Forests For The People: Resisting Neoliberalism Through Permaculture Design

by

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Abstract

Permaculture Ottawa (PO) is a local community group in the process of designing a Community Urban Food Forest (CUFF) in the Ottawa Greenbelt. This research engaged directly with PO to explore the experience of community groups resisting neoliberal land use management of public land owned by the National Capital Commission (NCC). This research investigates cases of wetland conservation in the Ottawa Greenbelt, which are analyzed and compared to PO's current work. Such historical cases demonstrate how institutions like the NCC (operating under neoliberal ideologies) advance causes such as wetland protection through market-based mechanisms, causing new injustices such as the dispossession of farmland. This research explored how effectively the CUFF in particular and permaculture design in general, resists such processes through the restoration of the communal use of public property. Both my field work and the historical case studies suggest that permaculture design projects like CUFF are vulnerable to neoliberal co-optation, unless they adopt a radical direction for social justice.

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List of Key Abbreviations and Acronyms

CUFF	Community Urban Food Forest
Food Hub	Community Food and Sustainable Agriculture Hub
NCC	National Capital Commission
OIP	Ontario Institute of Pedology
OMB	Ontario Municipal Board
PDC	Permaculture Design Course
PIEO	Permaculture Institute of Eastern Ontario
PO	Permaculture Ottawa
RAR	Radical Activist Research

Chapter 1: Introduction– An Experiment in Social Permaculture

Permaculture has exploded in popularity in the past three and a half decades since the 1978 publication of *Permaculture One* by Bill Mollison and David Holmgren. These “pioneers” of the permaculture movement sought alternative ways of farming in the late 1970s as a result of the rising price of petroleum, and growing evidence of humanity’s destruction of the biosphere. In the past decade, permaculture gained broader public attention with the rise in popularity of organic agriculture, and the near scientific consensus that human-induced climate change has already begun to radically alter the Earth’s biophysical cycles.

However, permaculture—despite its recent popularity—still does not have a consistent identity or definition. Dozens of books have been published on the subject, but the only consensus that has been reached on a definition is that permaculture “works with nature”, and that it is a *portmanteau* of the words “permanent” and “agriculture” (or more broadly “culture”). Every book on permaculture investigated for this research differs in how it defines the term. Based on the literature review conducted in this research, and fieldwork with Ottawa’s permaculture community, I offer my own definition that will guide the meaning of permaculture throughout this thesis:

Permaculture is an ethics-based design process that uses local ecosystems as an inspiration for how to create socially-just and sustainable human living spaces.

The history of permaculture is often cited as beginning in 1978, with the publication of *Permaculture One*. The book was a version of Holmgren’s undergraduate

thesis in Environmental Design at the College of Advanced Education in Hobart, Australia. Holmgren's thesis was a volume written about his experimentation on permanent agricultural systems with Bill Mollison. Mollison then edited and published Holmgren's work for a popular audience as *Permaculture One* (1978). Mollison explains that the idea for the permaculture design system emerged from his work studying the resilient cultures of Indigenous societies worldwide, yet it is difficult to verify this claim. Mollison acknowledges systems ecologist Howard Odum (1924), geographer Joseph Russell Smith (1929), and engineer P.A. Yeomans (1973) as additional sources of inspiration for the initial concept of permaculture design. Smith's book *Tree Crops: A Permanent Agriculture* (1929) is the likely origin for Mollison's *perma-culture* neologism.

Permaculture is fundamentally predicated on three underlying ethics. The ethics act as conditions all permaculture design must meet in order to be considered permaculture. The three ethics emerged in 1988 in the publication of Bill Mollison's *Permaculture: A Designer's Manual*. Mollison identifies the ethics as follows:

- (1) Care of the Earth
- (2) Care of People
- (3) Setting limits to Population and Consumption

The ethics have since evolved into the following three ethics described by David Holmgren in *Permaculture: Principles and Pathways Beyond Sustainability* (2002):

- (1) Earth Care
- (2) People Care
- (3) Fair Share (Return the Surplus to Sustain the Entire System)

The ethics exist to ensure that permaculture design guides practitioners to create systems that are truly resilient. Mollison (1988) asserts that if one ethic is privileged over the other (*i.e.* a system that cares for the Earth at the expense of human welfare), then the system will become inherently unstable.

Permaculture design employs various design principles that are suggested to emerge from the observation of natural systems. The number of principles varies between design books. The first design principles were included in Mollison's 1988 *Permaculture: A Designer's Manual*. Mollison included five principles in *Permaculture: A Design Manual*, however Holmgren's *Permaculture* (2002) details twelve principles. The principles adopted for this research—in accordance with those accepted by Permaculture Ottawa¹—are Holmgren's twelve principles, which are detailed in the permaculture design of research section in Chapter 3. Holmgren suggests that design principles mimic “natural patterns” that emerge throughout the universe, which can be employed to make the best use of energy in any system.

The ethics and principles of permaculture design are suggested to guide practitioners through the creation of systems that work “with nature, rather than against it” (Holmgren 2002). The foundational worldview that supports the claims of permaculture design involves the assertion that humans can be vital members of the biosphere, rather than a species that is inherently destructive. Toby Hemenway demonstrates an example of this permaculture worldview in a lecture delivered at Duke University in 2010, with the following critique of the concept of “sustainability”:

¹ PO democratically accepted Holmgren's ethics and principles of design because of the amount of popular education materials available for free to the public.

I think of 'sustainable' as the mid-point... between *degenerative* actions, and *regenerative* activities. And nature, of course is the ultimate model of regenerat[ion]... [S]ustainable is simply the middle... So to be sustainable, it's not all that great... If someone asked you how was your marriage, and you say "oh eh it's sustainable"... okay? I mean it's not all that good. [W]e are shooting for sustainable, but we really need to be thinking much further. So, I'd like to look in terms of regenerative activities... (Hemenway 2010).

Hemenway (2010) articulates that permaculture design represents a way humans can support their basic needs, and live a meaningful life, while contributing to the needs of ecosystems, and acting within the limits of the biosphere. For example, permaculture practitioners have experimented with the composting of human waste. Practitioners have also experimented with the creation of water catchment systems (swales, small ponds, and dams) in sloped grazing pasture in order to accelerate soil accumulation. Permaculture Ottawa is currently experimenting with the creation of a food forest system with the Community Urban Food Forest (CUFF) project. This research examined this project as a case study on resisting neoliberalism through permaculture design.

1.1 Case Study: Community Urban Food Forest

A *food forest*—also called an *edible forest garden*—represents a system of food production realized through the process permaculture design (Jacke 2005). Food forests involve an intensively designed arrangement of plants, animals, and non-living elements that mimic the mid-succession growth (mature fruit production, but with an open canopy) of local forest ecosystems. The mid-succession growth stage is the point at which forests are most bio-productive. Food forests are designed to reach a level of maturity where trees produce leaves, fruit and nuts, with a diversity of plant life that can

grow in surrounding open clearings. The cultivated diversity of forest layers that emerge in different stages of growth yields a higher and more diverse amount of plant matter edible to humans (*ibid.*).

Designers observe a section of land for at least one full year in order to understand where they can insert their labour and resources to achieve the greatest amount of change with the least amount of inputs. Designers may dig swales (water retaining ditches set on contour), or ponds if there is a need to catch and store water to build soil and nourish plant growth. “Guilds”—arrangements of mutually beneficial plants—are then arranged in a design plan to be implemented in successive phases over a number of years. Nitrogen fixing “pioneer species” are planted—or left to grow voluntarily—in order to develop the soil conditions necessary for the planting of more nutrient-demanding plants. Large fruit and nut trees are then added that will eventually produce food as they mature. Other complementary species are then added that are either edible, produce medicine or fibre, or support other plants (such as attracting beneficial insects). Advanced food forest designers may incorporate farm animals into cultivation. Pigs are able to aerate soil as they rummage for truffles. Ducks and chickens forage and scratch for insects. The food forest is meanwhile maintained with minimal human inputs. Designers of a food forest will mulch, prune and train plants in order to accelerate the growth of the forest to a mid-succession state. Once the mid-succession state is reached, the food forest is maintained to remain in mid-succession growth (Jacke 2005).

Permaculture Ottawa (PO) is in the process of designing a Community Urban Food Forest (CUFF) (see Appendix A). The CUFF will be a food forest created through

permaculture design. The project is specified as a “community” and “urban” food forest in order to dedicate specific attention to the social application of the design. PO decided that greater attention needed to be given to the “people care”, and “fair share” ethics in the design. Experienced practitioners in the permaculture literature have demonstrated the successful application of food forest design to address the “earth care” ethic in the creation of “regenerative” systems of food production. There is, however, limited evidence of the effective application of food forest design to address the more social concerns of “people care”, and “fair share”. PO decided to begin the design process of creating a food forest that can provide food for community members and volunteers without monetary exchange. The aim of the project is to create a space that demonstrates how urban food forests can be established in public space to provide food for anyone willing to help design, cultivate, and harvest it. Ultimately, this project hopes to develop a system where people can be fed healthy food, produced on public land, without monetary exchange.

The CUFF site is located at Just Food’s Community Food and Sustainable Agriculture Hub (hereafter referred to as the Food Hub) to the west of Blackburn Hamlet located within the protected strip of the Ottawa Greenbelt that surrounds the community in the east-end of Ottawa (see Figure 1.1) (Ballamingie & Walker 2013). The CUFF site will be cultivated on paddock 14 (see Figure 1.2), which backs onto Tauvette Street. To the west of the CUFF site, there is protected stream that collects into Green’s Creek. To the north and south, there will be test croppers leasing land to develop Community Supported Agriculture operations as of summer 2013. Dog walkers from the residential community east of the site frequent the area. In the winter, cross-country skiers and

snowshoers travel throughout the Food Hub site. The CUFF will begin as a quarter acre design, and will expand up to four acres (in subsequent years) as the project grows in organizational capacity. PO is currently in the observation and design phase of the project. Earthworks (*i.e.* removing, moving and depositing soil and rocks in order to create ideal growing terrain) and planting are expected to begin in the spring of 2014.

Figure 1.1 – Location of CUFF Project, Mer Bleue, and Stony Swamp, within Federal Land in Canada's Capital Region Map (NCC 2011)

Figure 1.2 – Location of CUFF Project at Just Food Farm site map (Just Food 2012)

1.2 Research Problem: Food Forests in Ottawa's Public Spaces

The purpose for growing and distributing food in public spaces for free is to restore its common use. *The commons* refers to the common ownership and use of property. According to David Harvey (2012), however, the commons is more than simply the common ownership of property, it is also the manner in which social relationships are conducted in space. The commons is best demonstrated as a set of social relationships that stand in opposition to the structures and institutions of private property ownership. Garret Hardin (1968) argued that it is necessary to establish a system of *mutual coercion* mediated through property ownership in order to prevent “the tragedy of the commons”. The tragedy of the commons hypothesis stipulates that without private ownership, individuals overuse, deplete, and destroy the common resource through the pursuit of maximum utility. Proponents of this view prescribed the *enclosure* of the commons, which means that land ought to be privately owned in order to prevent its overuse, and destruction. Harvey (2012) refutes this hypothesis, arguing that societies have historically co-operated in decision making over resource use in order to avoid depletion. The restoration of the commons thus involves the goal of re-appropriating privately owned land and resources for broader public use, determined equitably through democratic deliberation.

Private ownership privileges one person's use of property by excluding access to other members of society. One can only access vital resources if they can afford to pay property owners. People who do not have the means to pay, cannot therefore access private property. In a capitalist society, those without property must rent their labour to property owners in order to gain the means of purchasing their basic needs. The notion

of private property, where people in need are persistently refused access, is fundamentally a violation of both the “people care”, and “fair share” ethics of permaculture design. The ideology of private property violates “people care”, because it places the responsibility on individuals—regardless of ability—to afford their most basic needs, where design solutions can otherwise produce the abundance necessary to support all without monetary exchange. Private property also violates “fair share”—sometimes referred to as “Return the Surplus to Sustain the Entire System”—because wealth (*abundance*) becomes concentrated and controlled by owners of property, rather than being owned in common for the interests of everyone. Mollison argues that the neglect of any one ethic compromises the stability of the entire system. Mollison’s argument would therefore suggest that regimes of private property—and capitalism as a whole—is bound towards system stress and instability. Permaculture design ought to create systems that demonstrate a stable and socially just alternative to capitalism. PO’s CUFF is an example of a *social permaculture project* that attempts to restore the commons in Ottawa’s *public spaces* (*i.e.* land that is not privately-owned).

The governance of *publicly owned land* in Ottawa (*i.e.*, owned by the state) has undergone an historical process of *neoliberal* reform since the 1970s. David Harvey (2005) describes *neoliberalism* as a contemporary resurgence of classical liberalism (found in the writing of Adam Smith, David Ricardo, John Locke, *etc.*), privileging such aspects of capitalist ideology as private property ownership, economic self-reliance, market systems of exchange, and limited government intervention in trade. Neoliberalism emerged in the 1970s primarily in the United States and United Kingdom, but quickly became a global (and globalizing) phenomenon. Neoliberal regimes have

most effectively promoted market ideology through infiltration of government. For example, regimes led by Ronald Reagan (1981-1989) and Margaret Thatcher (1979-1990), enacted unprecedented privatization of government and social services (Harvey 2005). Canada encountered a comparable degree of neoliberal reform under Prime Ministers Pierre Trudeau (1968-1979; 1980-1984), Joe Clarke (1979-1980), and Brian Mulroney (1984-1993). The National Capital Commission (NCC)—the crown corporation responsible for planning and managing land in the National Capital Region—is one public agency that experienced severe budget cuts (Dare 1995). The NCC has since been directed by the structural pressures of market ideology through the competing interests of private landowners to develop residential subdivisions. The NCC, therefore, began managing land use in a manner that privileged the generation of profit over social and environmental justice concerns.

Neoliberalism has created a hybrid arrangement of property ownership, where private ventures are granted access to make profits from land owned by the state, and supported through publicly acquired resources. The public therefore subsidizes private wealth accumulation in such arrangements of land use. Groups like PO are creating projects like the CUFF to challenge neoliberal land use management. PO however must be careful not to be also shaped by neoliberal ideology. Civil society organizations require the support of government resources in order to sustain the growth of their non-profit work, and PO is going to require such resources for the development of the CUFF project in the next decade. Neoliberal ideology has enacted market forces in the distribution of government funding for non-profit projects. Civil society organizations must compete for funding, and conform to the market-friendly regulations of neoliberal

governments. The political economic arrangement of market ideology through government institutions pressures civil society to conform to the political economic structures of neoliberalism. *Structural pressures* (technical, bureaucratic, social, *etc.*) of neoliberalism therefore discipline any radical ideology among civil society organizations from opposing or resisting market ideology. PO must resist a great deal of pressure to conform to market ideology if they want to successfully restore the common use of public spaces such as the Ottawa Greenbelt.

1.3 Research Question and Theoretical Framework

This research identifies opportunities and limitations to the contestation of neoliberal land use management in the Ottawa Greenbelt through permaculture design, specifically through the Community Urban Food Forest project. To address this question, several other sub-questions require attention:

- 1) How has neoliberal land use management emerged historically in the governance of the Ottawa Greenbelt? What impact has it had on the determination of land use in and around the Ottawa Greenbelt?
- 2) What capacity does permaculture have as a movement (ideological and socially) to challenge neoliberal land use management?
- 3) What kinds of neoliberal pressures does Permaculture Ottawa face in the creation of the Community Urban Food Forest Project? What risks do such pressures present for the infiltration of neoliberal ideology within Permaculture Ottawa?

4) What can Permaculture Ottawa do to resist neoliberal infiltration? What political economic alternatives can Permaculture Ottawa develop in order to restore the commons in the Ottawa Greenbelt?

Answers to these questions are guided through the theoretical framework of *Marxist political ecology*. Karl Marx's *Capital: Critique of Political Economy* (1867) provided a framework for the analysis of the role of political and economic structures and their effect on the distribution of power and resources in society. Geographers such as David Harvey (2001) and Erik Swyngedouw (2006) have used Marx's theoretical framework to explore the impacts of capitalism on ecosystems, and the development of urban environments. The application of Marx's system of political economy to the distribution of land and natural resources is called *Marxist political ecology*.

Marx argued in *Capital* (1867) that social theory is best created through the analysis of the historical progression of material conditions, structures, and struggles. The best way to understand how to resist capitalism therefore is to engage directly in its resistance, and to evaluate the history of social struggle. Scholarly engagement in the resistance to capitalism helps strategize the liberation of "the proletariat" (and all *subaltern* subjects of capitalism), and the creation of a socially just alternative(s). This research follows Marx's method by engaging directly in a social experiment focused on creating an alternative system of land use governance to the neoliberal system of management in place in the Ottawa Greenbelt.

This research contributes to the theoretical literature on Marxist political ecology from the findings and insights gained in the experimental creation of a *post-capitalist*

project (Gibson-Graham 2009). It also provides novel insights from the historical documentation of *actually existing neoliberalism* present in the history of the Ottawa Greenbelt (Brenner & Theodore 2002). The case study of the NCC and the Ottawa Greenbelt provides a greater understanding of how market ideology infiltrates the operations of government institutions responsible for the conservation of sensitive environmental areas.

1.4 Organization of Thesis

This thesis is organized into seven chapters, including this one. Chapter 2 provides the theoretical framework of Marxist political ecology in the governance of land use and development of the urban environment. Chapter 2 also explores the dynamic arrangement of political economic structures of neoliberal reform. Chapter 3 outlines the methodological framework that informed the *radical activist research* (RAR) of this research. Chapter 3 also covers the specific methods of data collection used to understand the lived experience of resisting neoliberal land use management in Ottawa. Chapter 4 covers the political history of the development in the Ottawa Greenbelt, focusing specifically on the creation of Blackburn Hamlet (where the CUFF project is located). This chapter then focuses on the politics of land use governance since the rise of neoliberalism using two case studies of wetland conservation to demonstrate the variegated method of deregulation and re-regulation emphasized in Brenner and Theodore's (2002) description of *actually existing neoliberalism*. Chapter 5 provides a history of the evolution of permaculture literature through permaculture definitions. This chapter is the first academic literature review conducted on the subject of permaculture

design. In the literature review, I identified a *cultural turn* that emerged in 2002, marking the politicization of permaculture design as a social movement worldwide. Chapter 6 covers the findings of the fieldwork conducted for this thesis. This chapter provides an analysis of the specific structural pressures encountered by PO in the development of the CUFF. This chapter also highlights key successes and opportunities experienced in the development of the project so far. Chapter 7 synthesizes the results of the historical analysis of land use governance in the Ottawa Greenbelt, the literature review of permaculture design, and the fieldwork conducted with PO. This chapter compares and contrasts wetland conservation case studies with the CUFF experience. The chapter then concludes with a discussion on how PO can resist neoliberal land use governance through the continued development of post-capitalist experiments such as the CUFF.

Chapter 2: Urban Political Ecology: Neoliberalism in the Ecological City

The impact of neoliberalism on the governance of urban land use is the theoretical focus of this research. The history and politics of urban land use is therefore the main theoretical concern that is explored in this chapter. Political power in this case is the driving force under critical examination. Neoliberalism is an ideologically broad assemblage of processes and strategies used by certain government regimes to advance private property rights and free markets (Brenner *et al* 2010; Brenner & Theodore 2002). One of the unique historical characteristics of neoliberalism is its attention to ecological destruction, which is approached through political maneuvers advancing market-friendly forms of (re-)regulation (Castree 2010).

The conservation of sensitive ecological areas from development is the historical case study example in this thesis. The historical processes through which “undeveloped” or “conserved” *green spaces* in cities are created is subject to a power struggle amongst conflicting class interests. Political contestation over city space directs the character of development. Karl Marx (1867) suggested that the relationship between ideology and the means of production involves the perpetual process of *metabolism*. Labour converts “first nature” to “second nature” infusing the political and ontological purposes for production into the material flesh of the environment that is constructed (Smith 1984). The built environment therefore embodies the sorts of class relationships that dictate the means of production (Harvey 2001).

The creation of *green spaces* (*i.e.* protected wetland areas, or food forests) involves a more nuanced form of metabolism. The conservation of ecologically

sensitive areas—for instance—is not a process of transforming supposedly “first” to “second nature”. Rather, conservation entails the successional transformation of socially *hybrid natures*—i.e. “nature” partially “created” through human activity (Swyngedouw 2006). “Nature”, seen as a hybrid social construct, allows for the critical exploration of power and politics in the process of creating urban green spaces (Whatmore 2002).

This chapter explores the metabolic process of creating urban green spaces driven by neoliberal land use management. The first section explores the *variegated* history and process of neoliberalism (Brenner *et al* 2010). Neoliberalism operates in unpredictable directions of regulation and re-regulation in order to move towards an increasingly “free market” political economy. Paying keen attention to the local specifics of neoliberalism entails an appreciation for *actually existing neoliberalism*. The second section explores the foundational work by Marx (1867) in the material dialectics of metabolism. Marx’s work is explored through the later works of Neil Smith (1984), and David Harvey (2001). Harvey’s metaphor of *the spatial fix* offers a vivid illustration of Marx’s notion of internal and external dialectics; specifically, how internal crisis of ideology are resolved through the physical environment of the city.

2.1 Variegated Processes of Actually Existing Neoliberalism

Neoliberalism has emerged in the past two decades as the shared *bête noire* among anti-capitalist, alter-globalization activists, students, *indignants*, *occupiers*, environmentalists, many Indigenous peoples, and academics. A massive body of literature has emerged to analyze the apparently all-pervasive neoliberal zeitgeist. Few,

however would actually identify as holding a “neoliberal” ideology. Noel Castree (2010) notes that neoliberalism is a “critic’s term” uttered in protest to the shifting orientation of the state towards a guardian for free market capitalism. The case study explored in this thesis explores the shifting and elusive character of neoliberalism. The term neoliberalism is never mentioned in the planning, policy, or public relations documents of the City of Ottawa, or the National Capital Commission. No institutions involved in the land use planning in Ottawa identify as neoliberal. Despite this, *neoliberalism* is used analytically to frame their work in order to critique the political direction of land use governance of the Ottawa Greenbelt.

Neoliberalism was chosen as the critical theoretical focus of this thesis in order to connect to a broader literature of critique focused on similar case studies. Analytic strength is gained in this research by linking to the the shared experiences found throughout the literature on the contemporary political economy/ecology of cities. Connecting to the shared empirical evidence and theorized critique of urban land use management permits this research to contextualize contemporary historical processes in the development of urban green spaces like the Ottawa Greenbelt. The literature on neoliberalism also provides a body of thought to draw upon in order to predict what future developments and their impacts will entail as urban land use continues to evolve.

Few comprehensive explanations have been provided that can encapsulate a collective experience of neoliberalism. The heterodox character of neoliberalism is therefore common among its various definitions. David Harvey (2005) however provides a very clear definition of neoliberalism from his seminal *A Brief History of Neoliberalism* (an apt point of departure):

Neoliberalism is in the first instance a theory of political economic practices that proposes that human well-being can best be advanced by liberating individual entrepreneurial freedoms and skills within an institutional framework characterized by strong private property rights, free markets and free trade. The role of the state is to create and preserve an institutional framework appropriate to such practices. The state has to guarantee, for example, the quality and integrity of money. It must also set up those military, defence, police and legal structures and functions required to secure private property rights and to guarantee, by force if need be, the proper functioning of markets. Furthermore, if markets do not exist (in areas such as land, water, education, health care, social security, or environmental pollution) then they must be created, by state action if necessary. But beyond these tasks the state should not venture. State interventions in markets (once created) must be kept to a bare minimum because, according to the theory, the state cannot possibly possess enough information to second-guess market signals (prices) and because powerful interest groups will inevitably distort and bias state interventions (particularly in democracies) for their own benefit (Harvey 2005: 2).

Harvey (2005) cites 1978 as its beginning, where global leadership shifted radically in a similar ideological direction. With Deng Xiaoping's liberalization of China in 1978, Margaret Thatcher's election as Prime Minister of England in 1979, and Ronald Reagan's election as President of the United States in 1980, a new era emerged that saw states worldwide re-oriented to serve the interests of globalized free market capitalism.

"(Neo)-liberalism" exists as a distinct ideology that is characterized primarily on its new, and renewed form. The "neo-" prefix refers to two separate conceptual shifts in the meaning of "liberalism". First, (neo)liberalism is a renewed ideology in the sense that it seeks the recreation of classical liberalism—the previous global free market capitalist paradigm based in the exploits of pre-war European colonial empires.

According to Noel Castree:

Classical liberalism was centred on Western Europe, North America, the Antipodes and select parts of the German, French, British and Dutch empires. It was, in its various detailed manifestations, the successor project to feudal,

royalist, mercantilist and/or peasant modes of social organisation – one coincident with the implantation of representative democracy in numerous nation states (Castree 2010: 1727).

Classical liberalism encapsulated a broad philosophy of individual freedom, asserting private property rights, representative democracy, emancipation from slavery, freedom of expression, *etc.* John Locke, Jean-Jacques Rousseau, Adam Smith, are among the writers and *philosophes* considered central to the development of classical liberalism. Liberalism and empire functioned as the primary ideology of Western Nation States until the beginning of the World Wars in 1914. *Fordist-Keynesianism* replaced classical liberalism from the need for the nation state to step in and manage economies burdened by the glut of industrialism and war, and create a welfare state system to recover from a global economic depression (Castree 2010: Harvey 2005).

Neoliberalism is also more than an historical period. The second meaning of (neo)liberalism is the result of free market economic theorists in Chicago and Austria advancing an market-focused reformulation. Most prominent among them were Milton Friedman and Frederich Hayek. This new liberalism was specifically focused more on the reinforcement of private property rights, and free access to global markets unimpeded by government regulation—less on the protection of human rights, liberal democracy, and civil liberties. Neoliberal thinkers theorized that government interference would hinder the “natural” business cycles of the economy, exacerbating the “boom-and-bust” fluctuations that cause systemic crisis (Castree 2010). The most important theoretical advancement contained within the new liberalism was the central role of government institutions in controlling the supply of money in order to allow markets theoretically to determine prices as accurately and efficiently as possible.

Neoliberalism was also constituted as a new liberalism based on the technological and geographic changes that emerged as a result of the World Wars, developmentalist foreign policy, the rise of international state communist regimes, and innovations in transportation and telecommunications technology (Harvey 2005). Harvey points out the differences clearly through the example of state intervention in markets:

[The] key difference between liberal and neoliberal practice: under the former, lenders take the losses that arise from bad investment decisions, while under the latter the borrowers are forced by state and international powers to take on board the costs of debt repayment no matter what the consequences for the livelihood and well-being of the local population. (Harvey 2005: 29)

A primary characteristic of neoliberalism is what lends itself to evading specific ideological references. Neoliberalism is not simply an uncompromising commitment to free market ideology. It is a pragmatic system of maneuvers and transformations of state and non-state institutions to support markets and property. Neoliberalism is—at first—a project of privatization, mobilizing market ideology through the corpus of Keynesian welfare state structure. Primarily, it asserts marketization of previously uncommodified, common or public resources, and devolves the responsibility of social services and regulation to civil society (McCarthy & Prudham 2004).

Castree (2010) identifies several ways in which neoliberal regimes accomplish these objectives, and buttress itself against resistance or market failures. The most prominent and obvious method is *privatization*, which entails the creation of private property right regimes for goods and services that were either previously unowned or owned publicly in common. *Marketization* is the valuation of previously uncommodified property through monetary market calculus. *Deregulation*—also known as *roll back*—is the withdrawal of government regulation from markets, with an emphasis on voluntary

self-regulation, promoted through discourses of “efficiency” and “personal choice”.

Deregulation has been referred to as *roll back* because it withdraws progressive mechanisms previously administered through the State in order to protect social and environmental welfare from the exploitation of free market capitalism. *Market friendly re-regulation* re-orientes the role of state towards the protection of private property rights and the “smooth” operation of markets. Regulatory re-orientation is best described as the *roll-out* mutation of neoliberalism, that complements *roll-back* neoliberalism.

Regulatory re-orientation is called *roll out* because it provides a degree of “social welfare”—enough to prevent crisis and resistance—through hybrid arrangements of state, volunteer labour and market mechanisms. Roll-out neoliberalism folds resistance to neoliberalism into its operation (Brenner *et al* 2010). *Market proxies* are used in government to force remaining services to function through market ideology. *Flanking mechanisms* are the devolution of government services and programmes to civil society/volunteer sector. *Self-sufficiency* is promoted for individuals and communities in fostering a market-disciplined society (Castree 2010). The above methods constitute the *variegated* tendency of neoliberalism described by Brenner *et al.* (2010), where a heterodox process of deregulation and re-regulation restructure the global political economy in favour of private accumulation. All of Castree’s methods described as part of the process of neoliberalism are present in the historical development of the Ottawa Greenbelt’s process of land use governance, which will help guide its depiction and analysis later.

The historical development the Ottawa Greenbelt must be treated with careful nuance when described as neoliberalism. Attention must be given to weaving together

observed historical changes in institutions of state and capital, to an understanding of prevailing ideologies within civil society in resistance to the alienations and violence of markets and government. The variegated tendency of neoliberalism described by Brenner *et al* (2010) does not function in linear or consistent patterns. Rather, neoliberalism advances in ways that integrate resistance and crisis into the process of its execution. *Hybrid* processes of deregulation and re-regulation make it possible to fold state regulation of markets into the process of enclosure and privatization (Brenner & Theodore 2002). Neoliberalism is therefore better understood as a collection of strategies oriented towards marketization, rather than a consistent ideology or process.

Lived experiences of neoliberalism are necessarily diverse and contradictory. Brenner & Theodore (2002) assert the importance of focusing on cases of *actually existing neoliberalism* in application, as opposed to resting on a coherent and consistent depiction of ideological neoliberalism. The development and struggle of land use throughout the history of the Ottawa Greenbelt demonstrates precisely a narrative of *actually existing neoliberalism*. The *variegated* and *hybrid* character of neoliberalism become evident when exploring ways in which market ideology is integrated into the protection of sensitive ecosystems from the encroachment of development. The *actually existing neoliberalism* of land use governance in the Ottawa Greenbelt demonstrates unique mutations that involve hybrid regimes of private commercial development, local environmental movements, federal crown corporations, and global, national and provincial institutions of ecological protection.

2.2 Marx and Urban Metabolism

A critical characteristic of neoliberalism is that it is a process. Neoliberalism seeks as a process to alter the way governments and societies function in order to behave more like markets. Shifting towards such a social order however requires much more than convincing people of the ideology, or even forcing them physically to comply. Shifting towards and maintaining a neoliberal order of governance in cities involves an even deeper process of fixing the ideology in the built environment (Swyngedouw 2006; Harvey 2001; Smith 1984). This section describes how Marx theorized the relationship between ideology and the built environment. *Metabolism* is the name Marx provided towards the process of fixing ideology into the material realm through labour (Smith 1984). The subsequent two sections discuss the effects of neoliberal ideology on this process, and how it is manifested in the development of urban *green space*. The synthesis of Marxist political economy of urbanization and ecology deepens the analysis of the Ottawa Greenbelt case study. The central relationship in the case study between markets and “nature” in the advancement of capitalist class interest narrates a story of *ecological class war*—ecosystems mobilized politically and economically to serve class interest—that takes place in the history of Ottawa.

Ecology has achieved popular status recently within the social sciences with the advent of variously scaled, intersecting and emergent crises with regard to humanity's position within the biosphere. It is not however a new topic. Marx stands out as a prominent early figure within sociology on the discussion of humanity's relationship to “nature”. Marx's concept of “metabolism” in *Capital I* (1867) describes the conversion of “first nature” into “second nature” as part of his broader *labour theory of value*. The

narrative found in *Capital I* (1867) describes how supposedly untouched non-human *first nature* is combined with human labour. *Second nature* is the result of this means of production—a world built by humans through the conversion of first nature—which reflects the ideological purpose behind the means of production. Marx argues that the continual *process* of mixing human labour with *first nature*—*i.e.*, the conversion of first to second nature—is what constitutes *metabolism*.

The capitalist means of production alienates the laborer from the value produced through their work—*i.e.* capitalists take a large portion of wealth produced by workers in the means of production, which is justified by the capitalist ownership of capital. Alienation of workers by capitalists strengthens their class position in the hierarchy of capitalist society. The capitalist means of production not only produces a class structure that further alienates labour from the wealth they produce, it also *metabolizes* alienation into the built environment (Smith 1984). Ideology becomes an implicit function of the physical mechanics of the built environment through the desire and purpose of its construction. The built environment of cities is therefore a physical artifact of Marx's *base-superstructure* model of class stratification in a capitalist society (Marx 1867). The physical environment becomes the intermediary between the *ideology* of markets and private property (capitalist *superstructure*) and the class relation to the means of production (*base of production*). The capitalist means of production constructs an environment that reproduces and reinforces the social class relationships of capitalism (Foster 1999).

The urban geography of class struggle is evident in David Harvey's (2001) concept of the *spatial fix*, which explains how capitalism defers its political dis-ordering

through the construction of cities. Capitalism uses the built environment in order to rectify barriers, limitations and crises that arise through the self-destructive tendencies that result from the internal contradictions to its operational logic. Capitalism—and the cities it constructs—are therefore an historical process of rectifying a continual succession of crises.

Capitalism destroys all in the way of accumulation in the pursuit of growth; even those things that support capital socially and politically as an institution (Harvey 2010). The capitalist tendency towards self-destruction pressures regimes to innovate its character and mechanics in order to circumvent the many barriers to growth in wealth accumulation (Harvey 1982). Harvey (2001) suggests that the *spatial fix* is one process where capitalism re-constructs and re-configures the built environment to circumvent barriers to accumulation. His play on the word *fix* describes how capitalism sinks capital physically to provide infrastructure advancing growth in wealth accumulation. Capital is *fixed* (sunk) into specific infrastructure that alleviates frictions to accumulation, such as travel time. Time and space of travel is therefore compressed, *fixing* (rectifying) this particular friction to accumulation. While the *spatial fix* succeeds in resolving barriers to accumulation, its solutions contribute to the process of creating new ones. The history of capitalism is therefore a story of shifting risk and crisis around geographically and deferring it temporally in order to maintain growth in accumulation and class power (Harvey 2010).

In order to navigate the geographic movement of crisis, capitalism relies heavily on consistently reproducing the built environment to reflect shifting tensions in the power of the capitalist class. This is described as capitalism's resolution to the tension

resulting from a discordant *internal dialectic* through its release upon an *external dialectic* (Harvey 2001). The urban environment is the external synthesis that is resolved in order to release the tension at the core of capitalism's *internal dialectic* (Harvey 1973). In other words, capitalists attempt to demonstrate the validity of market systems by physically constructing a world that is profitable and capitalism functions properly when crisis reveals the injustice and absurdity of the ideology.

