We Have a Responsibility: Alternative Land Use Services Farmers and Environmental Stewardship

by

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A Thesis
presented to
The University of Guelph

In partial fulfilment of requirements
for the degree of
Master of Science
in
Capacity Development and Extension

Guelph, Ontario, Canada

ABSTRACT

We Have a Responsibility: Alternative Land Use Services Farmers and Environmental Stewardship

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University of Guelph, 2014

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This thesis is an exploration into the environmental stewardship of farmer participants of the Alternative Land Use Services [ALUS] program in Norfolk County, Ontario. ALUS provides opportunities for farmers to reduce their environmental footprint by providing financial incentives and assistance to reserve agricultural land from production. Utilizing qualitative descriptive method, this study conducted in-depth, semi-structured interviews in an attempt to describe the perspectives on environmental stewardship of these farmers, and how these perspectives might have evolved through involvement in ALUS. The study found that the participants have significant feelings of responsibility to protect the environment and do struggle to balance the needs of the environment when it is conflicting with the needs of the farm or the family. However, participation in ALUS is assisting to alter the perspective that environmental stewardship activities can be irreparably in conflict with other needs, amongst several other reported family, farm and community benefits.

ACKNOWLEDGEMENTS

My research journey was more pleasurable that I could have imagined. Each interview granted me a glimpse into the lives of these wonderful farmers, and I enjoyed every minute. My first note of thanks, then, must reside with my participants. I appreciate, more than you can ever know, the time you spent with me, and the knowledge you shared will change me forever. I feel very fortunate to have had the opportunity to meet each and every one of you. I also want to thank ALUS-Norfolk staff and personnel for supporting my research and keeping my research on track. In addition, the contributions to my research from Delta Waterfowl were most welcome and much appreciated.

My sincere thanks are extended to the University of Guelph, the School of Environmental Design & Rural Development, and to my Committee. To my Advisor, Dr. Jim Mahone, for allowing me to explore all my (crazy) ideas at the beginning stages of this thesis, and giving just the right amount of guidance and independence so that I could make my way to the right conclusion on my own. To my Committee Member, Dr. Karen Landman, for providing both the academic guidance I sought, as well as the calming reassurance I also badly needed from time to time.

My family and friends also deserve my earnest thanks. My sweet cat Leela, lost too soon and before I finished this thesis, always served as cozy, purring encouragement; sharing my lap with my keyboard as I worked through each step of the way. To my friends who allowed me to avoid them as I frantically worked over the last 6 months (with only a few complaints), thank you! I'm ready to stop being a hermit now.

My partner in life and love, David, was also an essential ingredient in the completion of this research. His skills in listening and diffusing me at my most stressed were incredible. His confidence that I would successfully finish this thesis was so high that he purchased a frame for showcasing my future degree nearly two months ago, which served as encouraging display as while I wrote. As a token of my heartfelt thanks, I pledge to fulfill my promise of no major projects for at least a year!

Finally, and most importantly, to my sister, who was my biggest and best champion throughout my entire graduate school journey. It's difficult to describe how important Erin is to me. I do know that without her I might never have been brave enough to try graduate school and that certainly this thesis would not be complete. Her ongoing encouragement and advice were absolutely crucial to my academic process and my sanity. I would be lost without her. Thank you. Thank you. Thank you!

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CHAPTER 1: INTRODUCTION

Problem Statement

Agriculture, of all human activities, has arguably the most significant impact, both negative and positive, on the natural environment. Payment for Ecological Goods and Services [PEGS] programs such as the Alternative Land Use Services program [ALUS] address how farmers can decrease their environmental footprint and enhance their positive environmental impacts by providing financial incentives to reserve a portion of their land from agricultural production. PEGS programs and other similar programs that address environmental issues have become more prominent over the past several decades as there have been increases in the environmental values of people worldwide. In Canada, there is frequently considerable value placed on the natural environment; however, these values are not necessarily reflected in the behaviour or actions of Canadians (Kennedy, Beckley, McFarlane & Nadeau, 2009). This gap between environmental intention and behaviour is a complex problem worthy of significant study.

There are many factors that influence environmental behaviours. In Canada, financial cost considerations, both to the individual and to society, are the most significant in terms of determining an environmental action (Kennedy et al., 2009). Accordingly, environmental projects like ALUS, in providing financial incentives to participants, are directed at reducing or eliminating what may be a significant barrier to potential environmental behaviour. PEGS programs may, then, lead to narrowing the existing gap between environmental values and behaviour for those participants. Thus, the perspectives of ALUS participants with reference to the evolution of their

environmental stewardship are important to gather in an attempt to link a program like ALUS's efforts with positive environmental behaviour change.

Study Location

The study was conducted in Norfolk County, Ontario, which is located on the north shore of Lake Erie and with a land area of 1,607 square kilometres (Statistics Canada, 2013). In 2011, the population of Norfolk County was 63,175 (Statistics Canada, 2013). Fifty one percent of Norfolk County residents have a postsecondary diploma, certificate or degree, 26 percent have a high school diploma and 23 percent have no diploma, certificate or degree (Statistics Canada, 2013). The median income for Norfolk residents in 2011 was $43,919, as compared with $50,116 overall in Ontario (Statistics Canada, 2013). Nearly 10 percent of Norfolk County residents are primarily employed in the agriculture, forestry, fishing and hunting industry (Statistics Canada, 2013). Norfolk County has historically been an area of concentrated tobacco growing but has decreased significantly in the last two decades as tobacco consumption has declined (Ramsey, Stewart, Troughton & Smit, 2003).

Alternative Land Use Services [ALUS]

ALUS is a Canadian program concept developed by Keystone Agriculture Producers, a farm group, in partnership with the Delta Waterfowl Foundation, a non-profit conservationist organization (Mackenzie, 2009). Its aim is to encourage protection and production of ecological goods and services on private land by providing financial support to farmers (Mackenzie, 2009). It is designed and implemented by farmers

(Guerra, 2010; Rosenberg, 2010). ALUS is a voluntary program, and its targets include water quality, soil quality, air quality, biodiversity and carbon sequestration for environmentally sensitive sites; financial compensation for maintaining the privately owned site leads to these environmental benefits (Mackenzie, 2009).

ALUS is currently in several stages in Canada, from pilot to full launch, in Manitoba, Ontario and Prince Edward Island (Guerra, 2010; Rosenberg, 2010). The first project took place in Manitoba, with the second in Ontario, in Norfolk County (MacKenzie, 2009). A survey in Norfolk County in 2005 found that a majority of non-farm residents perceived that farmers should be compensated for environmental services (MacKenzie, 2009). While the Norfolk pilot project was originally designed to be made available to all farmers in the region, due to funding restrictions the project was scaled back significantly and focused instead on the development of demonstration farms (Rosenberg, 2010).

While ALUS is in itself a Canadian concept, payment for ecological goods and services [PEGS] is not a new phenomenon internationally, with similar incentive projects in the United States, Costa Rica, Australia, Guyana, Kenya, and, most sucessfully, throughout Europe (Guerra, 2010; Lamba, Agnew, Filson, & Adekunle, 2012; Mackenzie, 2009). There are few comparable examples within Canada, as most programs are aimed at payments to farmers to encourage implementation of environmental management plans or environmentally beneficial practices (Mackenzie, 2009). The primary differences between the ALUS pilot and major, long-term (non-pilot) PEGS programs in the European Union is a lack of funding and the fact that it is based upon a market rationality rather than an environmental rationality (Filson & Adekunle, 2012).

ALUS and Changes in Environmental Stewardship

To the author's knowledge, there has been no academic study specifically examining ALUS with reference to changes in the participants' environmental stewardship, especially outside of stewardship of the environmentally significant area on their own land.

Research Goal

The goal of this study was to describe the environmental perspectives of participants of ALUS (Norfolk County) in order to understand how involvement in the ALUS program impacts the environmental stewardship of the participants.

Research Objectives

This study identified three objectives:

1. To explore ALUS participant perspectives regarding environmental stewardship.
2. To identify and analyze linkages between the ALUS program and participants' perspectives on evolution of personal environmental stewardship.
3. To identify opportunities for enhanced environmental stewardship mobilization for participants in the ALUS program.

CHAPTER 2: LITERATURE REVIEW

Review of relevant literature represents an early and necessary step in academic research. For the purposes of this research, the following review focuses on four main content areas: defining environmental stewardship, determinants of environmental behaviour, methods of measurement, and farmers and the natural environment. This review is summarized in a conceptual framework found in Appendix A.

Defining Environmental Stewardship

In the realm of environmental stewardship, there is a wide range of detailed literature dating back to the mid-twentieth century. For this section of the literature review, databases on the following subjects were explored: biology and life sciences, economics and agricultural economics, global studies, public health, physical sciences and social and behavioural sciences. Keyword searches with the following terms were utilized: environment, environmental stewardship, environmental citizenship, environmental attitude, urban stewardship

In his 1949 collection of essays, entitled A Sand County Almanac, Aldo Leopold outlined a 'land ethic' which implies that humans have a responsibility to respect and to care for the natural environment and should view the environment as a system to which humans belong (Leopold, 1949). Adoption of this land ethic would manifest in stewardship of the natural environment (Leopold, 1949). Often referred to as a pioneer in the field, Leopold's ethic may be the most influential work in environmental stewardship (Carr, 2002; Romolini, Brinkley, & Wolf, 2012; Scarlett, 2004). However, decades later,

environmental stewardship is still in need of a standard definition; Carr outlines the necessity of attempting to define a common language to effectively put in practice the principles stemming from Leopold's land ethic (Carr, 2002). Romolini, Brinkley and Wolf (2012) add that while environmental stewardship is a concept widely used in many respects since the time of Leopold's writing, there is still a need for a universal definition for utilization by practitioners. This section of the literature review will attempt to combine current literature on the subject to form a workable definition of environmental stewardship. Throughout the process of the comprehensive review of much of the literature, three themes emerged in examining the concept of environmental stewardship: responsibility, respect and community. Each theme will be considered.

Responsibility

Responsibility to Protect the Earth

Corresponding with Leopold's land ethic, Carr (2002) argues that stewardship of the environment implies an inherent responsibility for guardianship of the earth. Drawing on the origin of the word stewardship, Lerner (1993) suggests that good environmental stewardship means that humans accept and maintain responsibility in caring for the earth. Romolini et al. (2012) state that environmental stewardship recognizes that people have responsibilities associated with nature and an accountability to the earth. Earth stewardship, according to Chapin et al. (2011), involves an ethic of responsibility to the planet and its needs. Humans' sense of duty of protection of the earth is irrevocably linked to beliefs about nature (Rolston, 1991). And, as stewards of the earth and the environment, humans accept this responsibility; this acceptance would therefore guide

their actions appropriately in preserving and protecting the health of the natural environment (Foster, 2005).

Social / Personal Responsibility

Romolini et al. (2012) identify responsibility in environmental stewardship on a societal scale. Further, Carr (2002) notes that stewardship goes beyond an individual relationship with the earth and involves a collective responsibility; Kevany (2007) describes shared responsibility as a quality and value of indigenous earth stewardship. This includes responsibilities within a society to work together to collaborate in sharing and conserving natural resources (Kevany, 2007). As the primary resource consumers, residents of urban areas have social responsibility in planetary stewardship especially, both to other city residents and to the rural societies (Seitzinger et al., 2012). Scholars also infer that environmental stewardship behaviour is related to one's sense of personal responsibility, or responsibility to self (Dietz, Fitzgerald, & Shwom, 2005; Stern, 2000). Action in stewardship is linked to one's sense of social obligation and duty to oneself (Dietz et al., 2005).

Responsibility to Future Generations

In addition to being guardians responsible for caring for the earth for humans of the present, environmental stewardship involves being accountable to future humans (Foster, 2005). Given that future generations are not in the position to protest the environmentally-damaging activities of past or present generations, environmental stewards have a duty to protect the rights to a healthy planet for future generations

(Kevany, 2007). In describing being a caretaker of the environment, Bramston (2011) agrees that responsibility to future generations is an important element. Thus environmental steward actions are guided by a sense of intergenerational accountability.

Respect

Respect for the Earth

Respect and humility as an element of environmental stewardship is also an echo of Leopold's work on environmental ethics. Carr (2002, p. 15) argues that the role of a steward includes a "relationship with the earth that is based on respect for nature". Romolini et al. (2012) agree, interpreting a major theme of environmental stewardship to be respect of people for their natural environment. Environmental ethics and environmental values scholars have long included respect as a value essential in protecting the environment (Dietz et al., 2005; Rolston, 1991). Further, environmental ethicists posit that respect for all elements of the ecosystem, that is, respecting all life forms including animal and organism systems, is an underlying motivation for stewardship and conservation (Rolston, 1991). A recognized respect for the natural environment would thus organically encourage humans to treat the earth's health with respect.

