

**Sustainable Foodscapes:  
Obtaining Food within Resilient Communities**

by  
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## **Author's Declaration**

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

## **Abstract**

This thesis examines the feasibility of fostering “sustainable foodscapes” in urban communities. A review of the literature on the topics of sustainability, resilience, sustainable food security, and healthy communities is used to determine the definition of “sustainable foodscapes.” This thesis uses a framework of socio-ecological restoration to consider how communities might adopt sustainable foodscapes. A case study is conducted in the city of Waterloo, Ontario to test the criteria of sustainable foodscapes and explore some of the practical opportunities and barriers to developing sustainable foodscapes in an urban community.

The methods for the case study include semi-structured interviews. Interview results indicate that a variety of sustainable foodscapes such as community gardening, individual gardening, and foraging are used in Waterloo already, and survey results suggest that various members of the community are open to the adoption of these foodscapes. The case study results reveal that diverse community members view sustainable foodscapes as an important contribution to community health, less for the purpose of ecological sustainability than for their usefulness as a way of promoting community interaction, social learning, and fostering a sense of place. Ways to conduct a socio-ecological restoration for sustainable foodscapes in Waterloo could include increasing areas for the purposes of foraging to occur in an ecologically benign manner, such as on marginal or private land; creating municipal policies and Official Plans that provide support for community gardens, and fostering more accepting attitudes towards sustainable foodscapes by providing increased opportunities for education and participation among community members.

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# **Chapter One: An Introduction to Sustainable Foodscapes**

## **1.0 Introduction**

Food plays an important role in forming individual and cultural identities. Personal tastes, memories of family dishes, and specific geographical places for obtaining certain foods are ways in which food can shape one's sense of community. In recent years, much attention has been paid in various pieces of environmental literature as to how the production and consumption of food can benefit or harm the biophysical environment. However, there has been less focus on the relationship consumers have with food, and how that might influence people's willingness to adopt new practices. This thesis explores how the connection between individuals, communities, and food can be harnessed to promote sustainability.

### **1.0.1 Purpose**

The purpose of this research is to explore the ways in which food is reflected in ideas of landscape, community, and place-based identity, and how those relationships might impact sustainable communities. This thesis addresses the following questions: What are sustainable foodscapes, and of what value are they to healthy communities? If sustainable foodscapes are of value, what are the barriers and opportunities for fostering them? Several other questions arise from this query and are as follows:

- What is a sustainable foodscape?
- By what criteria is the value of a sustainable foodscape determined?
- What would a community with a diverse range of sustainable foodscapes look like?

- What are the opportunities and barriers to fostering sustainable foodscapes?

These questions will all be addressed in the course of this research.

### 1.0.2 Study Rationale

An assortment of disciplines as diverse as environmental studies, ecology, economics, and sociology have begun to examine the inadequacies of the current food system. Because the varying aspects of the food system are so interconnected, it is unlikely that any one of these approaches will be sufficient to address all of the problems identified in the food system. The connection between food and the consumer's immediate physical landscape has been lost; over 80% of Canadians purchase their food at supermarkets, which stock food from around the globe, as well as a wide range of pre-prepared foods (Statistics Canada, 2001). For example, as Jones et al (2003) discuss, preparation of food using "from-scratch" cooking techniques, as opposed to pre-prepared food, has become a rare practice in many households, limited to special occasions due to the quickened pace of work and social life. Fast food now represents half of all food expenditures in the United States, a cultural shift that has significant negative impacts on human and ecosystem health, as well as the health of communities (Schlosser, 2001; Bowman et al, 2004). Thus, there is a need for restoration of the food system on a socio-ecological level. This socio-ecological restoration would seek to increase the amount of food that people accessed locally, which has been shown to decrease the negative ecological impact of food as well as support local communities (Feenstra, 1997; Feagan, 2007). It would also encourage the consumption of more whole foods, meaning foods prepared from raw ingredients such as fresh vegetables, protein sources, and grains, rather than pre-prepared foods that are often higher in total calories, fats, sodium, and added sugars (Bowman et al, 2004). Focal restoration ecology promotes interaction between communities and the surrounding biophysical system (Higgs,

2003). Extending that concept to include the social and economic impacts of that ecological system on a given community could serve to reconnect individuals and communities with the land that feeds them, fostering a socio-ecological restoration (Brunckhorst, 2002; Higgs, 1994). As Van Andel and Aronson (2006, pp. 224) and many others (Brunckhorst, 2002; Higgs, 1994; Folke, 2004; Ekins et al, 2002) discuss, it is more appropriate to consider many existing ecosystems as socio-ecological systems because humans have been changing them for millennia. Socio-ecological restoration can be a powerful tool for merging science and social spheres, as well as engaging both academic and public audiences.

Ecological restoration is “the practice of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed,” and restoration ecology is the theory that forms the practice of ecological restoration (SER, 2004). Concepts from restoration ecology could be transferred to socio-ecological challenges such as alternative food systems in order to promote a more ecologically friendly food system. However, there is limited discussion for how these principles might be tangibly applied in the rapidly changing global food production system. Theories of restoration ecology vary widely. Some practitioners strictly adhere to ideas of returning to a fixed temporal state, perceived to be an ecological desired time and place, such as “complete” or “technical” restoration (Van Diggelen, Grootjans, Harris, 2001; Higgs, 2003). Other approaches, however, encourage high levels of resiliency and dynamism, recognizing the need to incorporate plans for multiple trajectories of succession based on external influences such as climate change (Choi, 2007; Van Andel and Aronson, 2006). Some forms of restoration, such as focal restoration, involve community participation (Higgs, 2003). These latter kinds of restoration frameworks offer a unique approach for returning ecosystem functionality to systems that are currently stressed, and for increasing the mimicry of efficient natural systems. Such an approach might be useful when thinking about responses for dealing with the adverse socio-ecological effects of the current global food production system.



Despite some examples of restoration of urban gardens and naturalization programs, there has been limited attention directed to urban restoration in general (although this is beginning to change), and much less directed to the idea of edible landscapes (Miller and Hobbs, 1996; Higgins, no date). While the value of urban food production for sustainable food systems has been recognized (Ferris et al, 2002; Brklacich et al, 1991), there been limited, if any, discussion of landscape-scale ecological restoration that addresses sustainable foodscapes. However, restoration ecology could provide a valuable set of tools for preserving natural biodiversity and sustaining economic production, which can maintain and increase the stock of natural capital (van Andel and Aronson, 2006). Many species of edible plants are threatened because they are not widely cultivated and thus no longer have an adequate habitat (Nabhan et al, 2008, p. 40). Restoration could be a viable way of improving the ecological capacity, or the ability of the ecosystem to maintain its natural condition and provide services, of urban areas, while protecting threatened species and providing a sustainable source of food to citizens (Severson, 2008). Although this theory has not been vetted within the literature, I hope that this study will provide insight as to whether a socio-ecological restoration approach is an appropriate one for addressing the needs of a community's food system.

This study uses a framework of socio-ecological restoration that values resiliency and ecosystem functionality rather than adherence to a fixed historical ecosystem (Harris et al, 2006). It also places an emphasis on focal restoration, which includes the participation of community members as an essential aspect of restoration (Higgs, 2003). Because of the uncertainties presented by global climate change and socio-economic instability, it is important that a socio-ecological restoration for sustainable foodscapes considers multiple pathways. As Walker (2002) points out, a resilient socio-ecological system would have a high capacity for learning and adaptation: these characteristics are essential to successful socio-ecological restoration of urban areas.

### 1.0.3 Academic Contribution

This study will examine the complex interactions of food production and consumption, and the effect that such interactions have on healthy communities. By adopting a framework of restoration ecology that emphasizes complexity and dynamism as opposed to a rigid adherence to a fixed temporal state, this study will highlight how a socio-ecological restoration can be undertaken to repair the failings of the food system in a way that promotes greater sustainability. Furthermore, this study will offer a synthesis of resilience and sustainability as applied to food systems. These two concepts are complementary, and together serve to form a more complete way of exploring the complexity of food systems. The development of sustainable foodscapes as a concept is a major contribution to the academic literature. The term will be valuable for assessing the sustainability of the multitude of other existing foodscapes. Finally, the case study of Waterloo, Ontario will provide valuable insights as to how the concept of sustainable foodscapes can be applied in practice, as well as the opportunities for developing sustainable foodscapes in urban areas.

### 1.0.4 Practical Application

In the past several years, interest in how our food system functions and the changes that can and should be made in order to increase its sustainability has grown, especially at the grassroots level. This increased exposure has taken place largely in popular writing, with books such as *The 100 Mile Diet* (Smith and MacKinnon, 2007) and *Animal, Vegetable, Miracle* (Kingsolver, 2008) examining local eating; *Bottom Feeder* (Grescoe, 2008) and *The Omnivore's Dilemma* (Pollan, 2006) exploring the industrial food system; *Fast Food Nation* (Schlosser, 2001) discussing the United States' relationship with fast food; and *In Defense of Food* (Pollan, 2008a) and *Food Matters* (Bittman, 2009) providing guidelines for readers wishing to make their diets more

ecologically sustainable. The interest in sustainable eating is also evident on the Internet, where blogs such as Civil Eats and Ethicurean, which feature writings from a variety of authors about various facets of sustainable food, are growing in popularity (Civil Eats, 2009; Ethicurean, 2009). Treehugger, one of the 15 most popular blogs online, has an extensive food and health component (Treehugger, 2009). Television, newspapers, and other forms of print media have also begun to feature programs and articles on various facets of “eco”-eating. This sudden onslaught of information has caused consumer attention to sustainable food issues to swell, which can be observed with the growing popularity of local and organic food movements, due partially to concerns about the carbon footprint of food as well as the taste and quality (Guthman, 2003). Food has become the focal point of a host of environmental and social justice concerns, and is even attracting a conservative focus on the return to family dinner as a social value (Pollan, 2008b). The reason is simple – everybody eats.

Beyond its main purpose, food can also be a creative and emotional outlet – by cooking food, we are crafting something; by feeding our families or friends we are providing sustenance as well as offering them something of our design. But the loss of traditional food culture means that many people are at a loss for how to fashion a wholesome, nutritious meal out of raw ingredients. Thus, a social restoration is needed. On a practical level, this research will provide a framework for how to encourage sustainable food practices in a community by conducting a socio-ecological restoration.

## **1.1 Theoretical Framework**

### **1.1.1 Conceptual Framework**

The production and consumption of food is one of the most interconnected ways in which humans interact with the natural world, deriving sustenance out of the environment through agriculture, animal husbandry, and hunting and gathering. The fact that many Canadians no longer derive their diets from the surrounding environment indicates that there is a disconnection between individuals and the biophysical environment. This implies that in order to foster ecologically sustainable communities, the connection of community members and the biophysical environment should be strengthened, potentially through the procurement of food. This study will examine how concepts from restoration ecology, specifically frameworks that value resilient socio-ecological systems, can be applied to repairing the complex system that exists between communities and the environments that feed them. By addressing the inadequacies of the current Canadian food system, communities can promote sustainable food security. In particular, this will be accomplished by encouraging the development of sustainable foodscapes as a way of improving community health. This study will also explore ways in which information about sustainable food security can be disseminated, such as community participation in sustainable foodscapes.

#### 1.1.2 Thesis Assumptions

By using this framework, this study includes an assumption that access to nutritious, fresh, whole food is an inherent human right, and that access to high-quality food (which is to say, nutritious and having been produced in an ecologically healthy manner) is essential to the health of a community. Implicit in this framework is the recognition that it is unlikely that a Canadian city would be able to develop a totally self-sufficient food system. However, the literature suggests that a more self-reliant and resilient food system is desirable for fostering sustainable communities (Feenstra, 1997; Bridger and Luloff, 2001). Thus, a food system that relies less on

industrial agriculture and more on individuals producing or procuring some of their own food is valued within this study. This more sustainable foodscape would provide a community with a sense of place in terms of food and restore a rootedness of the foodscape within the greater eco-cultural landscape.

Another assumption in this study is that traditional ecological restoration, in the sense of returning an ecosystem to a pre-determined state, is not feasible and, in many cases, not desirable, especially in urban areas. While the selection of a particular temporal state as a goal for restoration may have ecological significance, it does not account for changes to the ecosystem that may occur due to global climate change, nor does it account for human use (Van Andel and Aronson, 2006; Higgs, 2003). This kind of restoration also may not promote resilience within a system because it encourages stasis rather than dynamism, and for that reason it is not necessarily sustainable. Instead, in this study, a socio-ecological restoration framework that promotes functionality and resilience will be used, which is becoming more commonplace in the restoration ecology literature, for example in regards to climate change (Harris et al, 2006).

## **1.2 Methodology**

This thesis uses a three-part methodology in order to effectively answer the research questions. First, a multi-disciplinary literature review is used to explore the current state of academic literature on food systems. This literature review is presented in Chapter Two, and explores the concepts that form the building blocks of sustainable foodscapes. The main areas of literature reviewed are: sustainability, healthy communities, resilience and complex systems theory, and sustainable food security. Other research included socio-ecological restoration, sense of place, and alternative food systems. Second, the thesis uses the city of Waterloo, Ontario as a case study, in order to test the criteria of sustainable foodscapes and explore some of the on-the-

ground challenges and opportunities to developing a diversity of sustainable foodscapes in a community. Finally, the case study is explored through the lens of socio-ecological restoration in order to offer suggestions as to how a restoration might be conducted in a community in order to create more sustainable foodscapes.

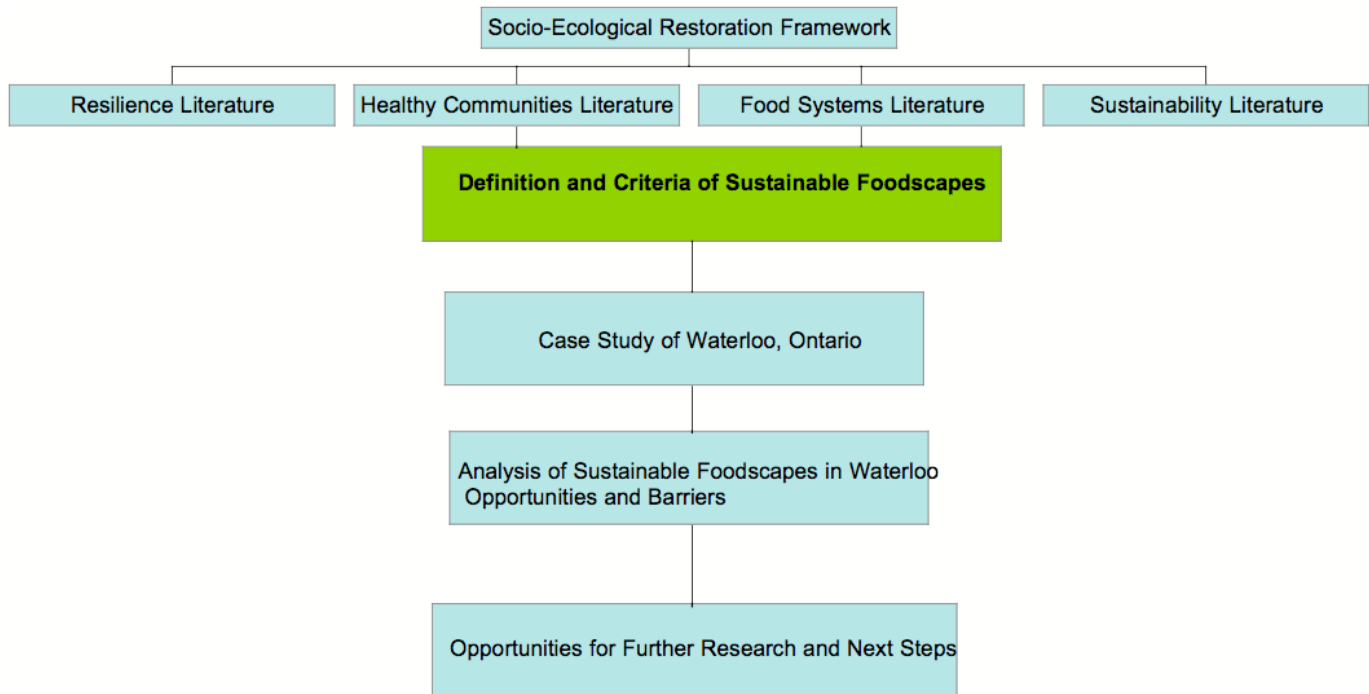
### 1.2.1 Methodology Rationale

The nature of this study is such that the most appropriate way to approach it is with a case study. As Yin (2003) states, a case study is used to examine a contemporary phenomenon within its real-life context, and in particular when that phenomenon cannot be extricated from its context (p. 13). A case study is of value to this research because it provides a way to explore whether the framework of socio-ecological restoration for sustainable foodscapes is a viable one. It will also provide insight on a practical level regarding steps that might be taken to foster sustainable foodscapes within a community..

### 1.2.2 A Case Study of Waterloo, Ontario

The primary research for this thesis consists of a case study of the City of Waterloo, Ontario, Canada, which is discussed in Chapter Three. The study will examine the attitudes towards various sustainable foodscapes that exist in some capacity in the city: foraging, community gardening, and home gardening. It will also examine the opportunities and barriers for promoting increased engagement in these foodscapes for members of the community. The study will take the form of semi-structured interviews and surveys.

### 1.2.3 Methodology Framework



**Figure 1.1 Methodology Framework**

### 1.3 Thesis Structure

The thesis is structured into six chapters, by first exploring the relevant literature for the concepts used in the thesis, before identifying the criteria of sustainable foodscapes. These sections are followed by the case study, results, and, finally, recommendations of the researcher, and conclusions.

**Chapter One** has introduced the research question, as well as its rationale and academic contributions, to the reader. It has also outlined the format of the thesis, and the methodology that will be used.

**Chapter Two** explores the lens of socio-ecological restoration, through which the research was conducted. It also examines various concepts from the literature that contribute to the study's

main contribution, the definition of what constitutes a sustainable foodscape. The second chapter also provides a list of criteria for a sustainable foodscape, and begins to identify some of the opportunities and barriers in promoting these foodscapes in the urban context.

**Chapter Three** details the case study methods used in the research, as well as providing background for the site of the case study research.

**Chapter Four** grounds the literature review in the results from the case study, by examining which of the criteria for sustainable foodscapes appeared to be important within the case. This chapter also examines barriers and opportunities for promoting or fostering sustainable foodscapes, which were identified through the course of the research.

**Chapter Five** offers recommendations for how the results in chapter four could be interpreted and applied in practice, using a lens of socio-ecological restoration. Although the case study findings are specific to Waterloo, some recommendations are identified as having the potential to be generalized to other urban areas.

**Chapter Six** concludes the thesis with a summary of discussion, and identifies opportunities for continuing research.



## **Chapter Two: a Review of the Literature**

### **2.0 Introduction**

In recent years, there has been a growing discussion in the literature as to whether the current global food system is sustainable. This discussion has considered both whether this global food environment is self-sustaining, and whether it addresses wider issues of socio-ecological sustainability and equity. The concept of sustainable foodscapes draws on a variety of others. This chapter examines how the concept of sustainable foodscapes has been influenced, and presents a definition of the idea that is embedded within a complex systems framework. It also explores the requisite criteria of a socio-ecological restoration of a community that wanted to foster sustainable foodscapes. Much of the literature has used a healthy communities lens through which to examine the global food system, and, more recently, alternatives have been suggested. A worthwhile contribution has been Lima's (2008) concept of sustainable food security, which will be discussed in greater detail below. Another key field to be addressed in this literature review is that of ecological restoration. There has not been as intense a focus on urban restoration as there has been on exurban or rural restoration within the literature (Miller and Hobbes, 2006). However, this review will assess what has been discussed on urban restoration, as well as examining socio-ecological and human restoration, and the varying frameworks of restoration. Urban agriculture is a relatively young concept within the sustainability dialogue, and will also be defined for the purposes of this research. Lastly, a discussion on the practice of foraging will situate the concept within the current body of academic literature in order to be applied in this thesis.

The purpose of exploring the following literature is to examine the present state of the global food system and its relation to restoration ecology. The review will also reveal what has

currently been discussed about the relationship of the food environment to healthy communities and the long-term sustainability of the communities that participate in the global food system. From this discussion, I will be able to determine the characteristics of a sustainable foodscape. Lastly, the barriers to a sustainable foodscape will be discussed, which includes an examination of the failings of the current food system as well as the obstructions in place that prevent the adoption of a more sustainable system. By introducing criteria that define sustainable foodscapes, I will be able to identify how concepts from ecological restoration might be used to foster sustainable foodscapes in communities.

