A Complex Systems Approach to the Exploration of Environmental Ideologies

by

Justin Williams

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Author’s Declaration

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

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Abstract

Understanding that the current socio-ecological challenges create a need for large scale technological, institutional and ideological changes, this research explores environmental ideologies. Starting with a review of literature into ideologies, emerging research into ideologies from complex systems theorists, and studies into environmental ideologies to illuminate ways to investigate environmental ideologies as complex representational adaptive systems. Environmental ideologies in Canada are used to target the study through a review of environmental literature, questionnaires of environmental students and experts, and discourse analysis of annual reports and about sections from major environmental organizations. These results were used to create cognitive affective maps and state space descriptions for seven environmental ideologies: market liberalism, environmental conservatism, institutionalism, bioenvironmentalism social greens, religious environmentalism, and ecologism. Despite some concerns around sampling for the questionnaires, these results highlighted key aspects of environmentalism as a major ideology, three categories of sub-ideologies and the ways that the above ideologies interact at the periphery. Finally, it is argued that the public communication from Canada's large environmental organizations reflect an institutionalist environmentalism.

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1) Introduction:

There is increasing agreement in the scientific community that the world has entered the Anthropocene, a new epoch where the combined impact of human activities is shaping the climate and ecosystem functions of the planet at a scale equal to or greater than those of non-human forces (Zalasiewicz et al. 2010; Moore 2016; Waters et al. 2016). Additionally, this realization comes with the recognition that the consequences of human activity can move ecological systems away from the patterns of the Holocene – processes that allowed the human community to flourish (Waters et al. 2016).

The Anthropocene is a consequence of humanity's growth both in numbers and material throughput (Steffen et al 2011). An impact of humanity's expansion is that Earth's homeostatic mechanisms are being strained (Rockstrom et al 2009; Steffen et al 2015; Rockstrom, 2016). Rockström and colleagues identified nine planetary boundaries for the safe operation of socio-ecological, which are being impacted by human activities (2009). Of the nine planetary boundaries the researchers identified, three have already been crossed: climate change, or the concentration of greenhouse gases; biodiversity loss; and the alteration of biogeochemical cycles, primarily nitrogen cycles (Rockström 2009; Steffen et al 2015). Of the remaining six boundaries, the four that are currently still within safe limits - Ocean Acidification, land use, freshwater consumption and ozone depletion- are in danger of being broached within decades. Finally, more information is needed about the last two boundaries, atmospheric aerosols and chemical pollution (Steffen et al 2015). Given this information, researchers are concerned about the lack of movement to address global environmental issues (Norgaard, 2009; Palm, Lewis and Feng 2017). Realizing that the success of humanity relies on the stability of these systems, calls have emerged for changes to how individuals view the world, social institutions operate and

technologies are utilized (Beddoe et al 2009; Homer-Dixon et al 2015).

The perceived urgency around environmental issues and lack of action to address these issues has led to investigations into what motivates individuals to accept environmental information and policy recommendations (Jacquet, Dietrich, and Jost 2014; Lachapelle and Paterson 2013; Gifford 2011; Lachapelle, Montpetit and Gauvin 2014; Kahan, 2012; Kahan et al. 2012). Belief in anthropogenic climate change and the acceptance of policy positions to reduce climate change are two of the most researched areas in this regard (Kahan 2013; Lachapelle, Montpetit and Gauvin 2014; Kahan 2015; Walsh 2017). Research into scientific literacy and climate change has shown that data is not sufficient for the acceptance of information about environmental dangers (Kahan, 2012; Kahan et al. 2012). Rather, the acceptance of scientific information, regardless of scientific literacy, is impacted by social relationships and individual beliefs (Kahan et al. 2012; Leombruni, 2015).

More recently, researchers found that the acceptance of an environmental worldview or value set had a more significant impact on beliefs in anthropogenic climate change and policies to mitigate it than right or left-wing identification in the United State of America, China and Germany (Ziegler 2017). Further, Palm, Lewis and Feng noted that in the United States of America, party affiliation and political ideology played a larger role in beliefs around climate change than experience with the adverse impacts of climate change (2017). Environmental attitudes and ideology, then, are key factors for the acceptance of climate change and other environmental issues. Understanding the uptake of environmental information and advocacy, then, requires an exploration of social networks and ideologies.

Initial Definitions of Ideology

Building a definition of ideology can be difficult, as researchers use divergent definitions best suited to their research and discipline (Mildenberger 2013; Jost, Federico and Napier 2009). However, it is possible to start from a minimal definition of ideology, which can be expanded by reviewing current literature. This research begins with Homer-Dixon and colleagues' definition of ideologies as "systems of socially shared ideas, beliefs, and values used to understand, justify, or challenge a particular political, economic, or social order" (2013, p.337).

Research Objectives

Any effective engagement with socio-ecological challenges will require a better understanding of the content of environmental ideologies, this study uses approaches from complex systems research, specifically cognitive affective mapping (CAM) and state space modeling, to investigate environmental ideologies. To gain an understanding of the breadth of environmental ideologies, this research investigates the ideology of environmentalists in Canada.

Introduction to Complexity

Emerging from a diversity of fields including ecology, biology, physics and computer science, systems theory is a transdisciplinary research approach that focuses on the common characteristic of systems (von Bertalanffy 1950). Systems theory recognizes that there are different types of systems, which have distinct characteristics: simple systems, complex systems, and complex adaptive systems (Holland 1992; Gell-Mann 1997; Homer-Dixon 2011). Potentially, the most significant distinction within systems has been developed from research into complexity (Gell-Mann 1997; Homer-Dixon 2011). The introduction of complexity theory in the 1980s, and work on complex adaptive systems out of the Santa Fe Institute, engendered a more sophisticated understanding of biological, ecological and social systems (Holland 1995;

Gell-Mann 1997; Holling 2001; Liu et al 2007; Ostrom 2009; Homer-Dixon 2011). This shift to thinking about natural systems as complex adaptive systems moves away from the mechanistic worldview that has dominated many academic and political fields since the Enlightenment (Homer-Dixon 2000).

Complexity and Ideology

Recently, systems researchers have combined the tools of systems and network theory with cognitive science to study ideology (Milkoreit and Mock 2014; Homer-Dixon et al. 2013; Mildenberger 2013; Milkoreit 2012). Some key examples include research into political groups (Homer-Dixon et al 2013), environmental negotiations and decision making (Milkoreit 2012; Galesic, Kause, and Gaissmaier 2016) and conflicts (Homer-Dixon et al. 2014; Mock and Homer-Dixon 2015).

Ideologies are recognized as complex representative adaptive systems (Mock and Homer-Dixon, 2015). Viewing ideologies this way provides several important tools, such as agent based modeling, connectionists simulations, cognitive affective mapping, and state space modelling (Homer-Dixon et al. 2013; Mock and Homer-Dixon, 2015).

Cognitive Affective Mapping

One major tool that system theorists have brought to the study of ideology is cognitive affective mapping (Thagard 2010; Homer-Dixon et al. 2013; Homer-Dixon et al. 2014; Milkoreit and Mock 2014). Systems theorists, attempting to resolve the disputes between spatial and non-spatial ideological studies and bridge the person-group problem, argue that an ideology is a network of concepts connected through emotional linkages (Homer-Dixon et al. 2013). CAMs allow for a graphical representation of groups' and individuals' ideology in a template similar to neural networks (Homer-Dixon et al. 2013).

State Space

The ideological state space uses an energy landscape as a metaphor to layout potential ideologies based on answers to fundamental questions about the world that ideologies will have some answer regarding (MIldenberger 2013; Mock and Homer-Dixon 2015). The answer to questions in the state space will highlight basins of attraction for ideologies within the broader social system (Mock and Homer-Dixon 2015).

Homer-Dixon's ideological state space is generated using thirteen questions each with five possible answers (Mock and Homer-Dixon, 2015). While thirteen dimensions along a state space can become difficult or impossible to manage and visualize, common or likely ideologies will form basins of attraction along the landscape (Mock and Homer-Dixon, 2015). Additionally, it is possible that some ideological questions will be more significant for a given situation, allowing for a simplification in the parameters explored (Mock and Homer-Dixon, 2015).

Purpose and Benefits of the research

Understanding the ideological landscape and the CAMs that define environmental ideologies and the ideologies of environmental groups in Canada provides numerous benefits. The primary benefits can be broken into two categories: improved understanding of environmental ideologies and improved understanding of how complex systems research can further the study of ideologies.

This research furthers the study of environmental ideologies by illuminating potential pathways that ideological groups can work together and by highlighting how ideology impacts the messaging from environmental groups. The methods brought forward by systems research are

of substantial value in illuminating pathways to compromise and partnership for different ideological groups.

In addition, it is important to consider the impact that ideology has on the messages that a group puts into the public sphere. As van Dijk highlights, discourse is the way that ideological groups communicate their values, evolve their perspective and influence social power (2011). In terms of finding solutions to ecological problems, there is a growing body of literature that demonstrates the way that ideology, framing and trust changes the way that individuals receive information about the environment (Wolsko et al 2016; Tindall and Piggot 2015; Kahan et al 2012; Oosterman 2016; Zia and Todd 2010). Understanding a group's ideological aims and their communications will demonstrate the ways that environmentalism is being shaped in Canada and how it can potentially be targeted to larger populations.

Not only do environmental organizations shape the discourse around environmental politics, they reinforce networks that shape individual perceptions about the environment (Tindall and Piggott 2015). As Tindall and Piggot show, members of environmental organizations more likely to believe in climate change, and individuals in their social networks are also more likely to maintain this belief as well (2015). Members of environmental organizations are likely to be in social groups sympathetic to environmental causes and these individuals play a role in shaping the opinions of individuals around them. Ideological information shared by environmental organizations can play a role in shaping the views of individuals in the networks of their members.

Beyond improving understanding around environmental ideologies in Canada, this research adds to the literature on the study of ideology. Environmental ideologies are interesting to study, because of the unique way that they are potentially restructuring contemporary ideology (Talshir

1998). As Svabodo notes, environmental philosophy is formulated differently than other types of contemporary philosophy; it provides insight into the nature of the good life and practices that lead to an individual living the good life (2016). Environmentalism provides input into how the world is structured, how individuals should live, and how society and the economy should operate.

Finally, this research advances literature on complex systems approaches to the study of ideology. The literature on CAMs and the ideological state space model are relatively new within the literature. Following the work of Homer-Dixon and colleagues, this research will demonstrate that the viewing of ideologies as complex adaptive systems provides valuable insights and discourse analysis and questionnaires provide useful information for the creation of this new research (2013).

Paper Outline

The second chapter explores the literature on ideologies using Leader Maynard's map of ideological research, outlines current research on ideology from system's theorists and discusses the literature on environmental ideologies. The third chapter lays out the methods used to explore environmental ideologies explaining and justifies the three primary methods used in this research: literature reviews, a questionnaire of environmentalists, and a discourse analysis of literature produced by environmental groups in Canada. The fourth chapter explains the results of these investigations and setbacks faced by the researcher. The fifth chapter combines results from the research into lessons about environmental ideologies. The final chapter provides concluding thoughts and areas for future research.

2) Literature Review:

Chapter Outline

The following section begins by reviewing arguments against studying ideologies then investigates current literature studying ideology to provide context for this research. Next, this chapter investigates novel tools and approaches brought forward by systems research. Finally, literature on the environment and ideology is discussed to show how different ideological groups relate to environmentalism and how environmental concern has led to novel ideologies. This review allows for a working definition of ideologies and outlines the tools that will be used to explore environmental ideologies.

Current Literature

The study of ideology emerged out of the French Enlightenment as an investigation into the way that individuals come to understand the world (Kennedy 1978; van Dijk 2006; Mount 2012). Since its first use, thousands of research articles investigating the concept of ideology have expanded our understanding of how ideologies are shaped and shape the world (van Dijk 2006; Mount 2012; Leader Maynard and Mildenberger 2016). Despite this research, the definition of ideology remains vague and it is often used to mean different things (MacKenzie 2003; van Dijk 2006; Fagerholm 2016).

Additionally, there is a recurring debate into whether the study of ideology is worth pursuing (Freeden 2001; Lloyd 2014; Jost 2006; Mildenberger 2013). Almost directly after de Tracy coined the term, for instance, Napoleon branded those who engaged in the study ‘ideologues’ – those pursing false ideas (MacKenzie 2003). In the latter half of the 20th century new challenges

arose against the study of ideology (van Dijk 2006; Freeden 2001; Mount 2012; Mildenberger 2013). Three of the major challenges facing the study of ideology are the popularization of literature that focuses on ideology as a pejorative term, the belief that the major ideas that could shape society are exhausted, and that ideologies are held by elites, but not the general population (Bell 1960; Kennedy 1979; Jost 2006; Mount 2012).

While researchers struggle to find a common definition of ideology, both popular culture and researchers use the term in a derogatory manner (Jost, Federico and Napier 2009; Freeden 2006). This view sees ideologies as distractions that lead individuals to misunderstand the world and reinforce current power structures (Jost 2006; Jost, Federico and Napier 2009). Ideologies and the study of ideology, from this perspective, should be rejected for a more rational and scientific view of the world (Jost 2006). However, Jost and colleagues demonstrate that the ability of ideologies to alter the way individuals view the world reinforces the need to study their impact (Jost, Federico, and Napier 2009). Individuals studying ideology need to discover these illusions and myths to determine how they impact real decisions, power relationships, and actions in the world (Leonardo 2003).

In the 1960s Daniel Bell popularized the idea of the end of ideologies (1960). Bell argued that the key ideas that could shape the world had been exhausted and that individuals could hold beliefs across the political spectrum depending on the situation or issue (1960). The notion that ideological ideas have been exhausted is reflected in the loss of major distinction in policy positions between the right and left in the political sphere (MacKenzie 2003). As MacKenzie points out, the blurring of lines between right and left leaning ideologies, which has been used to argue that ideologies are dead, is explained by how ideologies function in the world (2003). Specifically, as political and social landscapes shift, proponents of political positions must alter

their approaches (MacKenzie 2003). This reflects how ideologies evolve and adapt and demonstrates the need to study how ideologies shift within communities and social groups.

Additionally, Bell's critique is an argument against a unidimensional view of ideology, which might not be able to properly express the full complexity of an individual or community's view of the world (Mildenberger 2013). While those who defend a single axis or right / left divide to the study of ideology point to its efficiency and continued ability to predict and describe behavior (Jost, Federico and Napier 2009; Jost 2006), others have argued that a deeper and richer understanding of ideology requires a multidimensional study (Mildenberger 2013). The debate on the number of dimensions required to fully discuss ideology will be explored further in the methods chapter, but the above reflects that Bell's critique might be best discussed as an argument for a multi-dimensional ideological landscape, rather than evidence that the study of ideology is irrelevant.

Finally, some theorists argue that ideological beliefs might be held by political elites, but are not held by the average person (Converse 1964; Converse 2000). The idea that the average person does not hold a political ideology emerged from reviews of public opinion data showing that the average person does not have a consistent and coherent set of political beliefs (Converse 1964; Jost 2006). For instance, research over the past 40 years demonstrates that most individuals do not have a sophisticated understanding of their ideological positions, nor are they interested in identifying their ideological positions (Jost 2006; Jost, Federico, and Napier 2009).

Jost, however, argues that "ideology was, quite literally, defined away by the end-of-ideologists" (2006, p. 365). The end of ideology theorists develop complicated criteria to define ideological belief that the average person does not consciously recognize and then use the lack of recognition to argue that the average person does not have an ideology (Jost 2006).

Alternatively, Jost argues that ideologies and ideological titles are abstractions that do not need to be recognized to have an impact on their life and decision-making (2006). To go beyond this point, the fact that individuals do not reflect on underlying ideological beliefs that impact their decision-making, increases the value of studying ideological beliefs. Further, this critique highlights the need to create a definition of ideologies that allows for rich and informative research, while not being too rigid.

In recent years, there has been a resurgence in literature attempting to understand the ideological underpinnings of political actors and citizens broadly (Freeden 2000; Jost 2006; Jost, Federico, and Napier 2009; Leader Maynard 2013; Leader Maynard and Mildenberger 2016; Freeden 2016). Several texts have been written outlining the current discussions in ideology research (Leader Maynard 2013; Mildenberger 2013; Fagerholm 2016; Leader Maynard and Mildenberger 2016). This expansion of research into ideology, as Leader Maynard and Mildenberger elucidate, has spread into a variety of disciplines leading to new research methods but also increasing the difficulty of developing a shared definition of ideology (2016; Fagerholm 2016). Additionally, this fragmentation of ideological research has led to significant duplications of work, as researchers have not integrated ideas from different research traditions (Leader Maynard and Mildenberger 2016).

In his extensive review of ideological research, Leader Maynard develops a ‘map of the field’ with three regions of research: conceptual, discursive and quantitative (2013). This section uses these three categories and an additional category for new research to highlight major concepts in the current literature. For each category, the major areas of research are noted then lessons for the study of ideology are highlighted.

Conceptual Ideological Research

The focus of conceptual ideological research is to determine the primary ideas that make up the systems of belief that allow people to make sense of the world (Leader Maynard 2013). As MacKenzie highlights, the conceptual view of ideologies describes them as “constellations of belief such that liberal ideology is understood as a set of interlocking ideas about liberty, equality, justice and the like…” (2003, p7). The study of ideologies, in this regard, becomes about understanding the varied definitions of concepts, how these concepts interact with each other and how their definitions change over time (Finlayson 2012). A primary focus in the conceptual study of ideologies is on the contested definitions of concepts between different ideologies (MacKenzie 2003). A major distinction between ideologies are “essentially contested concepts,” where different ideologies cannot have agreed upon definitions for certain concepts (MacKenzie 2003, p7).

The three main research approaches applied in conceptual ideological research are morphological research, intellectual history, and cognitive affective mapping (Leader Maynard 2013). One of the most significant thinkers in the resurgence of the study of ideology is Michael Freeden (Freeden 1996; MacKenzie 2003; Leader Maynard 2013; Freeden 2013). Freeden, rooted in the Anglo-American tradition of ideological thinkers, focuses his attention on the structures of ideologies, which is the basis of the morphological approach (MacKenzie 2003). Freeden, goes beyond just the connections of ideas within ideologies to focus on the “cultural life” of ideas - how the concepts within an ideology play out in real situations (MacKenzie 2003 p 9).

The final conceptual approach within Leader Maynard’s map of ideological research is the approach developed by Thagard, cognitive affective mapping (2013). Cognitive affective

mapping brings advances from cognitive science to the conceptual study of ideologies (Thagard 2012; Homer-Dixon et al 2013). While similar to the morphological study of ideology, the cognitive affective mapping method contains several key distinctions. Specifically, CAMs not only link concepts together to demonstrate how they interact, the method adds emotional valence to concepts to demonstrate the role of emotions in decision-making (Thagard 2012). Utilizing the theory of emotional coherence, this method considers the emotional valence of concepts and the connections between them (Homer-Dixon et al 2013).

Key Lessons

Three important lessons from this research area include the structures of ideologies, the definition of concepts within ideologies, and the boundaries of different ideologies. An important inquiry for individuals interested in studying ideologies is the question of where the boundaries that divide ideologies and ideological families exist (Freeden 2003). Within much of the conceptual study of ideology, and especially within morphological research, ideologies are seen to have stable core ideas with peripheries and perimeters where real life experiences and situation can create clusters of new ideas (Freeden 2003). New clusters of concepts and ideas that emerge from the periphery of different ideologies can link across ideologies and be associated with multiple ideologies (Freeden 2003). Stable ideologies will be able to readjust at their core from these changes at their boundaries, while new contenders for ideologies will also emerge from the new ideological space that is created at the boundaries. If the new contender is to become a successful ideology, it will need to form a stable core of ideas that are adopted by individuals and institutions and answer “basic political questions” (Freeden 2003 p8). The boundaries of ideologies and ideological families are important for this inquiry as it will frame the number of ideologies considered and the depth of inquiry. The boundaries set will also determine if single or multiple environmental ideologies even exist (Talshir 1998; Freeden 2003; Dobson 2007).

A second important lesson from the conceptual investigation of ideologies is the importance of understanding the definitions used within each ideology (MacKenzie 2003). Specifically, it is important to understand that ideologies can have different shared understandings of the same key concepts (MacKenzie 2003). When comparing ideologies, then, it is important to make sure that the meaning of concepts used are well understood to avoid confusion. This is especially important for visual reflections of ideologies, like CAMs.

Both morphological and cognitive affective mapping inquiries into ideologies address the micro-relationships between ideas and concepts within ideologies (Freeden 2013; Thagard 2012; Leader Maynard 2013). The relationships of concepts within an ideology create a shape of the ideology based on the emotional connections between concepts and how they reinforce or challenge one another (Freeden 2013; Thagard 2012; Leader Maynard 2013). Understanding the shape of an ideology and how concepts are related to one another can provide valuable insight about the worldviews of individuals and groups.

Discursive Ideological Research

The second approach to the study of ideology is discursive research. This research focuses on the way that ideologies develop, disperse and evolve through different types of communications (Leader Maynard 2013; Wodak and Meyer 2009). The three major research streams that Leader Maynard highlights in this category are critical discourse analysis, poststructuralist research and rhetorical analysis (2013).

Key critical discourse analysis thinkers include Ruth Wodak and Michael Meyer (2008), Teun van Dijk (2006), and Norman Fairclough (2013). Poststructuralist Analysis of ideology emerges out of the work of Ernesto Laclau (2006) and is reflected in research by individuals like David

Horwath, Alleta Norval, and Yannis Stavrakakis (2000) and Zeus Leonardo (2003). Both above types of discursive analysis of ideology, while not specific sets of theories or tools, attempt to investigate language and communications to uncover the structures of power and ideologies within individuals and groups (Wodak and Meyer 2009; van Dijk 2011; Stavrakakis 1997). Discourse, in this research, describes communication used by individuals and groups within a society. Discourse is constructed by power-relationships and ideological forces that define what can be discussed and how (Leader Maynard 2013). Focusing on discourse and power structures allows for an exploration into the latent ideologies that are "disguised as conceptual metaphors and analogies" (Wodak and Meyer 2009 p8). In this regard, researchers focus on the ways that arguments about the world are structured, and whom by, to reinforce or question relationships and create truths about the world (van Dijk 2006).

To gain an in-depth picture of how ideologies are structured and replicate in the world, discursive researchers focuses on ideologies as they are expressed in everyday life and within the power structures of social groups (Wodak and Meyer 2009; van Dijk 2006). Additionally, as Wodak and Meyer highlight, a goal of this type of research is to provide individuals with interdisciplinary tools to combat domination (2008). This view of ideology regards the researcher as an active participant in both the research and world at large. In this regard, researchers often recognize their ideological positions and the role it plays in their research (Wodak and Meyer 2009; van Dijk 2006).

Key Lessons

The discursive study of ideology provides two important lessons that can be combined with insights from conceptual studies of ideologies to further research into environmentalism, including the importance of language to ideologies, the structure of ideological groups and role of power in shaping ideologies.

In the discursive paradigm, the form of statements and communications is as important as the content (Leader Maynard and Mildenberger 2016; Wodak and Meyer 2009; van Dijk 2006). Discursive analysts hold that social life is made up of communication between individuals and social groups (Norval 2000; van Dijk 2006). These researchers pull out the deeper meaning in this communication - meaning that might not always be recognized by the individuals and groups doing the communication (van Dijk 2006). For this study, understanding the role of discourse in ideological analysis is important for exploring how social groups, intellectuals, and individuals develop and communicate their ideological positions.

An important aspect of the discursive study of ideologies is the role of social groups (van Dijk 2006; Norval 2000). Primarily, this view of ideology makes clear that ideologies are constituted both in the mind of the individual and the collective of the social group through communication between individuals (van Dijk 2006; Atkins and Finlayson 2016). Representatives of Ideologies, as social groups, use language to compete for social legitimacy (Norval 2000). Two connected ways that social groups use language in competition for legitimacy is the development of in-groups and out-groups and competition over definitions. First, social groups try to make it clear who is part of their group and who is not part of their group using language (Norval 2000). The language used to describe the deeds of competing ideological groups can be used to illuminate aspects of the in-group's ideology (Norval 2000; van Dijk 2006). In this way, the discursive analysis of ideologies is like the conceptual view of ideologies, as ideological groups compete to define key concepts within larger social and political settings (Freeden 2001; Norval 2000).

An example of how ideological groups compete against each other for social legitimacy, within the domain of environmental ideologies, is the intense debates between social greens and deep ecologists (Bookchin 1987; Tokar 2010; McDonald 2013). These groups fight over both

competing definitions of nature (Humphrey 2000) and how the relationship between humans and the environment should be structured (McDonald 2013).

Finally, the discursive investigation into ideology adds reviews of social power into the study of ideology (Wodak and Meyer 2009; van Dijk 2006). Power manifest in social hierarchies as groups and individuals struggle for control and is ultimately an effect of social structures (Wodak 2009). Each of the above groups emphasize that power shapes discourse between groups and discourse is a mechanism for using power for dominance and control (Leader Maynard 2013). The inclusion of power and existing institutions into the discussion of ideologies is important as it highlights the role that unequal relationships play in ideological development (Wodak and Meyer 2009).

Quantitative Ideological Research

The final and largest area of research that Leader Maynard identifies is quantitative. The quantitative research approach has become important to understanding voting behaviour, political preferences and political affiliation (Ciuk 2017; Jost 2017). It is characterized by large studies of the population which focus on the connection between ideologies, political beliefs and actions (Leader Maynard 2013; Jost 2017). The broad categories within this research approach are political science attitude studies, political psychology and political sociology (Leader Maynard 2013).

Studies in the realm of quantitative research tend to reduce ideologies into either one or two dimensions (Knight 2006; Leader Maynard 2013; Mildenberger 2013). For instance, much of the current literature on ideology in the United States defines ideology in terms of Liberal or Conservative (Knight 2006). Advocates for a unidimensional view of ideologies argue that it provides both simplicity and efficiency, while maintaining theoretical value and a high level of

predictive power (Jost 2006; Jost, Federico, and Napier 2009). This type of research is generally interested in determining how ideological positions lead to political action as well as how political opinions transfer between political elites and the general public (Mildenberger 2013).

A second, but connected, focus within the quantitative research on ideologies has emerged from political psychology and cognitive research (Mildenberger 2013). While political science research focuses heavily on the top down approach of elite influences on the development of ideologies, political psychology investigates the internal influences and cognitive processes that shape ideologies and are shaped by ideologies (Jost, Federico and Napier 2009). Also, research into attitudes and personality types can add a multi-dimensional perspective to the study of ideology (Hofstede 2006; Leader Maynard and Mildenberger 2016), which provides a richer understanding of the attitudes and cognitive processes involved in ideologies than traditional unidimensional studies (Jost 2006; Haidt and Joseph 2009).

Key Lessons

Quantitative ideological literature from the realm of political science and political psychology is important for how it includes the general population within ideological research, defines potential hierarchies within ideological groups, and incorporates work on attitudes and emotions. First, the quantitative research program focuses on the consequences of ideology for individuals across the social landscape (Leader Maynard 2013). Large studies of voting behaviour and political beliefs take the study of ideology away from concepts within the academy or political elites to determine their impact within the general population (Ciuk 2017; Jost 2017; Gries 2017; Jost 2006). While debate remains around the degree to which the average person holds a coherent ideology, research shows that group affiliation and underlying ideological beliefs do play a role in the behaviour of the electorate (Gries 2017). Gries, for instance, demonstrates that

party affiliation plays a top down role on specific partisan topics while personal ideological beliefs influence broader issues (2017). This demonstrates that both group identity and personal beliefs of the population are important to consider when investigating ideologies.

Investigations around how ideologies are passed through members of ideological groups emerge out of the debate around who holds ideological beliefs (Jost, Federico, and Napier 2009; Gries 2017). Jost and colleagues point out that political scientists often focus on the top-down ways that political elites develop and package coherent structures for the public, while political scientists focus on the mental processes and motivations that steer individuals to maintain ideological beliefs (2009). For their part, Jost and colleagues argue that an ideology is a "social psychological phenomenon" that requires an understanding of the way that individual cognition, political elites and social structures influence ideology (2009, p.327). Discussions around the roles of political elites, social groups, and individual cognition - and their interactions with each other - highlight the need to create a holistic view of ideology that can account for both the individual and the group within ideological inquiry.

Finally, quantitative studies of ideology incorporate emotion, attitudes, and personality traits into the study of ideology and ideological attachment (Leader Maynard 2013; Jost, Federico and Napier 2009; Tritt et al 2016). Researchers connect personality dimensions including the big five personality traits, social dominance orientation, and moral foundations theory to political ideologies and policy positions (Jost, Federico and Napier 2009; Amerigo et al 2017; Haidt, Graham and Joseph 2009; Randazzo and Haidt 2015). This research demonstrates that decision-making and ideologies are not just about concepts; instead, emotions and underlying personality traits shape ideological positions.

Borders and new territories of research

While Leader Maynard's categories for reviewing methods of ideological research provide a strong foundation for understanding the literature, Leader Maynard notes that his review does not completely cover all the research into ideology (2013). There are places where the research blurs between Leader Maynard's categories and where new research might not fit neatly within a category (2013).

One area where research is blurred is work on worldviews, attitudes, and personality types (Leader Maynard 2013; Beddoe et al 2009). The reasons for separations in the research can come from disciplinary siloing and a reluctance to use the term ideology given its negative connotations (Jost, Federico and Napier 2009). However, research into ideology, worldviews and personality types are often talking about similar things; research into one topic is easily translated into research of the other topics (Maxwell-Smith et al 2017). A major area for this cross-pollination between research is likely the question of how ideologies persist, adapt and evolve.

Worldviews are "perceptions of how the world works and what is possible, encompassing the relationship between society and the rest of nature, as well as what is desirable" (Beddoe et al 2009, p. 2484). This definition of worldviews fits neatly beside the definition of ideology that began this research. Accepting worldviews as tantamount to ideologies, the work into worldviews can be used to illuminate aspects of how ideologies operate. Beddoe and colleagues, demonstrate that worldviews, institutions and technologies are "mutually interdependent and mutually reinforcing" (Beddoe et al 2009, p. 2484). While popular ideologies shape institutional and technological trajectories, they are limited, enabled, empowered and shaped by current technologies and social institutions (Beddoe et al 2009). This is reflected in

the work of Meadowcroft who noted that “Ideologies require a material infrastructure; they need resources and organization if they are to prosper and survive” (2001, p. 186). The work recognizes that ideologies are not static. Instead, ideologies are dynamic and continuously being shaped by external and internal forces.

In addition to the forces listed above, external forces on ideologies also include other ideological groups. An ideology can evolve, as Meadowcroft points out, through interacting with other ideologies in processes of conflict, hybridization and cross-fertilization (Meadowcroft 2001). One explanation for how ideologies change with the members that are part of them, developed from research into the classification of individuals in psychology, is the looping effect (Hacking 1995; Hacking 2004; Brinkmann 2005). The looping effect is a process that occurs when individuals are classified and begin to take on the traits of the group that they are classified into (Hacking 1995; Hacking 2004). Additionally, as individuals change and adapt, the definition for their classification changes (Hacking 1995). While Hacking focuses on the implications for psychology, the looping effect has important implications for the study of ideologies. The looping effect describe the processes for how an individual’s beliefs change to mirror their ideological groupings and how ideological groups evolve and change as individuals begin to identify as part of an ideological group.

Additionally, the expansion of research into personality types and attitudes expands the notion of ideologies beyond the political realm. Much of the writing from the middle part of the 20th century forces ideology into a rigidly defined political or economic realm - even rejecting new movements as purely social in nature (Talshir 1998). Viewing ideologies as broader systems of belief about the structure of society and the good life allows for a richer understanding of how ideology shapes the way individuals see the world and their own behaviour (Talshir 1998; Kahan 2010).

Finally, Xu, Plaks and Peterson combine personality dimensions and political psychology to investigate the structure of ideology (2016). Specifically, these authors consider the impact of the big five traits on political ideologies. While comparing political ideologies to the big five personality traits has been done before (Hiel, Cornelis, and Roets 2007; Sibley, Osborne, and Duckitt 2012), this study is particularly interesting in that it explains how ideologies can be actualized at different levels of an individual's psychology (Xu, Plaks, and Peterson 2016). From their research Xu, Plaks and Peterson develop the Disposition-Goals-Ideology (DIGI) model (2016). This bi-directional hierarchical model of ideology places dispositions as a foundational level, goals as a middle layer, and ideology as the top layer. Dispositions are an individual's likelihood to hold beliefs based on their biology and social influences; goals are the specific outcomes that an individual is working toward; and ideology reflects the policy positions supported by the individual (Xu, Plaks, and Peterson 2016). This theory is significant as it demonstrates that ideologies can operate at different levels within the mind of an individual. The deeper held dispositions, for instance, might be harder to change, while goals and ideological positions might be easier to shift. However, a shift in any level could lead to changes in the whole system of an ideology.

This section highlights that external and internal forces shape ideologies and that an ideology can have multiple levels. External influences that shape ideologies include other ideologies, social institutions and available technologies. Internal influences on ideologies include the mental processes of the members who are classified within an ideology.

Systems Theory and Ideology

While the divergent fields of research struggle to find cohesion, systems theorists have begun investigating ideologies as complex representational adaptive systems (Homer-Dixon et al 2013; Homer-Dixon et al 2014; Mock and Homer-Dixon 2015). This view of ideologies has significant implications for their study that is necessarily transdisciplinary in nature (Homer-Dixon et al 2013; Mock and Homer-Dixon 2015). The following section discusses the definition of ideology from a systems perspective and outlines some of the new research projects in this field.

Ideologies display important characteristics including “emergence, nonlinearity (disproportionality of cause and effect), path dependency, and multiple equilibria” as well as “quasi-autonomous units or “agents” with internal representations of their external environment” (Homer-Dixon et al 2013 p342-343). Additionally, as ideologies are associated with human cognitive processes, they are ultimately representational (Mock and Homer-Dixon 2015). Representational refers to the way that the human mind creates abstract models to understand the world. This final component of the complex system’s view of ideology highlights the need to understand the cognitive as well as the social processes involved with the development of ideologies (Mock and Homer-Dixon 2015). This reflects the different levels of systems involved within ideologies and the multi-disciplinary tools required to understand them.

The Individual and the Group

One of the larger debates from research into ideology is if ideologies should be explored from the perspective of the individual or the group (Homer-Dixon et al 2013). From a complex systems perspective, ideologies are a component of an individual’s worldview, an emergent property of social interactions, and the subsequent view of the social group’s beliefs as

interpreted by individuals (Homer-Dixon et al 2013; Milkoreit and Mock 2014). While ideologies are often discussed at the individual level, they are ultimately created through interactions of social networks of individuals (Milkoreit and Mock 2014; Mock and Homer-Dixon 2015). An explanation of the relations between the individual and the group within ideologies is described by Milkoreit and Mock as follows: "... at the cognitive level the group is smaller than the individual, insofar as it is a subset of the mental representations that make up an individual mind. The group cannot exist without these two necessary conditions in place: (1) a collection of individuals with networks of social communication between them, and (2) a cognitive construct common to the minds of member individuals according to which the group is conceived and defined. Neither condition can exist without the other, hence the group is the product of a multi-directional feedback effect between these two systems at different levels of analysis" (Milkoreit and Mock 2014 p169). This understanding of the ideologies fits well with Hacking's looping effect; the group shapes the views of the individuals, but the group itself is shaped by evolving ideas of what its members think it means to be part of the group (1995).

Emergence

Ideologies are emergent phenomena (Homer-Dixon et al 2013; Mock and Homer-Dixon 2015). An emergent phenomenon can be described as a "novel property of a whole system that arises from the interactions of its component parts" (Homer-Dixon et al 2015 p3). Emergence makes it difficult to predict the behaviour of a system by simply studying the individual components. To understand ideologies, we must develop a more holistic picture of their systems and the interactions between component elements.

Coherence

The ideas and concepts within an ideology generally tend toward coherence for both individuals and the group. Coherence operates at both the individual and group level within complex systems understanding of ideological research (Homer-Dixon et al 2013; Mock and Homer-Dixon 2015). Concepts, their emotional valence, and their links to other concepts within a person's mind will tend toward stability, so that they make sense for the individual (Mock and Homer-Dixon 2015). When new information is presented that contradicts the ideas a person holds as important, mental processes either lead to the person rejecting the information or the links and concepts within the person's mind will shift until they become stable again (Homer-Dixon et al 2013; Mock and Homer-Dixon 2015). At the group level, coherence is supported by homophily: the tendency of individuals to associate with groupings of similar individuals (Homer-Dixon et al 2013). Associating with individuals of similar beliefs reinforces the emotional connections to beliefs and encourages individuals to maintain their current values. This is reflective of work by Kahan that demonstrates that individuals are more likely to accept information from individuals and experts that are part of their ideological grouping (Kahan 2010; Tindall and Piggott 2015).

Equilibria and System Shift

Tied to coherence within an ideology is the notion of equilibria and system shifts. A coherent ideological system is in a state of equilibrium (Mock and Homer-Dixon 2015). While there are limitless possibilities for the combinations of ideas that could make up an ideology, only some of the possibilities will make sense together given current institutional, technological and social realities (Mock and Homer-Dixon 2015; Beddoe et al 2009). The logical remaining potential placement of idea clusters make up the attractors where ideologies are likely to remain coherent. When an ideology is confronted with changes to information or the material world

around it, it either adapts to the new reality or shifts to a new equilibrium (Mock and Homer-Dixon 2015).

Cognitive Affective Maps

The first major attempt to investigate ideologies from a complex systems approach was the development of CAMs (Thagard 2010; Findlay and Thagard 2014; Homer-Dixon et al 2014). The cognitive affective mapping method of ideological inquiry was developed by Thagard using the tools of cognitive science to explore mental representations as neural networks (Homer-Dixon et al 2013). The concepts and ideas within an individual or groups' belief systems are recognized as nodes, which are connected by links (Thagard 2010). The links within the network connect concepts based on them, either being supportive or in opposition to one another (Homer-Dixon et al 2013). This method of inquiry is effective for combining the conceptual - especially morphological - and discursive regions of research and highlighting ways a group or individual can change from one ideological position to another.

As mentioned previously, CAMs and conceptual ideological research are similar in the way that they structure ideologies (Leader Maynard 2013; Thagard 2010). Systems researchers agree with conceptual researchers that the ideological state space is not based on binary opposite ideologies, but instead ideologies are distinguished from one another by how they define and categorize ideas and values (Freeden 2007; Homer-Dixon et al 2013).

Additionally, cognitive affective mapping illuminates the concepts and beliefs that are central to a group's ideology. The strength of the relationship between concepts is noted within the thickness of the link within a cognitive affective map (Thagard 2010). These visual connections within the cognitive affective map show the concepts that are important within an ideology.

CAMs provide tools and concepts that are not part of most conceptual research into ideologies. Specifically, CAMs make explicit that ideologies are configured around emotional relationships between ideas, which is associated with quantitative research (Thagard 2010). By including emotion into the conceptual study of ideologies, cognitive affective mapping bridges conceptual and quantitative research (Thagard 2010; Homer-Dixon et al 2013). Combining the conceptual idea of ideology with the cognitive sciences lessons from qualitative research illuminates the path dependency associated with ideological change and processes that can flip an ideology from one state to another.