Respect for Self / Human Society

As a more anthropocentric value in the realm of environmental ethics, respect of self and for human societies is not as commonly mentioned in the literature as other values. However, it is still noteworthy that some scholars mention an increased sense of

self respect and respect for others in human society as an element of environmental stewardship and environmental protection (Dietz et al., 2005; Rolston, 1991). Whether increased respect for self and others is a motivating factor to be an environmental steward or to partake in environmental activities or a result of such things remains to be seen.

Community

Ecosystem Community

For Carr (2002), Romolini et al. (2012) and Rolston (1991), the definition of environmental stewardship echoes Leopold's (1949) suggestion that humans are but one part of a large, complex, ecosystem community. Environmental ethics include humans as an element of a wider community that includes the natural environment, an ecosystem where all entities are intertwined (Rolston, 1991). Leopold (1949) argued that when humans regard the natural environment as a community to which they belong, they will care for the environment and protect its health.

Human Community

Environmental stewardship is often a term used to describe the activities or mission of a community group (Krasny & Tidball, 2012). In their study of environmental stewardship practitioners, Romolini et al. (2012) found that active environmental stewardship is related to and has benefits for the human community. Svendsen (2009) aligns with this result, stating that the outcome of environmental stewardship is ultimately for the community's benefit. Stewardship activities create a sense of community (Kevany, 2007). Capacity building of the human community is often an

element of environmental stewardship, especially in urban areas (Svendsen & Campbell, 2008). In addition, interconnectivity of human communities, argue Seitzinger et al. (2012) and Chapin et al. (2011), is necessary for effective earth stewardship.

Summary

It is clear from the literature that the concept of environmental stewardship is relatively complex and multifaceted. The themes identified in the review of relevant literature reveal that there are still many connections to its historical roots in the work of Aldo Leopold (1949) in the current use of the term. However, Leopold argued that self interest should be sacrificed for the sake of the natural environment; there appears to be a deviation from this thought in more recent literature. A greater sense of human community and of self are commonly important elements in defining environmental stewardship as they are goals and frequently an outcome of stewardship activities. In addition, Leopold often referred to the interconnectivity of humans with the environment to be on a personal level and thus activities in stewardship were also often personal. In the literature reviewed, stewardship was more frequently cited in a community sense; community groups were the most often referred to as the major effective actors in environmental stewardship.

For the purpose of clarity in this research, a comprehensive working definition is created, shaped by careful consideration of the current and past literature; environmental stewardship refers to a state of being wherein humans believe they are but one element of the natural ecosystem. As such, for the good of present and future generations and for the

ecosystem as the whole, they have accepted the obligation to respect and protect the health of the earth; these beliefs guide human activities that impact the earth accordingly.

Determinants of Environmental Behaviour

Determinants of environmental behaviour are of interest for scholars in a range of disciplines. For this section of the literature review, databases on the following subjects were explored: biology and life sciences, economics and agricultural economics, global studies, psychology, public health, physical sciences and social and behavioural sciences. Keyword searches with the following terms were utilized: environmental identity, environmental behaviour, environmental motivation, environmentally significant behaviour, environmental psychology, pro-environmental behaviour, environmentally responsible behaviour.

The many facets of environmental behaviour, from simple household conservation measures to full environmental activism, and what motivates one to partake in environmental behaviour, have caught the attention of multi-disciplinary scholars. Understanding this behaviour and what guides it is important to a wide range of stakeholders, including ecologists, environmentalists, environmental organizations, conservationists, policy-makers, marketers, psychologists, environmental lobbyists and governments. Scholars often seek to pinpoint determinants of environmental behaviour for individuals so as to better understand ways to further encourage this behaviour for the protection of the earth. A review of the literature revealed that many theories exist that attempt to explain environmental behaviour, and several themes emerged. Many determinants and variables examined by scholars lie within the following themes: morals

and normative concerns, identity, emotion, cost and benefit, locus of control, and contextual factors, most of which are interrelated in some way; however, for this review they will be examined separately.

Morals and Normative Concerns

Values and norm concerns, both personal and societal, are moral motivational factors when examining environmental behaviours (Booth, 2009; Chochola, 2009; de Groot & Steg, 2010; Fielding & Head, 2012; Lindenberg & Steg, 2007; Mayer & Frantz, 2004; Mobley, Vagias, & DeWard, 2010; Pensini, Slugoski, & Caltabiano, 2012; Steg & Vlek, 2009; Stern, 2000; Thøgersen & Ölander, 2006; Turaga, Howarth, & Borsuk, 2010). Leopold stated that valuing nature would lead to a concern for nature (Leopold, 1949). People who subscribe to values outside their own self-interest are more likely to demonstrate environmentally responsible behaviour (de Groot & Steg, 2010; Steg & Vlek, 2009). This includes biospheric, prosocial and altruistic values (Chochola, 2009; Mayer & Frantz, 2004; Stern, 2000; Turaga et al., 2010). In addition, studies have shown that those who feel a moral and social obligation towards nature are more likely to be environmentally concerned and take action to protect it (Stern, 2000). Many theories explaining behaviour through the lens of values and norms exist in environmental literature; the most common are the norm-activation model and the value-belief-norms theory of environmentalism.

Norm-Activation Model

Norm-Activation Theory [NAM] was originally devised to explain helping behaviour (Schwartz, 1977). It involves the preconditions that a person must be aware of the consequences of an action for others and feel a personal responsibility to take that action (Schwartz, 1977). In the process of norm activation, feelings of personally-held moral obligation are generated and altruistic actions are impacted, especially concern towards other humans (Turaga et al., 2010). Violating a personal moral norm, according to Schwartz (1977), would result in negative feelings such as guilt. NAM is thus applicable to determining environmental behaviour in that persons who experience norm activation have a moral obligation to conform to social norms, such as protection of other humans and the environment; non-action would result in negative feelings (Turaga et al., 2010). While NAM is commonly accepted in environmental literature (Turaga et al., 2010), Steg and Vlek (2009) argue that it is only applicable to minor environmental behaviours that are of low cost to the participant, or that it indicates a willingness to change behaviour but with no actual action in reality.

Value-Belief-Norms Theory of Environmentalism

Building on the NAM Theory foundation, Stern (2000) and colleagues developed the Value-Belief-Norms Theory [VBN] that includes the social altruistic values of NAM but also takes into account egoistic norms (self-interest values) and biospheric norms (value of other non-human species); the latter two are activated in the same way as social altruistic values in NAM (Steg & Vlek, 2009; Stern, 2000; Turaga et al., 2010). Stern (2000) argued that VBN was more accurate in determining environmental behaviour than

other models in that it takes into account other concern factors; one may be unconcerned with the wellbeing of other humans but concerned with other nonhuman species, which may have a positive impact on one's environmental behaviour. In addition, evidence of egoistic behaviour is a predictor of environmental non-action (de Groot & Steg, 2010; Stern, 2000). However, as with NAM, Steg and Vlek (2009) and Turaga et al. (2010) argue that VBN has certain limitations; it is applicable only to minor behaviours and there are still other variables to consider in determining behaviour.

Identity

There is also a relationship between social identity and self identity and environmental behaviour (Dono, Webb, & Richardson, 2010; Fielding, McDonald, & Louis, 2008; Whitmarsh & O'Neill, 2010). In particular, social identity is a significant indicator of environmental citizenship (Dono et al., 2010). Whitmarsh and O'Neill (2010) found that self-identity is a predictor for some environmental behaviours, such as carbon-offsetting, but they caution that it may not be an accurate indicator for other environmental behaviours. In combination with other theories, Fielding et al. (2009) suggest that social and self-identity is a strong predictor of environmental intentions.

Emotion

Emotional connectedness to nature is linked to pro-environmental behaviour and environmental values (Chochola, 2009; Dutcher, Finley, Luloff, & Johnson, 2007; Mayer & Frantz, 2004). Kals, Shumacher and Montada, in their 1999 study, hypothesized that experiences in nature would lead to an interest in and emotional feelings toward nature.

Further, they theorized a positive relationship between emotional affinity and an interest in nature and environmentally-protective behaviour (Kals, Schumacher, & Montada, 1999). Both hypotheses were proved in their study and it was concluded that the relationship between emotions and environmentally responsible behaviour was significant, and could only grow stronger with further and deeper contact with nature (Kals et al., 1999). Thus, environmental behaviour is likely to lead to further similar behaviour as persons continue to deepen their emotional connection to nature. Hartig, Kaiser, & Strumse (2007) also argued that positive experiences in nature would have a distinct impact on environmental behaviour. In addition, evidence of emotional responses to environmental degradation may be indicators of future pro-environmental intentions (Lindenberg & Steg, 2007). Kollmuss and Agyeman (2003) state that emotional detachment from an environmental issue leads to non-involvement in environmentally-significant behaviours; thus, people should be emotionally attached to an issue if pro-environmental behaviour is to be encouraged. The stronger one's emotional response to an environmental issue, the more likely that person is to show environmentally-responsible attitudes (Kollmuss & Agyeman, 2003).

Cost and Benefit

Personal and societal cost and benefit has long been considered a major factor in determining behaviour. Environmental behaviour scholars began with the assumption that people rationally weigh the perceived cost and benefit of an action, assumingly choosing the greatest benefit with the lowest cost (Steg & Vlek, 2009). The Theory of Planned Behaviour (TPB) is a common framework used in environmental literature to explain

rational choice models in terms of understanding the motivations of environmentally responsible behaviour (Kaiser, Midden, & Cervinka, 2008). The TPB also explains linkages between environmental behaviour intentions and actual action through examining the perceived cost or benefit of achieving the action (Turaga et al., 2010). The benefit or cost could be a range of elements, including financial, physical, societal, self image and personal pleasure. Gain and hedonic goal frames are especially effective in predicting environmental behaviour, albeit normally predicting non-action (Lindenberg & Steg, 2007). However, personal satisfaction can be a motivator for environmental behaviour (Tabernero & Hernandez, 2011). In a study that took place in Canada, Kennedy et al. (2009) found that financial cost considerations, both individual and societal, are a major determinant of environmental behaviour for Canadians.

Locus of Control

Kollmuss and Agyeman (2003) found that the degree to which an individual believes that their actions will bring about change is a significant factor in predicting environmentally-responsible behaviour. The concept of *locus of control* refers to an individual's perception of whether a behaviour has the ability to bring about change (Kollmuss and Agyeman, 2003). Individuals with a strong internal locus of control perceive that their actions are likely to enact change, and are more likely to act pro-environmentally (Fielding & Head, 2012; Kollmuss & Agyeman, 2003; Pensini et al., 2012). Those who perceive that their actions are insignificant, or have an external locus of control, are less likely to partake in environmental behaviours, as they do not believe it will make a difference (Kollmuss & Ageyman, 2003; Pensini et al., 2012).

Contextual Factors

A major shortfall of the many environmental psychology theories is that context is not taken into account when examining the determinants of environmental behaviour (Steg & Vlek, 2009). As has been noted, experiences with nature and the environment have an impact on behaviour; experiences can be so context specific that neighbours or even family members may have different contextual factors in behaviour. For example, a study may find that the psychological motivations for a particular environmental behaviour such as recycling are low or non-existent; by taking context into account, the study may find that recycling facilities are not available in the participant's community. Cultural context factors are also important in understanding behaviour; culture can greatly alter value orientations (Milfont, Duckitt, & Cameron, 2006). Local and global context of the environmental issue can also impact behaviour as emotional connection and understanding to the issue may be limited (Blake, 2001; Kals et al., 1999). Hill (2008) argues that without consideration of all contextual factors and social situations in which the behaviour occurs, environmental behaviour cannot be predicted.

Summary

The literature on determinants of environmental behaviour is multi-disciplinary and complex. It is apparent that no single model of understanding and predicting environmental behaviours can be used independently; rather, consideration of many is necessary, especially when considering contextual factors.

Methods of Measurement

Many methods to measure the determinants of environmental behaviour have been introduced into environmental literature for several decades. In addition, scholars have attempted to develop scales to measure actual environmental behaviour. In an effort to streamline the literature, this review will focus on the most commonly-cited methods. In this section of the literature review, databases by the following subjects were explored: biology and life sciences, economics and agricultural economics, global studies, psychology, public health, physical sciences and social and behavioural sciences. Keyword searches with the following terms were utilized: environmental behaviour, environmental motivation, environmentally significant behaviour, pro-environmental behaviour, environmentally responsible behaviour, in combination with the follow terms: measurement, method, tool, scale.

