Spirn example could be described in both action research and social learning terms.

Spirn spent many years at MIT and perhaps some of her action research proclivities were developed there. In the academy the action research paradigm emerged from the bastion of hard science application of the Institute and particularly its Center for Group Dynamics run by psychologist Kurt Lewins in the 1940s. Lewin came to the conclusion that “a research that produces nothing but books will not suffice” as early as 1946. Instead, he argued for a series of steps that recommend research, action, and then evaluation of the research all in the context of group dynamics. Later Lewin's work became the basis of spin off forms of collaborative action in other fields as well as multi-disciplinary group research strategies such as the trans-disciplinary research of our era. (Stokols, 2006; Deming and Swaffield 2011)

The American model of action research is especially tied to community organizing and social welfare (Carr and Kemmis 1986; Bogden and Biklen, 1992) To my knowledge action research—special cases such as Spirn excluded--as a practice has not penetrated very far into the discipline of urban planning and design except in its theoretical similarities to the social learning theory discussed.

Action research seldom appears to be practiced in any meaningful extent by planning researchers, although a document review of journal articles or dissertations, which is beyond the scope of this essay, would better bare that fact out. At any rate reflecting on the experience of this planning and design student, action research was not really a viable option, and this is sad because at its core of pattern recognition and application

action research is a “designerly way of knowing” as described by Cross in this dissertation’s method section. (Cross, 2006) If planning is an art, which is a process of pattern recognition and ultimately visionary pattern recognition but within a context of community action and reflection, then action research needs to be embraced and how it would function within a dissertation better defined.

Despite lip service to participatory practice, action research is not embraced very much within the planning academy because many academic planners are still positivists and rationalists and do not truly share the goals of action research. But the problem is far more systemic than that. Even if a researcher adapts the social learning paradigm as their theoretical platform and tries to set up an action research oriented project, multiple institutional roadblocks stymie their efforts. As the cliché decrees, the path to hell is lined with good intentions, and the governmental and university policies dictating research are constructed in a way that filters out action research as a plausible option.

In 1979 the US Department of Health Welfare and Education in order to protect subjects from questionable medical and psychological research prepared the *Belmont Report*, which contains the ethical principle of a firewall between research practice and professional practice. (Beauchamp, 2008) This report then became the corner stone of large research institutions internal research review policies, thus making action research unethical and not allowed unless researchers found ways to reframe their research procedures. The end result is that any action research within the academy often gets denied, herded back into the social sciences, or becomes so bureaucratically complex there is a barrier to entry unless one has deep pockets or institutional capital, such as Spirn. She is also aware of the problem. While having a beer with some of Spirn’s planning graduate students we laughed about the advice Spirn had given them to escape

the Mandarin like blockages to good social learning based planning. “Write a best-selling book!” Spirn had told them, only half joking.

My remedy is equally as impracticable. I believe planning schools, in order to recognize that they are most valuable as a form of community based design, need to move completely out of large research institutions, since those institutions are dominated by the hard or social sciences and their procedures and therefore adhere too strongly to bureaucratic standards such as the Belmont Report, which are more appropriate for other contexts.

Indeed, recent innovations among planning programs currently seem to be in art schools such as the New School for Design in New York, which has recently launched a program in Design and Urban Ecologies, a program that advocates planning as a form of design with in a social context and uses action research studios as a fundamental facet of its pedagogy. Another example is my alma mater, the Conway School of Landscape Design, which is currently developing a small action research oriented urban design and planning program to open in Springfield, Massachusetts in fall 2015 that will compliment their ecologically based design education with a socio-ecological paradigm.

Curious about the Parsons’ program, and since it is already running, I went to New York to informally interview the director. Parsons hopes to produce more successful action oriented graduates who can take on the current planning academy. It will be interesting to see how this develops and if it spreads to other institutions and ultimately helps to realign how professionals are trained to be planners. My hope is that these new programs will help pull the more antiquated C-R oriented planning programs into the 21st century; that they will help make the profession, as Georgia Tech’s Professor of Practice Michale Dobbins recommends, more about place and less about policy. (Dobbins, 2009)



The establishment of these action oriented professional training grounds, however, still leaves questions for planning researchers. Perhaps a planning researcher embedded in an institution with a more supportive structure such as Parsons will be able to do research such as Spirn's longitudinal research in Mill Creek, but time becomes a second structural issue for individuals such as graduate students.

As Reil pointed out the best action research takes time, "Over time, action researchers develop a deep understanding of the ways in which a variety of social and environmental forces interact." (Reil, 2010) This inquiry tried to circumvent this temporal issue by devising a mixed methods methodology that could quickly go into a community and assess how social and environmental forces were interacting, creating a snap shot of those patterns through exercises such as photo voice and map voice. However, to bring that knowledge to action requires more of a long term engagement with community to truly be effective. Moreover, researchers that use communities as action research guinea pigs and then leave, make promises, or instigate actions that are then not supported through other community structures run the risk of creating more ill will and less social learning. This ethical time conundrum is another reason why in the three essay format the action research was not folded more aggressively into the research process but is being discussed here as an addendum to the knowledge created.

### Developing Action From This Dissertation

Despite the problems of pursuing action research within the academy and the obstacles with inserting it into a dissertation, this inquiry has taken some steps in order to move from simply creating knowledge to fostering 'knowledge to action' as urban planning and design social learning theorists recommend. Therefore the final piece of this concluding

essay outlines the actions that are being injected into the social change accruing in Atlanta around urban agriculture.

Actions available to planners include too many to outline here, from charrettes, to tactical urbanism interventions, to virtual forms of public engagement. While more participatory forms of action such as charrettes or tactical projects are the ultimate action goal of this researcher post-dissertation, as an initial step this inquiry is producing documentation, which can be used to disseminate the information, and hopefully spark community member to engage in those kinds of deeper actions.

The first step has been the traditional approach of creating a document. Qualitative information from essays one and two has been stripped of the methods and theory jargon and distilled into a report of sorts. This report has the potential to be published either officially or through platforms such as ISSUU. The Tactical Urbanism movement for example used this self-publishing platform, while New Urbanism dating back to the 1980's and 90's followed the more traditional book publishing approach to disseminate their knowledge and ideas to the public.

In the 21st century, however, there are many ways to communicate, from blogs, to websites, to social media pages. In addition to the report this inquiry has also created a web page and a social media page. C-R oriented planners, typically after making their reports, dutifully hand them over to power brokers. Instead, this researcher is using this triad of communication collateral, report, web page and social media page, to engage communities in Atlanta. To start the conversations post dissertation these documents will be disseminated to organizations that participated in the research.

Additionally, since this researcher is an urban and landscape designer, of particular

interest is the idea of creating a flagship food park in Atlanta presented in Essay Two. A special, design oriented effort to disseminate this idea to local design groups is planned. Rather than personally design such a scheme, the researcher is using the communication collateral to approach community and professional groups with the idea, solicit their feedback, and move it into the civic realm, where it will mutate into an actual project or at least inform the conversation about Atlanta's emerging open space system of food parks and eco-centers. In addition to the local design community, of particular interest for this 'design action' is the Carter Center, which is nestled in the heart of Freedom Park. Discussions with the Carter Center have not yet been initiated but plans are being made.

It is not possible to include all of this collateral here, however, the dissertation concludes with examples of these efforts. How this knowledge will mix and inform the many actions of all the players in Atlanta's emerging food and open space system, with its social, ecological and socio-ecological implications for the region, is a chapter yet to be written. Perhaps in a few years it will make for an interesting follow up essay to this dissertation's urban agriculture essay ensemble.

Figure C:  
Knowledge to Action, Web

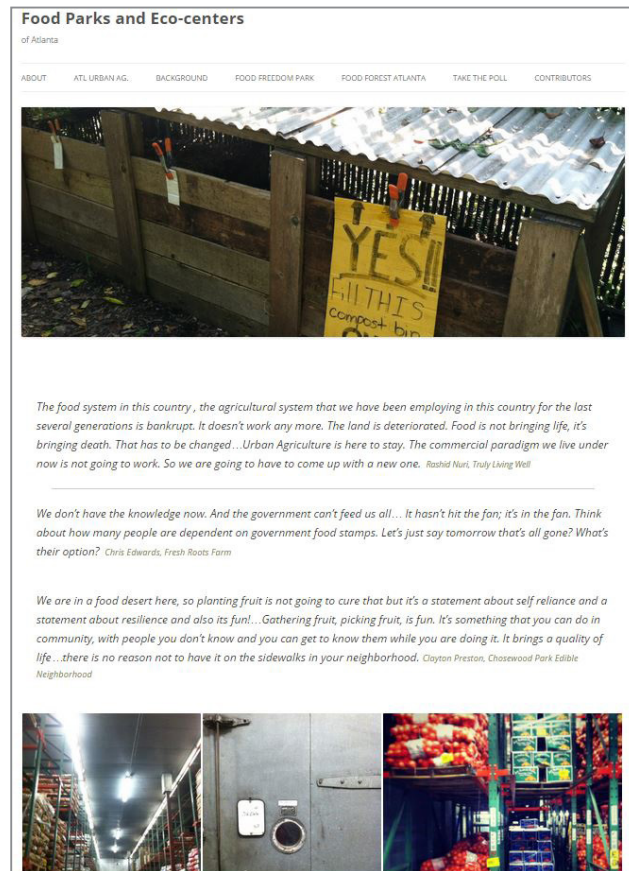
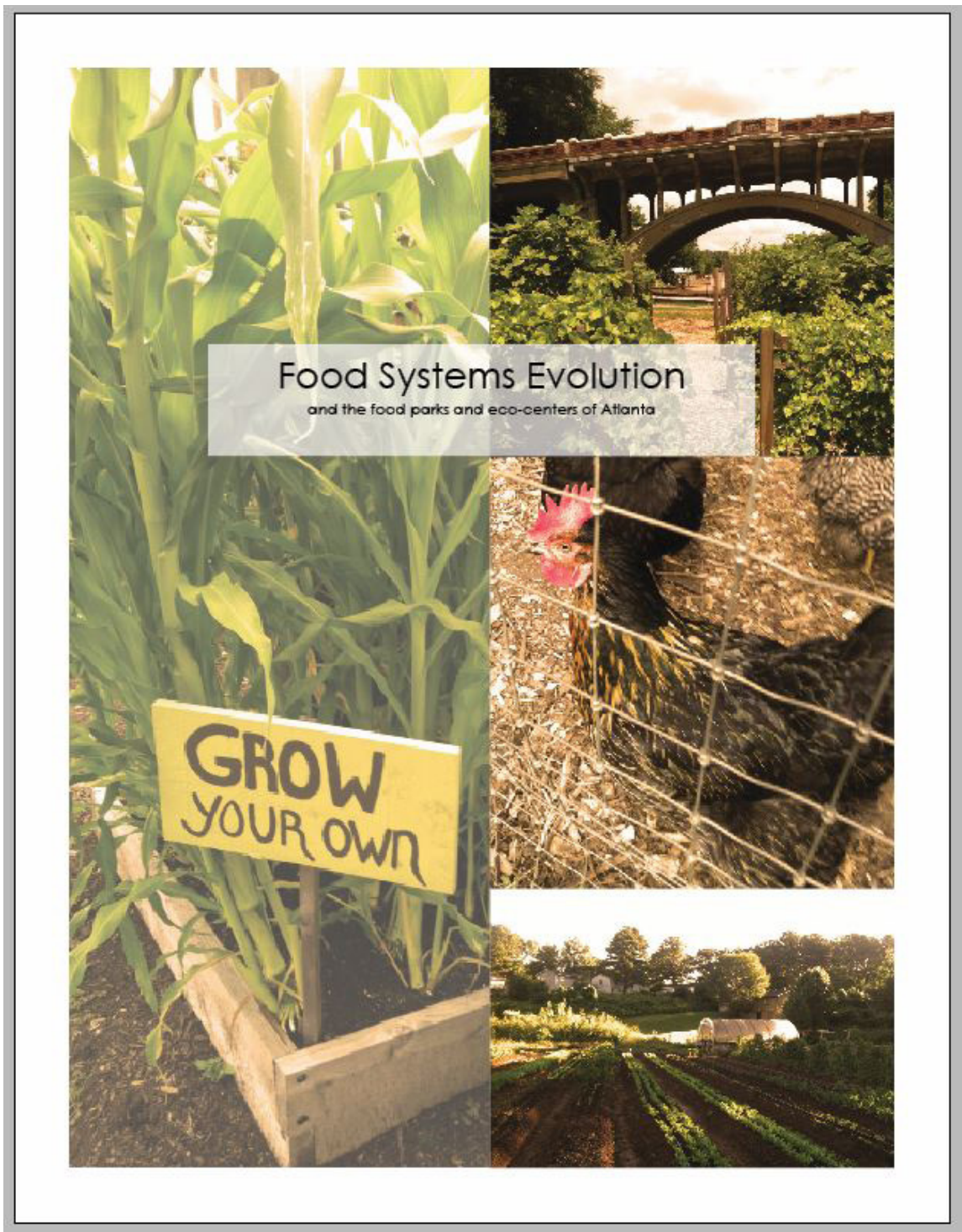