Ideological State Space

CAMs, while powerful tools for understanding the structure of ideologies and how they change, remain limited in that they only reflect a group's or individual's ideology within an individual mind (Mock and Homer-Dixon 2015). It is difficult to explore the possible ways that an ideology can change from a single cognitive affective map. The creation of a state space for ideologies reveals the current possibilities that exist within a sociocultural system (Mock and Homer-Dixon 2015).

Homer-Dixon identifies thirteen fundamental questions that define a potential ideological state space (Mock and Homer-Dixon 2015). Each of the thirteen questions are presented as a spectrum between two options within a five-point scale; however, not all questions will always be relevant (Mock and Homer-Dixon 2015). As ideologies are embedded in cultural systems, existing technologies, institutions and social possibilities or challenges faced by a community, will determine which dimensions of the state space are most significant for basins of attraction (Beddoe et al 2009; Mock and Homer-Dixon 2015).

While thinkers like Dobson (2007) and Freeden (2001) reject the idea of environmentalism as an ideology (as it can be absorbed within other broader ideologies), the addition of new environmental ideas, changes in public opinion, and institutional and technological changes associated with environmentalism could cause traditional ideologies to change radically. This would create new states of those ideologies, which would not be easily recognized within their current traditions.

Environmental Ideology

Writing about the environment and ideology can be broken into two main categories. First, there is a growing body of literature about how different ideological groups view environmental issues (Leombruni 2015; Kahan 2012; Kahn 2007; Neumayer 2004). Alternatively, since the mid-1970s work has been conducted to determine if there are distinct green or environmental ideologies that can be sustained separately from traditional ideologies (Stavrakakis 1997; O'Riordan 1977).

Environmental Concerns of Ideologies

To promote environmental protection and policies, researchers investigate ways ideological groups view environmental decisions and beliefs (Kahan 2010; Kahan 2012; Kahn 2007; Neumayer 2004; Davidson 2014; Baskin 2015; Amerigo et al 2017; Facchini, Gaeta and Michallet 2017). For instance, the conceptual researcher Davidson explored how variants of traditional ideologies addressed questions of economic growth, technology, economic substitutability and power relationships to demonstrate how they addressed sustainable development. This research highlights key issues that potential environmental ideologies will need to address.

Quantitative ideological researchers conduct much of the research on the environmental positions of traditional ideologies (Amerigo et al 2017; Facchini, Gaeta and Michallet 2017; Kahn 2007). As an example, Facchini, Gaeta and Michallet investigate the role that political ideology plays in political parties in Europe promoting pro-environmental policies within their platforms (2017). From their research, the authors contend that political ideology (specifically left-wing ideologies), political competition, and a country's economic security play a key role in how environmental protection is positioned within party platforms (Facchini, Gaeta and Michallet 2017). This research demonstrates that ideological positions, as well as economic and social institutions are important for shaping beliefs around environmental protection.

The above research investigating the impact of traditional ideologies on environment decision-making provides useful insights on the role of ideologies on individual actions and voting behaviour. However, this type of research is, by its very nature, non-radical. Environmental protection is meant to fit within existing ideological categories. As some researchers point out, the system wide issues currently facing the globe require significant changes to socio-ecological systems (Beddoe et al 2009). It is valuable, then, to consider the possibility of environmental or green ideologies that go beyond current mainstream ideologies.

Categories of Environmental Ideologies

Accepting that the current state of socio-ecological systems requires a deeper shift in institutions, technologies and ideologies, it is valuable to review the current literature on green or environmental ideologies. Since the late 1970s, theorists have explored the notion of environmental or green ideologies (Humphreys 2014; O'Riordan 1981; O'Riordan 1977; Wissenburg 1997; Dobson 2007; Davies 2009; Meadowcroft 2001). Within the writing about environmental ideologies, a wide range of positions and beliefs remain. As Meadowcroft states

“the green perspective is more a family of related approaches than a single integrated viewpoint” (Meadowcroft 2001, p175).

The writing on specific environmental ideologies can be broken into two categories: researchers who recognize a plurality of potential ideologies; and those who work to promote a single ideology while rejecting alternatives (O’Riordan 1977; Dobson 2007; Wissenburg 1997). This section reviews writing that recognizes multiple ideologies, explores Dobson’s notion of a single ideology, then identifies lessons about the study of ideology.

In the exploration of potential environmental ideologies or worldviews, researchers recognize upwards of twenty potential groups (Dobson 2007; O’Riordan 1977; Wissenburg 1997). One of the earliest, and still most cited, attempts to distinguish between environmental ideologies is the work of geographer, Timothy O’Riordan (1977; Davies 2009). O’Riordan views the starting point of environmental ideology as the early conservationist movement with two competing positions or concepts: ecocentrism and technocentrism (1977). Ecocentric ideologies are further divided into those focused on bioethics and those focused on self-reliant communities (O’Riordan 1977). Technocentric environmental ideology, according to the author, arose out of scientific rationalism (O’Riordan 1977). The characteristics of this style of environmentalism include elite and professional decision-making, scientific rationality, and optimism about human capacity (O’Riordan 1977).

More recent work has begun identifying larger numbers of potential environmental ideologies or worldviews (Clapp and Dauvergne 2005; Davidson 2011; Davies 2009; Wissenburg 1997). Davies, for instance, highlights eight types of environmentalism by exploring the contemporary environmental movement (2009): deep ecology, social ecology, ecoterrorism, ecofeminism, bioregionalism, prometheanism, free market environmentalism, and political ecology (2009).

These grouping are distinguished based on their views of nature, opinions of human nature and their tactics for change.

Another area of research providing insight into environmental ideologies or worldviews is that of political economy (Clapp and Dauvergne 2005; Davidson 2011). Clapp and Dauvergne in their book, “Paths to a Green World,” highlight four environmental worldviews (Clapp and Dauvergne 2005): market liberalism, institutionalism, bioenvironmentalism, and social green. These worldviews are used to classify the major discussions and actors in sustainable development (Clapp and Dauvergne 2005). Clapp and Dauvergne’s work is of interest, because it provides a broad notion of environmentalism that can overlap with the peripheries of other ideologies and is based on the identification of specific institutions and actors that promote these worldviews.

Some researchers argue that there are key components or beliefs that stretch across environmental political thought (Kenny 2003; Meadowcroft 2001; Talshir 1998; Wissenburg 1997). Wissenburg’s review of green ideas highlights 41 potential green theories (1997). The theories are separated based on their positions on 23 questions which act as key dimensions to a theory; however, some of the theories only have positions on one or two dimensions (Wissenburg 1997). The 23 dimensions that Wissenburg illuminates in his taxonomy of environmental ideas are also broken into four “concepts / levels” (1997, p. 48). The first two levels, metaphysics and ethics, highlight foundational qualities of a potential ideology or theory; the final two, politics and policy, correspond to broad questions about how society should be ordered, how the environment should be managed, and the actions necessary to reach the desired outcome (Wissenburg 1997). Wissenburg’s taxonomy is valuable to the study of environmental ideologies because it illuminates potential dimensions that can shape ideologies given new realities related to technology and environmental information.

An alternative to the notion of multiple environmental or green ideologies is the idea that a single environmental ideology exists (Dobson 2007). Dobson, in “Green Political Thought,” argues that environmentalism is not a complete ideology (2007). Instead, environmentalists act on single-issues and are not coherent enough to denote an actual ideology (Dobson 2007; Barry 2014) Dobson promotes ecologism as its own ideology focused on the relationship between humans and the non-human world (Barry 2014). This work provides a challenge to the belief that new environmental ideologies at the periphery of current ideologies can lead to new stable ideologies. Dobson’s promotion of ecologism will be discussed further in chapter 4.

Key Lessons

The two main reasons that identifying environmental ideologies is difficult is that they are still emerging and that individuals associated with environmental thought tend to reject the notion of ideologies. First, while the concepts and ideas associated with environmental thought can date back hundreds of years, it was not until the 1960s that environmental protection and human impact on the environment entered mass political discourse as an ideological alternative (Kenny 2003; Dobson 2007). As the ideas and concepts that make up the political aspirations of green thought continue to develop and research around the environment grows, the peripheries and perimeters of environmental ideologies will continue to shift making them difficult to recognize. Secondly, environmentalists and green political groups have historically rejected the concept of ideologies (Talshir 1998). Green groups have argued that ideological thinking on the right and the left has been associated with poor environmental decisions (Talshir 1998). This rejection of ideological thinking means that individuals within the environmental movement are less likely to link their views with a specific ideology.

Some reviews of environmental or green ideologies provide a novel approach to the study of ideologies and the opportunity for organizing the seemingly diverse ideas that make up

environmental ideologies (Talshir 1998; Kenny 2003). Talshir, for instance, argues that a new type of ideology emerged from the Greens of the 1970s - a modular ideology (1998). As Talshir explains “the structure of a modular ideology is double-layered: an ideational frame which includes the fundamental principles, and sub-ideologies which coexist within the ideational frame” (1998 p187). Within this perspective, it is possible that there is a main environmental or green ideology and sub ideologies that, while consistent on primary beliefs, have specific and important distinctions. Alternatively, multiple environmental ideologies might exist with numerous sub ideologies competing for dominance. The important work from within this investigation, then, is to determine the specific concepts and parameters that make up the values of the ideational structure of an environmental ideology and the distinctions between its subcategories.

Concluding Thoughts

This chapter started with a review of the current literature on ideologies to create an understanding of the current landscape of ideological research, reviewed the novel ways that systems research can advance the study of ideology, then looked at the state of research into environmental ideologies. The first section demonstrated that the current research into ideologies is fractured and limited by disciplinary silos; however, despite these silos, a great deal about ideologies can be learned from combining lessons across the landscape of ideology research. For instance, it is important to understand the structures and boundaries between ideologies, the language used to distinguish and reinforce ideological groupings, the relationship between individuals, political leadership and institutions, and the emotional attachment to both ideologies and concepts within ideologies.

The second section of this chapter reviewed research on ideology from a systems perspective. This research has the potential for addressing the relationship between individuals and groups in ideology, the impact of emergence and coherence within systems of political beliefs, and how shifts within personal and group ideologies occur. The tools of systems theory highlighted included CAMs and ideological state space modeling.

Finally, this chapter reviewed the current state of research into environmental ideologies. This review demonstrated that a great deal of debate remains within this area of research. Specifically, work is needed to determine if environmental ideologies exist outside of traditional ideologies and what environmental ideologies exist as standalone ideologies and sub-ideologies.

From the above, it is possible to further refine the definition of ideology that started this study and to begin to unpack potential environmental ideologies. Ideologies are nested, complex adaptive representational systems that exist as social phenomena and internal cognitive processes (Mock and Homer-Dixon 2015). The study of ideology requires analysis of communication between individuals and groups to understand the impact of technology, institutions, competition, and power relationships on the evolution of new ideologies.

3) Methods

Chapter Outline

Having now established a definition for ideologies, while also highlighting the continued importance of studying ideologies, the following chapter lays out the general design of the research, then describes how specific research methods were used to study environmental ideologies.

Theoretical Framework

The researcher investigated environmental ideologies using a complex systems approach. As Homer-Dixon and their colleagues note, complexity research is well suited to the task of connecting the various branches of ideological research discussed in the literature review (2013). For instance, a complexity framework allows for an understanding of the cognitive dimensions of ideologies, addresses the relationships between the individual and the group, and provides mechanisms to visually explore links between ideologies (Homer-Dixon et al 2013).

Research Design

While systems researchers have begun the theoretical work of designing models for understanding ideology, the work of using these models to map ideology in the world is still relatively new (Thagard 2010; Homer-Dixon et al 2013; Mock and Homer-Dixon 2015). This study uses methods discussed within the current literature from complex systems research to illuminate the structures of environmental ideologies.

I used a mixed method approach to investigate environmental ideologies. Methods of data collection and analysis included literature reviews and analysis, qualitative analysis of questionnaire data, and discourse analysis of text from environmental organizations. These methods are highlighted in previous studies into ideologies from systems researchers (Thagard 2010; Homer-Dixon et al 2013; Milkoreit and Mock 2014; Mock and Homer-Dixon 2015).

Scope

This project started with a wide view of ideologies and then narrowed to environmental ideologies. The research was narrowed to environmental ideologies held by individuals involved with environmental research or actions in Canada. Canadian environmental organizations and individuals were selected as a mechanism to narrow the data and to ground the research. Additionally, environmentalists within Canada were easier for the researcher to access.

Additional Literature Reviews

As discussed in the initial literature review, it is important to identify and properly define concepts that are important for an ideology's cognitive affective map and parameters for potential ideological state spaces. Two additional literature reviews were conducted: a review of literature on the dimensions of ideology to set the state space parameters and a review of key literatures into environmental ideologies and traditions to build an initial picture of environmental ideologies.

State space construction

The creation of the ideological state space began with a review of literature on dimensions in ideological studies to explore the appropriateness of a multidimensional state space. Homer-Dixon's thirteen dimensions were then reviewed to determine their efficacy for studying the

ideological landscape (Mock and Homer-Dixon 2015). Finally, new dimensions were considered by reviewing current literature.

Justification for State Space Parameters

Significant debate exists about how many dimensions are needed to understand the spatial possibilities of ideologies (Jost, Federico, and Napier 2009; Mildenberger 2013; Mock and Homer-Dixon 2015). Mildenberger, in his review of the state space of ideological research, highlights three major ways that dimensions are discussed in the literature: one dimensional, two dimensional, and multidimensional (2013). Current scholarship primarily highlights the dimensions and approaches that best match specific research goals rather than providing a complete view of the potential dimensions of an ideology (Mildenberger 2013).

One Dimension

For over 200 years, the one-dimensional left-right or liberal-conservative approach has been popular in ideological studies (Jost 2006; Lesschaeve 2017). Supporters of the unidimensional perspective of ideological research argue that it is simple to understand yet maintains strong predictive power (Jost 2006). Recent work looking at left-right divides and policy positions demonstrates that these dimensions are a better indicator of the positions taken by political parties than individuals (Lesschaeve 2017). Lesschaeve explores 50 policy positions and demonstrates that the unidimensional view of ideology can help predict the actions of political parties but loses some predictive power for exploring the positions of individuals (Lesschaeve 2017).

Two Dimensions

Over the past sixty years, theorists have attempted to add a second dimension to the study of ideologies (Mildenberger 2013). Adding a second dimension greatly increases the ideological possibilities while maintaining simplicity and visualization (Mildenberger 2013). Rokeach developed the most famous and replicated version of the two-dimensional ideological space in

the 1970s (1973; Mildenberger 2013). Rokeach's two dimensions are support for equality and support for freedom (1973). From these two dimensions, Rokeach can describe an ideological state space with four quadrants. Other dimensions that have been explored include: support for domination between groups, respect for authority (Altemeyer 2004), and the balance between the values of security and harmony (Braithwaite 2009).

While the unidimensional and two-dimensional reviews of ideologies remain popular, they have weaknesses worth considering. One weakness of the unidimensional approach that can be applied to the two-dimensional study of ideologies is that in the pursuit of simplicity they hide too much (Mildenberger 2013). Even for theorists who promote a left-right unidimensional view of ideologies, for example, there is an acceptance that multiple factors shape the ideology (Friere 2015; Lesschaeve 2017).

A second criticism of the simplified reviews of ideologies is that they are too specific to the subject matter and disciplines of their researchers (Mock and Homer-Dixon 2015). While each of the above classification systems provide insight into how groups and individuals make decisions, especially in specific situations, it is difficult to see how these competing visions for ideological descriptors can be used to describe a comprehensive and coherent ideological system (Mock and Homer-Dixon 2015). As ideologies are emergent phenomena and more than just a description of their parts, a comprehensive classification for ideologies must include the basic empirical questions that structure all ideologies (Mock and Homer-Dixon 2015).

Further, analyzing the ideological state space as more than one or two dimensions allows for a better understanding of how ideological positions change. Individuals and groups are more likely to move along the ideological state space to ideologies that they are like in beliefs (Mock and

Homer-Dixon 2015). Understanding similarities between competing ideologies makes it easier to identify realistic pathways that groups are likely to shift toward in their positions.

Finally, the unidimensional and multi-dimensional models are culturally specific (Mildenberger 2013). This is most obvious in the right / left divide and the Liberal / Conservative divides, which map up against the revolutionary French Parliament and the two-party system in the United States of America (Freeden 2006; Mildenberger 2013; Leader Maynard and Mildenberger 2016). Culture, similarly to institutions and technology, impacts the relative importance of a dimension to an ideology, but it does not impact the total possible dimensions of all possible ideologies (Mildenberger 2013; Mock and Homer-Dixon 2015). Appropriately accounting for cultural diversity across the state space requires more than one or two dimensions.

Multi-Dimensional

Researchers investigate multi-dimensional ideological state spaces to address the weaknesses of the above approaches. A multi-dimensional state space is often described rather than visually mapped out, because it is difficulty to create a visual representation of the multitude of dimensions used to describe an ideology (Mildenberger 2013).

A holistic state space creates a set of parameters that can be used to house all the potential ideological positions at their most basic level (Mock and Homer-Dixon 2015). The state-space discussed below proposes a set of dimensions from the work of Homer-Dixon with consideration to work done on the big five personality types, moral foundations theory, Hofstede's five dimensions of national culture, and the GLOBE leadership study (Hanania 2017; Haidt, Graham and Joseph 2009; Randazzo and Haidt 2015; Minkov and Hofstede; 2012; Hofstede 2006; Stern, Dietz and Guagnano 1998; House et al 2004).

Homer-Dixon identifies thirteen fundamental ideological questions (Mock and Homer-Dixon 2015). The answer to each question is presented as a spectrum between two options within a five-point scale (Mock and Homer-Dixon 2015). Homer-Dixon also breaks his dimensions into two broad categories: is and ought. Is questions reflect the way the world operates, while ought questions focus on justice and how society and individuals should act (Mock and Homer-Dixon 2015). Appendix A provides an example of Homer-Dixon's state space dimensions table. Below is an exploration of Homer-Dixon's dimensions to demonstrate their suitability and a review of possible additions:

Is

1. Time

The first category within Homer-Dixon's state space is time. This dimension considers how strongly participants value the past or future when making decisions (Mock and Homer-Dixon 2015). Future orientation is a dimension also considered within the GLOBE survey, which links the dimension to short and long-term thinking (House et al 2004; Dorfman et al 2012).

2. Change

The second category for Homer-Dixon's state space is change. The change dimension considers if an ideology or individual believes that the world and culture is in a state of growth or if things generally stay the same (Mock and Homer-Dixon 2015).

3. Intelligibility of Reality

Homer-Dixon's third dimension considers whether an ideology considers the world intelligible (Mock and Homer-Dixon 2015). This category considers the degree to which individuals and society can understand the world.

4. Spirituality of Reality

Similarly, Homer-Dixon's fourth category investigates the role that spirituality plays in an ideology's perception of reality. The poles for this measure are material and spiritual. This dimension and intelligibility of reality are like Wissenburg's distinction between mysticism and rationalism, which measures the degree to which there is a magical element to the world versus approaches focused on measurable and scientific analysis of the world (1997).

5. Moral Principles

Homer-Dixon's moral principles dimension measures whether an ideology believes morality to be subjective or objective (Mock and Homer-Dixon 2015). Moral principles are important as they connect groups together and can increase or decrease their chances of successes (Allott 1991). It has been argued that a belief in objective moral principles can lead to intolerance of other beliefs and support for coercion in favor of creating a society which matches objective beliefs (Berggren 2015). However, as Berggren notes, this likely requires other conditions around the type of moral principles to be met (2015).

6. Human Agency

Human agency measures how much free will an individual has over their life (Mock and Homer-Dixon 2015). The view of fate versus free will is also considered within grid-group cultural theory (Mamadouh 1999). Wissenburg's dimension of causation also draws a distinction between determinism and voluntarism (1997). Fatalism is significant as it can impact views around individualism and concern for nature and others (Mamadouh 1999). Additionally, determinism might increase a person's support for state intervention (Hannikainen et al 2017).

7. Human Nature

Human nature explores if an ideology considers humans positively or negatively. This dimension is measured between benevolence and malevolence (Mock and Homer-Dixon 2015).

Views on human nature will impact support for others, the importance of the state, notions of justice, and the need for coercion. Morton and Postmes have demonstrated that negative views of human nature can increase intergroup conflict and be used to normalize negative behaviour towards others (2011).

8. Humans and Nature

The humans and nature dimension evaluates the position of humans in nature (Mock and Homer-Dixon 2015). The scale divides between humans being embedded within nature and humans being separate from nature (Mock and Homer-Dixon 2015). This dimension is similar to O'Riordan's argument that embeddedness with nature is a defining line between different environmental ideologies (1977).

9. Social Differentiation

The ninth dimension in Homer-Dixon's model explores the differences between groups or individuals. The scale shifts between differences being small and unimportant to large and essential (Mock and Homer-Dixon 2015). This dimension is like social dominance orientation which measures how much an individual desires inequality between groups (Altemeyer 2004). Researchers have demonstrated that there is correlation between high scores for social dominance and a lack of concern for nature and the environment (Amerigo et al 2017). Additionally, individuals who scored high in this regard were more likely to place the burden of environmental costs onto other groups (Amerigo et al 2017).

10. Personal Identity

The last 'is' related dimension from Homer-Dixon's state space relates to where individuals gain their sense of identity. The two poles for this dimension are group and self (Mock and Homer-Dixon 2015). In the GLOBE research, this is measured as in-group collectivism which examines the connection to organizations and family (Dorfman et al 2012). Additionally, moral foundations

theory's in-group dimension explores a person's group based orientation (Haidt, Graham and Joseph 2009; Day et al 2014).

Ought

1. Personal responsibility

Connected to the notion of empathy, the first 'ought' dimension within Homer-Dixon's state space looks at how far an individual's responsibility extends. The poles for this dimension are community and self. This dimension lines up with Hostede's view of individualism and collectivism which measure how much an individual is expected to look out for themselves versus their community (2006). Additionally, moral foundations theory's harm dimension considers an individual's concern for others and sensitivity to their suffering (Day et al 2014).

2. Power

Homer-Dixon's state space includes a dimension on the acceptance of power and its use – it is usually wrong or usually right to use power over others (Mock and Homer-Dixon 2015). Power is also a consideration within Hofstede's research in the measure of power distance, which investigates leadership styles (2006). Authority, within moral foundations theory, measures a person's respect for both tradition and respect for power (Haidt, Graham and Joseph 2009; Day et al 2014).

3. Wealth

Homer-Dixon's last dimension measures the acceptance of material inequality. This dimension measures if an ideology considers relative wealth to be immoral or moral (Mock and Homer-Dixon 2015). Concerns about equality and justice are one component of the fairness dimension of moral foundation theory (Day et al 2014). Work on opposition to equality within social dominance and authoritarian research demonstrates that people with a higher score in

opposition to equality are more likely to show apathy toward environmental issues (Amerigo et al 2017).

Additional Dimensions

1. Human Ingenuity

The first dimension outside of Homer-Dixon's considered was human ingenuity versus natural limits. The debate around the capacity of human ingenuity to avoid natural limits is important within environmental discussions (Simon 1981; Devall 2001; Weizsäcker 2009). This dimension has an impact on optimism associated with markets, technology and science. It also likely impacts questions about the role of government and restrictions on freedom. However, I determined that opinions on human ingenuity are shaped by opinions on change, the relationship between humans and nature and the intelligibility of nature.

2. Uncertainty

The second additional dimension considered in the research was tolerance of uncertainty. The risk of uncertainty is associated with specific attitudes and values discussed within other ideological models. For instance, security orientation has been link to a "fear of uncertainty" (Braithwaite 2009 p166). However, rather than seeing fear of uncertainty as a foundational dimension, this dimension was ultimately seen as a consequence of future orientation and intelligibility of the natural world.

3. Competition vs. Cooperation

The final additional dimension considered was competition vs. cooperation. Questions about how much individuals and communities should value cooperation or competition are part of the GLOBE studies and Hofstede's work (Dorfman et al 2012; Hofstede 2006). This dimension considers the way that individuals and groups ought to operate in relation to one another. This dimension could impact the way that individuals structure the economy, solve socio-ecological issues and interact within organizations.

Cognitive Affective Mapping

Homer-Dixon and colleagues layout a five step process for creating CAMs: (1) create a list of main concepts; (2) determine if the concepts are viewed positively, negatively, neutrally or ambivalently by the subject; (3) determine if the relationships between concepts are supportive or negative; (4) arrange the concepts in a cognitive affective map minimizing crossing links; and (5) assess the validity of the cognitive affective map by showing it to the subjects, showing it to experts, or comparing it to surveys, interviews or textual data (Homer-Dixon 2014; Mock and Homer-Dixon 2015).

Like much of the research on ideology, this work involves methods of interpretive inquiry (Homer-Dixon et al 2013). Initial CAMs were created from textual reviews of ideological groups' writing and from publications put out by environmental organizations. These initial CAMs were compared against questionnaire results from environmentalists and environmental researchers. To maintain accurate results the research considered the social and discursive context that surrounded the materials reviewed. The creation of CAMs from textual reviews is consistent with contemporary writing on ideology (Homer-Dixon et al 2014; Mock and Homer-Dixon 2015).

Items in A Cognitive Affective Map

Thagard's method for their creation of CAMs using the software program EMPATHICA was utilized (2010; Homer-Dixon et al 2013). EMPATHICA is a software tool designed to allow researchers a unified platform for creating CAMs (Thagard 2010; http://cogsci.uwaterloo.ca/empathica.html).

CAMs are constructed using two types of objects. The first type of object in a cognitive affective map is *nodes*. Nodes are concepts within an ideology and they can be considered positive, negative, neutral or ambivalent. Green circles visually represent positive concepts; negative

concepts are represented by red hexagons; emotionally neutral concepts are represented by yellow rectangles; and ambivalent concepts - those ideas that can be both negative and positive - are represented by a superimposed hexagon and circle (Homer-Dixon et al 2014; Mock and Homer-Dixon 2015).

The second type of object in a cognitive affective map is *links*. Links represent the relationship between concepts (Mock and Homer-Dixon 2015). A solid link means that the concepts are mutually supportive, while a dashed line indicates that the concepts are incompatible. Figure 1 from Mock and Homer-Dixon provides an example of how these objects are displayed in a cognitive affective map:

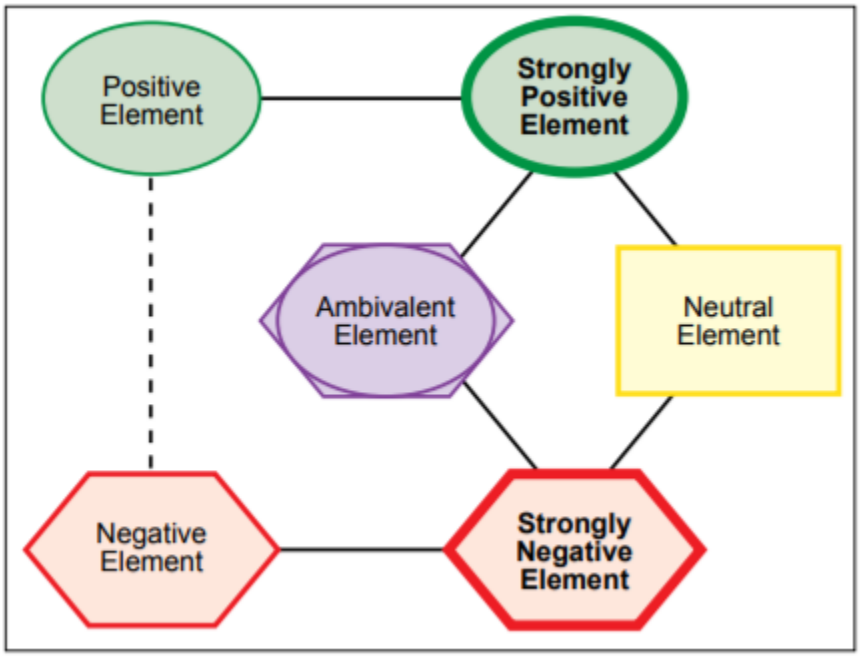


Figure 1 Objects in a Cognitive Affective Map (Mock and Homer-Dixon 2015)

Selection of Environmental Ideologies

As demonstrated by the initial literature review, the notion of an environmental ideology remains contentious. Theorists debate the number of potential environmental ideologies and which ideologies can compete to be considered major ideologies. To conduct this research, an initial set of potential environmental ideologies was recognized from within the literature based on the principles below.

First, this review of ideologies remained broad. A broad approach allows for a review that crosses disciplines and captures the potential for emerging ideologies to evolve into major ideologies (Clapp and Davaurgne 2005; Blanchard and O'Brien 2013). Next, in the interest of casting a wide net in the review of potential environmental ideologies, Clapp and Dauvergne's notion of environmentalists as "those who write and speak and work to maintain or improve the environment around us" was utilized (2005 p4). This definition provided categories of environmental ideologies that would not be included by certain environmental thinkers but that allowed for the idea that the inclusion of an environmental mandate could radically alter and evolve current ideologies.

In addition to these two considerations, three basic requirements for the selection of the environmental ideologies were that they had academic literature written regarding their core beliefs, they had recognizable organizations that held their beliefs, and they could not be easily subsumed within a broader ideological grouping. These criteria were consistent with arguments from Talshir (1998) and Meadowcroft (2001) that for ideologies to persist, they need to have intellectual foundations, institutional supports, and recognizable members. However, it is important to note that not all the thinkers within an ideological tradition necessarily identify themselves with that tradition. As Blanchard and O'Brien note in their review of free market

environmentalists, thinkers might give their research any number of titles; the important thing is to develop categories that allow for a rich and useful review of ideological positions (2013).

After selecting seven ideologies, the research explored literature produced within the ideological positions to build initial CAMs and identify positions along the ideological state space. The CAMs construction and state space scoring followed the process proposed by Homer-Dixon and colleagues (2013). Literature was used as initial evidence to build the maps and state space responses and then each was compared to responses from questionnaires to ensure their accuracy.

Two important considerations for the selection of literature were that the texts were up to date and the thinkers adequately represented the position of the ideology. Respecting and considering the traditions that built the ideologies, it was important to make sure that the reviews focused on recent texts, because ideologies regularly adapt and evolve (Van Dijk 2011; MacKenzie 2003; Meadowcroft 2001). Using up-to-date texts means that the depictions of the ideologies are accurate to current discussions and beliefs.

Questionnaires

Questionnaires were selected to collect information about environmental ideologies because they allow for a wide selection of individuals to be considered in an efficient and cost-effective manner (Evans and Malthur 2006; Sax, Gilmartin, and Bryant 2003). As this study is a preliminary investigation of environmental ideologies, a wide breadth of potential participants was considered more valuable than an in-depth investigation into a smaller number of individuals.

Participants

Purposive Sampling

When deciding on a sampling method, researchers must select the best processes to provide valid results to answer their research question (Palinkas et al 2015). Available resources must be weighed against desired outcomes to decide the most appropriate research techniques. One common research tool in qualitative research is purposive or purposeful sampling (Palys 2008; Palinkas et al 2015). In purposive sampling, the researcher decides the type individuals most relevant to answer the research question (Palys 2008). Considerations for this research included access to participants with specialized knowledge or beliefs. Specifically, criterion sampling was used for this study. Criterion sampling is the process of seeking individuals that fit a specific characteristic (Palys 2008; Palinkas et al 2015). The criteria set for the participants was that they consider themselves to be environmentalists and have some understanding of environmental thought.

There are limitations and disadvantages associated this sampling method. Two important points to consider about this sampling are that it is non-probability sampling and it can increase sampling bias. This type of research is considered non-probability sampling because the sample is not selected randomly from the population (Skinner and Wakefield 2017). It is risky and potentially impossible to attempt to infer results from non-probability sample to the larger population (Skinner and Wakefield 2017). Additionally, this type of sampling can increase the risk of sampling bias from nonresponses rate and researcher bias. The researcher and reader should consider these potential weaknesses when evaluating the questionnaire results.

As this research is focused on creating a preliminary understanding of environmental ideologies using the tools of CAMs and the ideological state space modeling, it focuses on individuals involved in environmental research and thought. Research into the ideologies of politicians and

experts demonstrates that their "attitudes on both social and economic issues are more stable, intercorrelated, and dimensionally structured" (Jost, Federico, and Napier 2009, p 314-315; Converse 2006; Federico 2007). Targeting individuals focused on environmental research and activism should provide more coherent environmental ideologies.

The initial populations of potential research subjects were members of environmental organizations, students of environmental studies, and academics who research or teach environmental courses. After initial attempts to survey members of environmental groups and students were unsuccessful, the following groups were sent questionnaires: undergraduate students at the University of Waterloo studying in the School of Environment, Resources and Sustainability, the School of Planning, and the Department of Geography and Environmental Management; members of the Environmental Studies Association of Canada; and members of the Canadian Association of Geographers. These populations were selected because they could be accessed by the researcher and were likely to have considered their general environmental positions.

Questionnaire Design

The questionnaire was designed to provide insight into the ideological positions held by individuals who care about the environment. The questionnaire was comprised of fifty-one questions divided into four sections. The demographic section was the only section that was different for students and members of environmental associations. Students were asked their majors and members of associations were asked their level of education. The remaining questions asked for general demographic information, if the person considered them self an environmentalist and how they identified their environmental ideology or philosophy. The second section asked respondents to rank their level of agreement or disagreement between two options on a five-point Likert scale. These questions were meant to highlight opinions on

concepts important to different ideologies. The third section asked participants to rank their positions between two options similar to Homer-Dixon's state space questions. The primary objective of this section was to identify positions along the ideological state space. The general survey is presented as Appendix B.

Online Questionnaires

Online questionnaires were for collecting data. Studies have noted several advantages to online questionnaires that were considered valuable for this research (Wright 2005; Evans and Mathur 2005; Sax, Gilmartin, and Bryant 2003). Specifically, cost of data collection, ease of use for participants and access to unique populations led to the decision to use an online questionnaire. First, online questionnaires are less expensive to produce and reduce input costs compared to paper surveys allowing for the questionnaire to reach a wider population and for immediate access to results (Evans and Mathur 2006; Sax, Gilmartin, and Bryant 2003). Also, online questionnaires are generally easy for participants to fill out without needing a central location allowing access to participants throughout Canada. Finally, online questionnaires provide the ability to contact unique populations (Wright 2005). The ability to send out questionnaires through email listservs meant that the researcher could contact individuals from unique groups without needing access to their mailing address.

Limitations of Online Questionnaires

There are number of weaknesses associated with online questionnaires that were also considered by the researcher. Survey fatigue, the potential for the questionnaire to be ignored, and the representativeness of the participants were all potential weaknesses considered.

As Sax and colleagues point out, there remains debate in the academic community about the response rate for online vs. paper questionnaires in college age participants (2003). Students

might suffer from survey fatigue reducing their participation, because they are sent surveys from their institutions, student associations, and other researchers (Evans and Mathurs 2005). Also, surveys sent out to mass audiences can be received as spam or junk email (Evans and Mathurs 2005). To reduce the number of invitations that went into junk folders the researcher used gatekeepers to contact potential participants. Using gatekeepers, either listservs that participants have signed up for or individuals who have a relationship with potential participants, increases the likelihood that individuals would read the message sent to them.

Finally, some researchers have noted that online questionnaires, as they require Internet access, might over represent specific populations (Wright 2005; Yun and Trumbo 2000; Schmidt 1997). Two of the primary concerns regarding the representativeness of the sample are self-selection bias and over representation of particular groups. Self-selection bias occurs because some individuals are more likely to respond to a survey while others are more likely to ignore it (Wright 2005). Additionally, online surveys can over represent groups that are more likely to have internet access, while missing segments of the population without access (Yun and Trumbo 2000).

More recently, Davidov and Depner investigated the equivalency of results between online surveys and pen and paper surveys for studying human values (2011). In their study, the authors conclude that the two methods are essentially equivalent regarding results (Davidov and Depner 2011). From this more recent research and the desire to reach a wide audience of environmental thinkers, it was determined that the concerns regarding certain populations being left out of the sample were minimal enough to proceed with the online questionnaire.

Procedures

Environmental experts were contacted using email listservs that focused on environmental studies or geography. Recruitment emails were sent through the Environmental Studies Association of Canada and the Canadian Association of Geographers. The Environmental Studies Association of Canada is a nonprofit organization for Canadian researchers and educator in the field of environmental studies (Environmental Studies Association of Canada About 2017). The Canadian Association of Geographers is an organization that promotes geographic research and education in Canada (Canadian Association of Geographers About 2017).

Recruitment of undergraduate students started by contacting faculty members teaching large undergraduate courses during the winter term of the 2016-2017 school year. Unfortunately, this approach saw few responses. A recruitment email was then sent out through administrative channels to undergraduate students in the School of Environment, Resources and Sustainability, the School of Planning, and the Department of Geography and Environmental Management at the University of Waterloo.

The email sent participants to a questionnaire hosted through Google Forms. Google Forms were selected to host the questionnaire because it is a free service, it allows for an unlimited number of surveys, and it allows for an unlimited number of survey respondents.

Discourse Analysis

In addition to the literature review and questionnaires, discourse analysis was used to illuminate environmental ideologies in Canada. The texts of environmental organizations were reviewed to

create CAMs and highlight their potential answers to the fundamental ideological state space questions.

Studies have demonstrated the effectiveness of discourse analysis as a tool to study environmental politics and ideologies (Hajer and Versteeg 2005; Stevenson 2015; Edge and Eyles 2014; Edge and Eyles 2015; Buhr and Reiter 2006). Discourse analysis is an effective tool because discourse plays a vital role in both the representation and reproduction of ideologies (van Dijk 2006). The discourse analysis conducted to review environmental organizations in Canada as case studies is described below.

Environmental Organizations as Case Studies

When conducting a textual analysis, Silverman recommends thoughtfully limiting the dataset reviewed (2013). Environmental organizations in Canada were used as case studies for the discourse analysis. More specifically the “about” section and annual reports of organizations were selected for discourse analysis. As Ault and colleagues note, the web has become a primary location for groups to organize, recruit new members, and promote their worldview (2016). Additionally, an organization’s mission and vision statements are important because they reflect the organization’s values and their hopes for the world (Bart 2000; Ayers 2005; Campagna and Fernandez 2007). Reviewing these statements illuminates key concepts and parameters within the ideologies of different groups.

The annual reports of the environmental organizations were also reviewed. Annual reports reveal important information about organizations’ cultures and the projects that they value (Thomas 1997; Neu, Warsame and Pedwell 1998; Domenec 2011). These reports are targeted at current supporters and the public, which means they reveal information about what the

organization thinks its supporters value and describes the ideals of the organization they want to promote to the world at large.

While completing the analysis, it was important to focus on the ideological positions that led to campaign decisions. Focusing on ideological positions without getting bogged down in the specifics of campaigns and policy recommendations allowed for CAMs that remain easier to understand and highlight the ideologies of the group

Part of the social component of ideologies is that institutions and organizations play an important part in how they develop, how they are sustained within communities, and how they change over time (Beddoe et al 2009; Meadowcroft 2001). Environmental organizations exist in the public realm and work to persuade policy makers and members of the public about environmental issues. Their writing presents an opportunity to highlight key dimensions of the state space that are important for environmental ideologies.