In an attempt to link theories of environmental behaviour determinants and reality, many scholars have created tools for measuring the environmental concern or environmental attitudes. In addition, measurement tools to explore and explain actual environmental behaviour have been developed. The three most frequently-cited environmental behaviour determinant measurement tools are the New Environmental Paradigm / New Ecological Paradigm (Dunlap & Van Liere, 1978; Dunlap, Van Liere, Mertig, & Jones, 2000), Motivation Toward the Environment Scale (Pelletier, Tuson, Green-Demers, Noels, & Beaton, 1998) and the Connectedness to Nature Scale (Mayer & Frantz, 2004). The literature on measurement tools on actual behaviour vary widely, with many scholars creating and utilizing surveys to measure behaviours. A general discussion on these tools is made with reference to several specific tools.

Measurement of Environmental Behaviour Determinants

New Environmental Paradigm / New Ecological Paradigm

First referenced in 1978, the New Environmental Paradigm [NEP] was developed in response to the environmental movement of the 1970's and the sociological focus on anthropocentric issues (Dunlap & Van Liere, 1978). The NEP measures indicators of environmental concern, which is then assumed to be a predictor of environmentally responsible behaviour (Steg & Vlek, 2009). The scale was originally a set of 12 questions, answered from the participant's personal perspective using a Likert scale; the questions examined concepts of environmental values, attitudes, beliefs and worldviews (Dunlap & Van Liere, 1978). In response to changing environmental and contextual factors, the NEP evolved into the New Ecological Paradigm in 2000 (Dunlap et al., 2000). The New Ecological Paradigm includes 15 Likert scale questions, and is aimed at a more comprehensive ecological worldview (Dunlap et al., 2000). Having been revisited many times, the NEP is still a significant tool in environmental research. The New Ecological Paradigm and / or NEP is widely used, especially for measuring environmental values (Whitmarsh & O'Neill, 2010). Criticisms of the NEP include limitations in its capacity to explain specific environmental attitudes and its inability to provide a strong link to environmentally-responsible behaviour (Dono et al., 2010; Steg & Vlek, 2009).

Motivation Toward the Environment Scale

The Motivation Toward the Environment Scale [MTES] was introduced in 1998 in an effort to measure an individual's motivation for environmental behaviour (Pelletier

et al., 1998). The MTES includes three types of motivation outlined by Self-Determination Theory: intrinsic motivation, extrinsic motivation and amotivation (Pelletier et al., 1998). With a list of 24 items, the MTES asks individuals to rate, on a Likert scale, the degree to which they personally agree with motivations for environmental actions (Pelletier et al., 1998). The validity of the MTES has been proven by several researchers but, as with other measurements, the strength of the link between motivations and actual behaviour has been questioned (Villacorta, Koestner, & Lekes, 2003). In addition, it could be argued that many of the statements of the MTES are noticeably socially desirable or socially undesirable and this could impact results; however, the validity of the MTES has been positively tested when comparing individual responses and those of the participants' peers (Villacorta et al., 2003).

Connectedness to Nature Scale

The Connectedness to Nature Scale [CNS] is a tool intended to measure an individual's personal feeling of emotional connection to nature (Mayer & Frantz, 2004). Mayer and Frantz (2004) cite Leopold's (1949) land ethic in stating that connectedness to nature leads to environmental concern; the CNS is an attempt to measure this relationship and accurately predict an individual's environmental action. The CNS asks respondents to rank how they generally feel, using a 5 point Likert scale with regard to 14 statements (Mayer & Frantz, 2004). Gosling and Williams (2010) proved a positive result when using the CNS to explore the relationship between emotional connectivity and environmental behaviour, although the results were modest when referring to major behavioural changes. In addition, Chochola (2009) confirmed the emotional connection

to nature and pro-environmental behaviour link using the CNS. However, scholars encourage the use of other environmental measurement scales in congruence with the CNS to fully account for environmental behaviour motivations (Gosling & Williams, 2010).

Measurement of Environmental Behaviours

A major flaw in most models and theories of environmental determinants of behaviour is that they often predict behaviour intentions rather than predict the actual behavioural action (Booth, 2009; Gatersleben, Steg, & Vlek, 2002; Guler & Afacan, 2012; Steg & Vlek, 2009). Some research has even suggested that there is no strong link between a person's environmental motivations and their actual environmental behaviour at all (Boyes & Stanisstreet, 2012). Thus, scholars have attempted to explore the actual reported behaviour, sometimes with reference to the motivation for that behaviour, depending on the context of the study. Researchers will investigate one type of behaviour, such as littering, or a range of environmentally significant behaviours. For example, Bator, Bryan, and Schultz (2011) examined littering behaviours only, Chochola (2009) studied behaviours relating to fuel, water conservation, recycling and energy, and Boyes and Stanisstreet (2012) surveyed many different behaviours as they related to climate change. The primary criticism of environmental measurements is that they are, primarily, self-reported scales; people have a tendency to over-report their environmental behaviours (Thøgersen & Ölander, 2006). In attempts to mitigate this, tools are used occasionally with complementary peer reports of behaviour or with behaviour observation.

Summary

A researcher wishing to study environmental behaviours, and the motivations behind them, has a wealth of pre-developed tools to choose from in the literature. The three most commonly referenced measurement scales for environmental motivations were examined, but all were also found to have corresponding criticisms. Tools of measurement for actual environmental behaviours were found to also be in abundance, with many researchers choosing to devise their own according to the context or needs of the study; these have their drawbacks as well.

Farmers & the Natural Environment

Thus far, this literature review has examined the environmental stewardship of people in general. As this study is based upon the perspectives of environmental stewardship of farmers in Norfolk County, Ontario, a review of the literature on the determinants of environmental behaviour of Ontario farmers was conducted. Databases on the following subjects were explored: biology and life sciences, economics and agricultural economics, global studies, psychology, public health, physical sciences and social and behavioural sciences. Keyword searches with the following terms were utilized: environmental behaviour, environmental motivation, environmentally significant behaviour, pro-environmental behaviour, environmentally responsible behaviour, in combination with the follow terms: Ontario farmer and Ontario agriculture.

As a healthy natural environment is an essential element in agriculture, it is not surprising that farmers in Ontario often have an inherent feeling of responsibility to protect and conserve their environment (Filson, Adekunle, Sethuratnam, & Lamba,

2012). According to Filson and Adekunle (2012), this is primarily due to the fact that farmers have an interest in preserving the environment to leave a healthy and workable farm for future generations of the family. This personal feeling of responsibility often means that farmers will have a natural leaning towards environmentally responsible behaviours (Filson & Adekunle, 2012).

This inherent environmental stewardship does not always translate into environmentally significant behaviours for all farmers, however. As with other Canadians, there are various factors that impact Ontario farmer's environmental behaviour. Filson (1993) found in a 1991 survey of Ontario farmers that age, sex, education and size of farm were the most significant with regard to growing concern about environmental issues surrounding agriculture. The younger, educated, female farmers were more likely to demonstrate environmental concern and resulting behaviours, while larger farm operators were less likely to be environmentally orientated (Filson, 1993).

Filson and other contributors added to and altered somewhat this list of behaviour determinants in Ontario farmers. Financial incentives and disincentives were found to be the most significant factors, especially financial constraints, in some areas of Ontario (Filson, Bucknell, & Hilts, 2012; McCallum, 2003; Stonehouse, 1996). In addition, time availability and income are shown to impact environmental concern and behaviour; more time available and a higher income level of the farm or farmer has a positive correlation with increased environmental behaviour and adoption of environmental best practices (Marzall, Filson, & Adekunle, 2012). Those farmers who work land that is rented from another, rather than self owned, are less likely to demonstrate environmentally

responsible practices (Filson et al., 2012). Participation in environmental organization was also positively correlated to adopting environmental best management practices (Filson et al., 2012).

More recently, Filson (2012), with reference to Serman (1999), found that the size of the farm in Ontario is still a significant behaviour factor, but that the larger the farm, the more likely that new, environmental best management practices will be adopted. This is somewhat contradictory to the Filson (1993) results that smaller farm owners were more likely to demonstrate environmental concern but may be due to increased access to educational or financial resources on environmental practices or social pressure from others due to being more visible to the public eye, as opposed with small farms (Filson et al., 2012). In addition, sex was proven to have less significance with regard to adopting environmentally-responsible behaviours (Filson, 1993; Filson et al., 2012).

Summary

It appears from the review of the literature that determinants of environmentally-responsible behaviour in Ontario's farmers are perhaps more practical and less philosophical than those of Canadians as a whole. This may be because farmers have regular, practical, interactions with the environment as they primarily derive their income from products grown in the environment. However, several of the significant factors impacting environmental behaviours in Ontario's farmers are similar to those of other Canadians, such as financial and responsibility related determinants. There are some additional specific factors that do not, of course, pertain to the general population of non-farmers, such as the size of farm, or whether the farm is rented or owned.

Literature Review Summary

Studies on environmental stewardship, environmental behaviour and its motivations, and measurements of these are incredibly multi-disciplinary, surfacing in psychology, sociology, environmental science, philosophy, global studies, economics, political science, ecology and other physical and social sciences. The literature is broad but fairly recent; while literature examined in this review date back to 1949, most academic study is clustered within the last 20 years. As environmental issues become more serious and increasingly global, assumedly studies on the environment will increase and even become more multi-disciplinary. It is clear from the literature reviewed that there is no one single model or theory that explains environmental stewardship; thus, a consideration of many or all is necessary in a representative study.

CHAPTER 3: METHODS

The study utilized the qualitative descriptive method. Qualitative descriptive method involves study of a phenomenon of interest to a researcher in order to discover patterns and themes (Rizzo Parse, 2000). According to Rizzo Parse (2000), the underlying assumptions of qualitative descriptive research are:

1) *Humans create social networks*
2) *Humans can describe retrospective and prospective life events*
3) *Patterns and themes surface through intense study of phenomena* (p. 57)

There are two common methods in qualitative descriptive research: the exploratory study and the case study, the latter being a study of one social unit (Rizzo Parse, 2000). Data is gathered through in-depth processes such as interviews, direct observation, or questionnaires (Rizzo Parse, 2000; Sandelowski, 2000). Participants are selected from the population of interest; there is no required sample size (Rizzo Parse, 2000; Sandelowski, 2000).

It is important to note that this study is framed, in a modified version, within the epistemological paradigm of naturalistic inquiry. Naturalistic inquiry researchers acknowledge that there are multiple realities and that inquiry is never value-free (Lincoln & Guba, 1982). During naturalistic inquiry, the researcher and the respondent interact and can have a relationship that is interrelated (Lincoln & Guba, 1982). Consistent with qualitative descriptive research methods, naturalists aim to develop a body of knowledge of one particular case or phenomenon (Lincoln & Guba, 1982; Sandelowski, 2000; Sandelowski, 2010). The process of naturalistic inquiry may result in hypotheses to

describe an individual case, but generalizations are not possible outside of the case (Lincoln & Guba, 1982). Explanations of phenomena are plausible rather than probable (Lincoln & Guba, 1982; Owens, 1982). This study is modified naturalistic inquiry because a conceptual framework, describing the literature review, was developed.

The study is a qualitative case study as it has examined, in-depth, one social unit: farmers involved with the Alternative Land Use Services (ALUS) program in Norfolk County, Ontario. The research method used in this study was the semi-structured interview. Utilizing semi-structured interviews is consistent with naturalistic inquiry, where the researcher has direct interaction with the participants.

Researcher Perspective

I, personally and epistemologically, relate to naturalism and naturalistic inquiry as I am an idealist and believe that research is never value free. In addition, through this research I sought to develop an in-depth description and, perhaps, some level of understanding of one particular case, but did not seek to generalize to other phenomena, consistent with naturalistic inquiry. Finally, I understood and embraced the likelihood that my research will lead to further questions and inquiry rather than definite conclusions, as is common in naturalistic studies.

This study required direct interaction between myself as the researcher and the participants. It was very important that participants felt at ease and comfortable discussing the interview topics with me. As was demonstrated in the review of the literature, people can have a tendency to alter reports of environmental behaviours and other environmental perspectives, assumedly for fear of judgement. Thus, I felt it

essential to pen my initial reflections on the study prior to the interviews to ensure that in the open interaction with the participants I would not influence the responses of the participants. This is my reflection:

I feel that my personal, academic and professional experiences and beliefs have an impact on my perspectives on this study. Personally, I have always been a strong believer in the necessity of protecting the environment. I believe that the needs of the environment trump some human needs, even if the needs of the environment mean inconvenience. I frequently speak openly about protecting the environment to my friends and family.