Figure D:  
Knowledge to Action, Social Media



Figure E:  
Knowledge to Action, Report or Book







## Bibliography



## Citations Introduction

Luccarelli, Mark. (1995). *Lewis Mumford and the Ecological Region: the politics of planning*. New York: Guilford Press

Duany, Andres. (2011). *Garden Cities: Theory & Practice of Agrarian Urbanism*. The Prince's Foundation for the Built Environment

Ackerman-Leist, Philip. (2013). *Rebuilding the Foodshed: How to Create Local, Sustainable, and Secure Food Systems*. Chelsea Green. pg 4

Ackerman-Leist, 2013, pg. 241

Cohen, N., & Reynolds, K. (2012). *Five Borough Farm: Seeding the Future of Urban Agriculture in New York City*. New York: Design Trust for Public Space. 2012, pg 13

Krieger, Alex and Saunders, William S. (2009). *Urban Design*. Minneapolis: University of Minnesota Press

Gehl, Jan. Translated by Koch, Jo. (1987). *Life Between Buildings: Using Public Space*. Arkitektens Forlag - The Danish Architectural Press

Dobbins, Michael. (2009). *Urban Design and People*. Hoboken, NJ: John Wiley and Sons Inc

Allen, Douglas C. (2013). "History of Urban Form", recorded lecture, Atlanta Sept. 2013 , GA: Georgia Institute of Technology

Duany, Andres (2010). *Proceedings, CNU 18, Atlanta, GA*

*Ibid.*

De Vries, Natalee. (2000). *Pig City: Study on Pig Farming Density—Client Strodin*. Rotterdam, Netherlands: MVRDV

Narin, Daniel. (2010). "Greening — and feeding — the city with a 'garden block'." *Grist*

Waldheim, Charles. (2006) *The Landscape Urbanism Reader*. New York: Princeton Architectural Press

Reed, Chris (2006). "Public Works Practice." in *"The Landscape Urbanism Reader*. New York: Princeton Architectural Press." Waldheim, Charles, editor

Mostafavi, Mohsen and Doherty, Gareth. editors. (2010). *Ecological Urbanism*. Harvard University Graduate School of Design. Lars Mueller Publishers

Jacobs, Jane. (1969). *The Economy of Cities*. New York: Random House

Lawson, Laura. (2004). "The Planner in the Garden: A Historical View of the Relationship of Planning to Community Garden Programs." *Journal of Planning History* 3, 2 (May 2004): 151-176

Ackerman-Leist, 2013, pg. xxxii

Cross, Nigel (2001) "Designerly Ways of Knowing: Design Discipline vs. Design Science." *Design Issues*. Summer 2001, Vol. 17, No. 3, Pages 49-55, Boston, MIT Press Journals



# Citations Methods

## 1. Core Logic

Agar, Michael H. (1996). *The Professional Stranger: An Informal Introduction to Ethnography*. New York: Academic Press (2nd edition)

Bernard, H. Russell . (2011). *Research Methods in Anthropology*. (5th edition) Lanham, MD: AltaMira Press

Ellin, Nan. (2006). "Integral Urbanism." New York: Routledge. pg. 1-7

Ibid

Ellin, Nan, 2006, pg. 11

Ellin, Nan, 2006, pg. 6-7

Turner M., Gardner R., and O'Neill R. (2001) "Landscape Ecology in Theory and Practice." Springer LLC

Weller, R. (2006). "An Art of Instrumentality: Thinking Through Landscape Urbanism." In *The Landscape Urbanism Reader*. New York: Princeton Architectural Press." Waldheim, Charles, editor. Pg. 77

Shane, Grahame. (2006). "The Emergence of Landscape Urbanism." In *The Landscape Urbanism Reader*. New York: Princeton Architectural Press. Waldheim, Charles, editor. Pg. 64

Lyster, Clair. (2006). "Landscapes of Exchange: Rearticulating Site." in "The Landscape Urbanism Reader. New York: Princeton Architectural Press." Waldheim, Charles, editor

Ellin, Nan, 2006, pg. 13

Waldheim, Charles. editor. (2006) "The Landscape Urbanism Reader. New York: Princeton Architectural Press.

Weller, 2006. pg. 74

McHarg, Ian. (1969). *Design with Nature*. New York: Doubleday

Ndubisi, Forster. (2002). *Ecological Planning: A Historical and Comparative Synthesis*. Baltimore: Johns Hopkins University Press

Corner, James. Editor. (1999). *Recovering Landscape Essays in Contemporary Landscape Architecture*. New York: Princeton Architectural Press

Treib, Marc. (1999). "Nature Recalled." In "Recovering Landscape" James Corner editor. Princeton NJ: Princeton Architectural Press. pg. 32

Meadows, Donella H. (2008). "Thinking in Systems". White River Junction, Vermont: Chelsea Green Publishing, pg. 3

Meadows, 2008, pg 4

Meadows, Donella, Randers, Jorgen, Meadows, Dennis. (2004). *Limits to Growth: The Thirty Year Update*.

White River Junction: Vermont. Chelsea Green Publishing Company

Meadows, 2008, pg. 11

Hedden, Walter. (1929). *How Great Cities Are Fed*. Boston: D.C. Heath and Company

Getz, Arthur. (1991). "Urban Foodsheds." *Permaculture Activist*. 24 (October): 26-27

Ackerman-Leist, Philip. (2013). *Rebuilding the Foodshed: How to Create Local, Sustainable, and Secure Food Systems*. Chelsea Green Publishing. pg 234

Ibid

Ibid. pg 4

Jacobs, Jane. (1961) "The Death and Life of Great American Cities." New York: Random House

Whyte, William H. (1980). "The Social Life of Small Urban Places." Ann Arbor, MI: Edwards Brothers Inc

Appleyard Donald. (1981). "Liveable Streets." Routledge

Hou, Jeff, Johnson, Julie and Lawson, Laura. (2009). "Urban Community Gardens: Greening the City and Growing Communities in Seattle." Seattle: University of Washington Press

Pearson, Leonie, Pearson, Linda and Pearson, Craig. (2010). "Sustainable urban agriculture: Stocktake and opportunities." *International Journal of Agricultural Sustainability*

Pothukuchi, K and Kaufman, J. (2000). "The food system: A stranger to urban planning." *Journal of the American Planning Association*, 66(2): 113:24, Spring. 2000

Forsyth, Anne. (2010). "Finding Food: Issues and Challenges in Using GIS to Measure Food Access." *Journal of Transport and Land Use*, 3, 1: 43-65

Forsythe, Anne. (2010). Clemson University Colloquium, September, 2010

Feld, Scott, L. (1981). "The focused organization of social ties." *American Journal of Sociology*, 86, 5, 1981, pp. 1015-1035

Brower, Sidney. (2011). *Designing for Communities*. Chicago: APA Press and Center for American Places

Goldsmith, Stephen and Lynne, Elizabeth, editors. (2010). "What We See: Advancing the Observations of Jane Jacobs"

Appleyard, 1981

Cohen, N., & Reynolds, K. (2012). *Five Borough Farm: Seeding the Future of Urban Agriculture in New York City*. New York: Design Trust for Public Space. 2012

Pearson, Craig J., Pearson, Linda and Pearson, Leonie J. (2010). "Sustainable urban agriculture: stocktake and opportunities." *International Journal of Agriculture Sustainability* 8 (1&2) 2010. In *Urban agriculture: diverse activities and benefits for city society*. Pearson (editor). pg. 9

Gehl, Jan. (1977) *Interface between public and private territories in residential areas*, University of

Melbourne

Places for People (1994). City of Melbourne and Gehl Architects

Worrel Gabriela. (2009). Planning Magazine. "Lawn Be Gone". Chicago: American Planning Association. pg 20-23

Worrel, 2009, pg. 23

Descombes, Georges. (1999). "Shifting Sites: The Swiss Way, Geneva." in "Recovering Landscape Essays in Contemporary Landscape Architecture." James Corner Editor. New York: Princeton Architectural Press. pg. 80

Descombes, 1999, pg. 81

Luccarelli, Mark. (1995). Lewis Mumford and the Ecological Region: the politics of planning. New York: Guilford Press. pg. 36-37

Luccarelli, 1995, pg. 71

Jacobs, Jane. (1969). The Economy of Cities New York: Random House

Shannon, Kelly. (2006) "From Theory to Resistance: Landscape Urbanism in Europe." in "The Landscape Urbanism Reader. New York: Princeton Architectural Press, Waldheim, Charles, editor

Ellin, 2006. Pg. 9

Viljoen, Andre, and Bohn, Katrina. (2005). Continuous Productive Urban Landscapes: Designing Urban Agriculture for Sustainable Cities

Haeg, Fritz. (2010). Edible Estates: Attack on the Front Lawn a Project by Fritz Haeg

Ndubisi, 2002

Forman, Richard, Olson James, and Dramstead, Wrench. (1996) Landscape Ecology Principles in Landscape Architecture and Land-Use Planning. Washington DC: Island Press

Turner M., Gardner R., and O'Neill R. (2001) "Landscape Ecology in Theory and Practice." Springer LLC

Weins J., Moss M., and Turner M. (2006). "Foundation Papers in Landscape Ecology." New York: Columbia University Press

Mollison, Bill. (1988). Permaculture A Designers' Manual. Maryborough, Victoria, Australia: Tagari Publications

Holmgren, David. (2002). Permaculture Principles and Pathways Beyond Sustainability. Hepburn, Victoria, Australia: Holmgren Design Services

Johnson, Bart and Hill, Kristina, editors (2001). Ecology and Design: Frameworks for Learning. Island Press

Pulliam, H Ronald, and Johnson, Bart R. (2002). "Ecologies New Paradigm: What Does It Offer Designers and Planners?" In Ecology and Design: Frameworks for Learning. Washington DC: Island Press. pg. 51-84

Ackerman-Leist, 2013

Karr, James R. (2002). "What from Ecology Is Relevant to Design and Planning?" In *Ecology and Design: Frameworks for Learning*. Washington DC: Island Press. pg 133-172

Johnson, Bart R. and Hill, Kristina. editors. (2002). *Ecology and Design: Frameworks for Learning*. Washington DC: Island Press. pg. 5-6

Ibid

Hester, Randolph. (2006). "Design for Ecological Democracy." Cambridge, MA: MIT Press

Thoreau, Henry. (1854) *Walden; or, Life in the Woods*

Orr, David. (1992). "Ecological Literacy: Education and the Transition to a Postmodern World." S.U.N.Y. Press, NY

Hester, 2006 pg. 333

Hester, 2006 pg. 344

## 2. Applying the Core Logic to a Sample

Guest, Gred, Arwen Bunce and Laura Johnson. (2006). How Many Interviews are Enough? An Experiment with Data Saturation and Variability. *Field Methods* 18:59-82.