In selecting environmental organizations in Canada to illuminate environmental ideologies, the following criteria were used: they maintain a national presence, they have a recognizable impact on policy decisions and public discourse, and they address multiple environmental issues. Based on these criteria, the following organizations were selected for review: Greenpeace Canada, Environmental Defense Canada, Sierra Club Canada Foundation, World Wildlife Fund Canada, and David Suzuki Foundation. As large, formal political organizations, the environmental nongovernmental organizations selected for review are important because they can shape the way that concepts are organized and structured for popular ideologies.

4) Results

Environmental Ideologies

As discussed previously, the disjointed nature of ideological research combined with the rejection of ideologies amongst many environmental advocates makes it difficult to pinpoint current environmental ideologies (Leader Maynard 2013; Leader Maynard and Mildenberger 2016; Talshir 1998). Beyond thinkers who recognize only one environmental ideology, the current literature on environmental or green ideologies identifies approximately twenty different potential ideologies (O'Riordan 1977; Dobson 2007; Clapp and Dauvergne 2005; Humphreys 2014; Davies 2009; Meadowcroft 2001). However, not all the potential ideologies within the literature are as complete as others. The following section investigates seven environmental ideologies from the literature: market liberalism, environmental conservatism, social greens, bioenvironmentalism, institutionalism, religious environmentalism, and ecologism. For each of the ideologies, key thinkers, practitioners, and groups are illuminated and primary concepts are investigated. The results of these descriptions are used to create CAMs and state space positions for each of the ideologies.

Market Liberalism

Market liberalism is a category of environmental ideology that emerges out of neo-liberal conservative ideas, market based economic thought, and scientific optimism (Bliese 1997; Clapp and Dauvergne 2005; Pennington 2005). While recent research argues that environmentalism is a left-wing ideology, debates and intellectual work on market liberal environmentalism has a long history (Anderson and Leal 2001; Shaw 1994). Recently, market liberalism has been encouraged by the belief that the command and control approach to

environmental protection has failed to protect the environment and improve living standards (Anderson 2004; Adler 2012; Wimberley and Hobbs 2013).

Organizations that reflect market liberalism include Environment Probe (https://environment.probeinternational.org) and the Property and Environment Research Centre (https://www.perc.org/). Thinkers and authors who reflect this ideology include Terry Anderson and Donald Leal (2001), Julian Simon (1981), Jan Narveson (1995), Jane Shaw (1994), Bjørn Lomborg (2004a and 2004b), and Jonathan Adler (2011). The following section reviews the way that anthropocentrism, free market optimism, private property requirements, and pro-growth sentiments shape the ideology of market liberal environmentalism. The cognitive affective map built from this review is below as figure 2 and the chart of the state space dimensions can be viewed as table 1.

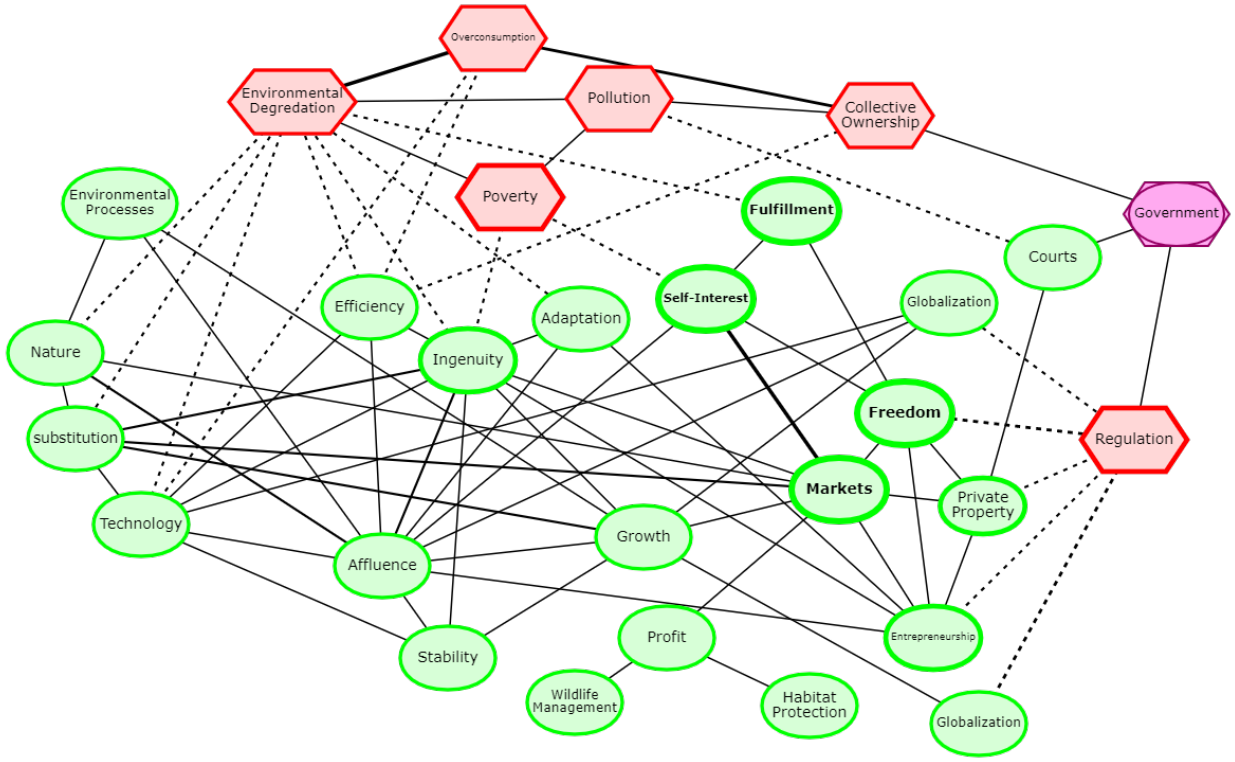


Figure 2: Market Liberalism Cognitive Affective Map

Environment

A key commitment for market liberals is anthropocentrism. Anthropocentrism is not just important for the protection of the environment; it is a natural component of human nature that cannot be escaped (Wimberley 2009; Wimberley and Hobbs 2013). In this regard, nature and environmental processes are viewed in terms of their instrumental value. Environmental degradation, pollution, and overconsumption are viewed as negative externalities based on their impact on human interests (Clapp and Dauvergne 2005; Wimberley and Hobbs 2013).

Humans and Society

Market liberalism maintains a generally positive view of human nature. In their review of free market environmentalism, Wimberley and Hobbs demonstrate this view (2013). The authors argue that humans are naturally good and focused on obtaining "sustenance, self-realization and self-actualization (Wimberley and Hobbs 2013 p10). It is through free-exchange and trade that humans meet these ends (Wimberley and Hobbs 2013).

Environmental degradation and human suffering are linked within this view because it is "disease, war and poverty," caused by "a lack of liberty, economic scarcity and inefficiency," which lead to people making poor environmental decisions (Wimberley and Hobbs 2003 p17). When the human condition improves, individuals, out of self-interest or personal appreciation for the environment, ensure that the environment is healthy.

Another important aspect from the support of human nature is the promotion of technological optimism. The most apt and longest standing argument for this connection within market liberal environmentalism is Simon's book, "The Ultimate Resource" (1981; Anderson 2004). Simon argues that human ingenuity, the ability to invent and adapt, when tied to market mechanisms,

allows for unlimited economic growth (1981). Pricing of scarce resources will lead to recycling, more efficient use, and substitution of resources (Simon 1981).

Finally, market liberals believe that the public interest is best served by individuals pursuing their self-interests. As Anderson points out, habitat protection and wildlife management occur because they make economic sense and support profits (2004). This is demonstrated within forestry and tourism where companies protect wild spaces and species based on their own interests (Anderson 2004).

Economy

A key concept for market liberalism is that the free market is the strongest tool for the promotion of environmental sustainability and human fulfillment (Wimberley and Hobbs 2013). A consequence of the promotion of markets and private property is the view of nature and the environment as a commodity or asset (Anderson 2004).

Narveson argues that environmental protection will come from private property because individuals take better care of things they own (1995). Private property requires a free market, which stands in contrast to government regulation. Government regulation is not congruent with both freedom and private property because it is coercive power (Narveson 1995). In addition to Narveson's arguments, others have argued that common ownership leads to the tragedy of the commons, an overuse of shared resources and environmental degradation (Anderson and Leal 2001; Adler 2012).

The concept of economic growth is crucially important to market liberal environmentalism (Wimberley and Hobbs 2013; Clapp and Dauvergne 2005; Simon 1981). Economic growth and increased wealth are viewed as a positive for market liberal environmentalists because they

support human welfare and sustainability (Clapp and Dauvergne 2005; Anderson 2004). Specifically, as Wimberley and Hobbs highlight, growth creates stability, reduces birth rates, strengthens democracy, and strengthens freedom while improving technology and increasing care for the environment (2013). Known as the environmental Kuznets curve, this view, sees environmental degradation as a temporary pain during the beginning of development that reduces as incomes increase (Panayotou 1994; Anderson 2004). Alternatively, poverty leads to constant environmental degradation and pollution (Anderson 2004).

Government

The promotion of free-market mechanisms means reducing the role for government in the lives of citizens to the protection of personal freedom and property rights. Regulation, habitat protection, and market interference are seen to interfere with freedom, decrease efficiency, and decrease environmental protection (Anderson 2004; Narveson 1995). This leads market liberals to call for a reduced role for government.

While government regulation is negative, it should be noted that the view of governments is more ambivalent. Governments can support property rights through legal remedies. Specifically, governments can support private property and markets by improving the definition and protection of property rights through the rule of law (Adler 2012). Many market advocates promote common law remedies, through the courts, to protect property rights and reduce waste (Adler 2012).

Clapp and Dauvergne argue that Market Liberals view globalization of markets as positive (2005). The liberalization of trade around the globe increases economic growth, promotes the spread of technology, reduces government interference and market distortion, and improves standards of living around the world (Clapp and Dauvergne 2005). For these reasons, economic

globalization is supported as are international institutions that ensure markets and trade remain open and free.

Table 1 Market Liberalism State Space

		Issue	Question		Belief Strength					
Is	General	Time	Which is more important the future or the past	**Future**	S	M	AMB/NP	M	S	**Past**
		Change	Do things constantly change or basically stay the same?	**Movement , Growth**	S	M	AMB/NP	M	S	**Stasis**
		Intelligibility of Reality	Is the universe understandable?	**Intelligible**	S	M	AMB/NP	M	S	**Unitelligible**
		Spirituality of Reality	Is the universe infused with a spirit	**Material**	S	M	AMB/NP	M	S	**Spiritual**
		Moral Principles	Are moral principles objective and universal	**Subjective, Contextual and Malleable**	S	M	AMB/NP	M	S	**Objective, Universal, and Invioble**
	The Individual	Human Agency	Can a person choose his / her fate?	**Weak**	S	M	AMB/NP	M	S	**Powerful**
		Human Nature	Are people basically benevolent or malevolent?	**Benevolent**	S	M	AMB/NP	M	S	**Malevolent**
		Humans and Nature	Are humans part of Nature or exceptional?	**Humans part of nature / Embedded**	S	M	AMB/NP	M	S	**Humans Exceptional / Separate**
	The Individual in the Group	Social Differentiation	Are the differences between people and / groups of people large and essential?	**Small and unimportant**	S	M	AMB/NP	M	S	**Large and Essential**
		Personal Identity	What is the main source of my identity?	**My Group**	S	M	AMB/NP	M	S	**Myself**
Ought		Personal Responsibility	How far from me does my responsibility extend?	**To Community**	S	M	AMB/NP	M	S	**To Self**
		Power	Is use of power over others usually wrong or often right?	**Usually Wrong**	S	M	AMB/NP	M	S	**Often Right**
		Wealth	Is relative wealth moral or immoral?	**Immoral**	S	M	AMB/NP	M	S	**Moral**
		Cooperation	Do the best results come from cooperation?	**Cooperation**	S	M	AMB/NP	M	S	**Competition**

Environmental Conservatism

Environmental conservatism is another category of environmental ideology. While, environmentalism, since the mid-1970s, has generally been associated with liberal or left leaning political thought (Talshir 1998; Neumayer 2013), several traditionalist conservatives have articulated an alternative environmental ideology (Bliese 1997; Scruton 2012).

Traditionalist environmental conservatism moves away from the libertarian values associated with thinkers like Wimberley and Hobbs (2013) and builds an environmental ideology from the work of thinkers like Edmund Burke and Theodore Roosevelt (Bliese 1997 and Redekop 2014).

Theorists and researchers that align with environmental conservatism include the philosopher Roger Scruton (2006; 2013), John Bliese (1997), John Gray (1993) and Dan Dagget (2017). Organizations that reflect the values of this ideology include Bright Blue (http://brightblue.org.uk/) and the Canadian organization Clean Prosperity (http://www.cleanprosperity.ca). The cognitive affective map built from this review is below as figure 3 and the chart of the state space dimensions can be viewed as table 2.

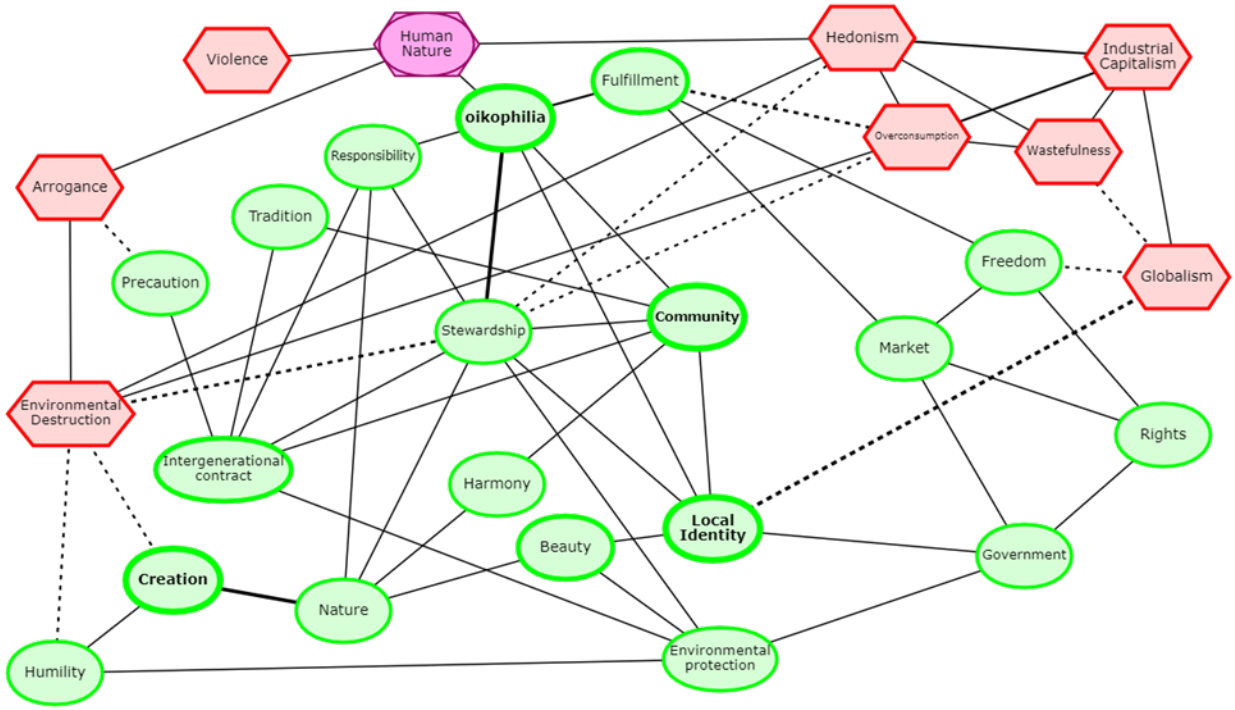


Figure 3 Environmental Conservatism Cognitive Affective Map

Environment

Nature, for the environmental conservative, is something that is gifted to humans and which we cannot fully understand (Bliese 1997). Environmental conservatives reject the modern notion that nature should be dominated and instead claim that humans must live in harmony with

nature by showing humility (Bliese 1997). This view demonstrates a belief that human systems are part of creation. From this position, ecosystem destruction, resource wastefulness, and overconsumption occur due to arrogance (Bliese 1997).

An additional value of nature is aesthetics, or beauty, which is considered a “shared resource, an irreplaceable fund of ‘social capital’” (Scruton 2013). Beauty is something produced by nature that can be shared freely within a community, promoting a sense of local identity and stewardship. This is an important reason for environmental protection for environmental conservatism.

Humans and Society

Environmental conservatives maintain an ambivalent view of human nature. On the negative side is the tendency toward brutish behaviours related to interactions with others and the environment (Bliese 1997). This brutish behaviour can lead to overconsumption and violence if restrictions are not put into place.

Alternatively, humans tend to desire a “sense of belonging” to both place and community (Scruton 2017). It is through this sense of belonging that Scruton promotes the idea of ‘oikophilia’, a love for one’s home and a responsibility to protect it (Scruton 2006; 2017). From the above, responsibility, community, stewardship, and localism emerge as important ideas for environmental conservatism.

Beyond the connection to the local, environmental conservatives reject materialism and hedonism associated with industrial capitalism (Bliese 1997). Combined, the two concepts are seen to promote overconsumption while being counter to fulfillment and freedom (Bliese 1997).

Finally, materialism is rejected because it removes the “loyalties” associated with localism and community (Bliese 1997 p142).

Out of both community and nature, environmental conservatives promote the notion of an intergenerational contract (Bliese 1997; Scruton 2017). Individuals are trustees for future generations of the environment and community that they received from previous generations. To meet their responsibilities and obligations, individuals and society need to practice stewardship of the environment and resources. Further, this stewardship and intergenerational equity promotes respect for traditions of the past while thinking of the future through precaution and the avoidance of risk (Bliese 1997).

Economy

While environmental conservatives like Gray (1993) and Bliese (1997) reject industrial capitalism, they value private property and markets that are embedded within communities and nations (Scruton 2017). Markets and private property support human freedom and fulfillment (Scruton 2017). Additionally, property rights lead to an improved sense of responsibility.

Finally, environmental conservatism rejects unlimited economic growth (Gray 1993; Bliese 1997). For instance, while discussing the positions of John Gray and Edward Abbey, Bliese states “if some restrictions on growth are needed to preserve environmental quality, the traditionalist is quite willing to accept them” (Bliese 1997 p142). The rejection of unlimited growth is connected to environmental preservation and human fulfillment, while at the same time allows for restrictions on economic activity.

Governments

While markets are important for environmental protection and human fulfillment, governments and order are also necessary for the protection of the environment and community (Scruton 2006; Scruton 2013; Bliese 1997). According to Scruton, governments are important to enforce the rule of law to protect personal rights and community (Scruton 2006).

Additionally, for environmental conservatives, the government can and must step in where the market fails (Bliese 1997). The government can provide funding and support to protect common environmental resources and the community (Bliese 1997). In this sense, the government works with the market to protect local communities and environmental resources.

Finally, environmental conservatism's promotion of the local and tradition leads to arguments against globalism (Scruton 2017). This opposition to globalism is tied to international agreements and mass migration, which reduce freedom, the sense of community, and habitat protection while increasing pollution and waste (Scruton 2017).

Table 2 Environmental Conservatism State Space

		Issue	Question		Belief Strength					
Is	General	Time	Which is more important the future or the past	**Future**	S	M	AMB/NP	M	S	**Past**
		Change	Do things constantly change or basically stay the same?	**Movement , Growth**	S	M	AMB/NP	M	S	**Stasis**
		Intelligibility of Reality	Is the universe understandable?	**Intelligible**	S	M	AMB/NP	M	S	**Unitelligible**
		Spirituality of Reality	Is the universe infused with a spirit	**Material**	S	M	AMB/NP	M	S	**Spiritual**
		Moral Principles	Are moral principles objective and universal	**Subjective, Contextual and Malleable**	S	M	AMB/NP	M	S	**Objective, Universal, and Invioble**
	The Individual	Human Agency	Can a person choose his / her fate?	**Weak**	S	M	AMB/NP	M	S	**Powerful**
		Human Nature	Are people basically benevolent or malevolent?	**Benevolent**	S	M	AMB/NP	M	S	**Malevolent**
		Humans and Nature	Are humans part of Nature or exceptional?	**Humans part of nature / Embedded**	S	M	AMB/NP	M	S	**Humans Exceptional / Separate**
	The Individual in the Group	Social Differentiation	Are the differences between people and / groups of people large and essential?	**Small and unimportant**	S	M	AMB/NP	M	S	**Large and Essential**
		Personal Identity	What is the main source of my identity?	**My Group**	S	M	AMB/NP	M	S	**Myself**
Ought		Personal Responsibility	How far from me does my responsibility extend?	**To Community**	S	M	AMB/NP	M	S	**To Self**
		Power	Is use of power over others usually wrong or often right?	**Usually Wrong**	S	M	AMB/NP	M	S	**Often Right**
		Wealth	Is relative wealth moral or immoral?	**Immoral**	S	M	AMB/NP	M	S	**Moral**
		Cooperation	Do the best results come from cooperation?	**Cooperation**	S	M	AMB/NP	M	S	**Competition**

Social Green

Clapp and Dauvergne identify the social green worldview or ideology as a grouping that links environmental degradation with societal issues (2005). In this regard, social greens are interested in the ways that inequality and power relationships are linked to resource distribution, environmental degradation, and harm (Bookchin 1987; Taylor 2014; Mies and Shiva 1993; Shiva 2010). Environmental theories linked to social green ideology include environmental justice, social ecology, and ecofeminism. While many of the theories associated with this

ideology emerged out of work from the late 1950's onward, it has intellectual roots in the work of earlier thinkers such and Peter Kropotkin and Lewis Mumford (Luke 1987; Clark 1997).

Theorists that fit within the social green tradition include Murray Bookchin (1987), John Clark (1997), E.F. Schumacher (1973), Dorceta Taylor (2015). Environmental organizations and institutions that fit within this ideological grouping include the Institute for Social Ecology (http://social-ecology.org), the International Forum on Globalization (http://ifg.org/), and the Centre for Environment Health Equity (https://cehe.ca/). The cognitive affective map for the social green ideology is below as figure 4 and the chart of the state space dimensions can be viewed as table 3.

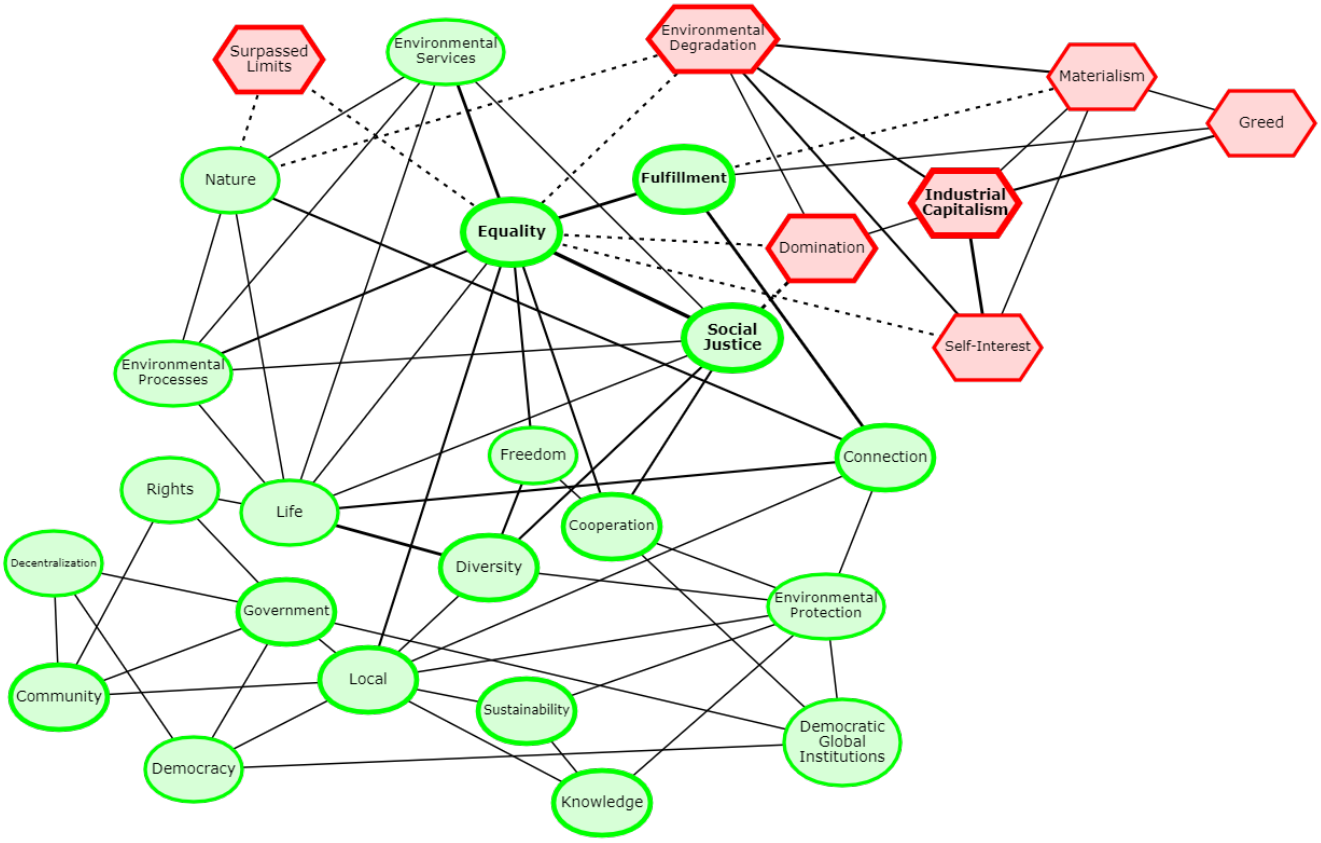


Figure 4 Social Green Cognitive Affective Map

Environment

Social green ideology tends to reject the debate between anthropocentrism and ecocentrism (Dobson 2007). Like bioenvironmentalists, social greens recognize that the Earth has physical limits that must be respected; however, they place fair distribution of resources as more important (Clapp and Dauvergne 2005 Harju-Autti and Heinikangas 2011). Additionally, many social greens believe that ecosystems and nonhuman species have intrinsic value (Frank 2017; Shiva 2010). The Earth, environment and living entities - human and nonhuman - are viewed within a connected holism for many of the social greens (Clark 1997).

However, social greens place significant emphasis on human relationships with the environment, ultimately placing human interests and freedom as paramount (Frank 2017). Environmental and social issues for social greens are linked; “Freedom, sustainability, justice, and peace have become inseparable” (Shiva 2010 p94). Society must address social justice and equitable sharing of environmental risks and benefits (Bookchin 1987; Shiva 2010; Taylor 2014).

Humans and Society

Despite focusing attention on the impact of social inequality and environmental degradation, social green thinkers have a positive view of humanity. Individuals are valued for their uniqueness and the diversity of aims that flows from this uniqueness (Clark 1997). However, this uniqueness associated with the individuals can only be realized through social connections in the world; individuals find fulfillment in their interactions with others and the environment. A good society will be structured to allow individuals to recognize and fulfill their potential.

As Tokar highlights, Bookchin and other social green thinkers develop a vision for society that breaks down social hierarchies in social groups to break down hierarchies in socio-ecological

systems (2010). Inequality within social systems, such as class, race, and gender are correlated with domination, greed, self-interest and overconsumption, which is part of materialism and industrial capitalism (Miles and Shiva 1993; Bookchin 1987; Taylor 2014). Alternatively, systems based on diversity, equality, cooperation and respect for life lead to the promotion of freedom, sustainability, ecological protection and greater human fulfillment (Clark 1997).

Localism is also connected with the promotion of diversity within social ecology (Clapp and Dauvergne 2005). Cultural diversity protects biological diversity because local people maintain knowledge and respect for the environment around them.

Governments

Growing out of the promotion of individual and local diversity, social greens call for greater levels of local autonomy (Clark 1997; Bookchin 1987). Freedom is associated with increased local decision making, which supports regional decision making into broader democracies (Clark 1997). From these ideas, democracy is connected to decentralization, diversity, freedom, local community, and connection (Clark 1997; Clapp and Dauvergne 2005).

Governments that allow for decentralized and community based decision making will increase personal freedom, while also doing more to protect biological diversity, decrease pollution and promote ecological regeneration (Clark 1997; Clapp and Dauvergne 2005; Taylor 2014). Indeed, the centralization of power in the hands of corporate and large-scale governments has allowed for power to be used over individuals and community, leading to environmental degradation and a loss of freedom and equality (Taylor 2014).

Economy

Social greens are opposed to industrial capitalism and economic activities that sustain domination of individuals and the environment (Clark 1997; Shiva 2010). Instead, social greens promote economic activity based on cooperation, strong local structures, small-scale production, and protection of the commons (Schumacher 1973; Shiva 2010 Clapp and Dauvergne 2005). These radical changes to economic production will lead to increased freedom, fulfillment, and environmental protection.

Social greens strongly oppose economic globalization for social and ecological reasons. As Clapp and Dauvergne describe, “it is seen as reinforcing neocolonial relationships between rich and poor countries, as well as changing production patterns in complex ways that have serious environmental implications” (2011 p36). Globalization causes growing inequality between countries and within countries straining food systems, spreading suffering, increasing habitat destruction, and offsetting pollution from the rich to the poor (Shiva 2010; Clapp and Dauvergne 2005). Finally, the spread of technology associated with globalization is connected to industrial capitalism ultimately more destructive than protective to communities and the environment (Clapp and Dauvergne 2005). As an alternative, social greens promote international cooperation for environmental protection. Social greens call for institutions that are “transparent and democratic and support the rights of people, communities and nations to self-determination” (Cavanagh and Mander 2009 p27).

Table 3 Social Green State Space

		Issue	Question		Belief Strength					
Is	General	Time	Which is more important the future or the past	**Future**	S	M	AMB/NP	M	S	**Past**
		Change	Do things constantly change or basically stay the same?	**Movement , Growth**	S	M	AMB/NP	M	S	**Stasis**
		Intelligibility of Reality	Is the universe understandable?	**Intelligible**	S	M	AMB/NP	M	S	**Unitelligible**
		Spirituality of Reality	Is the universe infused with a spirit	**Material**	S	M	AMB/NP	M	S	**Spiritual**
		Moral Principles	Are moral principles objective and universal	**Subjective, Contextual and Malleable**	S	M	AMB/NP	M	S	**Objective, Universal, and Invioble**
	The Individual	Human Agency	Can a person choose his / her fate?	**Weak**	S	M	AMB/NP	M	S	**Powerful**
		Human Nature	Are people basically benevolent or malevolent?	**Benevolent**	S	M	AMB/NP	M	S	**Malevolent**
		Humans and Nature	Are humans part of Nature or exceptional?	**Humans part of nature / Embedded**	S	M	AMB/NP	M	S	**Humans Exceptional / Separate**
	The Individual in the Group	Social Differentiation	Are the differences between people and / groups of people large and essential?	**Small and unimportant**	S	M	AMB/NP	M	S	**Large and Essential**
		Personal Identity	What is the main source of my identity?	**My Group**	S	M	AMB/NP	M	S	**Myself**
Ought		Personal Responsibility	How far from me does my responsibility extend?	**To Community**	S	M	AMB/NP	M	S	**To Self**
		Power	Is use of power over others usually wrong or often right?	**Usually Wrong**	S	M	AMB/NP	M	S	**Often Right**
		Wealth	Is relative wealth moral or immoral?	**Immoral**	S	M	AMB/NP	M	S	**Moral**
		Cooperation	Do the best results come from cooperation?	**Cooperation**	S	M	AMB/NP	M	S	**Competition**

Bioenvironmentalism

Bioenvironmentalism begins with a focus on the physical rules set out through the study of Earth's systems (Clapp and Dauvergne 2005; Naess and Sessions 1984; Lovelock 1995). This ideological grouping includes intellectual work from ecological economists, bio-ecologists, deep ecologists, and bioregionalists (Clapp and Dauvergne 2005).

Academics and intellectuals who make up this ideological position include biologists Anne and Paul Ehrlich (2009), earth scientist James Lovelock (1995), ecological economist William Rees

(1995; 2002) and deep ecologists Arne Naess (1973; 1989), George Sessions (1981; 1987), and Bill Devall (1991; 2001). Organizations that hold bioenvironmental beliefs include the Worldwatch Institute (http://www.worldwatch.org/) and Earth First! (http://earthfirstjournal.org), which pursues tactics of direct action in opposition to industrial society. The Trumpeter Journal of Ecosophy (http://trumpeter.athabascau.ca) remains an important tool for the exploration and dissemination of deep ecology and bioenvironmentalist ideas. The bioenvironmentalist cognitive affective map is below as figure 5 and the chart of the state space dimensions can be viewed as table 4.

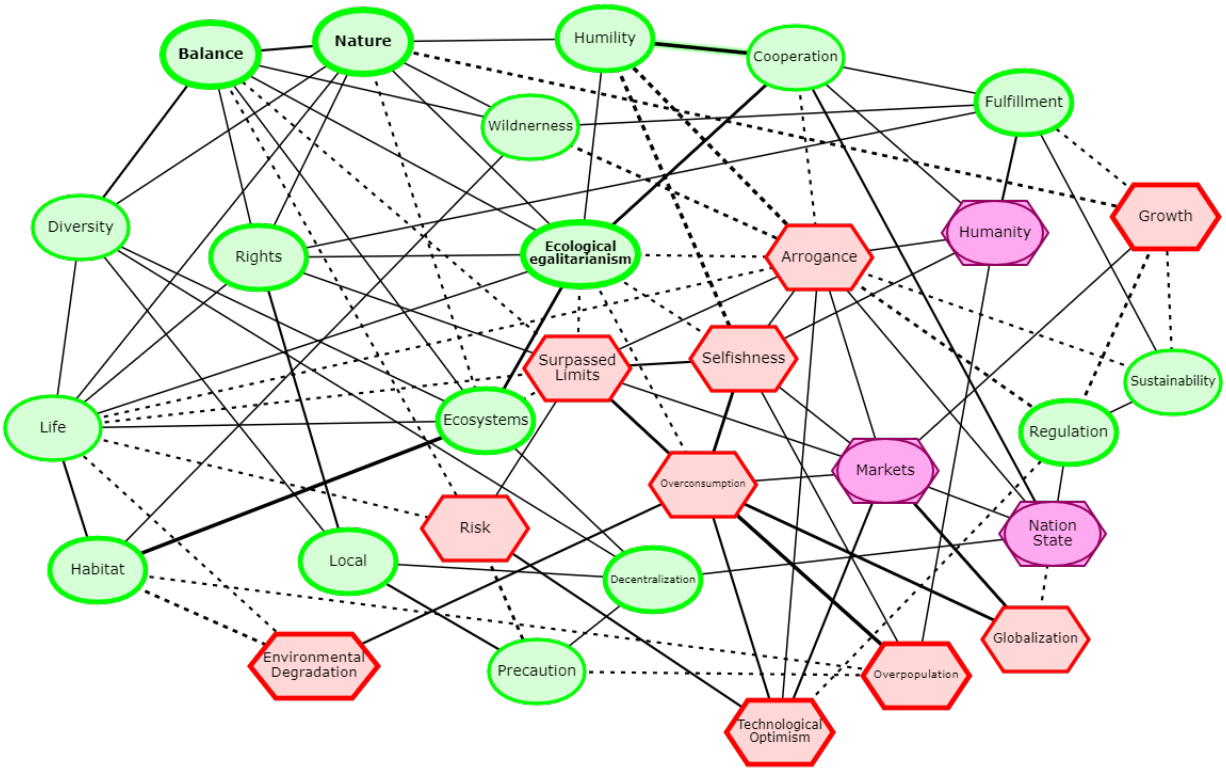


Figure 5 Bioenvironmentalism Cognitive Affective Map

Environment

Ecocentrism is a core concept for bioenvironmentalism. Based on the work of thinkers like Lovelock, the Earth is viewed as a connected set of self-organizing systems that needs to be protected to sustain the current conditions for life on the planet (Harju-Autti and Heinikangas

2016). Ecosystems and natural systems, then, deserve to be protected. Ecocentrism associated promotes a view of nature and life that hold intrinsic value and is connected to the idea of both diversity and biodiversity (Naess 1973; Harju-Autti and Heinikangas 2016). Tied to this view is the central notion that human activities must not surpass natural limits of ecological systems.

The promotion of econcentrism also leads to a holistic view of nature and human relationships that promotes the recognition of connections between systems, individuals, and species (Naess 1973; Dobson 2007). Beyond this point, while bioenvironmentalist appreciate the connectedness between systems, they put value on 'pristine' environments or wilderness - those areas not impacted by human pressures (Humphrey 2010 p251).

Additionally, bioenvironmentalists promote cooperation and an egalitarian view of natural relationships (Naess and Sessions 1987; Dobson 2007). Ecospherical or ecological egalitarianism is a direct critique of the chain of being – a hierarchical view of the world that places humans above all other beings (Holy-Luczaj 2015). As an alternative, bioenvironmentalists, and especially deep ecologists, argue "all entities in the environment have an equal right to thrive" (Holy-Luczaj 2015 p46).

Humans and society

An explanation for the ecological crises facing socio-ecological systems, for bioenvironmentalists, lies within the human condition, which is generally selfish and arrogant (Clapp and Dauvergne 2005; Rees 1998). For instance, Rees states:

"... The seeds of human ecological and social unsustainability spring from the very nature(s) of Homo sapiens. That is, a genetic predisposition for unsustainability is encoded in human physiology, social organization, and behavioral ecology. The historical record represents the phenotype of this fundamental flaw; modern technological prowess as manifested in

globalization merely spreads the damage and increases the risk to everyone." (Rees 2002 p250). Humans, as top predators, are geared toward unsustainable and destructive behaviour. This selfishness leads to overconsumption, excess pollution, and habitat loss (Clapp and Dauvergne 2005; Naess and Sessions 1984;). Additionally, globalization and technology increase the damage caused by humans. The consequence of these is the loss of species and climate change.

Additionally, bioenvironmentalists have concerns about human population growth (Naess 1973; Ehrlich and Harte 2015). Human population growth is paired with overconsumption and habitat loss and contradicts efforts to promote equity and human fulfillment (Ehrlich and Harte 2015; Clapp and Dauvergne 2005).

While the above paints a bleak picture of human existence, bioenvironmentalists also note the malleability of humanity (Naess 1984; Rees 2002). In the same writing as above, Rees states, "Although humans can be selfishly individualistic and competitive, we are also generously social and cooperative. We have an abundantly diverse behavioral repertoire all of whose elements are under varying degrees of genetic and social control" (Rees 2002 p265).

Finally, based on the ecological principles discussed above, bioenvironmentalists call for cooperation, diversity, and humility (Naess 1973; Rees 2002). These values call for an end to consumerism tied to affluence, and industrial output, which contradict the previous principles (Clapp and Dauvergne 2005; Devall 2001).

Governments

The modern nation state is connected to unsustainable behaviour for bioenvironmentalists (Naess 1973; Rees 2002; Clapp and Dauvergne 2005). In contrast, bioenvironmentalism

promotes decentralization and localism because the influence and power exhibited over nature and communities should be in balance with its size and location (Naess 1973). Additionally, power should be decentralized with a reduction in the amount of bureaucracy to promote improved decision-making.