I have chosen to undertake several academic opportunities that pertain to this study. In my undergraduate and graduate education, I expanded my knowledge about the philosophy and practices of environmental stewardship. These educational experiences both strengthened and altered my personal beliefs on the environment. In particular, I was surprised and frustrated with the implications of my findings in my research about environmental behaviour of Canadians. This knowledge led me to feel as though I wanted to attempt to enact change in this area.

Professionally, I have been employed for a number of years in the environmental sector, in a non-profit setting and more recently at the governmental level. Through these experiences I have gained knowledge about how to engage others in topics concerning the environment and environmental stewardship, especially what techniques may assist in helping a member of the public to understand their personal impact on the environment. My current profession involves educating the public in an effort to increase their environmental awareness and environmentally responsible behaviours.

I feel that these experiences may make my primary research journey a little more difficult. I want to ensure that I effectively engage my participants in a manner so that the interviews will flow and key information will be shared, but I have to be very careful not to influence their answers in any way. Especially, I want to maintain a non-judgemental stance when listening to participants' perspectives, beliefs and practices as they pertain to the environment. I understand that not everyone feels as strongly towards protecting the environment as I do and I want to ensure that I do not inadvertently press my beliefs on any participant; I have to be cognizant of the fact that it may feel natural to do so due to the nature of my current profession.

While it is accepted in naturalistic inquiry and qualitative descriptive research that there may be researcher influence, I remained as non-judgemental as possible on all topics during the interviews and, unless directly asked, I did not share my opinions about the environment. I carefully monitored my spoken language, body language and facial expressions so as to not inadvertently express any form of judgement. In the data analysis stage I also examined the interview transcripts carefully to note any potential biases that may have crept into the interviews due to my personal perspectives.

Participants

The fourteen participants of this study were active farmers living and working in Norfolk County, Ontario and participants of the ALUS Program. Three of these participants were also members of the ALUS Partnership Advisory Committee [PAC]. The sizes of land farmed and owned by the participants ranged significantly and are not listed here to ensure confidentiality of the participants.

Ethical Considerations

While qualitative research of this study's nature is often non-invasive, this study's use of human subjects required an ethical review. Due to the fact that this study was in partial fulfillment of the requirements of a University of Guelph Master of Science degree, I underwent an ethical review through the University of Guelph Research Ethics Board [REB]. The primary risks to the participants outlined in the REB review related to participant worry or fear of judgement by the researcher when discussing environmental issues and the psychological upset associated with the termination of a researcher-participant relationship developed during the study. This study was approved to proceed by the REB on August 2, 2013.

In order to manage the risks outlined in the REB review, I clearly outlined the boundaries of the study and the timeframe for the termination of the study relationship to each participant. In addition, as has already been outlined, I was keenly aware of my perspectives and, to the best of my ability, maintained a neutral stance. Finally, I made every effort to maintain participant confidentiality throughout the entire research process.

Confidentiality was maintained by assigning a unique code to each participant. The one master list containing the linkages between the code and the participant kept on my password-protected desktop computer, to which I have exclusive access, in an encrypted Microsoft Excel spreadsheet. All digital research notes were also kept in an encrypted folder on this computer and written notes were kept in a locked desk drawer. With written consent, the interviews were audio recorded onto a password-protected digital recording device. Immediately following the interview, the digital audio

recordings were transferred to this password-protected computer and then deleted off the audio recording device.

Written consent was obtained from every participant prior to each interview. The consent form, designed within the guidelines of the University of Guelph REB, was verbally explained by me prior to participant signature, with specific care given to explaining the procedures of the research including withdrawing from the study. Participants signed two copies and kept one. See Appendix B for a copy of the consent form.

Sampling Approach

Consistent with qualitative descriptive research design, the sample size of this study was decided by the researcher; there is no set sample size in qualitative descriptive research (Rizzo Parse, 2000; Sandelowski, 2000). There are a total of seventy-four active famers in the ALUS program and eight of those are involved with ALUS on a management level, in the ALUS Partnership Advisory Committee [PAC]. To ensure that the amount of data collected through the methods was manageable, I proposed that this study would have a maximum of fifteen participants, with at maximum of three of those participants being PAC members. I felt that it was important to include the perspectives of a PAC member as they may have increased knowledge about ALUS and its history, but I did not want PAC members to dominate the data collected due to their level of investment in ALUS. I wanted to ensure that their potential personal investment in the future of ALUS did not skew the potential results of this study.

Potential participants were approached in August / September 2013 by ALUS representatives during annual farm visits and asked whether they would be willing to be contacted by a researcher. Four PAC members agreed during the annual farm visits to be contacted for this research study and twenty non-PAC active farmers agreed to be contacted. This list of twenty-four active ALUS farmers was thus the pool from which to draw the fifteen participant sample. It was originally proposed for the study to utilize a simple random selection technique (e.g. drawing names out of a hat) but due to a lack of response from those contacted, this technique was unsuccessful (see Recruitment section below).

Recruitment

To ensure the confidentiality of the members in their program, the management personnel of ALUS approached each active farmer in August / September 2013 during farm site visits and asked if they would consent to be contacted by a researcher, rather than providing me with the list of all seventy-four active farmers. ALUS representatives were provided with a script to use in this initial stage of recruitment (see Appendix C for a copy of this script). As noted, twenty-four active farmers agreed to be contacted by me.

Selection of participants was originally intended to be by simple random selection. However, due to the low response rate of those randomly chosen using this method, I ended up contacting all farmers on the list by phone and / or email to attempt to reach the proposed sample size. Once contact was made over phone or email, I obtained verbal consent to schedule an interview. In total, I scheduled interviews with fifteen

participants. When making the interview appointment, participants were invited to choose the interview location. All participants chose their home as the location for the interview.

Data Collection Procedures

Data collection took place during November 2013. I utilized a common method in qualitative descriptive studies, the semi-structured interview. I conducted in-depth, face-to-face interviews with all participants. The interviews ranged from 53 minutes to 166 minutes. All participants consented to audio-recording, and digital audio records were transcribed verbatim. Brief notes were taken manually during interviews, and participants were invited to read and discuss the notes following the interview for accuracy.

In addition to several pre-interview descriptive questions (such as size of farm, number of children, number of years in ALUS program), five questions were drafted from the research objectives into an interview guide. All those questions were posed in the interviews, to ensure that there were a minimum number of the same questions asked for comparison purposes. See Appendix D for the interview guide with the pre-interview questions. The questions were not asked in the same order for the interviews; instead I allowed the conversation to flow and asked the questions as appropriate. Wherever possible, I asked for clarification or expansion of a participant's statement to ensure mutual understanding.

Use of semi-structured interviews has several advantages and disadvantages. The nature of the study, being philosophical and reflective, is an appropriate fit for an interview setting where respondents can feel comfortable discussing their beliefs and their past, with time to properly reflect. It was fortunate that all participants chose their

home as the interview location; this allowed for the interview to be private and in a somewhat relaxed atmosphere. The most significant advantage I found with utilizing semi-structured interviews was the ability to have an immediate opportunity to probe further into any participant statement. The primary disadvantage I experienced with this method, procedurally, was that due to the fluid nature of the interviews there was a concern that important topics would be omitted, only discussed briefly, or that an interview would go so off-topic that I would be unable to guide the conversation back to the research question. To minimize this disadvantage, I was attentive to the flow of the conversation, and frequently prompted participants to expand on a thought. In addition, I kept a printed copy of my interview guide to review at a glance throughout the interview, as well to ensure that all topics pertaining to the phenomena of interest were covered effectively.

As has been discussed, in the recruitment period I had scheduled interviews with fifteen potential participants, but due to an unforeseen scheduling conflict, one participant had to cancel the appointment. Thus, I conducted interviews with a total of fourteen participants. It was decided to not pursue an additional participant to reach the original proposed sample of fifteen, as trends and commonalities were being repeated with the number interviewed.

Data Management/Analysis

To manage and analyse the data collected, I utilized the computer software tool NVivo 8 (© QSR International, 2008). NVivo was installed and password-protected on my desktop computer to which I had exclusive access. All interview transcripts were

imported into NVivo. As according to the guiding principles of qualitative descriptive method, data analysis began by listening carefully to the audio recordings of the interviews while reading the transcripts in NVivo and making highlights to the transcripts or taking manual notes (Rizzo Parse, 2000). Rizzo Parse (2000) states that, in so doing, the researcher will be able to identify and record major themes in the data. I was able to identify NVivo free nodes through this exercise and using these nodes as a codebook; I then undertook line-by-line analysis with all interview transcripts to develop and code into tree nodes which represented higher order categories, themes and patterns. After completing line-by-line analysis, I went over each tree node carefully to combine connected themes and patterns.

Following this, I felt confident that I was identifying the major ideas and themes that were common to participants; this is an essential step in qualitative descriptive analysis (Rizzo Parse, 2000). I had originally proposed to keep the PAC member participant data separate from the non-PAC members because they may have different perspectives on the ALUS program. However, this was not found to be true, as the key findings were common to all participants; no differences in perspectives were identified. These findings are discussed in the following chapter.

Limitations

The most significant limitation to the research study is the small sample size (although the entire population size of ALUS is also small). Even though generalization to other populations is not the intent of the study, the small sample size does limit the potential to describe the case study, generalized to the ALUS population, in its entirety.

As there is an inverse relationship between sample size and margin of error, this small sample size will have a higher margin of error than those with larger sample sizes. These are all limitations to the methods chosen and the number of methods to be utilized, as triangulation (three methods) would increase the validity of the study. There are also limitations regarding the nature of the subject and the research question in that the literature has revealed environmental behaviours are often overstated, thus the responses from participants may not be accurate. In addition, the study asks for participants to be retrospective; although this ability is an assumption of qualitative descriptive method, this may not be entirely possible for some participants.

CHAPTER 4: RESULTS AND ANALYSIS

The participants were actively engaged with farming practices on their own land and with ALUS. This active engagement has resulted in levels of keen, pragmatic senses of responsibility emanating from each participant in every interview. Thus, the primary finding of this study is the emergent theme of responsibility. This emergent theme can be examined through six thematic findings: *responsibility to future generations / children, responsibility to self / family, responsibility to community, responsibility to owned land, conflicting responsibilities, and changes in perceived responsibilities due to participation in ALUS.*

Note that, to protect the identity of the participants, all names below have been changed to pseudonyms.

Responsibility to Future Generations / Children

Participants reported a sense of responsibility to protect the earth for the sake of future generations, both within and outside their family. Those participants who did have offspring, even if they did not anticipate their children taking over the family farm as a career, expressed the need to protect the natural environment to allow their children to have an undamaged or improved environment to experience, enjoy and prosper from in the future. Lauren notes, "We've got to also remember that there's a generation coming behind us. It would be nice for them to have something".

Those who did not have children expressed similar sentiments. When speaking about a project designed for environmental improvement, Brad muses, "We don't have any children, and one of the things we wanted to do was leave something when we are

gone". All participants appeared to understand that there are linkages between activities undertaken now and the state of the natural environment in the future, and embraced chances to partake in such opportunities to ensure that their children and grandchildren, or those of others, have the right, at the very least, to live in an environment that is the same as it is now.

Several participants expressed a responsibility not only in preserving and protecting the environment for their children, but also in passing down the knowledge of how to properly care for the natural environment for future generations. Phillip states, "I told my kids: you learn from mistakes, but they don't have to be your own mistakes", and, in reference to the hypothetical farmer / environmental steward:

> A lot of the stuff he has being doing for the last 20 years, there'll be no benefit to him; there'll be no benefit to his children. His grandchildren are going to pick up some of the benefit. He teaches them about what his shift in thought process is, and maybe they're starting where he left off.

Those participants who grew up in agricultural families ruminated about the environmentally damaging activities they saw working on the farm as youth, and reiterated that they feel it is necessary to pass on their acquired knowledge to their children.

Responsibility to Self / Family

Another prevalent element of responsibility expressed by participants was that to the farmer himself / herself and to the farmer's immediate family unit. This responsibility was both in the short / medium term and in the long term.

Short / Medium Term Responsibility to Self / Family

A very common theme in the interviews was the necessity to protect and preserve the natural elements of the farm for the continuing financial benefit of maintaining or increasing crop yields. Shawn explains when stating, "I have a real hard time trying to find an example where bad environmental practices make you more profitable.... I degrade my soil and it has less ability to produce a crop for me" and "the economics of doing that [environmentally detrimental practice] gets worse and worse, and you start adopting these more friendly practices because you can't afford to do it any other way". With the responsibility of providing for oneself and a family, participants logically feel they need to ensure the environmental health of their farm. Some also expressed disdain for those farmers who degrade the environment for immediate financial benefit. Arthur asserts scorn for the farmers "that have the heavy application of fertilizers and the greed, more output for less input" but maintains that they will not continue to be profitable for long.