Marx—and later Smith and Harvey—wrote about *metabolism* in order to explain the political power of physically constructed objects such as machinery, housing, and airports. This thesis however seeks to theorize the political power of ecologically cultivated green spaces. The ideological force of capitalism as a means of production and class struggle is less evident when there are no hands necessarily—or evidently—active in the material construction of the urban space in question (Harvey 2001). Biophysical process are the central agents in the regeneration of urban forests, parks, and wetlands. The ecosystems that emerge in cities are not exclusively a product of “nature”, or simply some vulgar *first nature*. Green spaces are fundamentally socially constructed environments. Swygnedouw (2006) breaks down the stark first-second nature binary of Marx's metabolism by suggesting that urban metabolism is a complex and continuous socio-material process of conversion.

The socio-material character of urban metabolism requires a deeper critique of class conflict. Production of the urban environment is partially a biophysical process. The *historical-material dialectics* of complex urban ecosystem is not easily understood through the linear mechanics of Marx's conventional process of labour. First and second nature are therefore better understood as successive mutations of social-

ecological relations in the metabolism of urban ecosystems directed through the ideological impetus of the capitalist means of production (Swyngedouw 2006). Pollution, habitat destruction, *etc.* are equally products from the capitalist means of production. State institutions, such as the NCC, attempt to rectify the ecologically self-destructive tendencies of capitalism through the protection of sensitive environmental areas. Such state institutions face structural pressures from market systems to expand private wealth accumulation. Neoliberalism has directed regulatory institutions to deregulate environmental destruction through voluntary forms of regulation, and enact market-friendly re-regulation. The state under the ideological pressure of neoliberal regimes orient regulatory institutions to protect the private accumulation of wealth. Environmental regulation of development is therefore mediated through market ideology. Market-friendly environmental regulation commodifies green spaces for recreational and tourist values, rather than simply holding the land in trust for the public interest. Neoliberal environmental regulation is therefore a process of *fixing* the capitalist crisis of environmental destruction through enclosure and marketization. This allows private accumulation to continue expanding through public subsidy, while deferring the environmental consequences of development to other locations in the future.

Neoliberal regimes have especially oriented the process urban metabolism to involve seemingly “non-political” or “unproblematic” mechanisms in order to strengthen capitalist class position. Land use management in cities are an indisputably a mater politics. This research indicates that under neoliberal regimes however, the politics of land use management, and therefore the process of urban metabolism are hidden from

public outrage in the non-political concern for the “cost effective” management of conservation. The politicization of neoliberal urban metabolism requires a deeper critique of ideological base, and economic structure that advance a capitalist class interest in the creation of urban green spaces.

2.3 Hybrid Nature and Urban Environments

The concept of *hybridity* describes the social-ecological composition of the semiotic identity of “nature”. The *hybridity* of nature is crucial to the critical examination of environmental politics. If “natural” environments can be historically constructed artifacts of capitalist production, then an historical examination of its formation can reveal the ideological purpose for its creation in the greater base-superstructure complex of the capitalist class system. The historical exploration of capitalist construction of hybrid nature allows this research to explore the planning and construction of urban green spaces as a process of metabolism.

The metabolism of urban green spaces is a process of allocating capital and labour towards the designation of land as ‘natural’. Neoliberal ideology therefore infiltrates a means of production that involves a biophysical succession of forest or wetland growth. *Succession* therefore captures a more accurate representation of the material-semiotic phases of “nature” in the process of metabolism. Rather than *first* and *second* nature, the *succession* of “natures” involved in urban metabolism is the process of transformation from one socio-ecological state to another.

Sarah Whatmore (2002) articulates this social contestation over the construction of nature, and the process of instituting spatial governance. She identified three *cuts* in

a case she explored of international regulation of genetically modified organisms. The first *cut* involves the definition of *objects* by a governing regime. Legal codes, market valuation, and scientific knowledge are mobilized to define an object as “natural”. For urban green spaces, this involves a process of defining the sort of “nature” enclosed in land use designation. A struggle takes place over whether land is best suited for housing development, farming, conservation, tourism, *etc.* Another struggle then takes place over what mechanisms of valuation are selected to measure particular constructs of “nature”.

The second cut entails a struggle to determine what institutions, scales, and mechanisms govern the previously defined object. Governance over urban space—especially in Ottawa—involves a constant process of negotiating jurisdiction. Cities are heterogeneous and shifting spaces of institutional jurisdiction. There is a constant struggle between what space is privately or publicly owned. Among public lands, there is a constant struggle over what level of government holds jurisdiction.

The third cut is the cultivation of a new perceived nature-culture distinction that ossifies the ideological hegemony of capitalist class relations cut into constructed green spaces. To Whatmore (2002) this final process is evident in the material-semiotic construction of plants through the institution of property rights central to plant breeding industries. Private property ideology is *cut* into the plant, working capitalist class power into its body through the governing institutions of intellectual property.

Whatmore's example mirrors a neoliberal-directed processes urban land use governance. The metabolism of hybrid green spaces in the urban environment involves the contestation of various partially-ideological manifestation of nature.

Neoliberal land use governance in the Ottawa Greenbelt cultivates afforestation, and the conservation of “ecologically sensitive” areas through land use designation. The social construction of nature involves international regulatory bodies of ecological conservation, federal ideologies of the nation state, private property regimes, municipal struggles for commercial tax revenue, *etc.* The examination that takes place in this research of land use governance in the creation of the Ottawa Greenbelt articulates the ideological production of green spaces.

2.5 Neoliberal Urban Metabolism of Successive Hybrid Natures

This thesis explores the historical developments of urban land distribution in the case of the Ottawa Greenbelt, its recent neoliberal mutations, and how the current regime of governance may be challenged. The theoretical lens necessary for the exploration of this history of land use management through the Marxist framework of urban *metabolism*. Marx’s work on ideology and human constructed environments provided an explanation of how class struggle drives and directs the development of cities.

Neoliberal land use management illustrates how markets are ideologically ossified into urban space. Neoliberalism—particularly as carefully observed in its many variegated phases—can indeed construct contradictory physical forms. The conservation of sensitive ecological spaces from property development is not after all intuitively neoliberal in its inception. The movement towards regulation of development appears regressive in terms of property rights and access to free markets. It is the nuanced neoliberal maneuvering of market ideology through state regulatory institutions

that ultimately worked market-based mechanisms into the creation of wetland conservation areas and buffers in the Ottawa Greenbelt.

The commons may ultimately be restored in other cases of regulation and resistance to capitalist destruction, but it is likely to come with significant influence from the previous mutation of governance and land use. Furthermore, resistance movements face the risk of co-optation. This research includes a later assessment of Permaculture Ottawa's Community Urban Food Forest as an effective form of resisting neoliberal land use governance. Its success will be determined by how it can potentially challenge the structural pressures of neoliberal governance, and whether it can effectively create an alternative that restores the commons.

Chapter 3: Doing Radical Research: Social Justice Through Permaculture

[Geography] must teach us, from our earliest childhood, that we are all brethren [*sic.*], whatever our nationality. In our time of wars, of national self-conceit, of national jealousies and hatreds ably nourished by people who pursue their own egotistic, personal or *class interests*, geography must be—in so far as the school may do anything to *counterbalance* hostile influences—a means of *dissipating* these prejudices and of *creating other feelings* more worthy of humanity (Kropotkin 1885, emphasis added).

Working with communities, participating in bringing about social change, and critically exploring ideology and discourse have traditionally been seen as very separate tasks for geographers. Such processes have more recently been connected where knowledge production, social theory and political action were brought closer together through practices of radical geography, and community based research (Stoeker 2004; Strand *et al.* 2003; Harvey 1973). However, a greater exploration of the relationship between knowledge production and direct political action is needed. This chapter discusses bringing such categories even closer together, if not blurring the distinctions entirely. This research explores linking direct political action with knowledge production, accepting the (above) challenge of Kropotkin's emancipatory geography (1885), and advancing Permaculture Ottawa's vision for a just and sustainable system for food production in the Ottawa Greenbelt.

This chapter first explores a methodological framework that I created called *Radical Action Research* (RAR) to meet to research needs of Permaculture Ottawa, and strengthen the connection between knowledge production and prefigurative direct action. The methodological discussion covers advances in community-based research, and how radical social experimentation through *prefigurative* direct action can more

tightly connect activism and research into a simultaneous project. This chapter also includes a section on how permaculture design was used specifically in the planning and delivery of the research project. The combination of radical activist research and permaculture design provide two unique approaches to community-based research that have not yet been explored in geography.

This chapter then explores the specific methods that were used in this research to conduct the radical social experimentation and collect the data necessary to evaluate the research project. The first methods section is a discussion on participant observation, specifically geared towards participating in prefigurative direct action, with emphasized use of social media technology. The second methods section covers the process of interviewing used to understand the perspective and experiences of community members engaged in the project. Finally, the chapter includes a section on the use (and implications) of digital coding and analysis software in the process of critical discourse analysis. The final section links methodology and methods, and ties them together with the theoretical framework discussed in the previous chapter.

3.1 Radical Activist Research

Methodology describes a researcher's perspective on the process of knowledge production. Researchers also consider methodologically why they choose to follow their particular path of producing knowledge. In this chapter, methodology is explored in the first two sections, and then revisited in the final section in connection with the specific methods of data collection used in this research. This research uses two unique methodological approaches to social science research. The first section discusses how

this research engages in *Radical Activist Research* (RAR), which applies the well-established practice of Community Based Research to radical social experimentation. The second section discusses how permaculture design was applied to the planning and delivery of this research. The final section on critical discourse analysis explains how the data collected serves the methodological purposes of this research.

The methodologies used in this research assert two presuppositional claims in the creation of knowledge. The first claim is that research is an inherently political process. Engaging in research both impacts the political reality of participating communities, and weaves the researcher's political perspectives into representations and analysis of their participatory experiences (Cahill 2007; Kobayashi 2001). The second claim is that research can be a powerful tool in disrupting hegemonic material structures and normative discourses if it engages directly in radical and revolutionary political activism (Castree *et al.* 2010; Reddick 2004). Mobilizing the position of researcher to serve the explicit political purposes of a radical movement transforms research into activism. In this chapter, I argue that a radical transformation in research—perhaps even institutional hijacking—is achieved by engaging in direct action and *radical social experimentation* specifically as a research methodology.

The attitude of this research toward direct political action as a form of knowledge production comes from anarchist political theory. Peter Kropotkin—an anarchist geographer—wrote the quote at the beginning of the chapter was written in 1885 . The article from which the quote was selected asserts the potential for a radical geography. Kropotkin argued that geographic education and research can challenge injustice by dispelling the classist and nationalist myths about different societies and cultures. For

Kropotkin, geography education served the direct political purpose of emancipation. Research and education can be direct action towards political results rather than an instrument of political theorization.

Researchers may accept Kropotkin's challenge to bring about emancipation through geographic research and education, but what does such research look like? The answer to this question in social sciences has taken various forms. Marxists have been mostly honest about the politics of their research, but the connection between investigation and action has largely been one where theory informs action. This process starts with historical examination, which results in revolutionary theory to be applied in the streets (Harvey 1973). An alternative historical process was seen in the development of feminism as a social movement. Feminist action merged with academic work as part of its political agenda. Much of feminist theory involves taking the empirical experiences of struggle against patriarchy and producing an alternative, subject-positional contextualization of social phenomena (Rose 1993).

Research engaged in political action for social change has developed through several names: "action research, participatory research, popular education, and participatory action research" (Strand *et al.* 2003). The differences between these politically-driven methodologies rests upon their approach and purpose for engaged research.

"Popular education" began in Chicago in the late 1800s with wealthy young women doing education in poor inner-city neighborhoods (Stoeker 2004). The practice evolved into a model of identifying community-directed educational needs. Paulo Freire (2000) revolutionized the practice in 1970 while working on adult literacy education in

Brazil. He attached a social justice focus to education, developing a model where those learning literacy would do so by researching the social conditions of their communities (Strand *et al.* 2003).

Kurt Lewis introduced “action research” in the 1950s as he sought to increase workplace productivity by engaging workers to identify ways to improve working conditions. This conservative method of community-engaged research did little to create social change, but it did highlight some effective methods for community participation in research (Strand *et al.* 2003).

“Participatory research” emerged in the 1970s as a critical shift in the previous two practices. Researchers began thinking critically about the social role of research, questioning the validity of objectivity, thinking through ownership of research findings, and problematizing the researcher-researched relationship. Young social scientists questioned traditional empirical research methods during economic development work in Africa. These researchers were better able to highlight the causes of social problems and identify locally desired solutions by directly involving local communities. An international community of researchers emerged in the 1980s conducting participatory research. The drive for such research, however, has mostly been through non-profit organizations, and has only recently gained acceptance in academic research (Strand *et al.* 2003).

“Community-Based Research” (CBR) is the most recent mutation of participatory research. This methodology can be divided into four categories that conform to the field of community work: advocacy, service delivery, community development and community organizing (Stoeker 2004). These different domains reflect various sociological

perspectives on community-based research. The two competing social theories are conflict theory and functionalism. Conflict theory sees CBR as a part of developing social change. Alternatively, functionalism sees CBR as part of the existing social order—or at least filling gaps where social change is still in fluctuation (*ibid.*). This research takes a strong conflict-theory perspective on CBR.

Doing CBR presents researchers with several key tensions. First, there are different priorities between the community and academia. Second, there are time and resource limitations in fulfilling the needs for research and action. Third, there are limitations to the work of student researchers in training, who have limited experience. Finally, there are choices between advancing social services to address systemic problems, or organizing for structural change (Stoeker 2004).

Stoeker's depiction of CBR asserts a professional detachment of the researcher. Stoeker speaks of the need to “work from the middle” in order to balance structure and legitimacy between the academic institution of research and the grassroots community of interest such as Permaculture Ottawa. A critical consideration for anyone engaged in CBR is the ongoing condition of neoliberal hegemony within research institutions. As described as the “flanking mechanism” of neoliberalism, governments actively engage communities and volunteer groups to assume the provision of services previously delivered by government (Castree 2010). This is often done through the discourse of “community consultation” or “volunteer direction”, where legitimacy of a social programme or initiative is often valued on the sacrifices of unpaid labourers to provide such services. CBR is then perhaps an artifact of the neoliberal project of disembedding government from the process of capital accumulation. Where both

regulation and service provision is increasingly devolved to non-profit organizations and community groups, it is often guised by accepted—even popular—discourses of democratization, localization and community self-determination. Local democratic control by communities in research is a valuable goal in the pursuit of social and environmental justice, however any means of achieving this must not go uncriticized.

Non-governmental organizations (NGOs) emerged from the professionalization and institutionalization of popular social movements that were created throughout the late 20th century effectively ossifying neoliberal hegemony in the very process of resistance (Barry-Shaw & Oja Jay 2012; Rebick 2009). The CBR as presented by Stoeker (2004), and Strand *et al.* (2003) reflects the same hegemonic position of the “work[er] in the middle”. Research of this structure allows researchers to assume the same role as NGOs in the neoliberal process of flanking. The devolution of regulation and social services to local community groups without proportionate power or resources is aided by academic collaboration. However, the “expert” position of researchers disciplines values of competitiveness and self-reliance among civil society groups such as Just Food or Permaculture Ottawa in pursuit of legitimacy to obtain resources and institutional power (Demange *et al.* 2012; Trickett & Espino 2004). Researchers in this position tacitly advance the neoliberal objective of mobilizing state and civil society to grant greater power and wealth to private enterprise and owners of capital. Resistance to neoliberalism in research is incumbent upon radical social scientists to identify and challenge such hegemonic infiltrations as it arises within institutions of research.

The engagement of activists in academic research for the purpose of creating radical social change seems to provide a new alternative to CBR that I have coined as

Radical Activist Research (RAR) in this thesis. RAR also seeks to hybridize, or even make entirely ambiguous the roles of researcher and activist, resuming initial purpose behind the popular education methods of Freire (2000). Freire's hybridization of research and education—one found previously in Kropotkin's idea of a radical geography—fosters a simultaneous hybridization between research and action. Research from this perspective can then be allowed to manifest in the form of direct political action—the popular demonstration of political will from the grassroots without the need for institutional support from the nation state or capital (Graeber 2009).

Researchers can accomplish a research-action hybrid through the development of radical social experimentation. In this research, such an experiment was created in the form of a Community Urban Food Forest (CUFF). The CUFF is envisioned to demonstrate an alternative to for-profit and industrial forms of agriculture in Ottawa. This experimentation with alternative methods of food production acts as a form of direct action that is *prefigurative*. Prefiguration is discussed by Kwakkenbos (2011) in the application of permaculture towards anti-globalization activism. Permaculture constitutes the direct enactment of an alternative social-ecological ordering, which functions as a direct form of resistance to economic globalization in his example. In research, prefiguration can be used through RAR, where the academic critique of economic globalization—or in the case of this research, neoliberal land use governance—is literally performed, observed and documented. The prefigurative resistance through *post-capitalist* experimentation (Gibson-Graham 2009) in RAR seeks critique in the enactment of radical social experiments, which is similar to the Marxist historical materialism that observes revolutionary movements in order to understand the nature of

class conflict (Harvey 1973). In this research, the design and organization of the CUFF tests the capacity of such an experiment to resist neoliberal land use governance, and explores permaculture as the catalyst for a radically alternative political ecology.

Three methods are used to document the social experimentation that was conducted for this research. Participant observations were taken to document the researcher's personal experience of participating in the CUFF. In-depth interviews were conducted in order to supplement the history of urban land use in the Greenbelt, and the creation of PO. A literature review was conducted on permaculture literature since 1979 in order to contextualize the permaculture actualized in the CUFF project. Another literature review examined media and planning documents surrounding the Ottawa Greenbelt since 1985 in order to identify the historic processes of neoliberal land use governance in the Ottawa Greenbelt.

3.2 Doing Permaculture Research

Radical Activist Research was coupled with permaculture design as part of the methodology used in this research. There is no recorded evidence yet of permaculture design being applied to any academic research. This section is therefore the first exploration of how academic research can be planned through permaculture design. In this section, permaculture design principles and ethics are first explored to give an idea of how they can be applied to research. Examples are then given of how this research was successful in adapting permaculture design.

One of the unique situations that can emerge in researching a universally applicable design discipline is that the subject of research can directly inform the

method of research. In this thesis, the application of permaculture design has been applied to the investigation of permaculture as a social phenomenon. Permaculture was chosen to be part of the methodology of this research because PO expressed a commitment to use permaculture design to organize all aspects of its operation—which ought to include participating research projects. Furthermore, PO has democratically mandated the goals of documenting its practices and experimenting with its application beyond land-based design. This research is therefore another experiment of PO on how to apply permaculture to “invisible” structures and processes. Using permaculture design as a component of research design helps advance both goals of the PO.

In order to fulfill PO’s mandate, permaculture ethics, design principles and common techniques were used to design the research. The goal was to produce research that is inextricably linked to advancing the movement by applying permaculture design as an analytical framework of knowledge production. The collapse that emerges between the previously discrete subject-object position is done by using permaculture design to craft part of the lens through which the permaculture movement is seen. Specifically in this research, permaculture is:

an ethics-based design process that uses local ecosystems as an inspiration for how to create socially just and sustainable human living spaces.

This definition is far more erudite than is conventionally delivered for the purpose of popular education of permaculture. However, my interpretation of an abstract application of permaculture is that it is a systematic process of developing consensus; directing the purpose of design on the development of mutually fulfilling and resilient

systems of relationships. The central goal of permaculture therefore—in my opinion—is to foster relationships that last and thrive.

Co-originator David Holmgren (2002) has characterized the academic reception of permaculture as “highly varied”. While some have balked at the unproblematic mixing of academic disciplines, others have rejoiced at the possibility of permaculture as a new interdisciplinary path within universities. The range of reactions to permaculture in academia seem to result from the limitations in its analytic simplicity that is viewed as an advantage within the realm of popular education. The central concepts found in permaculture are really quite vague in what they tangibly advocate. While this may be an advantage in its application and spread among many diverse circumstances, it is unhelpful in driving a clear epistemological/methodological argument. The permaculture of Mollison and Holmgren lacks any direct, consistent or cohesive ideological platform, leaving the details of political direction to the designer. To this end, while this research is permaculture-inspired in its design, it is complemented by a radical political agenda independent of permaculture. However, permaculture-designed research can resemble many other possible forms.

Permaculture begins with three central ethics (Holmgren 2002): *care for the Earth, care for people, and the equitable return of surpluses generated within the system*. Adherence to these ethics is necessary in order call any design a work of permaculture. Research that calls itself a work of permaculture must therefore adhere to these three ethics.

While there are many variations on the permaculture design principles, Permaculture Ottawa has decided specifically to use David Holmgren's twelve principles

as outlined in *Permaculture: Principles and Pathways Beyond Sustainability* (2002).

Holmgren's design principles are as follows:

- Observe and Interact
- Catch and Store Energy
- Obtain a Yield
- Apply Self-Regulation and Accept Feedback
- Use and Value Renewable Resources and Services
- Produce No Waste
- Design from Patterns to Details
- Integrate Rather than Segregate
- Use Small and Slow Solutions
- Use and Value Diversity
- Use Edges and Value the Marginal
- Creatively Use and Respond to Change

These design principles, though insightful when stretched to fit social circumstance, are initially difficult to imagine in application to social science research. The principles were initially written with the intention of application to landscapes or organizational structure. Such principles have been successfully applied to social systems as housing co-operatives, credit unions and permaculture design courses, as explained in an interview with Sebastien Bacharach (personal correspondence June 3, 2012). Recently, Looby Macnamara has detailed the application of the design principles to personal and social circumstances in *People and Permaculture: Caring and Designing for Ourselves, Each Other and the Planet* (2012). Looby identifies these

principles as observed in nature as indicators of sustainable systems that can be applied to society. Using Holmgren's (2002) titles and concepts behind the twelve principles, she demonstrates their application in personal and interpersonal situation (2012:19).

Looby's interpretation of the Holmgren's twelve principles acts as a far more effective starting point to look at permaculture design in social science research. The following is a brief summary of Looby's (*ibid.*: 19 - 25) interpretation of the principles, providing an idea of how to apply them to research:

- *Observe and Interact*: Intentional first-hand observation produces awareness of self, society and surroundings, which indicates patterns in behaviour, and how they impact one another. Furthermore, such behaviour and relationships are dynamic and effected by one's personal interaction with the system. Observation, feelings and actions are impossible to separate.
- *Catch and Store Energy*: There are patterns of energy and productivity in the way individuals and groups work. People should think about personal and community energy catalysts and sinks and match tasks accordingly to maximize the impact of work.
- *Obtain a Yield*: There is an unlimited range of potential products for any action or resource, which is only limited by imagination. One should try to maximize the number of diverse benefits from actions and resources.
- *Apply Self-Regulation and Accept Feedback*: Systems should be created at a scale and with the proper connections where negatives are mitigated and positives are allowed to grow. Taking feedback in society means examining one's own personal

feelings as well as the feelings of others to see if actions or arrangements are appropriate.

- *Use and Value Renewable Resources and Services:* Activities that require constant external inputs that are limited in supply are not sustainable. One should develop systems or practices that rely on locally-available resources that produce more than they consume.
- *Produce No Waste:* One should think of new ways to make use of system outputs that can yield benefits. A system ought to make use for all possible outputs of all system elements so that no opportunities are wasted.
- *Design from Patterns to Details:* While all situations and systems are unique, there are re-occurring patterns that emerge. It is more beneficial to the system to follow patterns rather than work against them.
- *Integrate Rather than Segregate:* It is better to work with a greater variety of actors in a system, establishing beneficial connections. What can result is something that is greater than the initial individual entity or action. This includes people, groups, functions, tasks, purposes and intentions.
- *Use Small and Slow Solutions:* One should create a system that starts at a scale where there is a demonstrable capacity to operate. This offers better chances of long-term growth and success. One should organize an activity or system that grows only as there is a clear ability or desire to expand.
- *Use and Value Diversity:* Diversity in the system provides redundancy where if one element is to fail in producing a function a different element can step-in and fill the role.

- *Use and Value Edges and the Marginal*: Systems are typically more productive where differences meet. Boundaries between differences allows for interaction, producing more abundant and unique products.
- *Creatively Use and Respond to Change*: Where change is inevitable, thinking creatively of opportunities to new situations—rather than resisting them—allow systems to thrive through the resilience to adapt.

These principles provide ways in which research can be more productive, effective and resilient. The permaculture literature frequently asserts that no design is ever complete, therefore the design process continues throughout the entire process of research. The permaculture design principles were central to the decision to research the CUFF project of PO. The project had the highest potential return, to a more diverse number of yields, for a demonstrably greater body of people, for less effort, resources or travel. This research took knowledge produced through existing activist work, and gave it a place in academic research, where otherwise it would only reach other activists. This research also relied upon a wider range of resources that were perennial in their availability, and required less overall to operate. It took on a small and manageable case study considering an array of different perspectives within the community. This modest project was also very slow in pace, and easily accommodating of a busy graduate student's schedule. It expanded the overall period and depth of observation and interaction that could take place in the field work, ultimately producing more robust data. Finally—regarding the permaculture ethics—the project demonstrated direct care for the Earth, since the project was literally doing ecosystem recovery through the creation of a food forest. The situated position of the researcher in the community

resulted in more care for people by being responsible for the researcher's own self-care (a topic seldom discussed in academic research), and acting where social need is required and demanded. Finally, the project was able to “return the surplus” of knowledge produced, impacts made, and relationships strengthened among all people involved in the research.

The intellectual product of this research will be disseminated in various forms. The historical research conducted will benefit Just Food in their operation of the Food Hub. The literature review on permaculture will fill a niche where there was a gap for permaculture research. The discussion on permaculture and political ecology will contribute to the ongoing academic discussion of urban environmental justice, specifically in the context of resisting neoliberalism. The research project will directly benefit the local community, Just Food, and Permaculture Ottawa. Finally, the research produced material for papers, conferences presentation, and a thesis that may advance the academic career of the researcher.

This application demonstrated how permaculture thinking *vis-à-vis* the design ethics and principles can result in effective research, which is resilient to changes throughout the process, and uses as little resources as possible. The project also demonstrated ways to think about the subject-position of the researcher and apply it towards innovative ends. Where the subject-position of the researcher in this research would be seen as a severe limitation within more positivist research, permaculture design presented new opportunities for research in one's own community.

Permaculture design—in conjunction with RAR—cultivated research that impacted both the community and the researcher more together, than if they were working

independently. In fact, the complete blurring of research and activism in the delivery of a permaculture project has yielded a more diverse and unique number of products than if research was simply conducted on a community doing permaculture.

3.3 Participant Observation and Social Media

The next three sections focus on the specific methods used in this research. Research methods are techniques used by researchers to collect data. The methods used in this research included: participant observation, interviews, and a literature review. This first section covers the collection of data through participant observation. Specifically, this section details the use of social media in the collection of participant observation data.

Emerging from the field of social anthropology, the practices of PO involves embedding oneself in a group of people with the purpose of gaining an understanding of their worldviews and social dynamics. The sorts of information that can be gained from participant observation include: “counting, complementing, and contextualizing” (Kearns 2000). Counting is concerned specifically with quantitative aspects of group dynamics. In this sense, the researcher would participate in order to determine how often, or in what magnitude a phenomena occurs. For complementing, the researcher participates in order to enrich other forms of data. Combined with interviews, participant observation can allow the researcher to observe phenomena described by interviewees in order to provide a deeper (and more nuanced) description. Participant observation can also help contextualize information. This research was able to employ participant observation to understand why phenomena within the Ottawa permaculture community. While all three purposes to participant observation can be achieved in research, it is not

necessary to engage all of them (*ibid.*). This research, for instance, was mostly concerned with using participant observation to complement other sources of data—gaining greater context; it was less concerned with the quantitative counting of phenomena mentioned in the literature.

Participant observation was a default position of the researcher rather than a conscious research design choice. The researcher was already a founding and active member before the creation of the research project. Typically, in participant observation, researchers might find themselves joining a group that already exists and functions, to gain strategic access for research purposes. In this case, the development of PO as a community occurred a few months before the conceptualization of this research. Furthermore, the researcher was one of the founding members, and remains active and central to many of the group's activities. As a result, this research has significantly influenced the development of the group through its fieldwork component. Moreover, this research has impacted the development of the Food Hub. The researcher participated as an intern for Just Food through a Social Sciences and Humanities Research Council (SSHRC) grant for research on community food hubs. In this position, research was conducted by the researcher of this thesis on best practices, resources, and community expertise for implementing farm infrastructure on the site. In both the Just Food and PO research, participation was conducted with the deliberate intention of impact. While many participant observers in research will identify as an ally to the communities being researched, this research merged the roles of researcher and activist. To this end, conventional discussions of impacts resulting from participation with the intention of becoming an ally do not go far enough. This research was

conducted with the explicit intent to advance the cause of the establishing a CUFF in the Ottawa Greenbelt in order to challenge neoliberal land use governance.

Situating participant observation in the research imperative of RAR changes the focus of critical inquiry. Rather than providing a critical perspective on community dynamics and the researchers impact on it, this research directed critical focus on the existing order of land use governance in the Ottawa Greenbelt. Advantages and limitations of the CUFF project and PO were also evaluated in challenging neoliberalism. As described before, RAR is an engaged form of criticism that moves beyond the notebook and thesis chapter to deconstruct taken-for-granted social constructs through the performance of direct action. Participant observation, in this context, records knowledge created by the activist experience of radical social experimentation.

In order to record knowledge created through the radical social experimentation of this research, three specific methods were used. These methods included: blog journaling, recording minutes, and engaging in social media platforms. Social media communications were collected in order to reflect the new realities of community activism. Where communities previously connected through direct interaction, phone communication or even various static forms of written correspondence (e.g., e-mail, paper mail, newsletters, etc.), many communities now communicate (or even largely take place) through/in social media. The experience of organizing with PO demonstrated clearly the importance of new social media technologies. While the group met on a monthly basis for general assemblies, the majority of discussion and

participation took place on the social media platform, Facebook. Social media data collected came through two sources: research blogs and social media platforms.

The use of blogs was a fascinating experiment in bridging observation journaling with the PO community: however, it also proved to generate very limited results. Blogs are a type Internet journal that range in use from reflection on the quotidian experiences of individuals to the dissemination of expert knowledge for an interested group of followers. Blogs have revolutionized ways in which information—especially news reporting—is distributed. In fact, many “old media” sites such as *The New York Times*, and *The Globe and Mail* have had to revolutionize the distribution of their content online to compete with this new open source medium of reporting. As such a powerful new medium of publication, one cannot help but consider how they can be translated to academic research. Where traditionally research was disseminated in print periodicals and books, today research findings are being distributed digitally by printing companies. In recent years, online open access journals have changed the format of research dissemination. For example, journals such as *ACME: An International E-Journal for Critical Geographies* provide open access to Internet users. This “open access” format challenges the exclusivity of research dissemination to those who pay for access through university institutions. Those outside of academia can now foreseeably engage in academic discussions in the field of human geography. Beyond dissemination of research results, interaction is becoming more directly accessible in the process of knowledge production – notably, through the medium of blogging.

The research blog (URL: foodforestresearch.wordpress.com) used in this research project involved journaling interactions with the community after meetings,

events, social gatherings, etc. The journal entry would then be published onto a blog created specifically for the purpose of allowing participants to read the participation reflections. Readers from the community, or even from the public beyond, would be able to comment in response to the entry in order to provide additional information, correct inaccuracies, or provide additional reflection. This method sought to provide the community with a form of accountability for the data produced through the participation of a researcher.

Great care was taken to disseminate the reflections for participant access. This meant using accessible language, providing greater detail about methodological processes, and augmenting the aesthetic quality of the blog site. Care was also taken to create a blog that proved visually stimulating. Plenty of photos were added to blog entries to provide the reader with illustrative visuals.

Once published, blog entries were then disseminated through the various conduits of social media that are frequently accessed by members of the community. The primary site of publishing was the Permaculture Ottawa Facebook “group” page. Facebook functioned as the primary conduit of information because the page was already operating with the highest volume of correspondence. Once posted, a description, photo and hyperlink would show up on the Facebook page wall inviting the reader to access the participant reflection blog. In addition, the link and a short description of the blog was broadcast through the researcher’s own personal “handle” (account) on the social media platform Twitter (@ChrysBisson: twitter.com/ChrysBisson). Those who “follow” the researcher’s handle would then have the post show up in real time in their news stream. Finally, when visiting the blog site,

participants were encouraged to “subscribe” to the blog. If the reader has a Word Press account (the Internet site that hosts the blog for free), subscribing provides the reader with the choice to receive e-mail updates when new blogs are published. After reading the blog entry, readers would be prompted at the bottom of the page to provide feedback, or to “like”, the article. This mechanism also allows the reader to post a comment directly below the blog. Before reaching this prompt, however, readers were reminded to read the research description and disclaimer. This prompt ensured that those posting comments were aware that what they post on the blog is in fact part of the public domain, and could be used as data in research, a fact that is often forgotten by the public when posting on social media sites. The “like” feature allows the reader to notify the blogger that they are pleased with the content, which is subsequently noted on their Word Press account, reminding them of posts that they like that they have read in the past. Both likes and comments were designed to be collected as another primary source of data for this research. One final feature that the Word Press blog offers are the diagnostic features available in the administrative “dashboard” page for the blog. This feature allows the administrator to view frequency of access, as well as times, dates and locations (by country) of access, and finally specific links used to find the blog post. From these diagnostics, it is possible to gauge the popularity or relevance of a specific post. These insights can then identify which topics are of greatest concern to the participants, or which controversies catalyze the greatest reaction.

While this method of data collection reflected a unique exploration of new social media technology, it generated very limited results. Only seven “views” (actually reading the page) took place, while the site recorded a total of 320 “visits” (clicks on

links directing readers to the site). Only one comment was received. However, it was erroneously posted to the wrong blog therefore providing no relevant comment data. Ultimately, the blog was unsuccessful in generating any usable data. The only finding attained from the blog was that it was not a popular medium of communication among the Ottawa permaculture community.