Trotter, Robert and Jean J. Schensul. (1998) "Methods in Applied Anthropology." In H. Russell Bernard, ed., *Handbook of Methods in Cultural Anthropology*, pg. 704.

Hou and Lawson 2009

Duchemin 2008

Yin, Robert. (2008). *Case Study Research: Design and Methods*. (4th Edition). Thousand Oaks, CA: Sage.

Flyvbjerg, B. (2006). "Five Misunderstandings about Case-Study Research". *Qualitative Inquiry* 12 (2): 219–245.

Bassett, T. J. (1981). Reaping on the margins: A century of community gardening in America. *Landscape*, 25(2), 8.

Lawson, Laura. (2004). "The Planner in the Garden: A Historical View of the Relationship of Planning to Community Garden Programs." *Journal of Planning History* 3, 2 (May 2004): 151-176.

Lawson, L. J. (2005). *City bountiful: A century of community gardening in America*. Berkeley: University of California Press.

Pudup, M. (2008). It takes a garden: Cultivating citizen-subjects in organized garden projects. *Geoforum*, 39(3), 1228–1240.

Sarah, Rich.( 2012). *Urban Farms*. New York: Abrams.

Hanson, David and Marty, Edwin. (2012). *Breaking Through Concrete: Building an Urban Farm Revival*, Berkeley: University of California Press.

Goldstein, Mindy. (2011). *Urban Agriculture: A sixteen city survey of urban agriculture practices across the country*. Arlanta, GA: Turner Environmental Law Clinic

Yin, 2008, pg 46

Yin, 2008, pg 47

Babbie Earl R. (2010). *The Practice of Social Research*, (12th Edition). Belmont, CA: Wadsworth Cengage Learning. pg 197.

Babbie, 2010, pg. 193.

Ibid.

Trotter and Schensul. 1998, pg. 705.

Ibid, pg. 704.

Babbie, 2010, pg. 193.

Flyvbjerg, 2006.

### 3. Qualitative Research Methods of Essay One and Two

Dewalt, Kathleen M. and Billie R. (2010). "Participant Observation: A Guide for Fieldworkers." Altamira Press.

Tashakkori, Abbas, and Teddlie, Charles. (1998). "Mixed Methodology: Combining Qualitative and Quantitative Research." Sage: Applied Social Research Methods Series Volume 46, 1998.

Moudon, Anne Vernez (1992). "A Catholic Approach to Organizing What Urban Designers Should Know" *Journal of Planning Literature* May 1992 vol. 6 no. 4 331-349.

Lynch, Kevin. (1960). *The Image of the City*. Harvard-MIT Joint Center for Urban Studies Series.

Silverman, David. (2006). *Interpreting Qualitative Data* (3rd edition) Sage. Pg 290.

Ibid. 9

Tashakkori et.al., 2010, pg. 17-18.

Silverman, 2006, pg. 291.

Sayer, Andrew. (1992). *Method in Social Science: A Realist Approach*. (2nd editon) New York: Routledge.

Flyvbjerg, Bent. (2001). *Making Social Science Matter: why social inquiry fails and how it can succeed again*. Cambridge University Press.

Silverman, 2006, pg. 292

Sayer, 1992, pg. 225.

Tashakkori et.al., 2010, pg. 47

Moudon, 1992. In Urban Design Reader, (2007). Routledge, pg. 444.

Silverman, 2006 pg. 73-74.

Silverman, 2006, pg. 96.

Moudon, 1992. In Urban Design Reader, (2007).

Moudon, 1992. In Urban Design Reader, (2007). pg 440.

Lynch, 1960, pg. 46.

Lynch, 1960. pg. 9.

Lynch, 1960, pg. 118.

Fay, Brian. (1996). Contemporary Philosophy of Social Science. Malden, Massachusetts: Blackwell Publishers. pg. 182.

Fay, 1996, pg. 179

Fay, 1996, pg. 190

Glaser, Barney G. and Strauss, Anselm L. (1967). The Discovery of Grounded Theory: Strategies for Qualitative Research. Transaction Piscataway, NJ: Transaction Publishers Rutgers.

Catherine Kohler Riessman. (2008). Narrative Methods for the Human Sciences. Sage Publications, Inc

Reading ethnographic research: A critical guide

Hammersley, Martyn. (1990). Reading ethnographic research: A critical guide. London: Longman. pg. 57.

Bernard, 2006

Dewalt, 2010, pg. 137.

Bernard, 2006

Trotter and Schensul. 1998, pg. 705.

Dewalt, 2010, pg. 142-149.

Moudon, 1992, pg. 444

Gans, Herbert J. (1962). The Urban Villagers: Group and Class in the Life of Italian-Americans. New York: The Free Press

Gans, Herbert J. (1967). The Levittowners: Ways of Life and Politics in a New Suburban Community. New York: Pantheon Books.

Dewalt, 2010, pg. 183.

Silverman, 2006, pg 89-93

Bernard, 2006

Ibid. pg. 459.

Deming, Elen M. and Swaffield, Simon. (2011). *Landscape Architecture Research: Inquiry, Strategy, Design*. Hoboken, NJ: John Wiley and Sons. Inc. pg. 209.

McIntyre, L.J. (2005). *Need to know: Social science research methods*. New York: McGraw Hill.

Deming and Swaffield, 2011. pg. 65.

Silverman, 2006, pg. 288.

Bernard, 2006

Meyer, E. (2005). Site citations. In Deming and Swaffield. (2011). *Landscape Architecture Research: Inquiry, Strategy, Design*. Hoboken, NJ: John Wiley and Sons. Inc. pg. 66.

Francis, Mark (2001) "A Case Study Method for Landscape Architecture" *Landscape Journal*, 2001, Vol. 20.\

Deming and Swaffield, 2011, pg. 127

Demming and Swafield, 2011, pg. 133

Cross, Nigel. (2006). *Designerly Ways of Knowing*. Basel: Birkhauser.

Ibid.

Relph, Edward. (1976). *Place and Placelessness*. London: Pion Limited.

Norberg-Schulz, Christian. (1980). *Architecture, Meaning and Place*. New York: Rizzoli.

Oldenberg, Ray. (1999). *The Great Good Place: Cafes, Coffee shops, Bookstores, Bars, Hair Salons, and Other Hangouts at the Heart of a Community*. New York: Marlowe & Co.

Silverman, 2006, pg. 158.

Emmison, M. (2004). "The conceptualization and analysis of visual data." In Silverman, D. *Qualitative Research: Theory, Method, and Practice*, (2nd edition) London: Sage. pg. 260.

Denis, Samuel F. (2006). "Prospects for qualitative GIS at the intersection of youth development and participatory urban planning." *Environment and Planning*.

Wang, Caroline. (1997). Photovoice: Concept, Methodology, and Use for Participatory Needs Assessment. *Health Education and Behavior*, June 1997 vol. 24 no. 3 pg. 369-387.

Elwood, Sarah. (2006). "Critical Issues in Participatory GIS: Deconstructions, Reconstructions, and new Research Directions." *Transactions in GIS* 10 (5) 2006, pg. 693-708

Cinderby, Steve. (2010). "How to reach the 'hard-to-reach': the development of Participatory Geographic Information Systems (P-GIS) for inclusive urban design in UK cities" *Area*. Vo. (42) 2, pg. 239–251.



#### 4. Quantitative Methods of Essay 3

Babbie, 2010, pg. 254

Singleton, Royce A. Jr., Straits Bruce and Straits, Margaret Miller. (1993) Approaches to Social Research. New York: Oxford University Press.

Babbie, 2010 pg. 285.

Maantay, Juliana, and Ziegler, John. (2006). GIS for the Urban Environment. Redlands, CA: ESRI Press. pg 412-413.

Bolstand, Paul. (2008). GIS Fundamentals: A First Text on Geographic Information Systems (3rd edition) White Bear Lake, MN: Eider Press. pg. 464-470.

# Citations Essay 1

Assessing the economic value of urban agriculture

Blair, D., Giesecke, C., & Sherman, S. (1991). A dietary, social and economic evaluation of the Philadelphia Urban Gardening Project (Vol. 23, pp. 161–167). *Journal of Nutrition Education*

Patel, I. C. (1991). Gardening's Socioeconomic Impacts. *journal of extension*, 29(4), 1–3. Suarez-

Suarez-Balcazar, Y. (2006). African Americans' Views on Access to Healthy Foods\_ What a Farm-ers' Market Provides. *journal of extension*, 44(2), 1–7

Patel, I. C. (1991). Gardening's Socioeconomic Impacts. *journal of extension*, 29(4), 1–3

Bellows, A., Brown, K., & Smit, J. (2005). Health benefits of urban agriculture A paper from the members of the Community Food Security Coalition's North American Initiative on Urban Agriculture, 1–27.

Patel, 1991, pg. 1-3

Domene, E., & Sauri, D. (2007). Urbanization and class-produced natures: Vegetable gardens in the Barcelona Metropolitan Region. *Geoforum*, 38(2), 287–298.

Morton, L., Bitto, E., Oakland, M., & Sand, M. (2008). Accessing food resources: Rural and urban patterns of giving and getting food. *Agriculture and Human Values*, 25(1), 107–119

Jacobs, Jane. (1969). *The Economy of Cities* New York: Random House

Satzewich, Wally and Christensen, Roxanne. (2011). *SPIN Farming Basics: How to Grow Commercially on under an Acre*. pg. 14

Ibid. pg. 24

Ibid. pg. 82

Worrel Gabriela. (2009). *Planning Magazine*. "Lawn Be Gone". Chicago: American Planning Association. pg 20-23

Ibid

USDA. (2013). "U.S. Corn Acreage Up For Fifth Straight Year." United States Department of Agricultural National Agricultural Statistics Service. [http://www.nass.usda.gov/Newsroom/2013/06\\_28\\_2013.asp](http://www.nass.usda.gov/Newsroom/2013/06_28_2013.asp)

Foley, Jonathan. (2013). "It's Time to Rethink America's Corn System." *Scientific American*, March 5, 2013. <http://www.scientificamerican.com/article/time-to-rethink-corn/>

Ibid.

Lawson, L. J. (2005). *City bountiful: A century of community gardening in America*. Berkeley: University of California Press.

## Capital theory and urban agriculture

Smith, Adam. (1776). *An Inquiry into the Nature and Causes of the Wealth of Nations*.