Participants also discussed the opportunities that their farm provided in giving aesthetic pleasure to themselves and their families. Several participants stated that they "felt good" when their family is able to take pleasure from the farm, referring not to the financial benefit received from production, but from activities like walking through a blooming field or sitting to observe wildlife that lives on or crosses through the farm. This has frequently led to feeling responsible for maintaining environmentally beneficial practices such as removing litter and developing or preserving wildlife habitats. Bill reiterates, "... when we'd go for a walk, we added [environmentally benefitting] stuff on

too because we like what it looks like so to improve those areas for us, but also for our kids, and our kids' kids."

Long-Term Responsibility to Self / Family

As has been discussed, participants expressed a feeling of responsibility to preserve the natural environment for future generations. Further to this, participants reported feeling responsible to protect the environment of their farm to preserve the value of the property for future sale or for children who may take over the family farm. As many of the participants are approaching retirement age, the responsibility of maintaining the quality of the farm property for a future owner was a very common topic. The future price of the land was stated many times as a significant reason for being an environmental steward. Bill notes, "a good incentive for doing this [environmentally beneficial practices] on any kind of farm is for your kids and kids' kids kind of thing, and the dollar value of your land. This increases your land price."

In addition, several participants expressed a desire to be able to enjoy the aesthetics of farm once retired which requires one to preserve the natural elements of the farm. Arthur said, "when I no longer want to work the ground, I just want to sit on it and watch the butterflies go across the yard". To allow for the possibility of this kind of future, Arthur treats his native plants that attract butterflies and other wildlife with care.

Responsibility to Community

All participants were members of the farming community of Norfolk County. They were also members of smaller communities made up of neighbours (usually also

farmers) and of the global community of food producers. The feelings of responsibility to these overlapping communities impacts the behaviour of participants in several ways.

When discussing the subject of environmental stewardship in farming, a theme that continually emerged was the blame for the current state of environmental degradation that participants felt was placed on many farming communities by non-farming entities. Several participants expressed their desire to implement obvious environmentally beneficial practices or be a part of environmental stewardship organizations to demonstrate that the farming community is not solely to blame for environmental degradation. They feel it is their responsibility to act on behalf of the global farming community, the Norfolk farming community and their neighbours, and to showcase the positive impacts that agriculture has on the natural environment, especially in contrast to urban communities. Kyle reiterates these feelings of blame in his statement, "I think, whoa, wait a minute here. Even though cities dump a gazillion gallons of sewage into the rivers and lakes, they're going to come after us.... Let's nail the farmer." Thus some environmental best practices implemented on the farm are designed for the optics of environmental stewardship, and in the interest of the reputation of the farming community.

Participants also expressed feelings of responsibility to their neighbours and the farming communities in keeping the aesthetic elements of a healthy environment. By keeping the farm clean of garbage and maintaining native species on their property that are aesthetically pleasing and attractive to wildlife, birds and insects, participants are actively trying to ensure the satisfaction of others. However, another important point raised by participants was the feeling that they were not being good neighbours in the

first year or two of having a native grassland in the ALUS program; the frequent presence of weeds or what is perceived to be weeds, or an 'unkempt' look of the farm during this time often resulted in complaints from neighbours or others in the farming community.

Responsibility to Owned Land

One distinctive point that was raised in all participant interviews was the difference between a farmer who owns his or her land and a farmer who works land that he or she does not own (rented) with regard to how one would treat the natural environment of that farm. Several participants had knowledge of the experienced differences between what another farmer would do on the participants' land while renting, and it was frequently described as very damaging to the natural environment. Brad explains, "We had [number removed for confidentiality] acres here and we had it rented out, cash croppers, you know, and they were basically raping the land, putting in just what they needed to get out, and the value and quality of the land was going down". Shawn, when referring to tenant farmers states:

> If you're not going to farm it next year, who cares if you abuse that resource? ... Negative environmental impacts to that farm hinder its ability to produce a crop. You go on that, why would anyone want to do that? Well, if you're not farming it the next year, you're not going to care as much. If you're just getting paid to run the combine or you're just getting paid to do those activities, you get paid for combining the crops, how much an acre, you're not going to care as much.

Since Brad took back active ownership of what he called a "dust bowl" when it was under the control of tenant farmers, many elements of the farm have returned to a more healthy state, the soil quality has increased, erosion has slowed or ceased, and wildlife, birds, insects and pollinators again visit the farm.

In addition to feeling that tenant farmers show little inclination to protect and care for the natural environment, participants describe that it is often the case that the farm owner would care more about the production levels than the health of the environment if he or she does not actively farm the land and instead rents it to another. This is especially the case if the farm owner does not live on the farm and is thus more removed from it. Shawn, being an active farm owner himself, also rents neighbouring farms. He describes the process of devising rental agreements to reflect his belief in environmental stewardship as often difficult. He explains:

> I'll try to put rental agreements together and I'll try to put customer arrangements together with land owners, and I have a real hard time finding land owners that I'll work for because what they want is their maximum amount of dollars every year, not thinking long-term. If I'm saying: 'I'm going to spend this money. I'm going to tile this, I'm going to build up the fertility, do these things right.' But the guy down the street is going to pay another $2 an acre this year.

While the distinctive differences described, as to how a tenant farmer in Norfolk County might treat the natural environment on a farm that he or she does not own, were echoed by all participants, it is also important to note that, when speaking generally to participants about stewardship of the natural environment, he or she appeared to always refer only to care and protection of his or her own land (the farm environment). When probed about the natural environment beyond the farm, several participants did state some examples of where he or she had demonstrated environmental stewardship elsewhere, but it was only upon directly asking that this topic was discussed. Thus participants deem stewardship of the environment to be applicable primarily to land owned, or the farm.

Conflicting Responsibilities

Another common concept that was raised by participants was the feeling that he or she had conflicting responsibilities - that is, the responsibility of self-protection, protection of the family, the farm and financial needs while balancing what is understood to be protecting the natural environment. In particular, participants worried that environmental stewardship activities would invite increased outside scrutiny or to increased government regulation, and this would lead to an inability to effectively farm and / or to provide for oneself or the family.

Financial Responsibility vs. the Natural Environment

During the interviews, all participants discussed the issue of balancing the responsibility to keep the financial operating cost of the farm as low as possible with activities that would benefit the natural environment. At first, most stated that they would frequently choose a lower cost option over what they deemed to be the environmentally friendly option, if the environmental option was more expensive. But when probing further into the reasons for choosing an option, it was found that many factor in the environmental cost, being the long term effect it may have on the environmental health of the farm, and are actually frequently making choices that are the most environmentally beneficial. For example, Shawn stated quite clearly that financial considerations are the bottom line in making choices for the farm, but when describing a choice to use local leaf litter as a fertilizer rather than potash shipped from outside of Ontario, he states:

> The potash, it's potassium and chloride. Compost, there's potassium in it, just name off any nutrient there is – it's in it; it's complete balanced fertilizer. When I'm looking at wanting all those different nutrients and you start pricing it all together, the compost seems like a good deal. But per acre, I'm spending about

> the same to a little more than what I'd be spending on before with potash. To some people's minds, it's more expensive. In my mind, it's a better deal because you're getting more nutrients; it's just a better fertilizer. If all you're looking at is pure nutrient value or if you want to add the value that it's organic matter or... I don't know, there's a lot of factors to it. Some people would say that we're paying a premium for it. But it just depends what you believe.

Overall, in the discussion of financial cost versus environmental benefit, it was clear that some participants were uncomfortable discussing the reasons behind some of their choices for the farm, assumedly for fear of judgement that they were doing harm to the environment. It appeared that decisions that required balancing the financial needs of the farm or the family with the needs of the natural environment were frequently difficult to make, as farmers established where they 'draw the line' at environmental stewardship, or where the bottom line exists for stewardship of the farm and its resources as compared with stewardship of the environment.

Responsibility to Protect Farm from Scrutiny and Regulation vs. the Natural Environment

The participants viewed some elements of environmental stewardship to have necessary linkages to mandatory (as opposed to voluntary) government regulation. They also were concerned that being an open environmental steward would invite scrutiny from neighbours, the community or government bodies. Referencing the leaf litter fertilizer again, Shawn describes:

> That was all going to dumps before. It's really, really complete fertilizer. This is good. Now the interesting thing is when I spread that compost, I had the Ministry of Environment out 2 or 3 times because a neighbour thought it was toxic waste. Okay, so I had this bureaucrat come out and harass me and tell me to stop spreading it. Not because I was doing anything wrong, but because he wanted to deal with the neighbour's complaint.

Ron explains that, frequently, neighbouring farmers will file formal complaints with government bodies rather than speak directly with the farmer and, once a complaint is received, it will usually lead to an on-site visit by a government official. These site visits can open a farm up to further scrutiny that may greatly impact farm operations. Ron states:

> I've got a neighbour that he's just so fearful of government, and rightfully so... they came to him and said they were going to take over this much land and do this with it and there wasn't anything he could do about it.

Alexander similarly explains, when referencing an experience with a site visit from a Ministry official, "Whoa, whoa. You can't cut within 80 feet of your creek [the Ministry official says]. All of a sudden you've lost like 15 acres of land and, you know, along a creek, that's your best land."

These kinds of experiences have led participants to frequently decide to not adopt an environmentally beneficial practice. For many years, before being a part of ALUS, Geoff felt, "we were afraid of running up against the Endangered Species Act or having some habitat regulators come by somebody's [neighbouring] lands. We were always concerned about that. Farmers fear, like hell, the regulations.". It was clear from the participants that the process of weighing the responsibility of protecting the farm and the family from scrutiny and potential regulation that might be operationally devastating with the choice to adopt environmental stewardship practices was one they took very seriously. Even though the participants may view an action to be the most beneficial one for both the farm and for the natural environment, he or she may make an alternative choice to avoid outside interference. Geoff states, "regulations are for bad people, not for

good people," but this is not the experience the participants have necessarily had when attempting to implement a good practice.

Changes in Perceived Responsibilities with Participation in ALUS

As a result of being an ALUS farmer, participants reportedly have felt some changes in their levels of responsibility. First and foremost, participants have noticed a decrease in feeling the conflict of responsibilities in balancing the needs of the environment with the need to protect the family and the farm, and with financial needs. Secondly, participants have felt an increased responsibility to provide ecological goods and services and feel proud of the opportunities available to do so. Finally, participants report an increased feeling of responsibility to talk with other farmers, within Norfolk County and beyond, about participation in ALUS, the opportunities to implement environmental best practices and the benefits of doing so.

Decreased Conflicting Responsibilities

One of the most significant changes noted by participants was a new willingness to adopt environmentally beneficial practices despite the fear of scrutiny or government regulation. While ALUS has on-site visits, these are primarily undertaken by another Norfolk Country farmer who encourages a two-way flow of ideas and information, not a government official whose primary target is to investigate or enforce a regulation that a farmer has no choice in. These visits have allowed participants to accept an 'outsider' on their farm, sometimes for the first time. Geoff states that, before ALUS, "I was a typical farmer that would never allow anybody on the land". In addition, by being part of an

organized environmental effort, farmers feel that they are able to adopt an environmental practice that, while it may invite scrutiny from others, they have back-up from others within ALUS who are doing the same things. As has been noted, participants who have native grasses as a result of the ALUS program experienced complaints from neighbours about 'weeds' in the first few growing years. Instead of giving up the project as they may have done in the past to protect their family from scrutiny, participants have introduced their neighbours to the ALUS concept, and quite often have successfully recruited them to the program.

The delicate balancing of financial responsibility with environmental best management practices is also reportedly eased with participation in ALUS. While the incentive of a financial stipend per acre that is enrolled in the ALUS program was not cited as an important factor by participants, the cost in developing the ALUS project being borne by the project rather than the farmer was referred to as important. For Alexander, the creation of a wetland on his farm has a number of benefits for his land and for the natural environment but the significant cost of its creation has been a limitation in him funding a project like it by himself in the past.

Increased Responsibility to Produce Ecological Goods and Services

While the concept of farmers producing ecological goods and services was not a new one to participants, the ability to be recognized as doing so was appealing. As Geoff states, “I was quietly pissed that I wasn’t getting recognized for my contributions”. And, in formally recognizing this ability of farmers, ALUS has also encouraged farmers to take on an increased sense of responsibility to further produce ecological goods and services.