Similarly, once posted on Facebook, readers of the Facebook site were able to either like or comment on the posting. This provided an alternative space for participants to offer feedback or appreciation of the content. A more recent feature of the past few months is the “viewed” diagnostic for group site administrators. The researcher was the original author of the Facebook page several years ago therefore this research had access to see who clicked on the link to view the blog content. This was a diagnostic tool not available through Word Press. This later feature was valuable since it helped the researcher notice trends regarding which participants were compelled to access particular blog entries, and determine what issues might be of interest to them. The Facebook “like” feature provided the same sort of information, showing that the reader endorsed the content. A person who viewed a link, but not “like it”, could indicate that they are compelled to read the post but either disapprove of it, or perhaps were indifferent to its content. Finally, the reader was able to provide a comment. Comments on a Facebook group page demonstrated the willingness to provide feedback with the intent of broadcasting it to other members of the online community. The blog page allowed this function as well, however Facebook provided a real-time experience to commenting since it does not require a moderator to approve the content of the comment. Facebook was the most successful data source.

Discussion took place daily on the Permaculture Ottawa Facebook page, which included topics valuable to this research such as social justice, and land use planning in Ottawa.

When posted on Twitter, followers had the option to “favorite”, “retweet”, “quote tweet”, or “direct message” the publisher. Twitter only allows a user to post a 140-word message, with options to add images, videos, locations, associated accounts, or to string the post to a particular topic through the placement of a *hashtag* character before the subject of the thread. These parameters allow detailed network analysis to be conducted. *Favoriting* a post serves the same function as *liking* on Facebook. This feature provided the researcher with access to the same sort of diagnostics available through Facebook and Word Press. *Retweeting* is when the reader directly re-posts one’s published post to their network of followers. When reading one’s *news wall*, retweeting replaces their handle in the real-time list of posts with the handle of the one being retweeted in the form of the post. Below the retweeted post, an additional message is added of the person who retweeted the post. The function of retweeting that swaps the user’s space in the news wall for the person they are retweeting allows the content and identity of the tweeter to be carried beyond the initial poster’s list of followers. Retweeting allows a tweet poster the possibility of disseminating tweets to all people who use Twitter. The range of dissemination acts as an indicator of the resonance that a particular message or content has in the broader “Twitter-verse”. “Going viral”—where content accelerates and becomes a trend among a large portion of Twitter users—indicates a high amount of relevance to a large population of people. This

function can be done on Facebook, but is secondary to the functions of liking and commenting.

By linking the blog sharing participant reflection, it is possible to test the resonance of the content among community members that use Twitter. “Quote tweeting” is the same thing as retweeting except that the re-tweeter quotes the original poster instead of swapping their Twitter identity. This can indicate a greater degree of identification to the content in its resonance, or reluctance to allow the original poster the get all the credit for posting. “Direct messaging”, just like in Facebook and Word Press, allows the reader to respond to the article in private without the public seeing what is written. Along with reader subscriptions to the blog there is also the option for readers to e-mail the author of a blog. In the case of the participant reflection, blog readers were given the option and even encouraged (especially if they had feedback they wished to keep confidential) to e-mail the researcher directly. In this research, the Ottawa permaculture community was equally uninterested in content posted through Twitter. No interaction occurred through Twitter, and WordPress diagnostics indicated that nobody accessed the blog through Twitter. The underutilization of Twitter was likely due to the limited number of people in the Ottawa permaculture community that use Twitter.

The final source of data for participant observation is the documentation of meetings. Meeting documents served a dual purpose and were meant for the collection data as well as to take note of community proceedings and decisions that are made at PO’s *general assemblies* (GA). This source produced valuable data on PO’s history as well as key thematic discussions among the community. It also benefited the

community by automatically having someone present to note meeting proceedings. The minutes are somewhat different than what is conventionally expected from other community organizations. These meeting minutes were much more in-depth, and went into greater detail in terms of what people did and said. Conventionally, in community meetings one would record decisions, announcements and action items. Basic points on what was discussed in relation to proceedings were also recorded, similar to a meeting transcript. The meetings that were recorded were mostly monthly general assemblies, however minutes were also taken from the CUFF Committee meetings. Notes were also taken from participation on behalf of PO at the NCC consultation session for the Horizon 2067 Greenbelt Plan. Meeting minutes recorded the proceedings and consultation sessions, which provided rich insight into how the NCC interacts with the public around key land use problems in spaces such as the Ottawa Greenbelt.

Journaling, social media interaction, and meeting documentation were the three sources of participant observation data collected for this research. Participant observation data was combined with interviews, permaculture literature, media reports and planning documents to fill gaps where detail and meaning of land use contestation in the Ottawa Greenbelt was missing. It is important again to note that due to the nature of direct involvement in the community, the perspectives presented in this data are not removed from the ideological interests of the group. While reflexive and critical, this research makes no claims of this data being neutral or unbiased.

(3.4) In-Depth, Semi-Structured Interviews

Interviews are the documentation of the verbal perspectives of a research informant.

Interviews involve documenting the narratives, opinions and responses of the informant as a source of data (Dunn 2000). In this research, a series of nine interviews were conducted with members of the permaculture community, former horticulture/agriculture workers in the area, and a spokesperson of Just Food. These interviews were done to learn details about the history of the site and the Ottawa permaculture community.

The interviews followed the specific method of semi-structured/guided, in-depth interviewing (Olson 2011; Dunn 2000). This method involved a guided conversation through a set of predetermined themes. Rather than relying on guiding questions that seek particular responses, in-depth perspectives are gained through conversational facilitation (Dunn 2000). Interviews were focused on specific context of the CUFF case study in order to provide informants with a shared context (Schostak 2006: 21).

Background information on the project and this research was enclosed in the “letter of information” provided during the recruitment of interview participants.

Interviews ran between forty-five minutes to an hour. This time frame was specified as ideal in order to balance richness of interview detail with logistics of transcription and analysis. After only a few interviews, it also became evident that this time frame reflected both the attention span and time available for the participant. Repetition and off-topic conversation frequently arose after forty-five minutes of interview time. Longer interviews would not have likely provided much more relevant data.

Interviews were conducted between one participant and the interviewer. One-on-one interviewing provides a space where the participant is free to share their perspective without the influence of another person present. Participants were selected specifically for the specific information they possessed. They were also selected for the unique perspectives they represented. There was no attempt to recruit interviewees through unbiased random selection. All interviewees were deliberately chosen. The deliberate selection of participants was a logistical and research design decision. For a project of the magnitude of an MA thesis, five to ten interviews is viewed as a reasonable number (Bradshaw & Stratford 2000). Bradshaw and Stratford (*ibid.*) argue that there is no ideal sample size for such interviews. Size ought to simply reflect the nature of the data that is required from the interviews. After nine interviews some responses were becoming repetitive, and key perspectives from members of the community were covered.

Participants were asked if they could be directly attributed in the thesis. All participants agreed to have their names stated in this research. Interviews covered at least one participant of five different groups: Just Food, former workers of the NCC tree nursery, former farmers of NCC land, the Permaculture Institute of Eastern Ontario (PIEO), and PO. The director of Just Food was interviewed about the Food Hub. The former NCC tree nursery employee was interviewed about past horticultural practices on the site. A former farmer was interviewed in order to speak to the experience of appropriation and his resulting view of the ongoing project at the site. Another farmer was supposed to be interviewed who was a prominent farmer known for his contestation of expropriation, however after several correspondences communications ceased for

unknown reasons. For fear of perhaps causing harm through the interviews, no additional follow-up was conducted. Members of PO and the PIEO were interviewed to document the creation and evolution of the Ottawa permaculture community.

The demographic make-up of the participant sample consisted of five men, and four women. While gender parity was not strictly followed in the recruitment of interview participants because of the preference for expert informant perspectives, parity was pursued where specific perspectives were not needed. PO members were selected through this rationale. The majority of prominent initiators of the group self-identify as women, which provided relative gender balance for the overall sample of the community. There were no people of colour interviewed, which reflects a White North American bias in the information disclosed in this research. The racial sample bias also reflects the predominantly White composition of the Ottawa permaculture community. None of the participants identified as non-heterosexual, non-cisgendered, working class, Indigenous, or experiencing differences in ability. All participants spoke fluent English, with only one who identified English as his second language. The research interests of the interview did not require any participants to disclose their religious identity. As a disclaimer, this research reflects the privileged perspectives of the researcher and participants that were given voice in this research. In failing to problemize the prevailing “common-sense” perception of privileged colonial, White, middle-class, heterosexual, cisgendered, and abled-bodied people, this research does not claim to provide an adequate challenge to these dimensions of power and oppression. Work is required in addition to this research in order to address these problematically privileged positionalities.

Key topics of discussion for the interviews consisted of three loose themes. The first topic asked for perspectives on and experiences at the Just Food Farm site and the Greenbelt in general. Participant were asked for historical details and experiences pertinent to the research. Members from the permaculture community were asked: “what is permaculture?” Perspectives on permaculture helped to historicize the critical ideological perspective on nature operated in the design practice of permaculture. The former NCC worker was asked specific details about the operation practiced on the site. The former farmer whose land was expropriated in the creation of the Greenbelt was asked specifics on the practice of farming before and after the expropriation occurred. Both the farmer and NCC worker provided two contrasting perspectives of working in the Ottawa Greenbelt early in its development.

Interviews were recorded digitally through an iPhone recording application, which was able to provide a recording sufficient for easy transcription. The recording device made it possible to provide direct attention to the participant. The MP3 files were then collected from the iPhone and transferred as a voice memo file on the interviewer’s computer using the iTunes music player application. VLC media player software was the used for playback during transcription, which allows greater control of audio speed. By slowing down the audio playback, a faster and easier transcription was possible. Interviews were transcribed verbatim in order to provide the specific wording detail necessary to conduct a critical discourse analysis. Speech was transcribed verbatim unless specifically omitted by request of the participant. The interviews provided significant insight into both the permaculture community of Ottawa, and a deeper historical perspective on the development of the Ottawa Greenbelt.

3.5 Literature Review

A literature review is a systematic survey of the existing literature on a subject, topic, theme, question, phenomena, etc. conducted in order to identify, synthesize and evaluate past and current thinking on a subject, and how it has evolved (Booth *et al* 2012). No formal and comprehensive literature review can be found sufficiently covering the subject of permaculture. While there are many book lists in the gray literature, websites and online fora of the international permaculture community, nothing can be found of an analytical and systematic quality. This research therefore conducted a basic review in order to summarize existing knowledge on the subject. While permaculture is a purposefully broad and complex topic, the review focused on definitions of permaculture. The literature was surveyed and documented for each author's discussion of what permaculture is. This resulted in the creation of an annotated bibliography that guided analysis of key themes, narratives and values that are common to the definition of permaculture.

A review was also conducted of the official NCC, City of Ottawa and news articles surrounding the planning and history of the Ottawa Greenbelt. In order to do this, a body of documents was collected as a part of Dr. Jill Wigle's research on the Ottawa Greenbelt. These documents were collected in cooperation between the professor and a number of research assistants. Newspaper articles were collected from the *ProQuest Canadian News Stand* archive of news articles from various Canadian papers since the 1970s. Articles discussing the Ottawa Greenbelt and the National Capital Commission were searched. The texts that were collected were then read in

NVivo in order to code them directly to highlight key themes, narratives and values present.

3.6 Digital Coding Software and Critical Discourse Analysis

The data collected for this research was analyzed using QSR International's digital coding software NVivo 9 (NVivo 9 2010). This software was essential in the analysis of the collected data because it is so broad and comprehensive. Data sets such as the fully-transcribed interviews can be difficult to manage and examine without the aid of a systematic programme to track patterns and insights. Such software is necessary to abstract overall patterns from detailed and incongruent qualitative data sets in order to synthesize a discussion on the meaning and dynamics of social phenomena (Bazley 2007). While the software is not on its own able to do the analytical work on the data, it is used as tool for analysis.

The software is able to support qualitative analysis in five ways: manage data, manage ideas, query data, model data graphically, and help report from the data. Support for these functions in analysis provides the researcher a better grasp of patterns and themes in the data and experiences collected from field work. The researcher can conduct simple content and word analysis of such large data sets using the results as the basis for thematic coding, instead of relying on existing literature to direct what thematic classification to pursue (Bazley 2007). This research incorporated thematic parameters from the literature on neoliberal nature for the purpose of the discourse analysis.

Perhaps the greatest critical implications of using digital software is found in an understanding of the hybridity of agency in research between the researcher, researched, and research tools. Therefore, it must be recognized that the software provided as much influence on the findings as the use of a recording devices, and notebooks. The recording device constructs an “immutable mobile”—a replicable and transportable representation of material-semiotic ordering—of the experienced phenomena in the form of an .mp3 track. The ideology of what is included in the track by the coded logic of the program that records the experience has implications on the knowledge that is produced. Using NVivo 9 inheres upon the data the ideological logic of the formal coding logic of the software. As criticized by Latour (2005), formal analytical abstraction from data takes the messy complexity of the general realm of things and arranges it categorically through the epistemological lens of positivist ordering. The data then becomes as much an artifact of the technology, as the experienced phenomena is of the governing norms and narratives of the socio-ecological relationships in the world.

This is not to say that the data analyzed through the software is illegitimate or tainted. Rather, data is abstracted for the purpose of producing knowledge (i.e. research thesis) through analogue methods of deep reading that involve only the researcher, transcripts and highlighter, or through a coding software, the tools of analysis in way that will always contribute to the nature of the knowledge produced. Research is an artifact assembled through the enacted discourses of institutional academic ideologies of knowledge production. In this research, the subject positionality of both the researcher as participant, and research as network-actant is recognized.

Being researched, after all, influences the observed phenomena, even when the researcher is among the researched. This research is clear in recognizing that this work is only a static artifact representing the researched phenomena from the perspective of the researcher.

The digital coding software was used in order to conduct a *Critical Discourse Analysis* (CDA) (Weiss & Wodak 2003). Discourse analysis is methodologically not a specific process. More appropriately it is a conceptual framework of analysis. It reads history in a way that opens up seemingly unproblematic concepts. Specifically, in the Foucauldian approach of genealogy, it disorders historically-produced subjectivities by exploring the selectively omitted aspects of reality read through conventional and repeated narratives of history. In this sense, it is deconstructive, and attempts to disorder accepted ideas and processes. One is able to engage in such disordering with a genealogical methodology through the use of data that demonstrates the contingency of universal claims (Kendal & Wickham 1999).

An alternative to a genealogical approach to discourse analysis is the dialectic approach of CDA. This approach is a much more “eclectic and unsystematic” form of discourse analysis, which can also include genealogy. The methodology brings “a variety of theories into dialogue” surrounding linguistics and social theory, “operationalizing” a transdisciplinary synthesis of various theories and strategies of action (Weiss & Wodak 2003). Understanding the dialectic process of CDA first requires a better idea of what is specifically meant by discourse. This methodology takes its definition of discourse from critical linguistics—rather than the post-structuralist genealogy—which sees it as a continuous social process. A discourse is therefore a

component of ideology that connects class interest to the means of production through the every-day work of individuals (Harvey 1996). Discourse becomes so inculcate in socio-material processes that it becomes impossible to separate the material world from the ideological superstructure of capitalist class relations (Swyngedouw 2006). Discourse analysis, in this case, is useful in deconstructing the normalized connection of semiotic meanings created through capitalist ideology to the base means of production in the urban environment (Weiss & Wodak 2003).

Critical Discourse Analysis in the case of Radical Activist Research is necessarily prefigurative because it appreciates the limitations of dis-ordering discourse exclusively in text without action. RAR recognizes the inherent normative qualities of analysis, providing a deliberate political direction through radical social experimentation. If, as Foucault (1977) effectively argues, the formation of knowledge and the process of power distribution is simultaneously interrelated, then the process of deconstruction itself—complete with its own epistemological project of critique—is inherently normative of an alternative social ordering. Why then, is it that deconstruction is often so exclusively textual? If there is positional agency in the process of inquiry, shouldn't that position be consciously used to provide the ethically/politically-reasoned alternative to the deconstructed order? If such an alternative is to be achieved, why then is it that it must remain in text? It seems incumbent upon social theorists engaged in analysis to take responsibility of the normative process of critique and get their hands dirty engaging in prefigurative resistance.

3.7 Critical, Radical, Digital: A New Direction for CBR

This chapter cut a winding path through the methodology and methods of this research. Throughout its various sections it explored the concept of direct action for social change in research, grounding it in the situated knowledges produced in resistance struggles, and designing it in a way that maximized impacts and benefits with minimal input or additional effort. Furthermore, it explored the research methods of participant observation, interviewing, and literature review. All of these methods and theoretical discussions on methodology ultimately amount to a directly engaged form of activist research that goes beyond textual discourse analysis by engaging in radical social experimentation. The traditional lines between subject and object positions of research and researcher are blurred for the purpose of creating activist knowledges. The lines between knowledge and application are also blurred demonstrating that critique must exist simultaneously in text as in action.

This research rises to Kropotkin's challenge of creating a geography that is emancipatory by exposing conventionally held and naturalized systems of injustice. Neoliberalism can be challenged by both contesting the ideological common sense of neoliberalism, and demonstrating the political economic possibility of the commons. The actively prefigurative demonstration of the commons contributes to a robust experiment of knowledge produced in activist resistance. The effectiveness of this methodology for bringing about social and environmental justice is analyzed in later chapters.

Chapter 4: Class Struggle History of Land Use in the Ottawa Greenbelt

The creation of the Ottawa Greenbelt is a historical dialectic between the competing ideologies of liberalism and nationalism, which have acted together to dominate the class interest of Indigenous peoples, workers and homesteaders. Liberal aspirations for industrial lumber extraction was then next movement, dispossessing the Algonquin nation of their land (Hessel 1993). Industrial control was challenged by nationalist capital building, which dispossessed workers and homesteaders of their livelihoods (Gordon 2001). Aspiration for a monumental national capital has more recently been challenged by a contemporary interest in market-based wetland conservation, which has further exploited remaining landed farmers (Kelly 2000). The ongoing struggle over land use in the Ottawa Greenbelt depicts the geographic impact of struggle in class interest. The struggle between nation state and market has resulted in a National Capital landscape that synthesizes wealth accumulation with state power. The case studies of market-driven conservation programmes for Stony Swamp and the Mer Bleue wetland are ecological manifestations of the synthesis between the so-called “public” (nation state) interest in territorial power, and capitalist interest of wealth accumulation. The history of Ottawa's development as a national capital is one of struggle and synthesis between state and capital, which oppressed and exploited the sovereignty and labour of Indigenous peoples, workers, and farmers.

This chapter provides an historical account of the dialogue between nation state and capital in the formation of Ottawa as a national capital. It then explores how neoliberal regimes since the 1970s have re-oriented Ottawa as a nation's capital back in

favour of free market ideology. The chapter provides a cautionary set of case studies for food justice movement's in Ottawa as they risk perpetuating the ideological power of neoliberalism through it's efforts to alleviate the social pressures of global neoliberal food systems.

Three historical stages are present in the development of Ottawa's current system of land use governance are explored through the simultaneous creation and development of the Ottawa Greenbelt and the community of Blackburn Hamlet. In the first stage, land was expropriated from the Algonquin nation by the colonial government of British North America for the purposes of lumber extraction and farm settlement. In the second stage, this land is expropriated by the Canadian nation state in order to develop a Greenbelt for Prime Minister Mackenzie's vision of a "Garden City" national capital (which was never fully realized). In the last stage, management of public lands are oriented towards a neoliberal ideology of market mechanism and private ownership, in order to advance the nation state's role in supporting private wealth accumulation.

Organizations such as Permaculture Ottawa can benefit from an understanding of the history of how land use in the Ottawa Greenbelt has come to be managed through a neoliberal ideology. The case studied in this chapter provide an illustration of the importance of ecosystems and the concept of public interest in the advancement of *actually existing neoliberalism*. The 1980s case study of Stony Swamp, and the 1990s case study of the Mer Bleue conservation area provides a vivid caution of how neoliberal land use management can "fix" one set of problems created by capitalist urban development (*i.e.* the destruction of sensitive ecosystems), by creating a new problem of injustice (*i.e.* expropriating farmers of their land). If Permaculture Ottawa

and Just Food are to achieve their goals of promoting food security through the establishment of a Food Hub, it is important not to repeat the sort of unexpected injustices produced in cases such as the Mer Bleue wetland. In order to avoid such unanticipated injustices, Permaculture Ottawa and Just Food will need to be careful and critical of how they operate in a system of neoliberal land use governance.

This chapter will first outline a brief history of European colonization of the Ottawa Valley, the settlement of Blackburn Hamlet, the creation of the National Capital Commission, and the development of the Ottawa Greenbelt. An historical exploration of land use governance in the Greenbelt since the 1980s is then provided, focusing on the expropriation and speculation of private property in order to acquire land for the conservation of Stony Swamp and Mer Bleue, both located in the Ottawa Greenbelt. The exploration of neoliberalism in both case study then offers a point of critical comparison for Just Food and Permaculture Ottawa's work for food security in the Greenbelt.

4.1 Antecedent: (1700-1857) Liberal Colonization

Ottawa today is known as the National Capital of Canada, and much capital and power have been directed historically in the construction of the landscape created to represent Canada as a nation state (Hessel 1993). Before Ottawa was the national capital of Canada however, it was an industrial capital for lumber production supplying the British Empire with ship-building supplies, which financed further colonial expansion of Canada (McGregor 2004). The lumber operation of the region began with the erroneous purchase of land from the Mississauga nation in 1819 (Figure 4.1)—in fact Algonquin

land under the Royal Proclamation of 1763—which resulted in its enclosure to accommodate farms for Irish migrants, displaced French Canadians and British loyalists. Lumber barons quickly gained control over the Ottawa Valley transforming present day Ottawa into a hazardous and polluted industrial town. The colonization of the Ottawa Valley for lumber extraction is the first phase in the development of Ottawa as a city. The lumber industry's domination of Ottawa was the first movement in an ideological dialectic that takes place between liberalism and nationalism that has shaped the urban environment of Ottawa (Hessel 1993).

Figure 4.1— The Rideau Purchase of 1819 (Surtees 1984).

The ideological influence of industry on Ottawa's urban environment is explored in this section, focusing specifically on the development of present-day Blackburn Hamlet, which is located within the Ottawa Greenbelt and where Just Food's Community Food Hub can be found. The industrial phase of Ottawa's development demonstrates the foundational impact liberal class ideology on Ottawa's urban form, before it became the National Capital of Canada under the influence of imperialist and nationalist interests.

The industrial history of Ottawa begins with a mention that the region remains stolen Algonquin land. The area was used commercially at the time of colonization, and is still occupied by Algonquin peoples. Despite the recognized Algonquin claim to the Ottawa Valley in the 1763 Royal Proclamation, the Crown allowed the settlement of European migrants to proceed. The Crown negotiated a sale of land south of the Ottawa Valley in 1784 with Haudenosaunee and Algonquin nations. They expropriated the land from the Mississauga Nation in 1819 through the "Rideau Purchase" (Lee 2006). The Ottawa Valley was not recognized as occupied by the Mississauga Nation, which meant they had no claim to sell it. Algonquins rigorously petitioned the Crown of this error, but they were ignored. The space that is currently occupied by the Ottawa Greenbelt has therefore never been surrendered by the Algonquins (McGregor 2004; Hessel 1993). Land that is currently used by the NCC as the Ottawa Greenbelt is therefore stolen Algonquin land.

The region of Gloucester—where Blackburn Hamlet and the Food Hub are established today—was surveyed and incorporated—though not settled—when the Ottawa

Valley was part of Lower Canada in 1783 (Budd np.). The Ottawa Valley region was first settled as the Nepean Township in 1792 by Irish migrants to Canada fighting on the side of the British during the American Revolution. Post-revolution migration of soldiers and loyalists pressured the Government of Upper Canada to settle the region (Hessel 1993).

The current location of Gatineau was settled by Europeans in 1800 on the north bank of the Ottawa River at Chaudière Falls. This settlement was established by American industrialist Philemon Wright in order to establish a logging enterprise to take advantage of booming lumber prices in England at the time (McGregor 2004).

Loggers cleared both sites of the river during the early 1800s. American industrialist Erskine Henry Bronson bought the land along the Ottawa River, east of the Rideau. This concession ran seven kilometers inland to the Mer Bleue wetland. Once the tracts of forest had been depleted, Bronson partitioned the land into two hundred acre lots and laid it out in accordance to the survey of engineer Anthony Swalwell in 1826 (Figure 4.2). The lots were sold at 50 cents an acre to former loggers and recent migrants (Budd 2007; CHOO np.; Francis Kenny personal communications June 7, 2012). One family—the Woodburns—settled a farmstead at the intersection of present day Innes and Blair Roads (Figure 4.3). The Woodburns were granted the land by Colonel John By as part of a large land concession to former Rideau Canal workers. This is the land that was expropriated and later speculated by the NCC, which is discussed at length in the Mer Bleue case study (Kelly 2000).

Figure 4.2– Map of Concession Lots in Carleton County 1897 (Belden & Co. 1879)

Robert Blackburn (Figure 4.4). This led to the creation of Blackburn Corners where the post office was, and Blackburn Station where there was a railway stop (Budd 2007).

Figure 4.4– Selection from Gloucester Township Map: Location of Present Day Blackburn Hamlet (Belden & Co. 1879)

4.2 Formation: (1875-1945) Nationalist Central Planning

Transformation of land use in Ottawa between the pre-confederation of Canada to the end of World War II is a history of subsuming working class interests in a shift of power from a class of industrial capitalists to the colonial nationalism of the Canadian nation state. Ottawa began as a town focused on the lumber industry supporting the imperial fleet of the British Navy. The town was rife with poverty, disease, fire and violence.

Under the ideological domination of Canada's hybrid political class of British imperialism, and colonial nationalism the class power of Ottawa's lumber barons was displaced in order to shape the town into a "Canadian" national capital (Hessel 1993). Ottawa was chosen to be the capital of Canada by Queen Victoria in 1857. The town was a polluted industrial town at the time dedicated to lumber processing. Multiple and overlapping railroad lines criss-crossed the Ottawa landscape, built to support the lumber industry creating an inaccessible and uninspiring urban environment. Prime Minister Wilfred Laurier expressed great concern for the aesthetic state of the capital, and expressed the desire for Ottawa to become a "Washington of the North" (Gordon 1998). The Federal Government decided to develop a comprehensive land use planning approach in 1899 in order to reduce pollution and beautify Ottawa. They created the Ottawa Improvement Commission (OIC) to oversee city planning. Montreal landscape architect Frederick Todd drafted a plan in 1903 inspired by the American City Beautiful movement. The Todd Report called for open green space to surround government buildings (*ibid.*).

The creation of the OIC and the drafting of the Todd Report marked the beginning of Ottawa's historical phase of centralized land use planning, that would last until the 1970s when a decentralized neoliberal process of land use planning took over. Throughout the leadership of Canadian Prime Ministers: Laurier (1896-1911), Borden (1911-1920), and Mackenzie King (1921-1930; 1935-1948), strong centralized planning was used in order to create a better sense of national identity in the image of Ottawa as a "national capital". Liberal ideologies of markets and private property rights had little influence on the planning of Ottawa as a national capital. Nationalism, colonialism and

empire were the primary drivers in the vision for Ottawa to resembled the monumental landscapes of world cities such as Washington or Paris (Gordon 1998).

The project to create Ottawa as a national Canadian monument received very modest results. The OIC was unable to create Laurier's dream of a "Washington of the North". It only managed to improve a few parks with no real impact on the overall image of a national capital. Despite monumental aspirations, the Canadian Government did not empower their planning commission to the same degree as the United States or France. Unlike Washington, the OIC had a comparatively limited mandate to alter the urban landscape of Ottawa. Prime Minister Robert Borden therefore decided in 1913 to create a new commission called the Federal Plan Commission (FPC) in order to create a grander plan that would have more power and resources. The FPC was chaired by Montreal banker and railroad industrialist Herbert Holt. The FPC also hired architect Edward Bennett—who had trained at the *École des Beaux-Arts* in Paris and previously collaborated on plans for Chicago and San Francisco—to prepare a new plan for Ottawa (Gordon 2001a). He completed a plan in 1916, equally inspired by the City Beautiful movement as the Todd Report. The Bennett plan however was shelved with the onset of World War I (Gordon 1998). Laurier's dream of a monumental capital showcasing the Canadian nation state was again shown to be over-ambitious. Ottawa's still uninspiring appearance as a national capital seemed to reflect the tension between Great Britain's power over its colonies, and Canada's delusion of grandeur in the face of a burgeoning American nation state.

Prime Minister Mackenzie King would offer firmer leadership and more resources to the formation of Ottawa as a notable national capital when he was elected in 1921.

He had studied in the United Kingdom where he became inspired by Ebenezer Howard's Garden City concept that was popular at the time. King transformed the OIC into the Federal District Committee (FDC), which had more power, resources, and control over both sides of the Ottawa River. The new FDC immediately began dealing with Ottawa's railroad congestion, and established numerous public plazas. The City of Ottawa commissioned Noulan Cauchon to draft a larger regional plan for roads, railways and parks under as part of a new and unified federal district. The Cauchon Report was published in 1922 by the Ottawa Town Planning Commission (NCC 2011; Gordon 2001b).

The plan was suspended when King lost the 1930 federal election, which was coupled with the global economic depression that emerged. After re-election in 1935 King set about searching for a new direction for the national capital. In 1936 he met Jacques Gréber in Paris in 1936 and invited him to plan the "National Capital Region". He was an experienced architect and planner classically trained at the *École Des Beaux-Arts* in Paris. The outbreak of World War II placed another hold on King's national capital plans so that resources could be diverted towards Canada's role in the war (Gordon 2001a). Gréber meanwhile was busy planning town reconstruction in France for the fascist Vichy Government (Maher 1975). When the war was over in 1945, Gréber was quickly released from service and traveled to Ottawa to work on a plan for the National Capital (Gordon 2001b). Nationalist aspirations for a monumental capital city were finally underway. Suspension for such nationalist aspiration for an imperial war against fascist forces is unsurprising. Curiously, King hired a Vichyist architect to draft Canada's plan for a national capital, perhaps revealing the mutual

intelligibility of nation state ideology between colonial liberalism, and imperialist fascism. Gréber's work therefore predictably began the federal government's unjust approach to the creation of the Ottawa Greenbelt, that would subsume the middle-class interest of land-owning farmers, for the colonial aspirations of the Canadian nation state.

4.3 Expropriation: (1945-1975) Gréber's Greenbelt

Immediately after World War II, King struck the National Capital Planning Committee (NCPC). This committee was independent of the FDC and sought representatives from all over Canada. Gréber was made chair of the committee and provided a grand office of planning staff and a large budget (\$25 million National Capital Fund) to create a new master plan for the National Capital and implement it. Unlike previous planning groups, the NCPC consulted with municipal and provincial governments in Ontario and Quebec (Gordon 2001a). The Gréber Report was completed in 1950. It included elements of the Todd, Bennett and Cauchon reports. The plan resembled the Garden City style favoured by King, abandoning the original City Beautiful plan of the Todd Report (Gordon 2001b).

The Gréber Plan included plans for a "Greenbelt" to surround the City. This plan feature was inspired by Howard's Garden City concept, which had been implemented in London, England but never fully realized in Ottawa. The plan included the feature to fulfill three roles; (1) prevent urban sprawl and protect agricultural land, (2) provide land for future government buildings, and (3) reduce operating costs by concentrating development and services more centrally (Taylor *et al* 1995). The City of Ottawa approved of the initiative, and created their own parallel Ottawa Area Planning Board

(OAPB), which sought to annex land within the proposed Greenbelt area. This faced opposition from Ottawa's surrounding townships. The townships surrounding the City of Ottawa demonstrated interest in expanding low density suburban development, which was antithetical to the goals of the OAPB. The townships lost a court challenge and were ultimately annexed in 1948 by the City of Ottawa. A senate committee gave direction in 1956 for the Greenbelt plans to be implemented through the federal government exclusively in order to mediate tensions between the City of Ottawa, surrounding townships, and the FDC. The NCPC was merged with the FDC into a single National Capital Commission (NCC). The NCC had new, unprecedented powers to enact urban renewal projects, and expropriate land in order to implement the Greber Plan (Gordon 2001b).

The NCC immediately set about expropriating land for the creation of the Greenbelt. Property costs however were speculated beyond the budget of the \$25 million National Capital Fund as a result of the anticipated NCC purchase. The Federal Government therefore had to double the budget for land purchases in order to complete the Ottawa Greenbelt. NCC had spent \$243 million by the 1970s to acquire land for the Greenbelt (Gordon 2001b). Approximately 30 farms that had been operating in the area of Green's Creek, Blackburn Corners, and Blackburn Station. They had all vanished as a result of the expropriation. What remained were farms along St. Joseph Boulevard towards Orleans, and the Woodburn farm on Innes Road.

Francis Kenny was a farmer who grew up on a tenant farm in the Ottawa Greenbelt. He was interviewed for this research. The Kennys—among other families—continued to farm on the same land from the Ottawa River to Montreal Road, however

they now had to enter a leasing arrangement with the NCC. The equipment and facilities of the property also came under ownership of the NCC. This meant that if any equipment broke down, the NCC would be responsible for repairs. Francis noted that the bureaucratic structure of the organization made it difficult to deal with such repairs in a sufficient and timely manner (Francis Kenny personal communications June 7, 2012). Problems in maintenance on farm properties owned by the NCC would later become a political asset for the NCC seeking reasons to justify its sale of “surplus land” as in the Woodburn case discussed later in this chapter.

The Gréber Plan included the creation of small and self-contained communities within the Greenbelt, which was inspired by Ebenezer Howard’s Garden City planning method. These communities were successful among real estate developers looking to profit from the land price speculation caused by NCC’s land expropriation in the 1950s. Costain Estates Limited was the real estate developer that constructed the first housing subdivision of Blackburn Hamlet in 1967. Costain was a real estate company with a headquarters based in Toronto—previously named Dolphin Development Limited—that was amalgamated into Brookfield Homes in 1978. Costain in Canada was a local branch of the multinational Costain Group construction company formed in during World War I in the UK to profit from property speculation supplying mutinous factory workers with cheap housing. Purchases in the Lynwood Village area of Bells Corners by Teron Construction Limited (owned by Bill Teron who also built Kanata) in 1959 set the precedent for Costain to develop real estate in Blackburn Hamlet. Costain purchased a large acreage of land where the Greenbelt is today in 1963 that had just been zoned

residential by the Gloucester Township under pressure from the NCC. Gloucester Township approved a 650 acre housing subdivision by Costain in 1966 (GHS 2013).

Land purchased by the NCC to form the Greenbelt was protected from any development. The encroachment of forested land upon expropriated farmlands was taking place by the mid-1960s. The wooded Greenbelt that is visible today therefore only began growing in the mid-1960s. In the aerial photographs found in Appendix B, one can see the pre-Greenbelt farming community of Blackburn Station, and the post-Greenbelt development of Blackburn Hamlet. Green's Creek is visible at the corner in several post-Greenbelt photos. Francis Kenny claims that between 1948 and 1970 the encroachment of forest was swift and thick. He also noted that the NCC also planted trees in some of the washed-out gullies along Green's Creek in order to prevent further erosion. He also noted that such gullies were rare, most of the Creek was intentionally left wooded by the farmers. The aerial photographs found in Appendix B however contradict this claim. Gullies are indeed evident, likely caused by the lack of vegetation along Green's Creek.