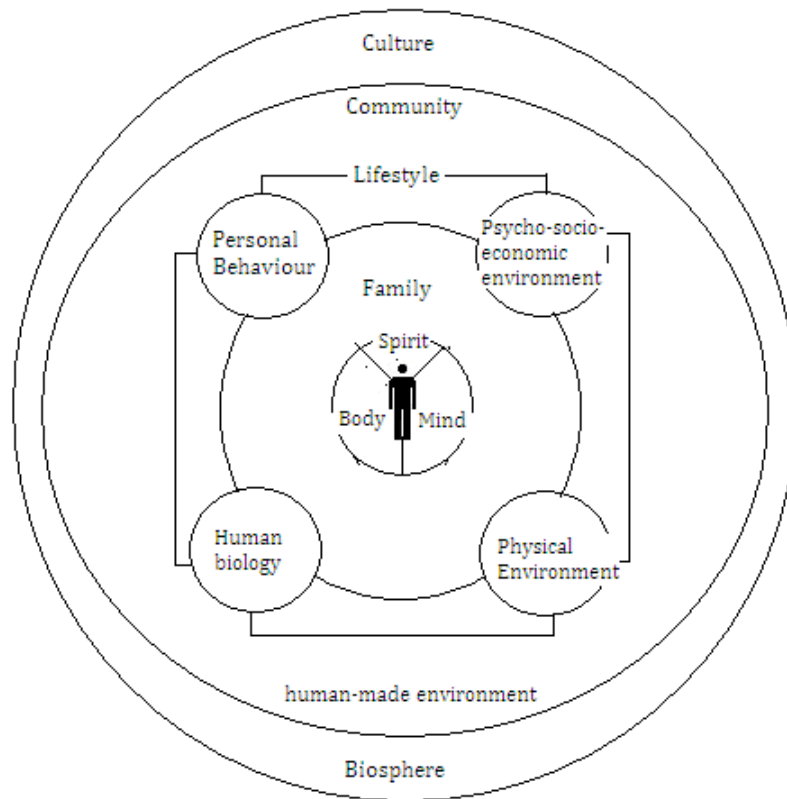
## **2.1 Components of a Sustainable Foodscape**

Sustainability is a complex concept, incorporating many different elements. In order to determine what is meant by a sustainable foodscape, several different components of the community that impact the foodscape must be examined.

### **2.1.1 Healthy Communities**

The concept of *health* is not only the absence of disease, but also the state of complete physical, mental, and emotional wellbeing (World Health Organization, 2003). The concept of *healthy communities* looks at the determining factors for how that wellbeing can be obtained and protected, such as environmental health, social justice, and freedom (Ontario Healthy Communities Coalition, 2002). Hancock and Perkins' (1985) "Mandala of Health" shows that individual health is nested in a larger set of systems that include community, the built environment, culture, and ultimately the biosphere as a whole (p.9). This model is important because it places emphasis on a holistic model of creating and fostering health, rather than

placing an emphasis on treatment of symptoms, which is still prevalent as a health-care model in many communities (Stokols, 1995).

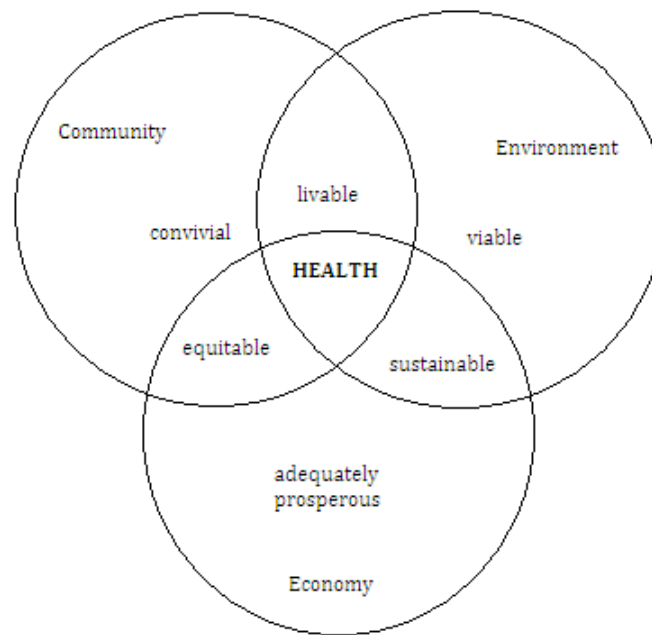


**Figure 2.1. Mandala of Health.** Used with permission from (Hancock and Perkins, 1985, p. 9).

Because health largely depends on the quality of the built and natural environments, it is important for the health of a community that the sustainability of its environments is accounted for in any considerations of health. Hancock (2000) stresses the importance of a community being properly planned so as to use resources efficiently and promote long-term ecological sustainability. Hancock (2000) also discusses the application of human ecology, the study of issues over which environment and human activities intersect, as integral to community health.

Many discussions of healthy communities focus on the importance of recognizing the complexity of socio-ecological systems in the form of complex systems discourse (Norris and Pittman, 2000; Hancock, 2000).

Another important aspect of healthy communities is that they are diverse and inclusive, providing opportunities for a high quality of life for all citizens (Norris and Pittman, 2000). Hancock (1993, p. 44) asserts that in order to encompass health and sustainability from a community perspective, the community, environment, and economy must be considered.



**Figure 2.2. Health and the Community Ecosystem.** Used with permission from (Hancock, 1993, p. 44).

The community should be convivial, the economy adequately prosperous, and the environment viable; the three areas should also include equality, sustainability, and liveability (Hancock, 1993, p. 44). The synthesis of these factors will contribute to the overall health of a

community. The concept of healthy communities has particular relevance to community food systems, as it is essential to the health of a community that all citizens have access to nutritious, culturally appropriate food. Moreover, in order to have a healthy foodscape, it is important that the way in which food is produced does not put unnecessary stress on the biophysical environment. It is also essential that the environment is able to provide adequate temperatures and solar radiation, clean air and water, and a diversity of plant and animal life for food production (Hancock, 1993, p. 44). Community health is thus an essential aspect of sustainable foodscapes.

#### 2.1.2 Sustainability

Community health relies in large part on the overall sustainability of that community, and of the larger society in which it is nested. *Sustainability* is a dynamic concept that considers the complex interactions of social, economic, political, and ecological spheres of society for the purpose of promoting equity and ecosystems integrity (Adams, 2006). It developed from questions about whether human activities that draw resources from the Earth can be sustained indefinitely, or if modern society's increasing demands on natural systems were creating an intolerable level of stress on those systems (Ludwig et al, 1997). The concept was first brought to widespread attention from the United Nation's World Commission on Sustainable Development (also referred to as the Brundtland Commission) in 1987. The Commission's report *Our Common Future* defined sustainable development as "meeting the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland, 1987). However, this definition is considered limited in that it does not address the ways in which social and economic activities interact with the biosphere and each other (Pearce and Atkinson, 1998). It has also been criticised for being inherently contradictory, in that development inevitably uses

natural resources and degrades ecosystems (Redclift, 2005). As a result of these criticisms, there has been much discussion of how to frame sustainability in a more comprehensive manner.

Gibson (2006, p. 174) has outlined several core criteria for sustainability. Socio-ecological systems integrity requires that the life support features of the biosphere be protected by human structures, so that humans can continue to live within an ecological system that continues to function. Livelihood sufficiency and opportunity requires that the basic needs of humans be met, including the right to seek improvements, without compromising future resources. Intra- and inter-generational equality both require that gaps in opportunity be narrowed, between individuals in the world today and between current and future generations. Resource maintenance and efficiency requires that resources be used in a way that does not degrade the capital stock, which requires an increase in efficient use and a decrease in waste. The principles of socio-ecological civility and democratic governance emphasize the need for an engaged citizenry that will take it upon itself to be knowledgeable about ecological systems that impact their communities, as well as taking an active role in governance to ensure greater integration between decision-making processes and market, social, and personal practices. Using precaution and adaptation when planning encourages preventative action in the face of uncertainty, as well as monitoring systems in order to adapt actions in light of the responses of the system (Kriebel et al, 2001). This approach also recognizes that complex systems can often act in surprising ways, requiring an ability to change plans based on current observations. Lastly, Gibson (2006) calls for immediate and long-term integration, so that the principles of sustainability are applied at once and must be done with a view to the long-term. As Gibson's criteria illustrate (see also Kay and Schneider, 1994; Walker and Salt, 2006; Folke et al, 2002), social justice and economic viability are major aspects of a sustainability framework in addition to the maintenance of biophysical systems.

### 2.1.3 Resilience

A key component of sustainability is *resilience*, referring to a system's ability to adjust itself and maintain functionality while experiencing shock (Kay and Schneider, 1994; Walker and Salt, 2006). Within the field of ecology, there are contested definitions of resiliency. One definition describes it as the ability of a system to absorb disturbance before its dynamic equilibrium is changed, while another describes the rate of recovery from a disturbance (Adger, 2000).

However, it is important to note that both definitions stress that a resilient system is one that can continue to function during or very shortly after disturbance. From a community perspective, resilience can be exhibited socially, such as in institutions and individuals, or economically, as demonstrated by the ability of markets to respond to stress (Adger, 2000). As Folke et al (2002, p. 437) point out, there is a mistaken tendency in policy to assume that ecosystems react to human activity in linear or predictable ways, when in fact complex systems (including ecosystems, but also socio-ecological and socio-economic systems) tend to react in non-linear or chaotic ways, such as not displaying signs of stress until thresholds are crossed.

Walker and Salt (2006, p. 145-150) outline values for a resilient society. Diversity and ecological variability are important because they provide a broader base for shifting variables and adapting to stress. Modularity refers to creating nested and independent structures within a system, rather than having too much integration, so that in the case of disturbance there will not be a domino effect. Acknowledging slow variability is important because resilience is generally built up in a system only by things that develop slowly, such as a wide variety of genotypes and species (Folke et al, 2002, p. 438). Tight feedback loops mean that the effects of an action are seen relatively close to the activity (both physically and temporally) so that adaptation can be quicker. Investing in social capital promotes trust and leadership within community members, which in turn fosters innovation, a key aspect of learning and creating change (Walker and Salt,

2006, p. 148). An overlap in governance ensures redundancy, which guarantees that checks and balances are in place within the system. Ecosystem services are also valued within the economy, ensuring that short-term profit does not take precedence over long-term ecosystem functionality (Walker and Salt, 2006, p. 148). These values demonstrate how, as biodiversity is a key part of a healthy ecosystem, a healthy socio-ecological system such as a foodscape benefits from adaptive, flexible governance in which a large variety of stakeholders and community members participate.

#### 2.1.4 Sustainable Food Security

Sustainability and resiliency are important facets of overall community health. One of the ways in which the health of a community is manifested is through its food system. In order to assess the health and sustainability of a community's food environment from an ecological, social, and economic perspective, Lima (2008) has developed the concept of *sustainable food security*. Food security, according to the UN Food and Agriculture Organization, is the “physical and economic access to sufficient, safe, and nutritious food to meet their dietary needs and food preferences for an active and healthy life” (FAO, 2006). However, as Lima (2008) points out, this definition fails to incorporate ideas of long-term sustainability and food sovereignty (the ability for communities to define their own food policies and preserve their traditional livelihoods). It also fails to address overconsumption, a growing problem in both developed and developing nations that is causing a huge burden on healthcare systems as well as on citizens (Lima, 2008; Nestle, 2003).

The FAO definition does not include the methods of food production, and thus does not incorporate concepts of sustainability such as socio-ecological systems integrity or intragenerational equality, nor does it incorporate resiliency principles such as modularity or tight feedback loops (Lima, 2008; Gibson, 2005; Walker and Salt, 2006). Thus, sustainable food



security is defined as a food system in which food of adequate nutrition is provided while simultaneously promoting social justice and ecosystems integrity (Lima, 2008).

The provision of food includes physical and economic access to food within a community, respect for the cultural appropriateness of food, and recognition of the importance of self-reliance on an individual and community level in the ability to procure food. Promoting social justice through the food system requires equitable distribution of not only food, but also the empowerment associated with being able to access food. Social justice also incorporates the preservation of unique food cultures, which often have been developed by societies in order to meet macro and micronutrient needs, and thus often favour biodiversity (Lima, 2008; Pollan, 2008).

Social justice within the food system encourages the development of strong relationships between different actors, such as consumers to producers. These strong ties encourage a dialogue that promotes interest in the activities of actors in the food system, which creates a sense of accountability among participants – a way of promoting tighter feedback loops (Walker and Salt, 2006; Lima, 2008). Sustainable food security also highlights the importance of using food production methods that do not degrade the biophysical environment, because in addition to disrupting ecosystem processes, the degradation of agricultural land results in an unsustainable rate of food production, thus making access to food insecure.

#### 2.1.5 Restoration Ecology

Sustainable food security has both physical and social manifestations in a community.

Restoration ecology is a concept that provides a framework for addressing the physical and socio-ecological requirements of a sustainable foodscape. Ecological Restoration is a practice that aims

to repair an ecosystem that has been degraded or damaged. Practitioners seek to “initiate or accelerate the recovery of an ecosystem with respect to its health, integrity, and sustainability” (SER, 2004). It is important to note the distinction between ecological restoration and restoration ecology, because whereas ecological restoration is the practice of restoring ecosystems, restoration ecology forms the theory upon which ecological restoration is based (SER, 2004). Higgs (2003) has identified two contrasting frameworks of restoration ecology: focal and technical. Focal restoration projects are small-scale, often concentrated on an area of community interest such as a park or schoolyard, and are less invasive (Higgs, 2003). These projects are often undertaken by amateurs or community members who have an interest in the area. While increasing ecosystem functionality is not always a goal of focal restoration projects, it is often a byproduct (Higgs, 2003). The most common result of focal restoration is increased nodal habitat, mainly for birds and insects but also for small mammals (Schaefer, 2003).

Technical restoration projects are large, scientifically precise projects that often require continued human management (Higgs, 2003). Complete or “technical” ecological restoration often attempts to restore an ecosystem to an original reference point (Van Diggelen, Grootjans, Harris 2001; Higgs, 2003). However, technical ecological restoration is in most cases unattainable and unrealistic, due to the dynamic nature of ecosystems and the impacts of human activity, changing climates, and natural successional shifts. They are also often not self-sustaining, and require constant human management in order to remain in a static state (Higgs, 2003). More often, restoration projects are ones of remediation or reclamation. In these cases, some ecosystem functionality is returned to the site, such as by planting vegetation, but it does not return the ecosystem to its original state (Van Diggelen, Grootjans, Harris, 2001). In light of the challenges facing restoration projects, researchers in the field of restoration ecology are beginning to examine future-oriented restoration. Future-oriented restoration factors in

potentially drastic changes such as climate change and aims to create resilient, dynamic communities that respond well to change (Choi, 2007).

#### 2.1.6 Gaps in Restoration Ecology

A major practical gap in the practice of ecological restoration is that it rarely occurs in urban or suburban areas (Miller and Hobbs, 2002). This lack of focus can be attributed at least partially to a philosophical tendency in conservation and restoration work to consider a natural ecosystem as one in which human presence is absent (Miller and Hobbs, 2002). However, it should be noted that this gap might be due to the difficulties present in attempting ecological restoration in a densely populated area. Naturalization is a form of restoration that amends certain aspects of highly artificial landscapes to create some of the benefits of a natural system while still maintaining its primary function as an area created to be of use to humans (Randall, Churchill, Baetz, 2003). An example would be the replacement of a grass monoculture lawn with a variety of native grass and clover species (Sandberg and Foster, 2005).

#### 2.1.7 Socio-Ecological Restoration

Socio-ecological restoration can be described as a model of restoration ecology that would incorporate the complex system of interactions and feedbacks between biophysical and human processes (Kay et al, 1999; Holling, 2000). Socio-ecological restoration draws on complex systems theory, specifically concepts of the changes and stability that coexist in human-nature systems (Holling, 2000). Highlighting the integration of social and ecological systems, particularly in communities, can be a valuable tool for encouraging local participation, which is essential for social restoration (van Andel and Aronson, 2006). Focusing on socio-ecological

systems as a target for restoration adheres to Gibson's (2006) criteria for sustainability, in that it encourages socio-ecological civility. This complex systems approach also fosters resilience in a community, because it promotes respect of ecological variability, modularity, and slow variables while encouraging the development of social capital and innovation (Walker and Salt, 2006; Holling, 2000).

#### 2.1.8 Urban Agriculture

One way to actualize naturalization in urban areas while respecting the complexities of socio-ecological systems is through urban agriculture. The FAO defines urban agriculture as:

[A]n industry that produces, processes and markets food and fuel, largely in response to the daily demand of consumers within a town, city, or metropolis, on land and water dispersed throughout the urban and peri-urban area, applying intensive production methods, using and reusing natural resources and urban wastes to yield a diversity of crops and livestock. (Smit et al, 1996)

This practice allows for increased ecosystem functionality in urban areas that would otherwise likely be of minimal functionality, while simultaneously promoting sustainable food security by providing citizens with local food that is produced in an ecologically responsible manner. It is also much more likely that the food is culturally appropriate because of the tighter feedback between producers and consumers. Smit and Nasr (1992) argue that urban agriculture is achievable in most, if not all, urban areas. They also argue that it is an essential component of a sustainable community because it shortens the feedback loop of production to consumption and shifts the throughput of waste into the surrounding ecosystem (Smit and Nasr, 1992). De Zeeuw et al (2000) point out that urban agriculture also provides a source of local economic security, fulfilling both Gibson's (2006) criteria of livelihood sufficiency and Walker and Salt's (2006) criteria of modularity. Kaufan and Bailkey (2000) underline how urban agriculture can

encourage citizens to become engaged in their community, cultivating a sense of pride and self-reliance. Urban agriculture meets the criteria of both sustainable and resilient communities. To date, much of the research on urban agriculture has been focused on its application in developing nations (FAO, 2007; Smit et al, 1996). However, it is practiced in a limited range in North America. Kaufman and Bailkey (2000) surveyed over 70 urban agriculture projects in the United States. One of them, Growing Power, is a Chicago-based organization that uses “Community Food Systems,” networks of gardens, shelters, and co-operative stores that provide fresh, local produce to community members free or at low cost (Growing Power, 2008). Additionally, cities such as Vancouver and New York have a strong presence of urban community gardens (Vancouver Urban Agriculture, 2009; Linn, 1999).

Urban agriculture can also consist of rearing livestock in urban areas. While still widespread in many parts of the world, this practice fell out of favour during the last century in North America (FAO, 2001). However, keeping backyard chickens to provide eggs for the owners is a practice that is beginning to attract attention in North America. It offers many of the same benefits for sustainability, resilience, and healthy communities that urban agriculture does, but in many cities is illegal because of zoning restrictions prohibiting livestock in residential areas (Masui, 2008). However, many communities are re-examining those laws, creating exemptions for a limited number of egg hens per household (Masui, 2008).

Another, albeit less formal, way that urban agriculture is practiced is guerrilla gardening. Guerrilla gardening, which consists of planting crops in unused urban areas such as vacant lots or traffic islands, is a form of non-violent direct action. It is often used to draw attention to land misuse issues or debates about land ownership and mis-management in urban areas (Thom, 2007). Although guerrilla gardening is used primarily as a way of garnering attention rather than as a viable way of providing sustained yields of produce, it is still an important contribution to the

dialogue surrounding urban agriculture. For example, a largely publicized instance of guerrilla gardening occurred in 1996 in England, where a group of land rights activists seized 13 acres of unused land owned by the Guinness brewing company and created gardens and an activist community, which lasted for almost six months before being evicted (Monbiot, 2001).

#### 2.1.9 Foraging

Another even more passive form of finding food within one's local landscape is foraging. Although not widely practiced in North America, foraging for wild plants has roots in pre-agricultural times. It is still practiced by indigenous people, as well as people practicing some European cultural traditions, such as Italian, Greek, Russian, and Bedouin (Pieroni, 2001; Pazzaglia, 2009; Rosner, 2007). Wild foods such as mushrooms and greens play an important role in these cultures' cuisines, and foraging is seen as an important activity in which family members take part (Rosner, 2007). Mushroom hunting, the form of foraging that is most popular in North America, can foster a sense of community as groups gather to share information, recipes, and harvests (Rogers, 2005). However, it is important to note that while the subculture of amateur mycologists may have a particular conservation ethic, it is not universal, and there are dangers of over-harvesting edible species (Fine, 1997). It is also important to note that, particularly in the case of mushrooms, misidentification can lead to severe illness or fatalities, and mushroom poisonings occur throughout the world, even among frequent practitioners (Beug, 2009; Warden and Benjamin, 2008). Foraging for foods can also be practiced in urban areas. Increasingly, communities are utilizing the Internet to create maps on which people can mark spots to forage for food, such as patches of wild greens or fruit trees on public property (Barrington, 2009). Like urban agriculture, foraging for wild foods can foster sustainability and sustainable food security, by encouraging human-ecosystem interaction, and allowing for

culturally appropriate food to be locally sourced and financially accessible. However, there are concerns that an increase in the practice of foraging could lead to the decimation of certain plant species due to over-harvesting, which occurred to the province of Quebec's wild leek population in the 1990s (Elton, 2009).