However, concerns over human nature, respect for the intrinsic value of nature, and concerns over market mechanisms can lead to calls for the use of coercive power to protect the environment (Clapp and Dauvergne 2005). Further, when individuals, governments, or companies make decisions, bioenvironmentalists promote precaution and risk aversion. Precaution is an important principle of action due to the limits of human knowledge and uncertainty, the connectedness of social and ecological systems, and the risk of serious damage to natural systems (Deval 2001).

Economy

Researchers like Rees argue that the economy should be viewed as a parasite on nature (1995). As the economy is part of human systems, it must fit within ecological limits (Rees 1995; Devall 2001). This means that economic growth is inconsistent with sustainability and ecocentrism. In addition to ecological concerns, bioenvironmentalists warn that economic growth is not consistent with improving human wellbeing and happiness (Rees 2002).

The market is viewed with ambivalence by bioenvironmentalists views. On the negative side, markets do not properly account for ecosystem functions and promote an instrumental view of nature, which is not consistent with ecocentrism (Rees 2002). Markets and the pricing of ecosystem functions fail to “capture the expanse, nuances, and intricacies of many of the ecosystem services as well as ecological identity and emotional attachments to nature” (Kopnina 2012 p237). Restrained markets and pricing, though, can be used to support

communities and protect ecosystem functions (Preston 1996). This is used as an argument for the promotion of set limits on resource use (Rees 2002).

Tied to the above concerns are arguments against technological optimism and globalization (Preston 1996; Rees 2002). Technological substitutions are seen to replace high quality resources with lower quality energy intensive alternatives (Rees 2002). Additionally, while technology can be beneficial, it can pose a risk to both social and ecological systems (Preston 1996). Also, the liberalization of trade associated with globalization has also increased resource consumption and pollution, which are tied to arrogance and the spread of consumerism (Rees 2002). As many of these thinkers are associated with complex systems ontology, the above relates to potential shifts in ecological systems away from the current equilibria and homeostatic mechanisms, which support life on Earth (Rockstrom et al 2009; Steffen et al 2015; Rockstrom, 2016).

Table 4 Bioenvironmentalism State Space

		Issue	Question		Belief Strength					
Is	General	Time	Which is more important the future or the past	**Future**	S	M	AMB/NP	M	S	**Past**
		Change	Do things constantly change or basically stay the same?	**Movement , Growth**	S	M	AMB/NP	M	S	**Stasis**
		Intelligibility of Reality	Is the universe understandable?	**Intelligible**	S	M	AMB/NP	M	S	**Unitelligible**
		Spirituality of Reality	Is the universe infused with a spirit	**Material**	S	M	AMB/NP	M	S	**Spiritual**
		Moral Principles	Are moral principles objective and universal	**Subjective, Contextual and Malleable**	S	M	AMB/NP	M	S	**Objective, Universal, and Invioble**
	The Individual	Human Agency	Can a person choose his / her fate?	**Weak**	S	M	AMB/NP	M	S	**Powerful**
		Human Nature	Are people basically benevolent or malevolent?	**Benevolent**	S	M	AMB/NP	M	S	**Malevolent**
		Humans and Nature	Are humans part of Nature or exceptional?	**Humans part of nature / Embedded**	S	M	AMB/NP	M	S	**Humans Exceptional / Separate**
	The Individual in the Group	Social Differentiation	Are the differences between people and / groups of people large and essential?	**Small and unimportant**	S	M	AMB/NP	M	S	**Large and Essential**
		Personal Identity	What is the main source of my identity?	**My Group**	S	M	AMB/NP	M	S	**Myself**
Ought		Personal Responsibility	How far from me does my responsibility extend?	**To Community**	S	M	AMB/NP	M	S	**To Self**
		Power	Is use of power over others usually wrong or often right?	**Usually Wrong**	S	M	AMB/NP	M	S	**Often Right**
		Wealth	Is relative wealth moral or immoral?	**Immoral**	S	M	AMB/NP	M	S	**Moral**
		Cooperation	Do the best results come from cooperation?	**Cooperation**	S	M	AMB/NP	M	S	**Competition**

Institutionalism

institutionalism is a broad category of environmentalism that includes the promotion of growth and market solutions with an emphasis on the role of governments and cooperation to promote sustainability (Clapp and Dauvergne 2005). Institutionalism is an ideology that moderates the positions of neoliberalism with the value of social institutions and governments to promote sustainability and human fulfillment.

Practitioners and politicians that make up this ideological grouping include Gro Harlem Bruntland (1987), Felix Dodds and Maurice Strong (2012); while researchers such as Ernst von Weizsäcker (2009; 2011), Paul Raskin (2014), Oran Young (2009) have continued to further academic writing within this grouping. Examples of organizations that reflect an institutionalist perspective include the Tellus Institute (http://tellus.org) and the United Nations Environment Program (Clapp and Dauvergne 2005). The cognitive affective map of institutionalism is below as figure 6 and the chart of the state space dimensions can be viewed as table 5.

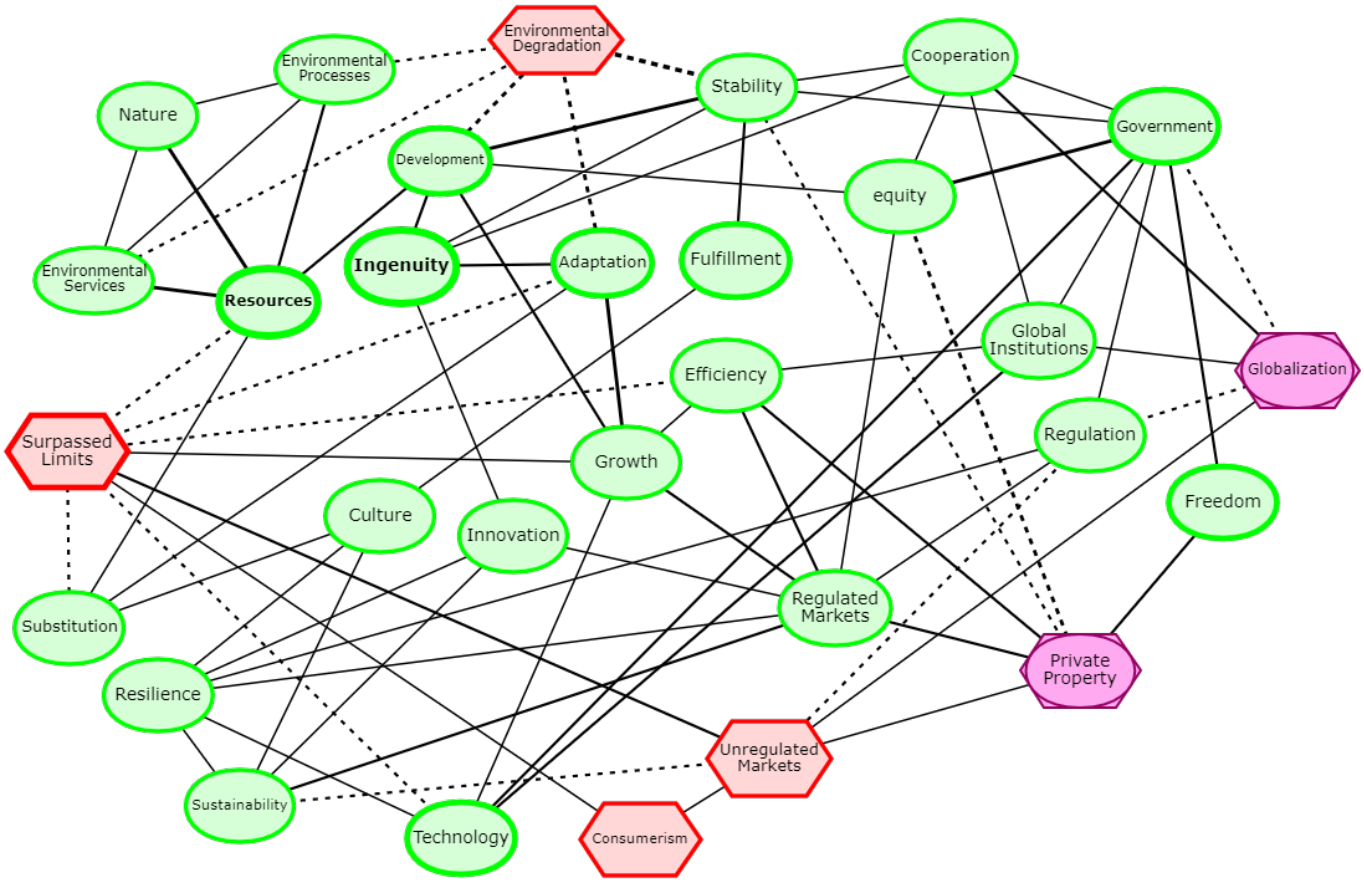


Figure 6 Institutionalism Cognitive Affective Map

Environment

The institutionalist view of nature and the environment is anthropocentric in its focus (Bruntland 1987; Weizsäcker 2011). Specifically, the environment is valued for its capacity to sustain human existence. Ecosystems and environmental functions are crucial for promoting human development by providing resources and absorbing the waste from human activities

(Weizsäcker 2011). Alternatively, environmental degradation can lead to social collapse, economic instability, and decreased standards of living (Weizsäcker 2011; Tulloch 2013).

Humans and Society

Humans are generally respected within the institutionalist perspective. As with market liberals, humans are valued for their ingenuity and capacity adapt and create technology (Weizsäcker 2009; Davidson 2011). Davidson, for instance, argues that institutionalists recognize planetary limits but believe that technology and economics substitution can be used to continue human progress. Additionally, Weizsäcker puts forward the idea that changes in technology, combined with evolutions in social institutions, can decouple progress from ecological throughput (Weizsäcker 2011).

Society within institutionalist ideology must find balance between private and public interests (Weizsäcker 2011). When strong local and global institute promote cooperation, human fulfillment is achieved (Clapp and Dauvergne 2005). However, institutions and government power might also be needed to restrict human activities that harm the environment or other individuals (Clapp and Dauvergne 2005).

Economy

While institutionalists are generally seen as having a favourable position toward markets (Clapp and Dauvergne 2005), the position held by many institutionalists on the role of markets is more complicated (Weizsäcker et al 2009). In discussing the role of markets in society Weizsäcker, for instance, argues that they are good for distributing resources and promoting innovation but are not good at promoting sustainability or protecting common resources (2009). This leads to an ambivalent view of privatization (Weizsäcker 2012). Privatization can promote efficiency and increase freedom, but it can also reduce equity, social cohesion, and the ability of the

governments to promote long-term sustainability (Weizsäcker 2012). The distinction between the effective use of markets and private property emerges from regulation. Regulated markets maintain freedom and innovation, while reducing harm to the environment and equity.

Since the publication of Our Common Future, institutionalists have struggled with the question of how to manage growth and the recognition of planetary limits (Bruntland et al 1987; Gerst, Raskin and Rockström 2014). Economic growth is an important element for development, which is necessary for promoting equity and reducing environmental degradation (Gerst, Raskin and Rockström 2014). However, these thinkers recognize that growth in material throughput is negative for socio-ecological sustainability (Weizsäcker 2012; Gerst, Raskin and Rockström 2014)

More recently, the growing recognition of planetary boundaries and the need to exist within Earth's carrying capacity has led to efforts to decouple economic growth from physical throughput (Weizsäcker 2009). To decouple economic activity from throughput, institutionalists call for both technological advancement and cultural change (Weizsäcker 2009; Gerst, Raskin and Rockström 2014). These theorists are optimistic about the ability of technology to promote sustainability but only if it is coupled with social changes to promote fulfillment that encourages equity and human / ecological resilience, in contrast to consumerism (Weizsäcker 2009; Gerst, Raskin and Rockström 2014). This is because technological efficiency on its own can be nullified by the rebound effect - efficiency leading to increased usage and consumption (Weizsäcker 2009).

Government

Governments and government institutions are necessary elements for promoting long-term sustainability of socio-ecological systems within institutionalism. Governments can promote

equity, steer technological advancement to promote sustainability, and set limits on human activities (Clapp and Dauvergne 2005; Weizsäcker 2011). As Weizsäcker states “we do need strong states and engaged citizens working together to create good legal and moral frames for the markets” (2011 p3). From this perspective, institutionalists promote government regulation to limit the actions of the market to promote social and ecological resilience and development.

Finally, institutionalists view globalization and global institutions favourably. Given the global scale of issues facing socio-ecological systems, institutionalists promote an integrated and just global civilization (Brundtland 1989; Clapp and Dauvergne 2005; Raskin, Electris and Rosen 2010). Globalization allows for the sharing of resources, development of poorer communities and improves the capacity of the state (Brundtland 1989; Clapp and Dauvergne 2005).

Table 5: Institutionalism State Space

		Issue	Question		Belief Strength					
Is	General	Time	Which is more important the future or the past	**Future**	S	M	AMB/NP	M	S	**Past**
		Change	Do things constantly change or basically stay the same?	**Movement , Growth**	S	M	AMB/NP	M	S	**Stasis**
		Intelligibility of Reality	Is the universe understandable?	**Intelligible**	S	M	AMB/NP	M	S	**Unitelligible**
		Spirituality of Reality	Is the universe infused with a spirit	**Material**	S	M	AMB/NP	M	S	**Spiritual**
		Moral Principles	Are moral principles objective and universal	**Subjective, Contextual and Malleable**	S	M	AMB/NP	M	S	**Objective, Universal, and Invioble**
	The Individual	Human Agency	Can a person choose his / her fate?	**Weak**	S	M	AMB/NP	M	S	**Powerful**
		Human Nature	Are people basically benevolent or malevolent?	**Benevolent**	S	M	AMB/NP	M	S	**Malevolent**
		Humans and Nature	Are humans part of Nature or exceptional?	**Humans part of nature / Embedded**	S	M	AMB/NP	M	S	**Humans Exceptional / Separate**
	The Individual in the Group	Social Differentiation	Are the differences between people and / groups of people large and essential?	**Small and unimportant**	S	M	AMB/NP	M	S	**Large and Essential**
		Personal Identity	What is the main source of my identity?	**My Group**	S	M	AMB/NP	M	S	**Myself**
Ought		Personal Responsibility	How far from me does my responsibility extend?	**To Community**	S	M	AMB/NP	M	S	**To Self**
		Power	Is use of power over others usually wrong or often right?	**Usually Wrong**	S	M	AMB/NP	M	S	**Often Right**
		Wealth	Is relative wealth moral or immoral?	**Immoral**	S	M	AMB/NP	M	S	**Moral**
		Cooperation	Do the best results come from cooperation?	**Cooperation**	S	M	AMB/NP	M	S	**Competition**

Religious Environmentalism

Religious environmentalism is an ideological category that ties religious and spiritual beliefs with broader environmentalist concepts. As an emerging ideology, it attempts to reconsider environmentalism within a religious perspective, while also re-conceptualizing religious' ideas given new environmental information (Rots 2015; Gottlieb 2008). While this category of environmental ideology is not discussed in much of the literature on environmental ideologies, there is a growing body of research on the topic (Arbuckle 2017; Arbuckle and Konisky 2015;

Nita 2016; Frisk 2015; Warner, Brook and Shaw 2012; Das, Haigh and Chauhan 2014; Ellingson, Woodley and Paik 2012).

Additionally, religious organizations have increased their role in environmentalism and research into the topic (Kima 2005). This increased interest in religious environmentalism comes from the notion that virtually all religions contain texts and beliefs that can be used to promote a sustainable lifestyle (Das, Haigh and Chauhan 2014). Organizations that reflect a religious environmentalism include Green Faith (http://greenfaith.org), the Alliance of Religions and Conservation (http://www.arcworld.org), and the signatories to the COP22 Interfaith Climate Statement (http://www.interfaithstatement2016.org/whoweare). Theorists promoting and developing religious environmentalism include Calvin DeWitt (1996), Roger Gottlieb (2008; 2009), and Elizabeth McLeod and Martin Palmer (2015). Figure 7 represents the cognitive affective map for religious environmentalism, while table 6 the ideology's state space.

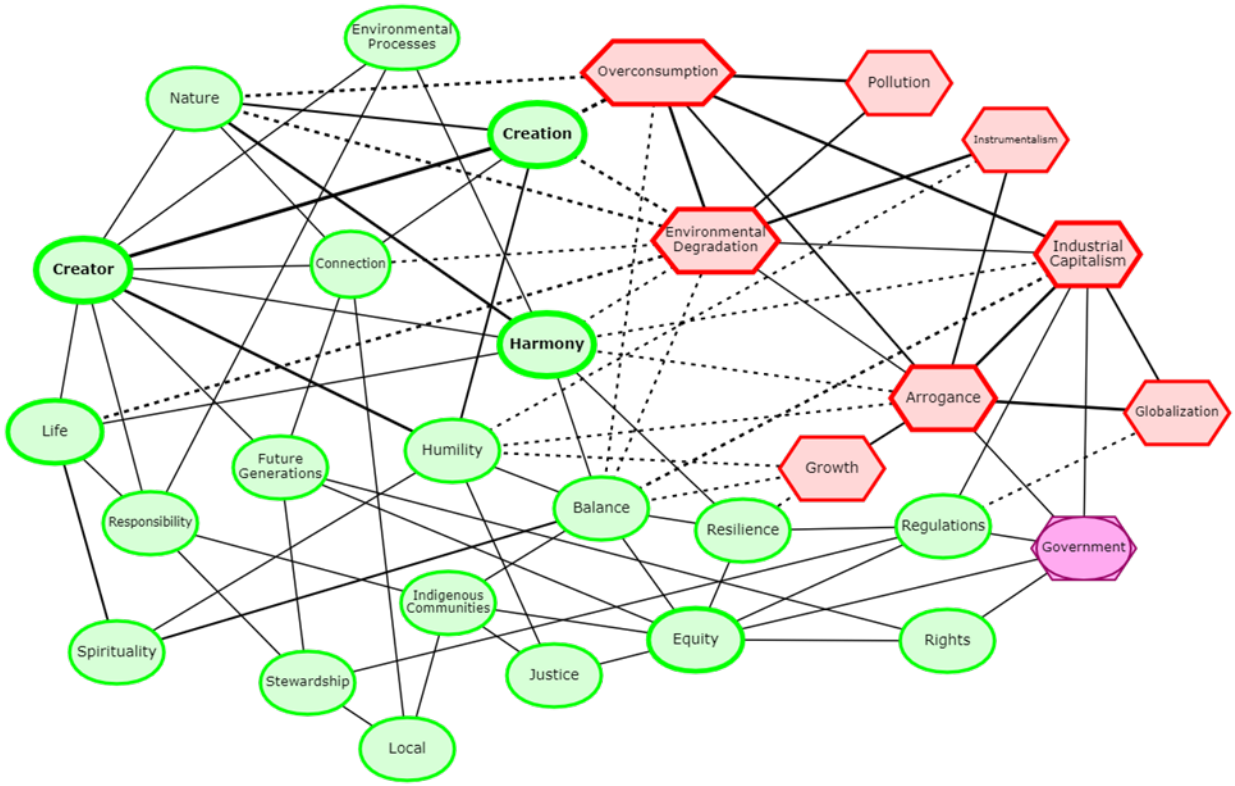


Figure 7 Religious Environmentalism Cognitive Affective Map

Environment

One of the central concepts for religious environmentalism is, not surprisingly, the importance of spirituality. Spirituality reflects the notion that the earth is sacred, because of its connection to the creator (Kima 2005). This spirituality also argues against an anthropocentric view of the world because of the interconnected nature of the creator's creations (COP22 Interfaith Statement 2016). Further to this point, it is considered unethical to commit acts that are known to harm creation; this includes overconsumption, habitat destruction, pollution, and climate change (Kima 2005; COP22 Interfaith Statement).

Another important concept within religious environmentalism is that the natural world should be viewed in terms of harmony and balance (Kima 2005; Das, Haigh and Chauhan 2014). Harmony within nature is tied to "divinity" of creations and the idea that the natural world tends toward balance (Das, Haigh and Chauhan 2014 p720). Balance within the world comes from natural processes put in place by a creator (Kima 2005). Animal and human activities must exist within these processes to maintain balance.

Humans and Society

From the above comes the idea that individuals and society should act in harmony and balance with nature. Industrial capitalism, by contrast, does not work in harmony with nature and instead threatens the natural balance. As an example, climate change is seen in terms of human activities breaking the balance of carbon dioxide in the environment (Kima 2005). Finally, it is noted that the loss of balance also harms humanity by disconnecting humans from creation and each other (Gottlieb 2008).

Connected to the idea of spirituality and the importance of the creator is the idea of humility (Kima 2005; Blanchard and O'Brien 2013). In this worldview, human interests are placed behind

those of creation (Kima 2005). Additionally, environmental destruction is directly connected to an instrumentalist view of the natural world and human arrogance (Blanchard and O'Brien 2013).

Further, religious environmentalism ties equity and justice with the notion of respect for creation. Justice, according to religious environmentalism, is about treating others in the same way that you would like to be treated and promoting fairness and honesty (White 2010).
Connected to the notion of equity and harmony is the promotion of resilience (COP22 Interfaith Statement 2016).

Additionally, individuals have a positive responsibility to act toward stewardship (Kima 2005; COP22 Interfaith Statement 2016; DeWitt 1997). The responsibility toward stewardship is positive from a religious environmentalism perspective; it is a task presented by the creator (Kima 2005; Gottlieb 2008). Stewardship within religious environmentalism means protecting habitat, biodiversity, and ensuring a safe environment for future generations.

A final strand within religious environmentalism associated with individuals and the community is a strong support for Indigenous communities and their knowledge (Chou 2015; Grieves 2008; Chappelle 2011; COP22 Interfaith Statement 2016). The support for Indigenous communities and knowledge is connected to both the pursuit of justice and a general concern about industrial society and sustainability (Grieves 2008). While industrial society and consumerism are considered bad for people and the environment, traditional ways of life are viewed as being more connected and appreciative of creation.

Governments and the Economy

A complete and coherent vision for the ideal government or economic structures for society remains unavailable within religious environmentalism (Gottlieb 2008; Kima 2005). Some religious environmental perspectives view governments and corporations as partners in the exploitation of both people and the environment (Gottlieb 2008).

However, governments are also viewed as important actors for the development of environmental protection and equity. Governments are important within religious environmentalism as they can create regulations, improve planning, enforce environmental rights, and protect against risks (Gottlieb 2008). Additionally, governments can help to make sure that economic benefits from resources are distributed equitably (Kima 2005).

Generally, the current system of industrial capitalism is seen to create marginalized people and environments (Kima 2005; Gottlieb 2008). From the above concepts of stewardship, equality, and resilience, economic activity is viewed as something that should have social and ecological restrictions placed on it (Kima 2005). Additionally, faith based humility leads to a belief that the pursuit of material growth and power are ultimately negative (COP22 Interfaith Statement 2016). Finally, Natural capital and the capacity for the earth to continue to maintain life combined with humility promote economic localism and small-scale production (Gottlieb 2008).

Beyond the above, religious environmentalism is generally concerned about economic globalization. Economic globalization limits the power of governments to promote legislation, increases exploitation of the poor by multinational corporations, and offsets environmental pressures from the north onto the global south (Gottlieb 2008). However, the interconnectedness and interdependence of living beings and ecosystems means promoting

international cooperation to promote equity and sustainability (Gottlieb 2008; COP22 Interfaith Statement 2016).

Table 6 Religious Environmentalism State Space

		Issue	Question		Belief Strength					
Is	General	Time	Which is more important the future or the past	**Future**	S	M	AMB/NP	M	S	**Past**
		Change	Do things constantly change or basically stay the same?	**Movement , Growth**	S	M	AMB/NP	M	S	**Stasis**
		Intelligibility of Reality	Is the universe understandable?	**Intelligible**	S	M	AMB/NP	M	S	**Unitelligible**
		Spirituality of Reality	Is the universe infused with a spirit	**Material**	S	M	AMB/NP	M	S	**Spiritual**
		Moral Principles	Are moral principles objective and universal	**Subjective, Contextual and Malleable**	S	M	AMB/NP	M	S	**Objective, Universal, and Invioble**
	The Individual	Human Agency	Can a person choose his / her fate?	**Weak**	S	M	AMB/NP	M	S	**Powerful**
		Human Nature	Are people basically benevolent or malevolent?	**Benevolent**	S	M	AMB/NP	M	S	**Malevolent**
		Humans and Nature	Are humans part of Nature or exceptional?	**Humans part of nature / Embedded**	S	M	AMB/NP	M	S	**Humans Exceptional / Separate**
	The Individual in the Group	Social Differentiation	Are the differences between people and / groups of people large and essential?	**Small and unimportant**	S	M	AMB/NP	M	S	**Large and Essential**
		Personal Identity	What is the main source of my identity?	**My Group**	S	M	AMB/NP	M	S	**Myself**
Ought		Personal Responsibility	How far from me does my responsibility extend?	**To Community**	S	M	AMB/NP	M	S	**To Self**
		Power	Is use of power over others usually wrong or often right?	**Usually Wrong**	S	M	AMB/NP	M	S	**Often Right**
		Wealth	Is relative wealth moral or immoral?	**Immoral**	S	M	AMB/NP	M	S	**Moral**
		Cooperation	Do the best results come from cooperation?	**Cooperation**	S	M	AMB/NP	M	S	**Competition**

Ecologism

The final environmental ideology considered in this research is ecologism. Ecologism, more so than any of the other ideologies discussed, emerged as an active attempt to identify a single ecological ideology (Dobson 2007). Andrew Dobson, a professor and author of the UK and Wales Green Party's 2010 platform, is one of the most significant contributors to this ideology.

The description of ecologism, as presented by Dobson, is highlighted in his book, “Green Political Thought” (2007).

Many environmental thinkers have influenced the development of ecologism. One of the most important texts was “The Limits to Growth” by Meadows and colleagues (1974), which emphasized the ecological limits for human society. Additionally, Andrew Vincent (1993), and Kirkpatrick Sale (1985) have influenced the development of this ideology. Figure 8 represents the cognitive affective map for ecologism, while table 7 the ideology’s state space.

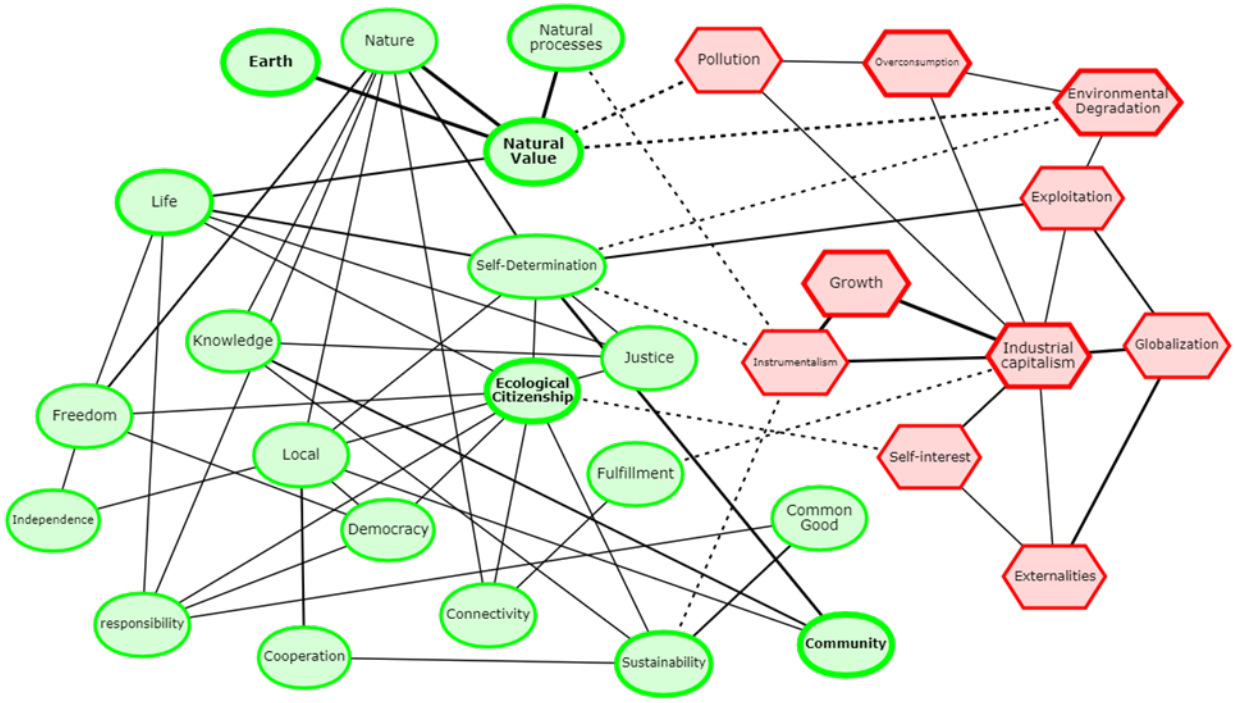


Figure 8 Ecologism Cognitive Affective Map

Environment

The introduction of the Earth into the notion of ideology is central to ecologism (Kenny 2003; Dobson 2007). An important aspect of the ecocentrism of ecologism is the notion that the environment and ecosystems hold “natural value” associated with them being created through

nonhuman processes (Goodin 1992 p27; Dobson 2007). According to Dobson, sustainability for ecologism is the maintenance of environmental processes (Dobson 2007).

Tied to the above notion of eccocentrism, ecologism advances the idea that freedom, as the right to self-determination, is something that should be available to all life (Eckersley 1992). Importantly this conceptualization of rights advocates for responsibility to nature and life. Further, Dobson highlights two types of anthropocentrism from Warwicks' work: "human-centeredness" and "human instrumentalism" (2007 p42). Human-centeredness is natural, as individuals view the world from a human perspective, while instrumentalism is linked to injustice and opposed to sustainability.

Finally, ecologism promotes the idea that human systems must be components of ecological systems (Kenny 2003). This leads to limits to human activity and the notion of humans as part of nature.

Humans and Society

Human nature receives a neutral view within ecologism. Human nature is considered malleable and "transformative" (Dobson 2007 p165). Specifically, humans "can, if they wish, abandon the acquisitive, instrumental and use-related relationship with the natural environment that dominates the modern imagination" (Dobson 2007 p165). Ecologism rejects industrial capitalism as it separates people from nature, leading to instrumentalism, overconsumption, and increases pollution (Kenney 2003).

Ecologism also promotes the notion of ecological citizenship (Dobson 2007). Ecological citizenship is tied to notions of rights, responsibility, global connections and justice. First, ecological citizens have a responsibility to the common good including obligations to other

citizens, the environment broadly, and long-term sustainability (Dobson 2007). Ecological citizenship is associated with reconnecting to the local environment and increasing one's knowledge of the world (Sale 1985; Dobson 2007).

Economy

Ecologism is focused on creating an alternative to the growth-based economy of industrial capitalism. An economy focused on growth is undesirable because it views nature as an instrument, it promotes overconsumption, and it is not conducive to human fulfillment (Dobson 2007; Meadows et al 1974).

Connected to ecological citizenship is a rejection of the liberal belief that individuals should act through rational self-interest (Dobson 2007). Ecologism rejects the idea of market-based incentives to promote positive environmental behavior because they reinforce selfishness rather than responsibility to one another (Dobson 2007).

As an alternative to the current economy, ecologism promotes local and small-scale production (Dobson 2007). The focus for individuals and communities should be self-reliance, which promotes independence, internalizing of costs, and sustainability (Dobson 2007; Ekins 1986). Alternatively, international trade promotes reliance, exploitation, overconsumption and risk (Dobson 2007).

Government

The state within ecologism needs to be converted from a liberal democracy to a "green democracy" based on the principles of ecological citizenship discussed above (Dobson 2007 p101). This vision of democracy promotes the notion that any individual or species that could be impacted by a decision has a right to participate and be represented within government decision-making (Dobson 2007). Like bioenvironmentalism, ecologism looks to localize

decision-making where possible (Eckersley, 1994). Focusing on the local improves motivation, as people care more about the places where they are connected (Scruton 2006).

Finally, ecologism promotes the idea of international cooperation (Dobson 2007). This cross-border cooperation can occur between states or be based on the work of international organizations (Dobson 2007). The important aspect is that the level of decision-making needs to align with the ecological impact of the actions (Dobson 2007).

Table 7 Ecologism State Space

		Issue	**Question**		**Belief Strength**					
Is	General	Time	Which is more important the future or the past	**Future**	S	M	AMB/NP	M	S	**Past**
		Change	Do things constantly change or basically stay the same?	**Movement , Growth**	S	M	AMB/NP	M	S	**Stasis**
		Intelligibility of Reality	Is the universe understandable?	**Intelligible**	S	M	AMB/NP	M	S	**Unitelligible**
		Spirituality of Reality	Is the universe infused with a spirit	**Material**	S	M	AMB/NP	M	S	**Spiritual**
		Moral Principles	Are moral principles objective and universal	**Subjective, Contextual and Malleable**	S	M	AMB/NP	M	S	**Objective, Universal, and Invioble**
	The Individual	Human Agency	Can a person choose his / her fate?	**Weak**	S	M	AMB/NP	M	S	**Powerful**
		Human Nature	Are people basically benevolent or malevolent?	**Benevolent**	S	M	AMB/NP	M	S	**Malevolent**
		Humans and Nature	Are humans part of Nature or exceptional?	**Humans part of nature / Embedded**	S	M	AMB/NP	M	S	**Humans Exceptional / Separate**
	The Individual in the Group	Social Differentiation	Are the differences between people and / groups of people large and essential?	**Small and unimportant**	S	M	AMB/NP	M	S	**Large and Essential**
		Personal Identity	What is the main source of my identity?	**My Group**	S	M	AMB/NP	M	S	**Myself**
Ought		Personal Responsibility	How far from me does my responsibility extend?	**To Community**	S	M	AMB/NP	M	S	**To Self**
		Power	Is use of power over others usually wrong or often right?	**Usually Wrong**	S	M	AMB/NP	M	S	**Often Right**
		Wealth	Is relative wealth moral or immoral?	**Immoral**	S	M	AMB/NP	M	S	**Moral**
		Cooperation	Do the best results come from cooperation?	**Cooperation**	S	M	AMB/NP	M	S	**Competition**

Questionnaires

Study Specific Questionnaire Issues

I faced a couple of setbacks associated with the online questionnaires that hindered this study. The first was a lack of positive responses from gatekeepers. While ten environmental non-governmental organizations were contacted, none agreed to participate in the questionnaire. Additionally, only one out of ten academic staff agreed to send the questionnaire requests to their students. To complete the research, the researcher needed to use alternative methods to reach participants. To increase the number of student participants, I contacted the administrative staff within the Faculty of Environment at the University of Waterloo who sent invitations to undergraduate students studying in the School of Environment Resources and Sustainability, the Department of Geography and Environmental Management and the School of Planning.

A second setback with the questionnaires was a low response rate from participants who were contacted. For instance, out of the 290 students in the ENVS178 course, only 11 students filled out the online questionnaire sent to them. The results from the questionnaire should be viewed with caution due to the low response rate, small sample sizes, and the fact that non-probability sampling was used. It would not be appropriate to assume that the responses from these questionnaires are reflective of Canadian environmentalists at large.

With the above in mind, the results from the questionnaire are discussed below. As this research project is a preliminary investigation into environmental ideologies, the results were considered valuable; however, they should be considered with caution, as a starting point for a larger conversation about the shape of environmental ideologies in Canada.

Response Demographics

The online questionnaire received submissions from 198 individuals. The questionnaire responses can be broken into two broad categories: members of environmental research organizations and current students of environmental studies. General information about each group is discussed below.

Environmental Groups

65 members of the Canadian Association of Geographers' listserv and 24 members of the Environmental Studies Association of Canada's listserv completed the survey. Of these two groups 47 respondents were PhDs, 29 held master degrees, 10 held bachelor degrees, 1 had completed high school and 2 had not completed high school. Of the respondents, 80 individuals identified as environmentalists and 9 said they were not.

Undergraduate Students

From the 109 undergraduate student questionnaire responses, there were 50 SERS students, 28 Geography students, 21 Planning students, 5 Environment and Business students, 4 International Development students, and 1 Engineering student. A total of 94 of the students identified as environmentalists and 15 did not.

Environmentalism

Before investigating the specific ideologies and philosophies that respondents identified with, the researcher reviewed the results for the 174 individuals who self-identified as environmentalists. This review highlights key areas of agreement for environmentalists, pathways for cooperation across ideologies and basins of attraction in the state space. It should be noted, however, that these results might over-weight some ideologies.

Several questions received widespread support from individuals that identified as environmentalists. Areas of strong support from environmentalists that were not associated with the state space dimensions are noted below in table 8:

Table 8: Areas of strong Agreement Amongst Self-Identified Environmentalists

Level of Agreement	Degradation tied to inequality	Markets ignore costs	Stricter controls on bottled water	Innovation is necessary for sustainability	Society should be based on ecological principles	Inequality should be considered in environmental decisions	Cost should reflect environmental impact	Diversity is Valuable
Strongly Agree	73	87	126	69	63	64	116	138
Agree	71	70	34	74	78	75	43	29
Neither Agree or Disagree	22	9	7	21	25	26	9	3
Disagree	5	6	1	9	6	8	3	0
Strongly Disagree	3	1	5	1	1	1	1	4

Regarding questions of society and the environment, these responses reflect strong agreement that diversity is valuable, that inequality is tied to environmental degradation, that inequality should be a consideration when making environmental decisions, and that society should be structured based on ecological principles. At the economic level, respondents strongly supported pricing that reflected environmental impacts and stricter controls on resource extraction. Also, these respondents believed that markets did not reflect social and environmental costs and believed innovation would be necessary for sustainability to be realized.

It was interesting to see where opinions from respondents were divided. Regarding the role globalization plays in promoting sustainability and efficiency, 32% of respondents agreed it was positive; 39% neither agreed nor disagreed and 29% disagreed. Additionally, when asked if their highest responsibility was to their self and family, respondents where split virtually evenly between agreement, neither, and disagreement. Finally, while only 8% of respondents agreed with reducing the role of government in environmental protection, 45% did not take a position. The remaining 47% were in favor of increasing the role of government.