The model and process of land use planning in Ottawa shifted as a result of the Greenbelt's unpopular process of creation. The NCC maintained its powerful centralized approach to planning, however the City of Ottawa began developing its own planning department. Local neighborhoods also established their own leadership to participate in the planning process. The NCC started feeling pressure from local government and citizen groups to change its unilateral process of land use management. The NCC was then required to begin consulting with communities in order to implement changes in land use or development (Gordon 2001a).

4.4 Marketization: (1975-2004) Neo-Liberal Conservation

The NCC allocated most of its resources historically into major infrastructure and land purchases. Crown corporations were permitted to run deficits, subsidized by the federal government until fiscal cuts in the 1980s. The Government of Canada pressured crown corporations to adopt market-based solutions in order to reduce fiscal spending. In its 1979-1980 annual report the NCC made indicated an explicit turn towards marketization of land use governance in the Greenbelt in order to reduce costs:

The slowdown in growth of the public service has increasingly meant that appropriate development of federal land must be directed towards accommodating commercial and institutional activities of the private sector and other levels of government. (NCC Annual Report in Rothwell N, 1997)

The federal government pressured the NCC with this new directive to find a way to fulfill its mandate within a new market-based framework. NCC mandate was therefore reoriented towards the pursuits of more profitable activities such as recreation and beautification. The NCC—under budgetary pressures to manage its public endowment of green space profitably—had to negotiate new market-based means of valuing nature. The discourses of both government literature and public discussion in the last three decades demonstrate the evolution of value attributed to green spaces. The following sections explores the media coverage of land use change in the Ottawa Greenbelt between 1980 and 2012 through various journalistic publications in Ottawa.

The events covered in the following sections focus on the conservation of the Stony Swamp and Mer Bleue Wetlands (see Figure 4.15). The focus on these two case studies demonstrate an evolution in the development of neoliberal techniques for the ecological management of land. The two cases focus on the economic and legal

struggles present in the evolution of land use in the Ottawa Greenbelt with a specific focus on representations of nature. The political economic arrangements that operated and emerged from these struggles offer a case of contestation in land use change to compare to the ones proposed through the Food Hub.

Both cases demonstrate the third phase in the dialectics of land use in Ottawa between the interests of capital and the nation state. The neoliberal land use planning approach to the creation of wetland conservation areas in the Ottawa Greenbelt is a synthesis of capital and nation state, where the capitalist interest of private wealth accumulation is advanced through a nationalist interest in protecting ecological areas deemed important by the Canadian Government, to the identity of a Canadian national capital. The variegated approach of conservation used by the NCC of land expropriation, science-based market valuation, and property speculation, constitute a vivid example of the seemingly contradictory process of *actually existing neoliberalism* (Brenner & Theodore 2002). In this process both civil society and the state are brought into co-operation with private property developers interested in attaining land for real estate speculation. Both cases are lauded by public institutions as a “win-win” situation, where the private sector can profit, while the “public interest” is protected. Institutions, such as the NCC, however accept such market-based arrangements at the expense of inviting greater social injustices, such as the dispossession of the Woodburn family from their hundred-year-old farmstead, or the privatization of public land for the purpose of developing unaffordable, and unsustainable residential subdivisions. It is important to recognize that the injustices experienced in both the Stony Swamp and Mer Bleue cases of wetland conservation originate in the violence of government austerity.

Neoliberal reforms in land use management in the Ottawa Greenbelt would not be necessary if the Canadian Government chose to discipline private financial institutions for their destructive lending and trading practices, rather than internalizing the damages they created in the 1970s and 80s through public subsidy. Neoliberal reforms are partially ideology as they are enacted locally—which is evident in the fiscally conservative rhetoric of the actors involved in the following two case studies—however the structural basis for the struggle over public resources originates with Federal austerity politics (Harvey 2005).

Figure 4.5: "The Greenbelt Today" showing conservation areas (NCC 1996)

4.5 Stony Swamp: (1975-1991) Conservation Through Expropriation

Stony Swamp is a 5,000 acre series of wetlands in Nepean that is now protected by the National Capital Commission as part of the Ottawa Greenbelt. Stony Swamp was formed ten thousand years ago at the end of the Pleistocene Ice Age. The wetland has survived many threats to its health as an ecosystem, such as the construction of railways, roads, hydro corridors, and a large fire that swept the region in 1870 burning two-thirds of the wetland (Robb 1988a). Stony Swamp came under threat from residential subdivision development in the 1980s. The Ottawa Greenbelt protected the majority of Stony Swamp at the time, however 700 acres of the wetland remained privately owned. The majority of the privately-owned 700 acres has since been developed, however the NCC was able to reserve a 77 acre buffer through expropriation and a “land-swap” arrangement with one property development corporation (Robb 1988-b; Yonson 1989).

The protection of Stony Swamp was a limited success. The areas experienced detailed ecological conservation and engineering studies as most sensitive have been buffered from development. The National Capital Commission was for this limited success. The case of Stony Swamp however provides an historical example of neoliberal regulation of urban development, and its impacts on future land use planning. The means through which land was acquired for protection was determined by a simultaneous process of scientific appraisal and market-based valuation of land. The conservation of Stony Swamp set the path for the struggle to protect the Mer Bleue wetlands, which dispossessed one farming family of their land, and speculated their property for commercial real estate development. The present struggle to acquire land

for local food security initiatives—the case study central examined to this thesis—has been shaped by the political economic institutions arranged in such moments of neoliberalism land use planning as the conservation of Stony Swamp in the 1970s and 80s. (Robb 1988-a)

The Ottawa Greenbelt was created through a process of collecting federally-owned lands and the expropriation of privately-owned land. The aggregation of land to compose the Greenbelt was complete in the early 1960s. Greenbelt land was acquired in order to contain urban sprawl, and beautify Ottawa as a nations capital. The conservation of important ecological areas became recognized as an additional feature of the Greenbelt in the 1960s and 1970s. Important ecological areas were only partially included—such as Stony Swamp—and in some cases excluded—such as Mer Bleue. The NCC became interested in acquiring “important ecological areas” for the Greenbelt in 1975. Wetlands were reviewed for purchase through ecological studies, however budget cuts in the 70s meant that the NCC would not be able to purchase land with public funding (Robb 1988-b).

The Canadian Government in the 1970s—under the Trudeau and Clark governments—became focused on restricting fiscal spending through the rhetoric of reducing the budgetary deficit. Fiscal restrictions resulted in cuts to funding for the National Capital Commission. A moratorium on additional land acquisitions was enacted in 1975, putting a stop to NCC plans to purchase lands to protect important ecological areas (Robb 1988-b).

The City of Kanata began expanding its plans for residential development in the late 1970s. Land owned by private real estate developers in present day Bridlewood

was zoned residential in order to develop a number of residential subdivisions (Robb 1988-b). Barry Jessiman conducted an environmental assessment of Stony Swamp and found that such development in the Bridlewood area would pose significant problems for the conservation of Stony Swamp. The NCC became concerned that development might soon occur along Eagleson Road, which would destroy valuable sections of Stony Swamp not included in the Greenbelt, and also compromise the ecological integrity of remaining wetlands owned by the NCC. The NCC decided to ask the City of Kanata to reserve land of ecological importance in its official land use plan. Under the leadership Mayor of Marriannne Wilkinson, the City of Kanata enacted a 40% Open Space Agreement in 1985 that would ensure parks and green spaces are excluded in additional development, and that 65 acres of ecological importance were reserved from development until engineering reports could demonstrate that development would not harm the Stony Swamp wetland. An unforeseen consequence of the land reservation that would impact the NCC's ability to acquire this land is that it increased the price of acreage in the Bridlewood area dramatically (Brodie 1986). The same year as the 40% Open Space Agreement was ratified Wilkinson lost the Mayoral election to Des Adam, who was openly in support of expanding development into Bridlewood (Robb-b).

Coscan Development Limited (now Brookfield Homes) and MacDonald Development Limited are both property development corporations that bought land in Kanata in the early 1980s to speculate residential subdivisions. In 1986, both corporations registered plans for subdivisions along Bridlewood and Moody Drive, which included areas of significance for the protection of Stony Swamp. Both registered

subdivision plans contradicted the 40% Open Space Act. The plans also increased land prices even further (Buchanan 1989). The NCC expressed concern with the development of the reserve land and requested that Kanata take measures to permanently assure its protection. Costain Development and MacDonald Development offered to sell the land to the NCC. The NCC however was unable to agree to an arrangement to purchase the land because of the remaining moratorium on land acquisition, and also because land use policies and subdivision proposals had speculated land prices far out of reach from what the NCC had previously budgeted for the acquisition (*ibid.*).

The Kanata City Council decided to accept the subdivision submissions because the NCC was unable to buy the land from the private land owners. Mayor Adam passed an amendment at the Kanata City Council including the subdivisions in Kanata's land use plan. Adam accepted the plans in contradiction to the 40% Open Space Act, arguing that the three necessary engineering reports had been made demonstrating that the development would not compromise the NCC's ability to protect Stony Swamp. The amendment however was made without prior notice or hearings to the citizens of Kanata, and opponents to development contested whether the three engineering studies were conclusive. Former Mayor Wilkinson took issue with the process and appealed the amendment to the Ontario Municipal Board. The City Council however dismissed the appeal as "frivolous", and passed the amendment, which then went then approved by Regional Municipality of Ottawa-Carleton (Brodie 1986).

In 1984 Environment Canada and the Federal Ministry of Natural Resources developed a system of classifying wetlands in order to determine degree of "ecological

importance". The system ranked wetlands from a 1 to 7 classification. A Class 1 wetland in this system indicates that the wetland is of the highest importance ecologically, and ought to be protected from development (Mackay 1987). Ecologist Ted Mosquin conducted the an environmental assessment of Stony Swamp using the new wetland classification system in 1986 and concluded that it was a Class 1 wetland (Boswell 1990). Mosquin also cautioned the NCC that the residential subdivision development along Bridlewood and Moody Drive would impact the protection of the reserved Greenbelt portion of Stony Swamp (Robb 1988-a).

The NCC attempted to negotiate an arrangement with the private developers in 1987 where they would exchange "unused" land, or areas of "little ecological significance", for portions of the privately-owned 700 acres of Stony Swamp. The plan was labeled as a "land-swap". Private developers however expressed no interest in any of the lands already owned by the NCC, so no "land swap" arrangement was made (Boswell 1990). The NCC simultaneously approached the Province of Ontario to intervene with direct regulation of development. The Province however—under pressure of the Ontario Municipal Board—decided that such intervention would limit land supply for development in Kanata and distort land prices, causing problems for future development in adjacent areas (Robb 1988).

Not-for-profit organizations (NPOs) such as the Nature Conservancy of Canada, and Wildlife Habitat Canada purchase land of ecological importance and preserve them as a public trust. Both organizations offered their support for the NCC to purchase the land and include it as part of the the Ottawa Greenbelt. Neither NPO however were able to purchase the land themselves because the it was too expensive since they had

been zoned residential (Boswell 1990). The public struggle to preserve Stony Swamp was unable to effectively devolve the responsibility to regulate urban development from the public to the non-profit sector, which is common in many other cases of neoliberal reforms to land use governance, and referred to by Castree (2010) as the neoliberal “flanking mechanism”. The failure to enact regulatory devolution to civil society was the result of accepted proposals for property speculation, which priced the private cost to regulate land use far beyond the capacity of non-profit groups.

The Federal Government’s freeze on land acquisition for the NCC was lifted in 1988, which contrasted the goals of Prime Minister Brian Mulroney’s efforts to privatize Canada’s numerous crown corporations (Robb 1988b). The NCC was allowed to acquire land as long as they were able to recover the purchase costs from existing public assets. The NCC raised revenue to purchase land through the sale of state-owned land, which was mostly purchased by the City of Ottawa in order to develop public transit infrastructure (Dare 1992). In order to purchase lands for the preservation of Stony Swamp, \$20 million were raised from the sale of NCC land, mostly outside of the Greenbelt.

Conservation ecologists with the NCC were able to identify three options for the preservation of Stony Swamp. The ideal package would include the purchase of all 750 acres of privately-owned wetlands in Stony Swamp. The middle package involved the purchase of 375 acres of the most essential wetlands found outside the Greenbelt. The minimum package included the purchase of 77 acres that would act as a buffer between wetlands within the Greenbelt, and the two proposed residential subdivisions. The NCC decided upon the 77 acre package anticipating almost \$30 million in budget cuts by the

end of 1989. The 77 acre parcel of land is located between Eagleson Road, and Scisson Road in Bridlewood (Buchanan 1989).

The NCC began negotiating with residential development corporations in January 1989 to arrange the sale of 77 acres of land, however no agreement was reached around an acceptable price. Public Works Canada was able to enact an expropriation order in June 1989 for 49 acres to be bought by the NCC. The NCC negotiated a “land-swap” arrangement with Urbandale Homes. The land swap would consist of an exchange of 28 acres of land in the proposed buffer from Urbandale, for two properties owned by the NCC in the Byward Market. One property has been developed into a condominium complex (Sussex Square at 205 Bolton Street), and the other property was an office building that was demolished and re-built, which is now rented-out to the Shepherds of Good Hope (256 King Edward Avenue) (Buchanan 1990; Yonson 1989).

The City of Kanata passed a resolution supporting the expropriation, however Mayor Adams continued to object citing five engineering reports that suggested development would not harm the wetlands and no buffer was needed. Costain Limited and Mackenzie Limited objected to the plans for expropriation in September 1989. In November 1989 Public Works Canada announced that it would hold a hearing to appeal the decision. By December 1989 the appeal was rejected, and the expropriation was approved with a price settled at \$10 million for the 49 acre portion of the buffer (Buchanan 1990).

4.6 Mer Bleue: Conservation Through Property Speculation

Mer Bleue is a 12,400 acre wetland located in South of Gloucester and Cumberland (Dickenson & Harrison 1995). The wetland was formed 12,000 years ago with the recession of the post-Ice Age Champlain Sea. The Ramsar international scientific community concerned with the conservation of wetlands consider the wetland a geographic anomaly. Wetland such as Mer Bleue are typically found much further north (Spears 1995). The ecology of Mer Bleue is frequently compared to the wetlands surrounding Hudson Bay (Hough 2004: 225-232; Dickenson & Harrison 1995).

Mer Bleue has only recently been considered such an important site for conservation. Eastern Ontario was originally composed of wetlands similar to Mer Bleue (Jaimet 2010), however many of them were drained by settlers in the early 1800s in order to gain more farmland (Dickenson & Harrison 1995). Settlers attempted to drain Mer Bleue, however drained portions lost soil fertility quickly and abandoned, quickly flooding and reverting back to wetland (Ibbitson 1994). Farmers dug various drainage channels through the marsh between the 1890 and 1920s, but were unable to bring it under agricultural use (Dickenson & Harrison 1995). The Canadian Forces used Mer Bleue as a shooting and bombing range during World War I, which is evident from the many craters and unexploded ordinances that can be found in the wetland (Spears 1995). The City of Ottawa and the NCC attempted to use the western portion of Mer Bleue as a garbage dump in the early 1960s, however it faced fierce opposition from both local communities, and biologists such as Dr. Donald Smith (Jaimet 2010).

The NCC purchased two-thirds of Mer Bleue in the late 1960s (Mohammed 2000), adding these portions of the wetland to the Ottawa Greenbelt (NCC, n.p.; Hough

2004). Wetland conservation was not an objective of the original creation of the Greenbelt. Conservation became an objective of the NCC in the 1970s with the movement to conserve Stony Swamp from the expansion of residential subdivisions in Kanata. Conservation of Mer Bleue became a priority for the NCC simultaneously as the Stony Swamp struggle. Expanded protection of Mer Bleue did not however take place until after the establishment of the Stony Swamp buffer. The delay was the result of budgetary cuts from the Federal Government. The NCC had interest in protecting Mer Bleue, however the urgency of protecting Stony Swamp took precedence (Hough 2004).

Mer Bleue was threatened in the 1980s by Ontario Hydro's attempt to build a hydro corridor through the wetland (Middleton 1985a). The NCC demonstrated the superiority of its Federal authority by ordering the diversion of the hydro lines to avoid Mer Bleue. The NCC insisted that the hydro lines would disturb the migration patterns of endemic bird species. The NCC—foreshadowing its intention of creating a tourist experience from a protected wetland—argued that the power lines would impact the aesthetics of the wetland (Middleton 1985b). Chairperson Jean Pigott announced in 1985 that the NCC intended to create a Mer Bleue Conservation area that would be a major tourist attraction for National Capital. The attraction would be a multi-million dollar “nature centre” for the 6000 acre wetland. The plans included the creation of five buildings, a campground, and numerous picnic areas. She suggested that this plan would have to wait however until 1988, when plans for the Art Gallery, and the Air Museum were seen to fruition. The NCC experienced additional budgetary constraints despite expanded developments. The Trudeau and Clark Governments ordered a 10%

cut to the \$93.5 million budget between 1983 to 1985. The NCC was therefore forced to consider external sources of revenue—such as donations from school boards, and naturalist organizations—in order to create the conservation area (Middleton 1985c).

The Stony Swamp protection buffer struggle was settled with private subdivision developers in 1989. The NCC decided to conduct a major review its Master Plan for the Ottawa Greenbelt in 1990. The review was the first time the NCC reconsidered the direction of the Ottawa Greenbelt since the creation of the Gréber Plan in 1950. The review considered what purpose land use in the Ottawa Greenbelt would serve. The NCC was under pressure by budget cuts from the Federal Government, and a new public interest in the conservation of “important environmental areas” (Begin 1998; Spears 1993a). The 1996 Greenbelt Master Plan reenforced the Greenbelt’s original purpose, as a large and diverse belt of publicly-owned land in order to contain urban sprawl, and provide recreational opportunities within the National Capital Region. The new Master Plan however added that such publicly owned land must also preserve “natural ecosystems”, and function as an asset to generate revenue. The report recommended maintaining its form as a unified belt, since fragmentation in preserved would lead to attrition in the quality of preserved land. Though the report emphasized the need for a unified belt, it did advance the idea of the Greenbelt as an Emerald Necklace of natural ecological areas, indicating that “natural areas” would be prioritized over any other forms of land use (NCC 1996).

The NCC conducted various studies in order to deliver the 1996 Greenbelt Master Plan (Begin 1998). Questions were raised regarding the role and importance of agriculture in the Greenbelt throughout the creation of the Master Plan. Reports such

as the *Into the Next Century* report, explored alternative uses for Greenbelt land, such as residential and commercial development (Spears 1993). General manager Graeme Kirby stated that the conservation of “environmentally-important areas” was the priority of the NCC, and that if there were tracts of farmland not considered in the public interest, that they would consider “selling-off” the land as a source of revenue for “other projects” (Dare 1992). Kirby’s statement highlighted the new land use priority of the NCC in determining land use. During the Stony Swamp buffer struggle, the NCC employed Federal environmental classifications of wetlands to advance the case of expropriating private land for conservation. The NCC decided to employ the Ontario Ministry of Agriculture and Food in order to determine what land might be worth “selling-off” for revenue (Begin 1998), despite its unpopularity among the general public (Dare 1993). The NCC therefore established what would emerge as a mechanism where they would appraise farmlands for potential acreage to sell, leverage the land for revenue through property speculation, and use the revenue to purchase additional acreage that would contribute to the development of a profitable conservation-tourism public venture.

The Farmland Study study evaluated the quality of farmland within the Greenbelt for the NCC Greenbelt Master Plan (Begin 1998). It was conducted by the Ontario Institute of Pedology (OIP), which used a 1 to 7 classification scale; Class 1 indicating land that had the highest agricultural capacity; Class 7 indicating no agricultural capacity whatsoever (OMAF, 2011). The OIP study suggested that there were some parcels of land owned by the NCC that were marginal for agricultural production. One 22-acre parcel of land—owned by the Woodburn family on Innes Road—was given a Class 4 rating (Begin 1998), suggesting that the land had “severe limitations that restrict the

choice of crops, or require special conservation practices and very careful management, or both” (OMAF 2011). The NCC continued to state that it was interested in preserving agriculture in the Greenbelt, however it was decided in 1994 that the 22 acres of land leased by the Woodburn family was “deemed by the NCC as outside the mandate of the Greenbelt”. The NCC subsequently decided not to renew the lease on the farm to the Woodburns.

The Woodburn family farmed the same 22 acre plot since 1843 (Mullington 1998). Farmland was given to Irish workers as a payment by Colonel John By for their work, and hardships experienced in the construction of the Rideau Canal (Parks 1998). The original concession granted to James and Martha Woodburn was for 200 acres on the west side of Green’s Creek in Gloucester Township, where Innes Road and Blair Road intersect today. The Woodburn family worked a 200-cow dairy operation until 1962 when they were forced to sell the land to the NCC through federal expropriation, attained its mandate of Eminent Domain directly from Federal legislation to create the Ottawa Greenbelt. The Woodburns resisted the expropriation, however such a struggle would have required an appeal to the legislative statute granted to NCC, or a Supreme Court challenge to the 1952 Expropriation Act (Supreme Court of Canada 1966). Both options were far beyond the power and resources of those operating a struggling dairy farm. The family was forced to accept the price of \$1,000-per-acre (\$200,000 in 1962 dollars), which despite the injustice of expropriation, was a high price for farmland at the time (Parks 1998).

The Woodburn Dairy continued operation after expropriation as tenant farmers of leased NCC land. Farming in the Greenbelt began to decline in the 1980s, when due to

budget cutbacks, the NCC was neglecting necessary repairs for keep farming properties in good working order. The Woodburn family decided to sell 60 acres to a residential real estate development corporation named Pineview Residential, and leased a small parcel of land for the construction of a Costco retailer (Begin 1998). Farmers throughout the East-End of the Greenbelt began moving to communities such as Navan, Vars, and Russel. The Woodburn family moved out of the remaining 22 acres of farmland in 1994, when the NCC decided not to renew their lease (Spears 1998). The Woodburn farm went into disrepair after the family moved out. The NCC—citing the condition of the farm infrastructure and soil—claimed in 1995 that the 22 acres were no longer suitable for agricultural production, rendering it “disposable” surplus land, and removed it from the official Greenbelt area (Parks 1998). The City of Gloucester, immediately approved a request by the NCC to rezone the land as “highway commercial”, which would allow the NCC to sell the land to commercial developers. The Ontario Municipal Board quickly approved the decision to rezone the land (Begin 1998).

Douglas Woodburn urged the NCC not to remove it from official Greenbelt designation, offering to buy the land back to operate it as farm open to the public as an attraction for tourism. NCC chairperson Marcel Beaudry however responded to Woodburn's request by telling him that he can compete in the bidding process for the land (Mullington 1998). Beaudry then announced officially that the NCC was planning on selling 1,500 acres of surplus land from the Greenbelt in order to raise revenue to purchase 1,700 acres of environmentally sensitive land for protection. This broader plan for the exchange of land would involve a number of different arrangements.

“Surplus lands” existing at the isolated by development from the peripheries of the Greenbelt, land around MacDonald-Cartier Airport, and the former Canadian Forces Station in Letrim would all be sold. Land north of the Blackburn Hamlet bypass would be given to the City of Gloucester in exchange for Mer Bleue land. Beaudry argued that the former Woodburn farm would be sold because—in addition to its supposedly marginal agricultural conditions—it was isolated from the Greenbelt by Green’s Creek, and the new Pineview real estate subdivision (Dare 1995).

The imperative to purchase Mer Bleue land was bolstered a few months later in October 1995, with its designation as the 33rd official internationally-recognized wetland of significance under the 84-nation Ramsar Convention on Wetlands of International Importance (Dickenson & Harrison 1995). The Ramsar Convention of 1971 was a gathering of 18 nations in Ramsar, Iran to create a treaty for the protection and “wise use” of unique or sensitive wetlands internationally (Ramsar np.). The NCC however would have to wait until it could raise revenue from real estate speculation in order to begin acquiring additional Mer Bleue land.

Mr. Woodburn gained support for an appeal from several City of Gloucester councilors to overturn the rezoning, and allow him a fair opportunity to purchase the land. Woodburn claimed that rezoning the land as commercial was against the regional government’s plan, as well as the NCC’s original Greenbelt Plan. The NCC denied this claim, arguing that the purpose of the new 1996 Greenbelt Master Plan was because the 1950 Gréber Plan was no longer viable. The NCC also argued that it would not be able to keep the land because its agricultural capacity would be compromised by the accelerating commercial development expanding along Innes Road. The challenge in

City Hall therefore failed because Mayor Claudette Cain sided with the NCC's defense (Mullington 1998).

In 1998 Douglas Woodburn challenged the OMB's acceptance of the City of Gloucester's ordinance rezoning his former farmland. His argument was that the NCC deliberately allowed the \$250 thousand series of farm building to fall into disrepair in order to justify destroying them, and therefore sell-off the supposedly marginal land for commercial development (Spears 1998a). Furthermore, Woodburn challenged the OMB approval, asserting that selling the land for commercial speculation was an unethical use of publicly expropriated land, because it violated the purpose of expropriation, which was to serve the public interest (Parks 1998). Woodburn provided evidence that in the past expropriated land later considered as "surplus" by the NCC was offered first right of refusal for purchase to previous land owners. The OMB however defended its decision arguing that since the Woodburn family had terminated the tenancy of the land before any arrangement to sell the land, it was not entitled first right of refusal to buy-back the land (Mullington 1998). The OMB also argued that since it could not find any evidence to suggest that the NCC had expropriated the land with the intention of commercial speculation, there was no grounds to suggest that it was conducted in bad faith (Spears 1998b).

Woodburn threatened to take legal action in December 1998 against the OMB in order to force the NCC to sell the land back to him (Ottawa Citizen 1998). Woodburn decided not to follow-up on the plan when he learned that all it would provide him is an opportunity to appeal the OMB decision again. The NCC made the final decision to sell the property in May 1998, and began to accept bids that March from commercial

developers. The NCC approved a bid by a numbered subsidiary of Canrail Holdings Inc. for \$7 million. Mr. Woodburn however managed to halt the sale of the land in September, 1999 when he launched a lawsuit through the Ontario Superior Court against the NCC. The case alleged that the NCC decided not to renew his lease in 1994 and rezone the land for commercial development with the deliberate intention of raising its price. Once the price was increased the NCC would no longer be able to defend owning it in the public interest and would therefore have to sell it as “surplus land”. The case was brought to Federal Courts in 2000. Mr. Woodburn was arguing for \$1-million in damages, however the case was dismissed in August, 2000. The Federal Judge argued that there were no further steps that could be taken by Mr. Woodburn to get the NCC to sell him the land (Buchanan 1999).

The NCC successfully sold the land to Canrail’s subsidiary once the litigation was cleared, which was developed into a series of commercial outlet stores, and restaurants (Kelly 2000). The sale resulted in a \$6.6-million profit for the NCC from the expropriation and sale of the former Woodburn farm. The NCC was then able to purchase an additional 200 acres of Mer Bleue land (among other acquisitions) in the subsequent four years with the revenues acquired through the commercial speculation of the farmland (Ottawa Citizen 2004a). The purchase increase the size of the Mer Bleue Conservation Area to 3,000 hectares (Ottawa Citizen 2004b).

4.7 Neoliberal Land Use Management: A Cautionary Tale

Neoliberal land use management has been the predominant approach to the development of the Greenbelt since the 1970s. It resulted in a shift from the centralized-managerial approach of Gréber's 1950 plan for the Ottawa Greenbelt, to the market-based, entrepreneurial approach of the NCC today. Neoliberal land use management has shaped the natural environment of the Ottawa Greenbelt. The NCC has also ossified various interlocking political economic structures and institutions that will shape the future of land use governance in the Ottawa Greenbelt. An unfortunate historical irony must be recognized that the projects of Permaculture Ottawa in conjunction with Just Food are organizing a movement for food justice on land that was expropriated from Algonquin people for logging, and expropriated from farmers for the development of a National Capital experience. Permaculture Ottawa, and its Community Urban Food Forest project are situated historically in a structure of neoliberal land use management. This research examines ways in which Permaculture Ottawa advances this process, and ways in which it resists.

Chapter 5: Permaculture's Cultural Turn: (1978-2012) A Literary Genealogy

There has yet to be a comprehensive academic literature review conducted on the subject of permaculture. There has been little academic work on the topic of permaculture. Among the scholarly work that has been done, few focus specifically on permaculture. Few authors attempt to grasp the complexity and history of the ideas present within the texts. Most peer-reviewed articles that mention permaculture cover it tangentially; in fact, permaculture is often used instrumentally in discussion of broader phenomena (such as community gardening). This review was conducted in order to provide a deeper understanding of permaculture's conceptual evolution. The following chapter is an historical genealogy of permaculture conducted in order to contextualize the practices of the Permaculture Ottawa, which was the community partner of this research. The genealogy is conducted to evaluate the political opportunities and limitations of the permaculture community to the resistance of neoliberal urban governance in Ottawa. Finally, the genealogy was conducted to provide future permaculture researchers with a literary foundation to begin systematically studying the subject.

The literature reviewed in this section conforms to a very specific scope, and does not claim to cover all volumes written on the subject. While the literature search was expansive, it was not exhaustive. The review focused on three categories of literature: primary, secondary and academic. Primary texts are those written specifically about doing permaculture—seminal works that initiate the permaculture identity, theory and practices. Secondary texts are those that refer to permaculture, but do not act as

an authority on the subject. These sources are often chapters in books that tie permaculture to broader topics. Academic articles are those that have been published in peer-reviewed journal articles.

There are several important sources that have been omitted from this review in order to refine its scope. Potential sources that are missing include: early and recent newsletters, magazine articles (e.g., *Permaculture Magazine [UK]*, & *Permaculture Activist [USA]*), non-academic research journals, miscellaneous gray literature (*i.e.* “zines”, permaculture design course [PDC] materials, local organizational resources, etc.), and online websites and blogs. These are literature that will be important to cover systematically in a future literature review, but for now, they fall beyond the scope of this research.

This review begins in 1978 with the publication of *Permaculture One*—a book that is frequently cited within the literature as the inaugural text on permaculture. The time period covered in this review ends August 2012, which is when the analysis of the review commenced. The literature review found in this chapter focuses specifically on the definitions of permaculture provided in the literature. The study focused on the definitions of permaculture provided in each text. The analysis of permaculture definitions was conducted in order to explore diversity and common themes present over a collection of forty texts. The definitions typically occurred within the first two chapters of primary texts. Definitions were usually spread throughout the text of secondary and academic sources. The texts were read with the specific intention of gathering definitions, which were followed up with a detailed annotation of the article or

chapter. The analysis that follows is derived from the quotes and annotations collected in the literature review.

5.1 Literary Origins of Permaculture

Permaculture is a neologism that was coined in the 1970s by Bill Mollison to describe the collaborative experimentations conducted between him and David Holmgren. The etymological basis of the word was never defined in *Permaculture One* (1978), but it was retrospectively identified by Mollison as a contraction between “permanent” and “agriculture” in *Permaculture Two* (1979). Holmgren (2011) states that it was used to describe the work he was doing under the guidance of Mollison for an undergraduate dissertation in Environmental Design at the Tasmanian Collage of Advanced Education. Mollison composed a publishable manuscript from the successful dissertation that earned Holmgren his degree. No recorded tensions are noted regarding authorship. Holmgren suggests that he wanted no part in the publication of *Permaculture One*, because he felt it was premature to make claims on what permaculture can accomplish (Holmgren 2012). Before the publication of *Permaculture One* Mollison had been promoting the concept of permaculture in radio and television interviews. *Permaculture One* was the first published text to use the neologism.

The work of Holmgren and Mollison was inspired by a number of other literary sources. Howard Odum (1924)—the American originator of systems ecology, is recognized in *Permaculture One* as a significant source of inspiration. Odum’s theoretical approach to the circulation of energy in ecosystems is featured prominently in the models of interconnection illustrated throughout the entire body of permaculture

literature. His work also inspired the systematic integration of human activity into ecological models. P.A. Yeomans (1973)—an Australian engineer and mineralogist, was also foundational to the methodological approach of Mollison and Holmgren in the development of permaculture. Holmgren and Mollison used Yeoman's "keyline design" approach to understanding soil and hydrological management. Joseph Russell Smith's (1929) work on the cultivation of tree crops as a "permanent agriculture" is likely what lead to the neologism created by Mollison. His approach to agricultural tree cultivation was foundational to the practice of edible forest gardening.

Other notable influences on the foundation of permaculture include American geographer Carl Sauer's (1952) work on landscape morphology and agriculture. Peter Kropotkin's (1912) theorization about the relationships between social relations, agricultural means of production, and environmental impacts was foundational to the political direction of permaculture.

The Japanese "natural farmer" Masanobu Fukuoka is frequently cited as an original inspiration for the permaculture idea. Fukuoka does not, however, emerge in the permaculture literature until *Permaculture Two* (1979). For example, the phrase '*working/farming with nature*' that is common among descriptions of permaculture does not arrive until mention of Fukuoka in *Permaculture Two*. It is clear that the origin of this phrase in permaculture is derived from Fukuoka's *One Straw Revolution* (1978)—first translated to English at the same time as *Permaculture One* was published.

Throughout the evolution of the permaculture literature, other external authors are brought into discussion. However, for the purposes of identifying the origins of the

permaculture concept, the pre-permaculture authors mentioned in the above paragraphs are the most significant sources of inspiration.

5.2 Permaculture's Literary Cultural Turn

From the body of literature on permaculture, one key trend emerged. The various definitions provided of permaculture indicate that a notable shift happened in 2002. This shift indicates a textual departure of permaculture from “permanent agriculture”, to “permanent culture”. This shift is marked by David Holmgren’s 2002 publication of *Permaculture: Pathways and Principles Beyond Sustainability*. I would like to characterize this shift as the “cultural turn” in permaculture. The cultural turn does not mark a complete transformation of permaculture, nor does it suggest any sort of consensus among permaculture designers, teachers, farmers and activists worldwide. Rather, it marks a broader shift in focus (i.e., from agriculture exclusively, to culture more generally) that is presented in the role, scope and narrative of permaculture.