## **2.2 Sustainable Foodscapes Defined**

A *foodscape* is the dynamic culinary culture of a community, as influenced by a wide variety of factors, such as region, tradition, history, social organization, and science and technology (Campo, no date given). The foodscape of a community refers to the ways in which food is produced, purchased or obtained, prepared, and consumed, and the relationship between food and the individuals of the community (Oranges, 2007). Put another way, it can be understood as the food landscape of a community, when landscape is considered to have both multi-sensory tangible aspects (touch, scent, taste) and an intangible essence that can “evoke affective responses, generate and stimulate memory, and spark imagination” (Adema, 2007, p. 3). A foodscape can be personal, social, or public, reaching from the body to the community to the nation, respectively. For the purposes of this thesis, foodscape will refer to a specific locale (such as a garden), unless stated otherwise. The term “meta-foodscape” will be used to refer to the foodscape of an entire community, because it would include many smaller foodscapes. The term appears infrequently in the current literature about sustainable food practices. Nevertheless, it is useful because it serves to describe the broad range of factors that make up how a community interacts with its environment through food. It follows that a sustainable foodscape is one that promotes community health and sustainable food security by fostering socio-ecological sustainability and resiliency within the food system.

### 2.2.1 Criteria for a Sustainable Foodscape

Using the above definition of foodscape, the criteria of what constitutes a sustainable foodscape can be determined. A community with a sustainable foodscape would be a healthy community, particularly one that illustrates Hancock's (2000) criteria of promoting human ecology and the integrity of ecosystem services. It would also encourage inclusion, diversity, and social justice as essential components of a healthy community. These requirements are echoed in Gibson's (2006) criteria for sustainability, especially socio-ecological integrity and civility, livelihood sufficiency and opportunity, and precaution and adaptation. As noted earlier, Growing Power, an organization in Chicago that develops community food systems, promotes social justice and inclusion across socio-economic boundaries through greening projects, education, and food distribution (Growing Power. 2008).

Resiliency within the foodscape is another essential aspect of a sustainable foodscape. A resilient community would be diverse, acknowledge the slow variables in its food system such as seasonal availability of certain foods, support tight feedback loops, encourage modularity, develop social capital, and value ecosystem services (Walker and Salt, 2006). Principles of resiliency are respected in many aspects by eating local food. Walker and Salt (2006, p. 143) discuss an example of lack of diversity in the food system; the breed of turkey responsible for 99% of meat production in the United States has been bred for such a high quantity of breast meat that they are no longer able to breed naturally, and must be artificially inseminated. In addition to being costly and requiring high levels of artificial management (such as high-nutrient feed and frequent use of antibiotics), the population is extremely sensitive to being wiped out by disturbances such as disease (Walker and Salt, 2006). This method of food production is mirrored in countless different crops and herds, where mono-cropping with intensive chemical input, susceptibility to pests and disease, and highly intensified feedlot operations, have become



the norm. Direct farmer-to-consumer marketing allows for tight feedback loops, in which actions (such as spraying pesticides onto crops) are responded to quickly (such as by a consumer choosing not to purchase the sprayed produce). Additionally, eating according to what is in season locally acknowledges slow variables within the surrounding ecosystem (Pollan, 2007). Modularity too is exemplified by purchasing food directly from growers rather than a centralized distribution method such as a grocery store. Increasing subsidiarity in the food system via decentralization raises concerns about adherence to safety standards, but as Bernauer and Caduff (2003) observe, a decentralized system encourages greater food safety, albeit at the expense of maximizing market efficiency. The current centralized system has had many recent safety failures, such as the *Listeria listeriosis* bacteria that contaminated meat and cheese products across Canada and resulted in 20 deaths in the summer of 2008, and an outbreak of *Salmonella* in a peanut processing plant that caused at least eight deaths and over 400 illnesses in the United States (CBC, 2008; BBC, 2009). While these incidents have been isolated, they bring attention to potential weaknesses in the distribution system. There are also concerns that the centralized food distribution system in the United States would be an easy target for deliberate contamination for the purposes of terrorism (Khan et al, 2001). With a more modular approach to food distribution, contamination could affect less people, and be easier to trace and contain due to the smaller sphere of distribution for each source of production (Waltner-Toews, 1991).

A community with sustainable foodscapes would enjoy sustainable food security, providing adequate, culturally appropriate, nutritious food while promoting social justice and ecosystems integrity (Lima, 2008). For example, the city of Toronto, Ontario has developed a Food Charter that promotes access to “nutritious, affordable, and culturally appropriate food” (City of Toronto Public Health, 2008). The Charter was created by the Toronto Food Policy Council (TFPC), an offshoot of the city’s Public Health department. The TFPC undertakes various projects to further the goal of citywide food security. These projects include the promotion of urban agriculture and community gardening, organic waste recycling, and

intensified urban food production (TFPC, 2008). Since its 2000 inception, similar Charters have been created in other Canadian cities, including Vancouver, Sudbury, and Saskatoon.

While not an exhaustive list, these indicators can help in determining whether a sustainable foodscape exists within a community. The essential requirements of a sustainable foodscape are as follows:

1. It should be nested within a healthy community that values both human and ecological health. This would mean producing food in a way that promotes human and ecological health, as well as consuming food that would encourage community dietary health (Hancock, 2000, p. 153).
2. It is ecologically and socio-ecologically sustainable and fosters environmental health and livelihood sufficiency and opportunity (Gibson, 2006).
3. It demonstrates resiliency by encouraging diversity, modularity, and tight feedback loops in the production and consumption of food (Walker and Salt, 2006, p.145-150).
4. It supports sustainable food security, providing nutritional and culturally appropriate food that also fosters ecological health (Lima, 2008, p. 16).

By examining a particular foodscape according to these criteria, one can determine whether it could be considered sustainable, as well as identify its strengths and weaknesses in order to improve its function as a sustainable foodscape in its community.

It is important to note that the main avenues of obtaining food for Canadians are not sustainable foodscapes, but through venues such as supermarkets and fast food outlets. More than 80 cents of each food dollar spent in stores in 2001 (the most recent food expenditure survey conducted in Canada) was spent in a supermarket, making them the most common foodscape with which the average Canadian interacts (Statistics Canada, 2003). However, a supermarket does not meet any of the requirements of a sustainable foodscape, at least not as defined here.

Supermarkets are often corporately owned, meaning that the vast majority of profits leave the community, reducing its contribution to local economic development. Because supermarkets rely on centralized distribution centres in order to provide a large amount of goods, local produce is not readily available. While healthy foods are sold at a supermarket, they are sold alongside heavily processed foods, which often have the benefit of additional advertising.

According to a 2004 survey by Statistics Canada, one quarter of Canadians eat at a fast food location on a regular basis (Gariguet, 2004). An additional 40% of the average food dollar is spent on restaurant food of some kind, although whether it is a fast food or dine-in restaurant is not specified (Gariguet, 2004). “Fast food” has been defined as food purchased in self-serve or carry-out eating places without wait service (French et al, 2000). Although some fast food restaurants advertise healthy choices, fast food is typically high in fat and calories, and there has been much research that indicates that consumption of fast food is related to obesity and its associated health problems (French et al, 2000; Eck-Clemens et al, 1999). A fast foodscape does not fulfil the criteria of a sustainable foodscape, particularly the dual criteria of resiliency and sustainability. Fast food restaurants are almost exclusively under chain ownership, and rely on centralized distribution to source their food (Schlosser, 2006). While there has been an increased effort, primarily in coffee-shop chains, to source fair-trade or organic products, critics have pointed out that large-scale organic agriculture is only marginally better than conventional agriculture in terms of addressing the original concerns of the organic movement, such as biodiversity (DeLind, 2000).

Fast food does not provide sustainable food security to communities. As described above, it is not produced in a manner that is environmentally sustainable (Schlosser, 2006). Fast food has usurped many traditional foods around the world, such as Germany’s traditional sausage houses and Japan’s diet of seafood and vegetables – often considered one of the world’s

healthiest traditional cuisines (Schlosser, 2001b; 232-242; Lurance, 2006). And although it is often viewed as an inexpensive source of food, fast food is more expensive than preparing food at home, and becomes more expensive when one considers the long-term costs of the associated health problems it can cause (Mello et al, 2003).

While fast food does not generally provide healthy food for communities, it is important to note that many fast-food franchises act as a social gathering point in communities, particularly coffee-shop chains (Waxman, 2008; Thompson and Arsel, 2004). While it is questionable as to whether it is more desirable to gather at a chain versus an independently-owned restaurant, the cultivation of a community atmosphere in chain-owned cafés such as Starbucks is nonetheless widespread in North America (Wurgaft, 2003). Because of this phenomenon, fast food does provide one aspect of community health, at least in terms of providing community conviviality (Hancock, 1985). However, because these foodscapes do not meet all of the criteria of sustainable foodscapes, it is important to examine how a shift could be made in how Canadians access their food.

### **2.3 Barriers to Sustainable Foodscapes**

If sustainable foodscapes are desirable in a community, why are they not already prevalent? Many of the dominant foodscapes in North American communities could be considered monocultures, broad swaths of homogenized food choices that are intricately and tenuously linked to long distribution chains. These foodscapes became dominant due to the ways in which the North American food production and distribution systems were developed. During the rise of these systems, certain food practices became entrenched in our dietary habits and even cultural mores. These two factors are the two main barriers to sustainable foodscapes.

### 2.3.1 Food Production Methods

A vast number of contributing factors over the last century have made the food system a highly complex and inter-connected one. Things as diverse as the decision of the US to subsidize corn, the development of commercial pesticides and herbicides, genetic manipulation of crops, and the Interstate system have all combined to create a system in which it makes economic and political sense to heavily process food, ship it far distances, and even pay farmers not to grow it (Pollan, 2006; Kingsolver, 2008; MacLean, 2002). The current North American food system is often considered unsustainable by those examining it within a sustainability-oriented framework (Hendrickson and Heffernan, 2002; Kloppenberg et al, 2000; Koc and Dahlberg, 1999).

Industrialized farming practices extract a heavy toll on the ecosystems immediately connected to agricultural centres, as well as the wider biosphere (McIlvaine-Newsad et al, 2008). These practices often result in monocultures, which have a negative impact on biodiversity; as well as a heavy reliance on chemical and petroleum-based fertilizers, pesticides, and herbicides. These chemicals can pollute the surrounding environment, and can negatively impact populations of benign or helpful birds and insects (Horrigan et al, 2002). Industrialized farming also relies on machinery and extended transportation of food, which require non-renewable fuel sources and contributes to CO<sub>2</sub> emissions (Horrigan et al, 2002; Hendrickson and Heffernan, 2002).

Industrial farming is water-intensive – irrigation is inefficient in using water and can cause salinization of soil (FAO, 1995). In the United States, agriculture accounts for over 80% of water consumption (USDA, 2004). Industrial animal production creates massive amounts of waste that is often spread on the ground or released untreated into adjacent bodies of water, threatening drinking water sources, over-fertilizing farmland, and creating imbalances in local hydrological systems (Block, 2008; Weida, 2004). It is also highly criticized for unethical treatment of animals, due to the use of Concentrated Animal Feeding Operations (CAFOs) to keep large numbers of animals in a confined area (US EPA, 2008; Fraser, 2005).

### 2.3.2 The North American Diet

Not only does our current food system rely mainly on industrial farming on the production side, but at the consumer level, it promotes heavily processed, pre-packaged and pre-prepared foods, as well as the consumption of fast food (Pollan, 2008a; Hendrickson and Heffernan, 2002). The so-called “Western diseases” – diabetes, obesity, cardiovascular disease, hypertension, two-thirds of cancer cases, and osteoporosis– can be largely attributed to diet in the United States, and make up a significant portion of the population suffering from chronic illness (Pollan, 2008a; Cordain et al, 2008). In the United States, over 280,000 deaths per year are caused by obesity (Allison et al, 1999). However, Cordain et al (2008) point out that these diseases are rare or nonexistent in hunter-gatherers and other less Westernized cultures. This has been attributed to the fact that processed foods such as refined sugars, grains, and vegetable oils, fatty meats, and salt, which are staples of a Western diet but absent in traditional hunter-gatherer diets, adversely affect the glycemic load, fatty acid composition, macronutrient composition, and fiber content of one’s diet (Cordain et al, 2008, p. 346). For example, the traditional diet of Aboriginal hunter-gatherers in Australia, heavy in fibrous plant food and lean game meat, was not energy-dense but nutrient-dense (O’Dea, 1991). This diet is attributed to protecting Aboriginal populations against obesity, insulin-dependent diabetes, and cardiovascular diseases, which now impact the majority of Westernized Aborigine populations (O’Dea, 1991). As Michael Pollan asserts in his 2008 book “In Defence of Food,” it would seem that the best way to significantly reduce the occurrence of these diseases is to stop eating a western diet.

Different analysts have labelled various aspects of the western diet as being the most deleterious to one’s health, including industrial food products, preservatives used to extend the shelf life of food, and a high proportion of total calories consumed being derived from corn and soy; many argue that the Western diet simply consists of *too much* food (Cordain et al, 2008;

Lima, 2008; Kidd, 2002; Pollan, 2008; Winson, 2004). The Western diet also places an emphasis on macro-nutrients rather than foods as a whole (which contain many micro-nutrients and vitamins that make up a key component of healthy diets), an approach that has been termed “nutritionism” (Roth, 2000). Some have asserted that the Western “nutritionist” diet has been perpetuated by the food industry because it is much more profitable than more traditional food cultures, which rely mainly on whole foods rather than pre-packaged or processed ones (Nestle, 2003b, p. 84). In contrast, pre-made foods offer opportunities for value-adding, increasing the cost to consumers in terms of both price and health (Renting et al, 2002). For example, Canadian adults consume 22% of the daily recommended intake of calories from what Statistics Canada’s Health Division has termed “other foods,” such as soft drinks, salad dressings, chips, and other high-sugar, high-fat snack foods and condiments (Garriguet, 2004). For example, high fructose corn syrup, the digestion of which differs from glucose (the main sweetening compound in cane and beet sugars), has been linked to the rise in obesity. The consumption of high fructose corn syrup has risen over 1000% between 1970 and 1990, and represents over 40% of caloric sweeteners added to foods and beverages, and is used exclusively in soft drinks (Bray et al, 2004). A simplification of our food consumption habits could involve any or all of the following:

- Eating less processed and pre-packaged food
- Eating a more diverse diet, which could promote increased biodiversity (Kwik, 2008, p. 30)
- Eating local foods, which reduces the ecological impact of transporting food (Feenstra, 1997)

- Eating foods that come from a healthy ecosystem (which will usually, but not always, mean they are produced with limited use of external substances such as pesticides or chemical fertilizers), and
- Cooking and preserving more of our own foods (Pollan, 2008a; Goodman, 2003).

The Slow Food movement is a concrete expression of this alternative, advocating a deliberate slowing down of life, specifically but not limited to the consumption of food, as “the only way to oppose the universal folly of fast life” (Slow Food International, 2008). Advocates of this movement seek not only to consume more sustainable food, but also to promote community interaction and strengthen social bonds through food; activities that can help a community become more sustainable in other aspects. Similar ideas have also been proposed in the United States under the term “civic agriculture” (McIlvaine-Newsad et al, 2008). Overall, most advocates of diets that would meet criteria for increased sustainability argue for a return to some aspects of traditional food knowledge, which is the “cumulative teachings and experience gained from the process of sharing foodways from generation to generation” (Kwik, 2008, p. 24). People in traditional cultures tended to feed themselves from a mainly local diet, which would involve eating foods in season as well as preserving foods for months when fresh food access was restricted (Gussow, 2000). It should be acknowledged that not all traditional diets were the epitome of health or sustainability. Local diets can lack complete nutritional profiles and thus not be sufficient to provide a community with all of its dietary requirements (Wilkins, 1995). That said, there is value in taking aspects of traditional practices, such as the locality of produce and the community engagement producing and preparing food that often accompanied traditional food cultures, and applying it to today’s foodscape (Harvey and McMeekin, 2004, p. 161). Trade for products that cannot be produced locally is important, but a sustainable foodscape would place an emphasis on accessing food locally when possible.



## **2.4 Restoring Sustainable Foodscapes**

If the current North American foodscape is dominated by a monoculture, the goal of a restoration for sustainable foodscapes would be to encourage polyculture, or a broad range of various sustainable foodscapes. This study will examine how principles of ecological restoration can be used to promote sustainable foodscapes. Complete or “technical” ecological restoration often attempts to restore an ecosystem using a prior historical state as a reference point for what the goals of the restoration should be (Van Diggelen, Grootjans, Harris 2001; Higgs, 2003). Applied to the restoration of a foodscape, this would mean the complete return of a community to traditional food practices, focused on a certain temporal period during which the community was considered sustainable. Complete ecological restoration is not considered viable on a landscape scale, or in the long-term without intensive management that attempts to maintain stasis; this method is not considered ecologically realistic because it does not promote resiliency within the ecosystem (Higgs, 2003). Likewise, attempting to lock a community’s food consumption habits into a particular time period would be ultimately impossible, due to changed individual preferences, market dynamics, and shifting availability of produce and nutritional knowledge. Future-oriented restoration is a form of ecological restoration that considers different scenarios for change within the system in an attempt to create resilient, dynamic communities that respond well to change (Choi, 2007). Using a future-oriented approach to foodscape restoration would increase the potential for a higher level of resiliency in a community’s food system, by encouraging the restoration of functional elements of a foodscape such as edible species. However, using only future-oriented restoration would not sufficiently address all of the criteria of a sustainable foodscape. In particular, future-oriented restoration does not address aspects of community health or sustainable food security. Socio-ecological restoration uses a complex systems approach to address the complex interactions between human and natural communities

(Holling, 2000). It also encourages socio-ecological civility and integrity, resilience, and social inclusiveness, all components of sustainable foodscapes.

#### 2.4.1 Profile of a Socio-Ecological Restoration for Sustainable Foodscapes

A socio-ecological restoration in a community that wishes to foster sustainable foodscapes requires a multi-faceted approach in order to be successful. Physically restoring landscapes in order to create more opportunities for sustainable food security must occur, along with social ventures designed to encourage interest and participation within the community. Physical restoration for sustainable foodscapes can take various forms including urban agriculture, gardening, or naturalization of greenspaces. Of particular interest here is the naturalization of urban greenspaces that fosters edible species. This would create opportunities for foraging wild greens, berries, mushrooms, and other wild foods. Converting marginal urban and suburban lands such as abandoned lots for urban agriculture would be a more formal way of promoting sustainable foodscapes within a community. The goal is not to create a completely self-reliant local food system, but to diversify the options available in a community for procuring food that fosters sustainable food security, community health, sustainability, and resilience.

However, lining the streets with fruit trees and filling the woods with choice morels is not sufficient. Citizens need to be aware of these opportunities, and engaged in using and maintaining these landscapes if the restoration is to succeed. Citizen education and participation, therefore, is a major component in the social aspect of restoration with the goal of achieving sustainable foodscapes. Given that food is often a focal point of gatherings, it provides a common ground for citizens to get together, share, and discuss issues important to the community (Marinetto, 2003; McLeod et al, 1999). Food-based gatherings tend to be informal in nature, such as potlucks or community barbeques (King and Hustedde, 1993). An engaged and active citizen

base will be able to effectively disseminate knowledge about venues for gathering or purchasing food such as naturalized areas or urban agriculture programs. This sharing of information could foster a deepened sense of place through food.