Table 9: State Space Responses for Self-Identified Environmentalists

		Issue	Question		Belief Strength					
					S	M	AMB/NP	M	S	
Is	General	Time	Which is more important the future or the past	**Future**	21	80	54	13	1	**Past**
		Change	Do things constantly change or basically stay the same?	**Movement , Growth**	6	34	41	50	39	**Stasis**
		Intelligibility of Reality	Is the universe understandable?	**Intelligible**	4	19	27	58	62	**Unitelligible**
		Spirituality of Reality	Is the universe infused with a spirit	**Material**	11	23	46	49	44	**Spiritual**
		Moral Principles	Are moral principles objective and universal	**Subjective, Contextual and Malleable**	20	33	47	52	20	**Objective, Universal, and Invioble**
	The Individual	Human Agency	Can a person choose his / her fate?	**Weak (fate)**	3	14	66	62	23	**Powerful**
		Human Nature	Are people basically benevolent or malevolent?	**Benevolent**	14	57	78	16	4	**Malevolent**
		Humans and Nature	Are humans part of Nature or exceptional?	**Humans part of nature / Embedded**	101	44	15	8	3	**Humans Exceptional / Separate**
	The Individual in the Group	Social Differentiation	Are the differences between people and / groups of people large and essential?	**Small and unimportant**	9	23	64	52	19	**Large and Essential**
		Personal Identity	What is the main source of my identity?	**My Group**	3	20	63	44	40	**Myself**
Ought		Personal Responsibility	How far from me does my responsibility extend?	**To Community**	62	65	31	6	5	**To Self**
		Power	Is use of power over others usually wrong or often right?	**Usually Wrong**	31	59	73	8	0	**Often Right**
		Wealth	Is relative wealth moral or immoral?	**Immoral**	29	46	39	41	14	**Moral**
		Cooperation	Do the best results come from cooperation?	**Cooperation**	64	67	32	5	3	**Competition**

The highest level of collective agreement for respondents who identified as environmentalists was the humans and nature dimension: 59% of respondents strongly support and 25% of respondents moderately support the idea of humans as part of nature. Areas that saw most of the respondents either strongly or moderately agreed with a position included the idea that things general stay the same (52%); that the universe is unintelligible (71%); that there is a spiritual element to the universe (54%); that an individual's responsibility extends to their

community; that the use of power is usually wrong; and that cooperation is preferable to competition (76%).

Market Liberalism

Market Liberalism was a category of environmentalism that was not selected as a philosophy or ideology of many of the respondents. Only five respondents selected this category. Additionally, the respondents did not seem reflective of the writing in the market liberal category. For instance, questionnaire respondents supported stronger government regulations, had concerns about ingenuity, and were not optimistic about the market. Given the small sample and the responses diverging greatly from the core concepts promoted by top thinkers from the ideology, the researcher did not feel comfortable accepting these results as a reflection of individuals who hold a market liberal environmental ideology.

Environmental Conservative

Environmental conservatism was the third most selected ideology. Eighteen respondents selected it as their personal philosophy or ideology. Unfortunately, like market liberalism the researcher was not convinced that the results reflected the environmental conservative ideology. There was concern about the lack of responses and the possibility that the title created confusion.

Social Green

Social Green was the largest category, both in terms of ideologies and philosophies included and respondents. The 73 respondents included in this category included those who selected social green (21), environmental justice (39), ecofeminism (7), ecosocialism (2), and environmental Marxism (1). Table 12 below highlights areas where there was strong agreement between social green respondents.

Table 10: Areas of Strong Agreement Amongst Social Greens

Level of Agreement	Degradation tied to inequality	Markets ignore costs	Stricter controls on bottled water	Environmental Issues are issues of equity	Society should be based on ecological principles	Inequality should be considered in environmental decisions	Cost should reflect environmental impact	Diversity is Valuable	Markets should be regulated
Strongly Agree	39	36	52	40	22	34	42	55	41
Agree	23	29	13	20	33	38	22	14	19
Neither Agree or Disagree	8	4	4	8	11	9	5	2	8
Disagree	2	3	0	3	2	2	1	0	4
Strongly Disagree	1	1	4	1	0	0	1	2	0

Regarding the connection of society and the environment, these respondents demonstrated support for the following notions: that inequality is connected to environmental degradation, that society should be based on ecological principles, and that diversity is valuable. Economically, these respondents agree that markets ignore costs, that markets should be regulated, that costs should reflect environmental impact, and that stricter controls should be placed on bottled water.

Also, over 70% of these respondents agreed that new pipelines and oil projects should be halted, that logging should be banned in old growth forests, that innovation is necessary for sustainability, that environmental protection should be the top priority of governments, and that there are limits to the growth of the economy. Finally, respondents were neutral or divided regarding the role of globalization and if their highest responsibility was to their self and family.

Table 11: State Space Responses for Social Green Respondents

		Issue	Question		Belief Strength					
					S	M	AMB/NP	M	S	
Is	General	Time	Which is more important the future or the past	Future	10	31	24	7	0	Past
		Change	Do things constantly change or basically stay the same?	Movement , Growth	3	12	18	21	17	Stasis
		Intelligibility of Reality	Is the universe understandable?	Intelligible	1	6	14	27	24	Unitelligible
		Spirituality of Reality	Is the universe infused with a spirit	Material	9	9	19	18	17	Spiritual
		Moral Principles	Are moral principles objective and universal	Subjective, Contextual and Malleable	8	17	16	21	10	Objective, Universal, and Invioble
	The Individual	Human Agency	Can a person choose his / her fate?	Weak	1	4	29	25	13	Powerful
		Human Nature	Are people basically benevolent or malevolent?	Benevolent	7	25	32	5	2	Malevolent
		Humans and Nature	Are humans part of Nature or exceptional?	Humans part of nature / Embedded	41	17	9	4	1	Humans Exceptional / Separate
	The Individual in the Group	Social Differentiation	Are the differences between people and / groups of people large and essential?	Small and unimportant	3	8	31	20	9	Large and Essential
		Personal Identity	What is the main source of my identity?	My Group	16	19	27	8	2	Myself
Ought		Personal Responsibility	How far from me does my responsibility extend?	To Community	25	27	11	4	3	To Self
		Power	Is use of power over others usually wrong or often right?	Usually Wrong	15	18	33	6	0	Often Right
		Wealth	Is relative wealth moral or immoral?	Immoral	19	19	16	11	7	Moral
		Cooperation	Do the best results come from cooperation?	Cooperation	30	27	13	2	0	Competition

These respondents found some agreement around the following dimensions: future orientation, that the world is not progressing, the universe is unintelligible, there is a spiritual element to the universe, that human agency is powerful, humans are part of nature, personal responsibility extends to community needs, material inequality is immoral and support for cooperation. Dimensions that saw limited consensus included moral principles, personal identity, human nature and power; however, personal identity was split primarily between no opinion and group, human nature was neutral to benevolent, and power was split between usually wrong and no opinion.

Bioenvironmentalism

Bioenvironmentalism included individuals who self-identified with bioenvironmentalism and deep ecology. Respondents from this ideological category included ten bioenvironmentalists and eleven deep ecologists. Table 14 below shows areas where respondents shared similar positions:

Table 12: Areas of Strong Agreement Amongst Bioenvironmentalists

Level of Agreement	Markets ignore costs	Stricter controls on bottled water	Innovation is necessary for sustainability	Society should be based on ecological principles	Previous cultures had greater environmental protection	Markets should be regulated	Cost should reflect environmental impact	Diversity is Valuable
Strongly Agree	12	15	7	9	7	10	12	18
Agree	9	5	12	10	10	6	6	2
Neither Agree or Disagree	0	1	2	1	3	0	2	1
Disagree	0	0	0	1	1	3	1	0
Strongly Disagree	0	0	0	0	0	0	0	0

For questions linking society and the environment, these respondents strongly agree that diversity is valuable. These respondents also either agree or strongly agree that previous cultures have done a better job of protecting the environment and that society should be based on ecological principles. Regarding economic issues, these respondents believe that markets ignore social and environmental costs, market should be regulated, costs should reflect environmental impacts, and that stricter controls on bottled water are necessary.

In addition, over 70 of these respondents either agreed or strongly agreed with halting new oil and gas projects, that logging should be banned in old growth forests, that environmental issues are issues of equity, that the highest priority for governments should be environmental protection, more should be done to stop population growth, that governments play a positive role in sustainability, and that inequality should be a consideration when making environmental decisions. Most respondents, however, disagreed that that wealth should be created to address material needs if it meant further environmental degradation. Finally, these respondents were neutral or divided about increasing the role of government, the impact of globalization, if society

should protect the environment at the expense of greater inequality, and the impact of new technology to support sustainability.

Table 13: State Space Responses for Bioenvironmentalists

		Issue	Question		Belief Strength					
					S	M	AMB/NP	M	S	
Is	General	Time	Which is more important the future or the past	**Future**	1	8	9	0	0	**Past**
		Change	Do things constantly change or basically stay the same?	**Movement , Growth**	1	2	5	3	8	**Stasis**
		Intelligibility of Reality	Is the universe understandable?	**Intelligible**	0	1	3	6	9	**Unitelligible**
		Spirituality of Reality	Is the universe infused with a spirit	**Material**	3	14	2	2	0	**Spiritual**
		Moral Principles	Are moral principles objective and universal	**Subjective, Contextual and Malleable**	2	3	5	8	1	**Objective, Universal, and Invioble**
	The Individual	Human Agency	Can a person choose his / her fate?	**Weak**	0	1	9	9	0	**Powerful**
		Human Nature	Are people basically benevolent or malevolent?	**Benevolent**	3	6	6	4	0	**Malevolent**
		Humans and Nature	Are humans part of Nature or exceptional?	**Humans part of nature / Embedded**	12	5	1	1	0	**Humans Exceptional / Separate**
	The Individual in the Group	Social Differentiation	Are the differences between people and / groups of people large and essential?	**Small and unimportant**	2	3	6	6	2	**Large and Essential**
		Personal Identity	What is the main source of my identity?	**My Group**	0	4	7	5	3	**Myself**
Ought		Personal Responsibility	How far from me does my responsibility extend?	**To Community**	5	10	3	1	0	**To Self**
		Power	Is use of power over others usually wrong or often right?	**Usually Wrong**	0	13	6	0	0	**Often Right**
		Wealth	Is relative wealth moral or immoral?	**Immoral**	1	5	5	8	9	**Moral**
		Cooperation	Do the best results come from cooperation?	**Cooperation**	9	8	2	0	0	**Competition**

Respondents who identified with bioenvironmentalism generally supported human agency, embeddedness with nature, that differences between groups and individuals were large and essential, that identity is based on the person not the group, that individual responsibility extends to the group, and that cooperation was a better strategy than competition. A small majority of these respondents also supported future orientation and the idea that relative wealth

was immoral. These respondents were ambivalent or had not opinion regarding the spirituality of reality, moral principles, human nature, and power.

Religious Environmentalism

Only six respondents selected a philosophy or ideology associated with religious environmentalism. However, unlike market liberalism, these respondents' answers were aligned with the literature on religious environmentalism. The responses in this category are discussed below, with the caveat that the responses for this ideological category were quite low.

Individuals who consider their environmental philosophy or ideology to be tied to spirituality or religion all strongly agreed about markets ignoring environmental costs, that stricter controls were needed to protect resources, that diversity was valuable, and that nature holds intrinsic value. Additionally, these respondents either agreed or strongly agreed that costs should reflect environmental impacts, that Canada should halt oil and gas expansion, that environmental protection should be governments highest priority, logging should be banned in old growth forests, that markets should be regulated, there are limits to growth, and that cooperation is more important than competition. Finally, these respondents either agreed or were neutral regarding the following positions: it is possible to understand the natural world, previous cultures have done a better job of environmental protection, environmental issues are issues of equity, that there is a spiritual element to the world, that economic activity should be localized, that more should be done to stop population growth, that the role of the government should be increased, that community should be placed before the individual, that the use of power is usually wrong, and that humans are part of nature. Interestingly, while these respondents generally agreed that it was possible to understand the way the world operates, all but one strongly agreed that it was not possible to fully understand the natural world.

Ecologism

Eleven respondents selected ecologism as their philosophy or ideology. As with market liberalism and environmental conservatism, the researcher had concern about the lack of responses and the potential that the title of the ideology created confusion. The one concept that these respondents strongly agreed about was that diversity is valuable. All respondents also strongly or moderately agreed that stricter controls were needed regarding bottled water, that society should be structured based on ecological principles, that costs should reflect environmental impacts, and logging should be banned in old growth forests. Next, these respondents either agreed or were neutral regarding the value of innovation to supporting sustainability, that previous cultures had a better relationship with the environment, that environmental issues are linked to issues of equity, that governments should play a larger role in environmental protection, that environmental issues should be the top issue for governments, that the use of power is usually wrong, and that cooperation is more valuable than competition. Interestingly, regarding the role of government involvement in sustainability, the use of power, and that community needs should come before personal needs, most of the respondents in this category remained neutral. Finally, for each of the following beliefs, there was only one respondent who disagreed or strongly disagreed: Canada should halt new oil and gas projects, markets ignore costs, Canada should not allow new pipelines, it is possible to understand the world, and that people are part of nature.

Discourse Analysis of Environmental Organizations

To better understand the institutions that shape environmental ideologies in Canada, five major environmental organizations were reviewed. The reviews of these organizations' annual reports and "About" sections, below, were used to create CAMs and state space models. The CAMs and state space models created from this review are presented in Appendix C.

Greenpeace Canada

The first Canadian environmental organization reviewed as part of this research was Greenpeace Canada. While Greenpeace Canada lost its charitable status in 1998, it continues to be funded largely by donations. In 2015, for instance, Greenpeace Canada's revenue exceeded $12 million with over $10 million coming in the form of donations and bequests (Greenpeace 2016).

Founded in British Columbia in the early 1970s, Greenpeace International is a large nongovernmental organization that has been studied previously to understand the governance of civil society, communication practices of advocacy groups, and review its fundraising activities (Luxon and Wong 2017; Corrigall-Brown 2016; Pillay and Maharaj 2016; Ramos 2015). Greenpeace is studied, because it is a large and influential organization that can shape public opinion, government and corporate actions, and the state of environmental discourse.

Environment

Greenpeace Canada maintains an ecocentric perspective. For instance, the first line of Greenpeace Canada's "About" section states, "Greenpeace exists because this fragile earth deserves a voice. It needs solutions. It needs change. It needs action" (Greenpeace Canada About Us 2017). Further, their mission statement states "Greenpeace's goal is to ensure the ability of the earth to nurture life in all its diversity" (Greenpeace Canada About Us 2017). This statement explains that nature have intrinsic value and instrumental value as it supports life and diversity.

The value of life leads to support for biodiversity, wildlife, and habitat protection. These concepts for Greenpeace lead to campaigns to promote peace, ocean health, forest protection and to halt

climate change (Greenpeace Canada About Us 2017). Ocean health protects habitats, supports life, and allows communities to prosper. Forests are thought of positively, because they support habitat, reduce climate change, provide jobs, and nurture culture (Greenpeace Canada 2015). Greenpeace Canada's opposition to climate change reflects their appreciation for biodiversity, habitats, and human life.

Humans and Society

Community is an important concept for Greenpeace Canada. Community reinforces connection to nature, decentralization, and democracy, which Greenpeace Canada holds as connected to environmental protection and sustainability (Greenpeace Canada 2015).

Greenpeace Canada also demonstrates support for Indigenous communities in their core values, which includes "recognizing Indigenous rights," and their actions highlighted throughout annual reports (Greenpeace Canada Core Values 2016; Greenpeace Canada 2015; Greenpeace Canada 2014). A specific example of this concept in action is found in the 2014 Annual Report: "However there is a big difference with Indigenous Peoples: they have a special relationship with the animals they hunt for food, clothing and cultural purposes. They only take what they need and honour the animals, land and ocean. Greenpeace respects and honours this Indigenous knowledge and those relationships" (Greenpeace Canada Annual Report 2014 p8). This reflects respect for Indigenous communities and connects concepts that reinforce this position: wildlife, nature, sustainability, and traditional knowledge. Finally, the above also leads to calls for decolonization.

Creating a more peaceful and sustainable future is a key element of Greenpeace Canada's work as highlighted in their Core Values and annual plans (Greenpeace Canada Core Values

2016; Greenpeace 2016). The positive attitude toward future generations is negatively related to risk, while positively correlated to sustainability and equity.

Markets and Governments

An important principle for Greenpeace Canada is that it has no permanent positive or negative relationships (Greenpeace Core Values 2016). This leads Greenpeace Canada to work with and against governments and corporations on behalf of the environment. The ambivalent opinion that Greenpeace holds for both entities is reflected throughout their annual plans where they highlight positive relationships with companies and negative actions by others (Greenpeace Canada 2013; Greenpeace Canada 2014).

Regarding their work, Greenpeace Canada views their actions as attempts to “discipline capitalism” (Greenpeace Canada 2013 p1). This aspiration, connected to Greenpeace Canada’s work to promote green consumer choices through campaigns (such as the Sustainable Tuna Guide App), reflects a belief that capitalism and markets are not bad but require better information and regulation (Greenpeace Canada, 2013; Greenpeace Canada 2015).

While governments can cause environmental destruction, Greenpeace Canada supports a broad concept of democracy, which involves citizen engagement and is supported by Greenpeace Canada's direct action (Greenpeace Canada 2011). Another component of the relationship with government is the use of courts to promote environmental and community rights (Greenpeace Canada 2015; Greenpeace Canada 2011).

Environmental Defence Canada

According to Charity Intelligence Canada, Environmental Defence Canada is a midsize charity with revenues exceeding $3.2 million (Khodawandi 2016). Most of the revenue for

Environmental Defence Canada comes from donations, with minimal program support from government funding and other sources (Khodawandi 2016). Environmental Defence Canada focuses on removing toxic chemicals from consumer products, safeguarding freshwater, developing a clean economy, creating sustainable communities and cleaning waterways and beaches (Environmental Defence Canada About Us 2017).

Environment

The "About" section and annual reports from Environmental Defence reflect an anthropocentric view of the environment. For instance, Environmental Defence Canada states, "Maybe it's because you care about the health of your family and you want to ensure that Canadians are doing everything we can to address the toxins present in our environment. Or maybe you're here because you're worried about the faltering state of one of our most precious resources – our Canadian freshwater, or the impacts that a warming planet will have on our communities, our economy, wildlife and friends around the world" (Environmental Defence About Us 2017). The environment is valued as a resource for humans and pollutants and climate change are bad based on their impacts on human health. Further, this section highlights a notion of a shared environment that with shared rights and responsibilities.

Humans and Society

Individuals are generally seen as rational agents who will make the right decision if they are given the best information. The importance of rationality and information is evident in the organization's numerous consumer based campaigns, focusing on providing information to consumers to change corporate behaviour to promote sustainability (Environmental Defence Canada About Us 2017; Environmental Defence 2014).

Environmental Defence Canada also supports a notion of rights that extends to future generations (Environmental Defence Canada 2016). Future generations have rights associated with sustainability, resources, and human health.

Markets and Governments

Both markets and governments are viewed positively and connected by Environmental Defence Canada. The connection between the positive way that governments and markets can promote sustainability is reflected in Environmental Defence Canada's review of Alberta's climate change plan: "We also highlighted the historic nature of Alberta's climate action plan for committing to shut coal plants, increase renewable energy, put a price on carbon, cut methane emissions from oil and gas and put a legislated cap on tar sands emissions" (Environmental Defence 2016). This reflects support for market-based mechanisms, while recognizing a role for governments in setting boundaries, regulations, consumption based taxation, and incentives.

The role of markets and the economy are also demonstrated in Environmental Defence Canada's clean economy program launched in 2014 (Environmental Defence 2014). The clean economy program looks to "emerging energy technologies to create a greener electricity supply, we'll focus on new payment systems to encourage the conservation of lands and natural resources, and we'll encourage the power of the market to reward companies that provide sustainable products and services" (Environmental Defence 2014). This view of the economy connects technological optimism, improved information, and market mechanisms to the prosperity and sustainability.

The connection with improved information, the green economy and governments is reflected in Environmental Defence Canada's toxic chemicals work. Multiple campaigns related to toxic chemicals promote a role for governments, consumers, and companies, working to provide

information so individuals can make the right decisions about their consumption (Environmental Defence 2014; Environmental Defence 2015).

Risk is also seen as bad for the economy (Environmental Defence 2016). Concerns over risk are evident in Environmental Defence Canada's opposition to oil production in Alberta, which is considered too costly and risky due to "the volatility of oil prices, decreasing demand for oil and growing public opposition" (Environmental Defence 2016).

David Suzuki Foundation

The David Suzuki Foundation, which incorporated in 1990, is a relatively young Canadian environmental organization. The David Suzuki Foundation's revenue for 2016 was more than $10 million with most of the organization's revenue coming from donations and fundraising events (DSF statement of operations 2017). Not only does the David Suzuki Foundation work through advocacy and policy development, the organization has assisted in the publication of over forty books on environmental topics (DSF Our Story 2017). The David Suzuki Foundation is a trusted voice in environmental discussions as "Canadians consistently name the Foundation as the most credible and reliable source of science-based environmental information in Canada" (DSF 2013 p5).

Environment

The David Suzuki Foundation's mission and vision statement reflects an ecocentric view of nature (DSF About Us 2017). The organization's mission is to "protect the diversity of nature and our quality of life…" (DSF About Us 2017). The protection of diversity leads to campaigns to halt climate change, halt toxic pollutants, and protect habitats (DSF 2011; DSF 2014; DSF 2015).

Further, the David Suzuki Foundation advocates for a view of the world that sees humans and natural systems as “interconnected and interdependent” (DSF About US 2017). This is reflected in their Declaration of Interdependence, which recognizes that humans are connected both to the ecosystem functions that sustain life and the plants and animals with whom they share a common history (DSF About Us 2017).

Finally, the David Suzuki Foundation argues that natural limits exist that cannot be crossed and that human systems, including the economy, must exist within (DSF About Us 2017). When human activity pushes against the finite limits of the Earth, it takes from future generations (DSF About Us 2017). To avoid taking from future generations, information of the world and precaution should guide human interactions with the Earth (DSF About Us 2017).

Humans and Society

Humans are generally seen as rational and likely to make decisions to promote environmental protection if they have the best information. These beliefs lead to scientific optimism and calls for the promotion of information to guide consumption and promote efficiency (DSF About Us 2017; DSF 2011; DSF 2014).

Also, humans need a connection with nature. Connection and experiences in nature improve mental health, physical wellbeing, cognition, and lead to fulfillment (DSF About Us 2017; DSF 2014). Experiences with nature also promote environmental protection as individuals who recognize their interconnectedness and dependence on nature will work to protect it (DSF About Us 2017; DSF 2011; DSF 2012; DSF 2013).

The about section of the David Suzuki Foundation’s website recognizes collective rights to environmental services. The first of the organization’s ‘Top Goals’ is “protecting our climate”

(DSF About Us 2017). Climate is a collective right and responsibility for everyone. The environmental rights of individuals and communities are also promoted connecting sustainability with notions of justice, health and prosperity (DSF About Us 2017; DSF 2013; DSF 2014; DSF 2015). As an example, the organization states “You cannot practise environmentalism without practising social justice, equality, fairness, and tolerance” (DSF 2011 p8). This is similar to arguments made by social greens discussed above (Clapp and Dauvergne 2005).

The David Suzuki Foundation demonstrates a strong commitment to local and ecosystem level decision-making (DSF About us 2017; DSF 2011). For instance, in the 2011 message from the co-founders it is stated that we “can’t protect nature without working with the people in that ecosystem” (DSF 2011 p8). This section reflects the organization’s belief that local decision-making and direct connections to nature lead to environmental protection, clean energy, efficiency and fulfillment (DSF About us 2017; DSF 2011; DSF 2012). Additionally, the notion of the local is connected to support for Indigenous rights, communities, and knowledge (DSF About Us 2017; DSF 2016).

Markets and Governments

The David Suzuki Foundation aims to “transform the economy” to protect the environment while maintaining living standards (DSF About Us 2017). The economic tools that the organization suggests are regulations, market solutions, efficiency, and natural capitalism (DSF About Us 2017; DSF 2016; DSF 2011). Market solutions include improving consumer information, voluntary certification programs, and pricing environmental and social costs of activities (DSF 2016; DSF 2011; DSF 2012). This view of markets and economic transformation is similar to the institutionalism.

The promotion of natural capitalism, associated with pricing environmental services, is ultimately ideological. As Sullivan notes, natural capital turns nature into a “set of assets” to be calculated as part of a ledger (2017 p1). It is argued that this will lead to environmental functions that do not serve instrumental value to humans being left out from protection (Sullivan 2017). Alternatively, some have argued that the promotion of natural capital and market mechanisms is primarily a matter of pragmatism, efficiency, and improving information (Sullivan 2017). This pragmatic view of natural capital is reflected in the David Suzuki Foundation's’ annual reports (DSF 2011; DSF 2012). Additionally, the David Suzuki Foundation focuses their natural capital program on municipal governments to promote policies that value ecosystems and environmental functions (DSF 2011; DSF 2012).

The David Suzuki Foundation views governments positively. Governments can protect rights, tax pollutants, protect habitats, and fund infrastructure to support environmental protection (DSF 2015; DSF 2016).

The Sierra Club of Canada Foundation

The Sierra Club of Canada Foundation is the Canadian version of one of the world’s oldest environmental organizations, the Sierra Club, which formed in the United States in 1892 (Grady 2013). In terms of revenue, this is the smallest of the environmental organizations reviewed. Despite its smaller operating budget, the Sierra Club of Canada Foundation and its chapters continue to play a significant role in Canadian environmentalism (Ramos 2015). The Sierra Club of Canada Foundation promotes the values put forward in the UN Earth Charter through strong brand recognition and effective media penetration (SCCF About Us 2017; Ramos 2015).

Environment

According to the mission of the Sierra Club Canada Foundation, their focus is to be a “voice for the earth… to protect and preserve the natural environment and to empower people to be stewards of the earth in their communities” (SCCF About Us 2017). This reflects an ecocentric view of the world. From this perspective, nature and nonhuman species have rights and should be protected based on their intrinsic value. Additionally, individuals are ‘stewards,’ which highlights the notion of responsibility for environmental protection.

Humans and Society

An important aspect of the Sierra Club Canada Foundation’s work is the promotion of localism and community. Sierra Club Canada Foundation demonstrates the importance of localism and community in their promotion of shopping local, support of local food systems, opposition to oil development, and their natural capital projects (SCCF 2012; SCCF 2013; SCCF 2014). The main lesson about the organization’s ideology that emerges from these projects is that localized consumption promotes sustainable economies, food security, connections to nature, and resource stewardship. Alternatively, oil extraction, urban sprawl, and globalization harm communities, reduce stewardship and create risk for human and ecosystem health.

Markets and Governments

The Sierra Club Canada Foundation’s values arise from the four pillars of sustainability within the UN Earth Charter (SCCF About Us 2017). Importantly these pillars call for “Social and Economic Justice and Democracy, Nonviolence and Peace” (SCCF About Us 2017). Not surprisingly, the group puts energy into transforming economic activity.

Like the David Suzuki Foundation, the Sierra Club of Canada promotes natural capital programs (SCCF 2012; SCCF 2013). The natural capital programs and their descriptions align with the discussions from above. One additional note about the Sierra Club of Canada’s campaign is

that it attempts to inform citizens as well as governments to promote the protection of the environment (SCCF 2013). This demonstrates the connection between improved policy and sustainable development to communities having the right information and connection to nature to being good stewards.

World Wildlife Fund Canada

The largest of the Canadian environmental organizations reviewed was the World Wildlife Fund Canada. Founded in 1967, the World Wildlife Fund Canada's revenues reached over $20 million in 2016 (World Wildlife Fund Canada 2017). The World Wildlife Fund Canada receives only 57% of its funding from donations with significant funding coming from corporations, foundations, sales, and fees (World Wildlife Fund Canada 2017).

Environment

The World Wildlife Fund Canada promotes an ecocentric view of the environment. This is reflected in their mission statement: "For half a century, WWF has worked to protect the future of nature… Our Mission: To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature" (WWF About Us 2016). This ecocentric view of nature is reflected in work from the World Wildlife Fund Canada to protect ecosystems and habitats without benefits to humans, including the promotion of acoustic refuges for aquatic species (WWF 2012).

Connected to the ecocentric view of nature is an attempt to reconnect human activity with natural systems. The "We Are All Wildlife" campaign is based on the idea that "the reality is that we aren't so different. Humans, animals, plants, oceans - we're all in this together" (WWF We Are All Wildlife 2017). This project connects the notion of life, biodiversity, ecosystems, and natural resources together.

Humans and Society

The World Wildlife Fund Canada has a positive view of human nature. A part of the above view of humans is the belief that, if given the right information governments, businesses and consumers will make the right decision to protect the environment, which leads to the promotion of scientific optimism, market based growth, and efficiency (WWF About Us 2016; WWF 2013).

For communities, individuals, and life broadly, the World Wildlife Fund Canada promotes "the equitable sharing of resources" (WWF About Us 2016). Equitable sharing of resources emerges from connecting outcomes for the economy, communities, and the environment together. The connection to nature occurs through immersion and experiences with nature, so that preserving the environment becomes "part of our daily lives" for individuals (WWF 2016).

Additionally, the World Wildlife Fund Canada also promotes a positive view of personal and organizational responsibility. Responsibility is associated with businesses who benefit from and interact with the environment and citizens who appreciate the natural world around them (WWF 2013; WWF 2015; WWF About Us 2016). Responsibility to the environment relates to stewardship, which leads to overall environmental protection.

Lastly, the concept of community extends a special connection with Indigenous groups. Indigenous groups are connected to rights, stewardship and the promotion of traditional ecological knowledge (WWF 2012; WWF 2013; WWF 2015).

Markets and Governments

Environmental problems are a result of wastefulness and a lack of information leading to overconsumption, pollution, and destruction of biodiversity (WWF About Us 2016; WWF 2015).

For the World Wildlife fund, environmental protection and sustainability emerge from promoting economic growth that maintains species and ecosystems (WWF 2013).

The World Wildlife Fund Canada believes that environmental solutions are linked to positive economic outcomes. As a matter of pragmatism, the World Wildlife Fund Canada argues that nature is protected "By building strong links to community and economy; victories for nature are also victories for people" (WWF 2015). These Economic victories come from market-based solutions to environmental issues. For instance, the World Wildlife Fund Canada's 2012 report states, "we've seen how powerful market-based solutions can be. Over the past 15 years, consumer demand for sustainable seafood and retailer commitment to MSC-certified products have transformed fishery after fishery" (WWF 2012 p11). In addition to markets and businesses, green consumers have an important role to play in promoting fair social and environmental outcomes.

Governments also have a role to play in protecting the environment. Governments create incentives, develop legal frameworks, and enforce environmental protection (WWF 2013; WWF About Us 2016).

Finally, the World Wildlife Fund Canada maintains mixed feelings regarding development. Like most economic actions, it is about using information to make the right decisions. For instance, their 2014 report states, "By sharing our scenarios with northern communities and decision-makers, WWF is helping ensure that development in this remote and ecologically fragile environment is done right: only in the right places, with all the right precautions in place" (WWF 2014 p16). This section reflects the belief that rational actors with the best information will protect the environment through precaution while also allowing economic development.

5) Discussion

Questionnaire Impacts

A review of the responses from those who self-selected as environmentalists provides an overview of the concepts that are important for broad environmental ideologies, areas where divides remain, and important dimensions for state space modelling. Concepts that received strong agreements across the responses are that diversity is valuable, that stricter controls are needed on resource extraction, and that cost should reflect environmental impacts. Additionally, the general responses of environmentalists reflect skepticism of markets, support for government intervention, support for innovation, the belief that society should be based on ecological principles, and that inequality should be considered in environmental decisions. These results might reflect the lack of responses from market liberalism and institutionalists who worry less about inequality and are more supportive of the role that markets can play in environmental protection.

There was less agreement around globalization, the scope of an individual's responsibility to act, population growth, and the capacity of technology to promote sustainability. Interestingly, the divide around the answers to these questions run throughout many of the ideologies with disagreement not being linked to self-selection of an ideology. Ideological attachment might be less important for these areas.

Finally, the state space modelling for respondents reflects areas that might be important for environmental ideologies. Dimensions that appear to be important for environmentalists include cooperation, personal responsibility extending to community, human embeddedness with nature, and the universe and nature being not fully intelligible to humans. Alternatively,

respondents are divided around the morality of inequality, the source of personal identity, and the nature of moral principles.

A quarter of all respondents and approximately 20% of respondents who identify as environmentalists did not select an environmental philosophy or ideology. Additionally, many respondents either emailed the researcher or commented on the questionnaire that they believed they didn't have an ideology, that they had multiple ideologies, or that they didn't know what the categories meant. These responses are in line with Talshir's review of green ideologies (1998). First, the rejection of ideology is important for many green thinkers who argue that ideologies have been focused on a growth paradigm (Talshir 1998). Additionally, green groups and individuals have formed a type of modular ideology with sub-ideologies as part of a broader superstructure (Talshir 1998). The large number of individuals who did not select an ideology, along with the arguments presented for their reasoning, reflects a continued rejection of ideologies, that environmental ideologies are not strongly understood, and the idea that environmentalism is made up of multiple levels of sub-ideologies.

Additionally, no one selected as institutionalists. The fact that individuals did not select institutionalism is likely because this ideology was crafted as a worldview within the work of Clapp and Dauvergne (2005). It is probable that, while individuals share beliefs described within the writing of this ideology, they would not identify with this grouping by name. One way to improve the understanding of this potentially ideological grouping would be to determine if there are recognized ideologies or sub-ideologies that fit within the grouping of institutionalism or provide respondents with general descriptions of the environmental ideologies.

Finally, very few respondents selected an ideology associated with religious environmentalism, ecologism, environmental conservatism, or market liberalism. This could reflect that many

environmentalists do not ascribe to these ideologies, that the populations selected for review did not contain environmentalists from these ideological groups, that there is a combination of self-selection bias and non-response bias, and that the categories were not understood. The issues with sampling make it difficult to determine the role each of the above played in the lack of respondents from these categories.

Literature and Questionnaire Comparison

The results from the questionnaire can be compared to the literature on environmental ideologies to see how they aligned on the support for concepts within the CAMs and the state space perspective. Unfortunately, the small number of responses from those who identify with market liberalism, environmental conservatism, institutionalism, religious environmentalism and ecologism make it difficult to compare for these ideologies. For the remaining ideologies, the results from the questionnaires were generally in line with the concepts and the views associated with them from the literature.

There were some concepts that did not match between the questionnaires and the CAMs. Social greens held a neutral, rather than negative view of globalization. Bioenvironmentalist respondents were neutral instead of opposed to globalization and technological optimism. With the above noted, the CAMs created from the literature were not changed by the results of the questionnaires.

The state space dimensions saw more discrepancies between the questionnaires and literature reviews. The results from the questionnaire and literature review are discussed below. Appendix D provides a visual representation of the similarities and differences.

Social green respondents differed from the literature regarding time, change, spirituality of reality, moral principles, social differentiation, personal identity, power, and wealth. There were five dimensions where the questionnaire results differed from the literature review for bioenvironmentalism: moral principles, human nature, personal identity, power, and wealth.

Layout of Environmental Ideologies

Combining the literature review on environmental ideologies with the questionnaire results reveals a great deal about the shape of environmental ideologies and how they are organized. At the highest level, there are a few concepts that spread across all the ideologies including support for environmental protection; actions from citizens, governments, and organizations; and support for diversity. Additionally, while their core beliefs differ, some of the ideologies share beliefs at their peripheries. For instance, while religious environmentalisms' core focuses on stewardship being associated with creation and a creator, it holds beliefs around justice like social greens and opposition to arrogance like bioenvironmentalism. This evidence supports the idea that environmentalism is a modular ideology with a major ideology and sub-ideologies (Talshir 1998). However, it does not provide a full picture of how the ideologies are laid out.

Conversations with Homer-Dixon helped to further organize the layout of the environmental ideologies discussed. A fruitful way to consider the environmental ideologies is to combine Talshir's modular ideological model, morphological research and Homer-Dixon's current work describing environmental ideologies (Talshir 1998; Freeden 2003; Homer-Dixon personal communication, June 8, 2017). In this view, environmentalism is an ideology with sub-ideologies that overlap at their peripheries. This proposed structure is shown as figure 9.

Environmentalism, as a major ideology, is characterized by a care for the environment and the pursuit of private and public actions to improve sustainability. Also, environmentalists are

generally future-oriented, view the universe as not fully understandable, and assume that social systems rely on the environment. Finally, environmentalists view personal responsibility as extending to their community and support cooperation.

Matching work from Homer-Dixon, environmentalism can be divided into three categories of psychological temperament: exuberant, prudential and empathetic (personal communication, June 8, 2017). The exuberant category is most linked with market liberalism. This category of environmental ideology focuses on the power of ingenuity, markets, and technology to solve environmental and social issues. Self-interest and increased freedom are used to promote nature and the environmental protection.

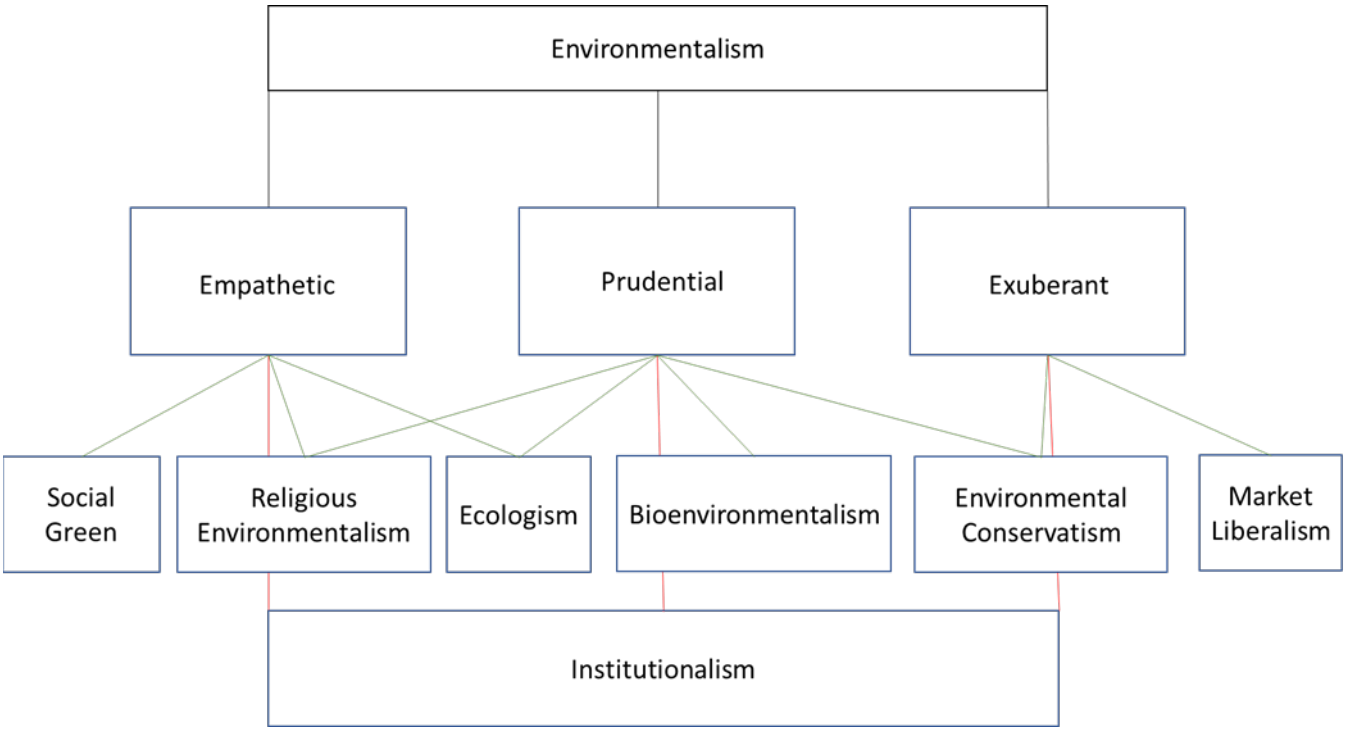


Figure 9: Williams and Homer-Dixon Environmental Ideologies

The Prudential temperament is most associated with bioenvironmentalism. This subgrouping of environmental ideologies is focused on nature and natural limits that support life broadly. This grouping is skeptical of markets, which promote arrogance, further industrial consumption, and technology, to solve environmental issues. Ideologies under the prudence category will likely be

skeptical of technological fixes, which often promote further environmental degradation and greater risks.