Patrick Whitefield (2009) wrote about two different categories present in the history of permaculture: “original permaculture” and “design permaculture”. Original permaculture is an assemblage of technical practices for ecological agriculture. Design permaculture is a systematic approach to design informed by observation of nature. While these categories correspond closely to the cultural turn, they are limited in describing the transformation in discourse that emerged throughout the 2000s. The design shift Whitefield describes indicates a fundamental change in the practice of permaculture. However, it does not quite fully capture its new purpose. The cultural turn describes the transformation of permaculture from an agricultural practice to

support sustainable societies, to a political platform to create a culture that can challenge and survive ecological crisis. In fact, the permanent agriculture Mollison first conceptualized was indeed political; notably, it insisted upon permaculture in order to bring about sustainability. Mollison—anticipating the looming ecological crises experienced today—envisioned what a society designed using permaculture principles might resemble.

A few authors, including Holmgren (2011; Conford 2011; White 2011; Smith 2011) have alluded to the existence of two camps in permaculture today that are roughly split between the “followers” of Holmgren, and the followers of Mollison. Such a categorization is a simplistic and misleading representation of the differences in approach to permaculture, both historically and presently. The relationship between Mollison and Holmgren throughout the development of permaculture is so dynamic that it is difficult to see how their influence can be considered separately. Mollison was initially Holmgren’s teacher, and Holmgren’s dissertation is what formed the text for the initial concept of Mollison’s permaculture. Permaculture’s evolution from the perspective of culture and agriculture problematize this potential distinction.

The cultural turn I have identified in the permaculture literature—punctuated by Holmgren’s 2002 publication—did, however, blur the differences between these previously separate concepts. In Holmgren’s later work, permaculture was not simply an important component to a sustainable society, it was also a suggested pathway through which to achieve sustainability worldwide. The difference in permanent culture, from permanent agriculture is one of abstraction and universality. Permanent culture was more abstract because the ecological observations which permaculture mimics

were rendered into an independent system of values. Permaculture previously operated as a technical framework within the context of the immediate landscape. Observing nature was done in order to “work with nature” in the local context. In permanent culture, the design principles and ethics observed in nature provided a transcendent framework through which one can make value-based decisions. The universality of permanent culture is evident in Looby McNamara’s recent book *People and Permaculture* (2012), where the permaculture design process is applied direction to personal care, and social relationships.

Permanent culture also rendered the design principles as universal. Holmgren (2011) commented in a brief memoir that one of his objectives was to promote systems thinking towards human-ecological landscapes. The principles and ethics presented in the permaculture design process served as a set of values that apply universally to any ecological or social system. The importance of the principles and ethics in permanent culture translated Holmgren’s and Mollison’s understanding of nature and ecology into a social and ecological ideology. The cultural turn is precisely a normative political agenda to advance a society that uses permaculture’s concept of ecology as a guiding system of values. While the agenda may be predicated on small-scale local action, it functions ideologically nonetheless. The ideological programme of permanent culture may represent the greatest asset permaculture has developed in its goals towards a society that operates harmoniously within the biosphere. An ideological permanent culture may also offer some critical limitations and dangers as it grows in popularity. As with any ideology, the use of nature as a basis of evidence to reaffirm its political agenda is fraught with selective representations that serve as artifacts of the social

relationships its proponents wish to advance. The following genealogy explores the capacity for permaculture to act ideologically as a platform to challenge neoliberal land use. The genealogy also gives context to the identity of Permaculture Ottawa as a community. By situating the work of Permaculture Ottawa within the broader history of permaculture, it is clearer what the community is capable of, or limited by, as it struggles for greater social and ecological justice in Ottawa.

It is important to caution that the cultural turn theorized in this research speaks only of permaculture definitions as artifacts, not as actual perspectives. The definition provided by an author likely reflected their perspectives on the subject at the time, which is certainly subject to change and become more nuanced. The definitions provided might not present the full picture of how the author imagined permaculture at the time of publication. Definitions are a static window into the selective choices of a writer to express the shifting meaning of the concept they are representing. The definitions explored in this genealogy does not represent a complete or definitive illustration of permaculture design.

The cultural turn as identified in this analysis indicates a selective interpretation of permaculture from the perspectives observed in the literature. This review is not meant to provide any definitive conclusions on the history, theory or practice of permaculture. Academic work provides one piece in the puzzle of understanding how the permaculture movement is best able to bring about its goals. Further research is required in order to understand whether the shift observed in the analysis reflects the likely diverse experiences of those in the permaculture movement worldwide. That said, this literature review acts as a necessary foundation in order for broader research on

the progress of ideas in permaculture to be better understood. Hopefully, more research on the subject will follow this analysis.

5.3 A Literary Genealogy of Permaculture in Three Phases

Permaculture definitions found in the literature from 1978 to 2012 evolve through three phases. Authors expressed permaculture as permanent agriculture—an alternative ecological form of agriculture—in the first phase. The first phase lasted from 1978 with the publication of *Permaculture One* until 1991, when Mollison’s *Introduction to Permaculture* included permanent culture in its definition. The years from 1991 to 2002 represent an interim period where permaculture is defined as a form of permanent agriculture, with possible applications to “imaginary” (non-material) human systems. The publication of David Holmgren’s *Permaculture: Principles and Pathways Beyond Sustainability* in 2002 marks what I call the *cultural turn* in the permaculture literature. I identify the cultural turn as when permaculture was applied independent of its agricultural systems. It was also a more deliberate direction for permaculture that sought to universalize the permaculture design principles as a cultural set of values. The cultural turn also emerges with a renewed urgency of the need to respond to the looming global ecological crisis.

5.4 (1978-1988) Mollison and Permanent Agriculture

Permaculture began as the specific contraction of “permanent” and “agriculture”. Bill Mollison and David Holmgren provided a clear definition of what such a permanent agriculture should entail in *Permaculture One*:

Permaculture is a word we have coined for an integrated, evolving system of perennial or self-perpetuating plant and animal species useful to man [*sic.*]. It is, in essence, a complete agricultural ecosystem, modeled on existing but simpler examples. We have designed the system, as it is presented here, for cool temperate conditions; using other and additional species it would suit any climatic region, and is designed to fit into urban situations. (1978:1; underline added)

The permanent agriculture described above primarily targeted land-based farming practices for larger properties. Smaller-scale urban applications were briefly mentioned, but as shown in *Permaculture One* (1978), *Permaculture Two* (1979), and *Permaculture: A Designers' Manual* (1988), such sections were afterthoughts placed at the back of the books (see underlined text, in above quote). Mollison and Holmgren also envisioned a permaculture that is practiced beyond agriculture, but it was largely in the context of merging additional social elements into the agricultural system. They were also very clear that they see permaculture as imperative in order to create a more sustainable agriculture system in the face of industrial modernity's destruction of ecosystems. Mollison saw permaculture as the bridge between modern technology and Indigenous ecological worldviews. Permaculture was therefore offered by Mollison and Holmgren as the agricultural answer to the problem of industrialism (see underlined):

Permaculture is the extended and developed evolution of a total support base for man [*sic.*], beyond those developed by pre-industrial societies. The fact that it is based on permaculture serves to define it. Apart from conventional orchard practice and like monocultures, productive permanent plant systems have been little developed. However, some writers have recognised the undeveloped potential in perennial plants. (1978: 4; underline added)

Permaculture theory and technique begins to move beyond this agricultural foundation in Mollison's *Designer's Manual* (1988). The manual established a more abstract and systematic methodology of permaculture, and sought to approach different environmental conditions worldwide. This global approach would help create

permanent agriculture systems in radically diverse biomes. Mollison's systematic approach broadened the scope of design enough to foresee application beyond agriculture and land use management. Mollison provided the first example of this in the final chapter is entitled "Strategies of an Alternative Global Nation" (1988: 505). The chapter discussed human systems that would function equitably – complementing a permaculture means of agricultural production. The suggestions resembled libertarian socialism and mutualist approaches to political economic organization. Topics included co-operative banks, community planning, bioregionalism, and a United Nations structure that would oversee human-biosphere relationships.

5.5 (1989-2002) Universalizing Permaculture Design

The definition of permaculture begins to shift more fundamentally towards the inclusion of non-land-based practices in Mollison's (1991) *Introduction to Permaculture*.

Permaculture is identified here for the first time more broadly as a "design system". This change was essential to the broadening of permaculture beyond agriculture. The systematic use of principles presented in the previous volume changed the purpose of permaculture from a bundle of ethics and practices, to a system of design informed by ethics. Permaculture is less significant as a tangible biophysical technique for sustainability, and in fact, begins to morph into a universal and abstract worldview. Permaculture could now be applied as a design system to virtually anything.

This shift corresponds to the development of permaculture literature beyond Mollison's work, and beyond Australia. The systematic design shift in permaculture made the movement's agenda clear, and was more easily translated beyond southern

Australia. Permanent Agriculture was already well established in the United Kingdom by this time. Conford (2011) notes the first Permaculture Design Course (PDC) happened in the UK in 1982, and the incorporation of The Permaculture Association took place in 1983. Forest gardening had already been traditionally practiced in the UK, and the burgeoning soil conservation and organic agriculture movements provided great interest in permaculture. By the early 1990s, Patrick Whitefield—a farmer from southwest England, had been teaching PDCs. In 1993, he wrote *Permaculture in a Nutshell*, the first publication written for the purpose of communicating permaculture more accessibly to a broader audience. This text identified permaculture equally as permanent agriculture and permanent culture. Whitefield explains:

Although permaculture started out as permanent agriculture, the principles on which it is based can be applied to anything we do, and now it is thought of as permanent culture. It has grown to include: building, town planning, water supply and purification and even commercial and financial systems. It has been described as 'designing sustainable human habitats' (1993: 3-4)

Whitefield's text condensed what had been a larger and more complicated discussion of permaculture theory into a systematic practice of observation and design. *Permaculture in a Nutshell* took the elaborate detail taught in PDCs, and simplified it into a simple new concept of universally applicable systematic design.

In Australia, Rosemary Morrow published *Earth User's Guide to Permaculture* in 1994. This book used the permaculture definition from the 1988 *Design Manual*. It also avoided the ritual of describing the perma-culture *portmanteau* as permanent culture, agriculture, or both. Instead, it expressed equal concern about designing agricultural systems, and designing sustainable human habitats. Morrow also included a section on social permaculture similar to Mollison's "Alternative Global Nation" chapter in the

Design Manual. The rest of the book was a more accessible version of the *Design Manual*, with the exception that it did not contain any specific chapters on different climatic zones.

Also in Australia, Ross Mars published a very similar text to Whitefield's *Permaculture in a Nutshell* in 1996 entitled *The Basics of Permaculture*. This text served the same function and presents permaculture in much the same way.

Permaculture designs endeavours to integrate all components of the ecosystem in a holistic approach to sustainable living and practice. Permaculture started out as *permanent agriculture* and thus focussed on the growth and development of perennial food crops... Permaculture is not just about gardening, although its origin of permanent agriculture suggests this. Now days, permaculture is thought of along the lines of permanent culture, incorporating all aspects of human beings and human settlements... Since the late seventies the concepts of permaculture have also developed, such that it encompasses finances, water harvesting, communities, buildings, and alternative and appropriate technology. For many of us, permaculture is a framework that unites many disciplines, and so the subjects of aquaculture, ethical investment, horticulture, solar technology, soils and many others can be integrated together, each contributing as part of the whole. (1996: 1)

In 1996, agricultural economist Peter Midmore (based in Wales) published the first peer-reviewed journal article on permaculture. This article was entitled "Towards a Postmodern Agricultural Economics" and was published in the *Journal of Agricultural Economics*. In the article, Midmore challenges the field of agricultural economics to accept a more interdisciplinary approach to the subject. He suggests permaculture as a practice that rejects modernist reductive approaches to agriculture. He represents permaculture using a direct quote from Mollison:

"... [P]ermaculture (Mollison and Holmgren 1978; Mollison, 1990), a system of land care which is described as 'the conscious design and maintenance of economic agricultural systems that have the diversity, stability and resistance of natural ecosystems' (Mollison 1990, p. ix). Though this implies a highly flexible design based approach in practice, it is explicitly based on a value perspective

containing the following elements: the need to take personal responsibility for the earth; acceptance of co-operation, not competition as the basis of existing life systems and future survival; the rule of necessitous use, which implies that no resource should be exploited unless it is essential for survival; and the rule of cooperative use, which implies that if resource use is essential for survival, waste should be minimised, recycled and rehabilitation maximised, long term effects carefully assessed, and as far as possible buffering mechanisms evolved (Mollison, 1990 p. 1-9). These principles should give considerable cause for thought, precisely because they diverge so markedly from conventional economic wisdom. (1996: 12)

It is important to note the focus of this definition. While the primary permaculture literature began shifting towards permanent culture at the time, the representation resembles later Mollisonian permanent agriculture. Such a lag suggests that permaculture's entry into academic research was not very well connected to the movement. This article's focus on postmodern agricultural economics foreshadows what would be the academic literature's instrumental use of permaculture for the following decade. This article included other supposed examples of "postmodern agricultural economics" as: geographic information software usage, and the practice of agricultural tourism. This lag in the academic literature persisted until 2004 when Curran & Moran represented permaculture as both permanent agriculture and permanent culture. They did this in order to document examples of corporate social responsibility in the agriculture sector. After this article, the academic literature focused primarily on permanent culture.

Secondary literature begins to emerge in 2001, with Mulligan and Hill's chapter on permaculture in their history books on ecology movements in Australia. In the chapter entitled "Thinking like an ecosystem", the definitional focus is on permanent agriculture. They provide this definition:

[P]ractitioners should learn from, mimic, and work with—rather than against—nature. This implies that we should design complex, integrated, even multi-storied, systems within which all organisms—primarily perennial rather than annual crops—perform not single and competitive, but multiple and mutualistic functions. Permaculture also emphasizes working paradoxically (even seeing so-called enemies as potential allies) and catalytically (making the smallest intervention, using the minimal amount of resources, for the greatest benefit). It emphasises specificity in regard to both time (when to do things), and place (where to do things), and it aims to produce no ‘waste’. All systems are designed to be as self-sustaining as possible. (2001: 204-5)

The representation provided above is similar to the instrumentality of permaculture found in the academic literature. Permaculture is referenced as part of a broader discussion on sustainable agriculture. This raises the question of permaculture’s perceived purpose outside its community of practitioners. Permaculture had been represented by this point for a decade as a universal design system by PDC’s and primary texts. Those writing secondary and academic sources were evidently not connected directly to the movement. The detachment of these sources give an impression of what the popular understanding of permaculture was.

Holmgren (2002) mentions that permaculture was largely received as a form of organic gardening by the Australian public, where it gained most attention. He attributes this perception to Mollison’s quick rise to fame and inflated claims of what was possible with permaculture (2011). Such claims lacked evidence to support his polemic rhetoric and sweeping rejection of industrial agriculture. He also offered few tangible examples of working permaculture systems to demonstrate his claims. Permaculture was understood by the public as a form of organic gardening because it was all that it had to show for itself at the time. The lack of concrete examples of permaculture design in action limited its potential. Permaculture was therefore relegated to the back yards and homesteads of middle class Australians instead of forming a movement applying

systems thinking to ecological issues. Holmgren decided that he did not want to go public with permaculture until they had more successful experiments to backup the claims made in Holmgren's thesis. The premature status of permaculture design is why Holmgren decided not to continue working with Mollison after the publication of *Permaculture One* (1978).

5.6 (2003-2012) Holmgren and Permanent Culture

Holmgren took a hiatus from the public sphere of the permaculture movement after the publication of *Permaculture One*. However, he continued quietly experimenting with permaculture design. He initiated the New Zealand permaculture association, and started a permaculture farm in western Australia. He received an honorary PDC certificate at a 1984 Australian permaculture convergence. In 1990, he began teaching PDCs, but his courses were radically different from the Mollisonian programme outlined in the *Designers' Manual* (Holmgren 2011). Holmgren's courses focused more on using design principles, and provided more space for spiritual and political considerations. Holmgren's (2002) *Permaculture: Principles and Pathways Beyond Sustainability* resulted from his new teaching approach and collaboration with teachers in England. Holmgren's text was the clearest example of permaculture as permanent culture. *Permaculture* (2002) was written about Holmgren's reformulated twelve permaculture principles that arose from his PDCs. The book focused deeply on the theory behind ethics and principles, and contained very little practical design examples. The radical shift by Holmgren towards a theoretical and universal permanent culture marks what I have called the *cultural turn* in permaculture.

The *cultural turn* shifted the idea of permaculture away from specific agricultural practices towards an abstract and theoretical approach to systems design.

Permaculture's application became virtually unlimited. Permanent culture also went far beyond its biophysical foundation, grounding itself instead in political action for climate change and peak oil. While it took the garden as a metaphor, it came to represent the entire world and local communities. The definition Holmgren provides indicates this:

... [P]art of this global cultural reality, which some call post-modernism, where all meaning is relative and contingent.... [The] concept was a product of an intense but relatively brief working relationship between Bill Mollison and myself in the mid 1970s... [A] response to the environmental crisis facing modern society... [I]t is about what we want to do and can do, rather than what we oppose and want others to change. This response is both ethical and pragmatic, philosophical and technical. (2002:xv)

The cultural turn had a notable influence upon those writing about permaculture for garden-specific purposes. This is noted in the differences between the first (2001) and second (2009) editions of Toby Hemenway's *Gaia's Garden*. This book gave a detailed look at designing permaculture gardens, and demonstrated land-based permanent agriculture, and was uniquely written with greater inclusion of smaller-scaled properties. The first edition focused on the biophysical techniques of gardening, though it also recognized permaculture as permanent culture. Hemenway first wrote:

"Permaculture is a set of techniques and principles for designing sustainable human settlements" (2001:4). In the second addition, Hemenway changed to: "Permaculture uses a set of principles and practices to design sustainable human settlements" (2009: 5). He also added chapter on urban permaculture. The second edition acknowledges Holmgren's expansion of the field. Hemenway explains that, "David Holmgren, one of Bill's many students ... brilliantly expanded permaculture's scope..." (*ibid.*). Holmgren's

work marks what Patrick Whitefield (2009) referred to as the shift from “original permaculture” to “design permaculture”.

Design-based permaculture was not the only shift that occurred. Indeed, permaculture after Holmgren's *Permaculture* was more strongly based on design, but it was also more radically political. Hemenway has recently taken a more radical permanent culture stance, which is evident in his 2010 lecture at Duke University entitled “How Permaculture Can Save Humanity and the Earth but Not Civilization”. In the lecture, he covers a great deal of Holmgren's ideas relating permaculture, climate change, and peak oil. At the end of the lecture, Hemenway portrays permaculture specifically as a method of approaching solutions to these multiple, converging crises. More than simply a shift towards design as identified by Whitefield (2009), permanent culture was also a turn for the political.

Sepp Holzer's (2004) permaculture contrasted the burgeoning permanent culture. He asserted that permaculture was a practical set of techniques focused on land-based permanent agriculture. Holzer's definition illustrates this assertion:

This word was coined by the Australian ecologist Bill Mollison and his student David Holmgren and is derived from ‘permanent agriculture’. A permaculture system is a system that resembles nature and is based on natural cycles and ecosystems. (2004: xvii)

This contrast emerged as a result of Holzer's relationship to permaculture. His method of farming was developed on his farm independent of permaculture's creation. In 1995, several agricultural researchers visited his Austrian farm and discovered his practice of “natural farming”. They described what he was practicing as permaculture, and Holzer accepted the label. When he wrote his book in 2004, he was not trying to copy what Mollison, Holmgren or anyone else was defining as permaculture. He simply

wrote about what he had been doing on his property since the 1960s and called it permaculture. This was done with great acceptance from the permaculture community. His book received praise from both Holmgren and Mollison as a shining example of permaculture.

Holzer's book served a different purpose to the movement than the politicization of permaculture through the permanent culture Holmgren's work. Holzer's work introduced several new techniques to the global permaculture community, such as *Hugelkultur*—a traditional Germanic agricultural practice of composting large piles of wood in tall mounds arranged in parallel rows. While permanent culture was taking off in the literature, the tangible demonstration of permaculture in gardens remained crucial for inviting people to learn about the subject. This, in my experience with both the permaculture literature, and as part of Permaculture Ottawa illustrates a tension that the permaculture movement faces. Gardening is what brings people to permaculture, but continued focus on gardening persists in limiting its potential. The authors of all primary texts of permaculture caution that it is not the individual design features that constitute permaculture, but rather it is the design process from which it emerged.

Along with *Hugelkultur*, “food forests” or “edible forest gardens” also give permaculture a great deal of popularity. In 2005, Dave Jacke (USA) published a two-volume text on the techniques of creating food forests. He describes food forests as follows:

An edible forest garden is a perennial polyculture of multipurpose plants. Most plants regrow without replanting: perennials. Many species grow together: a polyculture. Each plant contributes to the success of the whole by fulfilling many functions: multipurpose. In other words, a forest garden is an edible ecosystem, a consciously designed community of mutually beneficial plants and animals intended for human food production. (2005: 1)

Designing and implementing food forests requires detailed knowledge of plant and environmental interactions. Jacke's text was therefore especially influential because of the deep explanation provided on how to create such systems. Furthermore, it was the first text written that demonstrated the application of permaculture design in northeastern United States and Canada. The technical nature of the text, however, did not take away from its advancement of permanent culture. While technical, it is very much a product of the cultural turn in permaculture. The definition for permaculture provided by Jacke indicates this:

Bill Mollison and David Holmgren ... studied tropical and subtropical ecosystems, along with arid lands. As cofounders of the permaculture concept in late 1970s Australia, they gathered ideas for designing "permanent agricultures" using ecological principles and dispersed them to virtually every continent. Tree crops and agroforestry systems were a large part of permaculture's initial toolbox. Permaculture practices now extend beyond agriculture into all aspects of human culture and range from regional to household scales. (2005: 5)

Edible Forest Garden (2005) differs from *Sepp Holzer's Permaculture* (2004) because it presents itself as created through a systematic universal process of observation, rather than Holzer's more simple and direct practice of "working with nature". Holzer discusses many of the systematic design aspects of permaculture, such as "zones" (the concentric spatial volume of attention or activity), and "sectors" (the entry, spread, and force of external energies to a system). It does not, however, locate permanent agriculture as foundationally based on the universal process of design. It is very specifically the application of design to agricultural landscapes. This interplay between universality and specificity is what differentiates permanent culture from permanent agriculture.

The rest of the permaculture literature through the 2000s continued predominantly in the direction of permanent culture. Patrick Whitefield (UK) published *The Earth Care Manual* in 2004, which included a section on “Farms and Food Links” built directly into the land-based section. This section addressed issues of animal welfare, and cooperative food distribution systems. Whitefield’s integration of human systems into discussions of the biophysical environment differs fundamentally from the *Design Manual’s* approach, which compartmentalized the two. Whitefield also referred to the part of his gardening chapter on no-till polyculture systems specifically as “original permaculture”, suggesting that the rest of the book is “design permaculture”.

In 2006, Rosemary Morrow released a second edition to the *Earth User’s Guide to Permaculture*, which defined permaculture as follows:

It is a synthesis of traditional knowledge and modern science applicable in both urban and rural situations. It works with nature and takes natural systems as models to design sustainable environments that provide for basic human needs and the social and economic infrastructure that support them. It encourages us, and gives us the capacity and opportunity to become a conscious part of the solutions to the many problems that face us locally and globally. (2006: 5)

This definition provides a radical difference from Morrow’s earlier iteration:

Permaculture is about designing sustainable human settlements. It is a philosophy and an approach to land use which weaves together microclimate, annual and perennial plants, animals, soils, water, management, and human needs into intricately connected, productive communities. (1993: 9)

This difference illustrates another case where a text was rewritten shifting away from the permanent agriculture approach. The new edition contains a more systemic design process for political action on ecological crises. This concern for crisis peaks with Holmgren’s 2009 book *Future Scenarios: How Communities Can Adapt to Peak Oil and Climate Change*. In this book, he focuses specifically on planning a descent from a

fossil fuel energy system and economy. It contains no land-based examples of permaculture. Rather, the book exists as a primer on climate change and peak oil, suggesting that these are the challenges that will face permaculturalists in the coming future. He claims that these challenges can be approached from permaculture design:

[P]ermaculture has spread around the world. This spread has reflected both mounting disaffection with consumer culture in affluent countries and the increasing desperate needs of those left behind by development in poor countries... the inability of governments to deal with the emerging energy and environmental crisis, permaculture is attracting increased attention from those acting to secure their families' future and contribute to a better world. As a conceptual framework, a collection of practical strategies, and a self-help and grassroots movement, permaculture provides the hope and the tools to allow humanity to weather the storms and even thrive in a world of progressively less and less available energy. (2009:4)

Holmgren's book follows the 2006 explosion of the "Transition Movement" in the UK. Permaculture designer Rob Hopkins published *The Transition Handbook* in 2008. Hopkins deals with the specifics of community organizing around local energy descent plans. This book also provided greater attention to the design of alternative currency systems, which is increasingly discussed in the recent permaculture literature. This topic provides a clearer idea of the approach among some within the permaculture movement to the issue of property rights. Holmgren's book, and Hopkin's Transition Movement shows the beginning of a permaculture that is entirely removed from its agricultural origin (Hopkins 2011).

The most recent contribution to the permaculture literature that was included in this review is Peter Bane's *Permaculture Handbook: Garden Farming for Town and Country*. This book offers an extensive and systematic layout of permaculture design applied to the establishment of a farming livelihood. The guide integrates socio-economic elements and biophysical practices in the same chapters. It also challenges

people to take on such livelihoods to address the concerns of Holmgren and Hopkins. This is perhaps the most integrated publication in terms of combining permanent culture and permanent agriculture with the radical perspective of direct intervention in the global ecological and economic crises.

Looby Macnamara's (2012) *People and Permaculture: Caring and Designing for Ourselves Each other and the Planet* was released just after the conclusion of this literature review. It does, however, require brief mention. This book applies the permaculture design ethics and principles outlined in Holmgren's (2002) *Permaculture: Principles and Pathways Beyond Sustainability* directly to personal care, interpersonal relationships, and community management. Macnamara's volume represents the most radical example of permanent culture abstracted from its permanent agriculture origins so far. It also provides a systematic approach to designing human social systems. This thesis as discussed in Chapter 3, for example, was written in a way that considered Looby's social interpretations of Holmgren's design principles.

Some secondary sources mark a radical politicization of permanent culture. Uri Gordon's *Anarchy Alive* (2008), Kwakkenbos's chapter in *Art and Activism in the Age of Globalization* depict permaculture as a form of anarchist direct action used in anti-capitalist and alter-globalization struggles. Sharon Astyk (2008) writes a chapter in her book *Depletion and Abundance: Life on The New Home Front* where she applies permaculture design to family economics. Bulut (2008) applies permaculture design to the creation of playgrounds that teach youth about environmental sustainability. Fosket & Mamo (2009) show how permaculture was used to create a Los Angeles "ecovillage". Cattaneo & Gavalda's (2010) documented permaculture used as part of periurban

squats in Barcelona. Leahy (2011) presents permaculture as the sort of system that was destroyed through industrial agriculture. Permaculture, he suggests, provides a method through which a moneyless reciprocal economy could be created. Puig de la Bellacassa (2010) was the first academic to theorize permaculture from the perspective of critical social theory. In this article, she focuses on the ethics of permaculture, suggesting that it reflects a feminist ethics of care. This ethic places concern on “relationality” rather than on the individual subject. The approach of care results in a whole systems approach to ethics that drives towards systems harmony rather than rightful individual conduct.

Some secondary and academic sources still focused on permanent agriculture. Jordon (2004), Coyne & Knutzen (2008), Basiago (2009), and Holland (2011) represent permaculture as a component of ecological agriculture or gardening. Starhawk (2002) wrote about permanent agriculture in *Webs of Power: Notes from the Global Uprising*. However, it was presented in the context of her pursuit of spiritual reconnection to the Earth as part of her neo-pagan and radical political worldviews. Heinburg (2007) discussed permanent agriculture, but in the political context of ecological and energy crises. He argues that permaculture provides an alternative agricultural model for energy descent. Heinburg uses Cuba as an example of how a country experimenting with ecological agriculture allowed somewhat of a cushion when the Soviet collapse in the 1990s, and the oil shock that resulted in the Special Period of famine.

Katai *et al.* (2006) represented permaculture as a form of permanent agriculture. However, they interpreted the practice as an attempt to “control nature” for human use rather than letting it go wild. The authors also suggest that permaculture only seeks to

reduce pesticide use rather than eliminate it, which does not seem to correspond to the views of Mollison—which they site—or any other permaculture writers. This representation comes in juxtaposition to the deep ecology of Arne Naess and the “natural farming” of Masanobu Fukuoka. All such examples are suggested to situate oneself more intimately as part of an ecological whole. The authors suggest that deep ecology, natural farming and permaculture hold a “polychromatic” (*i.e.* relational) perspective of time and space. Katai seems to suggest that permaculture—in his experience—does not associate events with a transcendent and linear constant of time and space. Rather he suggests that, events interpreted by permaculture designers are perceived in the context of other events in specific locations.

Karen Dawnborn and Caroline Smith (2011) provide a final key development of the literature that was contributed in the edited volume on the history of permaculture. In *Permaculture Pioneers: Stories From the New Frontier*, a collection of memoirs is provided from the movement’s key leaders and thinkers. Such people include those included in this review, including: David Holmgren, Rosemary Morrow, and Ross Mars. Bill Mollison was absent from the book, despite being invited to contribute. The stories presented by the various contributors provide a rich account of the development of permaculture from the early 1970s to the time of publication. While it is heavily focused on the Australian experience, it was valuable for filling in key details to permaculture’s history not provided in the primary texts, secondary, or academic literature.

5.7 Where Is the Permaculture Literature Going?

2012 marks a decade since the cultural turn in permaculture. Recent publications indicate that discussions in the scholarly literature on permaculture have progressed strongly in the direction of permanent culture. Geographers have theorized that a similar cultural turn in the social sciences took place in the 1980s. The social science case involved a shift from quantitative methods of social research, towards postmodern qualitative approaches. It also involved the politicization of “culture”, which was previously considered apolitical (Mitchell 2000: 58). This tradition in social science persists to this date, however, questions of structure and material agency central to political economy, and classical materialist Marxism have regained prominence (*ibid.*: 79).

This renewed prominence, and displacement of purely poststructuralist cultural approaches in fields like political ecology is not a shift to the past (Harvey 1996: 176). Instead, postmodernist and materialist approaches have synthesized into new hybridized approaches such as the “liberation ecology” approach of Peet & Watts (2004), the “politics of nature” of Bruno Latour (2004), and the “social nature” of Castree and Braun (2001). If permaculture continues down a similar path in the next decade it will likely reincorporate some of the earlier works on the subject. The next phase of the permaculture literature could be a revival of Mollisonian permaculture revised through the perspective of permanent culture. Such a reformulation would be similar to the shift from apolitical ecology to political ecology that took place in the 1980s. This shift was not a rejection of the apolitical ecology, but rather a politicization of past work (Peet & Watts 2004). Engagement and synthesis with the subject of political ecology would be

an effective means towards a systematic and critical politicization of permaculture. Such engagement may resemble a revisitation of *Permaculture: A Design Manual* (1988) with a new politicized perspective.

The future of permaculture also depends on how societies deal with the ecological and economic crises that are now in the process of coming to fruition. Holmgren's (2009) work focused primarily on stopping climate change, but recent years have shown that the Earth's atmosphere has already entered this anticipated period of crisis (IPCC 2012). Permaculture will now have to approach not only mitigation, but also adaptation to climate change. The application of permaculture principles will be increasingly needed for land-based applications to help communities withstand sudden and extreme weather events, and to cope with slower onset climatic changes. For instance, Geoff Lawton's (2012) experimentation with food forests in the Jordan Desert will be vital in places where desertification is accelerating. The restoration of mangroves to dampen storm surges will also enable a secondary function of feeding people (especially pertinent as global food systems experience greater stress). However, this need is not exclusively land-based. As food systems experience shocks, political and economic shifts will be needed. A more local economy will also need a new approach to land use decision-making and governance.

The following chapter looks at a local example of a permaculture community in the process of addressing urban land use governance through permaculture. It will also compare and contrast the use and representation of permaculture among the Permaculture Ottawa community to the literature examined above.

Chapter 6: Permaculture Ottawa and the Community Urban Food Forest

PO is a community organization that has existed for two years (see Appendix C). One of its projects is the CUFF. This project will be created at Just Food's Food Hub in the east end of Ottawa's Greenbelt on NCC land. This research uses the CUFF project as a case study to understand ways in which permaculture design can challenge neoliberal land use planning of the Ottawa Greenbelt. It will also use the case study to examine the limitations of permaculture design in challenging neoliberalism. The case study below provides a brief description and history of the various stakeholders and projects involved in the creation of the CUFF. The organizations are presented in the historical order of their activity. These organizations include Just Food and its Food Hub project, the Permaculture Institute of Eastern Ontario (PIEO), and PO and the CUFF. A description is provided of key organizational debates in PO that have emerged. These debates demonstrate some of the key opportunities and limitations that actors within PO experience in confronting neoliberal land use governance. Finally, perspectives on forests found in the interviews conducted for this research are analyzed, offering a critical perspective on the conceptual differences of land use between the various stakeholders in the establishment of the CUFF.

The conceptualization of the CUFF project began with the creation of Just Food (then the Ottawa Food Security Group) in 2000. In an interview with Just Food's director Moe Garahan stated that the idea of the CFH—where the CUFF would later take place—was realized between Just Food and the NCC in 2007. In 2011, both PIEO and PO were created to establish a clearly identified community of permaculture enthusiasts

in Ottawa (and in the surrounding eastern Ontario region). The idea for the CUFF was realized by students of PIEO's first Permaculture Design Course in the Fall of 2011 (PDC). The CUFF proposal was accepted shortly after by Just Food to exist on the CFSAH. The CUFF is slowly going through a design and observation phase as Just Food moves closer to securing a long-term lease with the NCC.

The CUFF will be the first of its kind in Ottawa. It is anticipated that the food forest will be planted and maintained in the next few years. It will offer the permaculture community of Ottawa, and the broader public, an opportunity to explore the possibility of a permaculture-designed system of food production. It will also test the effects of establishing common space of production on leased land that is publically owned by the NCC—a crown corporation reporting to the Government of Canada.

6.1 Just Food

Just Food is a non-profit group dedicated to promoting “vibrant, just and sustainable food system” in Ottawa. In 2000, the group began as the Ottawa Food Security Group (OFSG) with Health Department funding from the pre-amalgamation Ottawa-Carleton regional government. A partnership of local community groups, in participation with the City of Ottawa created Just Food in order to develop food security policy. In 2001, members of the OFSG began a dialogue between various stakeholders around hunger and poverty in the City (Just Food 2011a). Stakeholders were keen to replicate the success of the Toronto Food Policy Council (TFPC) that had been active since 1991 (TFPC 2011).