“Sense of place” refers to the values, meanings, and emotional bonds that people develop in relation to a particular location, and is thus difficult to quantify (Mueller and Abrams, 2001; Williams and Stewart, 1998). However, the attachment felt to a landscape by community members is an effective way of promoting more sustainable ecosystem management practices (Williams and Stewart, 1998). This connection can be deepened if community members derive sustenance from that landscape, creating a sense of place that stems from food (Feagan, 2007). This kind of attachment to a particular foodscape can be illustrated by the French term *terroir*, which refers to “an area or terrain, usually rather small, whose soil and microclimate impart distinctive qualities to food products” (Barham, 2003, p. 131). This creates a sense of place embedded in a particular foodscape, which would be a valuable tool for conducting a socio-ecological restoration. A possible venue for a socio-ecological restoration for a sustainable foodscape would be a greenspace that is easily accessible to many community members and that is already used in a limited capacity for activities that are conducive to sustainable foodscapes, such as foraging. Other venues could include community gardens and home gardens, which exemplify the criteria of sustainable foodscapes, as well as provide a location in which a sense of place derived from food may be fostered within the community.

## **2.5 Implications of the Literature for Sustainable Foodscapes**

Currently, there is much discussion in the literature as to whether the current global food system could be considered sustainable. Particularly in North America, both food production methods and dietary practices appear to be causing problems with human, ecological, and community

health. The current North American foodscape, or the multi-faceted food landscape of a community, should be made more sustainable in order to address the problems of the food system. This would entail fostering practices and attitudes that increase sustainability, resilience, community health, and sustainable food security within the foodscape. The best way to go about this is to adopt an approach of socio-ecological restoration. This approach uses principles borrowed from ecological restoration that include a future-oriented view towards restoring landscapes (or in this case foodscapes). Socio-ecological restoration emphasizes the complex systems that exist in human-nature relationships. In practice, a socio-ecological restoration for sustainable foodscapes could include a diversity of options, such as urban agriculture, the promotion of foraging in urban greenspaces, and the development of community and home gardens. The next chapter will explore how some of those options, specifically foraging and community and home gardens, are currently practiced in the City of Waterloo. This case study will explore the opportunities and barriers for promoting and restoring these urban sustainable foodscapes.

## **Chapter Three: the Presence and Viability of Sustainable Foodscapes in Waterloo, Ontario: a Case Study**

### **3.0 Introduction**

The literature discussed in chapter two defines sustainable foodscapes, and the value that they could bring to the concept of healthy communities. This chapter examines whether the literature is supported by the findings of a case study. In this case study, I used interviews, as well as a small community survey, to look at how community members view three different foodscapes, some more sustainable than others. The City of Waterloo was chosen for the site of the case study because, in addition to being convenient for the researcher, it has many features that are representative of other Canadian cities, as well as some unique characteristics that will be discussed further in the chapter. The chapter outlines the research design used, as well as methods of data collection and analysis. It concludes with a discussion of the potential contributions as well as limitations of this study.

### **3.1 Qualitative Research Design**

This study uses a qualitative research design, which Strauss and Corbin (2008) describe as “a process of examining and interpreting data in order to elicit meaning [and] gain understanding” (p.1). A qualitative design is appropriate for this study because it is meant to gain knowledge about how people interact with sustainable foodscapes, rather than test particular variables (Strauss and Corbin, 2008). The gaps in the sustainability literature about sustainable foodscapes, as well as the goal of understanding the experiences and perspectives of participants, make qualitative research appropriate for this study.

Yin (2003) describes a case study as an “empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between the phenomenon and context are not clearly evident” (p. 13). Yin (2003) also notes that a case study inquiry “relies on multiple sources of evidence, with data needing to converge in a triangulating fashion” (p. 14). This description is very relevant to my research. The “contemporary phenomenon” being explored is the complex interaction with nature through food that occurs in various ways throughout a community, and this phenomenon is inextricably embedded within the context of the community. This study benefited from various sources of evidence, including a literature review, surveys of community members, key informant interviews, and a review of academic and non-technical literature.

The case centres on the city of Waterloo, Ontario. Yin (2003) offers several reasons for choosing a single case rather than a multiple-case study: a *critical case*, which tests a well-formulated theory; a *unique case*, which is used when the case is rare; a *typical case*, which is believed to be informative about the experiences and circumstances of an average location; a *revelatory case*, in which the researcher has access to a rare case; and the *longitudinal case*, in which the same case is looked at during different points in time (Yin, 2003; p.47-49). Waterloo is both a typical and a unique case. It is typical because it embodies characteristics similar to many Canadian cities such as a dense urban area, such as heavy growth and a limited amount of urban greenspace (Region of Waterloo, 2009a). However, the City is unique because it has an exceptional history of Mennonite settlers and a strong academic presence, both of which contribute to a dynamic that is conducive to promoting local food and recognizing the importance of greenspace. It is important to note that Waterloo has elements of both a typical and a unique case. The study provides an opportunity to understand how sustainable foodscapes could unfold in Waterloo, but what is published here can also be translated to other cities.

Embedded within the case are three units of analysis, which as Yin (2003) observes can “add significant opportunities for extensive analysis, enhancing the insights into the single case” (p. 46). The units of analysis are various alternative foodscapes within the region – places where foraging, community gardening, and home gardening are practiced. While there is potential for the results of this study to be generalized to other communities due to its nature as a typical case, the main objective of a case study is to illuminate a particular case (Yin, 2003; Denzin and Lincoln, 2000). Therefore, while the foodscapes that will be analyzed are similar to those found in other Canadian communities, they are not necessarily representative of all communities. However, it is certainly feasible that other cities may be able to apply the lessons from the Waterloo case study to their own situations.

### **3.2 Site Selection**

The City of Waterloo, Ontario is an urban centre with a population of 97 000, in addition to approximately 15 000 post-secondary students (Statistics Canada, 2006). The city is highly urbanized, although it is surrounded by agricultural land (City of Waterloo, 2008a). The Intelligent Communities Forum named Waterloo the Intelligent City of the year in 2007 (ICF, 2008).

Waterloo is an interesting location for this case study because it contains a wide variety of various foodscapes, as well as several characteristics that make the concept of sustainable foodscapes particularly resonant. However, it also has traits representative of other Canadian cities, such as average family sizes and a median income comparable to other similarly sized cities in Southern Ontario (Statistics Canada, 2006). The city, along with Kitchener and Cambridge and the townships of Wellesley, Woolwich, Wilmot, and North Dumfries, make up the Regional Municipality of Waterloo (Region of Waterloo, 2009). While the city is highly

urbanized, Waterloo is surrounded by agricultural land. Despite this proximity to farmland, a large amount of produce consumed by citizens originates in Mexico and the United States (Xuereb and Desjardins, 2005). The Region of Waterloo's 2005 paper *Toward a Healthy Community Food System for Waterloo Region* demonstrates that even when food products are in season in Waterloo region, they are not often available to consumers in stores (Xuereb and Desjardins, 2005). However, the area is home to two farmer's markets, where local food and goods are sold directly to consumers (Food Link, no date given).

Waterloo has a strong Mennonite influence. The region is home to approximately 2600 Old Order Mennonites, and the City of Waterloo is home to a large number of various new order Mennonite congregations (Peters, 2002; Loewen, 1999). Because the Mennonite faith, particularly the new order branches, emphasizes social justice and equality, its members are particularly receptive to alternative foodscapes such as CSAs, markets, and gardens (Lind and Hockman-Wert, 2005).

Additionally, Waterloo is home to two post-secondary institutions, the University of Waterloo and Wilfred Laurier University (City of Waterloo, 2008a). These schools provide student populations from diverse backgrounds that offer different food cultures to consider, but also provide a population of academics who are well versed in sustainable food issues.

### 3.2.1 Alternative Foodscapes

In order to assess the value of sustainable foodscapes to community health, I chose three alternative foodscapes about which to survey community members. Adema (2007) characterizes a foodscape as the food landscape of a community, when landscape is considered to have both multi-sensory tangible aspects (such as touch, scent, and taste) and an intangible essence that can



“evoke affective responses, generate and stimulate memory, and spark imagination” (p.3). All of these locations meet the criteria of being a foodscape, because they are places where community members manifest their relationship with how food is produced, purchased or obtained, prepared, and consumed (Oranges, 2007). However, I have excluded the two most common foodscapes used by Canadians – supermarkets and fast-food restaurants. Although supermarkets and fast food and other restaurants make up a significant portion of Canadians’ expenditures on food, they do not meet the criteria of sustainable foodscapes and will thus not be included in this case study. And although community-supported agriculture (CSAs) and farmer’s markets do meet much of the criteria of sustainable foodscapes, they are not being included in this study because the case centres on the City of Waterloo, and these foodscapes do not exist within the city proper, but rely on the surrounding agricultural land.

This study focuses on alternative foodscapes that exist in Waterloo: foraging, home gardening, and community gardening. These foodscapes potentially meet several or all of the criteria of a sustainable foodscape listed in Chapter Two: a foodscape that promotes community health and sustainable food security by fostering socio-ecological sustainability and resiliency within the food system. As discussed in Chapter Two, these criteria could be expressed in a variety of ways, but some of the most common indicators would be:

1. Resiliency:
  - a. Provides access to local, seasonal, organic, and/or fair trade goods
  - b. Provides access to a diversity of foods and relies on a modular distribution system
2. Sustainability:
  - a. Supports local community empowerment, through ownership, participation, and/or access

- b. Respects socio-ecological systems integrity by using methods of food production and procurement that do not cause undue stress to the biophysical environment.
- 3. Sustainable Food Security:
  - a. Promotes access to nutritious, culturally appropriate, and affordable food
- 4. Community Health:
  - a. Provides a source of food that is healthy for human consumption
  - b. Produces food in a manner that supports environmental health
  - c. Promotes community conviviality and sense of place

While not inclusive, it is reasonable to assume that the presence of these indicators in a particular foodscape would be indicative of whether it could be considered sustainable as defined in Chapter Two.

### 3.2.2 Foraging

Foraging for wild food is a way of interacting with a foodscape that would seem to be sustainable. Foraging occurs in other woodlots and parks throughout Waterloo, such as Waterloo Park, Bechtel Park, and the many greenspaces and wooded areas throughout the city. While it seems that foraging is a marginal activity in Waterloo, there are some indications that it is gaining popularity. Online social networking sites such as Facebook have groups dedicated to foraging in Waterloo. Another social networking site, Platial, uses GIS mapping that allows users to mark areas of interest, and users have created foraging maps for Waterloo and the neighbouring city of Kitchener (Platial, 2007).

Species that grow and can be foraged in Waterloo include greens such as dandelion, fiddleheads, ramps, and lamb's quarters; berries such as raspberries, mulberries, and elderberries; nuts such as black walnut; and many other plants and fungi (Brill, 2009; Friedrichsen, 2008). This

foodscape promotes community health, because it provides a source of nutritious food in a manner that is not detrimental to the ecosystem. It also exemplifies a source of culturally appropriate food, as new Canadians have been observed foraging for ingredients for traditional dishes. Below is a table of some of the common species that can be foraged in Southern Ontario; while not comprehensive, this list shows many species that can be foraged in and around Waterloo.

Berries and fruits	Blackberry	<i>Rubus fruticosus</i>
	Chokecherry	<i>Prunus virginiana</i> var. <i>virginiana</i>
	Crab-apple	<i>Pyrus malus</i>
	Cranberry	<i>Vaccinium macrocarpon</i>
	Currant, wild black	<i>Ribes americanum</i>
	Elderberry, common	<i>Sambucus canadensis</i>
	Gooseberry, prickly and wild	<i>Ribes cynosbati</i> , <i>Ribes hirtellum</i>
	Mayapple (toxic when unripe)	<i>Podophyllum peltatum</i>
	Mulberry	<i>Morus rubra</i>
	Nannyberry	<i>Viburnum lentago</i>
	Raspberry	<i>Rubus strigosus</i>
	Serviceberry (or Saskatoon berry)	<i>Amelanchier</i> spp.
	Wild strawberry	<i>Fragaria vesca</i>
Herbaceous plants (greens, roots, and tubers)	Amaranth	<i>Amaranthus</i> species
	Burdock	<i>Arctium lappa</i>
	Carrot, wild	<i>Daucus carota</i>
	Catnip	<i>Nepeta cataria</i>
	Dandelion	<i>Taraxacum Officinale</i>
	Fiddleheads (young ostrich ferns)	<i>Pteretis pensylvanica</i>
	Garlic mustard	<i>Alliaria petiolata</i>
	Ground cherry	<i>Physalis heterophylla</i>

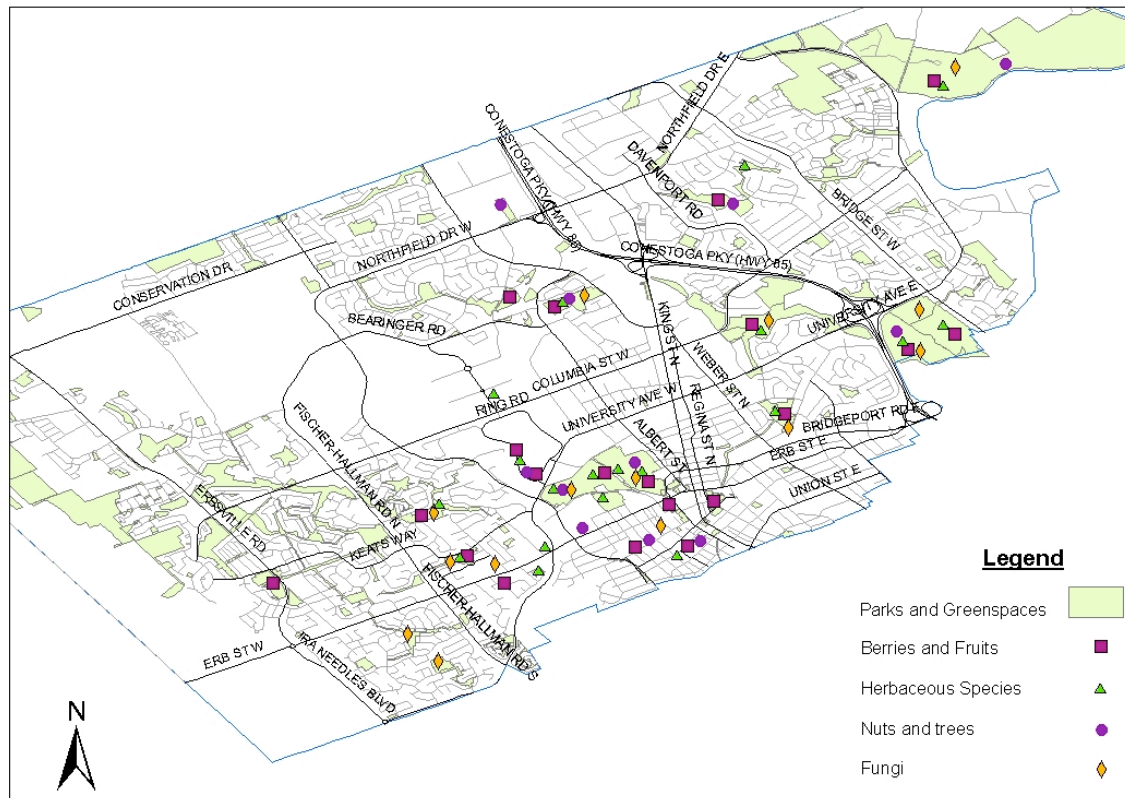
	Lamb's quarters	<i>Chenopodium berlandieri</i>
	Leek, wild (or ramps)	<i>Allium tricoccum</i>
	Lily, trout	<i>Erythronium americanum</i>
	Indian cucumber root (rare)	<i>Medeola virginiana</i>
	Jerusalem artichoke	<i>Helianthus tuberosus</i>
	Milkweed, common	<i>Asclepias syriaca</i>
	Nettle, stinging	<i>Urtica dioica</i>
	Virginia rose	<i>Rosa virginiana</i>
	Watercress	<i>Nasturtium officinale</i>
	Wild Grape	<i>Vitis rotundifolia</i>
Nuts and trees	Beechnut	<i>Fagus sylvatica</i>
	Butternut	<i>Juglans cinerea</i>
	Chestnut, American	<i>Castanea dentata</i>
	Hackberry	<i>Celtis occidentalis</i>
	Hazel, American	<i>Corylus americana</i>
	Maple, sugar	<i>Acer saccharum</i>
	Pine, Eastern white	<i>Pinus strobus</i>
	Walnut, black	<i>Juglans nigra</i>
Fungi	Agaricus sylvaticus	<i>Agaricus sylvaticus</i>
	Bear's Head	<i>Hericiium abietis</i>
	Blewitt	<i>Lepista nuda</i>
	Chanterelle, golden	<i>Cantharellus cibarius</i>
	Chicken of the woods	<i>Laetiporus sulphureus</i>
	Fairy ring	<i>Marasmius oreades</i>
	Hen of the woods	<i>Grifola frondosa</i>
	Hedgehog mushroom	<i>Hydnum repandum</i>
	Honey mushroom	<i>Armillaria mellea</i>
	Horn of plenty	<i>Craterellus cornucopioides</i>
	King Bolete	<i>Boletus edulis</i>
	Lobster mushroom	<i>Hypomyces lactifluorum</i>
	Milk mushroom	<i>Lactarius deliciosus</i>
	Morel, black and yellow	<i>Morchella conica, Morchella esculenta</i>
	Oyster mushroom	<i>Pleurotus ostreatus</i>

	Pine mushroom	<i>Tricholoma magnivelare</i>
	Puffballs	<i>Lycoperdon perlatum</i>
	Red caps	<i>Leccinum aurantiacum</i>
	Shaggy mane	<i>Coprinus comatus</i>
	Torque mushrooms	<i>Agaricus bitorquis</i>

**Table 3.1. Edible wild plants in Southern Ontario.** Compiled from (Ontario Trees and Shrubs, 2009; Brill, 2009; Suffling et al, 1997; Fernald et al, 1996; Ontario Woodlot Association, 2008; Michalenko, 2009).

This foodscape is also resilient, because it supplies a source of local, seasonal food. The distribution is highly modular. The foodscape in its current form is also sustainable, because the limited foraging that goes on does not tax the biophysical environment. By using trails, parks, and woodlots for foraging, community members are gathering food in a manner that is self-sufficient. Figure 3.1 (p. 63) is indicative of potential foraging sites in Waterloo. While it is not comprehensive, the map shows that there are opportunities for foraging in greenspaces such as woodlots and parks, as well as within urban settings such as boulevards and private lawns. However, it is important to note that foraging is limited because it is restricted to those that have the proper knowledge, and that if it were practiced more frequently, the biophysical environment could be damaged because of over-harvesting. Foraging food also raises concerns about private property laws and restrictions on picking plants in parks, as many people may be unsure about the legality of foraging. Because of these factors, it is questionable as to whether foraging sites in the city are fully sustainable as defined by the literature.

## Foraging Locations in Waterloo



**Figure 3.1. Map of Foraging Locations in Waterloo.**

### 3.2.3 Community Gardens

The City of Waterloo's Community Gardens Council lists nine community gardens in its database, which range from gardens open to members of particular housing developments to a garden run by University of Waterloo students (Public Health Waterloo, 2009). These gardens are made up of 10-20 individual plots, available for free or a nominal cost, and provide water, compost, and land, as well as expertise on gardening and a sense of community (Public Health Waterloo, 2009). This is a marked increase in the past decade: a 1999 thesis on community gardens in the region found only one in the city of Waterloo (Helm, 1999, p. 4).

These foodscapes exemplify the principles for sustainable foodscapes. By providing local, seasonal food with a small distribution range, community gardens are adhering to principles of resiliency. Allowing community members equal access to plots ensures that community members are empowered, as well as able to access affordable and culturally appropriate food. And community gardens provide a source of nutritious food that simultaneously promotes ecological health and reinforces community conviviality.

### 3.2.4 Individual Gardens

Similar to community gardens, backyard and frontyard gardens are a way of providing local, seasonal food with a small distribution range. They also are accessible to many community members (although only ones who have access to either a yard or outdoor space) and allow for the production of culturally appropriate food that is healthy for humans and the environment. However, gardens are usually limited in distribution to the family that owns the land.

An interesting development in personal foodscapes is the push for a by-law that would permit the keeping of chickens in one's backyard for egg production. Although it is permitted in a number of North American cities including New York, Chicago, and Seattle in the United States and Niagara Falls, Victoria, and Vancouver in Canada, the City of Waterloo council voted against a by-law that would allow backyard hens in April 2009 (Monteiro, 2009). The Mayor, who voted against backyard hens, expressed concerns about complaints from neighbouring residents about noise or odours, as well as attracting wild animals or disease (Monteiro, 2009). However, because keeping hens was not explicitly banned in Waterloo before the Waterloo Hen Association (a local activist group) proposed the by-law, current hen owners will be exempt from the ban, and it will be reviewed in two years (Monteiro, 2009). Keeping livestock in urban areas is a practice that was widespread even in North America until the mid-twentieth century, and it

continues to be a viable means of procuring animal products for people in many countries (FAO, 2001). Proponents for raising hens in urban areas argue that many of the concerns can be minimized with proper care, and point out that urban livestock may be a way of reducing the environmental impact of one's food (Monteiro, 2009).