Every participant expressed pride in the number of ways that farmers are able to protect and improve the natural environment and spoke openly about opportunities to do so that they have realized through ALUS. Even those participants who admittedly have already put all the land they can afford into the ALUS program shared excitedly that they had ideas for new environmental projects they could undertake. Most participants had environmental intentions before being a part of ALUS, but with ALUS they have a newfound idea of how much responsibility they can take on in being environmental stewards.

Responsibility to Share Knowledge

Many participants may have always been interested in sharing environmental knowledge with other farmers, but being a part of ALUS has increased the opportunity to do so. In addition to feeling responsible to speak with neighbours about ALUS to assist with understanding of projects undertaken, participants also feel that it is their responsibility to share knowledge on the ability to produce ecological goods and services and about environmental issues in general. Before being a part of ALUS, Arthur noticed another farmer utilizing a chemical on the farm that he believed to be harmful to the environment. After experiencing the ALUS concept of farmer-to-farmer information sharing, Arthur felt it was within his responsibility to speak with this farmer. He explains:

> I want to know where he got the authority to use it, and why he's using it and why he can't use something that's not as harsh to the environment. And I think, with all that's been happening with the bees and everything, and being a part of it [ALUS] made me more aware of what can happen when something gets out of control. And I can talk to him about it.

ALUS has also provided the opportunity for farmers to showcase their projects; farmers are able to speak to other farmers about ALUS-Norfolk and the environment while also showing them a visible improvement. Even those participants who had been in the ALUS program for just over one year had already seen positive changes in the natural environment resulting from their ALUS project. Shawn discusses showing another farmer the positive environmental changes that can be made on a farm:

> You get tired [in talking to farmers about making environmental improvements]... I've done it a few times where you see a bad thing is getting done there, that person is not making money so we try to go in a say, 'Okay. Do these things'. And I show them what I've done. I don't want to assume that just because I think this way that this is better, but we've seen a result.

Overall, while participants may always have felt it was within their responsibility to speak to other farmers about environmental concerns, ALUS provides both the increased knowledge about the topic and a higher level of comfort in doing so. Alexander summarizes, "[I now feel] more comfortable because I didn't have any experience. You could say I'm all about stewardship of the ground, but not necessarily un-worked ground. Yeah, I would talk more about it now."

CHAPTER 5: DISCUSSION

The purpose of this study was to explore and describe the perspectives on environmental stewardship of active farmers in the ALUS program. The process of this research uncovered a primary *emergent theme of responsibility.* In the previous chapter, this emergent theme was examined through six thematic findings under the emergent theme. These six thematic findings are *responsibility to future generations / children, responsibility to self / family, responsibility to community, responsibility to owned land, conflicting responsibilities, and changes in perceived responsibilities due to participation in ALUS.* In this chapter, the overarching theme of responsibility and each key thematic finding is briefly described and examined in relation to the relevant literature.

Emergent Theme: Responsibility

Given that the participants were all voluntarily part of a program (ALUS) that has environmental stewardship as a primary goal, it is not surprising that one could posit that all participants are themselves environmental stewards, in that they demonstrate a key element of stewardship: a feeling of responsibility to protect the earth. However, it is notable that all participants stated that their primary reason for being a part of ALUS was indeed this predisposed feeling of responsibility to the environment; joining ALUS was not due to the other benefits offered by membership, not even the financial incentives.

As described in the review of relevant literature, Leopold's (1949) land ethic implies a sense of responsibility to protect the natural environment. Drawing on the root of the term stewardship, Lerner (1993) describes environmental stewardship as humans

accepting the responsibility to care for the environment. According to their definitions of environmental stewardship, which corresponds to that of Leopold (1949), Chapin (2011) and Romolini et al. (2012) would agree that the participants demonstrate their inclination to protect the environment at least in part because of their feelings of responsibility to the environment. It is this theme of responsibility, which as previously described influences five key themes, that substantiates the supposition that the ALUS participants interviewed are environmental stewards.

Responsibility to Future Generations / Children

The participants who had children who may take over the family farm, who had children whom they did not expect to take over the farm, and those who did not have any children, all reported a sense of responsibility to protect or preserve the natural environment in consideration of future generations. This is in direct relation to the findings of Foster (2005), Kevany (2007), and Bramston (2011) in examining environmental stewardship. Foster (2005) argues that an important element of environmental stewardship is to be accountable to future generations, especially since those future humans are not usually in position to speak on behalf of themselves, and the environment they might want to have (Kevany, 2007).

Filson and Adekunle (2012) found that Ontario farmers felt a practical responsibility to implement environmental best practices on the farm in order to preserve the natural environment so that future generations of the family could have a healthy farm on which to work. While this may have been the case for several of the participants of this study, some participants did not have children; as well, some spoke openly that they

did not expect or want their children to take over the family farm as a career. As Phillip notes, chuckling, “that’s close to a form of child abuse to make them take over the farm. I don’t expect any of them [his children] to make a living farming full-time”. In contrast to the findings of Filson and Adekunle (2012), those participants without children or with children who will make their future careers on the farm did not appear to have any less inclination to protect and care for the environment.

The literature review concluded that the determinants of environmental behaviour and the very definition of environmental stewardship may vary when comparing the stewardship of citizens in general with that of Ontario farmers. With respect to the review of the literature, environmental stewardship for Ontario farmers appeared to be on a more pragmatic level as opposed to a philosophical one. However, in relation to the sense of responsibility to future generations, this was not the case, given that the ALUS farmers interviewed were not necessarily thinking practically of their own offspring, but also of any member of future generations when partaking in environmentally beneficial activities.

Responsibility to Self / Family

Dietz, Fitzgerald, and Shwom (2005) and Stern (2000) infer that environmental stewardship involves a sense of personal responsibility. It appeared from the interviews that participants felt a sense of responsibility to himself / herself and / or to his or her immediate family unit with regard to environmental stewardship. This refers to the short, medium and long-term financial benefit of protecting the quality of the environment on

the farm and in enjoying the aesthetics of a healthy environment on the farm now and in the future.

Financial Considerations

The financial cost of an environmental action or inaction is frequently cited as a determinant of environmental behaviour (Steg & Vlek, 2009). In Canada, financial costs or benefits are often a primary consideration in environmental stewardship for Canadians in general (Kennedy et al., 2009). For farmers in Ontario, financial cost and benefit considerations are the most significant determinants in environmental behaviour (Filson, Bucknell, & Hilts, 2012; McCallum, 2003; Stonehouse, 1996). The feelings of responsibility described by participants to protect their financial interests in the short and long-term are thus congruent with the literature on both defining environmental stewardship and the determinants of environmental behaviour.

Aesthetic Value

Participants reported that they and their families feel a sense of enjoyment on their farms in reference to the aesthetics of a healthy environment. Participants were reportedly voluntarily choosing to protect the environment and make environmental improvements on their farm in order to continue this enjoyment now and in the future.

By expressing their enjoyment of the land, participants appeared to be describing their belief in the value of the natural environment. According to the literature, placing value on the natural environment is commonly a primary determinant in environmental behaviour. Leopold (1949) stated that concern for the environment stems from valuing

nature. Those who value elements of the natural environment on the same or on a higher level than other self-interested considerations have more of an inclination to show a responsibility to the environment (de Groot & Steg, 2010; Steg & Vlek, 2009). One could posit that participants were demonstrating that they place value on the aesthetics of natural environment, often disregarding other conflicting considerations in making environmentally responsible decisions, such as the time involved in the improvement projects.

While describing their experiences with the natural environment, participants were also often speaking in emotional terms; for example, Josie spent time during the interview reflecting on a fond memory with a grandchild in a field of wildflowers planted through the ALUS program. By creating emotional experiences with the natural environment, participants may be increasing their inclination to protect the environment as emotional connectedness is positively linked to environmentally responsible behaviour (Chochola, 2009; Dutcher et al., 2007; Mayer & Frantz, 2004). Positive contact with nature, which participants are reportedly experiencing on their land, has a direct impact on environment behaviour (Hartig et al., 2007).

Responsibility to Community

Participants reported a sense of responsibility to their community, whether referring to the world community of food producers, the farming community of Norfolk County, or a smaller community made up of neighbours. This responsibility led participants to reportedly feel as though they had an obligation to take part in projects to protect the natural environment for the benefit of the community.

Dietz et al. (2005) state that choices in environmental stewardship activities are often guided by a sense of social obligation. Further, respect for the community can be linked to environmentally responsible behaviours, whether a motivation for environmental stewardship or a by-product of involvement in stewardship activities (Dietz et al., 2005; Rolston, 1991). In stating that they wanted to keep their farm environment obviously healthy in an effort to increase or maintain the satisfaction of others in the community, participants may be demonstrating a level of respect for their community. In addition, they report feelings of social obligation to perform environmental stewardship activities; several efforts were reportedly results of pressure from neighbours, other farmers or non-farmer groups. In particular, participants felt pressure to have environmental stewardship projects visible to outsiders so that it could ease the burden of blame that farming communities feel for current environmental degradation. For example, a participant deliberately planted trees along the roadside in front of the farm so that passersby could easily view them.

It appeared from the interviews that being a part of ALUS may be enhancing a greater sense of community for participants. Kevany (2007) states that environmental stewardship activities can create a greater sense of community. Many participants reported feeling a sense of closeness with other ALUS farmers, speaking to others at meetings, site visits and on-farm tours, and were frequently encouraging friends and neighbours to join ALUS program. Some scholars argue that connections within communities are essential for environmental stewardship and ALUS may be successfully increasing the stewardship of its participants as a result of creating connections between members (Chapin et al., 2011; Sietzinger et al., 2012).

Responsibility to Owned Land

All participants spoke, some at length, about the differences between an active farmer and a tenant farmer, with regard to how one would treat the natural environment. Participants expressed that, in their experiences in Norfolk County, tenant farmers appeared to demonstrate much less inclination to utilize environmentally beneficial practices on the farm. In addition, when referring to stewardship of the "natural environment", participants appeared to be primarily referencing land that he or she owned, or the farm. Although several participants did report environmentally responsible behaviours on land outside the farm, this was with further probing during the interview, as the initial inclination was to discuss stewardship of owned land only.

The literature corresponds to these findings. Filson et al. (2012) found that Ontario farmers who do not own the land that they farmed were less likely to adopt environmental best practices. The participants discussed the reasons behind this discrepancy in the interviews, being primarily short-term financial gains and an ability to make decisions without consideration of the long-term environmental impacts.

Scholars have also found that the concept of *locus of control* is important in making environmentally responsible decisions. The degree to which a person believes that their actions will bring about change impacts their environmental behaviour (Kollmuss & Agyeman, 2003). Those who have a strong internal locus of control believe that their action is likely to create change, and thus that person is more likely to make environmentally responsible choices (Fielding & Head, 2012; Kollmuss & Agyeman, 2003; Pensini et al., 2012). Those who have an external locus of control, who believe that their actions will not enact change, will thus be less likely to choose an environmentally

beneficial action. It may be this concept of control that impacts farmers feeling as though environmental stewardship is applicable primarily only on the farm, or on owned land. Environmental decisions on the farm are usually controlled by the farmer, and if the resulting activity is on the farm, the farmer can also directly view the result. As has been noted, a significant benefit of ALUS is the relatively rapid results; participants are seeing, with their own eyes, tangible changes on their farm after only a year of being a part of ALUS. Thus, ALUS farmers can have a stronger internal locus of control through participation in the program; they will be more able to believe that their environmental actions will enact change because they are able to see the results of past decisions on their farm.

Conflicting Responsibilities

Participants reported feeling as though decisions of environmental stewardship can conflict with other areas of responsibility. This was primarily referring to the farmer feeling as though he/she had a duty to protect the farm and the family from financial harm, outside scrutiny and potential binding regulation, and that some environmentally beneficial actions may hinder the farmer's ability to protect these things.

Financial Responsibility vs. the Natural Environment

It was clear from the interviews that participants, from time to time, struggled with balancing the needs of the natural environment with financial obligations. Most participants stated that they would usually choose a lower-cost item over a more expensive item, even if the more expensive item was more environmentally beneficial. In

making these statements during the interviews, participants had obvious feelings of discomfort as they demonstrated where they might 'draw the line' at environmental stewardship, as they knew a financial choice might harm the environment. However, it was also found that some participants were, perhaps unconsciously, factoring in the long-term cost to the environment of the farm in making financial decisions, so were often choosing the most environmentally-friendly options. There did not appear to be a difference in this attitude according to the size of farm.