In 2003, the Ottawa Food Security Council (OFSC) was created, hosted by the non-profit Ottawa Social Planning Council (OSPC). The OFSC acted as a body where city staff and councilors, and community members could gather to talk about food policy in Ottawa. In 2004, the OFSC expanded its network and shifted its focus from policy to project work. In 2005, the OFSC began the *Buy Local Food Guide* (now called the *Buy Local, Grow Local Food Guide*), a pamphlet that is published annually to promote local food production. In 2006, OFSC changed its name to Just Food, and took on the Community Gardening Network of Ottawa. It also began the Savour Ottawa initiative — a branding initiative that labels grocery stores and restaurants that support local food production (Ballamingie & Walker 2013). Just Food incorporated as a nonprofit organization in 2011, and was no longer hosted under the OSPC (Just Food 2011a).

6.2 Community Food and Sustainable Agriculture Hub

In 2011, Just Food moved their operations to a 75-acre property on NCC land in the Ottawa Greenbelt, where they are working to establish a “Community Food and Sustainable Agriculture Hub” (hereafter referred to as the Food Hub). The objective of the Food Hub is to act as a demonstration site for ecological agriculture. The Food Hub will help the public—especially youth—to learn about how food systems operate, as well as provide them with training and mentorship if they decide to pursue such a livelihood. There are also plans for a community garden, a garden for the Ottawa Food Bank, a community kitchen, and a community seed bank. The site will also have services that support local farmers, including a small-scale egg grading station, cold storage freezer,

and packaging facilities (Just Food 2011b). This research will focus on PO's CUFF project that will be taking place at the Food Hub site (Permaculture Ottawa 2012).

The site is located in the west end of Blackburn Hamlet. It is owned by the NCC, and formally designated part of the Ottawa Greenbelt. The site contains extensive infrastructure and facilities for cultivation, though some features such as the series of greenhouses and water pipelines are currently in disrepair (Just Food 2011b). These features were built between 1954 and 1956 (TBC Secretariat 2011), for the operation of a tree nursery. There is currently a large "header house" with several dilapidated greenhouses attached to it. Based on the aerial photographs in Appendix B, this facility was not constructed until the early 1970s. The site was called the Green's Creek Nursery. The NCC established the nursery programme in 1950s. The NCC received a mandate by the Federal Government to beautify the "National Capital Region" with plants and tree stock cultivated by horticultural and landscape workers at the the publicly-funded Green's Creek nursery. The nursery was fully operational until 1982, when the NCC decided to start outsourcing its landscaping and maintenance needs to private contractors (Peter Prodger personal communications June 5, 2012). The greenhouse operation continued growing flowers and offering horticultural services until at least 1993 (Shahin 1993). In 1990, a group of eight people approached numerous community groups around Ottawa with a view to buying the farmland to establish an organic farming demonstration site. The *Ottawa Citizen* reported that the group needed to raise \$12,000 for the site costs, and another \$48,000 for operational costs (Metcalf 1990). However, the project never materialized.

Just Food began discussing the possibility of a Food Hub with the NCC in 2007. Several NCC staff proved enthusiastic about the project. Just Food therefore began working with staff at the NCC to develop the concept of a centre for sustainable agriculture at the Green's Creek site. However, there have been some difficulties in advancing the project. In order to establish a long-term lease for the site, the NCC requires a "financial sustainability plan", demonstrating that Just Food had a secure source of revenue to pay for the lease of the 75 acre site. However, Just Food needed a long-term lease arrangement in order to acquire such funding. The two organizations agreed to a one-year period for the creation of a development plan, which permitted the Trillium Foundation of Ontario to offer a one-year \$250,000 lease for work on the plan. This process resulted in a "chicken-and-egg" situation, where neither the funding nor the property were guaranteed to move the project forward. After years of negotiation, Just Food finally obtained a short-term lease for the farmhouse on site in 2011. The organization also gained a land access permit that would allow them to do some preliminary work on the site (Moe Garahan personal correspondence June 15, 2012).

This land access permit allowed Just Food to begin turning the soil. First, they tested the soil to determine soil type and quality. Then they hired local farmer Douglas Woodburn to clear the brush that had grown over, and to till and disk it (Moe Garahan personal correspondence June 15, 2012). In the summer of 2012, a community of refugees from the Karen minority group in Burma began gardening on the site. They received a \$1,000 grant from the Awesome Foundation in order to restore some of the traditional garden practices that they used in Burma (Lanktree 2012).

In the fall of 2012, Just Food and the NCC managed to agree in principle on the terms for the long-term lease arrangement that would last 25 years beginning in 2013. The lease agreement has not, however, been secured because it requires approval through the Treasury Board of Canada in order to proceed due to the size of the lease (Moe Garahan personal correspondence June 15, 2012).

6.3 Permaculture Institute of Eastern Ontario

A “Permaculture Institution”, or “Permaculture Research Institution” is an organization that offers a Permaculture Design Course (PDC). The first PDC is identified by Bill Mollison’s Tagari Publications (2012) to have taken place in 1972. The course ranges between 72 to 84 hours of lecture, instruction, individual work, and hands-on practice. In some places, PDCs are delivered intensively with students living on-site for the entire duration of the course. In the case of PIEO, the PDC is an 84-hour class delivered in several weekend installments (PIEO np.). PDCs cover the basics of permaculture theory, techniques and process; curriculum is often based on Bill Mollison’s (1988) *Permaculture: A Designer’s Manual*. In the course, various sections of the manual are covered. Lectures are dedicated to understanding the design process, with special attention given to different interregional differences—*i.e.* tropical, arid, cold temperate, *etc.* (Smith 2011). Students are assigned individual research projects, and collaborate in groups to practice the design process. At the end of the course, students are awarded a PDC certificate (PIEO np.).

There is no official recognition of this qualification, and the leaders among the permaculture community internationally are still debating whether having a PDC

“certifies” one to be a permaculture designer (Sébastien Bacharach personal correspondence June 3, 2012). Australia's Permaculture Research Institute (PRI), which was founded by Bill Mollison and is currently lead by Geoff Lawton, has attempted to regulate certification. Mollison established the institution with concern for the quality and consistency of knowledge and instruction around permaculture. Originally, Mollison encouraged his students to travel internationally to deliver PDCs. It was unclear, however, whether these students were actually practicing and teaching permaculture properly. The PRI therefore established a system of teacher training and certification. The PRI verifies who was given teaching certification through certified Permaculture Institutes. They suggest that such instructors are qualified to deliver a reliable PDC (Lawtown 2011).

The PRI recently launched a “Permaculture Global” social networking platform, where practitioners are able to create a profile that indicates where they received their PDC and who their instructor(s) were. The website then allows the instructor to endorse that the practitioner was a student of theirs. The PRI also reviews the teachers and verifies if they are certified instructors. This process has no legal recourse, and functions in much the same way as consumer labeling systems. Potential PDC students or design clients can look at a person's profile and see if they have been approved by the PDC to claim that they have taken a course with a recognized Permaculture Institution (Permaculture Global 2012).

The Permaculture Institute of Eastern Ontario (PIEO) functions as a permaculture institute for eastern Ontario. PIEO provides no specific territorial definition of what that they consider eastern Ontario. PIEO identifies as responsible for the

delivery of PDCs as a permaculture institute. The institute also organizes workshops on specific skills that are useful in permaculture. PIEO was established in Toronto in January, 2011, by Sebastien Bacharach, Bonita Ford, and Douglas Barnes. These individuals met at the 2011 Toronto Permaculture Convergence where they recognized the need for a permanent institution in Ontario to deliver PDCs (Sébastien Bacharach personal correspondence June 3, 2012). Sebastien took his PDC with Geoff Lawton in Australia in 2002, and became a certified instructor in 2004 in California. Bonita Ford took her PDC in 2005 with Brock Dolman in California. She first co-taught a PDC with Larry Santoyo in 2011 in Haiti. Douglas has taken two PDCs. The first was with Geoff and Daniel Lawton in 2004 in Australia. The second was with Geoff Lawton and Bill Mollison the next year. He is in the process of becoming a certified instructor (PIEO np.).

PIEO was created because there were no PDCs being delivered on a permanent basis in Ontario. Gregoire Lamoureux from the Kootenay Permaculture Institute in British Columbia had been sporadically teaching courses in Orangeville and Caledon, Ontario since at least 2006 (PCI 2006). With increasing interest in Ontario about permaculture, there needed to be a more established institute to deliver PDCs. PIEO launched their first public event in March 2011 at a community seed exchange in Perth, Ontario – a brief discussion on permaculture. PIEO instructors delivered weekend introductory workshops in Brampton, Vankleek Hill and Ottawa, in the spring of 2011. Each of these three sessions were attended by 20 to 30 people. In the fall of 2011, the institute delivered their first full PDC to 20 students. PIEO has since offered another PDC in the fall of 2012 to 20 students, and several other introduction workshops (PIEO

np.). PIEO is not a registered business. The three teachers constitute the Institute as an informal partnership of independent contractors. They have no relationship with any other Permaculture Institute but the PRI does recognize the courses they deliver on their Global Permaculture site (Sébastien Bacharach personal communications December 14, 2012).

6.4 Permaculture Ottawa

Permaculture Ottawa (PO) is a self-identified community organized around the practice and promotion of permaculture design (PO 2012). The group has decided upon an official identity, which is described on their website as follows:

Mission Statement:

Permaculture Ottawa is a not-for-profit, volunteer-run organization focused on delivering permaculture-related popular education, supporting community-based permaculture projects, and advocating for sustainable and socially just living spaces in Ottawa. We are committed to practicing and promoting permaculture in the Ottawa area, with a focus on transforming the urban environment towards a resilient, regenerative and respectful society. We share the values of respect for difference, solidarity, and shared leadership. (PO 2012)

Vision Statement:

Permaculture Ottawa envisions Ottawa as a vibrant centre for northern urban permaculture, where the key values of care for the earth, care for people and fair share are woven into the fabric of our city. (PO 2012)

Process and Conduct Statement:

Permaculture Ottawa applies permaculture ethics and principles to the organization itself. We organize through consensus decision-making processes and follow anti-oppression policies. (PO 2012)

PO is a non-incorporated organization, which means that it is not officially recognized by the law as an independent non-profit or non-governmental organization.

PO does, however, have status as a working group of the Ontario Public Interest Research Group (OPIRG) Ottawa – part of the incorporated charity group, Ontario-PIRG network. Non-incorporated entities such as PO do not require having any such official statements, but the community has decided to adopt them for the purpose of organizational consistency. These statements, which best reflect the core values of the group, were drafted August 11, 2012 at a visioning retreat (PO-November 2012 Minutes), and adopted by the organization at the general meeting on September 27, 2012 (PO-September 2012 Minutes).

PO was founded on March 25, 2011. Until December 2012, members have gathered for fifteen working meetings—approximately one every month. Meetings began in early 2011, with four to eight participants, but grew to include an average of fifteen participants (Appendix C). The highest number of participants recorded was 32 people on March 26, 2012 (PO-March 2012 Minutes). Attendees explained that they decided to come to the meeting because they were interested in learning about permaculture gardening techniques for the 2012 growing season, which accounts for the influx in participants. The overwhelming interest in permaculture by gardeners is consistent with the recorded experiences of initial organizers of permaculture associations in the 1980s in Australia (Dawborn & Smith 2011). Permaculture Ottawa meetings discussed mostly organizational development and event planning until December 2012. The majority of business conducted at these meetings involved the development of organization structure, norms, and operational capacity development. Earlier meetings concerned developing a process of operation, which was adopted as a system of consensus-based democracy. These meetings also witnessed a continuous

discussion on “liberation permaculture”, which will be covered in greater length later in this section. Some later “special meetings” took place in the summer of 2012. These meetings were held as visioning sessions in order to host a more lengthy discussion on the direction and identity of the group. A discussion was held with the Permaculture Institute of Eastern Ontario (PIEO) to explore what relationship the two groups ought to have. Latest meetings have been directed at organizing future events, as well as addressing issues around volunteer retention and administration.

PO has also organized seven public events with the purpose of promoting not only permaculture design but also the organization. The first major event was a discussion entitled “Liberation Permaculture: A Panel Discussion”, which hosted three short interventions by local permaculture organizers (Bonita Ford, Sarah Levesque, and Greame O’Farrel) on permaculture and social justice. A discussion ensued, which grappled with themes of societal injustice, ecological crisis, and possible trajectories for change. The event drew roughly twenty participants. The second major event was the Eastern Ontario Permaculture Convergence, which was organized in conjunction with PIEO. This event, which drew approximately 120 participants, involved a gathering of people in the vicinity of eastern Ontario around the practice and theory of permaculture design. It consisted of three series of simultaneously held sets of presentations in the morning. The convergence practiced an “open space technology” in the afternoon. Open space technology provides participants with two times slots and various locations in order to organize spontaneous discussion groups. One of these sessions involved a tour of the host venue’s permaculture garden (i.e., at Lester B. Pearson High School in Ottawa). Another session involved a discussion on integrating volunteer work sessions

(sometimes referred to as “blitzes” or “work bees”), with educational workshops, and celebratory festivals. The last (and most recent) public event was the permaculture documentary night organized jointly by PO and the Reel Food Film Festival (RFFF) on October 18, 2012 at the Ottawa Public Library’s Main Branch. Two documentaries were shown: *Seeds of Freedom* (Philmore 2012), and *Rebecca’s Wild Farm* (Hoskins 2009). After the documentaries, three panelists—including this researcher—responded to questions by the general public about permaculture, and PO.

6.5 Community Urban Food Forest

“Food forests”—also known as edible forest gardens—are, in name, a fairly recent concept. British horticulturalist Robert Hart first coined the term “forest garden” and “forest farm” in the 1960s. These terms referred to a style of gardening Hart claims to have innovated that is modeled on “natural woodlands” (Whitefield 1996). American economic geographer Joseph Russell Smith (1929) wrote earlier about “Tree Crops” and “Permanent Agriculture”. Smith documented the traditional use of trees in agriculture in various regions of the world. “Food forests” are in fact an ancient system of production that has been practiced by diverse societies from Medieval England, to pre-contact Amazonians (Whitefield 1996). Recent evidence even suggests that the supposedly “pristine” wilderness of New England, the Carolinas, and the Amazon basin “discovered” during European colonization were in fact intensively managed forest agricultural systems that were abandoned as a result of contact with the first explorers (Mann 2005).

Mollison and Holmgren (1978) were inspired by the concept of forest gardening and incorporated it into their work of permaculture. They claimed that the agroforestry practices that have been conducted since time immemorial by Indigenous peoples worldwide are what primarily inspired the creation of permaculture. Patrick Whitefield (1996) and Dave Jacke (2005) later wrote specific books applying permaculture design to the creation of forest gardens. Jacke decided to use the word “Edible Forest Garden” in his two volumes instructing its applications to eastern North America. In his book, he uses the words “edible forest garden” and “food forest” interchangeably. Jacke defines edible forest gardens as follows:

An edible forest garden is a perennial polyculture of multipurpose plants. Most plants regrow without replanting: perennials. Many species grow together: a polyculture. Each plant contributes to the success of the whole by fulfilling many functions: multipurpose. In other words, a forest garden is an edible ecosystem, a consciously designed community of mutually beneficial plants and animals intended for human food production. (Jacke 2005: 1)

Due to its regional focus on cold temperate climates, Dave Jacke’s book and definition has been the most prominent among the eastern Ontario permaculture community.

One of PO’s first and largest projects is the design and implementation of a Community Urban Food Forest (CUFF). This project was realized as a design project during the 2012 PIEO PDC. The design was for a food forest to be created on a 40-by-100-foot site located near the north end of the proposed Food Hub operated by Just Food (for concept sketches see Appendix A). Instructors and peers received the design as a project that could be implemented by PO.

The project is entitled a “Community Urban Food Forest” (CUFF) in order to capture its ecological and social purposes. The “community” aspect emphasizes that it was a non-for-profit initiative based on providing common access to the site for the public at large. The CUFF was designed to function as a demonstration of permaculture design, applied to food systems. CUFF was also created in order to demonstrate a means of equitable food production that could be accessible to the local community. The “urban” aspect stresses that this is a demonstration of permaculture design for food production in the city. In terms of permaculture design, this is specified because there are different design considerations that must be taken into consideration, such as public foot and ski traffic through the space.

After the PDC, graduates were keen to organize a permaculture community that would be able to create such projects. PO began to meet consistently every month, starting in November of 2011. The implementation of the food forest design was the primary topic of discussion. The CUFF committee was created once PO expanded to coordinate a wider variety of projects initiated by other participants. The committee was created in order to allow for detailed planning to take place outside of the general assembly.

The project gained great popularity outside of Permaculture Ottawa. Organizations such as Ecology Ottawa, and Hidden Harvest expressed interest in the project. Just Food requested that the project be included in its official literature and applications put forward in order to gain a long-term lease of Greenbelt land for the Food Hub. PO scrambled to put together a project description and timeline that outlined the CUFF concept.

On January 21, 2012, PO organized a meeting at the Just Food headquarters on the Food Hub. A snowshoe tour of the proposed CUFF site allowed participants to observe and give feedback on further design details. The meeting drew a large crowd of participants interested in the food forest. A presentation on the design was given by PO after the tour in the Just Food office. More people attended than could fit in the office.

On April 28, 2012, a plant propagation workshop was held at the site that was co-organized with PIEO. The objective was to have a workshop that would provide participants with the knowledge to do their own propagation, as well as to propagate plants for the CUFF. Donations were accepted that would be put towards the project.

Over the summer, a few observational excursions were conducted by the CUFF committee in order to deepen understanding of the “sectoral” dynamics on the site. This involves observing aspects such as wind direction, water collection, shade, among other possible variables. Based on such observations, details were added to the original designs.

PO organized a site mapping workshop in the Fall of 2012. An arrangement was made with Douglas Barnes of PIEO to lead a site mapping workshop in order to allow the PO community to learn mapping skills at the same time as creating a relief map of the site. Unfortunately, this activity proved only limited in its success. Surveying equipment was borrowed from the Department of Geography and Environmental Studies (DGES), however it was not the proper equipment for surveying elevation. Participants did, however, gain a workshop on basic mapping skills for a modest

suggested donation of \$5. Money to pay for the workshop came from the OPIRG-Carleton working group budget line for Permaculture Ottawa.

The CUFF is still in its design phase, which is behind the original schedule. This is a result of volunteer inabilities to meet at the site due to time constraints. Those involved have also been among those most busy organizing the structural aspects of PO. The project has largely taken a back seat for the time being while PO works on capacity building and volunteer retention.

There are a number of recurring discussions that have emerged throughout the creation and development of PO and the CUFF. The first is about how PO should structure itself. The second is about how it should make decisions. The third is about what position it should take on issues of social justice. The fourth is about what relationship it should have with for-profit groups. The final discussion is about incorporation and insurance. These discussions reveal a lot about how permaculture conducted through a small community group in Ottawa interact with various institutions and regulations that govern land use in the Ottawa Greenbelt.

6.6 Structure and Process

PO has decided to structure itself through what can be identified as a “general assembly (GA) and committee” model. This is a structure where decisions are made directly by all participants involved in PO. The GA is then able to delegate planning and organization to committees of interested participants. Committees can be either empowered to make decisions internally, or commissioned to bring a proposal back to the GA to decide upon. This model was adopted from the Occupy Ottawa movement. PO had been

practicing this model informally since the creation of its first committee (Film Fest Committee) on February 17, 2012 (PO-February 2012 Minutes). The GA model was democratically accepted by the group with the acceptance of the recommendations made from the visioning retreat on September 27, 2012 (PO-Sept 2012 Minutes). The adoption of the Occupy Ottawa model matches a shared desire to involve participants directly to manage the organizational details of a community.

PO has also adopted a “consensus-based decision-making model”, drawing on concepts delineated in Butler and Rothstein’s (2007) *On Conflict and Consensus*. The consensus model is a system of direct democracy where consent by all members of the group is required in order for a decision to be made. A participant brings forward a motion, which is then open for discussion by the group. The specific concerns of each participant must be met in order to carry a motion forward. Every participant is entitled to “block” a decision. Blocks automatically stop a decision from passing and require a group to reconsider the motion. Blocks are only used if the decision will compromise a participant's ability to remain in the group. Participant may block a decision if they suspect that they will experience oppression, ethical violations, or unwilling legal or financial implications. Blocks are not used to stop a motion a member might simply disagree with. Disagreements are moderated through discussion, with consideration for the overall function of the group. Blocks function to prevent decisions that may break up the group by forcing participants to leave.

As a working group of OPIRG-C, PO was encouraged to follow this model. The founders of PO were sympathetic to the model, and were given the resources and training by OPIRG-C to use the model. The group informally began using this model at

its first decision-making meeting on November 15, 2011. At the meeting, all participants achieved consensus to use the model without challenge. One of the recommendations of the visioning retreat adopted at the September 27, 2012 meeting was the official adoption of consensus-based decision-making (PO-September 2012 Minutes). This decision-making model reflects the institutional position of PO as a working group of OPIRG-C. Occupy Ottawa also used such a model in accordance with their GA and Committee structure. This model is common among radical grassroots social movements and affinity groups, and is especially effective for movements that function communally, incorporating complex aspects of social relationships (Gordon 2008). The successful use of this model among other parallel social and environmental justice movements makes it appealing for PO's vision of an alternative means of land use governance.

6.7 Liberation Permaculture

PO has considered the idea of officially describing itself using the label of "liberation permaculture". However, despite a great deal of discussion, the group has not officially adopted this label. PO began informally identifying as a "liberation permaculture" organization (PO-Nov 2011 Minutes), but when considering its official position on the label they decided to drop it (PO-Sept 2012 Minutes). Liberation permaculture was first coined at a design course organized in 2007 at the Occidental Arts and Ecology Centre in Occidental, California. It was organized by Movement Generation (MG), an Oakland, California-based group that organizes around social justice and ecology in communities

of colour (MG np.). Liberation permaculture is the application of permaculture design in order to achieve social justice. MG describes liberation permaculture as:

Our vision for fostering a multi-sectoral and holistic movement for ecological justice is rooted in deliberate and coordinated mass action among key racial, economic & environmental justice organizations in the Bay. Our approach in bringing Permaculture for the People is to make it a step towards this end. (MG np., "Earth Skills" Page)

Liberation permaculture is described as "permaculture for the people".

Permaculture design has received most attention for its broad acre land-based application (*i.e* on large farming properties as opposed to urban and social systems), and has therefore been most heavily adopted by property owners in western countries. However, many permaculturalists have travelled abroad to aid in agricultural development. Such projects use permaculture to revitalize degraded agricultural land for productive use. Despite this work, the global permaculture community has not yet reached out in solidarity with the majority of urban and racialized poor. The liberation permaculture of MG is an attempt to address this neglect, and promote positive solutions for environmental justice among racialized urban poor.

The discussion to officially adopt this label began with a working "zine" (*i.e.* a small, self-produced publication) on the subject. In the zine, liberation permaculture followed the basic series of concepts above. The zine identified PO as an organization dedicated towards the promotion of social and environmental justice in Ottawa through permaculture. This initiative was met with concern that such a definition might exclude those who wish to practice specifically broad acre land-based permaculture. This concern was articulated in the minutes of the PO 2012 visioning retreat:

I'm concerned that the term "liberation permaculture" might be off-putting for more mainstream people, it could make the group less accessible to a more diverse range of people. Perhaps we need to frame "liberation permaculture" in a way that is more inclusive/accessible. (PO-Aug 2012 Minutes)

This argument was met with an additional concern:

I'm worried about watering down PO, and losing the social justice component of our work. Permaculture is already a radical idea, how much do we want to accommodate all mainstream perspectives? (PO-Aug 2012 Minutes)

The conversation was resolved by agreeing that urban social justice (*i.e.* addressing the social inequalities in cities) ought to be the primary focus of PO, but that the language of "liberation permaculture" might be inaccessible or off-putting for people being exposed to radical rhetoric for the first time. PO did not adopt liberation permaculture as its official label, but did resolve that such values and vision are central to the organization.

The concern that "liberation permaculture" might be off-putting to new members was evident in a conversation on the PO Facebook group wall. On December 3, 2012, the researcher posted an article about the links between middle class homesteading and gentrification (Cagle 2012) in order to initiate a discussion on liberation permaculture. The post initially resulted in confusion:

I don't really get the issue here. What is the big deal if a few hipsters, yuppies, or hippies (aren't they cultures too) are taking on homesteading? I don't feel they are intentionally trying to trivialize or marginalize anyone here. At least some people are getting some education on resilience even if they aren't in poverty and perhaps in a position of privilege. Let's not assume they aren't trying to break free while they have the luxury of time and resources. Why not harness the energy and interest instead of opposing it? As a permaculture principled approach, why not work with an existing force (think sector analysis) rather than against it? (Anonymous on PO Facebook Group Wall, December 4, 2012)

This was followed by an explanation of gentrification by several participants, including the researcher. Participants that contributed to the thread generally agreed

that a prudent goal ought to be a practice of permaculture design that takes a stance of confronting poverty. The participant quoted above, however, raised another concern about accessibility:

Yes, I get everything you're saying. I just prefer a less confrontational approach that doesn't create division where there is no intentional conflict. I'd rather find a way to use the existing energy and enthusiasm to educate the privileged on all of these issues. These folks are opening their minds so let's take advantage of that. (Anonymous on PO Facebook Group Wall, December 4, 2012)

Another participant wrote:

Sometimes we have to swallow our distaste for whatever we perceive as the disingenuous and hope that instead the classes will band together for a common goal - i.e., keeping everyone alive and healthy, redesigning the city and the rural. Or perhaps that's just my dream. (Anonymous on PO Facebook Group Wall, December 4, 2012)

This conversation was also met with a disinterest in social justice that demonstrated a characteristic of inaccessibility in the idea of liberation permaculture to some participants.

The social component is my least favourite part of the literature I come across on Permaculture. Lots of great ideas and practices but it takes so long to sift through all of that stuff. Drives me to be particularly uninterested and now I tend to turn off when I see or hear it. (Anonymous on PO Facebook Group Wall, December 4, 2012)

The topic was also met with criticism by one participant:

Introducing class rhetoric implicitly places *fair share* ahead of all else. In fact, had share the surplus not morphed to fair share, this debate might not be taking place. Introducing class rhetoric risks the future of permaculture. Politicizing polarizes. Polarization marginalizes. While share the surplus/fair share isn't part of the 12 design concepts of permaculture, I think Holmgren's comments ... are very important in that they outline the risks of elevating one concept and thus losing the balance and restraint that the system provides: "it's important to consider all twelve principles together as they provide different perspectives that restrain and balance each other. ...application of one of the design principles can lead to dysfunctional or even unethical decisions and actions." If permaculture were to take on a socio-political action component, I would cease to promote permaculture because it is no longer what permaculture has been to

this point. Nonetheless, I would actively continue to share the surplus.
(Anonymous on PO Facebook Group Wall, December 4, 2012)

The discussion that emerged around the adoption of the liberation permaculture label for PO resulted in a critical tension. Most participants recognized the need for PO to address systems of oppression such as poverty, but they were concerned that a radical approach might alienate potential participants. The resolution was that PO would promote social justice, but not identify itself by such work. PO decided through consensus that it would act as an umbrella where both traditional permaculture and liberation permaculture could be practiced together.

6.7 Non-Profit and For-Profit Relations

The 2012 Eastern Ontario Permaculture Convergence, Propagation Workshop, and Site Mapping Workshop have collectively managed to generate about \$350 in donations. Funds raised through these means were collected by the PEIO and given to PO. This raised a concern among PO participants. PEIO instructors gain personal financial compensation for their work. Members questioned whether or how PO should accept donations from private businesses. The concern was that if not managed properly PO could become partially a group that collects resources from the non-profit permaculture community for the personal compensation PIEO instructors. The relationship between PO and PIEO is really tricky in this regard. PIEO is a foundational partner in the formation of PO, and its proprietors are appreciated participants (and respected experts) in the community, and dear friends with the participants. Also, PIEO has been an exceptional partner in the promotion and support of PO. It could even be said that the more established life of PO emerged as a result of PIEO's PDC programme.

However, the role of the PDC in the permaculture movement remains contentious. Bill Mollison established the PDC system in the 1980s in order to standardize the programme of permaculture education, and regulate what people can accurately call permaculture. But attempts to officially regulate the delivery of PDCs have failed, and there is now a wide gap in terms of what people agree constitutes a certifiable PDC, if they can result in certification at all. Regardless of the institutional ambiguity of the PDC, it still holds tremendous authority. Sébastien Bacharach of PIEO recounted a permaculture convergence he attended in San Francisco in 2002, where they requested to see PDC certificates in order to allow entrance to certain sessions. This was done in order to ensure that the convergence was among established permaculturalists, because no introductions would be given for people new to permaculture (Sébastien Bacharach personal communications December 13, 2012). On the other hand, the 2012 Eastern Ontario Permaculture Convergence did not require any previous knowledge of permaculture to attend any session.

The PO membership is a mixture of those who have and have not taken a PDC. There is no requirement to have taken a PDC to participate. However, it is important to note that the two most significant waves of new members have come from recent PDC grads. PO owes its lasting establishment to the cohort of graduates from the 2012 PDC. At the November 5, 2012 new members meeting, a wave of ten participants arrived. It is difficult to determine what specific proportion of participants have taken a PDC since the PO does not request that people disclose this information. PIEO PDC graduates in Fall 2012 began representing the majority of participants in PO. This trend indicates the possibility of a culture emerging where certification becomes more

important in determining status within and access to the organization. This may pressure non-PDC grads to take the course. With only one institution providing the course in Ottawa, this would mean that PO inadvertently pressures people to pay PIEO to take the course, in order to gain status in the Ottawa permaculture community.

While the PIEO PDC is comparatively low in price compared to other permaculture institutions, it does still require payment to gain access. There are important logistical and professional reasons why one should demand payment to attend a PDC. The time, skill, and resources required to deliver a PDC cannot be done without compensation. It would be unfair to demand free PDCs without an external source of support. It would also be undesirable to suggest that the PDC is unimportant, since the information learned in the course is crucial to understanding permaculture design. This dilemma creates a tension that emerges in the form an informal hierarchy within PO. There are those who are knowledgeable and practiced in permaculture as a result of their training and experimentation, and those who come to PO to learn about it for the first time. Knowledge and experience of permaculture establishes a gatekeeper position within the organization that limits the full and equal participation of all members.

A community culture that relies on PDCs in order to advance one's participation in the community automatically requires members to pay \$795 for access. The relationships that this creates between PO and PIEO therefore becomes partially mediated through financial exchange. The acceptance of donations from PIEO that were collected from projects co-organized with PO demonstrates a hybrid nonprofit-profit institutional arrangement. While PIEO does not rely upon such events for revenue, it does rely upon student recruitment for their PDC programme.

Convergences and workshops are prime sites of recruitment. The work of PO in co-organizing such convergences therefore indirectly produces value for the private accumulation of the PIEO proprietors. Private profit is certainly not an intentional practice, and the revenues generated by PIEO are in fact very modest. However, it sets a precedent and fosters a culture where non-profit and for-profit organizations can collaborate in ways that function tacitly through relationships of private accumulation.

This tension was partially resolved at an August 20, 2012 meeting held between PO and PIEO (PO-Aug 2012 Minutes). PO and PIEO both recognized that donations could potentially result in swaying the mandate of PO towards the private interests of PIEO. It was agreed that there would be no “strings attached” to any donations given to PO from PIEO. That is, PIEO could never donate funding for requested purposes. Any donations collected are for the sole discretion of the democratic general assembly of PO. However, this resolution still leaves the problems of PDC promotion and recruitment unresolved.

6.9 Incorporation and Insurance

PO’s partnership with Just Food over the CUFF has presented an exceptional opportunity to demonstrate permaculture design. The project has generated great excitement among new members, and has been recognized as an exceptional recruitment and education tool for PO. Just Food has also expressed delight in having an example of a permaculture-designed system for production at their food hub.

In June 2012, it came to the attention of PO that insurance might be required at some point to cover the risk of having volunteers working on the CUFF site (PO-July

2012 Minutes). This need arose from the risks incurred by having volunteers use tools, work and move around the site. Certainly, all such activities pose a risk for bodily harm. Organizations need to be legally incorporated in order to take out an insurance policy to cover the work of their volunteers. PO is neither an incorporated charity nor a non-profit group; therefore, it cannot take out an insurance policy independently.

Permaculture Ottawa is not covered by the OPIRG-Carleton's insurance policy for work on the CUFF. OPIRG-C's liability insurance only covers work done in the office, or any liability that may fall on its board of directors or staff. PO therefore discussed joining an already incorporated organization at one general assembly (such as Just Food, Ecology Ottawa, or an eventually incorporated Transition Ottawa). Some PO members expressed concerns that joining a larger organization may result in an external influence over the direction of PO. PO also discussed the pursuit of incorporation. This would involve PO going through the process of registering as a charitable or non-profit organization. Under this arrangement, PO would be subject to regulation and need to disclose revenue to the government. PO has yet to look into the cost of an insurance policy for the CUFF project, but it would then have to raise the funds necessary to purchase an insurance policy. PO would have to consider hiring staff in order to handle the process of incorporation, insurance, and other administrative matters.

The tension over how to manage liability has yet to be resolved. In the meantime, PO has decided to do nothing and continue doing work on the CUFF. This option may however impact the outcome of Just Food's ongoing negotiation with the NCC regarding the long-term lease of the land. Regardless of the outcome, PO will

have to evolve institutionally as a result of liability regulation attached to the risk management structure of land use in the Ottawa Greenbelt. Insurance—of course—protects people in the case of emergencies, which would be a benefit to PO, but it remains a private, for-profit solution for the common usage of public land. PO must either abandon the pursuit of using NCC Greenbelt land, or adhere to its regulation and be transformed institutionally by it. No conflict over the issue seems likely in the near future, but the sensitivity surrounding the lease negotiations with the NCC disciplines Just Food and partners to abide strictly by the regulations for fear of losing the land. Compliance with liability regulations also disciplines organizations such as PO to accept and fast track the process of institutionalization through the process of incorporation. Members of PO have expressed concern with institutionalization because it would transform the organization from a grassroots community of permaculturalists, into an official, less democratic organization. PO has not yet decided to pursue incorporation, but if it does, such concerns will need to be handled carefully in order to prevent alienating the grassroots base of the community.

6.10 Organizational Dilemmas of Designing a Food Forest

The implementation of the CUFF project on NCC land requires the reconciliation of alternatively ecological ideologies of urban political economy. The informality of structure that PO abides by in order to foster community-centered direct democracy limits its ability to conform to the institutional requirements for land access and organizational development. In order to develop projects such as CUFF, or grow in size as an organization, PO needs to navigate pressures to incorporate and institutionalize.