Gehl, Jan. (1977) *Interface between public and private territories in residential areas*, University of Melbourne

Lawson, Laura. (2004). "The Planner in the Garden: A Historical View of the Relationship of Planning to Community Garden Programs." *Journal of Planning History* 3, 2 (May 2004): 151-176

Alaimo, Katherine and Kruger, Daniel J. (2008). "Fruit and Vegetable Intake among Urban Community Gardeners," *Journal of Nutrition Education and Behavior*, Volume 40, Issue 2, March-April 2008

Dibsdal, L. A. et al (2002). "Low-income consumers' attitudes and behavior towards access availability and motivation to eat fruit and vegetables. *Public Health Nutrition*," Volume 6, Issue 02, Apr 2002, pp 159-168

Ober, Allen, Julie, Alaimo, Katherine, Elam, Doris, and Perry, Elizabeth. (2008). "Growing Vegetables and Values: Benefits of Neighborhood-Based Community Gardens for Youth Development and Nutrition." *Journal of Hunger & Environmental Nutrition*, Volume 3, Issue 4

Armstrong, Donna. (2000). "A survey of community gardens in upstate New York: Implications for health promotion and community development." *Health & Place* 6 2000

Wakefield, S, F. Yeudall, C. Taron, J. Reynolds and A. Skinner. (2007). "Growing urban health: Community gardening in South-East Toronto." *Health Promotion International* 2007 22(2):92-101; Oxford University Press

Kaplan, Rachel. (1973). "Some psychological benefits of gardening. *Environment and Behavior* 5: 143-62.

Kaplan, Rachael and Kapan Stephen. (1998). "With People in Mind." Washington DC: Island Press.

Lewis, Charles. (1996). "Green Nature/Human Nature: The Meaning of Plants in Our Lives." *The Environment and the Human Condition*, University of Illinois Press.

Van Den Berg, Agnes E., and Mariette H. Custers. (2011). "Gardening Promotes Neuroendocrine and Affective Restoration from Stress." *Journal of Health Psychology*. 2011. 16:3-11

Linn, Karl. (1991). "From rubble to restoration: Sustainable habitats through urban agriculture." San Francisco: Urban Habitat" Program of the Earth Island Institute

Landman, Ruth. (1993). "Creating Community in the City: Cooperatives and Community Gardens in Washington DC, Westport, CT: Bergin and Gravey

Armstrong, Donna. (2000). "A survey of community gardens in upstate New York: Implications for health promotion and community development." *Health & Place* 6 2000

Twiss, Joan, et al (2001). "Community Gardens: Lessons Learned From California Healthy Cities and Communities." *American Journal of Public Health* , 2003: 1-4

Lawson, 2004, pg. 151-176.

- Schmelzkopf, Karen. (1995). "Urban community gardens as contested spaces." *Geographical Review* 85 (3): 364-80
- Aponte-Prares, Luis. (1996). "Casitas: Place and Culture, Appropriating Place in Puerto Rican Barrios." *Places* 11 (1):54-61
- Winterbottom, Daniel. (1998). *Casitas: Gardens of reclamation*. Environmental Design Research Association Conference Proceedings. April 1998.
- Glover, Troy D. (2003). "The Story of the Queen Anne Memorial Garden: Resisting a dominant cultural narrative. *Journal of Leisure Research* 35 (2): 190-212.
- Glover, Troy D. et. al (2005). Association, sociability, and civic culture: the democratic effect of community gardening. *Leisure Sciences* 27: 75-92.
- Jamison, Michael. (1985). "The joys of gardening: Collectivist and bureaucratic cultures in conflict. *Sociological Quarterly* 26 (4) 473-90.
- Metcalf, S. S., & Widener, M. J. (2011). Growing Buffalo's capacity for local food: A systems framework for sustainable agriculture. *Applied Geography*, 31(4), 1242–125
- Bradley, K., & Galt, R. E. (2013). Practicing food justice at Dig Deep Farms & Produce, East Bay Area, California: self-determination as a guiding value and intersections with foodie logics. *Local Environment*, 1–15
- White, M. M. (2010). Shouldering Responsibility for the Delivery of Human Rights: A Case Study of the D-Town Farmers of Detroit. *Race/Ethnicity*
- Been, V. and I. Voicu. 2006. The Effect of Community Gardens on Neighboring Property Values, New York University School of Law, New York University Law and Economics Working Papers Paper 46
- Ibid.
- Pearson, L. J., Pearson, L., & Pearson, C. J. (2010). Sustainable urban agriculture: stocktake and opportunities. *International Journal of Agricultural Sustainability*, 8(1), 7–19
- Taha, H. (1997). "Urban Climates and Heat Islands: albedo, evapotranspiration, and anthropogenic heat." *Energy and Buildings*, 25, 99-103
- Dixon, P. Grady and Mote, Thomas L. (2003). Patterns and Causes of Atlanta's Urban Heat Island–Initiated Precipitation. *J. Appl. Meteor.*, 42, 1273–1284.
- Wong N. H., and Yu, C. (2005). "Study of green areas and urban heat island in a tropical city." *Habitat International*. 29, 547-558
- Strathopoulou, M., and Cartalio, C. (2007). "Daytime urban heat islands from Landsat ETM and Corine land cover data: an application to major cities in Greece' *Solar Energy*, 81, 358-368.
- Lebel L. et al., (2007). "Integrating carbon management into development strategies of urbanizing regions

in Asia.” *Journal of Industrial Ecology*, 11, 62-81.

Sovacoola, Benjamin K. and Brown, Marilyn A (2010). “Twelve metropolitan carbon footprints: A preliminary comparative global assessment.” *Energy Policy*, Volume 38, Issue 9, September 2010. Pages 4856–4869

Wetz, E. A., et. Al (2002). “Spatial Patterns and determinants of winter atmospheric CO<sub>2</sub> concentrations in an urban environment.” *Annals of the Association of American Geographers* 92, 1-15

Forkes, J. (2007). “Nitrogen balance for the urban food metabolism of Toronto, Canada.” *Resources, Conservation, and Recycling*, 52, 74-94

Khai, N, M. et al. (2007). “Nutrient flow in small scale peri-urban vegetable farming systems in Southeast Asia—a case study in Hanoi.” *Agriculture, Eco-systems, and Environment*, 122, 192-202

Calvet-Mir, L., Gomez-Baggethun, E., & Reyes-Garcia, V. (2012). Beyond food production: Ecosystem services provided by home gardens. A case study in Vall Fosca, Catalan Pyrenees, Northeastern Spain. *Ecological Economics*, 74, 153–160.

Domene, E., & Sauri, D. (2007). Urbanization and class-produced natures: Vegetable gardens in the Barcelona Metropolitan Region. *Geoforum*, 38(2), 287–298

Galluzzi, G., Eyzaguirre, P., & Negri, V. (2010). Home gardens: Neglected hotspots of agro-biodiversity and cultural diversity. *Biodiversity and Conservation*, 19(13), 3635–3654

Nazarea, V. D. (2005). *Heirloom seeds and their keepers: Marginality and memory in the conservation of biological diversity*. Tucson: University of Arizona Press.

#### Socio-ecological capital theory

Luke, Alastair. (2009). “design activism: beautiful strangeness for a sustainable world.” London: Earthscan

Moos, R. H. (Moos). “Social-Ecological Perspectives on Health.” In G. C. Stone, F. Cohen, and N. E. Adler (eds.), *Health*

*Psychology: A Handbook*. San Francisco: Jossey-Bass

Stokols, D. (1992). “Establishing and Maintaining Healthy Environments: Toward a Social Ecology of Health Promotion.”

*American Psychologist*, 1992, 47, 6–22.

Stokols, D., Grzywacz, J. G., McMahan, S., and Phillips, K. (2003). “Increasing the Health Promotive Capacity of Human Environments.” *American Journal of Health Promotion*, 2003, 18, 4–13.

Glass, T. A., and McAtee, M. J. (2006). “Behavioral Science at the Crossroads in Public Health: Extending Horizons, Envisioning the Future.” *Social Science and Medicine*, 2006, 62, 1650–1671

Forum for the Future. (2000). “The Five Capitals Model.” <http://www.forumforthefuture.org/>

- Lovins, Amory, Lovins, L Hunter and Hawken, Paul. (1999). "Natural Capitalism". New York, NY: Little Brown and Company
- Braungart, Michael McDonough, William (2002). *Cradle to Cradle*. New York: North Point Press
- Daly, Herman. (1991). *Steady State Economics* (2nd edition). Washington DC: Island Press.
- Farley, Joshua and Daly, Herman (2003). *Ecological Economics: Principles and Applications*. Washington DC: Island Press.
- Hawley, A. H. (1950). *Human ecology: A theory of community structure*. New York: Ronald Press
- Odum, Eugene P. (1953). *Fundamentals of Ecology*. Philadelphia: W. B. Saunders Company
- Orr, David. (1992). "Ecological Literacy: Education and the Transition to a Postmodern World." S.U.N.Y. Press, NY.
- Bowers, C.A. (1996). "The cultural dimensions of ecological literacy." *Journal of Environmental Education*." Vol 27. Issue 2. 1996.
- Cutter-Mackenzie, Amy and Smith, Richard. (2003). "Ecological literacy: the 'missing paradigm' in environmental education." *Environmental Education Research*. Volume 9, Issue 4, 2003
- Berkowitz, A. R. (2000). *Towards a definition of ecological literacy*. Institute of Ecosystem Studies. Retrieved June 29, 2007, from [http://www.ecostudies.org/people\\_sci\\_berkowitz\\_literacy.html](http://www.ecostudies.org/people_sci_berkowitz_literacy.html)
- Berkowitz, A. R., Ford, M. E., & Brewer, C. A. (2005). A framework for integrating ecological literacy, civics literacy and environmental citizenship in environmental education. *Environmental Education and Advocacy: Changing Perspectives of Ecology and Education*, 227-266.
- Capra Fritjof. (2005) "Speaking Nature's Language, Principles for Sustainability." in "Ecological Literacy, Educating our Children for a Sustainable World." San Francisco: Sierra Club Books.
- Light, Andrew. (2003). "Urban Ecological Citezenship." *Journal of Social Philosophy*. Vol 34 No. 1. 44-63
- O'Sullivan, Edmund and Taylor, Marilyn. (2004). "Learning Toward and Ecological Consciousness." New York: MacMillan.
- Krischenmann, Frederick L. (2010). "Cultivating and Ecological Consciousness." Berkeley: Counterpoint.
- Spirn, Anne Whiston. (2005). *Landscape Research*, "Restoring Mill Creek: Landscape Literacy, Environmental Justice and City Planning and Design." July, 2005.
- Krasny, Marianne E. and Tidball, Kieth G. (2009). "Applying a Resilience Framework to Urban Environmental Education." *Environmental Education Research*.
- Cutter-Mackenzie, Amy and Smith, Richard. (2003). "Ecological literacy: the 'missing paradigm' in environmental education." *Environmental Education Research*. Volume 9, Issue 4, 2003
- Berry, Wendell. (1981). "Solving for Pattern." Philadelphia: North Point Press
- Barry, C. (2009). *The environment/society disconnect: An overview of a concept tetrad of environment*.

The Journal of Environmental Education, 41(2), 116–132.

Haeg, Fritz. (2010). *Edible Estates: Attack on the Front Lawn a Project by Fritz Haeg*.

Krischenmann, Frederick L. (2010). "Cultivating and Ecological Consciousness." Berkeley: Counterpoint.

Gunderson, L.H. and Pritchard L. (2002). "Resilience and the Behaviour of Large-Scale Systems." Island Press.