The final category is empathetic, which is most closely linked with social greens. This category of environmental ideology places injustice and inequality as the drivers and consequences of environmental degradation. Domination, inequality, and industrial capitalism are hindrances to both sustainability and human happiness. Alternatively, local connections and small-scale production, based on cooperation and ecological principles, are seen to support fulfillment, community, and environmental health.

It is important to note that institutionalism, as an ideological category, is an attempt to reconcile these ideas into a coherent package. While it recognizes environmental risks and limits to growth associated with prudence and justice, it is also optimistic about the capacity of humanity and markets to fulfill human needs while decreasing throughput of materials and waste. However, it argues that cooperation, government involvement and cultural changes are necessary to reach this level of sustainability.

Environmental Organizations in Canada

The review of literature from five of Canada's leading environmental organizations reflects variations on the institutionalist ideology. This is clear in terms of both the CAMs and the state space models. Environmental organizations, perhaps to ensure that they are heard at a policy level, support market led solutions, efficiency and government institutions to solve social and environmental issues.

The distinction that does exist between the environmental groups is based on how much they value nature intrinsically and how much optimism they place on market mechanisms and

government actions. For instance, Greenpeace Canada, the World Wildlife Fund Canada, and the David Suzuki foundation maintain an ecocentric worldview and a low tolerance for risk. This position leads to an ambivalent to neutral view of markets and corporations. While these organizations see value in the ability of consumers and market forces to improve efficiency, they promote government action to direct these forces, promote improved information, and support cooperation. The Environmental Defence Fund Canada draws on human needs related to the environment and is more optimistic about the power of markets, technology, and human ingenuity to support sustainability and protect the environment. Finally, the Sierra Club of Canada focuses on localism and community to promote environmental protection and equity emphasizing decentralized information and community based action.

Understanding the positions of Canada's major environmental organizations is important as they shape public policy and institutionalize ideological positions (Tindall and Piggott 2015). The messaging from these groups promotes an institutionalist vision that can strengthen forces of market liberalism or prudence and localism. This could reflect pragmatism and the need to cooperate with broad groups for funding, promote action across society and motivate governments. However, it also demonstrates the limits of institutional support for other sub-ideologies of environmentalism. Individuals interested in promoting other ideological possibilities need to develop other institutions or find ways to change the way that concepts are viewed within existing organizations.

Communicating Environmental Issues

Beyond the realization that the major environmental organizations reviewed promoted an institutionalist environmental ideology, this research highlights pathways to further discussions on environmental issues. Specifically, the CAMs and State Space models for the sub-ideologies, discussed above, provide pathways to approach non-environmental ideological

groups. This is especially important for convincing ideological groupings that are skeptical of scientific evidence and generally opposed to environmentalism about the importance of planetary boundaries and issues like anthropogenic climate change.

Not only do the environmental ideologies overlap with one another at their peripheries, they share links with ideologies outside of environmentalism. For instance, environmental conservatives share beliefs with Conservatives broadly. Comparing the CAMs and state spaces above with CAMs and state space models of conservatives can highlight specific pathways and concepts that can be communicated to non-environmental ideological groups to shift their ideological positions toward environmental ideologies. Using environmental conservatism as an example, it likely important to connect intergenerational equity, local identity and stewardship – concepts important to conservatism – to nature and environmental protection to support environmental concepts for conservative audiences. This approach fits within research that shows individuals are more likely to accept information and arguments that support their existing ideologies (Kahan et al. 2012; Leombruni, 2015).

However, homophily means that merely connecting these concepts might not be enough (Homer-Dixon et al 2013). This is because individuals are more likely to accept information from individuals who they consider to be like them (Kahan 2012). One mechanism to address this might be to highlight individuals from within these sub-ideologies to groups who are like them as group membership might overlap. For instance, recent research from Webb and Hayhoe has demonstrated that evangelical students increase their acceptance of climate change after watching a presentation on the topic from an evangelical scientist (2017). Cognitive affective maps and state space models can help to identify where overlap exists between different ideologies to identify experts who can promote environmental ideas to traditionally non-environmentalist groups.

Lessons for Systems Theory and Studies in Ideology

The final set of lessons from the results of this research revolve around the research methods. Information was gained about the power of systems research to explore ideology, the effectiveness of specific methods to create CAMs and State Space Models, and the power of cognitive affective maps to illuminate questions of power within discourse analysis.

At the highest level of analysis, this research demonstrated the value of CAMs and state space analysis to understand the structures and content of ideologies and the differences between similar ideologies. Specifically, the graphical representations presented by both tools illuminated the similarities and differences for environmental ideologies, allowing the researcher to create a model to organize environmentalism and its sub-ideologies. For instance, the ability to review environmental ideologies by exploring the links between concepts and the emotional valence associated with concepts within an ideology demonstrates the power of network theory to understand cognitive processes associated with ideological positions (Milkoreit and Mock 2014).

The research provided lessons about the effectiveness of creation methods of CAMs and state space models. As mentioned previously, work from Homer-Dixon and colleagues suggests using key literature reviews, questionnaires, and discourse analysis to create and test each (2014). The research demonstrated that these methods were effective for exploring ideology through a system's lens. However, as mentioned above, questionnaires proved difficult for exploring environmental ideologies, because many environmentalists reject the notion of ideology or feel that they can hold multiple ideologies (Talshir 1998).

In addition to demonstrating that discourse analysis was an effective tool for creating CAMs and state space models, this research demonstrated the ability of these tools to illuminate power structures within the discourses of individuals and groups. For each ideology that was reviewed,

for instance, their central concepts can illuminate what is valued, which demonstrates who interests are considered most valuable. As an example, the concepts of justice and equity from social green environmentalism place emphasis on individuals and groups who current do not hold power. Further, these tools provide mechanisms to identify which ideologies maintain institutional power. Specifically, the review of environmental organizations demonstrated the dominance of institutionalism at the highest level of organizing. Combined, these methods can demonstrate which ideologies maintain discursive power through institutions within a community, and what that means for supporting or questioning existing power structures.

Limitations

As mentioned previously, there were limitations to this research that should be considered. The primary limitation of this research relates to sampling methods. First, this research used purposive sampling to gain participants for the questionnaire and had a low response rate. It is difficult to know if the results reflect the broader population or the environmentalists in Canada. In the paper, greater emphasis has been placed on the literature review and research into environmental organizations to address this weakness; however, future research that includes a more reflective sample of the population is necessary to determine if this research truly reflects ideologies held by individuals and groups.

Additionally, the ideological categories included in the questionnaire were likely confusing and not properly understood. Improvements to the questionnaire should include simplifying questions to shorten the survey and descriptions of the environmental categories to limit confusion.

6) Future Research and Summary

Future Research

Further research could clarify how institutions influence ideological changes over time. Mock and Homer-Dixon note that a state space with too many dimensions is too unmanageable to be of much use for analysis (2015). When graphically mapping ideologies to study the possibility of ideological change, they suggest focusing on three factors (Mock and Homer-Dixon 2015). Work should be done to determine key dimensions that shape ideological attachment within different jurisdictions or related to different political issues. This research could show how issues shape ideologies.

Additionally, while this research highlighted the views of major environmental organizations in Canada, there are other institutions that might highlight variants of environmental ideologies. Research into political parties to explore their ideologies and the impacts they have on shaping environmental ideologies would be valuable. This research could include the evolution of party platforms over time and interviews with key figures within political parties.

Finally, exploring how annual reports, campaigns and messaging have changed over time could further research into environmental organizations. This research would show how environmental ideologies have altered and evolved and could highlight the impact that path dependency has on the shape of ideological positions.

Summary

The growing realization that the ecological systems that support human development are under increasing strain promotes a need to better understand how ideological positions shape

environmental action (Steffen et al 2015; Beddoe et al 2009). From the starting position that distinct environmental ideologies exist, this paper reviewed literature on ideological research and environmental ideologies to define a more specific definition of ideologies. After preparing a definition of ideologies that reflected both lessons from complexity research and contemporary research on ideologies, this project explored environmental literature, questionnaires from Canadian environmentalists, and literature from Canadian environmental organizations. This research illuminated that environmentalism, as an ideology, can be divided into three distinct ideological positions with sub-ideologies that overlap at the peripheries. This view of environmental ideologies is reflective of morphological ideological research, Talshir's notion of modular ideologies, and current work from Homer-Dixon (Talshir 1998; Homer-Dixon personal communication, June 8, 2017).

Beyond the above, this research demonstrated that complexity theory and its tools are affective for understanding and mapping ideologies. These tools assisted in mapping out ideological positions, demonstrating similarities in ideologies, and illuminating the ideologies of existing organizations. Further, this research demonstrated the power of literature reviews, questionnaires, and discourse analysis to the study of ideologies from a complexity framework.

Bibliography

Adler, J. H. (2012). Is the common law a free-market solution to pollution? Critical Review, 24(1), 61-85. doi:10.1080/08913811.2012.684475

Agyeman, J., Schlosberg, D., Craven, L., & Matthews, C. (2016). Trends and directions in environmental justice: From inequity to everyday life, community, and just sustainabilities doi:10.1146/annurev-environ-110615-090052

Ahn, W., Kishida, K. T., Gu, X., Lohrenz, T., Harvey, A., Alford, J. R., . . . Montague, P. R. (2014). Nonpolitical images evoke neural predictors of political ideology. Current Biology, 24(22), 2693-2699. doi:10.1016/j.cub.2014.09.050

Aiken, G. (2012). Community transitions to low carbon futures in the transition towns network (TTN). Geography Compass, 6(2), 89-99. doi:10.1111/j.1749-8198.2011.00475.x

Aird Lewis, F. (1970). The nature conservancy of canada. Biological Conservation, 3(1), 6.

Alford, J. R., Funk, C. L., & Hibbing, J. R. (2005). Are political orientations genetically transmitted? American Political Science Review, 99(2), 153-167.

Alford, J. R., & Hibbing, J. R. (2008). The new empirical biopolitics doi:10.1146/annurev.polisci.11.060806.161216

Allott, R. (1991). Objective morality. Journal of Social and Biological Systems, 14(4), 455-471. doi:10.1016/0140-1750(91)90016-J

Altemeyer, B. (2004). Highly dominating, highly authoritarian personalities. Journal of Social Psychology, 144(4), 421-447.

Amérigo, M., Palavecinos, M., García, J. A., Román, F., & Trizano-Hermosilla, Í. (2017). Effects of the social dominance orientation on environmental attitudes of Chilean university students/Efectos de la orientación a la dominancia social sobre las actitudes ambientales de universitarios chilenos. Revista de Psicología Social, 32(1), 136-163.

Anderson, M.W. (2012) “New Ecological Paradigm (NEP) Scale.” In The Berkshire Encyclopedia Of Sustainability: Measurements, Indicators, And Research Methods For Sustainability.

Anderson, T. L. (2004). Donning Coase-coloured glasses: a property rights view of natural resource economics. Australian Journal of Agricultural and Resource Economics, 48(3), 445-462.

Anderson, T. L., & Leal, D. R. (2015). Free market environmentalism for the next generation. Free market environmentalism for the next generation (pp. 1-200) doi:10.1057/9781137443397

Andrew, J., & Cortese, C. (2013). Free market environmentalism and the neoliberal project: The case of the climate disclosure standards board. Critical Perspectives on Accounting, 24(6), 397-409. doi:10.1016/j.cpa.2013.05.010

Apostolopoulos, N., & Liargovas, P. (2016). Regional parameters and solar energy enterprises: Purposive sampling and group AHP approach. International Journal of Energy Sector Management, 10(1), 19-37. doi:10.1108/IJESM-11-2014-0009

Arbuckle, M. B. (2017). The interaction of religion, political ideology, and concern about climate change in the united states. Society and Natural Resources, 30(2), 177-194. doi:10.1080/08941920.2016.1209267

Arman, M., & Davidson, K. (2014). A typology to position population within sustainability discourse. Local Environment, 19(4), 433-448. doi:10.1080/13549839.2013.790351

Arthur, W. B. (2013). Complexity economics: A different framework for economic thought. Santa Fe Institute. Retrieved from http://gateway.proquest.com/openurl?url_ver=Z39.88-2004&res_dat=xri:policyfile&rft_dat=xri:policyfile:article:00156178

Asara, V., Otero, I., Demaria, F., & Corbera, E. (2015). Socially sustainable degrowth as a socialecological transformation: Repoliticizing sustainability. Sustainability Science, 10(3), 375-384. doi:10.1007/s11625-015-0321-9

Atkins, J., & Finlayson, A. (2016). 'As shakespeare so memorably said...': Quotation, rhetoric, and the performance of politics. Political Studies, 64(1), 164-181. doi:10.1111/1467-9248.12156

Ault, M. K., Ness, A. M., Taylor, W. D., Johnson, G., Connelly, S., Jensen, M. L., & Dunbar, N. E. (2017). Ideological lens matters: Credibility heuristics, pre-existing attitudes, and reactions to messages on ideological websites. Computers in Human Behavior, 68, 315-325. doi:10.1016/j.chb.2016.11.053

Ayers, F. D. (2005). Neoliberal ideology in community college mission statements: a critical discourse analysis. The Review of Higher Education, 28: 527–549.

Bakhtiari, P., Cordero, A., Lotfi, T., Mahdiani, K., & Torregrosa, J. R. (2017). Widening basins of attraction of optimal iterative methods. Nonlinear Dynamics, 87(2), 913-938. doi:10.1007/s11071-016-3089-2

Bakker, K. (2009). Neoliberal nature, ecological fixes, and the pitfalls of comparative research. Environment and Planning A, 41(8), 1781-1787. doi:10.1068/a4277

Bakker, K. (2010). The limits of 'neoliberal natures': Debating green neoliberalism. Progress in Human Geography, 34(6), 715-735. doi:10.1177/0309132510376849

Barr, S., & Pollard, J. (2017). Geographies of transition: Narrating environmental activism in an age of climate change and peak oil. Environment and Planning A, 49(1), 47-64. doi:10.1177/0308518X16663205

Barratt, M. J., Ferris, J. A., & Lenton, S. (2015). Hidden populations, online purposive sampling, and external validity: Taking off the blindfold. Field Methods, 27(1), 3-21. doi:10.1177/1525822X14526838

Barry, J. (2014). Green political theory. Political ideologies: An introduction, fourth edition (pp. 153-178) doi:10.4324/9781315814384

Bart, C.K. (2000). Building mission statements that matter. Provider Magazine, 41–44.

Baskin, J. (2015). Paradigm dressed as epoch: The ideology of the anthropocene. Environmental Values, 24(1), 9-29. doi:10.3197/096327115X14183182353746

Baxter, B. (1999). Ecologism: An Introduction. Edinburgh: Edinburgh University Press.

Beattie, V., McInnes, B., & Fearnley, S. (2004). A methodology for analysing and evaluating narratives in annual reports: A comprehensive descriptive profile and metrics for disclosure quality attributes. Accounting Forum, 28(3), 205-236. doi:10.1016/j.accfor.2004.07.001

Beddoe, R., Costanza, R., Farley, J., Garza, E., Kent, J., Kubiszewski, I., . . . Woodward, J. (2009). Overcoming systemic roadblocks to sustainability: The evolutionary redesign of worldviews, institutions, and technologies. Proceedings of the National Academy of Sciences of the United States of America, 106(8), 2483-2489. doi:10.1073/pnas.0812570106

Bell, D. (1960). The end of ideology (Vol. 3). New York: Free Press.

Berggren, N. (2016). Does belief in objective morality lead to coercion? an analysis of the arguments of kelsen and buchanan. Review of Austrian Economics, 29(3), 315-326. doi:10.1007/s11138-015-0318-8

Best, S. (1998). Murray bookchin's theory of social ecology: An appraisal of the ecology of freedom. Organization and Environment, 11(3), 334-353.

Blanchard, K. D., & O'Brien, K. J. (2014). Prophets meet profits: What christian ecological ethics can learn from free market environmentalism

Bleischwitz, R., & Von Weizsacker, E. U. (2000). Towards new patterns of environmental policy, Part II: Prevailing conflicts and new concepts. [Umweltpolitik im wandel: Teil II: Neue konzepte und konfliktfelder] Umweltmedizin in Forschung und Praxis, 5(4), 203-211.

Bliese, J. R. E. (1997). Traditionalist conservatism and environmental ethics. Environmental Ethics, 19(2), 135-151.

Blouw, P., Solodkin, E., Thagard, P., & Eliasmith, C. (2016). Concepts as semantic pointers: A framework and computational model. Cognitive Science, 40(5), 1128-1162. doi:10.1111/cogs.12265

Boffo, S. (2004). Universities and marketing mass communication in italy. Higher Education Policy, 17(4), 371-381. doi:10.1057/palgrave.hep.8300063

Bookchin, M. (1987). Social ecology versus deep ecology: A challenge for the ecology movement. Green Perspectives: Newsletter of the Green Program Project. 4-5.

Boynton, A. (2015). Formulating an anti-environmental opposition: Neoconservative intellectuals during the environmental decade. Sixties, 8(1), 1-26. doi:10.1080/17541328.2015.1057382

Braithwaite, V. (2009). Security and harmony value orientations and their roles in attitude formation and change. Psychological Inquiry, 20(2-3), 162-167. doi:10.1080/10478400903146581

Brinkmann, S. (2005). Human kinds and looping effects in psychology: Foucauldian and hermeneutic perspectives. Theory & Psychology, 15(6), 769-791. doi:10.1177/0959354305059332

Brundtland, G. H. (1989). Global change and our common future. Environment, 31(5), 16-43. doi:10.1080/00139157.1989.9928941

Buhr, N., & Reiter, S. (2006). Ideology, the environment and one world view: A discourse analysis of noranda's environmental and sustainable development reports doi:10.1016/S1479-3598(06)03001-9

Cabrera, L. Y., Tesluk, J., Chakraborti, M., Matthews, R., & Illes, J. (2016). Brain matters: From environmental ethics to environmental neuroethics. Environmental Health: A Global Access Science Source, 15(1) doi:10.1186/s12940-016-0114-3

Canadian Association of Geographers About Us (2017). Retrieved from https://www.cag-acg.ca/about-the-cag

Carmi, S., Krapivsky, P. L., & Ben-Avraham, D. (2008). Partition of networks into basins of attraction. Physical Review E - Statistical, Nonlinear, and Soft Matter Physics, 78(6) doi:10.1103/PhysRevE.78.066111

Carpenter, S. R. (2002). Ecological futures: Building an ecology of the long now. Ecology, 83(8), 2069-2083.

Carroll, J., Clasen, M., Jonsson, E., Kratschmer, A. R., McKerracher, L., Riede, F., . . . Kjrgaard, P. C. (2017). Biocultural theory: The current state of knowledge. Evolutionary Behavioral Sciences, 11(1), 1-15. doi:10.1037/ebs0000058

Cashore, B. (2002). Legitimacy and the privatization of environmental governance: How non-state market-driven (NSMD) governance systems gain rule-making authority. Governance, 15(4), 503-529.

Castelli, L., & Carraro, L. (2011). Ideology is related to basic cognitive processes involved in attitude formation. Journal of Experimental Social Psychology, 47(5), 1013-1016. doi:10.1016/j.jesp.2011.03.016

Chapple, C. K. (2011). Religious environmentalism: Thomas berry, the bishnoi, and satish kumar. Dialog, 50(4), 336-343. doi:10.1111/j.1540-6385.2011.00634.x

Cheng, C. (2016). Environmental ontology in deep ecology and mahayana buddhism. Environmental Ethics, 38(2), 145-163.

Chou, S. S. (2015). Claiming the sacred: Indigenous knowledge, spiritual ecology, and the emergence of eco-cosmopolitanism. Cultura.International Journal of Philosophy of Culture and Axiology, 12(1), 71-84.

Cichocka, A., Bilewicz, M., Jost, J. T., Marrouch, N., & Witkowska, M. (2016). On the grammar of politics or why conservatives prefer nouns. Political Psychology, 37(6), 799-815. doi:10.1111/pops.12327

Ciuk, D. J. (2017). Democratic Values? A Racial Group-Based Analysis of Core Political Values, Partisanship, and Ideology. Political Behavior, 39(2), 479-501.

Clapp, J. & Dauvergne P. (2005). Paths to a Green World: The Political Economy of the Global Environment. The MIT Press; Cambidge, Massachusetts.

Clark, J. (1997). A social ecology. Capitalism, Nature, Socialism, 8(3), 32.

Clark, J. (2000). The matter of freedom: Ecofeminist lessons for social ecology. Capitalism, Nature, Socialism, 11(3), 62-79.

Conover, M. D., Gonalves, B., Ratkiewicz, J., Flammini, A., & Menczer, F. (2011). Predicting the political alignment of twitter users. Proceedings - 2011 IEEE International Conference on Privacy, Security, Risk and Trust and IEEE International Conference on Social Computing, PASSAT/SocialCom 2011, 192-199. doi:10.1109/PASSAT/SocialCom.2011.34

Conover, P. J., & Feldman, S. (1984). Group identification, values, and the nature of political beliefs. American Politics Research, 12(2), 151-175. doi:10.1177/1532673X8401200202

Converse, P. E. (1964). The nature of belief systems in mass publics. Critical Review, 18(1-3), 1-74.

Converse, P. E. (2000). Assessing the capacity of mass electorates

Converse, P. E. (2006). Democratic theory and electoral reality. Critical Review, 18(1-3), 297-329.

Corrigall-Brown, C. (2016). What gets covered? an examination of media coverage of the environmental movement in canada. Canadian Review of Sociology, 53(1), 72-93. doi:10.1111/cars.12092

Costanza, R. (2017). Trump: A confluence of tipping points? Nature, 542(7641), 295. doi:10.1038/542295b

Cudworth, E., & Hobden, S. (2013). Complexity, ecologism, and posthuman politics. Review of International Studies, 39(3), 643-664. doi:10.1017/S0260210512000290

D'Alisa, G., Demaria, F., & Cattaneo, C. (2013). Civil and uncivil actors for a degrowth society. Journal of Civil Society, 9(2), 212-224. doi:10.1080/17448689.2013.788935

Dagget, D. (2017). Gardeners of Eden. NV, University of Nevada Press.

Das, S. R., Haigh, M., & Chauhan, S. (2014). Communicating sustainability within britain's hindu community. Sustainability (Switzerland), 6(2), 718-740. doi:10.3390/su6020718

David-Barrett, T., & Dunbar, R. I. M. (2017). Fertility, kinship and the evolution of mass ideologies. Journal of Theoretical Biology, 417, 20-27. doi:10.1016/j.jtbi.2017.01.015

David Suzuki Foundation. (2012). Annual Report 2012.

David Suzuki Foundation. (2013). Annual Report 2013.

David Suzuki Foundation. (2014). Annual Report 2014.

David Suzuki Foundation. (2015). Annual Report 2015.

David Suzuki Foundation. (2016). Annual Report 2015 - 2016.

David Suzuki Foundation About Us. (2017). Retrieved from http://www.davidsuzuki.org/about/

Davidov, E., & Depner, F. (2011). Testing for measurement equivalence of human values across online and paper-and-pencil surveys. Quality and Quantity, 45(2), 375-390. doi:10.1007/s11135-009-9297-9

Davidson, K. (2014). A typology to categorize the ideologies of actors in the sustainable development debate. Sustainable Development, 22(1), 1-14. doi:10.1002/sd.520

Davidson, S. (2007). The troubled marriage of deep ecology and bioregionalism. Environmental Values, 16(3), 313-332. doi:10.3197/096327107X228373

Davidson, S. (2009). Ecoanarchism: A critical defence. Journal of Political Ideologies, 14(1), 47-67. doi:10.1080/13569310802636489

Davies, A.R. (2009). Environmentalism. In Kitchin, R & Thrift, N. (Eds), International Encyclopedia of Human Geography, Oxford, Elsevier, 2009, pp565 - 570

Day, M. V., Fiske, S. T., Downing, E. L., & Trail, T. E. (2014). Shifting liberal and conservative attitudes using moral foundations theory. Personality and Social Psychology Bulletin, 40(12), 1559-1573. doi:10.1177/0146167214551152

Deane-Drummond, C. (2015). The uses and abuses of science in religious environmentalism. Journal for the Study of Religion, Nature and Culture, 9(2), 169-175. doi:10.1558/jsrnc.v9i2.27265

Degens, N., Hofstede, G. J., Breen, J. M., Beulens, A., Mascarenhas, S., Ferreira, N., . . . Dignum, F. (2014). Creating a world for socio-cultural agents doi:10.1007/978-3-319-12973-0_2

Devall, B. (1991). Deep ecology and radical environmentalism. Society and Natural Resources, 4(3), 247-258. doi:10.1080/08941929109380758

Devall, B. (2001). The deep, long-range ecology movement: 1960-2000--A review. Ethics & the Environment, 6(1), 18-41. doi:10.2979/ETE.2001.6.1.18

DeWitt, C. B. (1996). Biodiversity and the bible. Global Biodiversity, 6(4), 13-16.

DeWitt, C. B. (2009). The scientist and the shepherd: The emergence of evangelical environmentalism. The oxford handbook of religion and ecology () doi:10.1093/oxfordhb/9780195178722.003.0025

Dhont, K., Hodson, G., & Leite, A. C. (2016). Common ideological roots of speciesism and generalized ethnic prejudice: The social dominance HumanAnimal relations model (SD-HARM). European Journal of Personality, 30(6), 507-522. doi:10.1002/per.2069

Dobson, A., MacGregor, S., Torgerson, D., & Saward, M. (2009). Trajectories of green political theory. Contemporary Political Theory, 8(3), 317-350. doi:10.1057/cpt.2009.11

Dobson, A. (2007). Green political thought. Florence: Taylor and Francis.

Domenec, F. (2012). The "greening" of the annual letters published by exxon, chevron and BP between 2003 and 2009. Journal of Communication Management, 16(3), 296-311. doi:10.1108/13632541211245767

Dorfman, P., Javidan, M., Hanges, P., Dastmalchian, A., & House, R. (2012). GLOBE: A twenty year journey into the intriguing world of culture and leadership. Journal of World Business, 47(4), 504-518. doi:10.1016/j.jwb.2012.01.004

Drengson, A., Devall, B., & Schroll, M. A. (2011). The deep ecology movement: Origins, development, and future prospects (toward a transpersonal ecosophy). International Journal of Transpersonal Studies, 30(1-2), 101-117.

Dzebo, A., & Stripple, J. (2015). Transnational adaptation governance: An emerging fourth era of adaptation. Global Environmental Change, 35, 423-435. doi:10.1016/j.gloenvcha.2015.10.006

Eckerdce, A., Kim, Y., & Campbell, H. E. (2017). Community privilege and environmental justice: An agent-based analysis. Review of Policy Research, 34(2), 144-167. doi:10.1111/ropr.12214

Eckersley, R. (1992). Green versus ecosocialist economic programmes: The market rules OK? Political Studies, 40(2), 315-333. doi:10.1111/j.1467-9248.1992.tb01387.x

Eckersley, R. (1993). Free market environmentalism: Friend or foe? Environmental Politics, 2(1), 1-19. doi:10.1080/09644019308414061

Edge, S., & Eyles, J. (2014). The socio-spatial (re)configuration of legitimacy, knowledge, and practice in chemical risk governance: Integrating boundary-work and scale-frame analytics. Environmental Politics, 23(2), 282-301. doi:10.1080/09644016.2013.818300

Edge, S., & Eyles, J. (2015). Contested governmentalities: NGO enrollment and influence over chemical risk governance rationales and practices. Environmental Policy and Governance, 25(3), 188-200. doi:10.1002/eet.1671

Ehrlich, P. R., & Ehrlich, A. H. (2009). The population bomb revisited. The electronic journal of sustainable development, 1(3), 63-71.

Ehrlich, P. R., & Harte, J. (2015). Opinion: To feed the world in 2050 will require a global revolution. Proceedings of the National Academy of Sciences of the United States of America, 112(48), 14743-14744. doi:10.1073/pnas.1519841112

Ekins, P. (1986). The living economy Routledge. doi:10.4324/9780203169063

Ellingson, S., Woodley, V. A., & Paik, A. (2012). The structure of religious environmentalism: Movement organizations, interorganizational networks, and collective action. Journal for the Scientific Study of Religion, 51(2), 266-285. doi:10.1111/j.1468-5906.2012.01639.x

Environmental Defence. (2012). 2012 Annual Report.

Environmental Defence. (2013). 2013 Annual Report.

Environmental Defence. (2014). 2014 Annual Report.

Environmental Defence. (2015). Annual Report 2015.

Environmental Defence. (2016). Annual Report 2016

Environmental Defence About Us. (2017). Retrieved from http://environmentaldefence.ca/about-us/

Environmental Studies Association of Canada About. (2017). Retrieved from http://esac.ca/about/

Evans, J. R., & Mathur, A. (2005). The value of online surveys. Internet Research, 15(2), 195-219. doi:10.1108/10662240510590360

Facchini, F., Gaeta, G. L., & Michallet, B. (2017). Who cares about the environment? an empirical analysis of the evolution of political parties environmental concern in european countries (19702008). Land use Policy, 64, 200-211. doi:10.1016/j.landusepol.2017.02.017

Fagerholm, A. (2016). Ideology: A proposal for a conceptual typology. Social Science Information, 55(2), 137-160. doi:10.1177/0539018416629229

Fairclough, N. (2013). Critical discourse analysis: The critical study of language. Routledge.

Fang, T. (2003). A critique of hofstede's fifth national culture dimension. International Journal of Cross Cultural Management, 3(3), 347-368. doi:10.1177/1470595803003003006

Farley, J. (2015). Planetary limits, social needs and economics for the anthropocene. OECD Observer, (304), 38-39.

Federico, C. M. (2007). Expertise, evaluative motivation, and the structure of citizens' ideological commitments. Political Psychology, 28(5), 535-561. doi:10.1111/j.1467-9221.2007.00589.x

Fernandes, J. P. A., & Guiomar, N. (2016). Environmental ethics: Driving factors beneath behavior, discourse and decision-making. Journal of Agricultural and Environmental Ethics, , 1-34. doi:10.1007/s10806-016-9607-x

Fielding, K. S., & Hornsey, M. J. (2016). A social identity analysis of climate change and environmental attitudes and behaviors: Insights and opportunities. Frontiers in Psychology, 7(FEB) doi:10.3389/fpsyg.2016.00121

Findlay, S. D., & Thagard, P. (2014). Emotional change in international negotiation: Analyzing the camp david accords using cognitive-affective maps. Group Decision and Negotiation, 23(6), 1281-1300. doi:10.1007/s10726-011-9242-x

Finlayson, A. (2012). Rhetoric and the political theory of ideologies. Political Studies, 60(4), 751-767. doi:10.1111/j.1467-9248.2012.00948.x

Fletcher, R. (2013). How I learned to stop worrying and love the market: Virtualism, disavowal, and public secrecy in neoliberal environmental conservation. Environment and Planning D: Society and Space, 31(5), 796-812. doi:10.1068/d11712

Florida, R. (2014). The creative class and economic development. Economic Development Quarterly, 28(3), 196-205. doi:10.1177/0891242414541693

Frank, A. K. (2017). What is the story with sustainability? A narrative analysis of diverse and contested understandings. Journal of Environmental Studies and Sciences, 7(2), 310-323. doi:10.1007/s13412-016-0388-3

Freeden, M., (2001). Reassessing Political Ideologies. NY, NY: Routledge.

Freeden, M. (2003). Editorial: Ideological boundaries and ideological systems. Journal of Political Ideologies, 8(1), 3-12. doi:10.1080/13569310306081

Freeden, M. (2006). Ideology and political theory. Journal of Political Ideologies, 11(1), 3-22. doi:10.1080/13569310500395834

Freeden, M. (2012). Editorial: Interpretative realism and prescriptive realism. Journal of Political Ideologies, 17(1), 1-11. doi:10.1080/13569317.2012.651883

Freeden, M. (2013). Editorial: Emotions, ideology and politics. Journal of Political Ideologies, 18(1), 1-10. doi:10.1080/13569317.2013.753193

Freeden, M. (2016). The resurgence of ideology studies: Twenty years of the JPI. Journal of Political Ideologies, 21(1), 1-8. doi:10.1080/13569317.2016.1113030

Freedman, B. (2014). Global environmental change.

Freire, A. (2015). Leftright ideology as a dimension of identification and of competition. Journal of Political Ideologies, 20(1), 43-68. doi:10.1080/13569317.2015.991493

Frisk, K. (2015). Citizens of planet earth: The intertwinement of religion and environmentalism in a globalization perspective. Journal for the Study of Religion, Nature and Culture, 9(1), 68-86. doi:10.1558/jsrnc.v9i1.16450

Fulton, J. (1999). Using science to advocate action on climate change. Ecosystem Health, 5(2), 110-117. doi:10.1046/j.1526-0992.1999.09916.x

Galesic, M., Kause, A., & Gaissmaier, W. (2016). A sampling framework for uncertainty in individual environmental decisions. Topics in Cognitive Science, 8(1), 242-258. doi:10.1111/tops.12172

Gee, J.P. (2005). An Introduction to Discourse Analysis, 2nd Edition. NY: NY: Taylor & Francis Group.

Gee, J. P. (2016). Discourse analysis matters: Bridging frameworks. Journal of Multicultural Discourses, 11(4), 343-359. doi:10.1080/17447143.2016.1226316

Gee, J. P., & Green, J. L. (1998). Discourse analysis, learning, and social practice: A methodological study. Review of Research in Education, 23, 119-169.

Gell-Mann, M. (1997). The Simple and the Complex. in D.S. Alberts and T.J. Czerwinski (eds.), Complexity, Global Politics, and National Security. Washington, DC: National Defense University, pp. 3-28.

Gerst, M. D., Raskin, P. D., & Rockstrm, J. (2014). Contours of a resilient global future. Sustainability (Switzerland), 6(1), 123-135. doi:10.3390/su6010123

Gifford, R. (2011). The dragons of inaction. American Psychologist, 66(4), 290-302. doi:10.1037/a0023566

Glasson, B. (2015). Subversive rearticulation between radicalism and reform: The case of ecologism. Journal of Political Ideologies, 20(2), 156-178. doi:10.1080/13569317.2015.1034463

Global environmental change. Amsterdam [u.a.]: Elsevier.

Glynos, J. (2001). The grip of ideology: A lacanian approach to the theory of ideology. Journal of Political Ideologies, 6(2), 191-214. doi:10.1080/13569310120053858

Goodenough, U. (2015). Honoring nature all the way down. Journal for the Study of Religion, Nature and Culture, 9(2), 176-180. doi:10.1558/jsrnc.v9i2.27266

Gottlieb, R. S. (2006). A greener faith: Religious environmentalism and our planet's future. Oxford University Press.

Graham, J., Haidt, J., & Nosek, B. A. (2009). Liberals and conservatives rely on different sets of moral foundations. Journal of Personality and Social Psychology, 96(5), 1029-1046. doi:10.1037/a0015141

Gray, J. (1993). Beyond the New Right: Markets, Government and the Common Environment. London: Routledge.

Green political thought (2007). . London: Taylor and Francis. Retrieved from http://ebookcentral.proquest.com/lib/waterloo/detail.action?docID=356065

Greenpeace Canada. (2011). Greenpeace Canada Annual Review. Toronto Canada.

Greenpeace Canada. (2012). Greenpeace Canada Annual Review. Toronto Canada.

Greenpeace Canada. (2013). Greenpeace Canada Annual Review. Toronto Canada.

Greenpeace Canada. (2014). Your Impact in 2014: Greenpeace Canada Annual Report. Toronto Canada.

Greenpeace Canada. (2015). Your Impact in 2015: Greenpeace Canada Annual Report. Toronto Canada.

Greenpeace Canada About Us. (2017). Retrieved from http://www.greenpeace.org/canada/en/About-us/

Greife, M., Stretesky, P. B., Shelley, T. O., & Pogrebin, M. (2017). Corporate environmental crime and environmental justice. Criminal Justice Policy Review, 28(4), 327-346. doi:10.1177/0887403415576742

Gries, P. H. (2017). Does ideology matter?*. Social Science Quarterly, 98(1), 132-143. doi:10.1111/ssqu.12276

Grizzle, R. E., & Barrett, C. B. (1998). The one body of christian environmentalism. Zygon, 33(2), 233-253.

Haidt, J., Graham, J., & Joseph, C. (2009). Above and below left-right: Ideological narratives and moral foundations. Psychological Inquiry, 20(2-3), 110-119. doi:10.1080/10478400903028573

Haidt, J., & Joseph, C. (2011). How moral foundations theory succeeded in building on sand: A response to suhler and churchland. Journal of Cognitive Neuroscience, 23(9), 2117-2122. doi:10.1162/jocn.2011.21638

Haigh, M. (2016). Fostering global citizenship tree planting as a connective practice. Journal of Geography in Higher Education, 40(4), 509-530. doi:10.1080/03098265.2016.1150438

Hacking, I. (1995). Rewriting the soul. Princeton, NJ: Princeton University Press.

Hajer, M., & Versteeg, W. (2005). A decade of discourse analysis of environmental politics: Achievements, challenges, perspectives. Journal of Environmental Policy and Planning, 7(3), 175-184. doi:10.1080/15239080500339646

Hanania, R. (2017). The personalities of politicians: A big five survey of american legislators. Personality and Individual Differences, 108, 164-167. doi:10.1016/j.paid.2016.12.020

Hannikainen, I., Cabral, G., Machery, E., & Struchiner, N. (2017). A deterministic worldview promotes approval of state paternalism. Journal of Experimental Social Psychology, 70, 251-259. doi:10.1016/j.jesp.2016.09.010

Harju-Autti, P., & Heinikangas, T. (2016). Constructing a new tool for assessing environmental worldviews of individuals and organizations case environmental worldview analysis of seven political parties in finland. Journal of Integrative Environmental Sciences, 13(2-4), 145-174. doi:10.1080/1943815X.2016.1225772

Hartzog, M. (2015). Scapegoating in the wild: A burkean analysis of two outdoor adventures gone wrong. Environmental Communication, 9(4), 520-538. doi:10.1080/17524032.2014.983535

Hatemi, P. K., Eaves, L., & McDermott, R. (2012). It's the end of ideology as we know it. Journal of Theoretical Politics, 24(3), 345-369. doi:10.1177/0951629812437749

Hatemi, P. K., Hibbing, J. R., Medland, S. E., Keller, M. C., Alford, J. R., Smith, K. B., . . . Eaves, L. J. (2010). Not by twins alone: Using the extended family design to investigate genetic influence on political beliefs. American Journal of Political Science, 54(3), 798-814. doi:10.1111/j.1540-5907.2010.00461.x

Hatemi, P. K., & McDermott, R. (2016). Give me attitudes doi:10.1146/annurev-polisci-103113-034929

Hayward, T. (2006). Ecological citizenship: A rejoinder. Environmental Politics, 15(3), 452-453. doi:10.1080/09644010600627782

Hibbing, J. R., Smith, K. B., Peterson, J. C., & Feher, B. (2014). The deeper sources of political conflict: Evidence from the psychological, cognitive, and neuro-sciences. Trends in Cognitive Sciences, 18(3), 11-113. doi:10.1016/j.tics.2013.12.010

Hinnant, A., Subramanian, R., & Young, R. (2016). User comments on climate stories: Impacts of anecdotal vs. scientific evidence. Climatic Change, 138(3-4), 411-424. doi:10.1007/s10584-016-1759-1

Hofstede, G. (2006). What did GLOBE really measure? researchers' minds versus respondents' minds. Journal of International Business Studies, 37(6), 882-896. doi:10.1057/palgrave.jibs.8400233

Holland, J., (1995). Hidden order: How adaptation builds complexity. Basic Books.
Holling, C. S. (2001). Understanding the complexity of economic, ecological, and social systems. Ecosystems 4(5):390-405

Holy-Luczaj, M. (2015). Heidegger's support for deep ecology reexamined once again: Ontological egalitarianism, or farewell to the great chain of being. Ethics and the Environment, 20(1), 45-66.