Pursuit of incorporation before community capacity is developed to operate democratically could force them into a similar model to the conventional hierarchy and exclusiveness of non-governmental organizations. A drift towards the acceptance of commercial solicitation for resources could compromise PO's decided commitment towards the restoration of the urban commons (*i.e.* urban land that is owned publicly for common usage—not for private profit). The neoliberal discourses of apolitical ecological citizenship that reside within the community is clearly manifest in the tensions struck around the label of “liberation permaculture”. The “liberation” ideology of social justice translates to land use where the purpose of the CUFF project is defined. The potential of permaculture design as a force of resistance to neoliberalism is limited when spaces such as the Greenbelt are secured as depoliticized spaces for civil society to pursue individual interests. Land use roles of individual education and experimentation provide a context for permaculture to be co-opted through incorporation and commercial solicitation into the existing neoliberal system of land use governance. A CUFF project politicized for the purpose of restoring the commons with a democratic means of production, presents a pathway through which permaculture design can provide direct and prefigurative contestation of land use ideology.

Chapter 7: A Forest for the People Through Post-Capitalist Permaculture

This final chapter summarizes and synthesizes the research findings presented in this thesis. PO's CUFF project is situated within the history of neoliberal land use planning in the Ottawa Greenbelt. The CUFF is contextualized historically through a comparison of the impact of neoliberal pressures on three cases of land use change. The impact of neoliberalism on state conservation measures is first explored. The two case studies of wetland conservation from Chapter 4 are analyzed through Marxist political ecology lens to see what institutions, ideologies, and structures directed the evident market-based outcome. The CUFF project is then analyzed using the same theoretical framework in order to identify existing pressures on PO that may lead the project in an equally market-based direction.

The comparison of the cases offer insight into the differences between the two different regimes of land use change. The NCC attempted to *regulate* the capitalist destruction of important wetlands by acquiring the land. PO on the other hand represents a *post-capitalist* (Gibson-Graham 2009) alternative approach to resisting market-based approaches to land use by disrupting regimes of ownership entirely. Both cases experience different pressures from neoliberalism. The NCC experienced *privatization and marketization* methods of neoliberalism (Castree 2010), whereas PO experienced the structural *flanking mechanisms* and *self-sufficiency* discourses.

PO's CUFF project may face the structural pressures of market ideology, however, as a more grassroots organization, it has greater potential to resist neoliberal land use management. PO's advantage is that it engages in experimental forms of

prefigurative resistance, meaning that privilege is given to the alternative post-capitalist social economy, rather than simply a resistance to the social and environmental injustices of capitalism. J.K. Gibson-Graham (2009) suggests that such projects develop a *pedagogy of experimentation* that focuses on diverse parallel economic systems, drawing upon affect and imagination for the creation post-capitalist alternatives, rather than structuring the agenda of resistance through the ideological dialectics of capitalism.

7.1 Actually Existing Neoliberalism and the Ottawa Greenbelt

The NCC—with budgetary pressures from the Federal Government, was directed to recover the costs of additional land purchases for the protection of sensitive environmental areas. The NCC decided to expropriate, and swap land with residential development corporations in Kanata to create a protection buffer for the Stony Swamp wetland protected within the Ottawa Greenbelt in the 1980s. The NCC then decided to speculate on “surplus” Greenbelt farmland in order to raise the revenues to make land purchases such as the Mer Bleue wetland in the 1990s (Buchanan 1999).

The Stony Swamp case amounted to a 77 acre acquisition forced mostly through expropriation, but also through a “land swap” arrangement. The expropriation of land from residential development corporations can hardly be characterized as an injustice from a social justice perspective, however the land swap amounted to the privatization of property in the Byward Market. The privatized property was transferred from government ownership to the private ownership of profit through real estate speculation. One property was developed into a condominium complex, contributing to the

gentrification of Lowertown Ottawa. The other property was leased privately to a homeless shelter (Buchanan 1990; Yonson 1989). The greatest injustice arising from the market-based approach taken by the NCC to secure the Stony Swamp protection buffer is the precedent it set for the process take in the creation of the Mer Bleue Conservation Area.

The mechanism developed by the NCC in the acquisition of the Stony Swamp buffer area involves an exchange between government scientific institutions, and market-based mechanisms of land valuation. The classification of Stony Swamp as a Class 1 wetland both raised the land value of the area by raising the property value of surrounding land, which prompted the City of Kanata to enact protection bylaws over the use of sensitive environmental areas (Mackay 1987), which further raised land values (Robb 1988). The increase in value of land surrounding the protected area made the development of residential subdivisions a far more profitable venture. The use of government resources as part of the market-science interchange for the protection of Stony Swamp therefore benefited the private developers financially far more than the public interest of protecting sensitive environmental areas.

The Mer Bleue Conservation Area is an even stronger case that illustrates the interplay between government scientific institutions and market-based mechanisms of determining land use (through the price of land). The NCC enacted the Ontario Institute of Pedology's (OIP) system of determining the productive value of agricultural land during the creation of the 1996 Greenbelt Master Plan (Begin 1998), in addition to the wetland classification system of Environment Canada used in the protection of Stony Swamp. The study conducted by the OIP therefore provided a tacit measure of public

utility for farmland in the Greenbelt, in addition to the existing system appraising the public utility of “important wetland areas”. The NCC used both quantitative metrics appraising the public utility of land to prioritize what land it considered most valuable. The public utility of the land was translated into what cost the NCC determined to be worth government resources. The decision to sell supposedly marginal agricultural land in order to purchase environmentally sensitive land was therefore a decision made through the combination of scientific appraisal, budget constraints and speculative land pricing. The decision by the NCC specifically to speculate land identified as agriculturally marginal for commercial development, rather than sell the expropriated land back to the original farm-owners signifies a deliberate intention to leverage government land through private speculation, in order to deliver environmental protection. The lengthy political and legal case experienced by the Woodburns to reacquire their land illustrates a clearly neoliberal process of land use management. The NCC historically expropriated land for supposedly public interests, and then profited from the expropriation through commercial property speculation. This case constitutes an example of state power used to dispossess farmers of their land, and later to benefit private development corporations.

Both cases described above conform to variegated process of regulation and deregulation that Brenner and Theodore (2002) refer to as *actually existing neoliberalism*. Marketization occurred when the Federal Government cut the NCC budget in the 1970s amid public demands to acquire sensitive environmental areas for protection. Then *regulation* (i.e. state purchase of assets) occurred when the Federal Government gave the Stony Swamp a Class 1 designation of environmental sensitivity,

which prompted the City of Kanata to enact a zoning bylaw to protect parts of the swamp outside the Greenbelt. The NCC *regulated* agricultural land use in the Greenbelt through the OIP study, and the 1996 Greenbelt Master Plan. The NCC then lobbied the City of Gloucester to deregulate zoning of the “marginal” land from its protected status as part of the Greenbelt, in order to disincorporate the land from the Greenbelt and open it to markets for commercial development. The two cases of wetland conservation in the Ottawa Greenbelt demonstrate precisely the argument of Brenner and Theodore (2002) that deregulation and re-regulation (or privatization and nationalization) are combined in order to bring government-owned resources under the control of markets.

The two case studies also reflect all of Castree's (2010) methods of neoliberalism. Both cases resulted in the *privatization* of government land. The case of the Woodburn family's dispossession is the greatest example of this, where the nationalization of their modest private farm later gave way to its sale to a subsidiary of a large multinational development corporation. Initially, the expropriation could be described as anti-liberal, but the case ultimately demonstrates the redistribution of land from a small property owner to a large multinational corporation. *Marketization* of land use took place through the budgetary discipline of the Federal Government with specific direction for the NCC to recover the cost of its operation through profitable ventures, such as the sale of “surplus land”. *Deregulation* and *market-friendly re-regulation* occurred in a variegated pattern as described in the paragraph above. *Market proxies* were established through scientific appraisal, which allowed the NCC to justify the privatization of government-owned Greenbelt land. *Flanking mechanisms* had the

potential to emerge, where non-profit conservation groups offered initially to purchase the land and hold it in trust, diverting the role of regulation from the public-sector to private civil society organizations. The neoliberal objective of *self-sufficiency* was proposed by the Woodburns who demonstrated a “willingness to pay” for their land to continue to serve the NCC's desire to include farmland in the Greenbelt. The Woodburns however were priced out of the market when the land was zoned for commercial development. The collection of methods articulated by Castree (2010) was evidently verified in the process of creating the two protected wetland areas. The methods however were shown to work in a variegated manner as described by Brenner and Theodore (2002). Castree's methods of neoliberalism articulated in this case study function more accurately in a dialectic. Privatization and nationalization are coupled in order to bring a greater amount of land under market control, even if the state ends up owning more property in the end.

The two cases also affirm David Harvey's (2001) theory of the *spatial fix*. The spatial fix is a phenomena beginning with the accumulation of wealth among owners of capital is challenged by the negative social, economic and environmental caused by the excessive, and unused wealth they have accumulated. Owners of capital must therefore always be reinvesting wealth into the profitable construction of the physical environment if they want to continue to expand their accumulation of wealth. The NCC for instance decided against selling the Woodburns back their expropriated land. Commercial speculation returned a greater profit on investment for developers, which translated into higher property value when the land was zoned commercial. Commercial development (*i.e.* large outlet store complexes), and residential

subdivisions are therefore a structural inevitability of capitalist cities, which is eventually bound to cause environmental problems such as the destruction of sensitive wetland areas.

Erik Swygnedouw (2006) argues that the process of urban development does not exclusively entail the construction of buildings, roads, and parking lots. Urban development also involves the re-orientation of society's use of ecosystems. The process of *metabolizing* (*i.e.* transforming) nature through the ideological imperative of capital accumulation is not so crudely divided into "first" and "second" nature, as initially described by Marx. Capitalism transforms a hybrid nature—composed of indistinguishable social and ecological facets—to conform to the means of capitalist production and accumulation of wealth. The political significance of Mer Bleue conservation area that was framed through both the scientific appraisal of environmental sensitivity, and the accompanying market value for the land. The purchase of market-based land conservation therefore required a return on investment, which was measured as the tourist value for the National Capital experience. The space produced through neoliberal land use management is a hybrid nature embodying market ideology.

The looming ecological crisis in the 1970s of sensitive wetland destruction in areas surrounding the Ottawa Greenbelt was created through the encroachment of residential subdivision developers. The NCC received new direction from the Federal Government to protect such important environmental areas because it was in the "national interest" to do so. The Federal budgetary constraints placed upon the NCC in the 1970s also enacted an imperative that the national interest must be delivered in a

“cost effective” and profitable manner. The NCC therefore became pressured to uphold the conservation of important environmental areas, which was permitted through the interest of private wealth accumulation. The NCC allowed the profits of developers to expand, while protecting the national interest of environmental regulation. The tension resulted in the *actually existing neoliberal* process of land use management, which would defer the *fixing* of wealth into the urban environment in some spaces by leveraging state assets to direct development more profitably on other land deemed “surplus” to the national interest.

The NCC managed to *fix* the wealth of developers to sites such as the former Woodburn property, protecting areas such as the *Mer Bleue* wetland, but also ideologically disciplining environmental regulation with market-based proxies of land valuation. The protected wetland areas that were created were therefore hybrid social constructs of market ideology. Furthermore, it is evident that market ideology transferred from the process for the creation of the Stony Swamp buffer, to the establishment of the Mer Bleue wetland. The institutions (*i.e.* OIP classification system, Ramsar wetland designation, *etc.*) that emerged through the tension between capital and national interests in land use in one case (Stony Swamp) carried over to a subsequent one (Mer Bleue). The overriding influence of market institutions in neoliberal arrangements of land use management mean that there is a risk that future attempts to regulate environmentally destructive and socially unjust effects of markets will be infiltrated by such institutions, thus propagating further injustices.

7.2 Neoliberalism and the Community Urban Food Forest

The fieldwork conducted for this research highlighted several points of influence where neoliberalism—*i.e.* market disciplines—can structurally shape the organization direction of Permaculture Ottawa, and projects such as the Community Urban Food Forest. Four structural pressures were identified: institutional legitimacy, participation with for-profit organizations, incorporation and insurance. The four structural pressures faced by PO are caused by the political, economic, and legal realities of organizing a civil society organization in a capitalist society for the purpose of developing not-for-profit permaculture projects. The objective of Permaculture Ottawa is to contribute to social and environmental justice in Ottawa through permaculture. PO, however, faces government regulation if it were to seek incorporation to grow its capacity to achieve the CUFF project. CUFF will require resources and labour to develop. Such projects also require access to land, which legally requires that PO attain a private insurance policy. To comply with these structural pressures PO needs to change the way they operate, and purpose for which they develop such projects. The market disciplines incorporated into the NCC's process of land use management can and does fundamentally shape the structure and objectives of PO, if institutional pressures are not resisted.

The first pressure encountered by PO in the development of the CUFF was institutional legitimacy. PO had to temper its overt objectives related to social justice in order to appeal politically to the NCC as part of Just Food's Food Hub. PO could have broadcast a more radical programme for land use as a part of the CUFF but this would have risked "alienating" potential volunteers and allies who could help advance the project. The ultimate purpose of CUFF is to restore public use of the state-owned in the

Greenbelt for sustainable and socially just means of producing food. Such an objective challenges the market ideology and state power directed through the NCC. The NCC however owns the land, therefore granting it control over who uses the land. If PO desires access to the land to create a CUFF, and also does not want to compromise Just Food's work to gain access to the land to create the Food Hub, the political objectives privileged in the creation of the project are those that appeal to the NCC's plan for Greenbelt land use. The messaging presented by PO to promote the CUFF project detail the "ecosystem services" that permaculture design delivers, such as water filtration, carbon sequestration, and buffering sensitive ecological areas (Green's Creek) from residential areas (Blackburn Hamlet). The greatest evidence of the pressure for institutional legitimacy was in the debate around labeling PO and an organization dedicated to "liberation permaculture", which entails the radical anti-capitalist, and anti-state politics. Just Food experienced a similar dilemma, where it had initially organized around the label of "food sovereignty", which focuses on gaining secure access to land for food producers, and challenging globalized capitalist food systems.

The need to appeal to state and market institutions in order to gain access to land and resources forces otherwise radical political organizations to abandon or hide more revolutionary objectives. This pressure is best described as part of Castree's (2010) *marketization*, which attempts to analyze the devolution of the administration of social services, and regulation to civil society organizations. The creation of an equitable and sustainable food system, or experimentation with projects like the CUFF benefits the public in general, which ought to be entitled to support from state institutions. That is, projects such as CUFF ought to be allowed to be delivered more

freely through a government department. Government institutions—disciplined by market ideology, however cannot support such projects directly because it would require a greater re-distribution of wealth (*i.e.* more progressive taxation), and challenge market institutions. Organizations such as PO and Just Food must compete for limited grants and demonstrate profitability if they are to gain access to government land. The marketization method of neoliberalism therefore additionally disciplines radical civil society organizations from resisting neoliberal ideology.

The second institutional pressure faced by PO in the development of CUFF is the collaboration with for-profit entities. Permaculture Design Courses (PDC) functions as the *de facto* process within permaculture communities worldwide for certifying designers and instructors. The course is a voluntary 72 to 84 hour series of lectures and hands-on work that provides practitioners with a standardized set of skills and knowledge. The PDC does not “certify” a practitioner in any formal sense, but it is an important step towards gaining acceptance among permaculture communities. Permaculture instructors deserve to be paid fairly for their services. Instructors must therefore charge students for the course. The Permaculture Institute of Eastern Ontario (PIEO) provides a comparatively accessible \$795 price for the course (\$2,000 is a typical price to pay for a PDC; PIEO has a lower rate for a few students who have a lower income) (PIEO np.; PCI 2006). PO does not require that members take a PDC, however, most people who are interested in becoming more involved in the permaculture community choose to take the course to experience a PDC, which is common among community members. Members also decide to take the PDC because more can be learned in the course than can be read in books, or taught through community projects. The PDC is therefore

tacitly endorsed by PO simply because most of its members have taken the course. The relationship that emerges between Ottawa's permaculture community and the PDC is best described by the *self-sufficiency* method of neoliberalism described by Castree's (2010). The PDC disciplines market ideology through the voluntary regulation of permaculture mediated through monetary exchange. Neoliberalism operates ideologically through the rhetoric of "choice". Market ideology asserts that people ought to have the option to chose to access an opportunity to learn about permaculture design. "Choice" is determined in the market logic of neoliberalism as a "willingness to pay". The ability to chose and pay to take a PDC is therefore dependent upon one's self-sufficiency. The PDC in a free market economy is articulated as an investment in human capital. The impetus towards taking the PDC is so that it can enhance the student's ability to generate revenue by leveraging the acquired skills of permaculture design. Market ideology disciplines the PDC student to attain self-sufficiency. Self-sufficiency is therefore a structural pressure of markets that infiltrate community groups such as PO through the institution of private PDC programmes.

The third structural pressure faced by PO is the need to incorporate as a legal charitable organization in order to compete for government resources (*i.e.* grants). The CUFF project had minimal development throughout the course of this research. PO volunteers in the CUFF committee have expressed difficulty dedicating time to the project since it is so demanding. Volunteers have indicated that the dual burden of work and school made it difficult to commit to the planning and implementation of the project. Furthermore, the cost of mature fruit tree root-stock, and other materials for the food forest, is too expensive to be supported exclusively from the resources of the PO

community. As a working group of OPIRG Carleton, PO cannot currently seek external resources for the project, since the charitable number of the organization is a province-wide affiliation of all Ontario PIRGs. PO has therefore considered incorporation as a charitable organization. Incorporated organizations exist as a separate legal entity from its members, allowing limited liability for its members. Incorporated organizations are also allowed to own property and resources independent of the membership, making it easier to transfer the organization to new leadership in the future. Incorporated charitable organizations can compete for government and private grants, and legally solicit the public for donations and issue tax receipts (Ontario Ministry of the Attorney General 2010). Incorporation however requires that PO conform to the institutional requirements of a legally incorporated organization. The process itself of incorporation is a lengthy process requiring a great deal of paperwork. Most charitable organizations have staff dedicated to the administrative work of the organization such as financial and programme reporting. Furthermore, the Government of Ontario restricts the advocacy work of charitable organizations (Barry-Shaw & Oja Jay 2012). As a charitable organization, PO would be forced to de-politicize its work and refrain from advancing any ideological agenda. Governments hold power as a gate keeper to restrict the political activities of charitable organizations. Charitable incorporation is another example of Castree's (2010) neoliberal *flanking mechanism*, which disciplines the politics of charitable organizations by restricting the conditions of access to public resources.

The final structural pressure experienced by PO is the need to obtain insurance in order to develop projects such as the CUFF. Insurance is not in itself a structural

pressure of neoliberalism. Insurance policies seek to cover the costs imparted upon a participant through an accident. The CUFF project will require the use of tools and instruments capable of causing bodily harm to participants therefore having a way of accommodating care for victims of an accident is very important. Insurance policies however are a profit-making enterprise, which means that access is determined by ability to pay, and institutional status. Organizations can only attain an insurance policy if they are a legally registered entity. The NCC has demanded that community partners of Just Food working on the Food Hub site have an insurance policy protecting their members. In order for PO to continue work of the CUFF they will need to purchase an insurance policy, which requires that the organization incorporate and therefore subject to government regulation of political activities. The NCC therefore requires that community organizations seek private protection to work on government land. This policy is both a form of Castree's (2010) *market-friendly re-regulation*, and a *market proxy*. Regulation from the Federal Government demanding private insurance forces private citizens to purchase private insurance policies in order to gain access to state-owned land. Community access to public space is therefore mediated through insurance corporations, which already receive a massive public subsidy in Canada.

The above four institutional pressures from neoliberal regimes of land use management demonstrate the power of markets and governments to discipline community groups to function according the prevailing capitalist ideology. In the two cases of wetland conservation described in the previous section the institutional pressures of neoliberalism had a profound effect on determining land use, and perpetuating the social injustices of market ideology. The institutional pressures

described in this section express potential for Permaculture Ottawa to be co-opted into an arrangement of market-based determination of land use.

The structural pressures faced by PO are not the same as those experienced historically by the NCC for the conservation of important wetlands surrounding the Greenbelt. The structural pressures faced by PO are less driven by the need to acquire land, than by the need to obtain resources and land access as an organization. The differences between the NCC and PO in changing land use is a matter of scale and organizational structure. PO is a small, grassroots organization operating organically in its approach to changing land use on government-owned land. The NCC is a large crown corporation operating through a bureaucratic structure to change land use by gaining control of it. Two contrasting cases seeking change in land use juxtapose historic and contemporary approaches to resisting capitalist development. The NCC approach represents the welfare state regime of regulating capitalism through land ownership. The PO approach represents the post-capitalist approach to disrupting capitalism by resisting regimes of land ownership entirely. The former regulation approach is far more susceptible to neoliberal infiltration than the later post-capitalist approach.

7.3 Post-Capitalist Permaculture Design

The cultural turn that took place in the permaculture literature since 2002 indicates that permaculture has the potential of politicizing land use through design, presenting challenges to market ideology. Permaculture design on its own is easily co-opted by market ideology. Capitalist permaculture is evident among commentators such as Paul

Wheaton, who have suggested that practitioners ought to be able to become “millionaires” through their work. Uri Gordon (2008) however has provided evidence of permaculture used in intentional communities to create alternatives to market economies. Permaculture design that resists neoliberalism requires the creation of ecological design solutions that provide equitable and sustainable alternatives to a market-based means of production, even as it continues to operate under market constraints. Permaculture design in the form of projects such as CUFF attempt *prefigurative* resistance to the structural force of markets to dictate land use. The NCC has demonstrated a desire to leverage government-owned land for the private generation of wealth through market mechanisms. CUFF—in principle—resists the determination of land use through markets by creating a space where the means of producing food is organized and operated democratically. Market distribution of products are also resisted through the openly gifted distribution of food to the permaculture community and the local neighborhood.

The intention of the CUFF is not to sustain communities exclusively through the gift system of food distribution, but to demonstrate the possibility of an alternative food economy. The CUFF can become an example that can be referred to in order to challenge the market ideology assertion that the “efficiency” of distribution through private property ownership, and unregulated access to markets is necessary in order for all to have access to sufficient food. The eventual intention of PO is to scale-up the CUFF project to larger proportions of government-owned land. Community Urban Food Forests in city parks, and crown lands have the potential of producing large amounts of food, which can be openly gifted or directly harvested by residents of Ottawa. The act

of gleaning or receiving gifted food grown in a CUFF would create an opportunity to begin normalizing economic relationships that function without money or private property ownership. This vision of a permaculture-based gift food economy however faces structural challenges from the neoliberal institutions that discipline the land and land use regulation to function in accordance with market ideology. PO and the CUFF project risk formation into a market-driven project, potentially transforming into a business operating on leased public land for private profit. PO should therefore approach the development of project such as CUFF on public land critically. PO needs to resist the incursion of market influence on the CUFF project by developing prefigurative alternatives to neoliberalism.

J.K. Gibson-Graham & Roelvnik (2010) suggest that a *post-capitalist (i.e. social economy)* economy requires socially innovative experimentation. Gibson-Graham (2009) articulate three practices that promote the development of post-capitalist alternatives to neoliberalism. First, communities need to “attend to the affect”, meaning that groups like PO need to identify existing social innovation (such as community gardens, or community supported agriculture systems) and appraise their strengths and weaknesses in meeting community needs. Second, alternative discourses to capitalism need to be given privilege. The CUFF project—for instance, ought to be framed within the community through an ideology of *mutual aid* (Kropotkin 1902), as opposed to a form of resistance to neoliberalism. Community discussion should be facilitated appraising the capacity for the CUFF project to embody an economy of cooperation and distribution of resources directly to where there is a demonstrated need. Finally, Gibson-Graham (2009) call for greater *pedagogy of experimentation* where alternative

isolated experiments for the creation of a social economy are brought into dialogue with one another in order to appraise successes and failures. Practicing a *pedagogy of experimentation* breaks-down the notion that alternatives need to be monolithic challenges to a global capitalist system. Experimentation demonstrates that a post-capitalist social economy operates through social niches, tailored to local circumstances (Gibson-Graham & Roelvink 2010). This research documented the specifics of a potential post-capitalist food system in the east-end of Ottawa. The CUFF project may not function quite the same in the same way in other cities. A *pedagogy of experimentation* would catalyze a conversation to begin understanding design approaches for the creation of localized social economic systems.

Permaculture design has the advantage of being “solutions oriented” (Holmgren 2002). Focusing on solutions—even imagining how problems can be leveraged into creating solutions—promote alternative post-capitalist discourses. The struggle against neoliberalism is therefore transformed into a struggle for a socially equitable form of permaculture: *social permaculture*. A more social permaculture dedicates special attention to the distribution of abundance guided by the principles of social justice. Social justice in permaculture would design systems around a respect and commitment to the provision of resources where they are needed, from where they are available. Design takes place through direct democracy, which weaves the provision of government directly into the means of production. Permaculture can help democratize society within site of production, where it has most impact on the cultivation of social justice. The design process practiced in permaculture engages community members in a proactive means of realizing alternative forms of land use.

7.4 Theoretical Limitations

This thesis focused on the material structure of power distribution in the politics of land use, and access to land in the Ottawa Greenbelt. The interaction between ideology and social structure are the primary focus of Marxist historical analysis, however, there are important questions of discourse that inform how power operates in the political ecology of land use. The social construction of nature discourse also influences land use decisions made in the Ottawa Greenbelt. This research initially tried to cover discourses of nature as well as material structures, however time constraints limited this pursuit. A genealogy of nature discourses would disclose how power over land use is exercised beyond the structures of state and capital, into the ways people negotiate interpersonal relationships.

The *colonial present* of land use was also given very limited attention in this thesis. Neoliberalism was privileged as the subject of critique in this thesis, however post-colonial struggles for Indigenous sovereignty also deserves critical attention. Furthermore, this research's critique of neoliberalism focused on the cases of injustice faced by farmers. Neoliberalism intersects with virtually every struggle for Indigenous sovereignty in Canada. Future research ought to privilege the struggles of Indigenous peoples for control over the land and resources in Ottawa. Ottawa is after-all located on stolen Algonquin land.

Finally, while this research covered the politics of creating a food forest, it did not cover any of the biophysical or ecological insights gained from the fieldwork.

Throughout the fieldwork, soil testing, elevation mapping, plant identification, weather

tracking, and faunal observations occurred. Such data is rich for the physical sciences of the CUFF project, however I was not able—skill-wise, or institutionally—to engage in the sort of genuine interdisciplinary research that crosses the physical-human divide in geography. Research like this is perhaps hasty to call itself “political ecology”, when little attention is given to the biophysical properties of the ecosystems under investigation.

7.5 Methodological Challenges

The greatest limitation of this thesis is that the Community Urban Food Forest was not documented at its completion. This thesis only covered the planning and observation stage of the project. The development of a food forest takes decades, therefore documentation of the creation of the project could not have taken place in the time span of a Masters of Arts programme. Several important questions remain to be observed as the project comes to fruition: Will the CUFF effectively challenge the NCC’s neoliberal regime of land use management, and create a meaningful alternative that genuinely cultivates economy equity and resilience in the local community? This question was central to the research, but could not be answered. Rather, this research could only provide insights from an evolving but yet incomplete process, and a critical analysis of where the project is headed based on the history of land use management in the Ottawa Greenbelt.

Another key methodological limitation to this research was the failure to effectively conduct the *Critical Discourse Analysis* that integrates discourse and material structures. However this research was unable to weave a genealogy of discourse into

the analysis. This thesis instead focused on structural analysis because in order to privilege the most noteworthy data collected. Interviews were conducted for the purpose of analyzing discursive *social constructs of nature*, however such interviews were inconclusive and difficult to connect analytically to the politics of land use in the Ottawa Greenbelt. More interviews would have needed to be conducted with a broader sample of participants in order to see how discourse helps shape land use. However, it became evident that the post-structuralist methods of discourse analysis was not what the PO community desired from the research. The lesson learned from the fieldwork is that a focused scope of inquiry was necessary in order to produce effective research for this thesis, and for the community.

7.6 Conclusion

This chapter compared the conditions necessary for the resistance to capitalist development among the two cases of wetland conservation by the NCC and the current CUFF project. Both cases the wetland cases, and the current CUFF project face different structural pressures from the market ideology of neoliberal regimes. The NCC face the pressures of the neoliberal methods Castree (2010) referred to as *privatization and marketization* because of its attempt to regulate capitalist development through the purchase of land. PO's CUFF project faced *flanking mechanisms*, and *self-sufficiency* discourses because of their need to access resources and land to create the project.

PO remains at risk from the infiltration of market ideology through the structural pressure of neoliberal regimes of land use management, however it has a better chance at resistance than the NCC since it attempts to challenge conventions of property

ownership entirely rather than take control of it. Furthermore, PO's CUFF project exists as a *prefigurative* form of resistance to capitalist development, rather than simply regulating or commanding the injustices of neoliberalism (ultimately creating new injustices). PO is attempting to demonstrate the local manifestation of a post-capitalist social economy, rather than simply regulating a capitalist economy. The appeal to affect and imagination in the process of developing post-capitalist alternatives places focus on creating a just and sustainable economy, rather than trying to force regulation on an inherently unjust market system. This research demonstrated the local particularities that need to be addressed in the creation of a post-capitalist social economy. It also highlighted the specifically variegated approach to neoliberalism exercised in the governance of land use in the Ottawa Greenbelt. The research highlighted the position that community groups can take within the process of neoliberal land use governance in order to create a socially just alternative, while avoiding the infiltration of market ideology. Future critical permaculture research needs to address the discursive elements of land use governance, and explore how permaculture design can operate paradigmatically to rupture capitalist and colonial discourses of nature. Further research will need to be conducted on the outcome of the CUFF project, and other similar projects that may emerge in Ottawa, and other cities worldwide.

Bibliography

- Astyk S. 2008. The Permaculture Family. In *Depletion and Abundance: Life on The New Home Front*. British Columbia, 107-126.
- Ballamingie P & Walker SML. 2013. Field of Dreams: Just Food's Proposal to Create a Community Food and Sustainable Agriculture Hub in Ottawa, Ontario. *Local Environment*, 1-14.
- Bane P. 2012. Gardening the Planet. In *The Permaculture Handbook: Garden Farming for Town and Country*. British Columbia, 21-28.
- Barry-Shaw N & Oja Jay D. 2012. *Paved With Good Intentions: Canada's Development NGOs from Idealism to Imperialism*. Canada.
- Basiago AD. 2009. Sustainable development in Indonesia: A case study of an indigenous regime of environmental law and policy. *International Journal of Sustainable Development & World Ecology* 2(3), 199-211.
- Bazley P. 2007. *Qualitative Data Analysis with NVivo*. London.
- Begin L. 1998. NCC Disputes Quality of Farmlands in Greenbelt. *Ottawa Citizen*, 14 Dec, 1998: B5.
- Belden H & Co. 1879. *Illustrated historical atlas of the country of Carleton (Including City of Ottawa)*, Ontario. Toronto.
- Blackburn Community Association. np. History of Blackburn Hamlet. Retrieved December 18, 2012, from <http://www.blackburnhamlet.ca/history.html>
- Booth A, Papaioannou D & Sutton A. 2012. *Systematic Approaches to a Successful Literature Reviews*. London.
- Boswell R. 1990. NCC Correct in Seeking Stony Swamp Buffer Zone, Say Specialists. *Ottawa Citizen*, Jan 08, 1990.
- Bradshaw M & Stratford E. 2000. Qualitative Research Design and Rigour. In I Hay's *Qualitative Research Methods in Human Geography*. Oxford, 67 - 76.
- Brenner N, Peck J, & Theodore N. 2010. Variegated neoliberalization: geographies, modalities, pathways. *Global Networks* 10(2), 1470-2266.
- Brenner N & Theodore N. 2002. Cities and the Geographies of "Actually Existing Neoliberalism". *Antipode* 34(3), 349-379.

- Brodie A. 1986. Wilkinson's OMB objections 'frivolous'. *Ottawa Citizen*, Aug 20, 1986:B20
- Buchanan C. 1999. Farmer Blocks Sale of Plum NCC Land. *Ottawa Citizen*, 28 Sept, 1999: D1.
 —. 1989. Hearing Planned for Stony Swamp. *Ottawa Citizen*, Oct 20, 1989:F14.
- Bulut Z. 2008. Permaculture Playgrounds as a New Design Approach for Sustainable Society. *International Journal of Natural and Engineering Sciences*, 1(2), 35-40.
- Budd E. 2007. Transportation and Bridges in Blackburn's Past. *The Banar Newsletter*, (April 2007).
 —. np. The History of your neighbourhood is its identity. Retrived December 18, 2012, from: <http://www.blackburnhamletliving.com/index.php?pageId=23971>
- Butler C.T. & Rothstein A. 1987. *On Conflict and Consensus: A Handbook on Formal Consensus Decisionmaking*. USA.
- Cagle S. 2012. Are Trendy Homesteaders Clueless About Class Differences? *Grist* Nov 30, 2012.
- Cahill C. 2007. The Personal is Political: Developing new subjectivities through participatory action research. *Gender, Place and Culture*, 14(3), 267-292.
- Castree N. 2010. Neoliberalism and the Biophysical Environment 1: What 'Neoliberalism' is, and What Difference Nature Makes to it. *Geography Compass*, 12(4), 1725-1733.
- Castree N & Braun B (eds.). 2001. *Social Nature: Theory, Practice and Politics*. New Jersey.
- Cattaneo C & Gavalda M. 2010. The Experience of rurban squats in Collserola, Barcelona: what kind of degrowth? *Journal of Cleaner Production*, 18, 581-589.
- Conford P. 2011. The Organic Alternative: Farming. In *The Development of the Organic Network: Linking People and Themes*, 1945-95. Edinburgh: Floris Books, 71-135.
- Council of Heritage Organizations in Ottawa. np. Swalwell, Anthony. Retrieved December 18, 2012, from: <http://www.ottawagraphy.ca/bayfpeople/swalwell-anthony>
- Coyne K. & Knutzen E. 2008. Chapter One: Start Your Own Farm. In *The Urban Homestead: Your Guide to Self-Sufficient Living the Heart of the City*. Washington, 20-43.