As has been previously noted, financial considerations are significant determinants of environmental behaviour for Canadians (Kennedy et al., 2009). For farmers in Ontario, financial cost and benefit is the most important consideration in environmental decision making (Filson et al., 2012; McCallum, 2003; Stonehouse, 1996). Thus, it is not surprising to find that farmers in the ALUS program continue to struggle with weighing the financial costs with the environmental benefit. Chouinard et al. (2008) found, in their study of the trade-off between profit and stewardship, that, in some cases, farmers are willing to take financial risks in order to undertake environmentally responsible actions when weighing other factors. This was also reflected in the participant interviews; reflection on their activities did reveal that participants were reportedly weighing the environmental factors in making decisions.

Responsibility to Protect Farm from Scrutiny and Regulation vs. the Natural Environment

The interviews revealed a strong sense of responsibility emanating from participants with regard to protecting the farm from outside scrutiny and from

government regulation that may, in the future, inhibit their ability to effectively farm. This is not an uncommon finding when examining environmental stewardship of farmers in Canada. In studies of the complexities of another voluntary program in Canada aimed at environmental stewardship for farmers called the Environmental Farm Plan (EFP), several scholars found that mistrust and fear of government was a significant barrier for farmers in adoption and continuation of the program (Klupfel, 2000; McCallum, 2003; Smithers & Furman, 2003). In addition, Yiridoe (2000), McCallum (2003) and Smithers and Furman (2003) found that uptake of the EFP was also dependent on perceived confidentiality of the program process; farmer participants were frequently concerned about inviting outside scrutiny through the potential public release of documentation of on-farm environmental risks and environmental action plans.

Mistrust of government and fear of intervention may actually be more prominent for the participants of this research when compared with other Canadian farmers, as Norfolk County was, at one time, a major tobacco growing region. Many participants were former tobacco growers, and spoke at length of government programming with which they had once been involved as they moved away from tobacco to growing food products. Some felt they had not benefitted from this government intervention. This experience may have increased their fear of government regulation on the farm.

Changes in Perceived Responsibilities with Participation in ALUS

It was found in the interviews that there have been some changes in perceived feelings of responsibility as a result of being a part of ALUS. Farmers report some changes in how they view and feel about their responsibilities that are sometimes in

conflict (financial and the duty to protect, as discussed previously), the responsibility to provide ecological goods and services and in the responsibility to speak to other farmers about ALUS and the natural environment.

Smithers and Furman (2003) conclude in their study of the EFP that an essential element in program adoption is to ensure that there is a climate of trust between farmers and program managers, and within the farming community. As participants are, some for the very first time, willingly and voluntarily allowing for outside visitors and outside intervention in farm activities, one could posit that there is an element of trust between ALUS and ALUS participant farmers. This may be the primary reason why participants now feel a decreased conflict between the needs of the environment and the need to protect the farm from outside interference.

As noted, all participants had reportedly seen a tangible improvement in their farm environment as a result of being a part of ALUS; these obvious changes and the positive experiences farmers had in being part of ALUS form the basis for participants to both feel it is possible to increase their production of ecological goods and services and to share their experiences with others in an effort to increase the stewardship of others. In addition, the ability to see tangible environmental improvements without a corresponding financial risk may also be the reason that participants reportedly feel less conflict between financial responsibilities and the natural environment.

In offering opportunities for farmers to personally view and experience the environmental improvements on other farms, and to share knowledge farmer-to-farmer through ALUS on-farm tours and meetings, ALUS appears to be acknowledging and encouraging the social nature of farming. Davey and Furtan (2008) found, in their study

of Canadian prairie farmers, that observation of environmental practices is a key element in environmental program uptake. Thus, in allowing and encouraging the social behaviour of farmer-to-farmer sharing and providing the opportunity for farmers to directly observe environmental projects, ALUS may be increasing both the adoption and continual buy-in of the ALUS concept and the overall feeling of responsibility to protect the environment for the participants (Davey & Furtan, 2008; Vanclay, 2004). The potential for social interaction may also be a significant draw for prospective ALUS farmers; as the annual payment per acre was not reportedly the most important factor for participants, it may have been the social nature of the program that drew participants to the program.

CHAPTER 6: CONCLUSION

Reflection on Research Goal

The goal of this research was to describe how involvement in ALUS (Norfolk County) impacts the environmental stewardship of the program participants. Filson et al. (2012) found that participation in an environmental organization, such as ALUS, is positively correlated to adoption of environmental stewardship practices for Ontario farmers. In discussing participant motivations for joining ALUS, it was found that all participants were reportedly already inclined to protect the natural environment, and looking for available, lower-cost, or more simple ways to demonstrate this affinity. Thus participants were reportedly drawn to the ALUS program because of their already existing environmental stewardship.

However, this is not to say that ALUS had no impact on the environmental stewardship of those interviewed in this study. As has been discussed throughout this chapter, ALUS has reportedly created the opportunities for farmers to have new or different experiences with nature, and with other farmers. By providing the tools with which farmers can have increased enjoyment on their farm through the aesthetic value of natural spaces, one could posit that ALUS is helping farmers to have positive and emotional connections with nature, which is a key element in environmental stewardship (Chochola, 2009; Dutcher, Finley, Luloff, & Johnson, 2007; Hartig et al., 2007; Mayer & Frantz, 2004). In so doing, ALUS may be increasing participants' affinity to protect the natural environment.

In removing, sometimes entirely, the cost to a farmer of an environmental project, ALUS is also weakening the resolve that financial considerations should come before environment concerns for farmers. These projects are resulting in tangible improvements that farmers are able to personally experience on their own farms, sometimes even within a very short period of time, which creates a stronger internal locus of control which, in turn, further encourages environmentally responsible behaviour (Fielding & Head, 2012; Kollmuss & Agyeman, 2003; Pensini et al., 2012). Thus, by being a part of an environmental project through ALUS, participants may be increasing their intention to utilize environmentally responsible behaviours.

These tangible improvements through ALUS are also creating the opportunities for farmers to have a basis with which to speak to others about environmental projects. And the participants are reportedly taking advantage of this; many are voluntarily welcoming other farmers onto their land in meetings, site visits and on-farm tours to proudly showcase their results. In so doing, one could posit that the ALUS farmers are increasing the environmental knowledge and stewardship activities of others. In addition, participation in ALUS could also potentially be developing a new environmental community within the farmers of Norfolk County, as stewardship activities can build a stronger sense of community (Chapin et al., 2011; Kevany, 2007; Sietzinger et al., 2012).

Conclusions & Recommendations

Government-Related Concerns

Upon learning that the participants had decreased feelings of fear of farm visits and outside interference on the farm, one might leap to the conclusion that programs like

ALUS may offer an opening for government programming in agriculture. Kroeger and Casey (2007) argue that government involvement in farm environmental programs is necessary, and participation in ALUS may open the opportunity for further environmental government-regulated programming in Norfolk County. However, one of the merits of the ALUS program, stated both by the participants and by Van Donkersgoed (2005), is that it is voluntary and free of the many "unreasonable" regulatory burdens that government programs often impose on farmers (Van Donkersgoed, 2005 p. 7). Thus, while participants indicated that through being a part of ALUS they may have developed a level of comfort with regard to government intervention on the farm, this does not necessarily mean that ALUS should seek to be a government-managed program in the future, or that this study may indicate that Norfolk County farmers desire government intervention. According to the messaging received by participants, this study does not conclude that government-led environmental programming would be well received by ALUS participants in Norfolk County.

Showcasing & Sharing Results / Experiences

As has been noted, a significant strength of ALUS is the ability to provide tangible results. Farmers in the program can see the effect of the ALUS project on the farm relatively rapidly (within a year or less) which can contribute to their internal locus of control. They are also able to have more positive experiences in nature, as all reportedly visit their ALUS piece of land for the simple enjoyment of it. ALUS provides the opportunities to showcase these projects, for others to have positive experiences and for environmental discussions through site visits and farm tours. It is recommended that

this platform for sharing project results and information is enhanced as much as possible; in so doing, ALUS may be able to address several concepts that can impact environmental stewardship, such as:

1) Locus of control: The strengthening of the personal locus of control by assisting participants and others to realize that they can actually see and / or control the results of their environmental projects.
2) Positive nature experiences: The potential for positive experiences in nature by allowing participants and others to spend time in a more natural space.
3) Social community: The strengthening of the Norfolk County farming and neighbour communities through opportunities to visit each other.
4) Environmental knowledge sharing: The exchange of environmental knowledge and experiences through sharing during visits.

By facilitating more public awareness and recognition of farmers' and ALUS efforts, ALUS may also be able to decrease the perception of blame on farmers for environmental degradation.

Further Research

As is common in qualitative descriptive and naturalistic studies, I identified several areas where further research is needed. The results of this study are not necessarily generalizable to the entire population of active ALUS farmers, and indeed not generalizable to all Norfolk County farmers or farmers in Ontario. Thus I believe that it is important to conduct similar studies with other PEGS participant farmers. As the ALUS concept continues to spread throughout Canada, it may be beneficial to ask similar

questions of participants, to understand the impact of ALUS on environmental stewardship and how results can be used to enhance the program. A comparative study of several PEGS or ALUS programs with regard to participants' environmental stewardship perspectives may also be of benefit to society.

It may also be of academic interest to study the linkages between tobacco farming in Norfolk County and farmer's perspectives on government intervention in environmental programming or other areas of intervention. As many of the participants of this study were previously tobacco farmers, their past experiences with government may have had more of an impact on their perspectives on the environment and other programs than this study was able to identify.

Another area of interest for academic study may also be to research the feelings of blame farmers reportedly feel when referring to the current state of the environment. This may or may not be unique to Norfolk County, or to the participants involved in this study.

Finally, ALUS –Norfolk may wish to conduct internal research on the motivations of all farmers in joining the program. In my initial conversations with ALUS personnel I was left with the impression that the financial incentives to be a part of the program were perceived to be very important and that there was concern that should ALUS lose the ability to provide the annual payment to farmers that they would lose many participants. For the participants involved, the study's findings did not correlate with this. ALUS may find that other incentives, some of which may be at lower cost to the program, will also be efficient in attracting and maintaining participants.

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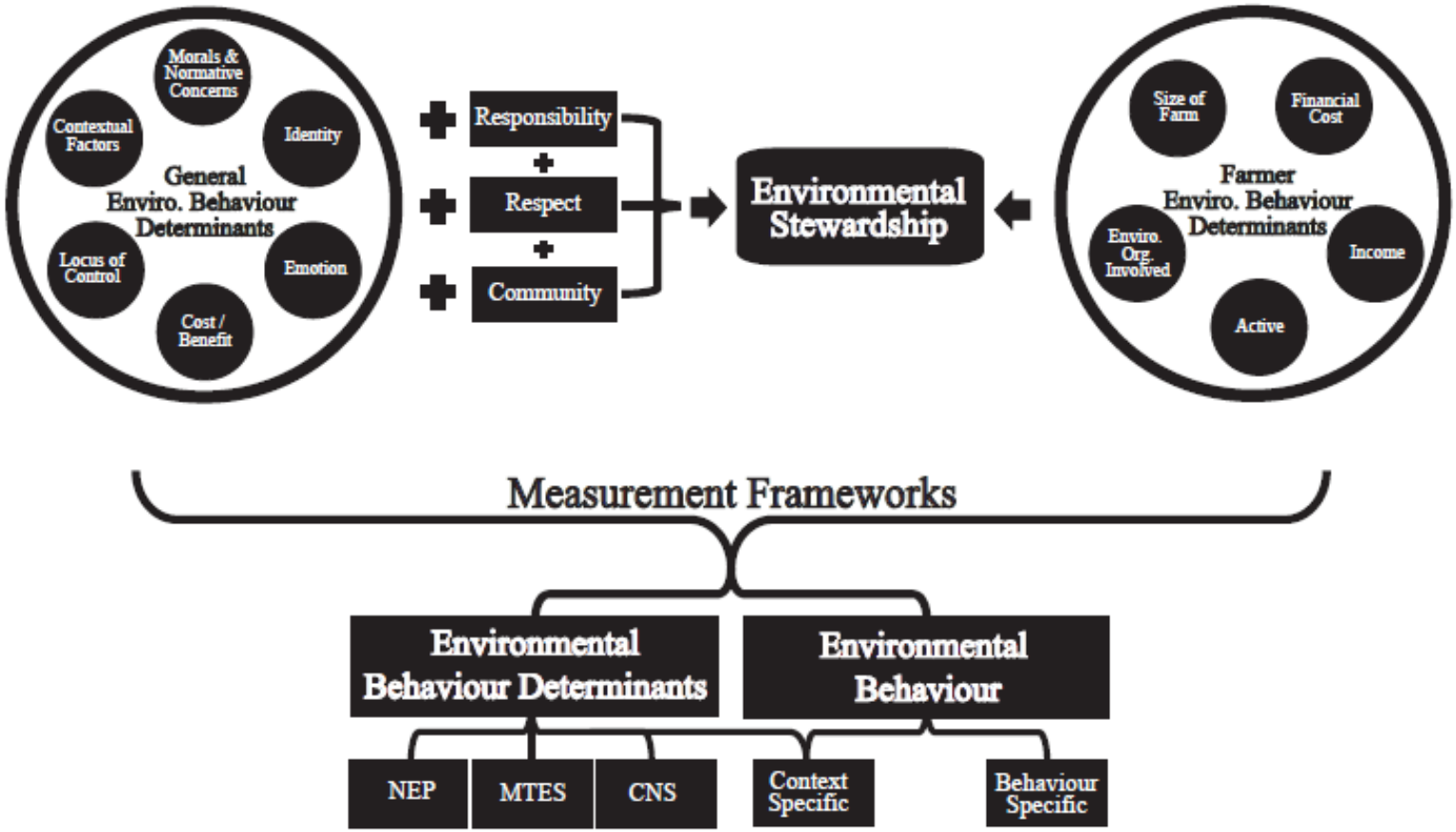
Appendix A