Holling, C.S. (2004). "Regime Shifts, Resilience, and Biodiversity in Ecosystem Management". *Annual Review of Ecology, Evolution, and Systematics* 35: 557–581

Walker, B., Holling, C. S., Carpenter, S. R., Kinzig, A. (2004). "Resilience, adaptability and transformability in social–ecological systems". *Ecology and Society* 9 (2): 5.

Walker, B., Sale, D. (2006). "Resilience Thinking, Sustaining Ecosystems and People in a Changing World." Island Press.

Belair C., Ichikawa K. Wong B and Mulongoy K. (2010). "Sustainable use of biological diversity in socio-ecological production landscapes." Secretariat of the Convention on Biological Diversity, Montreal: Technical Series no 52.

Diamond, Jarred. (2005). *Collapse: How Societies Choose to Fail or Succeed*. New York: Penguin Books. pg. 280-281

Holling, C.S. (1973). "Resilience and stability of ecological systems". *Annual Review of Ecology and Systematics* 4: 1–23.

Gunderson, L.H. (2000). "Ecological Resilience — In Theory and Application". *Annual Review of Ecology & Systematics* 31: 425.

Ibid.

Walker and Sale, 2006

Gunderson, 2000

Weins, John A. et al. editors. (2007). *Foundation Papers in Landscape Ecology*. New York: Columbia University Press.

Pretty, Jules and Pearson Craig J. (2010). *Urban Agriculture: diverse activities and benefits for city society*. London: Earthscan

United Nations University Institute of Advanced Studies. (2013). <http://ias.unu.edu/en/>

Borden, S. 1993. The human component of ecosystems. in McDonnell MJ, Pickett STA eds. *Humans and Components of Ecosystems: The Ecology of Subtle Human Effects and Populated Areas*. New York: Springer-Verlag

Pickett, S. T. A. and M. J. McDonnell. 1993. *Humans as components of ecosystems: A synthesis*. FPAGE



310–316 in McDonnell MJ, Pickett STA eds. *Humans as Components of Ecosystems: The Ecology of Subtle Human Effects and Populated Areas*. New York: Springer-Verlag

Grimm, N. B. 1997. Opportunities and challenges in urban ecological research. *Proceedings of the International LTER meeting*; 10–14 Nov 1997

Pickett S.T.A. et al. (2001). “Urban Ecological Systems: Linking Terrestrial, Ecological, Physical, and Socio-economic Components of Metropolitan Areas.” *Annual Review of Ecological Systems* 2001 32:127-157

Grove et. al. (2003). “A Social Ecology Approach to Understanding Urban Ecosystems and Landscapes.”

Grimm N. and Redman C. (2004). “Approaches to the Study of urban eco-systems: The case of Central Arizona—Phoenix.” *Urban Ecosystems*, &: 199-213.

Alessa L., Kliskey A., and Altaweel, M. (2009) “Toward a typology for social-ecological systems.” *Sustainability: Science, Practice, & Policy* 5(1):31-41

#### Alternative food networks (AFN) research

Martinez, Steve et al. (2010). *Local Food Systems: Concepts, Impacts, Issues*. ERR 97, US Department of Agriculture, Economic Research Service. May

Foss, Nicole. (2012). <http://ecologicalsociology.blogspot.com/2012/01/stoneleigh-trust-horizon.html>

Kunstler, James. (2012). <http://kunstlercast.com/shows/kunstlercast-190-the-trust-horizon.html>

Pollan, Michael. (2006). *The Omnivore's Dilemma: A Natural History of Four Meals*. New York: Penguin Press

Pollan, Michael. (2008). *In Defense of Food: An Eaters Manifesto*. New York: Penguin Press

Weber, Karl. (2009). *Food Inc. How Industrial Food is Making Us Sicker, Fatter, and Poorer-And What You Can Do About It*. Beverly Hills, CA: Participant Media

Salatin, Joel. (2007). *Everything I Want To Do Is Illegal: War Stories From the Local Food Front*. New York: Hachette Book Group

Salatin, Joel. (2011). *Folks, This Ain't Normal: A Farmer's Advice for Happier Hens, Healthier People, and a Better World*. New York: Hachette Book Group

Ilbery, B. and Kneafsey, M. (1998). ‘Product and Place: Promoting Quality Products and Services in the Lagging Rural Regions of the European Union’, *European Urban and Regional Studies* 5 (4): 329–41

Winter, M. (2003). “Embeddedness, the New Food Economy and Defensive Localism.” *Journal of Rural Studies* 19: 23–32.

Boggs, J. S. and Rantisi, N. M. (2003). “The ‘Relational Turn’ in Economic Geography”. *Journal of Economic Geography* 3: 109-116.

Kirwan, J. (2004). *Alternative strategies in the UK agro-food system: interrogating the alterity of farmers' markets-* Sociologia ruralis, Wiley Online Library

Morgan, K.J., Marsden T.K., and Murdoch J. (2006) *Worlds of Food: Place, Power and Provenance in the Food Chain*. Oxford: Oxford University Press

Allen, Patricia. (2003). "Shifting plates in the agrifood landscape: the tectonics of alternative agrifood initiatives in California." *Journal of Rural Studies* Volume 19, Issue 1, January 2003, Pages 61-75

O'Hara S. and Stagl S. (2001). "Global Food Markets and Their Local Alternatives: A King-Ecological Economic Perspective." *Population & Environment*. Volume 22, Number 6, 533-554

Marsden, Terry and Smith, Everard. (2005). "Ecological Entrepreneurship: sustainable development in local communities through quality food production and local branding." *Geoforum* 36, 2005, 440-451

Allen, 2003. Pg. 61-75

Jacobs, Jane. (1969). *The Economy of Cities* New York: Random House

Buchmann, Christine. (2009). "Cuban Home Gardens and Their Role in Socio-ecological Resilience." *Human Ecology* 37: 705-721.

Hou, Jeff, Johnson, Julie and Lawson, Laura. (2009). "Urban Community Gardens: Greening the City and Growing Communities in Seattle." Seattle: University of Washington Press.

Duchemin, E. et al. (2008). "Urban Agriculture: multi-dimensional tools for social development in poor neighborhoods." *Journal of Field Actions* Vol 1. (2008).

Edwards, Ferne. (2011). "Small, Slow and Shared: Emerging Social Innovations in Urban Australian Foodscapes." *Australian Humanities Review* Issue 51.

Ibid.

Svendsen, E. S. and Campbell, L.K. (2008). "Urban Ecological Stewardship: Understanding the Structure, Function, and Network of Community Based Urban Land Management." *Cities and the Environment* Vol. 1 Issue 1.

Putnam, Robert D. (2001) *Bowling Alone: The Collapse and Revival of American Community*. New York: Simon and Schuster

Literature on the 'scaling up' of urban agriculture

How and Lawson, 2009, pg. 189-190

Friedmann, Harriet. (2007). *Scaling up: Bringing public institutions and food service corporations into the project for a local, sustainable food system in Ontario* Agriculture and Human Values (2007) 24:389–398

Day-Farnsworth, Lindsay. (2009). *Scaling up-Meeting the Demand for Local Food*. Madison, Wisconsin: Center of Integrated Agriculture

Nasr, J. MacRae, R. & Kuhns, J. "Scaling Up Urban Agriculture in Toronto: Building the Infrastructure"  
The Metcalf Foundation: Metcalf Food Solutions, 2010.

Gray, L. (2011). Scaling up backyard gardens to build food justice. Paper presented at the Annual Meeting  
of the Association of American Geographers, Seattle, WA

Glowa, Michelle, (2013). Can home gardens scale up into movements for social change? The role of home  
gardens in providing food security and community change in San Jose, California

Van de Burg and Curtis, 2011

Been, 2006

Meadows, Donella H. (2008). "Thinking in Systems". White River Junction, Vermont: Chelsea Green  
Publishing, pg. 11

## Essay 1 Results

### Manual's Tavern

Freedom Park Conservancy. (2014). "History" <http://www.freedompark.org/fpc/about/history/>

Florida, Richard. (2014). "Class Divided Cities: Atlanta Edition." Citylab. <http://www.citylab.com/housing/2013/02/class-divided-cities-atlanta-edition/4613/>

Oldenburg, Ray. (1989). The Great Good Place: Cafes, Coffee Shops, Bookstores, Bars, Hair Salons, and  
Other Hangouts at the Heart of a Community. New York: Marlowe and Company

Shuman, Michael Poole, Kate. (2012). "Growing Local Living Economies: A Grassroots Approach to  
Economic Development. BALLE

BALLE (2013). Business Alliance for Local Living Economies. <https://bealocalist.org/>

### Farmer D

Taylor, John R. and Lovell, Sarah. (2012). Mapping public and private spaces of urban agriculture in  
Chicago through the analysis of high-resolution aerial images in Google Earth. Landscape and Urban  
Planning 108 (2012) 57– 70

Ibid.

Farmer D Organics. (2013). <http://www.farmerd.com/>

Dunham-Jones, Ellen and Williamson, June (2011). Retrofitting Suburbia: Urban Design Solutions for  
Retrofitting Suburbia. Hoboken, NJ: John Wiley and Sons.

Marohn, Charles. (2012). Thoughts on Building Strong Towns Volume 1. <http://www.strongtowns.org/>

### Peachtree Hills Community Garden

Cohen, N., & Reynolds, K. (2012). Five Borough Farm: Seeding the Future of Urban Agriculture in New

York City. New York: Design Trust for Public Space. 2012

Atlanta Local Food Alliance. (2014) ALFI speaking at the American Planning Association annual Conference, Atlanta, GA 2014. <http://www.atlantafood.org/>

USGS. (2013). "Elevations and Distances in the United States." United States Geological Survey. <http://pubs.usgs.gov/gip/Elevations-Distances/elvadist.html#50>

Park Pride. (2013). <http://www.parkpride.org/>

Concrete Jungle

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

American Forests. (2001). *Urban Ecosystem Analysis: Calculating the Value of Nature*. Washington DC: American Forests.

Ibid.

Trees Atlanta. (2013). <http://treesatlanta.org/>

Diamond, 2005, pg. 280-281.

Mann, Charles. (2005). *1491: New Revelations of the Americas Before Columbus*. New York: Vintage Books, Random House

De J Hart, Robert, A. (1991). *Forest Gardening: Rediscovering Nature and Community in a Post-Industrial Age*. UK: Green

Concrete Jungle. (2013). Food Map. <http://www.concrete-jungle.org/food-map>

East Lake Community Learning Garden and Urban Farm

Hodgson, K., Campbell, M. C., and Bailkey, M. (2011). *Urban Agriculture: Growing Healthy, Sustainable Places*. Chicago: American Planning Association, Planning Advisory Service

Cohen and Reynolds, 2012.

Glaser, Sarah. (2014). *Kudzu: The Vine that Ate the South*. PorterBriggs.com <http://porterbriggs.com/the-vine-that-ate-the-south/>

East Lake Community Learning Garden. (2013). <http://www.eastlakegarden.com/>

Atlanta Food and Farm

Food Commons. (2013). <http://www.thefoodcommons.org/>

Leinberger, Christopher. (1997). "The Coming Revival of American Downtowns," *Lusk Review*

Kundell, James E. (2002). "Urban Sprawl." *New Georgia Encyclopedia*. <http://www.georgiaencyclopedia.org/articles/geography-environment/urban-sprawl>

Truly Living Well

Ebenezer Baptist Church, Atlanta, GA (2013). <http://www.historicebenezer.org/>

Truly Living Well. (2013). <http://trulylivingwell.com/>

National Park Service. (2013). "Sweet Auburn Historic District". National Historic Landmark summary listing. National Park Service

Atlanta Street Car. (2014). <http://streetcar.atlantaga.gov/>

Lydon, Michael. (2012). Tactical Urbanism, The Street Plans Collaborative. [http://issuu.com/streetplanscollaborative/docs/tactical\\_urbanism\\_vol\\_2\\_final](http://issuu.com/streetplanscollaborative/docs/tactical_urbanism_vol_2_final)

Duany, Andres. (2011). Garden Cities: Theory & Practice of Agrarian Urbanism. The Prince's Foundation for the Built Environment.