While the growing season in Waterloo, and most of Canada, is limited because of winter weather, a wide variety of vegetables can be cultivated here. Below is a list of some of the species that can be produced in gardens in Waterloo. This list is not comprehensive, but provides an understanding of some of the options in Waterloo, which is a Plant Hardiness Zone 5A, as is much of Southern Ontario, Southern Quebec bordering the St Lawrence, and most of the Maritime provinces (Weather Network, 2009).

Brassicas:	Broccoli	<i>Brassica oleracea var. botrytis</i>
	Brussels sprouts	<i>Brassica oleracea var. gemmifera</i>
	Cabbage	<i>Brassica oleracea var. capitata</i>
	Cauliflower	<i>Brassica oleracea var. botrytis</i>
	Collard greens	<i>Brassica oleracea var. viridis</i>
	Horseradish	<i>Armoracia rusticana</i>
	Kale	<i>Brassica oleracea var. viridis</i>
	Kohlrabi	<i>Brassica oleracea var. gongylodes</i>
	Rutabaga (swede)	<i>Brassica napus var. napobrassica</i>
	Turnip	<i>Brassica rapa var. rapa</i>
Root and tuber crops:	Beets	<i>Beta vulgaris</i>
	Carrots	<i>Daucus carota</i>
	Parsnip	<i>Pastinaca sativa</i>
	Potato	<i>Solanum Tuberosum</i>
Alliums:	Chives	<i>Allium schoenoprasum</i>



	Garlic	<i>Allium sativum</i>
	Leeks	<i>Allium porrum</i>
	Onions	<i>Allium cepa</i>
	Shallots	<i>Allium cepa</i> var. <i>aggregatum</i>
Leafy vegetables and herbs:	Basil	<i>Ocimum basilicum</i>
	Celery	<i>Apium graveolens</i>
	Endive	<i>Cichorium endivia</i>
	Lettuce	<i>Lactuca sativa</i>
	Parsley	<i>Petroselinum crispum</i>
	Spinach	<i>Spinacia oleracea</i>
Vine and stalk vegetables:	Beans	<i>Vicia faba</i>
	Corn	<i>Zea mays</i> var. <i>rugosa</i>
	Cucumber	<i>Cucumis sativus</i>
	Eggplant	<i>Solanum melongena</i>
	Cantaloupe (muskmelon)	<i>Cucumis melo</i>
	Okra	<i>Abelmoschus esculentus</i>
	Peas	<i>Pisum sativum</i>
	Peppers (bell)	<i>Capsicum annuum</i>
	Squash (summer)	<i>Cucurbita pepo</i>
	Squash (winter)	<i>Curcubita</i> (many varieties)
	Tomatoes	<i>Solanum lycopersicum</i>

**Table 3.2. Plant Hardiness Zone 5A garden species.** Compiled from (the Vegetable Garden, 2009; Natural Resources Canada 2007).

While not the only ways of accessing food in an urban setting, particularly one with access to surrounding farmland such as Waterloo, these three foodscapes are the only foodscapes that rely on food that grows within the city of Waterloo. These foodscapes are also easier to apply to other urban areas because even though other cities may not have access to the

agricultural regions surrounding Waterloo, foraging, community gardening, and individual gardening can be practiced in most like-sized urban areas.

### 3.3 Discussion of Case Study Literature

In addition to the academic literature used in Chapter Two, this case study relied on a wide variety of popular media, user-generated materials such as websites and social networking sites, and government documents to support the idea that sustainable foodscapes are increasingly relevant in Waterloo, as well as other Canadian communities.

#### 3.3.1 Popular Media

As discussed in Chapter One, issues of the impact of food on environmental and individual health has seen a large increase in the amount of exposure in popular media over the past several years. Several best-selling books have addressed some facets of sustainable foodscapes, whether their focus has been on resilience (Kingsolver's 2008 *Animal, Vegetable, Miracle*), locality (Smith and MacKinnon's 2007 *The 100 Mile Diet*), community health (Schlosser's 2001 *Fast Food Nation*), or producing one's own food (Trail's 2005 *You Grow Girl*). In 2008, the City of Waterloo selected *The 100 Mile Diet* for the One Book, One Community program; in which participants read the same book in order to promote community dialogue (One Book, One Community, 2008). Sustainable foodscapes are also receiving more attention in newspapers: between 1999 and 2009, the number of stories on local food in the Waterloo Region newspaper *The Record* grew from 18 to 78, the number of stories on sustainable food grew from 0 to 10, and stories on wild food grew from 0 to 3 (The Waterloo Region Record, database search 1999-2009). This increase in

coverage demonstrates that issues around sustainable foodscapes are increasingly salient and should be met with an enthusiastic response in the community.

### 3.3.2 Sustainable Foodscapes Online

In addition to an increase in exposure from print media and popular literature, sustainable foodscapes have been increasingly popular on the Internet. Blogs allow people interested in sustainable foodscapes to document their experiences for others to read and comment on. A search on Technorati, a website that tracks blogs, showed over 5,000 results for “local food,” 1,400 for “sustainable food,” and over 5,000 for “vegetable garden” (Technorati, 2009). While many blogs online are not widely read, there are some that reach a fairly large audience: Seasonal Ontario Food is a blog maintained by an anonymous Waterloo Region resident that receives over 400 visits a day (Seasonal Ontario Food, 2009). Social networking sites such as Facebook provide a way for people to connect and share with community members who are also interested in sustainable foodscapes. User-created groups about sustainable foodscapes in Waterloo Region include:

- Local, Wild, and Seasonal Food Adventures 2009
- Waterloo Region Community Gardeners
- Grow a Vegetable Garden in Spring 2009
- Waterloo Hen Association (Facebook, 2009)

The presence of these online communities suggests that issues surrounding sustainable foodscapes are important to members of the public.

### 3.3.3 Government Documents

The case study also relied on the use of various government documents, from both the City and the Region of Waterloo. Documents from the City of Waterloo used in the case study and subsequent analysis included by-laws, lists of approved street trees, trail maps, and the Environmental Strategic Plan. Documents from the Region of Waterloo included lists of community gardens, the Regional Official Plan (which was accepted by council June 16, 2009), and Foodlink Waterloo lists of local food sources. I also used various Region of Waterloo Public Health reports and fact sheets that detailed the use of sustainable foodscapes in the region, as well as other resources for community gardeners.

## 3.4 Interview Design

The bulk of my primary research consisted of interviews with local experts and town officials about the various foodscapes that exist in the region as alternatives to supermarkets, restaurants, and fast food. These experts, identified in a table on page 72, were found through a combination of recommendations from my supervisor, recommendations from other interviewees, and personal acquaintances. These questions addressed the potential for promoting the use of these foodscapes in Waterloo, the strengths and weaknesses of these foodscapes according to the criteria of sustainable foodscapes discussed in Chapter Two, and the practical aspects of implementing these foodscapes in Waterloo as well as other cities. These interviews were semi-structured, based off of pre-determined questions (see Appendix A), which were approved by the University of Waterloo Research Ethics Office. These questions were based on the thesis questions. The literature review was designed to answer the questions of what constitutes a sustainable foodscape and to determine the criteria by which its value would be determined. The interview questions were designed to test whether those criteria were valid, and whether there

were additional criteria by which sustainable foodscapes are valued in a community. The interview questions also address the opportunities and barriers faced by community members in Waterloo to fostering sustainable foodscapes. Questions intended for city employees also explored how sustainable foodscapes in general could be manifested in Waterloo, and whether those foodscapes are desired in the city.

### 3.4.1 Participant Selection

Fifteen interviews were conducted during the course of this research. Interview participants were selected by the researcher contacting people involved in the various foodscapes, such as community garden organizers and local foragers. Interviews were also conducted with employees of the City of Waterloo whose work has a focus on foodscapes such as city planners and public health officials, as well as key policy makers such as council members. Community garden organizers are listed on the Region of Waterloo Public Health website. Local foragers, garden owners, and employees of the City of Waterloo were recommended to me by my supervisor, or consisted of personal acquaintances.

<b>Interview Category</b>	<b>Participant Name</b>	<b>Affiliation</b>
Policy Expert	Participant A	City of Waterloo Staff
	Mark Whaley	City of Waterloo Councillor
	Rhonda Larsh	City of Waterloo Staff
	Participant B	This participant has asked that his/her affiliation not be identified
	Karen Moyer	City of Waterloo Staff
Forager	Sylvia Chapman	University of Waterloo Environment and Resource Studies undergraduate student
	Greg Michalenko	University of Waterloo Environment and Resource Studies Professor (ret)

	Larry Lamb	University of Waterloo Ecology Lab Manager
Home Gardener	Greg Michalenko	University of Waterloo Environment and Resource Studies Professor (ret)
	Nina Bailey-Dick	Owner, Bailey's Local Foods, and owner of urban hens
	Participant D	University of Waterloo Environment and Resource Studies Graduate Student
Community Gardener	Candace Wormsbecker	Co-organizer of University of Waterloo WPIRG community garden, Community Gardens Facilitator for the Region of Waterloo
	Shirley Freeman	Co-organizer of Christ Lutheran Community Garden
	Participant C	Co-organizer of University of Waterloo WPIRG community garden
	Participant E	Participant of University of Waterloo WPIRG community garden

**Table 3.3. Interview Participants.**

I chose these categories so that I could explore the case study from various levels. The participants who use the various foodscapes were chosen to provide insight into their practical experience with these foodscapes and reasoning for choosing to use them. City employees, regional employees, and city Councillors were chosen so as to understand what systems are in place at a municipal level that could promote or constrain the development of sustainable foodscapes.

### **3.5 Survey Design**

A short, exploratory pilot survey was undertaken to investigate the receptiveness of people to the notion of foodscapes. This survey cannot be viewed as statistically representative and has its limitations including that it is not representative of the community as a whole, so it can not be

taken as indicative of widespread attitudes towards sustainable foodscapes. However, it provides insight about some of the realistic attitudes held by community members towards alternative foodscapes. These surveys were designed to be supplementary to the interviews, to gauge how receptive community members who do not use sustainable foodscapes are towards them. It is important to understand the diverse attitudes towards sustainable foodscapes that exist in the community, because community engagement is an important facet of a successful sustainable foodscape. I asked respondents to view a randomized set of photos of the different foodscapes and asked them to record their preferences of the idea of obtaining food from the different foodscapes on a Likert scale (see Appendix B for photos). While the surveys are not statistically significant, they provide an additional source of viewpoints about obtaining food from sustainable foodscapes that bolster what the literature, case study, and interviews tell us about sustainable foodscapes in Waterloo. These viewpoints are necessary in order to assess the potential for community engagement in sustainable foodscapes.

Surveys were conducted in the Waterloo Town Square in uptown Waterloo, which opened in June 2009. The surveys were timed to take place during various events held in the Square to ensure a large volume of passers-by. These events drew a wide range of community members, which ensured that survey sampling was diverse. Surveying took place three times: a weekend day, a weekday, and a weekday evening, to ensure a variety of respondents. Surveying on a weekend meant that I was not at risk of biasing the sample to exclude people that work full-time, while a weekday provided access to older and younger demographics, and an evening provided a range of students and youth. Because the survey relied on voluntary completion, there may have been a risk of self-selection of the respondents: it is likely that people who are interested in community food issues were more likely to respond. However, I hope that I was able to survey a range of community members, including those that do not consider community food issues to be a high priority.

### **3.6 Data Analysis**

As suggested by Strauss and Corbin (2008), data analysis took place throughout the data collection process, especially the semi-structured interviews. By conducting constant analysis, the researcher can “identify relevant concepts, follow through on subsequent questions, and listen and observe in more sensitive ways” (Strauss and Corbin, 2008, p.57). Interpretation of the data by identifying key concepts in the interviews helped to facilitate the identification of emerging concepts and a deeper understanding of how sustainable foodscapes are valuable for healthy communities.

A bar graph was used to provide visual analysis of respondents’ opinions regarding the various foodscapes, showing how each foodscape was rated. This helps to show which foodscapes are viewed as most preferable for obtaining food by respondents. When combined with data from the interviews, as well as the information from the literature, the survey results provide triangulation for making recommendations as to how Waterloo might use concepts from socio-ecological restoration to improve the community’s foodscape.



## **Chapter Four: the Sustainable Foodscapes of Waterloo, Ontario**

### **4.0 Introduction**

A case study inquiry provides a means of triangulating various methods of data collection in order to more fully understand an issue (Yin, 2003, p. 14). Chapter Two used a comprehensive literature review in order to determine criteria for and define a sustainable foodscape. This chapter outlines the findings of a case study of the city of Waterloo, Ontario. In order to understand if and how sustainable foodscapes are manifested in Waterloo, a number of key informant interviews were conducted. These interviews relied on people who use the various foodscapes, as well as city and region employees who were able to provide insight into the policies that influence the development and use of sustainable foodscapes. While it is important to acknowledge that the bias of the interview participants is heavily favourable to sustainable foodscapes, the results are important because they explore how sustainable foodscapes are valued in the community. The first section of this chapter examines the manifestation (or lack thereof) of the criteria of sustainable foodscapes outlined in Chapter Two in the City of Waterloo. These criteria will be viewed in relation to each of the three foodscapes investigated in the study: foraging, community gardens, and personal gardens. The second section of the chapter explores the opportunities identified by interview participants for fostering sustainable foodscapes in Waterloo. The final section of this chapter deals with the results of the community survey, in which community members were asked to rate the appeal of obtaining food from various foodscapes based on a series of images.

### **4.1 Determining the Value of Sustainable Foodscapes**

In Chapter Two, the criteria of a sustainable foodscape were outlined to consist of four main components: community health, sustainability, resilience, and sustainable food security. These concepts address different facets of a community's meta-landscape, and by using them as multiple indicators, we can gain a comprehensive understanding of the value sustainable foodscapes would have to a community. Participants identified the ways in which the criteria of sustainable foodscapes were present or absent in the different foodscapes studied. This identification of criteria by experts allows us to gauge whether Waterloo's foodscapes truly are sustainable, as well as pinpointing which aspects of the foodscapes that would require more work.

#### 4.1.1 Community Health

Xuereb and Desjardins observe that using a healthy communities approach to examining the food system allows the researcher to look beyond individual dietary behaviour to examine the broader context in which food choices occur (2005, p. 4). The healthy communities model, as outlined by Hancock (1993), shows that community, the environment, and the economy are all factors that contribute to health (p. 44). Several of the interviewees identified sustainable foodscapes as components of a healthy community.

##### 4.1.1.1 Sustainable Foodscapes and Convivial Communities

Hancock's (1993) model of health and sustainable development in the context of a community (shown in figure *ii* in Chapter Two) stresses that a community must be convivial; it needs to have support networks and for its members to participate in community life (p. 44). Similarly, Hancock and Perkins' (1985) Mandala of Health (shown in figure *iii* in Chapter Two) demonstrates that an individual's health is nested within the health of the surrounding

community (p. 9). Interview participants noted that foraging and community gardening encourage community interaction. Several interviewees had participated in or knew of informal neighbourhood foraging groups, many of which involve collecting serviceberries from boulevard trees in the fall (Chapman 2009; Participant C, 2009; Participant A, 2009). One interviewee related that she had heard of a group that would pick fruit from residential trees if the owner requested it, splitting the harvest equally between the pickers, the owner, and a local charity (Participant A, 2009). Foraging also provides a means of creating dialogue between community members. Several interviewees reported instances of being asked about what they were foraging by passers-by: “people see you out and about and get curious about what you’re doing” (Chapman, 2009).

Some interviewees also felt that community gardens stimulated greater interaction with community members, both through conversation with passers-by, and through socialization with fellow gardeners (Participant C, 2009). Sharing gardening knowledge with other community gardeners was identified by one participant as a valuable part of community gardening, because novice participants could learn techniques and tricks from gardeners with more experience (Participant E, 2009). It is interesting to note that the two gardeners interviewed who garden at Waterloo’s only communal garden plot, the University of Waterloo Public Interest Research Group (WPIRG), considered communal gardening preferable to individual plots (Participant C, 2009; Participant E, 2009). However, community gardeners who used an individual plot system preferred that method (Freeman, 2009). The two interviewees from the WPIRG garden felt that the increased socializing opportunities, as well as a shared workload, were the most beneficial aspects of communal plots; disagreements involving shared decision-making was identified as the biggest problem (perceived or otherwise) with communal gardens (Participant C, 2009; Participant E, 2009). As one interviewee pointed out, it is important to have gardens that use a

variety of systems (communal and allotment plots) so as to appeal to a wide range of participants (Wormsbecker, 2009).

While interviewees who practice individual gardening felt that it could also stimulate interaction with community members, such as neighbours, there was an indication that this interaction was more limited than in a community garden setting (Michalenko, 2009; Participant D, 2009). This may be due to the fact that individual gardens are often located in the rear yard, but all of the interviewees agreed that the location of their garden was based on the best gardening conditions, rather than any concerns over aesthetics: “they need to be where the sun’s the best, and if that’s the front yard, I would like to see attitudes shift so that it’s considered cool” (Bailey-Dick, 2009).

#### 4.1.1.2 Sustainable Foodscapes and Adequately Prosperous Economies

Hancock (1993, p. 45) notes that the economy of a healthy community must be adequately prosperous, and that its wealth must be equitably distributed. Throughout the interviews conducted for this study, there was no evidence of participants relying solely on sustainable foodscapes as a means of procuring food. Instead, most participants identified using the alternative foodscapes – foraging, community gardening, and individual gardening – as a way of supplementing their diets. While gardening and foraging were viewed as a way to reduce the costs of eating fresh produce, most participants considered these foodscapes as too labour-intensive to form a large part of their diet. However, one participant noted that he had met foragers who appeared to be selling their finds, indicating that foraging may be considered a means of income production for some (Lamb, 2009). Two participants also pointed out that the value of providing food for their families through sustainable foodscapes (particularly individual gardening) was commensurate with the time invested in it (Michalenko, 2009; Bailey-Dick,

2009). This idea is supported by literature examining the value of vegetable gardening and household-level subsistence agriculture in transitional economies or poor rural areas (Olson et al, 1996). For low-income families, having a vegetable garden is an important way to improve household food security.

Another concern was that these foodscapes were limited, and would not provide an adequate range of nutrients for full health. Two participants identified themselves as vegetarians, and noted that this dietary restriction meant that they would be unable to fulfil their protein requirements by using the foodscapes of the study, even if one included hunting in the practice of foraging. However, Candace Wormsbecker, a Community Gardens Capacity Builder at the Region of Waterloo noted that, for low-income individuals, community gardens could be a way to increase access to fresh produce (Wormsbecker, 2009).

Of note was the fact that all of the interviewees in the group of practitioners also rely on other sustainable foodscapes discussed in Chapter Two but not included in the case study, namely CSAs and farmer's markets, as well as one model seemingly unique to Waterloo: a buying club, formed by Nina Bailey-Dick, one of the interviewees. The buying club operates in the following manner: the organizer locates the local, sustainably produced food, purchases it in bulk, and sells it to members. This demonstrates that participants draw on a diverse array of alternative foodscapes, which can serve to increase the economic prosperity of a community. Many of the participants indicated that, even though it was outside of the City of Waterloo, they viewed the surrounding rural areas an important part of the City's foodscape, both physically and culturally (Wormsbecker, 2009; Bailey-Dick, 2009; Michalenko, 2009; Participant A, 2009; Whaley, 2009). The close proximity of Farmer's Markets and the ability to buy directly from nearby farms was identified as a way that these participants purchased much of their food. The area's Mennonite heritage was also pointed out as an important identifying feature of Waterloo's meta-landscape.

#### 4.1.1.3 Sustainable Foodscapes and Viable Environments

While all of the interviewees stated that they followed an environmental ethic within their sustainable foodscape – a conservation ethic for foragers, and a commitment to organic or near-organic gardens – all participants expressed concern that these ethics were far from universal. Some community gardeners commented that fellow gardeners often urged them to use chemical herbicides or fertilizers, or that they had difficulty purchasing organic seedlings (Participant C, 2009; Participant D, 2009).