Homer-Dixon, T. (2000). The ingenuity gap. Alfred A. Knof, New York.

Homer-Dixon, T., Leader Maynard, J., Mildenberger, M., Milkoreit, M., Mock, S., Quilley, S., Schroder, T., Thagard, P., (2013). A Complex Systems Approach to the Study of Ideology: Cognitive Affective Structures and the Dynamics of Belief Systems. Journal of Social and Political Psychology, 1(1), 337-363. doi:10.5964/jspp.v1i1.36

Homer-Dixon, T., Milkoreit, M., Mock, S. J., Schröder, T., and Thagard, P. (2014). The Conceptual Structure of Social Disputes: Cognitive-Affective Maps as a Tool for Conflict Analysis and Resolution. SAGE Open, 4(1).

Horwath, D., & Norval, A. J. (2016). Demands, articulation and radical democracy. Contemporary Political Theory, 15(3), 306-312.

House, R. J., Hanges, P. J., Javidan, M., Dorfman, P. W., & Gupta, V. (Eds.). (2004). Culture, leadership, and organizations: The GLOBE study of 62 societies. Sage publications.

Humphrey, M. (2000). 'Nature' in deep ecology and social ecology: Contesting the core. Journal of Political Ideologies, 5(2), 247-268.

Humphrey, M. (2012). Getting 'real' about political ideas: Conceptual morphology and the realist critique of anglo-american political philosophy. Liberalism as ideology: Essays in honour of michael freeden () doi:oso/9780199600670.003.0013

Humphreys, A. (2014). How is sustainability structured? the discursive life of environmentalism. Journal of Macromarketing, 34(3), 265-281. doi:10.1177/0276146714521238

Inglehart, R. (1995). Public support for environmental protection: Objective problems and subjective values in 43 societies. PS: Political Science & Politics, 28(1), 57-72. doi:10.2307/420583

Inglehart, R., & Welzel, C. (2005). Modernization, cultural change, and democracy: The human development sequence. Modernization, cultural change, and democracy: The human development sequence (pp. 1-333) doi:10.1017/CBO9780511790881

Jacquet, J., Dietrich, M., & Jost, J. T. (2014). The ideological divide and climate change opinion: "Top-down" and "bottom-up" approaches. Frontiers in Psychology, 5(DEC) doi:10.3389/fpsyg.2014.01458

Janks, H. (1997). Critical discourse analysis as a research tool. Discourse: Studies in the Cultural Politics of Education, 18(3), 329-342. doi:10.1080/0159630970180302

Jost, J. T. (2006). The end of the end of ideology. American Psychologist, 61(7), 651-670. doi:10.1037/0003-066X.61.7.651

Jost, J. T. (2015). Resistance to change: A social psychological perspective. Social Research, 82(3), 607-636.

Jost, J. T. (2017). Ideological asymmetries and the essence of political psychology. Political Psychology, 38(2), 167-208. doi:10.1111/pops.12407

Jost, J. T., Federico, C. M., & Napier, J. L. (2009). Political ideology: Its structure, functions, and elective affinities doi:10.1146/annurev.psych.60.110707.163600

Jost, J. T., Sterling, J. L., & Langer, M. (2015). From is to ought and sometimes not: Compliance with and resistance to social norms from a system justification perspective. Journal of Cross-Cultural Psychology, 46(10), 1287-1291. doi:10.1177/0022022115600268

journal homepage: www.elsevier.com/locate/gloenvcha.Global environmental change doi:10.1016/j.gloenvcha.2015.09.021

Kahan, D. M. (2013). Ideology, motivated reasoning, and cognitive reflection. Judgment and Decision Making, 8(4), 407-424.

Kahan, D. M., Hoffman, D., Evans, D., Devins, N., Lucci, E., & Cheng, K. (2016). Ideology" or "situation sense"? an experimental investigation of motivated reasoning and professional judgment. University of Pennsylvania Law Review, 164(2), 349-439.

Kahan, D. M. (2015). The politically motivated reasoning paradigm, part 1: What politically motivated reasoning is and how to measure it. Emerging trends in the social and behavioral sciences () John Wiley & Sons, Inc. doi:10.1002/9781118900772.etrds0417

Kahan, D. M., Peters, E., Wittlin, M., Slovic, P., Ouellette, L. L., Braman, D., & Mandel, G. (2012). The polarizing impact of science literacy and numeracy on perceived climate change risks. Nature Climate Change, 2(10), 732. doi:10.1038/nclimate1547

Kahn, M. E. (2007). Do greens drive hummers or hybrids? environmental ideology as a determinant of consumer choice. Journal of Environmental Economics and Management, 54(2), 129-145. doi:10.1016/j.jeem.2007.05.001

Keary, M. (2016). The new prometheans: Technological optimism in climate change mitigation modelling. Environmental Values, 25(1), 7-28. doi:10.3197/096327115X14497392134801

Kennedy, E. (1979). "Ideology" from destutt de tracy to marx. Journal of the History of Ideas, 40(3), 353-368. doi:10.2307/2709242

Kenny, Michael (2003) Ecologism. In (eds) Eccleshall, R., Finlayson, A., Geoghegan, V., Kenny, M., Lloyd, M., Mackenzie, I., and Wilford, R. Political Ideologies: An Introduction (Third Edition). NY, NY: Routledge.

Khodawandi, K. (2016). Environmental Defence Canada. Charity Intelligence Canada. Retrieved from https://www.charityintelligence.ca/charity-details/277-environmental-defence-canada.

Kima, D. (2005). Christians caring for the environment in Papua New Guinea: a handbook of principles and practice. Evangelical Alliance of Papua New Guinea.

Kirsh, B., Friedland, J., Cho, S., Gopalasuntharanathan, N., Orfus, S., Salkovitch, M., . . . Webber, C. (2016). Experiences of university students living with mental health problems: Interrelations between the self, the social, and the school. Work, 53(2), 325-335. doi:10.3233/WOR-152153

Knight, K. (2006). Transformations of the concept of ideology in the twentieth century. American Political Science Review, 100(4), 619-626. doi:10.1017/S0003055406062502

Knight-Grofe, J., & Deacon, L. (2016). Canada's global engagement challenge: A comparison of national strategies. International Journal, 71(1), 129-143. doi:10.1177/0020702015622994

Koensler, A., & Papa, C. (2013). Introduction: Beyond anthropocentrism, changing practices and the politics of 'nature'. Journal of Political Ecology, 20(1), 286-294.

Kopnina, H. (2012). The lorax complex: Deep ecology, ecocentrism and exclusion. Journal of Integrative Environmental Sciences, 9(4), 235-254. doi:10.1080/1943815X.2012.742914

Kopnina, H. (2016). Of big hegemonies and little tigers: Ecocentrism and environmental justice. Journal of Environmental Education, 47(2), 139-150. doi:10.1080/00958964.2015.1048502

Kraft, P. W., Lodge, M., & Taber, C. S. (2015). Why people dont trust the evidence: Motivated reasoning and scientific beliefs. Annals of the American Academy of Political and Social Science, 658(1), 121-133. doi:10.1177/0002716214554758

Ksiazkiewicz, A., Ludeke, S., & Krueger, R. (2016). The role of cognitive style in the link between genes and political ideology. Political Psychology, 37(6), 761-776. doi:10.1111/pops.12318

Lachapelle, E. & Paterson, M. (2013). Drivers of national climate policy. Climate Policy 13(5): 547-71. DOI 10.1080/14693062.2013.811333

Lachapelle, E., Montpetit, E. and Gauvin, J. (2014). Public perceptions of expert credibility on policy issues: The role of expert framing and political worldviews. Policy Studies Journal 42(4): 674-697. DOI: 10.1111/psj.12073

Laclau, E. (2006). Ideology and post-marxism. Journal of Political Ideologies, 11(2), 103-114. doi:10.1080/13569310600687882

Laurin, K., Gaucher, D., & Kay, A. (2013). Stability and the justification of social inequality. European Journal of Social Psychology, 43(4), 246-254. doi:10.1002/ejsp.1949

Leach, M., Rockstrm, J., Raskin, P., Scoones, I., Stirling, A. C., Smith, A., . . . Olsson, P. (2012). Transforming innovation for sustainability. Ecology and Society, 17(2) doi:10.5751/ES-04933-170211

Leader Maynard, J. (2013). A map of the field of ideological analysis. Journal of Political Ideologies, 18(3), 299-327. doi:10.1080/13569317.2013.831589

Leader Maynard, J., & Mildenberger, M. (2016). Convergence and divergence in the study of ideology: A critical review. British Journal of Political Science, , 1-27. doi:10.1017/S0007123415000654

Lejano, R. P., & Dodge, J. (2017). The narrative properties of ideology: The adversarial turn and climate skepticism in the USA. Policy Sciences, , 1-21. doi:10.1007/s11077-016-9274-9

Leombruni, L. V. (2015). How you talk about climate change matters: A communication network perspective on epistemic skepticism and belief strength doi://doi.org/10.1016/j.gloenvcha.2015.08.006

Leonardo, Z. (2003). Discourse and critique: Outlines of a post-structural theory of ideology. Journal of Education Policy, 18(2), 203-214. doi:10.1080/0268093022000043038

Lesschaeve, C. (2017). The predictive power of the left-right self-placement scale for the policy positions of voters and parties. West European Politics, 40(2), 357-377. doi:10.1080/01402382.2016.1229088

Lezak, S. B., & Thibodeau, P. H. (2016). Systems thinking and environmental concern. Journal of Environmental Psychology, 46, 143-153. doi:10.1016/j.jenvp.2016.04.005

Lindeman, M., & Sirelius, M. (2001). Food choice ideologies: The modern manifestations of normative and humanist views of the world. Appetite, 37(3), 175-184. doi:10.1006/appe.2001.0437

Liu, J., Dietz, T., Carpenter, S.R., Alberti, M., Folke, C., Moran, E., Pell, A.N., Deadman, P., Kratz, T., Lubchenco, J. & Ostrom, E., (2007). Complexity of coupled human and natural systems. science, 317(5844), pp.1513-1516.

Lloyd, M. (2014). The end of ideology. Political ideologies: An introduction, fourth edition (pp. 289-310) doi:10.4324/9781315814384

Lockie, S. (2013). Market instruments, ecosystem services, and property rights: Assumptions and conditions for sustained social and ecological benefits. Land use Policy, 31, 90-98. doi:10.1016/j.landusepol.2011.08.010

Lomborg, B. (2004a). First things first. New Scientist, 184(2471), 23.

Lomborg, B. (2004b). Need for economists to set global priorities. Nature, 431(7004), 17. doi:10.1038/431017c

Lovelock, J. (1995). The ages of Gaia: A biography of our living earth. Oxford University Press, USA.

Lubell, M. (2013). Governing institutional complexity: The ecology of games framework. Policy Studies Journal, 41(3), 537-559. doi:10.1111/psj.12028

Luederitz, C., Abson, D. J., Audet, R., & Lang, D. J. (2017). Many pathways toward sustainability: Not conflict but co-learning between transition narratives. Sustainability Science, 12(3), 393-407. doi:10.1007/s11625-016-0414-0

Luke, T. W. (1987). Social ecology as critical political economy. The Social Science Journal, 24(3), 303-315. doi:10.1016/0362-3319(87)90078-4

Luke, T. W. (2002). Deep ecology: Living as if nature mattered: Devall and sessions on defending the earth. Organization and Environment, 15(2), 178-186. doi:10.1177/10826602015002005

Luxon, E. M., & Wong, W. H. (2017). Agenda-setting in greenpeace and amnesty: The limits of centralisation in international NGOs. Global Society, , 1-31. doi:10.1080/13600826.2016.1277190

MacKenzie, I. (2013). The Idea of Ideology. In Eccleshall,R., Finlayson, A., Geoghegan, V., Kenny, M., Lloyd, M., MacKenzie, I., & Wilford, R. (Eds). Political Ideologies: an Introduction. NY, NY: Routledge.

Mamadouh, V. (1999). Grid-group cultural theory: An introduction. GeoJournal, 47(3), 395-409. doi:1007024008646

Maxwell-Smith, M. A., Conway, P. J., Wright, J. D., & Olson, J. M. (2016). Translating environmental ideologies into action: The amplifying role of commitment to beliefs. Journal of Business Ethics, , 1-20. doi:10.1007/s10551-016-3404-3

Mayer, A., & Smith, E. K. (2017). Education, political affiliation and energy policy in the united states: A case of tea party exceptionalism? Energy Research and Social Science, 23, 74-81. doi:10.1016/j.erss.2016.12.002

McAlpine, C. A., Seabrook, L. M., Ryan, J. G., Feeney, B. J., Ripple, W. J., Ehrlich, A. H., & Ehrlich, P. R. (2015). Transformational change: Creating a safe operating space for humanity. Ecology and Society, 20(1) doi:10.5751/ES-07181-200156

McCarthy, J., & Prudham, S. (2004). Neoliberal nature and the nature of neoliberalism. Geoforum, 35(3), 275-283. doi:10.1016/j.geoforum.2003.07.003

McCrea, R., Leviston, Z., & Walker, I. A. (2015). Climate change skepticism and voting behavior: What causes what? Environment and Behavior, 48(10), 1309-1334. doi:10.1177/0013916515599571

McCright, A. M., Marquart-Pyatt, S. T., Shwom, R. L., Brechin, S. R., & Allen, S. (2016). Ideology, capitalism, and climate: Explaining public views about climate change in the united states. Energy Research and Social Science, 21, 180-189. doi:10.1016/j.erss.2016.08.003

Mcleod, E., & Palmer, M. (2015). Why conservation needs religion. Coastal Management, 43(3), 238-252. doi:10.1080/08920753.2015.1030297

Meadowcroft, J. (2001). Green political perspectives at the dawn of the twenty-first century. In (eds) Freeden, M., Reassessing Political Ideologies. NY, NY: Routledge.

M'Gonigle, R. M. (1999). Ecological economics and political ecology: Towards a necessary synthesis. Ecological Economics, 28(1), 11-26. doi:10.1016/S0921-8009(98)00121-9

Mies, M., & Shiva, V. (1993). Ecofeminism. Halifax, N.S: Fernwood Publications.

Mildenberger, M. (2013). Exploring the State Space of Ideological Possibility. Waterloo Institute for Complexity and Innovation Working Paper no. 4.

Milkoreit, M. (2012). What's the Mind Got to Do With It? A Cognitive Approach to Global Climate Governance. Stockholm Environment Institute, Working Paper, 2012-04.

Milkoreit, M., & Mock, S. (2014). The Network Mind: Collective Identities and the Cognitive-Affective Nature of Conflict. In: Masys A. (eds) Networks and Network Analysis for Defence and Security. Lecture Notes in Social Networks. Springer, Cham.

Minkov, M., & Hofstede, G. (2012). Hofstede's fifth dimension: New evidence from the world values survey. Journal of Cross-Cultural Psychology, 43(1), 3-14. doi:10.1177/0022022110388567

Mobasher, A., Ali, A. M., Abdullah, F. S., & Yuit, C. M. (2013). Review of studies on corporate annual reports during 1990-2012. International Journal of Applied Linguistics and English Literature, 2(2), 133-141. doi:10.7575/aiac.ijalel.v.2n.2p.133

Mock, S., and Homer-Dixon, T. (2015). The Ideological Conflict Project: Theoretical and Methodological Foundations. CIGI Papers. 2015(74).

Monteiro, C. A., Pfeiler, T. M., Patterson, M. D., & Milburn, M. A. (2017). The carnism inventory: Measuring the ideology of eating animals. Appetite, 113, 51-62. doi:10.1016/j.appet.2017.02.011

Moore, A. (2016). Anthropocene anthropology: Reconceptualizing contemporary global change. Journal of the Royal Anthropological Institute, 22(1), 27-46. doi:10.1111/1467-9655.12332

Morton, T. A., & Postmes, T. (2011). What does it mean to be human? how salience of the human category affects responses to intergroup harm. European Journal of Social Psychology, 41(7), 866-873. doi:10.1002/ejsp.831

Mount, F. (2012). The end of ideology, again? Public Policy Research, 19(2), 112-118. doi:10.1111/j.1744-540X.2012.00694.x

Muis, K. R., Pekrun, R., Sinatra, G. M., Azevedo, R., Trevors, G., Meier, E., & Heddy, B. C. (2015). The curious case of climate change: Testing a theoretical model of epistemic beliefs, epistemic emotions, and complex learning. Learning and Instruction, 39, 168-183. doi:10.1016/j.learninstruc.2015.06.003

Muradian, R., Arsel, M., Pellegrini, L., Adaman, F., Aguilar, B., Agarwal, B., . . . Urama, K. (2013). Payments for ecosystem services and the fatal attraction of win-win solutions. Conservation Letters, 6(4), 274-279. doi:10.1111/j.1755-263X.2012.00309.x

Naess, A. (1973). The shallow and the deep, long-range ecology movement: A summary. Inquiry (United Kingdom), 16(1-4), 95-100. doi:10.1080/00201747308601682

Naess, A. (1989). From ecology to ecosophy, from science to wisdom. World Futures, 27(2-4), 185-190. doi:10.1080/02604027.1989.9972135

Naess, A. (1993). Sustainability! the integral approach. Paradigms, 7(1), 66-72. doi:10.1080/13600829308443040

Naess, A., & Sessions, G. (1984). A Deep Ecology Eight Point Platform. Readings on the Philosophy and Practice of the New Environmentalism. Boston and London: Shambhala.

Narveson, J. (1995). The case for free market environmentalism. Journal of Agricultural and Environmental Ethics, 8(2), 145-156. doi:10.1007/BF02251877

Neu, D., Warsame, H., & Pedwell, K. (1998). Managing public impressions: environmental disclosures in annual reports. Accounting, organizations and society, 23(3), 265-282.

Neumayer, E. (2004). The environment, left-wing political orientation and ecological economics. Ecological Economics, 51(3-4), 167-175. doi:10.1016/j.ecolecon.2004.06.006

Newton, A. C. (2011). The green economy and the knowledge economy: Exploring the interface. International Journal of Green Economics, 5(3), 231-247. doi:10.1504/IJGE.2011.044235

Nicolosi, E., & Feola, G. (2016). Transition in place: Dynamics, possibilities, and constraints. Geoforum, 76, 153-163. doi:10.1016/j.geoforum.2016.09.017

Norgaard, K.M. (2009). Behavioral Challenges in Responding to Climate Change, Concept Note for World Development Report, World Bank.

Norval, A. J. (2000). The things we do with words-Contemporary approaches to the analysis of ideology. British Journal of Political Science, 30(2), 313-346.

Oosterman, J. (2016). Making climate action meaningful: Communication practices in the new zealand climate movement. New Zealand Sociology, 31(5Special Issue), 131-157.

Ostrom, E., (2009). A general framework for analyzing sustainability of social-ecological systems. Science, 325(5939), pp.419-422.

O'Riordan, T. (1977). Environmental ideologies. Environm.Planning A, 9(1), 3-14.

Palinkas, L., Horwitz, S.M., Green, C.A., Wisdom, J.P., Naihua, D., Hoagwood, K. (2015). Purposeful Sampling for Qualitative Data Collection and Analysis in Mixed Method Implementation Research. Adm Policy Mental Health. 42(5): 533-544.

Palm, R., Lewis, G. B., & Feng, B. (2017). What causes people to change their opinion about climate change? Annals of the American Association of Geographers, , 1-14. doi:10.1080/24694452.2016.1270193

Palys, T. (2008). Purposive sampling. In L. M. Given (eds) The Sage Encyclopedia of Qualitative Research Methods. (Vol.2). Sage: Los Angeles, pp. 697-8.

Panayotou, T. (1994). Empirical tests and policy analysis of environmental degradation at different stages of economic development. Pacific and Asian Journal of Energy, 4(1), 23-42.

Pennington, M. (2005). Liberty, markets, and environmental values: A hayekian defense of free-market environmentalism. Independent Review, 10(1), 39-57.

People's grasp of scientific debates can improve if communicators build on the fact that cultural values influence what, whom we believe, & says, D. K. (2010). Fixing the communications failure

Perry, R., & Sibley, C. G. (2012). Big-five personality prospectively predicts social dominance orientation and right-wing authoritarianism. Personality and Individual Differences, 52(1), 3-8. doi:10.1016/j.paid.2011.08.009

Pillay, K., & Maharaj, M. (2016). The business of advocacy: A case study of greenpeace. Analyzing the strategic role of social networking in firm growth and productivity (pp. 59-75) doi:10.4018/978-1-5225-0559-4.ch004

Prpic, K. (2011). Science, the public, and social elites: How the general public, scientists, top politicians and managers perceive science. Public Understanding of Science, 20(6), 733-750. doi:10.1177/0963662510366363

Qadeer, I., & Arathi, P. M. (2016). Words, ideas and ideology in the shifting sand of markets. Indian Journal of Gender Studies, 23(1), 105-132. doi:10.1177/0971521515612868

Randazzo, A., and Haidt, J. (2015). Are Economists Influenced by their Moral Worldviews? Evidence from the Moral Foundations of Economists Questionnaire. Working Paper.

Ramos, H. (2015). Mapping the field of environmental justice: Redistribution, recognition and representation in ENGO press advocacy. Canadian Journal of Sociology, 40(3), 355-376.

Raskin, P. D. (2014). Scenes from the great transition. Creating a sustainable and desirable future: Insights from 45 global thought leaders (pp. 55-64) doi:10.1142/9789814546898_0007

Raskin, P. D., Electris, C., & Rosen, R. A. (2010). The century ahead: Searching for sustainability. Sustainability, 2(8), 2626-2651. doi:10.3390/su2082626

Redekop, B. W. (2014). Embodying the story: Theodore Roosevelts Conservation Leadership. Leadership, 12(2), 159-185. doi:10.1177/1742715014546875

Rees, W. E. (2002). Globalization and sustainability: Conflict or convergence? Bulletin of Science, Technology and Society, 22(4), 249. doi:10.1177/0270467602022004001

Rees, W. E. (2009). The ecological crisis and self-delusion: Implications for the building sector. Building Research and Information, 37(3), 300-311. doi:10.1080/09613210902781470

Rickard, L. N., Yang, Z. J., & Schuldt, J. P. (2016). Here and now, there and then: How "departure dates" influence climate change engagement. Global Environmental Change, 38, 97-107. doi:10.1016/j.gloenvcha.2016.03.003

Rockström, J. (2016). Future earth. Science, 351(6271), 319. doi:10.1126/science.aaf2138

Rockström, J., Steffen, W., Noone, K., Persson, A., Chapin III, F. S., Lambin, E., . . . Foley, J. (2009). Planetary boundaries: Exploring the safe operating space for humanity. Ecology and Society, 14(2)

Roper, J., Ganesh, S., & Zorn, T. E. (2016). Doubt, delay, and discourse: Skeptics strategies to politicize climate change. Science Communication, 38(6), 776-799. doi:10.1177/1075547016677043

Rots, A. P. (2015). Sacred forests, sacred nation: The shinto environmentalist paradigm and the rediscovery of chinju no mori. Japanese Journal of Religious Studies, 42(2), 205-233.

Sale, K. (1985). Dwellers in the land: The bioregional vision. University of Georgia Press.

Sapiains, R., Beeton, R. J. S., & Walker, I. A. (2016). Individual responses to climate change: Framing effects on pro-environmental behaviors. Journal of Applied Social Psychology, 46(8), 483-493. doi:10.1111/jasp.12378

Sawyer, R. K. (2012). Response to "emergence in sociology". Philosophy of the Social Sciences, 42(2), 270-275. doi:10.1177/0048393111399239

Sax, L. J., Gilmartin, S. K., & Bryant, A. N. (2003). Assessing response rates and nonresponse bias in web and paper surveys. Research in Higher Education, 44(4), 409-432. doi:1024232915870

Schmidt, J. J., Brown, P. G., & Orr, C. J. (2016). Ethics in the anthropocene: A research agenda. Anthropocene Review, 3(3), 188-200. doi:10.1177/2053019616662052

Schmidt, W. (1997). World-wide web survey research: Benefits, potential problems, and solutions. Behavior Research Methods, Instruments, & Computers, 29(2), 274-279. doi:10.3758/BF03204826

Schragger, R. C. (2005). The anti-chain store movement, localist ideology, and the remnants of the progressive constitution, 1920-1940. Iowa Law Review, 90(3), 1011-1094.

Scruton, R. (2006). Conservatism. Political theory and the ecological challange (pp. 7-19) doi:10.1017/CBO9780511617805.002

Scruton, R. (2012). Green philosophy: how to think seriously about the planet. London: Atlantic.

Sderbaum, P. (1999). Values, ideology and politics in ecological economics. Ecological Economics, 28(2), 161-170. doi:10.1016/S0921-8009(98)00139-6

Sessions, G. (1987). The deep ecology movement: A review. Environmental Review, 11(2), 105-125.

Shaw, J. S. (1994). Real people prefer free-market environmentalism: Reply to friedman. Critical Review, 8(3), 475-482. doi:10.1080/08913819408443354

Shiva, V. (2010). Earth democracy: Beyond dead democracy and killing economies. Capitalism, Nature, Socialism, 21(1), 83-95. doi:10.1080/10455751003655922

Shome, D., Weber, E., Broad, K., Soghoian, A., Logg, J., Freedman, A., . . . LoBuglio, M. (2009). The psychology of climate change communication: A guide for scientists, journalists, educators, political aides, and the interested public Center for Research on Environmental Decisions. Retrieved from http://hdl.handle.net/11245/1.315602

Sibley, C. G., Osborne, D., & Duckitt, J. (2012). Personality and political orientation: Meta-analysis and test of a threat-constraint model. Journal of Research in Personality, 46(6), 664-677. doi:10.1016/j.jrp.2012.08.002

Sideris, L. H. (2015). Science as sacred myth? ecospirituality in the anthropocene age. Journal for the Study of Religion, Nature and Culture, 9(2), 136-153. doi:10.1558/jsrnc.v9i2.27259

Sierra Club Canada. (2012). Annual Report 2012.

Sierra Club Canada. (2013). Annual Report 2013.

Sierra Club Canada (2014). Annual Report 2014.

Sierra Club Canada (2015). Annual Report 2015

Sierra Club Canada About Us. (2017). Retrieved from http://www.sierraclub.ca/en/about

Simon, J., (1981). The Ultimate Resource. Princeton, NJ: Princeton University Press.

Skinner, C., & Wakefield, J. (2017). Introduction to the design and analysis of complex survey data. Statistical Science, 32(2), 165-175. doi:10.1214/17-STS614

Skinner, Q. (1974). Some problems in the analysis of political thought and action. Political Theory, 2(3), 277-303. doi:10.1177/009059177400200303

Smith, W., & Gough, A. (2016). Critical discourse analysis of sustainability curriculum. Curriculum Perspectives, 36(2), 28-40.

Smith-Carrier, T., & Lawlor, A. (2017). Realising our (neoliberal) potential? A critical discourse analysis of the poverty reduction strategy in ontario, canada. Critical Social Policy, 37(1), 105-127. doi:10.1177/0261018316666251

Soborski, R. (2004). Anti-globalism and ecologism in comparative perspective. Europe, globalization and sustainable development (pp. 31-46) doi:10.4324/9780203495568

Soborski, R. (2007). Is ideological unity against capitalist globalization possible? A conceptual analysis. International Journal of Interdisciplinary Social Sciences, 2(3), 119-125.

Soborski, R. (2012). Globalization and ideology: A critical review of the debate. Journal of Political Ideologies, 17(3), 323-346. doi:10.1080/13569317.2012.716632

Sponsel, L. E. (2014). Spiritual ecology as an international environmental movement doi:10.1108/S2051-503020140000015011

Stavins, R.N. (1998). Market-Based Environmental Policies. Resources for the Future.

Stavins, R.N. (2001). Lessons from the American Experiment With Market-Based Environmental Policies. Resources for the Future.

Stavrakakis, Y. (1997). Green ideology: A discursive reading. Journal of Political Ideologies, 2(3), 259-279.

Steffen, W., Persson, Deutsch, L., Zalasiewicz, J., Williams, M., Richardson, K., . . . Svedin, U. (2011). The anthropocene: From global change to planetary stewardship. Ambio, 40(7), 739-761. doi:10.1007/s13280-011-0185-x

Steffen, W., Richardson, K., Rockstrm, J., Cornell, S. E., Fetzer, I., Bennett, E. M., . . . Srlin, S. (2015). Planetary boundaries: Guiding human development on a changing planet. Science, 347(6223) doi:10.1126/science.1259855

Stern, P. C. (2000). Toward a coherent theory of environmentally significant behavior. Journal of Social Issues, 56(3), 407-424.

Stern, P. C., Dietz, T., & Guagnano, G. A. (1998). A brief inventory of values. Educational and Psychological Measurement, 58(6), 984-1001.

Stern, P. C., & Raimi, K. T. (2015). Simple mental models for informing climate choices. Social Research, 82(3), 581-606.

Stevenson, H. (2015). Contemporary discourses of green political economy: A Q method analysis. Journal of Environmental Policy and Planning. 1-21. doi:10.1080/1523908X.2015.1118681

Sullivan, S. (2017). On natural capital, fairy tales and ideology. Development and Change, 48(2), 397-423. doi:10.1111/dech.12293

Svoboda, T. (2016). Environmental Philosophy as A Way of Life. Ethics & the Environment, 21(1), 39-60.

Talshir, G. (1998). Modular ideology: The implications of green theory for a reconceptualization of 'ideology'. Journal of Political Ideologies, 3(2), 169-192.

Taylor, B. (2001). Earth and nature-based spirituality (part I): From deep ecology to radical environmentalism. Religion, 31(2), 175-193.

Taylor, D. E. (2011). Introduction: The evolution of environmental justice activism, research, and scholarship. Environmental Practice, 13(4), 280-301. doi:10.1017/S1466046611000329

Taylor, D. E. (2015). Gender and racial diversity in environmental organizations: Uneven accomplishments and cause for concern. Environmental Justice, 8(5), 165-180. doi:10.1089/env.2015.0018

Thagard, P. (2010). EMPATHICA: A Computer Support System with Visual Representations for Cognitive-affective Mapping. In Proceedings of the Workshop on Visual Reasoning and Representation. Menlo Park, CA: AAAI Press: 79-81.

Thagard, P. (2012). Values in science: Cognitive-affective maps. Ch. 17 of The cognitive science of science: Explanation, discovery, and conceptual change. Cambridge, MA: MIT Press.

Thoyre, A. (2015). Constructing environmentalist identities through green neoliberal identity work. Journal of Political Ecology, 22(1), 146-163.

Tindall, D. B., & Piggot, G. (2015). Influence of social ties to environmentalists on public climate change perceptions. Nature Climate Change, 5(6), 546-549. doi:10.1038/nclimate2597

Tokar, B. (2010). Bookchin's social ecology and its contributions to the red-green movement. Eco-socialism as politics: Rebuilding the basis of our modern civilisation (pp. 123-139) doi:10.1007/978-90-481-3745-9_8

Tritt, S. M., Peterson, J. B., Page-Gould, E., & Inzlicht, M. (2016). Ideological reactivity: Political conservatism and brain responsivity to emotional and neutral stimuli. Emotion, 16(8), 1172-1185. doi:10.1037/emo0000150

Tulloch, L. (2013). On science, ecology and environmentalism. Policy Futures in Education, 11(1), 100-114. doi:10.2304/pfie.2013.11.1.100

van Dijk, T. A. (2006). Ideology and discourse analysis. Journal of Political Ideologies, 11(2), 115-140. doi:10.1080/13569310600687908

Van Dijk, T. A. (2011). Discourse and ideology. Discourse studies: A multidisciplinary introduction (pp. 379-407) doi:10.4135/9781446289068.n18

Van Hiel, A., Cornelis, I., & Roets, A. (2007). The intervening role of social worldviews in the relationship between the five-factor model of personality and social attitudes. European Journal of Personality, 21(2), 131-148. doi:10.1002/per.618

Vincent, A. (1993). The character of ecology. Environmental Politics, 2(2), 248-276. doi:10.1080/09644019308414074

Vincent, A. (1998). Liberalism and the environment. Environmental Values, 7(4), 443-459.

von Bertalanffy, L. (1950). An Outline of General System Theory. The British Journal for the Philosophy of Science, 1(2), pp. 134-165.

Von Weizscker, E. U. (2006). 'Factor four' and sustainable development in the age of globalization. The future of sustainability (pp. 179-192) doi:10.1007/1-4020-4908-0_9

Von Weizscker, E. U. (2012). Environmental impacts of privatization. Limits to privatization how to avoid too much of a good thing a report to the club of rome (pp. 271-282) doi:10.4324/9781849771832

Von Weizscker, E. U., Young, O. R., Finger, M., & Beisheim, M. (2012). Limits to privatization how to avoid too much of a good thing a report to the club of rome. Limits to privatization how to avoid too much of a good thing a report to the club of rome (pp. 1-414) doi:10.4324/9781849771832

Walsh, L. (2017). Understanding the rhetoric of climate science debates. Wiley Interdisciplinary Reviews: Climate Change, 8(3) doi:10.1002/wcc.452

Wang, N. (2001). The coevolution of institutions, organizations, and ideology: The longlake experience of property rights transformation. Politics and Society, 29(3), 415-445.

Wanner, T. (2015). The new passive revolution of the green economy and growth discourse: Maintaining the sustainable development of neoliberal capitalism. New Political Economy, 20(1), 21-41. doi:10.1080/13563467.2013.866081

Ward, J. D., Sutton, P. C., Werner, A. D., Costanza, R., Mohr, S. H., & Simmons, C. T. (2016). Is decoupling GDP growth from environmental impact possible? PLoS ONE, 11(10) doi:10.1371/journal.pone.0164733

Warner, K. D., Brook, A., & Shaw, K. (2012). Facilitating religious environmentalism: Ethnology plus conservation psychology tools can assess an interfaith environmental intervention. Worldviews: Environment, Culture, Religion, 16(2), 111-134. doi:10.1163/156853512X640833

Waters, C. N., Zalasiewicz, J., Summerhayes, C., Barnosky, A. D., Poirier, C., Galuszka, A., . . . Wolfe, A. P. (2016). The anthropocene is functionally and stratigraphically distinct from the holocene. Science, 351(6269) doi:10.1126/science.aad2622

Webb, B.S. & Hayhoe, D (2017) Assessing the Influence of an Educational Presentation on Climate Change Beliefs at an Evangelical Christian College. Journal of Geoscience Education: August 2017, Vol. 65, No. 3, pp. 272-282

Weltman, D. & Billig, M. (2001). The political psychology of contemporary anti-politics: A discursive approach to the end-of-ideology era. Political Psychology, 22(2), 367-381.

Welzel, C. (2014). Evolution, empowerment, and emancipation: How societies climb the freedom ladder. World Development, 64, 33-51. doi:10.1016/j.worlddev.2014.05.016

White, A. (2010). Religious environmentalism as a vital contribution to sustainability. Journal of Enterprising Communities, 4(3), 268-278. doi:10.1108/17506201011068255

Wimberley, E. T., & Hobbs, B. (2013). The conservative ecologist and free market environmentalism: Classical liberalism reasserted. International Journal of Sustainability Policy and Practice, 8(4), 29-44.

Wissenburg, M. (2013). Political appeasement and academic critique: The case of environmentalism. Philosophy and Social Criticism, 39(7), 675-691. doi:10.1177/0191453713491233

Wissenburg, M. L. J. (1997). A taxonomy of green ideas. Journal of Political Ideologies, 2(1), 29-50.

Wodak, R. (2009). Critical discourse analysis: history, agenda, theory, and methodology. In R. Wodak, & M. Meyer (eds.), Methods for Critical Discourse Analysis. (pp. 1-33). London: Sage (2nd revised edition)

Wodak, R. (2011). Complex texts: Analysing, understanding, explaining and interpreting meanings. Discourse Studies, 13(5), 623-633. doi:10.1177/1461445611412745

Wodak, R., & Meyer, M. (Eds.) (2009). Methods of Critical Discourse Analysis. (Introducing Qualitative Methods). London: Sage

Wolsko, C., Ariceaga, H., & Seiden, J. (2016). Red, white, and blue enough to be green: Effects of moral framing on climate change attitudes and conservation behaviors. Journal of Experimental Social Psychology, 65, 7-19. doi:10.1016/j.jesp.2016.02.005

World Wildlife Fund. (2012). WWF – Canada Annual Review.

World Wildlife Fund. (2013). WWF – Canada Annual Report.

World Wildlife Fund. (2014). WWF – Canada Annual Report.

World Wildlife Fund. (2015). WWF – Canada Annual Report: Together, it is possible.

World Wildlife Fund. (2016). 2016 WWF – Canada Annual Report: We are all Wildlife.

World Wildlife Fund About Us. (2017). Retrieved From http://www.wwf.ca/about_us/

Wright, J. P., Beaver, K. M., Morgan, M. A., & Connolly, E. J. (2017). Political ideology predicts involvement in crime. Personality and Individual Differences, 106, 236-241. doi:10.1016/j.paid.2016.10.062

Wright, K. B. (2005). Researching internet-based populations: Advantages and disadvantages of online survey research, online questionnaire authoring software packages, and web survey services. Journal of Computer-Mediated Communication, 10(3), 00. doi:10.1111/j.1083-6101.2005.tb00259.x

Wu Suen, L. -., Huang, H. -., & Lee, H. -. (2014). A comparison of convenience sampling and purposive sampling. Journal of Nursing, 61(3), 105-111. doi:10.6224/JN.61.3.105

Wuensche, A. (2010). Complex and chaotic dynamics, basins of attraction, and memory in discrete networks. Acta Physica Polonica B, Proceedings Supplement, 3(2), 463-478.