Berea Mennonite Oakleaf Farm

Mennonite Church. (2013). "History." <http://history.mennonite.net/>

Coalition of Immokalee Worker. (2013). "About CIW." <http://ciw-online.org/>

Emory University Educational Food Gardens

Emory University. (2013). "History and Traditions." <http://www.emory.edu/home/about/history/index.html>

Emory University. (2013). "Sustainable Food." <http://sustainability.emory.edu/page/1008/Sustainable-Food>

Blue Heron Community Garden

Leinberger, 1997

Koolhaas, Rem. (1994). Delirious New York: A Retroactive Manifesto for Manhattan. New York: Monacelli Press.

Duany, Andres. (2014). "Lean Urbanism, A Conversation with Andres Duany," March 24, 2014, Atlanta, GA: CNU Atlanta. <http://www.cnu.org/event/2014/03/lean-urbanism-conversation-andres-duany>

Clarkston Community Center

Ehrenhalt, Alan. (2013). The Great Inversion and the Future of the American City. New York: Vintage Books. pg. 92-93

Marohn, Charles. (2013). "The Stroad." <http://www.strongtowns.org/journal/2013/3/4/the-stroad.html>

Larson, John (Correspondent) and Moore, Fae (Producer) (2010). Dangerous Crossing. PBS July 22, 2010.

Clarkston Community Center. (2013). "Who We Are." <http://clarkstoncommunitycenter.org/about-us/who-we-are/>

Chosewood Park Edible Neighborhood

East Lake Commons. (2013). "East Lake Commons a Cohousing Community in Metro Atlanta." <http://www.eastlakecommons.org/#>

Rugha, Jacob S. and Massey, Douglas S. (2010). "Segregation and the American Foreclosure Crisis." American Sociological Review .October 2010 vol. 75 no. 5 629-651

American Planning Association. (2014). National Conference of the American Planning Association, Atlanta, GA, April 26-30th, 2014.

Tracey, David. (2007). *Guerilla Gardening*. Gabriola Island, British Columbia: New Society Publishers

Piedmont Park Demonstration Garden

Piedmont Park Conservancy, (2013). "Park History" <http://www.piedmontpark.org/visit/history.html>

Allen, Doug, (2013). "Urban Design and Zoning" Doug Allen Lecture, December 2013. Georgia Institute of Technology, Atlanta, GA.

Hester, Randolph. (2006). "Design for Ecological Democracy." Cambridge, MA: MIT Press

Piedmont Park Conservancy., (2014). "Park Restoration." [http://www.piedmontpark.org/restoration/park\\_restoration.html](http://www.piedmontpark.org/restoration/park_restoration.html)

Piedmont Park Conservancy., (2014). "Green Market." [http://www.piedmontpark.org/programs/green\\_market.html](http://www.piedmontpark.org/programs/green_market.html)

Compost Wheels. (2014). "About Us" <http://www.compostwheels.com/>

Ibid.

Lydon, Michael. (2012). *Tactical Urbanism Primer*. The Streets Collaborative

DeMuth, Suzanne. (1993). "Defining Community Supported Agriculture". United States Department of Agriculture.

Gehl, Jan. (1977) *Interface between public and private territories in residential areas*, University of Melbourne

Haeg, Fritz. (2010). *Edible Estates: Attack on the Front Lawn* a Project by Fritz Haeg.

The Wylde Center

The Wylde Center. (2014). "History." <http://wyldecenter.org/history/>

Fresh Roots Farms

The Goat Farm. (2013). <https://www.facebook.com/TheGoatFarmArtsCenter>

Fresh Roots Farms. (2013). "Welcome." <http://www.freshrootsfarm.com/FreshRoots.aspx>

Global Growers Network

Stewart, Bruce. (2004). "Stone Mountain." *New Georgia Encyclopedia*. <http://www.georgiaencyclopedia.org/articles/geography-environment/granite-outcrops>

Global Growers Network. (2014). "Our Farms and Gardens." <http://www.globalgrowers.net/about-us/global-farms-and-gardens.html>

## Citations Essay 2

### 1. Essay Two Literature Review

Deming, Elen M. and Swaffield, Simon. (2011). *Landscape Architecture Research: Inquiry, Strategy, Design*. Hoboken, NJ: John Wiley and Sons. Inc. pg. 133-136

#### Academic typologies between cities

Forsyth, A & Crew, K. (2009). "A typology of comprehensive designed communities since the second world war." *Landscape Journal* 28(1): 56-78.

Lerner, Jonathan. (2011). "Eat Your Subdivision." *Landscape Architecture Magazine*. Feb. 2011 Vol 101 No 2. pg. 78-87

Duany, Andres. (2011). *Garden Cities: Theory & Practice of Agrarian Urbanism*. The Prince's Foundation for the Built Environment. pg. 8

Allen, Douglas C. (2013) "History of Urban Form", recorded lecture, Atlanta Sept. 2013 , GA: Georgia Institute of Technology

Lerner, 2001 pg. 78-87

Welter, Volker M. and Lawson, James. editors. (2000). *The City After Patrick Geddes*. pg. 91

Duany, 2011, pg. 42-43

Ibid. pg. 3

Ibid. pg. 8

Ibid

Ibid

Alessa L., Kliskey A., & Altaweel M. (2009). Toward a typology for social-ecological systems. *Sustainability: Science, Practice, & Policy* 5(1):31-41.

#### Academic typologies within cities

King, C. A. (2008). Community resilience and contemporary agri-ecological systems: reconnecting people and food, and people with people. *Systems Research and Behavioral Science*, 25(1), 111-124.

Lawson, Laura. (2004). "The Planner in the Garden: A Historical View of the Relationship of Planning to Community Garden Programs." *Journal of Planning History* 3, 2 (May 2004): 151-176.

Hodgson, K., Campbell, M. C., and Bailkey, M. (2011). *Urban Agriculture: Growing Healthy, Sustainable Places*. Chicago: American Planning Association, Planning Advisory Service

Lawson, 2004. Pg 151-176



Non-academic or professional typologies

Mendes et al. (2008). "Using Land Inventories to Plan for Urban Agriculture: Experiences From Portland and Vancouver." *Journal of the American Planning Association*, Volume 74, Issue 4, 2008

Colasanti, Kathryn J. A., Litjens, Michael W. Hamm & Charlotte M. (2012). "The City as an 'Agricultural Powerhouse?'" *Perspectives on Expanding Urban Agriculture from Detroit, Michigan.* *Urban Geography*, 33:3, 348-369

McClintock, N. (2010). "Why farm the city? Theorizing urban agriculture through a lens of metabolic rift." *Cambridge Journal of Regions, Economy & Society*, Vol. 3, 191–207

McClintock, N., and Cooper, J. (2010). *Cultivating the Commons An Assessment of the Potential for Urban Agriculture on Oakland's Public Land*. Available at [www.urbanfood.org](http://www.urbanfood.org).

Atlanta Local Food Initiative. (2013). <http://www.atlantafood.org/>

Hodgson et. al, 2011

Pothukuchi, K. H. et al. (1999). "Placing the Food System on the Urban Agenda: The Role of Municipal Institutions in Food Systems Planning." *Agriculture and Human Values* 16(2): 213-224

Pothukuchi, K. H. et al. (2000). "The Food System: A Stranger to Urban Planning." *Journal of the American Planning Association*. 66(2): 113-124

Canton-Campbell, Marcia. (2004). "Building a Common Table: The Role for Planning in Community Food Systems." *Journal of Planning Education and Research*, 23(4): 341-355

Hodgson et. al, 2011, pg 6.

Ibid.

Ibid. pg. 16

Ibid. pg. 17-18

Ibid. pg. 28

Ibid. pg.

Cohen, N., & Reynolds, K. (2012). *Five Borough Farm: Seeding the Future of Urban Agriculture in New York City*. New York: Design Trust for Public Space. 2012

Added Value. (2013). <http://added-value.org/>

Cohen and Reynolds, 2012, pg. 5

Ibid. pg. 40

Ibid. pg. 50

Ibid. pg. 57

Ibid. pg. 58

Ibid. pg. 60

Philips, April. (2013). *Designing Urban Agriculture: A Complete Guide to the Planning, Design, Construction, Maintenance and Management of Edible Landscapes*. New York: John Wiley and Sons pg. vii

Ibid. pg. 126-131

De la Salle, Janice and Houland, Mark. (2010). *Agricultural Urbanism: Handbook for Building Sustainable Food and Agricultural Systems in 21 Century Cities*. Winnipeg: Canada, Green Frigate Books. pg. 203

Ibid. pg. 30-31

Meadows, Donella H. (2008). "Thinking in Systems". White River Junction, Vermont: Chelsea Green Publishing, pg 17

De la Salle and Houland, 2010, pg. 57

Ibid. pg. 106

Ibid. pg. 220-237

Ibid. pg. 44-47

Ibid. pg. 39

Ibid. pg. 200

## 2. Essay Two Results

Allen, Douglas C. (2013). "History of Urban Form", recorded lecture, Atlanta Sept. 2013 , GA: Georgia Institute of Technology

Philips, 2013, pg. 126-131

Duany, 2011, pg. 8

Gehl, Jan. (1977) *Interface between public and private territories in residential areas*, University of Melbourne

Worrel Gabriela. (2009). *Planning Magazine*. "Lawn Be Gone". Chicago: American Planning Association. pg. 20-23

Waldheim, Charles. (2006). "The Landscape Urbanism Reader. New York: Princeton Architectural Press. Waldheim, Charles, editor

Hester, Randolph. (2006). "Design for Ecological Democracy." Cambridge, MA: MIT Press

Haeg, Fritz. (2010). *Edible Estates: Attack on the Front Lawn a Project by Fritz Haeg*

Concrete Jungle. (2013). <http://www.concrete-jungle.org/>

Feld, Scott, L. (1981). "The focused organization of social ties." *American Journal of Sociology*, 86, 5,

1981, pp. 1015-1035

Relph, Edward. (1976). *Place and Placelessness*. London: Pion Ltd.

Ibid.

Ackerman-Leist, Philip. (2013). *Rebuilding the Foodshed: How to Create Local, Sustainable, and Secure Food Systems*. Chelsea Green Publishing. pg. 11

Cullen, Gordon. (1961). *Introduction to the Concise Townscape*. New York: The Architectural Press of Routledge

Oldenburg, Ray. (1989). *The Great Good Place: Cafes, Coffee Shops, Bookstores, Bars, Hair Salons, and Other Hangouts at the Heart of a Community*. New York: Marlowe and Company

Ibid.

Lyson, Tom and Hinrichs, C Clare. Editors. (2009). *Remaking the North American Food System: Strategies for Sustainability*, Board of Regents of the University of Nebraska, 207, 19

Hough, Michael. (1990). *Out of Place: Restoring Identity to the Regional Landscape*

Ibid.