Hancock (1993) expresses the importance of ensuring that clean air, soil, and water can be accessed by a community (p. 44). This concern was echoed by several of the interviewees (Lamb, 2009; Chapman, 2009; Michalenko, 2009; Participant D, 2009). The three interviewees who forage questioned the safety of foraging near roadsides, due to salt run-off, exhaust, heavy metals, and other contaminants (Lamb, 2009; Chapman, 2009; Michalenko, 2009). Some interviewees also questioned their ability to determine if any soil contaminants were present, both while foraging or gardening. One city employee identified liability about soil toxicity as a challenge in allowing community gardens on public land: “if they’re on our property and get ill, did they get toxicity from our soil?” (Participant A, 2009).

#### 4.1.1.4 Sustainable Foodscapes and Individual Health

The majority of interviewees did not see foraging, community gardening, or individual gardening as having an explicit link to personal health in the sense that it does not necessarily indicate physical, emotional, and mental well-being – the key components of health as defined by the WHO (Participant C, 2009; Whaley, 2009; Participant D, 2009; Participant A, 2009; WHO, 2003). However, interviewees indicated that most people they knew who used these sustainable

foodscapes tended to be generally healthy. One interviewee, a community garden advocate, pointed out the obvious reason for this correlation: “once people start gardening, they start eating better. They start eating the vegetables they plant, and ... from the health perspective, people are [otherwise] not eating sufficient volumes of fruits and vegetables” (Participant B, 2009). Many participants identified community or backyard gardening as a way to relax:

There’s something really calming about happy hen noises in the background, or sitting and watching them scratch. To me, it’s similar to having a fountain in the backyard. You can sit and the stress just melts away as you watch them scratch around. And if you look at our lifestyles and our health issues, a lot of those issues revolve around stress (Bailey-Dick, 2009)

One community gardener identified gardening as an emotionally curative practice:

This summer I feel like it’s more of a therapeutic thing. I like going out there early, before anyone else is there. It’s solitary and quiet; I just like walking through the garden and admiring it (Wormsbecker, 2009).

The above quotations demonstrate how sustainable foodscapes can contribute to one’s mental well-being, a key component of individual health.

Another way in which personal health is evident through use of sustainable foodscapes is by foraging for medicinal plants. Two of the interviewees indicated that they had harvested medicinal plants or knew of locations where they were available, (Michalenko, 2009; Lamb, 2009) although one interviewee pointed out that Echinacea, while widely used commercially, was too rare to harvest from the wild (Lamb, 2009). Although it is a marginal practice in Waterloo, many First Nations Canadians continue to harvest wild medicinal plants, demonstrating a way in which sustainable foodscapes can be used to promote personal health (Arnason et al, 1981; Marles et al, 1999). Although the effectiveness of these plants may be questioned, their use as a component of a cultural practice can be important to one’s well-being.

Many of the interviewees expressed concerns about food safety while foraging, due to the potential for misidentification of edible species, particularly mushrooms. This apprehension was voiced by people who had very limited experience foraging; the three more experienced foragers interviewed expressed confidence in their ability to correctly differentiate between edible and non-edible species (Chapman, 2009; Lamb, 2009; Michalenko, 2009). However, two of the interviewees discussed a locally well-known event that occurred in the summer of 2008, in which a family of Chinese Canadians misidentified a poisonous mushroom as an edible one from China, and required extensive medical care (Michalenko, 2009; Participant B, 2009). Greg Michalenko, a retired University of Waterloo professor and avid mycologist, was called into the hospital to identify the species of mushroom the family had eaten:

When I rushed in [to the hospital] they didn't have any specimens... I had to go out to the factory, but there weren't any more to be found there... the grandmother remembered there were a few more left at home... when I saw what the mushrooms were ... I knew that the real trouble was just beginning because the toxin was in their liver and neural system. Their livers were literally disintegrating. The older boy looked very listless, so they had him taken by helicopter to Sick Kid's Hospital and two days later they gave him a liver transplant, because he would have died otherwise (2009).

This occurrence demonstrates that there are legitimate health risks to foraging, and that if it is to be conducted safely, there is a need for proper education for the community to minimize the risk of foraging toxic species.

#### 4.1.2 Sustainability

Hancock (1993) writes that sustainability is an essential aspect of community health, but sustainability as a concept can be widely interpreted. This research used Gibson's (2006) criteria for sustainability assessment, which are discussed in Chapter Two. Most, although not all, of the core criteria as outlined by Gibson (2006) were identified by interviewees as aspects of the



various sustainable foodscapes. Surprisingly, many of the interviewees did not consider the sustainable foodscapes to meet all of the criteria of sustainability.

Gibson (2006) describes socio-ecological systems integrity as the long-term maintenance of the human-biophysical relationship in order to sustain human and ecological well-being (p. 174). Many of the interviewees identified their desire to reduce their individual impact on the biosphere as influencing the ways in which they participate in foraging and gardening. Interestingly, most of the interviewees did not see these foodscapes as being conducive to ecological sustainability; a forager and a gardener instead identified ecological well-being as a reason for restricting their activities (Lamb, 2009; Participant C, 2009). This is understandable when considering foraging, as a long-time forager explained: “if you tried to popularize it [foraging], they [the species] would be wiped out” (Lamb, 2009). It was surprising to discover that many community gardeners did not consider their activities to be ecologically sound. One interviewee, a Participant Bn a community garden, explained that while he considered gardening to be more socio-ecologically sound than conventional means of obtaining food (such as supermarkets), because still relied heavily on external inputs such as compost from the Region, he did not consider his garden to be self-sustaining (Participant E, 2009). While many community gardeners are likely to be aware of environmental concerns, and perhaps desire to minimize their ecological impact by practicing organic gardening techniques, it is not certain that all community or even backyard gardeners share these concerns. Individual gardeners interviewed were more apt to consider their practices ecologically sustainable, perhaps because they could exercise more control over the inputs in their garden (Participant D, 2009).

Livelihood sufficiency and opportunity require that the basic needs of community members be met, without depleting resources required for future generations (Gibson, 2006, p. 174). As discussed above, most respondents did not feel that the sustainable foodscapes used in

the case study were a viable means of providing one's entire source of food, but were feasible ways to augment one's diet. However, it is again important to note, as one participant observed, that some First Nations communities do still practice foraging as a means of acquiring traditional food and medicinal plants (Lamb, 2009). Another participant observed that some immigrant populations, particularly Greek-, Greek Cypriot-, and Italian-Canadians are active in foraging around Waterloo for food items used in traditional dishes, such as dolmades, or wild grape leaf rolls (Michalenko, 2009).

Intra-generational equality requires that gaps in sufficiency and opportunity be narrowed among community members who currently face disadvantages, particularly financial ones (Gibson, 2006, p. 174). While all interviewees stated that the sustainable foodscapes were not a vital source of food for themselves, many acknowledged that they knew community members for whom foraging, community gardening, or individual gardening was the only means of accessing fresh produce (Lamb, 2009; Participant C, 2009; Participant D, 2009; Participant A, 2009; Participant E, 2009). Inter-generational equality as defined by Gibson (2006) refers to the preservation of resources for future generations; interviewees did not identify this as a factor in their decision to use sustainable foodscapes.

Interviewees were of mixed opinions as to whether sustainable foodscapes met the requirements of resource maintenance and efficiency. Two of the interviewees identified the foodscapes as minimizing resource use due to the locality of the foodscapes: "[foraging] is a good way to increase the awareness of things that are local" (Chapman, 2009); "[gardening] is way more ecological than getting it from the grocery store, which gets it from a huge warehouse, that's shipped in from overseas" (Bailey-Dick, 2009). Eating local food can reduce the ecological impact of one's diet compared to a diet heavy in foods transported from afar (Feenstra, 1997; Halweil and Prugh, 2002). The rise in popularity of local food as an environmental issue has

become a point of interest for those wishing to participate in sustainable foodscapes, particularly gardening (Ferris et al, 2002). Other interviewees pointed out that economies of scale mitigated these benefits in many instances: “I could buy from a local farmer who can probably grow [produce] in a more environmentally friendly manner than me. If I drive to the garden, I’ve just [negated] all the environmental benefits of [my] gardening” (Participant C, 2009).

The criterion of sustainability that interviewees viewed as the most important component of sustainable foodscapes was socio-ecological civility and democratic governance. Gibson (2006) describes this principle as calling for an engaged and active citizen base to participate in decision-making, strengthen individual and collective understanding of ecology and community, and build civil capacity (p. 174). The interviewees described several ways in which they attempted to engage community members in sustainable foodscapes: online social networking, word of mouth, inviting neighbours to dinner, sharing produce from community and individual gardens with passers-by and neighbours, and using pre-existing communications networks such as church and university emailing lists (Freeman, 2009; Chapman, 2009; Participant C, 2009; Bailey-Dick, 2009). One participant explained that foraging was a way to “get to know nature” by searching for edible plants (Lamb, 2009). This resonates with Kloppenburg et al’s (2005) discussion of the recognition of the “foodshed” as one’s home environment as a means of fostering increased environmental knowledge. Interviewees who participate in community gardening expressed the feeling of increased civil engagement they experienced at a community garden (Participant C, 2009).

Precaution and adaptation require planning for uncertainty, and the ability to evolve one’s plans based on current observations (Gibson, 2006, p. 174). A City of Waterloo councillor addressed how including hens as a part of individual gardening was being assessed by the city:

It's kind of a way of the future; people are having them as pets as well as part of the food chain... rather than a cold yes or no, we have a period of grace for the urban hen [enthusiasts] who are all passionate about it to create some kind of a movement in the community (Whaley, 2009).

The statement above is referring to the council's decision to vote down a by-law allowing urban hens, but to allow a two-year monitoring period for a group of pilot families to determine if the by-law would be feasible in future (Monteiro, 2009). The councillor's reflection demonstrates an adaptive approach to shifting ideas about the urban/rural divide, which was identified by a participant with hens as, in her opinion, one of the main reasons why the by-law was voted down (Bailey-Dick, 2009). The two-year review policy also demonstrates an adaptive management approach, allowing for changes in information or uncertainty (Gibson, 2006, p. 174).

Lastly, Gibson (2006) discusses the need for immediate and long-term integration, requiring that all the principles of sustainability be applied at once, "seeking mutually supportive benefits and multiple gains" (p. 174). As is illustrated by the case study, many of the criteria are currently being applied to sustainable foodscapes in Waterloo. However, all of the interviewees had many opinions as to how these and other criteria could be more fully implemented. These will be discussed further in the chapter, as well as in the recommendations to be made in Chapter Five.

#### 4.1.3 Resilience

With respect to the concept of sustainable foodscapes as a means of supporting ecological sustainability, the participants shared many doubts, based on concerns about the popularization of foraging, as well as the need for external inputs and inefficiencies of resource use in gardens. Most participants acknowledged that sustainable foodscapes were preferable to the current industrial food system, but shared concerns about the practicality of sustainable foodscapes being

broadly used in today's Canadian societies. However, the idea that sustainable foodscapes could foster social benefits for the community was almost universal. In particular, interviewees identified certain components of resilience as being pivotal to sustainable foodscapes.

Although interviewees identified aspects of sustainable foodscapes as being unsound practices ecologically, such as intensive foraging, many shared the opinion that sustainable foodscapes could nevertheless foster increased biodiversity and ecological variability. One interviewee suggested that planting more fruit and nut trees in urban areas could increase diversity while facilitating foraging (Lamb, 2009). However, this participant was also careful to note that foraging could decrease biodiversity if not practiced in a sustainable manner, by harvesting only a certain percentage of the available plants (Lamb, 2009). Foragers spoke of the importance of maintaining a viable population of species, as well as understanding the role of that species within its ecosystem: "they [berries] are food for birds and chipmunks; you're taking a food source away" (Lamb, 2009). Community and backyard gardens were identified as less difficult ways of increasing biodiversity, as most interviewees indicated that their garden had replaced grass or other unused land (Participant C, 2009; Participant A, 2009; Participant D, 2009). One individual gardener spoke of saving heritage seeds as a particular way of incorporating ecological variability into her garden:

When I [started gardening], all the stuff about Monsanto was coming out, about ... farmers... not being able to save seeds. I have a big respect now for trying to cultivate seeds that might otherwise fall to the wayside, because I think there are stories in the seeds, and I think they're valuable, and important, and kind of beautiful. (Participant D, 2009)

Gardens can also increase nodal habitat for pollinators (Schaefer, 2003), and two participants spoke of planting specific species to encourage bees to frequent their gardens (Participant D, 2009; Michalenko, 2009).

Walker and Salt (2006) describe modularity of an important part of resilience, referring to the need to create nested and independent structures within a system, so that if a disturbance were to occur, individual systems could continue to function (p. 146). Concern was expressed about the fact that supermarkets in the City of Waterloo receive many of their foodstuffs from a food terminal in Toronto (Participant B, 2009). This participant questioned the stability of this system, and spoke of a desire to use sustainable foodscapes as a way to augment this system: “it’s really important to be self-sufficient... you don’t want to be dependent on a system that is somewhat fragile” (Participant B, 2009). This idea is reinforced by Bernauer and Caduff (2003), as well as Khan et al (2001), who note that a decentralized food system encourages greater food safety, in terms of controlling for both accidental and deliberate contaminations.

The ability of sustainable foodscapes to foster social capital and innovation among community members was by far the most universally recognized component of resiliency identified. Promoting these qualities in a community increases members’ capacity for leadership, and supports an increase in learning and creating change (Walker and Salt, 2006, p. 148). The process of investing in social capital was described by several participants:

You could do it [forage] as a neighbourhood group and have small families come along ... you could teach the adults first, and then they could teach their kids. (Chapman, 2009)

While this statement shows recognition of the valuable educational component to foraging, it should be noted that this approach could cause over-harvesting and degradation of landscapes. A more appropriate method for using foraging as a way of developing social capital through learning would be to develop opportunities to forage on marginal lands, or to conduct more formalized foraging outings in a limited capacity.

We learned how to garden as well as how to socially garden... At the community garden we take a ‘try it and see what happens’ approach. (Participant C, 2009)

Definitely [community gardens promote community empowerment] ... all of these gardens are grassroots-started... we try and connect them to more seasoned gardeners, and master gardeners, because so many of the people come in have no knowledge of gardening, but it's all grassroots. (Participant B, 2009)

Others spoke of the ways in which sustainable foodscapes foster innovation:

I think it's important for us to hold onto a vision of what could be. There's a movement in the United Kingdom called Transition Towns, and they are looking at how we can transition towards a different way of living where we're not so dependent on fossil fuels, we're not so dependent on imported everything. And that's what I think about the connection with [urban] chickens. (Bailey-Dick, 2009)

Foraging could certainly be encouraged by having appropriate institutional arrangements and thereby [sic] making a better mosaic... a better vehicle for nature education. (Michalenko, 2009)

Although sustainable foodscapes are not necessarily seen as a practical way to produce food for a community other than on a supplemental level, the role of sustainable foodscapes in promoting social resiliency is formidable. Foraging practitioners feel that it encourages a more intimate knowledge with one's natural world, even in urban areas (Lamb, 2009; Michalenko, 2009). Community and individual gardening provide opportunities to engage in both leadership and learning, which are cornerstones of a well-formed and engaged community (Orr, 2002).

#### 4.1.4 Sustainable Foodscapes and Sustainable Food Security

Lima (2008) defines sustainable food security as a food system in which food of adequate nutrition is provided while simultaneously promoting social justice and ecosystems integrity (p. 28). Having tackled ecosystems integrity in 4.1.2, we must now explore how sustainable foodscapes in Waterloo address the provision of food, and the encouragement of social justice.

Food provision has both physical and economic aspects. Sustainable foodscapes can provide access to food that community members could not otherwise purchase. Foraging in

particular allows participants to obtain foods that only grow in the wild, such as morel mushrooms (Lamb, 2009; Michalenko, 2009). Of more concern to participants, however, was that sustainable foodscapes could provide access to food to people for whom the main barrier was economic restraints. “Not everyone can afford to buy what’s best for their health, but community gardens provide increased access to healthy fruits and vegetables” (Wormsbecker, 2009). For low-income members of the community, community or individual gardening provides a means of including in their diet an increased volume of fresh produce (Olson et al, 1996; Marsh, 1998; Blair et al, 1991). Although none of the participants identified economic concerns as a primary factor for why they participated in sustainable foodscapes, most spoke of awareness for the need for access to low-income community members. In particular, access for low-income community members was seen as a way of providing a sense of ownership and empowerment (Wormsbecker, 2009; Participant B, 2009). Community garden experts identified the grassroots nature of the gardens as being crucial to the success of a garden, and as a way of building a sense of community in neighbourhoods that were otherwise lacking (Wormsbecker, 2009; Participant B, 2009).

Another aspect of sustainable food security is social justice, which includes a respect for the cultural appropriateness of food. Immigrants often use gardens as a way of procuring vegetal ingredients for traditional foods, which may be too difficult to source or too expensive to purchase (Gladis, 2003; Kwik, 2008). Community garden advocates identified certain gardens in the Region, such as the Courtland Shelley Community Garden in Kitchener, that are used by a diverse range of new Canadians to grow traditional foods (Participant B, 2009). Foraging was also identified as something commonly practiced by new Canadians, although some interviewees expressed concerns that this could be problematic. Issues of misidentification based on mistaking non-edible species for edible ones from the forager’s home country was one issue; a lack of



understanding about what constitutes sustainable harvest levels in Canadian ecosystems was another (Lamb, 2009; Michalenko, 2009).

The case study failed to resolve whether self-reliance was evident in Waterloo's meta-foodscape. Some participants felt that sustainable foodscapes increased self-reliance; others indicated that, while sustainable foodscapes were a way to supplement one's diet, they were insufficient to sustain an individual or a community (Whaley, 2009; Participant B, 2009; Participant C, 2009; Participant E, 2009). Overall, the respondents confirmed the idea that a community needs a wide variety of sustainable foodscapes in order to promote community health, sustainability, resilience, and sustainable food security – in short, in order to have a sustainable meta-foodscape.

#### 4.1.5 Sustainable Foodscapes and Sense of Place

Adema (2007) states that a foodscape has an intangible essence that can “evoke affective responses, generate and stimulate memory, and spark imagination” (p. 3). This corroborates closely with the definition of sense of place: the values, meanings, and emotional bonds that people develop to a particular location (Mueller and Abrams, 2001). It is not surprising, therefore, that, although not initially included in the definition in Chapter Two, all interviewees expressed the opinion that sense of place was a key component of sustainable foodscapes. Different kinds of emotional connections were described by participants involved in various foodscapes; foragers were more apt to describe a spiritual connection with nature (Chapman, 2009; Lamb, 2009; Michalenko, 2009), while community gardeners expressed feeling a heightened sense of community connection (Participant C, 2009; Participant E, 2009). Feagan (2007) writes that a connection to a landscape can be deepened if people derive sustenance from that landscape. Several participants spoke of sustainable foodscapes of fostering a sense of

ownership and pride, whether over a particular patch of mushrooms or a flourishing community garden (Lamb, 2009; Participant C, 2009). Interviewees described passing by their “spots” to check up on when food would be ready to harvest, and those that had experienced vandalism or been beaten by another forager expressed feelings of loss and disappointment (Lamb, 2009; Participant B, 2009).

Sustainable foodscapes were also seen as a way for new Canadians to both preserve traditional cultural foods and learn about their new community (Participant B, 2009; Participant A, 2009). One interviewee identified growing vegetables in a community garden for traditional foods as a way for immigrants to “keep a connection to the old country” (Participant B, 2009). As Kwik (2008) notes in her research on traditional food knowledge, traditional or “comfort” ingredients that would be difficult or expensive to source are often what are grown in community gardens by new Canadians (p. 85). Another interviewee revealed:

When I first came [to Waterloo], I’d never had squash, I’d never had many of the things that grow here... my family didn’t eat them. We typically ate things that grew back home, in Italy (Participant A, 2009).

Growing food in a location gave participants a connection to the foodscape:

Just planting something in the ground and seeing it grow, for me personally, has made this place feel like home. (Bailey-Dick, 2009)

I just love being able to get my fingers in the dirt in the spring, and to feel like I’m part of whichever environment I’m living in. (Participant D, 2009)

Interacting with place through food can be a way to combat what Feagan (2007) calls the “thinning out” or diminishment of meaning and attachment that humans historically felt to particular places (p. 33). This is especially relevant in Waterloo, a community that includes a large number of transitory citizens – the city’s population of 97,000 includes almost 30,000 university students and almost 22,000 new Canadians (Statistics Canada, 2006).