Xu, X., Plaks, J. E., & Peterson, J. B. (2016). From dispositions to goals to ideology: Toward a synthesis of personality and social psychological approaches to political orientation. Social and Personality Psychology Compass, 10(5), 267-280. doi:10.1111/spc3.12248

Young, O. R. (2009). Governance for sustainable development in a world of rising interdependencies. Governance for the environment: New perspectives (pp. 12-40) doi:10.1017/CBO9780511627170.003

Yun, G. W., & Trumbo, C. W. (2000). Comparative response to a survey executed by post, E-mail, & web form. Journal of Computer-Mediated Communication, 6(1), 0. doi:10.1111/j.1083-6101.2000.tb00112.x

Yuthas, K., Rogers, R., & Dillard, J. F. (2002). Communicative action and corporate annual reports. Journal of Business Ethics, 41(1-2), 141-157. doi:1021314626311

Zalasiewicz, J., Williams, M., Steffen, W., & Crutzen, P. (2010). The New World of the Anthropocene. Environmental Science & Technology, 44 (7), 2228-2231.

Zia, A., & Todd, A. M. (2010). Evaluating the effects of ideology on public understanding of climate change science: How to improve communication across ideological divides? Public Understanding of Science, 19(6), 743-761. doi:10.1177/0963662509357871

Ziegler, A. (2017). Political orientation, environmental values, and climate change beliefs and attitudes: An empirical cross country analysis. Energy Economics, 63, 144-153. doi:10.1016/j.eneco.2017.01.022

Zinn, J., & Zinn, O. (2016). Living in the Anthropocene: towards a risk-taking society, Environmental Sociology, 2:4, 385-394.

Appendices

Appendix A: Homer-Dixon's Dimensions of Ideology

		Issue	Question		Belief Strength					
IS	General	*Time*	Which is more important, the future or the past?	**FUTURE**	S	M	AMB/NP	M	S	**PAST**
		Change	Do things constantly change or do they basically stay the same?	**MOVEMENT, GROWTH**	S	M	AMB/NP	M	S	**STASIS**
		Intelligibility of Reality	Is the universe understandable?	**INTELLIGIBLE**	S	M	AMB/NP	M	S	**UN-INTELLIGIBLE**
		Spirituality of Reality	Is the universe infused with a spirit?	**MATERIAL**	S	M	AMB/NP	M	S	**SPIRITUAL**
		Moral Principles	Are moral principles objective and universal? (Relativism vs. absolutism)	**SUBJECTIVE, CONTEXTUAL AND MALLEABLE**	S	M	AMB/NP	M	S	**OBJECTIVE, UNIVERSAL AND INVIOLABLE**
	The individual	*Human Agency*	Can a person choose his/her fate? (Determinism vs. free will)	**WEAK**	S	M	AMB/NP	M	S	**POWERFUL**
		Human Nature	Are people basically benevolent or malevolent?	**BENEVOLENT**	S	M	AMB/NP	M	S	**MALEVOLENT**
		Humans and Nature	Are humans part of nature or exceptional?	**HUMANS PART OF NATURE, EMBEDDED**	S	M	AMB/NP	M	S	**HUMANS EXCEPTIONAL, SEPARATE**
	The individual in the group	*Social Differentiation*	Are the differences between people and/or groups of people large and essential?	**SMALL AND UNIMPORTANT**	S	M	AMB/NP	M	S	**LARGE AND ESSENTIAL**
		Personal Identity	What is the main source of my identity?	**MY GROUP**	S	M	AMB/NP	M	S	**MYSELF**
OUGHT		*Personal Responsibility*	How far from me does my responsibility extend? (Empathy)	**TO COMMUNITY**	S	M	AMB/NP	M	S	**TO SELF**
		Power	Is use of power over others usually wrong or often right? (Justice)	**USUALLY WRONG**	S	M	AMB/NP	M	S	**OFTEN RIGHT**
		Wealth	Is relative wealth moral or immoral? (Fairness)	**IMMORAL**	S	M	AMB/NP	M	S	**MORAL**

Source: Mock and Homer-Dixon 2015

Appendix B: General Questionnaire

Demographic Questions

1) What is your age?
18-24 years old
25-34 years old
35-44 years old
45-54 years old
55-64 years old
65-74 years old
75 years or older

2) What is the highest level of education that you have completed?
Less than secondary school graduation (highest)
Secondary School graduation of equivalent
Bachelor's Degree or equivalent
College Diploma or equivalent
Master’s Degree
Earned Doctorate

3) Which of the following environmental organization(s) are you a member (Select all that apply)?
Greenpeace
Sierra Club
David Suzuki Foundation
Environmental Defence Canada
Nature Canada
Nature Conservancy of Canada
World Wildlife Fund
Pembina Institute
Canadian Parks and Wilderness Society
Ducks Unlimited
Tides Canada
Other *

4) What is your province or territory of residence?

5) What best describes the community you live in?
Rural
Urban
Suburban

6) Do you consider yourself an environmentalist?

7) What environmental ideology or philosophy best matches your belief system?
N/A
BioEnvironmentalist
Market Liberalism
Institutionalism

Social Green
Open Source Ecologist
Environmental Justice
Environmental Conservative
Transition Movement
Deep Ecology
Ecofeminism
Eco-Spirituality
Ecologism
Other

Please rank your level of agreement with the following statements <Strongly Agree, Agree, Neither Agree nor Disagree, disagree, strongly disagree 1-5>

8) Environmental degradation is linked to social inequality

9) Markets ignore costs to environments and communities

10) Canada should not allow new pipeline projects

11) Globalization allows for increased efficiency and networks to promote sustainability

12) It is possible to understand the way that the natural world operates

13) Stricter controls are needed to protect municipal water supplies from the water bottling industry

14) Innovation is fundamental to promoting social and environmental sustainability

15) My highest responsibility is to my family and self

16) Society must create wealth to address material needs even if it causes environmental degradation

17) Material inequality between individuals and communities should be a consideration when making environmental policy decisions

18) Society should be structured based on ecological principles

19) Previous cultures have practiced greater levels of environmental protection

20) Costs should reflect the impact a product has on the environment

21) Environmental issues are issues of equity

22) There is a spiritual element to the world that needs to be considered

23) Canada should halt new oil and gas expansion

24) Economic activity and production should be localized

24) Diversity is valuable

26) Community needs should be placed before personal needs

27) Protection of the environment should be the highest concern for governments

28) The first priority of society should be to address environmental issue even if it leads to greater social inequality.

29) Logging should be banned in old growth forests

30) More should be done to stop population growth

–

Please rank your level of agreement between two options (Strongly Agree, Moderately Agree, Ambivalent, Moderately Agree, Strongly Agree)

31) Technological advancement is necessary to promote sustainability - Technological advancements often have more negative than positive impacts

32) Markets left unhindered by government interference will properly set prices that protect scarce resource - Markets need to be regulated to protect the environment

33) Moral principles are subjective - There are objective moral principles

34) The economy is ultimately restrained by biophysical limits - Human ingenuity can allow for resources substitutions and limitless economic growth

35) Human culture moves toward greater levels of progress - There is no set trajectory for human cultures

36) Government Regulation
is necessary for the public good – does more harm than good

37) Individual success is:
Largely based on institutions and social structure – Their own hard work

38) Material Inequality:
Should be limited – is acceptable as long as opportunities are equitable

39) The role of government should be:
Reduced – Expanded

40) The natural environment is valuable:
Based on its value to society – its intrinsic value beyond its usefulness to humans

41) My identity is based primarily on:
My own actions – my group associations

42) My responsibilities extend to:
My self – my community

43) The use of power over others:
Is usually right – usually wrong

44) When making decisions I think more to the:
Past – Future

45) The natural world:
Can be fully understood by the human mind - will never be fully comprehended

46) Events unfold in the world through:
Fate - Freewill

47) People are generally:
Benevolent - Malevolent

48) The best decisions arrive from:
Competition - Cooperation

49) Humans are:
part of nature - exceptional

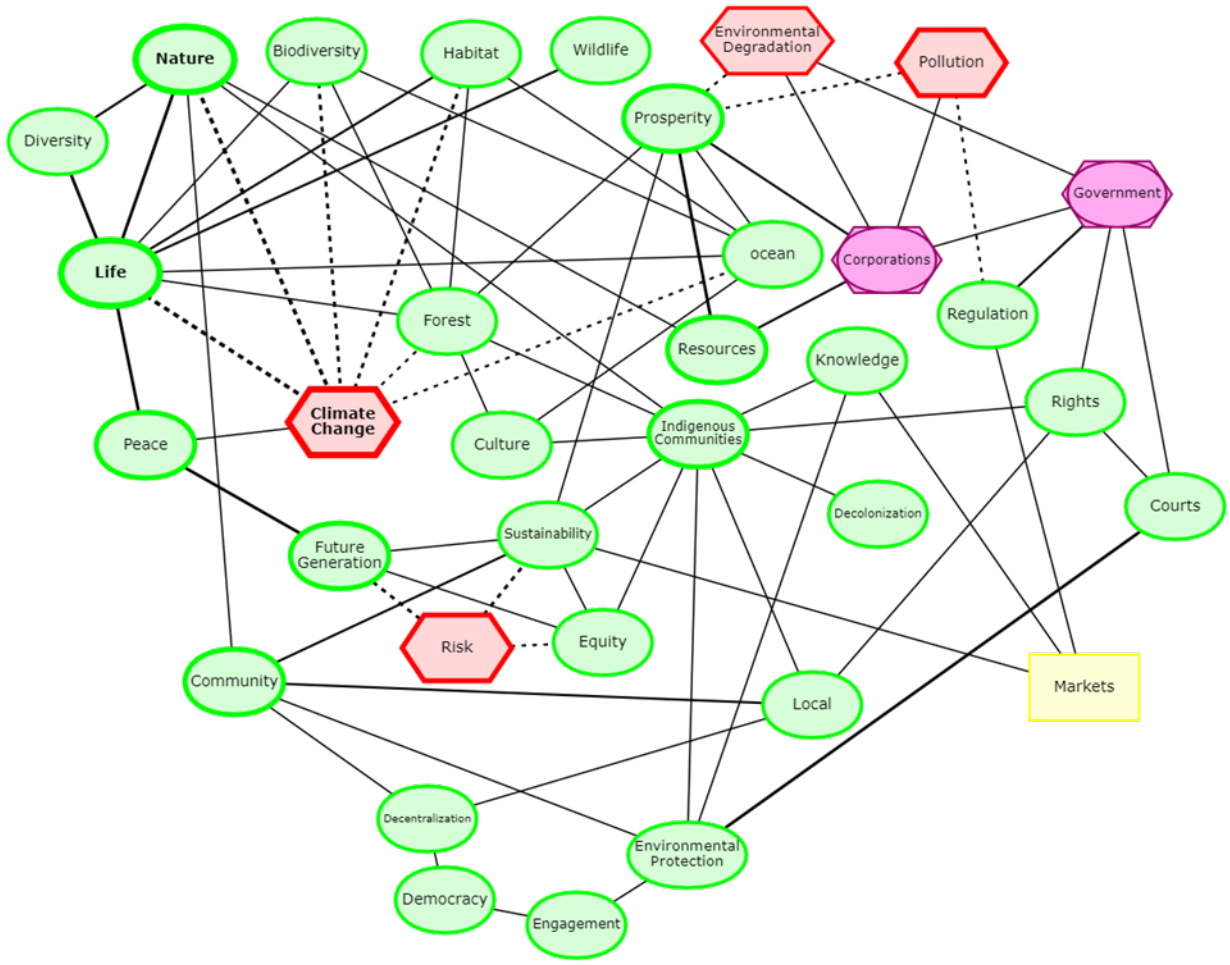
50) The differences between people and groups:
Are small and unimportant - large and essential

Please rank the following issues from most important (could change to urgent) to least urgent (if you do not consider something an important issue you can leave it unranked)

Overpopulation
Protection of the Earth's Oceans
Fresh water resources
Soil erosion
Air Pollution
Biodiversity loss
Habitat loss
Climate change
Ozone depletion
Changes to Biogeochemical cycles <Nitrogen and Phosphorus>

Appendix C: Canadian Environmental Organization's Ideologies

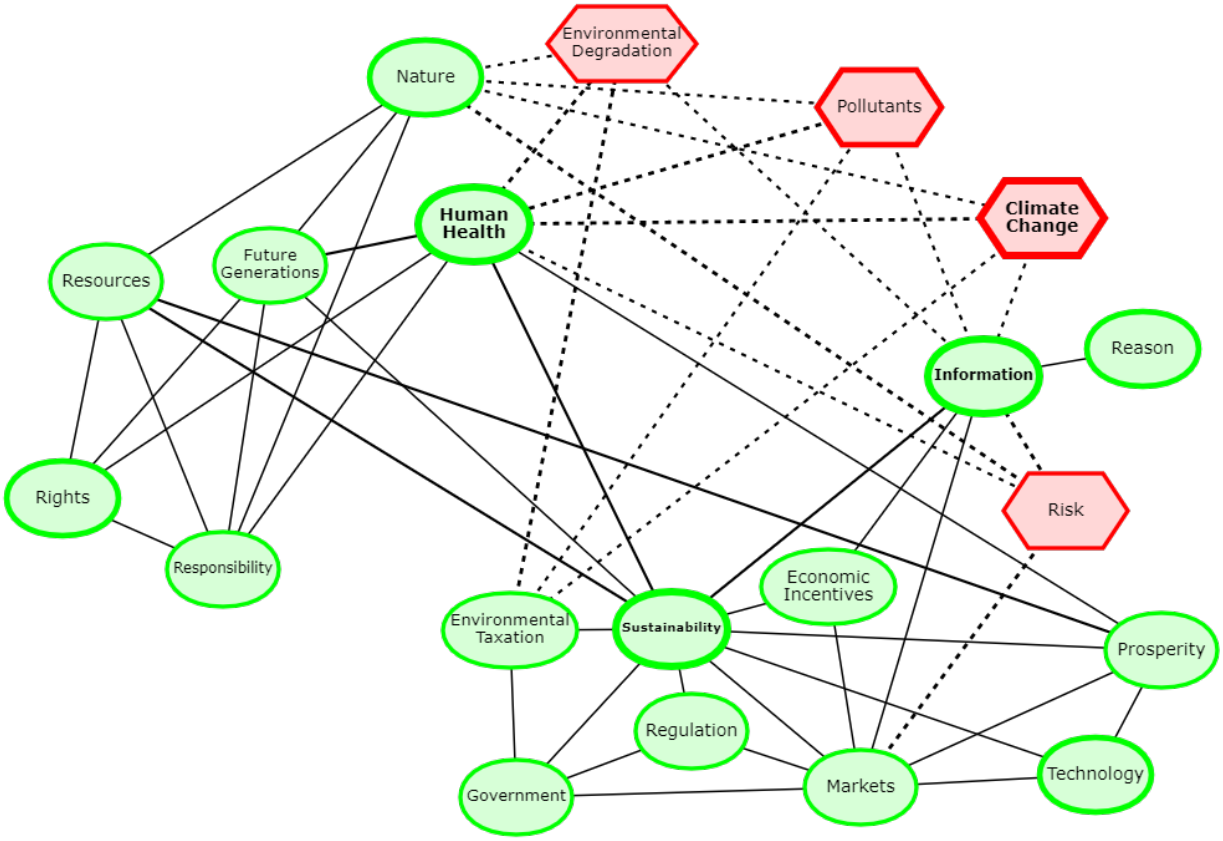
Greenpeace Canada Cognitive Affective Map:



Greenpeace Canada State Space:

		Issue	Question		Belief Strength					
Is	General	Time	Which is more important the future or the past	**Future**	S	M	AMB/NP	M	S	**Past**
		Change	Do things constantly change or basically stay the same?	**Movement , Growth**	S	M	AMB/NP	M	S	**Stasis**
		Intelligibility of Reality	Is the universe understandable?	**Intelligible**	S	M	AMB/NP	M	S	**Unitelligible**
		Spirituality of Reality	Is the universe infused with a spirit	**Material**	S	M	AMB/NP	M	S	**Spiritual**
		Moral Principles	Are moral principles objective and universal	**Subjective, Contextual and Malleable**	S	M	AMB/NP	M	S	**Objective, Universal, and Invioble**
	The Individual	Human Agency	Can a person choose his / her fate?	**Weak**	S	M	AMB/NP	M	S	**Powerful**
		Human Nature	Are people basically benevolent or malevolent?	**Benevolent**	S	M	AMB/NP	M	S	**Malevolent**
		Humans and Nature	Are humans part of Nature or exceptional?	**Humans part of nature / Embedded**	S	M	AMB/NP	M	S	**Humans Exceptional / Separate**
	The Individual in the Group	Social Differentiation	Are the differences between people and / groups of people large and essential?	**Small and unimportant**	S	M	AMB/NP	M	S	**Large and Essential**
		Personal Identity	What is the main source of my identity?	**My Group**	S	M	AMB/NP	M	S	**Myself**
Ought		Personal Responsibility	How far from me does my responsibility extend?	**To Community**	S	M	AMB/NP	M	S	**To Self**
		Power	Is use of power over others usually wrong or often right?	**Usually Wrong**	S	M	AMB/NP	M	S	**Often Right**
		Wealth	Is relative wealth moral or immoral?	**Immoral**	S	M	AMB/NP	M	S	**Moral**
		Cooperation	Do the best results come from cooperation?	**Cooperation**	S	M	AMB/NP	M	S	**Competition**

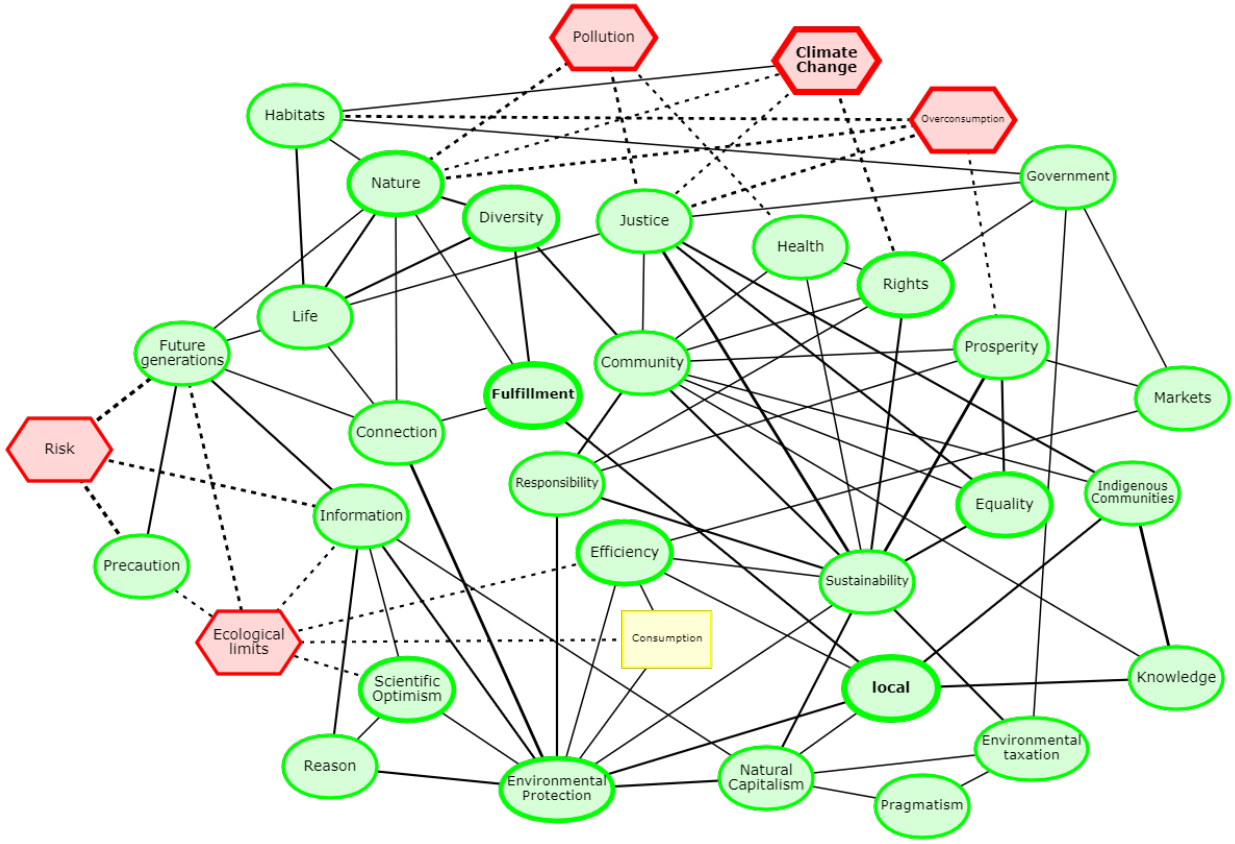
Environmental Defence Canada Cognitive Affective Map:



Environmental Defence Canada State Space:

		Issue	Question		Belief Strength					
Is	General	Time	Which is more important the future or the past	**Future**	S	M	AMB/NP	M	S	**Past**
		Change	Do things constantly change or basically stay the same?	**Movement , Growth**	S	M	AMB/NP	M	S	**Stasis**
		Intelligibility of Reality	Is the universe understandable?	**Intelligible**	S	M	AMB/NP	M	S	**Unitelligible**
		Spirituality of Reality	Is the universe infused with a spirit	**Material**	S	M	AMB/NP	M	S	**Spiritual**
		Moral Principles	Are moral principles objective and universal	**Subjective, Contextual and Malleable**	S	M	AMB/NP	M	S	**Objective, Universal, and Invioble**
	The Individual	Human Agency	Can a person choose his / her fate?	**Weak**	S	M	AMB/NP	M	S	**Powerful**
		Human Nature	Are people basically benevolent or malevolent?	**Benevolent**	S	M	AMB/NP	M	S	**Malevolent**
		Humans and Nature	Are humans part of Nature or exceptional?	**Humans part of nature / Embedded**	S	M	AMB/NP	M	S	**Humans Exceptional / Separate**
	The Individual in the Group	Social Differentiation	Are the differences between people and / groups of people large and essential?	**Small and unimportant**	S	M	AMB/NP	M	S	**Large and Essential**
		Personal Identity	What is the main source of my identity?	**My Group**	S	M	AMB/NP	M	S	**Myself**
Ought		Personal Responsibility	How far from me does my responsibility extend?	**To Community**	S	M	AMB/NP	M	S	**To Self**
		Power	Is use of power over others usually wrong or often right?	**Usually Wrong**	S	M	AMB/NP	M	S	**Often Right**
		Wealth	Is relative wealth moral or immoral?	**Immoral**	S	M	AMB/NP	M	S	**Moral**
		Cooperation	Do the best results come from cooperation?	**Cooperation**	S	M	AMB/NP	M	S	**Competition**

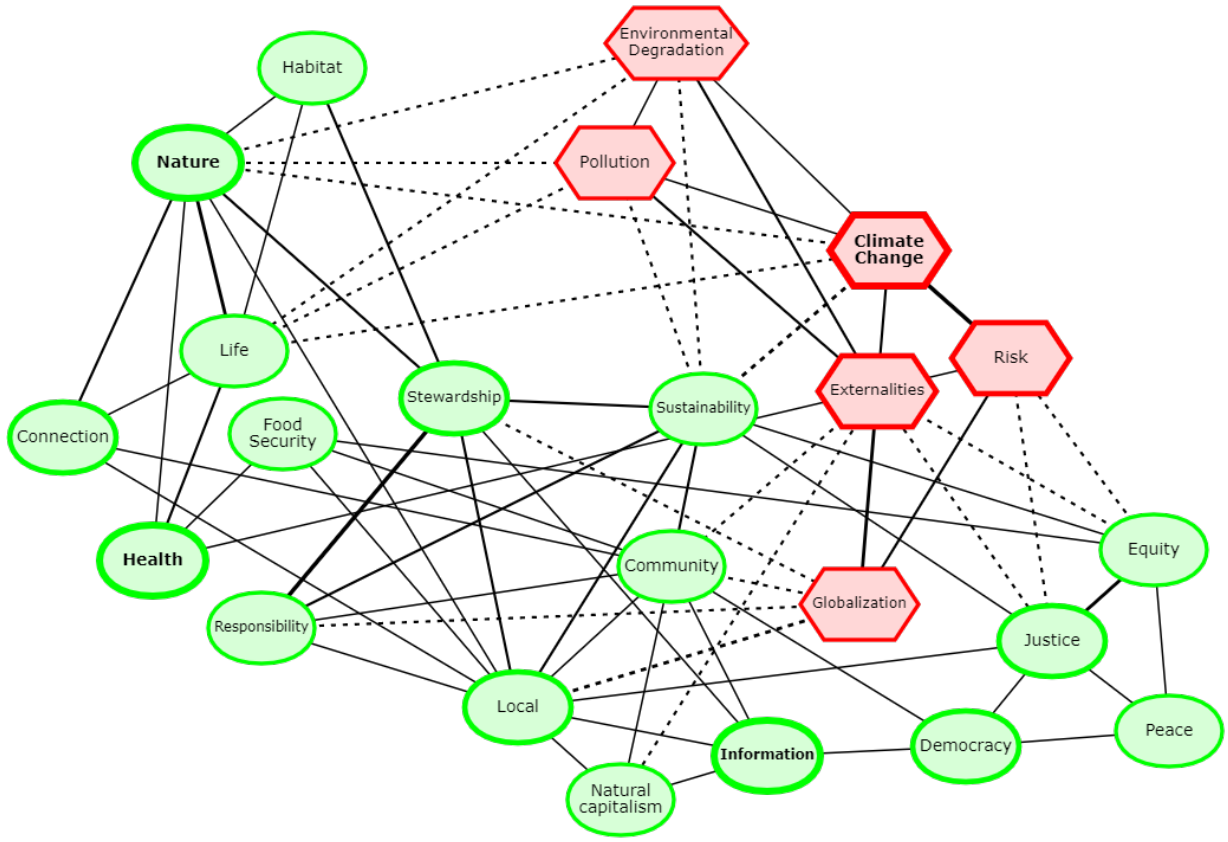
David Suzuki Foundation Cognitive Affective Map:



David Suzuki Foundation Cognitive Affective Map:

		Issue	Question		Belief Strength					
	General	Time	Which is more important the future or the past	**Future**	S	M	AMB/NP	M	S	**Past**
		Change	Do things constantly change or basically stay the same?	**Movement , Growth**	S	M	AMB/NP	M	S	**Stasis**
		Intelligibility of Reality	Is the universe understandable?	**Intelligible**	S	M	AMB/NP	M	S	**Unitelligible**
		Spirituality of Reality	Is the universe infused with a spirit	**Material**	S	M	AMB/NP	M	S	**Spiritual**
		Moral Principles	Are moral principles objective and universal	**Subjective, Contextual and Malleable**	S	M	AMB/NP	M	S	**Objective, Universal, and Invioble**
Is	The Individual	Human Agency	Can a person choose his / her fate?	**Weak**	S	M	AMB/NP	M	S	**Powerful**
		Human Nature	Are people basically benevolent or malevolent?	**Benevolent**	S	M	AMB/NP	M	S	**Malevolent**
		Humans and Nature	Are humans part of Nature or exceptional?	**Humans part of nature / Embedded**	S	M	AMB/NP	M	S	**Humans Exceptional / Separate**
	The Individual in the Group	Social Differentiation	Are the differences between people and / groups of people large and essential?	**Small and unimportant**	S	M	AMB/NP	M	S	**Large and Essential**
		Personal Identity	What is the main source of my identity?	**My Group**	S	M	AMB/NP	M	S	**Myself**
Ought		Personal Responsibility	How far from me does my responsibility extend?	**To Community**	S	M	AMB/NP	M	S	**To Self**
		Power	Is use of power over others usually wrong or often right?	**Usually Wrong**	S	M	AMB/NP	M	S	**Often Right**
		Wealth	Is relative wealth moral or immoral?	**Immoral**	S	M	AMB/NP	M	S	**Moral**
		Cooperation	Do the best results come from cooperation?	**Cooperation**	S	M	AMB/NP	M	S	**Competition**

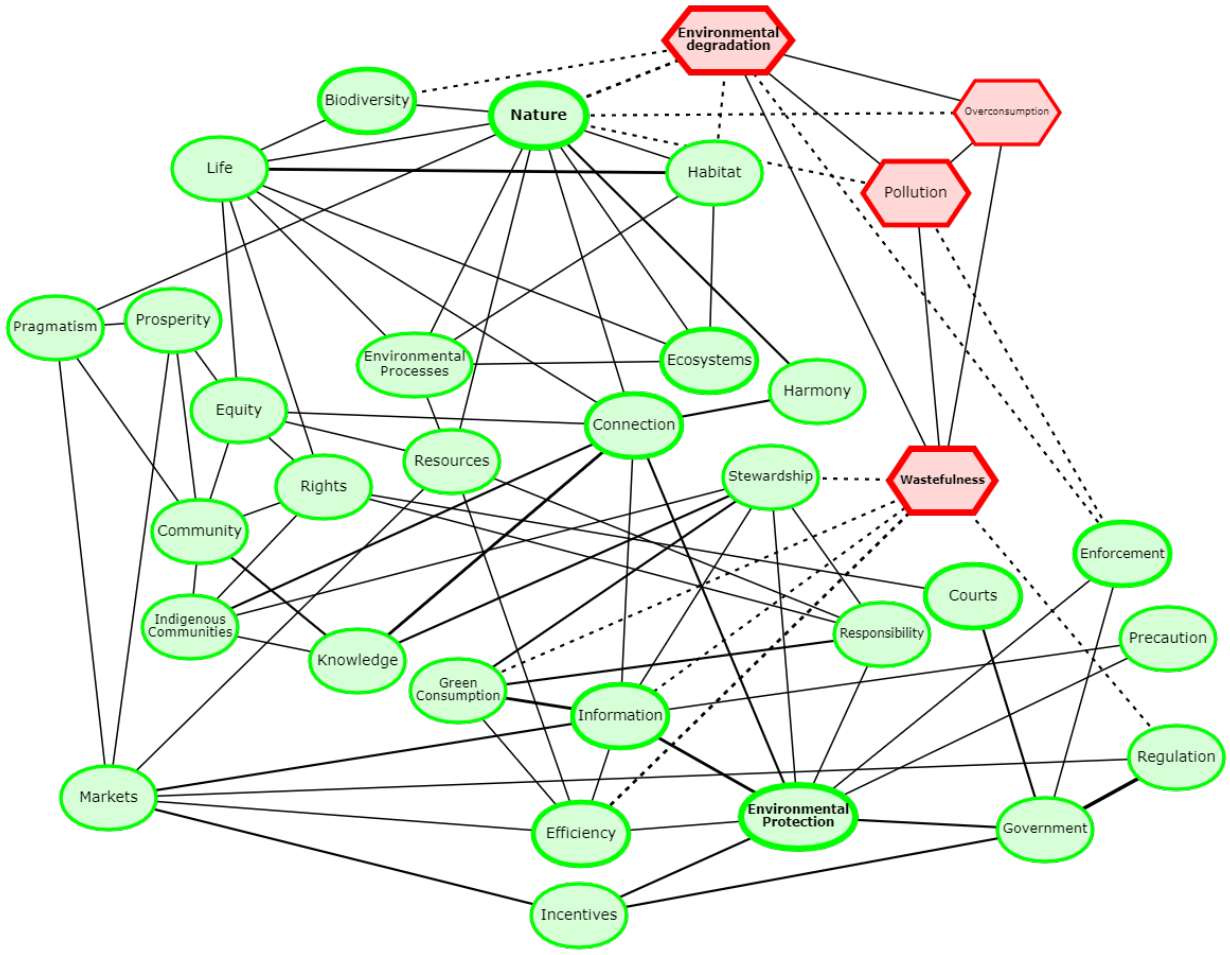
Sierra Club of Canada Cognitive Affective Map:



Sierra Club of Canada State Space:

		Issue	Question		Belief Strength					
Is	General	Time	Which is more important the future or the past	**Future**	S	M	AMB/NP	M	S	**Past**
		Change	Do things constantly change or basically stay the same?	**Movement , Growth**	S	M	AMB/NP	M	S	**Stasis**
		Intelligibility of Reality	Is the universe understandable?	**Intelligible**	S	M	AMB/NP	M	S	**Unitelligible**
		Spirituality of Reality	Is the universe infused with a spirit	**Material**	S	M	AMB/NP	M	S	**Spiritual**
		Moral Principles	Are moral principles objective and universal	**Subjective, Contextual and Malleable**	S	M	AMB/NP	M	S	**Objective, Universal, and Invioble**
	The Individual	Human Agency	Can a person choose his / her fate?	**Weak**	S	M	AMB/NP	M	S	**Powerful**
		Human Nature	Are people basically benevolent or malevolent?	**Benevolent**	S	M	AMB/NP	M	S	**Malevolent**
		Humans and Nature	Are humans part of Nature or exceptional?	**Humans part of nature / Embedded**	S	M	AMB/NP	M	S	**Humans Exceptional / Separate**
	The Individual in the Group	Social Differentiation	Are the differences between people and / groups of people large and essential?	**Small and unimportant**	S	M	AMB/NP	M	S	**Large and Essential**
		Personal Identity	What is the main source of my identity?	**My Group**	S	M	AMB/NP	M	S	**Myself**
Ought		Personal Responsibility	How far from me does my responsibility extend?	**To Community**	S	M	AMB/NP	M	S	**To Self**
		Power	Is use of power over others usually wrong or often right?	**Usually Wrong**	S	M	AMB/NP	M	S	**Often Right**
		Wealth	Is relative wealth moral or immoral?	**Immoral**	S	M	AMB/NP	M	S	**Moral**
		Cooperation	Do the best results come from cooperation?	**Cooperation**	S	M	AMB/NP	M	S	**Competition**

World Wildlife Fund Canada Cognitive Affective Map:



World Wildlife Fund Canada State Space:

		Issue	Question		Belief Strength					
Is	General	Time	Which is more important the future or the past	**Future**	S	M	AMB/NP	M	S	**Past**
		Change	Do things constantly change or basically stay the same?	**Movement , Growth**	S	M	AMB/NP	M	S	**Stasis**
		Intelligibility of Reality	Is the universe understandable?	**Intelligible**	S	M	AMB/NP	M	S	**Unitelligible**
		Spirituality of Reality	Is the universe infused with a spirit	**Material**	S	M	AMB/NP	M	S	**Spiritual**
		Moral Principles	Are moral principles objective and universal	**Subjective, Contextual and Malleable**	S	M	AMB/NP	M	S	**Objective, Universal, and Invioble**
	The Individual	Human Agency	Can a person choose his / her fate?	**Weak**	S	M	AMB/NP	M	S	**Powerful**
		Human Nature	Are people basically benevolent or malevolent?	**Benevolent**	S	M	AMB/NP	M	S	**Malevolent**
		Humans and Nature	Are humans part of Nature or exceptional?	**Humans part of nature / Embedded**	S	M	AMB/NP	M	S	**Humans Exceptional / Separate**
	The Individual in the Group	Social Differentiation	Are the differences between people and / groups of people large and essential?	**Small and unimportant**	S	M	AMB/NP	M	S	**Large and Essential**
		Personal Identity	What is the main source of my identity?	**My Group**	S	M	AMB/NP	M	S	**Myself**
Ought		Personal Responsibility	How far from me does my responsibility extend?	**To Community**	S	M	AMB/NP	M	S	**To Self**
		Power	Is use of power over others usually wrong or often right?	**Usually Wrong**	S	M	AMB/NP	M	S	**Often Right**
		Wealth	Is relative wealth moral or immoral?	**Immoral**	S	M	AMB/NP	M	S	**Moral**
		Cooperation	Do the best results come from cooperation?	**Cooperation**	S	M	AMB/NP	M	S	**Competition**

Appendix D: State Space Comparisons

Social Green:

		Issue	Question		Belief Strength					
Is	General	Time	Which is more important the future or the past	**Future**	S	M	AMB/NP	M	S	**Past**
		Change	Do things constantly change or basically stay the same?	**Movement , Growth**	S	M	AMB/NP	M	S	**Stasis**
		Intelligibility of Reality	Is the universe understandable?	**Intelligible**	S	M	AMB/NP	M	S	**Unitelligible**
		Spirituality of Reality	Is the universe infused with a spirit	**Material**	S	M	AMB/NP	M	S	**Spiritual**
		Moral Principles	Are moral principles objective and universal	**Subjective, Contextual and Malleable**	S	M	AMB/NP	M	S	**Objective, Universal, and Invioble**
	The Individual	Human Agency	Can a person choose his / her fate?	**Weak**	S	M	AMB/NP	M	S	**Powerful**
		Human Nature	Are people basically benevolent or malevolent?	**Benevolent**	S	M	AMB/NP	M	S	**Malevolent**
		Humans and Nature	Are humans part of Nature or exceptional?	**Humans part of nature / Embedded**	S	M	AMB/NP	M	S	**Humans Exceptional / Separate**
	The Individual in the Group	Social Differentiation	Are the differences between people and / groups of people large and essential?	**Small and unimportant**	S	M	AMB/NP	M	S	**Large and Essential**
		Personal Identity	What is the main source of my identity?	**My Group**	S	M	AMB/NP	M	S	**Myself**
Ought		Personal Responsibility	How far from me does my responsibility extend?	**To Community**	S	M	AMB/NP	M	S	**To Self**
		Power	Is use of power over others usually wrong or often right?	**Usually Wrong**	S	M	AMB/NP	M	S	**Often Right**
		Wealth	Is relative wealth moral or immoral?	**Immoral**	S	M	AMB/NP	M	S	**Moral**
		Cooperation	Do the best results come from cooperation?	**Cooperation**	S	M	AMB/NP	M	S	**Competition**

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Bioenvironmentalism:

		Issue	Question		Belief Strength					
Is	General	Time	Which is more important the future or the past	**Future**	S	M	AMB/NP	M	S	**Past**
		Change	Do things constantly change or basically stay the same?	**Movement , Growth**	S	M	AMB/NP	M	S	**Stasis**
		Intelligibility of Reality	Is the universe understandable?	**Intelligible**	S	M	AMB/NP	M	S	**Unitelligible**
		Spirituality of Reality	Is the universe infused with a spirit	**Material**	S	M	AMB/NP	M	S	**Spiritual**
		Moral Principles	Are moral principles objective and universal	**Subjective, Contextual and Malleable**	S	M	AMB/NP	M	S	**Objective, Universal, and Invioble**
	The Individual	Human Agency	Can a person choose his / her fate?	**Weak**	S	M	AMB/NP	M	S	**Powerful**
		Human Nature	Are people basically benevolent or malevolent?	**Benevolent**	S	M	AMB/NP	M	S	**Malevolent**
		Humans and Nature	Are humans part of Nature or exceptional?	**Humans part of nature / Embedded**	S	M	AMB/NP	M	S	**Humans Exceptional / Separate**
	The Individual in the Group	Social Differentiation	Are the differences between people and / groups of people large and essential?	**Small and unimportant**	S	M	AMB/NP	M	S	**Large and Essential**
		Personal Identity	What is the main source of my identity?	**My Group**	S	M	AMB/NP	M	S	**Myself**
Ought		Personal Responsibility	How far from me does my responsibility extend?	**To Community**	S	M	AMB/NP	M	S	**To Self**
		Power	Is use of power over others usually wrong or often right?	**Usually Wrong**	S	M	AMB/NP	M	S	**Often Right**
		Wealth	Is relative wealth moral or immoral?	**Immoral**	S	M	AMB/NP	M	S	**Moral**
		Cooperation	Do the best results come from cooperation?	**Cooperation**	S	M	AMB/NP	M	S	**Competition**

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