Ackerman-Leist, 2013, pg. 219

Meadows, 2008, pg. 17

Hester, Randolph. (2006). "Design for Ecological Democracy." Cambridge, MA: MIT Press

Johnson, Bart R. and Hill, Kristina. editors. (2002). *Ecology and Design: Frameworks for Learning*. Washington DC: Island Press.

Relph, 1976.

Cohen and Reynolds, 2012, pg. 51

Pod Ponics, (2014). <http://podponics.com/in-the-news/>

Ackerman-Leist, 2013, pg. 277

Sullivan, Arthur, and Sheffrin, Steven M. (2003). *Economics: Principles in Action*. Upper Saddle River, NJ: Pearson Prentice Hall.

Aragona, Frank. (2014). <http://agroinnovations.com/blog/2014/08/20/understanding-economies-of-scale/> by Frank Aragona

Pollan, Michael. (2008). *In Defense of Food: An Eaters Manifesto*. New York: Penguin Press

The Land Institute. (2013). <http://www.landinstitute.org/>

Aragona, 2014

Cohen and Reynolds, 2012, pg. 45

Ibid. pg. 59

Lawson, 2004, 151-176

### 3. Next Steps and Recommendations

Born, Brandon and Purcell, Mark (2006). Avoiding the Local Trap: Scale and Food Systems in Planning Research. *Journal of Planning Education and Research*. December 2006 vol. 26 no. 2 195-207

Ibid

Friedman, John. (1987). *Planning in the Public Domain*. Princeton, NJ: Princeton University Press

Ackerman-Leist, 2013, pg. 241

Ibid. pg. 291

Marohn, Charles. (2012). *Thoughts on Building Strong Towns, Volume 1*. Braner, MN: <http://www.strongtowns.org/>

Newman, Peter and Beatley, Timothy. (2009). *Resilient Cities: Responding to Peak Oil and Climate Change*. Washington DC: Island Press.

Newman, Peter. (2010). *Resilient Cities*, in Cork, S.J. (ed), *Resilience and Transformation: Preparing Australia for Uncertain Futures*. pp. 81-98. Victoria: CSIRO.

Ahern, Jack. (2011). From fail-safe to safe-to-fail: Sustainability and resilience in the new urban world. *Landscape and Urban Planning*, Volume 100, Issue 4, 30 April 2011, Pages 341–343

Dresner, Simon. (2002). *The Principles of Sustainability*. London: Earthscan

Newman and Beatley, 2009.

Luccarelli, Mark. (1995). *Lewis Mumford and the Ecological Region: the politics of planning*. New York: Guilford Press

Waldheim, 2006

Ackerman-Leist, 2013, pg. 68

Ackerman-Leist, 2013, pg. 71

Cohen and Reynolds, 2012, pg. 151

Ackerman-Leist, 2013, pg. 243

Cohen and Reynolds, 2012, pg.132

de la Salle and Houland, 2010, pg. 44-47, 106

Ibid. pg 45

APA, Atlanta, (2014). <http://georgiaplanning.org/conference/2014-apa-national-conference/>

Been, V. and I. Voicu. 2006. *The Effect of Community Gardens on Neighboring Property Values*, New York University School of Law, New York University Law and Economics Working Papers Paper 46

Pena, Devon G. (2005). Farmers Feeding Families: Agroecology in South Central Los Angeles. Lecture presented to the Environmental Science, Policy, and Management Colloquium University of California – Berkeley, October 10, 2005.

Hoffman, Jessica. (2006). History of the South Central Farm, How the community has used the land since 1985, The Newstandard

Ackerman-Leist, 2013, 246

Cohen and Reynolds, 2012, pg. 113

Beltline.org. (2014). <http://beltline.org/progress/progress/economic-development-progress/>

Stiftel, Bruce. (2000). Planning Theory. Pp.4-16 in The National A.I.C.P. Examination Course Guidebook 2000, ed. Roshi Pelaseyed. American Institute of Certified Planners: Washington, DC

Born and Purcell, 2006, 195-207

Ibid.

Cohen and Reynolds, 2012, pg. 117

Ibid. pg. 153

Lawson, 2004, 151-176

Hou, Jeffery, Johnson, Julie M. and Lawson, Laura. (2009). Greening Cities Growing Communities: Learning from Seattle's Urban Community Gardens. Seattle: University of Washington Press

Fox, Tom et al. (1985). Struggle for Space: The Greening of New York City, 1970-1984. New York: Neighborhood Space Coalition.

Francis, Mark. (1987). "Some different meanings attached to a city park and community gardens." Landscape Journal 6 (2): 101-112.

Ackerman-Leist, 2013, 234

APA, Atlanta, (2014). <http://georgiaplanning.org/conference/2014-apa-national-conference/>

Lawson, 2004, 151-176

Cohen and Reynolds, 2012, 117

Ibid.

Ehrenhalt, Alan. (2013). The Great Inversion and the Future of the American City. New York: Vintage Books.

Leinberger, Christopher. (2013). "The WalkUP Wake-Up Call: Walkable Urban Development in Atlanta." Washington DC: George Washington University School of Business.

Lawson, 2004, 151-176

Cohen and Reynolds, 2012. pg. 51, 53, 59, 61

Friedman, 1987

Hester, 2006, pg. 325

Ibid. pg. 327

Ibid. 49

Ibid. 344

Hough, M. (1990). Out of place: restoring identity to the regional landscape. Yale University Press.

Orr, David. (1992). "Ecological Literacy: Education and the Transition to a Postmodern World." S.U.N.Y. Press, NY.

Landscape architecture Foundation. (2013). Landscape Performance Series, Food Production. <http://landscapeperformance.org>

Cohen and Reynolds, 2012, pg. 84-98

Canning, Patrick et al. (2010). Energy Use in the US Food System. Report by the US Department of Agriculture's Economic Research Service.

Garza, Eric. (2014). The Energy Cost of Local Food. <http://www.resilience.org/stories/2014-07-07/the-energy-cost-of-local-food>

Yang, Perry. (2013). Agrarian Urbanism Studio 2012 Report. College of Architecture, Georgia Institute of Technology

## Citations Essay 3

Orr, David. (1992). "Ecological Literacy: Education and the Transition to a Postmodern World." S.U.N.Y. Press, NY.

Bowers, C.A. (1996). "The cultural dimensions of ecological literacy." *Journal of Environmental Education*. Vol 27. Issue 2. 1996.

Cutter-Mackenzie, Amy and Smith, Richard. (2003). "Ecological literacy: the 'missing paradigm' in environmental education." *Environmental Education Research*. Volume 9, Issue 4, 2003

Berkowitz, A. R. (2000). Towards a definition of ecological literacy. Institute of Ecosystem Studies. Retrieved June 29, 2007, from [http://www.ecostudies.org/people\\_sci\\_berkowitz\\_literacy.html](http://www.ecostudies.org/people_sci_berkowitz_literacy.html)

Berkowitz, A. R., Ford, M. E., & Brewer, C. A. (2005). A framework for integrating ecological literacy, civics literacy and environmental citizenship in environmental education. *Environmental Education and Advocacy: Changing Perspectives of Ecology and Education*, 227-266.

Capra Fritjof. (2005) "Speaking Nature's Language, Principles for Sustainability." in "Ecological Literacy, Educating our Children for a Sustainable World." San Francisco: Sierra Club Books

Light, Andrew. (2003). "Urban Ecological Citezenship." *Journal of Social Philosophy*. Vol 34 No. 1. 44-63

O'Sullivan, Edmund and Taylor, Marilyn. (2004). "Learning Toward and Ecological Consciousness." New York: MacMillan.

Krischenmann, Frederick L. (2010). "Cultivating and Ecological Consciousness." Berkeley: Counterpoint.

Spirn, Anne Whiston. (2005). *Landscape Research*, "Restoring Mill Creek: Landscape Literacy, Environmental Justice and City Planning and Design." July, 2005.

### Defining Ecological Literacy

Gunderson, L.H. and Pritchard L. (2002). "Resilience and the Behaviour of Large-Scale Systems." Island Press.

Holling, C.S. (2004). "Regime Shifts, Resilience, and Biodiversity in Ecosystem Management". *Annual Review of Ecology, Evolution, and Systematics* 35: 557–581

Walker, B., Holling, C. S., Carpenter, S. R., Kinzig, A. (2004). "Resilience, adaptability and transformability in social–ecological systems". *Ecology and Society* 9 (2): 5.

Walker, B., Sale, D. (2006). "Resilience Thinking, Sustaining Ecosystems and People in a Changing World." Island Press.

Belair C., Ichikawa K. Wong B and Mulongoy K. (2010). "Sustainable use of biological diversity in socio-ecological production landscapes." Secretariat of the Convention on Biological Diversity, Montreal: Techniacl Series no 52.



Diamond, J. M. (2005). *Collapse: How societies choose to fail or succeed*. New York: Viking Press. pg. 280-281

Leopold, Aldo. (1949). *A Sand County Almanac*. London: Oxford University Press.

Hawley, A. H. (1950). *Human ecology: A theory of community structure*. New York: Ronald Press

Odum, Eugene P. (1953). *Fundamentals of Ecology*. Philadelphia: W. B. Saunders Company

Orr 1992

Barlow, Zenobia and Stone, Michael. editors.(2005). *Ecological Literacy: Educating or Children for a Sustainable World*. San Francisco: Sierra Club Books

Ibid.

Ibid.

Friedman, John. (1987). *Planning in the Public Domain*. Princeton, NJ: Princeton University Press

Barlow, 2005

Capra, Fritjof. (1997). *A New Scientific Understanding of Living Systems: The Web of Life*. New York: Random House

Alexander, Christopher. (1977). *A Pattern Language: Towns, Buildings, Construction*. London: Oxford University Press

Capra, 1997

Meadows, Donella. (2002). *Dancing with Systems*. *The Systems Thinker*, Vol. 13, No. 2 (March 2002)

Ibid

Mollison, Bill. (1988). *Permaculture, A Designer's Manual*. Tasmania, Australia: Tagari Publications

Holmgren, David. (2002). *Permaculture: Principles and Pathways beyond Sustainability*. Hepburn, Australia: Holmgren Design Services

Ibid. pg. 55

Hester, Randolph. (2006). "Design for Ecological Democracy." Cambridge, MA: MIT Press. pg. 325

Hester, 2006, pg. 344

Hester, 2006, pg. 327

Hester, 2006, pg. 366-368

Hester, 2006, pg. 283

Hester, 2006, pg. 59

Ibid

Berkowitz, A. R., Ford, M. E., & Brewer, C. A. (2005). A framework for integrating ecological literacy, civics literacy and environmental citizenship in environmental education. *Environmental Education and*

Advocacy: Changing Perspectives of Ecology and Education, 227-266.