Conceptual Framework of Literature Review



NEP: New Environmental Paradigm / New Ecological Paradigm (Dunlap & Van Liere, 1978)
MTES: Motivation Toward the Environmental Scale (Pelletier, Tuson, Green-Demers, Noels, & Beaton, 1998)
CNS: Connectedness to Nature Scale (Mayer & Franz, 2004)

Appendix B

Participant Consent

School of Environmental Design & Rural Development
Capacity Development and Extension Landscape Architecture Rural Planning and Development

CONSENT TO PARTICIPATE IN RESEARCH
Environmental Stewardship and ALUS Farmers

You are asked to participate in a research study conducted by Megan MacLean, Student Investigator, and Dr. James Mahone, Faculty Advisor, from the School of Environmental Design and Rural Development at the University of Guelph. The results will contribute to a Master of Science thesis.
If you have any questions or concerns about the research, please feel free to contact Dr. James Mahone at 519-824-4120 x 56781 or jmahone@uoguelph.ca.

PURPOSE OF THE STUDY

This study is designed to assess how participation in ALUS might encourage or change environmental stewardship or environmentally responsible behaviour.

PROCEDURES

If you volunteer to participate in this study, we would like to interview you at your farm on a date chosen by you. All interviews will take place between November 2013 and January 2014. Interviews are expected to take 1-2 hours and will be recorded on an audio recorder.
You can choose to have a summary of research findings sent to you upon completion.

POTENTIAL RISKS AND DISCOMFORTS

Some people feel uncomfortable talking about behaviours that they deem socially acceptable or unacceptable. Risks of this nature will be managed in assurance to participants that the interviewer is an objective researcher, and all information will be kept confidential, and participants' identity anonymous.

POTENTIAL BENEFITS TO PARTICIPANTS AND/OR TO SOCIETY

The overarching goal of this study is to contribute to the body of knowledge about environmental stewardship and environmental behaviour change. Its intention is to determine methods of increasing environmentally responsible behaviours, which is likely to have benefit to society as a whole.

PAYMENT FOR PARTICIPATION

Participants will not receive payment for participation.

CONFIDENTIALITY

Every effort will be made to ensure confidentiality of any identifying information that is obtained in connection with this study.

Participants' identity will remain confidential. Each participant will be assigned a unique ID, and will not be identified in the results. All information will be kept confidential. All records, audio recordings, transcripts, journals, notes will be kept in a secured location for a period of 2 years following completion of the study, and then destroyed.

AUDIO RECORDING

During the interview, the researcher will be taking notes; these notes will be read to you after the interview to make sure they are correct. The interview will also be recorded on audio-tape; the conversation on these tapes will be typed, word-for-word, onto paper after the interview. The information recorded is private and recordings will be destroyed after a period of 2 years following completion of the study.

PARTICIPATION AND WITHDRAWAL

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may exercise the option of removing your data from the study. You may also refuse to answer any questions you don't want to answer and still remain in the study. The investigator may withdraw you from this research if circumstances arise that warrant doing so.

RIGHTS OF RESEARCH PARTICIPANTS

You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. This study has been reviewed and received ethics clearance through the University of Guelph Research Ethics Board. If you have questions regarding your rights as a research participant, contact:

Director, Research Ethics
University of Guelph
437 University Centre
Guelph, ON N1G 2W1

Telephone: (519) 824-4120, ext. 56606
E-mail: sauld@uoguelph.ca
Fax: (519) 821-5236

SIGNATURE OF RESEARCH PARTICIPANT/LEGAL REPRESENTATIVE

I have read the information provided for the study "Environmental Stewardship and ALUS Farmers" as described herein. My questions have been answered to my satisfaction, and I agree to participate in this study. I have been given a copy of this form.

_____
Name of Participant (please print)

_____ _____
Signature of Participant Date

SIGNATURE OF WITNESS

_____
Name of Witness (please print)

_____ _____
Signature of Witness Date

Appendix C

ALUS Recruitment Script

Hello _____. I am contacting you as an ALUS participant farmer. There is a researcher who may be interested in talking with you about your perspectives on environmental stewardship. If you are willing, this would involve one (1) face-to-face interview. The researcher's name is Megan MacLean and she is affiliated with the University of Guelph.

1) Would you be interested in participating in this research?

   Yes □ No □ Unsure □

   a. If **yes**, continue to question #2
   b. If **no**, do not continue
   c. If **unsure**, please ask: Would you be interested in getting more information about this research from the researcher directly?

      Yes □ No □

      i. If **yes**, continue to question #2
      ii. If **no**, do not continue

2) Do you consent to allowing me to provide your name and contact information to this researcher so that she can contact you to discuss this further?

   Yes □ No □

   a. If **yes**, complete below contact information
   b. If **no**, do not continue

Name of Potential Participant: _____

Preferred contact method : telephone / email / mail / in-person

Contact info (telephone number, email or address)

_____

Preferred contact time: morning □ afternoon □ evening □

Please direct any questions/comments or return completed forms to:

Megan MacLean
224 Silver Birch Ave.
Toronto, ON M4E 3L5
Telephone: (519) 671-5930
e-mail: mmacle01@uoguelph.ca

Appendix D

Interview Guide

Pre-interview questions:

1) Age
2) Education Level
3) Family history (of farming)
4) Number of years in ALUS program
5) Number of years actively farming
6) Number of dependents
7) Size of ALUS land parcel

Interview Guide Questions

1) How would you define environmental stewardship?

   Potential probe(s): examples of environmental stewardship include:

   a) feeling a responsibility to protect the earth
   b) feeling respect for the natural environment
   c) having a relationship with the earth
   d) feeling a part of the earth or in a community with the environment
   e) feeling responsible to protect the earth for future generations

2) What do you think are environmentally responsible behaviours?

   Potential probe(s):

   Examples of environmentally responsible behaviors include:

   a) Reducing, reusing or recycling waste
   b) Conserving water
   c) Conserving energy / using alternative energy sources
   d) Choosing alternative transportation methods
   e) Choosing 'green' products or companies

3) Can you talk to me about your reasons why you joined ALUS?

   Potential probe(s):

   Examples of motivations are:

   a) Financial incentives
   b) Ecological incentives
   c) Social incentives / pressure

d) Learning opportunities
e) Partnership opportunities

4) Can you describe to me your ALUS parcel of land?
   Potential probe(s): How large is it? Did you farm this land before? Do you ever spend any time on that parcel?
5) Which environmentally responsible behaviours did you personally partake in before / during / after ALUS participation?
   Potential probe(s): Why? When? How?
6) Do you ever talk to anyone in your family or outside of your family about being environmentally responsible?
   Potential probe(s): Who do you talk to? What do you say? Do you feel comfortable talking about environmental behaviours? Why / why not?
7) What do you think are the incentives for and barriers to environmentally responsible behaviour?
   Potential probe(s)
   Examples of incentives / disincentives are:
   a) Financial (rebates, subsidies, cost, sale of goods / services)
   b) Social (community engagement, community betterment, pressure, convenience, knowledge, access)
   c) Altruistic ("fuzzy feelings", responsibility for future generation)

Appendix E

Research Summary

We Have a Responsibility: Environmental Stewardship & ALUS Farmers

Summary of Research
Megan K. MacLean
April 2014

Major Findings:

This research found that participants felt a responsibility to protect the earth, which according to literature is a key element of environmental stewardship. This was broken down into six major areas of responsibility:

1) **To future generations / children:** participants believed in the importance of protecting the environment for the benefit of future generations (not necessarily their children, but any member of future generations) and also in being able to pass down environmental knowledge to future generations.
2) **To self / family:** participants felt a responsibility to care for the farm environment to maintain or increase crop yields, protect the value of the farm, and enjoy the aesthetics of a healthy environment.
3) **To community:** participants often felt pressure to protect the environment for the benefit of their neighbours, of Norfolk County and of other food producers, often to assist with easing the burden of blame that farmers feel for environmental degradation.
4) **To owned land:** participants frequently referred to 'the environment' as land that was owned (the farm), and also noted the differences seen between a tenant farmer and an active farmer with how he or she would treat the natural environment.
5) **Conflicting responsibilities:** participants felt that some responsibilities were in conflict with environmental stewardship activities; for example, protecting the farm from inviting outside scrutiny and regulation as well as balancing the needs of the environment with financial responsibilities.
6) **Changes in perceived responsibilities due to participation in ALUS:** participants were reportedly feeling less conflict between financial needs and the environment, as well as decreased fear of outside interference, due to participation in ALUS. In addition, participants felt an increased responsibility to produce ecological goods and services, and to share environmental knowledge.

Conclusions:

The goal of this research was to describe how involvement in ALUS impacts the environmental stewardship of the program participants. In discussing motivations for joining ALUS, it was found that all participants prior to joining already felt a responsibility to protect the natural environment. They were looking for available, lower-

cost, or more simple ways to demonstrate this responsibility, as well as gaining the recognition that comes with being a part of such a program. It can be concluded, then, that participants were drawn to the ALUS program because of their already existing environmental stewardship.

However, this is not to say that ALUS had no impact on the environmental stewardship of those interviewed in this study. ALUS has reportedly created the opportunities for farmers to have new or different experiences with nature, and with other farmers. By providing the tools with which farmers can have increased enjoyment on their farm through the aesthetic value of natural spaces, one could conclude that ALUS is helping farmers to have positive and emotional connections with nature. In doing this, ALUS may be increasing participants' affinity to protect the environment.

In removing the cost to a farmer of an environmental project, sometimes entirely, ALUS is also weakening the perception that financial considerations should come before environmental concerns for farmers. These projects are resulting in tangible improvements (such as decreased erosion, habitat creation, water filtration) that farmers are able to personally experience on their own farms which creates a stronger internal locus of control which, in turn, further encourages environmentally responsible behaviour. The concept of locus of control refers to a person's perception of whether an action they are taking has the ability to bring about change. People with a strong internal locus of control believe that their actions are likely to create change, and are more likely to take environmentally responsible actions. In summary, through being a part of an environmental project through ALUS, participants may be increasing their intention to be environmental stewards.

These improvements to the farm environment through ALUS are also creating the opportunities for farmers to have a basis with which to speak to others about environmental projects. And the participants are reportedly taking advantage of this; many are voluntarily welcoming other farmers onto their land in meetings, site visits and on-farm tours to proudly showcase their results and their knowledge. In doing this, ALUS farmers may be increasing the environmental knowledge and stewardship activities of others. In addition, participation in ALUS could also potentially be developing a new environmental community within the farmers of Norfolk County, as stewardship activities can build a stronger sense of community.

Recommendations:

It is recommended that the ALUS platform for sharing project results and information be enhanced as much as possible. In doing so, ALUS may be able to address several concepts that can impact environmental stewardship, such as:

1) **Locus of control:** The strengthening of the personal locus of control by assisting participants and others to realize that they can actually see and / or control the results of their environmental projects.
2) **Positive nature experiences:** The potential for positive experiences in nature by allowing participants and others to spend time in a more natural space.
3) **Social community:** The strengthening of the Norfolk County farming and neighbour communities through opportunities to visit and share with each other.

4) **Environmental knowledge sharing:** The exchange of environmental knowledge and experiences through sharing during visits.

By facilitating more public awareness and recognition of farmers' efforts, ALUS may also be able to decrease the perception of blame on farmers for environmental degradation.