#### 4.1.5.1 Sense of Place as Environmental Education

Foraging for edible plants is seen as a way to develop an understanding of the natural environment in one's community. Interviewees explained that identifying plants was not sufficient to being a skilled forager: "you've got to know their blooming period, you've got to know what other things eat them... you really have to understand the habitats because certain things only grow in certain places" (Lamb, 2009). One participant described how foraging allowed him to learn about "more dimensions" of the place he lived, and that the landscape could become "embedded in [one's] consciousness as a divining gift" (Michalenko, 2009). Gardeners described the development of an intimate understanding of the natural systems they relied on in their community: rainfall, soil, air quality, what species grew well, and which pests to protect against (Participant C, 2009; Participant D, 2009; Participant A, 2009; Michalenko, 2009). An interviewee who participated in community gardening explained that he felt there was "value in understanding where food comes from" (Participant E, 2009). This resonates with Thomashow's (2002) observation that "sense of place is at the core of many environmental learning initiatives" (p. 76). The author, similarly to Orr (2004, p. 164), discusses the need for sense of place in environmental education as a way to create citizens that take responsibility for their surroundings by becoming intimate with local ecological features (p. 77).

#### 4.1.5.2 Sense of Place and Enjoyment

While conducting interviews for this thesis, I could clearly perceive the deep sense of enjoyment that participants felt while using sustainable foodscapes. Nearly every foodscape expert listed "fun" or "enjoyment" as one of the primary reasons for foraging, community gardening, or individual gardening:

It's a real special experience... it's a joy. (Lamb, 2009)

There's excitement in watching the plants that you grew come up and be something you can eat. Seeing that whole stage and knowing that you were able to create this. (Wormsbecker, 2009)

Many of the participants expressly contrasted the enjoyment they felt obtaining food from a sustainable foodscape with having to use more conventional means of procuring food, such as supermarkets: "as long as I don't have to set foot in a grocery store, I'm happy and thankful" (Larsh, 2009). Clearly, a sustainable foodscape elicits an affective response from its participants (Adema, 2007; Oranges, 2007). It would appear that, in Waterloo at least, a sustainable foodscape fosters a more meaningful relationship between food and individuals in a community than an unsustainable foodscape.

## **4.2 Opportunities and Barriers to Sustainable Foodscapes in Waterloo**

Interviewing people who currently use sustainable foodscapes has demonstrated that foraging, community gardening, and individual gardening are far from marginal activities in Waterloo. The interviews illustrated the criteria by which sustainable foodscapes are valued by community members. Participants were also eager to identify the opportunities for using and fostering these foodscapes in Waterloo, as well as current barriers to more widespread use of sustainable foodscapes.

### **4.2.1 Opportunities**

Interviewees were able to indicate several aspects unique to Waterloo that support sustainable foodscapes. This section discusses the characteristics of the community that could be harnessed to foster sustainable foodscapes.

#### 4.2.1.1 A Strong Local Food Culture

Waterloo was chosen as the subject of this case study in part because it is representative of many Canadian cities, but more importantly, it is what Yin (2003) considers a unique case (p. 48). The city has a distinctive blend of old and new. The large academic and research community fosters innovation and encourages advancements and experimentation in community development, while historically the city is rooted in a rural Mennonite heritage that continuously reminds community members of the importance of supporting local agriculture and creating a just and inclusive community. Nearly all of the participants expressed a strong connection to a local food identity that encompassed the rural areas of Waterloo. Interviewees pointed to the St Jacob's and Kitchener Farmer's Markets as integral parts of the community's meta-foodscape:

It may seem like more of a tourist market, but ... many people who live in the community actually go to the market for all kinds of food: bread, meat, vegetables, fruit. Generally speaking, this produce comes relatively locally... the 100 mile diet is [somewhat of] a way of life here. (Whaley, 2009)

Some interviewees compared Waterloo to other cities in which they had lived, and explained how they felt Waterloo was defined by food:

Everybody always talks about the food here. When my mom found out I was moving here, she was like, "the strudel! It's amazing!" It's different than ... other centres. (Participant D, 2009)

I think Waterloo's got a lot happening here that puts us ahead of what others are doing. When I was doing my research, I was comparing [Waterloo] to communities in Alberta and British Columbia, and they have things going on, but not on the same level as we do here... I think Waterloo's pretty far advanced. (Wormsbecker, 2009)

Participants expressed that Waterloo as a community has been embracing new ideas about sustainable food, particularly local food. Region of Waterloo initiatives such as Foodlink Waterloo Region's "Buy Local, Buy Fresh!" map, as well as the organization's website, provide information to consumers about where to obtain local and seasonal foods (Foodlink Waterloo

Region, 2009). In 2008, the City of Waterloo's One Book, One Community event selected "The 100 Mile Diet: a Year of Local Eating" (Smith and MacKinnon, 2008) as the book to be read by the community, which included author information sessions and community discussions (City of Waterloo, 2009). More recently, community members partnered with the Region of Waterloo Public Health and Foodlink to create a 100-mile diet challenge, in which participants pledge to source a certain percentage of their diet locally for 100 days (Vanden Berg and Torreiter, 2009). An interviewee related that the challenge's information sessions were so popular that the organizers had to turn people away, and schedule a second session (Participant B, 2009).

Participants also noted that they feel a strong sense of community among the people who currently use sustainable foodscapes in the city. Interviewees who participate in community gardens such as Wormsbecker and Participant C (2009) felt that the gardens could be a nexus for community-building, an idea supported by much of the literature (Bellows et al, 2003; Olson et al, 1996). Several participants referred to studies that have indicated that decreased crime rates and increased property values are correlated with community gardening (Bellows et al, 2003; Voicu and Been, 2008) as a way of encouraging more neighbourhoods to incorporate gardens (Michalenko, 2009; Participant B, 2009; Wormsbecker, 2009).

#### 4.2.1.2 Conducive City Policies

Another supportive opportunity for sustainable foodscapes in Waterloo exists in some of the City policies. The City of Waterloo's Partners in Parks program was identified by several interviewees as a venue for community gardens to be permitted on public lands (Participant A, 2009; Participant B, 2009; Larsh, 2009; Wormsbecker, 2009). The city's Lot Maintenance By-Law grants residents the freedom to plant vegetable gardens, as well as naturalized gardens (which could be used to cultivate wild edible plants) on private property (City of Waterloo,

2003). Additionally, many interviewees (foragers Chapman, Lamb, and Michalenko; individual gardener Bailey-Dick; community gardener Participant C) noted that they participated in or were aware of foraging from city serviceberry (*Amelanchier canadensis*) trees, which are on the city's approved list of street trees (City of Waterloo, 2006).

While these policies are evidence of ways in which the City of Waterloo helps to foster sustainable foodscapes, as we will see in the next section, many participants felt that other policies created barriers to sustainable foodscapes.

#### 4.2.2 Barriers

Participants offered many insights into understanding the existing barriers to fostering sustainable foodscapes that they had encountered or of which they were aware. This section details the challenges faced by people who use sustainable foodscapes, as well as obstructions to increasing the use of sustainable foodscapes by other community members. Interestingly, the barriers identified in the interviews mirror the opportunities identified, often by the same participant. This is encouraging, because it means that there is greater potential to transform the barriers due to the similarities they share with opportunities than if the barriers were separate issues altogether.

##### 4.2.2.1 Non-Conducive City Policies

Although the participants all identified Waterloo as having a generally positive attitude towards sustainable foodscapes, it seems as though the city's institutions have not yet shifted to reflect this acceptance. Several community garden participants expressed their disappointment that Waterloo, due to budgetary constraints, does not provide start-up grants and in-kind services to community gardens, as does the neighbouring city of Kitchener (Participant C, 2009; Participant

E, 2009; Participant B, 2009; Bailey-Dick, 2009; Participant A, 2009; Wormsbecker, 2009).

Another difficulty with City policies is that Waterloo operates under a two-tier government, in that many departments, including public health and community health, are covered under the Region of Waterloo (Region of Waterloo, 2009).

#### 4.2.2.2 Lack of Community Support for Specific Sustainable Foodscapes

While Waterloo's support of concepts that contribute to sustainable foodscapes, such as local food, were discussed as an opportunity for sustainable foodscapes, many participants felt that this did not translate to support for the foodscapes discussed in the case study. The recent rejection of a by-law allowing urban hens was cited by several participants as a sign that Waterloo was not ready to accept sustainable foodscapes:

They don't get what it can be. They have images of noisy, smelly, country chicken coops in their mind, and negative connotations [of] a farm... it's hard to let that go and imagine it in a different way. (Bailey-Dick, 2009)

Others said that they perceived that neighbours viewed them as abnormal for having vegetable gardens, particularly for those participants who had front-yard gardens (Bailey-Dick, 2009; Participant D, 2009). A Community Garden Coordinator interviewed listed examples of neighbourhoods rejecting community garden proposals for fear of increasing vandalism in the neighbourhood (Wormsbecker, 2009). These fears go against what the literature tells us about the effects of community gardens on neighbourhood crime rates and property values (Bellows et al, 2003; Voicu and Been, 2008), but can nonetheless impede the creation of new gardens.

#### 4.2.2.3 Misunderstanding Sustainable Foodscapes



The most widespread challenge to fostering sustainable foodscapes is a lack of knowledge and understanding about the foodscapes, and the fact that sustainable foodscapes are not currently a dominant feature of the broader food system. Two of the participants expressed the opinion that the average community member is too disconnected from the meta-foodscape to be able to actively participate in sustainable foodscapes (Chapman, 2009; Participant A, 2009). One forager noted that many of the edible plants that grow locally, such as dandelion, garlic mustard, wild sorrel, and other greens are considered weeds (Chapman, 2009). Other species are simply not recognized as something that could be eaten. Another barrier identified by foragers is the lack of knowledge about proper harvest levels, showing that if foraging were to be popularized without including an educational component, it would not be a sustainable practice (Lamb, 2009; Michalenko, 2009). Finally, the fear of eating a toxic plant acts as a deterrent to many community members foraging; if there are no educational supports available then this fear is legitimate.

Many community and individual gardeners identified lack of knowledge as a barrier to further community participation in those sustainable foodscapes as well. A shift to relatively high-density urban housing and the abundance of inexpensive food in Canadian cities over the past century has created a gap in the transmission of knowledge about how to successfully and efficiently grow food:

Individual residential vegetable gardening [is] pretty well dead in our present urban culture, because of constraints such as time, the way people's lives are organized, and the break in generations. (Michalenko, 2009)

The low cost and relative ease of purchasing food has made producing one's own food seem impractical:

We've become very detached from our food... in my family, having an Orange at Christmas was very important because it showed we were able to provide ourselves with

food ... that was difficult to get. Now, it's definitely not as difficult, it's widely available, so why should I grow my own food? Why use my time, energy, and space, when I can go to the grocery store to get it? (Participant A, 2009)

The anecdote related above reveals a sentiment that many participants (including the researcher) have experienced when communicating with people who do not participate in sustainable foodscapes. It seems as though purchasing one's food ready-made is still seen by some community members as a desirable luxury, or that growing and preparing one's food "from scratch" is an impractical use of time that could be better spent in other ways.

#### **4.3 Community Responses to Images of Sustainable Foodscapes**

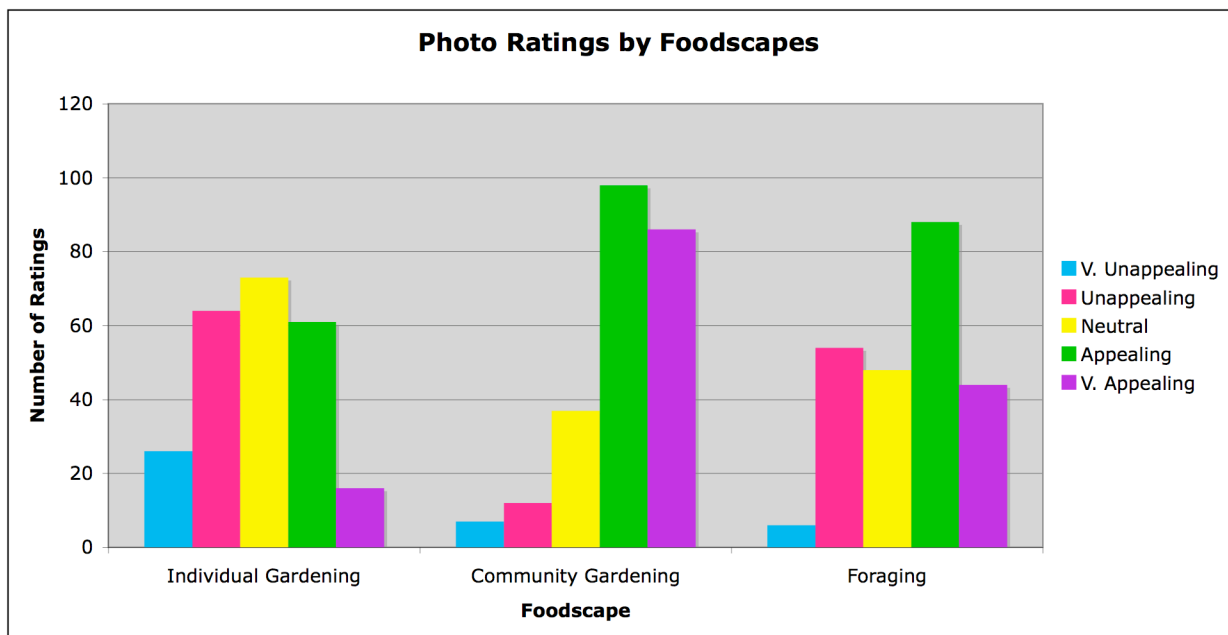
The key informant interviews discussed in the first part of this chapter demonstrated that the use of sustainable foodscapes is present in the community. However, because the sample size for the interviews was relatively small, it is difficult to ascertain whether there exists widespread acceptance of sustainable foodscapes in the community. By asking community members to rate photos of different sustainable foodscapes on a 5-point Likert scale according to a single question: "how much does this scene appeal to you as a place to obtain food?" I was able to gauge the wider community's level of receptiveness towards sustainable foodscapes.

Surveys were conducted in the newly opened Waterloo Public Square in uptown Waterloo during three separate occasions in June: a Sunday afternoon, a Friday afternoon, and a Friday evening. These separate timeframes were used to ensure a diverse range of respondents. Although it is newly opened, the Public Square has already attracted a broad range of users – my respondents included young families, seniors, professionals, university students, and teenaged skateboarders. I collected 48 responses over the three time periods. While the surveys are not statistically significant in that they do not necessarily reflect Waterloo's actual demographic in terms of age and gender of respondents, they are a valuable tool for gaining a broader

understanding of receptiveness to sustainable foodscapes in the general community than provided by the interviews.

#### 4.3.1 Results

The surveys consisted of five photos of each of the three sustainable foodscapes in the case study: individual gardening, community gardening, and foraging. The photos were taken by the researcher over the preceding weeks, and are of gardens and foraging locations in urban Waterloo.



**Figure 4.1. Survey Results.**

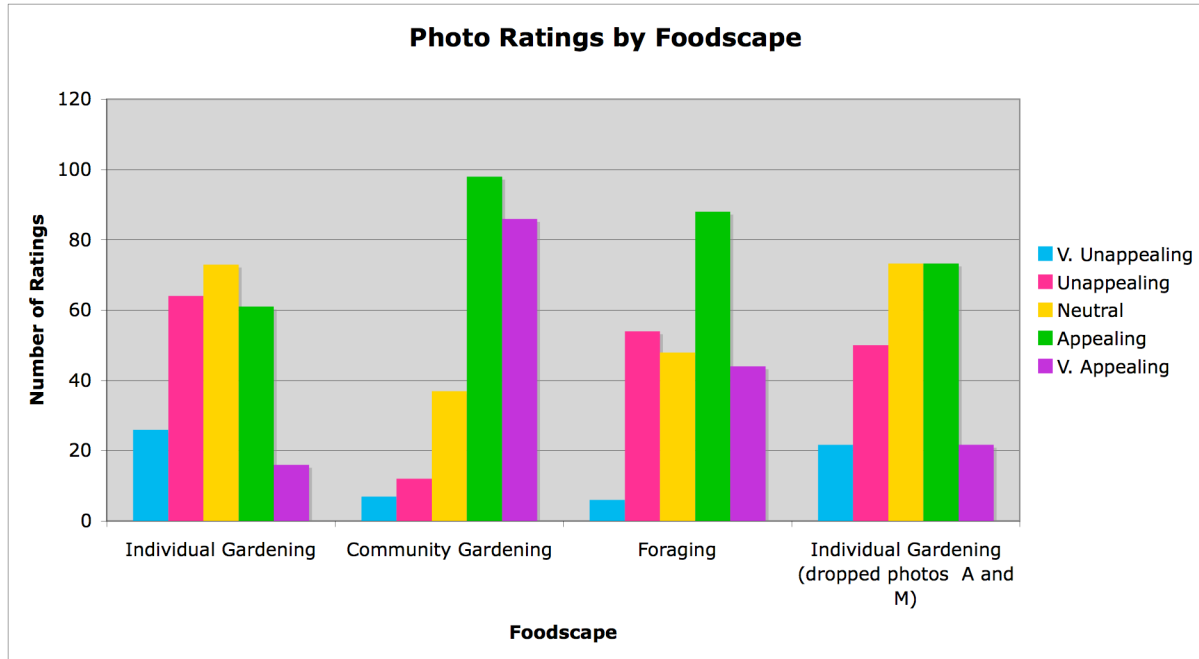
In this graph, the responses for each category were plotted based on the Likert scale response selected: very unappealing, unappealing, neutral, appealing, and very appealing. The highest bar for each foodscape shows the mean, or most frequent response. Individual gardening was not

rated highly; a mean of neutral and a large number of unappealing and very unappealing responses show that community members did not find backyard gardens as an appealing place to obtain food. Community gardening was the most popular; appealing and very appealing were the most common responses. Foraging received a mean of appealing, with the remainder of the responses distributed fairly equally.

These results corroborate with the findings of the interviews – community gardening appears to have the most support of the three sustainable foodscapes in Waterloo. Foraging foodscapes, while not currently supported through institutional channels, appears to be a venue for people to access food that could become more popular, given an increase in knowledge of appropriate species. Individual gardening, as noted by one of the interviewees, still has a stigma against it, perhaps due to the relatively low price and abundance of food available commercially (Bailey-Dick, 2009).

#### 4.3.2 Limitations of the Survey

This survey has some limitations in its usefulness. Firstly, it is difficult to ascertain how the content of the photos may have impacted responses. Kaplan and Kaplan (1989) warn that researchers must avoid the temptation to use only aesthetically pleasing scenes in order to avoid bias (p. 209); however, in the case of individual gardening the unattractive nature of some photos may have overly biased respondents in the negative direction. In fact, when I adjusted the results for individual gardening to remove the two photos of gardens that received the lowest ratings (as well as several comments from respondents about the dubious nature of the shed abutting the garden), the results shifted somewhat:



**Figure 4.2. Survey results with photos A and M (individual gardens) removed.**

Although the change is not drastic, this shift highlights that respondents take into account the visual appeal of the foodscape. However, the realities of gardening are that the garden will, both very early and very late in the season, appear to be comprised predominantly of soil. If a community is to be receptive to gardening as a sustainable foodscape, it must be willing to embrace the less visually pleasing aspects of it as well.

Another limitation is that, as respondents volunteered for the survey, there may be a bias of self-selection: people who are interested in sustainable food were probably more likely to agree to participate. Finally, due to the small sample size, this survey is useful primarily as a way of testing the community's initial response to sustainable foodscapes rather than indicative of broader attitudes.

#### **4.4 Waterloo, Ontario and Sustainable Foodscapes**

This case study was designed to gain an understanding of if and how sustainable foodscapes are manifested in Waterloo, Ontario. Key informant interviews were conducted, using a semi-structured interview format that consisted of questions based on the criteria of sustainable foodscapes determined in Chapter Two, as well as the components of a socio-ecological restoration that might be used to facilitate the development of sustainable foodscapes.

Participants consisted of community members who are experts in using each of the foodscapes, as well as City and Region staff whose work incorporates sustainable foodscapes. Participants were asked to identify the aspects of the sustainable foodscapes criteria discussed in Chapter Two that they felt were present in or important to sustainable foodscapes, as well as the opportunities and barriers to fostering sustainable foodscapes. Finally, a community survey was conducted using Kaplan and Kaplan's (1989) method of "surrogate" images, to elicit an idea of the receptiveness in Waterloo towards sustainable foodscapes.

This chapter summarized the findings of the key informant interviews and the community survey. The next chapter will examine what these findings mean for the future of sustainable foodscapes in Waterloo.