Berkowitz, 2005

Berkowitz, 2005, pg. 235

Berkowitz, 2005, pg. 242

#### Ecological Literacy Research 2000-2010

Krasny, M. E., & Doyle, R. (2002). Participatory Approaches to Program Development and Engaging Youth in Research: The Case of an InterGenerational Urban Community Gardening Program. *Journal of Extension*, 40(5), 1–16

Ober Allen, J., Alaimo, K., Elam, D., & Perry, E. (2008). Growing Vegetables and Values: Benefits of Neighborhood-Based Community Gardens for Youth Development and Nutrition. *Journal of Hunger & Environmental Nutrition*, 3(4), 418–439

Kerton, S., & Sinclair, A. J. (2009). Buying local organic food: a pathway to transformative learning. *Agriculture and Human Values*, 27(4), 401–413

Travaline, K., & Hunold, C. (2010). Urban agriculture and ecological citizenship in Philadelphia. *Local Environment*, 15(6), 581–590

Bradley, K., & Galt, R. E. (2013). Practicing food justice at Dig Deep Farms & Produce, East Bay Area, California: self-determination as a guiding value and intersections with foodie logics. *Local Environment*, 1–15

Kerton & Sinclair, 2009, pg. 401-413

Levkoe, C. Z. (2006). Learning Democracy through Food Justice Movements. *Agriculture and Human Values*, (23), 89–98

Bregendahl, C., & Flora, C. B. (2007). The Role of Collaborative Community Supported Agriculture: Lessons from Iowa, 1–84

Travaline, K., & Hunold, C. (2010). Urban agriculture and ecological citizenship in Philadelphia. *Local Environment*, 15(6), 581–590

Spirn, 2005

Cutter-Mackenzie and Smith, 2003

Diamond, 2005

#### Eco-Literacy Research 2010 to Present

Nichols, Bryan H. (2010). Essential Ecoliteracy, or “earth smarts”: Defining and validating a pragmatic educational construct based on quality of life. *Journal of Sustainability Education*. <http://www.>

jsedimensions.org/wordpress/content/essential-ecoliteracy-or-%E2%80%9Cearth-smarts%E2%80%9D-defining-and-validating-a-pragmatic-educational-construct-based-on-quality-of-life\_2010\_05/

Cary Institute. (2013). Cary Institute of Ecosystem Studies. Millbrook, New York. <http://www.caryinstitute.org/science-program/research-projects/defining-ecological-literacy/ecological-literacy-survey>

McBride, Brooke B. (2011). Essential Elements of Ecological Literacy and the Pathways to Achieve It: Perspectives of Ecologists. University of Montana Scholar Works. <http://scholarworks.umt.edu/cgi/viewcontent.cgi?article=1399&context=etd>

Gehl, Jan. (1977) Interface between public and private territories in residential areas, University of Melbourne

Haeg, Fritz. (2010). Edible Estates: Attack on the Front Lawn a Project by Fritz Haeg.

Taylor, John R. and Lovell, Sarah. (2012). Mapping public and private spaces of urban agriculture in Chicago through the analysis of high-resolution aerial images in Google Earth. *Landscape and Urban Planning* 108 (2012) 57– 70

Babbie Earl R. (2010). *The Practice of Social Research*, (12th Edition). Belmont, CA: Wadsworth Cengage Learning.

Survey Gizmo (2010) <http://www.surveygizmo.com/survey-blog/survey-response-rates/> (Jan 28, 2010)

Curtin, Richard; Presser, Stanley and Singer, Eleanor. (2000). "The effects of response rate changes on the index of consumer sentiment." *Public Opinion Quarterly*; Winter 2000; 64, 4; pg. 413

Holbrook, Allyson; Jon, Krosnick, and Aliso, Pfent. (2007). "The Causes and Consequences of Response Rates in Surveys by the News Media and Government Contractor Survey Research Firms." New York: Wiley

McBride, 2011

Ibid. pg. 152

McBride, 2011

## Citations Conclusion

Campbell, Scott. (1996). "Green Cities, Growing Cities, Just Cities? Urban Planning and the Contradictions of Sustainable Development." *Journal of the American Planning Association* Volume: 62 Issue: 3 Pages: 296-312

Wheeler, Stephen M. (2006). *Planning for Sustainability*. New York: Routledge. Ch. 5, "Issues Central to Sustainability Planning."

Dresner, Simon (2009). "The Principles of Sustainability." Sterling, VA: Earthscan

Lyle, J. T. (1996). *Regenerative design for sustainable development*. John Wiley & Sons.

Newman, P., Beatley, T., & Boyer, H. (2009). *Resilient cities: responding to peak oil and climate change*. Island Press.

Wilkinson, C. (2012). "Urban resilience: What does it mean in planning practice." *Planning Theory and Practice*, 13(2), 319-324.

Taleb, N. N. (2012). *Anti-fragile: things that gain from disorder*. Random House Incorporated.

Marohn, Charles. (2015). "The anti-fragile city." *Strong Towns* published on Jan 22, 2015, <http://shoutengine.com/StrongTownsPodcast/the-antifragile-city-part-1-6089>

Hall, P. (2002). *Cities of Tomorrow: An Intellectual History of Urban Planning and Design Since 1880*. John Wiley & Sons. Pg 296-351.

Dobbins, Michael. (2009). *Urban Design and People*. Hoboken, NJ: John Wiley and Sons Inc. pg 70.

Bacon, E. N. (1974). *Design of cities*. Thames and Hudson.

Friedmann, J. (1987). *Planning in the public domain: from knowledge to action*. Princeton University Press.

Urban Planning Epistemology: Science or Design?

Zucker, P. (1959). *TOWN AND SQUARE FROM THE AGORA TO THE VILLAGE GREEN..*

Spreiregen, Paul D. (1965). *Urban Design: The Architecture of Towns and Cities*.

Bacon, E. N. (1974). *Design of cities*. Thames and Hudson

Galantay, E. Y. (1975). *New towns: Antiquity to the present*. George Braziller

Friedmann, 1987

Flyvbjerg, B. (2001). *Making social science matter: Why social inquiry fails and how it can succeed again*. Cambridge university press.

Hall, 2002, pg. 352-378

Ralph, Edward. (1976). *Place and Placelessness*. London: Pion Ltd.

Oldenburg, Ray. (1989). *The Great Good Place: Cafes, Coffee Shops, Bookstores, Bars, Hair Salons, and*

Other Hangouts at the Heart of a Community. New York: Marlowe and Company

Hough, M. (1990). *Out of place: restoring identity to the regional landscape*. Yale University Press.

Duany, A., Plater-Zyberk, E., & Speck, J. (2001). *Suburban nation: The rise of sprawl and the decline of the American dream*. Macmillan.

Tachieva, G. (2010). *Sprawl repair manual*. Island Press.

Dunham-Jones, E., & Williamson, J. (2011). *Retrofitting Suburbia, Updated Edition: Urban Design Solutions for Redesigning Suburbs*. John Wiley & Sons.

Corner, James. Editor. (1999). *Recovering Landscape Essays in Contemporary Landscape Architecture*. New York: Princeton Architectural Press

Waldheim, Charles. editor. (2006) *"The Landscape Urbanism Reader*. New York: Princeton Architectural Press.

Hamilton Baillie, Ben. (2014). "Poynton Regenerated: A transformative Shared Space project." In *Convergence: The Politics of Transport in Cities*. <https://worldstreets.wordpress.com/2013/03/16/poynton-regenerated-a-transformative-shared-space-project/>

LaPlante, J., & McCann, B. (2008). Complete streets: We can get there from here. *ITE journal*, 78(5), 24

Marohn, Charles. (2012). *Thoughts on Building Strong Towns Volume 1*. <http://www.strongtowns.org/>

Batty, M. (2012). Building a science of cities. *Cities*, 29, S9-S16.

Mehaffy, M. (2014). "What Can a 'Science of Cities' Offer Planners?" Planetizen, published June 25, 2014 <http://www.planetizen.com/node/69957>

Orr, David. (2014). *Systems Thinking and the Future of Cities Solutions for a Sustainable and Desirable Future*. Volume 5, Issue 1, pgs. 54-61, May 2014

Ibid.

Ibid.

## Planning Theory

Friedman, 1987, pg. 52-53.

Ibid. pg 59.

Ibid.

Blanco, H. (1994). *How to think about social problems: American pragmatism and the idea of planning* (No. 346). Greenwood Pub Group.

Robinson, I. M. (1965). Beyond the middle-range planning bridge. *Journal of the American Institute of Planners*, 31(4), 304-312.

Flyvbjerg, 2001

Lindblom, C. E. (1959). The science of "muddling through". *Public administration review*, 79-88.

Ibid. pg. 79-88

Ibid.

Gould, Stephen Jay, & Eldredge, Niles (1977). "Punctuated equilibria: the tempo and mode of evolution reconsidered." *Paleobiology* 3 (2): 115-151.

Gunderson, L.H. and Pritchard L. (2002). "Resilience and the Behaviour of Large-Scale Systems." Island Press.

Holling, C.S. (2004). "Regime Shifts, Resilience, and Biodiversity in Ecosystem Management". *Annual Review of Ecology, Evolution, and Systematics* 35: 557–581

Walker, B., Holling, C. S., Carpenter, S. R., Kinzig, A. (2004). "Resilience, adaptability and transformability in social–ecological systems". *Ecology and Society* 9 (2): 5.

Walker, B., Sale, D. (2006). "Resilience Thinking, Sustaining Ecosystems and People in a Changing World." Island Press.

Edward C. Banfield, (1973). "Ends and Means in Planning." In Andreas Faludi (ed.), *A Reader in Planning Theory*, Oxford: Pergamon Press, pp. 139-49

Davidoff, P. (1965). Advocacy and pluralism in planning. *Journal of the American Institute of Planners*, 31(4), 331-338.

Krumholz, N. (1982). A retrospective view of equity planning Cleveland 1969–1979. *Journal of the American Planning Association*, 48(2), 163-174.

Goldberg, M. (1985). "The Irrationality of 'Rational' Planning: Exploring Broader Basis for Planning and Public Decision Making." Ch. 8 in Breheny and Hooper, pp. 120-144.

Ibid. pg. 120-144

Ibid.

#### Dissertation Reflection

Hester, Randolph. (2006). "Design for Ecological Democracy." Cambridge, MA: MIT Press pg. 283

Ibid. pg 297

Dalton, L. C. (1986). "Why the rational paradigm persists—the resistance of professional education and practice to alternative forms of planning." *Journal of Planning Education and Research*, 5(3), 147-153

#### The Social Learning paradigm

Friedman, 1987, pg. 181-224

Luccarelli, Mark. (1995). *Lewis Mumford and the Ecological Region: the politics of planning*. New York:

Guilford Press.

Friedmann, 1987, pg. 186-187

Friedmann, 1987, pg. 198-200

Luccarelli, 1995

Freire, P. (1970). *Pedagogy of the Oppressed*. New York: The Seabury Press, 1970

Schön, D. A. (1983). *The reflective practitioner: How professionals think in action* (Vol. 5126). Basic books.

Ibid.

Friedmann, 1987

Friedmann, J. (1993). Toward a non-Euclidian mode of planning. *Journal of the American Planning Association*, 59(4), 482-485.

Ibid. 482-485

Ibid.

Ibid.

#### Knowledge to Action

Riel, M. (2010). "Understanding action research." Center for collaborative action research. Pepperdine University.

Spirm, A. (2005). "Restoring Mill Creek: landscape literacy, environmental justice and city planning and design." *Landscape Research*, 30(3), 395-413.

Ibid 395-413

Ibid.

Stokols, D. (2006). Toward a science of transdisciplinary action research. *American journal of community psychology*, 38(1-2), 63-77.

Deming, M. E., & Swaffield, S. (2011). *Landscape architectural research: inquiry, strategy, design*. John Wiley & Sons.

Carr, W., and Kemmis, S. (1986). *Becoming critical: education knowledge and action research*. Routledge.

Bogden, R. and Biklen, S. K. (1992). *Qualitative research for education*. Boston: Allyn and Bacon.

Cross, N. (2006). *Designerly ways of knowing* (pp. 1-13). Springer London.

Beauchamp, T. L. (2008). The Belmont Report. *The Oxford textbook of clinical research ethics*, 21-28.

Dobbins, 2009, pg. 70

Reil, 2010