- Curran MM & Moran D. 2004. The Nature of Corporate Social Responsibility in the Food and Agriculture Sector. *International Journal for Sustainable Business*, 11(7), 153-161.
- Dare P. 1995. Greenbelt Plans Get Mixed Reviews. *Ottawa Citizen*, 28 Jan, 1995: C1.
 –. 1993. Don't Touch Greenbelt, Local Residents Say. *Ottawa Citizen*, 02 Jan, 1993: C4.
 –. 1992. Undoing the Greenbelt. *Ottawa Citizen*, 08 Dec, 1992: D2.
- Dawborn K & C Smith's. 2011. *Permaculture Pioneers: Stories From The New Frontier*. Australia, 3-15.
- Demerange E, Henry E, & Préau M. 2012. *From Collaborative Research to Community-Based Research: A Methodological Toolkit*. Paris.
- Dickenson V & Harrison J. 1995. Magnificent Mer Bleue Bog Gains Global Significance. *Ottawa Citizen*, 25 Nov, 1995: I4.
- Dunn K. 2000. Interviewing. In I Hay's *Qualitative Research Methods in Human Geography*. Oxford, 79-105.
- Fosket J & Mamo L. 2009. An Alternative for Los Angeles. In *Living Green: Communities that Sustain*. British Columbia, 59-77.
- Foster JB. 1999. Marx's Theory of Metabolic Rift: Classical Foundations for Environmental Sociology. *American Journal of Sociology*, 105(2), 366-406.
- Foucault M. 1977. *Discipline & Punish*. New York.
- Fukuoka M. 1978. *The One Straw Revolution*. New York.
- Freire P. 2000. *Pedagogy of the Oppressed: 30th Anniversary Edition*. New York.
- Gibson-Graham J.K. 2009. Socially Creative Thinking or How Experimental Thinking Creates 'Other Worlds'. Katarsis Conference 2008.
- Gibson-Graham, J.K. & Roelvink, G. 2010. The Nitty Gritty of Creating Alternative Economies, *Social Alternatives* 30(1), 29-33.
- Gloucester Historical Society. 2013. A Historical Timeline for the Township of Gloucester. Retrieved March 11, 2013, from <http://www.gloucesterhistory.com/history.html>
- Gordon D. 2001a. From Noblesse Oblige to Nationalism: Elite Involvement in Planning Canada's Capital. *Journal of Urban History*, 28(1), 3-34.

- . 2001b. Weaving a modern plan for Canada's capital: Jacques Breber and the 1950 plan for the National Capital Region. *Urban History Review*, 29(2), 43-61.
 - . 1998. A City Beautiful plan for Canada's capital: Edward Bennett and the 1915 plan for Ottawa and Hull. *Planning Perspectives*, 13, 275-300.
- Gordon U. 2008. Luddites, Hackers and Gardeners: Anarchism and the Politics of Technology. In *Anarchy Alive! Anti-Authoritarian Politics from Practice to Theory*. London, 109-138.
- Graeber D. 2009. *Direct Action: An Ethnography*. San Francisco.
- Harden G. 1968. The Tragedy of the Commons. *Science* 162(3859), 1243-1248.
- Harvey D. 2012. *Rebel Cities: From the Right to the City to the Urban Revolution*. London.
- . 2010. *The Enigma of Capital*. London.
 - . 2005. *A Brief History of Neoliberalism*. Oxford.
 - . 2001. *Globalization and the Spatial Fix*. *Geographische Revue* 2, 23 - 30.
 - . 1996. *Nature, Justice, and the Geography of Difference*. Boston.
 - 1973. *Social Justice and the City*. Baltimore.
- Haughton G. 1999. Searching for the Sustainable City: Competing Philosophical Rationales and Processes of 'Ideological Capture' in Adelaide, South Australia. *Urban Studies*, 36(11), 1891-1906.
- Heinberg R. 2007. Fifty Million Farmers. In *Peak Everything: Waking Up to the Century of Declines*. British Columbia, 47-66.
- Hemenway T. 2010. How Permaculture Can Save Humanity and the Earth, but Not Civilization. February 12, 2010 Lecture for Nicholas School of The Environment, and Sarah P. Duke Gardens: Duke University.
- . 2009. Introducing the Ecological Garden. In *Gaia's Garden: A Guide to Home-Scale Permaculture, Second Edition*. Vermont, 3-20.
- Hessel P. 1993. *The Algonquin Nation: The original people of the Ottawa Valley*. Ottawa.
- Holben DH. 2011. Development of an Organic Gardening Workshop and Community Engagement Activities to Develop a Healthy, Local Food Systems. *Journal of Hunger & Environmental Nutrition*, 6(2), 233-235.
- Holland L. 2011. Diversity and connections in community gardens: a contribution to local sustainability. In *Local Environment*, 9(3), 285-305.

- Holmgren D. 2011. The Long View. In K Dawborn & C Smith's (eds.) *Permaculture Pioneers: Stories From The New Frontier*. Australia: Melliodora Publishing, 18-29.
- . 2009. Introduction: Energy and History. In *Future Scenarios: How Communities Can Adapt to Peak Oil and Climate Change*. Vermont, 1-12.
- . 2002. Introduction. In *Permaculture: Principles & Pathways Beyond Sustainability*. Australia, xix-xxii.
- Holzer S. 2004. Introduction. In *Sepp Holzer's Permaculture: A Practical Guide to Small-Scale, Integrative Farming and Gardening*. Vermont, xv-xvii.
- Hopkins R. 2011. Tools for Transition No. 1: Permaculture Design. In *The Transition Companion: Making your community more resilient in uncertain times*. Vermont, 98-99.
- . 2008. *The Transition Handbook: From Oil Dependency to Local Resilience*. Vermont.
- Hoskins R. 2009. *Rebecca's Wild Farm* (Documentary). BCC.
- Hough M. 2004. *Cities and Natural Processes*. London.
- Ibbitson J. 1994. Seeking Sanctuary at Mer Bleue Bog Series: Home Tourists. *Ottawa Citizen*, 27 Aug, 1994: C3.
- IPCC - Field, C.B., V. Barros, T.F. Stocker, D. Qin, D.J. Dokken, K.L. Ebi, M.D. Mastrandrea, K.J. Mach, G.-K. Plattner, S.K. Allen, M. Tignor, and P.M. Midgley (eds.). 2012. *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation*. Geneva.
- Jacke D. 2005. *Edible Forest Garden: Ecological Vision and Theory for Temperate Climate Permaculture*. Vermont.
- Jaimet K. 2010. Biologist Wins Award for Saving Bog. *Ottawa Citizen*, 23 Sep, 2010: C5.
- Jordan CF. 2004. Organic farming and agroforestry: Alleycropping for mulch production for organic farms of southeastern United States. *Agroforestry Systems*, 61, 79-90.
- Just Food. 2012. Just Food Farm Map.
- . 2011a. Our Background. Retrieved December 11, 2012, from <http://www.justfood.ca/about/our-background.php>
- . 2011b. Community Food and Sustainable Agriculture Hub. Retrieved December 11, 2012, from <http://www.justfood.ca/ottawa-food-hub/>

- Katai O, Ohya T, Shiose T, & Kawakami H. 2006. Information Edaphology: How can we restore "Nature" to our Cybersociety? Proceedings of the 10th WSEAS International Conference on Systems, Vouliagmeni, Athens, Greece, 739-747.
- Kearns RA. 2000. Knowing Seeing? Undertaking Observational Research. In I Hay's (ed.) *Qualitative Research Methods in Human Geography, 2nd Edition*. Oxford, 192 - 206.
- Kelly E. 2000. Family Loses Claim to Expropriated Land. *Ottawa Citizen*, 20 Sep, 2000: C3.
- Kendall G & Wickham G. 1999. *Using Foucault's Methods*. London.
- Kobayashi A. 2001. Negotiating the personal and the political in critical qualitative research. In M. Limb & C. Dwyer (eds.) *Qualitative Methodologies for Human Geographers: Issues and Debates*. New York, 55-72.
- Kropotkin P. 1912. *Fields, Factories and Workshops: Or Industry Combined with Agriculture and Brain Work with Mutual Work*. London.
 -. 1902. *Mutual Aid*. London.
 -. 1885. What Geography Ought to Be. In *The Nineteenth Century* 18, 940-56. Retrieved October 15, 2012 from http://dwardmac.pitzer.edu/Anarchist_Archives/kropotkin/whatgeobe.html
- Kwakkenbos L. 2011. The Laboratory of Insurrectionary Imagination: Art, Activism and Permaculture—An Interview with Isa Fremeaux and John Jordan. In L De Caeter, R De Roo & K Vanhaesebrouck's (eds.) *Art and Activism in the Age of Globalization*. Rotterdam, 298-307.
- Lanktree G. 2012. Organic Farm Restores Way of Life for Myanmar's Refugees. *Metro News Ottawa* (July 19, 2012).
- Latour B. 2005. *Reassembling the Social: An Introduction to Actor-Network Theory*. London.
 -. 2004. *Politics of Nature: How to Bring the Sciences into Democracy*. Boston.
- Lawton G. 2011. Thinking Big. In K Dawborn & C. Smith's (eds.) *Permaculture Pioneers: Stories from the new frontier*. Australia, 87-109.
 -. 2009. Greening the Desert II: Greening the Middle East. Video retrieved December 10, 2012 from: <http://vimeo.com/7658282>
- Leahy T. 2011. The Gift Economy. In A Nelson & F Timmerman's (eds.) *Life Without Money: Building Fair and Sustainable Economies*. London, 111-135.
- Lee D. 2006. *Lumber Kings and Shantymen: Logging, Lumber and Timber in the Ottawa Valley*. Toronto.

- Mackay B.K. 1989. Birders' Trip to Stony Swamp was a Welcome Interlude. *Toronto Star*, Aug 09, 1987: H8.
- Macnamara L. 2012. *People & Permaculture: Caring and Designing for Ourselves, Each Other and the Planet*. England.
- Madeley J. 2002. The New Agriculture. In *Food For All: The Need For A New Agriculture*. London, 41-51.
- Maher J.T. 1975. *The Twilight of Splendor: Chronicles of the Age of American Palaces*. New York
- Mann CC. 2005. *1491: New Revelations of the America's Before Columbus*. New York.
- Mars R. 1996. Permaculture is a direction not a destination. In *The Basics of Permaculture Design*. Vermont, 1-9.
- Marx K. 1867. *Capital: A Critique of Political Economy, Vol. 1*. New York.
- McCarthy J & Prudham S. 2004. Neoliberal nature and the nature of neoliberalism. *Geoforum*, 35, 275-283.
- McGregor S. 2004. *Since Time Immemorial: "Our Story", The Story of the Kitigan Zibi Anishinàbeg*. Maniwaki.
- Metcalfe R. 1990. Organic farming; Groups planning pesticide-free farm, laboratory. *The Ottawa Citizen* (March 4, 1990).
- Middleton J. 1985a. NCC Opposes Eastern Hydro Corridor. *Ottawa Citizen*, 11 Sept, 1985: B3.
 –. 1985b. NCC Plan Saves Bird Sanctuary, hurts home. *Ottawa Citizen*, 12 Oct, 1985: A8.
 –. 1985c. Bog May Now Day Be a Jewel. *Ottawa Citizen*, 21 Oct, 1985: B3.
- Midmore P. 1996. Towards a Postmodern Agricultural Economics. *Journal of Agricultural Economics*, 47(1), 1-17.
- Mitchell D. 2000. *Cultural Geography: A Critical Introduction*. Oxford.
- Mollison B & Holmgren D. 1978. *Permaculture One: A Perennial Agriculture for Human Settlements*. Australia.
- Mollison B. 1991. *Introduction to Permaculture*. Australia.
 –. 1988. *Permaculture: A Designers' Manual*. Australia.

- . 1979. *Permaculture Two: Practical Design for Town and Country in Permanent Agriculture*. Australia.
- Morrow R. 2006. Introduction and Part One: An Observing and Appraising Eye. In *Earth User's Guide to Permaculture (Second Edition)*. Australia, 1-8.
- Movement Generation. np. Mission. Retrived April 13, 2013, from <http://www.movementgeneration.org/about-us/mission-and-history>
- Mulligan M & Hill S. 2001. Thinking Like An Ecosystem: Australian Innovations in Land and Resource Management. In *Ecological Pioneers: A Social History of Australian Ecological Thought and Action*. Cambridge, 191-215.
- Mullington D. 1998. Expropriated Greenbelt Land No Longer Fit for Farming, NCC Says. *Ottawa Citizen*, 08 Dec, 1998: B3.
- National Capital Commission. 2011. *Building a Greener Capital*. Ottawa.
- . 1996. *Greenbelt Master Plan Summary*. Government of Canada.
- . n.p. Mer Bleue. Retrieved Merch 26, 2013, from: <http://www.canadascapital.gc.ca/places-to-visit/greenbelt/mer-bleue>.
- Rothwell N.A. 1997. *Above and Beyond?: An Examination of The National Capital Commission's Response to Societal Change*. MA Thesis, Department of Geography, Carleton University.
- NVivo 9. 2010. *NVivo 9 Basics: Set up a project in NVivo and work with your material*. Australia.
- Odum HT. 1924. *Environment, Power and Society for the Twenty-First Century: The Hierarchy of Energy*. New York.
- Olson K. 2011. *Essentials of Qualitative Interviewing*. California.
- Ontario Ministry of Agriculture and Food. 2011. *Classifying Prime and Marginal Agricultural Soils and Landscapes: Guidelines for Application of the Canada Land Inventory of Ontario*. Queen's Printer for Ontario.
- Ontario Ministry of the Attorney General. 2013. *Non-for-Profit Incorporator's Handbook*. Retrived April 13, 2013 from: <http://www.attorneygeneral.jus.gov.on.ca/english/family/pgt/nfpinc/>
- Ottawa Citizen. 2004a. NCC to Negotiate Mer Bleue Purchase. *Ottawa Citizen*, 29 Feb, 2004: A8.
- . 2004b. NCC to Announce Purchase of More of Mer Bleue Bog. *Ottawa Citizen*, 27 Apr, 2004: B6.
- . 1998. Let Farmer Buy Back His Land. *Ottawa Citizen*, 09 Dec, 1998: B4.

- Parks E. 1998. 'We Want Farm Back'. *Ottawa Citizen*, 05 Dec, 1998: D1.
- Peet R & Watts M. 2004. *Liberation Ecologies: Environment, Development, Social Movements*. New York.
- Permaculture Institute of Eastern Ontario. np. Home Page. Retrieved December 13, 2012, from <http://eonpermaculture.ca>
- Permaculture Ottawa. 2012. Home Page. Retrieved December 10, 2012, from <http://permacultureottawa.ca>
- Philmore J. 2012. *Seeds of Freedom* (documentary). The Gaia Foundation.
- Post Carbon Institute. 2006. 2 Permaculture Courses here in Ontario. Retrieved December 14, 2012, from http://old.postcarbon.org/2_permaculture_courses_here_in_ontario_each_1_week_long
- Puig de la Bellacasa MP. 2010. Ethical doings in naturecultures. *Ethics, Place and Environment*, 13(2), 151-169.
- Ramsar. np. About the Ramsar Convention. Retrieved March 27, 2013, from http://www.ramsar.org/cda/en/ramsar-about-about-ramsar/main/ramsar/1-36%5E7687_4000_0__
- Rebick J. 2009. *Transforming Power: From the Personal to the Political*. Toronto.
- Robb J. 1988a. Group Fights to Save Swamp. *Ottawa Citizen*, Oct 15, 1988:A12
-. 1988b. Growth Threatens to Swamp Wetlands. *Ottawa Citizen*, Jan 11, 1988:C3.
- Rose G. 1993. *Feminism & Geography: The Limits of Geographic Knowledge*. London.
- Ruddick S. 2004. Activist geographies: building possible worlds, in P Cloke, P Crang & M Goodwin (eds.) *Envisioning Human Geography*. np.
- Sauer C.O. 1952. *Agricultural Origins and Dispersal*. Boston.
- Schostak J. 2006. *Interviewing and Representation in Qualitative Research*. London.
- Shahin M. 1993. Whithering heights; Tulips that were to peak this weekend are dying. *The Ottawa Citizen* (May 20, 2012).
- Smith C. 2002. Permaculture: Hope and Empowerment for a Sustainable Future. In S Inayatullah & S Leggett's (eds.) *Transforming Communication: Technology, Sustainability and Future Generations*. Connecticut, 170-179.

- Smith DJ. 2012. Early Road-Surveys in Cumberland Township. *The Caboose: Newsletter of the Cumberland Township Historical Society*, (Summer 2012).
- Smith JR. 1929. *Tree Crops: A Permanent Agriculture*. Connecticut.
- Smith N. 1984. *Uneven Development: Nature, Capital and the Production of Space*. Georgia.
- Spears, T. 1998a. Greenbelt Scarred by Ghost Farms. *Ottawa Citizen*, 07 Dec, 1998: B1.
- . 1998b. 'We Have Never Left the Land'. *Ottawa Citizen*, 24 Mar, 1998: C2.
- . 1995. Bog Holds Region's History; Mer Bleue Earns Spot on International Ecology List. *Ottawa Citizen*, 05 Oct, 1995: B1.
- . 1993. Pressure is Mounting to Chip Away at the Greenbelt; How Long Will the Rest of the Country Subsidize Our Open Spaces? *Ottawa Citizen*, 21 Feb, 1993: F1.
- Starhawk. 2002. Our Place in Nature. In *Webs of Power: Notes from the Global Uprising*. British Columbia, 160-168.
- Stoeker R. 2004. Creative Tensions in the New Community Based Research. Keynote Address: Community-Based Research Symposium, Carleton University May, 2004.
- Strand KJ, Cutforth N, & Stoeker R. 2003. Origins and Principles of Community-Based Research. In *Community-Based Research and Higher Education: Principles and Practices*. New Jersey.
- Supreme Court of Canada. 1966. *Munro v. National Capital Commission*. Ottawa: Canada.
- Surtees, R.J. 1984. Indian Land Surrenders in Ontario 1763-1867. Ottawa: Department of Indian and Northern Affairs. Retrieved from: http://atlas.nrcan.gc.ca/site/english/maps/historical/indiantreaties/historicaltreaties/p21.gif/image_view
- Swyngedouw E. 2006. Metabolic Urbanization: The Making of Cyborg Cities. In N Heynen, M Kaika & E Swyngedouw's *In the Nature of Cities: Urban Political Ecology and the Politics of Urban Metabolism*. London, 21-40.
- Tagari Publications. 2012. Permaculture Design Course. Retrieved December 14, 2012, from: http://www.tagari.com/user/documents/PDC_Brochure_Sept%202012.pdf?phpMyAdmin=09ebfbac349359a40355ac77a5d5f3d5
- Taylor J, Paine C, & FitzGibbon J. 1995. From greenbelt to greenways: four Canadian case studies. *Landscape and Urban Planning*, 33, 47-64.

- Toronto Food Policy Council. 2011. History - Toronto Food Policy Council. Retrieved December 11, 2012, from <http://www.toronto.ca/health/tfpc/accomplishments.htm>
- Trickett E & Espino S. 2004. Collaboration and Social Inquiry: Multiple Meanings of a Construct and its Role in Creating Useful and Valid Knowledge. *American Journal of Community Psychology*, 34, 1-69.
- Weiss G & Wodak R. 2003. Introduction: Theory, Interdisciplinarity and Critical Discourse Analysis. In G Weiss & R Wodak's (eds.) *Critical Discourse Analysis: Theory and Interdisciplinarity*. London, 1 - 32.
- Whatmore S. 2002. *Hybrid Geographies: Nature Culture Spaces*. London.
- White T. 2011. Trend is Not Destiny. In K Dawnborn & C. Smith's (eds.) *Permaculture Pioneers: Stories from the new frontier*. Australia: Melliodora Publishing, 31-39.
- Whitefield P. 2009. Permaculture Design: Designing our lives with nature as the model. In A Stibbe's (ed.) *The Handbook of Sustainability Literacy*. United Kingdom: Green Books Ltd., 64-69.
- . 2004. *The Earth Care Manual: A Permaculture Handbook For Britain & Other Temperate Climates*. England.
- . 1996. *How to Make a Forest Garden*. London.
- . 1993. Chapter I: What is Permaculture? In *Permaculture in a Nutshell*. UK: Permanent Publications, 1-8.
- Yeomans P.A. 1973. *Water for Every Farm: A Practical Irrigation Plan for Every Australian Property*. Sydney.
- Yonson D. 1989. NCC Lease Cost BNR \$9.5M. *Ottawa Citizen* Nov 03,1989:D1.

Appendix A: Permaculture Ottawa – Community Urban Food Forest

Website

permacultureottawa.ca

E-Mail

info@permacultureottawa.ca

Food Forest Project Overview

Permaculture Ottawa is a volunteer-based group that promotes permaculture—an ecological design discipline—within the Ottawa region, and offers hands-on workshops, panel discussions, information sessions, movie nights, plant and seed swaps, work bees, and other permaculture-related activities. The Food Forest project differs from both a wild forest and an orchard in that it aims to combine elements of the two: it will be a perennial polyculture modeled after a forest ecosystem. The Food Forest will provide ecosystem services (such as erosion control, on-site water retention, wildlife habitat and fodder, soil fertility building, and native species conservation), while also providing useful edible, medicinal, and commercially valuable products for human consumption. The goal of the Food Forest is to demonstrate that environmental conservation goals can be reconciled with agricultural goals, and that human needs can be met in sustainable ways. This project seeks to adapt innovative ecological agriculture models that are currently being promoted in other parts of North America, and demonstrate the feasibility of the Food Forest model for the Ottawa region.

Community Partners

The Food Forest will be planned and coordinated by Permaculture Ottawa, who will work with Just Food to coordinate the Food Forest as one component of the Just Food's Community Food Hub Project. In addition, the Food Forest project is part of ongoing research on permaculture and urban food systems by a Masters level student in Carleton University's Department of Geography and Environmental Studies.

What Is a Food Forest?

A Food Forest is an intensively designed polyculture system, where diverse plant species are arranged in such a way that they benefit one another and serve a range of ecosystem needs². Food Forests differ from wild forests in that they are designed to optimize edible species for humans.

However, unlike orchards, which tend to rely on monocultures, Food Forests are also designed to mimic the diversity of wild forests, as each species fulfills a variety of functions within a self-sustaining ecosystem model. Such systems involve the successional growth of various perennial species in ways that mimic the development and appearance of a woodland area. The effort needed in the production and maintenance of a Food Forest is predominantly in the design phase and early implementation of the process. Food Forests are designed so that different elements in the system all contribute to its healthy functioning and in comparison to conventional agriculture, over time food forests demonstrate improved soil fertility, fewer pest problems, erosion control, and rainwater retention³. This eliminates the need for chemical agricultural products, tillage, or heavy machinery. They are also less work to maintain as their long term requirements include occasional mulching, pruning and harvesting⁴. Because they are composed of deep-rooted perennials, rather than annuals, Food Forests are more resilient to extreme weather events and climatic changes⁵. Additionally, they provide many ecosystem services such as water retention

² Mollison B. 1988. *Permaculture: A Designer's Manual (2nd Edition)*. Australia: Tagari Publication.

³ Jacke D. 2005. *Edible Forest Gardens (Volume I)*. Vermont: Chelsea Green Publishing.

⁴ Hemeway T. 2009. *Gaia's Garden*. Vermont: Chelsea Green Publishing.

⁵ Newman P, Beatly T & Boyer H. 2009. *Resilient Cities: Responding to Peak Oil and Climate Change*. Washington: Island Press.

and filtration, provide wind breaks, act as sound buffers, and are aesthetically pleasing. Finally, this method of ecological agriculture builds soils, prevents erosion and sequesters carbon dioxide⁶. Cities and campuses around the world are adding food forests to their landscapes to demonstrate sustainable and resilient means of food production⁷. They are also incorporating food forests into local plans to reduce their urban carbon footprint⁸.

Wider Context For the Project

The appeal for such a project comes as Permaculture Ottawa is faced with increased public demand for education, demonstration and implementation of sustainable and local food production. Furthermore, there is growing public interest in innovations that promote sustainability, and improve quality of life in urban environments. The Food Forest will provide an example of how carefully designed agricultural systems can provide ecosystem services while also feeding people, and relying on fewer energy and material inputs than conventional agriculture. The Food Forest demonstration project is also meant to inspire citizens, developers and planners on how food systems can be worked into urban landscaping and architecture. Such innovations in sustainability are precisely the elements that can foster healthy communities and a creative city. From our initial demonstration site we plan to develop a replicable model for both backyards and business districts.

Site Choice

Currently Permaculture Ottawa does not have access to a land base, which makes it more difficult to offer hands-on workshops, and to demonstrate permaculture principles through practical applications. Permaculture Ottawa sees the Food Forest project as a unique opportunity to showcase permaculture in Ottawa while also participating in Just Food's innovative Community Food Hub. The current site at Green's Creek will provide us with a variety of locations that would be ideal to grow a food forest, along with many opportunities to collaborate with Just Food in mutually beneficial ways. Just Food will offer programs that teach a new generations of farmers to produce sustainable and local food right in the Greenbelt, and Permaculture Ottawa can augment this by demonstrating how partially and fully forested sites can be an equally productive element of our City's food system.

Food Forests can act as excellent buffers between agriculture, residential areas, and ecologically sensitive zones. The site that we have chosen for the Food Forest is

⁶ Jacke, 2005.

⁷ Valdez M. 2012. "Calling it a 'food forest', Seattle plans park where people will be able to pick fruits, nuts". The Associated Press in *The Washington Post*.
University of Massachusetts Amherst. 2011. "How Does Your Garden Grow?".
<http://www.umass.edu/umhome/feature-story/article/201>

⁸ Sullivan R. "Local food for sustainable communities". Ecos: Science for Sustainability.
<http://www.ecosmagazine.com/?paper=EC152p18>

located near the residential street of Tauvette Street, which means that residents will benefit from a calm woodland landscape that will contribute to property value by buffering the noise and pollution of Innes Road, and maintaining a natural aesthetic. It can potentially contribute to the protection of the nearby—ecologically sensitive—Green's Creek by increasing rainwater retention on the site, as well as slowing and filtering the flow of water coming from residential settlements and farm fields. The food forest will also be compatible with the recreational function of the site desired by local residents, since it will provide the public with a beautiful path to walk through. The site is also ideally placed for public access for educational programming since it is right on the frequent 94 bus route that travels down Innes Road. Furthermore, since it is close to many neighborhood schools it would be a welcome outing for teachers looking to supplement their curricula on ecosystems, food systems and sustainability.

Furthermore, Blackburn Hamlet is an extensively forested neighborhood, which can be challenging for people who want to grow food in their backyard. Through the food forest, Permaculture Ottawa will be able to teach local residents how to select and plant shade-tolerant edible species so that even residents with heavy tree cover on their property can participate in a local food system.

The Food Forest's design is primarily composed of trees and other woody perennials that in some cases require years, or even decades to fully mature. In addition, many of the species we hope to plant are rare, expensive, and some are difficult to acquire. For these reasons, it is essential that Permaculture Ottawa have long term access to the proposed site for the project to be viable. Permaculture Ottawa hopes to implement a multifaceted productive and educational food forest site to benefit generations to come, and many of our members are committed to a long-term engagement with the project.

Project Planning

Food forests offer the benefits of a low maintenance food system, which unlike more conventional forms of agriculture, will last for generations and will improve, rather than deplete the soil. However these benefits are the result of many hours of planning and planting. To design a food forest the site needs a great deal of observation in order to fully understand the flows of different elements (wind, water, sun, etc.) through the site. This is so that plants, swales (on-contour trenches that retain water), mini-ponds, stones, etc. can be most efficiently placed in order to create a self-sustaining system. After intensive observation, design, and implementation, the only labour that is needed is pruning, mulching and harvesting. This is a stark contrast from more conventional forms of agriculture, which require continual tilling, sowing, watering and weeding.

The timeline of the food forest will follow a four phase plan, most of which will be implemented in the next two or three years. If designed properly the last phase should last theoretically forever, which is what “perma”culture strives for. The phases are as follows:

Phase I (Oct, 2011 - Oct. 2012) – Visioning and planning. This phase is an intensive planning process that involves the visioning of what the Food Forest will involve. It will require the tasks of site observation, mapping out social networks and community partners, discovering what various stakeholders desire from the site (i.e. local community, NCC, Just Food, Ottawa permaculture community, etc.), inventorying available resources for the project. It also involves thinking well into the future about what later generations will need, and how the site can foreseeably benefit them (for example, by designing climate change resiliency into the plan). These processes will yield an overarching conceptual plan for what will be incorporated into the of the Food Forest.

Phase II (April, 2012 - April 2013) – Observation and design. Once the vision of the site is established, designers will continue site observation to determine how materials and energy move through the site, and how these flows may change over time. This will include site contours, observations of year-round wind patterns, light exposure, surface water flow, micro-climates, animal traffic, human traffic and usage, and other site factors. During the observation period Food Forest volunteers will undertake detailed site mapping that records the factors affecting the site. From this, designers will be able to start thinking about the ideal location of design elements to be arranged in such a way as to minimize necessary external inputs of labour and resources. Such a design will harness these energies to produce a relatively self-sustaining system whose productivity will increase as it matures.

Phase III (May 2013 - October 2013) – Implementation. After two years of observation and an intensive design process, the Food Forest plan will then be ready for implementation. This phase will involve the initial planting of soil building features along with some long term perennial flora that will act as the more central features in the food system. These elements will include the implementation of contour swales, a rain water collection pond (popularly known as a “rain garden”), nitrogen fixing plants and trees, several fruit trees and bushes, and a deep mulch around all of the planted species. This process will require the most amount of labour and materials, and will also provide the greatest educational benefits for students and community members. This phase will take a full summer season in order to get the food forest started to begin maturation into a resilient food-producing system.

Phase IV (November 2013 - onwards) – Reflection, Additions and Maintenance. Once implemented, the food forest will need occasional maintenance. This will involve the pruning of overgrown plants in order to ensure the health of the plants, the waste from which will serve as mulch to nourish and protect the soil and roots from erosion. The abundant fruits, nuts, greens, and herbs, produced from this forest will also need to be

harvested, which can be done casually by local residents, as well as by organized teams of Permaculture Ottawa volunteers for larger harvests (of seasonal fruits and nuts). After the initial installation of the food forest designers will need to revisit the design in order to make additions or remove elements to allow the forest to thrive. Ongoing evaluation could result in the addition of a plants that repel certain unforeseen pests. With occasional effort the food forest can last indefinitely, withstanding fairly substantial shocks due to climate and land use change. If maintenance of the site is stopped at some point in the distant future the food forest will simply mature fully into a closed canopy forest ecosystem, which looks extremely similar to a typical forest.

Appendix B – Aerial Photographs of Blackburn Hamlet Development

Figure 4.6: Blackburn Hamlet & Blair Road 2013. Google Maps.

Figure 4.7: Aerial Photograph of Blackburn Hamlet 1945. Library and Archives Canada.

Figure 4.8: Aerial Photograph of Blair & Cyrville Road, & Green's Creek 1958. Library and Archives Canada.

Figure 4.9: Aerial Photograph of Blair Road & Green's Creek 1958. Library and Archives Canada.

Figure 4.10: Aerial Photograph of Pine View, Blair Road, & Green's Creek 1958. Library and Archives Canada.

Figure 4.11: Aerial Photograph of Blackburn Hamlet 1958. Library and Archives Canada.

Figure 4.12: Aerial Photograph of Blackburn Hamlet 1969. Library and Archives Canada.

Figure 4.13: Aerial Photograph of Blackburn Hamlet 1970. Library and Archives Canada.

Figure 4.14: Aerial Photograph of Blackburn Hamlet 1975. Library and Archives Canada.

Appendix C – Record of PO General Assembly Meetings

Meeting	Date	Location	Facilitator	Numbers	Notes
1	2011-03-25	Cat's Apt.	Chris	5	Exploratory Meeting
E	2011-03-30	Ottawa U	Chris	7	Seed Bombs and Permaculture Workshop Part of EcoJustice Week with OPIRG-Ottawa U
2	2011-04-19	Chris's Apt	Chris	4	Organizing meeting for Liberation Permaculture Panel
E	2011-04-21	Bronson Cntr	Chris	20	Liberation Permaculture Discussion Panel (Bonita, Sarah, Graham)
3	2011-11-15	OPIRG-C	Chris	8	Introduced new members to "PPO", OPIRG, consensus, Just Food, food forest idea
4	2011-12-11	Sarah's Place	Sarah	6	Similar introductions to previous meeting, discussion of workshop ideas and permablitzes
5	2012-02-17	OPIRG-C	Emily	16	PPO-->PO; Film fest committee; Resource Database Committee; PO to cohost convergence
6	2012-01-21	Community Food Hub	Sarah	-	No minutes found. Over capacity in Just Food office.
E	2012-02-29	Carleton U	Chris	8	Event (OPIRG-C Tools for Change): Permaculture and Activism: Designing a Revolution
7	2012-03-26	Carleton U	Amber	32	Introduction for new members; Community structure (spokes-committee model); comm. committee; food forest committee; permaculture convergence
E	2012-04-21	LesBPEARSON HS	PO & PIEO	120	Eastern Ontario Permaculture Convergence
8	2012-04-28	Conservation Coop	Brian	-	No minutes found.
E	2012-04-28	Community Food Hub	PO & PIEO	20	Plant Propagation Workshop
9	2012-05-28	Tim's Apt.	Tim	20	VOCCommittee; revenue from workshop and convergence; Finance and Opp. Committee; Holmgren's 12 principles adopted as official
E	2012-06-12	Conservation Coop	Wendy	3	Hugelkultur Permablitz
10	2012-07-05	Conservation Coop	Corrie	14	CUFF workshop and soil testing; ReelFoodFilmFest; Hugelkultur Committee; CUFF insurance issue; Visioning Retreat
11*	2012-08-11	Ron & Corrie's Cabin	Corrie	12	Priorities for the year; Group Statements; Lib Permaculture; Consensus Decision Making
12*	2012-08-20	Seb & Bonita's Place	Open	12	Joint PO & PIEO meeting; 2013 convergence; role of private patronage; volunteer retention & possibility for interns
13	2012-09-27	Conservation Coop	Michael & Sarah	14	RFFF Promotion and Volunteering; CUFF workshop; Partnership with Ecology Ottawa; Vision Retreat Recommendations Adopted; Convergence Committee (Joint PIEO & PO)
E	2012-10-18	Main Branch Library	Liz	130	Showed two documentaries in conjunction with RFFF; PO & PIEO panel took questions afterward
E	2012-10-28	Ottawa U	Chris	30	Introduction to Permaculture for Climate Justice Activists; Part of PowerShift2012 climate justice youth gathering.
14	2012-11-05	Montgomery Legion	Ron	-	No minutes found. New members meeting for recent graduates of PIEO PDC
15	2012-11-26	Montgomery Legion	Liz	-	No minutes found.