## **Chapter Five: What Does This All Mean?**

### **5.0 Introduction**

In Chapter Four, we learned how both experts in sustainable foodscapes and City or Regional employees viewed sustainable foodscapes in Waterloo, as well as the opportunities and barriers for fostering sustainable foodscapes. Chapter Five will be devoted to examining what the results from the case study mean, specifically through the lens of a socio-ecological restoration for sustainable foodscapes. The first section will examine which aspects of sustainable foodscapes were identified as the most important by interview participants, and how those results might direct a socio-ecological restoration. Following that, the opportunities and barriers for a socio-ecological restoration for sustainable foodscapes from an individual, community, and policy level will be explored.

### **5.1 Essential Components of Sustainable Foodscapes**

Throughout both the literature review and the case study, some common themes emerged as being the most important aspects of sustainable foodscapes. It is important to understand which components of the sustainable foodscapes resonate most strongly with community members if we are to determine how a socio-ecological restoration to foster them would be best approached.

Nearly all of the participants identified aspects of community building and social capital as the most important components of sustainable foodscapes. This is inevitable when one considers that each of the four criteria listed in Chapter Two express the importance of the social component of sustainable foodscapes. However, it was surprising to find that participants viewed sustainable foodscapes as almost entirely social constructs rather than foodscapes that fostered

ecological sustainability – while many participants expressed the opinion that sustainable foodscapes were preferable to conventional means of procuring food such as grocery stores, others expressed doubts as to the ecological viability of sustainable foodscapes. Instead, all participants expressed their desire for more diversity within the meta-foodscape. The sustainable foodscapes examined in the case study would, ideally, exist in tandem with a variety of others that rely on the community's surrounding agricultural land. This would create a redundant and thus food-secure community that could be largely self-reliant in meeting its food needs (Lima, 2008). Sustainable foodscapes can be created as nested modules within a meta-foodscape in order to bolster food security for a specific community.

A principal finding from the case study was that sense of place was under-estimated as a significant component of sustainable foodscapes. Respondents strongly identified their use of sustainable foodscapes as contributing to a deepened sense of place, and to an increased connection with the natural environment. This strong response may be due to the fact that a foodscape evokes a response in people twice over: food is ingrained in a cultural identity, and using a foodscape that directly includes the individual in the production or procurement of food creates an intimate knowledge of the individual's biophysical place (Fischler, 1988; Thomashow, 2002; Orr, 2002). Procuring food from a sustainable foodscape elicits a much deeper and more complex response in the individual than if one obtains food from a more conventional foodscape such as a supermarket, which perhaps due to its homogeneity prevents one from feeling a more visceral response.

Both the literature and the case study suggest that there is widespread recognition of the need for an overhaul of the current food system. The past several years have seen the beginnings of a sea change in popular attitudes towards food. Numerous popular books have exposed the public to the negative impacts on environmental, social, and personal health that the current food



system has contributed to, and people are becoming more accepting of potential alternatives both rich and strange, be they admonitions to eat local food (Kingsolver, 2008; Smith and MacKinnon, 2007), to eat more plants (Pollan, 2008a; Bittman, 2009), or to simply slow down (Slow Food International, 2008). This transformation has been evident throughout my research: many of the interview participants indicated that they had begun using sustainable foodscapes relatively recently, as a response to learning about the problems of the current food system. The survey results indicate that there is a reasonable level of receptiveness towards re-envisioning the food system within the community, although it would seem that community members in Waterloo are not ready to take the step of growing food on their own property.

Reparation of the food system would involve both biophysical (ie, farming practices) and social (ie, attitudes towards food) aspects: thus, a socio-ecological restoration is a suitable approach. Sustainable foodscapes are not a comprehensive solution to the problems apparent in the food system, but they do provide a way of increasing the diversity of a community's meta-foodscape. As the case study has demonstrated, the usefulness of sustainable foodscapes for a socio-ecological restoration of food systems lies primarily in the effect sustainable foodscapes have on increasing community interaction and fostering a food-based sense of place.

## **5.2 Socio-Ecological Restoration for Sustainable Foodscapes in Waterloo**

The literature and case study results have revealed several pathways for a socio-ecological restoration to foster sustainable foodscapes in Waterloo. Most of the interview participants, in addition to providing great insight into the various sustainable foodscapes, were eager to suggest ways that they felt sustainable foodscapes could be promoted in Waterloo. Most of the specific recommendations from participants focused on improving access to sustainable foodscapes from a policy standpoint. This focus on institutional practices indicates that interviewees were less

certain as to how negative community attitudes (identified in Chapter Four as a barrier to sustainable foodscapes) might be changed. However, it could also indicate that participants felt that, once institutional obstructions are removed, it will be easier to encourage greater community participation in sustainable foodscapes.

### 5.2.1 Increasing Opportunities for Foraging

Although it is important to recognize the need for caution about both ecological degradation and personal safety when foraging, specific opportunities for foraging could be created within the city. A relatively safe way to expand foraging opportunities would be to increase the number of fruit and nut trees on public lands, such as along boulevards and paths. As noted in Chapter Four, the city's approved list of street trees includes serviceberry trees; however, these trees account for only 3% of the city's trees (personal correspondence, Cheryl Huxted, 2009). Interviewees also listed trees such as apple, cherry, plum, pear, and various nut trees as desirable species for increasing foraging opportunities in Waterloo (Michalenko, 2009; Bailey-Dick, 2009).

Participants indicated that they viewed fruit trees as visually attractive and as an enjoyable way of interacting with food and place, rather than as a means of gathering a significant amount of food (Participant C, 2009; Lamb, 2009; Chapman, 2009). Being able to enjoy blossoms in the spring and fruit in the fall from trees on roadsides and in parks would be a way to foster a food-based sense of place in Waterloo's natural areas. Foraging would also provide an opportunity for environmental education by providing information to community members about the variety of fruit and nut trees, and when and how to harvest from them. Institutions such as the universities or area businesses could plant fruit and nut trees, as there are many native species of fruit and nut trees that are considered attractive (Suffling et al, 1997). There are also opportunities for private citizens to plant fruit or nut trees as a source of food on their own property.

### 5.2.2 Supportive Policies for Sustainable Foodscapes

The most widely accepted sustainable foodscape in both the literature and the case study findings is the community garden. There are several opportunities in Waterloo for creating more community gardens, especially on public or private institutional land. The University of Waterloo campus has a community garden on its North Campus property, but interviewees pointed out that ample land is available near residences and the student centre for creating community gardens (Michalenko, 2009; Participant C, 2009; Bailey-Dick, 2009). While it is important to note that community gardens are most successful when initiated by a grassroots approach rather than a top-down directive (Glover, 2004), the demand for more space for community gardens in Waterloo is high. Supportive policies towards community gardens would lessen the barriers to starting a community garden and encourage greater participation.

During the course of my research, the Region of Waterloo published the final draft of its Regional Official Plan (ROP). The chapter on liveability in Waterloo Region includes a section detailing the need for access to locally grown and healthy foods, and seeking to “strengthen and diversify the regional food system (Region of Waterloo, 2009c, p. 41). The plan includes a directive to the area municipalities (including the City of Waterloo) to establish policies in the City Official Plans that support community and rooftop gardens (Region of Waterloo, 2009c). The ROP also details that there will be support from the Region for community gardens, such as providing access to Regional land, and supplying rain barrels, composting bins, compost, wood mulch, and other in-kind supports (Region of Waterloo, 2009c).

It is encouraging to see policies for Waterloo that promote community health and resilience through progressive food policies. By putting in place policies that support sustainable foodscapes, the Region is facilitating the development of a diverse community meta-foodscape.

Making community gardens easier to start and maintain in Waterloo will increase their number and thus visibility. As community gardens become more common, more community members may take advantage of the opportunity to participate in them. This increased interaction will improve attitudes towards sustainable foodscapes, making them more acceptable and commonplace.

### 5.2.3 Shifting Attitudes Towards Sustainable Foodscapes

One of the barriers revealed during the case study was the need for broader community acceptance and understanding of sustainable foodscapes. While most participants observed that they had experienced positive responses from neighbours, the same participants indicated that they still felt as though their use of sustainable foodscapes was viewed as abnormal (Bailey-Dick, 2009; Chapman, 2009; Participant D, 2009; Participant A, 2009). By creating policy that fosters sustainable foodscapes and increases their visibility, individual attitudes towards sustainable foodscapes could shift to become more accepting. Opportunities for informal community education about sustainable foodscapes, such as foraging tours and gardening workshops, could encourage more people to participate in sustainable foodscapes. The surveys conducted in the case study indicate that, while many community members do not yet actively participate in sustainable foodscapes, attitudes towards their use are generally positive, although individual gardening did not garner as positive a response as community gardening or foraging. Increasing the visibility of individual gardening by using front yards as well as rear yards for gardens could normalize the practice as it becomes more common in neighbourhoods around the community.

## **Chapter Six: Conclusion**

### **6.0 Introduction**

The final chapter reviews the questions of the thesis and address them based on the findings of the research. It also summarizes the recommendations for a socio-ecological restoration for sustainable foodscapes, as well as the opportunities and barriers. Finally, I address the contributions to the literature and avenues for further research.

### **6.1 Review of Sustainable Foodscapes**

This thesis began with a discussion of the problems that exist in the current food system, and the need for a socio-ecological restoration approach to addressing these problems in a comprehensive manner. A socio-ecological restoration is appropriate because it uses a systems approach to addressing the problems that exist when human systems and biophysical systems are closely interrelated, such as in a food system. The analysis of the thesis research was directed by the concept of socio-ecological restoration in order to understand how sustainable foodscapes could be fostered in a community.

The literature review and case study were guided by the thesis questions, which were answered in the analysis. The first question was: *what is a sustainable foodscape?* A review of the literature defined a foodscape as being a multi-sensory and multi-layered food landscape of a community, referring not only to a physical landscape, but also the ways with which community members interact with food: procurement, preparation, consumption, and the intangible ways in which food can affect memories and emotional responses. By examining the literature of sustainability, resilience, community health, and food security, a comprehensive definition of a

sustainable foodscape emerged: one that promotes community health and sustainable food security by fostering socio-ecological sustainability and resiliency within the food system (Hancock, 1993; Lima, 2008; Gibson, 2006; Walker and Salt, 2006).

The second question asked was: *of what value are sustainable foodscapes to healthy communities?* Results from the case study show that the main contribution of sustainable foodscapes to healthy communities is that they help to foster increased community interaction and involvement, creating a more convivial atmosphere. Members of healthy communities participate in community activities and engage with others in the community; participating in sustainable foodscapes creates opportunities for increased interaction among citizens.

The third question asked whether sustainable foodscapes met all the criteria outlined in the literature review, or if only certain requirements were met: *by what criteria is the value of a sustainable foodscape determined?* The analysis shows that participants in the case study determined the value of sustainable foodscapes based largely on the positive ways in which sustainable foodscapes impacted community interaction, fostered innovation and environmental education, and created a sense of place rooted in food. Sustainable foodscapes provide a means of interacting with one's immediate natural environment by acquiring sustenance from the environment, whether it is through foraging or cultivating food. This is seen as a way to develop a more intimate knowledge of one's environment, creating both a deepened sense of place or connection as well as increasing one's store of practical environmental knowledge about the area.

The analysis addressed the final question: *what would a community with a diverse range of sustainable foodscapes look like?* The case study results showed that community members see sustainable foodscapes as making up a part of a much broader and more diverse community meta-landscape. This foodscape would include the sustainable foodscapes examined in the case study

(foraging, community gardens, and individual gardens) but would also incorporate food produced in the surrounding agricultural areas of Waterloo and accessed through such venues as farmer's markets, community shared agriculture (CSAs), and buying clubs. By fostering a diverse range of foodscapes, a community's meta-foodscape would become more resilient and locally self-reliant, ensuring a more food-secure future for the Region.

## **6.2 Socio-Ecological Restoration for Sustainable Foodscapes**

After determining what constituted the essential criteria of sustainable foodscapes based on the work of Gibson (2006), Lima (2008), Hancock (1993), and Walker and Salt (2006), the analysis answered the final question: *what are the barriers and opportunities for fostering sustainable foodscapes?* This part of the analysis was examined through the lens of socio-ecological restoration.

The main barriers to conducting a socio-ecological restoration for sustainable foodscapes were identified as the perception of negative attitudes towards sustainable foodscapes by some community members, and a lack of policy support from the municipal-level government. Attitudes about sustainable foodscapes are shifting, but there still exist stigmas against “abnormal” forms of obtaining one's food, ie from venues other than supermarkets. The absence of support from the city for sustainable foodscapes such as community gardens has created problems for individuals who wish to access sustainable foodscapes, but lack the means, either in terms of resources or knowledge.

However, the analysis also revealed that these barriers are being dismantled even over the course of this research. Results from the community survey indicate that broader perceptions of sustainable foodscapes are shifting to become more accepting, and the nature of sustainable

foodscapes to foster community interaction will be a great aid to furthering their acceptance. In general, popular media has been helping to direct attention to alternative forms of food production and consumption, particularly means of obtaining local and unprocessed food, such as through books and television programs such as the 100 Mile Diet, and as authors and celebrity chefs as varied as Barbara Kingsolver, Michael Pollan, Mark Bittman, and Jamie Oliver admonish people to critically examine how they obtain food. The publication of the final draft of the Region of Waterloo's Regional Official Plan revealed that the current lack of municipal-level support for sustainable foodscapes must be remedied, as the ROP stipulates a requirement of support for community gardens on both a municipal and Regional level.

### **6.3 Contributions to the Literature**

This thesis served to further develop the concept of a foodscape into one that specifically addresses issues of sustainability, resilience, community health, and food security. Sustainable foodscapes are more than just an ecologically sustainable way of procuring food; a sustainable foodscape serves to foster a relationship between a community and its food that is healthy, enjoyable, and interactive. Sustainable foodscapes apply the concept of *terroir* to the complex interaction between diner and dinner in a way that underlines the importance of both the social and biophysical aspects of the community food system.

The case study of Waterloo, Ontario served both to document a specific community's interaction with and response to a socio-ecological restoration for sustainable communities, as well as to develop more broadly applicable suggestions for ways to foster sustainable foodscapes in other communities. By exploring the opportunities to sustainable foodscapes on a policy level, as well as examining the attitudes of the community towards sustainable foodscapes, this case



study has demonstrated the feasibility of promoting sustainable foodscapes in other similar communities.

Applying the concept of socio-ecological restoration demonstrated a way for practices of ecological restoration to encompass a more holistic approach that includes the social components of a system as well as the biophysical. By viewing the concept of sustainable foodscapes within a complex systems lens, this study has demonstrated that restoration can be applied to social as well as ecological issues, an important contribution because of the many instances in which the two are closely intertwined.

#### **6.4 Opportunities for Further Research**

This study was limited in that, although it examined potential avenues for a socio-ecological restoration for sustainable foodscapes, an attempt at restoration was not undertaken. However, potential species for this project were identified in Table 3.1 and 3.2. A participant-observer approach to a socio-ecological restoration would be an excellent way to attempt some of the suggestions for restoration from this study. Specifically, this could be done by attempting to increase the number of fruit and nut trees planted by either the city or private citizens, or by examining the specific deterrents to individual gardening. Although I did not attempt an actual socio-ecological restoration project, this study has provided a basis for future work in this area by identifying the strengths and weaknesses of specific policies in fostering sustainable foodscapes. A socio-ecological restoration for sustainable foodscapes could explore various ways to reach out to community members who do not currently use sustainable foodscapes, whereas this study primarily focused on those who already do.

Another potential avenue for further research would be to more intensively examine the role that sense of place plays in sustainable foodscapes. While not initially included as a critical component of sustainable foodscapes, the case study demonstrated that the participants considered sense of place an essential component of sustainable foodscapes. Less expansive research projects could also include examining the policy of other communities to determine if more or less support for sustainable foodscapes exists in other communities' municipal and regional policy documents.

## **6.5 Final Thoughts**

The concept of a foodscape is more complex than it first sounds: while it is tempting to reduce it to a compound word, there are countless other facets encompassed by both food and landscape. Culture, community, personal tastes, memories, and emotions are tangled up in the foodscape; the place we identify with food is at a nexus of deeply personal sensations that can trigger a highly visceral response. A foodscape rooted in a specific place can seem limited and time-consuming, especially a Canadian one in winter for a busy family: I understand why the generations before me embraced the industrial food system so readily. But in the same way that wayward globetrotters eventually find themselves pining for the house they grew up in, we are starting to yearn for what many of us have never had: tomatoes still warm from the sun, rich and earthy mushrooms from the shady corners of the woods, the umami-laden first shoots of asparagus in the spring. Restoring sustainable foodscapes not only gives us these opportunities to enjoy the tastes of home, it makes home a more inclusive and enjoyable place to be.

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## Appendix A: Interview Questions

### Policy Questions

- Do you think that the concepts of sustainable food and healthy communities are linked in practice in Waterloo?
- What does the term foodscape mean to you?
  - o If you are unfamiliar with the term, here is its definition:
  - o A foodscape is the dynamic culinary culture of a community, as influenced by a wide variety of factors, such as region, tradition, history, social organization, and science and technology.
  - o The foodscape of a community refers to the ways in which food is produced, purchased or obtained, prepared, and consumed, and the relationship between food and the individuals of the community.
  - o Put another way, it can be understood as the food landscape of a community, when landscape is considered to have both multi-sensory tangible aspects (touch, scent, taste) and an intangible essence that can “evoke affective responses, generate and stimulate memory, and spark imagination.”
- What does a sustainable foodscape mean to you?
  - o I have defined it as: “a foodscape that promotes community health and sustainable food security by fostering socio-ecological sustainability and resiliency within the food system.”
- Do you think that this would be feasible in Waterloo?
- Do you think that Waterloo’s current food system is sustainable?
  - o What aspects of it are and are not sustainable?
  - o What changes would you like to see in order to make it more sustainable?
- Do you think that encouraging sustainable foodscapes would be a way of increasing sustainability? Sustainable foodscapes would be considered an alternative to supermarkets and fast food, where the majority of Canadian food dollars are spent.
  - o Which foodscapes in particular do you think would work in Waterloo?
    - CSAs
    - Foraging
    - Backyard gardens
    - Community gardens
    - Farmer’s Markets
  - o Why do you think the ones you’ve identified would work? Why would the other ones not work?
  - o Are there common characteristics of the ones you think would or would not work?
  - o Could these things contribute to a more sustainable foodscape for Waterloo?
  - o What are the opportunities for promoting these foodscapes in Waterloo?
  - o What are the barriers?
- Do you think that healthy, local food is available in Waterloo?

- Do you think that food that supports local community empowerment is available in Waterloo?
- Do you think that food that is produced in a way that promotes a healthy ecosystem is available in Waterloo?

#### Forager Questions

- Where do you forage in Waterloo?
- What species do you forage?
- How did you learn to identify edible and non-edible species?
- Do you forage individually or as a part of a group?
- Do people you know (friends, coworkers, neighbours) express interest in learning how to forage?
  - o In eating the foods you forage?
- Why do you forage?
- How widespread is foraging in Waterloo?
- Do you think that foraging is a sustainable way of procuring food?
- Do you think that foraging promotes community health?
- Do you think that foraging is a good way of procuring local food?
- Do you think that foraging promotes a sense of place?
- What are some of the challenges to promoting foraging in Waterloo?
- What are some of the opportunities to promoting foraging in Waterloo?

#### Community Garden Questions

- Why did you choose to organize a community garden?
- How did you learn appropriate techniques and what species to grow?
- How many new gardeners join the community garden per year?
  - o How many return from previous years?
- Do you think that gardening is a sustainable way of procuring food?
- Do you think that gardening promotes community health?
- Do you think that gardening is a good way of procuring local food?
- Do you think that gardening promotes a sense of place?

- What are some of the challenges to promoting gardening in Waterloo?
- What are some of the opportunities to promoting gardening in Waterloo?

#### Individual Gardening Questions

- Why did you choose to start gardening?
- How did you learn to successfully garden?
- Do you think that urban livestock (ie hens) are a part of gardening?
  - o Why or why not?
- Do people you know (friends, coworkers, neighbours) express interest in learning how to garden?
  - o In eating the foods you grow?
- Do you think that gardening is a sustainable way of procuring food?
- Do you think that gardening promotes community health?
- Do you think that gardening is a good way of procuring local food?
- Do you think that gardening promotes a sense of place?
- What are some of the challenges to promoting gardening in Waterloo?
- What are some of the opportunities to promoting gardening in Waterloo?
- Do you think that gardening should be in the front yard or back yard of a house, or do you think it matters?

## Appendix B: Survey Photos

### Community Gardens:





## Individual Gardens:



## Foraging:

